



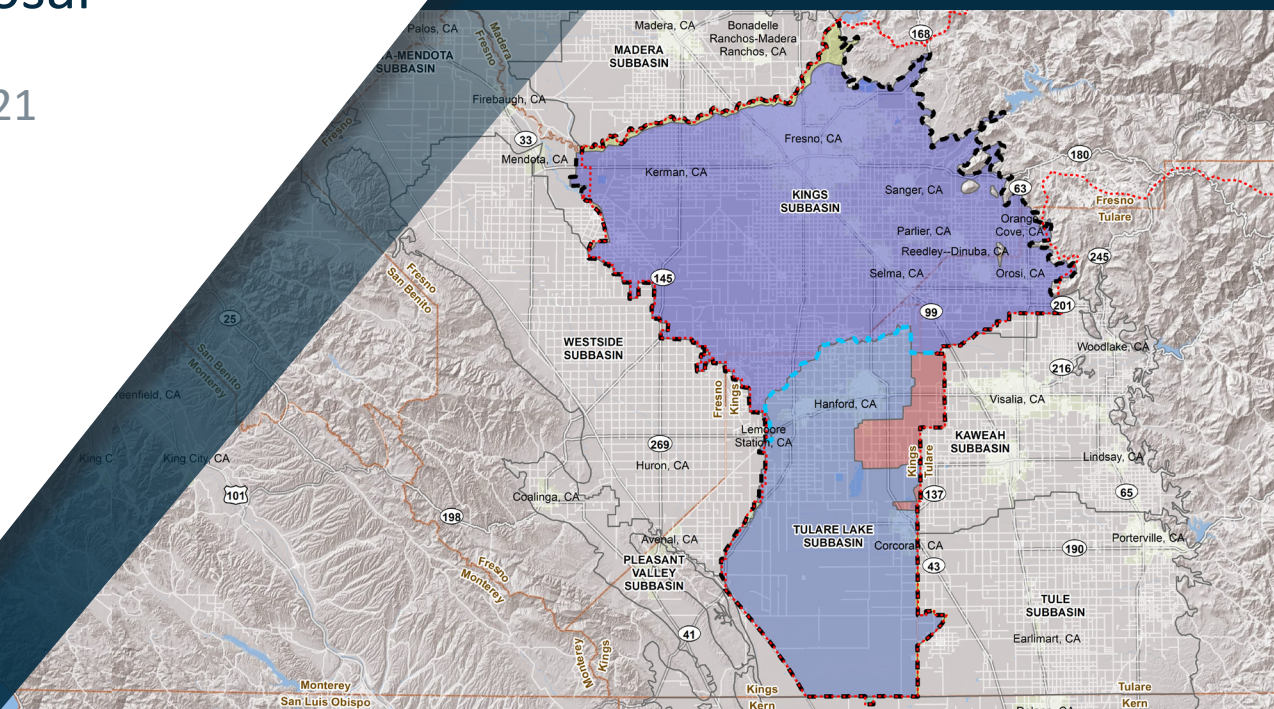
# KINGS WATER ALLIANCE MANAGEMENT ZONE

PREPARED BY:



## Preliminary Management Zone Proposal

MARCH 8, 2021



SUBMITTAL REPORT | March 8, 2021

# KINGS WATER ALLIANCE MANAGEMENT ZONE PRELIMINARY MANAGEMENT ZONE PROPOSAL

PREPARED FOR

KINGS WATER ALLIANCE



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## LIST OF ACRONYMS

Acronym	Definition
1,2,3 TCP	1,2,3-Trichloropropane
AGR	Agricultural Supply
AR Difference	Difference Between Nitrogen Applied and Nitrogen Removed
A-R	Difference between Nitrogen Applied and Nitrogen Removed
A/R Ratio	Ratio of Nitrogen Applied to Nitrogen Removed
Basin Plans	Water Quality Control Plans for the Sacramento River and San Joaquin River Basins and the Tulare Lake Basin
BOD	Biochemical Oxygen Demand
BPA	Basin Plan Amendment
CDP	Census Designated Place
Central Valley Water Board	Central Valley Regional Water Quality Control Board
CETHP	California Environmental Health Tracking Program
CIWQS	California Integrated Water Quality System
Coalition	Kings River Water Quality Coalition
CVDRMP	Central Valley Dairy Representative Monitoring Program
CVHM2	Central Valley Hydrologic Model 2.0
CV-SALTS	Central Valley Salinity Alternatives for Long-term Sustainability
CVSC	Central Valley Salinity Coalition
CVWB	Central Valley Water Board
CSD	Community Services District
CWD	Community or County Water District
CWS	Community Water System
DAC	Disadvantaged Community
DAU	Detailed Analysis Unit
DDW	Division of Drinking Water
DUC	Disadvantaged Unincorporated Community
DWR	California Department of Water Resources
DWW	Drinking Water Watch
EAP	Early Action Plan

Acronym	Definition
EC	Electrical Conductivity
ESJWQC	East San Joaquin Water Quality Coalition
FMZP	Final Management Zone Proposal
GAMA	Groundwater Ambient Monitoring and Assessment
GAR	Groundwater Quality Assessment Report
GIS	Geographic Information Systems
gpd	gallons per day
GQMP	Groundwater Quality Management Plan
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
HCM	Hydrologic Conceptual Model
ILRP	Irrigated Lands Regulatory Program
IND	Industrial Service Supply
INMP	Irrigation and Nitrogen Management Plan
INMPSR	Irrigation and Nitrogen Management Plan Summary Report
IRWM	Integrated Regional Water Management
IX	Ion Exchange
KRCD	Kings River Conservation District
KWA	Kings Water Alliance
LAA	Land Application Area
lbs	pounds
LSWS	Local Small Water System
MCL	Maximum Contaminant Level
mgd	million gallons per day
mg/L	milligrams per liter
mg/L as N	milligrams per liter as nitrogen
mg/y	million gallons per year
MHI	Median Household Income
MPEP	Management Practice Evaluation Program
MPIR	Management Practices Implementation Report
MUN	Municipal and Domestic Supply
MZ	Management Zone
MZIP	Management Zone Implementation Plan
N	Nitrogen
NMP	Nutrient Management Plan
NO <sub>3</sub> -N	Nitrate as Nitrogen
NOA	Notice of Applicability
NRCS	California Natural Resource Conservation Service
NTC	Notice to Comply
NWIS	National Water Information System
OAL	Office of Administrative Law



Acronym	Definition
OWTS	Onsite Waste Treatment System
PMZP	Preliminary Management Zone Proposal
POU	Point of Use
PRO	Industrial Process Supply
PWS	Public Water System
RO	Reverse Osmosis
SDAC	Severely Disadvantaged Communities
SDWIS	Safe Drinking Water Information System
SGMA	Sustainable Groundwater Management Act
SNMP	Salt and Nitrate Management Plan
sq. mi	square mile
SSWS	State Small Water System
State Water Board	State Water Resources Control Board
TDS	Total Dissolved Solids
TKN	Total Kjeldahl Nitrogen
USGS	United States Geological Survey
WDR	Waste Discharge Requirements
WMP	Waste Management Plan
WWTF	Wastewater Treatment Facility
WWTP	Wastewater Treatment Plant

# Executive Summary

## ES 1. Preliminary Management Zone Overview

The Kings Water Alliance initiated the formation of the Kings Water Alliance Management Zone to comply with the State Water Resources Control Board Nitrate Control Program requirements. To address the growing needs of this large region of California to solve the nitrate problem in groundwater, representatives from local growers and farmers and other permitted dischargers in the Kings and Tulare Lake Subbasins formed the Kings Water Alliance. The Kings Water Alliance (KWA) elected to pursue Path B to comply with the Nitrate Control Program, which meant forming a Management Zone.

The Kings Water Alliance Management Zone includes the Kings Groundwater Subbasin, the Tulare Lake Groundwater Subbasin, and smaller areas of other neighboring groundwater subbasins (Figure ES-1). Due to differences in nitrate groundwater conditions within the subbasins of the Central Valley, the State Water Board assigned priorities based on the urgency of addressing nitrate problems in each groundwater subbasin. The Kings Subbasin and five other subbasins were deemed the highest priority, Priority 1, which means that their compliance with the Nitrate Control Program is on a fast-track compared to the Tulare Lake Subbasin (and seven other subbasins), which was deemed a Priority 2 basin.



**The Kings Water Alliance Management Zone was formed to locally solve the nitrate problem in groundwater.**

**The overarching management goals of the Nitrate Control Program are (Central Valley Water Board, 2020):**

### Goal 1

Ensure a safe drinking water supply.

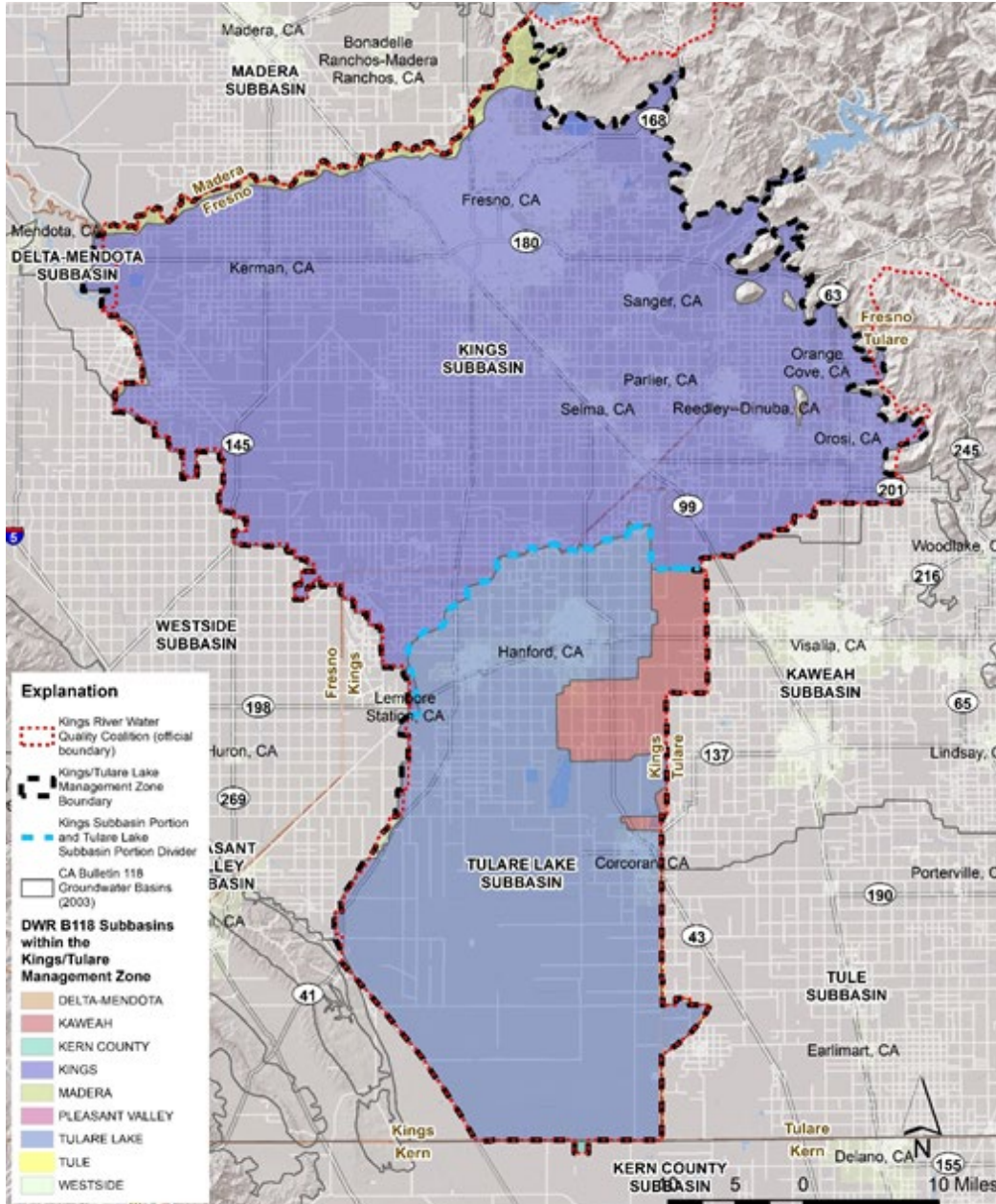
### Goal 2

Reduce nitrate loading so that ongoing discharges neither threaten to degrade high quality waters absent appropriate findings by the Central Valley Board nor cause or contribute to exceedances of nitrate water quality objectives.

### Goal 3

Implement long-term, managed restoration of impaired water bodies.

Figure ES-1. Kings Water Alliance Management Zone



The Kings Water Alliance aims to work collaboratively with permittees to form a Management Zone to achieve these goals. This compliance path toward Nitrate Control Program compliance by forming a local Management Zone (Path B) allows an exception from the nitrate standard compared to Path A. Path A is for Individual Permitting and imposes requirements to the discharger that may be difficult and expensive (potentially including: making significant upgrades to a discharger’s facility, conducting extensive monitoring of discharge and local groundwater, providing replacement drinking water to local residents, etc.). The Path B option **encourages partnership and teamwork** within its discharging members to solve the nitrate problem within their Management Zone boundary.

The Kings Water Alliance works collaboratively with the permitted dischargers to achieve the Nitrate Control Program goals.

There are several documents that must be prepared to comply with Path B of the Nitrate Control Program. The first is the Preliminary Management Zone Proposal (this document), and a key attachment, the Early Action Plan (see Attachment D). For Priority 1 subbasins, these must be submitted to the Central Valley Regional Water Board (Central Valley Water Board or CVWB) within 270 days of dischargers receiving a Notice to Comply. These two main submittals are due on March 8, 2021 for the Kings Subbasin. Implementation of the Early Action Plan must begin within 60 days of submittal. The Final Management Zone Proposal is due 180 days after public comment and the CVWB's review of the Preliminary Management Zone Proposal. The Management Zone Implementation Plan is due 180 days after public comment and the CVWB's review of the Final Management Zone Proposal.

This document, the Preliminary Management Zone Proposal, along with one of its main attachments, the Early Action Plan, is the first step to complying with the Nitrate Control Program and starting the process of solving the nitrate problems that occur within the Management Zone boundary. One of the most important components of the development of the Preliminary Management Zone Proposal and Early Action Plan is public outreach and community engagement. California State law (AB 685) declares that "every person in the state has a right to clean, safe, and affordable drinking water." This policy is commonly referred to as the **Human Right to Water**. To promote this effort, the Kings Water Alliance Management Zone has been engaging the community through various outlets (including but not limited to: mailings, flyers, radio announcements, advertisements, emails, public webinars, public surveys) in order to empower residents within the Management Zone to become engaged and involved in the decision-making process associated with solving their local nitrate problems.



This Preliminary Management Zone Proposal document is purposely designed to address the two main subbasins (Kings and Tulare Lake Subbasins), as they have different timelines for compliance due to their different priorities. For purposes of this report, the Kings Water Alliance Management Zone is divided into two main portions: the KWA Northern Portion (Kings Subbasin area) and the KWA Southern Portion (Tulare Lake Subbasin Area). The Kings Subbasin follows the Priority 1 timeline. Section 2 of this document acts almost as a stand-alone document specifically for Kings Subbasin regulatory compliance. There have been no definitive timelines published that would indicate Priority 2 deadlines. As such, Section 3 of this document addresses the Management Zone Proposal requirements for the Tulare Lake Subbasin, pre-emptively following the guidelines set forth for Priority 1 basins. Many of the descriptions of basic features and components are similar across the two portions of the Management Zone; therefore, this document contains some repetition between Sections 2 and 3.

The contents of this Preliminary Management Zone Proposal include:

## Section 1 Preliminary Management Zone Overview

This section provides an introduction and document roadmap, as well as background information about the Nitrate Control Program, more details on the Priority 1 and 2 timelines, the formation of the Kings Water Alliance Management Zone, a table cross referencing where in this document regulatory requirements are addressed, the preliminary governance, and the initial list of participants.

## Section 2 KWA Northern Portion (Kings Subbasin Area) of Management Zone

This section includes:

- Description of the characterization of the Northern Portion (Kings Subbasin Area) of the Kings Water Alliance Management Zone, including: geography, jurisdictions, Groundwater Sustainability Agencies, water management entities, drinking water systems, Disadvantaged Communities and Disadvantaged Unincorporated Communities, and land use.
- The Initial Assessment of Groundwater Conditions, which is a crucial component to determining the extent of nitrate issues within the Management Zone. This involves a summary of hydrogeology, groundwater elevations and flow, delineation of the Upper Zone of the groundwater system (for which the Nitrate Control Program regulates), and most importantly the nitrate water quality. This section contains several maps illustrating these elements within the Management Zone and describes how the spatial interpretation of ambient nitrate conditions is developed. The ambient nitrate map is used to identify areas within the Management Zone that have elevated nitrate conditions as determined using scientific and analytical techniques with the most recent and complete dataset available at the time.
- This section contains a description and list of Management Zone participants, including both permitted dischargers subject to the requirements of the Nitrate Control Program, as well as non-dischargers that have agreed to work collaboratively with the permitted dischargers to support implementation of the Program.
- This section also contains descriptions of current nitrate treatment and control efforts or management practices that exist within the Management Zone. These descriptions mainly originate from dischargers themselves, whether under a General Order (such as the Irrigated Lands Regulatory Program or Concentrated Animal Feeding Operations) or an individual permit.

## Section 3 KWA Southern Portion (Tulare Lake Subbasin Area) of the Management Zone

This section contains all of the same information as Section 2 but for the Tulare Lake Subbasin. There is some repetition between these two sections (Sections 2 and 3) due to similarities in content between the two subbasin areas.

## Section 4 Early Action Plan Development

This section provides an overview of the Early Action Plan (which is an attachment to this Preliminary Management Zone Proposal).

## Section 5 Plan to Finalize Management Proposal

This section discusses how the Management Zone will finalize its Management Zone Proposal to be consistent with the requirements of the Nitrate Control Program.

The following table lists the Nitrate Control Program requirements for the Preliminary Management Zone Proposal and where these requirements are addressed within this document (Table ES-1).

Table ES-1. Preliminary Management Zone Proposal Requirements (Central Valley Water Board 2020)	
PMZP Requirement	Location in PMZP
Proposed preliminary boundaries of the Management Zone area	Section 1.3.1
Identification of Initial Participants/Dischargers	Section 1.5
Identification of other dischargers and stakeholders in the Management Zone area that the initiating group is in contact with regarding participation in the Management Zone	Section 4.1
Initial assessment of groundwater conditions based on readily available existing data and information	Section 2.0 and 3.0
Identification/summary of current treatment and control efforts, or management practices	Section 5.0
Initial identification of public water supplies or domestic wells within the Management Zone area with nitrate concentrations exceeding the water quality objective	Early Action Plan, Attachment D
An Early Action Plan to address drinking water needs for those that rely on public water supply or domestic wells with nitrate levels exceeding the water quality objective	Summary in Section 4.0; complete Early Action Plan in Attachment D
Documentation of process utilized to identify affected residents and the outreach utilized to ensure that they are given the opportunity to participate in development of an Early Action Plan	Early Action Plan in Attachment D
Identification of areas within or adjacent to the Management Zone that overlap with other management areas/activities	Section 2.1 and 3.1
Proposed timeline for: <ul style="list-style-type: none"> <li>Identifying additional participants;</li> <li>Further defining boundary areas;</li> <li>Developing proposed governance and funding structure for administration of the Management Zone;</li> <li>Additional evaluation of groundwater conditions across the Management Zone boundary area, if necessary; and,</li> <li>Preparing and submitting a Final Management Zone Proposal and a Management Zone Implementation Plan.</li> </ul>	Section 5.0

## ES 2. KWA Northern Portion (Kings Subbasin Area) of the Management Zone

This section of the document describes the area encompassed by the Northern Portion (Kings Subbasin Area) of the Kings Water Alliance Management Zone, including general geographic and hydrologic characteristics, jurisdictions located within the planning area and key planning agencies and utilities. This section also contains the initial assessment of groundwater conditions, as well as the Management Zone participants to date, and summaries of existing current nitrate treatment, control efforts, and management practices as performed by dischargers within the Management Zone boundary.

### *ES 2.1. KWA Northern Portion (Kings Subbasin Area) Characterization*

The Northern Portion (Kings Subbasin Area) of the Kings Water Alliance Management Zone covers an area of approximately 1,547 square miles (990,133 acres), which represents about 64% of the total 2,424 square miles (over 1.55 million acres) of the entire Management Zone. This portion of the Management Zone lies within the Kings, Fresno, and Tulare Counties, and contains major surface water features, including the San Joaquin River, the Kings River, Fresno Slough, and James Bypass. Major communities within the Northern Portion (Kings Subbasin Area) of the Management Zone include: Kerman, Fresno, Sanger, Parlier, Selma, Orange Cove, Reedley, Kingsburg, Clovis, Fowler, San Joaquin, Dinuba, and Orsi.

Many Groundwater Sustainability Agencies established under the Sustainable Groundwater Management Act exist within the Northern Portion (Kings Subbasin Area) of the Management Zone. General information associated with these Groundwater Sustainability Agencies, including contact information and interested parties, is included in Attachment A. Other water management entities, including irrigation districts, water districts, community service areas, community service districts and drinking water systems, are also presented in this section. There are 230 Public Water Systems with known GIS boundary data within the Kings Water Alliance Management Zone; the majority (220) of these systems are located within the Northern Portion (Kings Subbasin Area) of the Management Zone.

There are 34 Disadvantaged Communities and 38 Disadvantaged Unincorporated Communities within the Northern Portion (Kings Subbasin Area) of the Management Zone, covering approximately 176 square miles (112,935 acres) and containing an estimated population of over 742,000. The majority of the Northern Portion (Kings Subbasin Area) of the Management Zone is covered by agricultural land use categories, with Deciduous Fruits and Nuts (22%), Vineyards (17%), and Urban (12%) as the predominant mapped land uses according to the California Department of Water Resources land use mapping effort in 2016.

### *ES 2.2. KWA Northern Portion (Kings Subbasin Area) Initial Assessment of Groundwater Conditions*

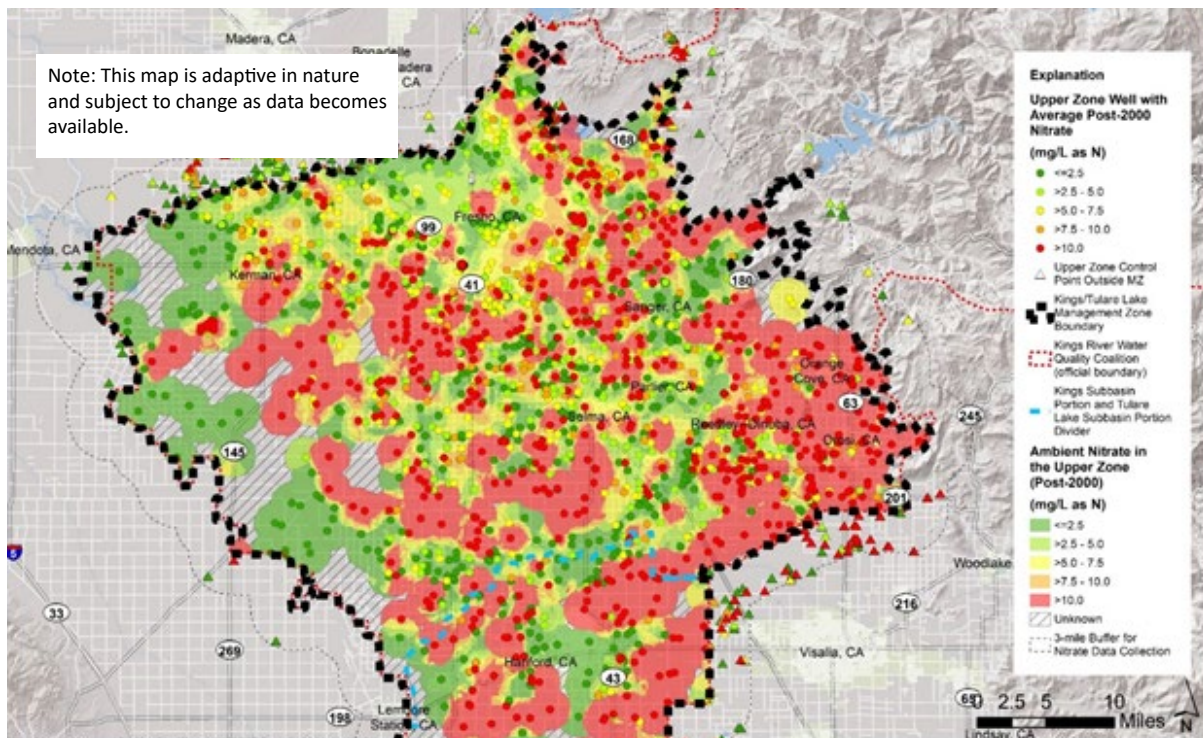
The initial assessment of groundwater conditions is based on readily available existing data and information. The hydrogeology of the Kings Subbasin is summarized within this section, including the predominant physical features underlying the area. Groundwater elevation mapping indicates that groundwater flows regionally from the Sierra Nevada foothills in the east to the southwest, and towards a groundwater depression located in the western-central area of the Subbasin.



**The Nitrate Control Program focuses on the Upper Zone of groundwater, from which most domestic wells draw their water.**

As mentioned above, the Nitrate Control Program focuses on the Upper Zone of the groundwater system. This zonation of the subsurface is a result of previous efforts from the Central Valley Salinity Coalition that attempted to define the depth from which groundwater is produced from most domestic wells across the Central Valley. In the Northern Portion (Kings Subbasin Area) of the Management Zone, the depth to the bottom of the Upper Zone ranges from 85 feet (at its shallowest in the northeast) to 500 feet (at its deepest in the southwest) below ground surface.

Nitrate groundwater quality data were collected from readily available public databases, an existing Central Valley Salinity Alternatives for Long-term Sustainability (CV-SALTS) database, as well as requested data from local entities including irrigation districts and County Departments of Environmental or Public Health. Groundwater nitrate data from wells were vetted and categorized based on well depth and/or well type to determine whether the data represent nitrate conditions in the Upper Zone of the Management Zone. The best readily available groundwater nitrate dataset compiled and analyzed included sample results for Upper Zone wells from January 2000 to August 2020. These nitrate data were temporally and spatially declustered for use in determining ambient nitrate conditions in the Upper Zone for the Management Zone. Ambient nitrate conditions were developed using spatial interpolation (kriging) on average post-2000 nitrate sample data for wells categorized into the Upper Zone, using a search radius of 1.5 miles. The resultant map (Figure ES-2) illustrates relative concentration areas across the subbasin, identifying areas (in red) that have elevated nitrate conditions that potentially exceed the drinking water standard (maximum contaminant level) of 10 milligrams per liter nitrate as nitrogen (mg/L as N). The Management Zone recognizes that the map



**Figure ES-2. Ambient Post-2000 Nitrate Concentrations in the Upper Zone of Groundwater Underlying the KWA Northern Portion (Kings Subbasin Area) of the Proposed Kings Water Alliance Management Zone**



of ambient nitrate in the Upper Zone has inherent uncertainty and is adaptive in nature. As more Upper Zone nitrate data become available (through implementation of the Early Action Plan’s well testing program, as well as other monitoring programs such as the Irrigated Lands Regulatory Program or Groundwater Sustainability Plans), this process and analysis will be repeated. The ambient map will be updated (and potentially changed) prior to the Final Management Zone Proposal submittal date.

### *ES 2.3. KWA Northern Portion (Kings Subbasin Area) Management Zone Participants*

Dischargers that received a **Notice to Comply** with the Nitrate Control Program include: (a) Kings River Water Quality Coalition that represents growers subject to the Irrigated Lands Regulatory Program; (b) permittees subject to various General Orders applicable to concentrated animal feeding operations including milk cow dairies, confined bovine feeding operations and poultry operations; and (c) permittees that discharge under individual waste discharge requirements. The Management Zone conducted outreach to the representatives of permittees under General Orders and individual dischargers. The PMZP identifies the **permitted dischargers** that have elected to participate in the Management Zone.



### *ES 2.4. KWA Northern Portion (Kings Subbasin Area) Current Nitrate Treatment and Control Efforts or Management Practices*

The current nitrate treatment and control efforts or management practices being implemented by each of participating permittees located in the Northern Portion (Kings Subbasin Area) of the Management Zone are summarized in this PMZP. The PMZP provides a general summary of the permit requirements applicable to permittees that are members of the Kings River Water Quality Coalition or subject to a General Order for a concentrated animal feeding operation. For permittees with an individual WDR that are participating in the Management Zone, the PMZP provides a brief summary of the nature of the permitted facility and their existing permit requirements as they relate to the management of nitrate.

## **ES 3. KWA Southern Portion (Tulare Lake Subbasin Area) of the Management Zone**

This section of the document describes the area encompassed by the Southern Portion (Tulare Lake Subbasin Area) of the Kings Water Alliance Management Zone that is mostly comprised of the Tulare Lake Subbasin. Similar to Section 2 (Northern Portion/Kings Subbasin Area), this section includes general geographic and hydrologic characteristics, jurisdictions located within the planning area, and key planning agencies and utilities. This section also contains the initial assessment of groundwater conditions, as well as the Management Zone participants to date, and summaries of existing current nitrate treatment, control efforts and management practices as performed by dischargers within the Management Zone boundary.

### *ES 3.1. KWA Southern Portion (Tulare Lake Subbasin Area) Characterization*

The KWA Southern Portion (Tulare Lake Subbasin Area) of the Kings Water Alliance Management Zone covers an area of approximately 877 square miles (561,353 acres), which represents about 36% of the total area of the entire Management Zone. This portion of the Management Zone lies mostly

within Kings County, with a small portion of Tulare County in the east, and shares part of its northern boundary with Fresno County. Surface water features include the Kings River and several canals. Major communities within the Southern Portion (Tulare Lake Subbasin Area) of the Management Zone include: Lemoore, Hanford, and Corcoran.

Many Groundwater Sustainability Agencies established under the Sustainable Groundwater Management Act exist within the Southern Portion (Tulare Lake Subbasin Area) of the Management Zone. General information associated with these Groundwater Sustainability Agencies, including contact information and interested parties, is included in Attachment A. Other water management entities, including irrigation districts, water districts, community service areas, community service districts and drinking water systems, are also presented in this section. Of the 230 Public Water Systems with known GIS boundary data within the Kings Water Alliance Management Zone, eleven (11) of them are located within the Southern Portion (Tulare Lake Subbasin Area) of the Management Zone.

There are seven (7) Disadvantaged Communities and eleven (11) Disadvantaged Unincorporated Communities within the Southern Portion (Tulare Lake Subbasin Area) of the Management Zone, covering approximately 20 square miles (12,730 acres) and containing an estimated population of almost 62,000. The 2016 Department of Water Resources land use within the Southern Portion (Tulare Lake Subbasin Area) of the Management Zone indicates that Field Crops make up the most common mapped land use type (27% of the total Southern Portion area).

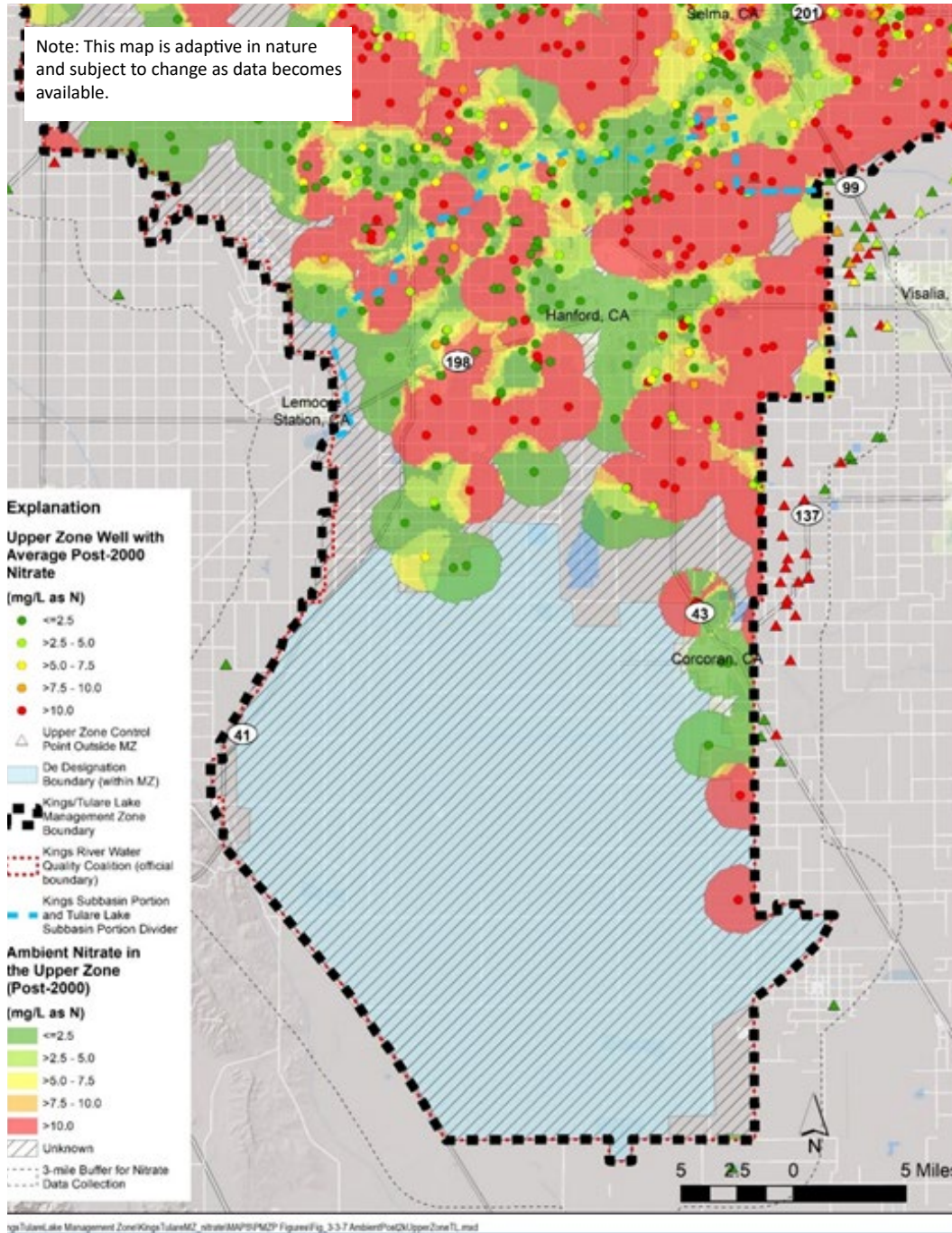
### *ES 3.2. KWA Southern Portion (Tulare Lake Subbasin Area) Initial Assessment of Groundwater Conditions*

As mentioned above, the initial assessment of groundwater conditions is based on readily available existing data and information. The hydrogeology of the Tulare Lake Subbasin is summarized within this section that provides insight to the physical features that dominate the subsurface of the area, including the ancestral and former Tulare Lake Bed deposit of fine-grained lacustrine sediments in the central and southern parts of this area. Groundwater elevation mapping indicates that local flow directions are variable in the northern portion of the Tulare Lake Subbasin. There are very few wells located within the former Tulare Lake Bed, forming a large data gap area in the majority of the Tulare Lake Subbasin. This area of the former Tulare Lake Bed has received regulatory scrutiny in the past due to exceptionally high salinity making the water in parts of the subsurface unsuitable for domestic, municipal, and agricultural beneficial uses. As a result, groundwater in this area has been “de-designated” from beneficial uses within specified horizontal and vertical portions of the Tulare Lake Bed.

In the KWA Southern Portion (Tulare Lake Subbasin Area) of the Management Zone, the depth to the bottom of the Upper Zone ranges from about 200 feet (at its shallowest in the northeast) to about 600 feet (at its deepest in the central northwest) below ground surface.

Similar to the northern area of the Management Zone, nitrate groundwater quality data were collected from readily available databases and categorized based on well depth and/or well type to determine nitrate conditions in the Upper Zone of the Management Zone. Ambient nitrate conditions were developed using spatial interpolation on average post-2000 nitrate sample data for wells meticulously vetted and categorized into the Upper Zone (actual data utilized in the ambient nitrate conditions spatial interpolation kriging were from January 2000 to August 2020 and used a search radius of 1.5 miles). The resultant map (Figure ES-3) illustrates relative concentration areas across the Tulare Lake

Subbasin, identifying areas (in red) that have elevated nitrate conditions that potentially exceed the drinking water standard (maximum contaminant level) of 10 milligrams per liter nitrate as nitrogen (mg/L as N). The Management Zone recognizes that the map of ambient nitrate in the Upper Zone has inherent uncertainty and is adaptive in nature. As more Upper Zone nitrate data become available (through implementation of the Early Action Plan’s well testing program, as well as other monitoring programs such as the Irrigated Lands Regulatory Program or Groundwater Sustainability Plans), this process and analysis will be repeated. The ambient map will be updated (and potentially changed), prior to the Final Management Zone Proposal submittal date.



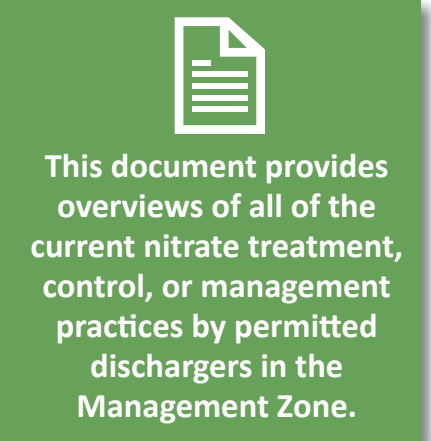
**Figure ES-3. Ambient Post-2000 Nitrate Concentrations in the Upper Zone of Groundwater Underlying the KWA Southern Portion (Tulare Lake Subbasin Area) of the Proposed Kings Water Alliance Management Zone**

### ES 3.3. KWA Southern Portion (Tulare Lake Subbasin Area) Management Zone Participants

Dischargers that received a Notice to Comply with the Nitrate Control Program include: (a) Kings River Water Quality Coalition that represents growers subject to the Irrigated Lands Regulatory Program; (b) permittees subject to various General Orders applicable to concentrated animal feeding operations including milk cow dairies, confined bovine feeding operations and poultry operations; and (c) permittees that discharge under individual waste discharge requirements. The Management Zone conducted outreach to the representatives of permittees under General Orders and individual dischargers. The PMZP identifies the permitted dischargers that have elected to participate in the Management Zone.

### ES 3.4. KWA Southern Portion (Tulare Lake Subbasin Area) Current Nitrate Treatment and Control Efforts or Management Practices

The current nitrate treatment and control efforts or management practices being implemented by each of the participating permittees located in the Tulare Lake/Kaweah Subbasin portions of the Management Zone are summarized in this PMZP. The PMZP provides a general summary of the permit requirements applicable to permittees that are members of the Kings River Water Quality Coalition or subject to a General Order for a concentrated animal feeding operation. For permittees with an individual WDR that are participating in the Management Zone, the PMZP provides a brief summary of the nature of the permitted facility and their existing permit requirements as they relate to the management of nitrate.




This document provides overviews of all of the current nitrate treatment, control, or management practices by permitted dischargers in the Management Zone.


## ES 4. Early Action Plan Development

Establishment of a Management Zone requires the preparation of an **Early Action Plan (EAP)** that identifies initial actions the Kings Water Alliance will carry out to address sources of drinking water with unsafe nitrate levels. The key element of the EAP, which was developed in collaboration with the community, is the **Interim Replacement Water Program**. This Program provides immediate alternative sources of drinking water for those that depend on groundwater with unsafe levels of nitrate for their drinking and cooking needs, that is water with more than 10 mg/L as N.


The PMZP includes a summary of the key elements of the EAP including a summary of the wells potentially impacted by high nitrate levels, identification of areas within the Management Zone where the groundwater quality most likely exceeds 10 mg/L-N, a brief overview of key EAP elements such as community outreach, the interim replacement water options (e.g., bottled water delivery, point-of-use treatment systems and water fill stations), a well-testing program to support EAP implementation and a general schedule for implementation.



Bottled Water Delivery



Point-of-Use Treatment Systems



Water Fill Stations

The actual EAP, which includes more comprehensive information is attached to this PMZP as Attachment D.

## ES 5. Plan to Finalize Management Proposal

This section discusses how the Management Zone will finalize its Management Zone Proposal, maintaining consistency with the requirements of the Nitrate Control Program. The Kings Water Alliance has conducted outreach to all permitted dischargers in the proposed Management Zone, but dischargers within Priority 1 basins have until May 7, 2021 to choose to be part of the Management Zone. Dischargers within Priority 2 basins will have longer to decide whether to participate in the Kings Water Alliance Management Zone. The Final Management Zone Proposal will be due no later than 180 days after receiving comments from the Central Valley Water Board on this Preliminary Management Zone Proposal.

Although it is not likely to change, the Management Zone boundary may be refined prior to the submittal of the Final Management Zone Proposal. The KWA Management Zone boundary may be modified as a result of dischargers in the Management Zone selecting Path A. If appropriate, the negotiated area determined to be the responsibility of Path A dischargers may be removed from the Kings Water Alliance Boundary. The groundwater nitrate assessment may also be updated prior to submittal of the final Proposal. This may be necessary if and when domestic well nitrate results become available through either: 1) implementation of well testing under the Irrigated Lands Regulatory Program, or 2) through implementation of the residential well testing program in the Early Action Plan (Attachment D). The funding and governance of the Management Zone will also be provided in the final Proposal.

The Preliminary Management Zone Proposal was made available for public comment on January 28, 2021 prior to submittal on March 8, 2021<sup>1</sup>, but a **formal public comment period** will occur for at least 30 days after being publicly posted by the Central Valley Water Board on its website and through the Lyrus Management System. **The Central Valley Water Board will provide comments** on the preliminary proposal after completion of this formal public comment process. The Kings Water Alliance Management Zone will submit its Final Management Zone Proposal no later than 180 days after receiving comments from the Central Valley Water Board on this Preliminary Management Zone Proposal.

### Key Milestones



<sup>1</sup> Comments and responses are provided from this first public comment period in Attachment C.

## 1. PRELIMINARY MANAGEMENT ZONE OVERVIEW

### 1.1. Introduction and Document Roadmap

The Kings Water Alliance initiated the formation of the Kings Water Alliance Management Zone to comply with the State Water Resources Control Board Nitrate Control Program requirements. The Kings Subbasin was determined by the State Water Board to be a Priority 1 basin, which meant that their compliance with the Nitrate Control Program was on a fast-track compared to the Tulare Lake Subbasin, which was deemed a Priority 2 basin. To address the growing needs of this large region of California to solve the nitrate problem in groundwater, representatives from local growers and farmers and other permitted dischargers in the Kings and Tulare Lake Subbasins formed the Kings Water Alliance. The Kings Water Alliance (KWA) elected to pursue Path B to comply with the Nitrate Control Program, which meant forming a Management Zone. The boundary of the Management Zone is largely a combination of the Kings Water Alliance boundary and the California Department of Water Resources (DWR) Bulletin 118 basin boundaries as published in 2003 for the Kings and Tulare Lake Subbasins. As explained in this document, the proposed Management Zone also includes small areas of other subbasins.

Due to the difference in submittal dates associated with Priority 1 basins versus Priority 2 basins, this document is divided into chapters that address: 1) the Northern Portion of the KWA Management Zone (Kings Subbasin Priority 1) and 2) the Southern Portion of the KWA Management Zone (Tulare Lake Subbasin Priority 2). Although there are sections within these two chapters that present the same information, this approach enables the Kings Water Alliance, who has elected to represent both subbasins, to comply with the two different regulatory deadlines associated with the Nitrate Control Program for Path B (that entails forming the proposed Management Zone). Chapter 2 contains the Preliminary Management Zone requirements for the Northern Portion (Kings Subbasin area) of the KWA Management Zone, which represents the Priority 1 basin and therefore a more immediate deadline. Chapter 3 contains the Preliminary Management Zone requirements for the Priority 2 Tulare Lake Subbasin and Southern Portion of the KWA Management Zone, for which the regulatory deadline has not yet been determined. These two chapters may be treated as separate submittal documents, and hence there are some sections that are repeated and contain the same descriptions in both chapters. Repetition of some sections within Chapter 2 and 3 is intentional to address two separate subbasins within the Kings Water Alliance Management Zone with different priorities and regulatory deadlines.

## 1.2. Nitrate Control Program

The Central Valley Regional Water Quality Control Board (Central Valley Water Board, or CVWB) adopted Amendments to the Water Quality Control Plans for the Sacramento River and San Joaquin River Basins and the Tulare Lake Basin (Basin Plans) to incorporate a Central Valley-wide Salt and Nitrate Control Program (Resolution R5-2018-0034) on May 31, 2018 (Central Valley Water Board, 2018). The State Water Resources Control Board (State Water Board) and the Office of Administrative Law (OAL) approved these amendments to the Central Valley Water Board Basin Plans (Central Valley Water Board, 2015, 2016) on October 16, 2019 (Resolution 2019-0057) and January 15, 2020 (OAL Matter Number: 2019-1203-03), respectively. The portions of these Basin Plan amendments (BPA) that established the Nitrate Control Program became effective January 17, 2020.

The State Water Board's Resolution approving the Nitrate Control Program required targeted revisions to the new Salt and Nitrate Management Program. The CVWB recently adopted these revisions on December 10, 2020 (Resolution R5-2020-0057). Although these revisions are still under review by the State Water Board, the nitrate management goals and compliance requirements described herein are based on expected approval of the Nitrate Control Program revisions in 2021.

The over-arching management goals of the Salt and Nitrate Control Program are (Central Valley Water Board, 2020):

1. Ensure safe drinking water supply;
2. Reduce salt and nitrate loading so that ongoing discharges neither threaten to degrade high quality waters absent appropriate findings by the CVWB nor cause or contribute to exceedances of water quality objectives; and
3. Implement long-term, managed restoration of impaired water bodies.

The schedule for implementation of the Central Valley Nitrate Control Program is based on the priority designation of Central Valley Region groundwater basins/subbasins. These groundwater basins/subbasins, which are designated as Priority 1, Priority 2 or "Remaining Areas" (not currently prioritized), are prioritized based on existing ambient nitrate concentrations in the upper portion of the groundwater system. The Nitrate Control Program designates the Kings Subbasin as a Priority 1 basin (see Figure N-1 and Table N-1, Central Valley Water Board, 2020).

## 1.3. Notice to Comply

The CVWB sent out a Notice to Comply (NTC) to permitted dischargers in Priority 1 groundwater basins/subbasins on May 29, 2020. Following receipt of the NTC, permitted

dischargers must choose between two compliance pathways to meet requirements of the Nitrate Control Program:

- **Path A: Individual Permitting Approach** – This is the default permitting compliance pathway. Under this approach the permittee must comply with all Nitrate Control Program requirements as an individual discharger or as a third-party group subject to a General Order that chooses to be permitted under this approach.
- **Path B: Management Zone Approach** – Permitted dischargers that elect to comply using the compliance Path B work cooperatively with other dischargers and local stakeholders to implement all requirements of the Nitrate Control Program.

A Management Zone is defined as follows (Central Valley Water Board, 2020):

- A Management Zone is a discrete and generally hydrologically contiguous area for which permitted discharger(s) participating in the Management Zone collectively work to meet the goals of the SNMP [Salt and Nitrate Management Plan] and for which regulatory compliance is evaluated based on the permittees’ collective impact, including any alternative compliance programs, on a defined portion of the aquifer. Where Management Zones cross groundwater basin or subbasin boundaries, regulatory compliance is assessed separately for each basin or subbasin. Management Zones must be approved by the CVWB.
- The establishment of a Management Zone creates a collective approach to nitrate management that maximizes resources and provides a more integrated approach to developing local solutions to achieve the goals of the Program. **Table 1-1** summarizes the intent and purpose for establishment of a Management Zone (Central Valley Water Board, 2020).

Table 1-1. Intent and Purpose of a Management Zone (adapted from Table N-4 in the Nitrate Control Program [Central Valley Water Board, 2020])	
Characteristics	
	<ul style="list-style-type: none"> <li>• A defined area which incorporates a portion of a large groundwater basin(s)/subbasin(s)</li> </ul>
	<ul style="list-style-type: none"> <li>• Encompasses all groundwater for those permittees that discharge nitrate to said groundwater that have selected to comply with the Nitrate Control Program through participation in the defined Management Zone.</li> </ul>
	<ul style="list-style-type: none"> <li>• Voluntarily proposed by those regulated permittees located within the proposed Management Zone boundary that have decided to work collectively and collaboratively to comply with the Nitrate Control Program.</li> </ul>
Intent and Purposes	



<ul style="list-style-type: none"> <li>• Defined area that serves as a discrete regulatory compliance unit for complying with the Nitrate Control Program for multiple permittees.</li> </ul>
<ul style="list-style-type: none"> <li>• Basis for the establishment of local management plans to manage nitrate within the Management Zone’s boundary.</li> </ul>
<ul style="list-style-type: none"> <li>• Participants work collectively to implement Salt and Nitrate Control Program Management Goals: (1) safe drinking water, (2) reduced nitrate loading so that ongoing discharges do not cause or contribute to exceedances of water quality objectives, and (3) restoring groundwater basins/subbasins (where reasonable, feasible and practicable) across the Management Zone.</li> </ul>
<ul style="list-style-type: none"> <li>• Where groundwater within the Management Zone boundary, and groundwater impacted by those permittees within the Management Zone boundary, is being used as a drinking water supply, and where those drinking water supplies are impacted by nitrates and exceed or are likely to exceed nitrate drinking water standards in the foreseeable future, Management Zone participants will ensure the provision of safe drinking water to all residents in the area adversely affected by those dischargers of nitrates from those that are participating in the Management Zone.</li> </ul>
<ul style="list-style-type: none"> <li>• Ensure the provision of safe drinking water for the Management Zone through stakeholder coordination and cooperation.</li> </ul>
<ul style="list-style-type: none"> <li>• Work towards better resource management through appropriate allocation of resources.</li> </ul>
<ul style="list-style-type: none"> <li>• Central Valley Water Board imposes reasonable provisions collectively for the Management Zone, and its permittee participants, that recognize the need to prioritize nitrate management activities over time for compliance with the Salt and Nitrate Control Program Management Goals.</li> </ul>

The CVWB sent out an NTC to permitted dischargers in the Kings Subbasin on May 29, 2020. This NTC activated the following schedule of deliverables for permitted dischargers that elected to comply under Path B – Management Zone Approach in the Kings Subbasin (see Table N-5.B, Summary Schedule for Implementation; Central Valley Water Board, 2020):

- Submit a Preliminary Management Zone Proposal to the CVWB (including an Early Action Plan) by March 8, 2021.
- Initiate implementation of the Early Action Plan within 60 days following submittal of the Plan, unless the CVWB objects to the Plan.
- Submit a Final Management Zone Proposal within 180 days of the receipt of comments from the CVWB on the Preliminary Management Zone Proposal.
- Submit a Management Zone Implementation Plan six (6) months after the Final Management Zone Proposal is accepted by the CVWB’s Executive Officer.

This document represents the Preliminary Management Zone Proposal (PMZP or Proposal) for the management of nitrates within the Kings and Tulare Lake Subbasins within the Kings Water

Alliance Management Zone. This Proposal fulfills the requirements of the Nitrate Control Program as prescribed by the CVWB (2020). **Table 1-2** summarizes these requirements and where they are addressed in this Proposal.

Table 1-2. Preliminary Management Zone Proposal Requirements (Central Valley Water Board, 2020)	
PMZP Requirement	Location in PMZP
Proposed preliminary boundaries of the Management Zone area	Section 1.3.1
Identification of Initial Participants/Dischargers	Section 1.5
Identification of other dischargers and stakeholders in the Management Zone area that the initiating group is in contact with regarding participation in the Management Zone	Section 4.1
Initial assessment of groundwater conditions based on readily available existing data and information	Section 2.0 and 3.0
Identification/summary of current treatment and control efforts, or management practices	Section 5.0
Initial identification of public water supplies or domestic wells within the Management Zone area with nitrate concentrations exceeding the water quality objective	Early Action Plan, Attachment D
An Early Action Plan to address drinking water needs for those that rely on public water supply or domestic wells with nitrate levels exceeding the water quality objective	Summary in Section 4.0; complete Early Action Plan in Attachment D
Documentation of process utilized to identify affected residents and the outreach utilized to ensure that they are given the opportunity to participate in development of an Early Action Plan	Early Action Plan, Attachment D
Identification of areas within or adjacent to the Management Zone that overlap with other management areas/activities	Section 2.1 and 3.1
Proposed timeline for: <ul style="list-style-type: none"> <li>○ Identifying additional participants;</li> <li>○ Further defining boundary areas;</li> <li>○ Developing proposed governance and funding structure for administration of the Management Zone;</li> <li>○ Additional evaluation of groundwater conditions across the Management Zone boundary area, if necessary;</li> <li>and,</li> </ul>	Section 5.0

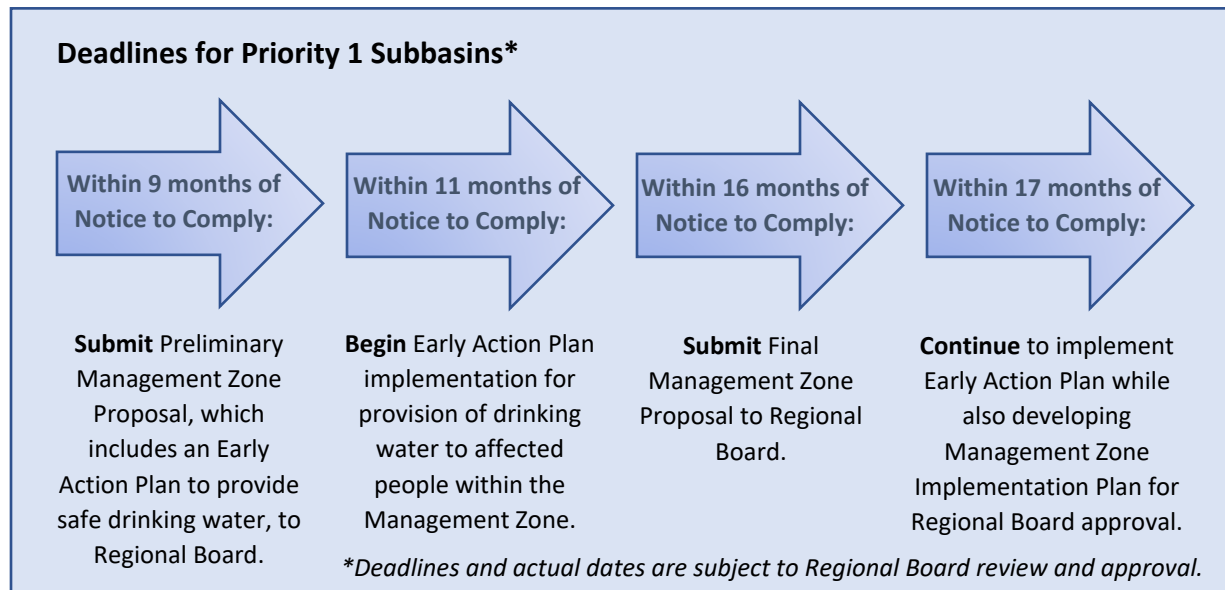
Table 1-2. Preliminary Management Zone Proposal Requirements (Central Valley Water Board, 2020)	
PMZP Requirement	Location in PMZP
<ul style="list-style-type: none"> <li>○ Preparing and submitting a Final Management Zone Proposal and a Management Zone Implementation Plan.</li> </ul>	

### **1.3.1. Priority 1 and Priority 2 Requirements and Timeline**

The Nitrate Control Program begins with Priority 1 groundwater subbasins, which include: Kaweah, Turlock, Chowchilla, Tule, Modesto, and Kings. The CVWB sent Notices to Comply on May 29, 2020, giving the permitted dischargers in these areas time to choose between two compliance pathways. Path A indicates that dischargers would proceed with the Nitrate Control Program requirements under an individual permit. Path B indicates multiple dischargers in a region will come together and form a Management Zone, which is an alternative means of nitrate compliance that offers the opportunity to work cooperatively to manage nitrate discharges more cost-effectively and to provide safe drinking water to adversely affected residents. There are several benefits to choosing Path B and forming a Management Zone: it establishes local control, more flexibility, the ability to adapt management to local conditions, the opportunity to share resources, funding, and knowledge across different industries, etc.

The deadlines for Priority 1 Subbasins, including the Kings Subbasin, are illustrated in **Figure 1-1**.

**Figure 1-1. Deadlines for Priority 1 Subbasins (adapted from cvsalinity.org).**



Priority 2 Subbasins include: Yolo, Merced, Kern County (Westside South), Tulare Lake, Kern County (Poso), Delta Mendota, Eastern San Joaquin, and Madera Subbasins. The Tulare Lake Subbasin is a Priority 2 basin for the Nitrate Control Program, and the timeline for issuance of Notices to Comply with the Nitrate Control Program is expected within 2 to 4 years after the effective date of the Nitrate Control Program (January 17, 2020). The tentative schedule for implementation of the Nitrate Control Program for Path B Priority 2 Basins/Subbasins is described here but subject to alteration by the CVWB at their discretion. Implementation of the Nitrate Control Program for Priority 2 Management Zones is expected to be 425 days after the issuance of Notices to Comply. The submittal of Preliminary Management Zone Proposals for Priority 2 Subbasins (e.g., the Tulare Lake Subbasin) is expected to be 1 year after receiving the Notice to Comply. The Early Action Plan would be submitted at the same time, 1 year after receiving the Notice to Comply, with an initiation of the Early Action Plan within 60 days of submittal if no objection is received by the CVWB. The Final Management Zone Proposal for Priority 2 Subbasins (Turlock Lake Subbasin) is expected to be due 180 days after receiving comments from the CVWB on the Preliminary Management Zone Proposal. The Management Zone Implementation Plan would be due six months after the Final Management Zone Proposal is accepted by the Executive Officer of the CVWB.

Despite the fact that the Tulare Lake Subbasin dischargers have not yet received a Notice to Comply, the Kings Water Alliance is being proactive in completing this Preliminary Management Zone Proposal (and accompanying Early Action Plan) for the Tulare Lake Subbasin in

combination with their effort for the Kings Subbasin via the formation of the Kings Water Alliance Management Zone.

## 1.4. Management Zone Formation

This section describes the basis for the establishment of this proposed Management Zone, including (a) the proposed boundary; (b) the technical and regulatory justification for the proposed boundary; and (c) the preliminary organizational structure of the Management Zone.

### 1.4.1. Proposed Management Zone Boundary

The boundary of the Northern Portion (Kings Subbasin Area) of the Kings Water Alliance Management Zone is a combination of the 2003 DWR Bulletin 118 delineation of the Kings Subbasin of the San Joaquin Valley Groundwater Basin and the official boundary of the Kings Water Alliance<sup>2</sup> (**Figure 1-2**). The extent of the Kings Water Alliance boundary is contained within the eastern border of the Central Valley Floor (or the extent of the alluvium, as defined by the 2003 DWR Bulletin 118). The Northern Portion of the Kings Water Alliance Management Zone extends to the north, into the Madera Subbasin, following the Kings Water Alliance boundary in the north. A small piece of the southeastern Kings Subbasin (approximately 9,041 acres) is not covered by the Kings Water Alliance Management Zone boundary, and this area will be covered by the Kaweah Subbasin Management Zone<sup>3</sup>. As a result of the development of the Kings Water Alliance Management Zone boundary, several other subbasins are contained within the Management Zone area. **Table 1-3** summarizes the approximate area (acres) of all subbasins within the Kings Water Alliance Management Zone, delineating the acres of each DWR subbasin that is contained within this Chapter (the KWA Northern Portion (Kings Subbasin Area) column, contained in **Chapter 2**), as well as acres associated with the KWA Southern Portion (Tulare Lake Subbasin Area) of the Management Zone (**Chapter 3**), and the total Kings Water Alliance Management Zone area.

The KWA Northern Portion (Kings Subbasin Area) of the Management Zone contains very small areas of the Kaweah and Westside Subbasins, since the KWA and Subbasin boundaries do not directly align with each other. The KWA boundary extends a bit to the northwest, capturing a small portion of the southeasternmost edge of the Delta-Mendota Subbasin. The Madera Subbasin has over 20,000 acres in the KWA Management Zone, due to the KWA boundary extending north past the 2003 Kings Subbasin boundary. This represents the largest area of another Subbasin that is contained within the Northern Portion of the KWA Management Zone.

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<sup>2</sup> It may become necessary in the future to reconcile minor differences in boundaries between the Management Zones and Water Quality Coalitions and the DWR subbasin boundaries.

<sup>3</sup> Communication with Sarah Rutherford (January 7, 2021) of the Kaweah Subbasin indicated that this area of the southeastern Kings Subbasin will be contained in their Management Zone in order to comply with the Nitrate Control Program.

**Table 1-3. Areas within DWR Subbasins in the Kings Water Alliance Management Zone**

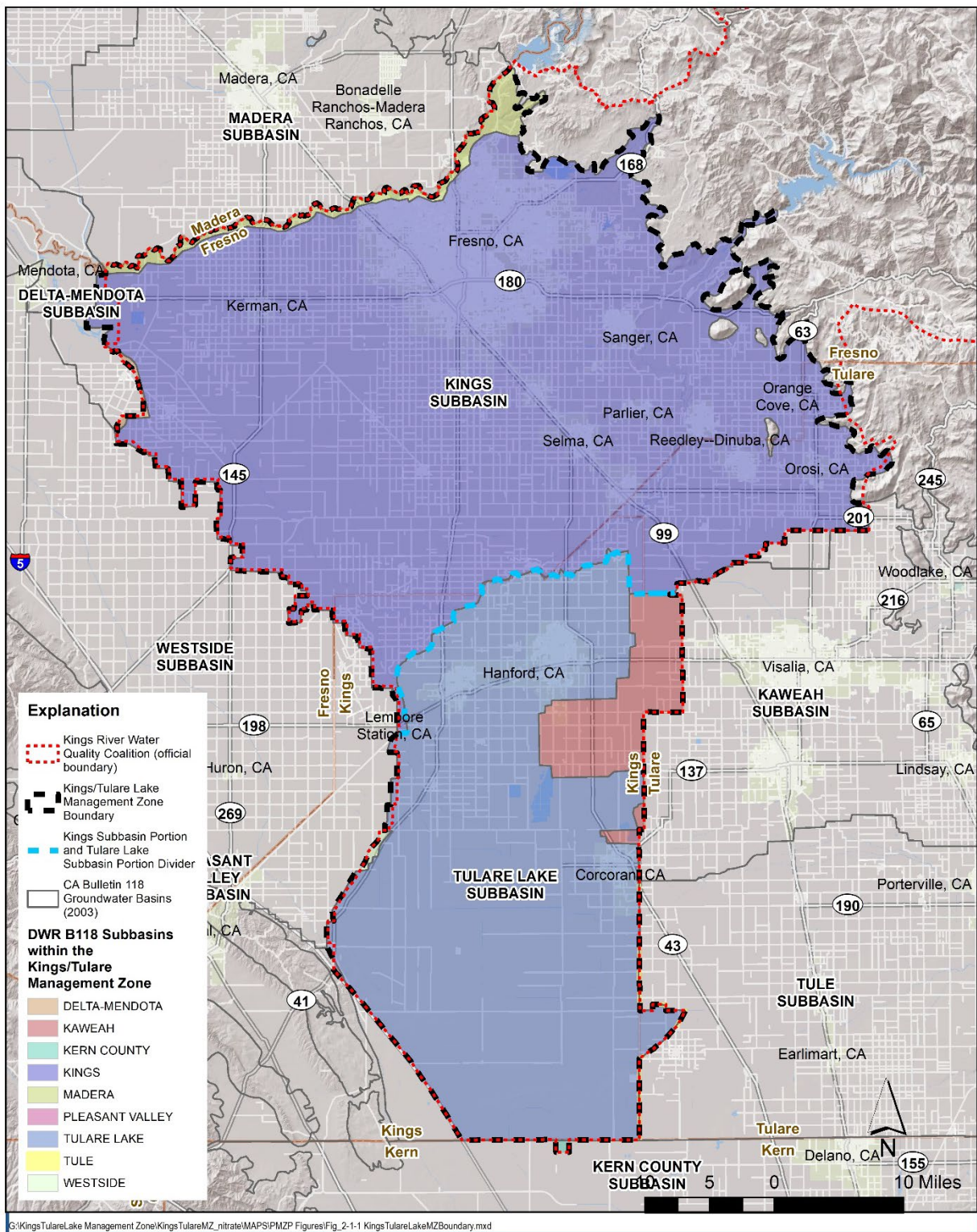
DWR Subbasin (2003)	Nitrate Control Program Priority <sup>1</sup>	Northern Portion (Kings Subbasin Area) of the MZ (Acres)	Southern Portion (Tulare Lake Subbasin Area) of the MZ (Acres)	Total Kings Water Alliance MZ Area (Acres)
Delta-Mendota	2	1,662	-	1,662
Kaweah	1	565	56,217	56,782
Kern County	2	-	602	602
<b>Kings</b>	<b>1</b>	<b>966,767</b>	<b>-</b>	<b>966,767</b>
Madera	2	20,887	-	20,887
Pleasant Valley	-	-	302	302
<b>Tulare Lake</b>	<b>2</b>	<b>-</b>	<b>502,643</b>	<b>502,643</b>
Tule	1	-	361	361
Westside	-	253	1,227	1,480
Total Area	-	<b>990,133<sup>2</sup></b>	<b>561,353<sup>3</sup></b>	<b>1,551,486<sup>2</sup></b>

<sup>1</sup> The Nitrate Control Program subbasin priority is either Priority 1, Priority 2, or not prioritized, as designated by a “-“ in this table.

<sup>2</sup> 2,784 acres of hills are included in the Northern Portion (Kings Subbasin Area) of the KWA MZ, but are not technically part of the DWR-defined Subbasin.

<sup>3</sup>Contains 303,959 acres of De-Designated Land, which is described more in Chapter 3.

**Figure 1-2. Map of the Kings Water Alliance Management Zone Boundary**



### **1.4.2. Consistency with Required Management Zone Characteristics**

The Nitrate Control Program establishes the following characteristics to describe a Management Zone (Table N-4 in Central Valley Water Board, 2020):

- A defined area which incorporates a portion of a large groundwater basin(s)/subbasin(s);
- Encompasses all groundwater for those permittees that discharge nitrate to said groundwater that have selected to comply with the Nitrate Control Program through participation in the defined Management Zone.
- Voluntarily proposed by those regulated permittees located within the proposed Management Zone boundary that have decided to work collectively and collaboratively to comply with the NCP.

As described below, the proposed Kings Water Alliance Management Zone is consistent with these three general characteristics.

#### *Defined Portion of a Large Groundwater Basin/Subbasin*

This KWA Management Zone boundary contains the majority of the Kings and Tulare Lake Groundwater Subbasins, as delineated by DWR in 2003. This establishes a well-defined water management area.

#### *Encompasses Groundwater Potentially Impacted by Management Zone Participants*

All dischargers participating in this proposed KWA Management Zone are located within the Management Zone boundary (See Sections 2.3 and 3.3) and do not discharge outside of the Management Zone boundary.

#### *Voluntarily Proposed by Permitted Dischargers*

This Preliminary Management Zone Proposal was voluntarily prepared by the permitted dischargers identified in Section 1.5 below. Development of this Preliminary Management Zone Proposal, including the Early Action Plan, occurred through an open, public stakeholder process (see Section 1.3 in Attachment D – Early Action Plan).

The Nitrate Control Program also establishes the following elements with respect to the delineation and review of a proposed Management Zone (Central Valley Water Board, 2020) (**Table 1-4**):



Table 1-4. Delineation and Review of Management Zone (Central Valley Water Board, 2020)	
Management Zone Requirement	Location in PMZP
Management Zone boundaries shall be based primarily on hydrogeology.	PMZP Section 1.4.1; Section 2.1.1, and Section 3.1.1
Groundwater Management Zone entities shall evaluate potential impacts to groundwater associated with downgradient migration of nitrate from each Management Zone. The evaluation process shall be assessed and clearly documented using quantitative methods.	PMZP Section 1.4.2
Agreements with adjacent Management Zones regarding responsibility for providing drinking water and restoring groundwater basins or subbasins shall be clearly documented.	PMZP Section 1.4.2
Areas of contribution associated with discharges, both within and outside of each Management Zone, shall be technically justified.	PMZP Section 1.4.2
Robust justification shall be provided for any areas where impacted groundwater used for domestic or municipal supply is excluded from a Management Zone including: an analysis if that area is covered by a different Management Zone, modeling to justify the exclusion, and documentation that meaningful outreach was conducted to potentially affected parties.	Not applicable to the proposed Kings Water Alliance Management Zone

As described below, the proposed KWA Management Zone is consistent with these elements.

*Boundaries Based Primarily on Hydrogeology*

This Management Zone boundary encompasses large areas of the Kings and Tulare Lake Subbasins (see Section 1.4.1), as delineated by DWR in 2003. This establishes a well-defined water management area.

*Entities Evaluate Potential Impacts to Groundwater Associated with Downgradient Migration of Nitrate from the Management Zone*

All dischargers participating in this proposed Management Zone are located within the Management Zone boundary (See Section 1.5) and do not discharge outside of the Management Zone boundary. Nitrate groundwater data was collected and compiled for the nitrate conditions analysis which included data from a 3-mile buffer outside of the actual Management Zone boundary.

*Agreements with Adjacent Management Zones regarding Responsibility for Providing Drinking Water and Restoring Groundwater Basins or Subbasins*

As described above, the Kings Subbasin represents the largest Priority 1 subbasin encompassed by the KWA Management Zone. A much smaller portion of the Kaweah Subbasin (also a Priority 1 subbasin) is encompassed by the KWA Management Zone. A small piece of the southeastern Kings Subbasin (approximately 9,041 acres) is not covered by the KWA Management Zone boundary, and will be covered by the Kaweah Subbasin Management Zone (pending receipt of formal agreement as of January 23, 2021). Similarly, the portion of the Kaweah Subbasin that is in the KWA Management Zone is being addressed under this PMZP. As summarized in **Table 1-3**, several Priority 2 subbasins (Tulare Lake, Kern, Madera, and Delta Mendota Subbasins) are largely to slightly covered by the KWA Management Zone. There are also several unprioritized subbasins that are slightly covered by the KWA Management Zone. With the exception of the Southern Portion (Tulare Lake Subbasin Area) of the KWA Management Zone, the other Priority 2 and unprioritized subbasins are not yet forming Management Zones

*Areas of Contribution Associated with Discharges, Both Within and Outside of Management Zone, shall be technically justified.*

All dischargers participating in this proposed Management Zone are located within the Management Zone boundary (See Section 4.1.1) and do not discharge outside of the Management Zone boundary. If a discharger discharges into the Management Zone, then they are considered to be a discharger within the Management Zone. Nitrate groundwater data were also collected and compiled within a 3-mile buffer area of the Management Zone boundary to assess conditions in the Upper Zone around the edges of the Management Zone

*Provide Justification for Any Areas where Impacted Groundwater Used for Domestic or Municipal Supply is Excluded from a Management Zone.*

As more dischargers become familiar with the NCP and the regulatory requirements associated with Paths A and B, the Management Zone plans to continue to outreach to dischargers that have not yet declared a Path yet. The Management Zone is aware of at least one discharger choosing Path A (City of Fresno, Wastewater Treatment Facility). The KWA Management Zone will continue to work closely with the City of Fresno (and potentially other Path A dischargers) to ensure that no residents fall through the cracks that may rely on domestic or municipal supply within the boundaries of the Management Zone.

### **1.4.3. Preliminary Governance**

The Management Zone is governed by the Kings Water Alliance, a non-profit public benefit corporation that filed for non-profit status on November 17, 2020. **Attachment E** provides the Articles of Incorporation and By-laws of the Kings Water Alliance. The Board of Directors currently has seven seats that can be expanded up to 11 as needed. The current expected Board members and seats they will hold are as follows:

- Kings River Water Quality Coalition – Three expected representatives
- Irrigated Lands Regulatory Program (ILRP) – One expected representative
- Dairy and Confined Bovine Operations – Two expected representatives
- Poultry Industry – One expected representative
- Wine Industry – One expected representative

### **1.4.4. Process to Establish Proposed Management Zone**

This section provides an overview of the process to develop this PMZP, including efforts to engage the public in the process.

#### **1.4.4.1. Preliminary Management Zone Proposal Development**

The process to develop the PMZP began well before the NTC was sent out to Priority 1 dischargers in the area and included the following activities:

- *Nitrate Management Zone Pilot Study, 2019* – A grant to the Kings River Conservation District from the State Water Resources Control Board (State Water Board) provided the opportunity to pilot the development of draft PMZPs with draft EAPs in two areas of the Central Valley (State Water Board Resolution (2017-0061). One of these projects occurred in the area encompassed by the Kings River East Groundwater Sustainability Agency and Alta Irrigation District in the southeastern portion of the Kings Subbasin. The knowledge gained through this Pilot Study provided a strong foundation for the development of this PMZP.
- *Nitrate Control Program and Pilot Study Workshop, March 16, 2020* – Following completion of the Pilot Study, the Kings River Water Quality Coalition conducted a workshop in the area to inform dischargers, stakeholders and other interested parties of pending Nitrate Control Program requirements.

After the March 16 Workshop and delivery of the Notice to Comply with the Nitrate Control Program to permitted dischargers in Priority 1 Subbasins (Kings, Kaweah and Tule) (sent out by the Central Valley Water Board on May 29, 2020), the Kings River Water Quality Coalition began its efforts to establish the Kings Water Alliance Management Zone. Workshops were held with

stakeholders and interested parties on July 28, August 27 and October 12 to keep them informed of the developing Management Zone.

In coordination with the stakeholder meetings, the Kings Water Alliance began work on the PMZP and its associated EAP. To support this effort, the Management Zone established an Interim Technical Advisory Committee (TAC) to guide development of these documents (**Table 1-5**). Generally monthly meetings were held with the TAC during development of the PMZP and EAP on September 25, October 29, December 4, January 20 and February 19. Outreach was conducted on the internet (<http://kingsriverwqc.org/drinkingwater/>) prior to the development of the Kings Water Alliance website, including follow-up activities from outreach efforts. Postings of meeting materials and recordings were made available for those who were unable to attend.

In addition to holding regular meetings with different groups, the Kings Water Alliance conducted outreach to permitted dischargers within the proposed Management Zone boundary in fall of 2020 to determine their interest in participating in the Management Zone. Direct communication by telephone and email with permitted dischargers occurred first during the week of November 12. Follow-up with dischargers occurred during the week of November 19. When requested, the Management Zone sent information regarding the Kings Water Alliance and Nitrate Control Program requirements to dischargers.

The Kings Water Alliance developed a draft PMZP and EAP in January 2021. These documents were released to the public for review and comment on January 28, 2021. Comments received on these public draft documents were considered in the preparation of final PMZP and EAP which have been submitted to the Central Valley Water Board as required by March 8, 2021. A table containing the comments and KWA’s response to those comments are provided in **Attachment C**.

Table 1-5. Kings Water Alliance Interim Technical Advisory Committee			
Name	Email	Affiliation	Representing
Debra Dunn	<a href="mailto:ddunn@krcd.org">ddunn@krcd.org</a>	Kings Water Alliance	
Charlotte Gallock	<a href="mailto:cgallock@krcd.org">cgallock@krcd.org</a>	Kings Water Alliance	
Jean-Pierre ("J.P.") Cativiela	<a href="mailto:jcativiela@cogentcc.com">jcativiela@cogentcc.com</a>	COGENT	Dairy/Confined Bovine
Jerry Jones	<a href="mailto:jjones@yhmail.com">jjones@yhmail.com</a>	Yamabe & Horn Engineering, Inc.	City of Kerman
John Jansons	<a href="mailto:jjansons@cityofkerman.org">jjansons@cityofkerman.org</a>	City of Kerman	City of Kerman
Bill Mattos	<a href="mailto:bill_mattos@yahoo.com">bill_mattos@yahoo.com</a>	California Poultry Federation	Poultry
Art Razo	<a href="mailto:art@cpif.org">art@cpif.org</a>	California Poultry Federation	Poultry

Table 1-5. Kings Water Alliance Interim Technical Advisory Committee			
Name	Email	Affiliation	Representing
Kassy Chauhan	<a href="mailto:kchauhan@fresnoirrigation.com">kchauhan@fresnoirrigation.com</a>	Kings River Water Quality Coalition	ILRP
David Cehrs	<a href="mailto:davidcehrs@verizon.net">davidcehrs@verizon.net</a>	Kings River Water Quality Coalition	ILRP
Roy Jimenez	<a href="mailto:rjimenez@fresnocountyca.gov">rjimenez@fresnocountyca.gov</a>	County of Fresno	County of Fresno
David Belt	<a href="mailto:david.belt@fosterfarms.com">david.belt@fosterfarms.com</a>	Foster Farms	Poultry
Kim Burns	<a href="mailto:kim.burns@ejgallo.com">kim.burns@ejgallo.com</a>	E&J Gallo Winery	Wineries
Karen Petryna	<a href="mailto:Karen.Petryna@ghd.com">Karen.Petryna@ghd.com</a>	GHD	Baker Commodities Kerman Division
Randy Johnson	<a href="mailto:rjohnson@mvenvironmental.com">rjohnson@mvenvironmental.com</a>	Mountain Valley Environmental Services, Inc.	City of Biola and City of Dinuba
Vicki Kretsinger	<a href="mailto:vkretsinger@lsce.com">vkretsinger@lsce.com</a>	Luhdorff & Scalmanini Consulting Engineers (LSCE)	
Barbara Dalgish	<a href="mailto:bdalgish@lsce.com">bdalgish@lsce.com</a>	LSCE	
Meyerhoff, Richard	<a href="mailto:rmeyerhoff@geiconsultants.com">rmeyerhoff@geiconsultants.com</a>	GEI Consultants	

#### 1.4.4.2. Public Participation

Throughout the development of the PMZP and EAP regular meetings were held to seek input from stakeholders and the public. In addition to outreach conducted with stakeholders, the Kings Water Alliance also conducted outreach to the general community, in particular those most likely impacted by elevated nitrate in the groundwater. Meetings were held virtually due to COVID-19 limitations. Recordings of these public outreach meetings were posted on the internet (<http://kingsriverwqc.org/drinkingwater/>) for those who were unable to attend.

**Attachment C** contains more information about outreach efforts conducted for the Preliminary Management Zone Proposal, including Technical Advisory Committee meeting notices and presentations. These community outreach meetings and the topics covered included:

- *Community Outreach Meeting No. 1, November 19, 2020* – The Kings Water Alliance conducted extensive outreach to encourage local participation in this meeting, including:
  - Sending out over 6,000 mailers to residents throughout the Management Zone
  - Posting meeting notices in English and Spanish at 16 key locations in the project area, including Easton, Hanford, Armona, Cutler and Orosi.

- Directly inviting 11 local community leaders representing Armona, Cutler, Easton, Stratford, Orosi Public Utilities District, Sultana Community Services District, Raisin City, Monson, Zonneveld Diaries, Rolinda and East Orosi.
- Targeting outreach to the Environmental Justice Community, Fresno Bee, Fresno County and Kings County Farm Bureaus and the Tachi Yokut Tribe.
- Use of other organizations to help encourage public participation (including irrigation districts, other local boards, municipalities, and dischargers who received the NTC).

This meeting addressed the following questions: Why do we care about nitrate? What is the new Nitrate Control Program? Who needs to be involved? Where is drinking water affected? Subsequently, the meeting discussed potential short-term solutions or early actions under consideration for the implementation in the Management Zone. The presentation included the use of polling questions to solicit input on specific topics.

- *Community Outreach Meeting No. 2, January 28, 2021*

This meeting addressed the following questions:

- What is the Nitrate Control Program?
- Why does this matter to me?
- What is a Management Zone and how can I be involved?
- What does the Kings Water Alliance Management Zone do?
- What regulatory documents are required?
- How do we determine nitrate conditions?
- Where does high nitrate occur?
- Where am I in this Management Zone?
- How many wells and people might be affected?
- What is an Early Action Plan?
- What options will be available to obtain safe drinking water?
- How can I receive bottled water or have a point-of-use system installed?
- How do I know what the nitrate level is in the well at my home?
- What is an alternative to bottled water or POU treatment system service?
- As we implement the Early Action Plan, how will we connect with you?

As noted in the previous section, the Kings Water Alliance released a draft PMZP with EAP to the public for review and comment on January 28, 2021. Community residents were given the same opportunity to comment on the draft documents as were other stakeholders in the Management Zone. A table of comments and KWA's response to comments are provided in **Attachment C**.

## 1.5. Initial List of Participants in the Proposed Management Zone

### 1.5.1. Kings Subbasin Initial List of Participants

This section identifies the permitted dischargers within the KWA Northern Portion (Kings Subbasin Area) of the proposed Management Zone that have elected to comply with the Nitrate Control Program through participation in a Management Zone. The submittal of this PMZP on behalf of each of the named permitted dischargers below serves as the NOI for each discharger:

- Growers enrolled under General Order R5-2013-0120 (as amended) (“Waste Discharge Requirements General Order for Growers within the Tulare Lake Basin Area that are Members of the Third-Party Group”).
- Dairies regulated under General Order R5-2013-0122 (“Reissued Waste Discharge Requirements General Order for Existing Milk Cow Dairies”) and enrolled as a member in the Central Valley Dairy Representative Monitoring Program (CVDRMP).
- Confined bovine feeding operations regulated under General Order R5-2017-0058 (“Waste Discharge Requirements General Order for Confined Bovine Feeding Operations”) and enrolled as a member in the CVDRMP.
- Poultry operations regulated under General Order R5-2016-0087 (as amended) (“Waste Discharge Requirements General Order for Poultry Operations”).
- Individual permitted dischargers, as summarized in **Table 1-6**.

