

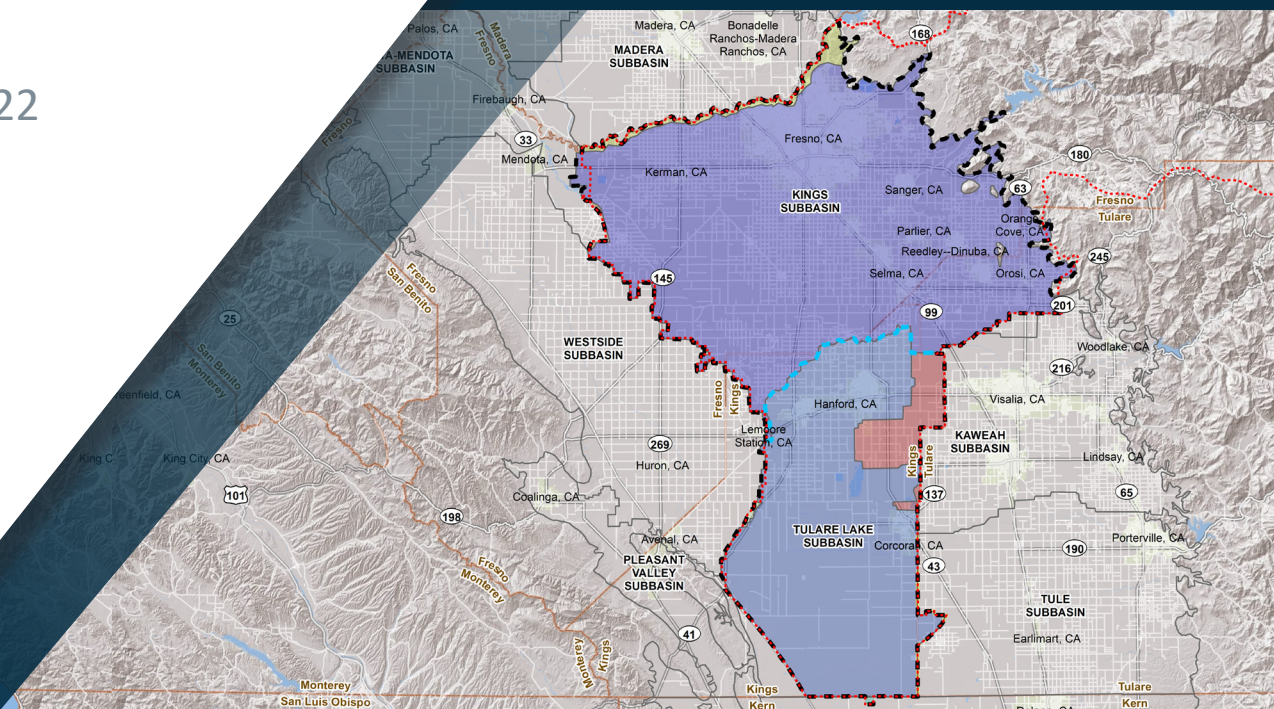


KINGS WATER ALLIANCE MANAGEMENT ZONE

Final Management Zone Proposal

August 29, 2022

PREPARED BY:



KINGS WATER ALLIANCE MANAGEMENT ZONE FINAL 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
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

Acronym	Definition
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 ₃ -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
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

Acronym	Definition
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. Final Management Zone Overview

The Kings Water Alliance (KWA) initiated the formation of the KWA Management Zone to comply with the Central Valley Regional Water Quality Control Board (Central Valley Water Board or CVWB) 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, dairies, and other permitted dischargers in the Kings and Tulare Lake Subbasins formed the KWA. The 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 was formed to locally solve the nitrate problem in groundwater.

The KWA Management Zone includes the Kings Groundwater Subbasin, the Tulare Lake Groundwater Subbasin, a portion of the Kaweah 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 CVWB assigned priorities based on the urgency of addressing nitrate problems in each groundwater subbasin. The Kings and Kaweah Subbasins and four 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 overarching management goals of the 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 overarching management goals of the Nitrate Control Program are (Central Valley Water Board, 2020):

Goal 1

Ensure a safe drinking water supply.

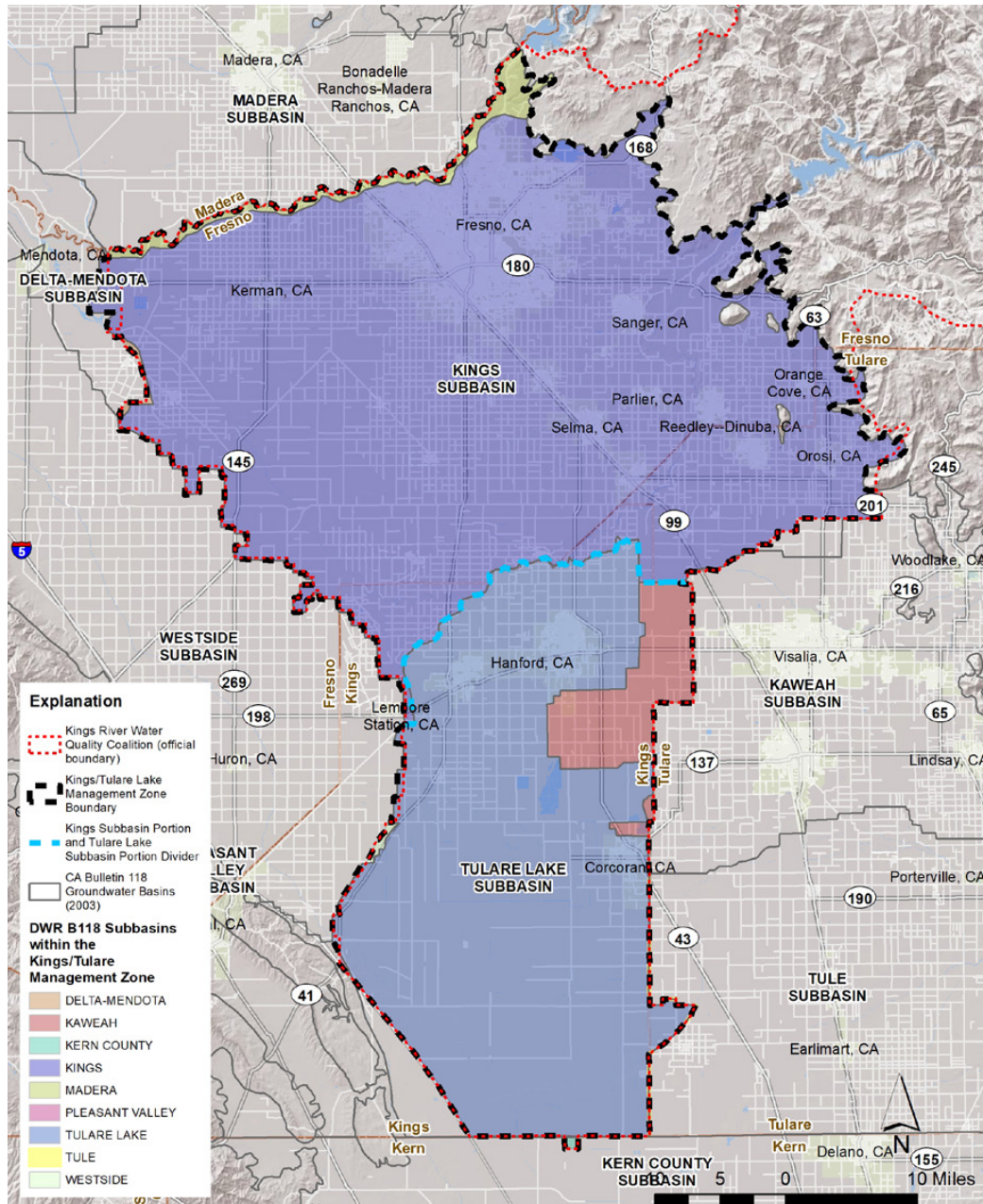
Goal 2

Reduce 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.

Goal 3

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

Figure ES-1. Kings Water Alliance Management Zone



The Kings Water Alliance worked collaboratively with permittees to form a Management Zone to achieve these goals. The formation of the KWA Management Zone (Path B) to comply with the Nitrate Control Program 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 among 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.

Several documents are required to comply with Path B of the Nitrate Control Program. The first was the Preliminary Management Zone Proposal, including a key companion document, the Early Action Plan. 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 KWA Management Zone companion documents were submitted to the Regional Board on March 8, 2021. Implementation of the Early Action Plan began within 60 days of submittal, on May 8, 2021. The Final Management Zone Proposal (this document) is due on August 29, 2022, which is 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 Final Management Zone Proposal, along with one of its main attachments, the Early Action Plan, is the next step to complying with the Nitrate Control Program and continuing 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 and Final Management Zone Proposals 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 KWA 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 Final Management Zone Proposal document is purposely designed to address the two main subbasins (Kings and Tulare Lake Subbasins), which are largely an intersection of the Kings River Water Quality Coalition boundary. For purposes of this report, the KWA Management Zone is divided into two main portions: the KWA Northern Portion (Kings Subbasin Priority 1 area); and the KWA Southern Portion (Tulare Lake Subbasin Priority 2 and a small area of the Priority 1 Kaweah Subbasin). 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 Final Management Zone Proposal include:

Section 1 Final 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 of Management Zone (Kings Subbasin Area)

- This section describes 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.
- This section also includes 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, 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 individual permit.

Section 3 KWA Southern Portion of the Management Zone (Tulare Lake Subbasin and a small area of the Kaweah Subbasin)

This section contains all of the same information as Section 2, but for the Tulare Lake Subbasin and a small portion of the Kaweah Subbasin

Section 4 Early Action Plan Development

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

Section 5 Management Zone Implementation

This section discusses how the Management Zone will next develop a Management Zone Implementation Plan in accordance with the requirements of the Nitrate Control Program.

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

Table ES-1. Final Management Zone Proposal Requirements (Central Valley Water Board 2020)	
FMZP Requirement	Location in FMZP
Proposed preliminary and final boundaries of the Management Zone area	Section 1.3.1
Identification of initial and updated 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
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 of Management Zone participants	Section 5.0
Initial and updated 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, outreach utilized to ensure that they are given the opportunity to participate in development of the Early Action Plan, and actions taken to implement the 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
Management Zone Implementation: <ul style="list-style-type: none"> • Timeline for development of the MZIP; • Governance and funding structure for administration of the Management Zone; • Explanation of how the Management Zone intends to interact and/or coordinate with other programs such as Sustainable Groundwater Management Act (SGMA) 	Section 5.0, 4.7, and 4.8

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 KWA 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 KWA 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 Orosi.

Many Groundwater Sustainability Agencies established under the Sustainable Groundwater Management Act (SGMA) 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 225 Public Water Systems with known GIS boundary data within the KWA Management Zone; the majority (215) of these systems are located within the Northern Portion (Kings Subbasin area) of the Management Zone.

There are 16 Disadvantaged Communities and 38 Disadvantaged Unincorporated Communities within the Northern Portion (Kings Subbasin area) of the Management Zone, covering approximately 1,258 square miles (804,938 acres) and containing an estimated population of over 638,001. 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 studies from the Central Valley Salinity Coalition that defined 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 meticulously 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

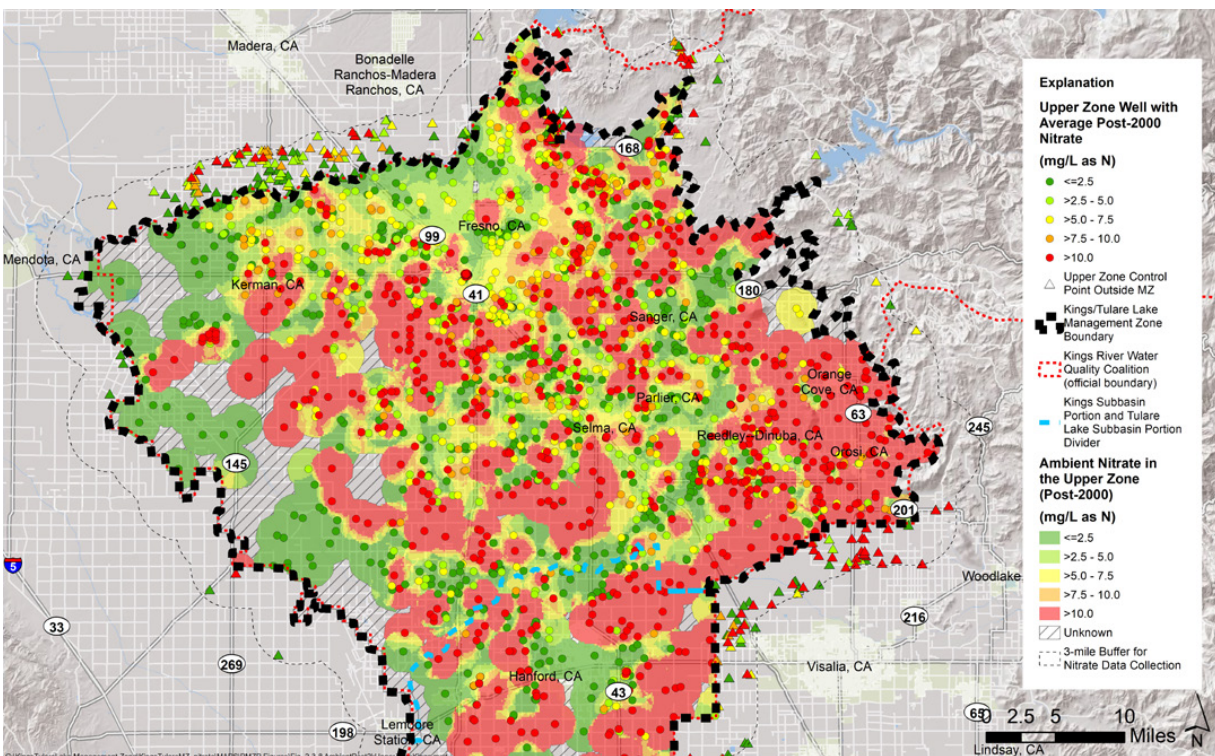


Figure ES-2. Ambient Post-2000 Nitrate Concentrations in the Upper Zone of Groundwater Underlying the KWA Northern Portion (Kings Subbasin Area) of the Proposed Kings Water Alliance Management Zone

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 as part of the Management Zone Implementation Plan.

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 FMZP identifies the **permitted dischargers** that have elected to participate in the Management Zone.



Permitted dischargers are participating in the Management Zone and represent growers, dairies, feeding operations, and others.

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

This FMZP summarizes the current nitrate treatment and control efforts or management practices required by the discharge permit held by each of the participating permittees located in the Northern Portion (Kings Subbasin area) of the Management Zone. The FMZP 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 FMZP provides a brief summary of nature of the permitted facility and their existing permit requirements as they relate to nitrate management.

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 of the Management Zone (Tulare Lake Subbasin and a small portion of the Kaweah 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 of the Management Zone (Tulare Lake Subbasin and a small portion of the Kaweah Subbasin) 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 part 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 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 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 225 Public Water Systems with known GIS boundary data within the KWA Management Zone, ten (10) of them are located within the Southern Portion of the Management Zone.

There are eight (8) Disadvantaged Communities and eleven (11) Disadvantaged Unincorporated Communities within the Southern Portion of the Management Zone, covering approximately 833 square miles (532,882 acres) and containing an estimated population of 53,170. The 2016 Department of Water Resources land use within the Southern Portion 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 and Small Part of Kaweah Subbasin) 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 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 during the development of the Management Zone Implementation Plan.

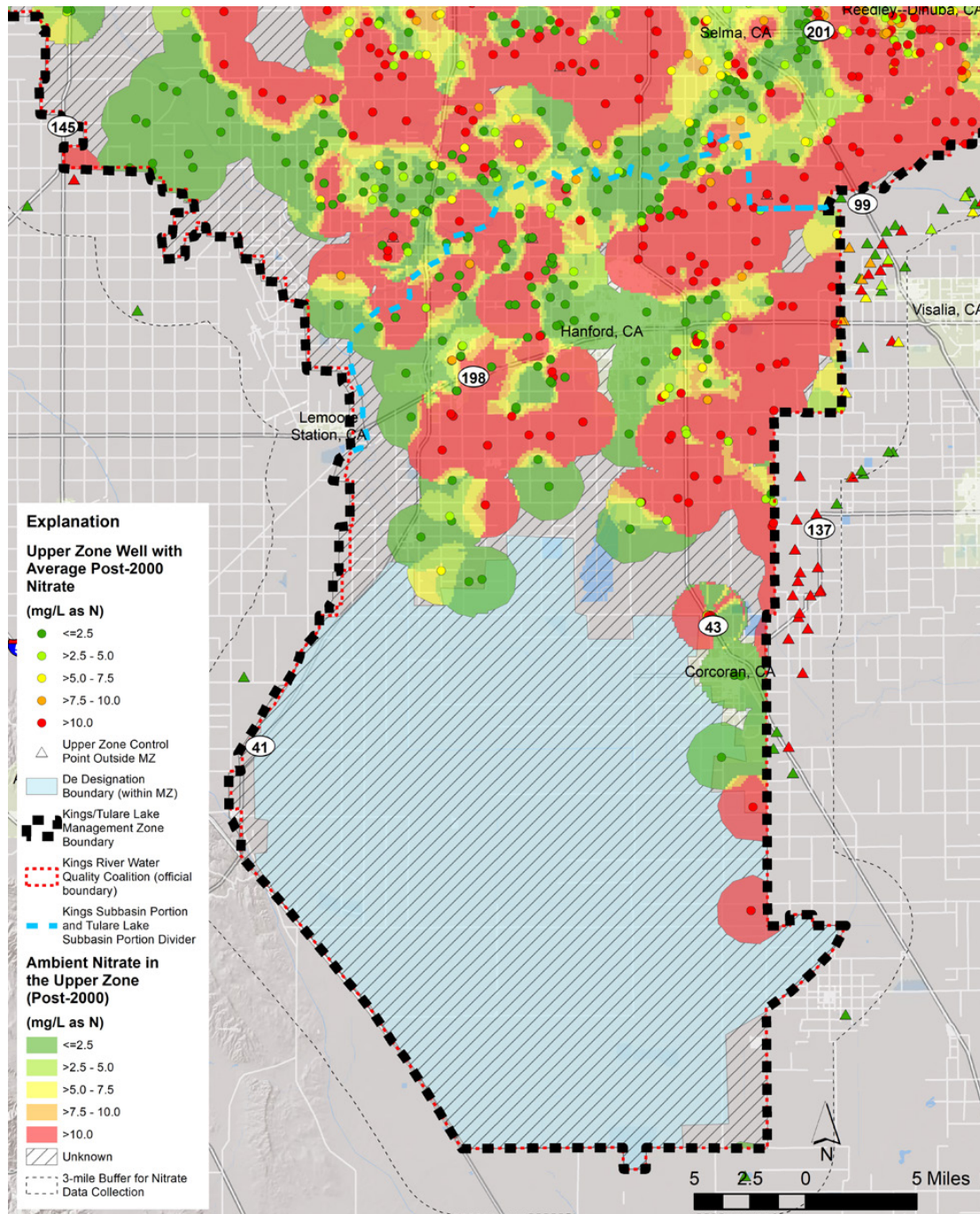


Figure ES-3. Ambient Post-2000 Nitrate Concentrations in the Upper Zone of Groundwater Underlying the KWA Southern Portion (Tulare Lake Subbasin and Small Part of Kaweah Subbasin) of the Proposed Kings Water Alliance Management Zone

ES 3.3. KWA Southern Portion (Tulare Lake Subbasin and Small Part of Kaweah Subbasin) 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 FMZP identifies the permitted dischargers that have elected to participate in the Management Zone.

ES 3.4. KWA Southern Portion (Tulare Lake Subbasin and Small Part of Kaweah Subbasin) Current Nitrate Treatment and Control Efforts or Management Practices

This FMZP summarizes the current nitrate treatment and control efforts or management practices required by the discharge permit held by each of the participating permittees located in the Tulare Lake/Kaweah Subbasin portions of the Management Zone. The FMZP 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 FMZP provides a brief summary of nature of the permitted facility and their existing permit requirements as they relate to nitrate management.



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 actions the KWA has initiated 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 FMZP 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 FMZP 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. The actual EAP, which includes more comprehensive information is attached to this FMZP as **Attachment D**.

ES 5. Management Zone Implementation

This section discusses how the KWA Management Zone will work with the Central Valley Water Board during the review and acceptance of this FMZP. While that process is ongoing, the KWA Board will begin development of the Management Zone Implementation Plan (MZIP) for the Management Zone. The content of the MZIP will be consistent with the Nitrate Control Program regulations and outcome of ongoing discussions with Central Valley Water Board staff regarding interpretation of these regulations. The KWA Management Zone is committed to submitting its MZIP for its Priority 1 areas to the Central Valley Water Board within six months after this FMZP is accepted by the Executive Officer, as required by the Nitrate Control Program.

Key Milestones



1. FINAL MANAGEMENT ZONE OVERVIEW

1.1. Introduction and Document Roadmap

The Kings Water Alliance (KWA) initiated the formation of the Kings Water Alliance Management Zone to comply with the Central Valley Regional Water Quality Control Board (Central Valley Water Board or CVWB) Nitrate Control Program requirements. The Kings and Kaweah Subbasins were determined by the Central Valley Water Board to be Priority 1 basins, 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 dairies and other permitted dischargers in the Kings and Tulare Lake Subbasins formed the Kings Water Alliance. The 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 an intersection of the Kings River Water Quality Coalition 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 large geographical area covered by the Kings Water Alliance, 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 and a small area of the Priority 1 Kaweah Subbasin). Although there are sections within these two chapters that present the same information, this approach enables the KWA, who has elected to represent Priority 1 and Priority 2 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 Management Zone requirements for the Northern Portion (Kings Subbasin area) of the KWA Management Zone, which represents a Priority 1 subbasin and therefore a more immediate deadline. Chapter 3 contains the Management Zone requirements for the Priority 1 Kaweah Subbasin portion that is adjacent to the Priority 2 Tulare Lake Subbasin and Southern Portion of the KWA Management Zone, for which the regulatory deadline for Priority 2 subbasins has not yet been determined. 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 separate subbasins within the KWA Management Zone with different priorities and regulatory deadlines. The part of the Kaweah Subbasin that is included in the KWA Southern Portion of this document (Chapter 3) is still part of a Priority 1 subbasin, and therefore outreach and implementation of the Early Action Plan has been ongoing within that area of KWA.

1.2. Nitrate Control Program

The Central Valley Water Board 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). The State Water Board approved the revisions on June 1, 2021 (Resolution 2021-0019), and they became effective on November 10, 2021 (Office of Administrative Law Matter Number: 2021-0929-05S). The nitrate management goals and compliance requirements described herein, are based on the approved revisions of the Nitrate Control Program.

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 and Kaweah Subbasins 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"> • 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 Nitrate Control Program. 	
Intent and Purposes	
<ul style="list-style-type: none"> • Defined area that serves as a discrete regulatory compliance unit for complying with the Nitrate Control Program for multiple permittees. • Basis for the establishment of local management plans to manage nitrate within the Management Zone's boundary. • 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. • 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. • Ensure the provision of safe drinking water for the Management Zone through stakeholder coordination and cooperation. • Work towards better resource management through appropriate allocation of resources. • 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. 	

The CVWB sent out an NTC to permitted dischargers in the Kings and Kaweah Subbasins 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 and Kaweah Subbasins (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 Final Management Zone Proposal (FMZP or Proposal) for the management of nitrates within the Kings, Kaweah, and Tulare Lake Subbasins within the Kings Water Alliance Management Zone. This Proposal, which is an update of the PMZP submitted March 8, 2021, 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)	
FMZP Requirement	Location in FMZP
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

Table 1-2. Preliminary Management Zone Proposal Requirements (Central Valley Water Board, 2020)	
FMZP Requirement	Location in FMZP
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"> Identifying additional participants; Further defining boundary areas; Developing proposed governance and funding structure for administration of the Management Zone; Additional evaluation of groundwater conditions across the Management Zone boundary area, if necessary; and, Management Zone Implementation Plan. 	Section 4.0 and 5.0

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 and Kaweah Subbasins, are illustrated in **Figure 1-1**.

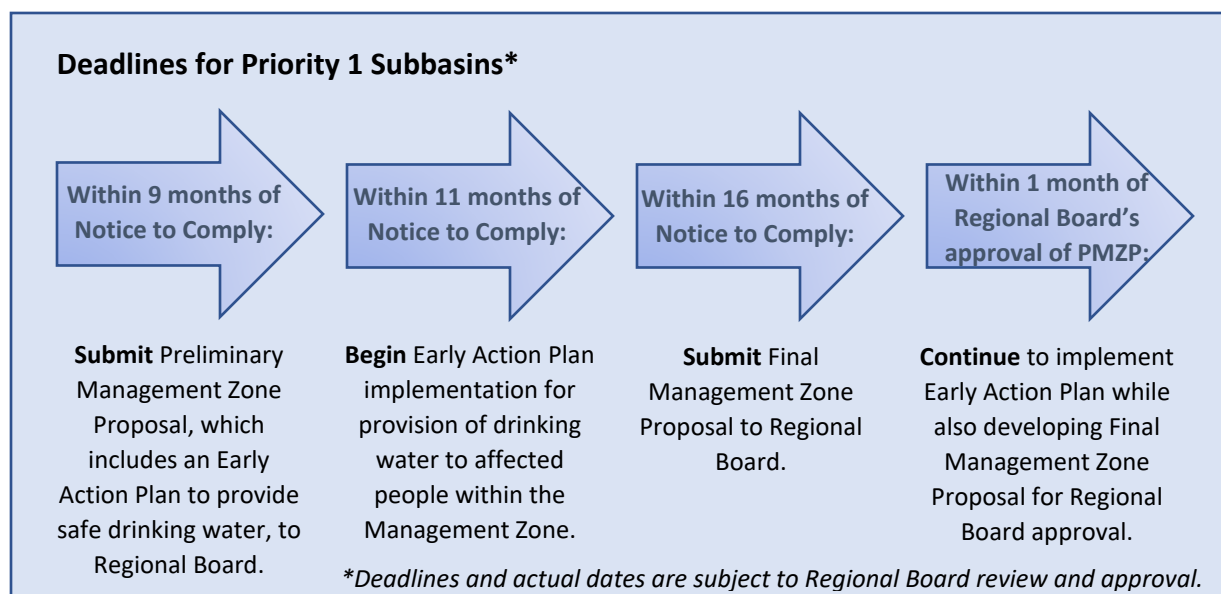


Figure 1-1. Deadlines for Priority 1 Subbasins (adapted from cvsalinity.org)

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, based on existing Nitrate Control Program regulations (Central Valley Water Board, 2020). The submittal of Preliminary Management Zone Proposals for Priority 2 Subbasins (e.g., the Tulare Lake Subbasin) is required 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 required 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 Final Management Zone Proposal (and accompanying Early Action Plan) for the Tulare Lake Subbasin in combination with their effort for the Kings and Kaweah Subbasins 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. 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 River Water Quality Coalition¹ (**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 KWA boundary can be described as the intersection of the Kings River Water Quality Coalition boundary and the 2003 Groundwater Basins/Subbasins for the Kings and Tulare Lake Subbasins. Areas inside the Water Quality Coalition but outside of a groundwater subbasin were removed from the KWA boundary. Due to boundary discrepancies between the Coalition and 2003 groundwater subbasins, this resulted in portions of Priority 1 subbasins (Kaweah, Tule), Priority 2 subbasins (Delta-Mendota, Kern County, Madera), and non-prioritized subbasins (Pleasant Valley and Westside) be included in the KWA boundary. A portion of the Kings Subbasin to the northwest and not within the Coalition's boundary was also included so that all Priority 1 areas had coverage. The Northern Portion of the Kings Water Alliance Management Zone extends to the north, into the Madera Subbasin, following the Kings River Water Quality Coalition 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 Zone². As a result of the intersection of the Kings River Water Quality Coalition boundary and 2003 DWR Bulletin 118 boundaries, the development of the Kings Water Alliance Management Zone boundary includes portions of several other subbasins within the Management Zone area, as described above. **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 (comprised mostly of the Tulare Lake Subbasin) of the Management Zone (**Chapter 3**), and the total Kings Water Alliance Management Zone area.

¹ 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.

² 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.

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 Coalition's 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.

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

DWR Subbasin (2003)	Nitrate Control Program Priority ¹	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
Kings	1	966,767	-	966,767
Madera	2	20,887	-	20,887
Pleasant Valley	-	-	302	302
Tulare Lake	2	-	502,643	502,643
Tule	1	-	361	361
Westside	-	253	1,227	1,480
Total Area	-	990,133²	561,353³	1,551,486²

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

² 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.

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

Kings Water Alliance Management Zone
Final Management Zone Proposal

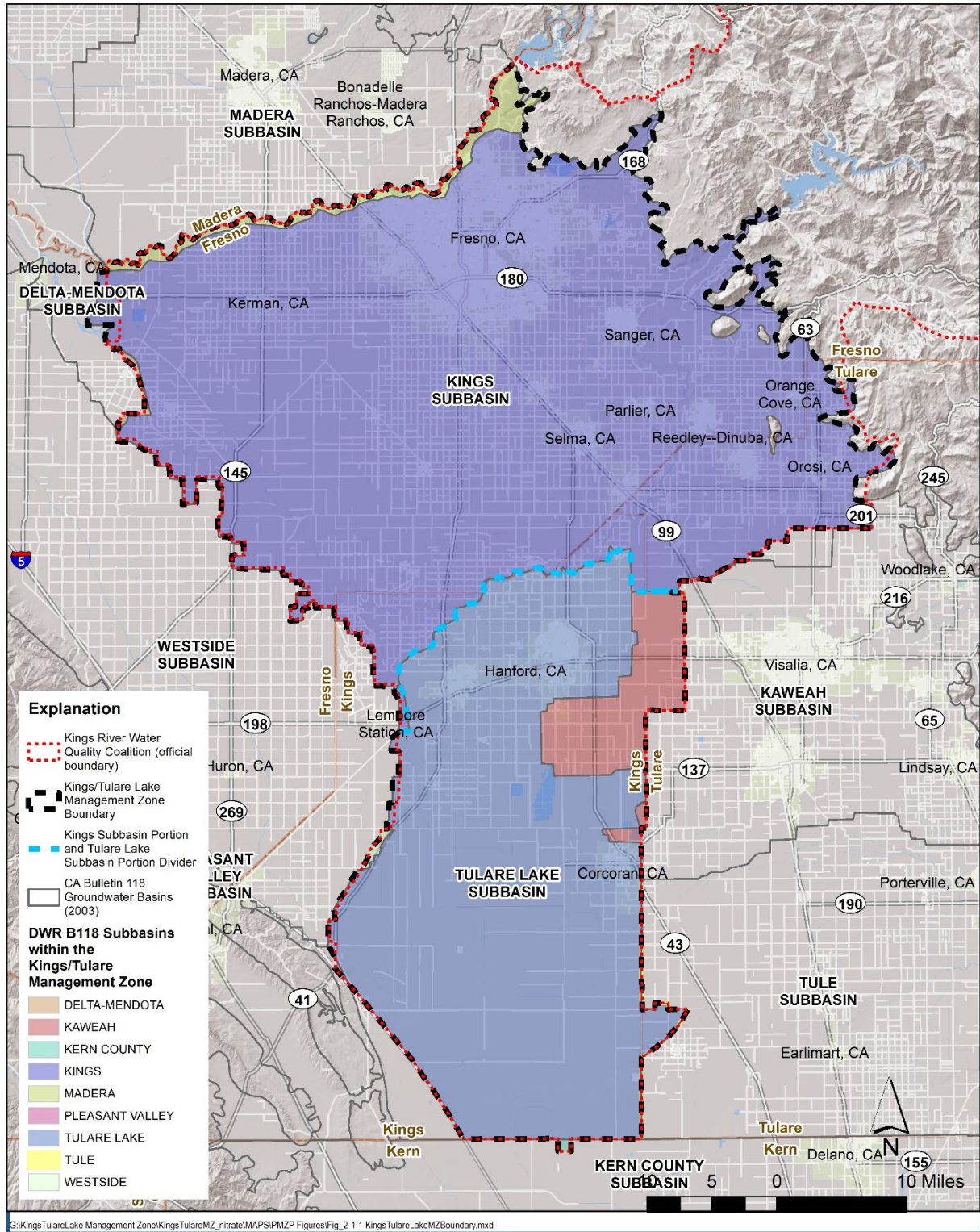


Figure 1-2. Map of the Kings Water Alliance Management Zone Boundary

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 KWA 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 and portions of Delta-Mendota, Kaweah, Kern County, Madera, Pleasant Valley, Tule, and Westside 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 Final Management Zone Proposal with updated Early Action Plan is based on the previously submitted Preliminary Management Zone Proposal with Early Action Plan. These documents were voluntarily prepared by the permitted dischargers identified in Section 1.5 below. Development of all of these regulatory deliverables 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 FMZP
Management Zone boundaries shall be based primarily on hydrogeology.	FMZP 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.	FMZP 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.	FMZP Section 1.4.2
Areas of contribution associated with discharges, both within and outside of each Management Zone, shall be technically justified.	FMZP 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 and portions of Delta-Mendota, Kaweah, Kern County, Madera, Pleasant Valley, Tule, and Westside 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 FMZP. 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. As of the submittal of this FMZP, the Management Zone is aware of at least nine dischargers that have submitted a Notice of Intent (NOI) to comply with the NCP under Path A, including the City of Fresno. The Management Zone is already coordinating with the City of Fresno and will coordinate with other Path A dischargers to ensure that any resident requesting a well test is able to have their well tested either by the Management Zone or by the appropriate Path A discharger.

1.4.3. Management Zone 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 Board members and seats they will hold are as follows:

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

1.4.4. Process to Establish Proposed Management Zone

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

1.4.4.1. Preparation of Management Zone Proposals

The process to develop the proposed Management Zone 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 FMZP.
- *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 NTC 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 KWA 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 KWA 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 KWA website (<http://kingswateralliance.org/>), 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 KWA 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 KWA and Nitrate Control Program requirements to dischargers.

The KWA 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. A table containing the comments and KWA's response to those comments are provided in **Attachment C**.

On March 8, 2021, the KWA Management Zone submitted its PMZP with EAPs to the Central Valley Water Board. Subsequently, the Central Valley Water Board conducted a formal public review of these documents by providing the opportunity for the public to submit written comments by April 14, 2021. In addition, the Board held a virtual public workshop on all Management Zone submittals on April 27, 2021. Following these public outreach activities, the Central Valley Water Board conditionally approved the KWA Management Zone EAP on May 7, 2021. This conditional approval included additional measures necessary to be implemented to ensure compliance with the Nitrate Control Program. On February 28, 2022, the Central Valley Water Board sent the KWA Management Zone its comments on the PMZP and set August 29, 2022 as the required date for submittal of this FMZP. This FMZP with updated EAP addresses comments included in both the May 7, 2021 and February 28, 2022 Central Valley Water Board letters. Draft versions of this FMZP document and the updated EAP were provided for public comment on August 10, 2022. Public comments were received and considered in the preparation of the final FMZP and EAP documents. A table containing the comments and KWA's response to comments on the public draft FMZP and EAP are provided in **Attachment I**.

Table 1-5. Kings Water Alliance Technical Advisory Committee			
Name	Email	Affiliation	Representing
Jean-Pierre ("J.P.") Cativiela	jcativiela@cogentcc.com	COGENT	Dairy/Confined Bovine
Kassy Chauhan	kchauhan@fresnoirrigation.com	Kings River Water Quality Coalition	ILRP
David Cehrs	davidcehrs@verizon.net	Kings River Water Quality Coalition	ILRP
David Belt	david.belt@fosterfarms.com	Foster Farms	Poultry
Kim Burns	kim.burns@ejgallo.com	E&J Gallo Winery	Wineries
Karen Petryna	Karen.Petryna@ghd.com	GHD	Baker Commodities Kerman Division

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 KWA 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 PMZP, 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 KWA 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**.

Since submittal of the PMZP and EAP in March 2021, the KWA has held additional community outreach activities to support development and implementation of the Management Zone. More information about outreach efforts is included in Appendix B of the Early Action Plan (**Attachment D**). Outreach efforts since March 2021 have included:

- Public Meetings between May 2021 and October 2021
- KWA Community Outreach Events including at Food Banks (Orange Cove, Parlier, Raisin City, Orange Cove, Laton, Cutler, Orosi, and Dinuba), and World Water Day at Fresno State University Campus
- Email Updates to Interested Parties: 25 email campaigns since March 2021
- Website Activity including a link to acquire a domestic well test

- Direct Mailers over five different mailing campaigns, with over 70,000 postcards sent
- Flyer Distribution Events at various businesses, COVID vaccination centers, by neighbors, community postings, school district distribution, churches, etc.
- In-Person Canvassing Events (six events in the Orange Cove, Orosi, and Sanger areas)
- Social Media Presence on Facebook and Instagram
- Posted KWA Videos for instructions and information about KWA's EAP implementation
- Radio Outreach on Radio Bilingue
- News Media via the Business Journal and a Press Release

1.5. Final/Updated List of Participants in the Proposed Management Zone

1.5.1. Kings and Kaweah Subbasin List of Participants

This section identifies the permitted dischargers within the Priority 1 areas of the Kings and Kaweah Subbasins the proposed Management Zone that have elected to comply with the Nitrate Control Program through participation in a Management Zone. The submittal of this FMZP 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 (as amended) ("Reissued Waste Discharge Requirements General Order for Existing Milk Cow Dairies") or under other WDRs 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") or under other WDRs 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**.

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Table 1-6. List of non-CAFO Permitted Dischargers Participating in the Priority 1 Areas of the KWA Management Zone

CV-SALTS ID	Facility Name	Order No.	Permittee/Facility Address	Authorized Representative
Northern Portion (Kings Subbasin)				
2167	Baker Commodities Kerman Division	R5-2014-0062	Bakers Commodities Inc., 16801 Jensen Avenue, Kerman, CA 93630	Doug Fletcher dfletcher@bakercommodities.com
2040	Cargill Meat Solution	5-00-089	Cargill Meat Solutions, 3115 Fig Avenue, Fresno, CA 93778	Felix Reyes felix_reyes@cargill.com
2708	Biola WWTF	96-288	Biola Community Services, Howard Road, Biola, CA 93606	Cruz Ramos cruz.ramos@biolacsd.org
1902	Booth Ranches Citrus Packing Facility	97-006	Booth Ranches, LLC, 12201 Avenue 480, Orange Cove, CA 93646	Michael Ruiz mruiz@boothranchesllc.com
2403	Caruthers Raisin Packing Facility	R5-2012-0001	Caruthers Raisin Packing Company Inc., 12797 Elm, Caruthers, CA 93609	Dennis Houspain dennis@caruthersraisin.com
1952	Del Rey Packing	96-198	Del Rey Packing Company, 5287 Del Rey, Del Rey, CA 93616	Gerald Chooljian gchooljian@delreypacking.com
2710	Del Rey WWTF	96-284	Del Rey CSD, 11495 American Avenue, Del Rey, CA 93616	Carlos Arias drcsd@pacbell.net
1955	Delft Colony WWTF	88-097	Tulare County RMA, Road 56 of Avenue 374, Delft Colony, CA 93618	Reed Schenke rschenke@tularecounty.ca.gov
1964	Dinuba Packing Plant	97-129	Gillette Citrus Company, 10175 Anchor, Dinuba, CA 93618	Greg Gillette greg@gillettecitrus.com
2660	Dinuba WWTF	95-200	City of Dinuba, 6675 Avenue 412, Dinuba, CA 93618	Ismael Hernandez ihernandez@dinuba.ca.gov
2042	E & J Gallo Winery Fresno Winery	R5-2015-0040	E & J Gallo Winery, 5610 Olive Avenue, Fresno, CA 93727	Kim Burns Kim.Burns@EJGallo.com
1987	East Orosi Packing House	85-167	Fancher Creek Packing, 41870 Fruitvale Avenue, Orosi, CA 93647	Christiane Pilegard christianep@fanchercreekpacking.com
2018	Fig Garden Packing Facility	94-135	Fig Garden Packing, Inc., 5545 W. Dakota Avenue, Fresno, CA 93722	Mike Jura Jr. mike@figgardenpacking.com
1873	Four Bar C Farms Caruthers Dehydrator	01-155	Four Bar C Farms, 10616 West, Fresno, CA 93706	Chris Gunlund gunlundc@yahoo.com
2032	Fowler Acetylene Plant	67-117	Fresno Ox and Weld Suppliers, 7835 Manning, Fresno, CA 93706	Bob Wolfe bobw@fresnooxygen.com

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Table 1-6. List of non-CAFO Permitted Dischargers Participating in the Priority 1 Areas of the KWA Management Zone

CV-SALTS ID	Facility Name	Order No.	Permittee/Facility Address	Authorized Representative
1881	Fowler Packing Cedar Avenue Facility	89-141	Fowler Packing Company, Inc., 8570 Cedar, Fresno, CA 93725	Kyle Moeller kyle@fowlerpacking.com
1751/3589	Fresno Cnty #44-D Monte Verdi Estates WWTF and Reclamation Facility	92-203 (rescinded); 2014-0153-DWQ 2016-0068-DDW	Fresno County, 12222 Willow Avenue, Clovis, CA 93611	Steven E. White stwhite@fresnocountyca.gov
1753	Fresno County #47-Quail Lake WWTF	96-120	Fresno County, 4121 Quail Lake Drive, Clovis, CA 93611	Steven E. White stwhite@fresnocountyca.gov
2161	Fresno County Juvenile Justice WWTF	R5-2007-0150	Fresno County, 3333 American Avenue, Fresno, CA 93725	Steven E. White stwhite@fresnocountyca.gov
3035	Gerawan Farms Plant 3	R5-2020-0032	Gerawan Farming, Inc., 14044 West Central Avenue, Kerman, CA 93630	Ken Holland kenh@prima.com
3039	Gerawan Farms Plant 4	R5-2020-0041	Gerawan Farming, Inc., 3023 South Reed Avenue, Sanger, CA 93657	Ken Holland kenh@prima.com
2741	GSV Cutler Winery	R5-2015-0013	Golden State Vintners Cutler, 38558 Rd 128, Cutler, CA 93615	Karen Gonzalez karen.gonzalez@thewinegroup.com
2043	GSV Fresno Winery	R5-2012-0076	The Wine Group Inc., 7409 Central, Fresno, CA 93706	Derrick Gilmore derrick.gilmore@thewinegroup.com
2114	Harris Ranch Processing Plant	R5-2017-0021	Harris Ranch Beef Company, 16277 McCall, Selma, CA 93662	Josh Bornemann joshb@centralvalleymeat.com
2118	Helm Fertilizer Plant	99-083	J R Simplot Company, 12688 Colorado Avenue, Helm, CA 93660	Gilbert Rodriguez gilbert.rodriguez@simplot.com
2124	HMC Group Cold Storage, Inc.	90-253	HMC Group Cold Storage, Inc., 13138 Bethel Avenue, Kingsburg, CA 93631	Harold McClarty haroldm@hmc farms.com
3616	H&R Facilities, LLC	Pending	H&R Facilities, 730 N. Oliver Avenue, Sanger, CA 93657	Colby Campbell colby@cobblestonefruit.com
2168	Kerman WWTF	R5-2007-0115	City of Kerman, 15480 Church, Kerman, CA 93630	John Jansons jjansons@cityofkerman.org
2810	Kings River UESD OWTS	97-010-DWQ	Kings River Union Elementary School District, 3961 Avenue 400, Kingsburg, CA 93631	Sherry Martin smartin@krusd.org
2384	Lamanuzzi & Pantaleo Plant No 1	R5-2020-0002	Lamanuzzi & Pantaleo, LLC, 3636 Grantland, Fresno, CA 93711	Jerry Pantaleo jerry@reginajuice.com

Table 1-6. List of non-CAFO Permitted Dischargers Participating in the Priority 1 Areas of the KWA Management Zone

CV-SALTS ID	Facility Name	Order No.	Permittee/Facility Address	Authorized Representative
2717	Laton WWTF	R5-2016-0079	Laton CSD, 6331 Dewoody, Laton, CA 93242	Daniel Chapa latonwater@sbcglobal.net
2473	Lion Raisins Selma Plant	R5-2018-0064	Lion Enterprises, 9500 South DeWolf Avenue, Selma, CA 93662	S. Keller skeller@lionraisins.com
2720	London WWTF	R5-2017-0109	London CSD, Rd 60 at Avenue 376, Dinuba, CA 93618	Carolyn Thomas Fax: 559-591-0976
3311	Malaga CWD WWTF	R5-2020-0001	Malaga CWD, 3749 South Maple Avenue, Fresno, CA 93725	Moises Ortiz mortiz@malagacwd.org
2309	McCall Winery	93-098	San Joaquin Valley Express C/O E&J Gallo, 1042 McCall, Sanger, CA 93657	Kim Burns Kim.Burns@EJGallo.com
2312	National Raisin Plant	00-045	Sunshine Raisin Corp DBA, 626 Fifth, Fowler, CA 93625	Vincent Fernandez vfernandez@nationalraisin.com
2612	Nonini Winery	94-225	Nonini Winery, 2640 North Dickenson Avenue, Fresno, CA 93723	Judith L. Shahbazian noniniwinery@gmail.com
2427	O'Neill Vintners Reedley Winery	R5-2014-0045	O'Neill Vintners & Distillers, 8418 Lac Jac Avenue, Parlier, CA 93648	Phil Castro Phil.Castro@oneillwine.com
2676	Orange Cove WWTF	R5-2004-0008	City of Orange Cove, 1805 Monson Avenue, Orange Cove, CA 93646	Joe Estrada joe@cityoforangecove.com
2677	Parlier WWTF	95-103	City of Parlier, 1101 East Parlier Avenue, Parlier, CA 93648	Steven Reyes sreyes@calh20.com
2054	Pom Wonderful Fruit Processing Plant	R5-2012-0090	Pom Wonderful, LLC, 5286 Del Rey, Del Rey, CA 93616	Lance Baird Lance.Baird@wonderful.com
2725	Riverdale WWTF	R5-2018-0028	Riverdale PUD, 20896 Malsbary, Riverdale, CA 93656	Lorne Pine lpine50@gmail.com
3598	Riverland RV Resort	2014-0153-DWQ	38743 CA 99, Kingsburg, CA 93631	Chrysann Carpenter ccarpenter8010@gmail.com
2680	San Joaquin WWTF	R5-2007-0100	City of San Joaquin, 23599 Manning, San Joaquin, CA 93660	Stan Bulla stanb@cityofsanjoaquin.org
2147	Sanger Industrial WWTF	98-131	City of Sanger, 333 North Avenue, Sanger, CA 93657	Tim Chapa tchapa@ci.sanger.ca.us
2681	Sanger WWTF	R5-2014-0004	City of Sanger, 333 North Avenue, Sanger, CA 93657	Tim Chapa tchapa@ci.sanger.ca.us

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Table 1-6. List of non-CAFO Permitted Dischargers Participating in the Priority 1 Areas of the KWA Management Zone

CV-SALTS ID	Facility Name	Order No.	Permittee/Facility Address	Authorized Representative
2482	Shady Lakes MHP	75-079	Shady Lakes Mobile Home Park, 5665 South Chestnut Avenue, Fresno, CA 93725	Sherrie Johnston sherrie@harmonycom.com
2503	Six Jewels Dehydrator	97-244	Six Jewels Dehydrator, 6692 Peach, Fresno, CA 93725	Jeff Jue sixjewels@gmail.com
2727	Selma-Kingsburg-Fowler County Sanitation District WWTF	01-255	Selma Kingsburg Fowler CSD, 11301 Conejo, Kingsburg, CA 93245	Veronica Cazares vcazares@skfcsd.org
2004	Stone Ranch Evaporation Basin	R5-2019-0008	Leprino Foods Company, Kings River North/Clarksfork, Kings County 93245	Aman Das adas@leprinofoods.com
2877	Sun-Maid Kingsburg Plant	R5-2013-0096	Sun-Maid Growers of California, 13525 South Bethel Avenue, Kingsburg, CA 93631	Casey Mount cmount@sunmaid.com
2340	Sun-Maid Orange Cove Plant	88-060	Sun-Maid Growers of California, 9818 South Jacobs, Orange Cove, CA 93646	Casey Mount cmount@sunmaid.com
2856	Sunview Dry Fruit & Nut Company	R5-2015-0117	Sunview Marketing International, 12400 East Adams Avenue, Del Rey, CA 93616	Brian Bean bbean@sunviewmarketing.com
2966	Teen Challenge of Southern California	97-010-DWQ	Smith Mountain LP, 42675 Road 44, Reedley, CA 93654	Mike Jackson mikejackson@kingsburgerorchards.com
2034	The Wine Group Franzia Winery-Sanger	R5-2014-0094	The Wine Group Inc., 2916 South Reed Avenue, Sanger, CA 93657	Mike Donich Michael.donich@thewinegroup.com Mike
2851	TKI Fresno Pesticide Manufacturing Plant	R5-2019-0037	Tessengerlo Kerley, Inc., 5427 East Central Avenue, Fresno, CA 93725	Dawn Kominski Dawn.Kominski@tkinet.com
2574	Traver WWTF	88-098	Tulare County RMA, Road 44 at Avenue 368, Traver, CA 93631	Reed Schenke rschenke@tularecounty.ca.gov
2353	Tri-County Citrus Orange Cove Packing House	94-075	Visalia Citrus Packing Group, 12143 Avenue 456, Orange Cove, CA 93646	Randy J. Vogt rvogt@vcpg.com
2351	Trinity Presbyterian Church OWS	97-010-DWQ	Nathan Belknap, 12168 Willow Avenue, Clovis, CA 93611	Nathan Belknap nbelknap@trinitycc.com
2937	Verni Olive Oil Extract Facility	-	Saverio Verni, 11998 Auberry Road, Clovis, CA 93611	Dino Verni vernifarmsclovis@gmail.com
1777	VFG Anaerobic Digester	Pending Order	Valley Fig Growers, 2028 South Third Street, Fresno, CA 93702	Chris Gardner cgardner@valleyfig.com

Table 1-6. List of non-CAFO Permitted Dischargers Participating in the Priority 1 Areas of the KWA Management Zone

CV-SALTS ID	Facility Name	Order No.	Permittee/Facility Address	Authorized Representative
2047	Vita-Pakt Fruit Processing & Dehydrating Plant	96-119	Vita-Pakt Citrus Products, Co., 8898 East Central Avenue, Del Rey, CA 93616	Sergio Lobo slobo@vita-pakt.com
2774	Wawona Packing Co Facility	R5-2012-0042	Wawona Packing Company, LLC, 12133 Avenue 408, Cutler, CA 93615	Ken Holland kenh@prima.com
2633	Wildwood MHP	R5-2002-0064	Wildwood C/O Westco Equities, 8701 Hwy 41, #70, Fresno, CA 93725	Mat Winton Wildwood.mhp1@gmail.com
Southern Portion (Kaweah Subbasin)				
1951	Del Monte Foods, Inc., Hanford Plant #24	R5-2014-0116	Del Monte foods, Inc., Hanford Plant #24, 10652 Jackson, Hanford, CA 93230	Michael Storie Michael.storie@delmonte.com
2321	Nichols Pistachios	R5-2013-0007	Nichols Pistachio, 13762 First, Hanford, CA 93230	Mark Luplow mluplow@nicholsfarms.com

1.5.2. Tulare Lake Subbasin Initial List of Participants

This section identifies the Priority 2 permitted dischargers within the KWA Southern Portion (Tulare Lake Subbasin Area) of the proposed Management Zone that have elected already to comply with the Nitrate Control Program through participation in a Management Zone. The submittal of this FMZP 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”) or other WDRs 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”) or other WDRs 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 (Tulare Lake Subbasin Area) 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. Petryna@ghd.com	2111
Central Valley Meats Hanford Facility	R5-2008-0017	Central Valley Meat Company, 10431 8 ¼ Avenue, Hanford, CA 93230		2112
Leprino Sludge Discharge	R5-2019-0008	Leprino Foods Company, 351 Bell Haven Dr., Lemoore, CA 93245	Tim Hutcheson thutcheson@leprinofoods.com	2789

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
Groundwater Sustainability Agency (GSA)	<ul style="list-style-type: none"> DWR Map Viewer: https://sgma.water.ca.gov/webgis/index.jsp?appid=gasmaster&rz=true Individual GSA links for finding “Interested Parties”: https://sgma.water.ca.gov/portal/gsa/all 	GSA boundaries, and also a list of GSA “Interested Parties”
Groundwater Basin/Subbasin	<ul style="list-style-type: none"> DWR Bulletin 118: https://water.ca.gov/Programs/GroundwaterManagement/Bulletin-118 Basin Boundary Geographic Information System (GIS) file: https://water.ca.gov/-/media/DWR-Website/WebPages/Programs/Groundwater-Management/Bulletin118/Files/Bulletin-118-Groundwater-Basin-Boundary-GISData---v6_1.zip?la=en&hash=D947E7AC9E03D122CC5D707369E581DF41320E50 DWR Basin Boundary Modifications: https://water.ca.gov/Programs/Groundwater-Management/Basin-Boundary-Modifications 	DWR Bulletin 118 basin and subbasin boundaries, including basin boundary modification
Water Districts	DWR by request from the Geology and Groundwater Investigations Section, or here: https://atlas-dwr.opendata.arcgis.com/datasets/45d26a15b96346f1816d8fe187f8570d_0	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
Public Water Supply Systems	California Environmental Health Tracking Program: https://trackingcalifornia.org/water-systems/water-systemslanding	Division of Drinking Water
State Small Water Supply Systems	By request from county Environmental Health Departments (Kings, Fresno, and Tulare Counties)	Boundary data is typically not available for SSWS (usually just an address)
Disadvantaged Communities (DAC)/Disadvantaged Unincorporated Communities (DUC)	<ul style="list-style-type: none"> DACs boundaries available from DWR: https://gis.water.ca.gov/app/dacs/ DUCs boundaries available from PolicyLink by request (https://www.policylink.org/) 	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 River Water Quality Coalition 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

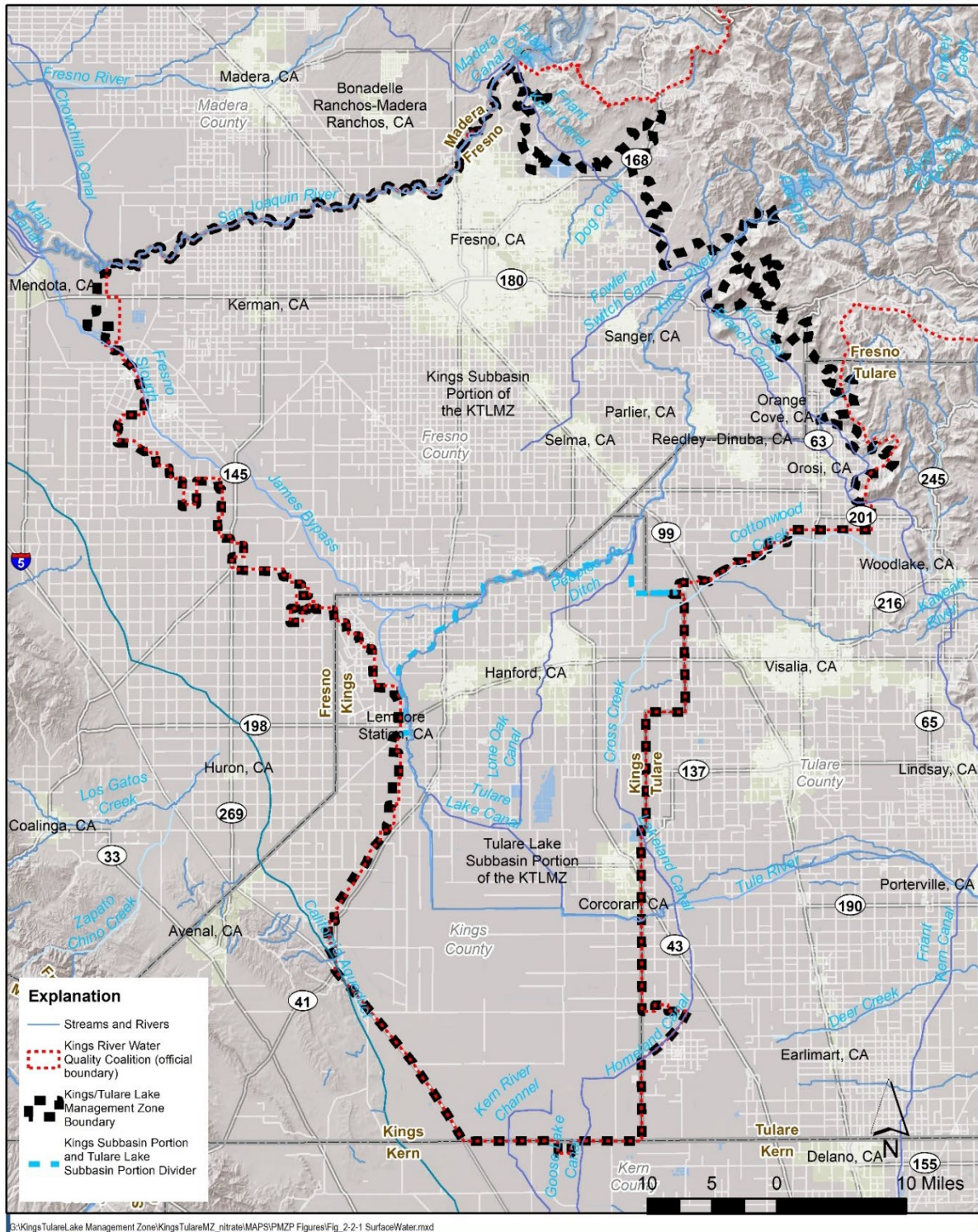
James Bypass. The San Joaquin and Kings Rivers are the two principal rivers within or bordering the Subbasin. The James Bypass and Fresno Slough are located near the western edge of the Kings Subbasin and connect the Kings River with the San Joaquin River. **Figure 2-1** illustrates surface water bodies 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 documentation³. 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.

³ GSA boundaries: <https://sgma.water.ca.gov/webgis/index.jsp?appid=gasmaster&rz=true>, accessed November 2020.

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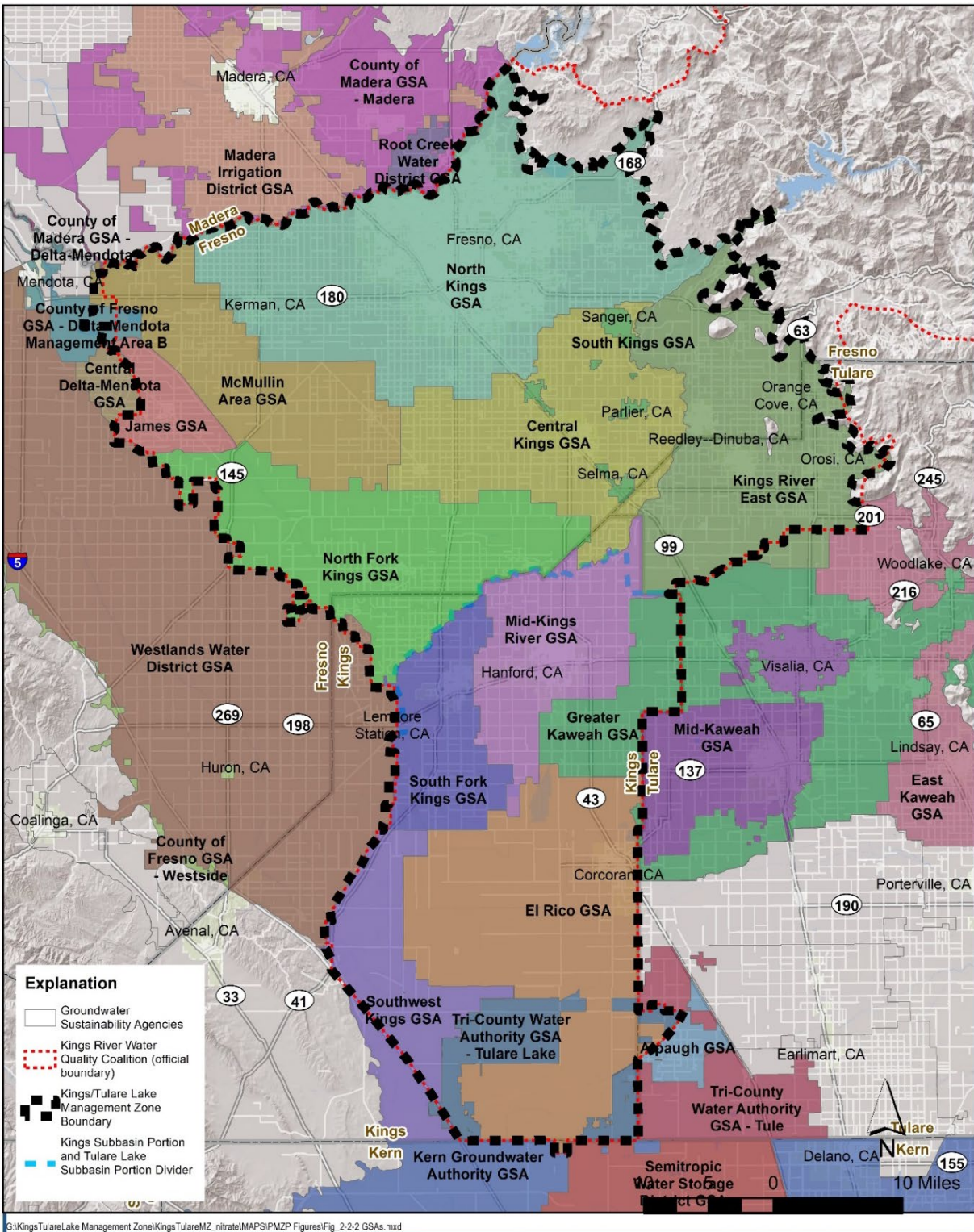


Figure 2-2. Groundwater Sustainability Agencies Established within and adjacent to the Proposed KWA Management Zone

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.

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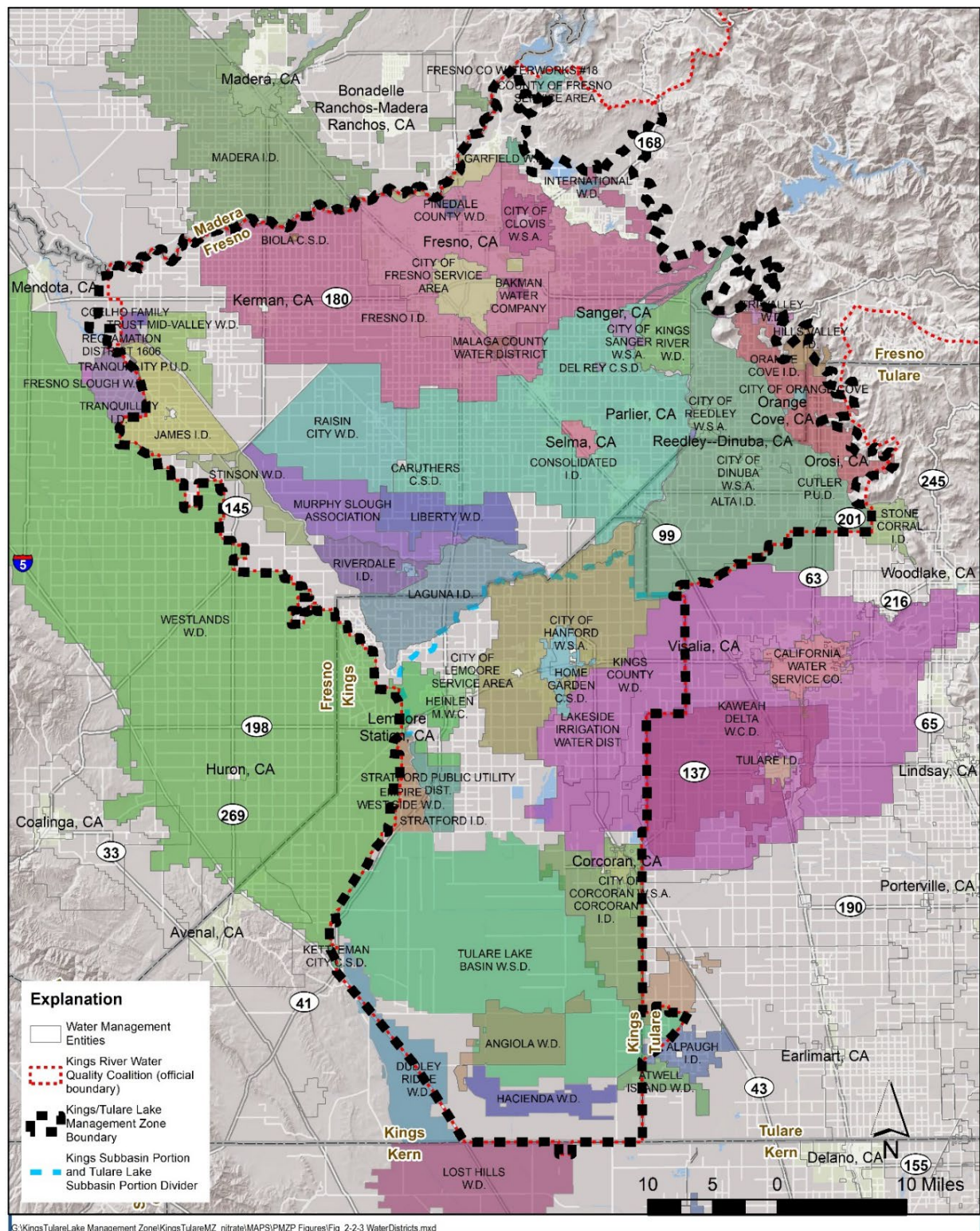


Figure 2-3. Water Management Entities Located Within and Adjacent to the Proposed KWA Management Zone

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) ¹	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) ²					Connections or (persons, duration)		

¹ 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.

² 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 website⁴. 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 225 Public Water Systems with known GIS boundary data in the KWA Management Zone; 215 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 July 2022)⁵.

⁴ <https://data.ca.gov/dataset/drinking-water-public-water-system-information>, accessed October, 2020.

⁵ See Section 2 and Appendix E in the Early Action Plan (Attachment D to this FMZP) for more information on Public Water Systems in the Management Zone.

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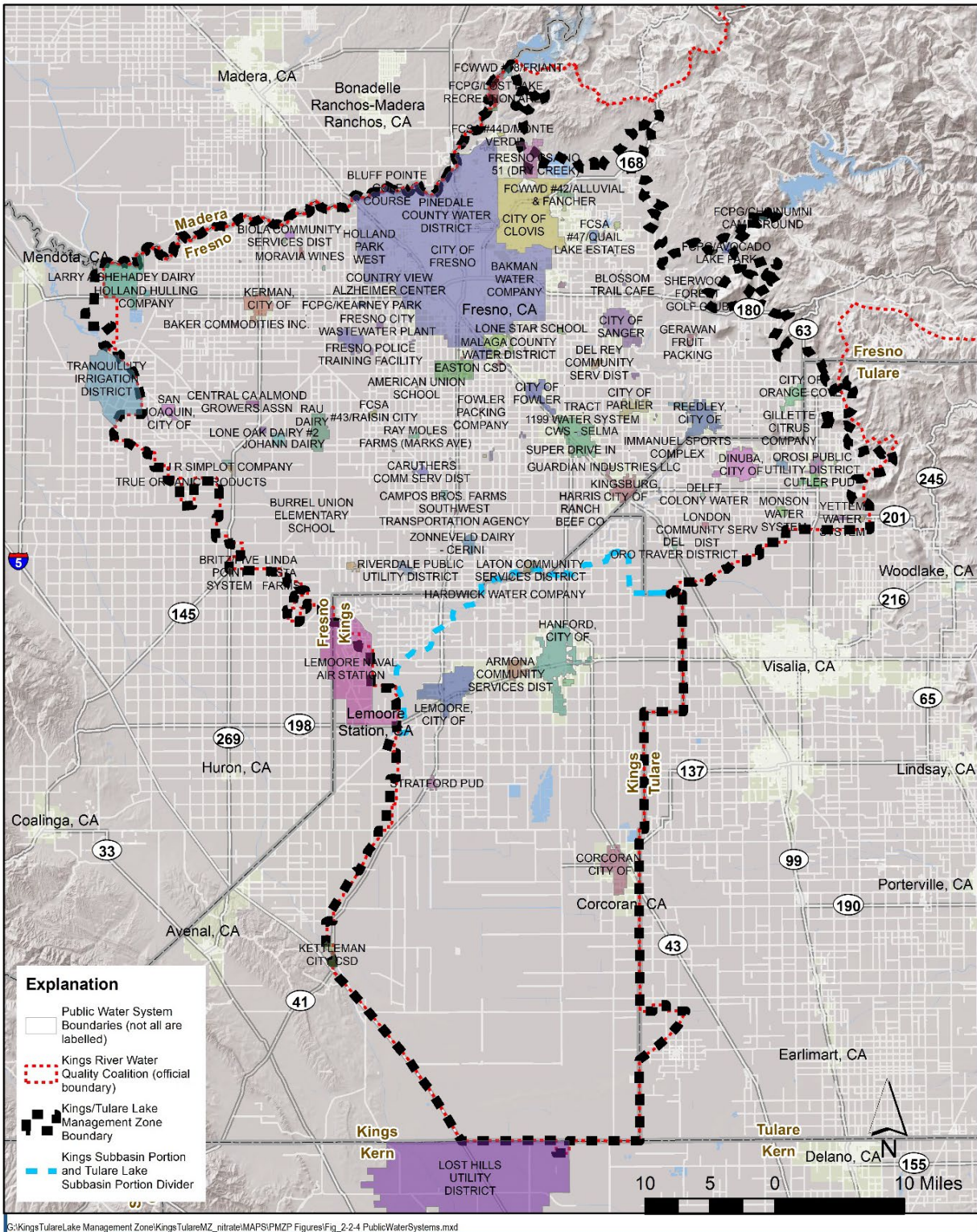


Figure 2-4. Public Water System Boundaries Within and Adjacent to the Proposed KWA Management Zone

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.

Pursuant to Senate Bill 535, DACs were designated on May 2022 by the California Environmental Protection Agency (CalEPA)⁶. CalEPA based DAC designations on “geographic, socioeconomic, public health, and environmental hazard criteria” and has developed specific criteria and methods for applying those criteria. CalEPA relies on the California Communities Environmental Health Screening Tool (CalEnviroScreen) developed by the Office of Environmental Health Hazard Assessment (OEHHA), who has released a new final version of the CalEnviroScreen Version 4.0 tool. DACs are now defined into four types of geographic areas: 1) census tracts receiving the highest 25 percent of overall scores in CalEnviroScreen 4.0; 2) census tracts lacking overall scores in CalEnviroScreen 4.0 due to data gaps, but receiving the highest 5 percent of CalEnviroScreen 4.0 cumulative pollution burden scores; 3) census tracts identified in the 2017 DAC designation as disadvantaged, regardless of their scores in CalEnviroScreen 4.0; and 4) areas under the control of federally recognized Tribes. DUCs are areas that meet the Median Household Income (MHI) criteria of below 80% of the statewide MHI. PolicyLink (2013) provides the best readily available information on DUCs located in the proposed Management Zone area⁷. 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 DACs identified by CalEPA (see above) because many CDPs are unincorporated areas that also meet the criteria used by PolicyLink in their study.

There are 16 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 804,938 acres (1,258 square miles) of the Northern Portion (Kings Subbasin Area) of the KWA Management Zone.

⁶ SB 535 Disadvantaged Communities available through the CalEPA’s OEHHA website: <https://oehha.ca.gov/calenviroscreen/sb535>, accessed June 2022.

⁷ The Management Zone is seeking an update of the GIS coverage of DUCs from PolicyLink.

Table 2-3. Population of DACs and DUCs located in the KWA Northern Portion (Kings Subbasin Area) of the Management Zone

Approximate Location/Community	DAC Population (calculated by fraction of DAC area in Management Zone) (CalEPA, 2022)	DAC Area in Management Zone (Acres)	DUC Population (calculated by fraction of DAC area in Management Zone)	DUC Area in Management Zone (Acres)
Biola			1,593	96
Bowles			37	15
Calwa	5,935	1,428	1,996	166
Caruthers	5,068	22,459	1,347	221
Cecile			191	48
Cincotta			8,640	681
Clovis	20,373	2,062		
Del Rey			1,836	208
Delft Colony			77	41
Dinuba	14,512	1,291		
East Orosi			782	195
Easton			492	141
Elm View			31	17
Fig Garden			130	22
Five Points			85	21
Fresno	331,051	43,728		
Goldleaf			65	40
Hammond			1,162	164
Hanford				
Jamesan			558	392
Kerman	15,667	10,286	86	40
Lanare			271	60
Las Palmas			736	55
Laton			123	45
London			1,855	151
Malaga			1,077	119
Mayfair	4,666	320		
Miley			122	30
Muscatel			412	94
Navelencia			145	110
Oleander			390	163
Orosi	9,384	2,369	11,951	843
Pratton			967	277
Raisin City			693	195

Table 2-3. Population of DACs and DUCs located in the KWA Northern Portion (Kings Subbasin Area) of the Management Zone				
Approximate Location/Community	DAC Population (calculated by fraction of DAC area in Management Zone) (CalEPA, 2022)	DAC Area in Management Zone (Acres)	DUC Population (calculated by fraction of DAC area in Management Zone)	DUC Area in Management Zone (Acres)
Reedley	22,508	3,300		
Riverdale			1,616	188
Sanger	2,357	1,932	401	68
Selma	20,641	5,990	118	62
Sultana			624	61
Sunnyside	4,366	327	3,197	371
Traver			633	63
Unincorporated Fresno County area	148,679	565,749		
Unincorporated Kings County area	3,277	40,648		
Unincorporated Madera County area	14	335		
Unincorporated Tulare County area	27,752	102,571		
West Park			417	124
Wolf			27	26
Yetttem			195	53
<i>*Italic entries indicate DUC areas that are not overlapping with CalEPA's 2022 DACs</i>				

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	16	804,794 (1,257)	5,576 (8.71)	804,938 (1,258)	638,001
DUCs	38	5,667 (8.85)			

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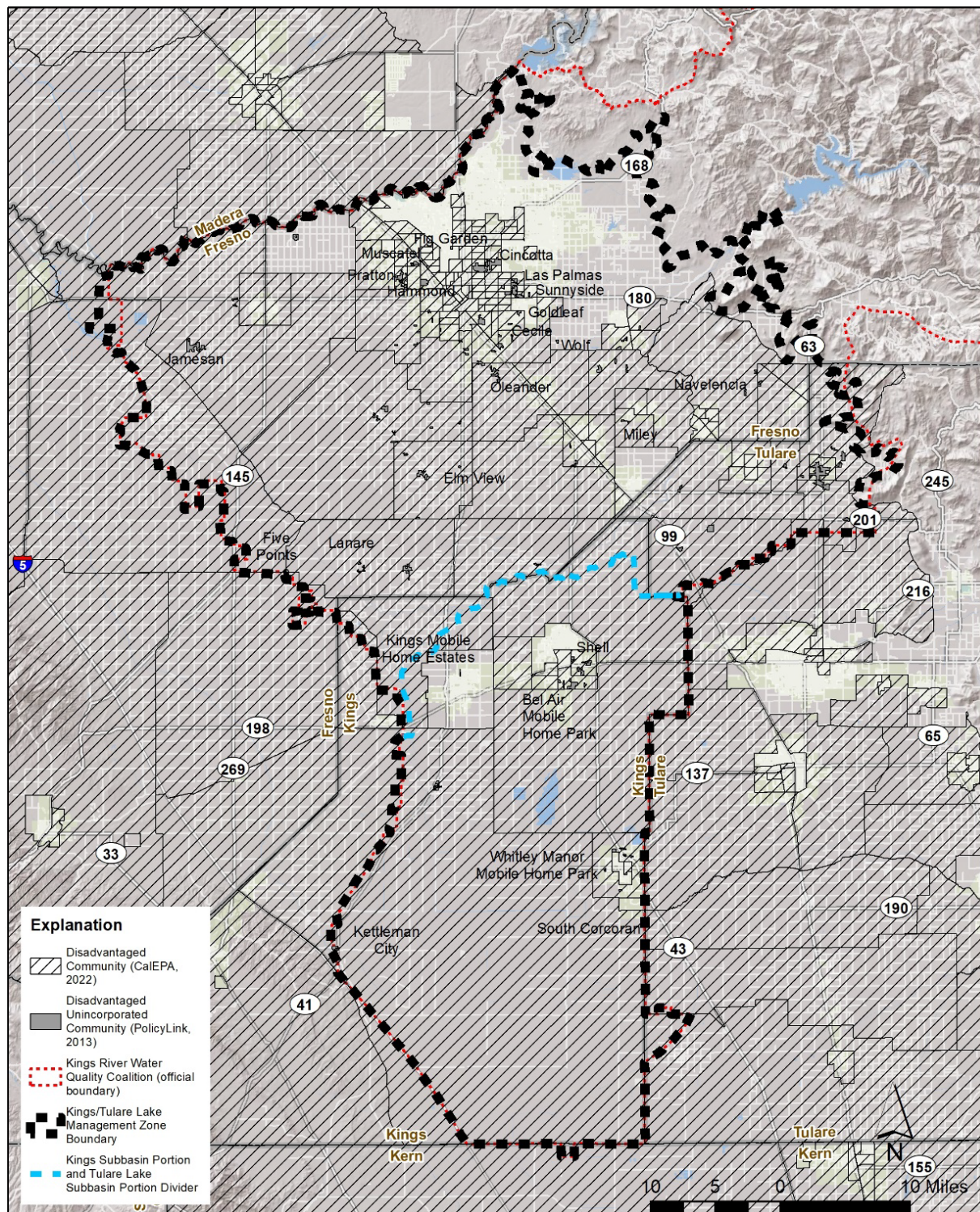


Figure 2-5. Location of DACs and DUCs Within and Adjacent to the Proposed KWA Management Zone

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.

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
CITRUS AND SUBTROPICAL	93.33	59,732	6.03%
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%
DECIDUOUS FRUITS AND NUTS	341.79	218,747	22.09%
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%

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
Peaches/Nectarines	70.89	45,369	4.58%
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%
FIELD CROPS	81.14	51,928	5.24%
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%
GRAIN AND HAY CROPS	29.26	18,724	1.89%
Miscellaneous Grain and Hay	12.11	7,750	0.78%
Wheat	17.15	10,975	1.11%
NATIVE RIPARIAN VEGETATION	22.44	14,363	1.45%
Managed Wetland	22.44	14,363	1.45%
PASTURE	70.12	44,875	4.53%
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%
TRUCK NURSERY AND BERRY CROPS	36.62	23,437	2.37%
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%

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
Potatoes and Sweet Potatoes	0.00	3	0.00%
Strawberries	0.10	67	0.01%
Tomatoes	11.89	7,613	0.77%
URBAN	179.49	114,871	11.60%
Urban	179.49	114,871	11.60%
VINEYARDS	261.80	167,554	16.92%
Grapes	261.80	167,554	16.92%
UNCLASSIFIED FALLOW	81.31	52,039	5.26%
Idle	81.31	52,039	5.26%
YOUNG PERENNIALS	58.29	37,307	3.77%
Young Perennials	58.29	37,307	3.77%
Total Mapped Land Use Area	1,255.59	803,577	81.16%
Unmapped Area	291.49	186,556	18.84%
Total Area in the Northern (Kings Subbasin Area) of the Kings Water Alliance Management Zone	1,547.08	990,133	100.00%

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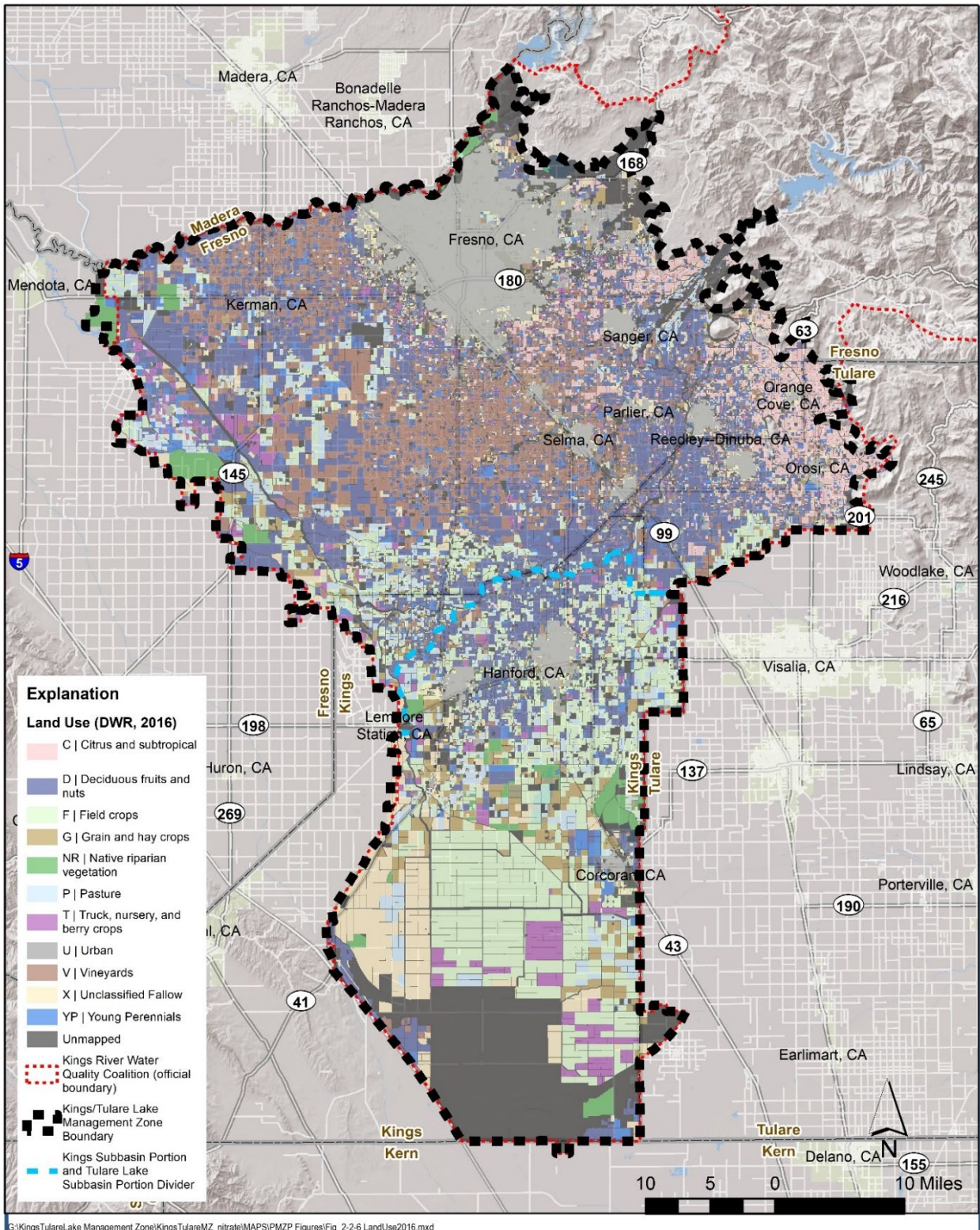


Figure 2-6. Agricultural Land Use in the Proposed KWA Management Zone

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 2015⁸, 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.

⁸ 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
General Groundwater Conditions	
DWR Bulletin 118 overview of basin/subbasin conditions (groundwater levels and groundwater quality)	https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118
DWR's Groundwater Sustainability Basin Prioritization	https://water.ca.gov/Programs/Groundwater-Management/Basin-Prioritization
Individual GSA's Hydrogeologic Conceptual Model	https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management/Groundwater-Sustainable-Agencies and https://sgma.water.ca.gov/portal/gsp/all
CV-SALTS High Resolution Salt and Nitrate Mapping for Region 5	https://www.cvsalinity.org/committees/technical-advisory/conceptual-model-developments/171-updated-groundwater-quality-analysis-for-central-valley.html
Publicly Available Groundwater Quality Data Sources	
GeoTracker GAMA	http://geotracker.waterboards.ca.gov/gama/gamamap/public/
DWR Water Data Library	https://wdl.water.ca.gov/
US Geological Survey National Water Information System	https://waterdata.usgs.gov/nwis/qw
GeoTracker Regulated Facilities	http://geotracker.waterboards.ca.gov/ and http://geotracker.waterboards.ca.gov/datadownload
Division of Drinking Water	https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/EDTlibrary.html
County-Specific Data Available by Request	
Kings County state small water systems and domestic/local small water systems (water quality data)	https://www.countyofkings.com/
Madera County state small water systems and domestic/local small water systems (water quality data)	https://www.maderacounty.com/government/public-health
Fresno County state small water systems and domestic/local small water systems (water quality data)	https://www.co.fresno.ca.us/departments/public-health?locale=en
Tulare County state small water systems and domestic/local small water systems (water quality data)	https://tularecounty.ca.gov/county/

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 HCM⁹

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 HCM¹⁰

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 HCM¹¹

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 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

⁹ <https://sgma.water.ca.gov/portal/gsp/preview/31>, accessed December 20, 2020.

¹⁰ <https://sgma.water.ca.gov/portal/gsp/preview/25>, accessed December 20, 2020.

¹¹ <https://sgma.water.ca.gov/portal/gsp/preview/28>, accessed December 20, 2020.

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 HCM¹²

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 HCM¹³

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.

South Kings GSA HCM¹⁴

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

¹² <https://sgma.water.ca.gov/portal/gsp/preview/24>, accessed December 20, 2020.

¹³ <https://sgma.water.ca.gov/portal/gsp/preview/22>, accessed December 20, 2020.

¹⁴ <https://sgma.water.ca.gov/portal/gsp/preview/26>, accessed December 20, 2020.

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 HCM¹⁵

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.

¹⁵ <https://sgma.water.ca.gov/portal/gsp/preview/23>, accessed December 20, 2020.

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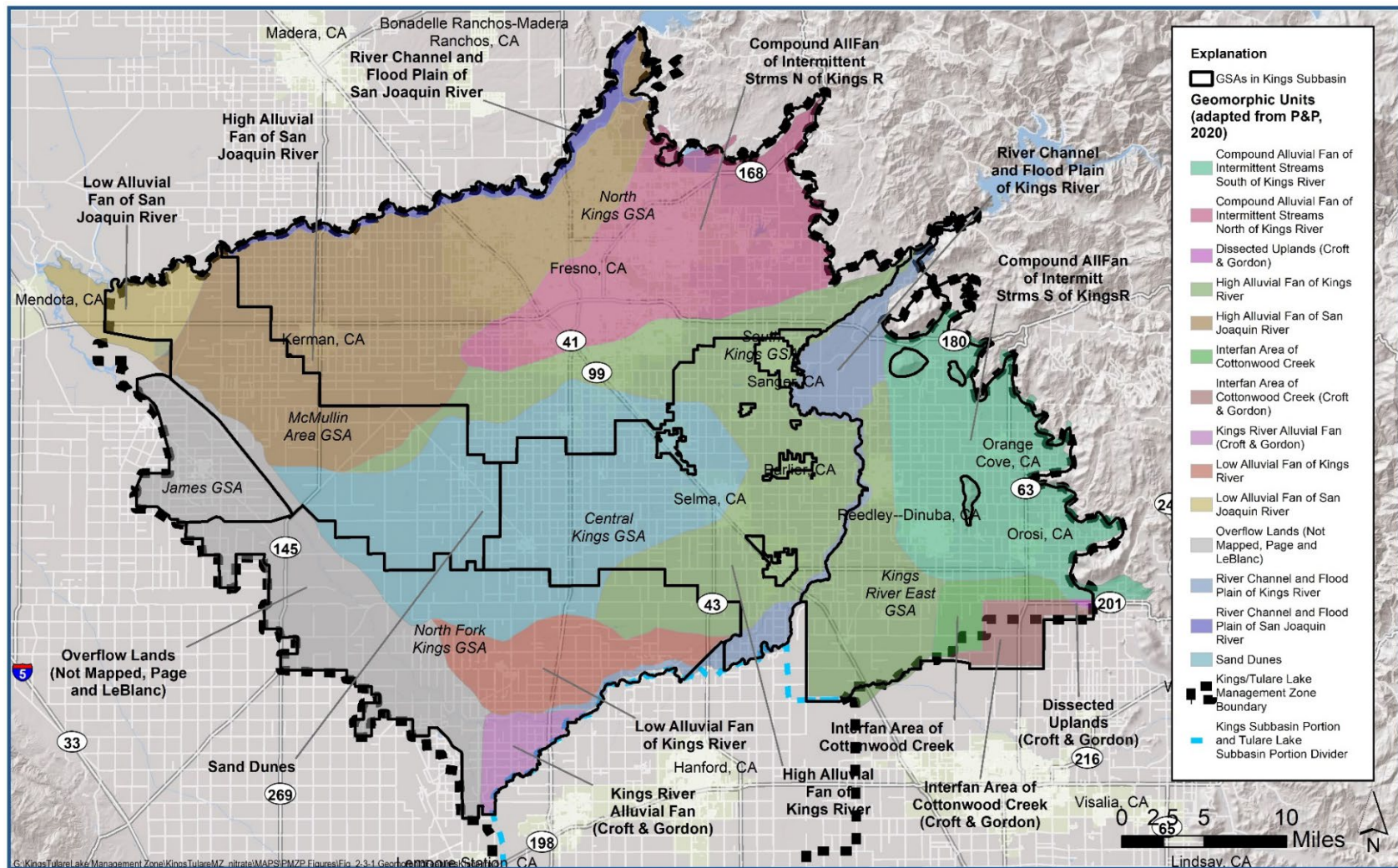


Figure 2-7. Geomorphic Features of the Kings Subbasin (adapted from P&P, 2020)

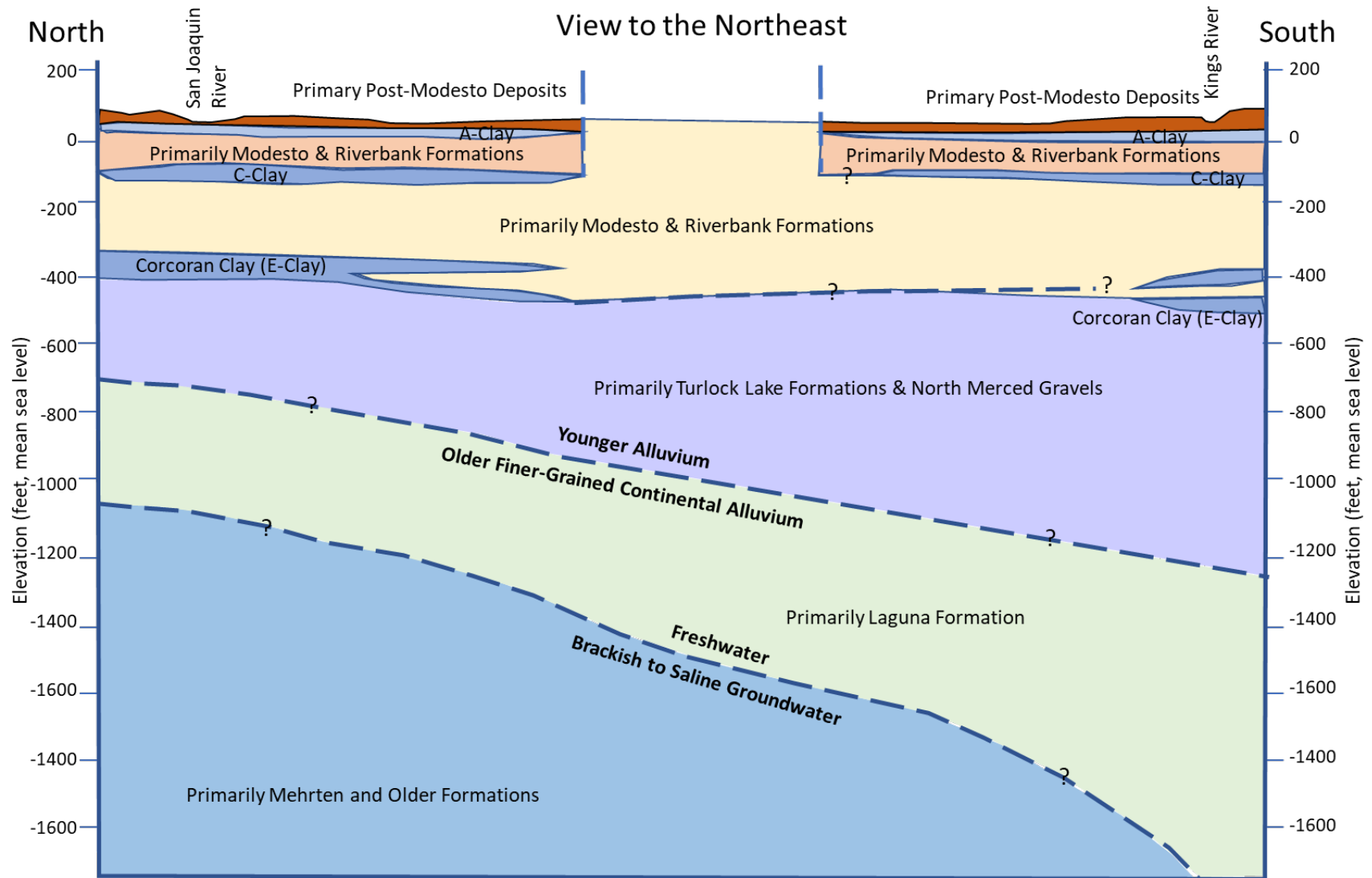
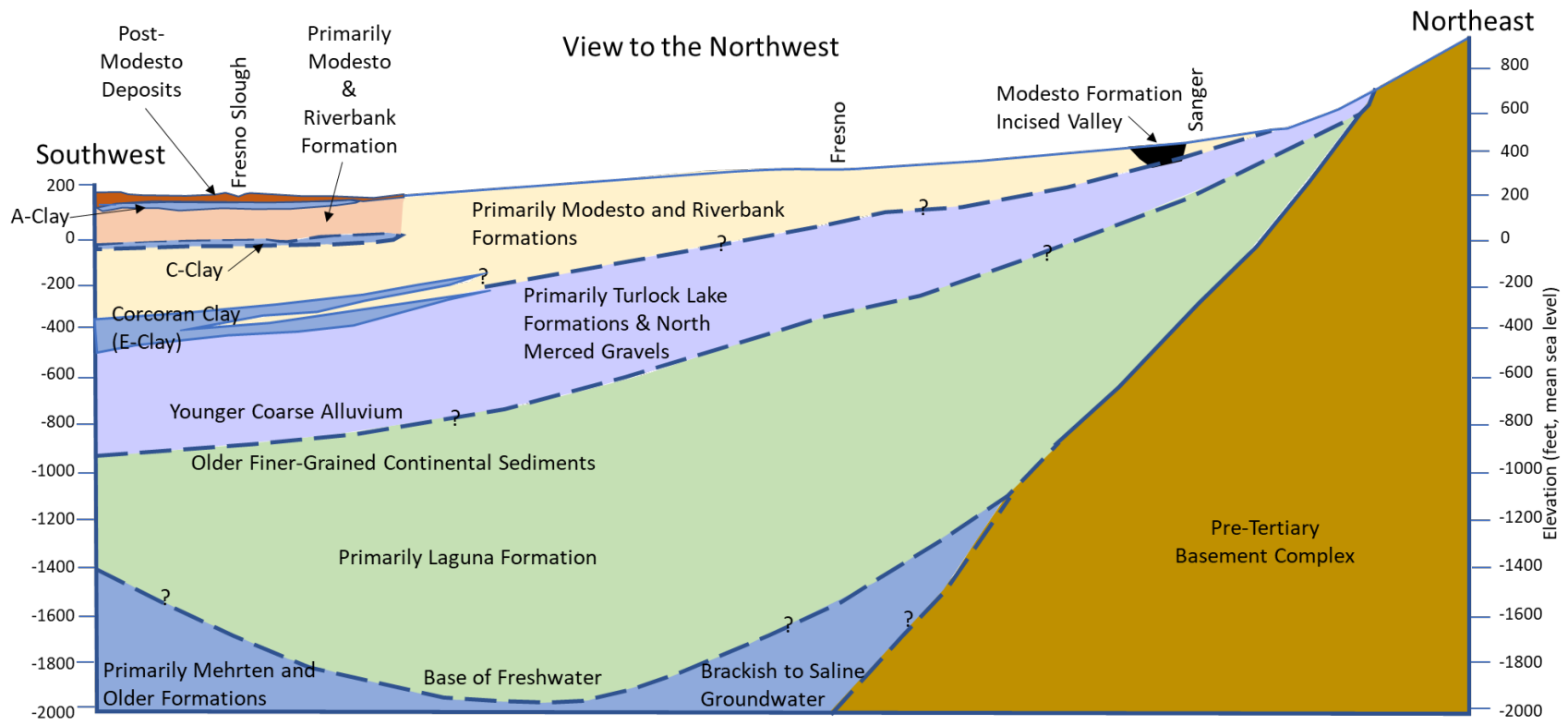


Figure 2-8. Conceptual Cross Section for the Kings Subbasin (North to South)
(adapted from Kings River East GSP, 2020)



**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.

2.2.2.1. Areas of Potential Contribution

This section evaluates potential impacts to groundwater associated with downgradient migration of nitrate from the KWA Northern Portion. Using the Spring 2018 GWE Contours from the DWR, hydraulic gradients and groundwater flow directions are quantified along the boundaries of the MZ. The MZ boundary is divided into major segments of distinct groundwater flow direction characteristics, based on this Spring 2018 snapshot in time as provided by DWR's spatial coverage of contours of equal groundwater elevation. Hydraulic gradients and groundwater flow directions are provided in **Table 2-7** to quantify potential areas of contribution associated with possible downgradient migration of nitrate from within the MZ, based on Spring 2018 groundwater conditions, as reported by DWR. Groundwater can flow into and out of the MZ along its border with adjacent subbasins. The adjacent subbasins and their Nitrate Control Program's basin priority are also listed in the table. No gradients were calculated along the eastern boundary, as this represents the edge of alluvial materials and the terminus of the Upper Zone. Gradients are not calculated along the south between the KWA Northern Portion and KWA Southern Portion, as both of these areas are covered by the KWA.

The table lists the direction of groundwater flow and indicates whether the flow is entering (going into) or exiting (going out) of the MZ. The area of potential contribution¹⁶ associated with nitrate originating from the MZ corresponds with spatial areas along the MZ border where groundwater elevation contours (Spring 2018, from DWR) indicate that groundwater flows out of the MZ and into the adjacent subbasin. The border of the MZ is divided into six segments based on similar characteristics of the direction and magnitude of the hydraulic gradient. The northern MZ border coincides with the San Joaquin River, where, according to DWR's 2018

¹⁶ Area of Contribution: This is the portion(s) of Subbasin (and in this case the Management Zone) where a discharge or discharges will co-mingle with the receiving water (e.g., groundwater) and where the presence of such discharge(s) could be detected.

groundwater level contouring, groundwater flows in the direction of river flow, parallel to the MZ boundary. Regional hydraulic gradients caused by natural and anthropogenic forces result in most groundwater flowing parallel to the KWA Northern Portion boundary or into the KWA Northern Portion from adjacent subbasins.

The Management Zone recognizes that there is uncertainty with the quantification of the areas of potential contribution described above, due to both hydraulic gradients calculated from specific seasons and years, as well as the ambient nitrate map. The Management Zone also recognizes that this analysis represents a snapshot in time, as represented by DWR's Spring 2018 groundwater elevation contour. As additional information is developed, including groundwater flow assessments performed for SGMA and GSP purposes, the areas of potential nitrate contribution will be revisited and future work for the Management Zone Implementation Plan will rely heavily on results from the GSPs in KWA. Revised GSP documents were submitted at the end of July 2022, and coordination efforts between KWA and the GSAs in this area are underway.

Table 2-7. Quantification of Areas of Potential Nitrate Contribution (Kings Water Alliance MZ)					
Description of Area Along KWA Border	Approximate Hydraulic Gradient (ft/ft)	GWE Contour Data Source	GW Flow Direction (Into/Out of Management Zone)	Ambient Post-2000 Nitrate Level	Adjacent Subbasin and Priority
Northern border from the northeastern corner west to near N Napa Ave (Along the San Joaquin River)	0.000451 to 0.00170	Spring 2018 (DWR)	West-southwest (Parallel)	<2.5 and >10 mg/L as N	Madera Subbasin (Priority 2)
Northwestern corner of the MZ (northern border) to the western border at S James Rd (near Tranquillity)	0.00231	Spring 2018 (DWR)	Southeast (In)	Unknown and <2.5 mg/L as N	Madera Subbasin (Priority 2) and Delta-Mendota Subbasin (Priority 2)
Western border from S James Rd (near Tranquillity) to near the intersection of Hwy 145 and Colorado Ave (near Helm)	0.00212	Spring 2018 (DWR)	West (In)	Unknown and <7.5 mg/L as N	Delta-Mendota Subbasin (Priority 2) and Westside Subbasin (Priority 2)

Table 2-7. Quantification of Areas of Potential Nitrate Contribution (Kings Water Alliance MZ)					
Western border from Helm to Five Points	0.00438	Spring 2018 (DWR)	East-southeast (Parallel)	Unknown and >10 mg/L as N	Westside Subbasin (Priority 2)
Five Points to the Kings/Tulare Lake Subbasin boundary	0.00166	Spring 2018 (DWR)	Northeast (In)	Unknown and <2.5 mg/L as N	Westside Subbasin (Priority 2)
Southeastern border of Kings Subbasin (east of Hwy 99)	0.00179	Spring 2018 (DWR)	Southwest (Parallel)	<2.5 to >10 mg/L as N	Kaweah Subbasin (Priority 1) and Kings Subbasin (Priority 1)

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 Reports¹⁷;

¹⁷ 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) and the 2014 Sacramento Valley Water Quality Coalition Groundwater Quality Assessment Report (<https://norcalwater.org/efficient-water-management/efficient-water-management-regional-sustainability/groundwater-quality-report/>)

- 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 2-8** 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 2-8. 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%
Total	100%

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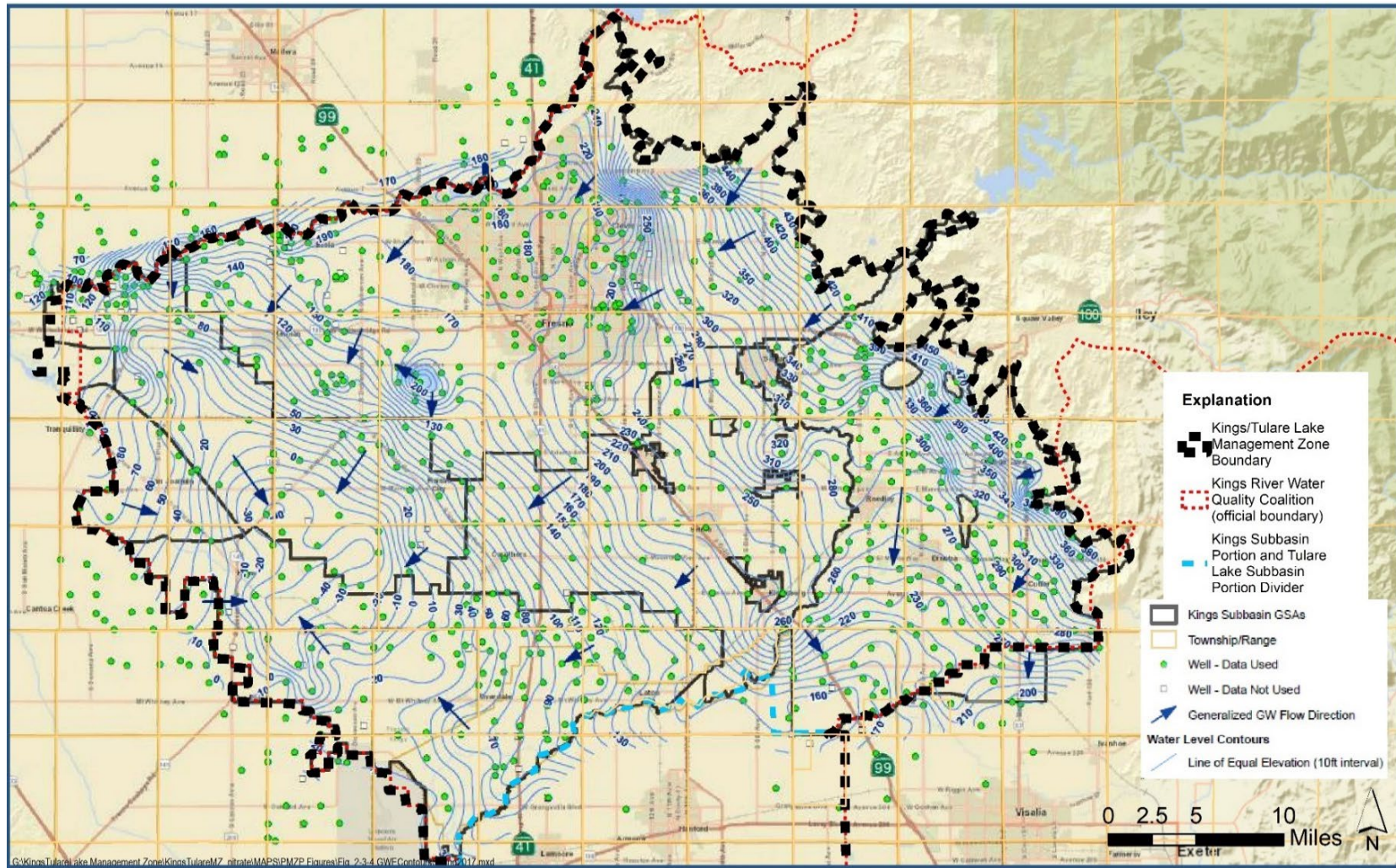


Figure 2-10. Spring 2017 Contours of Equal Groundwater Elevation for the Kings Subbasin
(adapted from Kings River East GSP, 2020)

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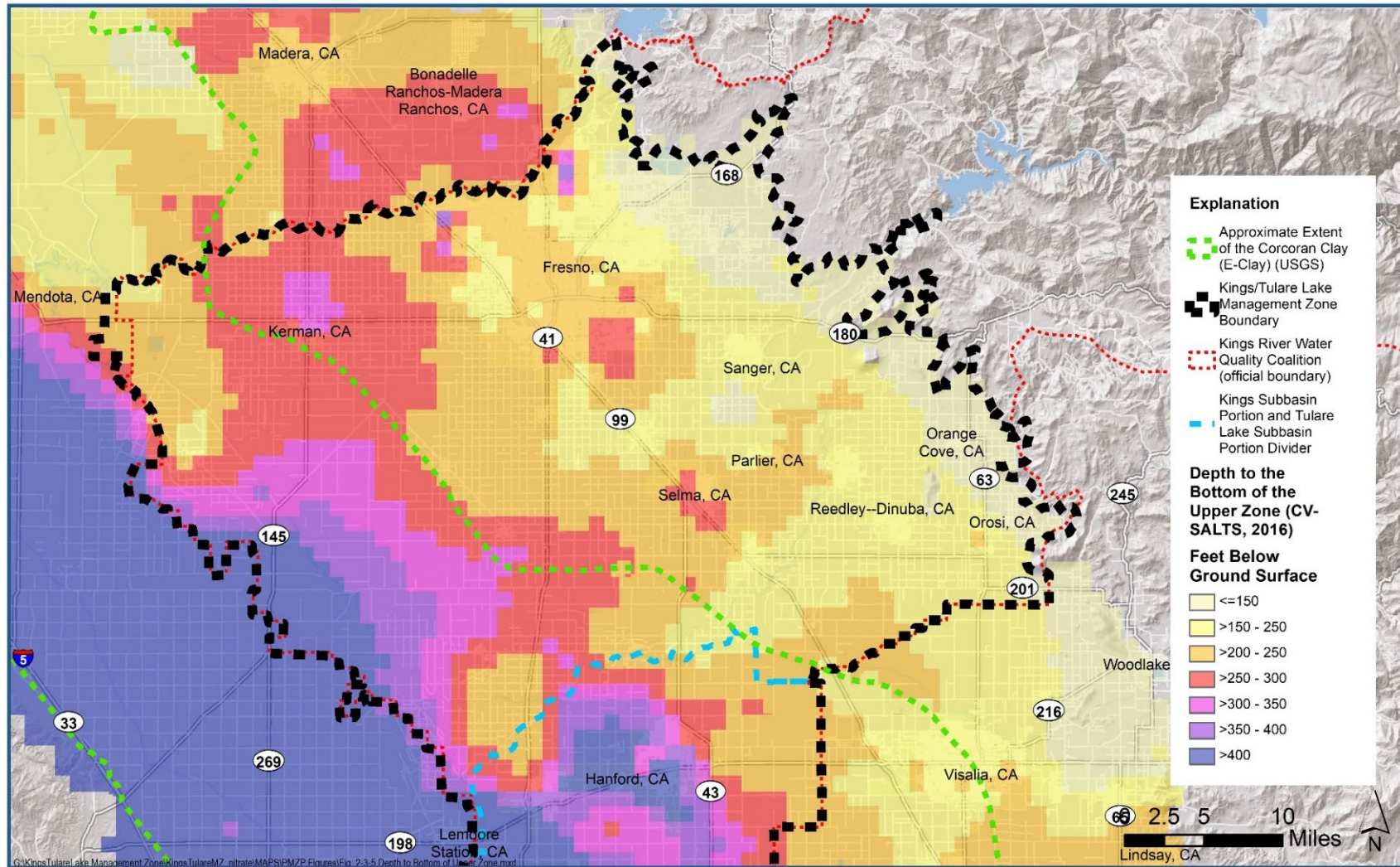


Figure 2-11. Depth to the Bottom of the Upper Zone, Kings Subbasin

2.2.4. Nitrate Water Quality

Table 2-9 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 2-9. 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"> • Former California Department of Public Health (CDPH), now DDW • DWR • Central Valley Water Board Waste Discharge Requirements (WDR) data per the Dairy General Order • Central Valley Water Board Regulated Sites • State Water Board/USGS Groundwater Ambient Monitoring and Assessment Program (GAMA) • USGS
GeoTracker GAMA ¹⁸ (Note: Not all entities had nitrate data from within the proposed Management Zone)	<ul style="list-style-type: none"> • Department of Pesticide Regulation • DWR • GAMA – Domestic Wells; Special Studies, and Priority Basin Projects • Local Groundwater Projects • Monitoring Wells (Central Valley Water Board Regulated Sites) • Irrigated Lands Regulatory Program Upper Zone Wells • DDW Public Water System Wells (Actual Locations) • USGS National Water Information System (NWIS)
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 ¹⁹
Fresno Irrigation District	Monitoring sites

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

¹⁹ 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 2-10** 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)²⁰. 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 2-11 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-

²⁰ 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 miles²¹.
- 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

²¹ 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.²² 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.

²² 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 2-10. 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
Regulated Facilities (GeoTracker)	216	216	113
GAMA	39	39	24
UCD SBX2-1 ²³	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
Total	6,287	4,351	1,875

Table 2-11. 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%
Total	6,287	4,351	1,875	43%

²³ 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://groundwater.nitrates.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/>).

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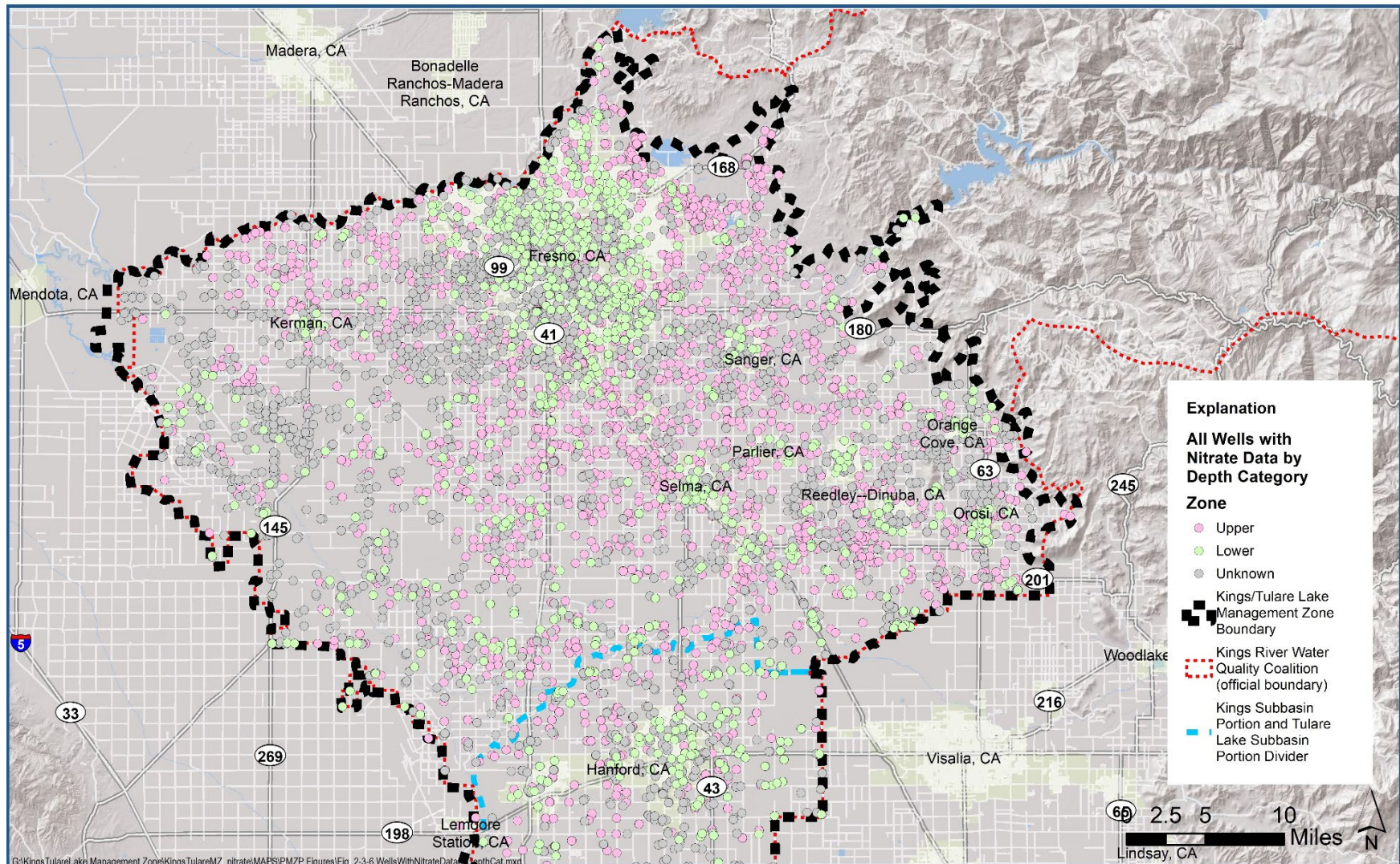


Figure 2-12. Wells with Nitrate Data within the Northern Portion (Kings Subbasin Area) of the Proposed KWA Management Zone by Depth Category

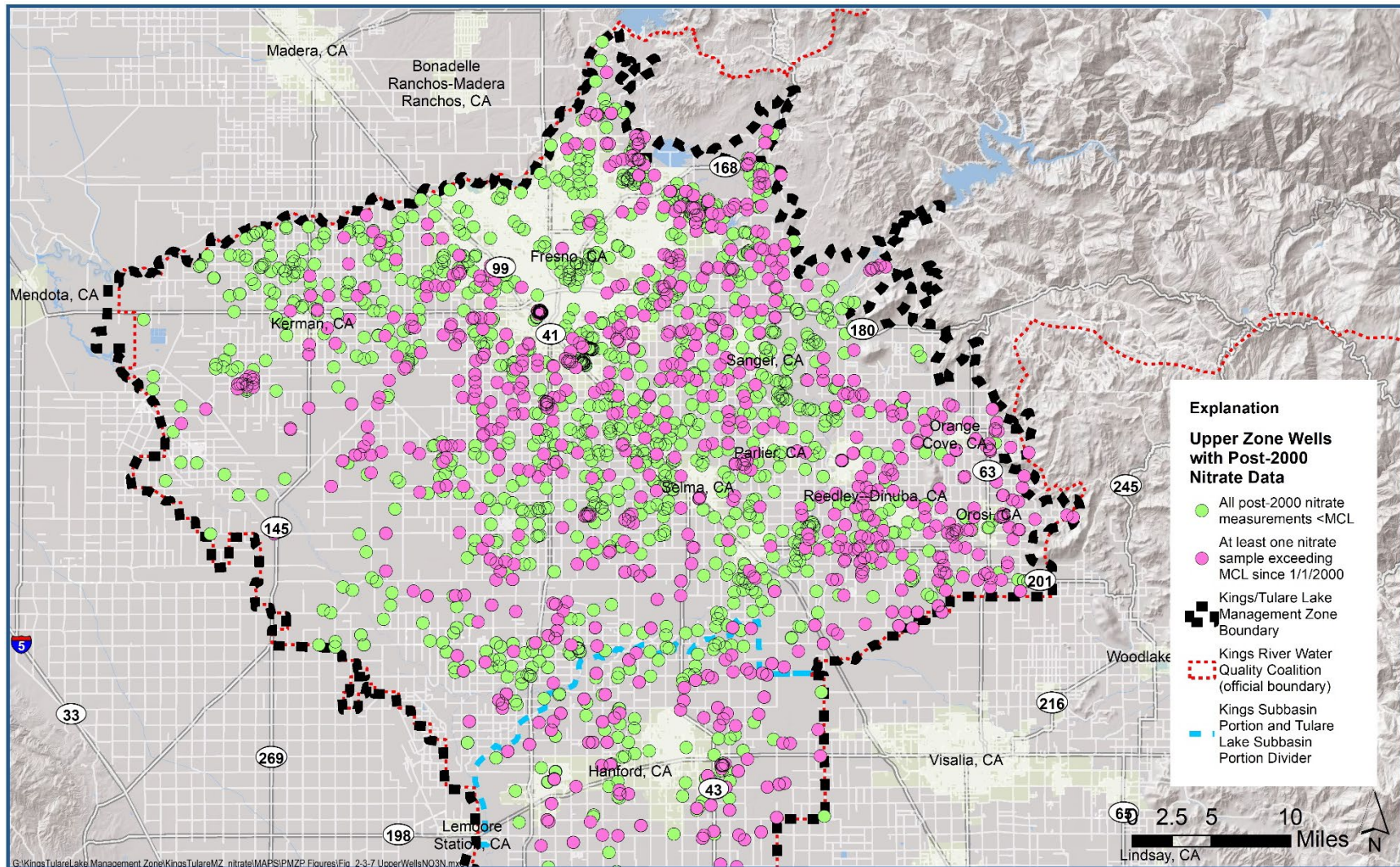


Figure 2-13. Upper Zone Wells with Nitrate Data and Nitrate MCL Exceedances (Post-2000) in the Northern Portion (Kings Subbasin Area) of the Proposed KWA Management Zone.

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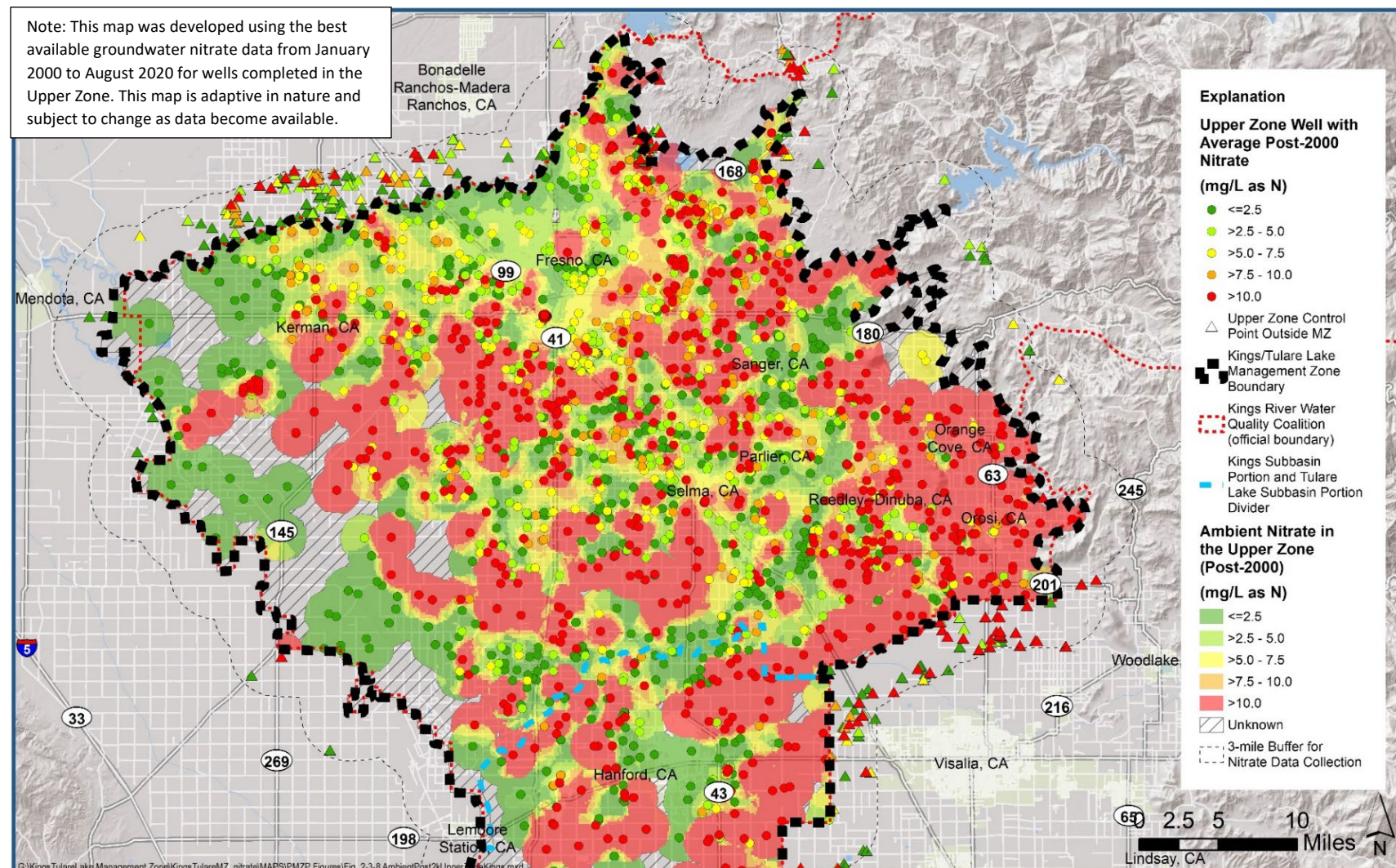


Figure 2-14. Ambient Post-2000 Nitrate Concentrations in the Upper Zone of Groundwater Underlying the Northern Portion (Kings Subbasin Area) of the Proposed KWA Management Zone

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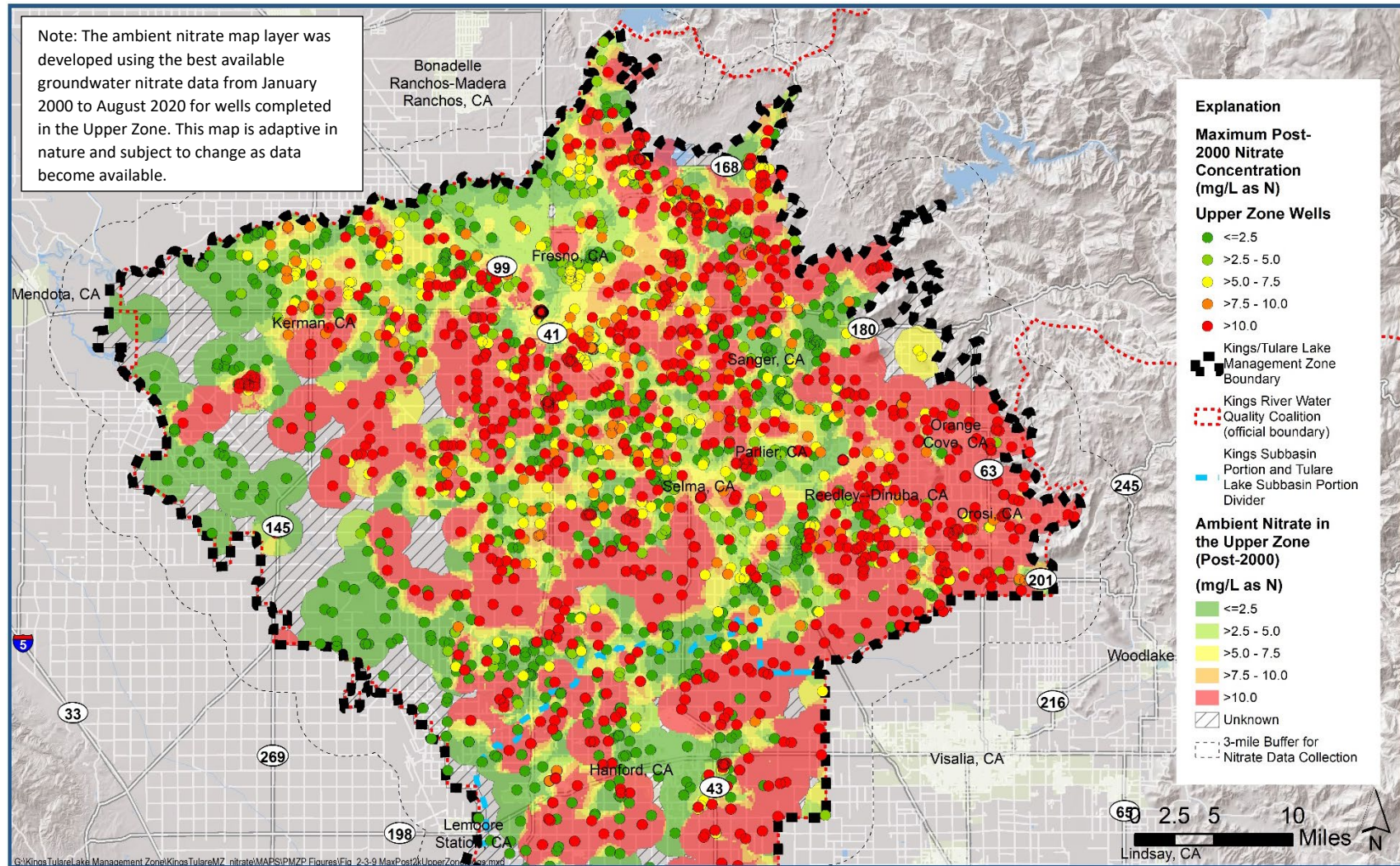


Figure 2-15. Maximum Post-2000 Nitrate in the Upper Zone with Ambient Groundwater Underlying the Proposed KWA Management Zone

2.2.5. Nitrate Trend Analysis

Future Management Zone work, anticipated for the Management Zone Implementation Plan, will include an analysis of temporal trends in nitrate. Trends are important for understanding and projecting groundwater quality conditions within the Management Zone, with particular focus on nitrate conditions in the Upper Zone where domestic wells are completed. Two main approaches to trend analysis are recommended for future Management Zone work: Parametric and Non-Parametric Statistical Analyses of Trends. An appendix has been prepared that details the groundwater nitrate quality data analysis methods for the Management Zone, including future trends analyses planned for the Management Zone (**Attachment H**)

2.2.6. Inactive Drinking Water Supply Wells

The Management Zone received comments from the Regional Board on the PMZP, one of which involved a concern about inactive drinking water supply wells producing bias in the ambient Upper Zone nitrate analysis. In order to address this concern, the location of inactive supply wells that have had nitrate exceedances are compared to the ambient nitrate map. The DDW's online public water system database website can be used in conjunction with the GAMA database to identify supply wells that are no longer used within the Management Zone. The DDW website provides database files that include a file containing public water system well identification numbers and well status codes.²⁴ The wells from the DDW website are not accompanied by location coordinates, but these wells can be linked (using their primary station code ID) to nitrate groundwater quality data from the GAMA dataset which does provide well location coordinates. Wells within the KWA Northern Portion (Tulare Lake Subbasin Area) that have a current status (as provided by DDW, which was last updated in August 2021) of "AB" for abandoned, "DS" for destroyed, "IR" for inactive raw, "IT" for inactive treated, and "IU" for inactive unused, are considered to be no longer actively used for drinking water.

²⁴ Water quality database files are publicly accessible here https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/EDTlibrary.html (accessed June, 2022), including the supporting database file SITELOC, which contains primary station codes (well identification numbers) and well status codes that can be used to determine if a well has been abandoned, destroyed, or deemed inactive.

Within the KWA Northern Portion (Tulare Lake Subbasin Area), a total of 313 supply wells are not currently being used for drinking water according to DDW (19 are abandoned, 145 are destroyed, and 149 are inactive). These wells are all less than 21,969 feet from the nearest Upper Zone well with post-2000 nitrate data, with an average proximity of 2,616 feet from the nearest Upper Zone well with post-2000 nitrate data. Most of the wells not currently being used for drinking water supply (according to DDW) fall within ambient Upper Zone concentrations less than 10 mg/L as N (237 out of 313 wells), with only three of the 313 wells falling in areas of unknown post-2000 ambient Upper Zone nitrate. 73 out of 313 wells fall within the ambient Upper Zone concentration reflective of MCL exceedances. **Figure 3-XX** shows the locations of the 313 wells in the KWA Northern Portion (Kings Subbasin Area) not currently being used for drinking water supply in relation to Upper Zone wells with post-2000 data and ambient post-2000 nitrate conditions.

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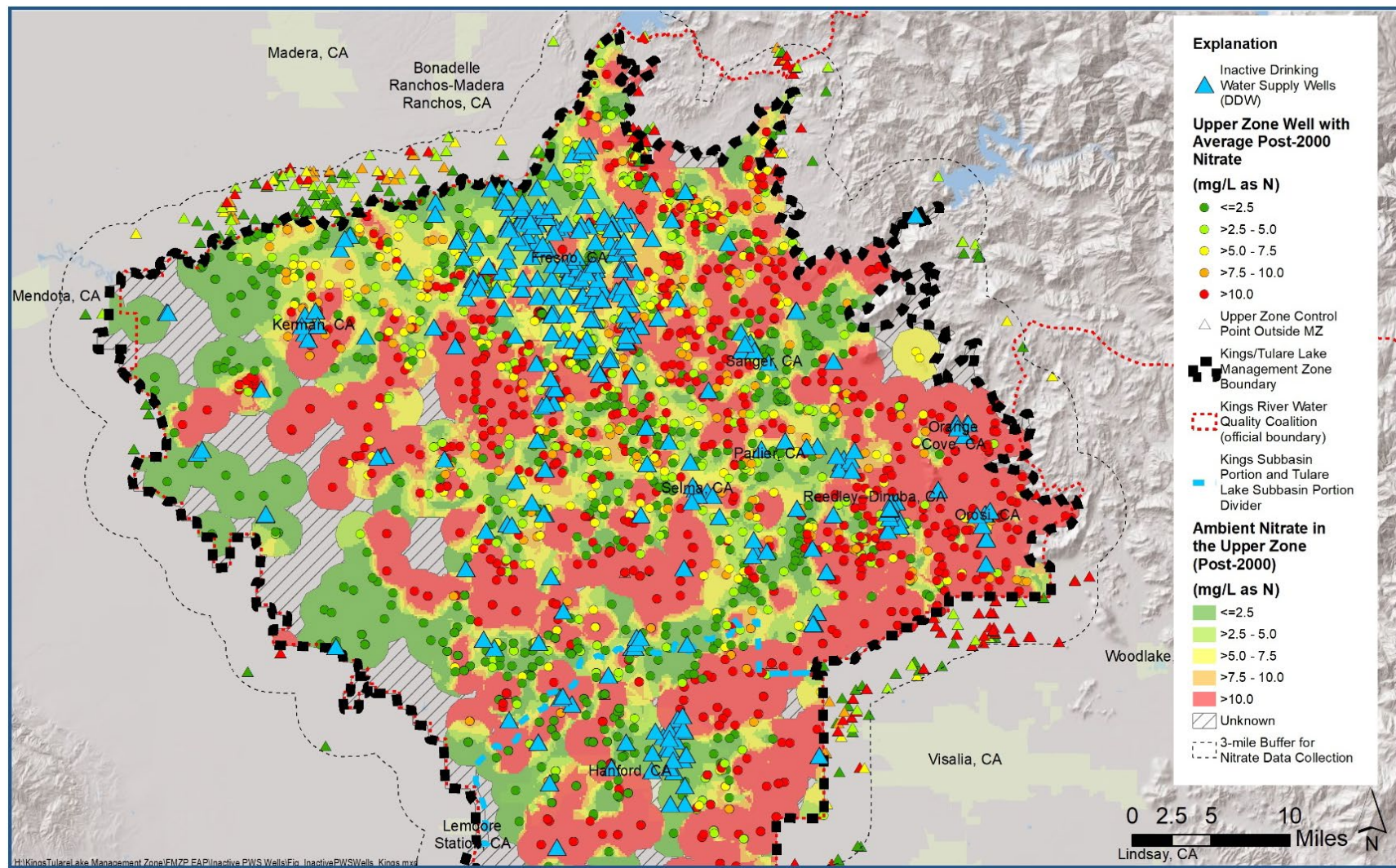


Figure 2-16. Inactive Drinking Water Supply Wells with Post-2000 Ambient Nitrate in the Upper Zone Underlying the Proposed KWA Management Zone (KWA Northern Portion)

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. To develop the PMZP, the Management Zone worked collaboratively with Board staff and permitted dischargers to identify potential Management Zone participants. Preparation of this FMZP generally followed this same approach. The KWA Management Zone requested updated discharger information from the Central Valley Water Board staff to ensure the most recent information was considered during development of this FMZP. 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”). The NTC with the Nitrate Control Program was sent to each regulated dairy within the Management Zone. All milk cow dairies participating in the CVDRMP are considered to be Management Zone participants regardless of the WDR under which they are permitted. **Attachment B, Table 1** lists the milk cow dairies in the Kings Subbasin that are members of the CVDRMP (as of August 23, 2022) and participating in the Kings Water Alliance Management Zone.

Confined Bovine Feeding Operations

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. All confined bovine feeding operations participating in the CVDRMP are considered Management Zone participants. **Attachment B, Table 1** lists the confined bovine feeding operations in the Kings Subbasin that are members of the CVDRMP (as of August 23, 2022) and participating in the Kings Water Alliance Management Zone.

Poultry Operations

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 2** 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 2-12 lists the permitted facilities authorized to discharge waste under individual WDRs within the Kings Subbasin (consistent with the information provided by the Central Valley Water Board). **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 2-12**).

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 and have established a participation agreement with the KWA.

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Table 2-12. Individual Non-CAFO Permitted Dischargers within the Northern Portion (Kings Subbasin Area) of the Kings Water Alliance Management Zone (MZ) and Status of Compliance with Nitrate Control Program (Map ID refers to Figure 2-16)

Map ID.	Facility Name	Facility Type	Permittee/Facility Address	County	Order No.	CV-SALTS ID (MZ Participation)
1	A & Z Apartments	Non15	A & Z Apartments, 6190, 6102, 6222, 6234 S. Elm Ave, Fresno, CA 93706	Fresno	97-010-DWQ	1759 No Path Selected
2	B&C Packing Inc. Fruit Washing Facility	Non15	B&C Packing Inc., 13085 S. Zediker Avenue, Kingsburg, CA 93631	Kings	R5-2020-0002	3541 No Path Selected
3	Baker Commodities Kerman Division	Non15	Bakers Commodities Inc., 16801 Jensen Avenue, Kerman, CA 93630	Fresno	R5-2014-0062	2167 Participant
4	Bari Olive Oil Co Facility	Non15	Wiebe Farms Inc., 40063 Road 56, Dinuba, CA 93618	Tulare	R5-2009-0097	2865 No Path Selected
5	Batth Dehydrator	Non15	Batth Dehydrator LLC, 5434 West Kamm, Caruthers, CA 93609	Fresno	Pending Order	2765 No Path Selected
6	Cargill Meat Solution	Non15	Cargill Meat Solutions, 3115 Fig Avenue, Fresno, CA 93778	Fresno	5-00-089	2040 Participant
7	Big De Farms 2012	Non15	Big De Farms, LP, 8650 West Kearney Boulevard, Fresno, CA 93706	Fresno	-	2893 No Path Selected
8	Biola WWTF	Non15	Biola Community Services, Howard Road, Biola, CA 93606	Fresno	96-288	2708 Participant
9	Boghosian Raisin Packing Facility	Non15	Boghosian Raisin Packing Co., 726 8 th Street, Fowler, CA 93625	Fresno	97-127	2404 No Path Selected
10	Booth Ranches Citrus Packing Facility	Non15	Booth Ranches, LLC, 12201 Avenue 480, Orange Cove, CA 93646	Tulare	97-006	1902 Participant
11	CAL West Packing Facility	Non15	Cal Produce Sales Corporation, 1975 Alamos Avenue, Clovis, CA 93612	Fresno	Pending Order	2797 No Path Selected
12	Caruthers Raisin Packing Facility	Non15	Caruthers Raisin Packing Company Inc., 12797 Elm, Caruthers, CA 93609	Fresno	R5-2012-0001	2403 Participant
13	Caruthers WWTF	Non15	Caruthers CSD, Clemenseau and Marks, Caruthers, CA 93609	Fresno	R5-2014-0137	2817 Path A NOI Submitted
14	Chateau Fresno Landfill GW Cleanup Site	Non15	BFI Services Group Inc., 8662 Muscat, Fresno, CA 93706	Fresno	96-206	1887 Path A NOI Submitted
15	Chooljian Bros Raisin Dehydrator & Packing Plant	Non15	Chooljian Bros Packing Co, 3192 Indianola, Sanger, CA 93657	Fresno	98-041	2402 No Path Selected
16	Clovis WWTF	NPDES	City of Clovis, 9700 East Ashlan Avenue, Clovis, CA 93619	Fresno	R5-2019-0021	3201 Path A NOI Submitted

Table 2-12. Individual Non-CAFO Permitted Dischargers within the Northern Portion (Kings Subbasin Area) of the Kings Water Alliance Management Zone (MZ) and Status of Compliance with Nitrate Control Program (Map ID refers to Figure 2-16)

Map ID.	Facility Name	Facility Type	Permittee/Facility Address	County	Order No.	CV-SALTS ID (MZ Participation)
17	Cutler-Orosi WWTF	NPDES	Cutler-Orosi Joint Powers WW Authority, 40401 Road 120, Cutler, CA 93615	Tulare	R5-2018-0011	3310 Path A NOI Submitted
18	Del Rey Packing	Non15	Del Rey Packing Company, 5287 Del Rey, Del Rey, CA 93616	Fresno	96-198	1952 Participant
19	Del Rey WWTF	Non15	Del Rey CSD, 11495 American Avenue, Del Rey, CA 93616	Fresno	96-284	2710 Participant
20	Delft Colony WWTF	Non15	Tulare County RMA, Road 56 of Avenue 394, Delft Colony, CA 93618	Tulare	88-097	1955 Participant
21	Dinuba Energy Cogeneration	Non15	Comm. Renewable Energy Svc Inc., 6801 Avenue 430, Dinuba, CA 93654	Tulare	95-045	1963 No Path Selected
22	Dinuba Packing Plant	Non15	Gillette Citrus Company, 10175 Anchor, Dinuba, CA 93618	Tulare	97-129	1964 Participant
23	Dinuba WWTF	Non15	City of Dinuba, 6675 Avenue 412, Dinuba, CA 93618	Tulare	95-200	2660 Participant
24	E & J Gallo Winery Fresno Winery	Non15	E & J Gallo Winery, 5610 Olive Avenue, Fresno, CA 93727	Fresno	R5-2015-0040	2042 Participant
25	East Orosi Packing House	Non15	Fancher Creek Packing, 41870 Fruitvale Avenue, Orosi, CA 93647	Tulare	85-167	1987 Participant
26	Elkhorn Correctional Facility WWTF	Non15	Fresno County Gen Serv Dept., West Elkhorn Avenue, Caruthers, CA 93609	Fresno	97-207	1995 No Path Selected
27	Family Tree Reedley Packing House	Non15	Family Tree, 41646 Rd 62, Reedley, CA 93618	Tulare	96-207	2426 No Path Selected
28	Fig Garden Packing Facility	Non15	Fig Garden Packing, Inc., 5545 W. Dakota Avenue, Fresno, CA 93722	Fresno	94-135	2018 Participant
29	Four Bar C Farms Caruthers Dehydrator	Non15	Four Bar C Farms, 10616 West, Fresno, CA 93706	Fresno	01-155	1873 Participant
30	Fowler Acetylene Plant	Non15	Fresno Ox and Weld Suppliers, 7835 Manning, Fresno, CA 93706	Fresno	67-117	2032 Participant
31	Fowler Packing Cedar Avenue Facility	Non15	Fowler Packing Company, Inc., 8570 Cedar, Fresno, CA 93725	Fresno	89-141	1881 Participant

Table 2-12. Individual Non-CAFO Permitted Dischargers within the Northern Portion (Kings Subbasin Area) of the Kings Water Alliance Management Zone (MZ) and Status of Compliance with Nitrate Control Program (Map ID refers to Figure 2-16)

Map ID.	Facility Name	Facility Type	Permittee/Facility Address	County	Order No.	CV-SALTS ID (MZ Participation)
32	Fresno County #44-D Monte Verdi Estates WWTF and Reclamation Facility	Non15	Fresno County, 12222 Willow Avenue, Clovis, CA 93611	Fresno	92-203 (rescinded) 2014-0153-DWQ 2016-0068-DDW	1751 Participant
33	Fresno County #47-Quail Lake WWTF	Non15	Fresno County, 4121 Quail Lake Drive, Clovis, CA 93611	Fresno	96-120	1753 Participant
34	Fresno County Juvenile Justice WWTF	Non15	Fresno County, 3333 American Avenue, Fresno, CA 93725	Fresno	R5-2007-0150	2161 Participant
35	Fresno Cogeneration Project	Non15	Fresno Cogeneration Partners, L.P., 8105 South Lassen Avenue, San Joaquin, CA 93660	Fresno	90-216	2039 Path A NOI Submitted
36	Fresno Recycled Water Application Area	Non15	Wastewater Management Division, 5607 W. Jensen Avenue, Fresno, CA 93706	Fresno	2016-0068-DDW	3008 Path A NOI Submitted
37	Fresno Regional WWTF	Non15	Wastewater Management Division, 5607 W. Jensen Avenue, Fresno, CA 93706	Fresno	R5-2018-0080	2665 Path A NOI Submitted
38	Fruit Patch Packing & Cold Storage	Non15	Fruit Patch, Inc., 38773 Road 48, Dinuba, CA 93618	Tulare	-	2053 No Path Selected
39	Gerawan Farms Plant 3	Non15	Gerawan Farming, Inc., 14044 West Central Avenue, Kerman, CA 93630	Fresno	R5-2020-0032	3035 Participant
40	Gerawan Farms Plant 4	Non15	Gerawan Farming, Inc., 3023 South Reed Avenue, Sanger, CA 93657	Fresno	R5-2020-0041	3039 Participant
41	GSV Cutler Winery	Non15	Golden State Vintners Cutler, 38558 Rd 128, Cutler, CA 93615	Tulare	R5-2015-0013	2741 Participant
42	GSV Fresno Winery	Non15	The Wine Group Inc., 7409 Central, Fresno, CA 93706	Fresno	R5-2012-0076	2043 Participant
43	Harris Ranch Processing Plant	Non15	Harris Ranch Beef Company, 16277 McCall, Selma, CA 93662	Fresno	R5-2017-0021	2114 Participant
44	Helm Fertilizer Plant	Non15	J R Simplot Company, 12688 Colorado Avenue, Helm, CA 93660	Fresno	99-083	2118 Participant

Table 2-12. Individual Non-CAFO Permitted Dischargers within the Northern Portion (Kings Subbasin Area) of the Kings Water Alliance Management Zone (MZ) and Status of Compliance with Nitrate Control Program (Map ID refers to Figure 2-16)

Map ID.	Facility Name	Facility Type	Permittee/Facility Address	County	Order No.	CV-SALTS ID (MZ Participation)
45	H&R Facilities, LLC	Non15	730 N. Olive Avenue, Sanger, CA 93657	Fresno	Pending Order	3616 Participant
46	HMC Group Cold Storage, Inc.	Non15	HMC Group Cold Storage, Inc., 13138 Bethel Avenue, Kingsburg, CA 93631	Fresno	90-253	2124 Participant
47	Ingleby US Pistachio Plant	Non15	19210 West Westlawn Avenue, Riverdale, CA 93656	Fresno	R5-2022-0013	3576 No Path Selected
48	Ito Packing Reedley Facility	Non15	Sun Pacific Shippers, LP, 18697 South, Reedley, CA 93654	Fresno	01-157	2424 No Path Selected
49	Kerman WWTF	Non15	City of Kerman, 15480 Church, Kerman, CA 93630	Fresno	R5-2007-0115	2168 Participant
50	Kings River Packing	Non15	Kings River Packing, 21136 Trimmer Springs, Sanger, CA 93657	Fresno	Pending Order	2174 No Path Selected
51	Kings River UESD OWTS	Non15	Kings River Union Elementary School District, 3961 Avenue 400, Kingsburg, CA 93631	Tulare	97-010-DWQ	2810 Participant
52	KY Packing, LLC	Non15	KY Packing, LLC, 8686 South Rio Vista, Reedley, CA 93654	Fresno	R5-2015-0005	2425 No Path Selected
53	Lamanuzzi & Pantaleo Plant No 1	Non15	Lamanuzzi & Pantaleo, LLC, 3636 Grantland, Fresno, CA 93711	Fresno	R5-2020-0002	2384 Participant
54	Laton WWTF	Non15	Laton CSD, 6331 Dewoody, Laton, CA 93242	Fresno	R5-2016-0079	2717 Participant
55	Lion Raisins Selma Plant	Non15	Lion Enterprises, 9500 South DeWolf Avenue, Selma, CA 93662	Fresno	R5-2018-0064	2473 Participant
56	London WWTF	Non15	London CSD, Rd 60 at Avenue 376, Dinuba, CA 93618	Tulare	R5-2017-0109	2720 Participant
57	Malaga CWD WWTF	NPDES	Malaga CWD, 3749 South Maple Avenue, Fresno, CA 93725	Fresno	R5-2020-0001	3311 Participant
58	Marian Farms Distillery	Non15	Gena Nonini, 9835 West McKinley, Fresno, CA 93722	Fresno	Pending Order	2757 No Path Selected
59	McCall Winery	Non15	San Joaquin Valley Express C/O E&J Gallo, 1042 McCall, Sanger, CA 93657	Fresno	93-098	2309 Participant

Table 2-12. Individual Non-CAFO Permitted Dischargers within the Northern Portion (Kings Subbasin Area) of the Kings Water Alliance Management Zone (MZ) and Status of Compliance with Nitrate Control Program (Map ID refers to Figure 2-16)

Map ID.	Facility Name	Facility Type	Permittee/Facility Address	County	Order No.	CV-SALTS ID (MZ Participation)
60	Moravia Winery	Non15	Hammond Family Vineyards Inc., 3620 North Bishop Avenue, Fresno CA 93723	Fresno	R5-2009-0097	2900 No Path Selected
61	National Raisin Plant	Non15	Sunshine Raisin Corp DBA, 626 Fifth, Fowler, CA 93625	Fresno	00-045	2312 Participant
62	Nonini Winery	Non15	Nonini Winery, 2640 North Dickenson Avenue, Fresno, CA 93723	Fresno	94-225	2612 Participant
63	North Fresno WWRF	Non15	City of Fresno, 1660 East Copper Avenue, Fresno, CA 93657	Fresno	R5-2014-0162	1931 Path A NOI Submitted
64	O'Neill Vintners Reedley Winery	Non15	O'Neill Vintners & Distillers, 8418 Lac Jac Avenue, Parlier, CA 93648	Fresno	R5-2014-0045	2427 Participant
65	Orange Cove WWTF	Non15	City of Orange Cove, 1805 Monson Avenue, Orange Cove, CA 93646	Fresno	R5-2004-0008	2676 Participant
66	Parlier WWTF	Non15	City of Parlier, 1101 East Parlier Avenue, Parlier, CA 93648	Fresno	95-103	2677 Participant
67	Pom Wonderful Fruit Processing Plant	Non15	Pom Wonderful, LLC, 5286 Del Rey, Del Rey, CA 93616	Fresno	R5-2012-0090	2054 Participant
68	Reedley WWTF	Non15	City of Reedley, 1701 West Huntsman, Reedley, CA 93654	Fresno	R5-2010-0120	2679 Path A NOI Submitted
69	Riverbend Mobile Home Park	Non15	Riverbend MHP, LLC, 17604 East Kings Canyon Road, Sanger, CA 93657	Fresno	90-098	2516 No Path Selected
70	Riverdale WWTF	Non15	Riverdale PUD, 20896 Malsbary, Riverdale, CA 93656	Fresno	R5-2018-0028	2725 Participant
71	Riverland RV Resort	Non15	38743 CA 99, Kingsburg, CA 93631	Fresno	2014-0153-DWQ	3598 Participant
72	Salwasser North Plant	Non15	Salwasser Dehydrator, Inc., 4677 Howard, Kerman, CA 93630	Fresno	95-053	2325 No Path Selected
73	Salwasser South Plant	Non15	Salwasser Dehydrator, Inc., 4087 Howard, Kerman, CA 93630	Fresno	93-204	2513 No Path Selected
74	San Joaquin WWTF	Non15	City of San Joaquin, 23599 Manning, San Joaquin, CA 93660	Fresno	R5-2007-0100	2680 Participant
75	Sanger Industrial WWTF	Non15	City of Sanger, 333 North Avenue, Sanger, CA 93657	Fresno	98-131	2147 Participant

Table 2-12. Individual Non-CAFO Permitted Dischargers within the Northern Portion (Kings Subbasin Area) of the Kings Water Alliance Management Zone (MZ) and Status of Compliance with Nitrate Control Program (Map ID refers to Figure 2-16)

Map ID.	Facility Name	Facility Type	Permittee/Facility Address	County	Order No.	CV-SALTS ID (MZ Participation)
76	Sanger WWTF	Non15	City of Sanger, 333 North Avenue, Sanger, CA 93657	Fresno	R5-2014-0004	2681 Participant
77	Shady Lakes MHP	Non15	Shady Lakes Mobile Home Park, 5665 South Chestnut Avenue, Fresno, CA 93725	Fresno	75-079	2482 Participant
78	Sherwood MHP WWTF	Non15	Sherwood Forest MHP, 339 Frankwood, Sanger, CA 93657	Fresno	94-223	2700 No Path Selected
79	Sierra Shadows WWTF	Non15	Friant Road & Mono St., Friant, CA	Fresno	Pending Order	2799 No Path Selected
80	Sikh Center of the Pacific	Non15	Sikh Center of the Pacific, 11683 South Highland Avenue, Selma, CA 93662	Fresno	-	2894 No Path Selected
81	Six Jewels Dehydrator	Non15	Six Jewels Dehydrator, 6692 Peach, Fresno, CA 93725	Fresno	97-244	2503 Participant
82	Selma-Kingsburg-Fowler County Sanitation District WWTF	Non15	Selma Kingsburg Fowler CSD, 11301 Conejo, Kingsburg, CA 93245	Fresno	01-255	2727 Participant
83	Stone Ranch Evaporation Basin	Non15	Leprino Foods Company, Kings River North/Clarksfork, Kings County 93245	Kings	R5-2019-0008	2004 Participant
84	Sun-Maid Kingsburg Plant	Non15	Sun-Maid Growers of California, 13525 South Bethel Avenue, Kingsburg, CA 93631	Fresno	R5-2013-0096	2877 Participant
85	Sun-Maid Orange Cove Plant	Non15	Sun-Maid Growers of California, 9818 South Jacobs, Orange Cove, CA 93646	Fresno	88-060	2340 Participant
86	Sunview Dry Fruit & Nut Company	Non15	Sunview Marketing International, 12400 East Adams Avenue, Del Rey, CA 93616	Fresno	R5-2015-0117	2856 Participant
87	Teen Challenge of Southern California	Non15	Smith Mountain LP, 42675 Road 44, Reedley, CA 93654	Fresno	97-010-DWQ	2966 Participant
88	The Wine Group Franzia Winery-Sanger	Non15	The Wine Group Inc., 2916 South Reed Avenue, Sanger, CA 93657	Fresno	R5-2014-0094	2034 Participant
89	TKI Fresno Pesticide Manufacturing Plant	Non15	Desander Kerley, Inc., 5427 East Central Avenue, Fresno, CA 93725	Fresno	R5-2019-0037	2851 Participant

Table 2-12. Individual Non-CAFO Permitted Dischargers within the Northern Portion (Kings Subbasin Area) of the Kings Water Alliance Management Zone (MZ) and Status of Compliance with Nitrate Control Program (Map ID refers to Figure 2-16)

Map ID.	Facility Name	Facility Type	Permittee/Facility Address	County	Order No.	CV-SALTS ID (MZ Participation)
90	Traver WWTF	Non15	Tulare County RMA, Road 44 at Avenue 368, Traver, CA 93631	Tulare	88-098	2574 Participant
91	Tri-County Citrus Orange Cove Packing House	Non15	Visalia Citrus Packing Group, 12143 Avenue 456, Orange Cove, CA 93646	Tulare	94-075	2353 Participant
92	Trinity Packing	Non15	Trinity Packing Co, Inc., 18700 East South Avenue, Reedley, CA 93654	Fresno	98-130	2892 No Path Selected
93	Trinity Presbyterian Church OWTs	Non15	Nathan Belknap, 12168 Willow Avenue, Clovis, CA 93611	Fresno	97-010-DWQ	2351 Participant
94	Verni Olive Oil Extract Facility	Non15	Saverio Verni, 11998 Auberry Road, Clovis, CA 93611	Fresno	-	2937 Participant
95	VFG Anaerobic Digester	Non15	Valley Fig Growers, 2028 South Third Street, Fresno, CA 93702	Fresno	Pending Order	1777 Participant
96	Vie-DEL Plant #1, Selma	Non15	Vie-Del Company, 11903 Chestnut Avenue, Fresno, CA 93725	Fresno	95-043	2382 No Path Selected
97	Vie-DEL Plant #2, Kingsburg	Non15	Vie-Del Company, 13363 South Indianola Avenue, Kingsburg, CA 93631	Fresno	95-044	2383 No Path Selected
98	Vita-Pakt Fruit Processing & Dehydrating Plant	Non15	Vita-Pakt Citrus Products, Co., 8898 East Central Avenue, Del Rey, CA 93616	Fresno	96-119	2047 Participant
99	Warlow SRRA WTF	Non15	Hwy-99 Rest Area, South of Kingsburg, CA	Fresno	2014-0153-DWQ	3561 No Path Selected
100	Wawona Packing Co Facility	Non15	Wawona Packing Company, LLC, 12133 Avenue 408, Cutler, CA 93615	Tulare	R5-2012-0042	2774 Participant
101	Wild Water Adventure Park	Non15	Clovis Lakes Associates LLC, 11413 E. Shaw Avenue, Clovis, CA	Fresno	Pending Order	2628 No Path Selected
102	Wildwood MHP	Non15	Wildwood C/O Westco Equities, 8701 Hwy 41, #70, Fresno, CA 93725	Fresno	R5-2002-0064	2633 Participant

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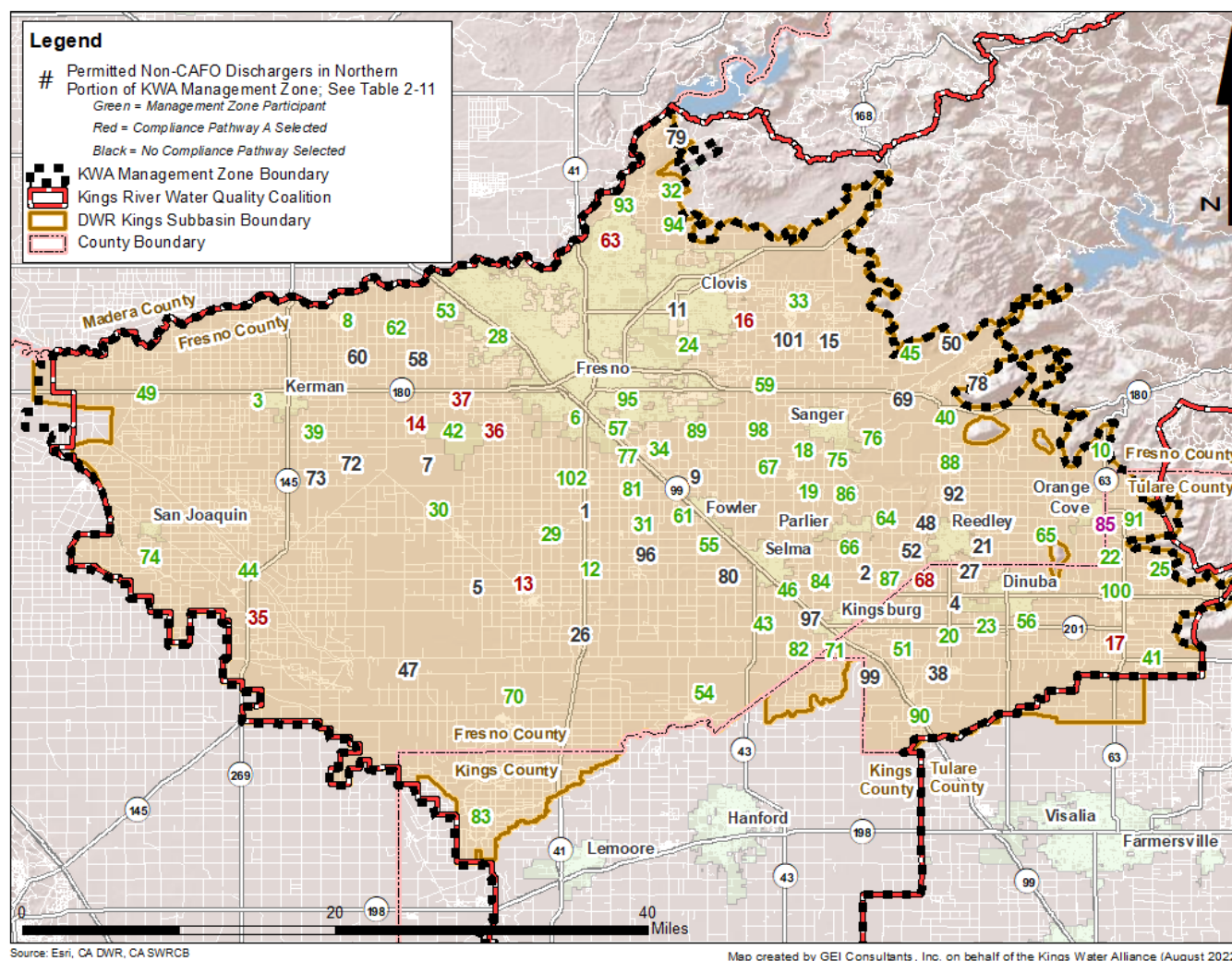


Figure 2-16. Location of Individually Permitted Dischargers in the Northern Portion (Kings Subbasin Area) of the Kings Water Alliance Management Zone (see Table 2-11 to identify permitted dischargers)

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 Management Zone regulatory deliverables. 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 receive regular communication about Management Zone activities, including EAP implementation, and will continue to 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 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_{1year}) by crop type
 - A/R Ratio as a running total of the previous three crop years (A/R_{3year}) by crop type
 - A-R for the previous crop year ($A-R_{1year}$) by crop type
 - A-R as a running total of the previous three crop years ($A-R_{3year}$) 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 Ration 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 units²⁵), because these operations are deemed to pose a low threat to water quality.²⁶

- 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 generate process wastewater and do not store uncovered manure outdoors are considered Low Threat Operations. Pasture raised poultry operations are excluded from the Poultry General Order (R5-2019-0034). The Central Valley Water Board intends to develop separate general WDRs to regulate waste discharges by pasture raised poultry operations. However, at any time, the Central Valley Water Board has the authority to issue individual WDRs for any pasture raised poultry operation that could affect the quality of the waters of the state. None have currently been identified in this Management Zone.

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:

²⁵ One animal unit equals 1,000 pounds of animal weight.

²⁶ Additional criteria are included in the definition of Limited Time Operations and Limited Population Operations.

- 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 required by the WDR held by each Management Zone participant.

2.4.3.1. 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.

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"> Discharge of wastes to surface waters or surface water drainage courses is prohibited.
Effluent and Mass Loading Limitations	<ul style="list-style-type: none"> None for nitrogen
Discharge Specifications	<ul style="list-style-type: none"> Discharge from the Plant shall not exceed a monthly average flow of 0.192 million gallons/day (mgd). 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.
Land Application Area	<ul style="list-style-type: none"> 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. 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. 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).
Groundwater Limitations	<ul style="list-style-type: none"> 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"> Nitrate (as nitrogen) of 10 mg/L; For constituents identified in Title 22, concentrations quantified as MCLs specified therein.
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"> Baker complies with all Monitoring and Reporting Program requirements.

Table 2-13. Summary of Key Baker Commodities, Kerman Division WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
	<ul style="list-style-type: none"> • Pond Influent and effluent monitoring: nitrate as nitrogen, nitrite as nitrogen, Total Kjeldahl Nitrogen (TKN), ammonia as nitrogen and total nitrogen. • LAA monitoring: nitrogen loading from: wastewater, irrigation well water and fertilizer. • 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. • Soil monitoring for: nitrate, TKN, ammonia and total nitrogen.

2.4.3.2. Cargill Meat Solutions

Facility Description (CV-SALTS ID: 2040)

Cargill Meat Solutions (permitted as Beef Packers Inc. and F.M. Cattle Company) operates a slaughterhouse facility at 3115 Fig Avenue in Fresno, CA 93778. The facility is permitted to discharge under Order No. 5-00-089. The underlying groundwater beneficial uses include: MUN, AGR, IND, PRO, REC-1 and REC2.

Wastewater discharges included wash water from slaughterhouse floors, processing equipment, storage areas, corrals and trucks and cooling water. At the time of Order issuance the facility was expanding its process area which would increase its average daily wastewater flows to approximately 220,000 gpd. Wastewater is treated in an on-site WWTF. Treated wastewater with high salinity (electrical conductivity) is discharged to the City of Fresno's collection system. Low salinity wastewater may either be commingled with the high salinity wastewater and discharged to the City of Fresno's collection system or it may be treated and discharged to the facility's unlined wastewater pond. This Order only applies to wastewater that is treated onsite and discharged to the wastewater pond. Wastewater that is discharged to the unlined pond is disposed of through evaporation/percolation or it may be land applied to 60 acres of farmland. At the time of permit issuance and after expansion of the process area was completed, it was estimated that 70,000 gpd would be discharged to the unlined pond and then applied to the 60-acre LAA.

Nutrient Management Requirements

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

Table 2-14. Summary of Key Cargill Meat Solutions WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Discharge Specifications	<ul style="list-style-type: none"> Monthly average daily discharge to the stabilization pond and LAA shall not exceed 0.07 mgd. Application of wastewater to the LAA shall be at reasonable rates considering crops, soil, climate and irrigation management system. Nutrient loading to the LAA, including the nutritive value of organic and chemical fertilizers and the reclaimed water, shall not exceed the crop demand.
Groundwater Limitations	<ul style="list-style-type: none"> Except for electrical conductivity, the discharge in combination with other sources, shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than background water quality.
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring as a 16-hour composite: monthly for nitrate; weekly for TKN. Groundwater monitoring includes quarterly grab for nitrate. LAA monitoring when there is a discharge to identify: (a) areas receiving fresh or wastewater; (b) type of crop(s) grown in each area; (c) monthly average hydraulic loading rate (gpd) to each area; and (d) calculated total nitrogen loading rates (lbs/acre-day).

2.4.3.3. Biola Wastewater Treatment Facility

Facility Description (CV-SALTS ID: 2708)

Biola Community Services District is authorized to discharge domestic wastewater from the Biola WWTF under WDR Order 96-288. This facility serves the unincorporated community of Biola, CA in Fresno County. The facility is located about 1 mile south of the San Joaquin River on North Howard Avenue, south of the Shaw Avenue and Howard Avenue intersection. The underlying groundwater beneficial uses include: MUN, AGR, IND and PRO.

The 1996 WDR, which replaced the existing 1985 Order, included the following modifications to the existing treatment facility: Replace existing facilities (aeration tanks, clarifiers and three disposal ponds) with four aerated ponds and four new disposal ponds to handle current and projected flows of up to 0.2 mgd. Three of the proposed treatment ponds will be partially mixed and the fourth pond will be fully mixed. The planned treatment ponds would be built with an engineered liner that has a maximum permeability of 1.0×10^{-5} cm/sec to ensure adequate detention time. Sludge will be disposed of pursuant to state and federal requirements.

Nutrient Management Requirements

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

Table 2-15. Summary of Biola WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Following discharges are prohibited: <ul style="list-style-type: none"> Wastes to surface waters or surface water drainage courses Bypass or overflow of untreated or partially treated waste Waste classified as “hazardous” or “designated” as defined by California Title 23 regulations
Discharge Specifications	<ul style="list-style-type: none"> Monthly average dry weather (May through October) discharge shall not exceed 0.1 mgd until after facility upgrades are complete. Monthly average dry weather (May through October) discharges shall not exceed 0.2 mgd after facility upgrades completed.
Groundwater Limitations	<ul style="list-style-type: none"> 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.
Monitoring & Reporting	<ul style="list-style-type: none"> Monitoring (per permit required frequencies) includes influent, effluent, pond and sludge; no monitoring required for nitrogen-related constituents.

2.4.3.4. 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 2-16 summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-16. Summary of Key Booth Ranches Citrus Packing Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Discharge Specifications	<ul style="list-style-type: none"> The monthly average discharge from the facility shall not exceed 2,000 gallons per day (gpd).
Groundwater Limitations	<ul style="list-style-type: none"> 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.
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring includes total nitrogen. Water supply monitoring includes total nitrogen.

2.4.3.5. Caruthers Raisin Packing Facility

Facility Description (CV-SALTS ID: 2817)

The Caruthers Raisin Packing Company is authorized to discharge under WDR Order R5-2012-0001. The facility is located at 12797 South Elm Avenue in Caruthers, CA 93609. The underlying groundwater beneficial uses where this facility discharges its wastewater include: MUN, AGR, IND and PRO.

The Caruthers Raisin Packing Facility processes dry raisins throughout the year with peak processing period occurring from late summer through fall. Wastewater is generated from rinsing of raisins and wash down of the equipment lines. At the time the WDR was issued the average monthly discharge of process water ranged from 0.06 mgd to 0.12 mgd during peak season. Wastewater, generated from the raisin rinse tank and equipment wash down, drains into a concrete standpipe where various chemicals are added, e.g., for odor and algae control and pH adjustment. The wastewater is pumped through a slotted rotating drum screen to remove solids and then stored in aboveground tanks. While in the tanks the wastewater is aerated to control odors and reduce BOD. Treated wastewater is distributed to a sprinkler irrigation system and used to irrigate about 27 acres of cropland.

Nutrient Management Requirements

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

Table 2-17. Summary of Key Caruthers Raisin Packing Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Discharge Specifications	<ul style="list-style-type: none"> Average monthly flow of wastewater to LAAs shall not exceed 0.13 mgd and the total annual flow to the LAAs shall not exceed 25 million gallons. Neither the treatment nor the discharge of wastewater shall cause a nuisance or condition of pollution as defined by the Water Code section 13050. 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.
LAA	<ul style="list-style-type: none"> WDR required preparation of a nutrient and wastewater management plan for the LAA to determine the appropriate pounds per acre of process wastewater that may be applied to the LAAs and identify protocols for the application of supplemental fertilizers. 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. 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). BOD loading to the LAA calculated as a cycle average shall not exceed 150 lbs/acre/day. Application of waste constituents shall be at reasonable agronomic rates to preclude creation of nuisance or degradation of groundwater, considering the crop, soil, climate and irrigation management. Annual nutritive loading to the LAA including the nutritive value of organic and chemical fertilizers and the wastewater, shall not exceed the annual crop demand.
Groundwater Limitations	<ul style="list-style-type: none"> Release of waste constituents associated with the discharge shall not cause or contribute to groundwater containing constituent concentrations in excess of concentrations specified as follows (or natural background quality, whichever is greater): nitrate as nitrogen of 10 mg/L.
Monitoring & Reporting	<ul style="list-style-type: none"> Influent and effluent monitoring as a monthly, 24-hr composite for nitrate (as N), ammonia (as N), TKN and total nitrogen. Groundwater monitoring includes quarterly grab for nitrate (as N), ammonia (as N), TKN and total nitrogen.

Table 2-17. Summary of Key Caruthers Raisin Packing Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
	<ul style="list-style-type: none"> LAA monitoring to estimate (a) nitrogen loading (lbs/acre) from wastewater and fertilizer; and (b) cumulative nitrogen loading (lbs/acre-year). Soil monitoring (annual) for nitrate (as N) and TKN.

2.4.3.6. 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 2-18 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-18. 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"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Discharge Specifications	<ul style="list-style-type: none"> Maximum daily discharge flow shall not exceed 67,000 gpd from August to October, and 28,000 gpd the rest of the year. 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. 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. BOD₅ loading rate shall not exceed 100 lbs/acre/day, or the maximum loading rate that environmental conditions permit at

Table 2-18. Summary of Key Del Rey Packing Dehydrator Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
	<p>the time of application without violation of other terms of this Order, whichever is less.</p> <ul style="list-style-type: none"> • 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.
Groundwater Limitations	<ul style="list-style-type: none"> • The discharge, in combination with other sources, shall not cause underlying groundwater to contain waste constituents in concentrations greater than background water quality.
Monitoring & Reporting	<ul style="list-style-type: none"> • Effluent monitoring includes total nitrogen and nitrate. • Groundwater monitoring includes nitrate. • Soil monitoring includes nitrate nitrogen, TKN and total nitrogen. • Supply water monitoring includes nitrate. • Irrigation water monitoring includes nitrate.

2.4.3.7. 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 BOD₅ 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 2-19 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-19. Summary of Del Rey WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Discharge of wastes to surface water drainage courses is prohibited.
Discharge Specifications	<ul style="list-style-type: none"> Monthly average daily dry weather flow shall not exceed 0.30 million gallons. 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. 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. 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.
Groundwater Limitations	<ul style="list-style-type: none"> The discharge, in combination with other sources, shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than background water quality.
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring includes nitrate and total nitrogen. Groundwater monitoring includes nitrate. Source water monitoring includes nitrate.

2.4.3.8. Delft Colony WWTF

Facility Description (CV-SALTS ID: 1955)

The Delft Colony WWTF was issued discharge permit 88-097 in 1988 in anticipation of the construction of new wastewater treatment and disposal facilities. The treatment facility would be constructed immediately south of the Delft Colony service area at approximately Road 56 and Avenue 394 in Tulare County. The beneficial uses of the underlying groundwater are MUN, AGR and industrial supply. The wastewater facility would consist of two facultative lagoons in parallel with disposal by two evaporation/percolation ponds. The facility would treat and discharge an average flow of 42,700 gpd.

Nitrate Management Requirements

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

Table 2-20 Summary of Delft Colony WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Discharge of wastes to surface water drainage courses is prohibited.
Discharge Specifications	<ul style="list-style-type: none"> Neither the treatment nor the discharge shall cause a pollution or nuisance as defined by the California Water Code, Section 13050. Discharge shall not cause degradation of any water supply. 30-day average daily dry weather discharge flow shall not exceed 0.572 mgd.
Monitoring & Reporting	<ul style="list-style-type: none"> No nitrogen-related constituents monitored.

2.4.3.9. Dinuba Packing Plant

Facility Description (CV-SALTS ID: 1964)

Dinuba Packing Plant is authorized to discharge wastewater from its citrus packing facility under WDR Order 97-129 (issued to Gillette Citrus Company). The facility is located at 10175 Anchor, Dinuba, CA 93618. The underlying groundwater beneficial uses are MUN, AGR and industrial service supply.

From September to June each year, the facility discharge an estimated 0.01 mgd of wastewater from its washing and packing operations to a 0.3-acre, 12-foot deep evaporation/percolation pond, adjacent to the facility. No discharge occurs in July and August. Wastewater, generated from washing and packing operation, is collected in a 36-inch diameter concrete sump and pumped via a 4-inch diameter PVC pipeline to the disposal pond.

Nutrient Management Requirements

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

Table 2-21. Summary of Dinuba Packing Plant WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> • Following discharges are prohibited: <ul style="list-style-type: none"> ○ Wastes to surface waters or surface water drainage courses ○ Wastes the other than citrus packing operations wastewater ○ Overflow of untreated or partially treated waste ○ Waste classified as “hazardous” or “designated” as defined by California Title 23 regulations
Discharge Specifications	<ul style="list-style-type: none"> • Daily flow shall not exceed 0.01 mgd.
Groundwater Limitations	<ul style="list-style-type: none"> • 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.
Monitoring & Reporting	<ul style="list-style-type: none"> • Effluent monitoring that includes TKN and nitrate (as N).

2.4.3.10. 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 2-22 summarizes the nitrate management-related requirements in this facility’s WDR.

Table 2-22. Summary of the City of Dinuba WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Discharge of waste to surface waters or surface water drainage courses is prohibited.
Discharge Specifications	<ul style="list-style-type: none"> Monthly average dry weather discharge flow shall not exceed 3.0 mgd. 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. 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 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"> 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.")
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring includes nitrate and TKN. Groundwater monitoring includes nitrate. Source water monitoring includes nitrate.

2.4.3.11. 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.

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 2-23 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-23. Summary of Key E. & J. Gallo Winery WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Discharge of wastes to surface waters or surface water drainage courses is prohibited.
Effluent Limitations and Discharge Specifications	<ul style="list-style-type: none"> Discharge of wastewater from all sources to the LAAs shall not exceed an annual flow of 54.2 million gallons. 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.
Land Application Area	<ul style="list-style-type: none"> Wastewater is discharged to all LAAs 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 < 500 lbs/acre/year (typically < 300 lbs/acre/year). Two LAAs (2 and 3) are vineyards. Total nitrogen loadings are < 150 lbs/acre/year (typically < 100 lbs/acre/year). BOD daily average cycle loading shall not exceed 250 lbs./acre/day.
Groundwater Limitations	<ul style="list-style-type: none"> 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.
Management Plans	<ul style="list-style-type: none"> The facility implements a Nutrient Management Plan that includes procedures for monitoring the LAAs 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.
Monitoring & Reporting	<ul style="list-style-type: none"> The winery submits quarterly WDR reports to the CVWB.

Table 2-23. Summary of Key E. & J. Gallo Winery WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
	<ul style="list-style-type: none"> Monitoring occurs at varying frequencies for nitrogen-related constituents in the following: groundwater, wastewater (influent and effluent), source water and soil.

2.4.3.12. 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 2-24 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-24. Summary of Key East Orosi Packing House WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Discharge Specifications	<ul style="list-style-type: none"> Discharge shall not cause degradation of any water supply 30-day average daily dry weather discharge flow shall not exceed 0.03 million gallons.
Monitoring & Reporting	<ul style="list-style-type: none"> Monitoring of effluent limited to EC and dissolved oxygen.

2.4.3.13. 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 2-25 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-25. Summary of Key Fig Garden Packing Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Discharge Specifications	<ul style="list-style-type: none"> 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. 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. 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.
Groundwater Limitations	<ul style="list-style-type: none"> Discharge, in combination with other sources, shall not cause underlying ground water to: <ul style="list-style-type: none"> Contain waste constituents in concentrations statistically greater than receiving water limits, where specified below, or background water quality where not specified; 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; 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 Contain concentrations of chemical constituents in amounts that adversely affect agricultural use.

Table 2-25. Summary of Key Fig Garden Packing Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Management Plans	<ul style="list-style-type: none"> 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.
Monitoring & Reporting	<ul style="list-style-type: none"> Disposal/reclamation site monitoring that includes nitrate nitrogen, TKN and total nitrogen.

2.4.3.14. 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.

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

Table 2-26. Summary of Key Four Bar C Farms WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Discharge and Disposal Area Specifications	<ul style="list-style-type: none"> 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. Maximum daily BOD₅ 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. 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. 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).
Groundwater Limitations	<ul style="list-style-type: none"> 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.
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring includes nitrate, TKN, ammonia nitrogen and total nitrogen. Disposal area and wastewater application monitoring: Flow (wastewater and irrigation water), area applied, hydraulic loading rate, BOD₅ loading rate, total nitrogen loading rate, fertilizer loading rate. Disposal area soil monitoring includes nitrate, TKN and total nitrogen. Solids disposal area monitoring includes BOD₅ loading rate, total nitrogen loading rate and fertilizer loading rate. Groundwater monitoring includes nitrate.

2.4.3.15. 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 2-27 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-27. 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"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Discharge and Disposal Area Specifications	<ul style="list-style-type: none"> Discharge to the disposal ponds shall not exceed 70,000 gpd.
Monitoring & Reporting	<ul style="list-style-type: none"> Monitoring (per permit required frequencies) limit to effluent and source water; no monitoring required for nitrogen-related constituents.

2.4.3.16. Fowler 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.

2.4.3.17. Fresno County #44-D Monte Verdi Estates WWTF

Facility Description (CV-SALTS ID: 1751 and 3589)

Fresno County was originally authorized to discharge domestic wastewater from the Fresno County #44-D Monte Verdi 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 original 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.

Order No. 92-203 was rescinded in June 2021. Prior to this rescission the facility was issued a Notice of Applicability (NOA) under State Water Board Water Quality Order 2014-0153-DWQ-R5344 (General WDR for Small Domestic Wastewater Treatment Systems). The NOA became effective upon rescission of the original WDR 92-203. This facility has also been issued an NOA under State Water Board Water Quality Order 2016-0068-DDW which establishes water reclamation requirements for recycled water use.

Nutrient Management Requirements

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

Table 2-28. Summary of Monte Verdi Estates WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> • Direct or indirect discharge of any wastewater to surface waters or surface water drainage courses is prohibited. • The treatment, storage, and/or disposal of waste in or at the wastewater system shall not cause or contribute to a condition of pollution, contamination, or nuisance as defined in Water Code section 13050. • The discharge of waste in violation of, or not consistent with, the applicable Regional Water Board's Basin Plan is prohibited.
Effluent Limitations	<ul style="list-style-type: none"> • In accordance with Section B.1.a of the General Order, the treated wastewater discharged to either the use areas or leachfield shall not exceed a 39,000 gpd as a monthly average. In addition, the discharge of treated wastewater to the leachfield shall not exceed 32,500 gpd as a monthly average. • Percent reduction of total nitrogen = annual average of 50% (represents the minimum percent reduction compared to the untreated wastewater value. In no case shall the reduction result in an effluent limit lower than 10 mg/L total nitrogen.
Monitoring & Reporting	<ul style="list-style-type: none"> • Influent monitoring includes monthly grab for total nitrogen • Effluent monitoring of flow distributed to use area or leachfield includes monthly grab for total nitrogen.

2.4.3.18. 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 1×10^{-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 2-29 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-29. 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"> Discharge of recycled water to surface waters or surface water drainage courses other than the 57-acre lake is prohibited Discharge of untreated or partially treated wastewater to the LAAs is prohibited.
Discharge Specifications	<ul style="list-style-type: none"> The monthly average discharge shall not exceed 0.160 mgd.
Land Application Area	<ul style="list-style-type: none"> Use of recycled water shall be limited to landscape and the above described Lake at Quail Lake Estates. Application of recycled water to the landscape area shall not exceed what is reasonably necessary for the grass, soil, climate and management system.

Table 2-29. Summary of Fresno County #47 Quail Lake WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Groundwater Limitations	<ul style="list-style-type: none"> 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.
Monitoring & Reporting	<ul style="list-style-type: none"> None related to nitrogen-related constituents.

2.4.3.19. 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 2-30 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-30. Summary of Fresno County Juvenile Justice WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> • Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Effluent Limitations	<ul style="list-style-type: none"> • 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.
Discharge Specifications	<ul style="list-style-type: none"> • Wastewater treatment and use of recycled water shall not cause pollution or a nuisance as defined by §13050 of the California Water Code. • 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.

Table 2-30. Summary of Fresno County Juvenile Justice WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Groundwater Limitations	<ul style="list-style-type: none"> Containing constituents concentrations in excess of the concentrations specified below or natural background quality, whichever is greater: <ul style="list-style-type: none"> Nitrate as nitrogen of 10 mg/L. For constituents identified in Title 22, the MCLs quantified therein.
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring includes nitrate (as N), ammonia (as N), TKN and total nitrogen. Groundwater monitoring includes nitrate (as N), ammonia (as N) and total nitrogen.

2.4.3.20. Gerawan Farms Plant 3

Facility Description (CV-SALTS ID: 3035)

Gerawan Farming, Inc. is authorized to discharge wastewater from its Plant 3 Kerman Fruit Packing Facility under WDR Order R5-2020-0032. The facility is located at 14044 West Central Avenue, Kerman, CA 93630. Per the Basin Plan, beneficial uses of underlying groundwater at the Facility and LAA are as follows: MUN; AGR; IND, PRO, REC-1, and WILD.

The facility packs whole peaches, plums, and nectarines and wastewater is diverted to a 6-million-gallon capacity, unlined evaporation/percolation pond constructed below grade with a 24-inch above grade earthen berm around the edges of the pond. The packing process includes washing, sorting, and grading the fruit and packing occurs from about early May through late September or approximately 130 days. The amount of water used varies from about 14,000 to 130,000 gpd with an estimated average of 90,000 gpd or 11.7 million gallons per year. LAA is an option for implementation if specifications in permit met.

Nutrient Management Requirements

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

Table 2-31. Summary of Gerawan Farms Plant 3 WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Flow Limitations	<ul style="list-style-type: none"> Process wastewater discharged to the evaporation/percolation pond shall not exceed the following: (a) an annual discharge of 12.35 million gallons, or; (b) maximum daily flow of 130,000 gpd.
Discharge Specifications	<ul style="list-style-type: none"> 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. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050. The discharge shall remain within the permitted wastewater pond, conveyance structures, and the LAA (if the Discharger begins reuse of the process wastewater for irrigation crops per WDR requirements) at all times.
Groundwater Limitations	<ul style="list-style-type: none"> Release of waste constituents from any treatment unit, storage unit, delivery system or disposal location associated with 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, including nitrate as nitrogen of 10 mg/L.
Land Application (if implemented)	<ul style="list-style-type: none"> 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 nutrients. BOD loading rate calculated as a cycle average and as an instantaneous load shall not exceed 50 lbs/acre/day and 150 lbs/acre/day, respectively. 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. 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.

Table 2-31. Summary of Gerawan Farms Plant 3 WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Monitoring & Reporting	<ul style="list-style-type: none"> Permit required development of a groundwater sample and analysis plan.

2.4.3.21. Gerawan Farms Plant 4

Facility Description (CV-SALTS ID: 3039)

Gerawan Farming, Inc. is authorized to discharge wastewater from its Plant 4 Sanger Fruit Packing Facility under WDR Order R5-2020-0041. The facility is located at 3023 South Reed Avenue, Sanger, CA 93657. The underlying groundwater beneficial uses are MUN, AGR, IND, PRO, REC-1 and WILD.

The facility packs whole peaches, plums and nectarines. Processed wastewater is diverted to a four million gallon capacity, unlined evaporation/percolation pond. Packing process includes washing, sorting and grading the fruit and packing occurs from about early May through late September. Amount of water used varies from about 14,000 to 130,000 gpd with an estimated average of 95,000 gpd.

Nutrient Management Requirements

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

Table 2-32. Summary of Gerawan Farms 4 WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Flow Limitations	<ul style="list-style-type: none"> Process wastewater discharged to the evaporation/percolation pond shall not exceed the following: (a) an annual discharge of 11.4 million gallons, or; (b) maximum daily flow of 130,000 gpd.
Discharge Specifications	<ul style="list-style-type: none"> 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. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.

Table 2-32. Summary of Gerawan Farms 4 WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
	<ul style="list-style-type: none"> The discharge shall remain within the permitted wastewater pond, conveyance structures, and the LAA (if the Discharger begins reuse of the process wastewater for irrigation crops per WDR requirements) at all times.
Groundwater Limitations	<ul style="list-style-type: none"> Release of waste constituents from any treatment unit, storage unit, delivery system or disposal location associated with 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, including nitrate as nitrogen of 10 mg/L.
Land Application (if implemented)	<ul style="list-style-type: none"> 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 nutrients BOD loading rate calculated as a cycle average and as an instantaneous load shall not exceed 50 lbs/acre/day and 150 lbs/acre/day, respectively. 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. 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.
Monitoring & Reporting	<ul style="list-style-type: none"> Permit required development of a groundwater sample and analysis plan.

2.4.3.22. 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.

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 2-33 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-33. Summary of Key GSV Cutler Winery WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Effluent and Mass Loading Limitations	<ul style="list-style-type: none"> Monthly average daily discharge flow is limited to 75,000 gpd with a maximum annual flow limit of 25 million gallons/year (mgd).
Land Application Area	<ul style="list-style-type: none"> Discharger shall grow crops within the LAAs. Crops shall be selected based on nutrient uptake, consumptive use of water, and irrigation requirements to maximize crop uptake of water and nutrients. The cycle average BOD loading rate shall not exceed 100 lbs/acre/day. Discharge shall be distributed uniformly on adequate acreage within the LAA to preclude creation of nuisance conditions or unreasonable degradation of groundwater. Hydraulic loading of wastewater and irrigation water to the LAA shall be at reasonable agronomic rates. 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.
Groundwater Limitations	<ul style="list-style-type: none"> 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"> Nitrate (as N) of 10 mg/L. For constituents identified in Title 22, the MCLs quantified therein.
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 LAA.</p>

Table 2-33. Summary of Key GSV Cutler Winery WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Monitoring & Reporting	<ul style="list-style-type: none"> • Effluent monitoring, including TKN and nitrate and nitrite (as N). • Source water monitoring that includes nitrate (as N). • Groundwater monitoring that includes nitrate and ammonia (as N). • 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.

2.4.3.23. 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.

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 2-34 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-34. Summary of Key GSV Fresno Winery WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Discharge of waste, including storm water containing waste, to surface waters or surface water drainage courses is prohibited.
Discharge Specifications	<ul style="list-style-type: none"> 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). 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.
Land Application Area	<ul style="list-style-type: none"> The discharger shall maximize the use of available LAAs to minimize waste constituent loading rates. 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). 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.
Groundwater Limitations	<ul style="list-style-type: none"> 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"> Nitrate (as N) of 10 mg/L. For constituents identified in Title 22, the MCLs quantified therein.
Management Plans	<p>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.</p>

Table 2-34. Summary of Key GSV Fresno Winery WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Monitoring & Reporting	<ul style="list-style-type: none"> • Effluent monitoring, including ammonia, TKN, nitrate (as N) and total nitrogen. • Groundwater monitoring that includes nitrate (as N), TKN and total nitrogen. • 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.

2.4.3.24. Harris Ranch Processing

Facility Description (CV-SALTS ID: 2114)

Harris Ranch Beef Company is authorized to discharge wastewater from its Selma Beef Processing Plant under WDR Order R5-2017-0021. The facility is located at 16277 McCall, Selma, CA 93662. The underlying groundwater beneficial uses are MUN, AGR, IND and PRO. The facility operates year round, processing an average of 800 to 900 cattle per day and up to 6,300 cattle per week. Facility also provides finish processing of deli pork (780,000 pounds annually) and turkey (4 million pounds annually), but those animals are not slaughtered on site.

Wastewater is generated from the beef processing and cleaning of the processing equipment. Wastewater is screened of solids using a bar screen prior to discharge to a sump for further settling and decomposition. Wastewater from the sump is routed through a shaker for additional solids removal, prior to being discharged to a 1.38 acre clay-lined facultative pond (West Pond). Wastewater is then discharged into two 1.38 acre unlined wastewater evaporation/percolation ponds (Middle and East Ponds). Wastewater from the East Pond is used to flood irrigate two LAAs comprising about 86 acres (74 and 12 acre areas). At the time of permit issuance, Harris Ranch proposed changes to its facility which would increase its nitrogen treatment capabilities for the effluent and add an additional 100 acres to the LAA.

Nutrient Management Requirements

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

Table 2-35. Summary of Harris Ranch Processing WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Effluent Limitations	<ul style="list-style-type: none"> Monthly average daily discharge shall not exceed 1.0 million gallons; average daily discharge shall be the average of the last 12-months of data. Demonstrate that the monthly average concentration of total nitrogen in the Harris Ranch discharge will be protective of the underlying groundwater, considering the crop, soil, climate and the irrigation management system in place.
Discharge Specifications	<ul style="list-style-type: none"> 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. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050. The discharge shall remain within the permitted waste treatment /containment structures and the LAA areas at all times.
Groundwater Limitations	<ul style="list-style-type: none"> Release of waste constituents from any treatment unit, delivery system, storage area or LAA associated with the Plant shall not cause or contribute to groundwater containing concentrations of constituents as follows: Contain nitrate as nitrogen in concentrations statistically greater than the upgradient groundwater quality as measured in the Harris Ranch upgradient groundwater monitoring well MW-2 (or as replaced with a new well).
Land Application (if implemented)	<ul style="list-style-type: none"> Crops shall be grown in the LAA. Crops shall be selected based on nutrient uptake, consumptive use of water, volume of the wastewater to be applied, available acreage and irrigation requirements to maximize crop uptake of waste constituents. Discharger shall ensure that water, BOD, and nitrogen are applied and distributed uniformly across each LAA field. Discharger shall implement changes to the irrigation system and/or operational practices as needed to ensure compliance with this requirement. Volume of wastewater applied to the LAA on any single day shall not exceed reasonable agronomic rates based on the vegetation grown, pre-discharge soil moisture conditions and weather conditions.

Table 2-35. Summary of Harris Ranch Processing WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
	<ul style="list-style-type: none"> Hydraulic loading of wastewater and supplemental irrigation water including precipitation shall be at reasonable agronomic rates designed to maximize crop nutrient uptake, maximize the breakdown of organic waste constituents in the root zone, and minimize percolation of waste constituents below the root zone.
Management Plan	<ul style="list-style-type: none"> Nutrient Management Plan for the LAAs that includes procedures for monitoring the LAAs 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 on 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.
Monitoring & Reporting	<ul style="list-style-type: none"> Influent monitoring prior to discharge to West Pond – monthly 24-hr composites of nitrite and nitrate (as N), ammonia nitrogen and total nitrogen. Effluent monitoring prior to discharge to LAA – monthly grab sample for nitrite and nitrate (as N), ammonia nitrogen and total nitrogen. Source water monitoring – semi-annual grab sample for nitrite and nitrate (as N), ammonia nitrogen and total nitrogen. Groundwater monitoring – quarterly for nitrite and nitrate (as N), ammonia nitrogen and total nitrogen. LAA – annual nitrate loading calculations from wastewater, fertilizers and supplemental irrigation water. Soil monitoring – annual for nitrate (as N) and TKN.

2.4.3.25. 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 2-36 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-36. Summary of Key Helm Fertilizer Plant WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Discharge of wastes to surface waters or surface water drainage courses is prohibited.
Discharge Specifications	<ul style="list-style-type: none"> Monthly average daily discharge shall not exceed 0.55 mgd and the maximum daily discharge shall not exceed 0.6 mgd.
Groundwater Limitations	<ul style="list-style-type: none"> The discharge, in combination with other sources, shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than background groundwater quality.
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring includes "general minerals."

2.4.3.26. 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 2-37 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-37. 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"> Discharge of wastewater, screenings, or sediment trap waste to surface waters or surface water drainage courses is prohibited.
Discharge Specifications	<ul style="list-style-type: none"> Discharge to the evaporation/percolation pond shall not exceed 25,000 gpd.
Groundwater Limitations	<ul style="list-style-type: none"> 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.
Monitoring & Reporting	<ul style="list-style-type: none"> None related to nitrate management.

2.4.3.27. H&R Facilities, LLC

Facility Description (CV-SALTS ID: 3616)

H&R Facilities is planning to construct a new citrus processing facility approximately one mile north of Centerville, CA. The facility will be accompanied by a proposed LAA and a process water storage pond (Process Water Pond). Fruit will be washed, packed, and stored in cold storage prior to shipping. Process water from citrus processing and equipment cleaning operations will be generated as a result of facility operations. As proposed, all process water from the facility will be sent to the Process Water Pond for storage and prior to land application. Water held in the Process Water Pond will be conveyed to the 40-ac LAA through a micro-sprinkler irrigation system. Citrus trees are currently planted on the LAA and will be maintained.

Nitrate Management Requirements

The WDR for this planned facility is still pending; accordingly, the nitrate-related management requirements are still in development.

2.4.3.28. 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.

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 2-38 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-38. Summary of Key Kerman WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Effluent Limitations and Discharge Specifications	<ul style="list-style-type: none"> 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.
Groundwater Limitations	<ul style="list-style-type: none"> 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"> Nitrate as nitrogen of 10 mg/L. For constituents identified in Title 22, the MCLs quantified therein.

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

2.4.3.29. 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 NOA the septic system has a projected volume of 10,182 gpd.

Nutrient Management Requirements

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

Table 2-39. 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"> • Prohibits the discharge of waste to surface waters and to surface water drainage courses. • Treatment and disposal of wastes at the facility shall not cause pollution, contamination or nuisance as defined in California Water Code 13050.
Discharge Specifications	<ul style="list-style-type: none"> • State Water Board General Order provides septic system specifications.
Groundwater Limitations	<ul style="list-style-type: none"> • The discharge shall not: <ul style="list-style-type: none"> ○ Pollute ground or surface waters. ○ Adversely affect beneficial uses or cause an exceedance of any applicable Basin Plan water quality objectives for ground or surface waters.

Table 2-39. Summary of Kings River Union Elementary School District WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Monitoring & Reporting	<ul style="list-style-type: none"> Annual report documenting the quantity and method of disposal of all solids (e.g., screenings and sludge) removed from the onsite system.

2.4.3.30. Lamanuzzi & Pantaleo Plant No. 1

Facility Description (CV-SALTS ID: 2384)

Lamanuzzi & Pantaleo, LLC is authorized to discharge wastewater from its Lamanuzzi & