

# **1. Background and Purpose**

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The Nitrate Control Program established by the Central Valley Regional Water Quality Control Board (Central Valley Water Board) in the Water Quality Control Plan for the Sacramento and San Joaquin River Basins provides two pathways for compliance for permitted discharges of nitrate to groundwater. Pathway A is for individual permittees and follows a more traditional permitting approach. Pathway B is for permittees proposing to be regulated under a Management Zone. Both Pathways require the development of an Early Action Plan (EAP) defined as a plan that identifies specific activities, and a schedule for implementing those activities, that will be undertaken to ensure immediate access to safe drinking water for those who are dependent on groundwater from wells that exceed the primary maximum contaminant level (MCL) for nitrate (10 mg/L nitrate as nitrogen [N]). While these wells are primarily domestic wells, this EAP also addresses areas where public water supply wells have nitrate levels exceeding the water quality objective.

This EAP is intended to be a bridge until it is superseded by the requirements established in the approved Management Zone Implementation Plan established for this Management Zone.

## **1.1 Early Action Plan Requirements**

An EAP must include the following, unless otherwise approved by the Central Valley Water Board's Executive Officer:

- i. A process to identify affected residents and the outreach utilized to ensure that impacted groundwater users are informed of and given the opportunity to participate in the development of proposed solutions;
- ii. A process for coordinating with others that are not dischargers to address drinking water issues, which must include consideration of coordinating with affected communities, domestic well users and their representatives, the State Water Resources Control Board's (State Water Board) Division of Drinking Water (DDW), Local Planning Departments, Local County Health Officials, Sustainable Groundwater Management Agencies (SGMA) and others as appropriate;
- iii. Specific actions and a schedule of implementation that is as short as practicable to address the immediate drinking water needs of those initially identified within the management zone, or area of contribution for a Path A discharger, that are drinking groundwater that exceeds nitrate standards and that do not otherwise have interim replacement water that meets drinking water standards; and

- iv. A funding mechanism for implementing the Early Action Plan, which may include seeking funding from Management Zone participants, and/or local, state and federal funds that are available for such purposes;

For participants in a Management Zone, the EAP is submitted to the Central Valley Water Board with the submittal of a Preliminary Management Zone Proposal. Implementation of the EAP shall begin as soon as is reasonably feasible, but no later than 60 days after submittal, unless the Central Valley Water Board deems the EAP to be incomplete.

## **1.2 Early Action Plan Framework**

### **1.2.1 Workflow**

**Figure 1-1** provides an overview of the key work elements included in this EAP: Identification of residents potentially impacted by nitrates in their drinking water source (see Section 4), outreach activities to the general public in the Management Zone and identified residents within the area covered by the EAP (see Section 5) and development of temporary alternative drinking water sources (see Section 5). These work elements will be coordinated with non-dischargers within the Management Zone and activities will be documented through monitoring and reporting activities.

### **1.2.2 Area of Applicability**

This EAP applies to the area within Turlock Management Zone boundary where nitrate in the Upper Zone of the underlying groundwater is expected to exceed the nitrate water quality objective (**Figure 1-2** – Figure showing MZ Boundary and area within the boundary to which the EAP applies). Section 2 provides the basis for how this area was determined.

### **1.2.3 Participants**

This EAP will be implemented by all declared participants of the Turlock Management Zone. A participant is an individual discharger subject to Waste Discharge Requirements or dischargers that are part of a third-party group subject to a General Order that have filed a Notice of Intent to the Central Valley Water Board documenting that they have opted to comply with the Nitrate Control Program through Path B, i.e., participation in a Management Zone. The participants of this Management Zone are named in the Preliminary Management Zone Proposal.

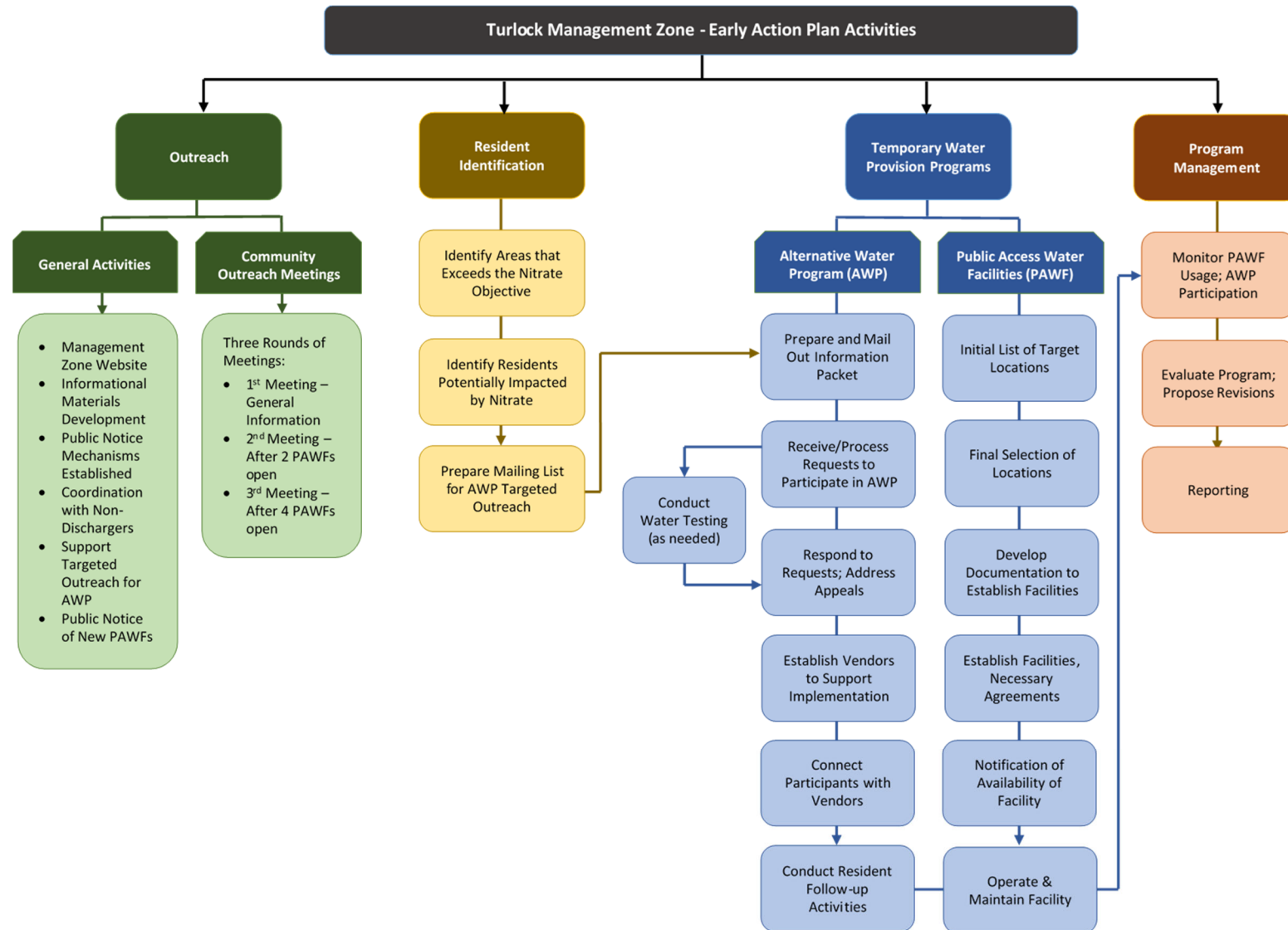


Figure 1-1. Early Action Plan Workflow Activities (AWP – Alternative Water Program; PAWF – Public Access Water Facilities)

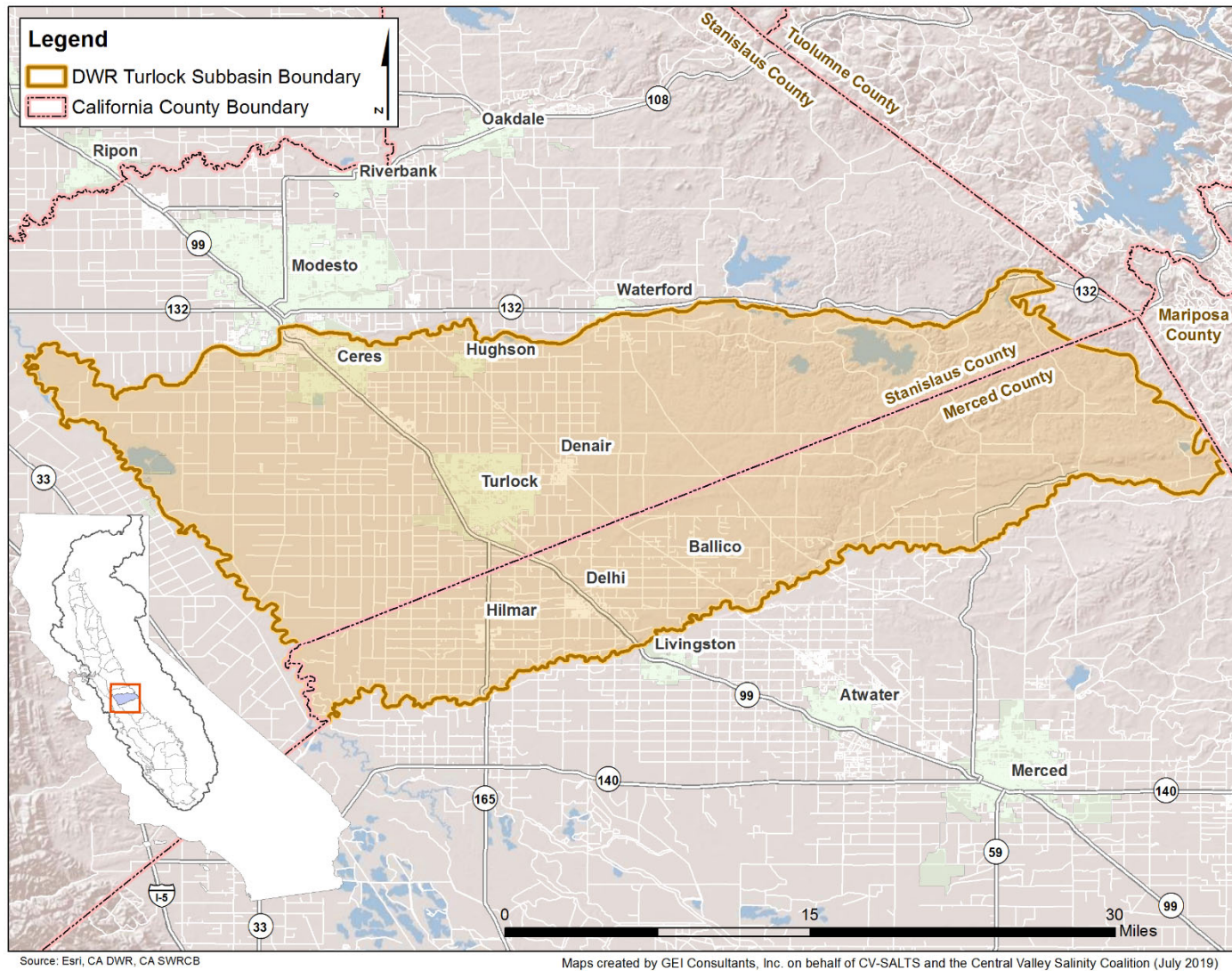


Figure 1-2. Turlock Management Zone Area



### 1.3 Community Outreach to Develop Early Action Plan Approach

*Placeholder - To be developed before EAP finalized, expected content to include:*

- *Process to develop EAP, including stakeholder participation*
- *Community outreach activities to receive public comments*
- *Summary of how community comments were addressed*

### 1.4 Early Action Plan Effective Date

The effective date of this EAP is [within 60 days of submittal date for Preliminary Management Proposal], unless the Central Valley Water Board issues a formal objection. This EAP will remain in effect until it is superseded by the requirements established in the approved Management Zone Implementation Plan established for this Management Zone.

### 1.5 Early Action Plan Review

The Management Zone will annually review the requirements and schedule for the implementation of this EAP. This review will include, but may not be limited to:

- Evaluation of available monitoring data from the temporary water provision program, including information on usage of public access water locations and potential need for additional public facilities.
- Knowledge gained from implementation of the Alternative Water Program.
- Outcomes from ongoing from ongoing public outreach activities.
- Input from Management Zone participants and non-dischargers within the Management Zone area.

The Management Zone will submit any recommended revisions to the EAP to the Executive Officer of the Central Valley Water Board (these recommendations may be submitted by letter or as part of an EAP status report). Unless the Central Valley Water Board objects to the recommended revisions to this EAP, the Management Zone will begin implementation of the revised EAP within 60 days of submittal.

## 2. Identification of Potentially Impacted Groundwater Users

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### 2.1 Nitrate-impacted Areas

To support development of the Turlock Preliminary Management Zone Proposal, nitrate groundwater data were updated using various publicly available sources, including the State Water Board's DDW, Geotracker Groundwater Ambient Monitoring and Assessment (GAMA) data, and the previously developed Central Valley Salinity Alternatives for Long-term Sustainability (CV-SALTS) salt and nitrate database. These data were complemented by data requested from county departments. Groundwater data were categorized into depth zones, following previously developed CV-SALTS best management practices, and wells completed in the Upper Zone of the groundwater aquifer were used to determine recent average ambient nitrate concentrations for data since the year 2000.

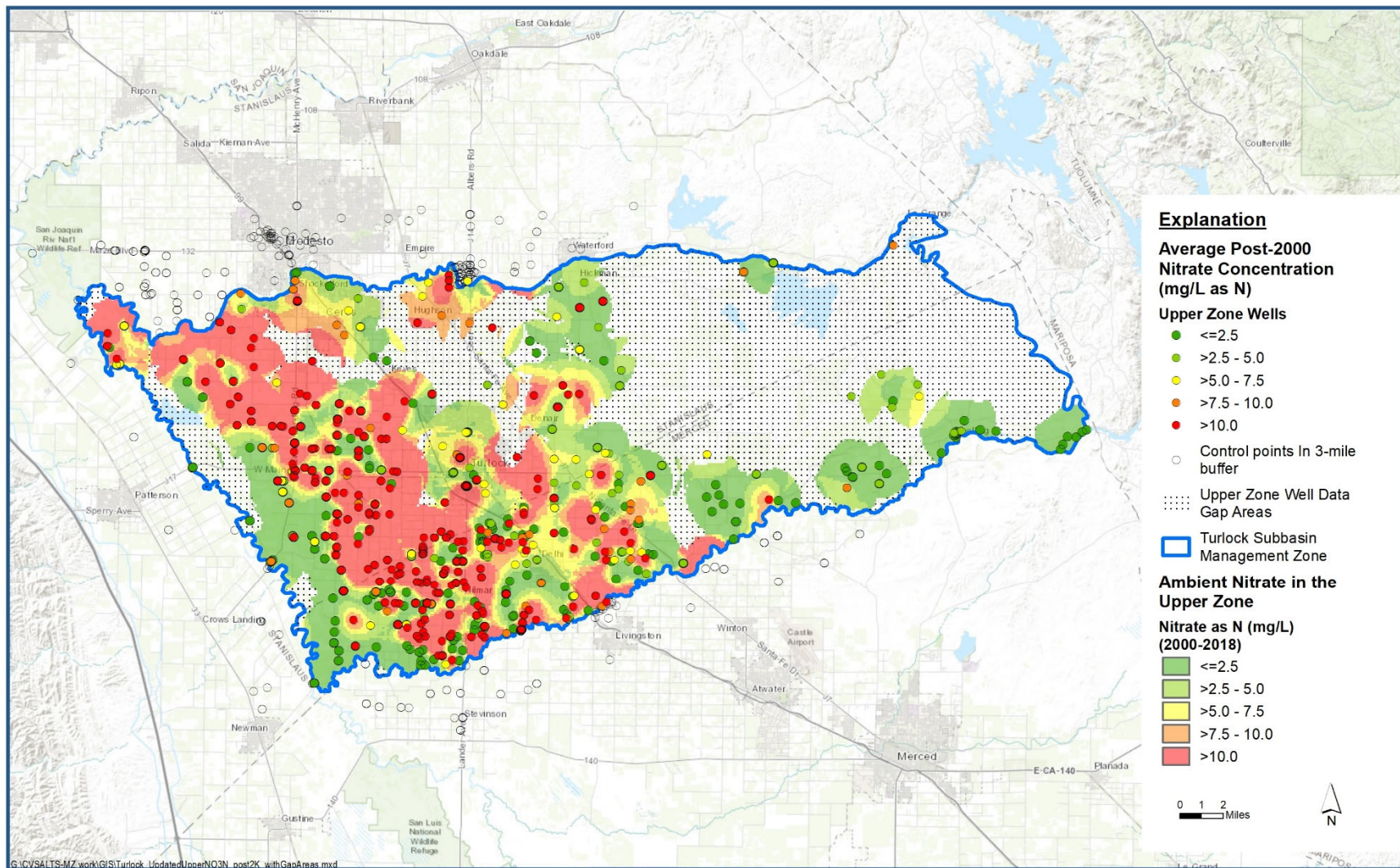
The Upper Zone average nitrate concentrations for wells in the Management Zone were used to produce a geospatial analysis of ambient conditions across the MZ. **Figure 2-1** shows the Turlock Management Zone with the estimated ambient nitrate conditions in the Upper Zone, representing average groundwater quality conditions since 2000. For this Management Zone, groundwater quality data for wells completed in the Upper Zone were sparse in the eastern half of the subbasin; most of the wells completed in the Upper Zone with post-2000 nitrate data were located in the western half of the subbasin.

Using the available nitrate dataset, it is evident that there are several nitrate-impacted areas within the Management Zone, here defined by average recent nitrate concentrations in the Upper Zone exceeding the MCL of 10 mg/L nitrate as N. **Figure 2-1** depicts these nitrate-impacted areas (see Section 3 of the Preliminary Management Zone Proposal for information regarding the development of Figure 2-1). The largest nitrate-impacted area is a north-northwest to south-southeast trending swath of land west of Highway 99 and east of the San Joaquin River. The south-central portion of the Management Zone also contains a nitrate-impacted area, and smaller pockets of nitrate-impacted areas exist in the north-central portion of the Management Zone.

### 2.2 Residential and Other Public Water Supply Sources

#### 2.2.1 *Public Water Systems*

Public Water Systems (PWS) are defined as systems that provide drinking water to: (1) at least 15 households for Community systems; or (2) at least 25 people 60 days or more per year for non-Community systems. Non-Community systems include any facility that provides drinking water, such as churches, rest stops, stores, schools, businesses, etc. (**Table 2-1**).



**Table 2-1. Classification of Drinking Water Systems by Constituency, Connections, and Duration of Service per Year (adapted from Boyle et al. 2012)**

Duration of Service	Connections:		< 5	5 +	< 15	15 +	< 200	200 +
	Persons Served:		< 25			25+		
N/A	Small Water System (SWS) <sup>1</sup>	Classification Defined By	Connections					
< 60 days/year	Local Small Water System (LSWS)		Connections & (persons, duration)					
< 60 days/year	State Small Water System (SSWS)			Connections & (persons, duration)				
≥ 60 days/year	Community Public Water System (PWS) <sup>2</sup>					Connections or (persons, duration)		

<sup>1</sup> Classification as a SWS does not preclude classification as any of the other types. SWS may be regulated by DDW or by LPA county.

<sup>2</sup> A PWS is a system for the provision of water for human consumption that has 15 or more service connections OR regularly serves at least 25 individuals at least 60 days per year.

PWS, which are regulated by DDW, are required to submit water samples of their raw and delivered water for a broad suite of regulated constituents on various schedules that depend on the constituent and the source water context. All PWS data on water quality, source locations, service areas, and historical data are publicly available on the State Water Board website.<sup>1</sup>

### 2.2.2 State Small Water Systems

State Small Water Systems (SSWS) are defined as systems serving at least five but not more than 14 residential households. Mutual Water Companies are frequently classified as a SSWS. Typically, SSWS are regulated by county environmental health departments; regulatory oversight of these systems varies by county. Typically, counties require submission of water quality samples annually (at most) for a smaller set of constituents than monitored by a PWS.

SSWS data are public; however, most counties do not have these data compiled in any easily accessible format. Many counties require a fee for data retrieval for these systems. Typically, the data available include sporadic water quality data for a few constituents, and the original permit for the system. The permit typically includes information on the construction of the water source (well) and the street where service is provided.

### 2.2.3 Local Small Water Systems

Local Small Water Systems (LSWS) include residential systems serving two to four households. Most counties regulate LSWS as if they were simply private wells – that is, they

<sup>1</sup> <https://data.ca.gov/dataset/drinking-water-public-water-system-information>

are unregulated except for the requirements associated with the drilling permit. Typically, no information is available to identify the difference between a single-household well and one used for a LSWs.

## **2.3 Potentially Impacted Public Supply Wells**

### **2.3.1 Public Supply Wells in the Management Zone**

Elevated nitrate concentrations have been found in many PWS wells. The State Water Board's Drinking Water Source and Water Systems identification documentation was downloaded from DDW to understand how many systems have active versus inactive wells that have nitrate (as N) at or exceeding the MCL. This documentation provides a status code for each well, as well as a population served and number of connections for each water system.

Wells with any measurement of raw untreated water having nitrate at or exceeding the MCL were extracted from the database to determine if the wells are considered to be actively providing water to the water system or have been abandoned, destroyed, or inactive. Based on DDW data, 86 public supply wells in the Management Zone have exceeded the MCL for nitrate. Of those, 50 wells are considered "Active" (Active Raw, meaning the groundwater is sampled directly from the well; or Active Untreated, meaning the groundwater is sampled at a point between the well and a treatment system); the remainder are either agricultural/irrigation wells (two wells that belong to the Cities of Modesto and Turlock), abandoned wells (four wells), destroyed wells (10 wells), or inactive wells (20 wells). Using the population served for the water systems that have active wells impacted by nitrate, there are 38 unique water systems with active wells exceeding the MCL, which translates to an estimated population served of 361,120. This is an over estimate of impacted persons, as many PWSs have treatment systems to remove nitrate prior to delivery to consumers.

Active wells that have concentrations at or exceeding the MCL are located mostly within the large nitrate-impacted area in the western and central portion of the Management Zone, including south Modesto, Ceres, Turlock, Keyes, and Delhi (**Figure 2-2**). In some areas of the Management Zone, there are PWSs with no records of active public supply wells that are at or exceeding the nitrate MCL. These areas include: southern border of Waterford, Hickman and Hilmar areas, two Foster Farms areas south of Hickman and east of Turlock, and domestic wells near Monterey Park Tract Community Services District (CSD).

California Department of Water Resources (DWR) summarizes Well Completion Reports (WCRs) by section (one-mile grid throughout the state). Within each section, the locations of the wells are not provided. Figure 2-2 shows randomly generated locations for the domestic drinking water wells in DWR's WCR database within each section in the Management Zone, as well as the service area boundaries of PWSs available in the area. PWS service area boundaries, compiled by the California Environmental Health Tracking Program (CEHTP), are publicly available.



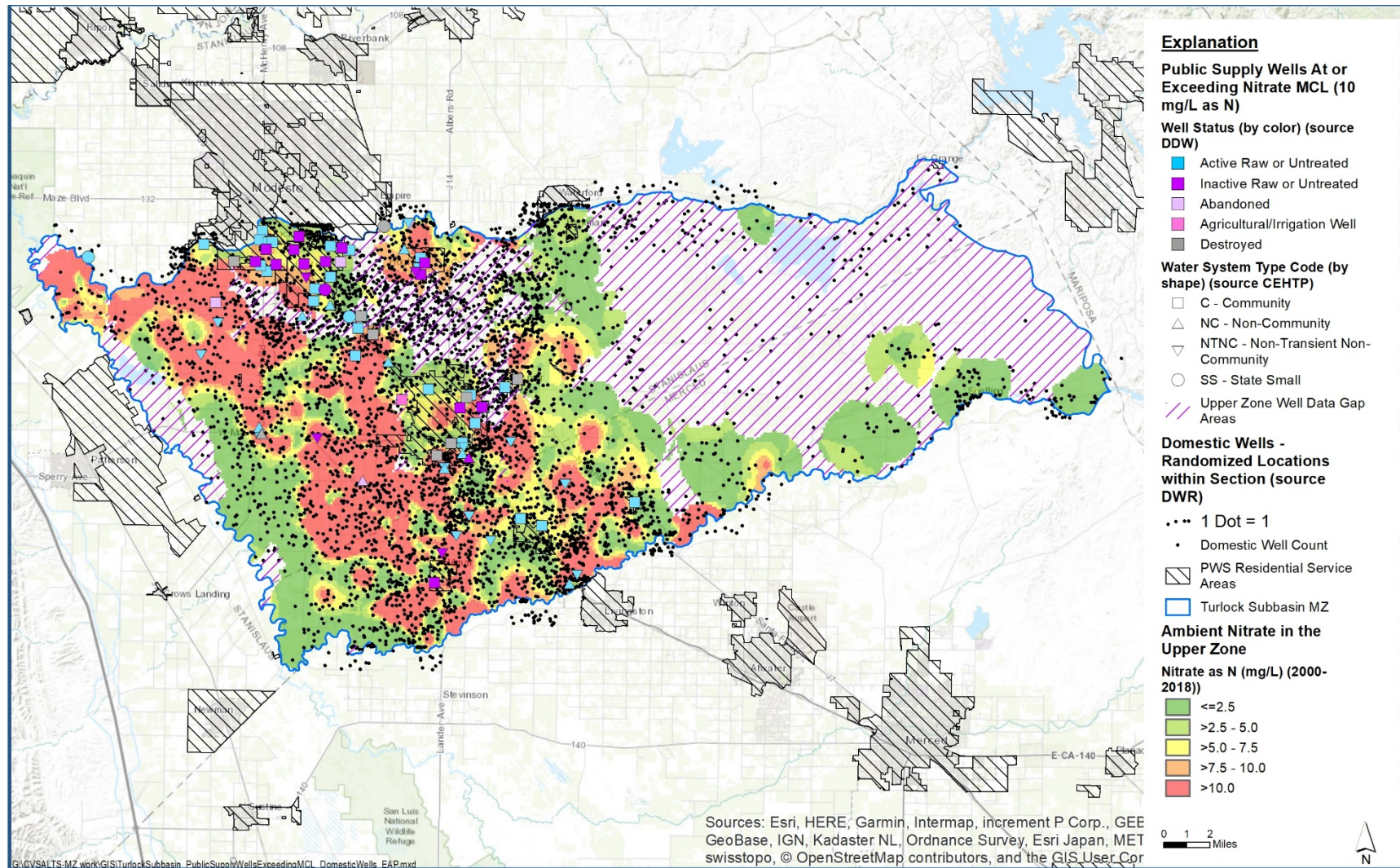


Figure 2-2. Potentially Impacted Public Water Supply Wells and All Domestic Wells, Turlock Management Zone

**Table 2-2** lists the 86 public supply wells from the DDW database that have concentrations at or exceeding the nitrate MCL for the entire period of record. This table provides:

- (a) Summary of the nitrate data available for the individual well, including:
  - i. Date range of measurements;
  - ii. Number of measurements;
  - iii. Range of nitrate measurements; and
  - iv. Date of the most recent nitrate exceedance.
- (b) Well system characteristics, including:
  - i. Well status (active, inactive, etc.);
  - ii. Water system the well provides water to;
  - iii. Water system type (community, non-community, etc.);
  - iv. Number of connections; and
  - v. Population served by that water system.

**Table 2-3** provides the list of 52 unique public water supply systems that have had at least one well where nitrate concentrations are at or exceeding the MCL. This table provides:

- (a) Water system number (as identified by DDW);
- (b) Water system name;
- (c) Water system type;
- (d) Number of connections (which ranges from one to 69,155);
- (e) Number of wells in each well status category that are at or exceeding the nitrate MCL;
- (f) Population served by the PWS; and
- (g) If the PWS has an active impacted well, the population of potentially affected people served by the PWS (based on an estimated total of 361,120 people).

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Table 2-2. Nitrate-Impacted Public Supply Well Summary by Well Status

Well ID	Other Well Name	Date Range	No. of Measure-ments	Min NO <sub>3</sub> N <sup>1</sup>	Max NO <sub>3</sub> N	Most Recent NO <sub>3</sub> at or Exceeding MCL	Well Status <sup>2</sup>	DDW Water System Name	PWS Type <sup>3</sup>	No. of Connections	Population Served
5000080-001	WEST WELL - UNTREATED	9/18/2003 - 9/14/2005	10	15	22	9/14/2005	AB	COUNTRY WESTERN MOBILE HOME PARK	C	60	90
5000470-003	SE. WELL (#2) 25 HP	4/4/2005 - 2/1/2007	10	11	14	2/1/2007	AB	HUGHSON NUT COMPANY WATER SYSTEM	NTNC	1	80
5000482-001	WELL	2/24/2003 - 12/29/2004	5	13	17	12/29/2004	AB	CHEMURGIC AGRICULTURAL CHEMICALS, INC.	NC	7	25
5010028-015	WELL 15 - VALLEY GARDENS - ABANDONED	1/2/1986 - 12/1/1986	4	9.9	10.30 1	11/13/1986	AB	CERES, CITY OF	C	11306	47639
5010010-015	WELL 013 - AGRICULTURAL	4/1/1985 - 10/6/1993	184	1.5	15.45	10/6/1993	AG	MODESTO, CITY OF	C	69155	211903
5010019-021	WELL 21 - AGRICULTURAL	8/28/1986 - 4/3/1997	11	0.225	11	3/16/1994	AG	TURLOCK, CITY OF	C	16691	72050
2400245-001	WELL 1	2/10/2011 - 7/16/2018	20	0.225	31.8	1/4/2018	AR	DELHI KINGDOM HALL	NC	2	352
2400335-001	WELL NO. 1	1/27/2017 - 7/30/2018	9	25	29	7/30/2018	AR	OLIVARES FARMS WATER SYSTEM	NTNC	5	30
2400339-001	WELL NO. 1	6/22/2016 - 8/30/2018	34	0.68	19	8/30/2018	AR	SELECT HARVEST USA	NTNC	2	120
2410006-005	WELL 05 - RAW	3/4/1986 - 4/24/2018	111	0.225	14	12/23/2014	AR	DELHI CWD	C	2333	8625
2410006-014	WELL 09 - INACTIVE	6/23/2004 - 7/30/2015	47	3.6	11	7/30/2015	AR	DELHI CWD	C	2333	8625
5010008-003	WELL 03	5/17/1988 - 8/15/2018	112	0.225	12.9	8/8/2017	AR	HUGHSON, CITY OF	C	1806	6082
5010009-005	WELL NO. 07	10/23/1986 - 8/16/2018	106	0.5	10.1	6/16/2015	AR	KEYES COMMUNITY SERVICES DIST.	C	1482	4805
5010010-031	WELL 029	2/11/1985 - 8/8/2018	428	0.718	33.7	8/8/2018	AR	MODESTO, CITY OF	C	69155	211903
5010010-032	WELL 030	2/11/1985 - 8/8/2018	516	0.296	22	12/11/1995	AR	MODESTO, CITY OF	C	69155	211903
5010010-040	WELL 038	10/16/1985 - 6/13/2018	91	0.225	13	3/14/2018	AR	MODESTO, CITY OF	C	69155	211903
5010010-051	WELL 049	3/31/1987 - 7/11/2018	48	0.66	10.5	6/3/1988	AR	MODESTO, CITY OF	C	69155	211903
5010010-133	WELL 287 - SCHOOL	3/7/1989 - 2/14/2018	61	0.16	12	7/13/1990	AR	MODESTO, CITY OF	C	69155	211903
5010010-135	WELL 223 - ALAMO	3/27/1984 - 8/8/2018	182	0.454	16.7	7/11/2018	AR	MODESTO, CITY OF	C	69155	211903

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5010023-001	WELL 255 - COTTONWOOD	4/26/1985 - 8/22/2018	26	1	12	12/13/1988	AR	CITY OF MODESTO, DE #6, SO. TURLOCK	C	342	1079
2400014-001	WELL-S.W. OF OFFICE/CAFE	1/15/2004 - 3/6/2018	12	0.12	19	2/15/2006	AU	TURLOCK AUCTION YARD, INC.	NTNC	2	170
2400078-001	WELL NO. 1- CLUBHOUSE/POOL AREA	1/15/2003 - 1/24/2017	23	1.5	29	1/24/2017	AU	TURLOCK GOLF & COUNTRY CLUB	NTNC	7	360
2400165-001	WELL 1-S.E. OF OFFICE/SHOP BUILDING	11/5/2002 - 3/21/2018	19	0.225	14.5	4/4/2011	AU	FOSTER FARMS DELHI FEEDMILL COLLIER ROAD	NTNC	1	200
2400167-001	WELL 1-PARK ST. NEAR BROADWAY	1/26/2004 - 7/5/2018	14	4.1	10.2	12/19/2017	AU	BALLICO CSD	C	72	238
5000003-002	SOUTH	11/16/2006 - 8/1/2018	43	2.76	10.1	5/23/2014	AU	LEDBETTER WATER SYSTEM	C	15	48
5000019-003	WELL 03 WEST	1/21/2002 - 8/24/2018	57	0.75	10.1	3/26/2013	AU	RIVERDALE PARK TRACT COMMUNITY SERVICES	C	137	300
5000057-001	EAST WELL	7/8/2004 - 9/6/2018	57	0.77	11	12/20/2012	AU	PATIO VILLAGE MOBILEHOME PARK	C	49	75
5000057-003	WEST WELL	8/4/2003 - 9/6/2018	51	0.7	10.1	12/20/2012	AU	PATIO VILLAGE MOBILEHOME PARK	C	49	75
5000062-001	WELL 01	9/18/2003 - 2/14/2018	30	0.93	12	2/14/2018	AU	SHILOH MOBILE HOME PARK & WATER SYSTEM	SS	1	1
5000109-002	WELL 02	3/17/2005 - 6/20/2018	62	12	16	6/20/2018	AU	CERES UNIFIED/WESTPORT SCHOOL	NTNC	1	450
5000116-001	WELL 01	8/24/2001 - 8/6/2018	75	14.2	54.4	8/6/2018	AU	ROSELAWN HIGH SCHOOL	NTNC	5	223
5000217-001	WELL #1	2/9/2001 - 8/13/2018	75	0.7	15.9	11/19/2013	AU	FAITH HOME TEEN RANCH	C	7	50
5000255-001	WELL 01	9/22/2003 - 7/17/2018	27	0	10.1	4/12/2013	AU	MOUNTAIN VIEW ELEMENTARY SCHOOL	NTNC	8	364
5000307-001	WELL 01	8/23/2002 - 6/26/2013	33	0.88	22.5	2/19/2010	AU	KINGDOM HALL JEHOVAH WITNESS #1923	NC	1	26
5000319-001	WELL 01	11/22/2002 - 8/1/2018	45	2.9	10	8/1/2018	AU	MILLER APARTMENTS	C	1	1
5000323-001	WELL 01	6/11/2004 - 12/20/2012	32	3.3	10.1	6/2/2010	AU	ALMOND TREE	NTNC	2	26



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5000358-001	NORTH	10/28/2003 - 12/7/2005	5	9	10	3/31/2004	AU	DAIRY FARMERS OF AMERICA	NTNC	1	75
5000358-002	SOUTH	10/29/2003 - 9/29/2004	3	8.4	11	9/29/2004	AU	DAIRY FARMERS OF AMERICA	NTNC	1	75
5000371-001	WELL 01	3/1/2002 - 3/28/2011	32	2.51	10.1	3/11/2009	AU	Rhode Road Apartments	SS	8	12
5000378-001	WELL 01	3/18/2004 - 3/5/2010	20	0.225	31.4	3/5/2010	AU	TONY MORRIS / MORRIS DAIRY	NTNC	8	24
5000383-002	BAR WELL	9/13/2004 - 1/18/2011	16	9	14	1/18/2011	AU	TAQUERIA RANCHO ALEGRE	NC	1	26
5000402-001	LPA REPORTED PRIMARY SOURCE	6/7/2002 - 6/4/2018	65	2.28	13	6/4/2018	AU	OUR LADY OF ASSUMPTION CHURCH	NC	1	26
5000434-001	WELL	3/28/2002 - 6/23/2008	28	6.6	17.1	6/23/2008	AU	CERES SPORTS ARENA	NC	10	400
5000443-001	WELL 1 TRUCK STOP	9/29/2004 - 8/3/2018	55	2.98	11	2/5/2016	AU	TRIANGLE TRUCK STOP	NC	2	25
5000454-001	LPA REPORTED PRIMARY SOURCE	1/14/2002 - 7/5/2018	49	1.5	10.1	1/3/2018	AU	PURINA MILLS INC	NTNC	1	25
5000470-002	N. WELL 1 TOASTER	4/4/2005 - 12/4/2014	35	0.225	11	4/18/2008	AU	HUGHSON NUT COMPANY WATER SYSTEM	NTNC	1	80
5000487-001	LPA REPORTED PRIMARY SOURCE	3/28/2003 - 10/23/2014	11	5.08	17	11/5/2009	AU	J & J FARM FRESH PRODUCE & BAKERY	NC	1	25
5000490-002	WEST NEW WELL 02	4/8/2004 - 6/4/2012	59	3.8	21	6/4/2012	AU	MOUNTAIN VIEW CHATOM RECREATION	NC	4	25
5000501-001	LPA REPORTED PRIMARY SOURCE	11/18/2005 - 9/25/2012	16	0.225	11	9/25/2012	AU	RIVER OAKS/KINGDOM HALL	NC	1	300
5010019-014	WELL NO. 14	7/29/1986 - 1/20/2017	70	0.225	11.6	1/20/2017	AU	TURLOCK, CITY OF	C	16691	72050
5010019-020	WELL NO. 20	2/13/1985 - 7/10/2018	92	1.6	15.3	6/20/2012	AU	TURLOCK, CITY OF	C	16691	72050
5010019-032	WELL NO. 32	11/20/1996 - 7/10/2018	113	2.3	11.2	8/3/2015	AU	TURLOCK, CITY OF	C	16691	72050
5010021-007	WELL 07	2/26/1985 - 7/26/2018	45	2.3	10	8/23/2012	AU	DENAIR COMMUNITY SERVICES DISTRICT	C	1294	4860
5010028-016	WELL 16 - MITCHELL & HATCH	1/9/1986 - 7/11/2018	73	0.7	12	9/18/2007	AU	CERES, CITY OF	C	11306	47639



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5010028-021	WELL 21 - ROEDING HGTS - INACTIVE	1/2/1986 - 11/4/2015	96	1.7	10	11/4/2015	AU	CERES, CITY OF	C	11306	47639
5010028-038	WELL NO. 38	1/6/2010 - 4/11/2018	34	6.8	12	4/11/2018	AU	CERES, CITY OF	C	11306	47639
5000044-002	WEST WELL - DESTROYED	5/19/1992 - 5/19/1992	1	12.5	12.5	5/19/1992	DS	PIONEER VILLAGE WATER SYSTEM	SS	12	20
5000382-001	HOUSE WELL	3/27/2003 - 3/30/2004	2	6.8	11	3/30/2004	DS	FARMERS DEN /MARKET	NC	2	26
5000525-001	WELL	8/19/2010 - 12/1/2012	2	4.79	10	8/19/2010	DS	OASIS MARKET	NC	1	25
5010009-003	WELL NO. 05 - DESTROYED	6/27/1984 - 10/28/1992	13	6.39	12	10/28/1992	DS	KEYES COMMUNITY SERVICES DIST.	C	1482	4805
5010009-004	WELL NO. 06 - DESTROYED	11/17/1986 - 7/13/2004	49	4.16	10	11/7/1994	DS	KEYES COMMUNITY SERVICES DIST.	C	1482	4805
5010010-139	WELL 220 - PLUMAS - DESTROYED	4/27/1984 - 7/21/1993	29	6.26	12	7/21/1993	DS	MODESTO, CITY OF	C	69155	211903
5010019-005	WELL 05 - DESTROYED	8/24/1988 - 4/9/1992	10	6.19	10.3	9/13/1989	DS	TURLOCK, CITY OF	C	16691	72050
5010019-018	WELL 18 - DESTROYED	8/28/1986 - 11/9/1994	5	6.1	22	12/2/1986	DS	TURLOCK, CITY OF	C	16691	72050
5010019-025	WELL 25 - DESTROYED	4/18/1990 - 6/13/1990	2	12.9	15.7	6/13/1990	DS	TURLOCK, CITY OF	C	16691	72050
5010021-001	WELL 01 - DESTROYED XCLD	2/26/1985 - 8/18/2005	20	5.38	12	8/18/2005	DS	DENAIR COMMUNITY SERVICES DISTRICT	C	1294	4860
5010008-006	WELL 05 - INACTIVE	7/9/1998 - 8/11/2015	59	0.63	15.2	8/11/2015	IR	HUGHSON, CITY OF	C	1806	6082
5010010-021	WELL 019 - DESTROYED	6/10/1986 - 11/17/1997	15	0.19	10.79	10/6/1997	IR	MODESTO, CITY OF	C	69155	211903
5010010-059	WELL 100 - INACTIVE	2/11/1985 - 5/11/2017	183	0.225	11.4	8/20/2008	IR	MODESTO, CITY OF	C	69155	211903
5010010-138	WELL 214	4/27/1984 - 8/29/2018	161	1.3	11	4/11/2007	IR	MODESTO, CITY OF	C	69155	211903
5010015-001	WELL 19 - LASSEN & DALLAS	4/27/1984 - 4/25/1994	26	5.444	11	4/20/1994	IR	CITY OF MODESTO, EXDE OSTERBERG	C	578	0
5010015-003	WELL 21 - LASSEN & RUTHERFORD	5/24/1985 - 7/21/1993	22	0.225	11	7/21/1993	IR	CITY OF MODESTO, EXDE OSTERBERG	C	578	0

Table 2-2. Nitrate-Impacted Public Supply Well Summary by Well Status

Well ID	Other Well Name	Date Range	No. of Measure-ments	Min NO <sub>3</sub> N <sup>1</sup>	Max NO <sub>3</sub> N	Most Recent NO <sub>3</sub> at or Exceeding MCL	Well Status <sup>2</sup>	DDW Water System Name	PWS Type <sup>3</sup>	No. of Connections	Population Served
5010028-006	WELL 06 - HOLISTER - INACTIVE	1/2/1986 - 9/18/2007	49	1.9	11	9/18/2007	IR	CERES, CITY OF	C	11306	47639
5010028-019	WELL 19 - PARAMOUNT - INACTIVE	1/2/1986 - 9/18/2007	68	1	10	7/11/2007	IR	CERES, CITY OF	C	11306	47639
5010028-025	WELL 25 (BOOTHE ROAD WELL) - INACTIVE	6/18/1996 - 9/7/2011	114	3.43	12	9/7/2011	IR	CERES, CITY OF	C	11306	47639
5010035-002	WELL 306 - INACTIVE	7/15/1992 - 4/27/2009	24	0.225	12	3/24/2009	IR	CITY OF MODESTO, DE EAST TURLOCK	C	38	116
2400170-002	WELL 3-SOUTH WELL - DESTROYED	7/29/2005 - 12/6/2006	8	7.2	16	12/6/2006	IU	HILMAR CHEESE COMPANY	NTNC	1	1000
2410012-002	WELL 02 (TELL) - INACTIVE NO3	2/12/1991 - 7/6/2006	7	1.3	11	7/6/2006	IU	HILMAR COUNTY WATER DISTRICT	C	1570	4850
5000225-001	WELL 01 - INACTIVE	1/14/2002 - 7/21/2017	32	5.06	10.1	10/23/2012	IU	SHASTA MOTEL	NC	1	1
5000268-001	WELL 01 - INACTIVE	4/12/2002 - 6/21/2016	9	14	25.5	6/21/2016	IU	JOHN LORENZO WATER SYSTEM	SS	1	1
5000340-001	WELL 01	10/20/2003 - 9/24/2007	18	6.53	10.6	12/27/2006	IU	CERES INDUSTRIAL PARK	NTNC	12	26
5000415-001	WELL 01 - INACTIVE	11/18/2003 - 12/30/2003	2	16.6	19	12/30/2003	IU	HARP WATER SYSTEM	NTNC	1	1
5000458-001	WELL #1	8/8/2002 - 1/6/2015	8	0.47	14	11/21/2005	IU	ORGANIQ	NTNC	2	36
5010008-001	WELL 01 - INACTIVE	7/25/1984 - 7/5/1988	5	8.3129	12.7	7/5/1988	IU	HUGHSON, CITY OF	C	1806	6082
5010019-024	WELL 24 - INACTIVE	5/11/1988 - 8/9/2018	85	2.7	12.7	9/12/2012	IU	TURLOCK, CITY OF	C	16691	72050
5010028-001	WELL 01 - SYMRNA - INACTIVE	1/2/1986 - 9/8/2010	79	0.225	10.1	4/9/2010	IU	CERES, CITY OF	C	11306	47639

<sup>1</sup> Non-detectable nitrate concentrations are reported as 0.225 mg/L as N.

<sup>2</sup> Well Status: AB = Abandoned; AG = Agricultural/Irrigation Well; AR = Active Raw; AU = Active Untreated; DS = Destroyed; IR = Inactive Raw; IU = Inactive Untreated.

<sup>3</sup> PWS Type: C = Community Water Systems; NC = Non-Community Water Systems; NTNC = Non-Transient Non-Community Water Systems; SS = State Smalls (not PWS, included in PWS database from legacy datasets prior to adoption of new water system classification schema)

Table 2-3. Summary of Public Water Supply Systems that have Nitrate-Impacted Wells

DDW No.	System Name	PWS Type <sup>1</sup>	No. of Connections	No. of Wells in Public Water Supply Systems $\geq$ 10 mg/L NO <sub>3</sub> -N by Well Status						Population Served	Estimated Potentially Affected Population with Active Wells $\geq$ 10 mg/L NO <sub>3</sub> -N
				Active Wells	Agricultural/Irrigation Wells	Abandoned	Destroyed	Inactive Wells	No. of Wells at or Exceeding 10 mg/L NO <sub>3</sub> -N		
2400014	TURLOCK AUCTION YARD, INC.	NTNC	2	1	0	0	0	0	1	170	170
2400078	TURLOCK GOLF & COUNTRY CLUB	NTNC	7	1	0	0	0	0	1	360	360
2400165	FOSTER FARMS DELHI FEEDMILL COLLIER ROAD	NTNC	1	1	0	0	0	0	1	200	200
2400167	BALLICO CSD	C	72	1	0	0	0	0	1	238	238
2400170	HILMAR CHEESE COMPANY	NTNC	1	0	0	0	0	1	1	1000	0
2400245	DELHI KINGDOM HALL	NC	2	1	0	0	0	0	1	352	352
2400335	OLIVARES FARMS WATER SYSTEM	NTNC	5	1	0	0	0	0	1	30	30
2400339	SELECT HARVEST USA	NTNC	2	1	0	0	0	0	1	120	120
2410006	DELHI CWD	C	2333	2	0	0	0	0	2	8625	8625
2410012	HILMAR COUNTY WATER DISTRICT	C	1570	0	0	0	0	1	1	4850	0
5000003	LEDBETTER WATER SYSTEM	C	15	1	0	0	0	0	1	48	48
5000019	RIVERDALE PARK TRACT COMMUNITY SERVICES	C	137	1	0	0	0	0	1	300	300
5000044	PIONEER VILLAGE WATER SYSTEM	SS	12	0	0	0	1	0	1	20	0
5000057	PATIO VILLAGE MOBILEHOME PARK	C	49	2	0	0	0	0	2	75	75
5000062	SHILOH MOBILE HOME PARK & WATER SYSTEM	SS	1	1	0	0	0	0	1	1	1
5000080	COUNTRY WESTERN MOBILE HOME PARK	C	60	0	0	1	0	0	1	90	0
5000109	CERES UNIFIED/WESTPORT SCHOOL	NTNC	1	1	0	0	0	0	1	450	450

Table 2-3. Summary of Public Water Supply Systems that have Nitrate-Impacted Wells

DDW No.	System Name	PWS Type <sup>1</sup>	No. of Connections	No. of Wells in Public Water Supply Systems $\geq$ 10 mg/L NO <sub>3</sub> -N by Well Status						Population Served	Estimated Potentially Affected Population with Active Wells $\geq$ 10 mg/L NO <sub>3</sub> -N
				Active Wells	Agricultural/Irrigation Wells	Abandoned	Destroyed	Inactive Wells	No. of Wells at or Exceeding 10 mg/L NO <sub>3</sub> -N		
5000116	ROSELAWN HIGH SCHOOL	NTNC	5	1	0	0	0	0	1	223	223
5000217	FAITH HOME TEEN RANCH	C	7	1	0	0	0	0	1	50	50
5000225	SHASTA MOTEL	NC	1	0	0	0	0	1	1	1	0
5000255	MOUNTAIN VIEW ELEMENTARY SCHOOL	NTNC	8	1	0	0	0	0	1	364	364
5000268	JOHN LORENZO WATER SYSTEM	SS	1	0	0	0	0	1	1	1	0
5000307	KINGDOM HALL JEHOVAH WITNESS #1923	NC	1	1	0	0	0	0	1	26	26
5000319	MILLER APARTMENTS	C	1	1	0	0	0	0	1	1	1
5000323	ALMOND TREE	NTNC	2	1	0	0	0	0	1	26	26
5000340	CERES INDUSTRIAL PARK	NTNC	12	0	0	0	0	1	1	26	0
5000358	DAIRY FARMERS OF AMERICA	NTNC	1	2	0	0	0	0	2	75	75
5000371	Rhode Road Apartments	SS	8	1	0	0	0	0	1	12	12
5000378	TONY MORRIS / MORRIS DAIRY	NTNC	8	1	0	0	0	0	1	24	24
5000382	FARMERS DEN /MARKET	NC	2	0	0	0	1	0	1	26	0
5000383	TAQUERIA RANCHO ALEGRE	NC	1	1	0	0	0	0	1	26	26
5000402	OUR LADY OF ASSUMPTION CHURCH	NC	1	1	0	0	0	0	1	26	26
5000415	HARP WATER SYSTEM	NTNC	1	0	0	0	0	1	1	1	0
5000434	CERES SPORTS ARENA	NC	10	1	0	0	0	0	1	400	400
5000443	TRIANGLE TRUCK STOP	NC	2	1	0	0	0	0	1	25	25

Table 2-3. Summary of Public Water Supply Systems that have Nitrate-Impacted Wells

DDW No.	System Name	PWS Type <sup>1</sup>	No. of Connections	No. of Wells in Public Water Supply Systems ≥ 10 mg/L NO <sub>3</sub> -N by Well Status						Population Served	Estimated Potentially Affected Population with Active Wells ≥ 10 mg/L NO <sub>3</sub> -N
				Active Wells	Agricultural/Irrigation Wells	Abandoned	Destroyed	Inactive Wells	No. of Wells at or Exceeding 10 mg/L NO <sub>3</sub> -N		
5000454	PURINA MILLS INC	NTNC	1	1	0	0	0	0	1	25	25
5000458	ORGANIQ	NTNC	2	0	0	0	0	1	1	36	0
5000470	HUGHSON NUT COMPANY WATER SYSTEM	NTNC	1	1	0	1	0	0	2	80	80
5000482	CHEMURGIC AGRICULTURAL CHEMICALS, INC.	NC	7	0	0	1	0	0	1	25	0
5000487	J & J FARM FRESH PRODUCE & BAKERY	NC	1	1	0	0	0	0	1	25	25
5000490	MOUNTAIN VIEW CHATOM RECREATION	NC	4	1	0	0	0	0	1	25	25
5000501	RIVER OAKS/KINGDOM HALL	NC	1	1	0	0	0	0	1	300	300
5000525	OASIS MARKET	NC	1	0	0	0	1	0	1	25	0
5010008	HUGHSON, CITY OF	C	1806	1	0	0	0	2	3	6082	6082
5010009	KEYES COMMUNITY SERVICES DIST.	C	1482	1	0	0	2	0	3	4805	4805
5010010	MODESTO, CITY OF	C	69155	6	1	0	1	3	11	211903	211903
5010015	CITY OF MODESTO, EXDE OSTERBERG	C	578	0	0	0	0	2	2	0	0
5010019	TURLOCK, CITY OF	C	16691	3	1	0	3	1	8	72050	72050
5010021	DENAIR COMMUNITY SERVICES DISTRICT	C	1294	1	0	0	1	0	2	4860	4860
5010023	CITY OF MODESTO, DE #6, SO. TURLOCK	C	342	1	0	0	0	0	1	1079	1079
5010028	CERES, CITY OF	C	11306	3	0	1	0	4	8	47639	47639
5010035	CITY OF MODESTO, DE EAST TURLOCK	C	38	0	0	0	0	1	1	116	0



### 2.3.2 Public Water System Delivered Water Treatment Status

Although there are many active wells that have been tested for nitrate with results indicating nitrate concentrations are at or exceeding the MCL of 10 mg/L as N, many PWSs have treatment facilities to remove nitrate prior to the water being delivered to consumers. Using the best information readily available, it is possible to find DDW sources of water for PWS that are categorized as “treated”. This includes the following potential DDW-defined well status categories:

- *AT – Active Treated:* An active source which is sampled after any treatment.
- *CT – Combined Treated:* Combined sources which are treated.
- *DT – Distribution System Sample Point, Treated:* Sample point within the distribution system after treatment.
- *IT – Inactive Treated:* A source which is not in service for periods of one year or greater and which provides treated water to a system.
- *ST – Standby Treated:* A source which is used less than 15 calendar days per year, with periods not to exceed five consecutive days and which provides raw water which is sampled after treatment.

Just because a water system has a treated source, this does not necessarily mean that the water system treats its water for nitrate (a treated source may mean chlorination prior to being distributed, or possible treatment for other contaminants such as organic chemicals). PWS typically treat elevated nitrate by using blending, reverse osmosis (RO; membrane technology), ion exchange (IX), or biological or chemical nitrate removal via denitrification (less common). Out of the 52 unique PWS with potentially impacted water supply wells: (a) 22 have some form of water treatment, as gleaned from the DDW database of sources with one or more of the well statuses listed above; (b) 11 water systems provide nitrate sample results from their treated sources; and (c) eight water systems name the method that pertains to nitrate treatment (blending, RO, IX, etc.) in the source name reported to DDW. Out of the 11 water systems that provide nitrate sample results from treated sources, four of those water systems had nitrate samples from treated sources that still exceeded the nitrate MCL (greater than 10 mg/L as N).

**Table 2-4** summarizes the water system treatment information that is available from DDW. **Figure 2-3** shows the Management Zone and the public supply wells that have met or exceeded the nitrate MCL, but it circles the water systems that have treated water sources (according to well status data from DDW). The color of the circle indicates whether the water system has had a nitrate sample from a treated source that exceeds the MCL (greater than 10 mg/L as N). If nitrate treatment was indicated in the DDW source name, the treatment method is listed on the map as well

**Table 2-4 Treatment of Water Systems with Nitrate-Impacted Wells (Shaded cells indicate past exceedance)**

DDW No.	System Name	PWS Type	No. of Connections	Population Served	Has A Treated Water Source Filed with DDW?	Treatment Pertaining to Nitrate Mentioned in Source Name	Has Nitrate Samples from Treated Source(s) filed with DDW?	Has Treated Sources with Nitrate Exceeding MCL (>10 mg/L as N)	Most Recent Exceedance for a Treated Source
2400014	TURLOCK AUCTION YARD, INC.	NTNC	2	170	-	-	-	-	-
2400078	TURLOCK GOLF & COUNTRY CLUB	NTNC	7	360	Y	-	-	-	-
2400165	FOSTER FARMS DELHI FEEDMILL COLLIER ROAD	NTNC	1	200	Y	Reverse Osmosis	Y		-
2400167	BALLICO CSD	C	72	238	-	-	-	-	-
2400170	HILMAR CHEESE COMPANY	NTNC	1	1000	Y	Blending	Y	Y	9/6/2007
2400245	DELHI KINGDOM HALL	NC	2	352	Y	-	Y	-	-
2400335	OLIVARES FARMS WATER SYSTEM	NTNC	5	30	Y	-	-	-	-
2400339	SELECT HARVEST USA	NTNC	2	120	Y	Ion Exchange	Y	-	-
2410006	DELHI CWD	C	2333	8625	Y	-		-	-
2410012	HILMAR COUNTY WATER DISTRICT	C	1570	4850	Y	Blending	Y	-	-
5000003	LEDBETTER WATER SYSTEM	C	15	48	-	-	-	-	-
5000019	RIVERDALE PARK TRACT COMMUNITY SERVICES	C	137	300	Y	-	-	-	-
5000044	PIONEER VILLAGE WATER SYSTEM	SS	12	20	-	-	-	-	-
5000057	PATIO VILLAGE MOBILEHOME PARK	C	49	75	-	-	-	-	-
5000062	SHILOH MOBILE HOME PARK & WATER SYSTEM	SS	1	1	-	-	-	-	-
5000080	COUNTRY WESTERN MOBILE HOME PARK	C	60	90	Y	-	-	-	-
5000109	CERES UNIFIED/WESTPORT SCHOOL	NTNC	1	450	Y	Unknown Nitrate Treatment	Y	-	-
5000116	ROSELAWN HIGH SCHOOL	NTNC	5	223	Y	Unknown Nitrate Treatment	Y	-	-
5000217	FAITH HOME TEEN RANCH	C	7	50	Y	-	-	-	-
5000225	SHASTA MOTEL	NC	1	1	-	-	-	-	-
5000255	MOUNTAIN VIEW ELEMENTARY SCHOOL	NTNC	8	364	-	-	-	-	-

Table 2-4 Treatment of Water Systems with Nitrate-Impacted Wells (Shaded cells indicate past exceedance)

DDW No.	System Name	PWS Type	No. of Connections	Population Served	Has A Treated Water Source Filed with DDW?	Treatment Pertaining to Nitrate Mentioned in Source Name	Has Nitrate Samples from Treated Source(s) filed with DDW?	Has Treated Sources with Nitrate Exceeding MCL (>10 mg/L as N)	Most Recent Exceedance for a Treated Source
5000268	JOHN LORENZO WATER SYSTEM	SS	1	1	-	-	-	-	-
5000307	KINGDOM HALL JEHOVAH WITNESS #1923	NC	1	26	Y	-	Y	Y	6/3/2008
5000319	MILLER APARTMENTS	C	1	1	-	-	-	-	-
5000323	ALMOND TREE	NTNC	2	26	-	-	-	-	-
5000340	CERES INDUSTRIAL PARK	NTNC	12	26	-	-	-	-	-
5000358	DAIRY FARMERS OF AMERICA	NTNC	1	75	-	-	-	-	-
5000371	Rhode Road Apartments	SS	8	12	-	-	-	-	-
5000378	TONY MORRIS / MORRIS DAIRY	NTNC	8	24	-	-	-	-	-
5000382	FARMERS DEN /MARKET	NC	2	26	-	-	-	-	-
5000383	TAQUERIA RANCHO ALEGRE	NC	1	26	-	-	-	-	-
5000402	OUR LADY OF ASSUMPTION CHURCH	NC	1	26	-	-	-	-	-
5000415	HARP WATER SYSTEM	NTNC	1	1	-	-	-	-	-
5000434	CERES SPORTS ARENA	NC	10	400	-	-	-	-	-
5000443	TRIANGLE TRUCK STOP	NC	2	25	-	-	-	-	-
5000454	PURINA MILLS INC	NTNC	1	25	-	-	-	-	-
5000458	ORGANIQ	NTNC	2	36	-	-	-	-	-
5000470	HUGHSON NUT COMPANY WATER SYSTEM	NTNC	1	80	-	-	-	-	-
5000482	CHEMURGIC AGRICULTURAL CHEMICALS, INC.	NC	7	25	-	-	-	-	-
5000487	J & J FARM FRESH PRODUCE & BAKERY	NC	1	25	-	-	-	-	-
5000490	MOUNTAIN VIEW CHATOM RECREATION	NC	4	25	-	-	-	-	-
5000501	RIVER OAKS/KINGDOM HALL	NC	1	300	-	-	-	-	-
5000525	OASIS MARKET	NC	1	25	-	-	-	-	-

**Table 2-4 Treatment of Water Systems with Nitrate-Impacted Wells (Shaded cells indicate past exceedance)**

DDW No.	System Name	PWS Type	No. of Connections	Population Served	Has A Treated Water Source Filed with DDW?	Treatment Pertaining to Nitrate Mentioned in Source Name	Has Nitrate Samples from Treated Source(s) filed with DDW?	Has Treated Sources with Nitrate Exceeding MCL (>10 mg/L as N)	Most Recent Exceedance for a Treated Source
5010008	HUGHSON, CITY OF	C	1806	6082	Y	-	-	-	-
5010009	KEYES COMMUNITY SERVICES DIST.	C	1482	4805	Y	-	-	-	-
5010010	MODESTO, CITY OF	C	69155	211903	Y	Ion Exchange, Blending	Y	Y	10/19/2016
5010015	CITY OF MODESTO, EXDE OSTERBERG	C	578	0	Y	-	-	-	-
5010019	TURLOCK, CITY OF	C	16691	72050	Y	-	Y	-	-
5010021	DENAIR COMMUNITY SERVICES DISTRICT	C	1294	4860	-	-	-	-	-
5010023	CITY OF MODESTO, DE #6, SO. TURLOCK	C	342	1079	Y	-	-	-	-
5010028	CERES, CITY OF	C	11306	47639	Y	Blending	Y	Y	5/29/2007
5010035	CITY OF MODESTO, DE EAST TURLOCK	C	38	116	Y	-	-	-	-

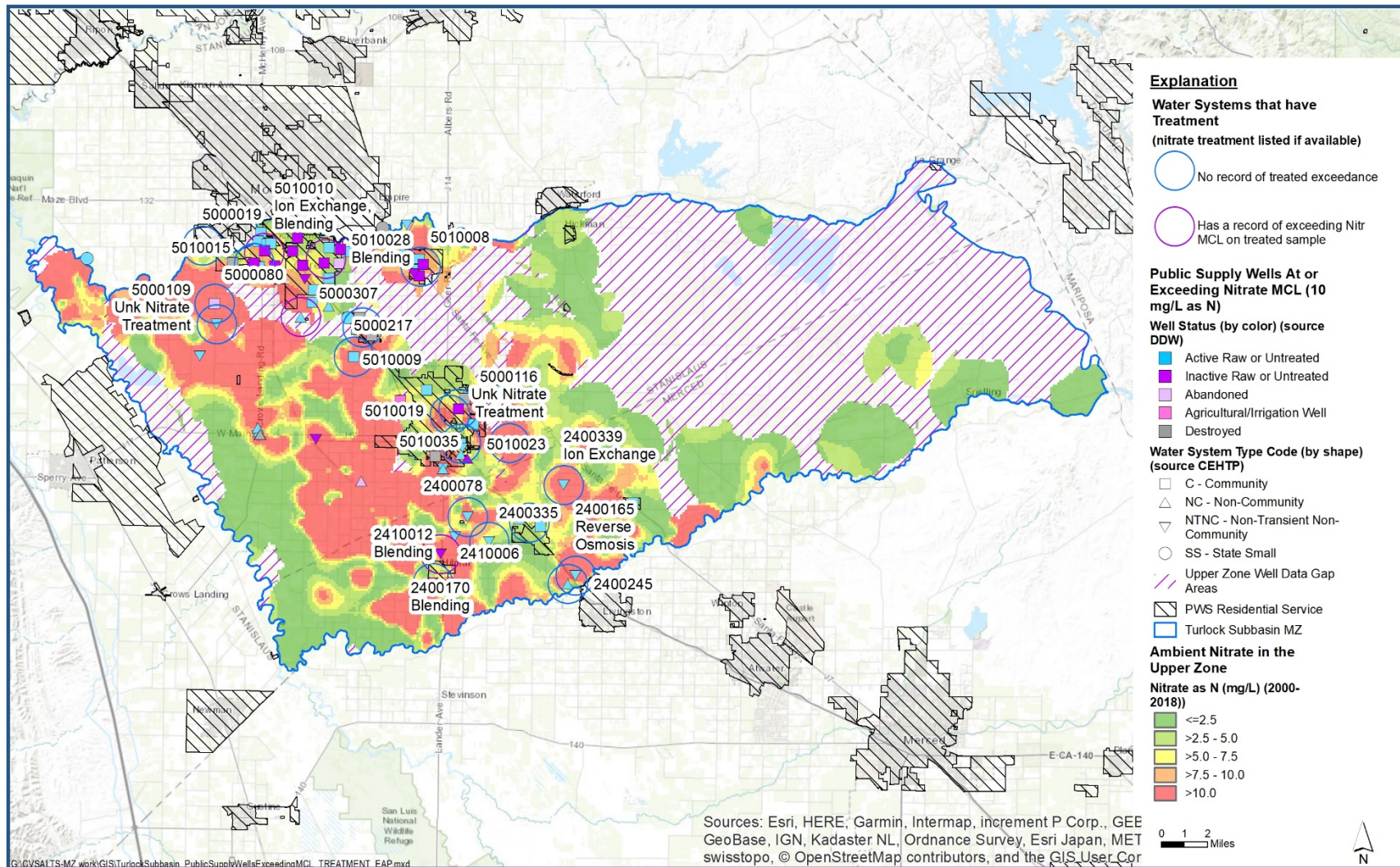


Figure 2-3. Treatment Status for Water Systems that have Wells with Nitrate-Impacted Samples



## 2.4 Potentially Impacted Domestic Wells

**Figure 2-4** illustrates the locations of potentially impacted domestic wells and areas of elevated nitrate (7.5 mg/L to 10 mg/L NO<sub>3</sub>-N, and > 10 mg/L NO<sub>3</sub>-N). These areas were used along with DWR spatial coverage of domestic well counts compiled for each township/range-section. DWR provides the number of domestic wells in these one-mile by one-mile sections, based on the WCR records. It was assumed that any domestic wells within the boundaries of a PWS would not be used for drinking and were removed from the estimation of the number of potentially impacted domestic wells. There are approximately 1,898 domestic wells within the PWS residential service areas (based on DWR's section location assignment in the WCR records). It is unknown whether any of these wells are still being used even though they are potentially in a PWS area.

To estimate the number of wells potentially impacted by elevated nitrate, domestic wells were placed into six groups:

- *Group 1* - Groundwater in the Upper Zone with nitrate as N at or below 2.5 mg/L as N;
- *Group 2* - Groundwater in the Upper Zone with nitrate as N above 2.5 mg/L as N and at or below 5.0 mg/L as N;
- *Group 3* - Groundwater in the Upper Zone with nitrate as N above 5.0 mg/L as N and at or below 7.5 mg/L as N;
- *Group 4* - Groundwater in the Upper Zone with nitrate as N above 7.5 and at or below the MCL of 10 mg/L;
- *Group 5* - Nitrate as N exceeding the MCL in the Upper Zone; and
- *Group 6* - Unknown category because the domestic well(s) are located where insufficient nitrate data exist in the Upper Zone to perform the spatial interpolation of ambient nitrate conditions.

The total number of wells outside PWS boundaries was compared to the number of wells in each elevated nitrate category to provide an estimate of the percent of domestic wells potentially impacted by elevated nitrate in the groundwater. **Table 2-4** summarizes the results of this analysis.

To estimate the population potentially impacted by elevated nitrate in domestic wells, 2010 census block data were mapped and joined with the ambient Upper Zone nitrate concentrations occurring outside of PWS boundaries. The population was summed for all census blocks outside PWS boundaries and within the Management Zone for those areas with nitrate concentrations in the Upper Zone (using the six categories of nitrate concentration described above). Table 2-4 summarizes the results of this analysis.

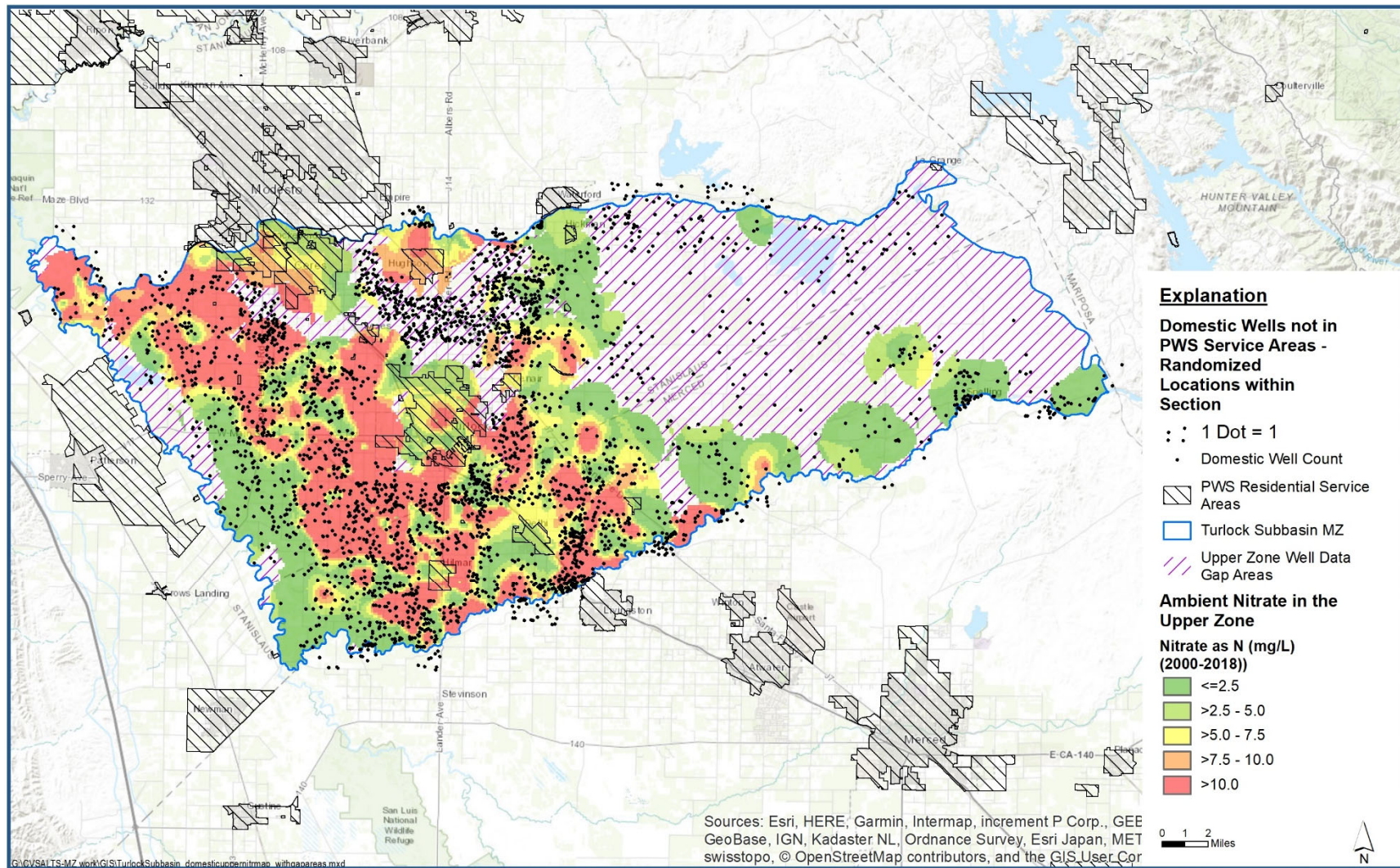


Figure 2-4. Domestic Wells Located Outside Public Water System Areas in the Turlock Management Zone

**Table 2-4. Summary of Domestic Wells and Population with Estimated Upper Zone Nitrate Area Categories Located Outside PWS Boundaries**

Estimated Upper Zone Ambient Nitrate (2000-2018)	DWR Domestic Well Count by Township & Range-Section		2010 Census Block Analysis
	Domestic Well Count Outside of PWS Boundaries	% of Total Domestic Wells Outside PWS	Population Outside PWS Boundaries
<b>Group 1: <math>\leq 2.5</math> mg/L NO<sub>3</sub> as N</b>	473	14%	10,447
<b>Group 2: <math>&gt; 2.5 - 5.0</math> mg/L NO<sub>3</sub> as N</b>	519	15%	15,638
<b>Group 3: <math>&gt; 5.0 - 7.5</math> mg/L NO<sub>3</sub> as N</b>	608	18%	6,898
<b>Group 4: Elevated Nitrate (<math>&gt; 7.5-10</math> NO<sub>3</sub> mg/L as N)</b>	394	12%	6,048
<b>Group 5: High Nitrate (<math>&gt; 10</math> mg/L NO<sub>3</sub> as N)</b>	1,017	30%	12,885
<b>Group 6: Unknown*</b>	406	12%	5,435
<b>Total (Outside PWS Boundaries)</b>	3,417	100%	57,351

\*Domestic wells or Census Blocks are located in a "Gap Area", where insufficient Upper Zone nitrate data exist to do a spatial interpolation of ambient nitrate conditions.

### **3. Existing Safe Drinking Water Programs Serving Management Zone Area**

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The purpose of the EAP is to provide safe drinking water to residents within the Management Zone that are drinking groundwater that exceeds nitrate water quality standards and that do not otherwise have interim replacement water that meets drinking water standards. This Section documents any existing programs within the Management Zone boundary that may be providing interim replacement water to affected residents or where the potential exists for the program to support establishment of a source of replacement water in the future. These programs will be monitored during EAP implementation and during development of the Management Zone Implementation Plan. Where appropriate the Management Zone will coordinate with these programs to minimize or avoid duplicative efforts to provide safe drinking water to Management Zone residents.

#### **3.1 DAC Needs Assessment**

The California Department of Water Resources (DWR) is implementing the Disadvantaged Community Involvement Program to provide a mechanism for DACs, economically distressed areas and underrepresented communities to participate in integrated water resource management planning activities within their respective areas. Through this program a Needs Assessment is currently underway within DWR's San Joaquin River Funding Area within which lies the Turlock Management Zone. The purpose of the Needs Assessment is to identify water management needs (water supply and wastewater) for the entities within the project area.

This Needs Assessment is being completed in two phases. Phase I is a data gathering and outreach phase that will result in the preparation of a Preliminary Needs Assessment report for the funding area. Phase II, which will result in the preparation of a Final Needs Assessment report, will provide information to support funding applications for projects that if implemented can help address identified water management needs within the funding area. The Preliminary Needs Assessment Report that includes the Turlock Management Zone is expected to be completed by \_\_\_\_\_. Information from this assessment may provide information that supports the implementation of this EAP and ultimately identification of alternatives to address long-term drinking water needs within the Management Zone.

#### **3.2 East San Joaquin State Water Board Order Implementation**

Following review of Waste Discharge Requirements (WDR) General Order No. R5-2012-0116 (Growers Within the Eastern San Joaquin River Watershed that are Members of the Third-Party Group), the State Water Board adopted Order WQ 2018-0002 to require revisions to the existing WDR General Order. The required revisions included addition of a

drinking water well monitoring provision that requires Members (or a third party on behalf of the Members) to conduct testing and monitoring of all drinking water supply wells present on Member properties. If a well is identified as exceeding the water quality objective for nitrate, the Central Valley Water Board and users of the well must be notified in a timely fashion in accordance with the requirements of the General Order. Testing is conducted annually. If the nitrate concentration is below 8 mg/L nitrate + nitrite as N in three consecutive annual samples, testing is only necessary every five years going forward. Well testing is no longer necessary if a drinking water well is taken out of service or no longer provides drinking water, including where the well is taken out of service because sufficient replacement water is being supplied. Where a well is no longer used as a drinking water source, the General Order requires appropriate documentation to demonstrate well is not being used.

The Turlock Management Zone lies within the area subject to the State Water Board Order. The required well testing component was initiated in 2019; to date more than 300 wells have been tested. As appropriate, the findings from this well testing program will be considered during EAP implementation.

## 4. Process to Identify Potentially Affected Residents

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Section 2 identified the geographic areas within the Management Zone that most likely have the potential for the underlying Upper Zone groundwater to have nitrate levels exceeding the water quality objective. The EAP targets these areas for identification of potentially affected residents, i.e., residents that may be using this groundwater as a drinking water source. The sections below provide the methodology to identify these residents. Section 5 below describes how the EAP will conduct outreach to these residents.

The following process will be implemented to identify potential residences within the Management Zone that may have a domestic well, or be connected to a public water supply system, that is providing water that has nitrates that exceed the nitrate water quality objective. The process described only identifies residences that may be drinking water that is contaminated for nitrate. This information will be used to conduct outreach to ensure that residents are aware of the options within this Management Zone for obtaining clean safe drinking water.

### Step 1: Data Development

**Figure 2-1** above serves as the baseline map for the use of mapping tools to develop a preliminary list of residences within the Management Zone boundary. In general, the water quality data and water system boundaries will be overlaid on Google Earth images to begin the process of identifying residences within the area. The resulting mapped area will be subdivided and analyzed at an appropriate scale using a grid overlay (grid size will depend on the resolution needed to identify residences; but no greater than a 2 x 3-mile grid is anticipated).

Within each grid, residential properties will be located using Google Earth satellite images. County parcel shapefile data (with assessor parcel numbers [APN]) will be requested from Stanislaus and Merced Counties. This shapefile will be overlaid on the gridded Google Earth image to associate land parcels with each residential property.

### Step 2: Establish List of Potentially Affected Residences

The location of public water supply systems (public water systems, local small water systems, state small water systems) will be identified within the area of analysis. Each of these systems will be evaluated for compliance with the nitrate water quality objective. Residences served by a compliant water system will be removed from the list of potential residences. If any system is determined to be non-compliant with the nitrate water quality objective, those residents within that water system will remain on the list.



Using the data developed in Step 1, a grid by grid analysis will be completed to identify parcels with potentially affected residences. All parcels and associated property ownership and addresses will be compiled in a spreadsheet for subsequent analysis. The spreadsheet will be screened to identify residences that are identified as members of a Coalition under the Irrigated Lands Regulatory Program (ILRP). These residences will be removed from the spreadsheet because outreach to these residents regarding the EAP will occur through the ILRP program.

The final deliverable from the above analysis will be a final list of potentially affected residents, which will serve as the mailing list for targeted outreach activities under this EAP. The mailing list will be used as described below in Section 5.1.2.3.1.

## 5. Temporary Drinking Water Provisions

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This section of the EAP describes the specific actions planned within the Management Zone to provide access to sources of safe drinking water for residents who are dependent on groundwater from wells that supply water that exceeds the nitrate water quality objective. These actions are considered temporary or interim in nature but will remain available until permanent sources of safe drinking water become available within the Management Zone area. The specific actions that will be implemented to provide long-term sources of safe drinking water will be identified in the Management Zone Implementation Plan that will be developed within six months after the Central Valley Water Board issues its formal approval of the formation of this Management Zone (after submittal of the Final Management Zone Proposal).

### 5.1 Temporary Sources of Drinking Water

Safe drinking water will be provided to residents within the area of the Management Zone through the following two mechanisms: (a) Establishment of public access locations that residents may visit to obtain water on their own (Public Access Water Program); (b) Provision of water to specific residences that meet EAP applicability criteria (Alternative Water Program).

#### 5.1.1 *Public Access Water Program*

Locations with general public access to safe drinking water will be established in areas identified as having a high likelihood of having nitrate concentrations that exceed the nitrate water quality objective in the Upper Zone of groundwater underlying the Management Zone. The type of public access method will be determined by the Management Zone based on a local determination of the type of facility that can best serve the needs of residents within a target area.

The goal of this EAP is to establish up to eight public access water facilities (PAWFs) in areas that (a) are estimated to have nitrate concentrations of 10 mg/L (nitrate as N) or greater in the Upper Zone of the groundwater underlying the Management Zone; and (b) are not currently served by an existing PWS or state/local small water system that provides drinking water not contaminated by nitrate above 10 mg/L (nitrate as N).

**Figure 5-1** illustrates the planning areas within the Management Zone targeted for establishment of a PAWF. Each planning area is represented as a circle with a radius of five miles. This figure is for planning purposes only. Figure 5-1 identifies seven planning areas with elevated nitrate targeted for development of a PAWF location; however, the actual number of locations established within the Management Zone and their specific locations will depend on identifying sites that meet the site-specific requirements described below, e.g., securing permission from land/property owners to allow their property to be used as a public access location for safe drinking water.

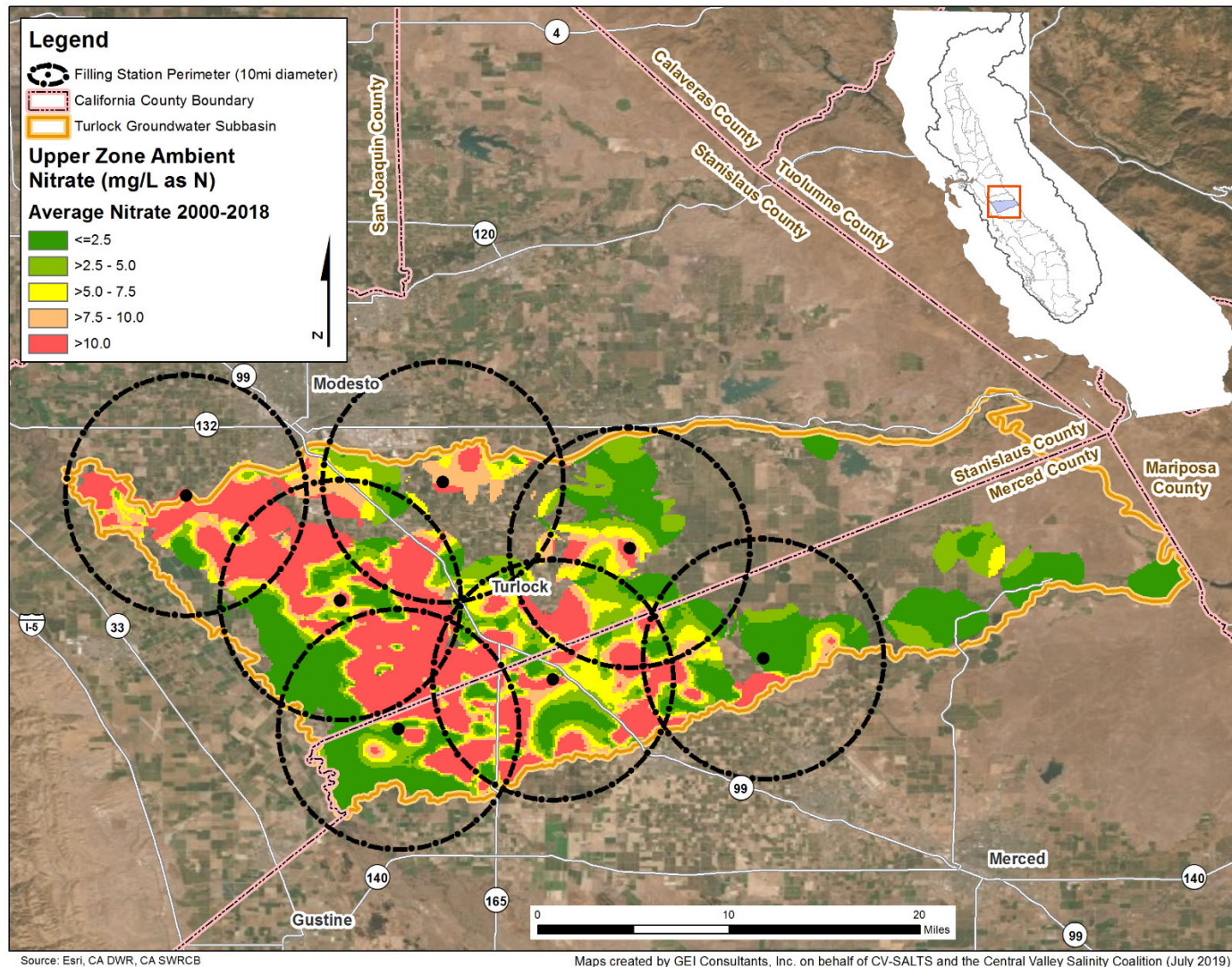


Figure 5-1. Targeted Planning Areas for Establishing General Public Access Location to Obtain Safe Drinking Water

The following subsections describe the types of PAWFs that will be evaluated for implementation within the targeted planning areas shown in Figure 5-1 and the implementation approach to establish these facilities.

#### **5.1.1.1 Public Access Water Facility Types**

Two types of public access facility types will be considered for implementation within the Turlock Management Zone: (a) water filling stations; and (b) vendor-supplied water facilities. The following sections describe the minimum requirements for establishing these types of facilities. Section 5.1.1.2 below describes the implementation approach to establish these facilities.

##### **5.1.1.1.1 Water Filling Stations**

A filling station is an independent water-dispensing facility connected directly to a PWS that meets safe drinking water standards and is constructed and operated as required by state and federal regulations (as required to meet implementation of the California Safe Drinking Water Act as defined in the California Health & Safety Code and Titles 17 and 22 of the California Code of Regulations). The facility will be made available to area residents at no cost. The following sections describe the requirements to establish a filling station.

##### *Requirements to Establish a Filling Station*

The following criteria must be met to establish a filling station location:

- Management Zone is able to obtain permission to install and operate a filling station on land or property owned by a third party.
- Station receives its water from an existing PWS that complies with state requirements to provide safe drinking water.
- To the extent practical, the station location is within a commerce center that serves outlying areas.
- Source of water to the station has sufficient capacity to dispense water at a reasonable rate to fill up multiple containers (up to five-gallons) within a short period of time (target of 1.5-2 gallons/minute, consistent with California regulations for faucets in new residential construction).
- Establishment of a filling station is not expected to create any safety issues for users, e.g., location is in a well-lit area and typically regular traffic occurs in the area.
- Vehicle access/parking is available, sufficient to not cause any unnecessary congestion.
- Public access to the facility will be made available as many hours/day and week as possible. The goal is to identify locations where the facility can be open 24 hours/7 days per week, but it is recognized that establishing facilities that are always open may not be possible in some areas.

### *Facility Requirements*

Water filling station design, construction and operation and maintenance (O&M) requirements will be consistent with state and federal regulations. Verification that the facility meets applicable regulatory requirements will occur as part of the development of the filling station site. If available, the Management Zone may use the specifications from other approved filling stations in the Central Valley Region as a template for the design and implementation of filling stations established under this EAP. Annual maintenance will be documented in the EAP status reports (see Section 5.4).

#### **5.1.1.1.2 Vendor-Supplied Water Facilities**

A vendor-supplied water facility is a location where containers with safe drinking water are available for pickup by the general public. Locations may be public or private facilities, including, but not limited to: government offices, community centers, churches, or retail outlets. Through the establishment of appropriate agreements, water vendors provide a facility with a supply of water containers for pick-up by residents within the area. The facility is only responsible for storing containers (full or empty) and servicing residents, as needed, e.g., by allowing them free access to a location within their facility where the resident can drop off empty containers and pickup full containers. The Management Zone is responsible for securing and managing the services of a water vendor and paying for the cost of the water.

#### *Requirements to Establish a Vendor-Supplied Water Facility*

The following criteria must be met to establish a facility under this program:

- Permission can be secured from the property owner to store water containers for pickup and empty containers returned by the public.
- Water is obtained from a vendor that complies with all applicable state and federal regulations and is able to keep the facility supplied (Note: The amount of water maintained on site will be estimated initially and adjusted as needed during implementation).
- Water is available in containers of varying sizes up to 5-gallons.
- Visitors can freely access water containers and drop off empty containers without need for any documentation or need to get into a secured or limited-access area within the facility.
- Public access to the facility will be made available as many hours/day and week as possible. The goal is to identify locations where the facility can be open 24 hours/7 days per week, but it is recognized that establishing facilities that are always open may not be possible.

#### **5.1.1.2 Implementation Approach**

Selection of the specific type of PAWF that will be developed within any given area of the Management Zone will be based on the options locally available within the targeted area. For example, in more rural areas there may be limited options available to access a PWS to connect to a water filling station. In those areas, a vendor-supplied water facility may be the best option available. Once implementation of the EAP begins, the following process will be implemented to

finalize locations for public access to safe drinking water and implement the process to establish these facilities (see Section 6 for schedule of implementation):

- Identify final locations for installation of a PAWF through the completion of the following activities:
  - Identify potential landowners/property owners (any entity with a proprietary interest in the land upon which a PAWF may be established) within each targeted planning area that are potential locations for siting a facility. The list for each planning area may be prioritized based on factors such as groundwater quality conditions, location of the site within a Management Zone, proximity to sites in other Management Zones, and the likelihood to meet the criteria provided in Section 5.1.1.1.
  - Contact potential land/property owners to initiate discussions regarding establishment of a PAWF on their property and identify land/property owners willing to enter into an agreement to establish a facility on their property.
  - Establish any necessary agreements to formalize use of the property as location for a PAWF.

If no land/property owner can be identified in the targeted planning area, an alternative location for the facility will be developed taking into account the locations of other established or planned facilities within the area covered by this EAP.

- Develop the appropriate documentation to establish and implement the PAWF:
  - *Water Filling Stations* – Prepare the station design, installation/construction-related documents, operational procedures, O&M requirements, approvals/agreements, etc.; prepare any necessary supporting regulatory-related documents (e.g., permit applications) to support project.
  - *Vendor-supplied Water Facility* – Establish agreement with vendor(s) that can (a) provide drinking water in containers at volumes and the frequency initially requested; and (b) increase the supply of containers if needed in a timely manner. Facilitate any necessary agreements between the facility and the vendor, e.g., development of operational/delivery procedures to ensure water is available for public pickup and empty containers are regularly picked up for reuse.
- Establish the PAWF:
  - Water Filling Stations:
    - Submit the filling station documentation to DDW for approval.
    - Submit requests to the city and/or county for required building permits and any other necessary approvals.
    - Construct/install the filling station, as approved by the appropriate authorities.



- Establish agreements/contracts as needed to ensure appropriate O&M occurs at the facility.
- Establish process (including agreements with vendors) to provide residents access to an appropriate number of empty water containers for use at the facility.
- Monitor the facility, as needed to ensure it remains in service and obtain data on facility usage.
- Vendor-supplied Water Facility:
  - Establish agreements/contracts with vendor(s) as needed to implement the program at the facility.
  - Initiate vendor services.
  - Monitor the program, as needed, to ensure program requirements are satisfactorily met (including ensuring adequate water is available for pickup) and obtain data on facility usage.
- Conduct community outreach within the Management Zone, including public notice of newly available PAWFs, as described in Section 5.2.
- Notify the Central Valley Water Board when new PAWFs become operational.

### **5.1.2 Alternative Water Program**

Residents unable to use one of the PAWFs established in the Management Zone area may participate in the Management Zone’s Alternative Water Program (AWP), if specific criteria are met. The sections below describe this program and criteria to participate.

#### **5.1.2.1 Alternative Water Program Options**

The Turlock Management Zone AWP includes two options:

- *Bottled Water Delivery* – Regular bottled-water deliveries (based on a volume of 50 gallons/household of four/month) will be made to participating residences at no cost by a bottled-water vendor established by the Management Zone. Bottled water delivery is available to any resident that qualifies for the AWP as described in Section 5.1.2.2.
- *Point of Use (POU) Treatment System* – This option includes installation of a reverse osmosis (RO) treatment unit under the sink where water is to be provided in the household for drinking or cooking, e.g., under the kitchen sink. A POU treatment system requires periodic maintenance (e.g., filter cartridge replacement). This option is available as long as the residence meets the technical requirements for implementation of a POU system (see Section 5.1.2.3.2). Maintenance of the POU treatment system will be paid for by the Management Zone as long as the EAP is effective.

Residents that meet the criteria to participate in the AWP may select either option as long as the option-specific requirements specified below are met.

### **5.1.2.2 Qualifications to Participate in the Alternative Water Program**

Residents may participate in the AWP if they are unable to access a PAWF (e.g., because of lack of mobility or transportation) and do not have access to water that meets the nitrate primary drinking water standard. Any resident located within the area covered by this EAP may request to participate in the AWP. A request to participate in the AWP may be made to the Management Zone governing body (see **Attachment A**). The Management Zone may confirm the resident requesting participation in the AWP meets the following eligibility criteria (however, no personal or medical information is required to be submitted):

- Residence is within the Management Zone and does not receive drinking water from a PWS where state- and/or county-mandated testing indicates the PWS complies with nitrate water quality standards.
- Current drinking water source at the residence contains nitrate concentrations above the drinking water standard of 10 mg/L (nitrate as N). If appropriate data to assess this criterion are not available, the resident will request that their drinking water source be tested at no cost to them.
- If alternative water is provided through a third-party and the third-party provider requires the resident to sign an agreement to participate in the AWP (e.g., to receive bottled water or have a POU treatment system installed and maintained), the resident must be willing to sign the agreement and meet the third-party provider agreement's terms and conditions.

When making a request to participate in an AWP, the resident will include recent water quality test results (within the last 2 years; from a certified laboratory) from the drinking water source at the residence. If the drinking water source has not been tested or the data are not recent or from a certified laboratory, the Management Zone will test the water at no cost to the resident. In this instance, the Management Zone will contact the resident to arrange to have the water tested.

### **5.1.2.3 Alternative Water Program Implementation Approach**

The sections below provide information on how the Management Zone will implement the AWP under this EAP.

#### **5.1.2.3.1 Mailout to Residents within EAP**

Section 4 of this EAP describes the process for identifying residents within areas of the Management Zone that have the potential to have domestic wells providing water for drinking that exceeds the nitrate MCL (see red-shaded areas in Figure 2-1). The Management Zone will mailout information regarding EAP implementation to each of these residents per the schedule in Section 6.1. This information packet, which will be sent via regular mail, will include the following in both English and Spanish:

- Cover letter that explains the EAP and how its implementation may apply to their residence.
- Educational pamphlet regarding nitrate in drinking water as a potential health concern.
- Identify locations that have been established within the Management Zone to provide public access to safe drinking water (as established under Section 5.1.1).
- Describe how to request participation in the AWP, including: (a) criteria to participate; (b) AWP options available and requirements to implement the option at their residence; and (c) information regarding how to request an AWP option including what the residence needs to do to have its well tested, if needed.
- Program representatives or website to contact to obtain more information.

#### **5.1.2.3.2 Responding to Requests to Participate in the Alternative Water Program**

Upon receipt of a request to participate in the AWP, the Management Zone will complete the following activities:

- Review the request to participate in the AWP for completeness and confirm that the residence meets the eligibility requirements of the AWP (e.g., verify that the residence is within the area covered by the EAP) and the AWP option selected (Note: If it is necessary to contact the resident by telephone, contact will be made by a Management Zone representative conversant in English and Spanish):
  - If the request indicates that the resident’s drinking water source needs to be tested for nitrate, the resident will be contacted to schedule sampling of the well by a representative of the Management Zone. Sample collection and laboratory analysis will follow standard State-approved methods.
  - If necessary, based on the request to participate in the AWP, the Management Zone may contact the resident to confirm that obtaining water from a PAWF established within the Management Zone is not a viable option.
- Prepare a response to each request to participate in the AWP:
  - Approved requests for participation in the AWP will receive a letter of confirmation from the Management Zone that includes:
    - Statement that the resident is approved to participate in the AWP. This statement will be provided in one of the following ways:
      - The requested AWP option (bottled water or POU) has been approved; or
      - The request to participate in the AWP is approved, but the request for installation of POU treatment system cannot be approved for technical reasons, as described

in the letter.<sup>2</sup> Residents that receive this response will be offered bottled water delivery as an alternative.

- If the Management Zone tested the resident's water for nitrate, the letter will also include a copy and explanation of the sample results.
  - Information regarding how alternative water service will be initiated (e.g., initiating bottled-water delivery with an approved Management Zone vendor or scheduling installation of a POU treatment system at the residence).
  - For residents participating in the bottled water delivery option, the amount of water delivery approved for the residence (based on the information provided in the request to participate in the AWP regarding the number of people in the household at the delivery address).
- If a resident's application to participate in the AWP is not approved, the following procedures apply:
- The resident will receive a letter of denial from the Management Zone that states the reason for why the request was denied.
  - If the reason for denial is because the applicant's drinking water has a nitrate concentration below the water quality objective of 10 mg/L nitrate (as N), the letter will include a copy and explanation of the sample results. If the nitrate concentration in the sample is greater than 8 mg/L nitrate (as N), the resident may request that the well be re-tested at least year after the initial test was completed and annually thereafter as long as this EAP is effective. Re-testing the well will be done at no cost to the resident.
  - The letter will include steps that may be taken by the resident to appeal the decision, if it is believed that an error has been made in the decision.

#### **5.1.2.3.3 Alternative Water Program Vendors**

The Management Zone may select one or more vendors to implement the AWP options. It is the responsibility of the Management Zone to ensure that agreements with vendors to provide AWP services remain in effect as long as the EAP is effective. Residents participating in the AWP are responsible for the following:

- Residents may be required to establish an agreement with a third-party vendor to receive alternative water services. Residents are responsible for establishing any necessary agreements and complying with the terms and conditions of any signed agreements.

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<sup>2</sup> Per National Sanitation Foundation/American National Standards Institute (NSF/ANSI) performance standards for a POU RO treatment system to be effective at removing nitrate to meet drinking water standards, nitrate concentrations in the influent should be less than 27 mg/L nitrate (measured as N) and less than 3 mg/L nitrite (measured as N) ( $\pm 10\%$ ) with a system water pressure of 280 kilopascals (kPa or 40 pounds per square inch gauge (psig) or greater.

- For residents receiving bottled water delivery, the resident is responsible for working with the third-party vendor to schedule delivery of bottled water and pickup of empty water containers.
- For residents that will have a POU treatment system installed, the resident is responsible for working with the third-party vendor to schedule installation of the POU system and any normal maintenance of the POU treatment system, e.g., replacement of a cartridge filter.

#### **5.1.2.3.4 Long-term Alternative Water Program Management**

Approximately three months after implementation of an AWP at a residence, the Management Zone will contact the residence to verify one of the following: (a) the amount of bottled water being provided (based on 50 gallons/household of four/month) is sufficient; if that base volume is too much or too little, the Management Zone will work with the resident on determining an appropriate volume to deliver; or (b) the POU treatment system has been installed by the third-party vendor and the resident understands the maintenance requirements associated with the POU system. Throughout EAP implementation, the Management Zone will have staff conversant in English and Spanish available to answer questions or address concerns from residents participating in the AWP.

## **5.2 Community Outreach Program**

This EAP includes a number of community outreach activities designed to support establishment of temporary sources of safe drinking water until long-term solutions to provide safe drinking water within the Management Zone are implemented. These activities support both general community outreach efforts to the Management Zone and targeted outreach to residents that reside in areas within the Management Zone with groundwater that likely exceeds the nitrate water quality objective. Key elements of the outreach program are described in the following sections.

### **5.2.1 Management Zone Website**

The Management Zone will have a dedicated website for the posting of outreach-related activities, including community outreach meetings, informational materials developed under this EAP, locations and operational hours of PAWFs, and the process to request participation in the AWP. The Management Zone will work with both dischargers and non-dischargers in the Management Zone to provide a link on their respective websites directing users to information regarding the EAP safe drinking water program.

### **5.2.2 Informational Materials**

The Management Zone will develop informational materials for use in various forums, e.g., public meeting handouts, information packets mailed out to residents, brochures made available to the public at selected locations or for incorporation in routine mailouts to local residents, such as utility bills. At minimum, the following informational materials will be developed in English

and Spanish for EAP use (these materials may be tailored to specific audiences or others may be developed, as needed):

- Educational pamphlet regarding nitrate in drinking water as a potential health concern.
- Purpose for establishment of the Management Zone and the EAP, including (a) the programs that have been established to ensure residents in the area have safe drinking water; and (b) identification of program representatives or website to contact for more information.
- Locations of operational PAWFs (as established under Section 5.1.1), including information regarding how to obtain water containers and how to use the facilities.
- Alternative water options available under the EAP, including information regarding how to request participation in the AWP.

### **5.2.3 *Non-Discharger Coordination and Outreach***

The Turlock Management Zone will coordinate with entities within the Management Zone that are not dischargers subject to the requirements of the Nitrate Control Program but have a potential role in the management of water that may be used as a drinking water supply. The purpose of this coordination is to facilitate the following: (a) identification of potentially affected residents (see Section 4); (b) establishment of alternative sources of drinking water under this EAP; (c) outreach to residents within the Management Zone; and (d) development of long-term solutions for providing safe drinking water to residents for inclusion in the Management Zone Implementation Plan that will replace this EAP in the future.

**Table 5-1** identifies key categories of non-dischargers within the Management Zone where coordination will be important to support implementation of this EAP. Table 5-1 also identifies the key roles for these non-dischargers. These non-dischargers may have an important role in the siting of PAWFs to provide free access to safe drinking water to local residents in the Management Zone (see Section 5.1.1) and may assist with community outreach meetings as described below. Many of these non-dischargers participated in the establishment of the Turlock Management Zone, including development of this EAP (see Preliminary Management Zone Proposal for entities that participated in the development of the Management Zone).

Coordination with non-dischargers will continue through implementation of Management Zone activities, including this EAP. In particular, the Management Zone will implement the following activities in collaboration with non-dischargers (these activities may be supplement as needed to facilitate EAP implementation):

- Identify opportunities to work collaboratively with non-dischargers to share EAP-related information at public or private meetings, e.g., workshops to inform local agencies of the EAP program, presentations at County Board meetings, trade group meetings, community meetings led by NGOs, etc.



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- Identify and develop outreach materials that may be sent to constituents associated with non-dischargers that are tailored to the target audience.
- Seek participation by representatives of non-discharger organizations in community outreach meetings to assist with EAP implementation, especially in the local community.
- Keep the Central Valley Water Board and DDW informed (outside of regular EAP status reports) of any issues or concerns that may be developing through program implementation.

**Table 5-1. Key Non-Dischargers in Turlock Management Zone**

Non-Discharger Category	Key Role(s) in EAP Implementation
Stanislaus County	Board of Supervisors – Dissemination of information to County residents; support approval of EAP-related projects
	Planning and Community Development – Support approval of EAP-related projects
	Health Services Agency – Support implementation of EAP-related activities
Merced County	Board of Supervisors – Dissemination of information to County residents; support approval of EAP-related projects
	Planning and Community Development – Support approval of EAP-related projects
	Department of Public Health – Support implementation of EAP-related activities
Incorporated Communities <sup>1</sup>	Given the presence of commerce centers in these locations, some of these communities may be targeted for establishment of a PAWF. Coordination with these communities can facilitate establishment of a PAWF.
Unincorporated Communities/ Census-Designated Places	Potential to have commerce centers where PAWFs may be located. Coordination with these entities can facilitate establishment of the facility.
Central Valley Water Board	Ensure that EAP development and implementation is consistent with Nitrate Control Program requirements
State Water Board DDW	Ensure that filling stations meet state and federal regulations for dispensing drinking water
Non-governmental Organizations (NGOs)	Organizations represent various community interests within the Management Zone and can assist with implementation of EAP elements, especially activities related to community outreach. Key participants to date have included Self-Help Enterprises, Clean Water Action, and Community Water Center.
Groundwater Sustainability Agencies	Two GSAs are located within the Management Zone: East Turlock and West Turlock. EAP implementation activities involving use of water will be coordinated with these agencies, which can also assist with dissemination of information within their jurisdictions
Trade Organizations	Trade organizations may represent various facilities that are dischargers within the Management Zone. Key participants to date have been the California League of Food Processors, Dairy Cares, East San Joaquin Water Quality Coalition, Western United Dairywomen and the Farm Bureau. These non-dischargers can assist EAP implementation through dissemination of information through their members (which may be dischargers) and community outreach activities.

<sup>1</sup> Some incorporated communities may be participating in the EAP as dischargers subject to the requirements of the Nitrate Control Program.

*[NOTE: These activities may be further developed or tailored if needed prior to EAP submittal if it is determined that specific key non-dischargers need to be targeted for outreach during EAP implementation]*

While the above activities focus on EAP implementation, coordination with non-dischargers will also support the development and implementation of nitrate control activities within the Management Zone through the Management Zone Implementation Plan.

#### **5.2.4 Community Outreach Meetings**

The Management Zone will conduct periodic community outreach meetings to support EAP implementation, especially during the period of time when PAWFs are in early development. At least three rounds of community outreach meetings will be conducted:

- *Initial Public Outreach Meetings* - Within the first six months of EAP implementation, an initial community outreach meeting will be held in at least three locations targeted by the EAP within the Turlock Management Zone (targeted areas where residents are potentially affected by nitrate that exceeds the water quality objective). The purpose of this initial meeting is to explain the EAP program, describe the process for establishment of PAWFs, identify areas being targeted for establishment of a public access location, present how residents may request participation in the AWP, and discuss how the local community can become involved in the program.
- *Second and Third Community Outreach Meetings* – The second and third rounds of community outreach meetings will each be held in at least three locations within the area targeted by the EAP. The second round will occur after at least two PAWFs are operational; the third round will occur after more than four facilities are operational. Meeting content will be similar to the initial meetings but expanded to provide updates on EAP implementation and share information on the location and use of the PAWFs.

Additional community outreach meetings may be scheduled after all PAWFs are operational. The Management Zone will request participation by both non-dischargers and dischargers at the meetings and work with them to prepare meeting materials and assist with providing notice to the community of upcoming meetings.

#### **5.2.5 Public Notice Activities**

The Management Zone will notify the public of EAP-related activities including upcoming community outreach meetings, opening of operational PAWFs, options to participate in the AWP, and availability of safe drinking water informational materials. Public notices in English and Spanish may be implemented through the use of one or more of the following methods:

- Direct mail marketing to all Management Zone residents;
- Newspaper notice in local and regional newspapers within the Stanislaus and Merced County area;

- Social networks such as Nextdoor or Facebook;
- Organizational websites, e.g., Management Zone website (see Section 5.2.1), East San Joaquin Water Quality Coalition, or Central Valley Water Board; or
- Others, as determined by the Management Zone.

Specific public notice requirements include:

- Notice of any upcoming community outreach meetings will be made no later than 30 days prior to the meeting.
- Notice of the opening of a new PAWF will be made within 30 days after the facility becomes operational and include the location and hours of operation of the facility, instructions on how to use the facility and information regarding how to obtain water containers (if the new facility is a water filling station).
- Preparation of the notice in English and Spanish.
- Content will be tailored to the purpose of the notice and clearly describe where additional information may be obtained from a program representative or website.

### **5.2.6 Targeted Outreach**

The Management Zone will conduct targeted outreach to residents within the Management Zone where the initial groundwater assessment identifies areas as potentially exceeding the nitrate water quality objective (see Figure 2-1). The purpose of this outreach is to (a) provide additional notice of the availability of PAWFs for safe drinking water; and (b) provide opportunity for residents to request participation in the AWP. See Section 5.1.2.3.1 for additional information regarding this targeted outreach.

## **5.3 Monitoring and Data Management**

The Management Zone will maintain records that document the types of information described below. This information will be used to adaptively manage and implement the EAP and support development of permanent drinking water solutions for the Management Zone.

### **5.3.1 Public Access Water Facilities**

The Management Zone will monitor each PAWF to obtain the following data: (a) volume of water dispensed or number of water containers picked-up; and (b) dates and times that water is dispensed/picked up. At a minimum, this information will be analyzed periodically to:

- Determine patterns of usage at each facility;
- Evaluate whether additional PAWFs are needed because of high demand at specific locations; and

- Provide a basis for compensating the land/property owner for water usage, if needed.
- Determine whether any vendor-supplied water facilities need to maintain additional water supplies.

If periods of high usage are identified at any water filling station, additional site monitoring may be temporarily conducted to determine the degree to which lines may be forming causing significant delays in obtaining water or congestion at the site.

### **5.3.2 *Alternative Water Program***

The Management Zone will maintain a database(s) and electronic files with the following information as part of the implementation of the AWP:

- Residences that were sent an information packet as part of the targeted outreach conducted to residents with drinking water potentially affected by nitrate exceeding the water quality objective (see Section 5.1.2.3.1). When a packet is returned as undeliverable, this information will be noted in the database.
- Number of requests received to participate in the AWP.
- Requests received from residents to have their water tested, the date that the water was tested and the test results.
- Letters of approval or denial to participate in the AWP. For letters of denial, the number of residences that appealed the denial and the resolution of each appeal.
- Status of implementation of the AWP for each approved resident, including information regarding:
  - For residences receiving bottled water, when delivery of bottled water began and documentation on usage of water (to be provided by third-party vendor);
  - For residences having a POU treatment system installed, when the POU system was installed and follow-through on required maintenance (to be obtained from third-party vendor).
  - Follow-up contact with residences to verify AWP implementation.
  - Documentation of any residents that were approved for AWP participation but did not actually implement the program at their residence.

## **5.4 Reporting**

The Management Zone will submit to the Central Valley Water Board an EAP status report after six months and annually thereafter per the scheduled provided in Section 6.1. Each report will address the following:

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- Status of implementation per the schedule established by this EAP (see Section 6.1). Where a schedule has not been met as planned, the report will document the reason for the delay and a revised schedule to complete the delayed activity.
- Status of implementation and participation in the Public Access Water Program and AWP.
- Summary of O&M activities completed at operational filling stations.
- Program expenditures during the reporting period and anticipated costs to implement the next reporting period.
- Requests to modify the EAP based on knowledge gained and findings from monitoring data (Section 5.3) (see also Section 1.5 regarding modification of the EAP).



## **6. Early Action Plan Implementation**

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### **6.1 Schedule/Milestones**

**Table 6-1** provides the schedule and milestones for the implementation of the EAP. This schedule is based on the implementation approach provided in the above sections. If it is necessary to modify the schedule or milestones, the Management Zone will request modification by letter or as part of the submittal of an EAP status report (see Section 5.4). The request will be made to the Executive Officer of the Central Valley Water Board and include a description of the proposed modification, the reason(s) for the requested change and a proposed new schedule and/or milestones.

### **6.2 Roles and Responsibilities**

*Placeholder - to be determined through Management Zone Steering Committee*

### **6.3 Funding**

#### **6.3.1 Program Cost**

**Table 6-2** provides a summary of the estimated costs to implement this EAP along with the basis for some of the costs, especially expenses.

#### **6.3.2 Program Allocation**

*Placeholder - to be determined*

#### **6.3.3 Funding Mechanism**

*Placeholder - to be determined*

**Table 6-1. EAP Implementation Schedule**

EAP Element		Task	Schedule/Milestones
Resident Identification		Identify residences in area covered by EAP and develop mailing list to support outreach	Within 120 days of EAP effective date
Community Outreach Program	General Activities	Establish Management Zone Website	Within 120 days of EAP effective date
		Develop public notice mechanisms/ outlets	
		Prepare informational materials to support community outreach activities	General materials – within 120 days of EAP effective date
			Targeted materials – as needed to support community outreach activities
	Non-Discharger Coordination & Outreach	Targeted outreach to key non-dischargers not participating in Management Zone	Within 30 days of EAP effective date
		General community outreach support	Ongoing as needed
	Community Outreach Meetings	Initial Community Outreach Meetings	Complete at least three community outreach meetings at varying locations within the Management Zone within six months of EAP effective date
		Second round of Community Outreach Meetings	Complete at least three community outreach meetings at varying locations within the Management Zone after two public access water facilities become operational
		Third round of Community Outreach Meetings	Complete at least three community outreach meetings at varying locations within the Management Zone after more than four public access water facilities become operational
		Additional Community Outreach Meetings	As determined necessary
Public Notice Activities	Community Outreach Meetings	Notice provided no later than 30 days prior to scheduled meeting	
	Opening of a public access water facility	Within 30 days after each public access water facility becomes operational.	
Temporary Water Delivery Program – Public Access Water Facilities		Establish list of potential land/properties for locating a public access water facility within targeted areas	Within 30 days of EAP effective date
		Establish final list of locations and types of public access water facilities to be developed	Identify all locations within 90 days of EAP effective date
		Complete documentation necessary to establish facilities at each location (see text for requirements)	Complete documentation for each facility and seek necessary permits or approvals per the following milestones: <ul style="list-style-type: none"><li>• Facilities 1 &amp; 2: within 180 days of EAP effective date</li><li>• Facilities 3, 4, 5 &amp; 6: within 360 days of EAP effective date</li><li>• Facilities 7 &amp; 8 (if needed) within 450 days of EAP effective date</li><li>• If more than 8 kiosks are needed, documentation for remaining facilities will be submitted within 540 days of EAP effective date</li></ul>

**Table 6-1. EAP Implementation Schedule**

EAP Element	Task	Schedule/Milestones
Temporary Water Delivery Program – Public Access Water Facilities (ctd)	Water Filling Station Implementation	<ul style="list-style-type: none"> <li>Initiate installation of DDW-approved filling stations within of 90 days of DDW approval and obtaining any other necessary permits/approvals.</li> <li>Establish final agreements with land/property owner to operate/maintain filling station – prior to station becoming operational</li> </ul>
	Establish Vendor-supplied Water Facilities	Establish vendor and property owner agreements
	Notification Activities	Notify Central Valley Board - Within 30 days of a new facility becoming operational Notify Community – Within 30 days of a new facility becoming operational
Temporary Water Delivery Program – Alternative Water Program	Mail outreach packet to residents	Within 30 days prior to first public access water facility becoming operational
	Requests to test drinking water wells	Conduct tests within 30 days of request
	Issue all letters of confirmation or denial	Issue letter within 30 days of application if no water test required; within 60 days if water test is required
	Resolve all appeals to letters of denial	Complete review within 60 days of receipt of communication requesting review of denied application
	Establish third-party agreement with vendors to supply bottled water or install a POU treatment system	Within 30 days of mailout of outreach packet to residences
	Follow-up with residents	Check in with each residence within 90 days after sending a letter of confirmation to verify alternative water services are being provided
Monitoring & Data Management	Gather monitoring data from all program activities	Compile and analyze data in a timely manner to support preparation of EAP Reports and evaluate need to modify program
Reporting	Prepare EAP status reports	Submit status reports within 30 days of the following: <ul style="list-style-type: none"> <li>Six-months after the EAP effective date</li> <li>1 year after the EAP effective date</li> <li>Annually after the Year 1 report until the EAP is no longer effective</li> </ul>

Work Type	Work Subtype	Specific Tasks	Assumptions/Notes	Year 1		Year 1 Total	Year 2		Year 2 Total	Annual Costs - Year 3 ff.		Annual Total	
				Labor*	Expenses		Labor*	Expenses		Labor*	Expenses		
Outreach	General Activities	Website Development & Management	Initial 80 hours to set up; 4 hrs/month to maintain	\$ 15,600	\$ -	\$15,600	\$ 7,200	\$ -	\$7,200	\$7,200	\$ -	\$7,200	
		Informational Materials Development	Labor: 120 hours to develop base materials; 8 hrs/month to update and maintain; Expenses: Printing budget	\$ 25,200	\$ 10,000	\$35,200	\$ 14,400	\$ 10,000	\$24,400	\$14,400	\$ 2,500	\$16,900	
		Coordination with Non-Dischargers	Labor: 16 hrs/month initial six months; 8 hrs/month long-term	\$ 21,600	\$ -	\$21,600	\$ 14,400	\$ -	\$14,400	\$14,400	\$ -	\$14,400	
		Public Notice Mechanisms Established/Managed	Labor: 40 hours initially, 4 hrs/month long-term; Expenses: Assumed cost of \$20/thousand records. Purchase one mailing list/year; 50,000 records, purchased each year	\$ 9,600	\$ 1,000	\$10,600	\$ 7,200	\$ 1,000	\$8,200	\$7,200	\$ 1,000	\$8,200	
		Public Notice Events	Labor: 16 hours/event - minimum of 3 meeting notices; up to 8 PAWF facility notices at 8 hrs/notice	\$ 7,200	\$ -	\$7,200	\$ 7,200	\$ -	\$7,200	\$0	\$ -	\$0	
	Community Outreach Meetings	Initial Meeting	Three venues/meeting round; Labor: 40 hrs/meeting round; Expenses: Supplies, printing (assuming no charge for venues or equipment rental)	\$ 6,000	\$ 1,000	\$7,000	\$ -	\$ -	\$0	\$0	\$ -	\$0	
		2nd Meeting		\$ 6,000	\$ 1,000	\$7,000	\$ -	\$ -	\$0	\$0	\$ -	\$0	
		3rd Meeting		\$ -	\$ -	\$0	\$ 1,000	\$ -	\$1,000	\$0	\$ -	\$0	
Resident Identification		Identify Residents; Prepare Mailing List	Costs based on Salinas Program Experience w/1.5x multiplier to account for estimated higher number of residences	\$ 90,000	\$ -	\$90,000	\$ -	\$ -	\$0	\$0	\$ -	\$0	
Temporary Water Provision Programs	Public Access Water Locations	Final Site Selection	Selection of Locations	Identify land/property owners who will support program; establish agreements	\$ 24,000	\$ -	\$24,000	\$ -	\$ -	\$0	\$0	\$ -	\$0
		Water Filling Stations (up to 6 stations)	Design and Obtain Approvals for Water Filling Stations	Estimated at 160 hours/station (4 in first year; 2 second year)	\$ 96,000	\$ -	\$96,000	\$ 48,000	\$ -	\$48,000	\$0	\$ -	\$0
			Install Filling Stations	Estimated at \$30,000/station (2 installed in first year; 4 installed in second year)	\$ -	\$ 60,000	\$60,000	\$ -	\$ 120,000	\$120,000	\$0	\$ -	\$0
			Operate/Maintain Filling Stations (Pay for Water)	Labor: ~40 hrs/year/station to maintain; Expenses: \$1,500/year for water usage/station	\$ 6,000	\$ 1,500	\$7,500	\$ 36,000	\$ 9,000	\$45,000	\$36,000	\$ 9,000	\$45,000
		Vendor-supplied Facilities (up to 2 facilities)	Develop & Manage Vendor-supplied Water Facilities	Labor: Establish agreements/service for 2 facilities (1 in first year; 1 in second year)	\$ 6,000	\$ -	\$6,000	\$ 6,000	\$ -	\$6,000	\$0	\$ -	\$0
			Operate/Maintain Facilities	Expenses: Cost of water/month. Assumed \$5/5-gallon container, 10 containers/month/household. 200 households/month pickup water (10 per day). (assumed no cost to store water/containers on property).	\$ -	\$ 60,000	\$60,000	\$ -	\$ 120,000	\$120,000	\$0	\$ 120,000	\$120,000

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Work Type	Work Subtype	Specific Tasks	Assumptions/Notes	Year 1		Year 1 Total	Year 2		Year 2 Total	Annual Costs - Year 3 ff.		Annual Total
				Labor*	Expenses		Labor*	Expenses		Labor*	Expenses	
Temporary Water Provision Programs	Alternative Water Program	Conduct Mailout	Labor: Prepare mailout for estimated 2,500 residences (use materials prepared above); Expenses: Postage, printing	\$ 12,000	\$ 2,500	\$14,500	\$ -	\$ -	\$0	\$0	\$ -	\$0
		Process Requests to Participate	Labor: Review requests; prepare responses; follow-up with residents, as needed	\$ 12,000	\$ -	\$12,000	\$ 6,000	\$ -	\$6,000	\$0	\$ -	\$0
		Water Testing	Labor: Coordinate with residents and collect water sample - 8 samples/day at 500 residents = 65 days. Expenses: Of 2,500 packets mailed out, 20% request to participate in AWP (500 residents) and have well tested at \$30/test (100 in Year 1; 400 in Year 2)	\$ 15,000	\$ 3,000	\$18,000	\$ 60,000	\$ 12,000	\$72,000	\$0	\$ -	\$0
		Follow-up Water Testing	Annually, ~50 residents request re-testing; completed over 7 days at \$30/test	\$ -	\$ -	\$0	\$ 6,000	\$ 1,500	\$7,500	\$6,000	\$ 1,500	\$7,500
		Establish Vendors	Establish and manage agreements with bottled water delivery and POU treatment system (initial cost; long term management below)	\$ 7,200	\$ -	\$7,200	\$ -	\$ -	\$0	\$0	\$ -	\$0
		Implement AWP	Bottled Water Program: Labor = Administrative Costs at 8 hrs/month; Expenses: Deliver Bottled Water:- Estimate of \$805/household/year or \$67/month (50 gal/month/household of four) See worksheet for basis. Assumed 150 of 250 households choose bottled water: 50 households by end of Year 1 (for final 3 months); 100 households by end of 18 months; 150 by end of Year 2.	\$ 3,600	\$ 10,050	\$13,650	\$ 14,400	\$ 100,500	\$114,900	\$14,400	\$ 120,600	\$135,000
			Install POU Treatment System: Labor = Administrative Costs at 8 hrs/month; Expenses: POU system install: \$600/household; O&M: \$150/household/year. Assumed 100 of 250 households choose POU: 25 installed by end of Year 1, 50 more installed by end of 18 months; 25 more installed by end of Year 2. Maintenance costs shown beginning of Year 3.	\$ 3,600	\$ 15,000	\$18,600	\$ 14,400	\$ 45,000	\$59,400	\$14,400	\$ 15,000	\$29,400
		Manage AWP (vendor management, residence follow-up)	Labor to follow-up with each residence participating in AWP; address identified problems; manage vendors (higher initially to do resident check-in; long-term 8 hrs/month	\$ 3,600	\$ -	\$3,600	\$ 24,000	\$ -	\$24,000	\$14,400	\$ -	\$14,400
Program Management	Monitoring Program	Gather data from PAWFs, AWP; enter into database; data analyses as needed (site monitoring not included)	\$ -	\$ -	\$0	\$ 18,000	\$ -	\$18,000	\$18,000	\$ -	\$18,000	
	Reporting (incl. Adaptive Mgmt)	Prepare status report	\$ 18,000	\$ -	\$18,000	\$ 9,000	\$ -	\$9,000	\$9,000	\$ -	\$9,000	
Totals				\$ 388,200	\$ 165,050	\$553,250	\$ 293,200	\$ 419,000	\$712,200	\$ 155,400	\$ 269,600	\$425,000

\* Labor cost based on an average labor rate of \$150/hr

## 7. References

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Boyle, D., A. King, G. Kourakos, K. Lockhart, M. Mayzelle, G.E. Fogg, and T. Harter. 2012 *Groundwater Nitrate Occurrence*. Technical Report 4 *in*: Addressing Nitrate in California's Drinking Water with a Focus on Tulare Lake Basin and Salinas Valley Groundwater. Report prepared for the State Water Resources Control Board Report to the Legislature. Center for Watershed Sciences, University of California, Davis. <http://groundwaternitrate.ucdavis.edu/>



## Attachments

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**Attachment A** – Sample Alternative Water Program Request Form - *Placeholder*