Table 1-6. Initial List of Individual Permitted Dischargers Participating in the KWA Northern Portion (Kings Subbasin Area) of the Management Zone

Facility Name	Order No.	Address	Contact	CV-SALTS ID
Amar JS Farms Almond Oil Processing Facility	R5-2020-0002-0045	Amar JS Farms, 13113 South Fowler Avenue, Selma, CA 93662	Jasjit-Sahota <a href="mailto:jassihota@gmail.com">jassihota@gmail.com</a>	3542
Baker Commodities Kerman Division	R5-2014-0062	Bakers Commodities Inc., 16801 Jensen Avenue, Kerman, CA 93630	Karen Petryna, <a href="mailto:Karen.Petryna@ghd.com">Karen.Petryna@ghd.com</a>	2167
Booth Ranches Citrus Packing Facility	97-006	Booth Ranches, LLC, 12201 Avenue 480, Orange Cove, CA 93646	Andrew Hart <a href="mailto:ahart@boothranchesllc.com">ahart@boothranchesllc.com</a>	1902
Del Rey Packing	96-198	Del Rey Packing Company, 5287 Del Rey, Del Rey, CA 93616	Gerald Chooljian <a href="mailto:gchooljian@delreypacking.com">gchooljian@delreypacking.com</a>	1952
Del Rey WWTF	96-284	Del Rey CSD, 11495 American Avenue, Del Rey, CA 93616	Carlos Arias <a href="mailto:drcsd@pacbell.net">drcsd@pacbell.net</a>	2710
Dinuba WWTF	95-200	City of Dinuba, 6675 Avenue 412, Dinuba, CA 93618	Randy Johnson <a href="mailto:randyj@dinuba.ca.gov">randyj@dinuba.ca.gov</a>	2660
E & J Gallo Winery Fresno Winery	R5-2015-0040	E & J Gallo Winery, 5610 Olive Avenue, Fresno, CA 93727	Kim Burns <a href="mailto:Kim.Burns@EJGallo.com">Kim.Burns@EJGallo.com</a>	2042
East Orosi Packing House	85-167	Fancher Creek Packing, 41870 Fruitvale Avenue, Orosi, CA 93647	Christiane Pilegard <a href="mailto:christianep@fanchercreekpacking.com">christianep@fanchercreekpacking.com</a>	1987
Elkhorn Correctional Facility WWTF	97-207	Fresno County General Services Department, West Elkhorn Avenue, Caruthers, CA 93609	Chris Bump <a href="mailto:cbump@fresnocountyca.gov">cbump@fresnocountyca.gov</a>	1995
Fig Garden Packing Facility	94-135	Fig Garden Packing, Inc. 5545 W. Dakota Avenue, Fresno, CA 93722	<a href="mailto:Mrerwin541@msn.com">Mrerwin541@msn.com</a>	2018
Four Bar C Farms Caruthers Dehydrator	01-155	Four Bar C Farms, 10616 West, Fresno, CA 93706	Chris Gunlund <a href="mailto:gunlundc@yahoo.com">gunlundc@yahoo.com</a>	1873
Fowler Packing Cedar Avenue Facility	89-141	Fowler Packing Company, Inc., 8570 Cedar, Fresno, CA 93725	Kyle Moeller <a href="mailto:kyle@fowlerpacking.com">kyle@fowlerpacking.com</a>	1881
Fresno Acetylene Plant	67-117	Fresno Ox and Weld Suppliers, 7835 Manning, Fresno, CA 93706	Bob Wolfe <a href="mailto:bobw@fresnooxygen.com">bobw@fresnooxygen.com</a>	2032
Fresno Cnty #44-D Monte Verde Estates WWTF	97-203	Fresno County, 12222 Willow Avenue, Clovis, CA 93611	Chris Bump <a href="mailto:cbump@fresnocountyca.gov">cbump@fresnocountyca.gov</a>	1751
Fresno Cnty #47-Quail Lake WWTF	96-120	Fresno County, 4121 Quail Lake Drive, Clovis, CA 93611	Chris Bump <a href="mailto:cbump@fresnocountyca.gov">cbump@fresnocountyca.gov</a>	1753



Table 1-6. Initial List of Individual Permitted Dischargers Participating in the KWA Northern Portion (Kings Subbasin Area) of the Management Zone

Facility Name	Order No.	Address	Contact	CV-SALTS ID
Fresno Cnty Juvenile Justice WWTF	R5-2007-0150	Fresno County, 3333 American Avenue, Fresno, CA 93725	Chris Bump <a href="mailto:cbump@fresnocountyca.gov">cbump@fresnocountyca.gov</a>	2161
GSV Cutler Winery	R5-2015-0013	Golden State Vitners Cutler, 38558 Rd 128, Cutler, CA 93615	Joey Giordano <a href="mailto:jgiordano@thewinegroup.com">jgiordano@thewinegroup.com</a>	2741
GSV Fresno Winery	R5-2012-0076	The Wine Group Inc., 7409 Central, Fresno, CA 93706	Joseph Giordano <a href="mailto:jgiordano@thewinegroup.com">jgiordano@thewinegroup.com</a>	2043
Helm Fertilizer Plant	99-083	J R Simplot Company, 12688 Colorado Avenue, Helm, CA 93660	Rick Mueller <a href="mailto:Kendrick.Mueller@simplot.com">Kendrick.Mueller@simplot.com</a>	2118
HMC Group Cold Storage, Inc.	90-253	HMC Group Cold Storage, Inc., 13138 Bethel, Kingsburg, CA 93631	Mike Stalker <a href="mailto:mikes@hmc farms.com">mikes@hmc farms.com</a>	2124
Kerman WWTF	R5-2007-0115	City of Kerman, 15480 Church Avenue, Kerman, CA 93630	Jerry Jones <a href="mailto:jjones@y hmail.com">jjones@y hmail.com</a>	2168
Kings River UESD OWTS	97-010-DWQ	Kings River Union Elementary School District, 3961 Avenue 400, Kingsburg, CA 93631	Sherry Martin <a href="mailto:smartin@krusd.org">smartin@krusd.org</a>	2810
Malaga CWD WWTF	R5-2020-0001	Malaga CWD, 3749 South Maple Avenue, Fresno, CA 93725	<a href="mailto:mortiz@malagacwd.org">mortiz@malagacwd.org</a>	3311
McCall Wineries and Distilleries	93-098	San Joaquin Valley Express C/O E&J Gallo, 1042 Mccall, Sanger, CA 93657	Kim Burns <a href="mailto:Kim.Burns@EJGallo.com">Kim.Burns@EJGallo.com</a>	2309
O'Neill Vintners Reedley Winery	R5-2014-0045	O'Neill Vintners & Distillers, 8418 Lac Jac Avenue, Parlier, CA 93648	Phil Castro <a href="mailto:Phil.Castro@oneillwine.com">Phil.Castro@oneillwine.com</a>	2427
Pom Wonderful Fruit Processing Plant	R5-2012-0090	Pom Wonderful, LLC, 5286 Del Rey, Del Rey, CA 93616	Lance Baird <a href="mailto:Lance.Baird@wonderful.com">Lance.Baird@wonderful.com</a>	2054
Reedley Wastewater Treatment Facility	R5-2010-0120	1701 West Huntsman, Reedley, CA 93654	Martha Cardosa <a href="mailto:Martha.Cardosa@reedley.ca.gov">Martha.Cardosa@reedley.ca.gov</a>	2679
Sanger Industrial WWTF	98-131	City of Sanger, 333 North Avenue, Sanger, CA 93657	Ron Franz <a href="mailto:rfranz@ci.sanger.ca.us">rfranz@ci.sanger.ca.us</a>	2147
Sanger WWTF	R5-2014-0004	City of Sanger, 333 North Avenue, Sanger, CA 93657	John Mulligan <a href="mailto:jmulligan@ci.sanger.ca.us">jmulligan@ci.sanger.ca.us</a>	2681
Six Jewels Dehydrator	97-244	Six Jewels Dehydrator, 6692 Peach, Fresno, CA 93725	Jeff Jue <a href="mailto:sixjewels@gmail.com">sixjewels@gmail.com</a>	2503

Table 1-6. Initial List of Individual Permitted Dischargers Participating in the KWA Northern Portion (Kings Subbasin Area) of the Management Zone

Facility Name	Order No.	Address	Contact	CV-SALTS ID
Sunview Dry Fruit & Nut Company	R5-2015-0117	Sunview Marketing International, 12400 East Adams Avenue, Del Rey, CA 93616	Brian Bean <a href="mailto:bbean@sunviewmarketing.com">bbean@sunviewmarketing.com</a>	2856
Teen Challenge of Southern California	97-010-DWQ	Smith Mountain LP, 42675 Road 44, Reedley, CA 93654	<a href="mailto:mmerritt@kingsburgorchards.com">mmerritt@kingsburgorchards.com</a>	2966
The Wine Group Franzia Winery-Sanger	R5-2014-0094	The Wine Group Inc., 2916 South Reed Avenue, Sanger, CA 93657	Joey Giordano <a href="mailto:jgiordano@thewinegroup.com">jgiordano@thewinegroup.com</a>	2034
Trinity Presbyterian Church OWTS	97-010-DWQ	Nathan Belknap, 12168 Willow Avenue, Clovis, CA 93611	<a href="mailto:Nathan.Belknap.connect@trinitycc.com">Nathan Belknap connect@trinitycc.com</a>	2351
Verni Olive Oil Extract Facility	N/A	Saverio Verni, 11998 Auberry Road, Clovis, CA 93611	<a href="mailto:vernifarmsclovis@gmail.com">vernifarmsclovis@gmail.com</a>	2937
VFG Anaerobic Digester	Pending	Valley Fig Growers, 2028 South Third St., Fresno, CA 93702	Chris Gardner <a href="mailto:cgardner@valleyfig.com">cgardner@valleyfig.com</a>	1777
Vita-Pakt Fruit Processing and Dehydrating Plant	96-119	Vita-Pakt Citrus Products, Co., 8898 East Central Avenue, Del Rey, CA 93616	Sergio Lobo <a href="mailto:slobo@vita-pakt.com">slobo@vita-pakt.com</a>	2047
Wawona Packing Company Facility	R5-2012-0042; R5-2016-0076-044	Wawona Packing Company, LLC, 12133 Avenue 408, Cutler, CA 93615	<a href="mailto:Ken.Holland@wawonapacking.com">Ken Holland kenh@wawonapacking.com</a>	2774 & 3315
Wildwood MHP	R5-2002-0064	Wildwood C/O Westco Equities, 8701 Hwy 41, #70, Fresno, CA 93725	Mat Winton <a href="mailto:Wildwood.mhp1@gmail.com">Wildwood.mhp1@gmail.com</a>	2633

### 1.5.2. Tulare Lake Subbasin Initial List of Participants

This section identifies the permitted dischargers within the KWA Northern Portion (Kings Subbasin Area) of the proposed Management Zone that have elected to comply with the Nitrate Control Program through participation in a Management Zone. The submittal of this PMZP on behalf of each of the named permitted dischargers below serves as the NOI for each discharger:

- Growers enrolled under General Order R5-2013-0120 (as amended) (“Waste Discharge Requirements General Order for Growers within the Tulare Lake Basin Area that are Members of the Third-Party Group”) under the ILRP.
- Dairies regulated under General Order R5-2013-0122 (“Reissued Waste Discharge Requirements General Order for Existing Milk Cow Dairies”) and enrolled as a member of the CVDRMP.
- Confined bovine feeding operations regulated under General Order R5-2017-0058 (“Waste Discharge Requirements General Order for Confined Bovine Feeding Operations”) and enrolled as a member in the CVDRMP.
- Poultry operations regulated under General Order R5-2016-0087 (as amended) (“Waste Discharge Requirements General Order for Poultry Operations”).
- Individual permitted dischargers, as summarized in Table 1-7.

Table 1-7. Initial List of Individual Permitted Dischargers Participating in the KWA Southern Portion (incl. Tulare Lake and Kaweah Subbasin Areas) of the Management Zone				
Facility Name	Order No.	Address	Contact	CV-SALTS ID
Bakers Commodities Hanford Facility	R5-2005-0177	Baker Commodities, Inc., 7480 Hanford Armona, Hanford, CA 93230	Karen Petryna Karen. <a href="mailto:Petryna@ghd.com">Petryna@ghd.com</a>	2111
Kettleman City WWTF	79-143	City of Kettleman CSD, Racine Avenue, Kettleman City, CA 93239	Rosa Maldonado <a href="mailto:kccsd@att.net">kccsd@att.net</a>	2715
Lemoore WWTF	R5-2019-0008	Leprino Foods Company, 351 Bell Haven Dr., Lemoore, CA 93245	<a href="mailto:thutcheson@leprinofoods.com">Tim Hutcheson</a> <a href="mailto:thutcheson@leprinofoods.com">thutcheson@leprinofoods.com</a>	2669
Leprino Food Company Lemoore Cheese Processing Plant				3014
Stone Ranch Evaporation Basin				2004
Leprino Sludge Discharge				2789
Nichols Pistachio	R5-2013-0007	Nichols Pistachio, 13762 First, Hanford, CA 93230	Jennifer Dunlap & Katie Schmidt <a href="mailto:jdunlap@nicholsfarms.com">jdunlap@nicholsfarms.com</a> <a href="mailto:kschmidt@nicholsfarms.com">kschmidt@nicholsfarms.com</a>	2321

## 2. KWA NORTHERN PORTION (KINGS SUBBASIN AREA) OF THE MANAGEMENT ZONE

The subsections below describe the area encompassed by the proposed Northern Portion (Kings Subbasin Area) of the KWA Management Zone, including general geographic and hydrologic characteristics, jurisdictions located within the planning area and key planning agencies and utilities. **Table 2-1** describes several key data sources for the Management Zone.

Table 2-1. Key Data Sources to Characterize the Proposed Northern Portion (Kings Subbasin Area) of the KWA Management Zone		
Boundary Type	Source for Boundary Data	Comments
<b>Groundwater Sustainability Agency (GSA)</b>	<ul style="list-style-type: none"> <li>DWR Map Viewer: <a href="https://sgma.water.ca.gov/webgis/index.jsp?appid=gasmaster&amp;rz=true">https://sgma.water.ca.gov/webgis/index.jsp?appid=gasmaster&amp;rz=true</a></li> <li>Individual GSA links for finding “Interested Parties”: <a href="https://sgma.water.ca.gov/portal/gsa/all">https://sgma.water.ca.gov/portal/gsa/all</a></li> </ul>	GSA boundaries, and also a list of GSA “Interested Parties”
<b>Groundwater Basin/Subbasin</b>	<ul style="list-style-type: none"> <li>DWR Bulletin 118: <a href="https://water.ca.gov/Programs/GroundwaterManagement/Bulletin-118">https://water.ca.gov/Programs/GroundwaterManagement/Bulletin-118</a></li> <li>Basin Boundary Geographic Information System (GIS) file: <a href="https://water.ca.gov/-/media/DWR-Website/WebPages/Programs/Groundwater-Management/Bulletin118/Files/Bulletin-118-Groundwater-Basin-Boundary-GISData---v6_1.zip?la=en&amp;hash=D947E7AC9E03D122CC5D707369E581DF41320E50">https://water.ca.gov/-/media/DWR-Website/WebPages/Programs/Groundwater-Management/Bulletin118/Files/Bulletin-118-Groundwater-Basin-Boundary-GISData---v6_1.zip?la=en&amp;hash=D947E7AC9E03D122CC5D707369E581DF41320E50</a></li> <li>DWR Basin Boundary Modifications: <a href="https://water.ca.gov/Programs/Groundwater-Management/Basin-Boundary-Modifications">https://water.ca.gov/Programs/Groundwater-Management/Basin-Boundary-Modifications</a></li> </ul>	DWR Bulletin 118 basin and subbasin boundaries, including basin boundary modification
<b>Water Districts</b>	DWR by request from the Geology and Groundwater Investigations Section, or here: <a href="https://atlas-dwr.opendata.arcgis.com/datasets/45d26a15b96346f1816d8fe187f8570d_0">https://atlas-dwr.opendata.arcgis.com/datasets/45d26a15b96346f1816d8fe187f8570d_0</a>	Irrigation Districts, water districts, community service areas, and community service districts

Table 2-1. Key Data Sources to Characterize the Proposed Northern Portion (Kings Subbasin Area) of the KWA Management Zone		
Boundary Type	Source for Boundary Data	Comments
<b>Public Water Supply Systems</b>	California Environmental Health Tracking Program: <a href="https://trackingcalifornia.org/water-systems/water-systemslanding">https://trackingcalifornia.org/water-systems/water-systemslanding</a>	Division of Drinking Water
<b>State Small Water Supply Systems</b>	By request from county Environmental Health Departments (Kings, Fresno, and Tulare Counties)	Boundary data is typically not available for SSWS (usually just an address)
<b>Disadvantaged Communities (DAC)/Disadvantaged Unincorporated Communities (DUC)</b>	<ul style="list-style-type: none"> <li>DACs boundaries available from DWR: <a href="https://gis.water.ca.gov/app/dacs/">https://gis.water.ca.gov/app/dacs/</a></li> <li>DUCs boundaries available from PolicyLink by request (<a href="https://www.policylink.org/">https://www.policylink.org/</a>)</li> </ul>	DUC boundaries only available for portions of the San Joaquin Valley

## 2.1. Characterization

### 2.1.1. Geography

The Northern Portion (Kings Subbasin Area) of the KWA Management Zone represents a combination of the Kings Water Alliance and the 2003 DWR Bulletin 118 Kings Groundwater Subbasin boundary. The Northern Portion of the KWA Management Zone encompasses an area of approximately 1,547 square miles (990,133 acres), which represents about 64% of the total 2,424 square miles (over 1.55 million acres) of the entire Management Zone. The Northern Portion of the KWA Management Zone includes lands in the Kings, Fresno, and Tulare Counties, and is bounded on the east by the extent of the alluvium (coincident with the eastern extent of the 2003 DWR Bulletin 118 Kings Subbasin boundary). The KWA boundary accounts for the northern and western Management Zone boundary. The southern boundary of the Northern Portion of the KWA Management Zone follows the DWR 2003 subbasin boundary between the Kings and Tulare Lake Subbasins in the west, and then follows the KWA boundary to the east until the edge of the alluvium is reached.

The Northern Portion (Kings Subbasin Area) of the KWA Management Zone (KWAMZ) contains the following major surface water features: San Joaquin River, Kings River, Fresno Slough, and

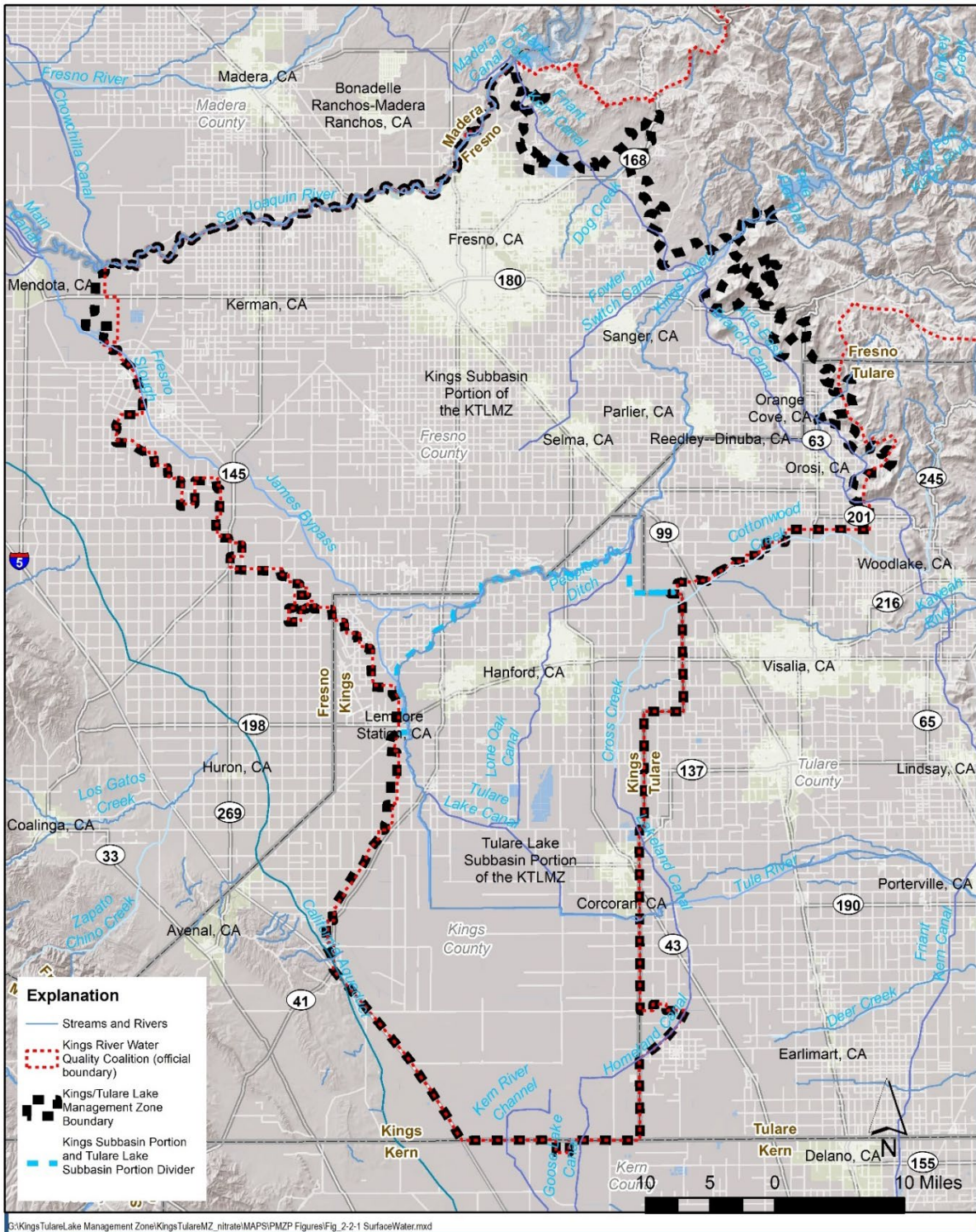
James Bypass. The San Joaquin and Kings Rivers are the two principal rivers within or bordering the Subbasin. The James Bypass and Fresno Slough are located near the western edge of the Kings Subbasin and connect the Kings River with the San Joaquin River. **Figure 2-1** illustrates surface water bodies in and around the KWA Management Zone.

### ***2.1.2. Jurisdictions***

The Northern Portion (Kings Subbasin Area) of the KWAMZ is mostly contained by Fresno County. Two small areas of northern Tulare County are also contained in the Northern Portion (Kings Subbasin Area) of the KWAMZ, as well as a small part of the northwesternmost corner of Tulare County in the southwest Kings Subbasin area (see **Figure 2-1**). Primary communities within each County include:

- Fresno County: Kerman, Fresno, Sanger, Parlier, Selma, Orange Cove, Reedley, Kingsburg, Clovis, Fowler, San Joaquin
- Tulare County: Dinuba, Orosi

**Figure 2-1. Surface Water Characteristics of the Proposed KWA Management Zone**



### 2.1.3. Groundwater Sustainability Agencies

Groundwater Sustainability Agencies (GSAs), established under the Sustainable Groundwater Management Act (SGMA), are comprised of water users in the area. GSAs are required to list interested parties, including irrigation districts, public water supply systems, coalitions, etc. that are involved with the management of groundwater resources in the area. As required by SGMA, GSAs are required to prepare Groundwater Sustainability Plans (GSP), which require the GSA(s) to develop a Hydrogeologic Conceptual Model (HCM) for the subbasin, determine groundwater conditions in the area (including water quality), and estimate historical, current, and projected water budget components including annual groundwater pumping. These and other GSP elements are useful with regards to the management of nitrate in groundwater.

DWR, which oversees the development of GSPs, as required for basins and subbasin subject to SGMA, has established a web-based portal for GSA documentation<sup>4</sup>. There are nineteen GSAs whose boundaries touch or are within the Northern Portion (Kings Subbasin Area) of the proposed KWAMZ (**Figure 2-2**). They are listed below (GSAs with less than 20 square miles within the Northern Portion (Kings Subbasin Area) of the MZ are italicized; there are seven (7) GSAs that make up the Kings Subbasin and are listed in bold text):

- *Central Delta-Mendota GSA*
- **Central Kings GSA**
- *County of Fresno GSA – Delta-Mendota Management Area B*
- *County of Fresno GSA – Westside*
- *County of Madera GSA – Delta Mendota*
- *County of Madera GSA – Madera*
- *East Kaweah GSA*
- *Greater Kaweah GSA*
- **James GSA**
- **Kings River East GSA**
- *Madera Irrigation District GSA*
- **McMullin Area GSA**
- *Mid-Kings River GSA*
- **North Fork Kings GSA**
- **North Kings GSA**
- *Root Creek Water District GSA*
- *South Fork Kings GSA*
- **South Kings GSA**
- *Westlands Water District GSA*

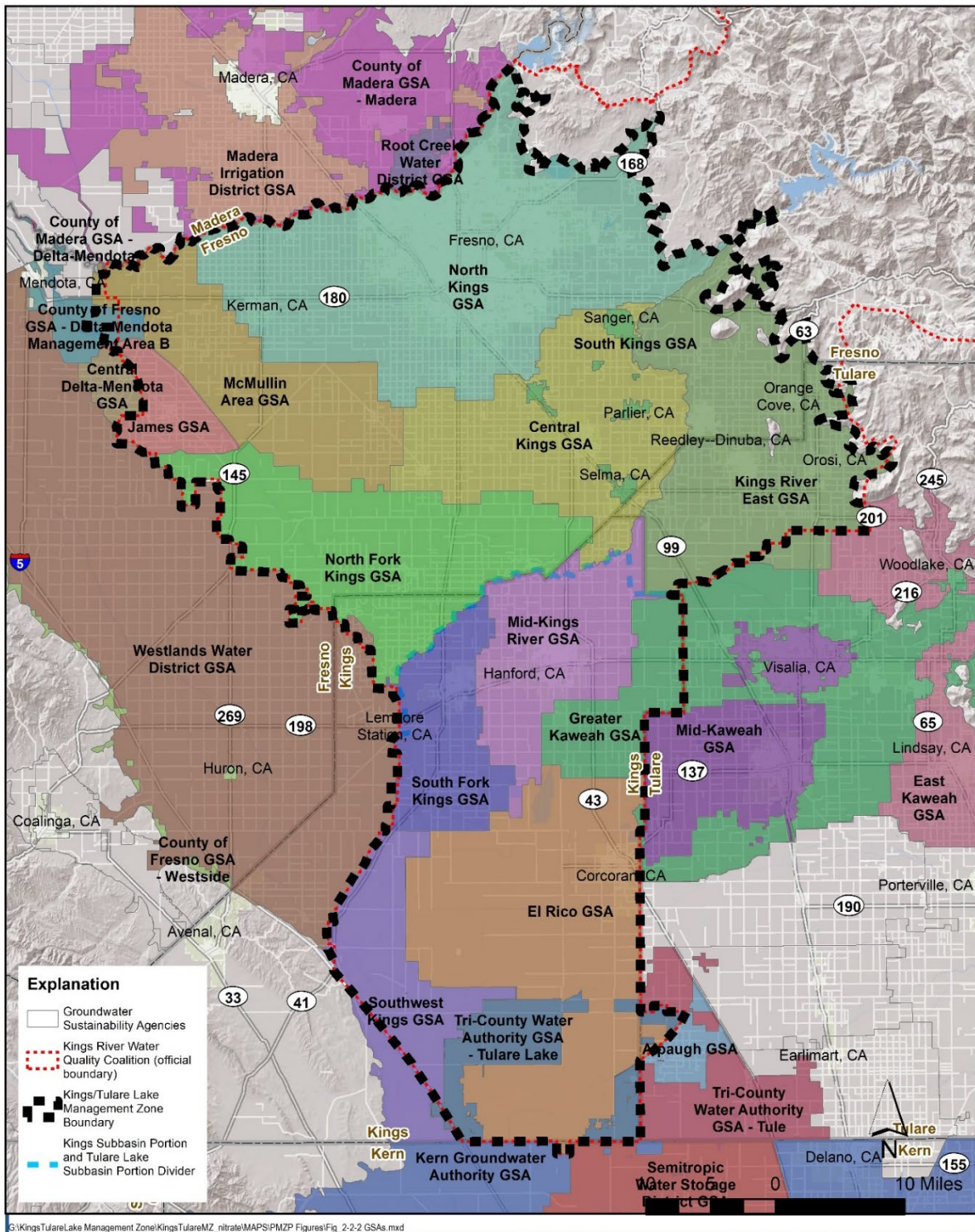
There are seven GSAs that make up the majority of the Kings Subbasin (listed in bold above). **Attachment A** to this Preliminary Management Zone Proposal provides a summary of resource management agencies associated with the development of GSAs in and around the proposed KWA Management Zone.

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<sup>4</sup> GSA boundaries: <https://sgma.water.ca.gov/webgis/index.jsp?appid=gasmaster&rz=true> , accessed November 2020.



**Figure 2-2. Groundwater Sustainability Agencies Established within and adjacent to the Proposed KWA Management Zone**

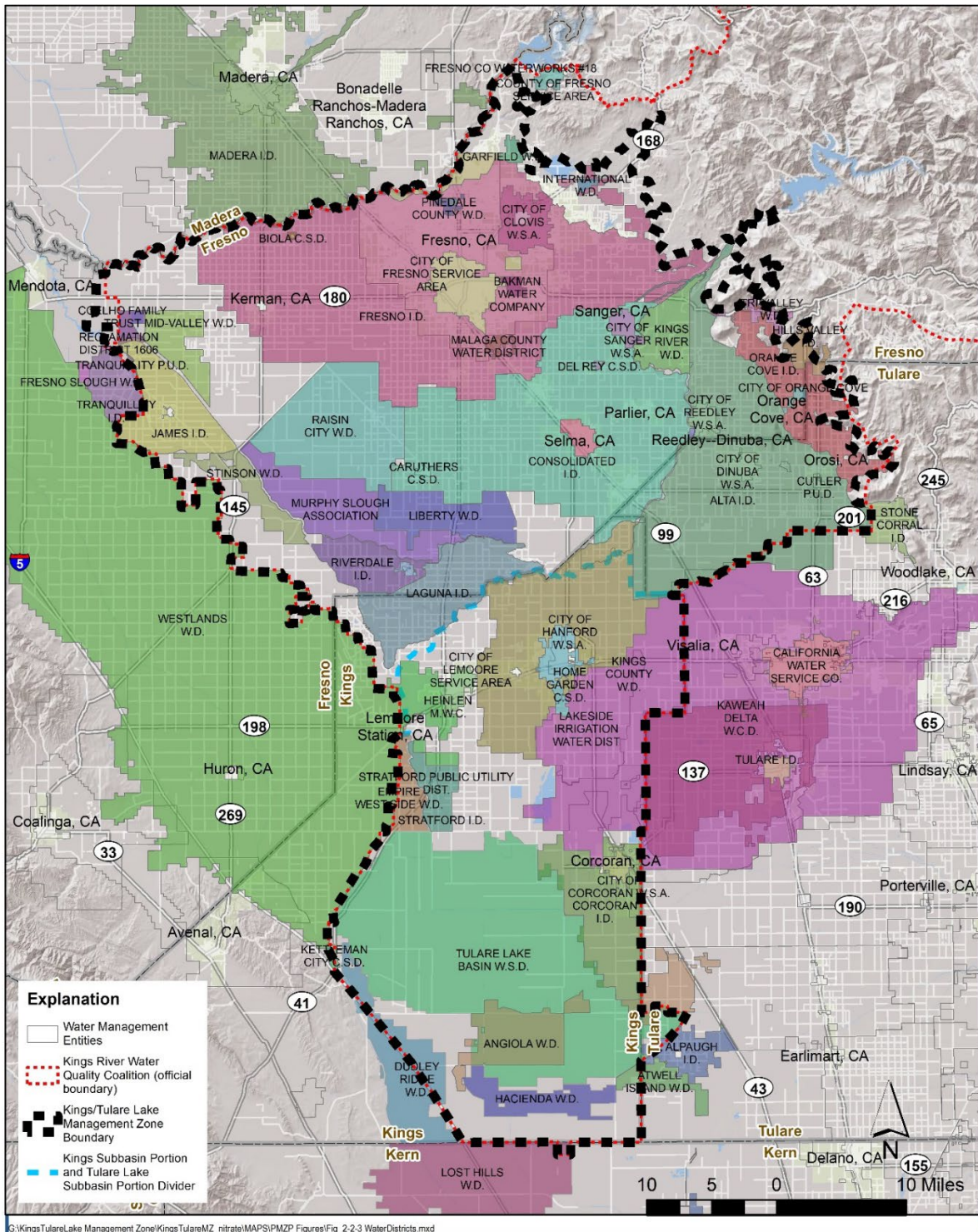


#### 2.1.4. Water Management Entities

There are several irrigation districts, water districts, community service areas, and community service districts that manage and distribute water within any part of the Northern Portion (Kings Subbasin Area) of the KWA Management Zone. These entities distribute water for irrigation, drinking, or other purposes. Water management-related districts include irrigation districts, water districts, community service areas, and community service districts. **Figure 2-3** illustrates the location of these various management areas within and adjacent to the proposed KWA Management Zone. These entities are listed below:

- Alta Irrigation District
- Bakman Water Company
- Biola C.S.D.
- California Water Service Co.
- Caruthers C.S.D.
- City of Clovis W.S.A.
- City of Dinuba W.S.A.
- City of Fresno Service Area
- City of Orange Cove
- City of Reedley W.S.A.
- City of Sanger W.S.A.
- Coelho Family Trust
- Consolidated I.D.
- County of Fresno Service Area
- Cutler P.U.D.
- Del Rey C.S.D.
- Empire West Side W.D.
- Fresno County Waterworks #18
- Fresno I.D.
- Fresno Slough W.D.
- Garfield W.D.
- Heinlen M.W.C.
- Hills Valley I.D.
- International W.D.
- James I.D.
- Kaweah Delta W.C.D.
- Kings County W.D.
- Kings River W.D.
- Laguna I.D.
- Liberty W.D.
- Madera I.D.
- Malaga County Water District
- Mid-Valley W.D.
- Murphy Slough Association
- Orange Cove I.D.
- Pinedale County W.D.
- Raisin City W.D.
- Reclamation District 1606
- Riverdale I.D.
- Riverdale P.U.D.
- Stinson W.D.
- Stone Corral I.D.
- Sultana C.S.D.
- Tranquility I.D.
- Tranquility P.U.D.
- Tri-Valley W.D.
- Westlands W.D.

**Figure 2-3. Water Management Entities Located Within and Adjacent to the Proposed KWA Management Zone**



### 2.1.5. Drinking Water Systems

**Table 2-2** summarizes how residential water systems are classified in California. Systems are categorized by use, connections, and duration of service over a one-year period. Residential water systems are distinguished by the total number of service connections, e.g., Local Small Water Systems (LSWS) serve two to four household connections, State Small Water Systems (SSWS) serve five to 14 household connections, Small Water Systems (SWS) have less than 200 connections, and residential Public Water Systems (PWS) serve 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days per year. The following subsections provide additional information regarding each of these types of water systems within the proposed Management Zone. Residential PWS are termed Community Systems. The PWS designation also includes non-residential water systems, such as Transient Non-Community Systems (rest stops, retailers, gas stations, markets, parks, etc.), and Non-Transient Non-Community Systems (churches, schools, non-retail companies, etc.). Public Water Systems can be regulated by both the state’s Division of Drinking Water (DDW) and local primacy agencies, and these systems are required to monitor and comply with Title 22 drinking water standards.

Table 2-2. 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		Connections & (persons, duration)					
< 60 days/year	State Small Water System			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 the State Water Board Division of Drinking Water (DDW) or by Local Primary Agency 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.

### 2.1.5.1. Public Water Systems

PWS are defined as systems that provide drinking water to: (1) 15 or more service connections; or (2) regularly serves at least 25 individuals daily for at least 60 days per year (see **Table 2-2**). 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>5</sup>. The California Environmental Health Tracking Program (CEHTP) maintains a dataset of PWS boundaries in California. These data are provided to CEHTP by the water systems. Some quality control measures are observed by CEHTP, but the data do contain errors, including boundary errors, e.g., overlapping, misplaced boundaries or duplicated boundaries. The data are hosted as a shapefile with attributes for the PWS ID, system name, the number of connections and number of persons served, and the water system type. The PWS identification (ID) and system name are reliable except in the few cases where system boundaries are entirely mis-located. When the connections and population served numbers are compared with those same datapoints in the Safe Drinking Water Information System (SDWIS) database maintained by the State Water Board's DDW, these values appear to either be lacking quality control procedures or are not updated. It is unclear if these numbers are reported by the systems or added by CEHTP based on other data. However, many PWS are wholesalers, thus some populations may inadvertently be counted twice.

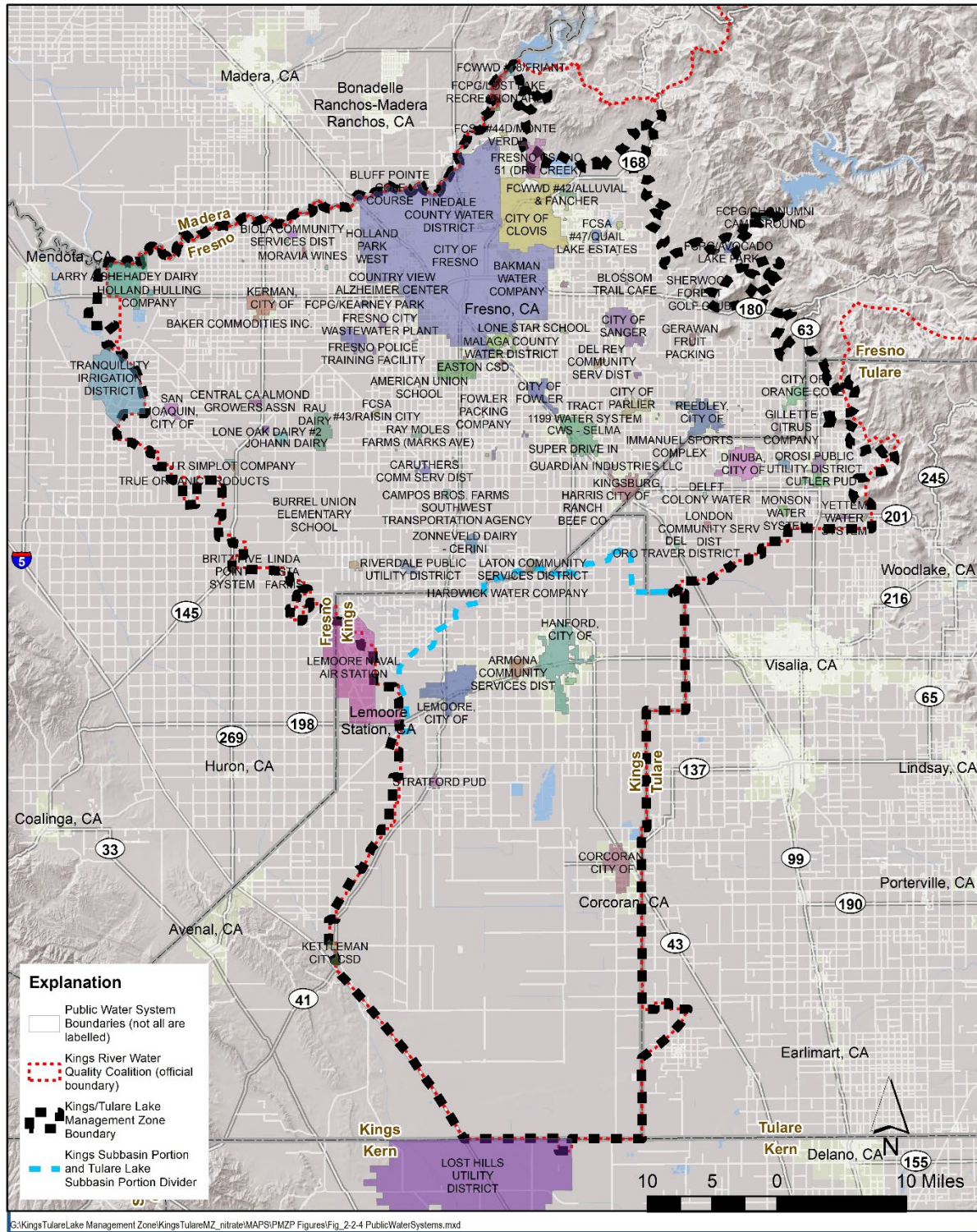
**Figure 2-4** provides the locations of PWS boundaries within the proposed KWA Management Zone. There are 230 Public Water Systems with known GIS boundary data in the KWA Management Zone; 220 of these systems are located in the Northern Portion (Kings Subbasin Area) of the proposed Management Zone. Not all of these systems are currently active, according to the State Water Board's Drinking Water Watch (<https://sdwis.waterboards.ca.gov/PDWW/>, accessed in January 2021)<sup>6</sup>.

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<sup>5</sup> <https://data.ca.gov/dataset/drinking-water-public-water-system-information>, accessed October, 2020.

<sup>6</sup> See Section 2 and Appendix E in the Early Action Plan (Attachment D to this PMZP) for more information on Public Water Systems in the Management Zone.

**Figure 2-4. Public Water System Boundaries Within and Adjacent to the Proposed KWA Management Zone**



### 2.1.5.2. State Small Water Systems

SSWS are defined as systems serving at least five but not more than 14 service connections. Typically, SSWSs 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 in the state do not have these data compiled in any easily accessible format (many counties require a fee for data retrieval for these systems). Typically, a county will have hard-copy files of the original permit filed for the SSWS, and an annual record of water quality data collected for compliance with county regulations (although such data collection may be sporadic and only for a few constituents). The permit typically includes information on the construction of the water source (well) and the street where service is provided. Most counties do not have maps of SSWS service areas; in most cases, the only way to locate the service area of a SSWS is to use the address recorded on the permit. Some SSWS are included in the PWS boundary data maintained by CEHTP, described above, but this is irregular. Fresno, Kings, and Tulare County Environmental Health Departments were contacted to obtain available SSWS address data for the Management Zone area. In order to determine if the SSWS is within the Management Zone boundary, the addresses would need to be geocoded or plotted on a map.

### 2.1.5.3. Local Small Water Systems

LSWS include residential systems serving two to four households. LSWSs are typically permitted by County Environmental Health Departments. Most counties regulate LSWS as if they were simply private wells – that is, they 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. No water quality data are typically collected on an ongoing basis from an LSWS and domestic wells, though some counties do collect a water quality sample at the time the well is drilled. Some counties do not maintain their LSWS and domestic well data at their Environmental Health Office; other offices at the county may have these data, such as Community Development Offices, Public Works Offices, or Building Departments. Fresno, Kings, nor Tulare Counties had records of any LSWS in the KWA Management Zone area.

### ***2.1.6. Disadvantaged Communities and Disadvantaged Unincorporated Communities***

Disadvantaged Communities (DACs) and Disadvantaged Unincorporated Communities (DUCs) include many areas of the state that have poor access to regulated drinking water supplies. The neighborhoods in these areas tend to include many households without adequate financial resources to treat their residential domestic supply well water, or even to test for contaminants.

DACs are defined as those areas of the state with Median Household Income (MHI) below 80% of the statewide MHI. These areas are further categorized as Severely Disadvantaged Communities (SDAC) if the local MHI is below 60% of the statewide MHI. DWR, which maintains several databases of DAC Boundaries based on the most recent census<sup>7</sup>, provides three different scales of analysis for DACs:

- DAC Tracts – Census Tracts are the largest census areas compiled below the county level. County boundaries are contiguous with Tract boundaries. Tracts consist of groups of Block Groups.
- DAC Block Groups – Census Block Groups are the next scale smaller than Tracts. Tract boundaries are contiguous with Block Group boundaries. Block Groups consist of groups of Blocks.
- DAC Places – Census Places, or Census Designated Places (CDP) are not contiguous with other Census boundaries and may consist of groups of complete or partial Blocks or Block Groups. CDPs are typically unincorporated residential neighborhoods; but unincorporated status is not a requirement for place designation. CDPs are legacy designations, with locally known names. Some are distinct from nearby incorporated areas due to geographic boundaries such as rivers, roads, or topography. DAC Places are typically a more accurate representation of neighborhoods with qualifying MHIs rather than Tracts or Block Groups. DWR does not provide an assessment of DAC status at the Block level.

DUCs are areas that meet the above-defined MHI criteria (80% of statewide MHI). PolicyLink (2013) provides the best readily available information on DUCs located in the proposed Management Zone area<sup>8</sup>. These locations were developed primarily using census data, but neighborhoods were also characterized and individually delineated based on parcel density, more detailed income from counties and state agencies, and with input from local resources. Each DUC is designated as one of the following:

- Island – Neighborhood within a city or other incorporated area that has been left out of that incorporated jurisdiction
- Fringe – Neighborhood on the outskirts of an incorporated area
- Legacy – Neighborhood located well outside the boundaries of any incorporated area.

Many of the DUCs identified by PolicyLink overlap with DAC Places identified by DWR (see above) because many CDPs are unincorporated areas that also meet the criteria used by PolicyLink in their study.

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<sup>7</sup> DWR's boundary files for DACs: <https://gis.water.ca.gov/app/dacs/>, accessed October, 2020.

<sup>8</sup> The Management Zone is seeking an update of the GIS coverage of DUCs from PolicyLink.



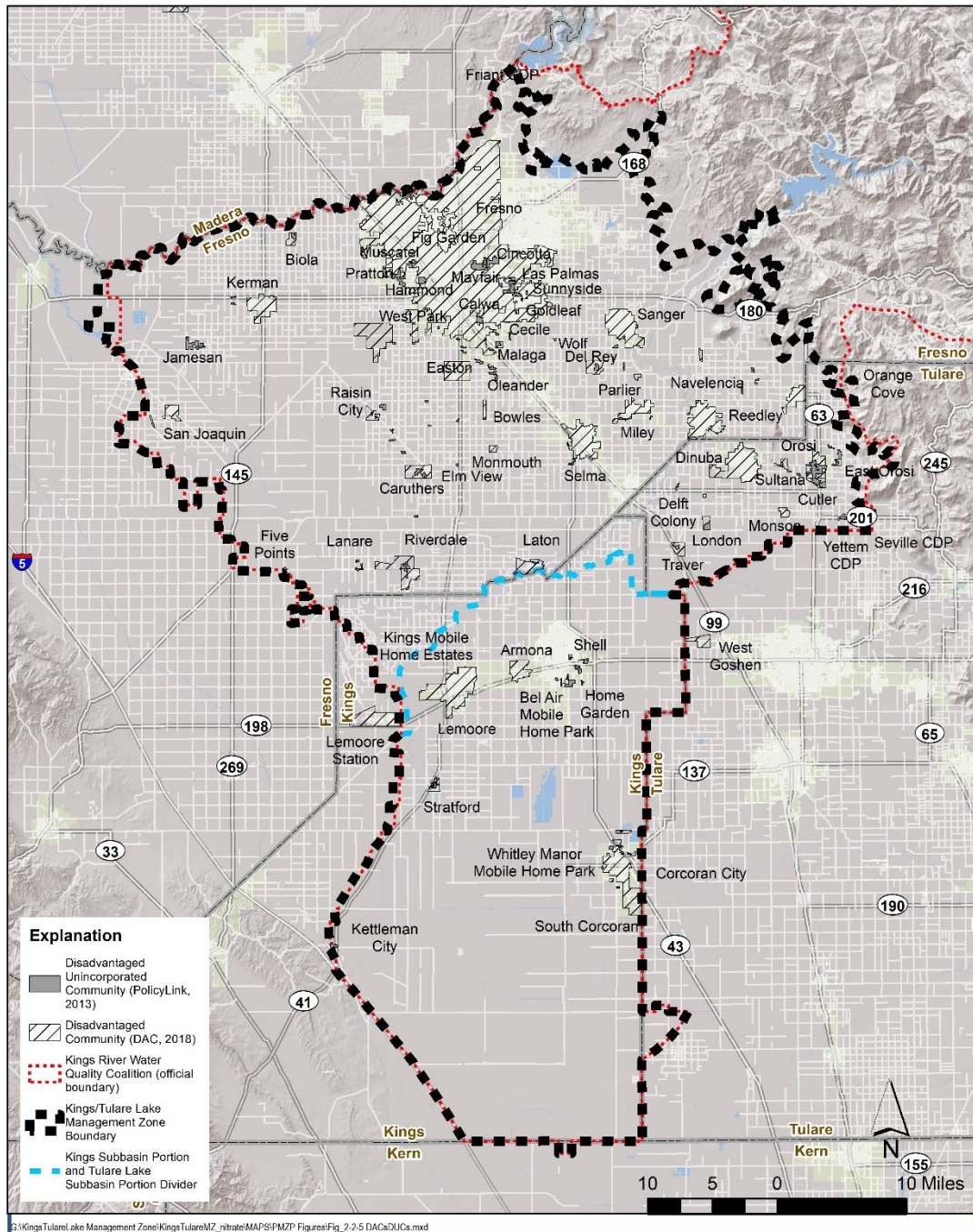
There are 34 Disadvantaged Communities (DAC) and 38 Disadvantaged Unincorporated Communities (DUC) in the Northern Portion (Kings Subbasin Area) of the KWA Management Zone. **Table 2-3** lists and **Figure 2-5** illustrates the locations of the DACs and DUCs in the proposed Management Zone. **Table 2-4** summarizes the characteristics of DACs and DUCs in the KWA Management Zone area. Combined, non-overlapping DAC and DUC areas comprise approximately 11.4% of the Northern Portion (Kings Subbasin Area) of the KWA Management Zone (112,935 acres, or 176.46 square miles).

Table 2-3. Population of DACs and DUCs located in the KWA Northern Portion (Kings Subbasin Area) of the Management Zone				
Community	DWR DAC Population (2018 CDP)	Fraction of DAC area in MZ	PolicyLink DUC Population	Fraction of DUC area in MZ
Biola CDP	1,451	1.00	1,593	1.00
Bowles CDP	194	1.00	37	1.00
Calwa CDP	1,974	1.00	1,996	1.00
Caruthers CDP	2,773	1.00	1,347	1.00
Cecile	-	-	191	1.00
Cincotta	-	-	8,640	1.00
Cutler CDP	5,774	1.00	-	-
Del Rey CDP	1,498	1.00	1,836	1.00
Delft Colony CDP	653	1.00	77	1.00
Dinuba city	23,871	1.00	-	-
East Orosi CDP	955	1.00	782	1.00
Easton CDP	2,206	1.00	492	1.00
Elm View	-	-	31	1.00
Fig Garden	-	-	130	1.00
Five Points	-	-	85	1.00
Fresno city	522,277	1.00	-	-
Friant CDP	548	0.76	-	-
Goldleaf	-	-	65	1.00
Hammond	-	-	1,162	1.00
Jamesan	-	-	558	1.00
Kerman city	14,649	1.00	86	1.00
Lanare	-	-	271	1.00
Las Palmas	-	-	736	1.00
Laton CDP	2,166	0.98	123	0.91
Lemoore Station CDP	7,063	0.03	-	-
London CDP	1,854	1.00	1,855	1.00
Malaga CDP	1,337	1.00	1,077	1.00

Table 2-3. Population of DACs and DUCs located in the KWA Northern Portion (Kings Subbasin Area) of the Management Zone				
Community	DWR DAC Population (2018 CDP)	Fraction of DAC area in MZ	PolicyLink DUC Population	Fraction of DUC area in MZ
Mayfair CDP	5,091	1.00	-	-
Miley	-	-	122	1.00
Monmouth CDP	103	1.00	-	-
Monson CDP	380	1.00	-	-
Muscatel	-	-	412	1.00
Navelencia	-	-	145	1.00
Oleander	-	-	390	1.00
Orange Cove city	9,564	1.00	-	-
Orosi CDP	7,441	1.00	11,951	1.00
Parlier city	15,120	1.00	-	-
Pratton	-	-	967	1.00
Raisin City CDP	389	1.00	693	1.00
Reedley city	25,493	1.00	-	-
Riverdale CDP	3,625	1.00	1,616	1.00
San Joaquin city	4,021	1.00	-	-
Sanger city	24,978	1.00	401	1.00
Selma city	24,598	1.00	118	1.00
Seville CDP	691	1.00	-	-
Sultana CDP	1,030	1.00	624	1.00
Sunnyside	-	-	3,197	1.00
Traver CDP	740	1.00	633	1.00
West Park CDP	1,035	1.00	417	1.00
Wolf	-	-	27	1.00
Yettem CDP	441	1.00	195	1.00

Table 2-4. DAC and DUC Characteristics in the Proposed KWA Northern Portion (Kings Subbasin Area) of the Management Zone					
Category	Number of Locales	Acres (sq. mi.) in MZ	Acres (sq. mi.) overlap	Total DAC and DUC acres (sq. mi.) without overlap	Total DAC and DUC Population Estimate
DACs	34	109,647 (171.32)	2,375 (3.71)	112,935 (176.46)	742,091
DUCs	38	5,663 (8.85)			

**Figure 2-5. Location of DACs and DUCs Within and Adjacent to the Proposed KWA Management Zone**



### 2.1.7. Land Use

**Table 2-5** and **Figure 2-6** provide the land use characteristics of Northern Portion (Kings Subbasin Area) of the proposed KWA Management Zone associated with agricultural activity (based on 2016 land use designations from DWR). Land use in the Northern Portion of the KWA Management Zone is predominantly made up of Deciduous Fruits and Nuts (22%), Vineyards (17%), Urban (12%), and areas that DWR was unable to map (19%). To the east, agricultural activity shifts to an increased use of Citrus and Subtropical. The western area contains most of the Native Riparian Vegetation, and the north is dominated by the urban area of the greater Fresno area. There are areas of the KWA Management Zone that are unmapped for land use, most of which are located near the northeastern boundary of the Management Zone.

Besides the nonpoint sources of nitrate loading that can occur due to agricultural land uses, septic systems are also a smaller but potential source of localized nitrate loading. The amount of nitrate loading from septic systems is variable, dependent on the rate of denitrification. Denitrification occurs in the soil column below the septic leachfield, with more denitrification occurring where more carbon is available and where clayey or heavy soils slow the downward flow of water (creating larger anaerobic zones that increase denitrification). Conversely, in soils below the septic leachfield where there is less carbon available and there exists sandy, faster soils, the water travels downward more quickly (creating a thin anaerobic zone), which results in lower denitrification rates, and therefore more nitrate potentially reaching the water table.

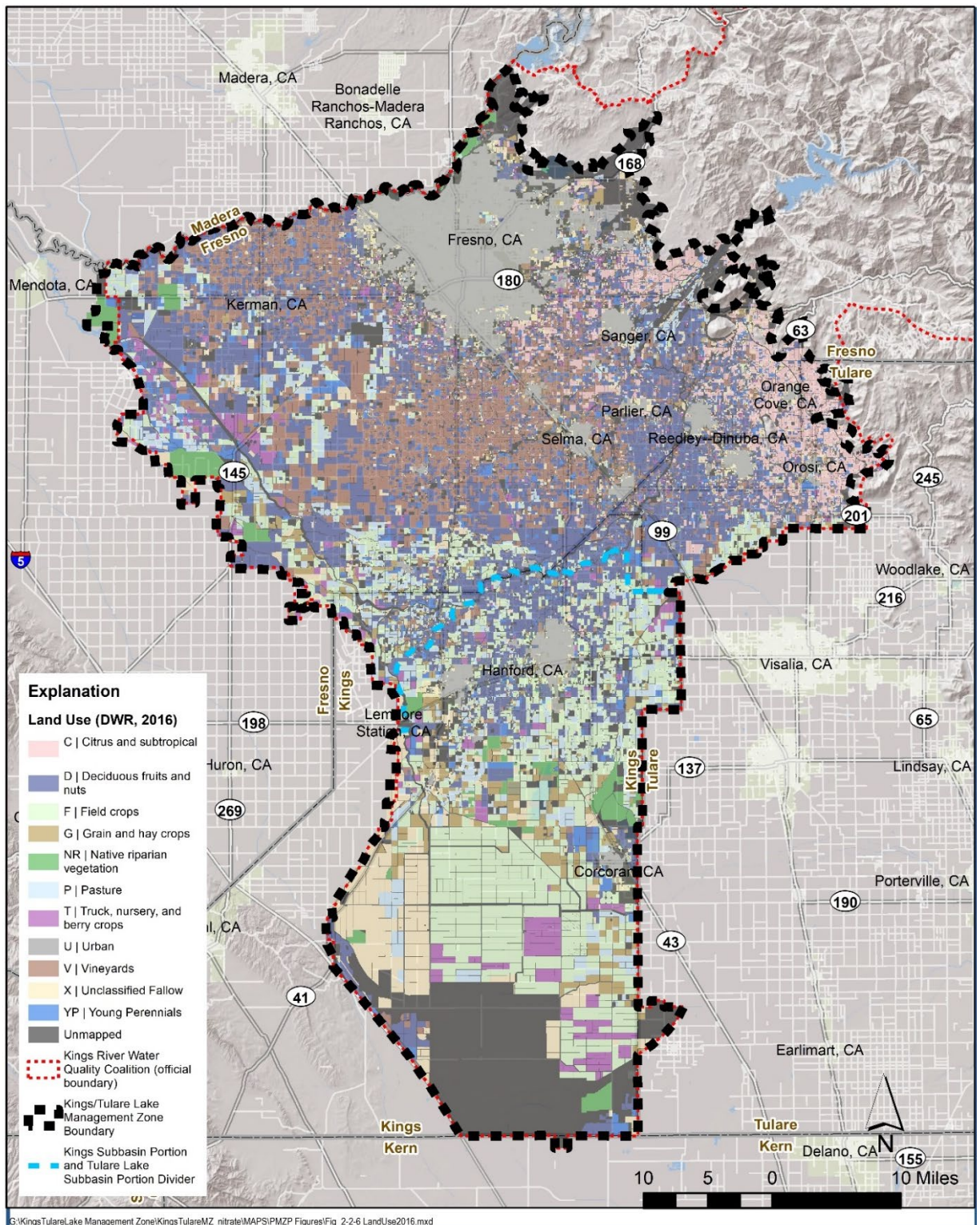
<b>Table 2-5. Land Use Summary for the Northern Portion (Kings Subbasin Area) of the KWA Management Zone (land use designations based on DWR 2016).</b>			
<b>Land Use Designation</b>	<b>Area (sq. mi.)</b>	<b>Area (Acres)</b>	<b>Percent of Total Northern Portion (Kings Subbasin Area) of the KWAMZ</b>
<b>CITRUS AND SUBTROPICAL</b>	<b>93.33</b>	<b>59,732</b>	<b>6.03%</b>
Avocados	0.00	1	0.00%
Citrus	88.15	56,414	5.70%
Dates	0.01	9	0.00%
Kiwis	1.86	1,189	0.12%
Miscellaneous Subtropical Fruits	0.01	6	0.00%
Olives	3.30	2,113	0.21%
<b>DECIDUOUS FRUITS AND NUTS</b>	<b>341.79</b>	<b>218,747</b>	<b>22.09%</b>
Almonds	168.12	107,600	10.87%
Apples	0.68	434	0.04%
Cherries	5.73	3,667	0.37%
Miscellaneous Deciduous	4.35	2,785	0.28%
Peaches/Nectarines	70.89	45,369	4.58%

**Table 2-5. Land Use Summary for the Northern Portion (Kings Subbasin Area) of the KWA Management Zone (land use designations based on DWR 2016).**

Land Use Designation	Area (sq. mi.)	Area (Acres)	Percent of Total Northern Portion (Kings Subbasin Area) of the KWAMZ
Pears	1.36	871	0.09%
Pistachios	43.95	28,130	2.84%
Plums, Prunes and Apricots	25.80	16,512	1.67%
Pomegranates	3.11	1,993	0.20%
Walnuts	17.79	11,388	1.15%
<b>FIELD CROPS</b>	<b>81.14</b>	<b>51,928</b>	<b>5.24%</b>
Beans (Dry)	0.47	298	0.03%
Corn, Sorghum and Sudan	62.78	40,181	4.06%
Cotton	17.67	11,307	1.14%
Miscellaneous Field Crops	0.04	23	0.00%
Safflower	0.15	99	0.01%
Sunflowers	0.03	21	0.00%
<b>GRAIN AND HAY CROPS</b>	<b>29.26</b>	<b>18,724</b>	<b>1.89%</b>
Miscellaneous Grain and Hay	12.11	7,750	0.78%
Wheat	17.15	10,975	1.11%
<b>NATIVE RIPARIAN VEGETATION</b>	<b>22.44</b>	<b>14,363</b>	<b>1.45%</b>
Managed Wetland	22.44	14,363	1.45%
<b>PASTURE</b>	<b>70.12</b>	<b>44,875</b>	<b>4.53%</b>
Alfalfa and Alfalfa Mixtures	57.75	36,960	3.73%
Miscellaneous Grasses	1.11	711	0.07%
Mixed Pasture	11.26	7,204	0.73%
<b>TRUCK NURSERY AND BERRY CROPS</b>	<b>36.62</b>	<b>23,437</b>	<b>2.37%</b>
Bush Berries	2.83	1,811	0.18%
Carrots	0.80	510	0.05%
Cole Crops	0.68	438	0.04%
Flowers, Nursery and Christmas Tree Farms	0.48	308	0.03%
Greenhouse	0.07	46	0.00%
Lettuce/Leafy Greens	1.01	645	0.07%
Melons, Squash and Cucumbers	2.31	1,480	0.15%
Miscellaneous Truck Crops	8.68	5,558	0.56%
Onions and Garlic	6.51	4,168	0.42%
Peppers	1.24	792	0.08%

<b>Table 2-5. Land Use Summary for the Northern Portion (Kings Subbasin Area) of the KWA Management Zone (land use designations based on DWR 2016).</b>			
<b>Land Use Designation</b>	<b>Area (sq. mi.)</b>	<b>Area (Acres)</b>	<b>Percent of Total Northern Portion (Kings Subbasin Area) of the KWAMZ</b>
<b>Potatoes and Sweet Potatoes</b>	0.00	3	0.00%
<b>Strawberries</b>	0.10	67	0.01%
<b>Tomatoes</b>	11.89	7,613	0.77%
<b>URBAN</b>	<b>179.49</b>	<b>114,871</b>	<b>11.60%</b>
Urban	179.49	114,871	11.60%
<b>VINEYARDS</b>	<b>261.80</b>	<b>167,554</b>	<b>16.92%</b>
Grapes	261.80	167,554	16.92%
<b>UNCLASSIFIED FALLOW</b>	<b>81.31</b>	<b>52,039</b>	<b>5.26%</b>
Idle	81.31	52,039	5.26%
<b>YOUNG PERENNIALS</b>	<b>58.29</b>	<b>37,307</b>	<b>3.77%</b>
Young Perennials	58.29	37,307	3.77%
<b>Total Mapped Land Use Area</b>	<b>1,255.59</b>	<b>803,577</b>	<b>81.16%</b>
<b>Unmapped Area</b>	<b>291.49</b>	<b>186,556</b>	<b>18.84%</b>
<b>Total Area in the Northern (Kings Subbasin Area) of the Kings Water Alliance Management Zone</b>	<b>1,547.08</b>	<b>990,133</b>	<b>100.00%</b>

**Figure 2-6. Agricultural Land Use in the Proposed KWA Management Zone**



## 2.2. Initial Assessment of Groundwater Conditions

The initial assessment of nitrate groundwater conditions for the Preliminary Management Zone Proposal is based on readily available existing data and information. Where possible, information from the Central Valley SNMP (CV-SALTS, 2016) was used and updated with more recent groundwater quality data from publicly available sources (collected between August and December 2020). Key data sources for this assessment included:

- Supplemental information on groundwater within the KWA Management Zone was obtained via DWR’s Bulletin 118 (DWR, 2003). This document provides an overview of groundwater conditions (both groundwater levels and groundwater quality) in specific subbasins including the Kings and Tulare Lake Subbasins. Bulletin 118 also contains descriptions of groundwater basins and subbasins in California, with many descriptions updated from their 2003 descriptions in 2016 (DWR, 2016). DWR also released their statewide Groundwater Basin Prioritization in 2014 and 2015<sup>9</sup>, which contains basic information on each groundwater basin, including population, population growth, total number of public supply wells, groundwater volume, percent of total water supply supplied by groundwater, irrigated acreage, and other comments on groundwater levels or quality specific to aquifers within the basin.
- GSAs have developed HCMs and other information required for GSPs, including details on groundwater conditions. There are seven GSP documents submitted to DWR in January 2020 from GSAs within the Kings Subbasin.
- CV-SALTS completed a high-resolution mapping analysis of nitrate and total dissolved solids (TDS) groundwater quality in the Central Valley Region including within the proposed Management Zone (LSCE et al., 2016). The high-resolution mapping of salt and nitrate was completed for the Upper, Lower, and Production Zones of the groundwater system, which are defined in the documentation. Ambient TDS and nitrate conditions are provided, as well as assimilative capacity, groundwater quality trends, and predicted conditions (after 10, 20, and 50 years). The CV-SALTS high resolution dataset utilizes groundwater quality data from 2000-2016.

**Table 2-6** summarizes sources of data accessed or requested to update the CV-SALTS nitrate groundwater dataset for completing the initial assessment of groundwater conditions for this Preliminary Management Zone Proposal.

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<sup>9</sup> [https://water.ca.gov/LegacyFiles/groundwater/casgem/pdfs/lists/PubRel\\_BasinRank\\_by\\_HR\\_5-18-15.pdf](https://water.ca.gov/LegacyFiles/groundwater/casgem/pdfs/lists/PubRel_BasinRank_by_HR_5-18-15.pdf)



Table 2-6. Data Sources Accessed or Requested to Develop Initial Assessment of Groundwater Conditions in the Northern Portion (Kings Subbasin Area) of the Proposed KWA Management Zone.	
Data Source	Link
<b>General Groundwater Conditions</b>	
DWR Bulletin 118 overview of basin/subbasin conditions (groundwater levels and groundwater quality)	<a href="https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118">https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118</a>
DWR's Groundwater Sustainability Basin Prioritization	<a href="https://water.ca.gov/Programs/Groundwater-Management/Basin-Prioritization">https://water.ca.gov/Programs/Groundwater-Management/Basin-Prioritization</a>
Individual GSA's Hydrogeologic Conceptual Model	<a href="https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management/Groundwater-Sustainable-Agencies">https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management/Groundwater-Sustainable-Agencies</a> and <a href="https://sgma.water.ca.gov/portal/gsp/all">https://sgma.water.ca.gov/portal/gsp/all</a>
CV-SALTS High Resolution Salt and Nitrate Mapping for Region 5	<a href="https://www.cvsalinity.org/committees/technical-advisory/conceptual-model-developments/171-updated-groundwater-quality-analysis-for-central-valley.html">https://www.cvsalinity.org/committees/technical-advisory/conceptual-model-developments/171-updated-groundwater-quality-analysis-for-central-valley.html</a>
<b>Publicly Available Groundwater Quality Data Sources</b>	
GeoTracker GAMA	<a href="http://geotracker.waterboards.ca.gov/gama/gamamap/public/">http://geotracker.waterboards.ca.gov/gama/gamamap/public/</a>
DWR Water Data Library	<a href="https://wdl.water.ca.gov/">https://wdl.water.ca.gov/</a>
US Geological Survey National Water Information System	<a href="https://waterdata.usgs.gov/nwis/qw">https://waterdata.usgs.gov/nwis/qw</a>
GeoTracker Regulated Facilities	<a href="http://geotracker.waterboards.ca.gov/">http://geotracker.waterboards.ca.gov/</a> and <a href="http://geotracker.waterboards.ca.gov/datadownload">http://geotracker.waterboards.ca.gov/datadownload</a>
Division of Drinking Water	<a href="https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/EDTlibrary.html">https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/EDTlibrary.html</a>
<b>County-Specific Data Available by Request</b>	
Kings County state small water systems and domestic/local small water systems (water quality data)	<a href="https://www.countyofkings.com/">https://www.countyofkings.com/</a>
Madera County state small water systems and domestic/local small water systems (water quality data)	<a href="https://www.maderacounty.com/government/public-health">https://www.maderacounty.com/government/public-health</a>
Fresno County state small water systems and domestic/local small water systems (water quality data)	<a href="https://www.co.fresno.ca.us/departments/public-health?locale=en">https://www.co.fresno.ca.us/departments/public-health?locale=en</a>
Tulare County state small water systems and domestic/local small water systems (water quality data)	<a href="https://tularecounty.ca.gov/county/">https://tularecounty.ca.gov/county/</a>

### 2.2.1. Hydrogeology

The Kings Subbasin is bounded on the north and south by the San Joaquin and Kings Rivers, the Sierra Nevada mountains provide the northeastern boundary, and the Westside and Delta-Mendota Subbasins provide the west-southwest boundary. The Kings Subbasin's seven Groundwater Sustainability Plans (GSPs) were used for information regarding the hydrogeology of this portion of the Management Zone. This summary of the hydrogeology in the Northern Portion (Kings Subbasin Area) of the KWA Management Zone is a combination of the GSPs and DWR's Bulletin 118 (2006).

According to DWR's Bulletin 118 (2006a), the Kings Subbasin's groundwater aquifer system consists mainly of unconsolidated continental deposits. These unconsolidated deposits are of Tertiary and Quaternary age and are overlain by a younger series of deposits that are of Quaternary age. The younger sediments of Quaternary age are divided into four main categories: 1) older alluvium, 2) lacustrine and marsh deposits, 3) younger alluvium, and 4) flood-basin deposits.

DWR (2006) describes the first group listed above of younger Quaternary age deposits consisting of older alluvium as an important aquifer in the Kings Subbasin. This formation consists of lenses of clay, silt, silty and sandy clay, clayey and silty sand, sand, gravel, cobbles, and boulders interbedded as a result of two distinct depositional environments that were in close spatial proximity and migrated back and forth. The western portion of the older alluvium becomes more fine-grained, due to interbedded deposits of lacustrine and marsh origins.

DWR (2006) depicts the younger alluvium Quaternary deposit by explaining that it consists of sedimentary fluvial arkosic beds that overly the older alluvium and is interbedded with flood-basin deposits. Similar to the underlying older alluvium, the lithology of the younger alluvium is typically similar to conglomerate sandstone but richer in feldspar. When the younger alluvium is present beneath river channels, it typically has higher permeability. Flood-basin deposits can be found along the Fresno Slough and James Bypass in the western Kings Subbasin area. The flood-basin deposits consist of sand, silt, and clay. The Quaternary deposits tend to produce more water and are therefore more heavily utilized for well production compared to the continental deposits of Tertiary and Quaternary age that crop out beneath the extreme southeastern part of the Subbasin and produce much lower well yields. Provost and Pritchard (P&P, 2020) note, however, that there are now a larger number of deeper wells that pump more water from continental deposit units below the older alluvium.

DWR (2006) explains the presence of major clay units in the Kings Subbasin. The most extensive lacustrine and marsh deposit is the Corcoran Clay (also referred to as the E-Clay), which acts as an impediment to the vertical movement of water. The Corcoran Clay (E-clay) is a member of the Tulare Formation, and occupies the western one-quarter to one-third of the Kings Subbasin. Its depth ranges from between 250 and 550 feet below ground surface. Two other clay units,

the A-clay and C-clay are found above the Corcoran Clay. These clay layers are less extensive but create confined groundwater conditions when present.

The HCMs from the seven GSPs that cover most of the Northern Portion (Kings Subbasin Area) of the KWA Management Zone are summarized below generally from west to east (refer to the map in **Figure 2-2** for locations of each GSA):

#### James GSA HCM<sup>10</sup>

There are six major geomorphic features that dominate the hydrogeology of the Kings Subbasin: 1) the Kings River alluvial fan, 2) the San Joaquin River alluvial fan, 3) dune sands, 4) compound fans of intermittent streams between the Kings and San Joaquin Rivers, 5) a compound fan south of the Kings River, and 6) an area termed overflow lands near the topographic axis of the valley (**Figure 2-7**). For the James GSA area, coarser materials exist in the eastern half of the GSA, and finer-grained soils and deposits are found to the west. The James GSA area contains the three major clay units mentioned above: the A-Clay, which generally occurs at a depth of 50-70 feet below ground surface; the C-Clay, which generally occurs at a depth between 210-260 feet; and the Corcoran Clay (E-Clay), which can be found at typical depths of 400 to 550 feet below ground surface. The Corcoran Clay is the only consistently confining layer that divides the unconfined and confined aquifer within the James GSA.

#### North Fork Kings GSA HCM<sup>11</sup>

Major geomorphic features are closely related to the surficial deposits, which dictate soil types to some extent. For the North Fork Kings GSA, similar to the James GSA to the north, coarser materials exist in the eastern half of the area and finer-grained materials are found in the western part. Similar to the James GSA, the North Fork GSA area contains the three major clay units: the A-Clay, which generally occurs at a depth of 50-70 feet below ground surface; the C-Clay, which generally occurs at a depth between 210-260 feet; and the Corcoran Clay (E-Clay), which can be found at typical depths of 400 to 550 feet below ground surface. The extent of the Corcoran Clay (E-Clay) is debatable, likely due to the thinning nature of the clay as it pinches out to the east, where it may not be a true confining layer.

#### McMullin Area GSA HCM<sup>12</sup>

Within the McMullin Area GSA, the Quaternary older alluvium begins at the ground surface in the east or within 50 feet of the ground surface in the northwestern, western, and southern sections of the GSA area. The older alluvium extends down to depths between 700 and 1,000 feet below the ground surface. Underlying the older alluvium are Quaternary to Tertiary age continental deposits, which extend to depths of at least 1,800 feet below ground surface. The

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<sup>10</sup> <https://sgma.water.ca.gov/portal/gsp/preview/31>, accessed December 20, 2020.

<sup>11</sup> <https://sgma.water.ca.gov/portal/gsp/preview/25>, accessed December 20, 2020.

<sup>12</sup> <https://sgma.water.ca.gov/portal/gsp/preview/28>, accessed December 20, 2020.

A-Clay is commonly found in the western part of the McMullin Area GSA, and it appears at shallow depths (50 feet below ground surface). The C-Clay is present in the northwestern area of the GSA, occurring at depths of approximately 300 feet below ground surface. The Corcoran Clay (E-Clay) is the most laterally extensive clay in this area, occurring at depths of approximately 500 feet in the north and west, and at shallower depths around 400 feet in the south. In the southern area of the GSA, a lower bed of the Corcoran Clay (E-Clay) is identified, commonly referred to as the “bifurcated E-clay.” Quaternary younger alluvium occurs at shallow depths in the western portion of the GSA, in the vicinity of the San Joaquin River and Fresno Slough, and sand dunes are present in the south, at shallow depths.

#### North Kings GSA HCM<sup>13</sup>

Within the North Kings GSA, which contains the Fresno Metropolitan area and much of the northern part of the Kings Subbasin, coarser materials exist and are identified on the fans of the major rivers, in areas mapped as dune sands, and in areas where recent deposits are found along active streams. Fine-grained materials are found in the area of the compound fan of intermittent streams and in the north and western parts of the Fresno Metropolitan area. The Quaternary older alluvium likely exists from the surface to a depth of approximately 900 feet in the northwest and to a shallower depth of approximately 500 feet in the southeast. The older alluvium extends to a depth of approximately 750 feet in the southwest and gradually thins out to the northeast where basement complex crops out along the eastern boundary of the North Kings GSA area. Continental deposits of Quaternary and Tertiary age underlie the older alluvium to depths of at least 2,200 feet. The Quaternary sand dune deposits are located in the south-central portion of the North Kings GSA, and extend to an approximate depth of 50 feet, sometimes extending to depths as much as 140 feet.

#### Central Kings GSA HCM<sup>14</sup>

Within the Central Kings GSA, younger alluvium is mapped in the southeastern area along the modern-day Kings River stream channel and southward. **Figure 2-7** shows that a large area of sand dune deposits is located in the western half of the Central Kings GSA, and the eastern half of the GSA contains the High Alluvial Fans of the Kings River geomorphologic unit, which corresponds to older alluvium deposits. The sand dune deposits extend to depths of approximately 50 feet below ground surface. Older alluvium deposits tend to stretch from the surface in the east down to depths ranging from 700 feet below ground surface in the northeast (near the Kings River) to approximately 1,000 feet below ground surface in the southwest. Continental deposits of Quaternary and Tertiary age extend to depths of between 2,800 feet below ground surface to at least 3,300 feet below ground surface in the northeast.

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<sup>13</sup> <https://sgma.water.ca.gov/portal/gsp/preview/24>, accessed December 20, 2020.

<sup>14</sup> <https://sgma.water.ca.gov/portal/gsp/preview/22>, accessed December 20, 2020.

### South Kings GSA HCM<sup>15</sup>

The South Kings GSA covers small areas within the eastern half of the larger Central Kings GSA. These areas correspond with the city limits of the four cities: Kingsburg, Fowler, Parlier, and Sanger, and the district boundary of the Del Rey Community Services District. Most of the areas of the South Kings GSA overlie the High Alluvial Fan of the Kings River geomorphic unit, except for the westernmost area of the GSA (City of Fowler) that is located within the Sand Dunes geomorphic unit. The South Kings GSA consists of older alluvium, younger alluvium, and sand dune deposits with similar depths as seen in the Central Kings GSA HCM. Older alluvium typically extends from the surface to between 600 and 900 feet below ground surface, and it is inferred to be shallower in the northwestern and southeastern parts of the GSA. The older alluvium overlays continental deposits of Quaternary and Tertiary age that extend to depths of at least 2,800 feet below ground surface. The sand dune deposits are typically contained within the upper 50 feet from the land surface. In the southeast area near the Kings River, the older alluvium extends to approximately 700 feet below ground surface, shifting deeper to approximately 1,000 feet below ground surface in the northwest portions of the GSA, and are underlain by continental deposits that extend to depths of at least 3,300 feet.

### Kings River East GSA HCM<sup>16</sup>

The Kings River East GSA is the easternmost GSA in the Northern Portion (Kings Subbasin Area) of the KWA Management Zone. Younger alluvium can be found outcropping along the Kings River, Wahtoke Creek, and Cottonwood Creek. Most of the surficial deposits in the Kings River East GSA, however, are the older alluvium. There are also some terrace deposits present near the edge of the valley and basement complex rocks occur where hills are present and in the foothills. The Corcoran Clay (E-Clay) appears in the southwest, ranging in depth from about 200 to 280 feet. Although the Corcoran Clay does not extend throughout the entire Kings River East GSA, there are still two distinct aquifer units: a shallow unconfined aquifer and a deeper confined aquifer formed by relatively non-continuous but locally significant clay layers in deeper parts of the older alluvium or upper parts of the underlying continental deposits. The base of the unconfined aquifer is estimated to range from approximately 150 feet deep in the east near the foothills, to 200 feet deep in the west, near the edge of the Corcoran Clay (E-Clay).

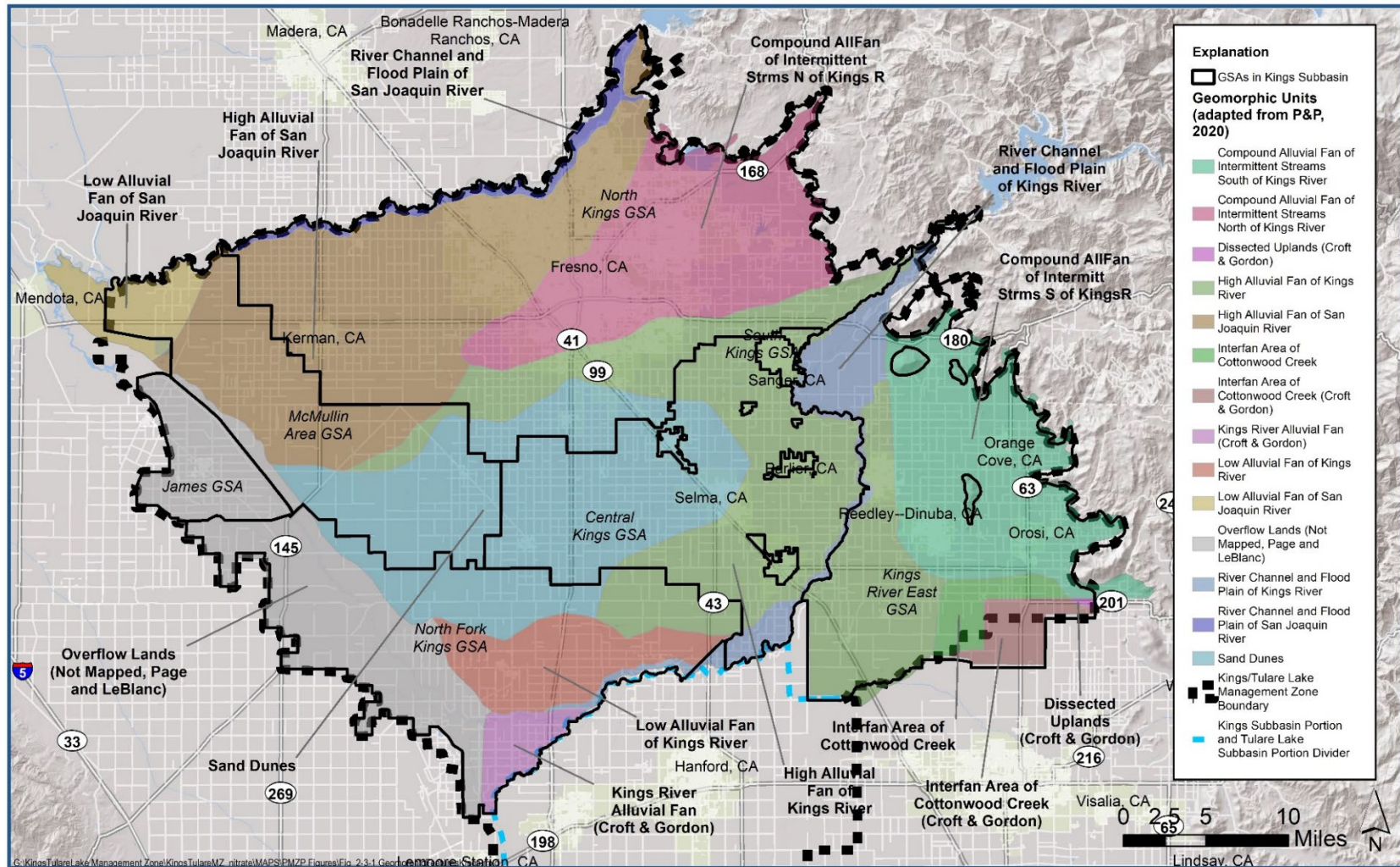
Two generalized conceptual cross sections are provided in **Figures 2-8** and **2-9**, and more detailed information on the hydrogeology of the Kings Subbasin can be found in each GSA's Groundwater Sustainability Plan's HCM section. The conceptual hydrogeologic cross sections are adapted from the Kings River East GSA's GSP and illustrate the general thickness and extents of the various deposits and formations that play important roles in the hydrogeology of the Northern Portion (Kings Subbasin Area) of the KWA Management Zone.

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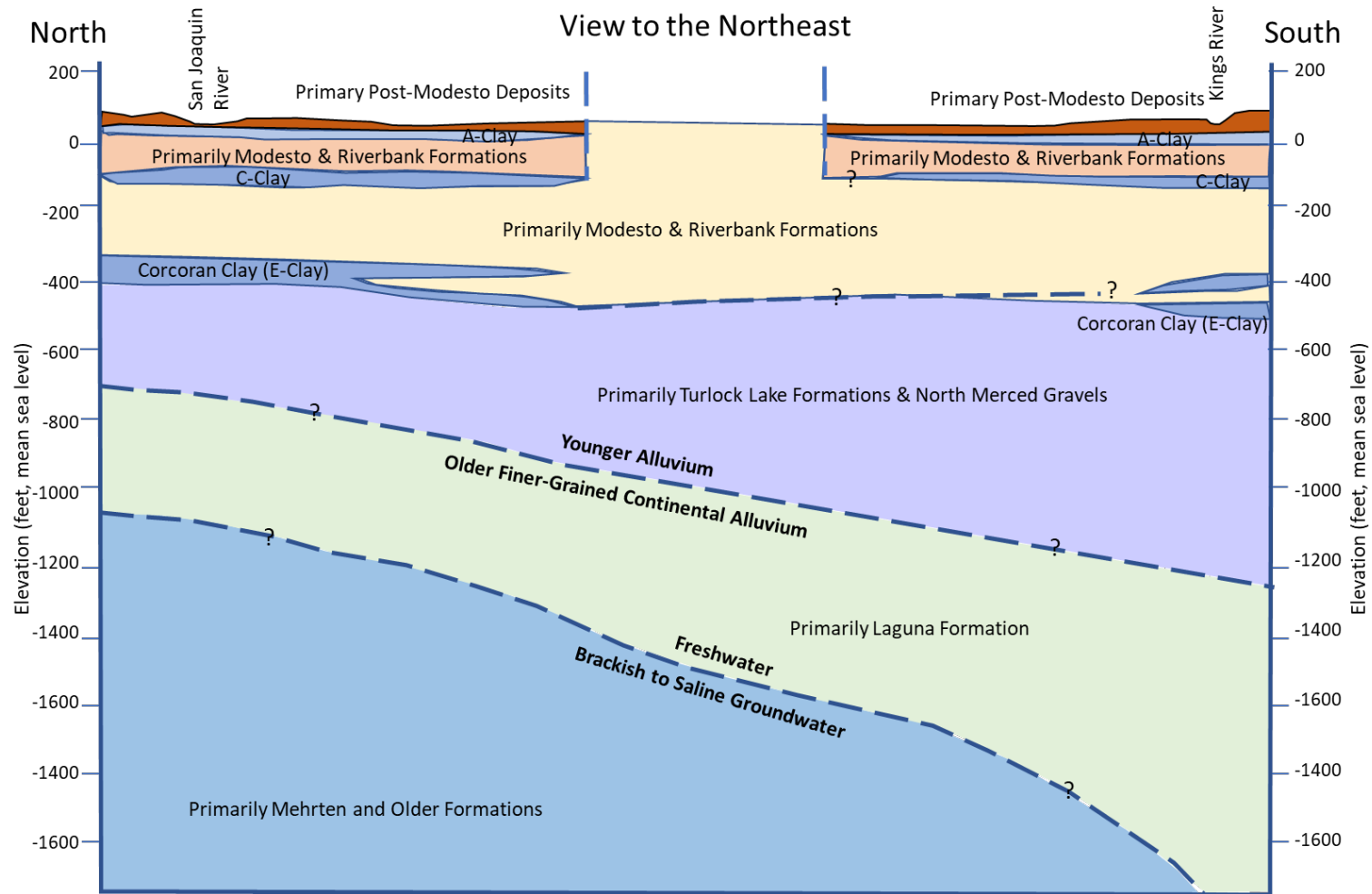
<sup>15</sup> <https://sgma.water.ca.gov/portal/gsp/preview/26>, accessed December 20, 2020.

<sup>16</sup> <https://sgma.water.ca.gov/portal/gsp/preview/23>, accessed December 20, 2020.

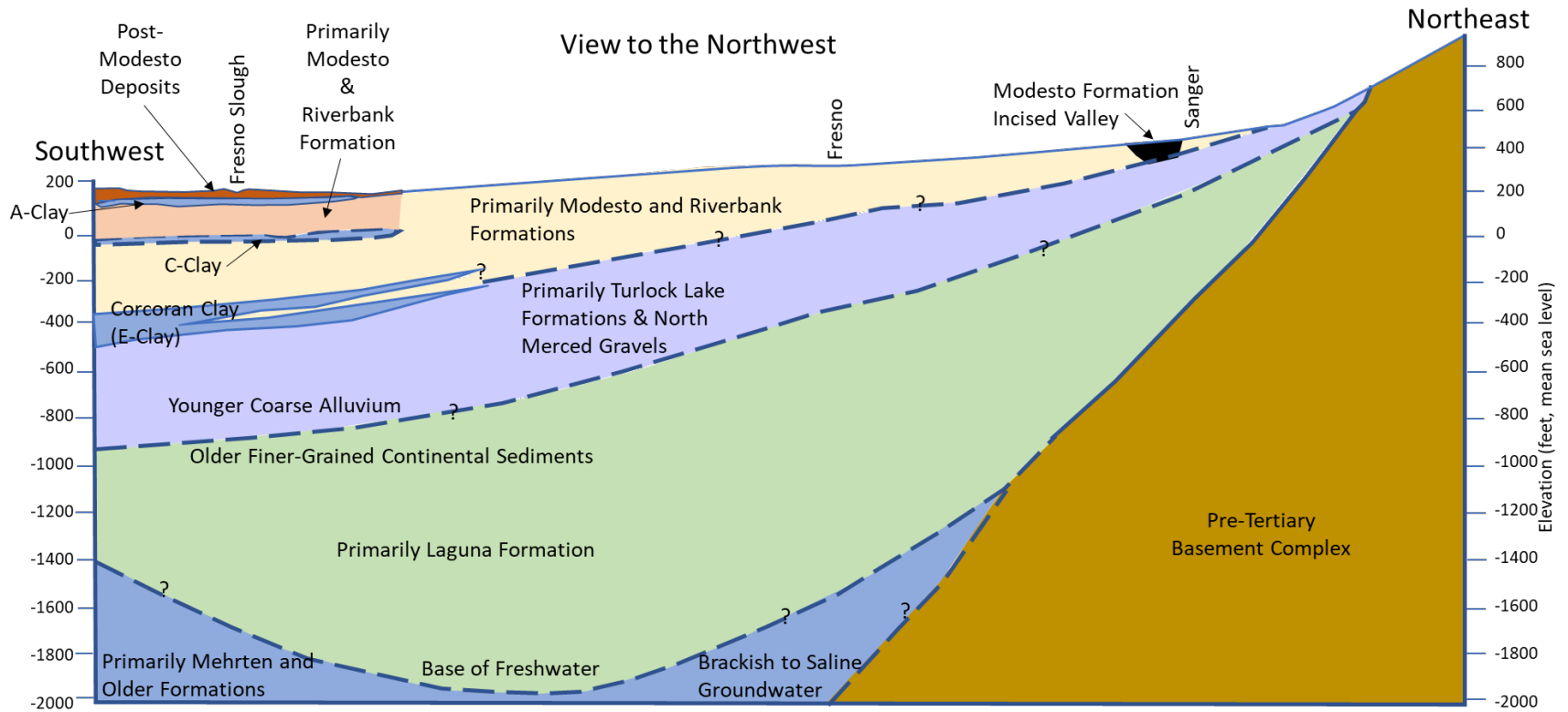
Figure 2-7. Geomorphic Features of the Kings Subbasin (adapted from P&P, 2020)



**Figure 2-8. Conceptual Cross Section for the Kings Subbasin (North to South)**  
 (adapted from Kings River East GSP, 2020)



**Figure 2-9. Conceptual Cross Section for the Kings Subbasin (Southwest to Northeast)  
 (adapted from Kings River East GSP, 2020)**





### **2.2.2. Groundwater Elevations and Flow**

Regional groundwater flows generally from the Sierra Nevada foothills to the southwest, following the regional dip of basement rock and sedimentary units. Groundwater elevations adapted from the Kings River East GSP for Spring 2017 provide insight into the direction of groundwater movement and allow identification of groundwater pumping depressions (**Figure 2-10**). Groundwater flows to the south in the southeasternmost area of the Kings Subbasin. Groundwater in the western portion of the Subbasin converges in a groundwater depression located in the western-central area of the Subbasin (**Figure 2-10**). Groundwater elevations are highest in the east and lowest in the west. The MZ has started to evaluate the groundwater gradients and flow directions along its borders. This analysis will be finalized in the coming months and included in the Final MZP following collaboration with neighboring GSAs and Management Zones.

### **2.2.3. Upper Zone Delineation**

The Upper Zone refers to the upper portion of the groundwater aquifer system used for determining ambient nitrate conditions in the KWA Management Zone. The Upper Zone portion of the groundwater system includes the depth from the bottom of the vadose zone to the top of the Lower Zone, as developed during previous Central Valley Salinity Coalition efforts. The depth of the Upper Zone is based on well construction information, (where available), and other comparable information that provide the best available indication of well depth. The determination of the Upper Zone depth gives the highest weight to domestic well depths (**Table 2-8**). Consistent with the understanding of the local hydrogeology, where the Corcoran Clay (or E-Clay) is present, the Upper Zone does not extend below the top of the Corcoran Clay.

High resolution mapping of salt and nitrate on behalf of CV-SALTS (LSCE et al., 2016) determined the boundaries of the Upper and Lower Zones throughout the Central Valley Floor using GIS spatial analyses of several layers of data. Well construction data were used in combination with depth to groundwater contours and characteristics of the Corcoran Clay, including the extent, depth, and thickness of this significant clay member. Data for the development of the Upper and Lower Zones originated from:

- DWR depth to groundwater contours;
- Depth to groundwater from Groundwater Quality Assessment Reports<sup>17</sup>;

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<sup>17</sup> Two Groundwater Quality Assessment Reports helped provide depth-to-groundwater data: the 2014 East San Joaquin Water Quality Coalition Groundwater Quality Assessment Report ([https://www.waterboards.ca.gov/centralvalley/water\\_issues/irrigated\\_lands/water\\_quality/coalitions\\_submittals/east\\_sanjoaquin/ground\\_water/2014\\_0113\\_esj\\_gwqar.pdf](https://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/water_quality/coalitions_submittals/east_sanjoaquin/ground_water/2014_0113_esj_gwqar.pdf)) and the 2014 Sacramento Valley Water Quality

- State Water Board’s DDW database of location and construction information for public water systems;
- U.S. Geological Survey (USGS) California Central Valley Hydrologic Model 2.0 (CVHM2; in progress):
  - Modeled virtual farm well construction for agricultural pumping
  - Actual rural public well water system well construction information
  - Actual urban public well water system well construction information
  - Texture database of driller’s logs, including domestic well construction information
  - Corcoran Clay depth, thickness, and extent

The above data were used to create interpolated layers over the Central Valley Floor of different well types and their perforation depths. The well construction layers were then combined in a weighting process to estimate where pumping occurs for the predominant well types. The weights provided in **Table 2-7** were then used for calculating the depth to the bottom of the Upper Zone. **Figure 2-11** shows the depth to the bottom of the Upper Zone in the proposed Management Zone, as previously delineated to support CV-SALTS analyses (e.g., LSCE et al., 2016). Generally, the depth to the bottom of the Upper Zone is between approximately 85 feet at its shallowest in the northeast, to almost 500 feet at its deepest in the southwest. The depth to the bottom of the Upper Zone is deepest in the western and southwestern portion of the Kings Subbasin, within the extent of the Corcoran Clay. This follows the stratigraphy and dipping nature of the bedding downwards toward the axis of the valley. The depth of the bottom of the Upper Zone decreases from southwest to northeast.

Table 2-7. Basis for Determining Depth of the Upper Zone	
Data Layer	Weights for Establishing Bottom of Upper Zone
Domestic Wells Bottom Perforations	40%
Farm Virtual Wells Top Perforations	10%
Urban PWS Top Perforations	20%
Rural PWS Top Perforations	20%
DDW Systems Top	10%
<b>Total</b>	<b>100%</b>

**Figure 2-10. Spring 2017 Contours of Equal Groundwater Elevation for the Kings Subbasin  
(adapted from Kings River East GSP, 2020)**

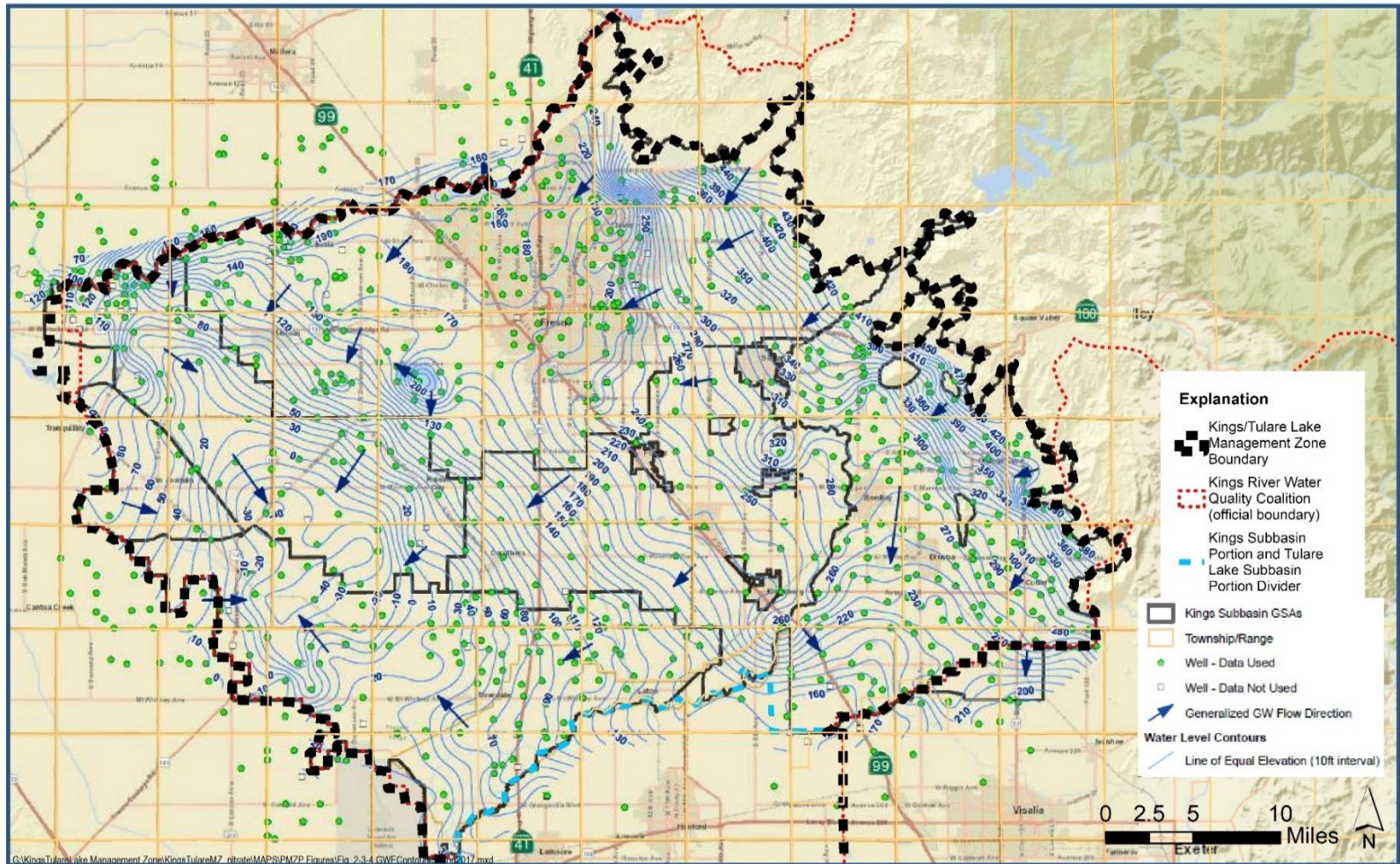
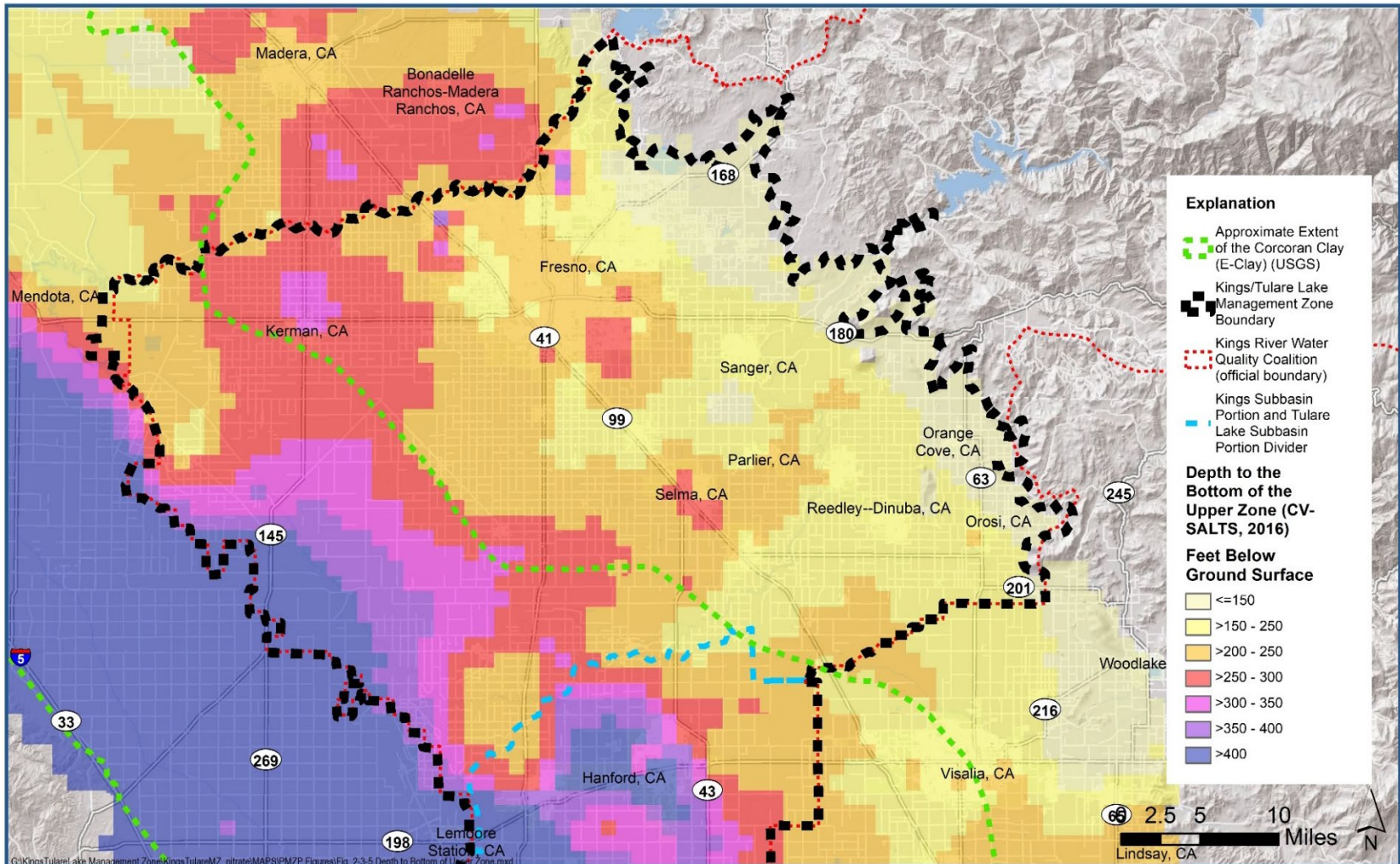


Figure 2-11. Depth to the Bottom of the Upper Zone, Kings Subbasin



### 2.2.4. Nitrate Water Quality

**Table 2-8** summarizes the groundwater quality data that were readily available to develop this Preliminary Management Zone Proposal. These datasets include data previously developed for CV-SALTS and additional data obtained between August and December 2020.

Table 2-8. Groundwater Quality Data Sources	
Data Category	Data Sources
The Phase II CV-SALTS Conceptual Model nitrate groundwater database developed for the High Resolution Mapping project (LSCE et al., 2016)	<ul style="list-style-type: none"> <li>• Former California Department of Public Health (CDPH), now DDW</li> <li>• DWR</li> <li>• Central Valley Water Board Waste Discharge Requirements (WDR) data per the Dairy General Order</li> <li>• Central Valley Water Board Regulated Sites</li> <li>• State Water Board/USGS Groundwater Ambient Monitoring and Assessment Program (GAMA)</li> <li>• USGS</li> </ul>
GeoTracker GAMA <sup>18</sup> (Note: Not all entities had nitrate data from within the proposed Management Zone)	<ul style="list-style-type: none"> <li>• Department of Pesticide Regulation</li> <li>• DWR</li> <li>• GAMA – Domestic Wells; Special Studies, and Priority Basin Projects</li> <li>• Local Groundwater Projects</li> <li>• Monitoring Wells (Central Valley Water Board Regulated Sites)</li> <li>• Irrigated Lands Regulatory Program Upper Zone Wells</li> <li>• DDW Public Water System Wells (Actual Locations)</li> <li>• USGS National Water Information System (NWIS)</li> </ul>
University of California, Davis SBX2 1 Nitrate Study	California Spatio-Temporal Information on Nitrate in Groundwater (CASTING) database
Tulare County’s Tulare Lake Basin Geodatabase	Monitoring sites
Domestic Well Permit Sample Data	Fresno County <sup>19</sup>
Fresno Irrigation District	Monitoring sites

<sup>18</sup> <https://geotracker.waterboards.ca.gov/gama/gamamap/public/>, accessed in November 2020

<sup>19</sup> State Small Water System data was also received from Fresno County, but none of these systems that had nitrate data were located within the Management Zone.

Nitrate measurements and well data were compiled for the proposed KWA Management Zone from the data sources listed in **Table 2-8**. Nitrate data were summarized by data source, depth, and recent nitrate exceedances. **Table 2-9** provides a summary of wells with nitrate measurements in the Northern Portion (Kings Subbasin Area) of the Management Zone by well source. Nitrate data are available for 6,287 wells in the KWA Northern Portion of the Management Zone, most of them (4,351 or about 69%) have nitrate measurements since January 2000, and less than half of those wells with recent (post-2000) nitrate measurements (1,875 or about 43%) have nitrate concentrations that exceed the primary maximum contaminant level (MCL) of 10 mg/L as N.

Wells were categorized into an appropriate depth category (Upper Zone, Lower Zone, and Unknown)<sup>20</sup>. LSCE et al. (2016) produced GIS coverages of the depths to the bottom of the Upper Zone (see **Figure 2-11**). Depth information (well depth or top of screen depth and screen length) from the new dataset was used to categorize individual wells into their appropriate depth category. Wells without construction or depth information were categorized based on their well type:

- Municipal wells were categorized using the DWR GIS coverage of well completion report statistics, which identifies the mean total depth of municipal wells in each township/range-section. The mean municipal well depth was assigned to the municipal well with no depth information posted in GeoTracker GAMA and compared to the depth to the bottom of the Upper and Lower Zones to estimate the depth category.
- Domestic wells were placed in the Upper Zone;
- State Water Board Regulated Site monitoring wells were placed in the Upper Zone; and
- Wells listed as an Unknown well type were placed in the “Unknown” depth category.

Of the entire dataset of 6,287 wells in the proposed KWA Management Zone with a nitrate measurement, the category with the most wells (2,688 wells, or about 42%) are completed in the Upper Zone. **Figure 2-12** shows the spatial distribution of wells by depth category. Wells with nitrate data cover the majority of the Northern Portion (Kings Subbasin Area) of the Management Zone, but there are areas (mostly in the west and southwest) that have less well coverage spatially. Most of the deeper wells completed in the Lower Zone are located near urban areas, as well as along the western portion of the Subbasin. Upper Zone wells are located throughout the Northern Portion (Kings Subbasin Area) of the KWA Management Zone.

**Table 2-10** identifies the number of wells in each depth category with nitrate data, wells with recent (post-2000) data, and wells with recent nitrate concentrations that exceed the nitrate MCL of 10 mg/L as N. Of the wells categorized into the Upper Zone most wells (95%) have post-

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<sup>20</sup> See text and CV-SALTS 2016a for a description of the development and assignment of Upper Zone delineations.

2000 nitrate measurements, and about 46% of those have measured nitrate concentrations above the MCL.

**Figure 2-13** shows Upper Zone wells with recent (post-2000) nitrate measurements divided into two categories: (1) wells with all post-2000 nitrate measurements at or below the MCL of 10 mg/L as N; and (2) wells with at least one nitrate measurement exceeding the MCL of 10 mg/L as N. Less Upper Zone wells with recent nitrate data are located in the western areas of the Northern Portion (Kings Subbasin Area) of the KWA Management Zone. Upper Zone wells with measured nitrate above the MCL occur throughout the Management Zone.

The high-resolution CV-SALTS spatial analysis (LSCE et al., 2016) of nitrate in the Upper Zone was updated for this Preliminary Management Zone Proposal using the updated Upper Zone post-2000 nitrate dataset developed and described above. This update included the following steps:

- Declustering: Annual average nitrate concentrations were calculated for each well for the years 2000-2020 to yield one average nitrate concentration representing recent conditions. Where wells have overlapping x/y coordinates, the average nitrate concentration representing the location is calculated.
- Upper Zone wells outside the Management Zone and within a buffer zone of three miles around the Management Zone boundary were compiled and used in the updated high-resolution analysis because nitrate occurrence does not cease at the border of the Management Zone.
- Geospatial interpolation of the well point data was performed (kriging) using a search radius of 1.5 miles<sup>21</sup>.
- Gap areas were shown to exist where post-2000 Upper Zone nitrate well data were insufficient to produce the spatial interpolation using the 1.5-mile search criterion.

**Figure 2-14** illustrates the average post-2000 nitrate concentrations for all Upper Zone wells in the proposed Management Zone and control points in the 3-mile buffer. This figure also shows the interpolated ambient Upper Zone post-2000 nitrate as well as the gap areas where insufficient Upper Zone nitrate data exist. High nitrate concentrations exist in several locations in central and eastern areas throughout the Northern Portion (Kings Subbasin Area) of the KWA Management Zone. Insufficient recent Upper Zone nitrate data are available in small areas of the western side of the Northern Portion (Kings Subbasin Area) of the KWA Management Zone

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<sup>21</sup> The 1.5 mile search radius was selected to refine the local ambient nitrate mapping for the proposed Management Zone and recognize the potential variability inherent in groundwater nitrate concentrations spatially. This search radius reduces the reliance on well data from farther away that may not represent local nitrate conditions.

to fully assess the extent of potential nitrate contamination across that part of the Management Zone.

To test if the ambient average post-2000 nitrate presented in **Figure 2-14** is potentially underestimating conditions in the Upper Zone, the maximum post-2000 nitrate concentration is overlain atop the interpolated ambient Upper Zone nitrate in **Figure 2-15**. This map provides a comparison between the shaded colors representing the average annual post-2000 nitrate and the colored dots that represent the maximum measured nitrate in individual wells since 2000. The maximum post-2000 nitrate concentration is presented for the Upper Zone wells in the Management Zone to verify that the identification of areas with potentially elevated nitrate is not underestimated from wells that may have more recently begun to exceed the nitrate MCL. There is good agreement between the ambient post-2000 average-based interpolated Upper Zone nitrate to the maximum Upper Zone nitrate concentrations in individual wells, with a few exceptions. There are several individual wells that plot on top of or very close to another well with different maximum concentrations despite both assumed to be completed in the Upper Zone. This is a testament to the heterogeneity and variability inherent to groundwater quality conditions, as well as the availability and quality of the dataset itself. Nitrate testing data for Upper Zone wells may have a maximum nitrate concentration exceeding the MCL but are located adjacent to other wells that have no measured nitrate concentrations above the MCL.<sup>22</sup> The Management Zone recognizes that there is some inherent uncertainty associated with this analysis, and recognizes that the recent ambient nitrate coverage is adaptable and subject to change as additional Upper Zone groundwater nitrate data become available over time.

Table 2-9. Summary of Wells with Nitrate Data Located in the Northern Portion (Kings Subbasin Area) of the KWA Management Zone, by Source (All Well Depths)			
Source	All Well Depth Categories		
	Wells with Nitrate Data	Wells with Post-2000 Nitrate Data	Wells with Post-2000 Nitrate MCL Exceedance
Irrigated Lands (AGLAND)	594	594	147
State Water Board Division of Drinking Water	1,038	918	117
DWR	946	0	0

<sup>22</sup> The AGLANDS dataset includes sites which discharge agricultural runoff and are regulated by the Irrigated Lands Regulatory Program at the State Water Resources Control Board or one of nine Regional Water Quality Control Boards. Monitoring data from AGLAND groundwater sites are available through GeoTracker (<https://geotracker.waterboards.ca.gov/>).

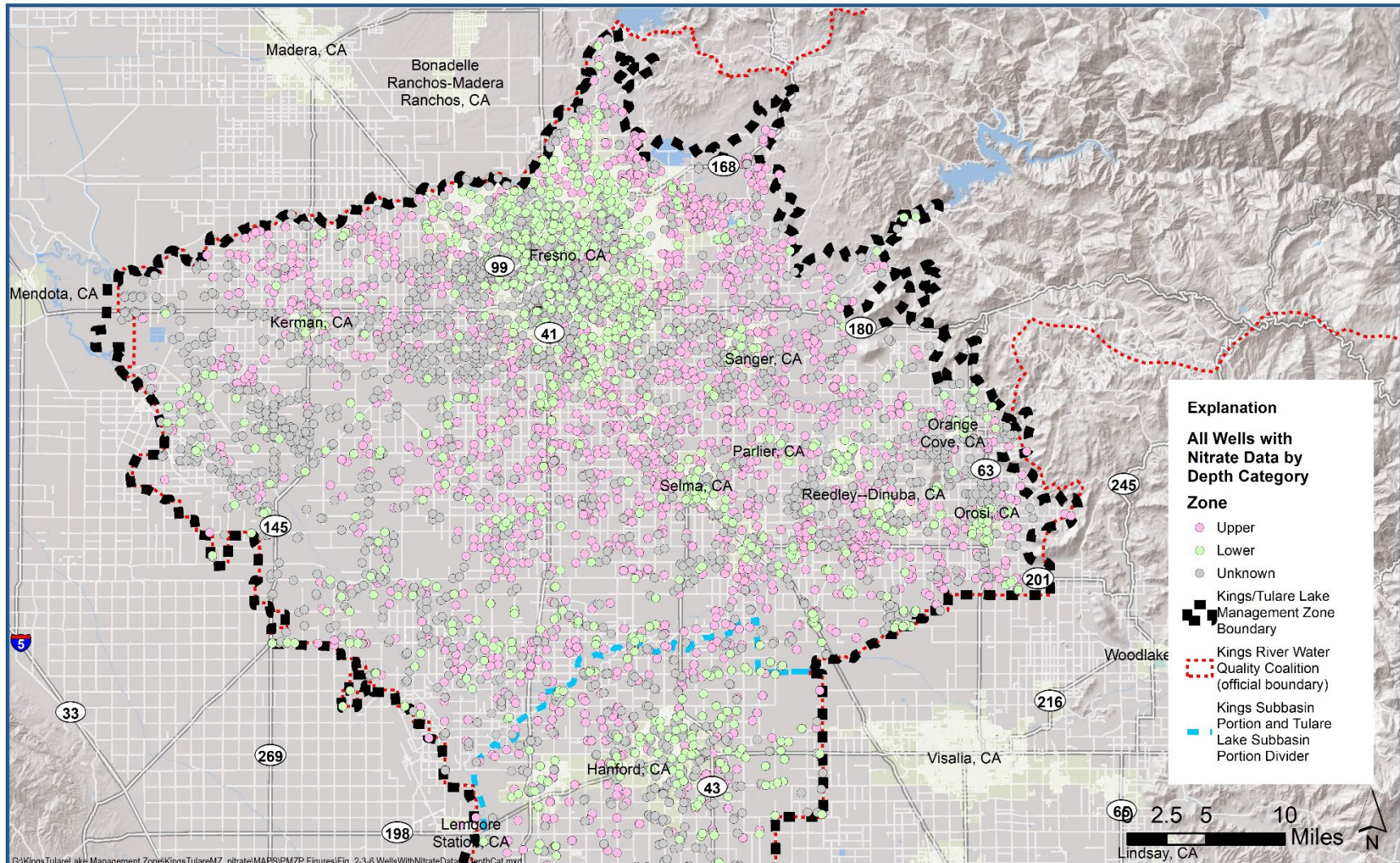


Table 2-9. Summary of Wells with Nitrate Data Located in the Northern Portion (Kings Subbasin Area) of the KWA Management Zone, by Source (All Well Depths)			
Source	All Well Depth Categories		
	Wells with Nitrate Data	Wells with Post-2000 Nitrate Data	Wells with Post-2000 Nitrate MCL Exceedance
Regulated Facilities (GeoTracker)	216	216	113
GAMA	39	39	24
UCD SBX2-1 <sup>23</sup>	2,175	1,498	1,118
Fresno County	405	400	51
Fresno Irrigation District	13	13	1
Tulare County (Tulare Lake Basin Geodatabase)	450	444	235
USGS	411	229	69
<b>Total</b>	<b>6,287</b>	<b>4,351</b>	<b>1,875</b>

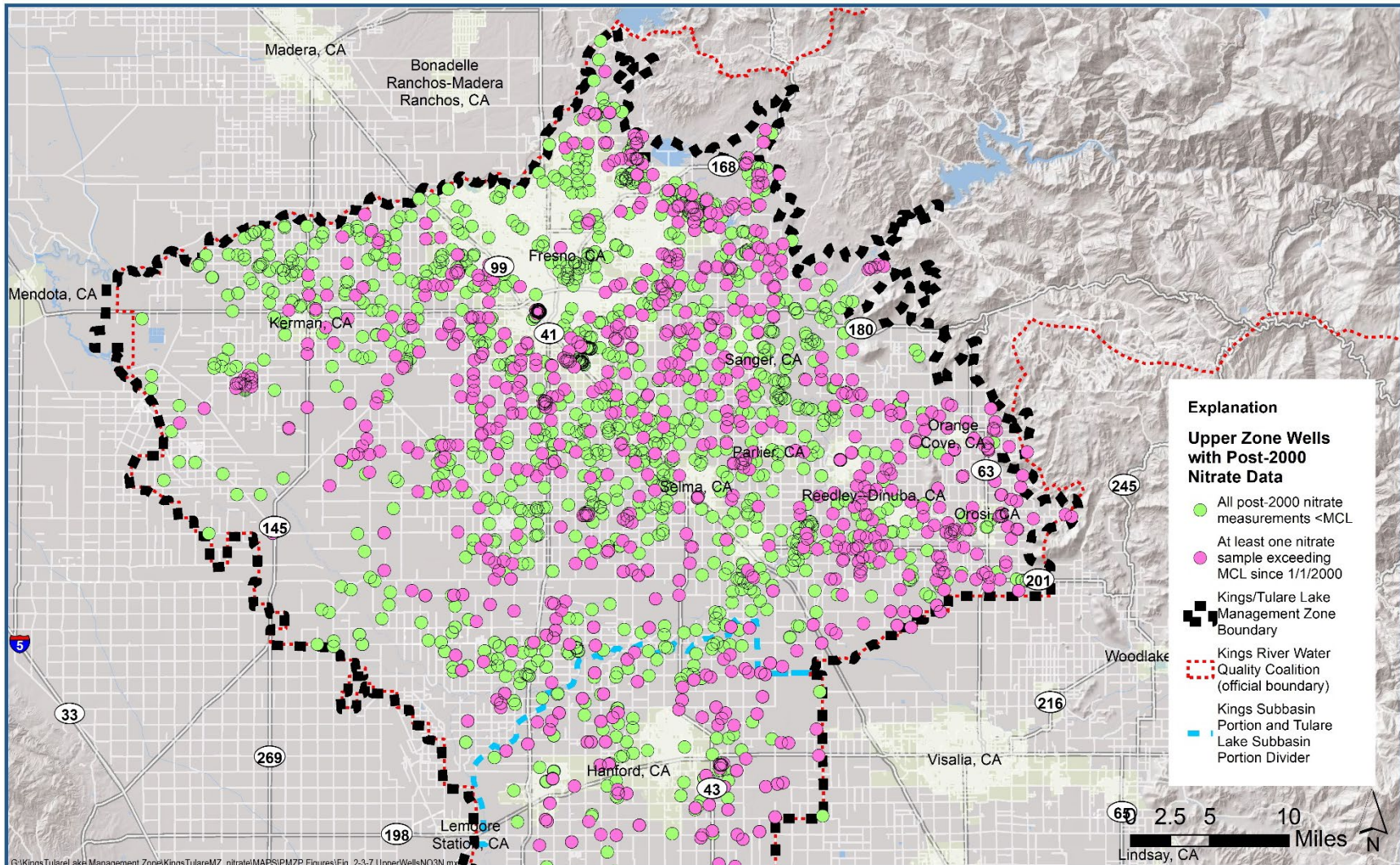
Table 2-10. Wells with Nitrate Measurements in the Northern Portion (Kings Subbasin Area) of the KWA Management Zone, by Depth Category				
Depth Category	All Wells with Nitrate Data	Wells with Post-2000 Nitrate Data	Wells with Post-2000 Nitrate >10 mg/L as N	Percent of Wells with Post-2000 Nitrate Data >MCL
Upper	2,688	2,551	1,181	46%
Lower	1,187	1,108	392	35%
Unknown	2,412	692	302	44%
<b>Total</b>	<b>6,287</b>	<b>4,351</b>	<b>1,875</b>	<b>43%</b>

<sup>23</sup> UC Davis Report for the State Water Resources Control Board Senate Bill X2 1 Report to the Legislature contains nitrate groundwater data from Technical Report 4 – Groundwater Nitrate Occurrence (July 2012) (<http://groundwaternitrate.ucdavis.edu/files/139106.pdf>). Their California Ambient Spatio-Temporal Information on Nitrate in Groundwater (CASTING) dataset is accessible via the Water Board’s GAMA Groundwater Information System (<https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/>).

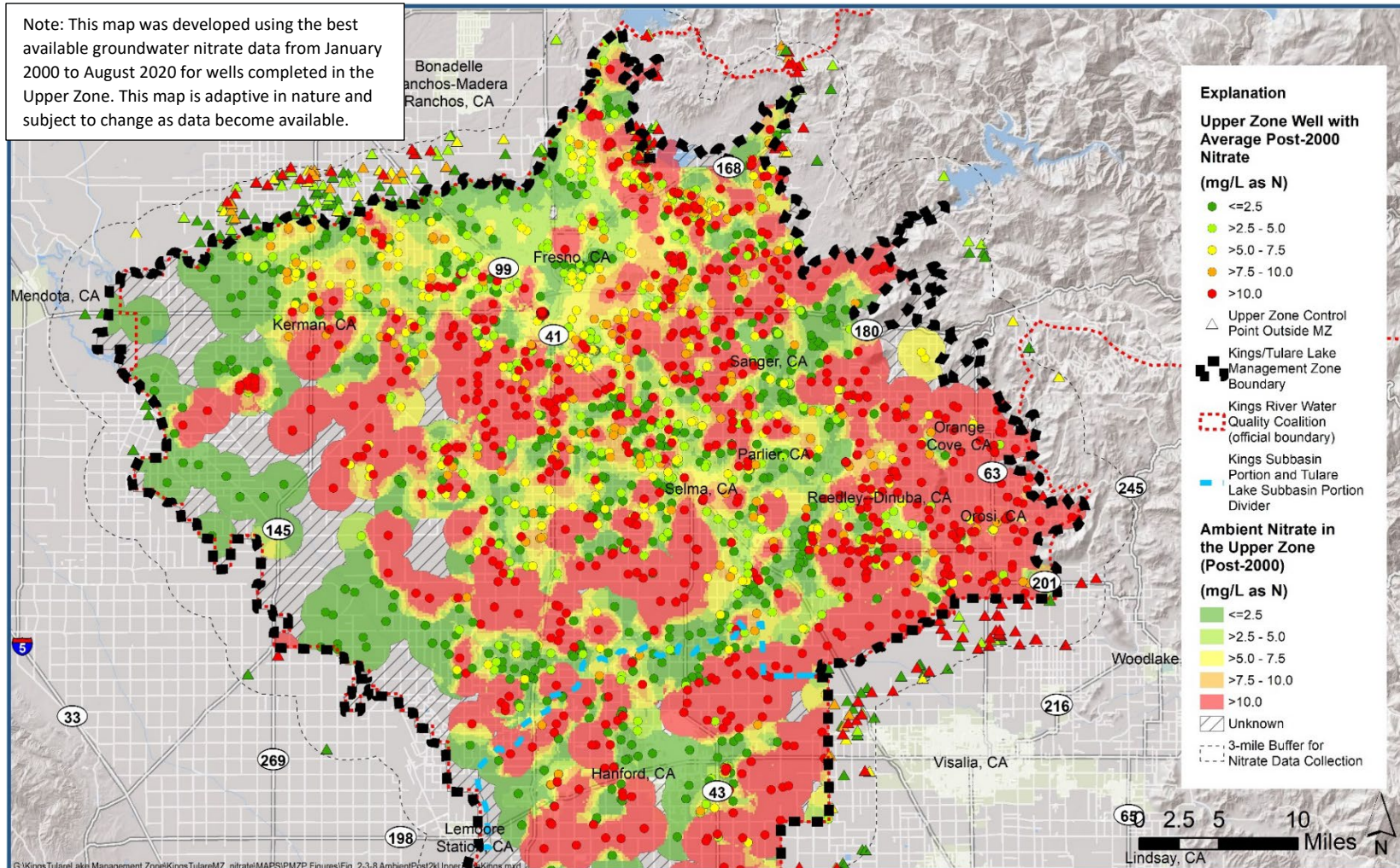
**Figure 2-12. Wells with Nitrate Data within the Northern Portion (Kings Subbasin Area) of the Proposed KWA Management Zone by Depth Category**



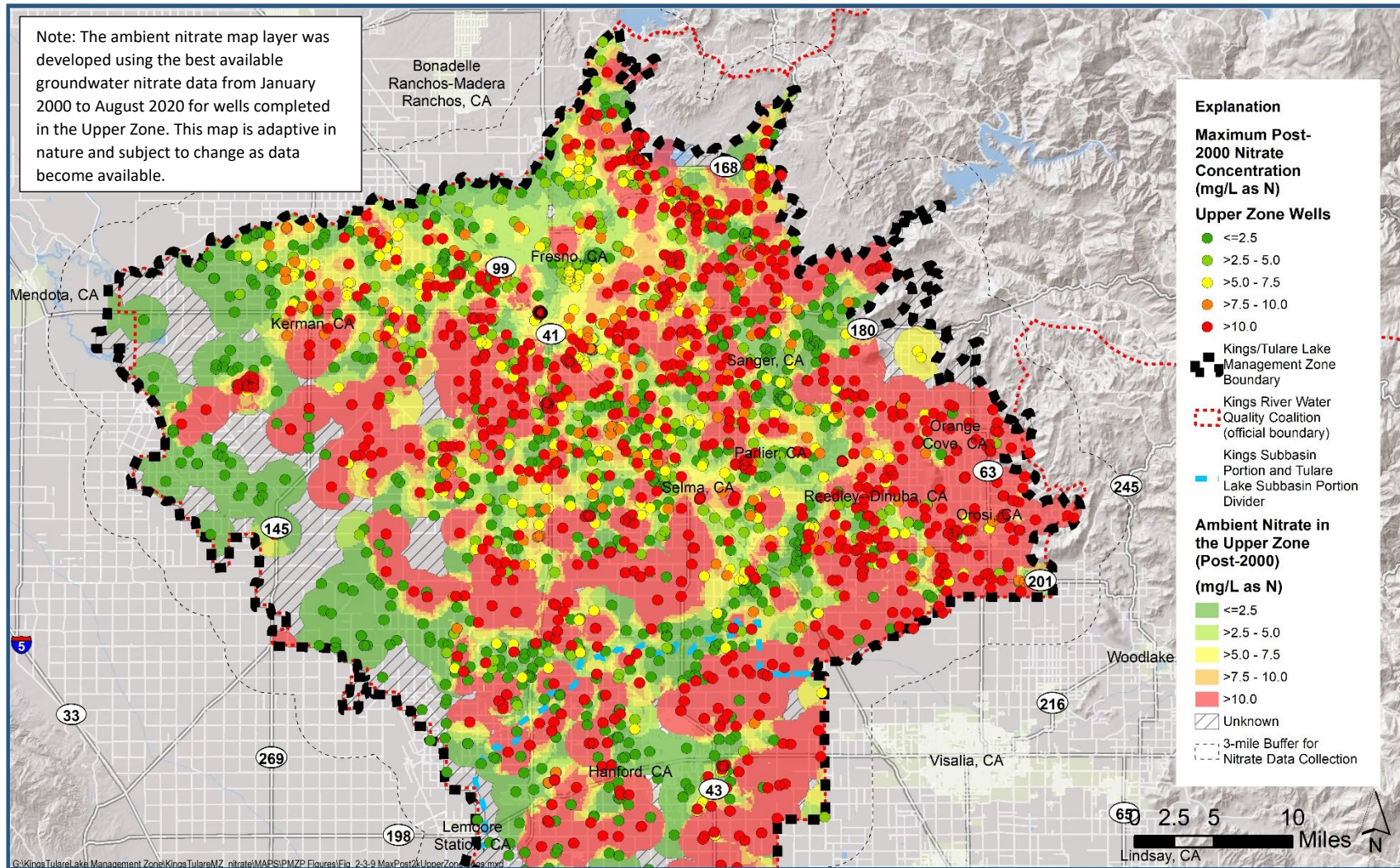
**Figure 2-13. Upper Zone Wells with Nitrate Data and Nitrate MCL Exceedances (Post-2000) in the Northern Portion (Kings Subbasin Area) of the Proposed KWA Management Zone.**



**Figure 2-14. Ambient Post-2000 Nitrate Concentrations in the Upper Zone of Groundwater Underlying the Northern Portion (Kings Subbasin Area) of the Proposed KWA Management Zone**



**Figure 2-15. Maximum Post-2000 Nitrate in the Upper Zone with Ambient Groundwater Underlying the Proposed KWA Management Zone**



## 2.3. Management Zone Participants

Management Zone participants may include both permitted dischargers subject to the requirements of the Nitrate Control Program and non-dischargers working collaboratively with the permitted dischargers to support implementation of the Program in general and the EAP specifically. The following sections summarize participation by permitted dischargers and non-dischargers in the Management Zone within the Kings Subbasin.

### 2.3.1. Permitted Dischargers

The CVWB sent a NTC with the Nitrate Control Program to permitted dischargers on May 29, 2020. At the request of the Management Zone, the CVWB provided the list of permitted dischargers that were sent the NTC. As needed, this list of permitted dischargers was refined in collaboration with CVWB staff. The following sections summarize outreach activities conducted with permitted dischargers in the proposed Management Zone and the outcome of those efforts.

#### 2.3.1.1. Irrigated Lands Regulatory Program

Growers are permitted to discharge under the ILRP, which works to prevent runoff from agricultural operations from impairing surface waters and groundwater. Implementation of the ILRP occurs through water quality coalitions. A coalition (sometimes referred to as a “third-party”) collectively represent growers within its respective jurisdiction to assist them in their efforts to comply with ILRP requirements. The Kings River Water Quality Coalition (“Coalition”) represents the growers in the proposed Management Zone. General Order R5-2013-0120 (as amended) (“Waste Discharge Requirements General Order for Growers within the Tulare Lake Basin Area that are Members of the Third-Party Group”) establishes the regulatory requirements applicable to growers within the Coalition. The NTC with the Nitrate Control Program was sent to the Coalition on May 29, 2020. On behalf of the growers enrolled under the General Order, the Coalition will comply with the Program as a participant in the Management Zone.

#### 2.3.1.2. Concentrated Animal Feeding Operations

Concentrated Animal Feeding Operations (CAFOs) are authorized to discharge under various General Orders based on the type of animal feeding operation. Participation in the Management Zone by the dischargers authorized to discharge under these General Orders is discussed in the sections below.

### **Milk Cow Dairies**

Most milk cow dairies located in the proposed Management Zone are regulated under General Order R5-2013-0122 (“Reissued Waste Discharge Requirements General Order for Existing Milk Cow Dairies”). Four dairies in the Northern Portion (Kings Subbasin Area) of the Management Zone are not regulated under this General Order, i.e., they operate under individual waste discharge requirements and are included in Section 2.3.1.3 below. The NTC with the Nitrate Control Program was sent to each dairy regulated under this General Order on May 29, 2020.

**Attachment B, Table 1** lists the milk cow dairies in the Kings Subbasin that are members of the CVDRMP and participating in the Kings Water Alliance Management Zone. **Attachment B, Table 2** lists the milk cow dairies in the Kings Subbasin that are not CVDRMP members. At the time of the submittal of this PMZP, the status of their participation in the Management Zone is unknown. The Management Zone will continue outreach efforts after PMZP submittal.

### **Confined Bovine Feeding Operations**

All confined bovine feeding operations located within the proposed Management Zone are regulated under General Order R5-2017-0058 (“Waste Discharge Requirements General Order for Confined Bovine Feeding Operations”). The NTC with the Nitrate Control Program was sent to each facility regulated under this General Order on May 29, 2020. **Attachment B, Table 1** lists the confined bovine feeding operations in the Kings Subbasin that are members of the CVDRMP and participating in the Kings Water Alliance Management Zone. **Attachment B, Table 2** lists the confined bovine feeding operations in the Kings Subbasin that are not CVDRMP members. At the time of the submittal of this PMZP, the status of their participation in the Management Zone is unknown. The Management Zone will continue outreach efforts after PMZP submittal.

### **Poultry Operations**

All poultry operations located within the proposed Management Zone are regulated under General Order R5-2016-0087 (“Waste Discharge Requirements General Order for Poultry Operations”) (Poultry General Order). The NTC with the Nitrate Control Program was sent to each facility regulated under this General Order on May 29, 2020. **Attachment B, Table 3** lists the poultry facilities in the Kings Subbasin. These permitted dischargers are collectively participating in the Management Zone and are being outreached to and coordinated with by representatives of the poultry industry, including the California Poultry Federation and Foster Poultry Farms. Under the Poultry General Order poultry operations are categorized as either Low Threat Operations or Full Coverage Operations. All poultry facilities in this portion of the Management Zone are Low Threat Operations.

### 2.3.1.3. Individually Permitted Dischargers

**Table 2-11** lists the permitted facilities authorized to discharge waste under individual WDRs within the Kings Subbasins. **Figure 2-16** illustrates the location of each of these permitted facilities within the Northern Portion (Kings Subbasin Area) of the Management Zone (map numbers in **Figure 2-16** correspond to the map numbers provided in the first column in **Table 2-11**).

The Kings Water Alliance reached out to these individually permitted discharger to discuss the Nitrate Control Program requirements and the opportunity to participate in the Management Zone. The Management Zone conducted at least two rounds of outreach to each of these dischargers via a combination of telephone calls, voicemails, and email. When requested, information was sent to the discharger for further consideration. **Table 1-6** above lists the dischargers with individual WDRs in the Priority 1 areas that have indicated their intent to participate in this Management Zone.



Table 2-11. Individually Permitted Dischargers within the Northern Portion (Kings Subbasin Area of the Kings Water Alliance Management Zone (Map ID refers to Figure 2-16))

Map ID.	Facility Name	Facility Type	Permittee/Facility Address	County	Order No.	CV-SALTS ID
1	3 Oaks Vineyard	Non15	3 Oaks Vineyard, Inc., 8807 North Sunnyside Avenue, Clovis, CA 93619	Fresno	R5-2015-0005	3017
2	A & Z Apartments	Non15	A & Z Apartments, 6190, 6102, 6222, 6234 S. Elm Ave, Fresno, CA 93706	Fresno	97-010-DWQ	1759
3	Amar JS Farms Almond Oil Processing Facility	Non15	Amar JS Farms, 13113 South Fowler Avenue, Selma, CA 93662	Fresno	R5-2020-0002-0045	3542
4	B&C Packing Inc. Fruit Washing Facility	Non15	B&C Packing Inc., 13085 S. Zediker Avenue, Kingsburg, CA 93631	Kings	R5-2020-0002	3541
5	Baker Commodities Kerman Division	Non15	Bakers Commodities Inc., 16801 Jensen Avenue, Kerman, CA 93630	Fresno	R5-2014-0062	2167
6	Bari Olive Oil Co Facility	Non15	Wiebe Farms Inc., 40063 Road 56, Dinuba, CA 93618	Tulare	R5-2009-0097	2865
7	Batth Dehydrator	Non15	Batth Dehydrator LLC, 5434 West Kamm, Caruthers, CA 93609	Fresno	Pending Order	2765
8	Beef Packers Fresno Processing Facility	Non15	Beef Packers Inc. Cargill, 3115 Fig, Fresno, CA 93778	Fresno	5-00-089	2040
9	Big De Farms 2012	Non15	Big De Farms, LP, 8650 West Kearney Boulevard, Fresno, CA 93706	Fresno	-	2893
10	Biola WWTF	Non15	Biola Community Services, Howard Road, Biola, CA 93606	Fresno	96-288	2708
11	Boghosian Raisin Packing Facility	Non15	Boghosian Raisin Packing Co., 726 8 <sup>th</sup> Street, Fowler, CA 93625	Fresno	97-127	2404
12	Booth Ranches Citrus Packing Facility	Non15	Booth Ranches, LLC, 12201 Avenue 480, Orange Cove, CA 93646	Tulare	97-006	1902
13	CAL West Packing Facility	Non15	Cal Produce Sales Corporation, 1975 Alamos Avenue, Clovis, CA 93612	Fresno	Pending Order	2797

Table 2-11. Individually Permitted Dischargers within the Northern Portion (Kings Subbasin Area of the Kings Water Alliance Management Zone (Map ID refers to Figure 2-16))

Map ID.	Facility Name	Facility Type	Permittee/Facility Address	County	Order No.	CV-SALTS ID
14	CALMAT – River Rock	Non15	Vulcan Materials, 11099 Old Friant, Fresno, CA 93720	Fresno	85-312	1850
15	Caruthers Raisin Packing Facility	Non15	Caruthers Raisin Packing Company Inc., 12797 Elm, Caruthers, CA 93609	Fresno	R5-2012-0001	2403
16	Caruthers WWTF	Non15	Caruthers CSD, Clemenseau and Marks, Caruthers, CA 93609	Fresno	R5-2014-0137	2817
17	Chateau Fresno Landfill GW Cleanup Site	Non15	BFI Services Group Inc., 8662 Muscat, Fresno, CA 93706	Fresno	96-206	1887
18	Chooljian Bros Raisin Dehydrator & Packing Plant	Non15	Chooljian Bros Packing Co, 3192 Indianola, Sanger, CA 93657	Fresno	98-041	2402
19	Clovis SWTP	Non15	City of Clovis, 800 Leonard Avenue, Clovis, CA 93619	Fresno	R5-2007-0081	2538
20	Clovis WWTF	NPDES	City of Clovis, 9700 East Ashlan Avenue, Clovis, CA 93619	Fresno	R5-2019-0021	3201
21	CMI Sanger Sand and Gravel	Non15	Calaveras Materials Inc., 4690 South Riverbend Avenue, Sanger, CA 93657	Fresno	-	2903
22	ConAgra Helm Tomato Processing Plant	Non15	Conagra Foods, 16429 Kamm Avenue, Helm, CA 93627	Fresno	R5-2014-0106	2586
23	Cutler-Orosi WWTF	NPDES	Cutler-Orosi Joint Powers WW Authority, 40401 Road 120, Cutler, CA 93615	Tulare	R5-2018-0011	3310
24	Del Rey Packing	Non15	Del Rey Packing Company, 5287 Del Rey, Del Rey, CA 93616	Fresno	96-198	1952
25	Del Rey WWTF	Non15	Del Rey CSD, 11495 American Avenue, Del Rey, CA 93616	Fresno	96-284	2710

Table 2-11. Individually Permitted Dischargers within the Northern Portion (Kings Subbasin Area of the Kings Water Alliance Management Zone (Map ID refers to Figure 2-16))

Map ID.	Facility Name	Facility Type	Permittee/Facility Address	County	Order No.	CV-SALTS ID
26	Delft Colony WWTF	Non15	Tulare County RMA, Road 56 of Avenue 374, Delft Colony, CA 93618	Tulare	88-097	1955
27	Dinuba Energy Cogeneration	Non15	Comm. Renewable Energy Svc Inc., 6801 Avenue 430, Dinuba, CA 93654	Tulare	95-045	1963
28	Dinuba Packing Plant	Non15	Gillette Citrus Company, 10175 Anchor, Dinuba, CA 93618	Tulare	97-129	1964
29	Dinuba WWTF	Non15	City of Dinuba, 6675 Avenue 412, Dinuba, CA 93618	Tulare	95-200	2660
30	E & J Gallo Winery Fresno Winery	Non15	E & J Gallo Winery, 5610 Olive Avenue, Fresno, CA 93727	Fresno	R5-2015-0040	2042
31	East Orosi Packing House	Non15	Fancher Creek Packing, 41870 Fruitvale Avenue, Orosi, CA 93647	Tulare	85-167	1987
32	Elkhorn Correctional Facility WWTF	Non15	Fresno County Gen Serv Dept., West Elkhorn Avenue, Caruthers, CA 93609	Fresno	97-207	1995
33	Family Tree Reedley Packing House	Non15	Family Tree, 41646 Rd 62, Reedley, CA 93618	Tulare	96-207	2426
34	Fig Garden Packing Facility	Non15	Fig Garden Packing, Inc. 5545 W. Dakota Avenue, Fresno, CA 93722	Fresno	94-135	2018
35	Four Bar C Farms Caruthers Dehydrator	Non15	Four Bar C Farms, 10616 West, Fresno, CA 93706	Fresno	01-155	1873
36	Fowler Acetylene Plant	Non15	Fresno Ox and Weld Suppliers, 7835 Manning, Fresno, CA 93706	Fresno	67-117	2032
37	Fowler Packing Cedar Avenue Facility	Non15	Fowler Packing Company, Inc., 8570 Cedar, Fresno, CA 93725	Fresno	89-141	1881
38	Fresno County #44-D Monte Verde Estates WWTF	Non15	Fresno County, 12222 Willow Avenue, Clovis, CA 93611	Fresno	92-203	1751

Table 2-11. Individually Permitted Dischargers within the Northern Portion (Kings Subbasin Area of the Kings Water Alliance Management Zone (Map ID refers to Figure 2-16))

Map ID.	Facility Name	Facility Type	Permittee/Facility Address	County	Order No.	CV-SALTS ID
39	Fresno County #47-Quail Lake WWTF	Non15	Fresno County, 4121 Quail Lake Drive, Clovis, CA 93611	Fresno	96-120	1753
40	Fresno County Juvenile Justice WWTF	Non15	Fresno County, 3333 American Avenue, Fresno, CA 93725	Fresno	R5-2007-0150	2161
41	Fresno Cogeneration Project	Non15	Fresno Cogeneration Partners, L.P., 8105 South Lassen Avenue, San Joaquin, CA 93660	Fresno	90-216	2039
42	Fresno Recycled Water Application Area	Non15	Wastewater Management Division, 5607 W. Jensen Avenue, Fresno, CA 93706	Fresno	2016-0068-DDW	3008
43	Fresno Regional WWTF	Non15	Wastewater Management Division, 5607 W. Jensen Avenue, Fresno, CA 93706	Fresno	R5-2018-0080	2665
44	Fresno SWTF	Non15	City of Fresno Water Division, 10120 North Chestnut Avenue, Fresno, CA 93720	Fresno	R5-2009-0121	2537
45	Fruit Patch Packing & Cold Storage	Non15	Fruit Patch, Inc., 38773 Road 48, Dinuba, CA 93618	Tulare	-	2053
46	Gerawan Farms Plant 3	Non15	Gerawan Farming, Inc., 14044 West Central Avenue, Kerman, CA 93630	Fresno	-	3035
47	Gerawan Farms Plant 4	Non15	Gerawan Farming, Inc., 3023 South Reed Avenue, Sanger, CA 93657	Fresno	-	3039
48	GSV Cutler Winery	Non15	Golden State Vintners Cutler, 38558 Rd 128, Cutler, CA 93615	Tulare	R5-2015-0013	2741
49	GSV Fresno Winery	Non15	The Wine Group Inc., 7409 Central, Fresno, CA 93706	Fresno	R5-2012-0076	2043
50	Harris Ranch Processing Plant	Non15	Harris Ranch Beef Company, 16277 Mccall, Selma, CA 93662	Fresno	R5-2017-0021	2114

**Table 2-11. Individually Permitted Dischargers within the Northern Portion (Kings Subbasin Area of the Kings Water Alliance Management Zone (Map ID refers to Figure 2-16))**

Map ID.	Facility Name	Facility Type	Permittee/Facility Address	County	Order No.	CV-SALTS ID
51	Helm Fertilizer Plant	Non15	J R Simplot Company, 12688 Colorado Avenue, Helm, CA 93660	Fresno	99-083	2118
52	HMC Group Cold Storage, Inc.	Non15	HMC Group Cold Storage, Inc., 13138 Bethel Avenue, Kingsburg, CA 93631	Fresno	90-253	2124
53	Ito Packing Reedley Facility	Non15	Sun Pacific Shippers, LP, 18697 South, Reedley, CA 93654	Fresno	01-157	2424
54	Kerman WWTF	Non15	City of Kerman, 15480 Church, Kerman, CA 93630	Fresno	R5-2007-0115	2168
55	Kings River Packing	Non15	Kings River Packing, 21136 Trimmer Springs, Sanger, CA 93657	Fresno	Pending Order	2174
56	Kings River UESD OWTS	Non15	Kings River Union Elementary School District, 3961 Avenue 400, Kingsburg, CA 93631	Tulare	97-010-DWQ	2810
57	Kingsburg Glass Plant	Non15	Guardian Industries Corp, 11535 East Mountain View Avenue, Kingsburg, CA 93631	Fresno	78-079	2175
58	KY Packing, LLC	Non15	KY Packing, LLC, 8686 South Rio Vista, Reedley, CA 93654	Fresno	R5-2015-0005	2425
59	Lamanuzzi & Pantaleo Plant No 1	Non15	Lamanuzzi & Pantaleo, LLC, 3636 Grantland, Fresno, CA 93711	Fresno	R5-2015-0005	2384
60	Laton WWTF	Non15	Laton CSD, 6331 Dewoody, Laton, CA 93242	Fresno	R5-2016-0079	2717
61	Lion Raisins Selma Plant	Non15	Lion Enterprises, Springfield & Dewolf, Selma, CA	Fresno	R5-2018-0064	2473
62	London WWTF	Non15	London CSD, Rd 60 at Avenue 376, Dinuba, CA 93618	Tulare	R5-2017-0109	2720

Table 2-11. Individually Permitted Dischargers within the Northern Portion (Kings Subbasin Area of the Kings Water Alliance Management Zone (Map ID refers to Figure 2-16))

Map ID.	Facility Name	Facility Type	Permittee/Facility Address	County	Order No.	CV-SALTS ID
63	Malaga CWD WWTF	NPDES	Malaga CWD, 3749 South Maple Avenue, Fresno, CA 93725	Fresno	R5-2020-0001	3311
64	Marian Farms Distillery	Non15	Gena Nonini, 9835 West McKinley, Fresno, CA 93722	Fresno	Pending Order	2757
65	Marshall Vineyards	Non15	James J. Marshall & Jenifer L., 1835 North Zediker Avenue, Sanger, CA 93657	Fresno	R5-2015-0005	2969
66	McCall Winery	Non15	San Joaquin Valley Express C/O E&J Gallo, 1042 Mccall, Sanger, CA 93657	Fresno	93-098	2309
67	Mid Valley Disposal Recycling and Transfer Station	Composting	Kalpakoff Properties, LCC, 15300 West Jensen Avenue, Kerman, CA 93630	Fresno	2015-0121-DWQ	3167
68	Moravia Winery	Non15	Hammond Family Vineyards Inc., 3620 North Bishop Avenue, Fresno CA 93723	Fresno	R5-2009-0097	2900
69	National Raisin Plant	Non15	Sunshine Raisin Corp DBA, 626 Fifth, Fowler, CA 93625	Fresno	00-045	2312
70	Nonini Winery	Non15	Nonini, A Winery, 2640 North Dickenson Avenue, Fresno, CA 93723	Fresno	94-225	2612
71	Nordman Reedley Distillery	Non15	Nordman of California, 4070 South Reed, Fresno, CA 93657	Fresno	93-115	2423
72	North Fresno WWRF	Non15	City of Fresno, 1660 East Copper Avenue, Fresno, CA 93657	Fresno	R5-2014-0162	1931
73	O'Neill Vintners Reedley Winery	Non15	O'Neill Vintners & Distillers, 8418 Lac Jac Avenue, Parlier, CA 93648	Fresno	R5-2014-0045	2427

Table 2-11. Individually Permitted Dischargers within the Northern Portion (Kings Subbasin Area of the Kings Water Alliance Management Zone (Map ID refers to Figure 2-16))

Map ID.	Facility Name	Facility Type	Permittee/Facility Address	County	Order No.	CV-SALTS ID
74	Orange Cove WWTF	Non15	City of Orange Cove, 1805 Monson Avenue, Orange Cove, CA 93646	Fresno	R5-2004-0008	2676
75	Parlier WWTF	Non15	City of Parlier, 1101 East Parlier Avenue, Parlier, CA 93648	Fresno	95-103	2677
76	Pom Wonderful Fruit Processing Plant	Non15	Pom Wonderful, LLC, 5286 Del Rey, Del Rey, CA 93616	Fresno	R5-2012-0090	2054
77	Reedley Municipal Airport	Non15	City of Reedley, 4557 Frankwood, Reedley, CA 93654	Fresno	Pending Order	1769
78	Reedley WWTF	Non15	City of Reedley, 1701 West Huntsman, Reedley, CA 93654	Fresno	R5-2010-0120	2679
79	Riverbend Mobile Home Park	Non15	Riverbend MHP, LLC, 17604 East Kings Canyon Road, Sanger, CA 93657	Fresno	90-098	2516
80	Riverdale WWTF	Non15	Riverdale PUD, 20896 Malsbary, Riverdale, CA 93656	Fresno	R5-2018-0028	2725
81	Salwasser North Plant	Non15	Salwasser Dehydrator, Inc., 4677 Howard, Kerman, CA 93630	Fresno	95-053	2325
82	Salwasser South Plant	Non15	Salwasser Dehydrator, Inc., 4087 Howard, Kerman, CA 93630	Fresno	93-204	2513
83	San Joaquin WWTF	Non15	City of San Joaquin, 23599 Manning, San Joaquin, CA 93660	Fresno	R5-2007-0100	2680
84	Sanger Industrial WWTF	Non15	City of Sanger, 333 North Avenue, Sanger, CA 93657	Fresno	98-131	2147
85	Sanger WWTF	Non15	City of Sanger, 333 North Avenue, Sanger, CA 93657	Fresno	R5-2014-0004	2681
86	Shady Lakes MHP	Non15	Shady Lakes Manfd Housing Comm, 5665 South Chestnut Avenue, Fresno, CA 93725	Fresno	75-079	2482

Table 2-11. Individually Permitted Dischargers within the Northern Portion (Kings Subbasin Area of the Kings Water Alliance Management Zone (Map ID refers to Figure 2-16))

Map ID.	Facility Name	Facility Type	Permittee/Facility Address	County	Order No.	CV-SALTS ID
87	Sherwood MHP WWTF	Non15	Sherwood Forest MHP, 339 Frankwood, Sanger, CA 93657	Fresno	94-223	2700
88	Sikh Center of the Pacific	Non15	Sikh Center of the Pacific, 11683 South Highland Avenue, Selma, CA 93662	Fresno	-	2894
89	Six Jewels Dehydrator	Non15	Six Jewels Dehydrator, 6692 Peach, Fresno, CA 93725	Fresno	97-244	2503
90	SKF CSD WWTF	Non15	Selma Kingsburg Fowler CSD, 11301 Conejo, Kingsburg, CA 93245	Fresno	01-255	2727
91	Stone Ranch Evaporation Basin (located in Kings Subbasin; receives effluent from facilities in Tulare Lake Subbasin (see Map ID No. 13 in Table 3-15))	Non15	Leprino Foods Company, Kings River North/Clarksfork, Kings County 93245	Kings	R5-2019-0008 (nitrate practices discussed in Section 3.4.3.3)	2004
92	Sun-Maid Kingsburg Plant	Non15	Sun-Maid Growers of California, 13525 South Bethel Avenue, Kingsburg, CA 93631	Fresno	R5-2013-0096	2877
93	Sun-Maid Orange Cove Plant	Non15	Sun-Maid Growers of California, 9818 South Jacobs, Orange Cove, CA 93646	Fresno	88-060	2340
94	Sunview Dry Fruit & Nut Company	Non15	Sunview Marketing International, 12400 East Adams Avenue, Del Rey, CA 93616	Fresno	R5-2015-0117	2856
95	Teen Challenge of Southern California	Non15	Smith Mountain LP, 42675 Road 44, Reedley, CA 93654	Fresno	97-010-DWQ	2966
96	The Wine Group Franzia Winery-Sanger	Non15	The Wine Group Inc., 2916 South Reed Avenue, Sanger, CA 93657	Fresno	R5-2014-0094	2034



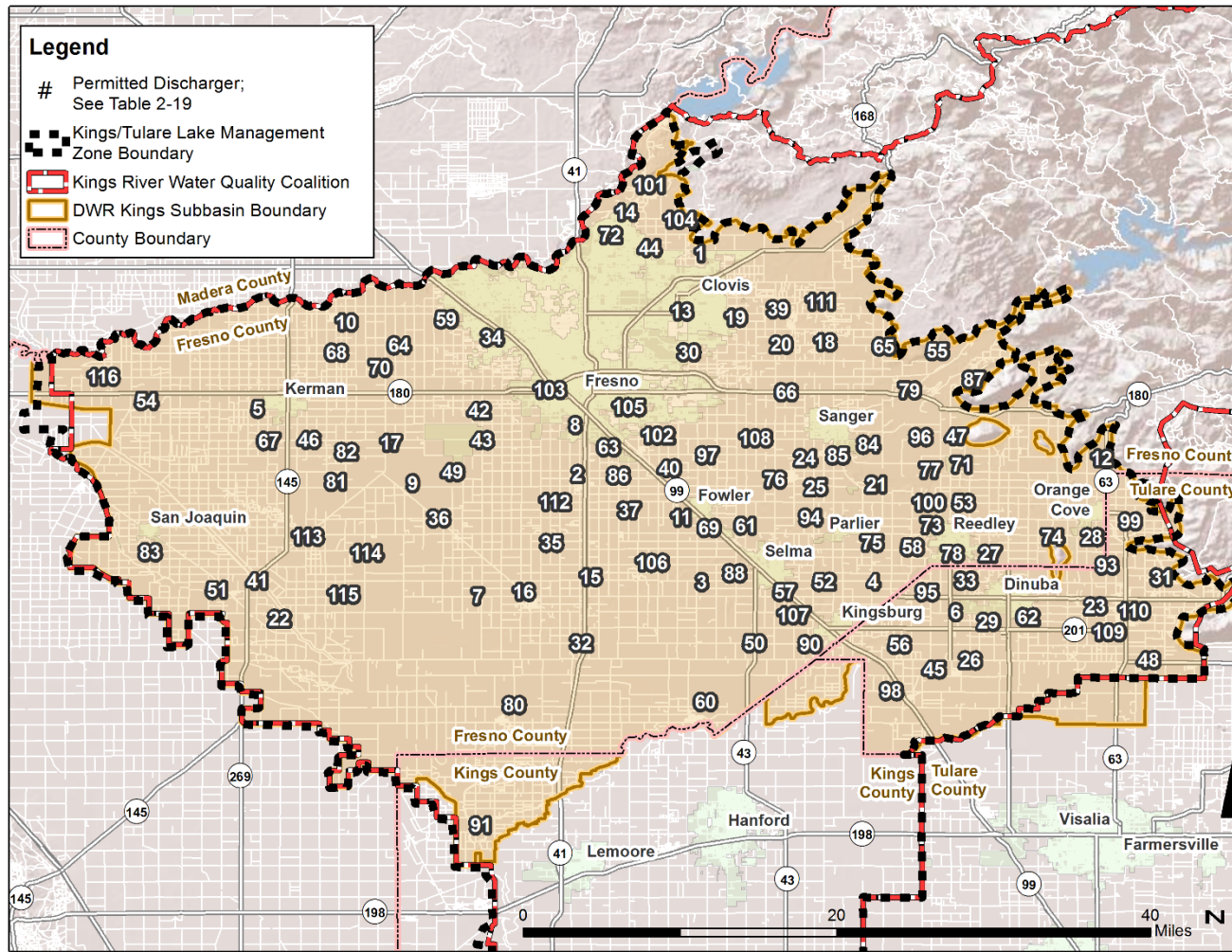
Table 2-11. Individually Permitted Dischargers within the Northern Portion (Kings Subbasin Area of the Kings Water Alliance Management Zone (Map ID refers to Figure 2-16))

Map ID.	Facility Name	Facility Type	Permittee/Facility Address	County	Order No.	CV-SALTS ID
97	TKI Fresno Pesticide Manufacturing Plant	Non15	Tessengerlo Kerley, Inc., 5427 East Central Avenue, Fresno, CA 93725	Fresno	R5-2019-0037	2851
98	Traver WWTF	Non15	Tulare County RMA, Road 44 at Avenue 36B, Traver, CA 93631	Tulare	88-098	2574
99	Tri-County Citrus Orange Cove Packing House	Non15	Visalia Citrus Packing Group, 12143 Avenue 456, Orange Cove, CA 93646	Tulare	94-075	2353
100	Trinity Packing	Non15	Trinity Packing Co, Inc., 18700 East South Avenue, Reedley, CA 93654	Fresno	98-130	2892
101	Trinity Presbyterian Church OWTS	Non15	Nathan Belknap, 12168 Willow Avenue, Clovis, CA 93611	Fresno	97-010-DWQ	2351
102	United States Cold Storage	Non15	United States Cold Storage of California, 2525 East South Avenue, Fresno, CA 93725	Fresno	Pending Order	2859
103	Univar USA, Inc 1152 G Street	Non15	Univar USA Inc., 1152 G Street, Fresno, CA 93706	Fresno	R5-2015-0136	2881
104	Verni Olive Oil Extract Facility	Non15	Saverio Verni, 11998 Auberry Road, Clovis, CA 93611	Fresno	-	2937
105	VFG Anaerobic Digester	Non15	Valley Fig Growers, 2028 South Third Street, Fresno, CA 93702	Fresno	Pending Order	1777
106	Vie-DEL Plant #1, Selma	Non15	Vie-Del Company, 11903 Chestnut Avenue, Fresno, CA 93725	Fresno	95-043	2382
107	Vie-DEL Plant #2, Kingsburg	Non15	Vie-Del Company, 13363 South Indianola Avenue, Kingsburg, CA 93631	Fresno	95-044	2383
108	Vita-Pakt Fruit Processing & Dehydrating Plant	Non15	Vita-Pakt Citrus Products, Co., 8898 East Central Avenue, Del Rey, CA 93616	Fresno	96-119	2047

Table 2-11. Individually Permitted Dischargers within the Northern Portion (Kings Subbasin Area of the Kings Water Alliance Management Zone (Map ID refers to Figure 2-16))

Map ID.	Facility Name	Facility Type	Permittee/Facility Address	County	Order No.	CV-SALTS ID
109	Wawona Packing Co Facility	Non15	Wawona Packing Company, LLC, 12133 Avenue 408, Cutler, CA 93615	Tulare	R5-2012-0042	2774
110	Wawona Packing Co Facility	NPDES	Wawona Packing Company, LLC, 12133 Avenue 408, Cutler, CA 93615	Tulare	R5-2016-0076-044	3315
111	Wild Water Adventure Park	Non15	Clovis Lakes Associates LLC, 11413 E. Shaw Avenue, Clovis, CA	Fresno	Pending Order	2628
112	Wildwood MHP	Non15	Wildwood C/O Westco Equities, 8701 Hwy 41, #70, Fresno, CA 93725	Fresno	R5-2002-0064	2633
113	Lone Oak Farms Dairy #2	Individual Dairy	Te Velde, Bernard Jr., 14523 Dinuba Avenue, Helm, CA 93627	Fresno	R5-2008-0001	73
114	Johann Dairy	Individual Dairy	John B. Verwey, 11511 West Floral Avenue, Fresno, CA 93706	Fresno	R5-2008-0002	74
115	Maddox Dairy	Individual Dairy	Douglas Maddox, 12840 West Kamm Avenue, Riverdale, CA 93656	Fresno	R5-2008-0003	75
116	Bar 20 Dairy No. 2 & 3	Individual Dairy	Bar 20 Dairy LLC, 25500 West Whitesbridge Avenue, Kerman, CA 93630	Fresno	R5-2008-0066	80

**Figure 2-16. Location of Individually Permitted Dischargers in the Northern Portion (Kings Subbasin Area) of the Kings Water Alliance Management Zone (see Table 2-11 to identify permitted dischargers)**



### **2.3.2. Non-Discharger/Stakeholder Participation**

Active participation by non-dischargers can facilitate the efforts of the Management Zone to achieve the goals of the Nitrate Control Program. This is especially critical to EAP development and implementation which requires the Management Zone to establish a process to coordinate with others to facilitate efforts to provide interim replacement water. In addition, participation by non-dischargers with roles or interests in land use planning, management of drinking water and wastewater and community engagement will benefit long-term efforts to manage nitrate in the Management Zone.

Since work began to establish the proposed Management Zone, the Kings Water Alliance has sought to identify key non-dischargers to invite them to participate in the development of this PMZP and EAP. The Management Zone continues to populate a list of all interested parties, including non-dischargers, currently receiving information about the Management Zone, including invitations to participate in stakeholder meetings. This list was developed through: (a) local area knowledge of project proponents; (b) direct request from entities to be added to the Management Zone's outreach list; (c) addition of entities recommended by participants; and (d) others identified as potentially interested parties through the Management Zone characterization process, e.g., county agencies, water districts or community service districts. All the interested parties will receive regular communication about Management Zone activities, including EAP implementation, and will be provided the opportunity to comment on Management Zone deliverables. The Management Zone will continue to add entities to the interested party outreach list to increase opportunities for collaboration in meeting Nitrate Control Program goals.

## **2.4. Current Nitrate Treatment and Control Efforts or Management Practices**

This section provides a summary of the nitrate treatment and control efforts or management practices currently required for implementation under the discharge permits issued to Management Zone participants.

### **2.4.1. Irrigated Lands Regulatory Program**

General Order R5-2013-0120 (as further amended) establishes the current treatment and control efforts of members of the Kings River Water Quality Coalition, the entity responsible for the implementation of the ILRP within the proposed Management Zone. The ILRP groundwater program, which focuses on nitrate contamination, includes elements that address evaluation of current nitrate contamination, monitoring of groundwater quality, development and evaluation of management practices to reduce the leaching of nitrate to groundwater, metrics of grower performance that reflect their potential leaching of N to groundwater, performance goals, and measures used to evaluate grower progress in reducing leaching. The subsections below

summarize the key reporting and monitoring elements associated with the protection of groundwater.

#### 2.4.1.1. Groundwater Quality Assessment Report (GAR)

The GAR designates high/low vulnerability areas within the Coalition region where high vulnerability areas are land where groundwater contamination currently occurs or is likely to occur due to conditions that make pollution likely (e.g., sandy soils, shallow groundwater). The GAR, which must be submitted within one year of the receipt of the Notice of Applicability from the CVWB Executive Officer, and every 5 years thereafter, must address the following objectives:

- Assess all available, applicable, and relevant data and information to determine the high and low vulnerability areas where discharges from irrigated lands may result in groundwater quality degradation;
- Establish priorities for implementation of monitoring and associated studies within high vulnerability areas;
- Provide a basis for establishing workplans to assess groundwater quality trends;
- Provide a basis for establishing workplans and priorities to evaluate the effectiveness of agricultural management practices and to protect groundwater quality; and
- Provide a basis for establishing groundwater quality management plans in high vulnerability areas and priorities for implementation of those plans.

#### 2.4.1.2. Management Practices Evaluation Program (MPEP)

To meet the requirements of the MPEP, the Coalition must address the following six objectives:

- Determine the crop-specific coefficients for conversion of a measured crop yield to nitrogen removed.
- Determine acceptable ranges for the multi-year nitrogen applied/nitrogen removed ratios (A/R Ratio) by crop.
- Identify whether existing site-specific and/or commodity-specific management practices are protective of groundwater quality.
- Determine if newly implemented management practices are improving or may result in improving groundwater quality.
- Develop an estimate of the effect of Members' discharges of constituents of concern on groundwater quality.
- Utilize the results of evaluated management practices to improve the practices implemented on Member farms (not specifically evaluated, but they have similar site conditions).

The Coalition is required to submit a MPEP Report no later than 6 years from the approval of the MPEP workplan. In addition, this program must address the following elements:

- Develop a Groundwater Protection Formula (July 1, 2020) - Purpose is to generate a value, expressed either as a nitrogen loading number or a concentration of nitrate in water reflecting the total applied nitrogen, total removed nitrogen, recharge conditions, and other relevant and scientifically supported variables that influence the potential average concentration of nitrate in water expected to reach groundwater, i.e., the potential leaching value.
- Calculate Groundwater Protection Values must be calculated for all townships by six months after approval of the Groundwater Protection Formula, based on the following:
  - For each irrigated parcel in a high vulnerability area, Coalition must calculate a potential leaching value using the approved groundwater protection formula; and
  - Values for all parcels are summed and reported on a township level.
- Develop Groundwater Protection Targets for each township – The purpose of this element is to set a desired target that is intended to achieve compliance with the Receiving Water Limitations for groundwater. These targets must be developed within one year after calculation of the values for each township.

#### 2.4.1.3. Groundwater Quality Trend Monitoring

The Groundwater Quality Trend Monitoring Program addresses the following two objectives:

- Determine current water quality conditions of groundwater relevant to irrigated agriculture; and
- Develop long-term groundwater quality information that can be used to evaluate the regional effects (i.e., not site-specific effects) of irrigated agriculture and its practices.

The monitoring program must provide a rationale for the number and locations of wells that considers the following:

- Variety of commodities produced in the coalition region;
- Groundwater vulnerability; and
- Groundwater contributing significant recharge to urban and rural communities where groundwater is a significant source of drinking water.

#### 2.4.1.4. Groundwater Quality Management Plan (GQMP)

Development of a GQMP is triggered: (1) when there is a confirmed exceedance of a water quality objective or applicable water quality trigger limit in a groundwater well and irrigated agriculture may cause or contribute to the exceedance; (2) in an area determined to be high

vulnerability as part of the GAR process (see Section 2.4.1.1); (3) the Basin Plan requires the development of a management plan for constituent(s) discharged by irrigated agriculture; or (4) the Executive Officer determines that irrigated agriculture may be causing or contributing to exceedances of water quality objectives or a trend of degradation of groundwater that may threaten applicable Basin Plan beneficial uses. The primary elements of a GQMP include:

- Investigate potential irrigated agricultural sources of waste discharge to groundwater;
- Review physical setting formation for the plan area such as the geologic factors and existing water quality data;
- Develop a strategy with schedules and milestones to implement practices to ensure discharge from irrigated lands are meeting Groundwater Receiving Limitations;
- Ensure that adequate feedback monitoring is conducted to allow for evaluation of GQMP effectiveness; and
- Facilitate efficient board review of data collected on the progress of the GQMP.

A GQMP must include a schedule and milestones for implementation of management practices. The schedule must identify the time needed to identify new management practices necessary to meet the receiving water limitations as well as a schedule for implementing the new practices.

#### 2.4.1.5. Grower Reporting Elements

Implementation of the General Order includes preparation of an annual Irrigation and Nitrogen Management Plan (INMP) and INMP Summary Report (INMPSR). The INMP remains on-farm and is not submitted to the Coalition; the INMPSR is submitted annually to the Coalition. Key reported elements include:

- Identification of fields by Assessors Parcel Number (APN);
- Crops grown and acreage;
- Irrigation method;
- Irrigation management practices;
- Nitrogen management practices;
- All sources of nitrogen, including irrigation supply water, compost, manure, cover crops, and synthetic fertilizer; and
- Yield

All members of the Coalition must complete a Farm Evaluation every five years describing management practices implemented to protect groundwater quality. Key elements of the farm evaluation include:

- Crops grown and acreage;
- Location of farm;
- Drinking water wells associated with enrolled APNs;
- Identification of on-farm management practices;
- Identification of soil and erosion risk areas;
- Surface water discharge points from the property;
- Identification of any areas in management plans; and
- Location of all wells including abandoned wells and wellhead protection practices in place.

Members within the GQMP area must also submit a Management Practices Implementation Report (MPIR). This survey lays out new or improved management practices implemented to address particular water quality issues identified in the area. MPIRs are distributed to Coalition members according to a schedule defined by the ESJWQC in the GQMP. The ESJWQC prioritizes growers required to complete GW MPIRs based on statistical analyses of INMP data for high-priority crops within the Coalition Area.

#### 2.4.1.6. Coalition Reporting Elements

The Coalition must report the data submitted by growers each year in the Annual Report on Management Practice Implementation and Nitrogen Application. In this report the Coalition must provide:

- Total nitrogen removed:
  - The total amount of nitrogen removed from a specific INMP field must be calculated from the yield reported for that field using a crop-specific nitrogen removed coefficient.
  - Coalitions must publish crop coefficients (nitrogen removed coefficients) for 95% of the crops in the coalition region by March 1, 2020.
  - Coalitions must publish crop coefficients (nitrogen removed coefficients) for 99% of the crops in the coalition region by March 1, 2023.
  - For the remaining 1% of crops, it is acceptable to use estimated crop coefficients from similar crops.
- An evaluation of individual field data collected from Members' INMP Summary Reports. This evaluation includes the A/R Ratio and the difference between Nitrogen Applied and Nitrogen Removed (A-R) for the following comparisons:
  - A/R Ratio for the previous crop year ( $A/R_{1\text{year}}$ ) by crop type
  - A/R Ratio as a running total of the previous three crop years ( $A/R_{3\text{year}}$ ) by crop type
  - A-R for the previous crop year ( $A-R_{1\text{year}}$ ) by crop type



- A-R as a running total of the previous three crop years (A-R<sub>3year</sub>) by crop type
- The data submitted by growers to the Coalition are also reported at the following levels:
  - Individual field-level data (A/R Ratio and A-R) by anonymous member identification (ID) - Each member is assigned a unique identifier that remains with the member for as long as they are a member.
  - Individual field-level management practice implementation data by anonymous member ID – any available management practice data reported on either the INMP Summary Reports, Farm Evaluations, and MPIR surveys for the previous crop year.
  - Individual field-level A/R Ratio and A-R data by anonymous APN ID - Each parcel is assigned a unique identifier that remains with the parcel for as long as it is enrolled in the ILRP.
  - Township-level aggregated A-R data.

## **2.4.2. Concentrated Animal Feeding Operation General Order**

### **2.4.2.1. Dairy Program**

Dairy General Order R5-2013-0122 establishes the current treatment and control efforts of member dairies as follows.

- Waste Management Plan (WMP) for the production area (Attachment B of the Dairy General Order) that addresses the following:
  - Sufficient storage capacity including all wastewater generated together with all precipitation on and drainage through manured areas, up to and including during a 25-year, 24-hour storm;
  - Adequate flood protection;
  - Proper design and construction of animal confinement areas, animal housing, manure and feed areas;
  - Operation and Maintenance Plan; and
  - No runoff of wastewater or contact rainwater.
- Nutrient Management Plan (NMP) and technical standards for nutrient management (Attachment C of the Dairy General Order) that includes the following:
  - Field-by-field nutrient (nitrogen, phosphorus, potassium and salt) budgets with application rates, timing, method of application;
  - Nitrogen application-removal ratio of 1.4;
  - Specified sampling and analysis, including manure, irrigation water and harvested plant tissue; and
  - Wellhead protection, including setbacks and buffers.
- Maintain minimum freeboard of two feet in aboveground lagoons and one foot in belowground lagoons.

- Construction standards for new and reconstructed lagoons as follows:
  - Tier 1: A lagoon designed to consist of a double liner constructed with 60- mil high density polyethylene or material of equivalent durability with a leachate collection and removal system (constructed in accordance with Section 20340 of title 27) between the two liners will be considered to be consistent with Resolution 68-16. Review for lagoons designed to this standard will be conducted in less than 30 days of receipt of a complete design plan package submitted to the Board.
  - Tier 2: A lagoon designed in accordance with California Natural Resource Conservation Service (NRCS) Conservation Practice Standard 313 (as described in the Information Sheet) or equivalent and which the Discharger must demonstrate through submittal of technical reports that the alternative design is protective of groundwater quality.
  - Tier 1 and Tier 2: Required design report, construction quality assurance plan, operation and maintenance plan, post construction report
  - Tier 2, only: Required technical report and groundwater model that demonstrates the proposed lagoon complies with applicable groundwater limitations, including calculations that demonstrate the amount and quality of seepage from the proposed lagoon and its effect on groundwater quality, and include proposed groundwater monitoring to evaluate the impact of lagoon seepage on groundwater quality.
- All dirt or unpaved corrals to be graded to promote drainage
- Several provisions applicable to the production area for the purpose of minimizing infiltration, ensuring the containment of water that has come into contact with waste, and separation of wastewater from clean rainfall runoff, where necessary.

Recommendations for additional solutions and upgrades to protect groundwater quality were recently included in the permit's required Summary Representative Monitoring Report (submitted April 2019). These recommendations include:

- Annual determination of a manure nitrogen export target and comparison against actual manure exports with the objective to increase manure-N exports over time.
- Installation of liquid manure flow meters on all dairies.
- Improved sampling protocols for solid manure nitrogen content and nitrogen harvest removal.
- Nitrogen use efficiency education coupled with feedback to dairy farmers regarding their performance (e.g., nitrogen use efficiency and whole-farm nitrogen balance) compared to the industry.

#### 2.4.2.2. Confined Bovine Feeding Operations

Bovine General Order R5-2017-058 establishes the current treatment and control efforts for Full Coverage Operations as follows:

- Waste Management Plan (WMP) for the production area (Attachment B of the Bovine General Order). Requirements are the same as in the Dairy General Order.
- Nutrient Management Plan (NMP) and technical standards for nutrient management (Attachment C of the Bovine General Order). Requirements are the same as in the Dairy General Order with the exception that the nitrogen application-removal ratio is a goal to be striven for using best efforts.
- Maintain minimum freeboard of two feet in aboveground lagoons and one foot in belowground lagoons.
- Construction standards for new and reconstructed lagoons. Requirements are the same as in the Dairy General Order
- All dirt or unpaved corrals to be graded to promote drainage.
- Several provisions applicable to the production area for the purpose of minimizing infiltration, ensuring the containment of water that has come into contact with waste, and separation of wastewater from clean rainfall runoff, where necessary.

Bovine General Order R5-2017-058 establishes the reduced treatment and control efforts for Limited Time Operations (i.e., facilities housing animals for fewer than 24 days per calendar month) and Limited Population Operations (housing between 6 and 99 animal units<sup>24</sup>), because these operations are deemed to pose a low threat to water quality.<sup>25</sup>

- Operation and Maintenance Plan (Items F and H of the WMP)

#### 2.4.2.3. Poultry Farms

All poultry growing operations housing more than 2,000 pounds (lbs) of bird weight at any given time are required to be enrolled in the CVWB Order R5-2016-0087-01 Waste Discharge Requirements General Order for Poultry Operations (Poultry General Order). The Poultry General Order regulates how poultry operations can manage wastes generated by poultry facilities. Small backyard operations and facilities that operate for less than twelve weeks during a twelve-month period or for no more than three consecutive weeks per event do not need to enroll.

The Poultry General Order categorizes operations into two tiers of coverage based on their threat to water quality. Facilities that primarily conduct their operations indoors, do not

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<sup>24</sup> One animal unit equals 1,000 pounds of animal weight.

<sup>25</sup> Additional criteria are included in the definition of Limited Time Operations and Limited Population Operations.

generate process wastewater and do not store uncovered manure outdoors are considered Low Threat Operations. Some pasture poultry operations may also be considered Low Threat Operations. Facilities that generate wastewater or that have a significant amount of manure exposed to the elements are considered Full Coverage Operations and must comply with the full range of requirements in the Poultry General Order. Low threat Operations have significantly lower reporting requirements.

To qualify as a Low Threat Operation, dischargers must be able to provide documentation that they meet all of the following criteria:

- i The facility exports all manure/litter, or if applied to Discharger's cropland, has coverage under the ILRP;
- ii The only wastewater generated by the facility consists of stormwater, and any stormwater that may have contacted more than a de minimis amount of manure and may pose a threat to water quality, is retained in a pond in conformance to the requirements of Pond Specifications C.1 and C.10.b of the Poultry General Order (Stormwater ponds do not trigger the requirements to obtain coverage under this Order provided the stormwater does not come in contact or commingle with waste);
- iii The facility houses birds inside roofed structures with features to limit the entrance of precipitation into the poultry house;
- iv The facility either stores all waste in a roofed structure with features to limit the entrance of precipitation or, throughout the year, removes all waste within 14 days of removal from such a roofed structure. During the wet season (October through May), waste stored outside such a roofed structure must either be removed from the facility within 72 hours of being deposited outdoors or covered with a weatherproof covering, except for times when wind events remove the covering, not to exceed 24 hours per event;
- v Composting of manure, litter, or poultry carcasses is conducted under a roofed structure with features to limit the entrance of precipitation and on a concrete or an equivalent low permeability surface and free liquids are not released during the composting process;
- vi Animals do not spend more than an aggregate of twenty percent of the time outdoors per year (i.e., the time-weighted average number of animals outdoors per day divided by the total number of animals at the facility must be equal to or less than 0.20 over the course of a year; any outdoor animal access areas have runoff/runoff controls in place; any outdoor watering equipment must be maintained to minimize spillage or leakage; and any outdoor feeding area must be maintained to regularly remove spilled or wet feed. Maintenance schedules must be designed to minimize impacts of water leakage or spilled feed on water quality.

Facilities are deemed to be Full Coverage Operations if the Operation has one or more of the following characteristics:

- Applies wastewater to cropland or applies manure/litter to cropland that does not have coverage under the ILRP;
- Has a wastewater pond that does not meet the requirements of Pond Specification C.10.b of the Poultry General Order;
- Has outdoor manure storage that does not meet the criteria in Finding 4.a.iv of the Poultry General Order (see above - item iv. for Low Threat Operations);
- Wastewater generated by the facility includes waste streams other than stormwater that has contacted manure; or
- Conducts an on-site composting operation that does not meet the requirements of Section 4.a.v of the Poultry General Order (see above – item v. for Low Threat Operations); if the facility meets all other criteria to qualify as a Low Threat Operation except Section 4.a.v of the Poultry General Order, then it only needs to implement the Full Coverage Operations requirements that relate to composting.

The Poultry General Order contains detailed general specifications as well as specifications applicable to the following: Ponds (where applicable), Production Areas, Land Applications and Composting. These specifications are stringently designed to meet Best Practical Treatment or Control to greatly limit the potential for groundwater pollution from poultry facilities and include groundwater monitoring, nutrient management plans, and stringent pond lining requirements for any existing pond found to be polluting or any new or reconstructed wastewater pond.

For Low Threat Operations, the Poultry General Order requires that a facility submit an Operation and Maintenance Plan that includes a Mortality Management Plan, Standard Operating Procedures for manure/litter storage and removal, backflow prevention maintenance and testing procedures and for poultry operations using a reverse osmosis unit on site, a description of the quantity of brine generated per specific time period, method and duration of on-site brine storage, and methods of brine disposal. For Full Coverage Operations, a Waste Management Plan along with many other technical reports are required. When the Poultry General Order was adopted in 2016 it included schedule for submittal of these various reports and certifications required to demonstrate that poultry facilities were in compliance with the General Order.

Low Threat Operations are required to submit an Annual Reports by August 1 of each year that includes the following.

- Identification of the beginning and end dates of the annual reporting period;

- Monthly maximum and monthly average number and type of animals within the boundaries of the facility during the reporting period;
- Copies of all manure tracking manifests for the reporting year;
- A description of mortality management practices; and
- Dates and results of testing, and description of any actions taken, for all mechanical backflow prevention devices.

### **2.4.3. Individual Permitted Dischargers**

The following subsections summarize the current nitrate treatment and control efforts, or management practices being implemented by each Management Zone participant as required by their individual WDRs.

#### **2.4.3.1. Amar JS Farms Almond Oil Processing Facility**

##### **Facility Description (CV-SALTS ID: 3542)**

Amar JS Farms owns and operates the Amar JS Farms Almond Oil Processing Facility at 13113 South Fowler Avenue near Selma, CA. The facility occupies a 77.7-acre parcel about 5.9 miles south west of Selma in Fresno County. The facility is authorized to discharge waste under Order No. R5-2020-0002 (*Waiver of Waste Discharge Requirements for Small Food Processors, Wineries and Related Agricultural Processors within the Central Valley Region*). Applicable groundwater beneficial uses include: Municipal and domestic supply (MUN), agricultural supply (AGR), industrial service supply (IND) and industrial process supply (PRO).

Amar JS Farms filed a Report of Waste Discharge (ROWD) indicating its intent to comply with the Tier 1 conditions of the above-referenced Waiver. Tier 1 allows land application of up to 10,000 gallons of wastewater per year for irrigation of landscaping or crops and land application of residual solids associated with that volume of wastewater. Any process wastewater or residual solids in excess of those amounts must be disposed of off-site at an appropriately permitted facility. The Central Valley Water Board notified the discharger it met the required conditions for approval under the Waiver and was assigned enrollee number R5-2020-0002-0045.

The estimated annual volume of almonds processed for oil at the Facility is around 60,000 - 100,000 pounds (approximately 8,000 to 14,000 gallons). There is no wastewater generated in the almond oil process (which takes place September through January). Almond oil is extracted from almonds by “cold pressing” which produces an unrefined oil product from the raw stock (clean and dried hulled almond culls) without the use of heat or chemical agents. However, wash water is generated during the pre- and post-production run clean-up, estimated at 5,000 gallons/year. No additives are used with the wash down water. The wash water drains directly to a surrounding orchard.

### Nitrate Management Requirements

**Table 2-12** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-12. Summary of Key Amar JS Farms Almond Oil Processing Facility WDR Nitrate Management-Related Requirements (as a Tier 1 Facility)	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>The discharge of waste to wetlands, surface waters or surface water drainage courses is prohibited</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>Wastewater shall be applied to cropland or landscaped areas at a rate consistent with the water needs of the crop or vegetation grown in the land application area and at rates that do not exceed crop demand for nitrogen, including nitrogen loads from all sources (e.g., wastewater, residual solids, manure, and commercial fertilizer).</li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>Discharge report only; no effluent or groundwater monitoring requirements for Tier 1 facilities</li> </ul>

#### 2.4.3.2. Baker Commodities Kerman Division

##### Facility Description (CV-SALTS ID: 2167)

The Baker Commodities, Inc. Kerman Rendering Plant is authorized to discharge under WDR Order R5-2014-0062. This facility is located at 16801 West Jensen Avenue, Kerman, CA 93630. The facility is authorized to discharge waste to a designated land application area (LAA) within Detailed Analysis Unit (DAU) 235 in the Kings Basin hydrologic unit. Applicable groundwater beneficial uses include: MUN, AGR, IND and PRO.

The facility stockpiles raw material in a loading area. Plant staff uses heavy equipment to load the material into a crusher which feeds four cookers. Boiler steam provides heat while a machine presses out oils. The remaining dry solids are finely shredded until they pass through a shaker screen. The finished products are kept in covered storage onsite before being hauled offsite by truck. These operations result in the following waste streams: Condensed moisture from the raw material; boiler blowdown; reverse osmosis reject; and stormwater and wash water from the paved truck unloading area. The reverse osmosis treatment unit only treats the portion of facility supply water used for boiler makeup.

##### Treatment and Disposal Process

All wastewater streams are pumped from a sump into large holding tanks to regulate flow through wastewater treatment units, including three skimmers and a cavitation air flotation

unit (polyacrylamide flocculant added to increase removal efficiency). Skimmed material is sent back through the rendering process. Settled solids (primarily grass from raw material stomach contents) are collected in a bin and hauled to Kettleman Hills Landfill by a waste management company on a regular basis. After skimming and cavitation air flotation treatment, wastewater is pumped to three large, lined ponds in series. The first two ponds, designed for biochemical oxygen demand (BOD) removal and ammonia volatilization, are maintained at static water levels while the wastewater level in the third pond, designed for effluent storage, varies. Magnetic flow meters record wastewater flow into and out of the pond system. Wastewater is blended with water from onsite irrigation wells and distributed to approximately 537 acres of cropped LAAs.

**Nitrate Management Requirements**

**Table 2-13** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-13. Summary of Key Baker Commodities, Kerman Division WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Discharge of wastes to surface waters or surface water drainage courses is prohibited.</li> </ul>
Effluent and Mass Loading Limitations	<ul style="list-style-type: none"> <li>None for nitrogen</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>Discharge from the Plant shall not exceed a monthly average flow of 0.192 million gallons/day (mgd)</li> <li>No waste constituent shall be released, discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of the Groundwater Limitations of this Order</li> </ul>
Land Application Area	<ul style="list-style-type: none"> <li>Crops shall be grown in the LAAs. Crops shall be selected based on nutrient uptake, consumptive use of water, and irrigation requirements to maximize nutrient and salt uptake</li> <li>Application of waste constituents to the LAAs shall be at reasonable agronomic rates to preclude creation of a nuisance or degradation of groundwater, considering the crop, soil, climate, and irrigation management system. The annual nutritive loading of the LAAs, including the nutritive value of organic and chemical fertilizers and of the wastewater, shall not exceed the annual crop demand.</li> <li>Hydraulic loading of wastewater and irrigation water shall be at reasonable agronomic rates designed to minimize the</li> </ul>



Table 2-13. Summary of Key Baker Commodities, Kerman Division WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
	percolation of wastewater and irrigation water below the root zone (i.e., deep percolation)
Groundwater Limitations	<ul style="list-style-type: none"> <li>• Release of waste constituents associated with the discharge shall not cause or contribute to groundwater containing concentrations of waste constituents in excess of concentrations specified below or background water quality, whichever is greater: <ul style="list-style-type: none"> <li>○ Nitrate (as nitrogen) of 10 mg/L;</li> <li>○ For constituents identified in Title 22, concentrations quantified as MCLs specified therein.</li> </ul> </li> </ul>
Management Plans	Nutrient Management Plan to ensure actual loading will not exceed agronomic uptake rates for nitrogen. Depending on the quality of irrigation well water, and given some denitrification in the soil, the facility can manage the nitrogen loading rates in the LAAs to ensure groundwater degradation with nitrate is minimal and will not adversely affect the beneficial uses of groundwater.
Monitoring & Reporting	<ul style="list-style-type: none"> <li>• Baker complies with all Monitoring and Reporting Program requirements.</li> <li>• Pond Influent and effluent monitoring: nitrate as nitrogen, nitrite as nitrogen, Total Kjeldahl Nitrogen (TKN), ammonia as nitrogen and total nitrogen</li> <li>• LAA monitoring: nitrogen loading from: wastewater, irrigation well water and fertilizer</li> <li>• Total pounds of nitrogen applied to the LAAs, as calculated from the sum of the monthly loadings, and the total annual nitrogen loading rate to the LAAs are reported in lbs/acre/year</li> <li>• Soil monitoring for: nitrate, TKN, ammonia and total nitrogen</li> </ul>

### 2.4.3.3. Millwood Packing Facility (Booth Ranches Citrus Packing Facility)

#### Facility Description (CV-SALTS ID: 1902)

This facility, which is authorized to discharge under WDR Order 97-006, is located at 12201 Avenue 480, Orange Cove, CA 93646. The underlying groundwater beneficial uses where this facility discharges its wastewater include: MUN, AGR, IND and PRO.

Discharged wastewater is comprised of wash water from washing and packing of citrus fruits, condensate water from refrigerant condenser and rainfall runoff from paved areas and roofs.

This wastewater is discharged into an onsite evaporation-percolation pond with a capacity of 3.6 acre/feet.

**Nitrate Management Requirements**

**Table 2-14** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-14. Summary of Key Millwood Packing Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Prohibits the discharge of waste to surface waters and to surface water drainage courses</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>The monthly average discharge from the facility shall not exceed 2,000 gallons per day (gpd)</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>Discharge, in combination with other sources, shall not cause underlying ground water to contain waste constituents in concentrations statistically greater than background water quality, except conductivity</li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>Effluent monitoring includes total nitrogen</li> <li>Water supply monitoring includes total nitrogen</li> </ul>

**2.4.3.4. Del Rey Packing Dehydrator**

**Facility Description (CV-SALTS ID: 1952)**

The Del Rey Packing Dehydrator is authorized to discharge under WDR Order 96-198. The facility is located at 5287 Del Rey, Del Rey CA 93616. The underlying groundwater beneficial uses where this facility discharges its wastewater include: MUN, AGR, IND and PRO.

The discharge water is from cleaning and washing raisins and grapes at a dehydrator in water tanks and from the washing down of the equipment. The facility pumps the discharge water up into a solid separator. There, after all of the solids are sorted out, the water flows to the field or LAA.

**Nutrient Management Requirements**

**Table 2-15** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-15. Summary of Key Del Rey Packing Dehydrator Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Prohibits the discharge of waste to surface waters and to surface water drainage courses</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>Maximum daily discharge flow shall not exceed 67,000 gpd from August to October, and 28,000 gpd the rest of the year</li> <li>Nutrient loading of the crop, including the nutrient value of organic and chemical fertilizers and of applied waste solids and wastewater, shall not exceed the crop demand</li> <li>Depth of application of wastewater plus irrigation water shall not exceed the immediate water requirement of the vineyard (available soil moisture holding capacity of the root zone at time of application) plus a reasonable leaching factor. Application of wastewater to the reclamation area shall be at reasonable rates considering the crop, soil, climate, and irrigation management system.</li> <li>BOD<sub>5</sub> loading rate shall not exceed 100 lbs/acre/day, or the maximum loading rate that environmental conditions permit at the time of application without violation of other terms of this Order, whichever is less</li> <li>Solids applied to the reclamation area shall be applied at a rate of no more than 1.5 inches per acre and shall be disked and incorporated into the soil within 24 hours of application by disking or tilling. Solids shall not be reapplied and the area shall not be irrigated until the most recent waste application has dried for at least six days.</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>The discharge, in combination with other sources, shall not cause underlying groundwater to contain waste constituents in concentrations greater than background water quality, except for EC. The incremental increase in EC over any five-year period shall not exceed 20 µmhos/cm.</li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>Effluent monitoring includes total nitrogen and nitrate</li> <li>Groundwater monitoring includes nitrate</li> <li>Soil monitoring includes nitrate nitrogen, TKN and total nitrogen</li> <li>Supply water monitoring includes nitrate</li> <li>Irrigation water monitoring includes nitrate</li> </ul>

### 2.4.3.5. Del Rey Wastewater Treatment Facility

#### Facility Description (CV-SALTS ID: 2710)

The Del Rey CSD WWTF is authorized to discharge under WDR Order 96-284. This facility is located at 11495 American Avenue, Del Rey, CA 93616. Beneficial uses of the underlying groundwater are MUN, AGR and industrial. The WWTF, with a design capacity of 0.3 mgd is designed to treat domestic waste from fruit process plants with BOD<sub>5</sub> concentration of up to 300 mg/L. Facility design includes an extended aeration system consisting of headworks, one aeration basin, a secondary clarifier, three aerobic digesters, a sludge dewatering unit and 19 sludge drying beds. Treated effluent is discharged to six evaporation - percolation ponds. Effluent from the evaporation-percolation ponds is mixed with irrigation water and recycled on 39 acres of pasture owned by the Discharger. Sludge from the aerobic digester is mechanically dewatered, dried in beds and applied as a soil amendment on the acreage.

#### Nitrate Management Requirements

**Table 2-16** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-16. Summary of Del Rey WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Discharge of wastes to surface water drainage courses is prohibited</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>Monthly average daily dry weather flow shall not exceed 0.30 million gallons</li> <li>Direct reuse of effluent shall be limited to construction purposes, irrigation of nonfood chain crops, animal feed crops not used to feed lactating dairy animals, and the vineyard</li> <li>Application of recycled water to the farm land shall not exceed what is reasonably necessary for the vineyard (if utilized) and the pasture, considering both soil and climate. The nutrient loading rate of the crop, including the nutrient value of organic and chemical fertilizers and of solids and recycled water, shall not exceed the crop demand. Similarly, the hydraulic loading of the area shall not exceed the crop demand plus a reasonable leaching factor.</li> <li>Irrigation or impoundment of wastewater shall not occur within 150 feet of any domestic well or within 50 feet of any irrigation well unless it is demonstrated to the satisfaction of the Executive Officer that a shorter distance is justified</li> </ul>

Table 2-16. Summary of Del Rey WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Groundwater Limitations	<ul style="list-style-type: none"> <li>The discharge, in combination with other sources, shall not cause underlying groundwater to: Contain waste constituents in concentrations statistically greater than background water quality, except for conductivity.</li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>Effluent monitoring includes nitrate and total nitrogen</li> <li>Groundwater monitoring includes nitrate</li> <li>Source water monitoring includes nitrate</li> </ul>

### 2.4.3.6. Dinuba Wastewater Treatment Facility

#### Facility Description (CV-SALTS ID: 2660)

The City of Dinuba WWTF is authorized to discharge under WDR Order 95-200. This facility is located at 6675 Avenue 412, Dinuba, CA 93618. Beneficial uses of the underlying groundwater are MUN, AGR and industrial. The WWTF consists of a headworks, primary and secondary clarifiers, a trickling filter, primary and secondary sludge digesters, three polishing ponds, sludge beds, and 48.8 acres of evaporation/percolation ponds. Wastewater is also reclaimed by irrigating crops on 20 acres of adjacent city-owned land. At the time the permit was issued, the City proposed constructing three additional evaporation/percolation ponds on another 25 acres of adjacent city- owned land.

#### Nitrate Management Requirements

**Table 2-17** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-17. Summary of the City of Dinuba WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Discharge of waste to surface waters or surface water drainage courses is prohibited</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>Monthly average dry weather discharge flow shall not exceed 3.0 mgd</li> <li>Use of reclaimed water shall be limited to flood or furrow irrigation of orchards and vineyards, and irrigation of pasture, fodder, fiber, and seed crops</li> <li>Application of reclaimed wastewater to the reclamation area shall be at reasonable rates considering the crop, soil, climate, and irrigation management system. The nutrient loading of the</li> </ul>

Table 2-17. Summary of the City of Dinuba WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
	reclamation area, including the nutritive value of organic and chemical fertilizers and of the reclaimed water, shall not exceed the crop demand.
Groundwater Limitations	<ul style="list-style-type: none"> <li>The discharge, in combination with other sources, shall not cause underlying ground water to contain waste constituents in concentrations statistically greater than receiving water limits, where specified below, or background water quality where not specified (For purposes of comparison, background water quality shall be determined when background monitoring provides sufficient data. Quality determined in this manner establishes "water quality protection standards.")</li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>Effluent monitoring includes nitrate and TKN</li> <li>Groundwater monitoring includes nitrate</li> <li>Source water monitoring includes nitrate</li> </ul>

### 2.4.3.7. E. & J. Gallo Winery

#### Facility Description (CV-SALTS ID: 2042)

The E. & J. Gallo Winery is authorized to discharge under WDR Order R5-2015-0040. This facility is located at 5610 East Olive Avenue, Fresno, CA 93727. The winery and LAAs are in DAU No. 233, within the Kings Basin hydrologic unit. The Basin Plan identifies the beneficial uses of groundwater in the DAU as MUN, AGR, IND and PRO.

Wastewater is generated from the production of wine, spirits and concentrates. Less than ~15% of the facility's wastewater is land applied during harvest (~August-November) of each year, with the remaining discharged to the City of Fresno Publicly-owned Treatment Works (POTW). Treated wastewater is discharged to land by flood irrigation to ~430 acres with cover crops (vineyards/ double-cropped areas) pursuant to the WDR.

#### Treatment and Disposal Process

The winery has a wastewater treatment system (Fresno Anaerobic Treatment System, FATS). Treated wastewater is sent to the City of Fresno POTW (~85%) with the balance being land applied. Wastewater is applied to checks by flood irrigation. Solids generated from wastewater treatment are disposed off-site.

#### Nitrate Management Requirements

**Table 2-18** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-18. Summary of Key E. & J. Gallo Winery WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Discharge of wastes to surface waters or surface water drainage courses is prohibited</li> </ul>
Effluent Limitations and Discharge Specifications	<ul style="list-style-type: none"> <li>Discharge of wastewater from all sources to the land application areas shall not exceed an annual flow of 54.2 million gallons</li> <li>No waste constituent shall be released, discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of the Groundwater Limitations of this Order</li> </ul>
Land Application Area	<ul style="list-style-type: none"> <li>Wastewater is discharged to all land application areas at agronomic rates and within agronomic limits. Wastewater is applied in four sections: Two LAAs (1 and 4) are double cropped annually (typically, winter wheat and Sudan grass). Total nitrogen loadings are &lt; 500 lbs/acre/year (typically &lt; 300 lbs/acre/year). Two LAAs (2 and 3) are vineyards. Total nitrogen loadings are &lt; 150 lbs/acre/year (typically &lt; 100 lbs/acre/year).</li> <li>BOD daily average cycle loading shall not exceed 250 lbs./acre/day</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>Release of waste constituents shall not cause or contribute to groundwater containing concentrations of constituents to exceed a nitrate as nitrogen of 10 mg/L</li> </ul>
Management Plans	<ul style="list-style-type: none"> <li>The facility implements a Nutrient Management Plan that includes procedures for monitoring the land application areas including daily records of wastewater applications and acreages, an action plan to deal with objectionable odors and/or nuisance conditions, a discussion on blending of wastewater and supplemental irrigation water, supporting data and calculations for monthly and annual water and nutrient balances, and management practices that will ensure wastewater, irrigation water, commercial fertilizers and soil amendments are applied at agronomic rates.</li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>The winery submits quarterly WDR reports to the CVWB</li> <li>Monitoring occurs at varying frequencies for nitrogen-related constituents in the following: groundwater, wastewater (influent and effluent), source water and soil</li> </ul>

### 2.4.3.8. East Orosi Packing House

#### Facility Description (CV-SALTS ID: 1987)

The East Orosi Packing House is authorized to discharge under WDR Order 85-167. The facility is located at 42870 Fruitvale Avenue, Orosi, CA 93647. The underlying groundwater beneficial uses where this facility discharges its wastewater include: MUN, AGR and IND. Wastewater discharge is generated from washing fruit prior to packing and hosing down machinery and concrete floors. The wastewater is discharged to a small percolation/ evaporation pond.

#### Nutrient Management Requirements

**Table 2-19** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-19. Summary of Key East Orosi Packing House WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Prohibits the discharge of waste to surface waters and to surface water drainage courses</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>Discharge shall not cause degradation of any water supply</li> <li>30-day average daily dry weather discharge flow shall not exceed 0.03 million gallons</li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>Monitoring of effluent limited to EC and dissolved oxygen</li> </ul>

### 2.4.3.9. Elkhorn Correctional Facility WWTF

#### Facility Description (CV-SALTS ID: 1995)

Fresno County is authorized to discharge domestic wastewater from the Elkhorn Correctional Facility WWTF under WDR Order 97-207. The facility is located on Elkhorn Avenue in Caruthers, CA. The underlying groundwater beneficial uses include: MUN, AGR, industrial supply.

Per the WDR, Fresno County would construct a new WWTF with a design treatment and disposal capacity of 17,050 gpd that included headworks, two aerated lagoons, one stabilization lagoon, one storage pond and a 64-acre LAA adjacent to the facility (36 acres were proposed for initial reclamation use and an additional 28 acres was proposed for future use). New facility was to be fully operational by August 1998. The three treatment lagoons and the storage pond would be lined with soil-cement. Effluent from the storage pond was proposed for use in furrow irrigation of alfalfa and/or cotton on the LAA. Sludge removed from the ponds was proposed to



be used as a soil amendment in the LAA. Until the new WWTF was fully operation, the county proposed to discharge up to 10,850 gpd of graywater to either one of the existing ponds or to a temporary 1.0-acre bermed area just north of the existing ponds.

**Nutrient Management Requirements**

**Table 2-20** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-20. Summary of Elkhorn Correctional Facility WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Prohibits the discharge of waste to surface waters and to surface water drainage courses</li> <li>Until the new WWTF was operational, discharge of wastes other than graywater at a location or in a manner different from that described in the permit was prohibited</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>After the new WWTF was operational, the monthly average discharge shall not exceed 17,050 gpd</li> </ul>
Land Application Area	<ul style="list-style-type: none"> <li>Application of recycled water to the LAA shall be at reasonable rates considering the crops, soil, climate, and irrigation management system</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>The discharge, in combination with other sources, shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than background water quality, except for EC. For EC, the incremental increase over any five-year period shall not exceed 20 µmhos/cm.</li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>Water supply and groundwater monitoring included major cations/anions</li> </ul>

**2.4.3.10. Fig Garden Packing Inc.**

**Facility Description (CV-SALTS ID: 2018)**

The Fig Garden Packing facility is authorized to discharge under WDR Order 94-135. The facility is located at 5545 West Dakota Avenue, Fresno, CA 93722. The underlying groundwater beneficial uses where this facility discharges its wastewater include: MUN, AGR, IND and PRO. Wastewater results from the washing and rehydration of figs, the washing of equipment and boiler blowdown operations. Harvest/processing season wastewater is delivered to agricultural land; off-season flows are discharged to vineyards for reclamation reuse.

**Nutrient Management Requirements**

**Table 2-21** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-21. Summary of Key Fig Garden Packing Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Prohibits the discharge of waste to surface waters and to surface water drainage courses</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>Maximum daily discharge shall not exceed 0.015 million gallons and the monthly mean daily discharge shall not exceed 0.01 million gallons from the period of 15 August to 15 November. The monthly mean daily discharge shall not exceed 0.006 mgd the rest of the year.</li> <li>Application of wastewater to the reclamation area shall be at reasonable rates considering the crop, soil, climate, and irrigation management system. The nutrient loading of the reclamation area, including the nutritive value of organic and chemical fertilizers and of the reclaimed water, shall not exceed the crop demand.</li> <li>Waste application rates to the reclamation areas shall not exceed the environmental conditions at the site or 100 lbs BOD/acre/day, whichever is less after wastewater is applied to that portion.</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>Discharge, in combination with other sources, shall not cause underlying ground water to: <ul style="list-style-type: none"> <li>Contain waste constituents in concentrations statistically greater than receiving water limits, where specified below, or background water quality where not specified;</li> <li>Exceed an annual average incremental increase in specific electrical conductivity (EC) greater than 4 µmhos/cm, based on the most recent five-year period, or a maximum of 650 µmhos/cm, whichever is less;</li> <li>Contain chemicals, heavy metals, or trace elements in concentrations that adversely affect beneficial uses or exceed MCLs specified in the California Code of Regulations, Title 22, Division 4, Chapter 15; or</li> <li>Contain concentrations of chemical constituents in amounts that adversely affect agricultural use.</li> </ul> </li> </ul>

Table 2-21. Summary of Key Fig Garden Packing Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Management Plans	<ul style="list-style-type: none"> <li>Required technical report that addresses nutrient uptake and salinity management in disposal areas. The report shall describe the acreage of various types of crops to be grown and harvested annually, crop water use, and nitrogen uptake, and it must include a nitrogen balance for both the 15-acre and the 45-acre disposal areas. Supporting calculations must demonstrate that wastewater disposal can be accomplished without contributing additional nitrogen in the form of nitrate ion or inorganic constituents (salts) to the groundwater.</li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>Disposal/reclamation site monitoring that includes nitrate nitrogen, TKN and total nitrogen</li> </ul>

#### 2.4.3.11. Four Bar C Farms, Inc.

##### Facility Description (CV-SALTS ID: 1873)

The Four Bar C Farms facility is authorized to discharge under WDR Order R5-01-155. The facility is located at 10616 South West Avenue, Fresno, CA 93706. The facility and the designated disposal area are in DAU 236 within the Kings Basin. The underlying groundwater beneficial uses where this facility discharges its wastewater include: MUN, AGR, IND and PRO.

##### Treatment and Disposal Process

Wastewater streams result from the rinsing and dehydration of grapes and plums. The fruit is first washed in a cold-water tank, then sprayed with water, dipped into a hot water tank (about 207 °F), sprayed again, and routed to natural gas-fired drying tunnels. Spray water is used once and discharged. The discharged process water is routed to a separation tank where solids are passed through a rotary screen prior to discharge to the designated disposal area. Process solids are collected in a bin and disposed offsite at a regulated collection site. The discharged water is used to irrigate grape vines.

##### Nutrient Management Requirements

**Table 2-22** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-22. Summary of Key Four Bar C Farms WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Prohibits the discharge of waste to surface waters and to surface water drainage courses</li> </ul>
Discharge and Disposal Area Specifications	<ul style="list-style-type: none"> <li>Maximum daily discharge to the designated disposal area shall not exceed 0.048 mgd and the monthly average discharge to the designated disposal area shall not exceed 0.043 mgd</li> <li>Maximum daily BOD<sub>5</sub> loading to the designated disposal area on the day of application shall not exceed 300 lbs/acres, or the maximum loading rate that environmental conditions permit at the time of application without violation of other terms this Order, whichever is less</li> <li>Discharge of wastewater containing nutrients and/or commercial fertilizers to the designated disposal area shall be consistent with applicable agronomic loading rates considering the crop, soil, climate, and irrigation management system</li> <li>Hydraulic loading of wastewater and irrigation water shall be at reasonable agronomic rates designed to minimize the percolation of wastewater and irrigation water below the root zone (i.e., deep percolation)</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>The discharge, in combination with other waste sources, shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than background water quality</li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>Effluent monitoring includes nitrate, TKN, ammonia nitrogen and total nitrogen</li> <li>Disposal area and wastewater application monitoring: Flow (wastewater and irrigation water), area applied, hydraulic loading rate, BOD<sub>5</sub> loading rate, total nitrogen loading rate, fertilizer loading rate</li> <li>Disposal area soil monitoring includes nitrate, TKN and total nitrogen</li> <li>Solids disposal area monitoring includes BOD<sub>5</sub> loading rate, total nitrogen loading rate and fertilizer loading rate</li> <li>Groundwater monitoring includes nitrate</li> </ul>

#### 2.4.3.12. Fowler Packing Cedar Avenue Facility

##### Facility Description (CV-SALTS ID: 1881)

The Fowler Packing Cedar Avenue facility is authorized to discharge under WDR Order 89-141. The facility is located at 8570 Cedar, Fresno, CA 93725. The facility and the designated disposal area are within the Kings Basin. The underlying groundwater beneficial uses where this facility discharges its wastewater include: MUN, AGR and IND. Wastewater streams from facility operations (defrost water and wash water) are discharged to evaporation/percolation ponds.

**Nutrient Management Requirements**

**Table 2-23** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-23. Summary of Key Fowler Packing Cedar Avenue Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Prohibits the discharge of waste to surface waters and to surface water drainage courses</li> </ul>
Discharge and Disposal Area Specifications	<ul style="list-style-type: none"> <li>Discharge to the disposal ponds shall not exceed 70,000 gpd</li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>Monitoring (per permit required frequencies) limit to effluent and source water; no monitoring required for nitrogen-related constituents</li> </ul>

**2.4.3.13. Fresno Acetylene Plant**

The Fresno Ox and Weld Suppliers (CV-SALTS ID: 2032) is authorized to discharge under WDR Order 67-117. This facility is located at 7835 Manning, Fresno, CA 93706. Underlying groundwaters in the are used for domestic, agricultural and industrial purposes. Wastes from the facility consist of cooling water, slaked lime slurry and domestic sewage. Domestic wastes are treated in a septic tank-leaching system. The lime slurry is pumped to two sludge beds for drying. Dried solids are removed from the plant site for disposal or use. Cooling water is discharge to a percolation are on the plant site. Cooling water flow rate is estimated to be 300 gallons/hour. Per the Order, the waste discharge shall not cause a pollution of usable groundwater or surface waters. Order does not include any monitoring requirements.

**2.4.3.14. Fresno County #44-D Monte Verde Estates WWTF**

**Facility Description (CV-SALTS ID: 1751)**

Fresno County is authorized to discharge domestic wastewater from the Fresno County #44-D Monte Verde Estates WWTF under WDR Order 92-203. The facility is located at 12222 Willow Avenue, Clovis, CA 93611. The underlying groundwater beneficial uses include: MUN, AGR

and industrial supply. The WDR was issued to authorize the discharge of up to 32,500 gallons gpd of treated domestic wastes from Willow Park Estates, a planned residential community about three miles north of the Cities of Fresno and Clovis and one mile east of the San Joaquin River. Willow Park Estates comprises about 90 acres and was proposed to include 125 low density dwelling units generating maximum and average flows of 32,500 and 25,000 gpd of domestic waste, respectively.

The development’s WWTF was to include a prefabricated sewage treatment plant and a community leachfield with design capacities of 35,000 and 32,500 gpd, respectively. The proposed plant would be in an enclosed building and include the following: headworks, primary and secondary clarification, biofiltration, effluent filtration, coagulation and disinfection facilities, a 97,000- gallon plastic-lined emergency storage pond and an aerated sludge holding tank. The leachfield would include a pressure distribution system and consist of leachbeds with a total disposal area of 19,118 square feet. The discharger proposed to reclaim about 37 acre-feet per year of water from the WWTF by sprinkler irrigation of 19.5 acres of community landscaped areas (LAAs). During the non-irrigation season and to satisfy County requirements; the tertiary treated effluent would be discharged from the WWTF to the leachfield. The removed sludge would be used as a soil amendment or disposed of through a licensed septic pumper.

**Nutrient Management Requirements**

**Table 2-24** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-24. Summary of Fresno County #44-D Monte Verde Estates WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>• Prohibits the discharge of waste to surface waters and to surface water drainage courses</li> <li>• Discharge of untreated or partially treated waste to the sprayfield is prohibited</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>• Monthly average dry weather (May through October) discharge shall not exceed 25,000 gpd</li> <li>• Maximum daily discharge shall not exceed 32,500 gallons</li> </ul>
Land Application Area	<ul style="list-style-type: none"> <li>• Application of reclaimed water to the reclamation area shall not exceed what is reasonably necessary for the grass, soil, climate and management system</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>• The discharge, in combination with other sources, shall not cause underlying groundwater to: <ul style="list-style-type: none"> <li>○ Contain waste constituents in concentrations statistically greater than background water quality</li> <li>○ Contain chemicals, heavy metals, or trace elements in concentrations that adversely affect beneficial uses. or exceed</li> </ul> </li> </ul>

Table 2-24. Summary of Fresno County #44-D Monte Verde Estates WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
	maximum contaminant levels specified in the California Code of Regulations, Title 22, Division 4, Chapter 15
Monitoring & Reporting	<ul style="list-style-type: none"> <li>LAA monitoring included nitrate (as N)</li> </ul>

### 2.4.3.15. Fresno County #47-Quail Lake WWTF

#### Facility Description (CV-SALTS ID: 1753)

Fresno County is authorized to discharge domestic wastewater from the Fresno County #47 Quail Lake WWTF under WDR Order 96-120. The facility is located at 4121 Quail Lake Drive, Clovis, CA 93611. The underlying groundwater beneficial uses include: MUN, AGR, IND and PRO. WDR was issued for discharge of domestic wastewater from a proposed WWTF for Quail Lake Estates, a planned residential community in Fresno County, approximately 3.5 miles east of the City of Clovis. The proposed developed encompassed about 375 acres and included 730 residential units, a community clubhouse, an elementary school, and retail commercial development projected to generate monthly average and maximum daily flows of 0.160 mgd and 0.180 mgd, respectively, of domestic waste.

The proposed WWTF would provide tertiary treatment for domestic waste with the treatment units confined below a concrete deck. The proposed plant’s treatment works was to include: fine screening, flow equalization, primary clarification, three stages of trickling filtration with interstage secondary clarification, chemical addition (alum), flocculation, sand filtration and disinfection. Sludge would be removed from the primary and secondary clarifiers and stored in a sludge holding tank prior to truck removal.

Treated effluent would be reclaimed by irrigating 33 acres of common area landscape. An emergency storage lined pond of approximately 540,000 gallons (sufficient to contain three days of peak daily design flow) would temporarily contain any wastewater that did not meet effluent specifications.

A 57-acre lake with a capacity of 350 acre feet would provide seasonal storage of reclaimed water (approximately 15 acre feet/year) when irrigation demand is less than the amount of reclaimed water generated. In this lake, the reclaimed water would be mixed with Fresno Irrigation District canal water and natural precipitation. Reclaimed water would comprise

approximately 5% of the annual average lake replenishment. The bottom of the 57-acre lake would be of one-foot-thick compacted clay soil (on-site surface soils recompacted) with a permeability of  $1 \times 10^{-7}$  cm/sec, minimizing seepage from the lake. The lake would accommodate precipitation from a 100-year annual rainfall season and would be used for boating and fishing.

**Nutrient Management Requirements**

**Table 2-25** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-25. Summary of Fresno County #47 Quail Lake WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Discharge of recycled water to surface waters or surface water drainage courses other than the 57-acre lake is prohibited</li> <li>Discharge of untreated or partially treated wastewater to the LAAs is prohibited</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>The monthly average discharge shall not exceed 0.160 mgd</li> </ul>
Land Application Area	<ul style="list-style-type: none"> <li>Use of recycled water shall be limited to landscape and the above described Lake at Quail Lake Estates</li> <li>Application of recycled water to the landscape area shall not exceed what is reasonably necessary for the grass, soil, climate and management system</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>The discharge, in combination with other sources, shall not cause underlying ground water to contain waste constituents in concentrations statistically greater than background water quality, excepting EC. The incremental increase of EC over a five-year period shall not exceed 15 <math>\mu</math>mhos/cm.</li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>None related to nitrogen-related constituents</li> </ul>

**2.4.3.16. Fresno County Juvenile Justice WWTF**

**Facility Description (CV-SALTS ID: 2161)**

Fresno County is authorized to discharge domestic wastewater from the Fresno County Juvenile Justice WWTF under WDR Order R5-2007-0150. The facility is located at 3333 American Avenue, Fresno, CA 93725. The WWTF is in DAU No. 233 of the Kings Basin. The Basin Plan designates the underlying groundwater beneficial uses as MUN, AGR, IND and PRO. Recreational uses apply to the on-site lake.



The WWTF provides disinfected tertiary treatment of the facility's wastewater. Treatment includes influent screening, flow equalization, trickling filtration, clarification, flocculation, digestion, tertiary filtration, and disinfection. Adjacent to the WWTF are two lined effluent storage ponds and one lined emergency storage basin. WWTF designed as follows:

- Influent to the treatment system is screened with duplex mechanical fine screens to remove solids then stored in an enclosed aerated flow equalization tank. The flow equalization tank has a storage capacity of 40% of the total daily flow. This allows wastewater that enters the plant during high flow periods to be stored for processing when influent flows are reduced. The treatment system operates at the average daily flow rate, which reduces the required downstream treatment process capacity.
- Suspended solids are removed from the influent wastewater in a primary clarifier adjacent to the flow equalization tank. Settled solids are removed from the bottom of the clarifier and conveyed to the sludge storage tank using airlift pumps. The clarified wastewater is conveyed to the first stage trickling filter tower for secondary treatment.
- Secondary treatment consists of four trickling filters in series that will biologically oxidize the soluble organics in the wastewater. The four filters are operated to achieve the required BOD removal and nitrification of ammonia and other nitrogen compounds. Wastewater is sprayed over the plastic, cross-flow trickling filter media, where microorganisms remove organic compounds and convert them to carbon dioxide, water and new cells. Periodically, solids slough off and are carried out of the trickling filters to the secondary clarifiers where they are removed by airlift pumps and conveyed to the sludge storage tank.
- Prior to final clarification, a coagulant is added to the clarifier effluent to agglomerate fine particulates into larger particles to be removed during filtering. Rapid mixing disperses the coagulant and enhances flocculation.
- The clarified effluent is filtered using duplex sand filters to remove fine suspended solids remaining in the wastewater after clarification. The filters are backwashed to flush out solids collected on the filter media.
- Following filtration, the treated effluent is disinfected using a duplex feed system to pump a 12.5% solution of liquid sodium hypochlorite into the filtered effluent prior to discharge to the chlorine contact chamber.
- Following treatment and disinfection the effluent is discharged to two 80-mil HDPE lined effluent storage ponds prior to irrigation of the landscaped LAAs.

### **Nutrient Management Requirements**

**Table 2-26** summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-26. Summary of Fresno County Juvenile Justice WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Prohibits the discharge of waste to surface waters and to surface water drainage courses</li> </ul>
Effluent Limitations	<ul style="list-style-type: none"> <li>The discharge flow shall not exceed: (a) monthly average discharge flow of 0.12 mgd; and (b) peak daily discharge flow of 0.135 mgd</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>Wastewater treatment and use of recycled water shall not cause pollution or a nuisance as defined by §13050 of the California Water Cod</li> <li>Application of waste constituents to the landscape and recreational areas shall be at reasonable agronomic rates to preclude creation of a nuisance or degradation of groundwater, considering soil, climate, and nutrient demand. The annual nutritive loading of the landscape and recreational areas including the nutritive value of organic and chemical fertilizers and of the recycled water, shall not exceed the demand.</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>Containing constituents concentrations in excess of the concentrations specified below or natural background quality, whichever is greater: <ul style="list-style-type: none"> <li>Nitrate as nitrogen of 10 mg/L</li> <li>For constituents identified in Title 22, the MCLs quantified therein</li> </ul> </li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>Effluent monitoring includes nitrate (as N), ammonia (as N), TKN and total nitrogen</li> <li>Groundwater monitoring includes nitrate (as N), ammonia (as N) and total nitrogen</li> </ul>

### 2.4.3.17. GSV Cutler Winery

#### Facility Description (CV-SALTS ID: 2741)

The GSV Cutler Winery is authorized to discharge under WDR Order R5-2015-0013. This facility is located at 38558 Road 128, Cutler, CA 93615, approximately 2.25 miles south of Cutler, CA. The facility and its LAA lie within the Alta Hydrologic Area (551.6) of the South Valley Floor Hydraulic Unit. Applicable groundwater beneficial uses include: MUN, AGR, IND and PRO.

#### Treatment and Disposal Process

The Winery operates year-round and receives liquid wine and juice from other facilities owned by The Wine Group. The facility is primarily used for storage and processing; the wastewater is not a typical winery waste stream and is not expected to show significant fluctuations due to seasonal operations. Wastewater generated at the Winery consists of tank rinse water, tanker wash water, stormwater, incidental spillage and cleaning water from the export skid and packaging plant, cooling water condensate, boiler blow down, and water softener regenerate.

The Winery’s wastewater drains to a series of ten sumps scattered throughout the site. From the sumps the wastewater is pumped to the collection system where it flows by gravity to a 900-gallon surge tank at the north end of the production area. From the surge tank the wastewater is pumped into a 6-inch irrigation line and applied by flood irrigation to the LAA. The LAA is divided into wide checks (approximately 525 to 660 feet by 50 feet) each covering approximately 0.7 acres. Wastewater is applied to a depth of two to four inches during each irrigation event with a resting period of 10 to 30 days between applications.

The LAA has approximately 50 acres of land available for wastewater applications; however, the facility typically applies wastewater to a smaller area. Crops are grown within the LAA to take up excess nutrients and salts from the discharge. The facility double crops the fields with a summer crop of sudan grass and a winter crop of oat hay or similar fodder crop.

**Nitrate Management Requirements**

**Table 2-27** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-27. Summary of Key GSV Cutler Winery WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Prohibits the discharge of waste to surface waters and to surface water drainage courses</li> </ul>
Effluent and Mass Loading Limitations	<ul style="list-style-type: none"> <li>Monthly average daily discharge flow is limited to 75,000 gpd with a maximum annual flow limit of 25 million gallons/year (mgy)</li> </ul>

Table 2-27. Summary of Key GSV Cutler Winery WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Land Application Area	<ul style="list-style-type: none"> <li>• Discharger shall grow crops within the land application areas. Crops shall be selected based on nutrient uptake, consumptive use of water, and irrigation requirements to maximize crop uptake of water and nutrients</li> <li>• The cycle average BOD loading rate shall not exceed 100 lbs/acre/day</li> <li>• Discharge shall be distributed uniformly on adequate acreage within the LAA to preclude creation of nuisance conditions or unreasonable degradation of groundwater</li> <li>• Hydraulic loading of wastewater and irrigation water to the LAA shall be at reasonable agronomic rates</li> <li>• Application of waste constituents to the LAA shall be at reasonable agronomic rates to preclude creation of a nuisance or unreasonable degradation of groundwater, considering crop, soil, climate, and irrigation management system. The annual nutritive loading of the LAA, including the nutritive value of organic and chemical fertilizers, and of the wastewater shall not exceed the annual crop demand.</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>• Release of waste constituents associated with the discharge shall not cause or contribute to groundwater containing constituent concentrations in excess of the concentrations specified below or natural background quality for the specified constituents, whichever is greater: <ul style="list-style-type: none"> <li>○ Nitrate (as N) of 10 mg/L</li> <li>○ For constituents identified in Title 22, the MCLs quantified therein</li> </ul> </li> </ul>
Management Plans	<p>Wastewater and Nutrient Management Plan that includes, at a minimum: (a) procedures for monitoring Winery operations and discharge, (b) measures to ensure even application of wastewater, and (c) an action plan to deal with objectionable odors and/or nuisance conditions. The Plan will include supporting data and calculations for monthly and annual water and nutrient balances, and management practices that will ensure wastewater, irrigation water, and fertilizers are applied at agronomic rates to the land application area.</p>

Table 2-27. Summary of Key GSV Cutler Winery WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Monitoring & Reporting	<ul style="list-style-type: none"> <li>• Effluent monitoring, including TKN and nitrate and nitrite (as N)</li> <li>• Source water monitoring that includes nitrate (as N)</li> <li>• Groundwater monitoring that includes nitrate and ammonia (as N)</li> <li>• LAA monitoring: (a) Daily wastewater flow and loading; (b) BOD loading rates for day of application and average loading for a cycle; (c) monthly supplemental irrigation; and (d) annual nitrogen loading rates from wastewater and fertilizer.</li> </ul>

### 2.4.3.18. GSV Fresno Winery

#### Facility Description (CV-SALTS ID: 2043)

The GSV Fresno Winery is authorized to discharge under WDR Order R5-2012-0076. This facility is located at 7409 Central, Fresno, CA 93706. The Winery and LAA are within the Fresno Hydrologic Area (No. 551.30) of the Kings River Basin. Applicable groundwater beneficial uses include: MUN, AGR, IND and PRO.

#### Treatment and Disposal Process

Winery process wastewater is a combined waste stream comprised of ion exchange waste, cooling water, tank and equipment wash water and boiler blowdown. The winery does not distill and does not discharge stillage waste. Wastewater is collected and drains into a concrete sump. The facility uses its winery process wastewater on adjacent farmland for irrigation of crops. The 900 acre LAA, which is located immediately west of the Winery, consists of a wine grape vineyard owned by the facility. After treatment, the wastewater is pumped directly into the irrigation system. The winery wastewater is blended with irrigation water at approximately a 4:1 ratio (four parts irrigation water to one part wastewater) and spread between the vineyard rows via flood irrigation. Supplemental irrigation water to meet crop demand is supplied via drip irrigation.

#### Nitrate Management Requirements

**Table 2-28** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-28. Summary of Key GSV Fresno Winery WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Discharge of waste, including storm water containing waste, to surface waters or surface water drainage courses is prohibited</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>The monthly average daily discharge shall not exceed 175,000 gpd for the months of February through July (non-crush season); 450,000 gpd for the months of August through January (crush season)</li> <li>No waste constituent shall be released, discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of Groundwater Limitations of this Order</li> </ul>
Land Application Area	<ul style="list-style-type: none"> <li>The Discharger shall maximize the use of available land application areas to minimize waste constituent loading rates</li> <li>Hydraulic loading of wastewater and irrigation water to the LAA shall be at reasonable agronomic rates designed to minimize the percolation of waste constituents below the root zone (i.e., deep percolation)</li> <li>Application of waste constituents shall be at reasonable agronomic rates to preclude creation of nuisance and degradation of groundwater, considering the crop, soil, climate, and irrigation management. The annual nutrient loading to the LAA, including the organic and chemical fertilizers and the wastewater, shall not exceed the annual agronomic rate for the crop.</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>Release of waste constituents associated with the discharge shall not cause or contribute to groundwater containing constituent concentrations in excess of the concentrations specified below or natural background quality for the specified constituents, whichever is greater: <ul style="list-style-type: none"> <li>Nitrate (as N) of 10 mg/L</li> <li>For constituents identified in Title 22, the MCLs quantified therein</li> </ul> </li> </ul>

Table 2-28. Summary of Key GSV Fresno Winery WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Management Plans	Wastewater and Nutrient Management Plan that includes, at a minimum: (a) procedures for monitoring Winery operations and LAA; (b) an action plan to deal with objectionable odors and/or nuisance conditions; and (c) a discussion on blending of wastewater and supplemental irrigation water, supporting data and calculations for monthly and annual water and nutrient balances, and management practices that will ensure wastewater, irrigation water, and commercial fertilizers are applied at agronomic rates.
Monitoring & Reporting	<ul style="list-style-type: none"> <li>• Effluent monitoring, including ammonia, TKN, nitrate (as N) and total nitrogen</li> <li>• Groundwater monitoring that includes nitrate (as N), TKN and total nitrogen</li> <li>• LAA monitoring: (a) Daily wastewater flow and loading; (b) BOD loading rates for day of application and average loading for a cycle; (c) supplemental irrigation; and (d) monthly nitrogen loading rates from wastewater and fertilizer</li> </ul>

#### 2.4.3.19. Helm Fertilizer Plant

##### Facility Description (CV-SALTS ID: 2118)

The J R Simplot Company is authorized to discharge under WDR Order 99-083. This facility is located at 12688 Colorado Avenue, Helm, CA 93660. The underlying groundwater beneficial uses are MUN, AGR, IND and PRO. The Helm Fertilizer Plant manufactures nitrogen and phosphate based fertilizers for agricultural use. The facility currently discharges wastewater consisting of heat exchanger cooling water, cooling tower blowdown, reverse osmosis concentrate water and boiler blowdown. The facility utilizes three unlined percolation/evaporation ponds that have the capacity to receive an average of 0.55 mgd of process wastewater.

##### Nitrate Management Requirements

**Table 2-29** summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-29. Summary of Key Helm Fertilizer Plant WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Discharge of wastes to surface waters or surface water drainage courses is prohibited</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>Monthly average daily discharge shall not exceed 0.55 mgd and the maximum daily discharge shall not exceed 0.6 mgd</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>The discharge, in combination with other sources, shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than background groundwater quality</li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>Effluent monitoring includes “general minerals”</li> </ul>

#### 2.4.3.20. HMC Group Cold Storage

##### Facility Description (CV-SALTS ID: 2124)

HMC Group Cold Storage, Inc. is authorized to discharge under WDR Order 90-253. This facility is located at 13138 Bethel Avenue, Kingsburg, CA 93631. The underlying groundwater beneficial uses are MUN, AGR, IND and PRO. HMC Group Cold Storage, Inc. operates on a seasonal basis, with waste discharges occurring only from mid-May through late September. Wastewater from this facility consists of defrost water, hydrocooler water and wash water. The hydrocooler water is cold water rinse used to cool the incoming fruit. Waste streams contain dirt and sometimes seasonal peach fuzz picked up during process. Estimated average waste flow is 15,000 – 25,000 gpd Wastewater is discharged through two sediment traps to an evaporation/percolation pond.

##### Nitrate Management Requirements

**Table 2-30** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-30. Summary of Key HMC Group Cold Storage, Inc. WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Discharge of wastewater, screenings, or sediment trap waste to surface waters or surface water drainage courses is prohibited</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>Discharge to the evaporation/percolation pond shall not exceed 25,000 gpd</li> </ul>



Table 2-30. Summary of Key HMC Group Cold Storage, Inc. WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Groundwater Limitations	<ul style="list-style-type: none"> <li>The Discharge, in combination with other sources, shall not cause underlying ground water to (a) contain waste constituents in concentrations statistically greater than receiving water limits, where specified below, or background water quality where not specified (For purposes of comparison, background water quality shall be determined when background monitoring provides sufficient data. Quality determined in this manner establishes "water quality protection standards."); (b) contain chemicals, heavy metals, or trace elements in concentrations that adversely affect beneficial uses or exceed maximum contaminant levels specified in Title 22, CCR, Division 4, Chapter 15.</li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>None related to nitrate management</li> </ul>

### 2.4.3.21. Kerman Wastewater Treatment Facility

#### Facility Description (CV-SALTS ID: 2168)

The City of Kerman Wastewater Treatment Facility (WWTF) is authorized to discharge under WDR Order R5-2017-0115. This facility is located at 15480 Church Kerman, CA, 93630. The Facility is located in DAU No. 233, within the Kings Basin hydrologic unit. The beneficial uses of the underlying groundwater are MUN, AGR, IND and PRO. The facility provides wastewater treatment services to the City of Kerman.

#### Treatment and Disposal Process

Influent enters at the headworks, which includes houses a screen/compactor which removes non-organic solids and deposits them into a trash bin. The influent is then pumped to a Biolac System which utilizes an extended aeration biological treatment process to allow for de-nitrification. In addition to the Biolac System, the treatment process utilizes two concrete clarifiers, an aerobic sludge digester, and sludge handling and storage facilities. The effluent from the clarifiers is disposed of by evaporation and percolation through the use of seven disposal ponds. In the past, the City has provided effluent to adjacent farmers for crop irrigation. However, this practice has ceased as the adjacent farmers have converted to crops that are prohibited from being irrigated with the effluent. Digested sludge is mechanically de-watered and deposited into a soil cement lined basin for drying. Dried sludge is hauled to an approved disposal facility.

#### Nitrate Management Requirements

**Table 2-31** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-31. Summary of Key Kerman WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Prohibits the discharge of waste to surface waters and to surface water drainage courses</li> </ul>
Effluent Limitations and Discharge Specifications	<ul style="list-style-type: none"> <li>No waste constituent shall be released or discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of groundwater limitations</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>Release of waste constituents from any treatment or storage component associated with the WWTF shall not cause or contribute to groundwater: (a) Containing constituent concentrations in excess of the concentrations specified below or natural background quality, whichever is greater: <ul style="list-style-type: none"> <li>Nitrate as nitrogen of 10 mg/L</li> <li>For constituents identified in Title 22, the MCLs quantified therein</li> </ul> </li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>Effluent monitoring includes nitrate nitrogen, TKN and total nitrogen</li> <li>Groundwater monitoring includes nitrate nitrogen and total nitrogen</li> </ul>

#### 2.4.3.22. Kings River Union Elementary School District

##### Facility Description (CV-SALTS ID: 2810)

The Kings River Union Elementary School District facility is authorized to discharge under WDR Order 97-010-DWQ. The facility is located at 3961 Avenue 400, Kingsburg, CA 93725. Tulare County in Township T16S, Range R23E in the northeast one-quarter corner of Section 29. The underlying groundwater beneficial uses include: MUN, AGR, IND and PRO.

The facility’s permit provides coverage for the septic system at the Kings River Union Elementary. It is permitted under the State Water Board’s General Waste Discharge Requirements for Discharges to Land by Small Domestic Wastewater Treatment Systems. This facility may be permitted under this General Order because the domestic discharge is less than 50,000 gpd. Per the Notice of Applicability (NOA) the septic system has a projected volume of 10,182 gpd.

**Nutrient Management Requirements**

**Table 2-32** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-32. Summary of Kings River Union Elementary School District WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>• Prohibits the discharge of waste to surface waters and to surface water drainage courses</li> <li>• Treatment and disposal of wastes at the facility shall not cause pollution, contamination or nuisance as defined in California Water Code 13050</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>• State Water Board General Order provides septic system specifications</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>• The discharge shall not: <ul style="list-style-type: none"> <li>○ Pollute ground or surface waters.</li> <li>○ Adversely affect beneficial uses or cause an exceedance of any applicable Basin Plan water quality objectives for ground or surface waters.</li> </ul> </li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>• Annual report documenting the quantity and method of disposal of all solids (e.g., screenings and sludge) removed from the onsite system</li> </ul>

**2.4.3.23. Malaga County Water District Wastewater Treatment Facility**

**Facility Description (CV-SALTS ID: 3311)**

The Malaga County Water District (CWD) WWTF is authorized to discharge under WDR Order R5-2020-0001. This facility is located at 3749 South Maple Avenue, Fresno, CA 93725. The Facility is located in DAU No. 233, within the Kings Basin hydrologic unit. The beneficial uses of the underlying groundwater are MUN, AGR, IND, PRO. The facility provides sewerage service for the community of Malaga and serves a population of approximately 1,300.

**Treatment and Disposal Process**

The design daily average flow treatment capacity of the Facility is 1.2 mgd for secondary treatment. The facility’s sewer flow is approximately 15 percent residential and 85 percent industrial and commercial. The Malaga CWD WWTF treatment train consists of the following components: Three screw pumps, bar screen, grit chamber, primary clarifier/dissolved air flotation unit, three activated sludge aeration basins, and three secondary sedimentation basins. Solids handling includes two aerobic sludge digesters, sludge thickening tank, three soil-

cement lined sludge drying beds, and a lined holding area for dried biosolids. Dried biosolids are hauled off-site for disposal, reuse, or further treatment prior to reuse. Undisinfected, secondary-treated wastewater is discharged to eight onsite disposal ponds, spanning a combined 23.24 acres.

**Nitrate Management Requirements**

**Table 2-33** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-33. Summary of Key Malaga CWD WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Prohibits the discharge of waste to surface waters and to surface water drainage courses</li> </ul>
Effluent Limitations and Discharge Specifications	<ul style="list-style-type: none"> <li>No waste constituent shall be released, discharged, or placed where it will cause a violation of Groundwater Limitations of this Order</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>Release of waste constituents from any portion of the Facility, including but not limited to any treatment, storage, or disposal component associated with the discharge of treated wastewater from the Facility, shall not cause or contribute to groundwater containing constituent concentrations in excess of the concentrations specified below or in excess of natural background quality, whichever is greater: <ul style="list-style-type: none"> <li>Nitrate (as N) of 10 mg/L</li> <li>For constituents identified in Title 22, the MCLs quantified therein</li> </ul> </li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>Effluent monitoring includes nitrate nitrogen, TKN, and ammonia nitrogen, total nitrogen</li> <li>Groundwater monitoring includes nitrate nitrogen, TKN, total ammonia (as N) and total nitrogen</li> <li>Source water monitoring includes nitrate (as N)</li> </ul>

### 2.4.3.24. McCall Wineries and Distilleries

#### Facility Description (CV-SALTS ID: 2309)

McCall Wineries and Distilleries is authorized to discharge under WDR Order R5-1993-098. This facility is located at 1042 McCall Avenue, Sanger, CA 93657. The facility is located in Sections 17 and 18, T14S, R22E, Mount Diablo Base & Meridian. The site lies within the South Valley Floor Hydrologic Unit (No. 551.70). The Basin Plan identifies the beneficial uses of groundwater in the DAU as MUN, AGR, IND and PRO.

Wastewater is generated from the processing of wine and production of spirits and is discharged to land along with stormwater. Less than 4 million gallons of wastewater is land applied annually. The winery agronomically applies wastewater to land (vineyard and double-cropped areas) by flood irrigation.

#### Nitrate Management Requirements

**Table 2-34** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-34. Summary of Key McCall Wineries and Distilleries WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Prohibits the discharge of waste to surface waters and to surface water drainage courses</li> </ul>
Discharge Specification	<ul style="list-style-type: none"> <li>Annual seasonal discharge limit: 55 mgy</li> <li>30-day average discharge limit of 0.165 mgd</li> <li>Per season limits on the depth (inches of wastewater) applied to LAAs and length of drying periods</li> </ul>
Land Application Area	<ul style="list-style-type: none"> <li>During significant periods when the disposal area is not used for waste disposal, it shall be planted with crops to assist in the removal of residual nitrogen concentrations from the soil</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>The discharge shall not contain chemicals, heavy metals, or trace elements in concentrations that adversely affect beneficial uses or exceed maximum contaminant levels specified in the California Code of Regulations, Title 22, Division 4, Chapter 15</li> <li>The discharge shall not contain concentrations of chemical constituents in amounts that adversely affect agricultural use</li> </ul>

Table 2-34. Summary of Key McCall Wineries and Distilleries WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Monitoring & Reporting	<ul style="list-style-type: none"> <li>The winery submits monthly WDR reports to the Central Valley Water Board</li> <li>Groundwater monitoring occurs annually. Wastewater monitoring occurs throughout the year</li> </ul>

### 2.4.3.25. O’Neill Vintners Reedley Winery

#### Facility Description (CV-SALTS ID: 2427)

O’Neill Vintners Reedley Winery is authorized to discharge under WDR Order R5-2014-0045. This facility is located at 8418 Lac Jac Avenue, Parlier, CA 93648. The Basin Plan identifies the beneficial uses of the underlying groundwater as MUN, AGR, IND and PRO. The facility includes an administrative office building, wine production and fermentation buildings, warehouses, distillery, grape receiving/crush areas, and LAAs. The winery also includes a bottling plant and Class II surface impoundment constructed in 2001. Discharges from the bottling plant to the Class II surface impoundment are regulated under separate WDRs.

Wastewater from Winery operations consists of stillage waste, tank wash, cooling water, boiler blow down, and general wash water. Wastewater from the stills is combined with tank wash and general wash water prior to discharging to the LAAs. Wastewater is collected and routed through a single screening unit to remove larger solids before it is discharged to the LAAs. Over a number of years the LAA has been expanded in stages to a total of 106 acres.

#### Nitrate Management Requirements

**Table 2-35** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-35. Summary of O’Neill Vintners Reedley Winery WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Discharge of waste, including storm water containing waste, to surface waters or surface . water drainage courses is prohibited</li> </ul>
Discharge Specification and Flow Limitations	<ul style="list-style-type: none"> <li>Discharge to the land application areas shall not exceed a monthly average daily flow of 0.61.mgd or an annual flow of 80 mgy</li> <li>No waste constituent shall be released, discharged, or placed where it will be released or discharged, in a concentration or in a</li> </ul>

Table 2-35. Summary of O'Neill Vintners Reedley Winery WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
	<p>mass that causes violation of the Groundwater Limitations of this Order</p> <ul style="list-style-type: none"> <li>Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050</li> </ul>
Land Application Area	<ul style="list-style-type: none"> <li>Crops shall be grown within the LAAs. Crops shall be selected based on nutrient uptake, consumptive use of water, and irrigation requirements to maximize crop uptake of waste constituents</li> <li>Hydraulic loading of wastewater and supplemental irrigation water shall be at reasonable agronomic rates designed to minimize the percolation of waste constituents below the root zone (i.e., deep percolation)</li> <li>Application of waste constituents shall be at reasonable agronomic rates to preclude creation of a nuisance or cause or contribute to exceedances of the Groundwater Limitations in this Order, considering crop, soil, climate, and irrigation management</li> <li>The Discharger shall maximize the use of available LAAs to minimize waste constituent loading rates</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>Release of waste constituents from any treatment, reuse, or storage component associated with the discharge shall not cause or contribute to groundwater containing constituent concentrations in excess of the concentrations specified below or background quality, whichever is greater: (a) Nitrate as nitrogen of 10 mg/L; (b) For constituents identified in Title 22, the MCLs quantified therein</li> </ul>
Management Plans	<p>Nutrient and Wastewater Management Plan that includes at a minimum (a) procedures for monitoring the LAAs including daily records of wastewater applications and acreages; (b) tissue sampling to establish crop uptake; (c) an action plan to deal with objectionable odors and/or nuisance conditions, calculations for monthly and annual water and nutrient balances including BOD, nitrogen, and potassium; and (d) management practices to ensure wastewater; irrigation water, and commercial fertilizers are applied at reasonable agronomic rates</p>

Table 2-35. Summary of O'Neill Vintners Reedley Winery WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Monitoring & Reporting	<ul style="list-style-type: none"> <li>• Effluent monitoring includes nitrate, nitrite and ammonia (as N), TKN</li> <li>• Source water monitoring includes nitrate (as N)</li> <li>• LAA monitoring: (a) Daily wastewater flow and loading; (b) BOD loading rates for day of application and weekly average; (c) annual nitrogen loading rates from wastewater and fertilizer</li> <li>• Groundwater monitoring includes nitrate, nitrite, and ammonia (as N) and total nitrogen</li> </ul>

#### 2.4.3.26. POM Wonderful LLC

##### Facility Description (CV-SALTS ID: 2054)

POM Wonderful Whole Fruit and Juice Extraction Plant is authorized to discharge under WDR Order R5-2012-0090. This facility is located at 5286 Del Rey, Del Rey, CA 93616. The facility is located in DAU 236 within the Kings Basin hydrologic unit. The Basin Plan identifies the beneficial uses of the underlying groundwater as MUN, AGR, IND and PRO.

Wastewater is generated from various plant activities: (a) whole fruit side of the plant includes washing, sorting, grading, packing, and processing whole fruit; and (b) juice extraction side of the plant includes pressing, evaporating, blending, and drumming for juice and tea product lines. The resulting industrial wastewater is screened to a pretreatment sump where the pH is adjusted. From the sump it is pumped to a primary aeration pond and then to a secondary facultative pond. During the winter months, the treated wastewater is stored in lined storage ponds for use in the summer irrigation of alfalfa located adjacent to the ponds.

##### Nitrate Management Requirements

**Table 2-36** summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-36. Summary of Key POM Wonderful LLC WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>• Prohibits the discharge of waste to surface waters and to surface water drainage courses</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>• No waste constituent shall be released, discharged, or placed where it will be released or discharged, in a concentration or in a</li> </ul>



Table 2-36. Summary of Key POM Wonderful LLC WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
	mass that causes violation of the Groundwater Limitations of this Order
Land Application	<ul style="list-style-type: none"> <li>• Crops shall be grown in the LAA. Crops shall be selected based on nutrient uptake, consumptive use of water, and irrigation requirements to maximize crop uptake</li> <li>• Application of waste constituents to the LAA shall be at reasonable agronomic rates to preclude creation of a nuisance or degradation of groundwater, considering the crop, soil, climate, and irrigation management system. The annual nutritive loading of the LAA, including the nutritive value of organic and chemical fertilizers and of the wastewater, shall not exceed the annual crop demand.</li> <li>• Hydraulic loading of wastewater and irrigation water shall be at reasonable agronomic rates designed to minimize the percolation of wastewater and irrigation water below the root zone (i.e., deep percolation)</li> <li>• The BOD loading to the LAA calculated as a cycle average shall not exceed 100 pounds per day per acre</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>• Release of waste constituents associated with the discharge shall not cause or contribute to groundwater containing constituent concentrations in excess of the concentrations specified below or natural background quality, whichever is greater: <ul style="list-style-type: none"> <li>○ Nitrate (as N) of 10 mg/L</li> <li>○ For constituents identified in Title 22, the MCLs quantified therein</li> </ul> </li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>• Effluent monitoring includes TKN and total nitrogen</li> <li>• Groundwater monitoring includes nitrate nitrogen, TKN and total nitrogen</li> <li>• LAA monitoring: (a) Daily wastewater flow and loading; (b) BOD loading rates; (c) nitrogen loading from wastewater and fertilizer; and (d) annual cumulative nitrogen loading</li> </ul>

### 2.4.3.27. Reedley Wastewater Treatment Facility

#### Facility Description (CV-SALTS ID: 2679)

The City of Reedley is authorized to discharge under WDR Order R5-2010-0120. The facility is located at 1701 West Huntsman, Reedley, CA 93654. The facility and discharge are in DAU No. 239, within the Kings Basin hydrologic unit. The underlying groundwater beneficial uses where this facility discharges its wastewater include: MUN, AGR, IND and PRO. The City of Reedley’s WWTF consists of a headworks, two oxidation ditches, one anoxic basin, four secondary clarifiers, three return sludge holding tanks, and three centrifuges. Undisinfected secondary effluent is discharged to six percolation ponds adjacent to the Kings River (approximately 36 acres of percolation ponds).

**Nutrient Management Requirements**

**Table 2-37** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-37. Summary of Key Reedley WWTF Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Discharge of waste to surface waters or surface water drainage courses is prohibited</li> </ul>
Effluent Limitations	<ul style="list-style-type: none"> <li>The monthly average total nitrogen concentration of the discharge shall not exceed 10 mg/L</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>Initially, the monthly average discharge flow was not to exceed 4.69 mgd. Following compliance with specific provisions in the permit the monthly average discharge flow shall not exceed 5.0 mgd.</li> <li>No waste constituent shall be released or discharged, or placed where it will be released or discharged, in a concentration or in a mass that caused violation of groundwater limitations</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>Release of waste constituents from any treatment or storage component associated with the discharge shall not cause or contribute to groundwater containing constituent concentrations in excess of the concentrations specified below or natural background quality, whichever is greater. Nitrate (as N) shall not exceed 10 mg/L.</li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>Effluent monitoring includes nitrate (as N), TKN and total nitrogen</li> <li>Groundwater monitoring includes nitrate (as N), ammonia, TKN and total nitrogen</li> </ul>

**2.4.3.28. Sanger Wastewater Treatment Facility**

**Facility Description (CV-SALTS ID: 2681)**

The City of Sanger WWTF is authorized to discharge under WDR Order R5-2014-0004. This facility is located at 333 North Avenue, Sanger, CA, 93657. The facility is located in DAU No. 236, within the Kings Basin hydrologic unit. The beneficial uses of the underlying groundwater are MUN, AGR, IND and PRO.

### Treatment and Disposal Process

The facility provides wastewater treatment services to the City of Sanger. The secondary treated effluent is discharged into percolation ponds located at Lincoln and Newmark Avenues. The WWTF consists of a headworks, grit chamber, two primary clarifiers, an activated sludge digester and a sludge holding tank. The existing domestic wastewater treatment plant is rated at 3.0 mgd and treats domestic/municipal waste to a secondary effluent. This waste is then piped 3 miles south to the Lincoln Ponds site where the effluent is stored in percolation basins to be returned to the underground water table. The biosolids are dried and sent to a facility to be disposed of.

### Nitrate Management Requirements

**Table 2-38** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-38. Summary of Key Sanger WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Prohibits the discharge of waste to surface waters and to surface water drainage courses</li> </ul>
Effluent Limitations and Discharge Specifications	<ul style="list-style-type: none"> <li>Monthly average concentration of total nitrogen in the discharge shall not exceed 10 mg/L, or the Discharger shall implement other measures to ensure discharges do not cause groundwater to exceed 10 mg/L of nitrate as nitrogen</li> <li>No waste constituent shall be released, discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of the Groundwater Limitations of this Order (with respect to total nitrogen in the effluent discharge)</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>Release of waste constituents associated with the discharge shall not cause or contribute to groundwater: (a) Containing constituent concentrations in excess of the concentrations specified below or natural background quality, whichever is greater: <ul style="list-style-type: none"> <li>Nitrate as nitrogen of 10 mg/L</li> <li>For constituents identified in Title 22, the Primary and Secondary MCLs quantified therein</li> </ul> </li> </ul>

Table 2-38. Summary of Key Sanger WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Monitoring & Reporting	<ul style="list-style-type: none"> <li>• Effluent monitoring includes nitrate nitrogen, TKN, ammonia and total nitrogen</li> <li>• Groundwater monitoring includes nitrate nitrogen, TKN, ammonia and total nitrogen.</li> </ul>

### 2.4.3.29. Sanger Industrial Wastewater Treatment Facility

#### Facility Description (CV-SALTS ID: 2147)

The City of Sanger Industrial WWTF is authorized to discharge under WDR Order 98-131. This facility is located at 333 North Avenue, Sanger, CA, 93657. The facility is located in DAU No. 236, within the Kings Basin hydrologic unit. The beneficial uses of the underlying groundwater are MUN, AGR, IND and PRO.

#### Treatment and Disposal Process

Treated industrial effluent, primarily from a poultry processor, is applied to the land surrounding the treatment facility. The property is farmed by a third-party private farming operation. Non-edible crops are grown which in turn remove the nitrates as nitrogen from the soil. The treatment consists of a headworks with two aerated grit chambers, three mechanically surface aerated treatment ponds, one aerated storage pond, and three non-aerated storage ponds. The bottoms of the treatment ponds are lined with soil cement liners and the storage ponds are lined with HDPE liners. The treatment ponds and aerated ponds are in series. Effluent from the aerated storage ponds may be routed by both series and parallel routes to three non-aerated storage ponds as well.

### Nitrate Management Requirements

**Table 2-39** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-39. Summary of Key Sanger Industrial WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Prohibits the discharge of waste to surface waters and to surface water drainage courses</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>Ponds shall be provided with liners with low permeabilities, sufficient to impede the vertical migration of wastewater chemical constituents that can adversely impact underlying groundwater quality</li> <li>Wastewater application to the designated disposal area shall be at reasonable rates considering the crop, soil, climate, and irrigation management system. The nutritive loading of the reclamation area, including the nutritive value of organic and chemical fertilizers and of the blended wastewater, shall not exceed the crop demand</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>The discharge, in combination with other sources, shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than background water quality, except for EC. For EC, the incremental increase over any five-year period shall not exceed 20 µmhos/cm.</li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>Effluent monitoring includes nitrate nitrogen, TKN and total nitrogen</li> <li>Groundwater monitoring includes nitrate nitrogen, TKN and total nitrogen</li> <li>Soil monitoring includes nitrate nitrogen, TKN and total nitrogen</li> </ul>

#### 2.4.3.30. Six Jewels Dehydrator

##### Facility Description (CV-SALTS ID: 2503)

Six Jewels Dehydrator is authorized to discharge under WDR Order 97-244. This facility is located at 6692 Peach Avenue, Fresno, CA 93725. The Six Jewels facility is a raisin dehydrator that dehydrates raisins from mid-August to mid-October. The property is within the Consolidated Hydrologic Area (No. 551.70); the beneficial uses of underlying groundwater are domestic, industrial, and agricultural supply.

The facility generates wastewater from cleaning and dehydrating activities. Wastewater is screened to remove solids; process wastewater is collected in a rectangular tank and then blended with irrigation water (well water) as it is discharged to a designated disposal area, a nearby orchard. During the processing season, about 80,000 gpd of blended wastewater is discharged to the designated disposal area to meet the orchard's water demand.

**Nitrate Management Requirements**

**Table 2-40** summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-40. Summary of Six Jewels Dehydrator WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Discharge of wastes to surface waters or surface water drainage courses is prohibited</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>The maximum daily discharge to the designated disposal area shall not exceed 30,000 gpd and the total seasonal discharge shall not exceed 2.7 million gallons</li> <li>Wastewater application to the designated disposal area shall be at reasonable rates considering the crop, soil, climate, and irrigation management system. The nutritive loading of the designated disposal area, including the nutritive value of organic and chemical fertilizers and of the blended wastewater, shall not exceed the crop water demand.</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>The discharge, in combination with other sources, shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than background water quality (For purposes of comparison, background water quality shall be determined when background monitoring provides sufficient data. Quality determined in this manner establishes "water quality protection standards.")</li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>Process wastewater monitoring includes nitrate</li> <li>Source water monitoring includes nitrate</li> <li>No groundwater monitoring required</li> </ul>

### 2.4.3.31. Sunview Dry Fruit and Nut Company

#### Facility Description (CV-SALTS ID: 2856)

Sunview Dry Fruit and Nut Company is authorized to discharge under WDR Order R5-2015-0117. This facility is located at 12400 East Adams Avenue, Del Rey, CA 93616. The facility is located in DAU 236 within the Kings Basin hydrologic unit. The Basin Plan identifies the beneficial uses of underlying groundwater as MUN, AGR, IND and PRO.

Wastewater is generated from the processing of grapes. Grapes received at the facility go through a water cycle to clean them. The source of the water is an onsite domestic well. The resulting wastewater from the grape washing process is collected in a concrete barrier and then goes through a sorting screen. The final effluent is discharged on an LAA and is also used for dust control on farm access roads.

#### Nitrate Management Requirements

**Table 2-41** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-41. Summary of Key Sunview Dry Fruit and Nut Company WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Prohibits the discharge of waste to surface waters and to surface water drainage courses</li> </ul>
Effluent and Mass Loading Limitations	<ul style="list-style-type: none"> <li>The monthly average daily discharge flow shall not exceed 0.06 mgd and the total annual flow shall not exceed 7.3 mgy</li> <li>The cycle average BOD loading rates to the 242 acres of LAA shall not exceed 100 lbs/acre/day over the course of any discharge cycle (i.e., the time between successive applications)</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>No waste constituent shall be released, discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of Groundwater Limitations of this Order</li> <li>Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050</li> </ul>

Table 2-41. Summary of Key Sunview Dry Fruit and Nut Company WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Land Application	<ul style="list-style-type: none"> <li>• Crops shall be grown in the LAA. Crops shall be selected based on nutrient uptake, consumptive use of water, and irrigation requirements to maximize crop uptake of water and nutrients</li> <li>• Application of waste constituents to the LAA shall be at reasonable agronomic rates to preclude creation of a nuisance or degradation of groundwater, considering the crop, soil, climate, and irrigation management system. The annual nutritive loading of the LAA, including the nutritive value of organic and chemical fertilizers and of the wastewater, shall not exceed the annual crop demand.</li> <li>• Hydraulic loading of wastewater and irrigation water shall be at reasonable agronomic rates</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>• Release of waste constituents from any treatment, reuse or storage component associated with the facility or LAA's shall not cause or contribute to groundwater containing constituent concentrations in excess of the concentrations specified below or natural background quality, whichever is greater: <ul style="list-style-type: none"> <li>○ Nitrate (as N) of 10 mg/L</li> <li>○ For constituents identified in Title 22, the MCLs quantified therein</li> </ul> </li> </ul>
Management Plans	<ul style="list-style-type: none"> <li>• Wastewater and Nutrient Management Plan that includes procedures of daily monitoring of the LAA's and proposed management practices that will be implemented to ensure wastewater and the nutrients. contained therein are applied evenly at agronomic rates. The objective of the Plan shall be to identify and utilize site specific data to demonstrate that wastewater loading will occur at reasonable agronomic rates that will preclude degradation of groundwater that will exceed water quality objectives or adversely affect beneficial uses.</li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>• Effluent monitoring includes nitrate, nitrate, TKN, ammonia (as N) and total nitrogen</li> <li>• LAA monitoring: (a) Daily wastewater flow and loading; (b) BOD loading rates; (c) nitrogen loading from wastewater and fertilizer; and (d) annual cumulative nitrogen loading</li> </ul>



### 2.4.3.32. Teen Challenge of Southern California

#### Facility Description (CV-SALTS ID: 2966)

The Teen Challenge of Southern California educational boarding facility is authorized to discharge under WDR Order 97-010-DWQ. The facility is located at 42675 Road 44 Reedley, CA 93654. The facility is west of Road 44 in the southwest quarter of Section 4, T6S, R23E, MDB&M. The underlying groundwater beneficial uses include: MUN, AGR, IND and PRO.

The Center's wastewater is generated from domestic sources (i.e., restrooms, kitchens, laundry facilities, and showers). The on-site wastewater treatment system (OWTS) includes the Center's two existing septic tanks. The larger septic tank serves most of the buildings, which include 130 beds, kitchen, laundry facility, and offices. The smaller septic tank serves a building with 20 beds. A pump in a manhole near the 3,000-gallon septic tank pumps the wastewater to a common manhole near the leachfield. The 17,000-gallon septic tank also gravity drains to the common manhole. A sump pump in the common manhole will deliver the combined wastewater to a proposed 500-gallon dosage tank.

The facility is permitted under the State Water Board's General Waste Discharge Requirements for Discharges to Land by Small Domestic Wastewater Treatment Systems. This facility may be permitted under this General Order because the domestic discharge is less than 50,000 gpd. Per the NOA the discharge flow from the OWTS shall not exceed 20,000 gpd.

#### Nutrient Management Requirements

**Table 2-42** summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-42. Summary of Teen Challenge of Southern California WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Prohibits the discharge of waste to surface waters and to surface water drainage courses</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>State Water Board General Order provides septic system specifications</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>The discharge shall not: <ul style="list-style-type: none"> <li>Pollute ground or surface waters</li> <li>Adversely affect beneficial uses or cause an exceedance of any applicable Basin Plan water quality objectives for ground or surface waters</li> </ul> </li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>Groundwater monitoring required for a number of constituents including ammonia and nitrate</li> </ul>

### 2.4.3.33. The Wine Group Franzia Winery Sanger

#### Facility Description (CV-SALTS ID: 2034)

The Wine Group Franzia Winery Sanger is authorized to discharge under WDR Order R5-2014-0094. This facility is located at 2916 South Reed Avenue, Sanger, CA 93657. The Winery and its LAAs are located in DAU No. 236 within the Kings Basin hydrologic unit. The beneficial uses of the underlying groundwater are MUN, AGR, IND and PRO. The Winery, which produces wine and grape juice concentrate products, operates year-round with the harvest/crush season occurring from August to October.

Wastewater from Winery operations consists of cleaning and sanitation wastewater, ion-exchange regeneration waste, boiler blowdown, refrigeration unit condenser cooling water that is reused through multiple cycles before comingling, and filter backwash water. Wastewater is collected in trench drains throughout the Winery and conveyed to a sump where wastewater currently gravity flows to the LAAs. Wastewater is applied to the vineyards by flood irrigation and supplemental water is applied using a drip irrigation system.

#### Nitrate Management Requirements

**Table 2-43** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-43. Summary of Key The Wine Group Franzia Winery Sanger WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Discharge of waste to surface waters or surface water drainage courses is prohibited</li> <li>Discharge of domestic wastewater to the LAA's or any surface water is prohibited</li> </ul>
Effluent Limitations	<ul style="list-style-type: none"> <li>The monthly average daily discharge flow shall not exceed 0.459 mgd and the total annual flow shall not exceed 70 mgd</li> <li>The cycle average BOD loading rates to the 150-acre LAA and the new 53-acre LAA shall not exceed 100 lbs/acre/day over the course of any discharge cycle (i.e., the time between successive applications)</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>No waste constituent shall be released, discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of Groundwater Limitations of this Order</li> <li>Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050</li> </ul>

Table 2-43. Summary of Key The Wine Group Franzia Winery Sanger WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Land Application Area	<ul style="list-style-type: none"> <li>• Application of waste constituents to the LAA's shall be at reasonable agronomic rates to preclude creation of a nuisance and degradation of groundwater, considering the crop, soil, climate, and irrigation management system. The annual nutritive loading of the LAA's, including the nutritive value of organic and chemical fertilizers and of the wastewater shall not exceed the annual crop demand.</li> <li>• The Discharger shall ensure that water, BOD, and nitrogen are applied and distributed uniformly across each LAA field. The Discharger shall implement changes to the irrigation system and/or operational practices as needed to ensure compliance with this requirement.</li> <li>• Hydraulic loading of wastewater and supplemental irrigation water shall be a reasonable agronomic rates designed to: <ul style="list-style-type: none"> <li>○ Maximize crop nutrient uptake;</li> <li>○ Maximize breakdown of organic waste constituents in the root zone; and</li> <li>○ Minimize the percolation of waste constituents below the root zone.</li> </ul> </li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>• Release of waste constituents from any treatment, reuse, or storage component associated with the Winery or LAA's shall not cause or contribute to groundwater containing constituent concentrations in excess of the concentrations specified below or natural background quality, whichever is greater: <ul style="list-style-type: none"> <li>○ Nitrate as Nitrogen of 10 mg/L</li> <li>○ For constituents identified in Title 22, the MCLs quantified therein.</li> </ul> </li> </ul>
Management Plans	<p>Wastewater and Nutrient Management Plan that includes procedures of daily monitoring of the LAA's and proposed management practices that will be implemented to ensure wastewater and the nutrients contained therein are applied evenly at agronomic rates. The objective of the Plan is to identify and utilize site specific data to demonstrate that wastewater loading will occur at reasonable agronomic rates that will preclude degradation of groundwater that will exceed Water Quality Objectives or adversely affect Beneficial Uses.</p>

Table 2-43. Summary of Key The Wine Group Franzia Winery Sanger WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Monitoring & Reporting	<ul style="list-style-type: none"> <li>• Effluent monitoring, including ammonia (as N), TKN, nitrate and nitrite (as N) and total nitrogen</li> <li>• Source water monitoring including nitrate and nitrite (as N)</li> <li>• Groundwater monitoring that includes nitrate and nitrite (as N), TKN, ammonia (as N) and total nitrogen</li> <li>• Soil monitoring including nitrate (as N), TKN and ammonia (as N)</li> <li>• LAA monitoring: (a) Wastewater and Supplemental Irrigation flow and wastewater loading; (b) BOD loading rates; (c) nitrogen loading from wastewater and fertilizer; and (d) annual cumulative nitrogen loading</li> </ul>

#### 2.4.3.34. Trinity Presbyterian Church

##### Facility Description (CV-SALTS ID: 2351)

The Trinity Presbyterian Church is authorized to discharge under WDR Order 97-010-DWQ. The facility is located at 12168 Willow Avenue, Clovis, CA 93611. The underlying groundwater beneficial uses include: MUN, AGR, IND and PRO. The current OWTS consists of a 1,500 gallon and a 5,000 gallon septic tanks and 472 linear feet of leach lines. Based on the ROWD, wastewater generates at a rate of 5 gallons per day per person resulting in a peak flow of 5,000 gpd. The existing septic tank and leachfield were designed to meet this demand.

The facility is permitted under the State Water Board’s General Waste Discharge Requirements for Discharges to Land by Small Domestic Wastewater Treatment Systems. This facility may be permitted under this General Order because the domestic discharge is less than 50,000 gpd. Authorization to discharge under this Order is based on this existing rate of wastewater generation. The facility’s NOA number is 97-10-DWQ-R5124.

**Nutrient Management Requirements**

**Table 2-44** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-44. Summary of Trinity Presbyterian Church WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>• Discharge of wastewater at a location or in a manner different from that described above is prohibited</li> <li>• The waste discharge shall not enter surface waters or surface water drainage courses</li> <li>• The treatment and disposal of wastes at the facility shall not cause pollution, contamination, or nuisance as defined in California Water Code Section 13050</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>• State Water Board General Order provides septic system specifications</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>• The discharge shall not: <ul style="list-style-type: none"> <li>○ Pollute ground or surface waters</li> <li>○ Adversely affect beneficial uses or cause an exceedance of any applicable Basin Plan water quality objectives for ground or surface waters</li> </ul> </li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>• Septic tank monitoring as required by the Order</li> </ul>

**2.4.3.35. VFG Anaerobic Digester**

**Facility Description (CV-SALTS ID: 1777)**

Valley Fig Growers completed a ROWD for its facility on May 19, 2004. The facility’s discharge was authorized per Section 13264 effective September 16, 2004. An order is still pending, but the facility is under consideration for a WDR in 2021 or 2022 (Central Valley Water Board, communication from Jeff Robins). The facility is located at 2028 South Third Street, Fresno, CA 93702. According to the ROWD, the fig and raisin process wastewater is treated via screens, sand separator, caustic soda for pH adjustment (however, per the 2004 ROWD the facility planned to phase out caustic soda addition after installation of the digester) and anaerobic digester. At the time of ROWD submittal, the process wastewater and wash water (from equipment cleaning) was discharged to a sump. The processed wastewater was screened and the pH adjusted before the wastewater was discharged to the Fresno City Sewer System

### 2.4.3.36. Vita-Pakt Fruit Processing and Dehydrating Plant

#### Facility Description (CV-SALTS ID: 2047)

This facility is authorized to discharge under WDR Order 96-119. The facility is located at 8898 East Central Avenue, Del Rey CA 93616. The underlying groundwater beneficial uses where this facility discharges its wastewater include: MUN, AGR and IND.

The facility processes fruits and vegetables such as citrus, prunes, raisins, garlic, and peppers. Wastewater is generated from cleaning, rinsing, and dehydrating fruits and vegetables, and from wash down of equipment and concrete floor areas within the processing and dehydrating areas. Spent process water is discharged through a stainless-steel screen to a furrow-irrigated 6.5 acre orchard located west of the plant. Drying and cultivation occur between effluent applications. Pecan trees and cover crops were planted in 2006.

#### Nutrient Management Requirements

**Table 2-45** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-45. Summary of Key Vita-Pakt Fruit Process and Dehydration Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Prohibits the discharge of waste to surface waters and to surface water drainage courses</li> </ul>
Discharge Specifications & Solids Disposal	<ul style="list-style-type: none"> <li>The maximum daily discharge flow shall not exceed 0.042 mgd from August to September or 2,000 gpd the rest of the year.</li> <li>Application of wastewater to the orchard shall be at reasonable rates considering the crop, soil, climate, and irrigation management system. The nutrient loading of the orchard, including the nutrient value of organic and chemical fertilizers and of the wastewater, shall not exceed the crop demand.</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>The discharge, in combination with other sources, shall not cause underlying ground water to contain waste constituents in concentrations greater than background water quality, except for EC. The incremental increase in EC over a five-year period shall not exceed 20 µmhos/cm.</li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>Effluent monitoring includes annual nitrate monitoring</li> <li>Soil monitoring includes nitrate nitrogen, TKN and total nitrogen</li> <li>Supply water monitoring includes annual nitrate sample</li> </ul>

### 2.4.3.37. Wawona Packing Company Facility

#### Facility Description (CV-SALTS ID: 2774 & 3315)

The Wawona Packing Company facility is authorized to discharge under two orders: WDR Order R5-2012-0042 and R5-2016-0076-044 (NPDES). The facility is located at 12133 Avenue 408, Cutler, CA 93615. The facility and discharge are in DAU No. 239, within the Kings Basin hydrologic unit. The underlying groundwater beneficial uses where this facility discharges its wastewater include: MUN, AGR and IND. Sand Creek is adjacent to the facility to the south, is a water of the United States. It is an intermittent stream (usually dry during the summer) that carries local storm water runoff southerly to Cottonwood Creek. Cottonwood Creek flows into Cross Creek, which flows to the Tule River. Sand Creek is a Valley Floor Water with the following beneficial uses: AGR, IND, PRO, water contact recreation (REC-1), non-contact water recreation (REC-2), warm freshwater habitat (WARM), wildlife habitat (WILD), rare, threatened, or endangered species (RARE) and groundwater recharge (GWR).

Wawona Packing Company operates the Cutler Fruit Packing Plant, a citrus and stone fruit packing plant, in the community of Cutler in Tulare County. Fruit packing activities occur during two intervals during the year: (a) from approximately May 1 to October 15, stone fruit such as peaches, plums, apricots, and nectarines are packed. During this season the facility operates 12 hours per day, producing an average wastewater discharge of approximately 43,200 gpd. (b) from approximately October 15 to April 15, citrus fruit including oranges and tangerines are packed. During this season season, the facility operates 9 hours per day, producing an average wastewater discharge of 6,530 gpd. The facility also generates about 150 gpd of wastewater from general facility cleaning activities.

Wastewater generated by fruit processing (washing fruit and equipment) is collected and diverted to two unlined wastewater ponds on the east side of the facility for storage and reuse as irrigation water on its designated 7.6 acre LAA. These two ponds (Ponds #1 and #2) are regulated under Order No. R5-2012-0042.

Cold storage operations occur only during the dry weather stone fruit packing season. The defrost water from the cold storage rooms and stormwater are conveyed to Lift Station #4, near the southeast corner of the main building. The facility is able to directly discharge this water to Sand Creek or discharge to Sand Creek after first discharging the water into its Pond #3. Alternatively, the facility has the ability to divert the defrost water and/or stormwater to on-site holding Ponds #1 and #2. Discharges to Sand Creek (directly or via Pond #3) are regulated under General Order R5-2016-0076-01 (NPDES Permit – WDR Requirements for Limited Threat Discharges to Surface Waters) as a Tier 1A discharger (clean or relatively pollutant-free wastewaters that pose little or no threat to water quality: Discharges of less than 0.25 million gallons per day (MGD) or less than 4 months in duration).

**Nutrient Management Requirements**

**Table 2-46** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-46. Summary of Key Wawona Packing Company Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
<b>Order No. R5-2012-0042 – Wawona Packing Company WDR (CV-SALTS ID 2774)</b>	
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Discharge of waste, including storm water containing waste, to surface waters or surface water drainage courses is prohibited, except as authorized by Order R5-2016-0076-044 (NPDES Permit, see below)</li> <li>Storage of solids on areas without means to prevent leachate generation and infiltration into the ground is prohibited</li> </ul>
Discharge Specifications & Solids Disposal	<ul style="list-style-type: none"> <li>The monthly discharge flow rate shall not exceed an average of 44,000 gpd for the months of May through October (stone fruit packing season) or 7,000 gpd for the months of November through April citrus packing season)</li> <li>No waste constituent shall be released, discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of Groundwater Limitations of this Order</li> <li>Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code Section 13050</li> <li>Any handling and storage of residual solids on property of the Discharger shall be temporary, and controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate the groundwater limitations of this Order</li> </ul>
Land Application Area	<ul style="list-style-type: none"> <li>Crops shall be grown on the LAA. Crops shall be selected based on nutrient uptake, consumptive use of water, and irrigation requirements to maximize crop</li> <li>Hydraulic loading of wastewater and irrigation water shall be at reasonable agronomic rates designed to minimize the percolation of wastewater and irrigation water below the root zone (i.e., deep percolation).</li> <li>Application of waste constituents shall be at reasonable agronomic rates to preclude creation of a nuisance or degradation of groundwater, considering the crop, soil, climate, and irrigation management. The annual nutritive loading to the LAA, including the nutritive value of organic and chemical fertilizers and of the wastewater, shall exceed the annual crop demand.</li> </ul>



Table 2-46. Summary of Key Wawona Packing Company Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Groundwater Limitations	<ul style="list-style-type: none"> <li>Release of waste constituents from any treatment, reclamation or storage component associated with the discharge shall not cause or contribute to groundwater containing constituent concentrations in excess of the concentrations specified below or natural background quality, whichever is greater: <ul style="list-style-type: none"> <li>Nitrate (as N) of 10 mg/L;</li> <li>For constituents identified in Title 22, the MCLs quantified therein</li> </ul> </li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>Effluent monitoring includes nitrate (as N), ammonia, TKN and total nitrogen</li> <li>LAA monitoring: (a) wastewater and supplemental irrigation flow and wastewater loading; and (b) total hydraulic loading</li> </ul>
<b>Order No. R5-2016-01 – Wawona Packing Company NPDES Permit (CV-SALTS ID 3315)</b>	
Effluent Limitations	<ul style="list-style-type: none"> <li>Nitrate (as N): Average monthly - 10 mg/L; maximum daily – 20 mg/L</li> <li>Nitrite (as N): Average monthly - 1 mg/L; maximum daily – 2 mg/L</li> </ul>
Surface Water Limitations	<ul style="list-style-type: none"> <li>Un-ionized ammonia to be present in amounts that adversely affect beneficial uses for all waterbodies, nor to be present in excess of 0.025 mg/L (as N) in waterbodies in the Tulare Lake Basin</li> <li>Biostimulatory Substances. Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.</li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>Effluent monitoring includes: Nitrate (as N), nitrite (as N), total un-ionized ammonia (as N)</li> </ul>

### 2.4.3.38. Wildwood Mobile Home Park WWTF

#### Facility Description (CV-SALTS ID: 2633)

The Wildwood Mobile Home Park WWTF is authorized to discharge under WDR Order R5-2002-0064. This facility is located at 8071 N. Highway 41 #70, Fresno, CA 93720. This facility’s WWTF and sprayfield lie within the Berenda Creek Hydrologic Area (No. 545.30) in the San Joaquin Delta Hydrologic Unit, as depicted on interagency hydrologic maps prepared by the California DWR in August 1986. The Basin Plan identifies the beneficial uses of the underlying groundwater as MUN, AGR, IND and PRO.

### Treatment Process

The WWTF (package extended aeration plant with a design capacity of 0.02 mgd) provides sewerage services to the Wildwood Mobile Home Park. Effluent from the package plant is further treated in a concrete-lined aerated holding tank. Treated effluent is pumped from the aerated holding tank west under Highway 41 to a 1.4-acre sprayfield for disposal. Sludge from the package plant and the aeration lagoon is removed on a semimonthly basis. Sludge is discharged to depths up to two inches on sludge-drying beds, which encompass about 5,000 square feet. Sludge is disposed of at the Madera County Landfill.

### Nitrate Management Requirements

**Table 2-47** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-47. Summary of Key Wildwood Mobile Home Park WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Prohibits the discharge of waste to surface waters and to surface water drainage courses</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>Monthly average daily discharge flow shall not exceed 13,000 gpd</li> <li>Intermittent application of effluent to the sprayfield serves to further reduce nutrients and organics by microbial action as the effluent percolates through the unsaturated zone</li> </ul>
Groundwater Limitations	<ul style="list-style-type: none"> <li>Release of waste constituents from any storage, treatment, or disposal component associated with the WWTF shall not, in combination with other sources of the waste constituents, cause groundwater under and beyond the WWTF and the sprayfield to contain waste constituents in concentrations statistically greater than background</li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>Effluent monitoring includes nitrate nitrogen and total nitrogen</li> </ul>

### 3. KWA SOUTHERN PORTION (TULARE LAKE SUBBASIN AREA) OF THE MANAGEMENT ZONE

Chapter 3 contains the Preliminary Management Zone Requirements for the Southern Portion (Tulare Lake Subbasin Area) of the Kings Water Alliance Management Zone.

#### 3.1. Characterization of Proposed Management Zone

The subsections below describe the area encompassed by the Southern Portion (Tulare Lake Subbasin Area) of the proposed KWA Management Zone, including general geographic and hydrologic characteristics, jurisdictions located within the planning area, and key planning agencies and utilities. **Table 3-1** describes several key data sources for the Management Zone.

Table 3-1. Key Data Sources to Characterize the Proposed Management Zone		
Boundary Type	Source for Boundary Data	Comments
<b>Groundwater Sustainability Agency (GSA)</b>	<ul style="list-style-type: none"> <li>DWR Map Viewer:  <a href="https://sgma.water.ca.gov/webgis/index.jsp?appid=gasmaster&amp;rz=true">https://sgma.water.ca.gov/webgis/index.jsp?appid=gasmaster&amp;rz=true</a></li> <li>Individual GSA links for finding “Interested Parties”:  <a href="https://sgma.water.ca.gov/portal/gsa/all">https://sgma.water.ca.gov/portal/gsa/all</a></li> </ul>	GSA boundaries, and also a list of GSA “Interested Parties”
<b>Groundwater Basin/Subbasin</b>	<ul style="list-style-type: none"> <li>DWR Bulletin 118:  <a href="https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118">https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118</a></li> <li>Basin Boundary Geographic Information System (GIS) file:  <a href="https://gis.data.ca.gov/datasets/b5325164abf94d5cbeb48bb542fa616e_0">https://gis.data.ca.gov/datasets/b5325164abf94d5cbeb48bb542fa616e_0</a></li> <li>DWR Basin Boundary Modifications:  <a href="https://water.ca.gov/Programs/Groundwater-Management/Basin-Boundary-Modifications">https://water.ca.gov/Programs/Groundwater-Management/Basin-Boundary-Modifications</a></li> </ul>	DWR Bulletin 118 basin and subbasin boundaries, including basin boundary modification
<b>Water Districts</b>	DWR by request from the Geology and Groundwater Investigations Section, or here: <a href="https://atlas-dwr.opendata.arcgis.com/datasets/45d26a15b96346f1816d8fe187f8570d_0">https://atlas-dwr.opendata.arcgis.com/datasets/45d26a15b96346f1816d8fe187f8570d_0</a>	Irrigation Districts, water districts, community service areas, and community

Table 3-1. Key Data Sources to Characterize the Proposed Management Zone		
Boundary Type	Source for Boundary Data	Comments
		service districts
<b>Public Water Supply Systems</b>	California Environmental Health Tracking Program: <a href="https://trackingcalifornia.org/water/map-viewer">https://trackingcalifornia.org/water/map-viewer</a>	Division of Drinking Water
<b>State Small Water Supply Systems</b>	By request from county Environmental Health Departments (Kings, Fresno, and Tulare Counties)	Boundary data is typically not available for SSWS (usually just an address)
<b>Disadvantaged Communities (DAC)/Disadvantaged Unincorporated Communities (DUC)</b>	<ul style="list-style-type: none"> <li>DACs boundaries available from DWR: <a href="https://gis.water.ca.gov/app/dacs/">https://gis.water.ca.gov/app/dacs/</a></li> <li>DUCs boundaries available from PolicyLink by request (<a href="https://www.policylink.org/">https://www.policylink.org/</a>)</li> </ul>	DUC boundaries only available for portions of the San Joaquin Valley

### 3.1.1. Geography

The Southern Portion (Tulare Lake Subbasin Area) of the KWA Management Zone represents a combination of the 2003 DWR Bulletin 118 Tulare Lake Groundwater Subbasin boundary and the Kings Water Alliance boundary. The Southern Portion (Tulare Lake Subbasin Area) of the Management Zone encompasses an area of approximately 877 square miles (561,353 acres), which represents about 36% of the total 2,424 square miles (over 1.55 million acres) of the entire Management Zone. The Southern Portion (Tulare Lake Area) of the KWA Management Zone includes land mostly in Kings County, with a small portion of Tulare County in the east, and shares part of its northern boundary with Fresno County. The southern half of the eastern boundary for the KWA and the 2003 groundwater basin are almost identical, but to the north, the eastern boundary of the Management Zone follows the KWA boundary into the Kaweah Subbasin until it reaches the southern edge of the Kings Subbasin. The western boundary of the Management Zone follows the westernmost line drawn from either the 2003 subbasin boundary, or the KWA boundary. The division between the Northern Portion (Kings Subbasin

Area) and the Southern Portion (Tulare Lake Subbasin Area) of the Management Zone follows the 2003 subbasin boundary between the two subbasins.

The Southern Portion (Tulare Lake Subbasin Area) of the KWA Management Zone contains a few surface water features, including: the Kings River along the northern edge of the area, Peoples Ditch, Lone Oak Canal, Tulare Lake Canal, Cross Creek, Lakeland Canal, Homeland Canal, Kern River Channel, and Goose Lake Canal. **Figure 3-1** illustrates surface water bodies in and around the KWA Management Zone.

### **3.1.2. Jurisdictions**

The Southern Portion (Tulare Lake Subbasin Area) of the KWAMZ is mostly contained in Kings County. A very small area in the south dips into Kern County, and another small area juts out in the southeast into Tulare County (see **Figure 3-1**). All the primary communities are within Kings County and include:

- Kings County: Lemoore, Hanford, and Corcoran.

### **3.1.3. Groundwater Sustainability Agencies**

Groundwater Sustainability Agencies (GSAs), established under the Sustainable Groundwater Management Act (SGMA), are comprised of water users in the area. GSAs are required to list interested parties, including irrigation districts, public water supply systems, coalitions, etc. that are involved with the management of groundwater resources in the area. As required by SGMA, GSAs are required to prepare Groundwater Sustainability Plans (GSP), which require the GSA(s) to develop a Hydrogeologic Conceptual Model (HCM) for the subbasin, determine groundwater conditions in the area (including water quality), and estimate historical, current, and projected water budget components including annual groundwater pumping. These and other GSP elements are useful with regards to the management of nitrate in groundwater.

DWR, which oversees the development of GSPs as required for basins and subbasin subject to SGMA, has established a web-based portal for GSA documentation<sup>26</sup>. There are fifteen GSAs that are located within some portion of the Southern Portion (Tulare Lake Subbasin Area) of the proposed KWAMZ (**Figure 3-2**).

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<sup>26</sup> GSA boundaries: <https://sgma.water.ca.gov/webgis/index.jsp?appid=gasmaster&rz=true>

They are listed below (GSAs with less than 20 square miles within the Southern Portion (Tulare Lake Subbasin Area) are italicized; GSAs that have most of their area within the Southern Portion (Tulare Lake Subbasin Area) portion are bold)<sup>27</sup>:

- *Alpaugh GSA*
- *Central Kings GSA*
- **El Rico GSA**
- **Greater Kaweah GSA**
- *Kern Groundwater Authority GSA*
- *Kings River East GSA*
- *Mid-Kaweah GSA*
- **Mid-Kings River GSA**
- *North Fork Kings GSA*
- *Semitropic Water Storage District GSA*
- **South Fork Kings GSA**
- **Southwest Kings GSA**
- **Tri-County Water Authority GSA – Tulare Lake**
- *Tri-County Water Authority GSA – Tule*
- *Westlands Water District GSA*

There are six GSAs that make up the majority of the Southern Portion (Tulare Lake Subbasin Area) of the KWAMZ (listed in bold above). **Attachment A** to this Preliminary Management Zone Proposal provides a summary of resource management agencies associated with the development of GSAs in and around the proposed KWA Management Zone.

### **3.1.4. Water Management Entities**

There are several irrigation districts, water districts, community service areas, and community service districts that manage and distribute water within the Southern Portion (Tulare Lake Subbasin Area) of the Management Zone. These entities distribute water for irrigation, drinking, or other purposes. Water management-related districts include irrigation districts, water districts, community service areas, and community service districts. **Figure 3-3** illustrates the location of these various management areas within and adjacent to the proposed Management Zone. These entities are listed below:

- Alpaugh I.D.
- Alta Irrigation District
- Angiola W.D.
- Atwell Island W.D.
- City of Corcoran W.S.A.
- City of Hanford W.S.A.
- City of Lemoore Service Area
- Consolidated I.D.
- Corcoran I.D.
- Dudley Ridge W.D.
- Empire West Side W.D.
- Hacienda W.D.
- Heinlen M.W.C.
- Home Garden C.S.D.
- Kaweah Delta W.C.D.
- Kettleman City C.S.D.
- Kings County W.D.
- Laguna I.D.
- Lakeside Irrigation Water Dist.
- Lost Hills W.D.

<sup>27</sup> GSA's strictly in the SGMA Tulare Lake Subbasin boundary include: El Rico, Mid-Kings, Southwest Kings, Tri-County Water Authority, and South Fork Kings GSAs.

- Stratford I.D.
- Stratford Public Utility Dist.
- Tulare I.D.
- Tulare Lake Basin W.S.D.
- Westlands W.D.

### 3.1.5. Drinking Water Systems

**Section 2.1.5** contains the full descriptions of Drinking Water Systems as they pertain to the Kings Water Alliance Management Zone. To reduce repetition within this Preliminary Management Zone Proposal, the following sections summarize the contents of **Section 2.1.5**.

**Table 3-2** summarizes how residential water systems are classified in California. Systems are categorized by use, connections, and duration of service over a one-year period. Public Water Systems can be regulated by both the state’s Division of Drinking Water (DDW) and local primacy agencies, and these systems are required to monitor and comply with Title 22 drinking water standards.

Table 3-2. 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		Connections & (persons, duration)					
< 60 days/year	State Small Water System			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 Local Primary Agency 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.

#### 3.1.5.1. Public Water Systems

PWS are defined as systems that provide drinking water to: (1) 15 or more service connections; or (2) regularly serves at least 25 individuals daily for at least 60 days per year (see **Table 2-2**).

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>28</sup>. The California Environmental Health Tracking Program (CEHTP) maintains a dataset of PWS boundaries in California. These data are provided to CEHTP by the water systems.

**Figure 3-4** provides the locations of PWS boundaries within the proposed KWA Management Zone. There are 230 Public Water Systems with known GIS boundary data in the KWA Management Zone. Eleven of these systems are located within some portion of the Southern Portion (Tulare Lake Subbasin Area) of the proposed KWA Management Zone. Not all of these systems are currently active, according to the State Water Board’s Drinking Water Watch (<https://sdwis.waterboards.ca.gov/PDWW/>, accessed in January 2021)<sup>29</sup>.

### 3.1.5.2. State Small Water Systems

SSWS are defined as systems serving at least five but not more than 14 service connections. Typically, SSWSs 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 in the state do not have these data compiled in any easily accessible format (many counties require a fee for data retrieval for these systems). Most counties do not have maps of SSWS service areas; in most cases, the only way to locate the service area of a SSWS is to use the address recorded on the permit. Some SSWS are included in the PWS boundary data maintained by CEHTP, described above, but this is irregular. Kings, Fresno, and Tulare County Environmental Health Departments were contacted to obtain available SSWS address data for the Management Zone area. To determine if the SSWS is within the Management Zone boundary, the addresses would need to be geocoded or plotted on a map.

### 3.1.5.3. Local Small Water Systems

LSWS include residential systems serving two to four households. LSWSs are typically permitted by County Environmental Health Departments. Most counties regulate LSWS as if they were simply private wells – that is, they are unregulated except for the requirements associated with

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<sup>28</sup> <https://data.ca.gov/dataset/drinking-water-public-water-system-information>

<sup>29</sup> See Section 2 and Appendix E in the Early Action Plan (Attachment D to this PMZP) for more information on Public Water Systems in the Management Zone.



the drilling permit. Fresno, Kings, nor Tulare Counties had records of any LSWS in the KWA Management Zone area.

### ***3.1.6. Disadvantaged Communities and Disadvantages Unincorporated Communities***

Disadvantaged Communities (DACs) and Disadvantaged Unincorporated Communities (DUCs) include many areas of the state that have poor access to regulated drinking water supplies. The neighborhoods in these areas tend to include many households without adequate financial resources to treat their residential domestic supply well water, or even to test for contaminants.

DACs are defined as those areas of the state with Median Household Income (MHI) below 80% of the statewide MHI. These areas are further categorized as Severely Disadvantaged Communities (SDAC) if the local MHI is below 60% of the statewide MHI. DWR, which maintains several databases of DAC Boundaries based on the most recent census<sup>30</sup>, provides three different scales of analysis for DACs:

- DAC Tracts – Census Tracts are the largest census areas compiled below the county level. County boundaries are contiguous with Tract boundaries. Tracts consist of groups of Block Groups.
- DAC Block Groups – Census Block Groups are the next scale smaller than Tracts. Tract boundaries are contiguous with Block Group boundaries. Block Groups consist of groups of Blocks.
- DAC Places – Census Places, or Census Designated Places (CDP) are not contiguous with other Census boundaries and may consist of groups of complete or partial Blocks or Block Groups. CDPs are typically unincorporated residential neighborhoods; but unincorporated status is not a requirement for place designation. CDPs are legacy designations, with locally known names. Some are distinct from nearby incorporated areas due to geographic boundaries such as rivers, roads, or topography. DAC Places are typically a more accurate representation of neighborhoods with qualifying MHIs rather than Tracts or Block Groups. DWR does not provide an assessment of DAC status at the Block level.

DUCs are areas that meet the above-defined MHI criteria (80% of statewide MHI). PolicyLink (2013) provides the best readily available information on DUCs located in the proposed Management Zone area<sup>31</sup>. These locations were developed primarily using census data, but neighborhoods were also characterized and individually delineated based on parcel density,

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<sup>30</sup> DWR's boundary files for DACs: <https://gis.water.ca.gov/app/dacs/>

<sup>31</sup> The Management Zone is seeking an update of the GIS coverage of DUCs from PolicyLink.

more detailed income from counties and state agencies, and with input from local resources. Each DUC is designated as one of the following:

- Island – Neighborhood within a city or other incorporated area that has been left out of that incorporated jurisdiction
- Fringe – Neighborhood on the outskirts of an incorporated area
- Legacy – Neighborhood located well outside the boundaries of any incorporated area.

Many of the DUCs identified by PolicyLink overlap with DAC Places identified by DWR (see above) because many CDPs are unincorporated areas that also meet the criteria used by PolicyLink in their study.

There are 7 Disadvantaged Communities (DAC) and 11 Disadvantaged Unincorporated Communities (DUC) in the Southern Portion (Tulare Lake Subbasin Area) of the KWA Management Zone. **Table 3-3** lists and **Figure 3-5** illustrates the locations of the DACs and DUCs in the proposed Management Zone. **Table 3-4** summarizes the characteristics of DACs and DUCs in the KWA Management Zone area. Combined, non-overlapping DAC and DUC areas comprise approximately 2.3% of the Southern Portion (Tulare Lake Subbasin Area) of the Management Zone (12,730 acres, or 19.89 square miles).

**Table 3-3. Population of DACs and DUCs located in the Southern Portion (Tulare Lake Subbasin Area) of the KWA Management Zone**

Community	DWR DAC Population (2018 CDP)	Fraction of DAC area in MZ	PolicyLink DUC Population	Fraction of DUC area in MZ
Armona CDP	3,795	1.00	-	-
Bel Air Mobile Home Park	-	-	293	1.00
Corcoran	22,301	1.00	110	1.00
Hamblin	-	-	623	1.00
Home Garden	1,643	1.00	1,933	1.00
Kettleman City	-	-	1,439	1.00
Kings Mobile Home Estates	-	-	41	1.00
Laton	2,166	0.02	123	0.09
Lemoore city	25,791	1.00	-	-
Shell	-	-	538	1.00
South Corcoran	-	-	49	1.00
Stratford	878	1.00	1,242	1.00
West Goshen CDP	567	0.002	-	-
Whitley Manor Mobile Home Park	-	-	191	1.00

Table 3-4. DAC and DUC Characteristics in the Proposed Southern Portion (Tulare Lake Subbasin Area) of the KWA Management Zone					
Category	Number of Locales	Acres (sq mi.) in MZ	Acres (sq. mi.) overlap	Total DAC and DUC acres (sq. mi.) without overlap	Total DAC and DUC Population Estimate
DACs	7	12,208 (19.08)	301 (0.47)	12,730 (19.89)	61,779
DUCs	11	823 (1.29)			

### 3.1.7. Land Use

**Table 3-5** and **Figure 3-6** provide the land use characteristics of Southern Portion (Tulare Lake Subbasin Area) of the proposed KWA Management Zone associated with agricultural activity (based on 2016 land use designations from DWR). Mapped land use in the Southern Portion (Tulare Lake Subbasin Area) of the Management Zone is predominantly made up of Field Crops (27%), Unclassified Fallow (11%), Deciduous Fruits and Nuts (9%). Unfortunately, DWR was unable to map 29% of the land use for this area. The unmapped area is predominantly in the southern part of the area. The Unclassified Fallow is mostly located in the western portion of the Tulare Lake Subbasin. Field crops, the largest land use category is found in the central, eastern, and northern areas of the Southern Portion (Tulare Lake Subbasin Area) of the KWA Management Zone.

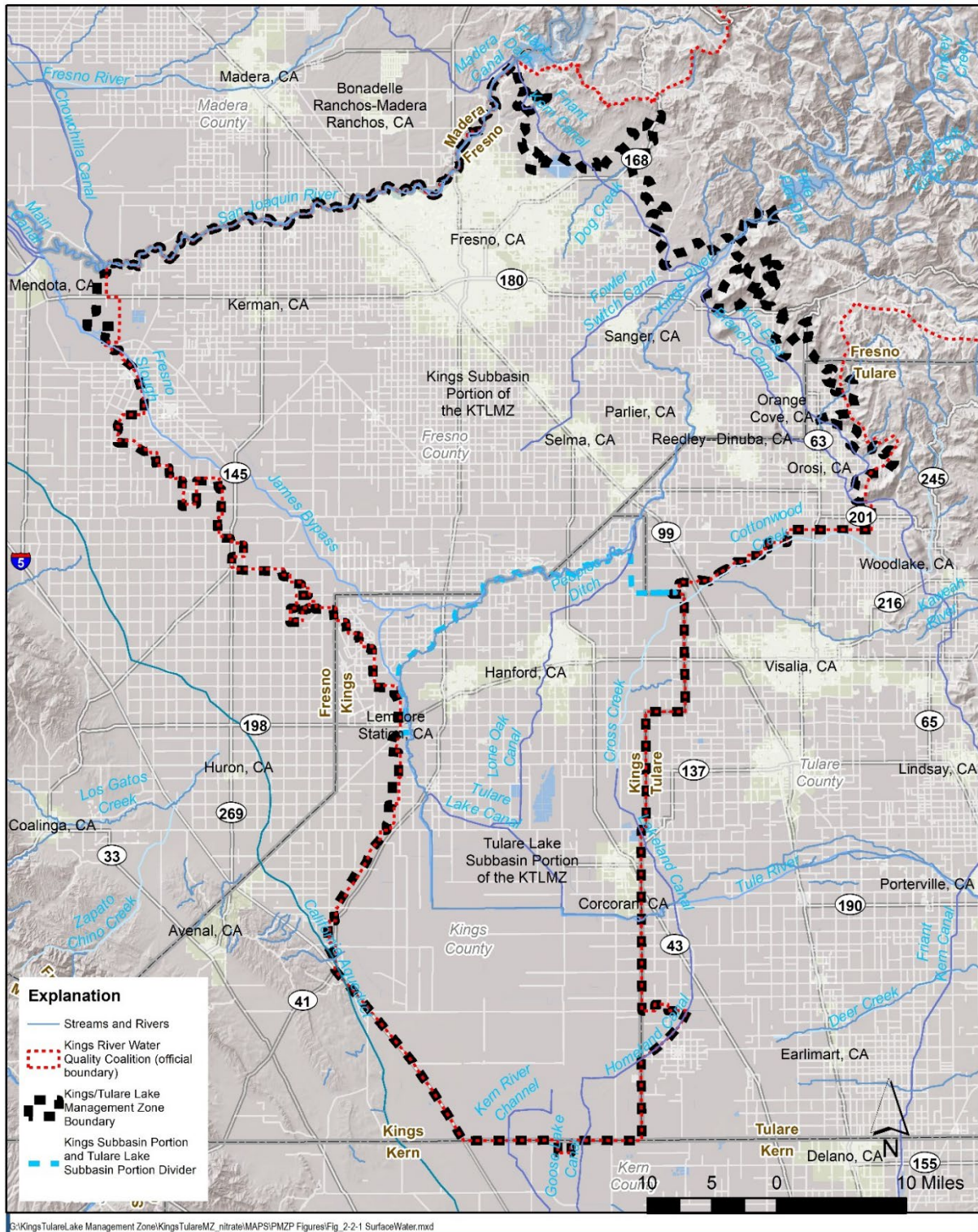
Besides the nonpoint sources of nitrate loading that can occur due to agricultural land uses, septic systems are also a smaller but potential source of localized nitrate loading. The amount of nitrate loading from septic systems is variable, dependent on the rate of denitrification. Denitrification occurs in the soil column below the septic leachfield, with more denitrification occurring where more carbon is available and where clayey or heavy soils slow the downward flow of water (creating larger anaerobic zones that increase denitrification). Conversely, in soils below the septic leachfield where there is less carbon available and there exists sandy, faster soils, the water travels downward more quickly (creating a thin anaerobic zone), which results in lower denitrification rates, and therefore more nitrate potentially reaching the water table.

Table 3-5. Land Use Summary for the Southern Portion (Tulare Lake Subbasin Area) of the KWA Management Zone (land use designations based on DWR 2016).			
Land Use Designation	Area (sq. mi.)	Area (Acres)	Percent of Total Southern Portion (Tulare Lake Subbasin Area) of the KWAMZ
CITRUS AND SUBTROPICAL	0.62	397	0.07%

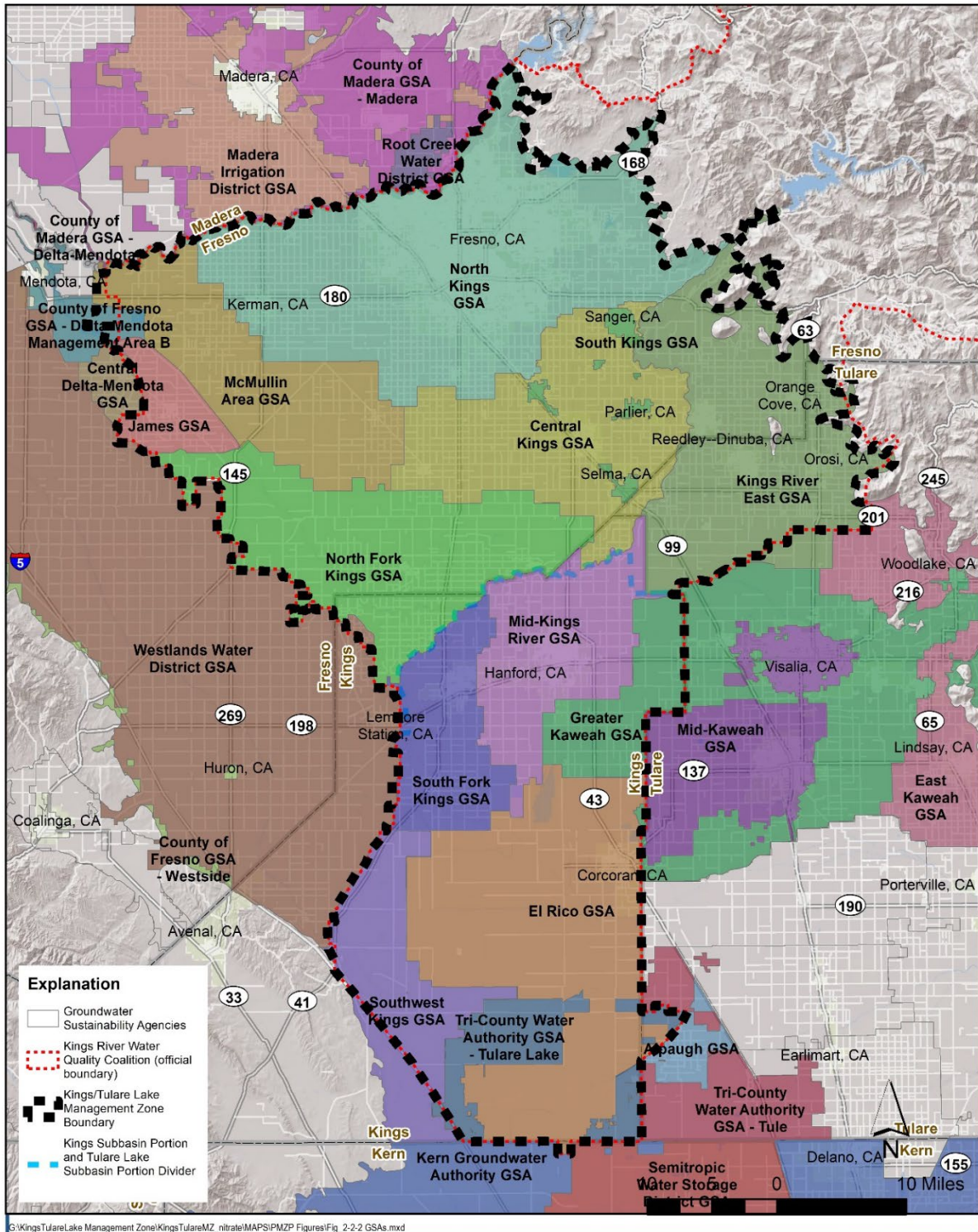
<b>Table 3-5. Land Use Summary for the Southern Portion (Tulare Lake Subbasin Area) of the KWA Management Zone (land use designations based on DWR 2016).</b>			
<b>Land Use Designation</b>	<b>Area (sq. mi.)</b>	<b>Area (Acres)</b>	<b>Percent of Total Southern Portion (Tulare Lake Subbasin Area) of the KWAMZ</b>
Citrus	0.08	51	0.01%
Kiwis	0.43	275	0.05%
Olives	0.11	72	0.01%
<b>DECIDUOUS FRUITS AND NUTS</b>	<b>79.76</b>	<b>51,048</b>	<b>9.09%</b>
Almonds	26.07	16,685	2.97%
Cherries	2.90	1,856	0.33%
Miscellaneous Deciduous	0.13	84	0.01%
Peaches/Nectarines	2.56	1,636	0.29%
Pistachios	20.50	13,121	2.34%
Plums, Prunes and Apricots	1.56	1,001	0.18%
Pomegranates	1.99	1,276	0.23%
Walnuts	24.05	15,389	2.74%
<b>FIELD CROPS</b>	<b>238.80</b>	<b>152,834</b>	<b>27.23%</b>
Corn, Sorghum and Sudan	77.29	49,463	8.81%
Cotton	116.25	74,403	13.25%
Safflower	45.26	28,968	5.16%
<b>GRAIN AND HAY CROPS</b>	<b>48.28</b>	<b>30,897</b>	<b>5.50%</b>
Miscellaneous Grain and Hay	13.37	8,559	1.52%
Wheat	34.90	22,338	3.98%
<b>NATIVE RIPARIAN VEGETATION</b>	<b>21.50</b>	<b>13,757</b>	<b>2.45%</b>
Managed Wetland	21.50	13,757	2.45%
<b>PASTURE</b>	<b>55.15</b>	<b>35,295</b>	<b>6.29%</b>
Alfalfa and Alfalfa Mixtures	41.48	26,546	4.73%
Miscellaneous Grasses	3.04	1,943	0.35%
Mixed Pasture	10.63	6,805	1.21%
<b>TRUCK NURSERY AND BERRY CROPS</b>	<b>36.10</b>	<b>23,104</b>	<b>4.12%</b>
Bush Berries	0.00	2	0.00%
Cole Crops	0.61	390	0.07%
Flowers, Nursery and Christmas Tree Farms	0.02	14	0.00%
Greenhouse	0.06	41	0.01%
Lettuce/Leafy Greens	0.11	71	0.01%
Melons, Squash and Cucumbers	0.04	28	0.01%

<b>Table 3-5. Land Use Summary for the Southern Portion (Tulare Lake Subbasin Area) of the KWA Management Zone (land use designations based on DWR 2016).</b>			
<b>Land Use Designation</b>	<b>Area (sq. mi.)</b>	<b>Area (Acres)</b>	<b>Percent of Total Southern Portion (Tulare Lake Subbasin Area) of the KWAMZ</b>
Miscellaneous Truck Crops	0.63	400	0.07%
Onions and Garlic	1.34	856	0.15%
Peppers	0.18	117	0.02%
Strawberries	0.00	2	0.00%
Tomatoes	33.10	21,183	3.77%
<b>URBAN</b>	<b>23.27</b>	<b>14,892</b>	<b>2.65%</b>
Urban	23.27	14,892	2.65%
<b>VINEYARDS</b>	<b>6.31</b>	<b>4,038</b>	<b>0.72%</b>
Grapes	6.31	4,038	0.72%
<b>UNCLASSIFIED FALLOW</b>	<b>94.47</b>	<b>60,464</b>	<b>10.77%</b>
Idle	94.47	60,464	10.77%
<b>YOUNG PERENNIALS</b>	<b>17.05</b>	<b>10,915</b>	<b>1.94%</b>
Young Perennials	17.05	10,915	1.94%
<b>Total Mapped Land Use Area</b>	<b>621.32</b>	<b>397,642</b>	<b>70.84%</b>
<b>Unmapped Area</b>	<b>255.80</b>	<b>163,711</b>	<b>29.16%</b>
<b>Total Area in the Southern Portion (Tulare Lake Subbasin Area) of the Kings Water Alliance Management Zone</b>	<b>877.11</b>	<b>561,353</b>	<b>100.00%</b>

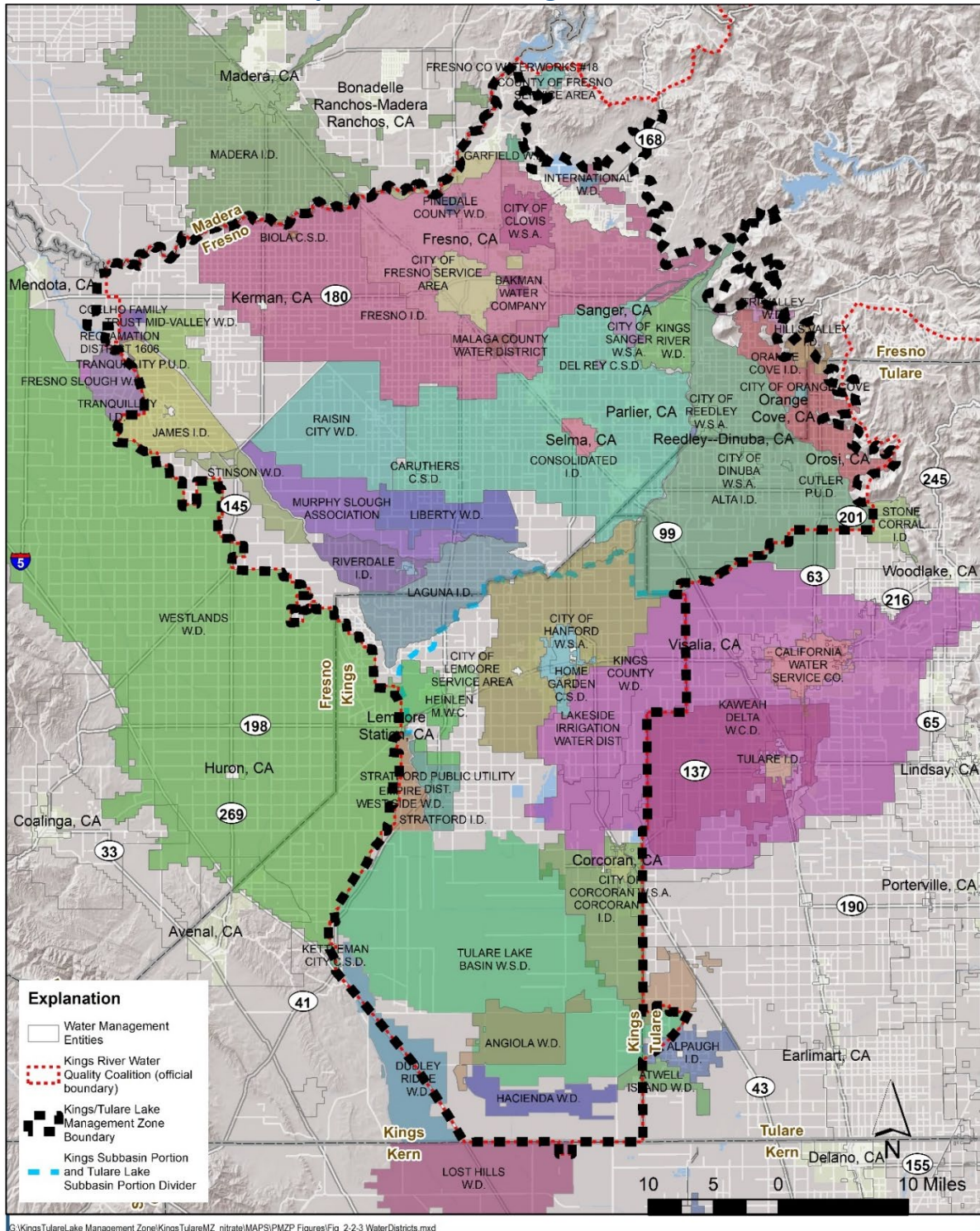
**Figure 3-1. Surface Water Characteristics of the Proposed  
 KWA Management Zone.**



**Figure 3-2. Groundwater Sustainability Agencies Established within and adjacent to the Proposed KWA Management Zone.**

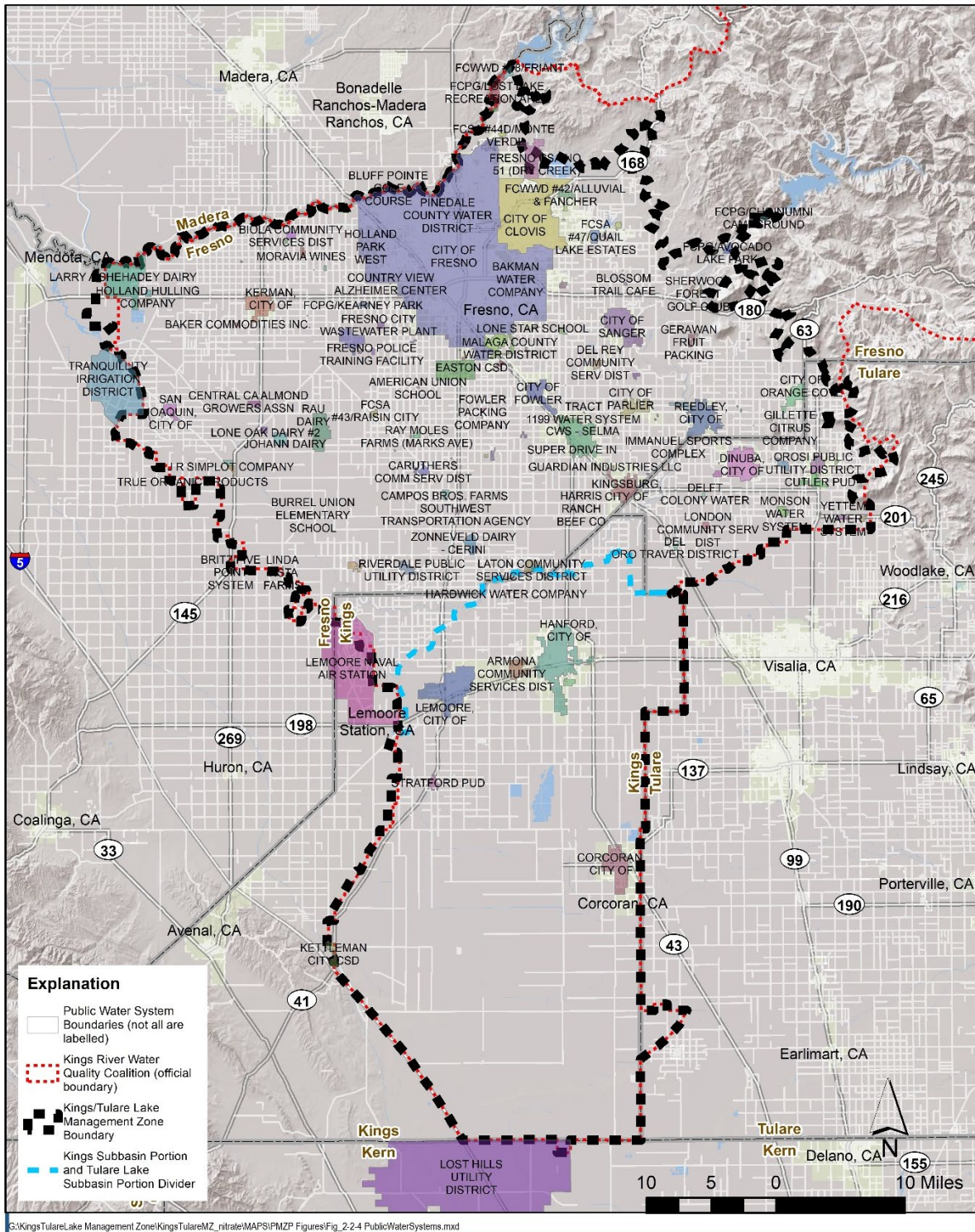


**Figure 3-3. Water Management Entities Located Within and Adjacent to the Proposed KWA Management Zone.**

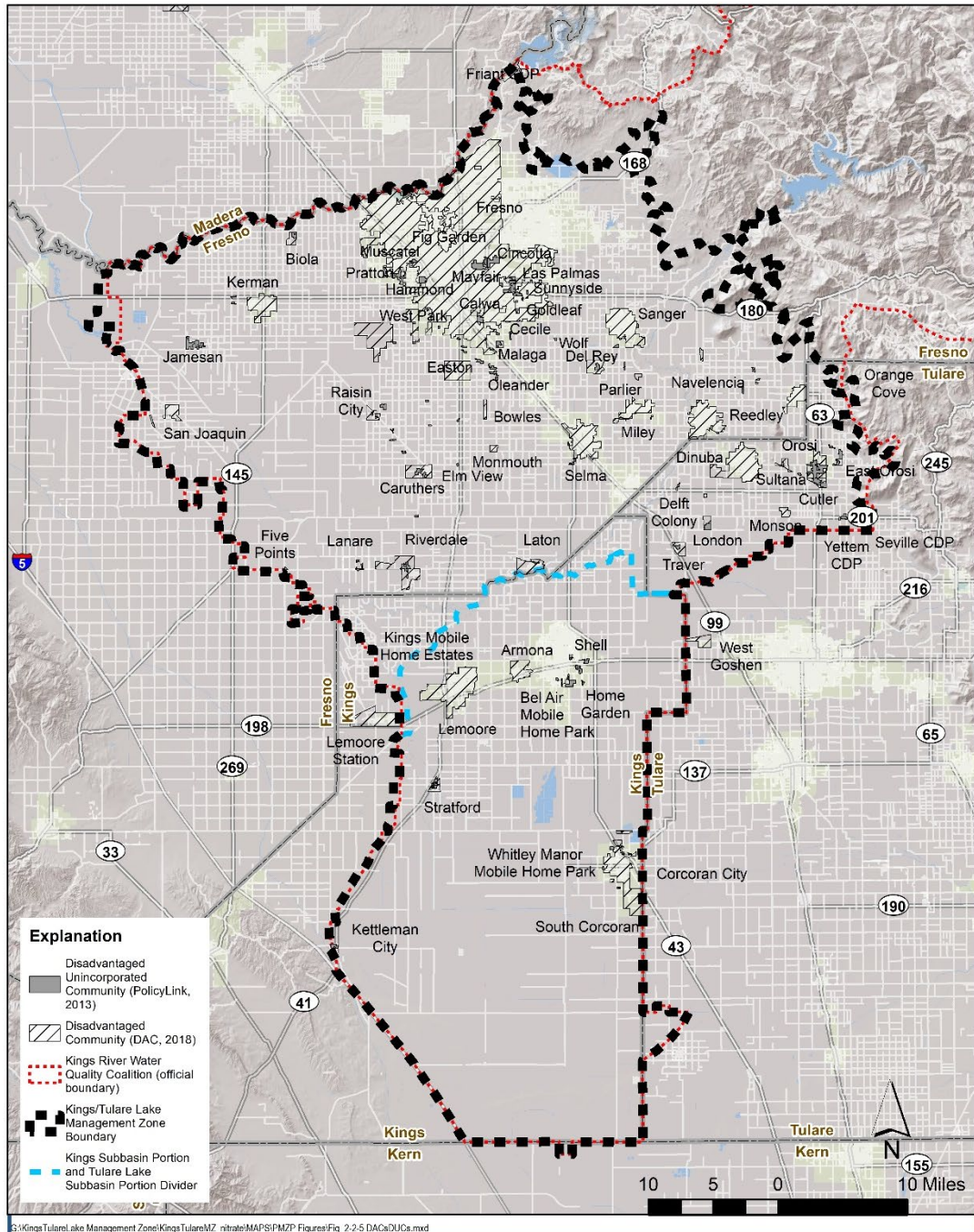




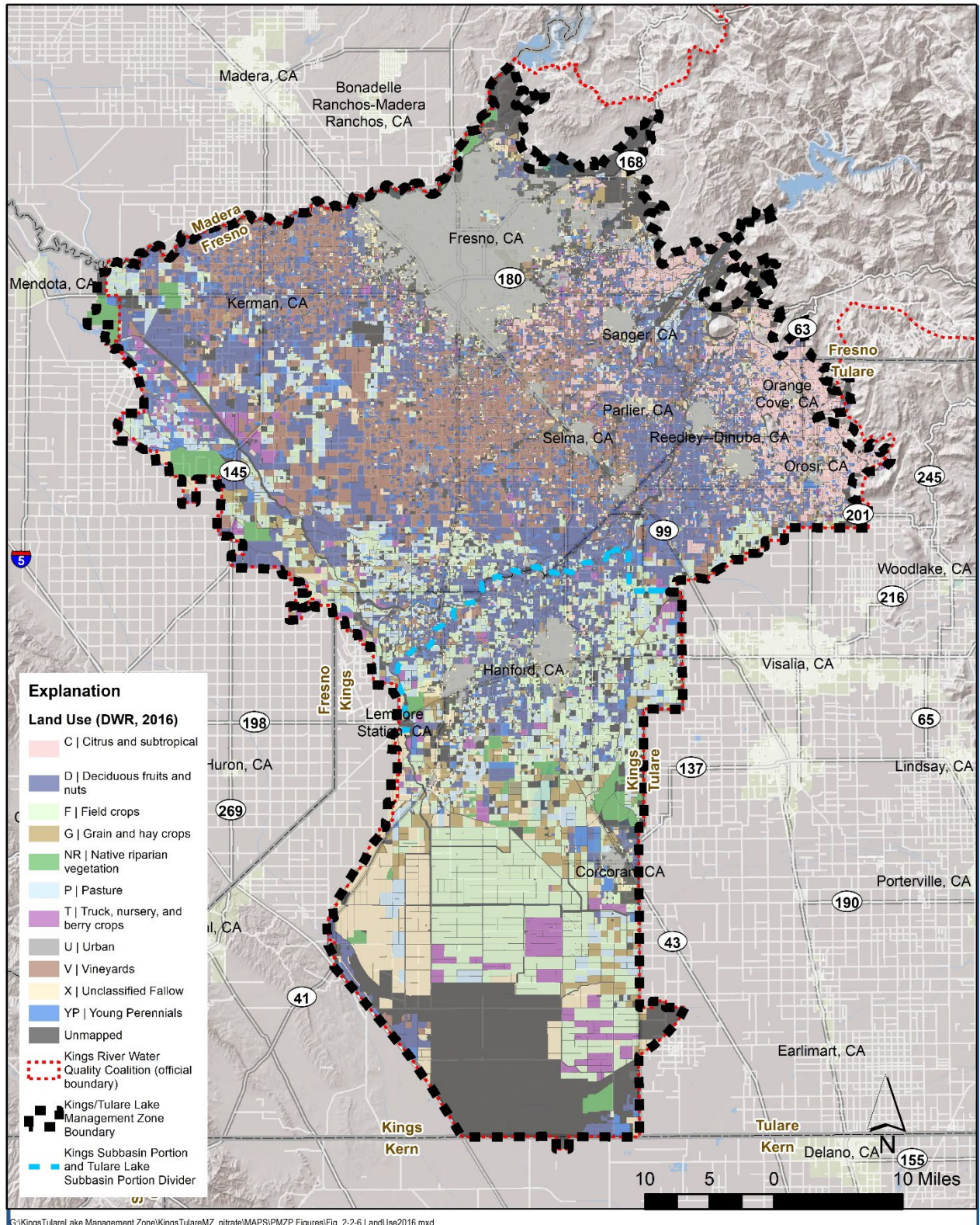
**Figure 3-4. Public Water System Boundaries Within and Adjacent to the Proposed KWA Management Zone**



**Figure 3-5. Location of DACs and DUCs Within and Adjacent to the Proposed KWA Management Zone**



**Figure 3-6. Agricultural Land Use in the Proposed KWA Management Zone**



### 3.2. Initial Assessment of Groundwater Conditions

The initial assessment of nitrate groundwater conditions for the Preliminary Management Zone Proposal is based on readily available existing data and information (collected between August and December 2020). Where possible, information from the Central Valley SNMP (CV-SALTS 2016a) was used and updated with more recent groundwater quality data from publicly available sources. Key data sources for this assessment included:

- Supplemental information on groundwater within the KWA Management Zone was obtained via DWR’s Bulletin 118 (DWR 2004). This document provides an overview of groundwater conditions (both groundwater levels and groundwater quality) in specific subbasins including the Kings and Tulare Lake Subbasins. Bulletin 118 also contains descriptions of groundwater basins and subbasins in California, with many descriptions updated from their 2003 descriptions in 2016 (DWR, 2016). DWR also released their statewide Groundwater Basin Prioritization in 2014 and 2015<sup>32</sup>, which contains basic information on each groundwater basin, including population, population growth, total number of public supply wells, groundwater volume, percent of total water supply supplied by groundwater, irrigated acreage, and other comments on groundwater levels or quality specific to aquifers within the basin.
- GSAs have developed HCMs and other information required for GSPs, including details on groundwater conditions. Five GSAs (Mid-Kings River GSA, South Fork Kings GSA, El Rico GSA, Southwest Kings GSA, and Tri-County GSA) that comprise the majority of the Southern Portion (Tulare Lake Subbasin Area) of the KWA Management Zone produced one GSP document submitted to DWR in January 2020.
- CV-SALTS completed a high-resolution mapping analysis of nitrate and total dissolved solids (TDS) groundwater quality in the Central Valley Region including within the proposed Management Zone (LSCE et al., 2016). The high-resolution mapping of salt and nitrate was completed for the Upper, Lower, and Production Zones of the groundwater system, which are defined in the documentation. Ambient TDS and nitrate conditions are provided, as well as assimilative capacity, groundwater quality trends, and predicted conditions (after 10, 20, and 50 years). The CV-SALTS high resolution dataset utilizes groundwater quality data from 2000-2016.

**Table 3-6** summarizes sources of data accessed or requested to update the CV-SALTS nitrate groundwater dataset for completing the initial assessment of groundwater conditions for this Preliminary Management Zone Proposal.

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<sup>32</sup> [https://water.ca.gov/LegacyFiles/groundwater/casgem/pdfs/lists/PubRel\\_BasinRank\\_by\\_HR\\_5-18-15.pdf](https://water.ca.gov/LegacyFiles/groundwater/casgem/pdfs/lists/PubRel_BasinRank_by_HR_5-18-15.pdf)

Table 3-6. Data Sources Accessed or Requested to Develop Initial Assessment of Groundwater Conditions in the Southern Portion (Tulare Lake Area) of the Proposed KWA Management Zone.	
Data Source	Link
<b>General Groundwater Conditions</b>	
DWR Bulletin 118 overview of basin/subbasin conditions (groundwater levels and groundwater quality)	<a href="https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118">https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118</a>
DWR's Groundwater Sustainability Basin Prioritization	<a href="https://water.ca.gov/Programs/Groundwater-Management/Basin-Prioritization">https://water.ca.gov/Programs/Groundwater-Management/Basin-Prioritization</a>
Individual GSA's Hydrogeologic Conceptual Model	<a href="https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management/Groundwater-Sustainable-Agencies">https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management/Groundwater-Sustainable-Agencies</a> and <a href="https://sgma.water.ca.gov/portal/gsp/all">https://sgma.water.ca.gov/portal/gsp/all</a>
CV-SALTS High Resolution Salt and Nitrate Mapping for Region 5	<a href="https://www.cvsalinity.org/committees/technical-advisory/conceptual-model-developments/171-updated-groundwater-quality-analysis-for-central-valley.html">https://www.cvsalinity.org/committees/technical-advisory/conceptual-model-developments/171-updated-groundwater-quality-analysis-for-central-valley.html</a>
<b>Publicly Available Groundwater Quality Data Sources</b>	
GeoTracker GAMA	<a href="http://geotracker.waterboards.ca.gov/gama/gamamap/public/">http://geotracker.waterboards.ca.gov/gama/gamamap/public/</a>
DWR Water Data Library	<a href="https://wdl.water.ca.gov/">https://wdl.water.ca.gov/</a>
U.S. Geological Survey National Water Information System	<a href="https://waterdata.usgs.gov/nwis/qw">https://waterdata.usgs.gov/nwis/qw</a>
GeoTracker Regulated Facilities	<a href="http://geotracker.waterboards.ca.gov/">http://geotracker.waterboards.ca.gov/</a> and <a href="http://geotracker.waterboards.ca.gov/datadownload">http://geotracker.waterboards.ca.gov/datadownload</a>
State Water Board Division of Drinking Water	<a href="https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/EDTlibrary.html">https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/EDTlibrary.html</a>
<b>County-Specific Data Available by Request</b>	
Kings County state small water systems and domestic/local small water systems (water quality data)	<a href="https://www.countyofkings.com/">https://www.countyofkings.com/</a>
Madera County state small water systems and domestic/local small water systems (water quality data)	<a href="https://www.maderacounty.com/government/public-health">https://www.maderacounty.com/government/public-health</a>
Fresno County state small water systems and domestic/local small water systems (water quality data)	<a href="https://www.co.fresno.ca.us/departments/public-health?locale=en">https://www.co.fresno.ca.us/departments/public-health?locale=en</a>
Tulare County state small water systems and domestic/local small water systems (water quality data)	<a href="https://tularecounty.ca.gov/county/">https://tularecounty.ca.gov/county/</a>

### **3.2.1. Hydrogeology**

The Tulare Lake Subbasin is bounded on the north by the Kings River and Kings Subbasin, to the south by the Kings-Kern county line, and on the west by: 1) the California Aqueduct, 2) the eastern boundary of Westside Groundwater Subbasin, and 3) Tertiary marine sediments of the Kettleman Hills. The eastern side is bounded by the western boundaries of the Tule and Kaweah Groundwater Subbasins. The southern half of the Tulare Lake Subbasin lies on the former Tulare Lake bed in Kings County.

According to DWR's Bulletin 118 (2006b), the Tulare Lake Subbasin contains sediments of younger and older alluvium, flood-basin deposits, lacustrine and marsh deposits, and continental deposits. The younger alluvium is made up of a heterogeneous complex of interstratified discontinuous beds of unsorted to fairly well-sorted clay, silt, sand, and gravel. Although this unit is very permeable, it is located larger above the water table. Older alluvium in the subbasin consists of poorly sorted lenticular deposits of clay, silt, sand, and gravel, which may be slightly consolidated or cemented. Older alluvium is the major aquifer unit in the subbasin, due to it being moderately to highly permeable with sufficient yields to wells. Although flood basin deposits are not as transmissive, they do contain some lenses of moderately to poorly permeable sand layers that may be locally productive for small water demands. Lacustrine and marsh deposits make up the majority of the clay interfingers that provide confinement to the aquifer. The lacustrine and marsh deposits include the Corcoran Clay (E-Clay), which can be found in the subbasin at depths ranging from around 300 to 900 feet below ground surface. Continental deposits typically yield low quantities of water to wells due to being moderately to poorly permeable consisting of poorly sorted lenticular deposits of clay, silt, sand, and gravel.

Land subsidence has been measured in the subbasin because of compaction of fine-grained units, resulting in one to four feet of land subsidence.

The HCM from the Tulare Lake Subbasin GSP emphasizes that the only physical boundaries are the Kettleman Hills on the southwestern edge and the Kings River on the northeastern edge of the Subbasin (Tulare Lake Subbasin GSP, 2020). A major feature of the Tulare Lake Subbasin is the large-scale lacustrine deposits that accumulated in shallow lakes that developed from internal drainage. The lacustrine Corcoran Clay (E-Clay) was deposited, with thicknesses as high as 300 feet. Other thick deposits of lacustrine sediments have accumulated in Tulare Lake. The fine-grained lacustrine deposits of the ancestral and former Tulare Lake are known as the "clay plug" and are significant for controlling the movement of groundwater in the central portion of the Subbasin below the Corcoran Clay (E-Clay).

There are five significant bounding conditions that historically influence groundwater flow in the Tulare Lake Subbasin: 1) Kettleman Hills on the southwest; 2) Kings River alluvial fan on the northeast; 3) Arroyo Pasajero fan on the northwest; 4) Tulare Lake clay beds in the central portion

of the subbasin; and 5) the Kaweah and Tule River alluvial fans on the east. The role of the Corcoran Clay (E-Clay) is to divide the Subbasin into two aquifer systems: an unconfined to semi-confined aquifer system above the Corcoran Clay and a confined aquifer system below the Corcoran Clay.

Two generalized conceptual cross sections are provided in **Figure 3-7** and **3-8**, and more detailed information on the hydrogeology of the Tulare Lake Subbasin can be found in the Tulare Lake Subbasin GSP document's HCM section. The conceptual hydrogeologic cross sections are adapted from that GSP document and illustrate the general thickness and extents of the various deposits and formations that play important roles in the hydrogeology of the Southern Portion (Tulare Lake Subbasin Area) of the KWA Management Zone. The generalized cross sections also illustrate the interbedded nature and extents of finer-grained materials within the Tulare Lake Subbasin.

### **3.2.2. Groundwater Elevations and Flow**

Regional groundwater generally flows from the Sierra Nevada mountains towards the low point of the valley, following the regional dip of basement rock and sedimentary units. Groundwater elevation contours from Spring 2018 (source: DWR<sup>33</sup>) show local groundwater flow directions are variable in the northern portion of the Tulare Lake Subbasin for the unconfined aquifer (**Figure 3-9**). Large groundwater elevation data gaps exist in the majority of the Tulare Lake Subbasin, particularly within and surrounding the historic lake bed area (which corresponds to the De-Designation Boundary) (**Figure 3-9**). The MZ has started to evaluate the groundwater gradients and flow directions along its borders. This analysis will be finalized in the coming months and included in the Final MZP following collaboration with neighboring GSAs and Management Zones.

### **3.2.3. Upper Zone Delineation**

The Upper Zone refers to the upper portion of the groundwater aquifer system used for determining ambient nitrate conditions in the KWA Management Zone. The Upper Zone portion of the groundwater system includes the depth from the bottom of the vadose zone to the top of the Lower Zone. The depth of the Upper Zone is based on well construction information, (where available), and other comparable information that provide the best available indication of well depth. The determination of the Upper Zone depth gives the highest weight to domestic well depths (**Table 3-7**). Consistent with the understanding of the local hydrogeology, where the Corcoran Clay (or E-Clay) is present, the Upper Zone does not extend below the top of the Corcoran Clay.

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<sup>33</sup> <https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer#gwlevels>

High resolution mapping of salt and nitrate on behalf of CV-SALTS (LSCE et al., 2016) determined the boundaries of the Upper and Lower Zones throughout the Central Valley Floor using GIS spatial analyses of several layers of data. Well construction data were used in combination with depth to groundwater contours and characteristics of the Corcoran Clay, including the extent, depth, and thickness of this significant clay member. Data for the development of the Upper and Lower Zones originated from:

- DWR depth to groundwater contours;
- Depth to groundwater from Groundwater Quality Assessment Reports;
- State Water Board's DDW database of location and construction information for public water systems;
- U.S. Geological Survey (USGS) California Central Valley Hydrologic Model 2.0 (CVHM2; in progress):
  - Modeled virtual farm well construction for agricultural pumping
  - Actual rural public well water system well construction information
  - Actual urban public well water system well construction information
  - Texture database of driller's logs, including domestic well construction information
  - Corcoran Clay depth, thickness, and extent

The above data were used to create interpolated layers over the Central Valley Floor of different well types and their perforation depths. The well construction layers were then combined in a weighting process to estimate where pumping occurs for the predominant well types. The weights provided in **Table 3-7** were then used for calculating the depth to the bottom of the Upper Zone. **Figure 3-10** shows the depth to the bottom of the Upper Zone in the proposed Management Zone, as previously delineated to support CV-SALTS analyses (e.g., LSCE et al., 2016). Generally, the depth to the bottom of the Upper Zone is between approximately 200 feet at its shallowest in the northeast, to about 600 feet at its deepest in the central-northwest. The depth to the bottom of the Upper Zone is deepest along a northwest to southeast-trending axis, within the extent of the Corcoran Clay. This follows the stratigraphy and dipping nature of the bedding downwards toward the axis of the valley. The depth of the bottom of the Upper Zone grows deeper from southwest towards the center of the area.



Table 3-7. Basis for Determining Depth of the Upper Zone	
Data Layer	Weights for Establishing Bottom of Upper Zone
Domestic Wells Bottom Perforations	40%
Farm Virtual Wells Top Perforations	10%
Urban PWS Top Perforations	20%
Rural PWS Top Perforations	20%
DDW Systems Top	10%
<b>Total</b>	<b>100%</b>

### 3.2.4. Nitrate Water Quality

**Table 3-8** summarizes the groundwater quality data that were readily available for use to develop this Preliminary Management Zone Proposal. These datasets include data previously developed for CV-SALTS and additional data obtained between August and December 2020.

Table 3-8. Groundwater Quality Data Sources	
Data Category	Data Sources
The Phase II CV-SALTS Conceptual Model nitrate groundwater database developed for the High Resolution Mapping project (LSCE et al., 2016)	<ul style="list-style-type: none"> <li>• Former California Department of Public Health (CDPH), now DDW</li> <li>• DWR</li> <li>• Central Valley Water Board Waste Discharge Requirements (WDR) data per the Dairy General Order</li> <li>• Central Valley Water Board Regulated Sites</li> <li>• State Water Board/USGS Groundwater Ambient Monitoring and Assessment Program (GAMA)</li> <li>• USGS</li> </ul>
GeoTracker GAMA <sup>34</sup> (Note: Not all entities had nitrate data from within the proposed Management Zone)	<ul style="list-style-type: none"> <li>• Department of Pesticide Regulation</li> <li>• DWR</li> <li>• GAMA – Domestic Wells; Special Studies, and Priority Basin Projects</li> </ul>

<sup>34</sup> <https://geotracker.waterboards.ca.gov/gama/gamamap/public/>, accessed in November 2020

Table 3-8. Groundwater Quality Data Sources	
Data Category	Data Sources
	<ul style="list-style-type: none"> <li>Local Groundwater Projects</li> <li>Monitoring Wells (Central Valley Water Board Regulated Sites)</li> <li>Irrigated Lands Regulatory Program Upper Zone Wells</li> <li>DDW Public Water System Wells (Actual Locations)</li> <li>USGS National Water Information System (NWIS)</li> </ul>
University of California, Davis SBX2 1 Nitrate Study	California Spatio-Temporal Information on Nitrate in Groundwater (CASTING) database
Tulare County’s Tulare Lake Basin Geodatabase	Monitoring sites
Domestic Well Permit Sample Data	Fresno County <sup>35</sup>
Fresno Irrigation District	Monitoring sites

Nitrate measurements and well data were compiled for the proposed KWA Management Zone from the data sources listed in **Table 3-8**. Nitrate data were summarized by data source, depth, and recent nitrate exceedances. **Table 3-9** provides a summary of wells with nitrate measurements in the Southern Portion (Tulare Lake Subbasin Area) of the KWA Management Zone by well source. There are 1,793 wells with nitrate data in this portion of the Management Zone, most of them (1,337 or about 75%) have nitrate measurements since January 2000, and just over half of those wells with recent (post-2000) nitrate measurements (687 or about 51%) have nitrate concentrations that exceed the primary maximum contaminant level (MCL) of 10 mg/L as N.

Wells were categorized into an appropriate depth category (Upper Zone, Lower Zone, and Unknown)<sup>36</sup>. LSCE et al. (2016) produced GIS coverages of the depths to the bottom of the Upper Zone (see **Figure 3-10**). Depth information (well depth or top of screen depth and screen length) from the new dataset was used to categorize individual wells into their appropriate depth category. Wells without construction or depth information were categorized based on their well type:

- Municipal wells were categorized using the DWR GIS coverage of well completion report statistics, which identifies the mean total depth of municipal wells in each township/range-

<sup>35</sup> State Small Water System data was also received from Fresno County, but none of these systems that had nitrate data were located within the Management Zone.

<sup>36</sup> See text and CV-SALTS 2016a and 2016b for a description of the development and assignment of Upper Zone delineations.

section. The mean municipal well depth was assigned to the municipal well with no depth information posted in GeoTracker GAMA and compared to the depth to the bottom of the Upper and Lower Zones to estimate the depth category.

- Domestic wells were placed in the Upper Zone;
- State Water Board Regulated Site monitoring wells were placed in the Upper Zone; and
- Wells listed as an Unknown well type were placed in the “Unknown” depth category.

Of the entire dataset of 1,793 wells in the proposed KWA Management Zone with a nitrate measurement, the category with the most wells (824 wells, or about 46%) are completed in the Upper Zone. **Figure 3-11** shows the spatial distribution of wells by depth category. Wells with nitrate data cover most of the northern half of the Southern Portion (Tulare Lake Subbasin Area) of the KWA Management Zone, but there are areas in the south that have significantly less well coverage spatially. Most of the deeper wells completed in the Lower Zone are located near urban areas, as well as along the eastern and western edges of the Subbasin. Upper Zone wells are located throughout most of the northern half of the Southern Portion (Tulare Lake Subbasin Area) of the KWA Management Zone, and sporadically in the central-to-southern portion. The southernmost area of the Management Zone has very low well coverage.

**Table 3-10** identifies the number of wells in each depth category with nitrate data, wells with recent (post-2000) data, and wells with recent nitrate concentrations that exceed the nitrate MCL of 10 mg/L as N. Of the wells categorized into the Upper Zone most wells (89%) have post-2000 nitrate measurements, and about 55% of those have measured nitrate concentrations above the MCL.

**Figure 3-12** shows Upper Zone wells with recent (post-2000) nitrate measurements divided into two categories: (1) wells with all post-2000 nitrate measurements at or below the MCL of 10 mg/L as N; and (2) wells with at least one nitrate measurement exceeding the MCL of 10 mg/L as N. Very few Upper Zone wells with recent nitrate data are located in southern portion of the Management Zone, corresponding to the De-Designation boundary area. Upper Zone wells with measured nitrate above the MCL occur throughout the northern half of the Management Zone.

The high-resolution CV-SALTS spatial analysis (LSCE et al., 2016) of nitrate in the Upper Zone was updated for this Preliminary Management Zone Proposal using the updated Upper Zone post-2000 nitrate dataset developed and described above. This update included the following steps:

- Declustering: Annual average nitrate concentrations were calculated for each well for the years 2000-2020 to yield one average nitrate concentration representing recent conditions. Where wells have overlapping x/y coordinates, the average nitrate concentration representing the location is calculated.

- Upper Zone wells outside the Management Zone and within a buffer zone of three miles around the Management Zone boundary were compiled and used in the updated high-resolution analysis because nitrate occurrence does not cease at the border of the Management Zone.
- Geospatial interpolation of the well point data was performed (kriging) using a search radius of 1.5 miles<sup>37</sup>.
- Gap areas were shown to exist where post-2000 Upper Zone nitrate well data were insufficient to produce the spatial interpolation using the 1.5-mile search criterion.

**Figure 3-13** illustrates the average post-2000 nitrate concentrations for all Upper Zone wells in the proposed Management Zone and control points in the 3-mile buffer. This figure also shows the interpolated ambient Upper Zone post-2000 nitrate as well as the gap areas where insufficient Upper Zone nitrate data exist. High nitrate concentrations exist in several locations in northern and eastern portions of the Southern Portion (Tulare Lake Subbasin Area) of the KWA Management Zone. Insufficient recent Upper Zone nitrate data are available in small areas along the northwestern border of the Southern Portion (Tulare Lake Subbasin Area) of the KWA Management Zone, and a large data gap exists in the southern half, corresponding to the De-Designation Boundary.

To test if the ambient average post-2000 nitrate presented in **Figure 3-13** is potentially underestimating conditions in the Upper Zone, the maximum post-2000 nitrate concentration is overlain atop the interpolated ambient Upper Zone nitrate in **Figure 3-14**. This map provides a comparison between the shaded colors representing the average annual post-2000 nitrate and the colored dots that represent the maximum measured nitrate in individual wells since 2000. The maximum post-2000 nitrate concentration is presented for the Upper Zone wells in the Management Zone to verify that the identification of areas with potentially elevated nitrate is not underestimated from wells that may have more recently begun to exceed the nitrate MCL. There is relatively good agreement between the ambient post-2000 average-based interpolated Upper Zone nitrate to the maximum Upper Zone nitrate concentrations in individual wells, with a few exceptions. There are several individual wells that plot on top of or very close to another well with different maximum concentrations despite both assumed to be completed in the Upper Zone. This is a testament to the heterogeneity and variability inherent to groundwater quality conditions, as well as the availability and quality of the dataset itself. Nitrate testing data for Upper Zone wells that have a maximum nitrate concentration exceeding the MCL may be found in the records to be adjacent to other wells that have no

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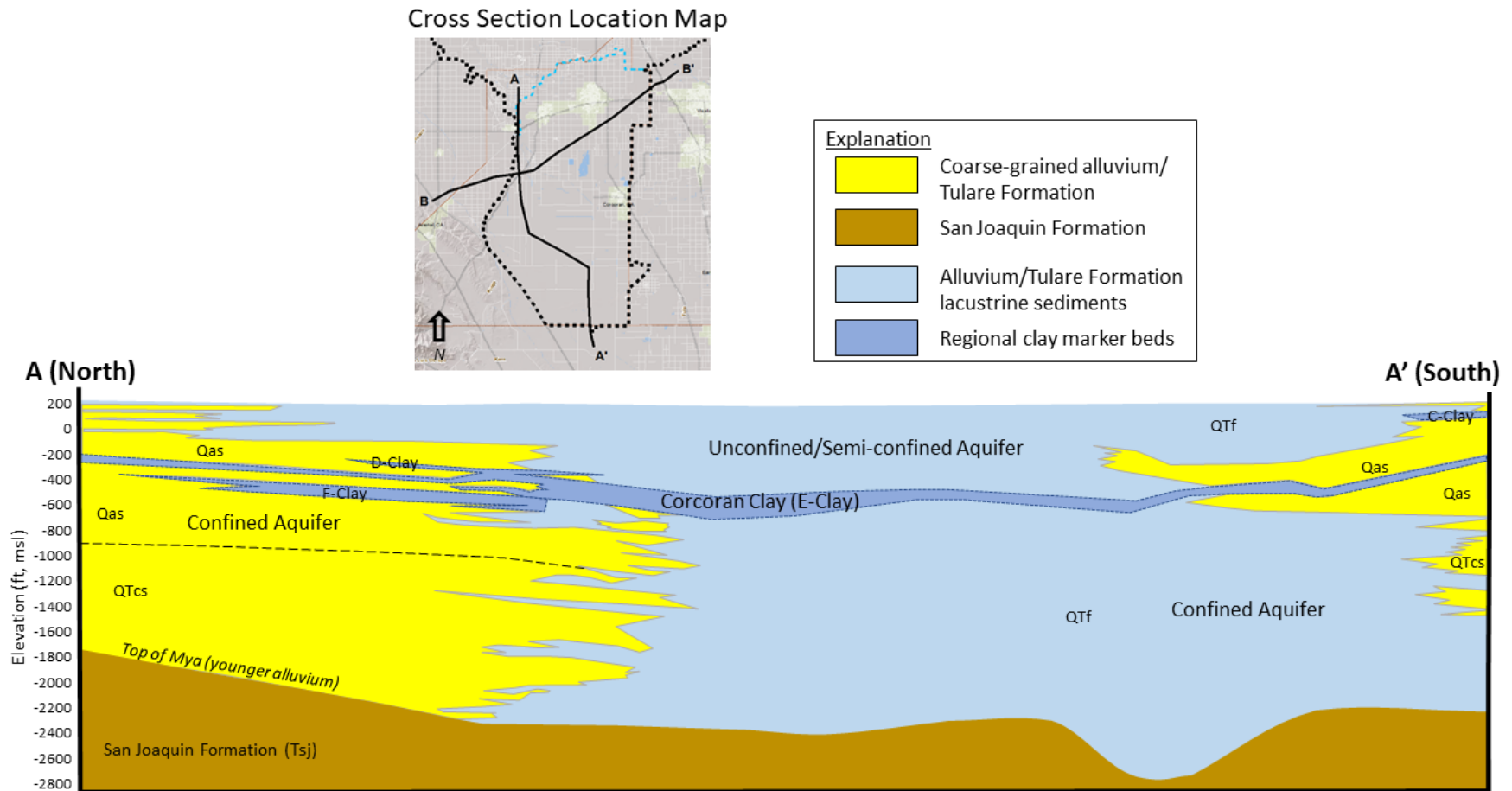
<sup>37</sup> The 1.5 mile search radius was selected to refine the local ambient nitrate mapping for the proposed Management Zone and recognize the potential variability inherent in groundwater nitrate concentrations spatially. This search radius reduces the reliance on well data from farther away that may not represent local nitrate conditions.

measured nitrate concentrations above the MCL. The Management Zone recognizes that there is some inherent uncertainty associated with this analysis, and recognize that the recent ambient nitrate coverage is adaptable and subject to change as additional Upper Zone groundwater nitrate data become available over time.

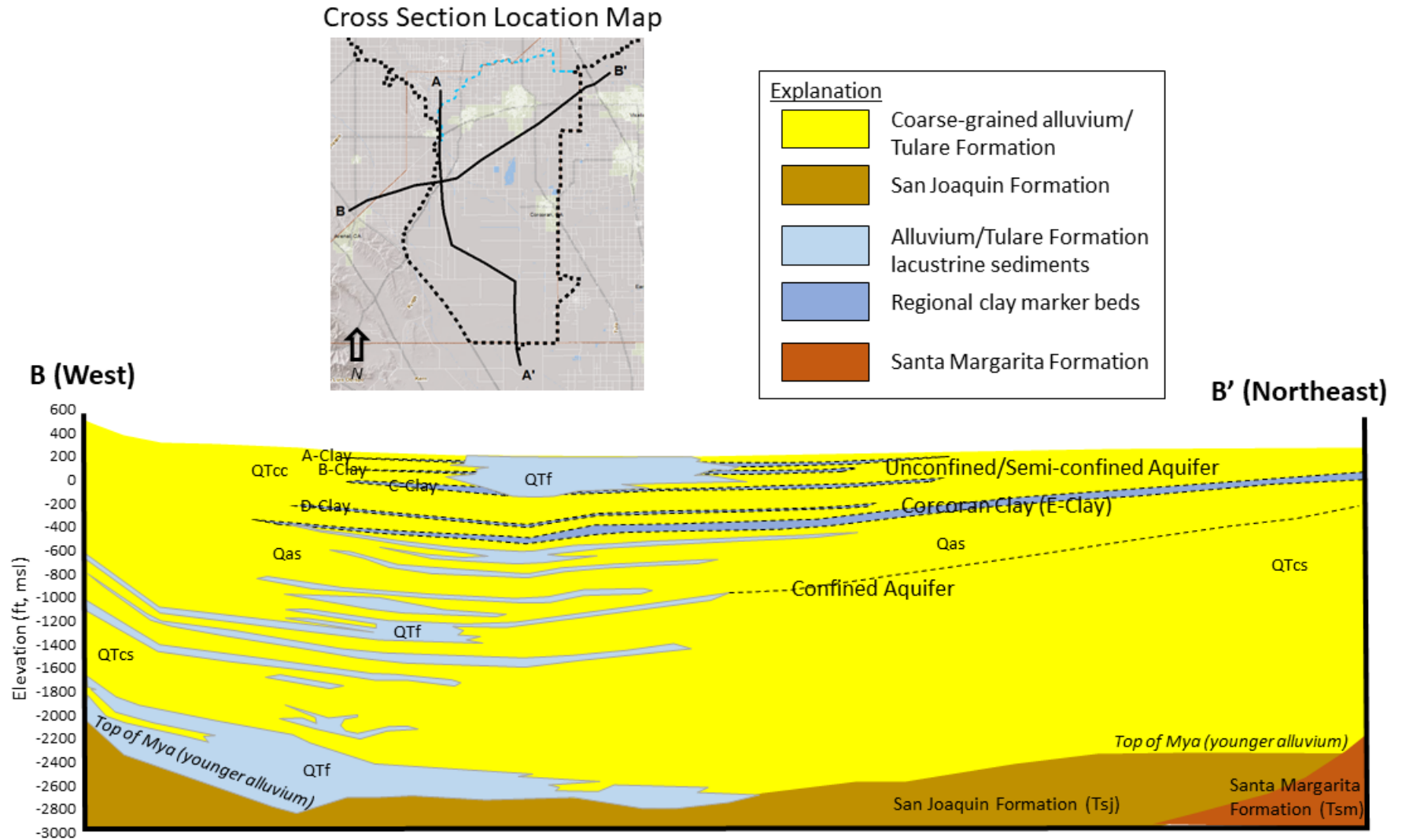
Table 3-9. Summary of Wells with Nitrate Data Located in the Southern Portion (Tulare Lake Subbasin Area) of the KWA Management Zone, by Source (All Well Depths)			
Source	All Well Depth Categories		
	Wells with Nitrate Data	Wells with Post-2000 Nitrate Data	Wells with Post-2000 Nitrate MCL Exceedance
Irrigated Lands (AGLAND)	55	55	4
Division of Drinking Water	133	115	5
DWR	185	0	0
Regulated Facilities (GeoTracker)	76	76	32
UCD SBX2-1	1,103	982	628
Fresno County	5	5	1
Tulare County (Tulare Lake Basin Geodatabase)	47	47	12
USGS	189	57	5
<b>Total</b>	<b>1,793</b>	<b>1,337</b>	<b>687</b>

Table 3-10. Wells with Nitrate Measurements in the Southern Portion (Tulare Lake Subbasin Area) of the KWA Management Zone, by Depth Category				
Depth Category	All Wells with Nitrate Data	Wells with Post-2000 Nitrate Data	Wells with Post-2000 Nitrate >10 mg/L as N	Percent of Wells with Post-2000 Nitrate Data >MCL
Upper	824	730	405	55%
Lower	472	437	229	52%
Unknown	497	170	53	31%
<b>Total</b>	<b>1,793</b>	<b>1,337</b>	<b>687</b>	<b>51%</b>

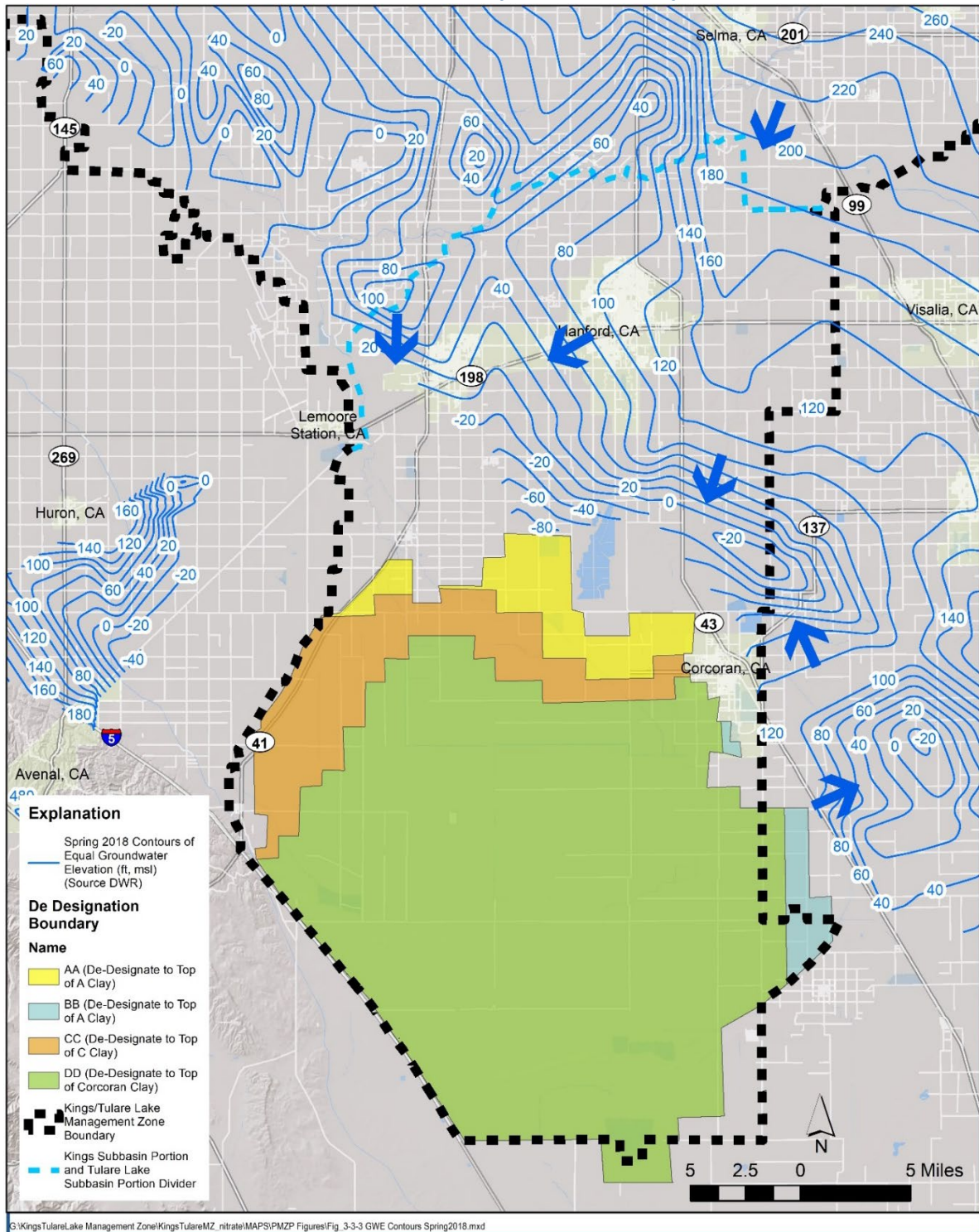
**Figure 3-7. Conceptual Cross Section for the Tulare Lake Subbasin (North to South) (adapted from Tulare Lake Subbasin GSP, 2020)**



**Figure 3-8. Conceptual Cross Section for the Tulare Lake Subbasin (West to East) (adapted from Tulare Lake Subbasin GSP, 2020)**

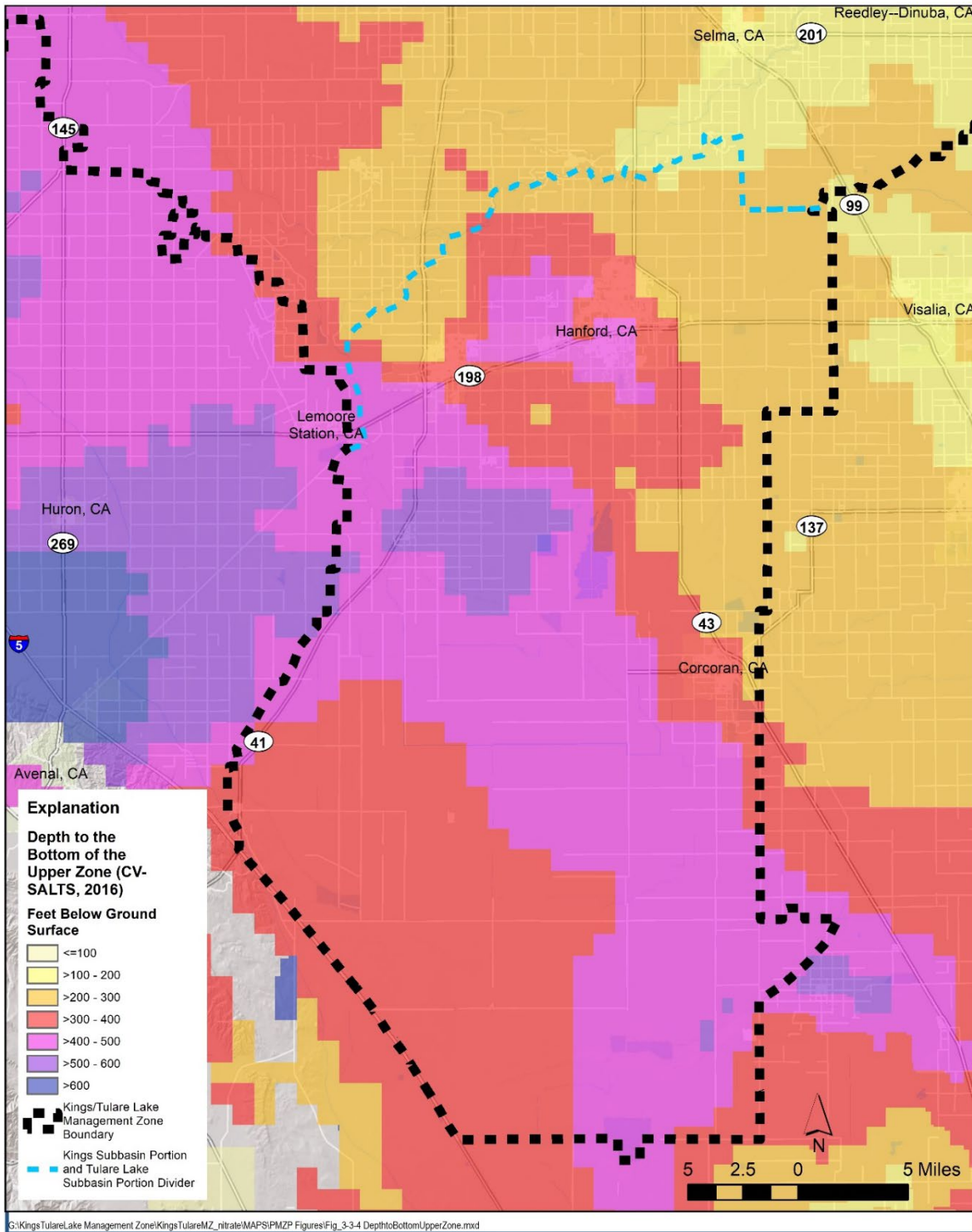


**Figure 3-9. Spring 2018 Contours of Equal Groundwater Elevation for the Tulare Lake Subbasin (source: DWR)**

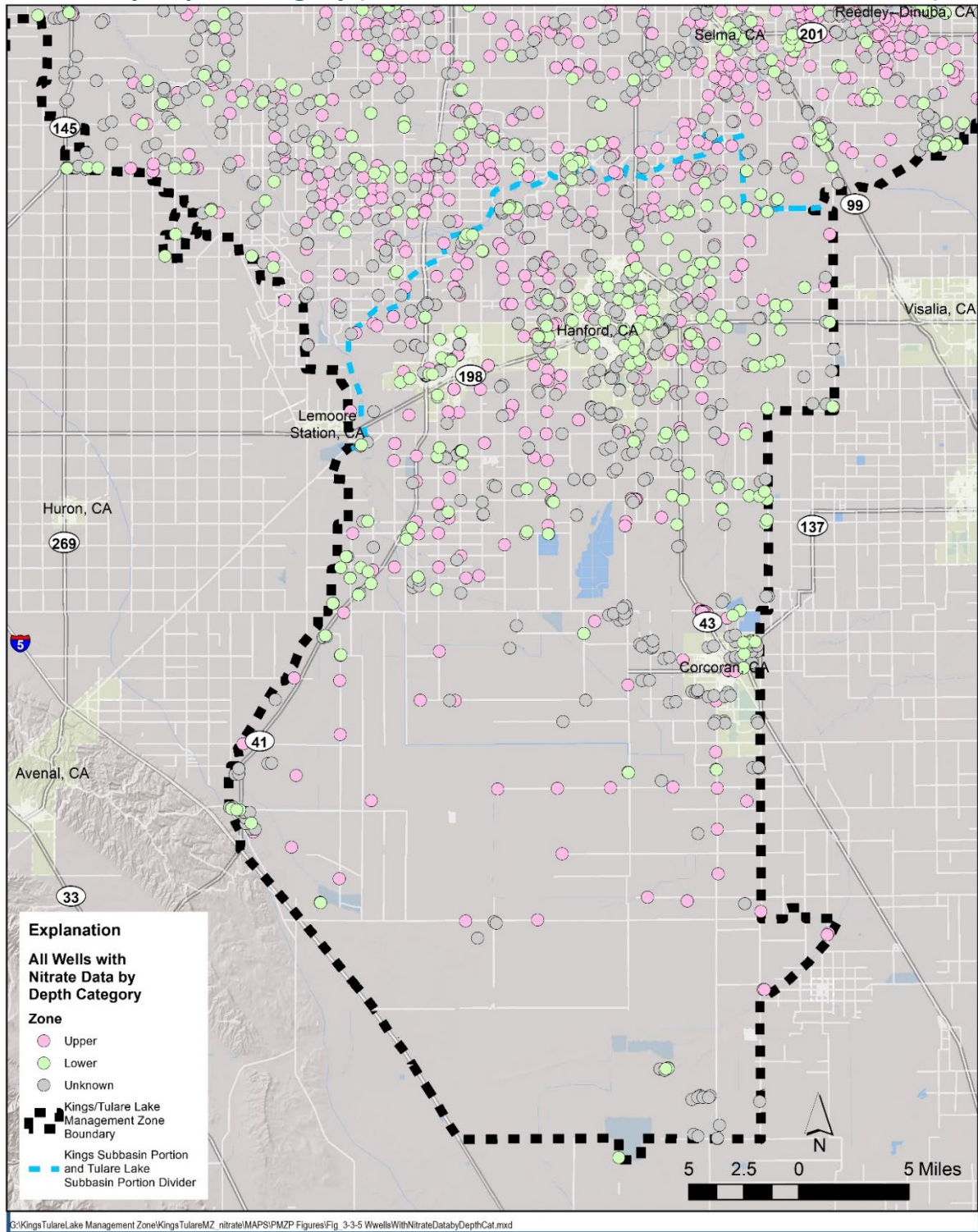




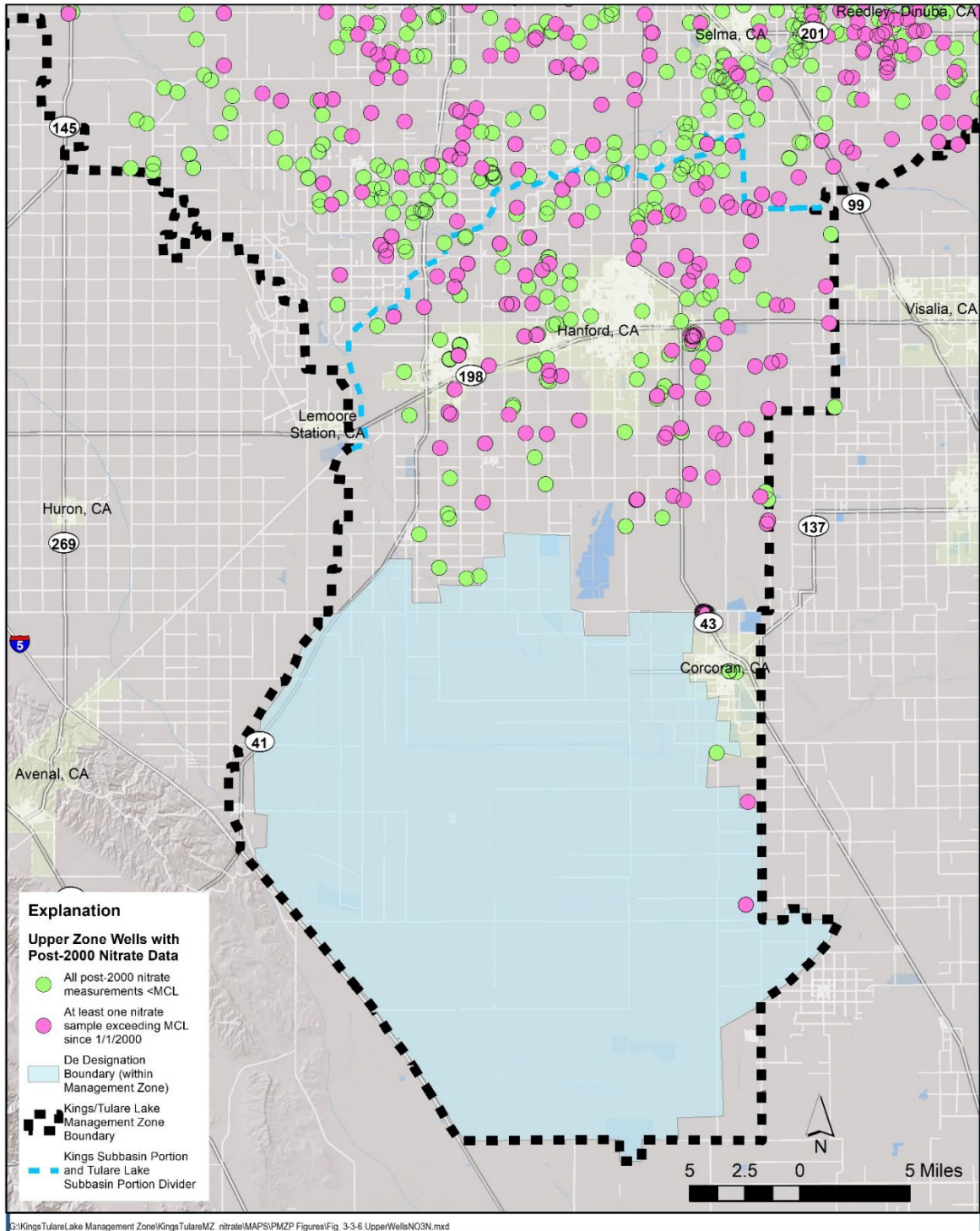
**Figure 3-10. Depth to the Bottom of the Upper Zone, Tulare Lake Subbasin**



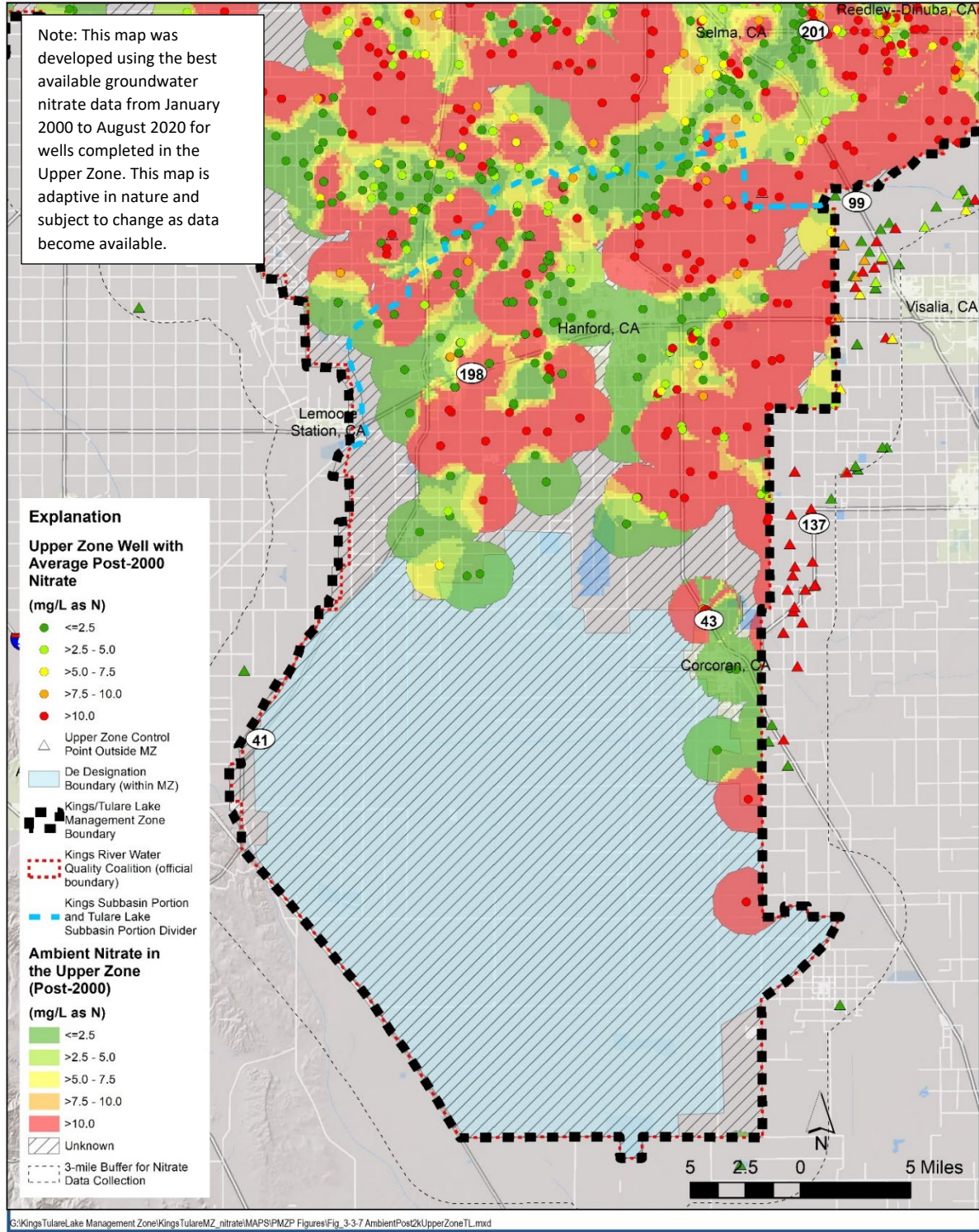
**Figure 3-11. Wells with Nitrate Data within the Proposed KWA Management Zone by Depth Category (Southern Portion/Tulare Lake Subbasin Area)**



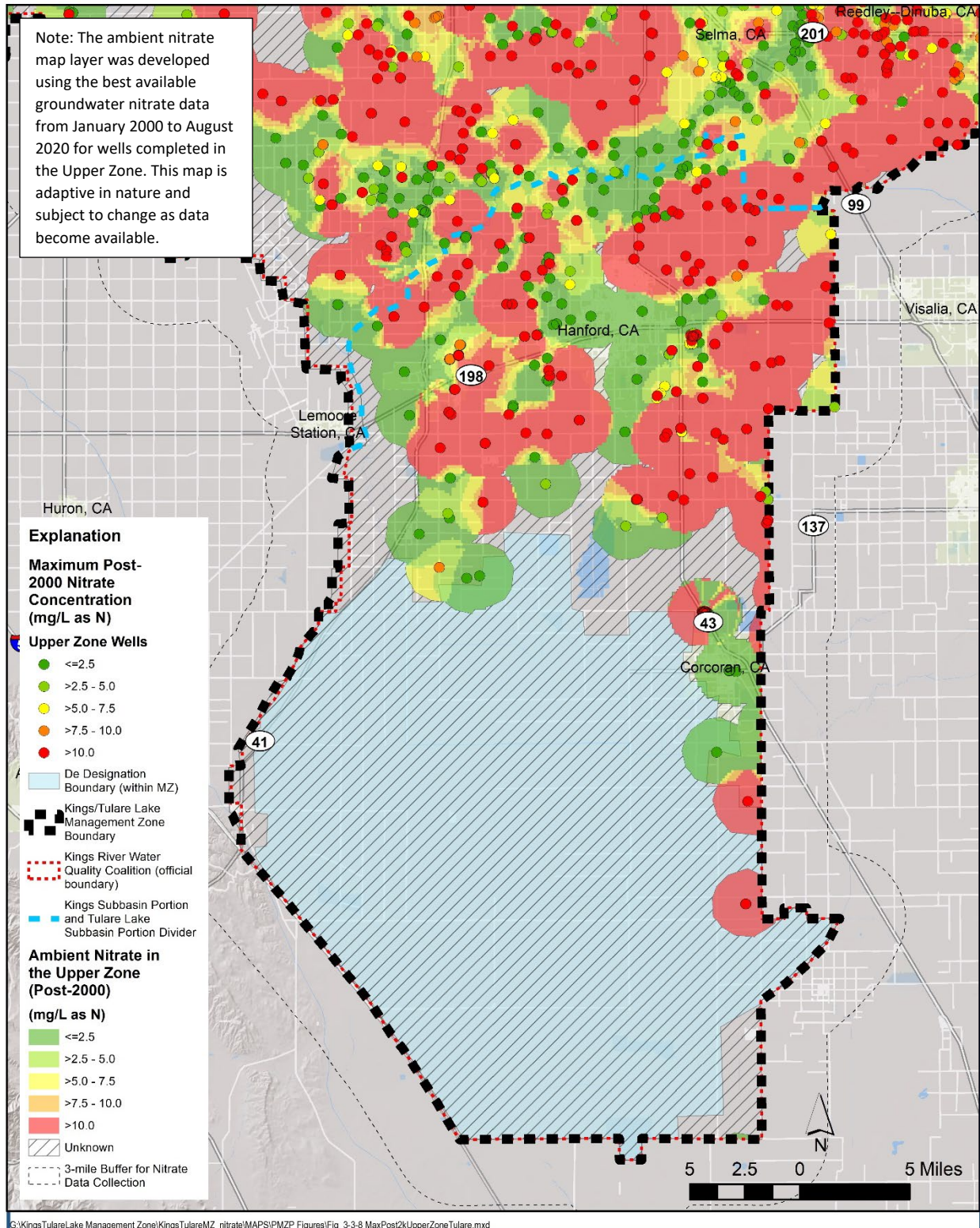
**Figure 3-12. Upper Zone Wells with Nitrate Data and Nitrate MCL Exceedances (Post-2000) in the Southern Portion (Tulare Lake Subbasin Area) of the KWA Management Zone**



**Figure 3-13. Ambient Post-2000 Nitrate Concentrations in the Upper Zone of Groundwater Underlying the Southern Portion (Tulare Lake Subbasin Area) of the Proposed KWA Management Zone.**



**Figure 3-14. Maximum Post-2000 Nitrate in the Upper Zone with Ambient Groundwater Underlying the Proposed KWA Management Zone.**



### 3.3. Management Zone Participants

Management Zone participants may include both permitted dischargers subject to the requirements of the Nitrate Control Program and non-dischargers working collaboratively with the permitted dischargers to support implementation of the Program in general and the EAP specifically. The following sections summarize participation by permitted dischargers and non-dischargers in the Management Zone within the following subbasins: Tulare Lake, Kaweah, Westside, Pleasant Valley, Tule and Kern County.

#### 3.3.1. Permitted Dischargers

The CVWB is anticipated to send a NTC with the Nitrate Control Program to permitted dischargers in Priority 2 areas as early as first quarter of 2022; however, per the regulations it could be as late as some time in 2024. At the request of the Management Zone, the CVWB provided the list of permitted dischargers that are expected to receive the NTC. As needed, this list of permitted dischargers was refined in collaboration with CVWB staff. The following sections summarize outreach activities conducted with permitted dischargers in the proposed Management Zone and the outcome of those efforts.

##### 3.3.1.1. Irrigated Lands Regulatory Program

Growers are permitted to discharge under the ILRP, which works to prevent runoff from agricultural operations from impairing surface waters and groundwater. Implementation of the ILRP occurs through water quality coalitions. A coalition (sometimes referred to as a “third-party”) collectively represent growers within its respective jurisdiction to assist them in their efforts to comply with ILRP requirements. The Kings River Water Quality Coalition (“Coalition”) represents the growers in the proposed Management Zone. General Order R5-2013-0120 (as amended) (“Waste Discharge Requirements General Order for Growers within the Tulare Lake Basin Area that are Members of the Third-Party Group”) establishes the regulatory requirements applicable to growers within the Coalition. The NTC with the Nitrate Control Program was sent to the Coalition on May 29, 2020. On behalf of the growers enrolled under the General Order, the Coalition will comply with the Program as a participant in the Management Zone.

##### 3.3.1.2. Concentrated Animal Feeding Operations

CAFOs are authorized to discharge under various General Orders based on the type of animal feeding operation. Participation in the Management Zone by the dischargers authorized to discharge under these General Orders is discussed in the sections below.

### **Milk Cow Dairies**

Most milk cow dairies located in the proposed Management Zone are regulated under General Order R5-2013-0122 (“Reissued Waste Discharge Requirements General Order for Existing Milk Cow Dairies”). Three dairies in the Southern Portion (Tulare Lake and Kaweah Subbasin Areas) of the KWA Management Zone are not regulated under this General Order, i.e., they operate under individual waste discharge requirements and are included in Section 3.3.1.3 below. The NTC with the Nitrate Control Program was sent to the dairies within the Kaweah Subbasin on May 29, 2020. The NTC has not yet been sent to dairies in the Tulare Lake Subbasin area (see schedule for Priority 2 areas above). **Attachment B, Tables 4 and 6** list the milk cow dairies in the Tulare Lake and Kaweah Subbasins, respectively, that are members of the CVDRMP and participating in the Kings Water Alliance Management Zone. **Attachment B, Tables 5 and 7** list the milk cow dairies in the Tulare Lake and Kaweah Subbasins that are not CVDRMP members. At the time of the submittal of this PMZP, the status of their participation in the Management Zone is unknown. The Management Zone will continue outreach efforts after PMZP submittal.

### **Confined Bovine Feeding Operations**

All confined bovine feeding operations located within the proposed Management Zone are regulated under General Order R5-2017-0058 (“Waste Discharge Requirements General Order for Confined Bovine Feeding Operations”). The NTC with the Nitrate Control Program was sent to the dairies within the Kaweah Subbasin on May 29, 2020. The NTC has not yet been sent to dairies in the Tulare Lake Subbasin area (see schedule for Priority 2 areas above). **Attachment B, Tables 4 and 6** list the confined bovine feeding operations in the Tulare Lake and Kaweah Subbasins, respectively, that are members of the CVDRMP and participating in the Kings Water Alliance Management Zone. **Attachment B, Tables 5 and 7** list the confined bovine feeding operations in the Tulare Lake and Kaweah Subbasins that are not CVDRMP members. At the time of the submittal of this PMZP, the status of their participation in the Management Zone is unknown. The Management Zone will continue outreach efforts after PMZP submittal.

### **Poultry Operations**

All poultry operations located within the proposed Management Zone are regulated under General Order R5-2016-0087 (“Waste Discharge Requirements General Order for Poultry Operations”) (Poultry General Order). The NTC with the Nitrate Control Program was sent to the dairies within the Kaweah Subbasin on May 29, 2020. The NTC has not yet been sent to dairies in the Tulare Lake Subbasin area (see schedule for Priority 2 areas above). **Attachment B, Tables 3 and 8** list the poultry facilities within the Tulare Lake/Kaweah Subbasin area receiving the NTC. These permitted dischargers are collectively participating in the Management Zone and are being outreached to and coordinated with by representatives of the poultry industry, including the California Poultry Federation and Foster Poultry Farms. Under

the Poultry General Order poultry operations are categorized as either Low Threat Operations or Full Coverage Operations. All poultry facilities in this portion of the Management Zone are Low Threat Operations.

### 3.3.1.3. Individually Permitted Dischargers

**Table 3-15** lists the permitted facilities authorized to discharge waste under individual WDRs within the Tulare Lake and Kaweah Subbasins. **Figure 3-15** illustrates the location of each of these permitted facilities within the Southern Portion (Tulare/Kaweah Subbasin Areas) of the KWA Management Zone (map numbers in **Figure 3-15** correspond to the map numbers provided in the first column in **Table 3-15**). There are a number of dischargers located within the De-Designated areas (see table note in Table 3-15 and red numbers in **Figure 3-15**). According to communications with CVWB staff, these dischargers within the De-Designated area will not be receiving an NTC for the Nitrate Control Program.



**Table 3-11. Individually Permitted Dischargers within the Southern Portion (Tulare Lake and Kaweah Subbasin) of the Kings Water Alliance Management Zone (Map ID refers to Figure 3-15)**

Map ID.	Facility Name	Facility Type	Permittee/Facility Address	County	Order No.	CV-SALTS ID
<b>Tulare Lake Subbasin</b>						
1	Armona CSD WWTF	Non15	Armona CSD, South of Armona, Armona, CA 93202	Kings	92-017	1784
2	Bakers Commodities Hanford Facility	Non15	Baker Commodities, Inc., 7480 Hanford Armona Road, Hanford, CA 93230	Kings	R5-2005-0177	2111
3	Central Valley Meats Hanford Facility	Non15	Central Valley Meat Company, 10431 8 ¼ Avenue, Hanford, CA 93230	Kings	R5-2008-0017	2112
4	Corcoran State Prison WWTF	Non15	California Department of Corrections and Rehabilitation, 4001 King, Corcoran, CA 93212	Kings	R5-2016-0027	1932
5 <sup>1</sup>	Corcoran Tomato Processing Facility	Non15	J.G. Boswell Company, 27905 Dairy Avenue, Corcoran, CA 93212	Kings	R5-2017-0076	2790
6	Corcoran WWTF	Non15	City of Corcoran, Pueblo Avenue & 5 <sup>th</sup> Avenue, Corcoran, CA 93212	Kings	91-138	2658
7	El Dorado MHP WWTF	Non15	Egik LLC, 9630 Hwy 41, Lemoore, CA 93245	Kings	96-028	1994
8	Hanford Master Reclamation Project	Non15	City of Hanford, 10555 Houston, Hanford, CA 93230	Kings	00-223	1758
9	Hanford WWTF	Non15	City of Hanford, 10555 Houston, Hanford, CA 93230	Kings	01-153	2667

**Table 3-11. Individually Permitted Dischargers within the Southern Portion (Tulare Lake and Kaweah Subbasin) of the Kings Water Alliance Management Zone (Map ID refers to Figure 3-15)**

Map ID.	Facility Name	Facility Type	Permittee/Facility Address	County	Order No.	CV-SALTS ID
10	Kettleman City WWTF	Non15	City of Kettleman CSD, Racine Avenue, Kettleman City, CA 93239	Kings	79-143	2715
11	Lakeside WD Reclamation Project	Non15	Lakeside Irrigation Water District, 9304 Houston, Hanford, CA 93230	Kings	00-222	2412
12	Lemoore NAS WWTF	Non15	Naval Air Station Lemoore, Hwy 198, Lemoore, CA 93245	Kings	R5-2002-0062	2210
13	Lemoore WWTF/ Leprino Food Company Lemoore Cheese Processing Plant (treated effluent from both facilities discharged at Stone Ranch Evaporation Ponds located in Kings Subbasin)	Non15	Leprino Foods Company, 351 North Bell Haven Drive, Lemoore, CA 93245	Kings	R5-2019-0008	2669/3014
14	Leprino Sludge Discharge	Non15	Leprino Foods Company, 351 North Bell Haven Drive, Lemoore, CA 93245	Kings	-	2789
15 <sup>1</sup>	Mid Evaporation Basin Project	Non15	Tulare Lake Drainage District, PO Box 985, Corcoran, CA 93212	Kings	R5-2015-0134	2958
16	OTP Lemoore Plant	Non15	Olam Spices and Vegetables Inc., 1175 South 19 <sup>th</sup> Avenue, Lemoore, CA 93245	Kings	R5-2012-0120	2504

**Table 3-11. Individually Permitted Dischargers within the Southern Portion (Tulare Lake and Kaweah Subbasin) of the Kings Water Alliance Management Zone (Map ID refers to Figure 3-15)**

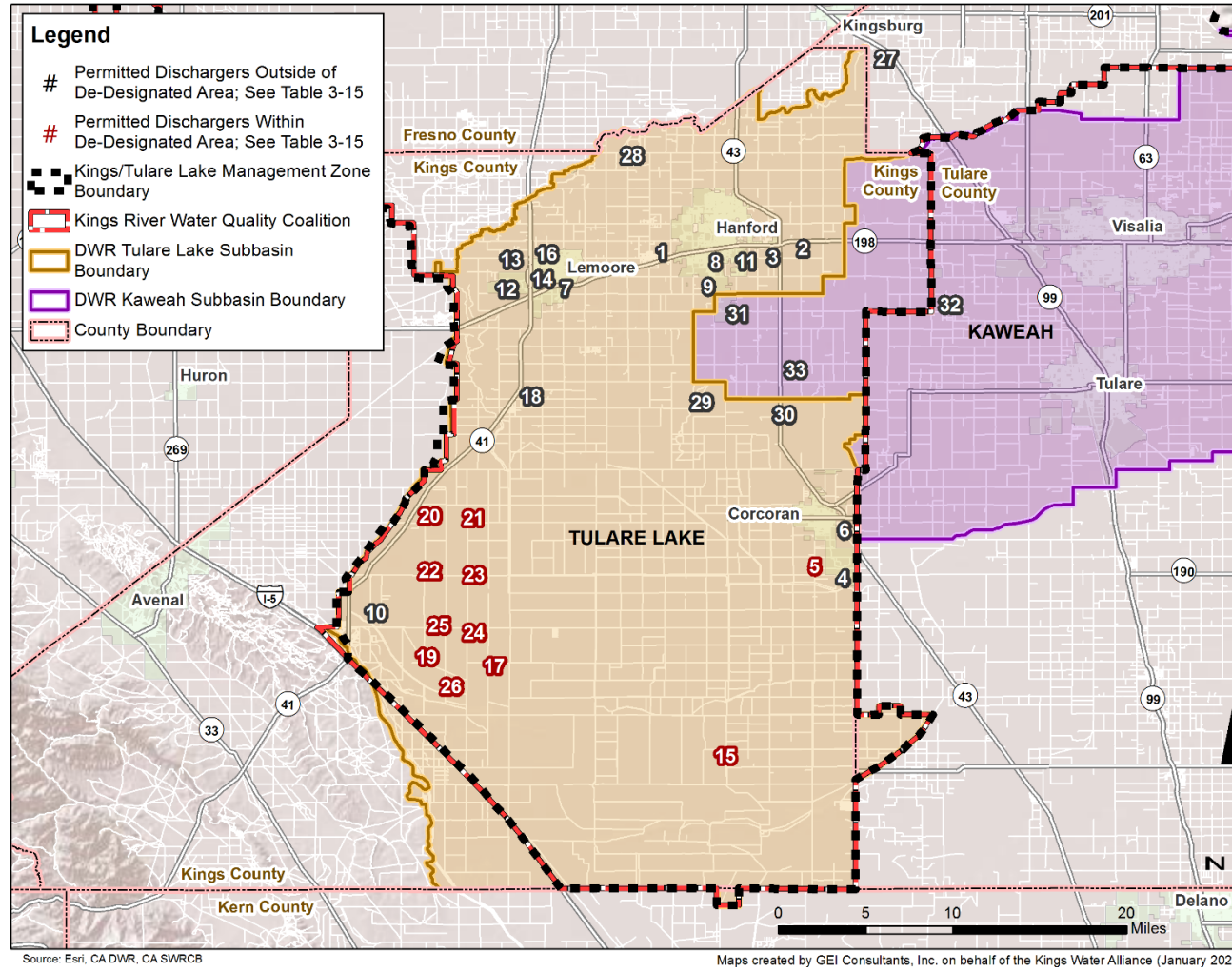
Map ID.	Facility Name	Facility Type	Permittee/Facility Address	County	Order No.	CV-SALTS ID
17 <sup>1</sup>	Sandridge Partners LAA	Non15	Sandridge Partners, LP, North of Utica near I5, Kettleman City, CA 93239	Kings	-	3041
18	Stratford WWTF	Non15	Stratford PUD, Lincoln, Stratford, CA 93266	Kings	2014-0153-DWQ	2682
19 <sup>1</sup>	Tulare Lake Compost	Composting	Los Angeles County Sanitation Districts, Utica and I5 Avenue, Kettleman City, CA 93239	Kings	R5-2010-0094	3149
20 <sup>1</sup>	Tulare Lake Compost Site No. 1	Composting	Los Angeles County Sanitation Districts, Orange and 23 <sup>rd</sup> , Stratford, CA 93266	Kings	2004-0112-DWQ	2988
21 <sup>1</sup>	Tulare Lake Compost Site No. 2	Composting	Los Angeles County Sanitation Districts, Orange and 23 <sup>rd</sup> , Stratford, CA 93266	Kings	2004-0112-DWQ	2989
22 <sup>1</sup>	Tulare Lake Compost Site No. 3	Composting	Los Angeles County Sanitation Districts, Orange and 23 <sup>rd</sup> , Stratford, CA 93266	Kings	2004-0112-DWQ	2990
23 <sup>1</sup>	Tulare Lake Compost Site No. 4	Composting	Los Angeles County Sanitation Districts, Orange and 23 <sup>rd</sup> , Stratford, CA 93266	Kings	2004-0112-DWQ	2991
24 <sup>1</sup>	Tulare Lake Compost Site No. 5	Composting	Los Angeles County Sanitation Districts, Orange and 23 <sup>rd</sup> , Kettleman City, CA 93239	Kings	2004-0112-DWQ	2992

**Table 3-11. Individually Permitted Dischargers within the Southern Portion (Tulare Lake and Kaweah Subbasin) of the Kings Water Alliance Management Zone (Map ID refers to Figure 3-15)**

Map ID.	Facility Name	Facility Type	Permittee/Facility Address	County	Order No.	CV-SALTS ID
25 <sup>1</sup>	Tulare Lake Compost Site No. 6	Composting	Los Angeles County Sanitation Districts, Orange and 23 <sup>rd</sup> , Kettleman City, CA 93239	Kings	2004-0112-DWQ	2993
26 <sup>1</sup>	Tulare Lake Compost Site No. 7	Composting	Los Angeles County Sanitation Districts, Orange and 23 <sup>rd</sup> , Kettleman City, CA 93239	Kings	2004-0112-DWQ	2994
27	Warlow SRRR WWTF	Non15	Kingburg, CA	Kings	2014-0153-DWQ	3561
28	Warmerdam Packing Facility	Non15	Warmerdam Packing LLC, 1560 Excelsior, Hanford, CA 93230	Kings	Pending Order	2609
29	Cloverdale Dairy	Individual Dairy	De Jong Investment Group A PTP 19142 10 1/2 Avenue, Hanford, CA 93230	Kings	R5-2008-0041	77
30	Wreden Ranch Dairy	Individual Dairy	Wreden Ranch LLC, 8749 Lansing Avenue, Hanford, CA 83230	Kings	R5-2008-0043	79
<b>Kaweah Subbasin</b>						
31	Del Monte Foods, Inc., Hanford Plant #24	Non15	Del Monte Foods, Inc., Hanford Plant #24, 10652 Jackson, Hanford, CA 93230	Kings	R5-2014-0116	1951
32	Nichols Pistachio	Non15	Nichols Pistachio, 13762 First, Hanford, CA 93230	Kings	R5-2013-0007	2321
33	Hollandia Farms North Dairy	Individual Dairy	7905 Kansas Avenue, Hanford, CA 93230	Kings	R5-2008-0042	78

<sup>1</sup> Facilities located within the portion of the Tulare Lake Subbasin where MUN and AGR have been de-designated. These facilities will not receive an NTC under the Nitrate Control Program

**Figure 3-15. Location of Individually Permitted Dischargers in the Southern Portion (Tulare Lake and Kaweah Subbasin Areas) of the Kings Water Alliance Management Zone (see Table 3-15 to identify permitted dischargers)**



The Kings Water Alliance reached out to each individually permitted discharger to discuss the Nitrate Control Program requirements and the opportunity to participate in the Management Zone. The Management Zone conducted two rounds of outreach to each of these dischargers via a combination of telephone calls, voicemails, and email. When requested, information was sent to the discharger for further consideration. **Table 3-11** above lists the dischargers with individual WDRs in the Tulare/Kaweah Subbasins that have indicated their intent to participate in this Management Zone.

### ***3.3.2. Non-Discharger/Stakeholder Participation***

Active participation by non-dischargers can facilitate the efforts of the Management Zone to achieve the goals of the Nitrate Control Program. This is especially critical to EAP development and implementation which requires the Management Zone to establish a process to coordinate with others to facilitate efforts to provide interim replacement water. In addition, participation by non-dischargers with roles or interests in land use planning, management of drinking water and wastewater and community engagement will benefit long-term efforts to manage nitrate in the Management Zone.

Since work began to establish the proposed Management Zone, the Kings Water Alliance has sought to identify key non-dischargers to invite them to participate in the development of this PMZP and EAP. Appendix B in the EAP (Attachment D of this document) lists all interested parties, including non-dischargers, currently receiving information about the Management Zone, including invitations to participate in stakeholder meetings. This list was developed through: (a) local area knowledge of project proponents; (b) direct request from entities to be added to the Management Zone's outreach list; (c) addition of entities recommended by participants; and (d) others identified as potentially interested parties through the Management Zone characterization process, e.g., county agencies, water districts or community service districts. All the interested parties will receive regular communication about Management Zone activities, including EAP implementation, and will be provided the opportunity to comment on Management Zone deliverables. The Management Zone will continue to add entities to the interested party outreach list to increase opportunities for collaboration in meeting Nitrate Control Program goals.

### **3.4. Current Nitrate Treatment and Control Efforts or Management Practices**

This section provides a summary of the nitrate treatment and control efforts or management practices currently required for implementation under the discharge permits issued to Management Zone participants.

### **3.4.1. Irrigated Lands Regulatory Program**

General Order R5-2013-0120 (as further amended) establishes the current treatment and control efforts members of the Kings River Water Quality Coalition, the entity responsible for the implementation of the ILRP within the proposed Management Zone. The ILRP groundwater program, which focuses on nitrate contamination, includes elements that address evaluation of current nitrate contamination, monitoring of groundwater quality, development and evaluation of management practices to reduce the leaching of nitrate to groundwater, metrics of grower performance that reflect their potential leaching of nitrogen to groundwater, performance goals, and measures used to evaluate grower progress in reducing leaching. Section 2.4.1 summarized the key reporting and monitoring elements associated with the protection of groundwater under the ILRP. These elements also apply to the Tulare Lake/Kaweah Subbasin areas within this Management Zone. To reduce repetition in this Preliminary Management Zone Proposal, please see Section 2.4.1 for further details about the Irrigated Lands Regulatory Program's components.

### **3.4.2. Concentrated Animal Feeding Operation General Order**

#### **3.4.2.1. Dairy Program**

Dairy General Order R5-2013-0122 establishes the current treatment and control efforts of member dairies. These activities are the same as already described in **Section 2.4.2.1**. Please see **Section 2.4.2.1** for more information about the Dairy Program.

#### **3.4.2.2. Confined Bovine Feeding Operations**

Bovine General Order R5-2017-058 establishes the current treatment and control efforts for Full Coverage Operations. These activities are the same as already described in **Section 2.4.2.2**. For more information on the Confined Bovine Feeding Operations, please refer to **Section 2.4.2.2**.

#### **3.4.2.3. Poultry Farms**

Poultry General Order R5-2016-0087 establishes the current treatment and control efforts for poultry operations in the Tulare Lake/Kaweah Subbasin areas of the Management Zone. These activities are the same as already described in **Section 2.4.2.3**.

### **3.4.3. Individual Permitted Dischargers**

The following subsections summarize the current nitrate treatment and control efforts, or management practices being implemented by each Management Zone participant as required by their individual WDRs.

### 3.4.3.1. Baker Commodities Hanford Facility

#### Facility Description (CV-SALTS ID: 2111)

The Baker Commodities, Inc., Hanford Skinning and Hide Curing Facility is authorized to discharge under WDR Order R5-2017-0177. This facility is located at 7480 Hanford Armona Road, Hanford, CA 93230. The facility is authorized to discharge waste to a designated LAA within DAU 238 in the Kings Basin hydrologic unit. Beneficial uses applicable to the underlying groundwater include MUN, AGR, IND and PRO.

Hide skinning wastewater is generated during the skinning and rinsing process, by washing down truck beds, facility floors, and equipment, and from the rinsing of carcasses and hides. Hide skinning wastewater is discharged to three lined lagoons. The water in these lagoons is pumped and blended with other water sources and delivered to irrigate crops in a land application area.

#### Nitrate Management Requirements

**Table 3-12** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 3-12. Summary of Key Baker Commodities Hanford Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Prohibits the discharge of waste to surface waters and to surface water drainage courses</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>The monthly average daily discharge flow from the facility to the lagoons shall not exceed 0.035 mgd</li> <li>The 124-acre land application area shall be double cropped and irrigated at the reasonable hydraulic rate that meets crop demand</li> </ul>
Groundwater Specifications	<ul style="list-style-type: none"> <li>No waste constituent shall be released through the composite liner of the three lined lagoons in a concentration or mass that will cause groundwater to be degraded more than approved by the Regional Board pursuant to Title 27, section 20400(b)</li> </ul>
Management Plans	<ul style="list-style-type: none"> <li>Nutrient Management Plan that annually provides: Crop information, wastewater analysis, irrigation analysis, field information crop water needs, nutrient application and removal record per field, summary of nitrogen rations per field and crop and a nutrient budget summary</li> </ul>



Table 3-12. Summary of Key Baker Commodities Hanford Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Monitoring & Reporting	<ul style="list-style-type: none"> <li>• Lagoon water blended with irrigation water representative of land-applied discharge which includes nitrate nitrogen, TKN, ammonia and total nitrogen</li> <li>• Groundwater monitoring which includes nitrate nitrogen</li> <li>• Supply water for the facility which includes nitrate nitrogen</li> </ul>

### 3.4.3.2. Kettleman City Wastewater Treatment Facility

#### Facility Description (CV-SALTS ID: 2715)

The Kettleman City CSD is authorized to discharge under WDR Order 79-143. This facility is located along Racine Avenue east of Kettleman City (Township 22 South; Range 19 East, Section 20). Beneficial uses applicable to the underlying groundwater include MUN and AGR. Per the WDR, the trickling filter plant was designed to treat an average flow of 0.22 mgd and a peak flow of 0.67 mgd. The facility discharged its treated effluent to the Blakely Canal, which, per the WDR, is privately owned and operated by Westlake Farms for agricultural irrigation.

#### Nitrate Management Requirements

**Table 3-13** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 3-13. Summary of Key Kettleman City WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Specifications	<ul style="list-style-type: none"> <li>• Neither the treatment nor the discharge shall cause a nuisance or pollution as defined in the California Water Code.</li> <li>• The discharge shall not cause degradation of any water supply.</li> <li>• The thirty day mean daily flow shall not exceed 0.22 mgd.</li> <li>• The use of effluent shall be limited to the irrigation of fiber, fodder and seed crops.</li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>• WDR includes no nitrate related monitoring requirements</li> </ul>

### 3.4.3.3. Lemoore WWTF/Leprino Foods Company

#### Facility Description (CV-SALTS ID: 2004, 2669, 2789, 3014)

The City of Lemoore (City) (CV-SALTS ID 2669) and the Leprino Foods Company (Leprino, CV-SALTS ID 3014) are authorized to discharge treated effluent to Stone Ranch (CV-SALTS ID 2004) under WDR Order R5-2019-0008. Note: the NTC included CV-SALTS ID 2789 for Leprino Sludge Discharge. The applicable WDID is not found in the states database; therefore, for the purposes of this PMZP it has been assumed that the requirements for sludge disposal are addressed by WDR Order R5-2019-0008.

The Lemoore WWTF and Lemoore Cheese Processing Plant are located in the Tulare Lake Subbasin (e.g., see Table 3-11 and Figure 3-15). Stone Ranch, which is located approximately four miles west of the City of Lemoore, is comprised of approximately 2,200 acres that has historically been used to grow crops such as cotton, alfalfa, wheat, tomatoes, and garlic. This LAA is located in the Kings Subbasin (see Table 2-11 and Figure 2-16). The beneficial uses of the underlying groundwater at all facilities are MUN, AGR and IND.

### **Wastewater Treatment Process**

The City provides sanitary wastewater treatment for its estimated 26,000 residents at its WWTF. Leprino historically relied on the City's WWTF to treat process wastewater from its cheese processing facilities. However, in 2002, Leprino completed construction on its own treatment system to treat its process wastewater. At that time and after treatment, Leprino's process wastewater was combined with the City's effluent before being discharged to the Westlake Canal which recycled the wastewater and use it to irrigate fodder and fiber crops. In early 2017, Westlake indicated that it would no longer accept the combined effluent due to elevated levels of salinity in the discharge. As an alternative the City and Leprino implemented a project to discharge their combined effluent to Stone Ranch where it is reused to irrigate approximately 1,900 acres of farmland.

The City's WWTF treatment process consists of two clay-lined aerated lagoons and two partially aerated effluent storage ponds. Process wastewater from Leprino's two facilities is combined in equalization tanks and conveyed through the Leprino treatment facility adjacent to the City's WWTF. The Leprino treatment system utilizes two High-Rate Activated Sludge (HARS) reactors, two Dissolved Air Flotation (DAF) units, and three Sequencing Batch Reactors (SBRs). The wastewater then goes through final filtration before it is discharged to an existing pipeline where it is combined with the City's treated sanitary effluent. Leprino's treatment system also includes two lined facultative lagoons used for off-spec wastewater and wasted solids. After the effluent is combined it is transported to Stone Ranch. Once it reaches Stone Ranch, the combined effluent is discharged into the irrigation canal system and blended with existing irrigation water before being applied to crops.

### **Nitrate Management Requirements**

**Table 3-14** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 3-14. Summary of Key Lemoore WWTF, Lemoore Cheese Processing Plant and Stone Ranch Evaporation Basin WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Discharge of waste to surface waters or surface water drainage courses is prohibited</li> <li>The discharge of agricultural drainage water to surface water or to surface water drainage courses is prohibited. Drainage water reuse for irrigation purposes through ancillary structures (ditches, sumps, and ponds contained within the LAA and its associated agricultural operations) is not prohibited.</li> </ul>
Effluent Limitations	<ul style="list-style-type: none"> <li>The discharge of combined effluent to Stone Ranch shall not exceed a monthly average flow of 5.0 mgd</li> </ul>
Discharge Specifications	<ul style="list-style-type: none"> <li>No waste constituent shall be released, discharged, or placed where it will cause a violation of Groundwater Limitations set forth in Section D of this Order</li> <li>Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as ater Code section 13050</li> </ul>
Land Application	<ul style="list-style-type: none"> <li>The BOD loading to the LAAs calculated as a cycle average shall not exceed 100 lbs/ac/day</li> <li>Crops shall be grown on the LAAs. Crops shall be selected based on nutrient uptake, consumptive use of water, irrigation requirements to maximize crop uptake of water and nutrients, and acceptable crops to receive disinfected secondary-23 recycled water</li> <li>Application of waste constituents to the LAAs shall be at reasonable agronomic rates to preclude creation of a nuisance or degradation of groundwater, considering the crop, soil, climate, and irrigation management system. The annual nutrient loading of the of the LAAs, including the contributions of organic and chemical fertilizers, solids removed from process water, and the combined effluent, shall not exceed the annual crop demand.</li> <li>Hydraulic loading of combined effluent and supplemental irrigation water shall be managed to: (a) Provide water only when water is needed and in amounts consistent with crop needs; (b) Maximize crop nutrient uptake; (c) Maximize breakdown of organic waste constituents in the root zone; and (d) minimize the percolation of waste constituents below the root zone.</li> </ul>

Table 3-14. Summary of Key Lemoore WWTF, Lemoore Cheese Processing Plant and Stone Ranch Evaporation Basin WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
	<ul style="list-style-type: none"> <li>The Dischargers shall ensure that water, BOD, and nitrogen are applied and distributed uniformly across each LAA field. The Dischargers shall implement changes to the irrigation system and/or operation practices as needed to ensure compliance with this specification.</li> </ul>
Groundwater Limitations	Release of waste constituents from any component of any treatment, storage, delivery system, or LAA associated with the discharge of combined effluent to Stone Ranch shall not cause groundwater concentrations to exceed the concentrations specified below or background groundwater quality, whichever is greater: (a) Nitrate as Nitrogen of 10 mg/L (b) For constituents identified in Title 22, the MCLs quantified therein.
Management Plans	Wastewater and Nutrient Management Plan that specifies management practices that will be implemented to ensure wastewater and the nutrients contained therein are applied evenly at agronomic rates and will not cause nuisance conditions or unreasonable degradation of underlying groundwater. The objective of the Wastewater and Nutrient Management Plan is to identify and utilize site specific data to demonstrate wastewater loading will occur at reasonable agronomic rates that will preclude degradation of groundwater or adversely affect beneficial uses
Monitoring & Reporting	<ul style="list-style-type: none"> <li>City of Leprino <ul style="list-style-type: none"> <li>Effluent monitoring includes nitrate and nitrite (as N), TKN, ammonia (as N) and total nitrogen</li> <li>Source water monitoring includes nitrate (as N)</li> </ul> </li> <li>City of Leprino <ul style="list-style-type: none"> <li>Effluent monitoring includes nitrate and nitrite (as N), TKN, ammonia (as N) and total nitrogen</li> </ul> </li> <li>Stone Ranch <ul style="list-style-type: none"> <li>Combined effluent monitoring nitrate and nitrite (as N), TKN, ammonia (as N) and total nitrogen</li> <li>Irrigation supply well monitoring includes nitrate (as N)</li> <li>LAA monitoring: (a) Wastewater and Supplemental Irrigation flow and loading; (b) BOD loading rates; (c) nitrogen loading from wastewater, fertilizer and sludge/solids from supplemental irrigation; and (d) annual cumulative nitrogen loading</li> </ul> </li> </ul>

### 3.4.3.4. Nichols Pistachio

#### Facility Description (CV-SALTS ID: 2321)

Nichols Pistachio is authorized to discharge under WDR Order R5-2013-0007. This facility is located at 13762 First, Hanford, CA 93230. The facility is authorized to discharge waste to a designated LAA within DAU 242 in the Kaweah Basin hydrologic unit. Beneficial uses applicable to the underlying groundwater include MUN, AGR, IND and PRO. Nichols Pistachio processes and packs pistachio nuts for export and sale. Pistachio processing season takes place over 30 to 40 days during the six to eight week period between late August and the middle of October when the pistachios are harvested.

During the pistachio harvest, the facility may operate 24 hours a day seven days a week. Pistachios brought in from the fields are cleaned and processed to remove the hulls. Wastewater generated from the cleaning and hulling process is screened to remove solids and discharged into four lined temporary retention basins. The four temporary retention basins are lined with a 36-mil scrim-reinforced polypropylene synthetic liner, and operated in series with a combined capacity of about two million gallons. The retention basins provide 12 to 24 hours of temporary storage in case of upsets. Wastewater is applied as irrigation water on about 675 acres of farmland. Wastewater is applied via flood, sprinkler or drip irrigation depending on crop type. To remove fine solids and minimize clogging of the drip and irrigation lines the wastewater is pumped through a series of sand filters prior to entering the irrigation system.

#### Nitrate Management Requirements

**Table 3-15** summarizes the nitrate management-related requirements in this facility’s WDR.

Table 3-15. Summary of Key Nichols Pistachio Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> <li>Discharge of waste, including storm water containing waste, to surface waters or surface water drainage courses is prohibited</li> </ul>
Discharge and Solids Disposal Specifications	<ul style="list-style-type: none"> <li>The discharge shall not exceed a maximum daily flow of 5 million gallons or an average daily flow for the season of 2.4 mgd</li> <li>No waste constituent shall be released, discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of Groundwater Limitations of this Order</li> <li>Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050</li> </ul>

Table 3-15. Summary of Key Nichols Pistachio Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
	<ul style="list-style-type: none"> <li>Any handling and storage of residual solids on property of the Discharger shall be temporary, and controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate the groundwater limitations of this Order</li> <li>Hulls and other solids shall be removed from sumps, screens, wastewater ponds, etc. as needed to ensure optimal operation and adequate hydraulic capacity. Solids drying operations, if any, shall be designed and operated to prevent leachate generation.</li> </ul>
Land Application Area	<ul style="list-style-type: none"> <li>The cycle average BOD loading rate to the LAA shall not exceed 100 lbs/acre/day.</li> <li>Crops shall be grown on the LAA. Crops shall be selected based on nutrient uptake, consumptive use of water, and irrigation requirements to maximize crop uptake.</li> <li>Hydraulic loading of wastewater and irrigation water shall be at reasonable agronomic rates designed to minimize the percolation of wastewater and irrigation water below the root zone (i.e., deep percolation).</li> <li>Application of waste constituents shall be at reasonable agronomic rates to preclude creation of a nuisance or degradation of groundwater, considering the crop, soil, climate, and irrigation management. The annual nutritive loading to the LAA, including the nutritive value of organic and chemical fertilizers and of the wastewater, shall not exceed the annual crop demand, except for potassium, which may be applied at rates exceeding crop demand, due to the fact that the crops grown in the LAA can take up more potassium than that which is required with no decrease in yield.</li> <li>Any handling and storage of residual solids on property of the Discharger shall be temporary, and controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate the groundwater limitations of this Order</li> </ul>

Table 3-15. Summary of Key Nichols Pistachio Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Groundwater Specifications	<ul style="list-style-type: none"> <li>• Release of waste constituents from any treatment, reclamation, or storage component associated with the discharge shall not cause or contribute to groundwater containing constituent concentrations in excess of the concentrations specified below or background quality, whichever is greater: <ul style="list-style-type: none"> <li>○ Nitrate (as N) of 10 mg/L</li> <li>○ For constituents identified in Title 22, the MCLs quantified therein</li> </ul> </li> </ul>
Management Plans	<p>Nutrient and Wastewater Management Plan that includes at a minimum: (a) procedures for monitoring the LAA including daily records of wastewater applications and acreages; (b) action plan to deal with objectionable odors and/or nuisance conditions; (c) discussion on blending of wastewater and supplemental irrigation water; (d) supporting data and calculations for monthly and annual water and nutrient balances; and (e) management practices that will ensure wastewater, irrigation water, and commercial fertilizers are applied at agronomic rates, except for potassium. For potassium, the Plan must describe how potassium loading to the Reuse Area will not impact groundwater quality over the long term.</p>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>• Effluent monitoring including nitrate ( as N), TKN and total nitrogen</li> <li>• Soils monitoring that includes TKN and nitrate (as N)</li> <li>• LAA monitoring: (a) Wastewater flow and loading; supplemental Irrigation flow; total hydraulic loading; (b) BOD loading rates; (c) nitrogen loading from wastewater and fertilizer</li> </ul>

## 4. EARLY ACTION PLAN DEVELOPMENT

The Nitrate Control Program requires establishment of an EAP for the Kings Water Alliance Management Zone. Per the regulations, the EAP is required to include the following (Central Valley Water Board, 2020):

- 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;
- A process for coordinating with others that are not dischargers to address drinking water issues, which must include consideration of coordinating with impacted communities, domestic well users and their representatives, the State Water Board's Division of Drinking Water, Local Planning Departments, Local County Health Officials, Sustainable Groundwater Management Agencies and others as appropriate;
- 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, that are drinking groundwater that exceeds nitrate standards and that do not otherwise have interim replacement water that meets drinking water standards; and
- A funding mechanism for implementing the EAP, which may include seeking funding from Management Zone participants, and/or local, state and federal funds that are available for such purposes.

In general, the EAP identifies specific activities, and a schedule for implementing those activities, to ensure immediate access to safe drinking water for those who are dependent on groundwater from wells that exceed the nitrate drinking water standard. However, the establishment and implementation of the EAP to provide interim replacement water does not create a presumption of liability for the cause of the elevated nitrate concentrations in the groundwater. **Attachment D** to this PMZP provides the complete EAP for the proposed Kings Water Alliance Management Zone that is consistent with the above requirements. The sections below provide a high-level overview of the key elements associated with the development and content of the EAP.

### 4.1. Development Approach

The EAP was developed as part of the public outreach process implemented to develop the proposed Management Zone. The following sections describe how the groundwater data and community outreach activities were coordinated to develop this EAP.



### **4.1.1. Identification of Public Water Supplies and Domestic Wells Potentially Exceeding Nitrate Water Quality Objective**

#### **4.1.1.1. Nitrate-Impacted Areas**

Section 2.2.4 and Section 3.2.4 above summarize sources of nitrate groundwater quality data available for the proposed Management Zone (e.g., see **Table 2-8** and **Table 3-8**) and describe how these data were used to assess existing nitrate water quality conditions. The Upper Zone average nitrate concentration data for wells in the Management Zone were used to produce a geospatial analysis of estimated average ambient groundwater quality conditions across the Management Zone (**Figure 2-14** and **Figure 3-13**).

For the KWA Northern Portion (Kings Subbasin Area) of this proposed Management Zone, groundwater quality data for wells completed in the Upper Zone were prevalent throughout the entire region, with slightly less well coverage in the west. **Figure 2-14** shows that several smaller local nitrate-impacted areas exist within the Upper Zone in the Management Zone (defined as having average recent nitrate concentrations exceeding the MCL of 10 mg/L nitrate as N). The largest nitrate-impacted area is in the southeast area of the Northern Portion (Kings Subbasin Area) of the KWA Management Zone, as well as some smaller pockets throughout the remainder of the Management Zone.

For the KWA Southern Portion (Tulare Lake Subbasin Area) of this proposed Management Zone, groundwater quality data for wells completed in the Upper Zone were mainly available in the northern region and along the eastern side of the area, with less well coverage in the south and west. **Figure 3-13** shows that several local nitrate-impacted areas exist within the Upper Zone in the Management Zone (defined as having average recent nitrate concentrations exceeding the MCL of 10 mg/L nitrate as N). The largest nitrate-impacted area is in the northeast area of the Southern Portion (Tulare Lake Subbasin Area) of the KWA Management Zone, as well as some smaller pockets to the west and southeast of the Management Zone.

This analysis has some inherent uncertainty associated with domestic well locations and the ambient nitrate map. The initial assessment of ambient nitrate conditions is adaptable and subject to change as additional Upper Zone groundwater nitrate data become available over time.

#### **4.1.1.2. Potentially Impacted Public Supply Wells**

**Section 2.1.5** and **Section 3.1.5** above describes how residential water systems are classified in California and summarizes the types of water systems present within the proposed KWA Management Zone. The following sections further develop this information by evaluating, to the extent data are available, the nitrate water quality characteristics associated with public supply wells within these water systems. Where appropriate, information may be summarized

here, and the reader will be directed to the Early Action Plan in **Attachment-F** for more detailed information.

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

The State Water Board's Drinking Water Source and Water Systems identification documentation was accessed from DDW to understand how many systems have active versus inactive wells that have nitrate (as N) 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 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.

Elevated nitrate concentrations have been found in many PWS wells in the Kings Water Alliance Management Zone. The State Water Board's Drinking Water Source and Water Systems identification documentation was accessed via the internet<sup>38</sup> to provide water system information that complements water quality data from the DDW. Together, these two sources provide information on how many systems have active versus inactive wells that have nitrate (as N) 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 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, 158 public supply wells in the Management Zone have exceeded the MCL for nitrate. 153 of those public supply wells that have exceeded the MCL are located in the Northern Portion (Kings Subbasin Area) of the KWA Management Zone. Of those 153 wells in the Northern Portion (Kings Subbasin Area) 79 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 abandoned wells (three wells), destroyed wells (19 wells), pending a status assignment (three wells), or inactive (49 wells). There are 81 unique water systems with active wells that have exceeded the nitrate MCL, which translates to an estimated population served of 612,867. This is an over-estimate of impacted persons, as many PWSs have treatment systems to remove or blend water with nitrate prior to delivery to customers.

For the Southern Portion (Tulare Lake Subbasin Area) of the KWAMZ, five (5) of the 158 public supply wells that have exceeded the MCL are located in the Southern Portion (Tulare Lake Subbasin Area) of the KWA Management Zone. Of those five wells in the Southern Portion, three wells are considered "Active" (Active Raw, meaning the groundwater is sampled directly

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<sup>38</sup> <https://sdwis.waterboards.ca.gov/PDWW/>

from the well; or Active Untreated, meaning the groundwater is sampled at a point between the well and a treatment system); the remaining two wells are inactive. There are four unique water systems that have experienced elevated nitrate (>10 mg/L as N), and two of those water systems have active wells that have exceeded the nitrate MCL, which translates to an estimated population served of 180. This is potentially an over-estimate of impacted persons, as PWS' may have treatment systems to remove or blend water with nitrate prior to delivery to customers.

### ***Public Water System Delivered Water Treatment Status***

There are a small number of active wells that have been tested for nitrate with results indicating nitrate concentrations exceeding the MCL of 10 mg/L nitrate as N, many PWS 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.

Even when a water system has a documented treated source according to DDW, this does not ensure 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 81 unique PWS in the Northern Portion (Kings Subbasin Area) of the KWA Management Zone with nitrate exceedances, 44 of them have treatment capabilities as indicated by having a treated source in the DDW records. 20 of those 44 water systems indicate treatment that might deal with nitrate (e.g., via Reverse Osmosis (RO), Ion Exchange (IX), Granular Activated Carbon (GAC), or Blending). For the Southern Portion (Tulare Lake Subbasin Area) of the Management Zone, out of the four unique PWS with nitrate exceedances located within the Southern Portion (Tulare Lake Subbasin Area) of the

KWA Management Zone, none of them (zero) have treatment capabilities as indicated by having a treated source in the DDW records. Specific chemical treatment capabilities for PWS' are not readily available, and this is a recognized data gap. For PWS' that have nitrate samples exceeding the nitrate MCL and are regulated by the Division of Drinking Water, it is possible to determine if these systems are out-of-compliance due to nitrate and/or other contaminants. For smaller systems, typically regulated at the county level, further research will be needed to determine if these systems have treatment capabilities when nitrate concentrations in their supply wells indicate impacted conditions.

Table E-4 in Appendix E of the Early Action Plan (**Attachment D**) lists all of the PWS' in the KWA Management Zone and lists the compliance status and whether or not the system is out of compliance due to being impacted by elevated nitrate conditions. The Public Water Systems that are out of compliance due to nitrate or due to nitrate plus another co-contaminant are summarized in Table 2-2 in the Early Action Plan (**Attachment D**). A total of six (6) public water systems are currently out of compliance (as of January 2021) due to nitrate issues alone within the KWA Management Zone; additionally, five (5) public water systems are currently out of compliance (as of January 2021) due to nitrate PLUS additional co-contaminants (such as 1,2,3 TCP or perchlorate). This translates to a total population served of 2,348 from public water systems currently out of compliance (as of January 2021) due to nitrate contamination alone in the KWA Management Zone; and a total population served of 382 from public water systems currently out of compliance (as of January 2021) due to nitrate PLUS additional co-contaminants (such as 1,2,3 TCP or perchlorate).

#### 4.1.1.3. Potentially Impacted Domestic Wells

**Figure 4-1** illustrates the locations of potentially impacted domestic wells and areas of elevated nitrate (7.5 mg/L to 10 mg/L nitrate as N, and > 10 mg/L nitrate as N). These areas were used along with DWR spatial coverage of domestic well locations based on Well Completion Reports (WCRs) recorded by DWR<sup>39</sup>. In the Northern Portion (Kings Subbasin Area) of the KWAMZ, there are approximately 4,858 domestic wells within the PWS residential service areas. In the Southern Portion (Tulare Lake Subbasin Area) of the KWAMZ, there are approximately 216 domestic wells within the PWS residential service areas. It is unknown whether any of these wells are still being used even though they are potentially in a PWS area. The number of domestic wells outside of PWS service areas far outweighs those of unknown use status within PWS service areas. Smaller Public Water Systems do not have a mappable service area associated with them, simply a physical address and number of connections. The domestic

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<sup>39</sup> Several domestic well locations provided by DWR's Well Completion Report database may not be exact locations, but rather plot in the center of a 1-square mile township/range-section area. Therefore, several domestic wells may plot at the same location, and their locations are accurate up to one mile. Also the map of ambient nitrate is adaptable and subject to change as more Upper Zone nitrate data become available.

wells that may be located within these smaller PWS that do not have a documented service area mapped boundary readily available to the public are conservatively counted in the domestic well count in the category of domestic wells outside known PWS boundaries.

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;
- Group 2 - Groundwater in the Upper Zone with nitrate as N above 2.5 mg/L and at or below 5.0 mg/L;
- Group 3 - Groundwater in the Upper Zone with nitrate as N above 5.0 mg/L and at or below 7.5 mg/L;
- Group 4 - Groundwater in the Upper Zone with nitrate as N above 7.5 mg/L and at or below the MCL of 10 mg/L;
- Group 5 - Nitrate as N exceeding the MCL of 10 mg/L 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 domestic 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 4-1**).

To estimate the population of people relying on potentially impacted groundwater with elevated nitrate in their domestic wells, 2010 census block data were mapped and joined with the ambient Upper Zone ambient nitrate concentrations occurring outside of PWS boundaries. The population was summed for census blocks outside PWS boundaries and within the proposed Management Zone for those areas with nitrate concentrations in the Upper Zone (using the six categories of nitrate concentration described above). **Table 4-1** summarizes the results of this analysis.

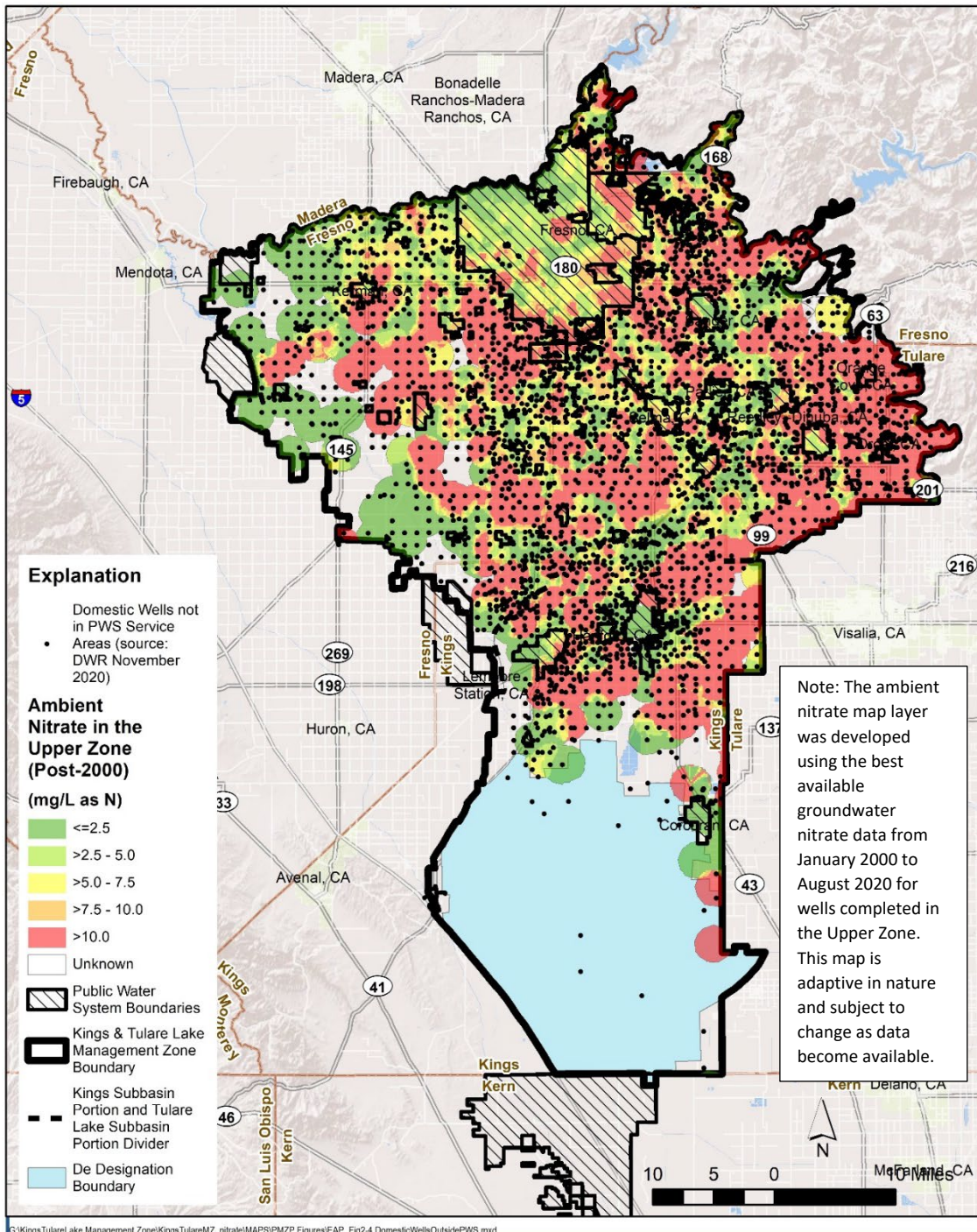
Table 4-1. Summary of Domestic Wells and Population with Estimated Upper Zone Nitrate Area Categories

Estimated Upper Zone Ambient Nitrate (2000-2020)**	DWR Domestic Wells Located Outside PWS Boundaries					Total Domestic Wells in MZ Outside PWS	DWR Dom. Wells Within PWS Boundaries	2010 Census Block Analysis (outside PWS service areas)		
	Northern Portion (Kings Subbasin Area) of Domestic Wells Outside PWS Boundaries	% of Total Northern Portion Domestic Wells Outside PWS	Southern Portion (Tulare Lake Subbasin Area) of Domestic Wells Outside PWS Boundaries	% of Total Southern Portion Domestic Wells Outside PWS	Within De-Designation Boundary Areas			Total Domestic Wells in MZ Within PWS	Northern Portion (Kings Subbasin Area) Population Outside PWS Boundaries	Southern Portion (Tulare Lake Subbasin Area) Population Outside PWS Boundaries
<b>Group 1: ≤2.5 mg/L as N</b>	<b>1,685</b>	<b>13.7%</b>	<b>513</b>	<b>25.7%</b>	<b>3</b>	<b>2,198</b>	<b>870</b>	<b>12,257</b>	<b>21,633</b>	<b>33,890</b>
<b>Group 2: &gt;2.5 – 5.0 mg/L as N</b>	<b>1,611</b>	<b>13.1%</b>	<b>219</b>	<b>11.0%</b>	<b>0</b>	<b>1,830</b>	<b>1,203</b>	<b>12,555</b>	<b>2,886</b>	<b>15,441</b>
<b>Group 3: &gt;5.0 – 7.5 mg/L as N</b>	<b>1,748</b>	<b>14.2%</b>	<b>156</b>	<b>7.8%</b>	<b>0</b>	<b>1,904</b>	<b>765</b>	<b>11,873</b>	<b>764</b>	<b>12,637</b>
<b>Group 4: &gt;7.5 – 10.0 mg/L as N</b>	<b>1,598</b>	<b>13.0%</b>	<b>88</b>	<b>4.4%</b>	<b>0</b>	<b>1,686</b>	<b>736</b>	<b>9,688</b>	<b>823</b>	<b>10,511</b>
<b>Group 5: &gt;10.0 mg/L as N</b>	<b>5,491</b>	<b>44.7%</b>	<b>935</b>	<b>46.8%</b>	<b>3</b>	<b>6,426</b>	<b>1,457</b>	<b>38,416</b>	<b>9,238</b>	<b>47,654</b>
<b>Group 6: Unknown*</b>	<b>156</b>	<b>1.3%</b>	<b>85</b>	<b>4.3%</b>	<b>14</b>	<b>241</b>	<b>43</b>	<b>669</b>	<b>893</b>	<b>1,562</b>
<b>Total (Outside PWS Boundaries)</b>	<b>12,289</b>	<b>100.0%</b>	<b>1,996</b>	<b>100.0%</b>	<b>20</b>	<b>14,285</b>	<b>5,074</b>	<b>85,458</b>	<b>36,236</b>	<b>121,695</b>

\*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.

\*\* Ambient nitrate levels are based on best available groundwater nitrate data meticulously vetted at the time of analysis and is based on Upper Zone nitrate data from January 2000 to August 2020. These mapped nitrate levels are subject to change and are therefore adaptable, as new data become available.

**Figure 4-1. Domestic Wells Located Outside Public Water System Areas in the Kings Water Alliance Management Zone.**





## 4.2. Community Outreach

The Kings Water Alliance implemented a community outreach program to support development of the EAP. Section 1.4.4.2 above summarizes the community outreach activities completed to date. Section 1.2 of the EAP and the associated attachments in the EAP appendices provide additional information. The community outreach to date has been conducted to support development of the EAP. However, as described in the EAP an extensive community outreach program will continue during EAP implementation.

## 4.3. Key Early Action Plan Elements

This section provides a summary of the key elements of the Kings Water Alliance Management Zone's EAP. The Management Zone's EAP will be implemented in two phases:

- *Phase 1* - EAP implementation will occur first in the Priority 1 areas of the Management Zone that include all or part of the Kings, Kaweah, and Tule Subbasins and the very small adjacent Priority 2 areas in the Delta Mendota and Madera Subbasins.
- *Phase 2* - EAP implementation will be expanded to include the Priority 2 Tulare Lake Subbasin and very small adjacent Priority 2 areas in the Westside, Pleasant Valley and Kern County Subbasins.

**Attachment D** should be consulted to review the details associated with the implementation of each of these elements:

- *Process to Identify Affected Residents* – EAP Section 3 describes the approach the Management Zone will implement to identify residents most likely to be relying on a domestic well with nitrate > 7.5 mg/L-N (e.g., see **Figure 2-14** above). This method, which will be implemented in both phases, is designed to obtain the addresses of residents in impacted areas so that the Management Zone can reach out directly to let them know of the availability of an interim replacement water program to address nitrate contamination concerns. Even though these residents are targeted for outreach based on the water quality findings described above, anyone in the Management Zone can request to have their well tested to be sure they are not drinking nitrate-contaminated water.
- *Community Outreach during EAP Implementation* – EAP Section 4 describes community outreach activities that will be implemented under the EAP. Outreach will occur through various means (website, flyers, email, etc.), but there will be regular community meetings with the first meeting occurring in May 2021 when the EAP begins implementation. Outreach initiated in Phase 1 will continue into Phase 2.

- *Interim Replacement Water Program* – The EAP includes options for obtaining safe drinking water that targets areas where the upper zone groundwater most likely has nitrate concentrations that exceed 10 mg/L-N. These options include:
  - *Bottled Water Delivery or Point-of-Use Treatment Systems (“POU System”)* – At the same time that water fill stations are being developed, the Management Zone will implement a bottled water delivery and POU System program for residents that meet specific criteria. These criteria include: (a) resident lives within the Management Zone; (b) resident is willing to establish the necessary agreements to establish requested replacement water services; and (c) the residence receives its drinking water from a source that has nitrate that exceeds 10 mg/L-N.
  - *Water Fill Stations* – The Management Zone currently has three operational fill stations located in Dinuba, Kerman and Hanford, CA. A water fill 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. Based on input from the community, the Kings Water Alliance will consider installing up to three additional fill stations over the two phases of EAP implementation. These fill stations would provide additional trusted sources of safe drinking water to the community at no cost.
- *Well Testing Program* – The Management Zone will implement a well testing program to support the bottled water delivery and POU System replacement water programs as they are implemented first in Phase 1 and then later in Phase 2. This program will test a resident’s well for nitrate at no cost to the resident to verify they meet program criteria for receiving replacement water at their residence. Residents may request to have their well tested for nitrate at any time by contacting the Management Zone.

#### 4.4. Schedule of Implementation

Unless the CVWB objects, the Management Zone will begin implementation of Phase 1 of the EAP within 60 days of submittal of this PMZP or by May 7, 2021. **Figure 4-2** provides an overview of the Phase 1 EAP schedule. EAP Table 6-1 provides additional details to support this schedule including the timing of key implementation milestones. The EAP includes regular program monitoring and submittal of periodic status reports to the CVWB. The EAP also includes an adaptive management element to provide a means to modify the Plan where needed to improve or facilitate implementation, especially based on input from the local community.

Kings Water Alliance Management Zone  
Preliminary Management Zone Proposal

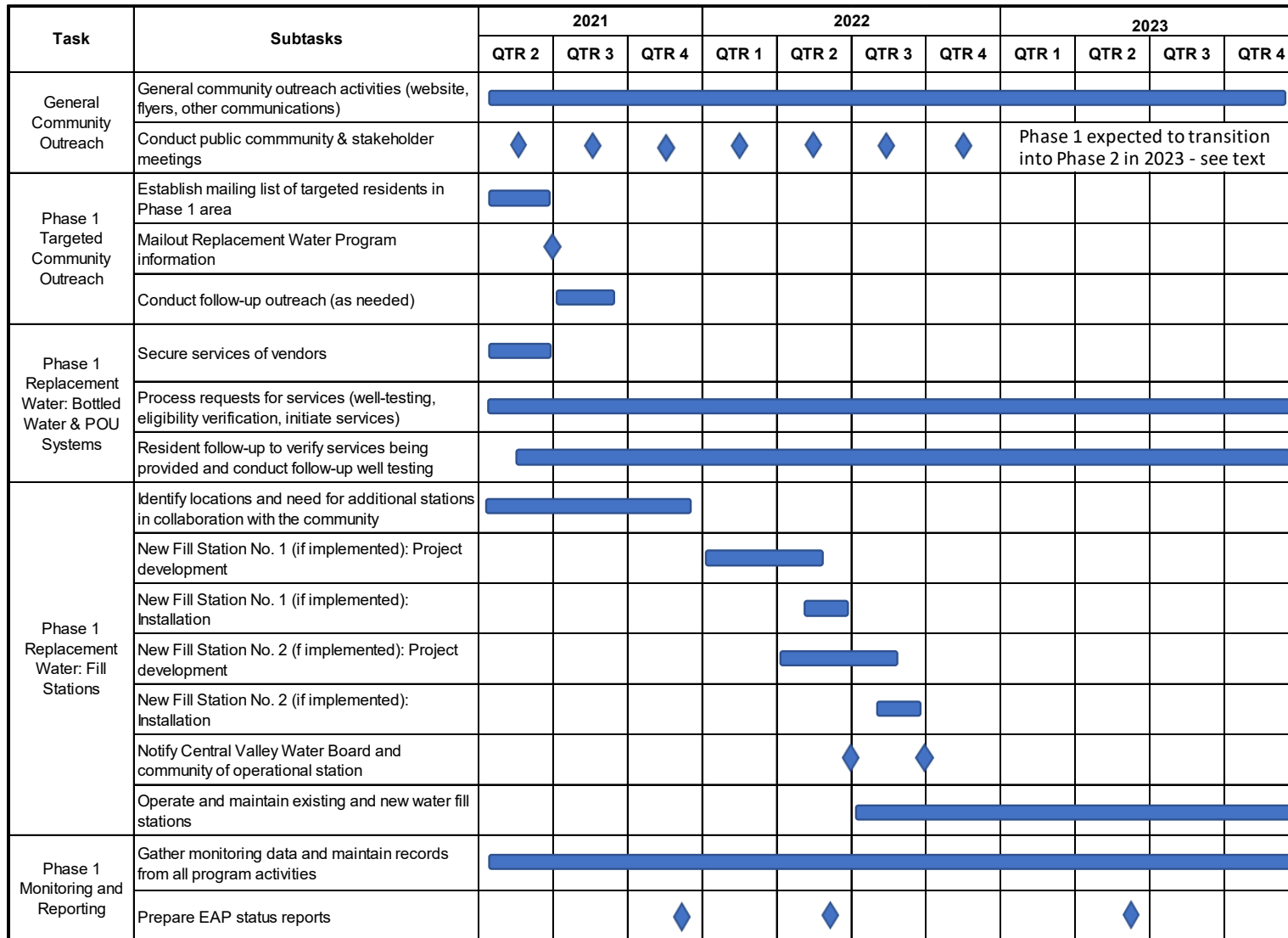


Figure 4-2. General Phase 1 EAP Implementation Schedule

## 5. PLAN TO FINALIZE MANAGEMENT PROPOSAL

This section discusses how the Management Zone will finalize its Management Zone Proposal consistent with the requirements of the Nitrate Control Program.

### 5.1. Identification of Final Management Zone Participants

As noted in Section 1, the Kings Water Alliance Management Zone includes both Priority 1 and Priority 2 areas, as defined by the Nitrate Control Program (Central Valley Water Board, 2020). Although the Kings Water Alliance conducted outreach to all permitted dischargers in the proposed Management Zone, the date by which permittees need to decide how to comply with the Nitrate Control Program, i.e., participation in a Management Zone (Path B) or comply as an individual permittee (Path A) varies. Permitted dischargers in Priority 1 areas (Kings, Kaweah and Tule Subbasin portions of the Management Zone) will need to choose their compliance pathway by May 7, 2021; dischargers in Priority 2 areas will not need to select a compliance pathway until the deadlines established in the Priority 2 NTC. Given these differences in decision deadlines, development of the final list of Management Zone participants will vary by area of the Management Zone.

#### **Priority 1 Area (Portions of the Kings, Kaweah and Tule Subbasins within the Proposed Kings Water Alliance Management Zone)**

Any permitted dischargers that are not identified in this PMZP as participants at the time of submittal may still join the Management Zone before the Final Management Zone Proposal (FMZP) is submitted. These permittees may be added for the following reasons:

- Permittee did not submit a response to the NTC by the due date May 7, 2021. Although subject to an enforcement action, these permittees may still be eligible to select Path B and join the Kings Water Alliance Management Zone.
- CVWB may determine that a permittee that selected Path A as their compliance pathway under the Nitrate Control Program may not be able to meet the Path A requirements. These permittees may be eligible to join the Management Zone.

Any permittee that requests to join the Management Zone after PMZP submittal, for whatever reason, must obtain approval from the Kings Water Alliance. The Kings Water Alliance governing Board will determine the requirements to join the Management Zone at this late date, including the required level of financial support and necessary data submittals.

A permitted discharger identified as a Management Zone participant in this PMZP may withdraw from the Management Zone prior to submittal of the FMZP, subject to the requirements established at the time the participant joined the Management Zone. To withdraw from the Management Zone, the discharger must notify the CVWB and the Kings

Water Alliance Board of the intent to leave the Management Zone. The CVWB will consider approval of the request to leave the Management Zone on a case-by-case basis. If approved, the permittee will need to comply with Path A requirements including submitting an initial groundwater assessment as part of its Notice of Intent within 30 days of withdrawing from the Management Zone. The permittee must also notify the Management Zone as required by the Kings Water Alliance by-laws.

When a facility submits a ROWD to the CVWB for a new or expanded discharge within the proposed Management Zone boundary, the facility may elect to comply with the Nitrate Control Program through participation in the Kings Water Alliance Management Zone. The CVWB will work with the permittee that submitted the ROWD and the Management Zone to ensure the facility is included in the Final Management Zone Proposal.

**Priority 2 Area (Tulare Lake Subbasin and portions of Madera, Delta-Mendota and Kern County Subbasins within the Proposed Kings Water Alliance Management Zone)**

At this time, it is anticipated that a permitted discharger located within this portion of the Management Zone will not have to decide whether to participate in the Management Zone until at least early 2023 (assumes they receive a NTC with the Nitrate Control Program by January 2022). This compliance date is well after the expected due date for the FMZP (see below). Permitted dischargers located in Priority 2 areas that have not yet joined the Management Zone prior to submittal of the FMZP may still request to join the Management Zone at a later date. Per the Nitrate Control Program, they will need to submit a NOI to the CVWB of their intent to be included as a participant in a previously-submitted Management Zone Proposal. In addition, the permittee will need to notify the Kings Water Alliance and comply with all requirements of participation as stated in the bylaws.

## 5.2. Boundary Refinement

The proposed Management Zone boundary is aligned with the Kings River Water Quality Coalition boundary. Although the Coalition boundary is unlikely to change prior to submittal of the FMZP the Management Zone will verify that there will be changes to the proposed Management Zone boundary as part of its submittal. If any changes to the proposed Management Zone boundary are recommended in the FMZP, the final proposal will be supported by appropriate documentation. This may occur, for example, as a result of dischargers in the Management Zone selecting Pathway A. If appropriate, the negotiated area determined to be the responsibility of Pathway A dischargers may be removed from the Kings Water Alliance boundary.

### 5.3. Groundwater Assessment Updates

Sections 2.2.4 and 3.2.4 provide a comprehensive initial assessment of nitrate water quality conditions in the upper zone groundwater underlying the proposed Kings Water Alliance Management Zone. This initial groundwater assessment will be updated as needed to support the FMZP and later development of the Management Zone Implementation Plan (MZIP). Examples of additional data that may be incorporated into the FMZP include:

- Domestic well nitrate results that become available through either (a) implementation of well testing under the ILRP; or (b) through implementation of the residential well testing program in the EAP.
- Additional data identified through continued outreach activities to non-dischargers in the Management Zone.
- Results of additional data collection from wells already incorporated in the initial assessment that has occurred since preparation of the PMZP.

### 5.4. Management Zone Governance & Funding

Funding to implement the EAP and further develop Management Zone deliverables is currently provided by the participating dischargers based on a Kings Water Alliance Board-approved cost allocation. As part of its annual budgeting process, the Board will evaluate cost allocations among its participating dischargers.

### 5.5. Submittal of Deliverables

The CVWB will make this PMZP available for public comment for at least 30 days after being publicly posted by the Board on its website and through the Lyris Management System. The CVWB will provide comments on the PMZP to the Kings Water Alliance Management Zone after completion of this public comment process. The Management Zone will submit its FMZP to the CVWB no later than 180 days after receiving comments from the CVWB on this PMZP. The FMZP will include the following:

- Consideration of the comments received on the PMZP;
- Timeline for development of the MZIP, which is to be submitted to the CVWB no later than 180 days after the FMZP is accepted by the CVWB's Executive Officer;
- Updated list of Management Zone participants, as needed;
- Updated governance structure, as needed, to establish or confirm the following: (a) roles and responsibilities of all participants; (b) identification of funding or cost-share agreements to implement short term nitrate management projects/activities, which may include local, state and federal funds that are available for such purposes; and (c) a mechanism to resolve disputes among participating dischargers;

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- Additional evaluation of groundwater conditions in the Management Zone area, if necessary;
- Explanation of how the Management Zone plans to interact and/or coordinate with other similar efforts such as those underway pursuant to SGMA; and,
- Documentation of actions taken so far to implement the EAP (consistent with the schedule included in the EAP).

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## 7. ATTACHMENTS

### 7.1. Kings Water Alliance Management Zone Attachments

- Attachment A-1 Groundwater Sustainability Agencies within and Adjacent to the Proposed Kings Water Alliance Management Zone – Northern Portion (Kings Subbasin Area)
- Attachment A-2 Groundwater Sustainability Agencies within and Adjacent to the Proposed Kings Water Alliance Management Zone – Southern Portion (Tulare Lake Subbasin Area)
- Attachment B Permitted Milk Cow Dairies, Confined Bovine Feeding Operations and Poultry Operations in the Management Zone
- Attachment C Outreach Records for Development of Preliminary Management Zone Proposal
- Attachment D Early Action Plan
- Attachment E Kings Water Alliance Articles of Incorporation and By-Laws

## Attachment A

### A-1. Groundwater Sustainability Agencies Within and Adjacent to the Proposed Kings Water Alliance Management Zone

#### ***Northern Portion (Kings Subbasin Portion Area)***

There are nineteen (19) GSAs that are located within and around the Northern Portion (Kings Subbasin Portion Area) of the Kings Water Alliance Management Zone. They are listed below:

- *Central Delta-Mendota GSA*
- **Central Kings GSA**
- *County of Fresno GSA – Delta-Mendota Management Area B*
- *County of Fresno GSA – Westside*
- *County of Madera GSA – Delta Mendota*
- *County of Madera GSA – Madera*
- *East Kaweah GSA*
- *Greater Kaweah GSA*
- **James GSA**
- **Kings River East GSA**
- *Madera Irrigation District GSA*
- **McMullin Area GSA**
- *Mid-Kings River GSA*
- **North Fork Kings GSA**
- **North Kings GSA**
- *Root Creek Water District GSA*
- *South Fork Kings GSA*
- **South Kings GSA**
- *Westlands Water District GSA*

There are seven GSAs that make up the majority of the Northern Portion (Kings Subbasin portion Area) of the KWAMZ (listed in bold above). The following sections provide a brief summary of each GSA, including points of contact, information about who makes up the GSA, and other interested parties that have been contacted by the GSAs. Member agencies or interested parties for the listed GSAs include but are not limited to the following list<sup>40</sup>:

#### **Central Delta-Mendota GSA**

- Point of Contact: Aaron Barcellos, Chairperson, Central Delta-Mendota GSA, 27480 S. Bennett Road | Firebaugh, CA 93622, 209-826-2636 | [aaron@abarag.com](mailto:aaron@abarag.com)
- Member Agencies: The following entities signed a Joint Powers Agreement (JPA) to form the Central Delta-Mendota GSA: Eagle Field Water District, County of Fresno, Fresno Slough Water District, County of Merced, Mercy Springs Water District, Pacheco Water District, Panoche Water District, San Luis Water District, Santa Nella County Water District, and Tranquility Irrigation District.
- Other Interested Parties: Agricultural users; Domestic well users; Municipal Well Operators: Cities of Dos Palos, Firebaugh, Los Banos, and Mendota; South Dos Palos

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<sup>40</sup> GSA-information including points of contact, interested parties, and member agencies are derived from reported information each GSA provided to DWR found here: <https://sgma.water.ca.gov/portal/gsa/all>

County Water District, North Dos Palos Water District, Midway Community Services District, Volta Community Services District, City of Dos Palos; Department of Fish and Game, U.S. Bureau of Reclamation, San Luis & Delta-Mendota Water Authority; Santa Nella CDP, and Santa Nella County Water District

### **Central Kings GSA**

- Point of Contact: Phillip Desatoff, General Manager, Central Kings GSA, 2255 Chandler Street | Selma, CA 93662, (559) 896-1661 | [pdesatoff@cidwater.com](mailto:pdesatoff@cidwater.com)
- Member Agencies: The following local agencies have a Memoranda of Understanding (MOU): Consolidated Irrigation District, the County of Kings, the County of Fresno and the County of Tulare.
- Other Interested Parties: Agricultural users; Domestic well owners; Municipal Well Owners: City of Selma, City of Sanger, City of Parlier, City of Kingsburg, City of Fowler, Del Rey Community Services District, and Caruthers Community Services District, Del Rey and Caruthers; Kings River Conservation District

### **County of Fresno GSA – Delta-Mendota Management Area B**

- Point of Contact: Steven E. White, Director, Department of Public Works and Planning, County of Fresno, 2220 Tulare Street, Sixth Floor | Fresno, California 93721 | Phone (559)600-4497 / 600-4022 / 600-4540
- Member Agency: Fresno County
- Other Interested Parties: Agricultural users, Domestic well users

### **County of Fresno GSA – Westside**

- Point of Contact: Bernard Jimenez, Deputy Director of Planning, County of Fresno GSA – Westside, 2220 Tulare St. 6th Floor | Fresno, CA 93721, (559)600-4234 | [bjimenez@co.fresno.ca.us](mailto:bjimenez@co.fresno.ca.us) [www.co.fresno.ca.us](http://www.co.fresno.ca.us)
- Member Agency: County of Fresno
- Other Interested Parties: Agricultural Users; Domestic Well Users; City of Huron; U.S. Bureau of Reclamation; Westlands Water District, Broadview Water District, and the San Luis and Delta Mendota Water Authority; Naval Air Station Lemoore.

### **County of Madera GSA – Delta Mendota**

- Point of Contact: Stephanie Anagnoson, Director of Water Resources, County of Madera GSA – Delta Mendota, 200 West Fourth Street | Madera, CA 93637559.675.7703 x 2265 | [stephanie.anagnoson@maderacounty.com](mailto:stephanie.anagnoson@maderacounty.com) [maderacountywater.com](http://maderacountywater.com)
- Member Agency: County of Madera
- Other Interested Parties: Agricultural Users; Domestic Well Owners

### **County of Madera GSA – Madera**

- Point of Contact: Stephanie Anagnoson, Director of Water Resources, County of Madera GSA – Madera, 200 West Fourth Street | Madera, CA 93637559.675.7703 x 2265 | [stephanie.anagnoson@maderacounty.com](mailto:stephanie.anagnoson@maderacounty.com) [maderacountywater.com](http://maderacountywater.com)
- Member Agency: Madera County
- Other Interested Parties: Agricultural users; Domestic well owners; 23 Public Water Systems and one Mutual Water Company; The Central California Women’s Facility and Valley State Prison; Communities: Parksdale, County Service Area 14 – Chuk-Chanse, Fairmead, Sotelo, Valley Teen Ranch, and Bonadelle Ranchos.

### **East Kaweah GSA**

- Point of Contact: Michael Hagman, Executive Director, East Kaweah GSA, P.O. Box 908 | Lindsay, CA 93247, 559-562-2534 | [mhagman@lindmoreid.com](mailto:mhagman@lindmoreid.com)
- Member Agency: JPA formed between Lindmore Irrigation District, Lindsay-Strathmore Irrigation District, Exeter Irrigation District, Ivanhoe Irrigation District, Stone Corral Irrigation District, the City of Lindsay, and the County of Tulare.
- Other Interested Parties: Agricultural users; Domestic well operators; Municipal well operators: City of Lindsey, Pratt Mutual Water Company, Soult’s Mutual Water Company, Mooney Groove Park, Cutler Park, Saputo Dairy Food USA, Mobile Home Parks, The Lakes, Bedel Mutual Water Company; Public Water Systems: City of Tulare, California Water Service Company, Tulare Irrigation District; California Native American Tribes: Santa Rosa Rancheria Tachi-Yokut Tribe, Wuksache Tribe; Kaweah Delta Water Conservation District, Tulare Irrigation District.

### **Greater Kaweah GSA**

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- Point of Contact: Eric Osterling, General Manager, Greater Kaweah GSA, 2975 N. Farmersville Blvd. | Farmersville, CA 93223, (559) 302-9987  
| [eosterling@greaterkaweahgsa.org](mailto:eosterling@greaterkaweahgsa.org) [www.greaterkaweahgsa.org](http://www.greaterkaweahgsa.org)
- Member Agencies: JPA formed between the County of Tulare, Kaweah Delta Water Conservation District, Kings County Water District, Lakeside Irrigation Water District, and St. Johns Water District.
- Other Interested Parties: Agricultural users; Domestic well owners; Public Water Systems: Cal Water

**James GSA**

- Point of Contact: Steven Stadler, Executive Director, James GSA, 8749 Ninth Street, P.O. Box 757 | San Joaquin, CA 93660-0757, 559-693-4356  
| [sstadler@jamesid.org](mailto:sstadler@jamesid.org) [www.jamesgsa.org](http://www.jamesgsa.org)
- Member Agency: Memorandum of Understanding between James Irrigation District and Reclamation District 1606
- Other Interested Parties: Rural residents; City of San Joaquin; California Department of Fish and Wildlife; San Luis and Delta-Mendota Water Authority; Kings River Water Association; U.S. Bureau of Reclamation; Tranquillity Public Utilities District; Tranquillity Irrigation District; Kings River Conservation District

**Kings River East GSA**

- Point of Contact: Chris Kapheim, General Manager, Kings River East GSA, 289 North Street | Dinuba, CA 93618, 559-358-8228 | [cmk@altaid.org](mailto:cmk@altaid.org) [www.altaid.org](http://www.altaid.org)
- Member Agencies: The following local agencies entered into a Memorandum of Understanding: County of Tulare, County of Fresno, City of Dinuba, City of Reedley, City of Orange Cove, Alta Irrigation District, Orange Cove Irrigation District, Hills Valley Irrigation District, Tri-Valley Water District, Kings River Water District, Orosi Public Utility District, Cutler Public Utility District, London Community Services District, East Orosi Community Services District, and Sultana Community Services District.
- Other Interested Parties: Tulare County Farm Bureau; Fresno County Farm Bureau; Citrus Mutual; Kings River Conservation District; Department of Water Resources; Community Water Center; Bureau of Reclamation.

**Madera Irrigation District GSA**

- Point of Contact: Thomas Greci, General Manager, Madera Irrigation District GSA, 12152 Road 28 1/4 | Madera, CA 93637559-673-3514 | [tgreci@madera-id.org](mailto:tgreci@madera-id.org)  
<http://www.madera-id.org/>
- Member Agency: Madera Irrigation District
- Other Interested Parties: Agricultural users; Domestic Well owners; City of Madera; ; County of Madera; North Fork Rancheria of Mono Indians of California; City of Faimead; City of Parkwood; Gravelly Ford Water District; Root Creek Water District; Madera Water District; Aliso Water District; Columbia Canal Company; Chowchilla Water District; City of Chowchilla.

### **McMullin Area GSA**

- Point of Contact: Matthew Hurley, Plan Manager, McMullin Area GSA, 275 S. Madera Avenue, Suite 301 | Kerman, CA 93630, 559-515-3339  
| [mhurley@mcmullinarea.org](mailto:mhurley@mcmullinarea.org)<https://www.mcmullinarea.org/>
- Member Agencies: Joint Powers Authority comprised by the County of Fresno, the Raisin City Water District and the Mid-Valley Water District.
- Other Interested Parties: Agricultural users; Domestic well operators; California Department of Fish and Wildlife; Kings River Conservation District.

### **Mid-Kings River GSA**

- Point of Contact: Dennis Mills, Mid-Kings River GSA Secretary, Mid-Kings River GSA, 200 North Campus Drive | Hanford, CA 93230, 559-584-6412 | [kcwdh2o@sbcglobal.net](mailto:kcwdh2o@sbcglobal.net)
- Member Agencies: Joint Powers Authority comprised of the Kings County Water District, the City of Hanford, and the County of Kings.
- Other Interested Parties: Agricultural users; Domestic users; Public Water Systems: Armona Community Services District, Home Garden Community Services District, Hardwick Water Company; Lemoore Naval Air Station; Tachi Yokut Tribe; Kings River Conservation District.

### **North Fork Kings GSA**

- Point of Contact: Charlotte Gallock, Director of Water Resources, North Fork Kings GSA, 4886 E. Jensen Ave | Fresno, CA 93725, 559-237-5567 x105 | [cgallock@krcd.org](mailto:cgallock@krcd.org)
- Member Agency: Kings River Conservation District

- Other Interested Parties: Agricultural and domestic well owners; Lanare Community Services District, Laton Community Services District, and Riverdale Public Utilities District; Fresno and Kings Counties

### **North Kings GSA**

- Point of Contact: Kassy Chauhan, Executive Officer, North Kings GSA, 2907 S. Maple Street | Fresno, CA 93725, 559-233-7161 x7109  
| [northkingsgsa@gmail.com](mailto:northkingsgsa@gmail.com)<https://www.northkingsgsa.org>
- Member Agencies: Joint Powers Authority comprised of Fresno Irrigation District, the County of Fresno, the City of Fresno, the City of Clovis, the City of Kerman, Biola Community Services District, Garfield Water District, and International Water District.
- Other Interested Parties: Agricultural users; Domestic well owners; Bakman Water Company; Bureau of Reclamation; Malaga, Calwa, Pinedale, Friant, and the City of Kerman; Kings River Conservation District.

### **Root Creek Water District GSA**

- Point of Contact: Julia Berry, General Manager, Root Creek Water District GSA, P.O. Box 27950 | FRESNO, CA 93729, 559-283-8276  
| [JULIA@ROOTCREEKWD.COM](mailto:JULIA@ROOTCREEKWD.COM)<http://rootcreekwd.com/>
- Member Agency: Root Creek Water District
- Other Interested Parties: Agricultural users; Domestic well owners; County of Madera.

### **South Fork Kings GSA**

- Point of Contact: Charlotte Gallock, Director of Water Resources, South Fork Kings GSA, 4886 E. Jensen Ave | Fresno, CA 93725, 559-237-5567 x105 | [cgallock@krcd.org](mailto:cgallock@krcd.org)
- Member Agencies: Joint Powers Authority comprised of the City of Lemoore, County of Kings, Empire West Side Irrigation District, Stratford Irrigation District and Stratford Public Utility District.
- Other Interested Parties: Agricultural and domestic well owners; Santa Rosa Rancheria Tachi-Yokut Tribe; Kings River Conservation District.

### **South Kings GSA**



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- Point of Contact: David Peters, South Kings GSA, 128 S. 5th Street | Fowler, CA 93625, (559) 834-3113 | [dpeters@peters-engineering.com](mailto:dpeters@peters-engineering.com)
- Member Agencies: Joint Powers Authority comprised of the City of Fowler, City of Parlier, City of Kingsburg, City of Sanger, and City of Selma.
- Other Interested Parties: Agricultural users; Domestic well owners; County of Fresno; Kings River Conservation District.

**Westlands Water District GSA**

- Point of Contact: Kiti Campbell, Senior Resources Engineer, Westlands Water District GSA, 3130 N. Fresno Street, P.O. Box 6056 | Fresno, CA 93703-6056, 559-241-6226 | [kcampbell@westlandswater.org](mailto:kcampbell@westlandswater.org)<http://wwd.ca.gov/>
- Member Agency: Westlands Water District
- Other Interested Parties: Agricultural Users; Domestic Well Users; Municipal Well Operators/Public Water Systems: the cities of Avenal and Huron, the communities of Three Rocks, Cantua Creek, Turk, Calfax, O'Neil Farms, and El Porvenir; Fresno and Kings Counties; Naval Air Station Lemoore; Broadview Water District; San Luis & Delta Mendota Water Authority.

## A-2. Groundwater Sustainability Agencies Within and Adjacent to the Proposed Kings Water Alliance Management Zone

### ***Southern Portion (Tulare Lake Subbasin Portion Area)***

There are fifteen (15) GSAs that are located within and around the Southern Portion (Tulare Lake Subbasin Portion Area) of the Kings Water Alliance Management Zone. They are listed below:

- *Alpaugh GSA*
- *Central Kings GSA*
- **El Rico GSA**
- **Greater Kaweah GSA**
- *Kern Groundwater Authority GSA*
- *Kings River East GSA*
- *Mid-Kaweah GSA*
- **Mid-Kings River GSA**
- *North Fork Kings GSA*
- *Semitropic Water Storage District GSA*
- **South Fork Kings GSA**
- **Southwest Kings GSA**
- **Tri-County Water Authority GSA – Tulare Lake**
- *Tri-County Water Authority GSA – Tule*
- *Westlands Water District GSA*

There are six GSAs that make up the majority of the Southern Portion (Tulare Lake Subbasin portion Area) of the KWAMZ (listed in bold above). The following sections provide a brief summary of each GSA, including points of contact, information about who makes up the GSA, and other interested parties that have been contacted by the GSAs. Member agencies or interested parties for the listed GSAs include but are not limited to the following list<sup>41</sup>:

#### **Alpaugh GSA**

- Point of Contact: David Kahn, Attorney, Alpaugh GSA, 219 N. Douty Street | Hanford, CA 93230, 559-584-3337 | [dkahn@kschanford.com](mailto:dkahn@kschanford.com)
- Member Agencies: Alpaugh Irrigation District, Alpaugh Community Services District, and Atwell Island Water District.
- Other Interested Parties: Agricultural users; Domestic well owners; County of Tulare; U.S. Bureau of Land Management.

#### **Central Kings GSA**

- Point of Contact: Phillip Desatoff, General Manager, Central Kings GSA, 2255 Chandler Street | Selma, CA 93662, (559) 896-1661 | [pdesatoff@cidwater.com](mailto:pdesatoff@cidwater.com)

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<sup>41</sup> GSA-information including points of contact, interested parties, and member agencies are derived from reported information each GSA provided to DWR found here: <https://sgma.water.ca.gov/portal/gsa/all>

- Member Agencies: The following local agencies have a Memoranda of Understanding (MOU): Consolidated Irrigation District, the County of Kings, the County of Fresno and the County of Tulare.
- Other Interested Parties: Agricultural users; Domestic well owners; Municipal Well Owners: City of Selma, City of Sanger, City of Parlier, City of Kingsburg, City of Fowler, Del Rey Community Services District, and Caruthers Community Services District, Del Rey and Caruthers; Kings River Conservation District

### **El Rico GSA**

- Point of Contact: Jeof Wyrick, Chairman, El Rico GSA, 101 W. Walnut Street | Pasadena, CA 91103, 626-583-3000 | [jwyrick@igboswell.com](mailto:jwyrick@igboswell.com)
- Member Agencies: Joint Powers Authority formed by Alpaugh Irrigation District, City of Corcoran, Corcoran Irrigation District, the County of Kings, Lovelace Reclamation District No. 739, Melga Water District, Salyer Water District, Tulare Lake Basin Water Storage District, and Tulare Lake Drainage District.
- Other Interested Parties: Agricultural users and Domestic well owners.

### **Greater Kaweah GSA**

- Point of Contact: Eric Osterling, General Manager, Greater Kaweah GSA, 2975 N. Farmersville Blvd. | Farmersville, CA 93223, (559) 302-9987 | [eosterling@greaterkaweahgsa.org](mailto:eosterling@greaterkaweahgsa.org) [www.greaterkaweahgsa.org](http://www.greaterkaweahgsa.org)
- Member Agencies: JPA formed between the County of Tulare, Kaweah Delta Water Conservation District, Kings County Water District, Lakeside Irrigation Water District, and St. Johns Water District.
- Other Interested Parties: Agricultural users; Domestic well owners; Public Water Systems: Cal Water

### **Kern Groundwater Authority GSA**

- Point of Contact: Patricia Poire, Planning Manager, Kern Groundwater Authority GSA, 1800 30th Street, Suite 280 | Bakersfield, CA 93301, (661) 479-7171 | [ppoire@kerngwa.com](mailto:ppoire@kerngwa.com) <http://www.kerngwa.com/>
- Member Agencies: Arvin Community Services District, Arvin Edison Water Storage District, Cawelo Water District, City of Shafter, Kern County, Kern County Water Agency, Kern-Tulare Water District, North Kern Water Storage District, Olcese Water District,

Rosedale-Rio Bravo Water Storage District, Semitropic Water Storage District, Shafter-Wasco Irrigation District, Southern San Joaquin Municipal Utility District, Tejon-Castaic Water District, West Kern Water District, Westside Water District Authority, Wheeler Ridge-Maricopa Water Storage District

- Other Interested Parties: Agricultural Users; Domestic Well Owners; Cities of Delano, McFarland, Wasco, Shafter, and Arvin; Environmental Groups: American Rivers, Friends of the River, the Nature Conservancy, and the Bay Institute.

### **Kings River East GSA**

- Point of Contact: Chris Kapheim, General Manager, Kings River East GSA, 289 North Street | Dinuba, CA 93618, 559-358-8228 | [cmk@altaid.org](mailto:cmk@altaid.org)[www.altaid.org](http://www.altaid.org)
- Member Agencies: The following local agencies entered into a Memorandum of Understanding: County of Tulare, County of Fresno, City of Dinuba, City of Reedley, City of Orange Cove, Alta Irrigation District, Orange Cove Irrigation District, Hills Valley Irrigation District, Tri-Valley Water District, Kings River Water District, Orosi Public Utility District, Cutler Public Utility District, London Community Services District, East Orosi Community Services District, and Sultana Community Services District.
- Other Interested Parties: Tulare County Farm Bureau; Fresno County Farm Bureau; Citrus Mutual; Kings River Conservation District; Department of Water Resources; Community Water Center; Bureau of Reclamation.

### **Mid-Kaweah GSA**

- Point of Contact: Aaron Fukuda, Interim General Manager, Mid-Kaweah GSA, 6826 Avenue 240 | Tulare, CA 93274, 559-686-3425 | [akf@tulareid.org](mailto:akf@tulareid.org)<https://www.midkaweah.org/>
- Member Agency: Joint Powers Authority formed by the City of Tulare, Tulare Irrigation District, and the City of Visalia.
- Other Interested Parties: Agricultural Users; Domestic Well Owners; Municipal Well Operators: Pratt Mutual Water Company, Soult's Mutual Water Company, Mooney Grove Park, Cutler Park, Saputo Dairy Food USA, Mobile Home Parks (Mooney Grove Manor, Royal Oaks, Westlake Village, Willow Glen, County Mano, Mountain View), The Lakes, and Bedel Mutual Water Company; Public Water Systems: City of Tulare, California Water Service Company, Tulare Irrigation District, Rural school districts, and water districts in adjacent subbasins (Kings Co. WD, Corcoran ID, Lakeside WD): Tulare County, and Tulare County LAFO; Santa Rosa Rancheria Tachi-Yokut Tribe and Wuksache

Tribe; Soultis Tract, Lone Oak Tract, Matheny Tract, E. Tulare Tract, Self-Help Enterprises, Community Water Center; Kaweah Delta WCD.

### **Mid-Kings River GSA**

- Point of Contact: Dennis Mills, Mid-Kings River GSA Secretary, Mid-Kings River GSA, 200 North Campus Drive | Hanford, CA 93230, 559-584-6412 | [kcwdh2o@sbcglobal.net](mailto:kcwdh2o@sbcglobal.net)
- Member Agencies: Joint Powers Authority comprised of the Kings County Water District, the City of Hanford, and the County of Kings.
- Other Interested Parties: Agricultural users; Domestic users; Public Water Systems: Armona Community Services District, Home Garden Community Services District, Hardwick Water Company; Lemoore Naval Air Station; Tachi Yokut Tribe; Kings River Conservation District.

### **North Fork Kings GSA**

- Point of Contact: Charlotte Gallock, Director of Water Resources, North Fork Kings GSA, 4886 E. Jensen Ave | Fresno, CA 93725, 559-237-5567 x105 | [cgallock@krkd.org](mailto:cgallock@krkd.org)
- Member Agency: Kings River Conservation District
- Other Interested Parties: Agricultural and domestic well owners; Lanare Community Services District, Laton Community Services District, and Riverdale Public Utilities District; Fresno and Kings Counties

### **Semitropic Water Storage District GSA**

- Point of Contact: Jason Gianquinto, General Manager, Semitropic Water Storage District GSA, 1101 Central Ave | Wasco, CA 93280, (661) 758-5113 | [jgianquinto@semitropic.com](mailto:jgianquinto@semitropic.com) [www.Semitropic.com](http://www.Semitropic.com)
- Member Agency: Semitropic Water Storage District
- Other Interested Parties: Agricultural Users; Domestic Well Owners; Lost Hills Utility District; Wasco State Prison; Kern County; City of Wasco; Kern National Wildlife Refuge; Multiple Private Duck Clubs many of which are members of the Semitropic Wildlife Improvement District; Kern National Wildlife Refuge.

### **South Fork Kings GSA**

- Point of Contact: Charlotte Gallock, Director of Water Resources, South Fork Kings GSA, 4886 E. Jensen Ave | Fresno, CA 93725, 559-237-5567 x105 | [cgallock@krkd.org](mailto:cgallock@krkd.org)

- Member Agencies: Joint Powers Authority comprised of the City of Lemoore, County of Kings, Empire West Side Irrigation District, Stratford Irrigation District and Stratford Public Utility District.
- Other Interested Parties: Agricultural and domestic well owners; Santa Rosa Rancheria Tachi-Yokut Tribe; Kings River Conservation District.

### **Southwest Kings GSA**

- Point of Contact: Deanna Jackson, Executive Director, Southwest Kings GSA, 944 Whitley Avenue, Suite E | Corcoran, CA 93212, (559) 762-7240  
| [djackson@tcwater.org](mailto:djackson@tcwater.org)<http://tcwater.org/>
- Member Agency: Joint Powers Authority formed by Dudley Ridge Water District, Tulare Lake Reclamation District No. 761, Tulare Lake Basin Water Storage District, Kettleman City Community Services District, and the County of Kings.
- Other Interested Parties: Agricultural users; Domestic well owners; Kings River Conservation District.

### **Tri-County Water Authority GSA – Tulare Lake**

- Point of Contact: Deanna Jackson, Executive Director, Tri-County Water Authority GSA - Tulare Lake, 944 Whitley Avenue, Suite E | Corcoran, CA 93212, (559) 762-7240  
| [djackson@tcwater.org](mailto:djackson@tcwater.org)<http://tcwater.org/>
- Member Agency: Tri-County Water Authority
- Other Interested Parties: Agricultural users; Domestic well owners; Angiola Water District, Kings County, U.S. Bureau of Land Management; Tulare Lake Basin Water Storage District.

### **Tri-County Water Authority GSA – Tule**

- Point of Contact: Deanna Jackson, Executive Director, Tri-County Water Authority GSA – Tule, 944 Whitley Avenue, Suite E | Corcoran, CA 93212, (559) 762-7240  
| [djackson@tcwater.org](mailto:djackson@tcwater.org)<http://tcwater.org/>
- Member Agency: Tri-County Water Authority
- Other Interested Parties: Agricultural users, Domestic well owners, Angiola Water District; Alpaugh Irrigation District; Atwell Island Water District; Alpaugh Community Services District; Allensworth Community Services District; County of Tulare; U.S. Bureau

of Land Management; Natural Resources Conservation Service; California Department of Fish and Wildlife.

**Westlands Water District GSA**

- Point of Contact: Kiti Campbell, Senior Resources Engineer, Westlands Water District GSA, 3130 N. Fresno Street, P.O. Box 6056 | Fresno, CA 93703-6056, 559-241-6226 | [kcampbell@westlandswater.org](mailto:kcampbell@westlandswater.org)<http://wwd.ca.gov/>
- Member Agency: Westlands Water District
- Other Interested Parties: Agricultural Users; Domestic Well Users; Municipal Well Operators/Public Water Systems: the cities of Avenal and Huron, the communities of Three Rocks, Cantua Creek, Turk, Calfax, O’Neil Farms, and El Porvenir; Fresno and Kings Counties; Naval Air Station Lemoore; Broadview Water District; San Luis & Delta Mendota Water Authority.

## Attachment B

### *Permitted Milk Cow Dairies, Confined Bovine Feeding Operations and Poultry Operations in the Management Zone*

**Table 1. Milk Cow Dairies and Confined Bovine Feeding Operations in the Kings Water Alliance Management Zone (Northern Portion – Kings Subbasin) that are Management Zone Participants through CVDRMP Membership**

CV-SALTS ID	WDID No.	Facility	Address
<b>General Order R5-2013-0122 – Milk Cow Dairies</b>			
100	5C10NC00119	A.T.O Dairy	19249 South Fruit Avenue, Riverdale, CA 93656
102	5C10NC00092	River Valley Dairy	22700 South Cornelia Avenue, Riverdale, CA 93656
103	5C10NC00137	Adams Dairy	16661 South Fowler Avenue, Selma, CA 93662
116	5C10NC00066	AJ Slenders Dairy	625 East Coleman Avenue, Laton, CA 93242
120	5D105050N01	Antonio Ribeiro Dairy	430 West Mt Whitney Avenue, Riverdale, CA 93656
122	5C10NC00061	A & M Farms Dairy	10350 West Manning Avenue, Fresno, CA 93706
123	5C10NC00058	River Oaks Dairy	3621 East Mount Whitney Avenue, Laton, CA 93242
126	5C10NC00034	G & A Dairy	2200 South Marks Avenue, Fresno, CA 93706
146	5C10NC00094	Fontes Dairy Farms-Dairy 1	5512 West Davis Avenue, Riverdale, CA 93656
152	5D105042N01	Big De Cattle Dairy	2947 West Manning Avenue, Fresno, CA 93706
176	5C10NC00129	Maria C. Mendonca Living Trust	1253 West Lewiston Avenue, Riverdale, CA 93656
192	5C10NC00085	Coelho Farms Dairy	21655 South Cornelia Avenue, Riverdale, CA 93656
221	5C16NC00069	The Dairy, Inc.	6240 21st Avenue, Lemoore, CA 96245
226	5D105011001	Sozinho Dairy #2	8489 East Elkhorn Avenue, Selma, CA 93662
239	5D105029001	VIP Cattle	19436 South East Avenue, Laton, CA 93242
244	5D165103N01	Dover Dairy	4265 Dover Avenue, Hanford, CA 93230
246	5D165097N01	Droogh Dairy	23535 Grangeville Boulevard, Lemoore, CA 93245
263	5D545036003	Elkhorn Dairy	10400 Avenue 368, Visalia, CA 93291
265	5C10NC00123	Black Diamond Dairy	18789 South Fruit Avenue, Riverdale, CA 93656
295	5D545031N01	Arthur Leyendekker Dairy	9001 Avenue 360, Visalia, CA 93291
299	5D105007001	Zonneveld Dairies Complex	1560 Cerini Avenue, Laton, CA 93242
300	5C10NC00126	Frea Dairy LLC	6205 South Brawley Avenue, Fresno, CA 93706
301	5D101039001	Fred Rau Dairy	10255 West Manning Avenue, Fresno, CA 93706
308	5C10NC00116	Fontes Dairy Farms-Dairy 2	20334 South Polk Avenue, Riverdale, CA 93656
309	5D105036N01	Frank S. Brown Co. Dairy	22045 South Valentine Avenue, Riverdale, CA 93656
311	5D165071N01	Eden-Vale Dairy	6944 21 1/2 Avenue, Lemoore, CA 93245
312	5C54NC00060	G-P Dairy	8676 Avenue 360, Visalia, CA 93291



**Table 1. Milk Cow Dairies and Confined Bovine Feeding Operations in the Kings Water Alliance Management Zone (Northern Portion – Kings Subbasin) that are Management Zone Participants through CVDRMP Membership**

CV-SALTS ID	WDID No.	Facility	Address
316	5D105046N01	Joe R. Garcia Dairy	20677 East Street, Laton, CA 93242
321	5D545126N01	Gerben Leyendekker Dairy #1	8517 Avenue 360, Visalia, CA 93291
328	5C10NC00140	Green Valley Dairy	2685 South Madera Avenue, Kerman, CA 93630
329	5D545130001	Griffioen Dairy LP	7901 Avenue 368, Dinuba, CA 93618
361	5C10NC00055	J & D Wilson & Sons Dairy	11720 West Mt. Whitney Avenue, Riverdale, CA 93656
369	5C16NC00008	Double N Dairy II	18104 Everett Avenue, Laton, CA 93242
373	5C10NC00091	J & F Martins Dairy #2	541 East Wood Avenue, Laton, CA 93242
383	5C10NC00040	Generations Dairy	6043 South Madera Avenue, Kerman, CA 93630
396	5C10NC00088	Liquid Gold Dairy	15959 South Marks Avenue, Caruthers, CA 93609
417	5C10NC00096	Kerman Cattle Company	4301 South Dickenson Avenue, Fresno, CA 93706
419	5D105049N01	John De Groot & Son Dairy	6105 West Lincoln Avenue, Fresno, CA 93706
431	5C10NC00065	Jose Ribeiro & Son Dairy	3666 East Mt. Whitney Avenue, Laton, CA 93242
437	5C10NC00050	L & J Vanderham Dairy	10772 West Mt. Whitney Avenue, Riverdale, CA 93656
446	5D105039N01	Leonardo Bros Dairy	16508 South Clovis Avenue, Selma, CA 93662
453	5C54NC00190	A.M. Dairy	8651 Avenue 388, Dinuba, CA 93618
501	5C10NC00112	Medeiros Dairy	608 East Riverdale Avenue, Laton, CA 93242
510	5D105026N01	Milky Way Dairy	10610 West Whitesbridge Avenue, Fresno, CA 93706
512	5C10NC00082	Monteiro Bros. Dairy #1	5336 West Harlan Avenue, Riverdale, CA 93656
513	5C10NC00079	Monteiro Bros. Dairy #2	4604 West Harlan Avenue, Riverdale, CA 93656
514	5C10NC00089	Morning Star Dairy	10032 West Elkhorn Avenue, Burrel, CA 93656
516	5C10NC00081	Mt. Whitney Dairy	2792 West Mt. Whitney Avenue, Riverdale, CA 93656
518	5C10NC00017	Maple Dairy	19860 Maple Street, Laton, CA 93242
523	5C10NC00114	El Dorado Ranches Dairy	23025 West American Avenue, San Joaquin, CA 93660
526	5D105038001	Raven Dairy	4109 East Conejo Avenue, Selma, CA 93662
527	5C54NC00056	L & L Dairy Farms	7435 Avenue 360, Kingsburg, CA 93631
539	5D165030001	Georgenson Dairy	8519 24th Avenue, Lemoore, CA 93245
546	5C10NC00122	Pacheco Dairy	1108 North Plumas Avenue, Kerman, CA 93630
578	5C16NC00070	Mendes & Toste Dairy	23568 Fargo Avenue, Lemoore, CA 93245
580	5C54NC00067	Red Rose Dairy	8950 Avenue 360, Visalia, CA 93291
594	5C54NC00138	Rocky Road Dairies #1	8715 Avenue 368, Dinuba, CA 93618
596	5C10NC00078	Mel-Tina Dairy	1748 West Mt. Whitney Avenue, Riverdale, CA 93656
598	5C10NC00109	Ruann Dairy	7285 West Davis Avenue, Riverdale, CA 93656

**Table 1. Milk Cow Dairies and Confined Bovine Feeding Operations in the Kings Water Alliance Management Zone (Northern Portion – Kings Subbasin) that are Management Zone Participants through CVDRMP Membership**

CV-SALTS ID	WDID No.	Facility	Address
611	5C10NC00068	Kiss Cattle, LLC	2585 South Chateau Fresno Avenue, Fresno, CA 93706
612	5D105037N01	Sid De Boer Dairy	21622 South Cedar Avenue, Laton, CA 93242
621	5C10NC00048	Jessie P. Silva Dairy	3451 East Harlan Avenue, Laton, CA 93242
632	5C10NC00131	Souza's Dairy	8555 South Valentine Avenue, Fresno, CA 93706
637	5C10NC00117	Sweet Haven Dairy	10467 West Kamm Avenue, Riverdale, CA 93656
653	5C10NC00001	Excelsior Avenue Feedlot	20800 Excelsior Avenue, Riverdale, CA 93656
671	5C10NC00008	CSUF Dairy	5450 North Sierra Vista Avenue, Fresno, CA 93740
689	5D545059001	South Corner Dairy	8150 Avenue 360, Visalia, CA 93291
695	5C10NC00134	Verwey Dairy	12063 West Manning Avenue, Fresno, CA 93706
697	5C10NC00151	Open Sky Dairy	12103 West Elkhorn Avenue, Riverdale, CA 93656
698	5C10NC00120	Gerrit Visser & Sons Dairy	18565 South Marks Avenue, Riverdale, CA 93656
703	5C54NC00232	DJ Dairy	4390 Avenue 352, Traver, CA 93631
720	5D545052001	Tri BAK Dairy, LLC	9045 Avenue 368, Dinuba, CA 93618
721	5C54NC00069	Island Dairy Farms	37943 Road 144, Visalia, CA 93292
727	5C10NC00030	Shady Acres Dairy #2	15391 West Elkhorn Avenue, Helm, CA 93627
749	5B10NC00009	Sousa Dairy	7709 Avenue 376, Dinuba, CA 93618
761	5C10NC00060	Bar None/Van Der Hoek Dairy	15886 South Lassen Avenue, Helm, CA 93627
772	5D545103001	Rui and Jennifer Brasil Dairy	8061 Avenue 360, Visalia, CA 93291
773	5C54NC00295	Sunrise Dairy	8022 Avenue 368, Dinuba, CA 93618
NA <sup>1</sup>	5A115000001	Couto Dairy	NA <sup>1</sup>
NA <sup>1</sup>	5C16NC00031	Sozinho Jerseys	NA <sup>1</sup>
NA <sup>1</sup>	5C16NC00063	Five J's Dairy	NA <sup>1</sup>
NA <sup>1</sup>	5C54NC00018	Jacobus De Groot Dairy #2	NA <sup>1</sup>
NA <sup>1</sup>	5C54NC00156	Riverbend Dairy	NA <sup>1</sup>
NA <sup>1</sup>	5C54NC00222	Delta View Farms	NA <sup>1</sup>
NA <sup>1</sup>	5D165057001	Angiola Dairy	NA <sup>1</sup>
NA <sup>1</sup>	5D545031N01	Art Leyendekker Dairy	NA <sup>1</sup>
NA <sup>1</sup>	5D545044002	Dick Vanderham & Sons Dairy	NA <sup>1</sup>
NA <sup>1</sup>	5D545062001	Delta View Farms #3	NA <sup>1</sup>
NA <sup>1</sup>	5D545071006	Vander Eyk & Son Dairy Complex	NA <sup>1</sup>
NA <sup>1</sup>	5D545084N01	S & S Dairy	NA <sup>1</sup>
NA <sup>1</sup>	5D545111001	Mountain View Dairy	NA <sup>1</sup>
<b>General Order R5-2017-0058 – Confined Bovine Feeding Operations</b>			
1490	5D545078001	Traver Cattle Ranch	3212 Avenue 352, Traver, CA 93673
1513	5C10NC00098	Hillview Cattle & Farms	12250 West Lincoln Avenue, Fresno, CA 93706

**Table 1. Milk Cow Dairies and Confined Bovine Feeding Operations in the Kings Water Alliance Management Zone (Northern Portion – Kings Subbasin) that are Management Zone Participants through CVDRMP Membership**

CV-SALTS ID	WDID No.	Facility	Address
1516	5C16NC00055	Dairy Goddess Farms	21154 Elgin Avenue, Lemoore, CA 93245
1518	5C16NC00064	John & Natalie Toste	21519 Elgin Avenue, Lemoore, CA 93245
1525	5C10NC00047	Standard Cattle Company Feedlot	8105 S. Lassen Avenue, Fresno, CA 94577
1530	5C10NC00093	Green Valley Feedlot	2160 West Elkhorn Avenue, Caruthers, CA 93609
1545	5C54NC00047	Stone Corral	37595 Road 140, Visalia, CA 93292
1558	5C54NC00253	Olivas Ranch	4505 4th Avenue, Hanford, CA 93230
1610	5B10NC00093	Rollin Heifer Feedlot	SW Corner of Conejo and Dickenson, Riverdale, CA 93656
1701	5B10AP00004	Todd Ventura	4630 South Fig Avenue, Fresno, CA 93706
1706	5C10NC00257	Fontes Heifer Ranch	18109 South Fruit Avenue, Riverdale, CA 93656
1720	5C54NC00364	Gary Zysling Feedlot	7437 Avenue 376, Dinuba, CA 93618
NA <sup>1</sup>	5C16NC00203	Hanford Armma Feedlot	NA <sup>1</sup>
NA <sup>1</sup>	5C54NC00018	LK Ranches	NA <sup>1</sup>
NA <sup>1</sup>	5C54NC00182	Backroad Ranch	NA <sup>1</sup>
NA <sup>1</sup>	5D165069001	Still Water Ranch LP	NA <sup>1</sup>
<b>Other WDRs – Members of CDVRMP</b>			
73	5C10NC00054	Lone Oak Farms Dairy # 2 (WDR R5-2008-001)	14523 Dinuba Avenue, Helm, CA 93627
74	5C10NC00062	Johann Dairy (R5-2008-0002)	11511 West Floral Avenue, Fresno, CA 93706
75	5C10NC00002	Maddox Dairy (R5-2008-0003)	12840 West Kamm Avenue, Riverdale, CA 93656
80	5C10NC00107	Bar 20 Dairy No. 2 & 3 (R5-2008-0066)	25500 West Whitesbridge Avenue, Kerman, CA 93630

<sup>1</sup> Facility on CVDRMP list (February 18, 2021) but was not included on Central Valley Water Board’s list (January 12, 2021); NA = CV-SALTS ID number and address unavailable.

**Table 2. Milk Cow Dairies and Confined Bovine Feeding Operations in the Kings Water Alliance Management Zone (Northern Portion – Kings Subbasin) that are Not Currently Members of the CVDRMP and Status of Management Zone Participation is Unknown at time of PMZP Submittal**

CV-SALTS ID	WDID No.	Facility	Address
<b>General Order R5-2013-0122 – Milk Cow Dairies</b>			
129	5C10NC00043	Astiasuain Dairy	22654 East Jefferson Avenue, Reedley, CA 93654
195 <sup>1</sup>	5C54NC00176	De Jong Dairy Farms Inc.	13076 Avenue 368, Visalia, CA 93292
229 <sup>1</sup>	5C54NC00187	Dennis Boertje & Son Dairy	37404 Road 132, Visalia, CA 93292
399 <sup>1</sup>	5C10NC00100	Joe D. Coelho Dairy	6503 South West Avenue, Fresno, CA 93706
520 <sup>1</sup>	5C54NC00040	Milk Maid Dairy	35826 Road 100, Visalia, CA 93291
<b>General Order R5-2017-0058 – Confined Bovine Feeding Operations</b>			
1491	5C10NC00106	Bar 20 Dairy Ranch #1	4260 Madison Avenue, Fresno, CA 93706
1533	5C16NC00017	MC Triple J Ranch	6873 20th Avenue, Lemoore, CA 93245
1599	5C54NC00341	Tulare County Stockyard	9641 Avenue 384, Dinuba, CA 93618
1609	5B10NC00094	Toste Ranch	687 East Riverdale Avenue, Laton, CA 93242
1623	5B10NC00092	Fresno Livestock	559 West Lincoln Avenue, Fresno, CA 93706
1705 <sup>1</sup>	5C54NC00370	DB Heifer Ranch	35952 Road 132, Visalia, CA 93292
1708	5C16NC00195	Contente & Co Ranch	5730 20th Avenue, Riverdale, CA 93656
<b>Other Permittees – Order No. Unknown or Pending<sup>1</sup></b>			
1	5D165106N01	Thomas Dairy	20111 Excelsior Ave, Riverdale, CA 93656
5	5C10NC00057	Baryard Buddies	3668 North Indianola, Sanger, CA 93657
9	5C10NC00138	Dan Habib Farms Feedlot	7021 South McMullin Grade, Fresno, CA 93706
10	5C54NC00129	De Jong Heifer Ranch	Avenue 368 & Road 124, Visalia, CA 93292
13	5C10NC00072	Charles Vander Kooi Dairy	13696 West Elkhorn Avenue, Riverdale, CA 93656
15	5C10NC00136	Fontes II Heifer Lot	Swc Davis / Fruit Avenues, Riverdale, CA 93656
20	5D165108N01	Little Dream Goat Dairy	3299 10th Ave, Laton, CA 93242
22	5D165072N01	Miller Hog Farm	20058 Elgin, Lemoore, CA 93245
53	--	Organic Pastures Dairy, LLC	7221 South Jamseon Avenue, Fresno, CA 93706
70	5D545036002	De Jong Feedlot (WDR 97-072)	NE Corner of Avenue 368 and Road 124, Visalia, CA 93291
71	5D165049001	Tony Barcellos (WDR Pending)	21484 Fargo Avenue, Lemoore, CA 93245

<sup>1</sup> Facilities on Central Valley Water Board's Kings Subbasin list of permittee's receiving an NTC (January 12, 2021), but not on CVDRMP List of known milk cow dairies or confined bovine feeding operations (WDR No. provided if known in facility name column)

**Table 3. Poultry Operations in the Kings Water Alliance Management Zone (Northern Portion – Kings Subbasin) that are Management Zone Participants through the Poultry General Order (all facilities are categorized as Low Threat Operations)**

CV-SALTS ID	WDID No.	Facility Name	Address
1237	5C10NC00206	CSUF Ag Foundation Poultry Facility	E Portals and N Woodrow, Fresno, CA 93710
1238	5C10NC00233	Southwest Ranch	6636 South West Avenue, Fresno, CA 93706
1239	5C10NC00242	Adams Ranch	2359 West Adams Avenue, Fresno, CA 93706
1241	5C10NC00247	American Ranch Complex	16999 West American Avenue, Helm, CA 93630
1243	5C10NC00243	Barret Ranch	12255 West Barret Avenue, Burrel, CA 93656
1244	5C10NC00230	Brawley Ranch	15250 South Brawley Avenue, Caruthers, CA 93609
1245	5C10NC00231	Bryan Ranch	8024 South Brayn Avenue, Raisin City, CA 93706
1246	5C10NC00220	Cerini Ranch Complex	19453 South Chateau Fresno Avenue, Riverdale, CA 93656
1247	5C10NC00238	Chateau Ranch Complex	8109 West Harlan Avenue, Riverdale, CA 93656
1248	5C10NC00232	Chestnut Ranch	18845 South Chestnut Avenue, Laton, CA 93242
1249	5C10NC00213	Davis Ranch Complex	8121 East Davis Avenue, Laton, CA 93662
1250	5C10NC00221	El Dorado Ranch Complex	1324 South El Dorado Avenue, San Joaquin, CA 93660
1251	5C10NC00239	Elkhorn Ranch Complex	6225 West Elkhorn Alley, Riverdale, CA 93656
1252	5C10NC00240	Floral Ranch Complex	15403 West Floral Avenue, Helm, CA 93660
1253	5C10NC00222	Garfield-Harlan Ranch Complex	19865 South Grantland Avenue, Riverdale, CA 93656
1254	5C10NC00223	Grantland Ranch Complex	22391 South Bryan Alley, Riverdale, CA 93656
1256	5C10NC00224	Huntsman Ranch Complex	20845 South Englehart Avenue, Reedley, CA 93654
1257	5C10NC00225	Jameson Ranch Complex	8265 South Jameson Avenue, Fresno, CA 93706
1258	5C54NC00333	Kaycee Ranch	37575 124 Road, Visalia, CA 93291
1259	5C10NC00244	Laguna Ranch	1580 West Laguna Avenue, Riverdale, CA 93656
1260	5C10NC00226	Madera Ranch	12720 South Madera Avenue, Kerman, CA 93630
1261	5C10NC00241	Magnolia Ranch Complex	2660 West Magnolia Alley, Caruthers, CA 93609
1262	5C10NC00253	Manning Ranch	17135 Manning Avenue, Kerman, CA 93630
1264	5C10NC00227	McMullin Grade Ranch	9471 South McMullin Grade, San Joaquin, CA 93660
1267	5C54NC00334	Seville Ranch Complex	14910 Avenue 376, Visalia, CA 93292
1268	5C10NC00228	Shasta Ranch	221 South Shasta Avenue, Kerman, CA 93630
1269	5C10NC00245	Shields Ranch	19945 West Shields Avenue, Kerman, CA 93630
1270	5C10NC00248	Swanson Ranch Complex	3741 West Swanson Avenue, Caruthers, CA 93609
1271	5C10NC00229	Valentine Ranch	7260 South Valentine Avenue, Fresno, CA 93706
1272	5C10NC00246	Wood	545 West Wood Avenue, Riverdale, CA 93656
1273	5C10NC00207	Alta Ranch	22141 East South Avenue, Reedley, CA 93654

**Table 3. Poultry Operations in the Kings Water Alliance Management Zone (Northern Portion – Kings Subbasin) that are Management Zone Participants through the Poultry General Order (all facilities are categorized as Low Threat Operations)**

CV-SALTS ID	WDID No.	Facility Name	Address
1276	5C10NC00214	Bickner Ranch	19010 South Marks Avenue, Riverdale, CA 93656
1277	5C10NC00249	Bishop Milleo Ranch	1472 Cove Avenue, Reedley, CA 93654
1278	5C10NC00208	Bluefox Ranch	24018 East south Avenue, Reedley, CA 93654
1279	5C10NC00234	Boss Ranch	8010 West Manning, Fresno, CA 93706
1280	5C54NC00329	Bronze Ranch	16276 420 Avenue, Orosi, CA 93647
1281	5C10NC00209	Carter Ranch	6427 East Floral, Selma, CA 93662
1282	5C10NC00237	Central Lay Ranch	12591 West Central Avenue, Kerman, CA 93630
1284	5C10NC00212	Christenson Ranch	11055 East Clarkson, Kingsburg, CA 93631
1285	5C10NC00235	Deaver Ranch	1499 West Stroud, Caruthers, CA 93609
1286	5C10NC00236	Dino Ranch	17557 West Jensen, Kerman, CA 93630
1288	5C10NC00215	Elm Ranch	12680 South Elm Avenue, Fresno, CA 93706
1289	5C16NC00157	Enns Ranch	7477 Clinton, Kingsburg, CA 93631
1291	5C10NC00210	Friesen Ranch	21598 East Dinuba Avenue, Reedley, CA 93654
1294	5C10NC00216	Hayes Ranch	12229 South Hayes Avenue, Caruthers, CA 93609
1295	5C10NC00217	Hill Ranch	9760 South Hill Avenue, Orange Cove, CA 93646
1298	5C16NC00161	Lovelace Ranch	39090 80 Road, Dinuba, CA 93618
1301	5C10NC00218	Mason Ranch	2478 South Hills Valley Street, Orange Cove, CA 93646
1302	5C10NC00250	Moroni Ranch	45286 132 Road, Orange Cove, CA 93646
1306	5C54NC00335	Poppy Ranch	37611 108 Road, Dinuba, CA 93618
1309	5C10NC00219	Stagis Ranch	8505 South Marks, Fresno, CA 93706
1310	5C10NC00211	Sweetwater Creek Ranch	4517 East Simerly Avenue, Laton, CA 93242
1315	5C54NC00332	Traver Ranch	6045 Avenue 360, Kingsburg, CA 93631
1316	5C10NC00251	Twin Palms Ranch	20090 Central Avenue, Reedley, CA 93654
1317	5C10NC00252	Vail Ranch	4347 400 Avenue, Dinuba, CA 93618
1427	5C54NC00337	Sweeney Ranch	38599 Road 16 Road, Kingsburg, CA 93631
1428	5C10NC00255	Laton Ranch	20710 South Cedar Avenue, Laton, CA 93242
1440	5C54NC00339	Froese Ranch	22687 Floral Avenue, Dinuba, CA 93618
1443	5B10NC00079	WC & B Ranch	19010 South Brawley Avenue, Riverdale, CA 93656
1445	5B10NC00080	Potter Ranch	15956 South East Avenue, Caruthers, CA 93609
1447	5B10NC00088	Montesito	14195 South Hayes Avenue, Caruthers, CA 93609
1448	5B10NC00089	Norlake	18941 West North Avenue, Kerman, CA 93630
1449	5B10NC00081	Sunbird	5606 East Davis Avenue, Laton, CA 93242
1450	5B10NC00082	Placer 3 Ranch	5556 South Placer Avenue, San Joaquin, CA 93660

**Table 3. Poultry Operations in the Kings Water Alliance Management Zone (Northern Portion – Kings Subbasin) that are Management Zone Participants through the Poultry General Order (all facilities are categorized as Low Threat Operations)**

CV-SALTS ID	WDID No.	Facility Name	Address
1451	5B10NC00083	Placer 2 Ranch	5548 South Placer Avenue, San Joaquin, CA 93660
1452	5B10NC00084	Kamm Ave. Ranch	590 West Kamm Avenue, Caruthers, CA 93609
1453	5B10NC00085	Placer 1 Ranch	20739 West American Avenue, Kerman, CA 93630
1454	5B10NC00086	G & H Ranch	8351 McMullin Grade, Fresno, CA 93706
1455	5B10NC00087	Ave 145 Ranch	8479 South Madera Avenue, Kerman, CA 93630
1460	5C54NC00340	Christian Fagundes Farm Inc.	Avenue 344 and Road 36, Kingsburg, CA 93631
1461	5B10NC00091	Woods Farm - Camden	17588 South Camden Avenue, Caruthers, CA 93609
1462	5B10NC00090	Pitman Family Farms	19487 West Whitesbridge, Kerman, CA 93630
1466	5B10NC00095	Vang Poultry Farm	3272 North Leonard, Fresno, CA 93737

**Table 4. Milk Cow Dairies and Confined Bovine Feeding Operations in the Kings Water Alliance Management Zone (Southern Portion – Tulare Lake Subbasin) that are Management Zone Participants through CVDRMP Membership**

CV-SALTS ID	WDID No.	Facility	Address
<b>General Order R5-2013-0122 – Milk Cow Dairies</b>			
98	5D165083001	VL Furtado Dairy	16283 18th Avenue, Lemoore, CA 93245
101	5D165075N01	Daniel Brazil Dairy	18280 Fairfax Avenue, Lemoore, CA 93245
112	5C16NC00046	Alvaro Machado Dairy	5230 9th Avenue, Hanford, CA 93230
131	5C16NC00076	Sozinho Jerseys	5811 Lacey Boulevard, Hanford, CA 93230
172	5C16NC00071	Mello D Jerseys	14803 Grangeville Boulevard, Hanford, CA 93230
175	5C16NC00102	C & C Holsteins Dairy	13243 Houston Avenue, Hanford, CA 93230
205	5C16NC00015	Contente & Company Dairy	7900 15th Avenue, Hanford, CA 93230
232	5D16515N01	Bar E Dairy	6740 Corona Avenue, Kingsburg, CA 93631
243	5D165109001	Double N Dairy	12700 Everett Avenue, Hanford, CA 93230
250	5C16NC00081	Golden Star Dairy LLC #2	6398 16th Avenue, Hanford, CA 93230
281	5C16NC00025	Flatland Farms, LLC	8483 15th Avenue, Hanford, CA 93230
291	5C16NC00094	Four Star Dairy	18886 4th Avenue, Hanford, CA 93230
293	5D16517N01	Frank Fagundes Dairy	10522 15th Avenue, Hanford, CA 93230
307	5D545098001	Flint Dairy	6511 Flint Avenue, Hanford, CA 93230
314	5D165079001	Midnight Farms	9240 19 1/2 Avenue, Lemoore, CA 93245
315	5C16NC00100	Garcia & Sons Dairy	15405 17th Avenue, Lemoore, CA 93245
317	5C16NC00030	Antonio Garcia Dairy	6571 Fargo Avenue, Hanford, CA 93274
322	5C16NC00037	Giacomazzi Dairy	9624 6th Avenue, Hanford, CA 93230
371	5C16NC00075	Jaques & Silva Dairy	10256 6th Avenue, Hanford, CA 93230
372	5C16NC00012	JD Mello Dairy	15609 Grangeville Boulevard, Hanford, CA 93230
381	5C16NC00051	Silva & Son Dairy	8331 Excelsior Avenue, Hanford, CA 93230
410	5D16509002	Parreira Dairy	18081 17th Avenue, Stratford, CA 93266
412	5C16NC00043	Joe V Pimentel Dairy	4625 6th Avenue, Hanford, CA 93230
413	5D165083N01	Sozinho Dairy #1 and #3	11447 8 1/2 Avenue, Hanford, CA 93230
449	5C16NC00026	Log Haven Dairy	7755 Fargo Avenue, Hanford, CA 93230
456	5C16NC00086	Lu - AR Dairy	6121 15th Avenue, Hanford, CA 93230
477	5C16NC00045	Wilgenburg West, LLC	7442 7th Avenue, Hanford, CA 93230
582	5D165053N01	Richard Simas Dairy	17571 Flint Avenue, Hanford, CA 93230
590	5C16NC00049	Vitor Borba Dairy #2	7410 7th Avenue, Hanford, CA 93230
628	5D165096N01	Hakker Dairy	12499 Idaho Avenue, Hanford, CA 93230
670	5D165056001	Vaca Linda Dairy	14235 Kent Avenue, Hanford, CA 93230
675	5C16NC00016	Tony Cox Family Dairy #3	15410 Excelsior Avenue, Hanford, CA 93230
678	5D165055N01	J&A Dairy	18321 Idaho Avenue, Lemoore, CA 93245
694	5D165066N01	Vitor Borba Dairy	15505 19th Avenue, Lemoore, CA 93245
705	5C16NC00033	West Creek Dairy	8409 5th Avenue, Hanford, CA 93230



**Table 4. Milk Cow Dairies and Confined Bovine Feeding Operations in the Kings Water Alliance Management Zone (Southern Portion – Tulare Lake Subbasin) that are Management Zone Participants through CVDRMP Membership**

CV-SALTS ID	WDID No.	Facility	Address
717	5C16NC00001	White River Dairy	20784 Laurel Avenue, Stratford, CA 93266
726	5C16NC00111	Manuel & Alda Lawrence Dairy	12871 Kent Avenue, Hanford, CA 93230
728	5C16NC00119	Cunha Dairy #1	6680 16th Avenue, Hanford, CA 93230
730	5C16NC00124	Neves Dairy	16831 Jackson Avenue, Lemoore, CA 93245
731	5C16NC00118	ED Paulo & Sons Dairy	8730 Iona Avenue, Hanford, CA 93230
734	5C16NC00122	Top Line Dairy #5	21009 South 19th Avenue, Stratford, CA 93266
737	5C16NC00121	Laurel Avenue Feedlot (Dairy)	19883 Laurel Avenue, Stratford, CA 93266
738	5C16NC00116	Sozinho Dairy #5	7205 Houston Avenue, Hanford, CA 93230
1226	5C16NC00202	Jersey Avenue Feedlot	19256 Jersey Avenue, Lemoore, CA 93245
<b>General Order R5-2017-0058 – Confined Bovine Feeding Operations</b>			
1489	5C16NC00199	Headquarters Ranch	9495 17th Avenue, Lemoore, CA 93245
1505	5C16NC00044	Dream Dairy Heifer Ranch	6505 10th Avenue, Hanford, CA 93230
1517	5C16NC00072	P&E Heifers	12700 7th Avenue, Hanford, CA 93230
1519	5D165041N01	John Correia Cattle	6672 Hanford-Armona, Hanford, CA 93230
1527	5C16NC00010	Sam Habib Cattle Co	5590 East Excelsior Avenue, Hanford, CA 93230
1531	5D165110N01	Manuel B Toste	6431 Hanford-Armona Road, Hanford, CA 93230
1537	5D165088N01	Pacific Coast Calf Ranch	18644 16th Avenue, Stratford, CA 93266
1556	5D165073001	MF Cattle Co	11336 7th Avenue, Hanford, CA 93230
1562	5C16NC00200	Headquarters Ranch 2	16501 Colony Road, Lemoore, CA 93245
1604	5C16NC00184	Van Dyk Cattle Co.	3275 8th Avenue, Hanford, CA 93230
1613	5C16NC00177	Grimmius Cattle Company	5715 Kansas Avenue, Hanford, CA 93230
1614	5C16NC00175	Bar E Heifer Ranch	6058 Flint Avenue, Hanford, CA 93230
1632	5C16NC00178	Jason & Julie Starr	18039 Lakeview Avenue, Stratford, CA 93266
1633	5C16AP00002	3H Cattle Co	19690 6th Avenue, Hanford, CA 93230
1634	5C16NC00180	Nevada Heights	21001 10 1/2 Avenue, Hanford, CA 93230
1729	5C16NC00201	Triple D Dairy & Farming Feedlot	13th Avenue and Flint Avenue, Hanford, CA 93230
<b>Other WDRs – Members of CDVRMP</b>			
77	5D165107001	Cloverdale Dairy (R5-2008-0041)	19142 10 1/2 Avenue, Hanford, CA 93230
79	5C16NC00036	Wreden Ranch Dairy (R5-2008-0043)	8749 Lansing Avenue, Hanford, CA 93230

**Table 5. Milk Cow Dairies and Confined Bovine Feeding Operations in the Kings Water Alliance Management Zone (Southern Portion – Tulare Lake Subbasin) that are Not Currently Members of the CVDRMP and Status of Management Zone Participation is Unknown at time of PMZP Submittal**

CV-SALTS ID	WDID No.	Facility	Address
<b>General Order R5-2013-0122 – Milk Cow Dairies</b>			
201	5D165100001	Tony Cox & Family Dairy	3594 12 3/4 Avenue, Hanford, CA 93230
207	5C16NC00047	Silva & Sons #2 (Dairy)	6700 Excelsior Avenue, Hanford, CA 93230
272	5C16NC00024	Fagundes Agribusiness Dairy	7546 8 1/2 Avenue, Hanford, CA 93230
297	5C16NC00042	Vitor Borba Dairy	7721 Flint Avenue, Hanford, CA 93230
421	5C16NC00077	Gus Duarte Cattle Company	15739 Grangeville Boulevard, Hanford, CA 93230
623	5D165150N01	Clarence Dutra Dairy	9887 Flint Avenue, Hanford, CA 93230
179 <sup>1</sup>	5D165061001	Hanford Armona Feedlot	10482 14 1/2 Avenue, Lemoore, CA 93245
212 <sup>1</sup>	5C16NC00003	Lopes Dairy	18682 Idaho Avenue, Lemoore, CA 93245
597 <sup>1</sup>	5D165054N01	Milk Flow Dairy	17250 Medford Avenue, Stratford, CA 93266
<b>General Order R5-2017-0058 – Confined Bovine Feeding Operations</b>			
1504	5C16NC00176	Dina Simas Property	14672 Flint Avenue, Hanford, CA 93230
1514	5C16NC00187	Rose Trust	6050 15th Avenue, Hanford, CA 93230
1515	5C16NC00198	Frank Mendonca Heifer Ranch	19090 Fargo Avenue, Lemoore, CA 93245
1538	5C54AP00003	King Avenue Feedlot	18741 19th Avenue, Stratford, CA 93266
1543	5C16NC00058	Joe Soares	11560 8th Avenue, Hanford, CA 93230
1595	5C16NC00194	JL Fragoso Cattle Company	7871 Houston Avenue, Hanford, CA 93230
1606	5C16NC00174	004-280-075 Feedlot	9223 16 1/2 Avenue, Lemoore, CA 93245
1616	5C16NC00182	Overland Stock Yard	10565 9th Avenue, Hanford, CA 93230
1692	5C16NC00189	Faustino A Diaz	16560 Jackson Avenue, Lemoore, CA 93245
1702	5C16NC00192	Jose Nuno	20164 18th Avenue, Stratford, CA 93266
1703	5C16NC00191	Robert Martins Cattle	17250 Medford Avenue, Stratford, CA 93266
1726 <sup>1</sup>	5C16NC00197	Lonnie Clement	9102 Hanford-Armona Road, Hanford, CA 93230
<b>Other Permittees – Order No. Unknown<sup>1</sup></b>			
14	5C16NC00190	Top Line Dairy #1	18386 13th Avenue, Hanford, CA 93230
28	5D165043001	M & M Dairy	11808 12th, Hanford, CA 93230
36	5C16NC00129	Rocking Horse Dairy	21014 13th Avenue, Hanford, CA 93230
37	5C16NC00128	Dairy Avenue, LLC Dairy	36569 6th Avenue, Corcoran, CA 93212
40	5C16NC00109	Lake Shore Dairy	15978 Manteca Avenue, Corcoran, CA 93212
43	5C16NC00131	Top Line Dairy #2	18705 13th Avenue, Hanford, CA 93230
45	5C16NC00134	Big Valley Ranch Dairy	36403 6th Ave, Corcoran, CA 93212
48	NA <sup>2</sup>	Jerseyland Dairy	15288 15th Avenue, Hanford, CA 93245
50	NA <sup>2</sup>	Philip Verwey Farms Dairy	19765 13th Avenue, Hanford, CA 93230
51	NA <sup>2</sup>	Morais Goat Dairy	16152 West Hanford Armona Road, Lemoore, CA 93245
59	NA <sup>2</sup>	Summer Hill Goat Dairy	5784 6th Avenue, Hanford, CA 93230

**Table 5. Milk Cow Dairies and Confined Bovine Feeding Operations in the Kings Water Alliance Management Zone (Southern Portion – Tulare Lake Subbasin) that are Not Currently Members of the CVDRMP and Status of Management Zone Participation is Unknown at time of PMZP Submittal**

CV-SALTS ID	WDID No.	Facility	Address
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<sup>1</sup> Facility on Central Valley Water Board’s Tulare Lake Subbasin list of permittee’s receiving an NTC (January 12, 2021), but not on CVDRMP list of known milk cow dairies or confined bovine feeding operations

<sup>2</sup> NA – WDID No. unknown.

**Table 6. Milk Cow Dairies and Confined Bovine Feeding Operations in the Kings Water Alliance Management Zone (Southern Portion – Kaweah Subbasin) that are Management Zone Participants through CVDRMP Membership**

CV-SALTS ID	WDID	Facility	Address
<b>General Order R5-2013-0122 – Milk Cow Dairies</b>			
143	5D165093N01	Barreto & Silveira Dairy	11305 2nd Avenue, Hanford, CA 93230
150	5C16NC00101	Bernard Te Velde Dairy #1	1305 Iona Avenue, Hanford, CA 93230
177	5C16NC00039	C. Mattos & Sons Dairy	17800 4th Avenue, Hanford, CA 93230
178	5C16NC00028	Santa Anita Dairy	4356 Kansas Avenue, Hanford, CA 93230
203	5D165046N01	Poplar Lane Dairy	5387 Kent Avenue, Hanford, CA 93230
209	5D165101N01	Mattos Dairy #4	4555 Kansas Avenue, Hanford, CA 93230
217	5D165082002	Diamond D LLC Dairy	9423 Idaho Avenue, Hanford, CA 93230
231	5C16NC00023	Dias and Sons Dairy	7594 Kent Avenue, Hanford, CA 93230
249	5C16NC00050	Dutra & Dutra Dairy	7480 5th Avenue, Hanford, CA 93230
254	5D165094N01	Phoenix Dairy	10736 1 1/2 Avenue, Hanford, CA 93230
257	5C16NC00088	P&E #2 Dairy	13245 9th Avenue, Hanford, CA 93230
260	5D165091N01	Valadao Dairy	17293 9 1/2 Avenue, Hanford, CA 93230
277	5D165120001	Felicita Dairy	22154 Road 20, Tulare, CA 93274
278	5C16NC00089	Fernandes Dairy	16452 11th Avenue, Hanford, CA 93230
339	5D165092N01	Over The Moon Dairy	9455 Second Avenue, Hanford, CA 93230
345	5D165085001	Henry Veenendaal Dairy	3678 Houston Avenue, Hanford, CA 93230
354	5C16NC00067	Holland's Dairy	3533 Grangeville Boulevard, Hanford, CA 93230
374	5C16NC00082	Bill Idsinga Dairy	4595 Houston Avenue, Hanford, CA 93230
393	5C16NC00040	Joe B. Pacheco Dairy	16025 6 1/2 Avenue, Hanford, CA 93230
408	5D165063N01	Cactus Ranch	8800 Lansing Avenue, Hanford, CA 93230
420	5D165005001	Cowlifornia Dairy LLC	3742 Lacey Boulevard, Hanford, CA 93230
423	5C16NC00087	Jersey Creek Dairy	14857 5th Avenue, Hanford, CA 93230
450	5D165070001	Lone Oak Farms Dairy #1	13866 4th Avenue, Hanford, CA 93230
451	5C16NC00097	Jackson Dairy, LLC	8637 Jackson Avenue, Hanford, CA 93230
452	5C16NC00056	High Roller Dairy	14782 8th Avenue, Hanford, CA 93230
459	5C16NC00099	Valley View Dairy #2	15010 5th Avenue, Hanford, CA 93230
483	5D165068N01	M.F. Rosa Dairy	10090 2nd Avenue, Hanford, CA 93230
493	5C16NC00083	Lone Star Dairy #2	13380 9th Avenue, Hanford, CA 93230
494	5D165078001	Robert Brazil Dairy	15035 8th Avenue, Hanford, CA 93230

**Table 6. Milk Cow Dairies and Confined Bovine Feeding Operations in the Kings Water Alliance Management Zone (Southern Portion – Kaweah Subbasin) that are Management Zone Participants through CVDRMP Membership**

CV-SALTS ID	WDID	Facility	Address
495	5C16NC00021	Mattos Brothers Dairy	4017 Kansas Avenue, Hanford, CA 93230
587	5C16NC00020	River Ranch Dairy	6155 Jackson Avenue, Hanford, CA 93230
633	5C10NC00153	P & E Dairy	15336 10th Avenue, Hanford, CA 93230
657	5D165140N01	Anthony & Robert Brazil Dairy/Sunshine Dairy	13419 7th Avenue, Hanford, CA 93230
658	5D165098001	DeGroot Dairies-South	3101 Grangeville Boulevard, Hanford, CA 93230
674	5C16NC00006	De Groot Dairies-North	2446 Grangeville Boulevard, Hanford, CA 93230
680	5C16NC00019	Valley View Farms Dairy	15673 5 1/2 Avenue, Hanford, CA 93230
682	5C16NC00078	Antonio Parreira Dairy	3604 Houston Avenue, Hanford, CA 93230
692	5D165099N01	North Tri Palm Dairy	4119 Houston Avenue, Hanford, CA 93230
715	5C16NC00062	Willow Grove Farms Dairy	6267 5th Avenue, Hanford, CA 93230
733	5C16NC00117	Dixie Creek Ranch	3601 Lacey Boulevard, Hanford, CA 93230
736	5C16NC00123	Joaquim Mattos & Family Dairy	4790 Kansas Avenue, Hanford, CA 93230
<b>General Order R5-2017-0058 – Confined Bovine Feeding Operations</b>			
1493	5D165067N01	Rancho Del Sol	13301 9th Avenue, Hanford, CA 93230
1496	5C16NC00061	Clark Feedlot	14541 10th Avenue, Hanford, CA 93230
1617	5C16NC00181	Outback Ranch	12202 1st Avenue, Hanford, CA 93230
<b>Other WDRs – Members of CDVRMP</b>			
78	5D165080001	Hollandia Farms North Dairy	7905 Kansas Avenue, Hanford, CA 93230

**Table 7. Milk Cow Dairies and Confined Bovine Feeding Operations in the Kings Water Alliance Management Zone (Southern Portion – Kaweah Subbasin) that are Not Currently Members of the CVDRMP and Status of Management Zone Participation is Unknown at time of PMZP Submittal**

CV-SALTS ID	WDID	Facility	Address
<b>General Order R5-2013-0122 – Milk Cow Dairies</b>			
517 <sup>1</sup>	5C54NC00038	Tripalm Dairy	2429 Idaho Avenue, Hanford, CA 93230
<b>General Order R5-2017-0058 – Confined Bovine Feeding Operations</b>			
1523	5C16NC00179	Manuel Mendonca Trustee	9080 1 1/2 Avenue, Hanford, CA 93230
1546	5C16NC00057	A&M Livestock	12051 8th Avenue, Hanford, CA 93230
1704	5C16NC00193	Veenendaal Angus	3678 Houston Avenue, Hanford, CA 93230
<b>Other Permittees – Order No. Unknown<sup>1</sup></b>			
42 <sup>1</sup>	5C16NC00115	Yokum Dairy	10234 Lansing Avenue, Hanford, CA 93230
46 <sup>1</sup>	5C16NC00110	David Lemstra Dairy	21094 4th Avenue, Corcoran, CA 93212

<sup>1</sup> Facility on Central Valley Water Board’s Kaweah Subbasin list of permittee’s receiving an NTC (January 12, 2021), but not on CVDRMP list of known milk cow dairies or confined bovine feeding operations

**Table 8. Poultry Farms in the in the Kings Water Alliance Management Zone (Southern Portion – Tulare Lake Subbasin) that are Management Zone Participants through Poultry General Order (all are categorized as Low Threat Operations)**

CV-SALTS ID	WDID No.	Facility Name	Address
1240	5C16NC00155	2Y's Ranch	10635 6th Avenue, Hanford, CA 93230
1287	5C16NC00156	Dutra Ranch	19258 14th Avenue, Hanford, CA 93230
1292	5C16NC00164	Gilkey Ranch	11009 Nevada Avenue, Hanford, CA 93230
1293	5C16NC00158	Hanford Ranch	18670 13th Avenue, Hanford, CA 93230
1296	5C16NC00159	Huffman Ranch	16445 Laurel Avenue, Stratford, CA 93266
1297	5C16NC00160	Index Ranch	16740 Index Avenue, Lemoore, CA 93245
1308	5C16NC00162	Smith Ranch	12565 Kansas Avenue, Hanford, CA 93230
1441	5C16NC00171	Kopenhefer	3127 10 1/2 Avenue, Laton, CA 93242
1442	5C16NC00165	6th Avenue Ranch	43501 6th Avenue, Alpaugh, CA 93201
1444	5C16NC00166	18th Avenue Ranch	17388 18th Avenue, Lemoore, CA 93245
1456	5C16NC00167	Kent Ranch	19744 Kent Avenue, Lemoore, CA 93245
1457	5C16NC00168	Holm Ranch	16395 19th Avenue, Lemoore, CA 93245
1458	5C16NC00169	Pitman Family Farms	11005 Nevada Avenue, Hanford, CA 93230

## Attachment C

### ***Outreach Records for Development of Preliminary Management Zone Proposal***

The following list contains the outreach efforts that have taken place during the development of the Preliminary Management Zone Proposal. Links to most presentation materials may be found at <http://kingswateralliance.org/>, and other outreach materials including meeting notices, flyers, and survey results are found in the Early Action Plan Appendix B.

- *Nitrate Management Zone Pilot Study, 2019* – A grant to the Kings River Conservation District from the State Water Resources Control Board (State Water Board) provided the opportunity to pilot the development of draft PMZPs with draft EAPs in two areas of the Central Valley (State Water Board Resolution (2017-0061)). One of these projects occurred in the area encompassed by the Kings River East Groundwater Sustainability Agency and Alta Irrigation District in the southeastern portion of the Kings Subbasin. The knowledge gained through this Pilot Study provided a strong foundation for the development of this PMZP.
- *Nitrate Control Program and Pilot Study Workshop, March 16, 2020* – Following completion of the Pilot Study, the Kings River Water Quality Coalition conducted a workshop in the area to inform dischargers, stakeholders and other interested parties of pending Nitrate Control Program requirements.
- Workshops were held with stakeholders and interested parties on July 28, August 27 and October 12 to keep them informed of the developing Management Zone.
- Generally monthly meetings were held with the TAC during development of the PMZP and EAP on September 25, October 29, December 4, January 20 and February 19.
- *Community Outreach Meeting No. 1, November 19, 2020* – The Kings Water Alliance conducted extensive outreach to encourage local participation in this meeting, including:
  - Sending out over 6,000 mailers to residents throughout the Management Zone
  - Posting meeting notices in English and Spanish at 16 key locations in the project area, including Easton, Hanford, Armona, Cutler and Orosi.
  - Directly inviting 11 local community leaders representing Armona, Cutler, Easton, Stratford, Orosi Public Utilities District, Sultana Community Services District, Raisin City, Monson, Zonneveld Diaries, Rolinda and East Orosi.
  - Targeting outreach to the Environmental Justice Community, Fresno Bee, Fresno County and Kings County Farm Bureaus and the Tachi Yokut Tribe.

- Use of other organizations to help encourage participation (including irrigation districts, other local boards, outreach to municipalities, using the list of dischargers who received the NTC, to target the outreach).
- This meeting addressed the following questions: Why do we care about nitrate? What is the new Nitrate Control Program? Who needs to be involved? Where is drinking water affected? Subsequently, the meeting discussed potential short-term solutions or early actions under consideration for the implementation in the Management Zone. The presentation included the use of polling questions to solicit input on specific topics.
- *Community Outreach Meeting No. 2, January 28, 2021*
  - This meeting addressed the following questions: What is the Nitrate Control Program? Why does this matter to me? What is a Management Zone and how can I be involved? What does the Kings Water Alliance Management Zone do? What regulatory documents are required? How do we determine nitrate conditions? Where does high nitrate occur? Where am I in this Management Zone? How many wells and people might be affected? What is an Early Action Plan? What options will be available to obtain safe drinking water? How can I receive bottled water or have a point-of-use system installed? How do I know what the nitrate level is in the well at my home? What is an alternative to bottled water or POU treatment system service? As we implement the Early Action Plan, how will we connect with you?

The Technical Advisory Committee provided initial comments on the Preliminary Management Zone Proposal and Early Action Plan prior to release of the public draft on January 28, 2021.

### ***Public Draft Comments and Response Log***

Public Drafts of the PMZP and EAP documents were released for review and comment on January 28, 2021. Comments were received on February 19 and February 22, 2021. These comments are tabulated in the comment and response log below. This comment log lists the reviewer's comments and KWA's response to comments.



Table C-1 KWA Public Draft Comments and Responses

Number	Date Received	Comment Received From:	Comment:	Response:
1	2/19/2021	Walt Plachta (CVWB) via email	Central Valley Water Board staff members have performed an initial review of your public draft Preliminary Management Zone Proposal (PMZP) for the Kings Water Alliance Management Zone, dated January 28, 2021. Based on this cursory review, the draft PMZP (including the Early Action Plan) contains the elements required by the Nitrate Control Program. Analysis of the adequacy of the draft PMZP was not conducted. Staff will perform a complete review of the PMZP when the final document is submitted.	Thank you for your providing your initial review. We look forward to working with the Central Valley Water Board during the formal review period.
2	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	Leadership Counsel for Justice and Accountability (“Leadership Counsel”) works alongside the residents of many disadvantaged communities in the Kings Management Zone and its zone of influence, including communities like Tombstone Territory that are reliant on domestic wells and impacted by discharges of nitrate. Community Water Center also works alongside residents in disadvantaged communities within the Kings Management Zone’s purview, such as Cutler, Orosi, East Orosi, Seville, and London. Many of the residents of these communities rely on domestic wells or water systems that have been contaminated by Nitrate pollution.	We appreciate your local knowledge of communities that rely on domestic wells in the vicinity of the KWA Management Zone and look forward to possible coordinated outreach efforts.
3	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	The EAP must promptly provide well testing and short-term drinking water solutions to communities and households impacted by nitrate, and at the same time, must work with the Division of Drinking Water and technical assistance providers to ensure that testing for other contaminants and solutions for households and communities impacted by multiple contaminants is provided.	The EAP begins implementation on May 7, 2021. Well testing is available immediately upon request. The replacement water solutions in the EAP will be available when the EAP begins implementation. Meanwhile, KWA continues to evaluate how to best address the co-contaminant issue (also see response to Comment 4).

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4	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	We appreciate that the EAP includes a section on SAFER coordination that commits the Management Zone to working collaboratively to identify opportunities to address other contaminants. These discussions must, at a minimum, include the Regional Board, SWRCB, Self-Help Enterprises, and the Management Zone. We request that a coordination agreement or cost sharing agreement be negotiated and in place as implementation begins, presumably on May 7, 2021.	Thank you for acknowledging KWA's commitment to coordinating sampling of multiple constituents with SAFER. It is important to recognize that the Nitrate Control Program only requires sampling wells for nitrate and the EAP must first and foremost address the requirements of this regulatory program. However, KWA will continue to determine the best approach to address other contaminants in the Management Zone. Where appropriate the KWA may enter cost-sharing agreements with other entities.
5	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	The Management Zone fell short of our expectations for meaningful consultation with impacted residents.	E.S. 4. Community Outreach Program (page 5) The Management Zone has and will continue to engage the community on the EAP and Interim Replacement Water Program with the overall objective to create a level of engagement and awareness with community residents and stakeholders that establishes trust and provides robust participation. The stated goals of the community outreach program are to: 1) identify and cultivate relationships with key influential individuals and organizations in the communities to amplify information from the Management Zone, 2) provide channels for input and participation that connect with residents in a way that is effective and accessible, and 3) provide accurate, easy-to-understand, timely information on the Early Action Plan development and implementation.
6	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	We appreciate that the Management Zone held virtual community meetings on November 19, 2020 and January 28, 2021, and that the meetings were held in the evenings at times accessible to those who work during the day. We also appreciate that the Management Zone put in effort, and worked with Leadership Counsel, Community Water Center, and others, to notify the public and impacted residents about the opportunity to engage through direct mailers and flyers. This is especially true of outreach regarding the January 28, 2021 meeting. That said, we would have liked to see at least 2-3 more virtual meetings at varying times to provide more opportunities for impacted residents to engage.	The Management Zone will conduct periodic community outreach meetings in 2021 and 2022 as needed to best accomplish the goals of Phase 1 EAP implementation. The general schedule for these meetings is provided in EAP Figure 6-2 and Table 6-2

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7	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	We also support plans to create a formal stakeholder committee, and the plans to invite impacted residents from several communities, but believe the committee should have already been formed and actively meeting to provide input on EAP development.	The Stakeholder Committee is an important venue to provide a means in which interested parties may participate in the process of EAP implementation. The Stakeholder Committee will meet regularly to work with the KWA staff and Board to identify short and long-term solutions for providing safe drinking water to residents impacted by nitrates in the KWA service area, to engage impacted residents and other interested parties, and to provide input to the Board. The formation of the Stakeholder Committee will follow the seating of the KWA Board. The KWA Board currently has seven seats and can be expanded up to eleven. The Preliminary Stakeholder Committee formation documents are included for reference in Appendix B-3.
8	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	Very little actual engagement of impacted community residents; and much more needs to be done to ensure that the EAP is informed by impacted residents and, going forward, that households and communities receive drinking water solutions that work for them. On that note, and as we look toward the upcoming Management Zone well testing, the level of outreach and engagement provided during the last two months will not be close to sufficient and will not meet our expectations for well testing community outreach.	Implementation of the EAP will be an on-going effort, and it is anticipated that a significant outreach will be required. The KWA will continue to seek opportunities for public engagement and feedback during implementation of the EAP to successfully implement the goals of the Management Zone.
9	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	We look forward to continuing to work together to improve community engagement going forward.	We look forward to continuing to partner with LCJA and CWC as we work together to provide outreach during the initial EAP outreach.

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Number	Date Received	Comment Received From:	Comment:	Response:
10	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	We compared the public water systems and state small water systems identified in the EAP as potentially impacted by nitrate to the report entitled Developing Equitable and Effective Early Action Plans (the "Corona Report"). <sup>8</sup> The list of impacted public water systems and state small water systems appears to be consistent between the draft EAP and the Corona Report. However, there is one water system within the Kings Basin (Melkonian Brothers Fruit Stand) that Corona Consulting flagged as located in a high risk area and not having nitrate data. The Management Zone should evaluate this system and revise the EAP as appropriate.	The "Corona Report" mentions the Melkonian Brothers Fruit Stand (PWS ID CA1000628), but this system does not appear in the State Water Board's SDWIS Drinking Water Watch system which indicates it is currently an inactive system and was therefore not included in the EAP.
11	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	One significant problem with this process is that the Management Zone is operating under the assumption that a household within the boundaries of a public water system is served by that water system. Unfortunately, this assumption is not accurate. For example, there are households and entire neighborhoods (e.g., Britten Avenue) within the boundaries of the City of Fresno and its sphere of influence that are reliant on domestic wells. These wells may exceed the drinking water standard for nitrate, and must be targeted for outreach, well testing, and drinking water solutions.	We appreciate this comment. However, the development of the domestic well count and populations in potentially nitrate impacted areas utilizes public water system service boundaries, not city limits. For the example provided, Britten Ave, although it may be located within the City of Fresno, it is outside of the mapped Drinking Water System Area Boundary used to develop the well and population counts found in the EAP. Therefore, this area is already considered to be a high priority outreach target for well testing and interim water replacement program options (based on the nitrate assessment for the PMZP/EAP, ambient nitrate in this location is considered to be above the nitrate MCL of 10 mg/L as N). Because there may be other domestic wells that are elected by residents to provide drinking water to residents that are within the service areas of Public Water Systems, the text and table in the EAP that deals with domestic wells will be updated to include the number of potentially impacted domestic wells within PWS boundaries, and further research will be considered that may include specific outreach to individual PWS to help identify "non-customers" within their connected service area. No resident is restricted from a well test.

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12	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	The draft EAP includes a higher estimate of the number of potentially impacted domestic wells than the analysis conducted by Corona Consulting.	The domestic well count and population analysis performed for the EAP is slightly different than the Corona Report. The ambient nitrate analysis conducted for the PMZP/EAP was a much more thorough analysis that utilized a broader data collection process, focused on groundwater nitrate data specific to the Upper Zone (which most domestic wells are completed in), and performed geostatistical analyses to determine the ambient nitrate conditions representative of the data period of available data between the recent time period of 2000-2020. This analysis yielded a different view of nitrate conditions than the Corona Report, which relied on "GAMA data on groundwater quality" and the now out-dated CV-SALTS 2016 High Resolution nitrate mapping. The Corona Report did not attempt to discern the groundwater nitrate data from GAMA into the Upper Zone, as was done for the MZ Nitrate Assessment, and did not have as extensive a dataset to draw nitrate information upon compared to the MZ effort. We recognize that the MZ Nitrate Assessment's ambient nitrate map only offers a snapshot in time. We recognize that conditions may change, and that the availability of newer groundwater nitrate data may also change the characteristics of such a map. We therefore use the ambient nitrate map as a preliminary assessment of nitrate conditions within the Management Zone, but also as a basis for identifying key areas that have known nitrate issues for the targeted outreach associated with the highest priority of residents in need of safe drinking water.
13	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	The EAP must include a requirement to conduct outreach and offer well testing to households in areas where the upper zone is expected to exceed 7.5 mg/L nitrates, as it is likely that wells in these areas will exceed the 10mg/L standard.	KWA understands your concern to include targeted outreach to residents where Upper Zone nitrate exceeds 7.5 mg/L-N. The EAP has been revised accordingly. Note that well testing is available to anyone in the Management Zone regardless of location.

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Number	Date Received	Comment Received From:	Comment:	Response:
14	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	The Management Zone must also adjust to data as it is collected, and as "hot spots" of nitrate pollution are detected wells in the vicinity must be prioritized for testing and solutions.	We understand that nitrate conditions may change over time, and certainly as more groundwater nitrate data in the Upper Zone becomes available, these maps will be updated to help further identify impacted residents. The next time the map will be formally updated is prior to the Final Management Zone Proposal submittal, which will be used to help with the Management Zone Implementation Plan and continue to provide insight into targeted outreach for interim water replacement solutions. As more groundwater nitrate data become available (through the MZ well testing program or other monitoring programs), the maps will be updated to assist in outreach and targeting residents that are impacted by nitrate.
15	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	The Management Zone must target outreach to any homes in areas where nitrate could exceed 7.5 mg/L, not just to areas estimated to exceed 10 mg/L.	See response to Comment 13
16	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	The Management Zone cannot safely assume that only domestic wells in the areas it estimates to be at high risk of nitrate pollution are impacted.	That is correct. This is why the well testing program is vital to helping to identify impacted residents. Any resident can request a well test at any time, not just residents located within "hot spot" areas who would be targeted for the first phase of outreach.

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Number	Date Received	Comment Received From:	Comment:	Response:
17	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	The outreach materials sent to homes served by domestic wells must emphasize that well testing is free and the Management Zone will make all arrangements to test the well. The materials must be available in Spanish and note at least one Spanish speaking contact available for those who want to arrange testing or who have questions.	The KWA will develop and disseminate outreach materials that meet the needs of impacted residents and other interested stakeholders depending on their preferred method of receiving information. The KWA is committed to developing clear, consistent, and timely informational materials to help develop public understanding of the KWA, communicate information about EAP contents and implementation and how they relate to impacted residents and other stakeholders, inform the public on how to get involved, and motivate stakeholders to contribute to EAP development and implantation. Outreach content and materials will be easy to understand, using plain language to communicate important information, in addition to be being visually appealing. Based on the specific outreach and engagement purpose, written materials may include fact sheets, educational handouts, FAQs, presentations, maps, and graphics. Outreach materials will be available in print and website/digital formats and will be posted to the appropriate webpage, emailed, and distributed at meetings, workshops, and events. Messaging will be developed that relates to the topic to be communicated ensuring that residents understand the components and offerings of the program. KWA has used a Spanish speaking contact during EAP development and will continue to do so during implementation.
18	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	The Management Zone should collaborate with local churches, community groups, and community-based organizations to spread materials and information about well testing, nitrates, and the Management Zone’s free drinking water solutions.	As stated in Appendix B - Communication Plan under the Influencer Communications Section: Communications and event promotions will be noticed to community leaders, community-based organizations, and NGOs. Whenever possible, it will be requested that communications be disseminated to the networks of the leaders and individuals within the organizations to better amplify messages and notices to the public. Partnering with these groups is an important piece of effectively reaching impacted residents, as they understand, have established relationships with, and can comfortably communicate with residents in DACs and rural communities. Other influencers that may be considered to disseminate information and relevant announcements include industry and commodity groups, governmental agencies,

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				<p>municipalities, public utilities, agricultural producers, and nitrate dischargers. Distributing information to the networks of these groups can bring effective awareness and engagement.</p>
19	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	<p>We appreciate that the EAP includes the possibility of follow-up outreach to households served by domestic wells that do not respond to the initial mailout of information. The EAP specifically states that “[a]dditional outreach to nonrespondents may include a second mailout of information (unless previous mailed information was returned as undeliverable).” (p. 30.) However, additional attempts at outreach must be mandatory rather than permissive, and must also include more than a second mailout</p>	<p>As stated in Appendix B - Communication Plan under the Overview Section: The processes and tactics in the strategy are intended to be iterative, and it is expected certain processes or tactics may adapt to better reflect the needs of impacted residents. The strategy is intended to be flexible and adaptive to reflect resident needs and best practices for public involvement.</p>



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20	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	Targeted door-to-door outreach that includes direct communication with residents is critical. Such outreach should be conducted, where possible, by community-based organizations that have developed trust with the particular community. Spanish language proficiency by those conducting in person outreach is also a must.	As stated in Appendix B - Communication Plan under the Influencer Communications Section: Communications and event promotions will be noticed to community leaders, community-based organizations, and NGOs. Whenever possible, it will be requested that communications be disseminated to the networks of the leaders and individuals within the organizations to better amplify messages and notices to the public. Partnering with these groups is an important piece of effectively reaching impacted residents, as they understand, have established relationships with, and can comfortably communicate with residents in DACs and rural communities. Other influencers that may be considered to disseminate information and relevant announcements include industry and commodity groups, governmental agencies, municipalities, public utilities, agricultural producers, and nitrate dischargers. Distributing information to the networks of these groups can bring effective awareness and engagement.
21	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	The residential sampling program does not appear to apply to households reliant on domestic wells within the zone of influence of the Management Zone. We ask that the sampling program be made available to those within the zone of influence, and in particular, to all households served by domestic wells in and near the community of Fairmead.	Thank you for the comment. The MZ has started to evaluate the groundwater gradients and flow directions along its borders. This analysis will be finalized in the coming months and included in the Final MZP following collaboration with neighboring GSAs and Management Zones.
22	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson	To ensure that all impacted residents are aware of this resource, the Management Zone must send well testing information in all languages for which at least 5% of residents speak the language.	KWA relied on the references provided in State Water Board's Guidance for Engaging Communities During Development of Early Action Plans as a starting point. We will continue to assess language needs on a local basis. to determine if other languages besides Spanish should be considered. Regarding materials being presented in languages other than Spanish, this is mentioned in a number of places, e.g., 4.1.2 and 4.2.1.

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Number	Date Received	Comment Received From:	Comment:	Response:
		(Community Water Center)		
23	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	The requirement for permission from the landowner for well testing (p. 33) conflicts with the SWRCB Resolution accepting the Basin Plan Amendments, is overly burdensome, and will likely delay or prevent drinking water solutions in many cases. (SWRCB Resolution, p. 8 ["Such sampling shall occur only with the consent of the current resident..."]) The EAP must be amended to allow the current resident to provide permission for well testing. We are unaware of any legal restriction on the testing water relied upon by a tenant for drinking, cooking and household purposes, and note that similar bottled water programs operated by Self-Help Enterprises and Community Action Partnership of Madera County ("CAPMC") are available to renters.	The KWA understands the concerns raised by this comment. While there are arguments to be made that testing a well may not require the land/homeowner's permission, having that owner's permission early in the overall process has benefits. First, to install a POU system in the home it will be necessary to have the owner's permission. At the outset, when a resident requests a well test, the outcome is unknown. If the well test shows nitrate > 10 mg/L-N, then KWA will need to work with the resident to choose an alternative. If POU is preferred and the owner has not yet obtained landowner permission, then implementation of POU installation will be delayed. In practice, then, program effectiveness benefits by having owner permission from the beginning. Another issue of concern is whether well test results should be publicly available. It is our understanding that well sample results collected using SAFER funds need to be posted in GeoTracker. Given the likely potential to coordinate Management Zone-directed nitrate sampling with sampling for co-contaminants using SAFER funds increases the likelihood that test results will need to be posted in GeoTracker. After careful consideration, it remains the position of the KWA that a property owner's well test results should not be publicly posted without prior knowledge/consent. Moreover, the Basin Plan Revisions directed by the SWRCB regarding resident permission were unrelated to this specific issue. Rather, it was to address the fact that Management Zones would first need to obtain permission before entering a residence. Nothing during the course of deliberations was the issue between resident and landowner permission raised or discussed amongst the stakeholders. For the above reasons, the EAP has not been modified.

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Number	Date Received	Comment Received From:	Comment:	Response:
24	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	How the selection of drinking water solutions will be made should be clarified in the EAP; the EAP should clearly require the Management Zone to discuss each option with the impacted household, and discuss the pros and cons of each option, to ensure that residents can make a fully informed decision.	Thank you for this comment. Section 5.3 was modified to clarify that KWA representatives will work with the resident on selecting a replacement water option if their well has nitrate > 10 mg/L.
25	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	The Management Zone must provide an initial volume of at least 0.67 gallons per day per person each month.	The Corona Report cited an estimated volume of 0.67 gallons per person per day for drinking, cooking, and hygiene and this equates to about 80 gallons/month. We tried to find the reference cited in the report and was unable to locate it in an Internet search. Via email, a request was made to Jennifer Clary (Clean Water Action), to provide additional information regarding the research conducted by the author cited. Ms. Clary indicated that it was from a draft report that per Michelle Fredericks (State Water Board) was not yet available for release. No additional information has since been provided. The 60 gallons/household is based on the experience of Self Help Enterprises in their Porterville Area Pilot Project. They initially started with 50 gallons/household, but found that 60 gallons was a better initial volume. The EAP clearly states that the 60 gallons/household is the "initial volume" (Section 5.1.1). The EAP also states KWA will work with the homeowner to establish replacement water services - which would include discussion regarding delivery volume. There will also be follow-up contact with the resident after services initiated. Finally the EAP states the initial volume may be modified on a case by case basis at the initial request and any time during EAP implementation.

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26	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	The EAP should be amended to allow for delivery of water in 1 gallon bottles.	Section 5.1.1 acknowledges smaller bottle options, i.e., other than 5-gallons, may also be available.
27	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	The Management Zone should include minimum standards for the frequency of water quality testing and maintenance of POU treatment devices for households that select that option.	Section 5.1.2 notes that periodic maintenance of the POU treatment system is completed as required by the manufacturer. Frequency of maintenance and testing is dependent on the type of unit installed. It is KWA's responsibility to ensure proper agreements are established with appropriate vendors. However, because the POU vendor has expertise in the units they install, KWA will default to them on what are the minimum requirements for water quality testing and maintenance.
28	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	We appreciate the commitment to seek community input regarding the proper role and location of fill stations, and look forward to continuing to engage in this discussion.	Thank you for the comment. The MZ has started to evaluate the groundwater gradients and flow directions along its borders. This analysis will be finalized in the coming months and included in the Final MZP following collaboration with neighboring GSAs and Management Zones.

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29	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	Given that many residents of disadvantaged communities, who will likely be a large portion of the impacted households, do not have regular access to internet websites and email, the GSA must focus on other modes of communication such as spreading information in spaces where residents are already convened, posting flyers, doing door-to-door outreach and phone calls, use of television and radio (especially Spanish language radio), and collaborating with community groups and community-based organizations.	EAP Section 4 lays out an extensive outreach program that includes many different ways of communicating with the public. Attachment B includes a detailed Communication and Outreach Plan. These EAP elements are consistent with State Water Board guidelines for EAP outreach. KWA will regularly evaluate its program and modify if needed to increase contact with the community.
30	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	The Management Zone should conduct several rounds of outreach: one round of multilingual mailings, following up with a second mailing, working with local community-based organizations and community groups to share materials and flyers with residents, and door-to-door outreach.	See response to Comment 29
31	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	The Management Zone should also remain accessible by phone in both day and evening hours.	KWA will work to have its staff accessible as possible during EAP implementation.

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Number	Date Received	Comment Received From:	Comment:	Response:
32	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	Materials should be sent to all residents living outside of compliant public water systems in high risk areas, and to those within compliant water system boundaries served by domestic wells	In Section 3 we have described the process to identify residents to target. With respect to the statement on not excluding domestic wells within public water system boundaries, information regarding this potential can be resolved by obtaining service data from PWSs. Any parcels within their service area that are not in their billing list might indicate that the resident is using a domestic well rather than connect to the water system. These parcels would be included in targeted outreach efforts. If a PWS is unwilling to share its customer list, then KWA can consider options including expanding the area targeted for direct mailing around the PWS.
33	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	The Management Zone should ensure that private wells inside of public water systems are not in use before taking them off of the distribution list.	KWA will be targeting outreach to any area with nitrate likely greater than 7.5 mg/L-N and outside of a compliant PWS (but also see response to previous comment). KWA can only conduct outreach to residents, it cannot ensure a private well is not in use.
34	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	Residents that are suspected of having nitrates over 7.5 mg/L according to the Groundwater Nitrate Assessment and households in the vicinity of nitrate hot spots identified through EAP implementation should be prioritized.	Targeted outreach will occur to all residents in areas where nitrate is > 7.5 mg/L as stated in Section 3

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35	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	All residents should be made aware of the free well testing.	This is stated in numerous places, e.g., PMZP, EAP; request form in Appendix D of the EAP, outreach materials, community meeting presentations. KWA will continue to work to make residents aware of this.
36	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	MZ must ensure that materials are translated into any language for which at least 5% of residents within the agency's service area speak that language.	See response to Comment 22
37	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	The Management Zone should provide additional information regarding anticipated funding needed to implement the EAP, whether available funds are adequate, and how additional funds will be generated if needed.	KWA has established the authority it needs to obtain funds from the Management Zone participants to fund the EAP. Through a legal KWA Board action it has an approved budget based on an approved cost allocation formula and contractual agreements with participants to fund their allocated portions. Failure to provide the appropriate level of funding is cause for dismissal from the KWA and the applicable Management Zone. In such cases, the Central Valley Water Board will be properly notified. Moreover, given that implementation of the EAP is a Basin Plan regulatory requirement, failure to implement the EAP as submitted would be a violation. The KWA is fully committed to funding the implementation of its EAPs to ensure it remains in compliance with the Nitrate Control Program.
38	2/22/2021	John Peairs (XiO Water Systems)	XiO SCADA technology services	Thank you for the information provided.

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39	2/22/2021	Mariah Thompson (California Rural Legal Assistance, Inc.)	CRLA represents multiple clients throughout the Kings Water Alliance (KWA) Management Zone whose primary source of drinking water has levels of nitrates exceeding the state Maximum Contaminant Level (MCL). These residents primarily rely on individual domestic wells for their water needs, and are located in rural, agricultural areas. Many of our clients are agricultural workers with Limited English Proficiency and who lack reliable internet access.	We appreciate your local knowledge of communities that rely on domestic wells in the vicinity of the KWA Management Zone and look forward to possible coordinated outreach efforts with your clients.
40	2/22/2021	Mariah Thompson (California Rural Legal Assistance, Inc.)	The existing filling stations are too far from communities in the central part of the management zone to be realistically useful for residents of those areas. Additional filling stations should be placed in centralized locations, particularly southwest of Fresno in unincorporated areas. Locations such as West Park Elementary, which receives potable water from County Service Area 39 A/B, or a location in Raisin City, would provide rural communities in that area with accessible options.	Thank you for your comment on this important issue. The utility of water fill stations as a frontline interim replacement option has been the subject of much discussion in the Central Valley Region. For example, comments made during community meetings in other developing Central Valley Management Zones, written comments submitted by the LCJA & CWC on the public draft EAP (see Comment 28) and even comments made during the public comment period at a recent Central Valley Water Board meeting have all indicated that water fill stations should not be implemented immediately in a Management Zone unless the community strongly supports this action. Instead, household-specific solutions such as bottled water delivery or POU Treatment are the preferred option with fill stations serving as an additional alternative where requested. KWA will continue to work with the local community to (a) determine interest for additional fill stations in the Management Zone; and (b) if interest exists, identify locations that are most suitable for installation (including the locations suggested in the comment).
41	2/22/2021	Mariah Thompson (California Rural Legal Assistance, Inc.)	KWA should establish a time frame and deadline for establishing additional filling station. The EAP contains a table demonstrating the process to develop new filling stations but fails to identify a deadline by which additional stations will be operational. EAP p. 38. It is important to establish a timeframe to ensure that KWA expeditiously begins development of additional filling stations due to their critical role in providing safe interim drinking water.	See response to comment 40



Table C-1 KWA Public Draft Comments and Responses

Number	Date Received	Comment Received From:	Comment:	Response:
42	2/22/2021	Mariah Thompson (California Rural Legal Assistance, Inc.)	The filling stations should also provide resources for residents seeking assistance for contaminated wells. The stations should include KWA contact information in multiple languages, as well as paper applications for testing and services that residents can fill out and mail to KWA. Other outreach materials describing nitrate contamination, the potential health impacts from high levels of nitrate exposure, and methods for reducing nitrate exposure at home, should also be available at the filling station, as well as information on any upcoming events.	As noted above (Comment 40) installation of fill stations will be dependent on community needs. If a community desires to install a water fill station, the suggestions in this comment will be considered.
43	2/22/2021	Mariah Thompson (California Rural Legal Assistance, Inc.)	While KWA appropriately allows for any resident to receive free water testing, it currently requires any tenant seeking a POU filter in their home to obtain prior consent from the homeowner. EAP p. 32. This requirement is unnecessary, overly burdensome, and will result in fewer families receiving safe drinking water.	Installation of POU Treatment System requires modification of the existing plumbing which is part of the fixed infrastructure of the residence. We agree that the modification is not significant, but nonetheless it is modification to residence. Notwithstanding restrictions on such modifications in a lease agreement or the need for a vendor to have permission to make such modifications, KWA maintains that modifying the plumbing without the consent of the owner/landlord would be inappropriate. This approach is consistent with other projects conducted by Self Help Enterprises where they determined that installation of a POU system required permission from the owner/landlord.

Table C-1 KWA Public Draft Comments and Responses

Number	Date Received	Comment Received From:	Comment:	Response:
44	2/22/2021	Mariah Thompson (California Rural Legal Assistance, Inc.)	KWA should not require prior consent from a landlord for a resident to receive a POU filter. Installation of a POU filter is simple and does not require that extensive work be conducted on a residence or substantial fixtures be installed. The installation of a filter under a kitchen sink is no more invasive than the installation of wireless internet that requires a service provider to drill a hole in the wall of a residence, yet a landlord's written consent is typically not necessary for such a service. KWA fails to identify a legitimate reason that a landlord's prior consent is required for a POU filter. Should tenancy change hands, a new tenant could choose to continue to use that filter and enter into a service contract with the provider, or remove the POU filter, much the same way that internet functions.	See response to Comment 43
45	2/22/2021	Mariah Thompson (California Rural Legal Assistance, Inc.)	Of additional note, according to Central Valley Water Board's FAQs, POU filters should not be utilized on any well with nitrate concentrations in excess of 20 mg/L (as nitrogen). The EAP does not state this requirement and should be included.	Thank you for your comment. We want to clarify the FAQs referenced in this comment are from State Water Board, not Central Valley Water Board. The EAP has been updated to note this limitation.
46	2/22/2021	Mariah Thompson (California Rural Legal Assistance, Inc.)	KWA should provide more robust no-cost well testing. Testing should be conducted seasonally, rather than annually. While annual testing is appropriate in some circumstances, shallow wells are more susceptible to contamination and can vary significantly in contaminant levels depending on the time of year. Many of the domestic wells in the management area are shallow and will benefit from testing more than once per year, especially as repeat testing will be utilized for wells that have high levels of nitrate that border on the MCL. More frequent testing also will provide additional data that will be important for mapping trends in the region over time and by season.	A seasonal/temporal analysis of nitrate conditions was not required for the PMZP/EAP. Moreover, it would be challenging given there are a limited number of wells that have temporal/seasonal nitrate data. Other programs, such as the Irrigated Lands Regulatory Program, include annual sampling of the network of groundwater quality trend monitoring wells in the Kings Water Quality Coalition area, which encompasses the Management Zone. The EAP does not require that we analyze for trends. The purpose of the well sampling is to ensure that those residents with unsafe levels of nitrate have access to replacement water.

Table C-1 KWA Public Draft Comments and Responses

Number	Date Received	Comment Received From:	Comment:	Response:
47	2/22/2021	Mariah Thompson (California Rural Legal Assistance, Inc.)	KWA should also allow residents to request co-contaminant testing at no cost rather than simply notifying residents by letter that they should seek additional types of testing on their own.	Thank you for the comment regarding co-contaminant concerns. Section 5.4 discusses this issue. The EAP is a regulatory requirement of the Nitrate Control Program that must be our primary focus, but KWA will be looking at options to partner with a co-contaminant testing program.
48	2/22/2021	Mariah Thompson (California Rural Legal Assistance, Inc.)	Several strategies included in the outreach plan are particularly useful for reaching rural, low-income communities. This includes the use of text messaging as an outreach strategy, utilizing radio and print media in multiple languages spoken by the community, engaging with identified community leaders and community advocacy groups, and posting outreach material in locations commonly frequented by members of the community. Unfortunately, it does not appear from the EAP that these strategies have been effectively implemented. It appears that despite listing a variety of crucial and effective methods for reaching rural communities, KWA has relied almost exclusively on sending emails and hosting two webinars. The emails were sent to less than 140 people for each mailing, and the November 2020 webinar had only 32 participants. EAP p. 74. The EAP estimates that over 47,000 residents may be living with nitrate contaminated water within the management zone. EAP ES-4. The number of residents reached by outreach before the EAP was drafted and will be adopted is minimal compared to the extent of the problem. To be effective, KWA must actually implement the outreach strategies it has claimed it will rely on.	<p>The Kings Water Alliance has and will continue to conduct extensive outreach and use many diverse methods as discussed in the EAP to encourage local participation in public meetings. This outreach includes community residents, non-dischargers, permitted dischargers and any other interested parties. The Management Zone maintains a contact list for all outreach.</p> <p>For the first community outreach meeting held on November 19, 2020, the Management Zone publicly noticed the meeting through the following actions:</p> <ul style="list-style-type: none"> <li>• Over 6,000 direct mailers were sent to residents throughout the Management Zone</li> <li>• Meeting notices in English and Spanish were posted at 16 key locations in the project area, including in the communities of Easton, Hanford, Armona, Cutler and Orosi.</li> <li>• Directly inviting 11 local community leaders representing Armona, Cutler, Easton, Stratford, Orosi Public Utilities District, Sultana Community Services District, Raisin City, Monson, Zonneveld Diaries, Rolinda and East Orosi.</li> <li>• Targeted outreach to the Environmental Justice Community, Fresno Bee, Fresno County and Kings County Farm Bureaus and the Tachi Yokut Tribe.</li> </ul> <p>For the second community outreach meeting held on January 28, 2021, the Management Zone noticed the meeting through the following actions:</p> <ul style="list-style-type: none"> <li>• Meeting notices in English and Spanish were posted at 52 key locations in 27 communities throughout the Kings Water Alliance Management Zone.</li> <li>• Event notice on the Kings Water Alliance website.</li> </ul>

Table C-1 KWA Public Draft Comments and Responses

Number	Date Received	Comment Received From:	Comment:	Response:
				<ul style="list-style-type: none"> <li>• Targeted outreach via local Environmental Justice NGO email distribution lists to 17 local community organizations</li> <li>• Targeted outreach to the Environmental Justice Community, Fresno Bee, and Fresno County Farm Bureau.</li> <li>• Email outreach to the Kings Water Alliance Management Zone email lists.</li> <li>• Outreach to KBIF 900AM Punjabi Radio, Radio Bilingue, and Hmong Radio.</li> </ul>

Table C-1 KWA Public Draft Comments and Responses

Number	Date Received	Comment Received From:	Comment:	Response:
49	2/22/2021	Mariah Thompson (California Rural Legal Assistance, Inc.)	Text Messaging and Media: There is no evidence that KWA implemented the text-messaging outreach methodology described on page 64. The EAP states that the only media used for outreach was publishing in FresnoLand, an Orosi/Cutler newspaper, and the Fresno County Farm Bureau newsletter. It appears that no non-English media was utilized, and no radio was utilized. KWA must meaningfully implement this outreach strategy, as many rural communities, especially farmworker communities and indigenous communities, utilize radio for community news and updates. Examples of media that KWA should utilize include Radio Bilingüe, Univision stations, KBIF 900 AM, Chanel 32.6 (Hmong TV Network) or any of the many other media outlets serving our area’s diverse communities.	<p>The Kings Water Alliance Management Zone collaborated with the environmental justice organization Leadership Council for Justice and Accountability (LCJA) to develop a survey targeted to community residents. The survey solicited feedback on preferred drinking water solutions for community residents’ family, neighbors, and community. The survey was available in both English and Spanish, and was distributed via the interested persons email list, and via LCJA’s communications channels including email, text message, and community Facebook group. Survey participants were assessed on their willingness to participate in specific drinking water solutions and were asked to rank their preferences. Other general information was collected including whether the survey participant was on a public water system, what community is nearest to their home, and were given the option to sign up for email updates from the Kings Water Alliance. For the second community outreach meeting held on January 28, 2021, the Management Zone noticed the meeting through the following actions:</p> <ul style="list-style-type: none"> <li>• Meeting notices in English and Spanish were posted at 52 key locations in 27 communities throughout the Kings Water Alliance Management Zone.</li> <li>• Event notice on the Kings Water Alliance website.</li> <li>• Targeted outreach via local Environmental Justice NGO email distribution lists to 17 local community organizations</li> <li>• Targeted outreach to the Environmental Justice Community, Fresno Bee, and Fresno County Farm Bureau.</li> <li>• Email outreach to the Kings Water Alliance Management Zone email lists.</li> <li>• Outreach to KBIF 900AM Punjabi Radio, Radio Bilingue, and Hmong Radio.</li> </ul>

Table C-1 KWA Public Draft Comments and Responses

Number	Date Received	Comment Received From:	Comment:	Response:
50	2/22/2021	Mariah Thompson (California Rural Legal Assistance, Inc.)	Community Partnerships: The EAP also shows that KWA has not been effectively engaging with community leaders, “influencers” and community organizations to solicit feedback and promote outreach. EAP p. 64. The EAP lists only three community organizations that work directly with disadvantaged unincorporated communities—Self Help Enterprises, Leadership Counsel, and the Community Water Center—despite the fact that many other community advocacy groups and non-profits work with residents in rural areas. These groups include, but are not limited to, the Central California Environmental Justice Network, the Jakara Movement, Hmong Innovating Politics, Centro Binacional, and others. KWA did not outreach to CRLA despite our having more than fifty years of experience working directly with low-income rural communities. KWA must take meaningful steps to connect with organizations working with the diverse communities affected by water contamination in the management area. Similarly, while community leaders have been identified from some communities, other impacted communities such as West Park are not represented.	As stated in Appendix B - Communication Plan under the Influencer Communications Section: Communications and event promotions will be noticed to community leaders, community-based organizations, and NGOs. Whenever possible, it will be requested that communications be disseminated to the networks of the leaders and individuals within the organizations to better amplify messages and notices to the public. Partnering with these groups is an important piece of effectively reaching impacted residents, as they understand, have established relationships with, and can comfortably communicate with residents in DACs and rural communities. Other influencers that may be considered to disseminate information and relevant announcements include industry and commodity groups, governmental agencies, municipalities, public utilities, agricultural producers, and nitrate dischargers. Distributing information to the networks of these groups can bring effective awareness and engagement. The KWA appreciates your offer to partner with the KWA on outreach and look forward to working with CRLA to amplify outreach efforts.
51	2/22/2021	Mariah Thompson (California Rural Legal Assistance, Inc.)	Non-digital Outreach: While COVID-19 creates challenges for indoor, large meetings, other types of outreach are possible. KWA could, and should, create pop-up events and booths at existing areas where individuals gather outdoors, such as flea markets, outdoor church services, vaccination clinics, and food distribution sites. COVID-19 orders also allow for smaller meetings if certain safety precautions are taken. Community groups and NGOs continue to do critical work during this time and are successful with their efforts despite the obstacles. KWA can partner and learn from these groups to adapt their outreach methods appropriately.	KWA strategy and tactics for EAP development and implementation outreach and engagement operates within the limitations of the COVID-19 pandemic and includes a concentrated volume of digital communications. It expected that as restrictions relating to the COVID-19 pandemic lift, in-person avenues may be employed to reach audiences, for example with door-to-door outreach or meetings within a community.

Table C-1 KWA Public Draft Comments and Responses

Number	Date Received	Comment Received From:	Comment:	Response:
52	2/22/2021	Mariah Thompson (California Rural Legal Assistance, Inc.)	<p>Non-digital Outreach: KWA also failed to utilize the methods available with COVID-19 restrictions that are included in the EAP. KWA states that it will utilize direct mailing to reach impacted residents yet has only sent out one mailing regarding the EAP, and this mailing was to advertise a webinar that residents lacking internet service could not access. EAP p. 79. Mailing materials does provide one method of reaching residents without internet access, but may individuals discard mail without reviewing it or misplace it. More active forms of outreach such as posting or distributing flyers door-to-door, or utilizing doorknob hangers, are more attention-grabbing and effective. Although this type of outreach is labor intensive, the EAP states that KWA will partner with local community organizations and groups that may be able to assist in these methods. If KWA does utilize groups for this purpose, KWA must provide a stipend to account for the time and labor these groups are contributing.</p>	<p>The Kings Water Alliance has and will continue to conduct extensive outreach and use many diverse methods as discussed in the EAP to reach out to nitrate-impacted residents in the KWA Management Zone. KWA will utilize when possible and feasible other organizations who have expertise in the type of outreach needed for the residents within the KWA.</p> <p>For the first community outreach meeting held on November 19, 2020, the Management Zone publicly noticed the meeting through the following actions:</p> <ul style="list-style-type: none"> <li>• Over 6,000 direct mailers were sent to residents throughout the Management Zone</li> <li>• Meeting notices in English and Spanish were posted at 16 key locations in the project area, including in the communities of Easton, Hanford, Armona, Cutler and Orosi.</li> <li>• Directly inviting 11 local community leaders representing Armona, Cutler, Easton, Stratford, Orosi Public Utilities District, Sultana Community Services District, Raisin City, Monson, Zonneveld Diaries, Rolinda and East Orosi.</li> <li>• Targeted outreach to the Environmental Justice Community, Fresno Bee, Fresno County and Kings County Farm Bureaus and the Tachi Yokut Tribe.</li> </ul> <p>For the second community outreach meeting held on January 28, 2021, the Management Zone noticed the meeting through the following actions:</p> <ul style="list-style-type: none"> <li>• Meeting notices in English and Spanish were posted at 52 key locations in 27 communities throughout the Kings Water Alliance Management Zone.</li> <li>• Event notice on the Kings Water Alliance website.</li> <li>• Targeted outreach via local Environmental Justice NGO email distribution lists to 17 local community organizations</li> <li>• Targeted outreach to the Environmental Justice Community, Fresno Bee, and Fresno County Farm Bureau.</li> <li>• Email outreach to the Kings Water Alliance Management Zone email lists.</li> </ul>

Table C-1 KWA Public Draft Comments and Responses

Number	Date Received	Comment Received From:	Comment:	Response:
				<ul style="list-style-type: none"> <li>• Outreach to KBIF 900AM Punjabi Radio, Radio Bilingue, and Hmong Radio.</li> </ul>
53	2/22/2021	Mariah Thompson (California Rural Legal Assistance, Inc.)	If KWA does conduct digital educational programs, it should not rely solely on Zoom or other platforms that require registration. KWA should utilize Facebook Live and Youtube, which are more commonly used and accessible for non-professionals.	KWA appreciates the recommendations provided on the use of different digital platforms and will consider how we can utilize them in EAP implementation outreach activities.



Table C-1 KWA Public Draft Comments and Responses

Number	Date Received	Comment Received From:	Comment:	Response:
54	2/22/2021	Mariah Thompson (California Rural Legal Assistance, Inc.)	Outreach in Community Gathering Spaces: The EAP rightfully states that it is important to provide outreach materials in locations that community members would normally gather, EAP p. 29, but has only utilized this approach in four communities, and in a handful of locations. EAP p. 77. To be effective, this type of outreach must be much more comprehensive. For example, in the community of West Park, KWA should put outreach materials in Saber’s Market, Valentine Market, West Park Elementary, and local churches. In larger communities, extensive distribution of materials is necessary. Most rural residents also travel to urban areas for errands such as grocery shopping and to attend appointments or church. Outreach can also be conducted in those areas.	KWA appreciates the recommendations provided on the use of community gathering spaces and will consider how to incorporate the recommendations in EAP implementation outreach activities.
55	2/22/2021	Mariah Thompson (California Rural Legal Assistance, Inc.)	Outreach materials, such as flyers, should be informative, culturally competent, multi-lingual, and not use technical language. Outreach methods and applications must also include accessibility considerations for those who are illiterate and those with limited education.	As stated in the Communications Plan - Outreach Content and Materials: The KWA will develop and disseminate outreach materials that meet the needs of impacted residents and other interested stakeholders depending on their preferred method of receiving information. The KWA is committed to developing clear, consistent, and timely informational materials to help develop public understanding of the KWA, communicate information about EAP contents and implementation and how they relate to impacted residents and other stakeholders, inform the public on how to get involved, and motivate stakeholders to contribute to EAP development and implantation. Outreach content and materials will be easy to understand, using plain language to communicate important information, in addition to be being visually appealing.

Table C-1 KWA Public Draft Comments and Responses

Number	Date Received	Comment Received From:	Comment:	Response:
56	2/22/2021	Mariah Thompson (California Rural Legal Assistance, Inc.)	It should be made very clear on outreach materials and applications that KWA is not affiliated with any government agency and that all personal identifiable information will be made confidential. This should be a disclaimer, in clear language and large font, on all materials. Many residents living in rural areas do not feel comfortable engaging with government agencies and, understandingly, became particularly wary about applying for or accepting assistance for government agencies after the “No Charge Rule” went into effect.	Thank you for the comment. KWA will work to inform residents through various means that the KWA is not a government agency and will do all it can to keep personal identifiable information confidential. Note that the request for participation form (Appendix D of the EAP) already includes the following note: "The Management Zone will keep your information private. It will not be shared with any local, state, or federal agency, including those involved with law enforcement or immigration enforcement."
57	2/22/2021	Mariah Thompson (California Rural Legal Assistance, Inc.)	Educational materials should include in significant detail all potential health consequences due to nitrate exposure. These details should be highly visible on outreach materials and include visualizations. The materials should also provide info regarding any best practices that can be done by residents themselves to limit nitrate exposure in and around the home that could also contribute to the elevated levels in their groundwater. These include location of animal pens and waste, compost piles, septic system operation and maintenance, cesspools, leaky sewer pipes, or lawn and garden fertilizer use, and any other recommended necessary steps to address these and other potential sources.	Thank you for your comment. KWA will continue to evaluate its outreach materials to keep residents informed. KWA may also rely on other sources of nitrate-related information such as materials developed through CV-SALTS and other relevant industry-related information. However, KWA's focus will continue to be on making sure residents understand their options to obtain safe drinking water if their well is impacted by nitrate.
58	2/22/2021	Mariah Thompson (California Rural Legal Assistance, Inc.)	A language access plan is important to ensure a successful implementation of the EAP given that minority communities are more likely to be affected by contaminated water. Apart from translated outreach materials and interpreted meetings, staff answering public calls should be bilingual or have access to interpreters.	KWA has used a Spanish speaking contact during EAP development and will continue to do so during implementation.

Table C-1 KWA Public Draft Comments and Responses

Number	Date Received	Comment Received From:	Comment:	Response:
59	2/22/2021	Mariah Thompson (California Rural Legal Assistance, Inc.)	Data collected throughout implementation should include socio-economic demographics to monitor disparities and gaps in service and outreach. All collected demographic data should be made publicly available. This will allow KWA and partners to modify outreach as needed. To do this would align KWA with the State Water Board’s Racial Equity Initiative to ensure its programs and policies preserve, protect and restore California’s drinking water and water resources equitably for people of all races.	Thank you for the comment. The EAP will collect the necessary data to demonstrate to the Central Valley Water Board that the EAP is being implemented as required by the Nitrate Control Program regulations. However, it is important to note that it is not the intent of the Nitrate Control Program to collect data in regards to socio-economic demographics to monitor disparities and gaps in service and outreach. Moreover, collecting such data could result in conflicts with the commitment to ensure the privacy and confidentiality of local residents. See Comment 56.
60	2/22/2021	Mariah Thompson (California Rural Legal Assistance, Inc.)	The EAP must clearly identify what accountability mechanisms are in place to ensure KWA compliance with the EAP and with the applicable laws and regulations. The oversight process, including the role of other state or regional agencies, should be described. KWA must also create a procedure for residents to submit confidential complaints, in multiple languages, to oversight agencies if they are concerned about the EAP implementation or KWA management of the management zone	The Central Valley Water Board is responsible to ensure permitted dischargers comply with its regulations. Given that the development and implementation of the EAP is in direct response to Nitrate Control Program regulations in the Basin Plan, failure to implement the program as approved would constitute a violation of these regulations. Accordingly, we fully expect the Central Valley Water Board to monitor the program and hold the KWA accountable for EAP implementation. While a resident may contact the KWA at any time with their concerns, as with any regulatory program a resident certainly may contact the Central Valley Water Board if they wish to submit a complaint.

## Attachment D

***Early Action Plan (see separate EAP document)***

## Attachment E

### ***Kings Water Alliance Article of Incorporation and By-Laws***

The Kings Water Alliance Articles of Incorporation and By-Laws are included as part of Attachment E.

4666248

**FILED** *EMR/I.O.*  
Secretary of State  
State of California

*ICC* NOV 17 2020



**ARTICLES OF INCORPORATION**

**I.**

The name of this corporation is KINGS WATER ALLIANCE.

**II.**

A. This corporation is a nonprofit public benefit corporation, and it is not organized for the gain of any person. It is organized under the Nonprofit Public Benefit Corporation Law for charitable purposes.

B. The specific purpose of this corporation is to maintain and improve the quality of life in the central San Joaquin Valley by implementing programs that provide access to safe drinking water for residents, and by engaging in activities with the goal of protecting or enhancing the quality of groundwater drinking water supplies for residents in the region.

**III.**

The name and address in the State of California of this corporation's initial agent for service of process are:

Joseph D. Hughes  
4550 California Ave, 2<sup>nd</sup> Floor  
Bakersfield, CA 93309

**IV.**

The corporate street address is as follows:

4886 E. Jensen Ave.  
Fresno, CA 93725

The corporate mailing address is as follow:

P.O. Box 8259  
Fresno, CA 93747

**V.**


A. This corporation is organized and operated exclusively for charitable purposes within the meaning of Section 501(c)(3), Internal Revenue Code.

B. No substantial part of the activities of this corporation shall consist of carrying on propaganda, or otherwise attempting to influence legislation, and the corporation shall not participate or intervene in any political campaign (including the publishing or distribution of statements) on behalf of any candidate for public office.

## VI.

The property of this corporation is irrevocably dedicated to charitable purposes and no part of the net income or assets of this corporation shall ever inure to the benefit of any director, officer or member thereof or to the benefit of any private person. Upon the dissolution or winding up of the corporation, its assets remaining after payment, or provision for payment, of all debts and liabilities of this corporation shall be distributed to a nonprofit fund, foundation or corporation which is organized and operated exclusively for charitable purposes and which has established its tax exempt status under Section 501(c)(3), Internal Revenue Code.

Dated: November 15, 2020

  
Joseph D. Hughes, Incorporator



I hereby certify that the foregoing transcript of 2 page(s) is a full, true and correct copy of the original record in the custody of the California Secretary of State's office.

NOV 30 2020

Date:

*Alex Padilla*

ALEX PADILLA, Secretary of State



## BYLAWS OF KINGS WATER ALLIANCE

(a nonprofit public benefit corporation)

### ARTICLE I. GENERAL PROVISIONS

**Section 1. Name.** The name of this corporation is Kings Water Alliance. Kings Water Alliance is referred to in these Bylaws as “KWA” or the “corporation.”

**Section 2. Principal Office.** The principal office for the transaction of the activities and affairs of the corporation shall be located in California. The Board of Directors (Board) shall have the authority to set and change the precise location of the principal office, so long as the principal office remains in California.

### ARTICLE II. PURPOSES AND LIMITATIONS

**Section 1. General Purposes.** This corporation is a California Nonprofit Public Benefit Corporation and is not organized for the private gain of any person. It is organized under the Nonprofit Public Benefit Corporation Law for charitable purposes.

**Section 2. Specific Purposes.** Within the context of the general purposes stated above, the specific purpose of this corporation is to maintain and improve the quality of life in the central and southern San Joaquin Valley by implementing programs that provide access to safe drinking water for residents, and by engaging in groundwater nitrate reduction activities with the goal of protecting or enhancing the quality of groundwater drinking water supplies for residents.

**Section 3. Limitations.** No substantial part of the activities of this corporation shall consist of carrying on propaganda, or otherwise attempting to influence legislation, and the corporation shall not participate or intervene in any political campaign (including the publishing or distribution of statements) on behalf of any candidate for public office.

The property of this corporation is irrevocably dedicated to charitable purposes and no part of the net income or assets of this corporation shall ever inure to the benefit of any director or officer, or to the benefit of any private person.

### ARTICLE III. MEMBERSHIP

**Section 1. Members.** Unless otherwise established by the Board, the corporation shall have no members.

### ARTICLE IV. BOARD OF DIRECTORS

**Section 1. Powers.**

- (a) General Corporate Powers. Subject to the provisions and limitations of the California Nonprofit Public Benefit Corporation Law and any other applicable laws, the corporation's activities and affairs shall be managed, and all corporate powers shall be exercised, by or under the direction of the Board.

(b) Specific Powers. Without prejudice to the general powers set forth in subsection (a) above, but subject to the same limitations, the Board may do the following:

- (1) Policies. Adopt policies, rules and procedures for the management and operation of the corporation.
- (2) Administration. Retain an employee, or a management firm, or contract with another entity, to administer the day-to-day activities of the corporation. An individual paid to manage the day-to-day activities of the corporation shall be known as the Executive Director. The Executive Director shall not simultaneously serve as Executive Director and as a member of the Board. The Board may also employ, retain, or authorize the employment of such other employees, independent contractors, agents, accountants, and legal counsel as it from time to time deems necessary or advisable in the interest of the corporation, prescribe their duties and fix their compensation.
- (3) Bonds. May require officers, agents, and employees charged by the corporation with responsibility for the custody of any of its funds or negotiable instruments to give adequate bond.
- (4) Borrowing Money. Borrow money and incur indebtedness on behalf of the corporation and cause to be executed and delivered for the corporation's purposes, in the corporate name, promissory notes, bonds, debentures, deeds of trust, mortgages, pledges, liens, and other evidences of debt and securities.
- (5) Gifts. Receive and accept gifts, devises, bequests, donations, annuities and other securities, and endorsements of real and personal property, and use, hold and enjoy the same, both as to principal and income, to invest and re-invest the same or any part thereof for the furtherance of any objects, interests or purposes of this corporation, and to act as trustee under any trust incidental to the receipt of gifts or other purposes of this corporation.
- (6) Grants. Apply for and accept grant awards and use, hold and enjoy the same, both as to principal and income, to invest and re-invest the same or any part thereof for the furtherance of any objects, interests or purposes of this corporation, and to act as trustee under any trust incidental to the receipt of gifts or other purposes of this corporation.
- (7) Contributions. Make such contributions as the Board determines are necessary and advisable in furtherance of the interests and purposes of this corporation.
- (8) Fiscal Year. Establish and change the fiscal year of the corporation.
- (9) Contracts. Enter into contracts and agreements with individuals and with public and private entities for the advancement of the purposes for which the corporation is organized.
- (10) Property. Acquire, construct, possess and sell real, personal, and intellectual property.

- (11) Bank Accounts and Special Funds. Establish one or more bank accounts and/or special funds in order to accomplish and further the purposes of the corporation.
- (12) Committees. Appoint committees as provided in these Bylaws.
- (13) Start-up Costs. Authorize the re-payment of the start-up costs for this organization (including but not limited to any attorneys' and accountants' fees and costs and filing fees for incorporation and for obtaining federal and state tax exempt status for the corporation) to the individuals and/or organizations that provided such funds.
- (14) Others. Do and perform all acts and exercise all powers incidental to, or in connection with, or deemed reasonably necessary for the proper implementation of the purposes of the corporation.

**Section 2. Number; Qualifications; Limitations.**

(a) Number. The Board shall initially consist of seven directors, as follows:

- Three of whom shall be appointed by the Kings River Water Quality Coalition;
- Two of whom shall be appointed by the Central Valley Dairy Representative Monitoring Program;
- One of whom shall be appointed by the California Poultry Federation; and
- One of whom shall be appointed by The Wine Group.

Of the initial directors, Kassy Chauhan, Justin Mendes, and Mark McKean will be deemed to have been appointed by the Kings River Water Quality Coalition; Rodney Kamper and Lucy Areias will be deemed to have been appointed by the Central Valley Dairy Representative Monitoring Program; David Belt will be deemed to have been appointed by the California Poultry Federation; and Joey Giordano will be deemed to have been appointed by The Wine Group. The Kings River Water Quality Coalition, the Central Valley Dairy Representative Monitoring Program, the California Poultry Federation, and The Wine Group shall each pay an initial fee of \$10,000 to the corporation.

(b) Additions to the Board. The number of authorized director positions on the Board may be increased by a two-thirds vote of all the directors at any properly called and noticed meeting; however, the total number of authorized director positions on the Board shall always be an odd number, not to exceed 11 authorized director positions.

(b) Qualifications. All directors must be individuals or appointed representatives of entities who are interested in and committed to the purposes of the corporation as set forth above, in addition to satisfying any other qualifications as set forth by the Board from time to time.

California law prohibits non-voting directors and alternates/proxies for directors. No employee

or contract manager of KWA may be a director on the Board at the same time.

- (c) Dues, Fees, and Assessments. Each director or entity represented by a director, must pay, within the time and on the conditions set by the Board, the dues, fees, and assessments established from time to time by the Board.
- (d) Restriction on Interested Persons as Directors. No more than 49% of the persons serving on the board may be Interested Persons. For purposes of this section, an “Interested Person” is: (a) any person compensated by the corporation for services rendered to it within the previous 12 months, whether as a full-time or part-time employee, independent contractor, or otherwise, excluding any reasonable compensation paid to a director as director; and (b) any brother, sister, ancestor, descendant, spouse, brother-in-law, sister-in-law, son-in-law, daughter-in-law, mother-in-law, or father-in-law of such person. However, any violation of the provisions of this paragraph shall not affect the validity or enforceability of any transaction entered into by the corporation.

**Section 3. Appointments; Term of Office; Term Limits.** Directors shall be appointed as described in Article IV, Section 2 above. The term of office of each director shall be three years and until a successor has been appointed and qualified. There shall be no limit on the number of terms a director may serve if he or she remains qualified and appointed to the Board.

To stagger the terms of the first appointed Board, three of the directors shall be appointed for a term of three years, two directors shall be appointed for a term of two years, and one director shall be appointed for a term of one year.

**Section 4. Resignations and Removal of Director.**

- (a) Resignation. Any director may resign by giving written notice to the Chair or the Secretary of the Board. The resignation shall be effective when the notice is given unless it specifies a later time for the resignation to become effective.
- (b) Removal. Any director may be removed from the Board by the entity that appointed the director. Subject to the approval of the entity that appointed the director, any director may be removed by a two-thirds vote of the Board.

**Section 5. Vacancies on the Board.**

- (a) Events Causing Vacancy. The vacancy or vacancies on the Board shall exist on the occurrence of the following:
  - (1) The death or resignation of any director;
  - (2) The removal of a director as set forth under Section 4, above;
  - (3) The declaration by resolution of the Board of a vacancy in the office of a director who has been declared of unsound mind by an order of court, convicted of a felony, or found by final order or judgement of any court to have breached a duty under Article 3 of Chapter 2 of the California Nonprofit Public Benefit Corporation Law;  
or

- (4) The increase of the authorized number of directors pursuant to Article IV, Section 2(b).
- (b) Filling Vacancies. Vacancies on the Board shall be filled by the entity whose seat is vacant at any properly called and noticed meeting where a quorum is present. The individual filling a vacant director position shall serve until the end of the term of the director whose vacancy he or she is filling.
- (c) No Vacancy on Reduction of Number of Directors. No reduction of the authorized number of directors shall have the effect of removing any director before that director's term of office expires.

### **Section 6. Board Meetings.**

- (a) Annual Meeting. The Board shall hold an annual meeting each year for purposes of organization, appointment of directors and officers, and transaction of other business. Notice of the annual meeting shall be given in accordance with subsection (d) below.
- (b) Regular Meetings. The Board shall establish a schedule of regular meetings during each year consisting of at least quarterly meetings or more frequently as decided by the Board at its Annual Meeting.
- (c) Special Meetings. Special meetings of the Board for any purpose may be called at any time by the Chair or any two directors. Notice of any special meeting shall be given in accordance with subsection (d) below.
- (d) Notice. Notice of the annual meeting and any regular or special meetings of the Board, specifying the time and place of the meeting, shall be given to each director at least five days before the meeting if sent by first-class mail or express mail service, or 48 hours before the meeting if personally delivered or delivered by telephone (including a voice messaging system), or by electronic transmission by the corporation (Corp. Code § 20).

Notice shall be deemed delivered when deposited in the U.S. mail or with an express mail service, postage prepaid, or when received if delivered personally or by telephone, or on its confirmation of delivery if by electronic transmission.

A notice, or waiver of notice, need not specify the purpose of any meeting of the Board.

- (e) Place of Meetings. The annual and any regular or special meetings of the Board shall be held at any place within or outside California that has been designated by resolution of the Board or in the notice of the meeting or, if not so designated, at the principal office of the corporation.
- (f) Meetings by Telephone or Video Conference or by Electronic Transmission. Directors may participate in a meeting of the Board through use of conference telephone, electronic video screen communication, or electronic transmission by and to the corporation (Corp. Code §§ 20, 21).

Participation in a meeting through use of conference telephone or electronic video screen communication constitutes presence in person at that meeting as long as all directors participating in the meeting are able to hear one another.

Participation in a meeting through use of electronic transmission by and to the corporation, other than conference telephone and electronic video screen communication, constitutes presence in person at that meeting if both of the following apply:

- (1) Each director participating in the meeting can communicate with all of the other directors concurrently.
  - (2) Each director is provided the means of participating in all matters before the Board, including, without limitation, the capacity to propose or interpose an objection to, a specific action to be taken by the corporation.
- (g) Quorum; Act of the Board. A majority of the authorized number of directors shall constitute a quorum for the transaction of business, except to adjourn. Except as specifically provided in these bylaws or in the California Nonprofit Public Benefit Corporation Law, every action taken, or decision made by a majority of the directors present at a duly held meeting at which a quorum is present shall be the act of the Board. A meeting at which a quorum is initially present may continue to transact business, despite the withdrawal of directors, if any action taken or decision made is approved by at least a majority of the required quorum for that meeting.
- (h) Waiver of Notice. Notice of a meeting need not be given to any director who, either before or after the meeting, signs a waiver of notice, a written consent to the holding of the meeting, or an approval of the minutes of the meeting. The waiver of notice or consent need not specify the purpose of the meeting. All such waivers, consents, and approvals shall be filed with the corporate records or made a part of the minutes of the meeting. Notice of a meeting need not be given to any director who attends the meeting and does not protest, before or at the commencement of the meeting, the lack of notice to him or her.
- (i) Adjournment. A majority of the directors present, whether or not a quorum is present, may adjourn any meeting to another time and place.
- (j) Notice of Adjourned Meeting. Notice of the time and place of holding an adjourned meeting need not be given unless the original meeting is adjourned for more than twenty-four hours. If the original meeting is adjourned for more than twenty-four hours, notice of any adjournment to another time and place shall be given, before the time of the adjourned meeting, to the directors who were not present at the time of the adjournment.
- (k) Board Action by Written Consent. Any action required or permitted to be taken by the Board may be taken without a meeting if all members of the Board individually or collectively consent in writing to that action. The written votes shall be maintained for at least five years. An action by written consent shall have the same force and effect as a unanimous vote of the directors.
- (l) Voting Power. For all purposes, the voting power of each director shall be one vote.
- (m) Closed Sessions. Any meeting of the Board, or portion of a meeting, may be closed by the

Chair so that only directors and individuals deemed necessary by the Chair are present.

**Section 7. Compensation and Reimbursement.** Directors shall not receive compensation for their services on the Board. Directors may receive such reimbursement of expenses as the Board may determine by resolution to be fair and reasonable at the time that the resolution is adopted.

**Section 8. Property Rights.** No director shall have any property rights in any assets of the corporation.

## ARTICLE V. OFFICERS

**Section 1. Officers of the Corporation.** The elected officers of the corporation shall be a Chair, Vice Chair, Secretary, and Treasurer. All elected officers must be directors on the Board. The offices of Secretary and Treasurer may be combined and held by one person, at the discretion of the Board. If combined, the officer shall be known as the “Secretary/Treasurer.”

**Section 2. Election of Officers.** The elected officers of the corporation shall be elected annually by and from among the directors.

**Section 3. Terms of Office; Term Limits.** Elected officers shall serve at the pleasure of the Board for one-year terms. There is no limit on the number of terms an elected officer may serve if he or she is a director and continues to be elected to an officer position by the Board.

**Section 4. Removal of Officers.** Any officer may be removed from his/her officer position at any time, with or without cause, by a majority vote of the Board at any properly called meeting where a quorum is present.

**Section 5. Resignation of Officers.** An officer may resign at any time by giving written notice to the Chair or the Secretary. The resignation shall take effect as of the date the notice is received or at any later time specified in the notice and, unless otherwise specified in the notice, the resignation need not be accepted to be effective.

**Section 6. Vacancies in Office.** A vacancy in any office because of death, resignation, removal, disqualification, or any other cause may be filled by a majority vote of the directors present at any annual, regular, or special meeting of the Board where a quorum is present. The individual filling a vacant officer position shall serve until the end of the term of the officer whose vacancy he or she is filling.

**Section 7. Responsibilities of Officers.**

- (a) Chair. The Chair of the Board shall preside at meetings of the Board and shall exercise and perform such other powers and duties as the Board may assign from time to time.
- (b) Vice Chair. The Vice Chair of the Board shall assist the Chair of the Board in performance his or her duties. The Vice Chair of the Board shall perform the duties of Chair in the absence or incapacity of the Chair.

(c) Secretary.

- (i) **Book of Minutes.** The Secretary shall keep or cause to be kept, at the corporation's principal office or such other place as the Board may direct, a book of minutes of all meetings, proceedings, and actions of the Board, and committees of the Board. The minutes of meetings shall include the time and place that the meeting was held, whether the meeting was annual, regular, or special, and, if special, how authorized, the notice given, and the names of those present at the Board and committee meetings. The Secretary shall keep or cause to be kept, at the principal office in California, a copy of the Articles of Incorporation and the Bylaws, as amended to date.
- (ii) **Notices and Other Duties.** The Secretary shall give, or cause to be given, notice of all meetings of the Board and of its committees required by these Bylaws. The Secretary shall have such other powers and perform such other duties as the Board, the Chair, or the Bylaws may prescribe.
- (iii) **Absent Chair.** If the Chair and Vice Chair are absent or unable to serve, the Secretary shall perform all the duties of the Chair. When so acting, the Secretary shall have all powers of and be subject to all restrictions of the Chair.

(d) Treasurer.

- (i) **Books of Account.** The Treasurer shall keep and maintain, or cause to be kept and maintained, adequate and correct books and accounts of the corporation's properties and transactions. The Treasurer shall send or cause to be given to the directors such financial statements and reports as are required to be given by law, by these Bylaws, or by the Board. The books of account shall be open to inspection by any director at all reasonable times.
- (ii) **Deposit and Disbursement of Money and Valuables.** The Treasurer shall deposit, or cause to be deposited, all money and other valuables in the name and to the credit of the corporation with such depositories as the Board may designate, shall disperse the corporation's funds as the Board may order, shall render to the Chair and the Board, when requested, an account of all transactions as Treasurer and of the financial condition of the corporation, and shall have such other powers and perform such other duties as the Board, the Chair, or the Bylaws may prescribe.

## ARTICLE VI. COMMITTEES

**Section 1. Committees of the Board.** The Board, by resolution, may create one or more committees of the Board, each consisting of two or more directors and no persons who are not directors, to serve at the pleasure of the Board. Appointments to committees of the Board shall be made by the Board. Any such committee, to the extent provided in the Board resolution, shall have all the authority of the Board, except that no committee, regardless of Board resolution, may:

- (a) Fill vacancies on the Board or on any committee that has the authority of the Board;



- (b) Provide compensation for directors for serving on the Board or on any committee;
- (c) Amend or repeal these Bylaws or adopt new bylaws;
- (d) Amend or repeal any resolution of the Board that, by its express terms, is not so amendable or repealable;
- (e) Create any other committees of the Board or appoint members of committees of the Board; or
- (f) Approve any contract or transaction to which the corporation is a party and in which one or more of its directors has a material financial interest, except as special approval is provided for in Section 5233(d)(3) of the California Corporations Code.

**Section 2. Notice Requirements for Committees of the Board.** Written notice requirements for meetings of committees of the Board shall be the same as for Board meetings.

**Section 3. Quorum for Committees of the Board.** A majority of the members of any committee of the Board shall constitute a quorum, and the acts of a majority of the members present at a meeting at which a quorum is present shall constitute the act or recommendation of the committee.

**Section 4. Advisory Committees.** The Board may also establish advisory committees composed of any number of directors and/or other persons who share an interest in the purpose of the corporation who are not directors. Appointments to advisory committees shall be made by the Board or the Chair of the Board. Advisory committees may provide advice and recommendations to the Board but shall have no authority to make decisions on behalf of the Board or KWA, or otherwise commit or bind either the Board or KWA in any respect.

**Section 5. Meetings by Telephone or Video Conference or by Electronic Transmission.** Any meeting of a committee may be held by telephone or video conference or by electronic transmission in the same manner as for Board meetings.

## **ARTICLE VII. LIABILITY, INDEMNIFICATION, AND INSURANCE**

**Section 1. Liability.** No volunteer, director, or officer shall be liable to third parties if the volunteer, director, or officer has met the requirements for good faith performance of his or her duties prescribed by the California Nonprofit Public Benefit Corporation Law and the corporation has met its duties relative to insurance required by the California Nonprofit Public Benefit Corporation Law.

**Section 2. Right of Indemnity.** To the fullest extent permitted by law, this corporation shall indemnify its directors, officers, employees, and other persons described in Section 5238(a) of the California Corporations Code, including persons formerly occupying any such position, against all expenses, judgments, fines, settlements and other amounts actually and reasonably incurred by them in connection with any "proceeding", as that term is used in that section, and including an action by or in the right of the corporation, by reason of the fact that the person is or was a person described in that section. "Expenses," as used in this Bylaw, shall have the same meaning as in Section 5238(a) of the California Corporations Code.

**Section 3. Approval of Indemnity.** On written request to the Board by any person seeking indemnification under Section 5238(b) or Section 5238(c) of the California Corporations Code, the Board shall promptly determine under Section 5238(e) of the California Corporations Code whether the applicable standard of conduct set forth in Section 5238(b) or Section 5238(c) has been met and, if

so, the Board shall authorize indemnification.

**Section 4. Advancement of Expenses.** To the fullest extent permitted by law and except as otherwise determined by the Board in a specific instance, expenses incurred by a person seeking indemnification pursuant to these Bylaws in defending any proceeding covered by such indemnification shall be advanced by the corporation before final disposition of the proceeding, on receipt by the corporation of an undertaking by or on behalf of that person, that the advance will be repaid unless it is ultimately determined that the person is entitled to be indemnified by the corporation for those expenses.

**Section 5. Insurance.** The Board shall authorize the purchase and maintenance of an insurance policy or policies on behalf of its directors, officers, and employees against any liabilities, other than for violating provisions against self-dealing, incurred by the director, officer, or employee in such capacity or arising out of their status as such. Such policy shall meet the requirements set forth in Section 5239 of the California Corporations Code.

## **ARTICLE VIII. RECORDS AND REPORTS**

**Section 1. Maintenance of Corporate Records.** The corporation shall keep:

- (a) Adequate corporate books and records of account.
- (b) Written minutes of the proceedings of its Board and committees of the Board; and
- (c) A record of each director's name, address, telephone number, and electronic mail address, if any.

**Section 2. Maintenance of Articles and Bylaws.** The corporation shall keep at its principal office the original or a copy of the Articles of Incorporation and Bylaws, as amended to date.

**Section 3. Inspection by Directors.** Every director shall have the right to inspect the corporation's books, records, and documents to the extent allowed by the California Nonprofit Public Benefit Corporation Law.

**Section 4. Annual Report.** The Board shall cause an annual report to be sent to directors within 120 days after the end of the corporation's fiscal year. That report should contain the following information, in appropriate detail, for the fiscal year:

- (a) The assets and liabilities, including the trust funds, of the corporation as of the end of the fiscal year.
- (b) The principal changes in assets and liabilities, including trust funds.
- (c) The revenue or receipts of the corporation, both unrestricted and restricted to particular purposes.
- (d) The expenses or distributions of the corporation for both general and restricted purposes.
- (e) Any information required by Section 5 of this Article.

The annual report shall be accompanied by any report of independent accountants or, if there is no such report, by the certificate of an authorized officer of the corporation that such statement was prepared without audit from the corporation's books and records.

This requirement of an annual report shall not apply if the corporation receives less than \$25,000 in gross receipts during the fiscal year, provided, however, that the information specified above for inclusion in an annual report must be furnished annually to all directors who request it in writing.

**Section 5. Annual Statement of Certain Transactions and Indemnifications.** If any of the following types of transactions or indemnifications occurred during the previous fiscal year, then as part of the annual report to all directors, or as a separate document if no annual report is issued, the corporation shall prepare and mail or deliver to each director a statement of any such transaction or indemnification within 120 days after the end of the corporation's fiscal year:

- (a) Any transaction:
  - (i) In which the corporation or its subsidiary was a party; and
  - (ii) In which an "interested person" had a direct or indirect material financial interest; and
  - (iii) Which involved more than \$50,000 or was one of a number of transactions with the same "interested person" involving, in the aggregate, more than \$50,000.
- (b) Any indemnifications or advances aggregating more than \$10,000 which were paid during the fiscal year to any officer or director of the corporation.

For purposes of this section, an "interested person" means any director or officer of the corporation (but mere common directorship shall not be considered such an interest).

The statement shall include a brief description of the transaction, the names of "interested persons" involved, their relationship to the corporation, the nature of their interest in the transaction and, if practicable, the amount of that interest, provided that if the transaction was with a partnership in which the "interested person" is a partner, only the interest of the partnership need be stated.

## **ARTICLE IX. CONFLICT OF INTEREST POLICY**

**Section 1. Purpose.** The purpose of the conflict of interest policy is to protect this corporation's interest when it is contemplating entering into a transaction or arrangement that might benefit the private interest of an officer or director of the corporation or might result in a possible excess benefit transaction. This policy is intended to supplement but not replace any applicable state and federal laws governing conflict of interest applicable to nonprofit and charitable organizations.

**Section 2. Definitions for Purposes of this Article.**

- (a) Interested Person: Any director, officer, or member of a committee of the Board, who has a direct or indirect financial interest, as defined below, is an interested person.

- (b) Financial Interest: A person has a financial interest if the person has, directly, or indirectly, through business, investment, or family:
- (1) An ownership or investment interest in any entity with which the corporation has a transaction or arrangement;
  - (2) A compensation arrangement with the corporation or with any entity or individual with which the corporation has a transaction or arrangement; or
  - (3) A potential ownership or investment interest in, or compensation arrangement with, any entity or individual with which the corporation is negotiating a transaction or arrangement.

Compensation includes direct and indirect remuneration as well as gifts or favors that are not insubstantial.

A financial interest is not necessarily a conflict of interest. Under Article X, Section 2.b.2, a person who has a financial interest may have a conflict of interest only if the Board or committee decides that a conflict of interest exists.

### **Section 3. Procedures.**

- (a) Duty to Disclose. In connection with any actual or possible conflict of interest, an interested person must disclose the existence of the financial interest and be given the opportunity to disclose all material facts to the directors and members of the committee of the Board considering the proposed transaction or arrangement.
- (b) Determining Whether a Conflict of Interest Exists. After disclosure of financial interest and all material facts, and after any discussion with the interested person, he or she shall leave the Board or committee meeting while the determination of a conflict of interest is discussed and voted upon. The remaining board or committee members shall decide if a conflict of interest exists.
- (c) Procedures for Addressing the Conflict of Interest.
  - (1) An interested person may make a presentation at the Board or committee meeting, but after the presentation, the interested person must leave the meeting during the discussion of, and the vote on, the transaction or arrangement involving the possible conflict of interest.
  - (2) The chairperson of the Board or committee will, if appropriate, appoint a disinterested person or committee to investigate alternatives to the proposed transaction or arrangement.
  - (3) After exercising due diligence, the Board or committee will determine whether the corporation can obtain with reasonable efforts a more advantageous transaction or arrangement from a person or entity that would not give rise to a conflict of interest.
  - (4) If a more advantageous transaction or arrangement is not reasonably possible under the circumstances not producing a conflict of interest, the Board or committee will determine by a majority vote of the disinterested directors whether the transaction

or arrangement is in the corporation's best interest, for its own benefit, and whether it is fair and reasonable. In conformity with the above determination, the Board shall make its decision as to whether to enter into the transaction or arrangement.

(d) **Violations of the Conflict of Interest Policy.**

- (1) If the Board or committee has reasonable cause to believe a person has failed to disclose an actual or possible conflict of interest, it shall inform the person of the basis for such belief and afford the person an opportunity to explain the alleged failure to disclose.
- (2) If, after hearing the person's response and after making further investigation as warranted by the circumstances, the Board or committee determines the person has failed to disclose an actual or possible conflict of interest, it will take appropriate disciplinary and corrective action.

**Section 4. Records of Proceedings.** The minutes of the Board and all committees of the Board shall contain:

- (a) The names of the persons who disclosed or otherwise were found to have a financial interest in connection with an actual or possible conflict of interest, the nature of the financial interest, any action taken to determine whether a conflict of interest was present, and the Board's or committee's decision as to whether a conflict of interest, in fact, existed.
- (b) The names of the persons who were present for discussions and votes relating to the transaction or arrangement, the content of the discussion, including any alternatives to the proposed transaction or arrangement, and a record of any votes taken in connection with the proceedings

**Section 5. Compensation.**

- (a) A member of the Board who receives compensation, directly or indirectly, from the corporation for services is precluded from voting on matters pertaining to that member's compensation.
- (b) A member of any committee whose jurisdiction includes compensation matters and who receives compensation, directly or indirectly, from the corporation for services is precluded from voting on matters pertaining to that member's compensation.
- (c) No member of the Board or any committee whose jurisdiction includes compensation matters and who receives compensation, directly or indirectly, from the corporation, either individually or collectively, is prohibited from providing information to any committee regarding compensation.

**Section 6. Annual Statement.** Each director, officer, and member of a committees of the Board shall annually sign a statement which affirms such a person:

- (a) Has received a copy of the conflict of interest policy;
- (b) Has read and understand the policy;
- (c) Has agreed to comply with the policy; and

- (d) Understands the corporation is charitable and in order to maintain its federal tax exemption, it must engage primarily in activities which accomplish one or more tax-exempt purposes.

**Section 7. Periodic Reviews.** To ensure the corporation operates in a manner consistent with charitable purposes and does not engage in activities that could jeopardize its tax-exempt status, periodic reviews will be conducted. The periodic reviews will, at a minimum, include the following subjects:

- (a) Whether compensation arrangements and benefits are reasonable, based on competent survey information, and the result of arm's length bargaining; and
- (b) Whether partnerships, joint ventures, and arrangements with management organizations conform to the corporation's written policies, are properly recorded, reflect reasonable investment or payments for goods and services, further charitable purposes and do not result in inurement, impermissible private benefit or in an excess benefit transaction.

**Section 8. Use of Outside Experts.** When conducting the periodic reviews as provided for in Article IX, Section 7, the corporation may, but need not, use outside advisors. If outside experts are used, their use does not relieve the Board of its responsibility for ensuring periodic reviews are conducted.

## **ARTICLE X. MISCELLANEOUS**

**Section 1. Fiscal Year.** Unless changed by the Board, the fiscal year of the corporation begins on July 1<sup>st</sup> and ends on June 30<sup>th</sup>.

**Section 2. Intellectual Property.** All intellectual property prepared or purchased by or on behalf of the corporation, including but not limited to newsletters, educational, promotional, and training materials, contracts, trade names, logos, service marks, and donor lists and contact information, shall be the exclusive property of the corporation and Board members agree to deal with it as such. Board members agree that they will not sell, transfer, publish, modify, distribute, or use for their own purposes, the intellectual property belonging to the corporation without the prior approval of the Board memorialized in a writing signed by the Chair.

**Section 3. Required Filings and Disclosures.** The Board shall ensure that the required filings are made at applicable state and federal agencies, including but not necessarily limited to filings required by the Secretary of State, the Attorney General's Office, the Internal Revenue Service, and the Franchise Tax Board.

KWA shall also comply with the disclosure requirements of state and federal agencies to which it is subject. Requirements that are applicable to KWA include, but are not necessarily limited to, making the corporation's annual tax returns (IRS Form 990) available to the public.

**Section 4. Construction and Definitions.** Unless the context requires otherwise, the general provisions, rules of construction, and definitions in the Nonprofit Public Benefit Corporation Law shall govern the construction of these Bylaws. Without limiting the generality of this provision, the singular includes the plural, the plural includes the singular, the masculine includes the feminine and neuter, and the term "person" includes both an individual and an entity.

## ARTICLE XI. AMENDMENTS

**Section 1. Amendments.** Subject to any limitations in the Nonprofit Public Benefit Corporation Law, these Bylaws may be amended, or repealed and new bylaws adopted, by a two-thirds vote of all the directors on the Board so long as a copy of the proposed amendments or new bylaws are provided to each director at least five days prior to the meeting at which such amendments or new bylaws will be discussed and voted on.

## ARTICLE XII. DISSOLUTION

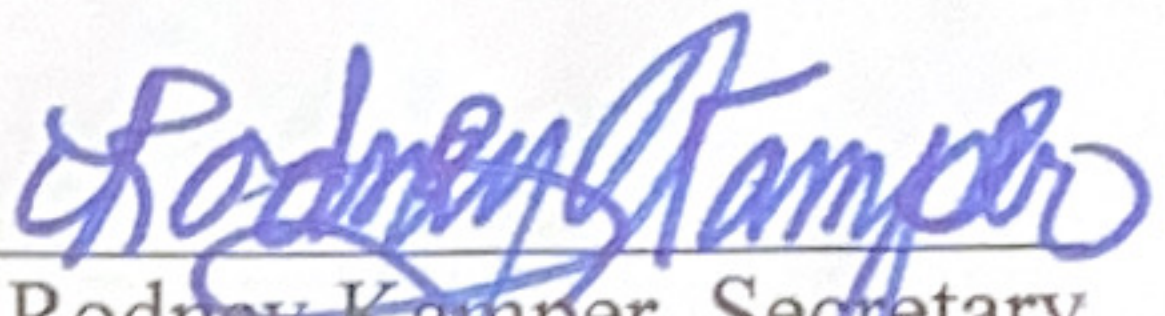
**Section 1. Voluntary Dissolution by Vote.** The corporation may be dissolved at any time pursuant to California Corporations Code Section 6610.5.

**Section 2. Remaining Assets.** Upon the dissolution or winding up of the corporation, its assets remaining after payment, or provision for payment, of all debts and liabilities of this corporation shall be distributed to a nonprofit organization which is organized and operated exclusively for charitable purposes and which has established its tax-exempt status under Section 501(c)(3) of the Internal Revenue Code.

**CERTIFICATE OF SECRETARY**

I certify that I am the duly elected and acting Secretary of the Kings Water Alliance, a California nonprofit public benefit corporation; that the above Bylaws, consisting of 18 typewritten pages including this page, are the Bylaws of this corporation as adopted by the Board of Directors on February 10, 2021 (approximately 3:10 p.m.).

Executed on the 8<sup>th</sup> day of March, 2020 at Fresno County, California.

  
\_\_\_\_\_  
Rodney Kamper, Secretary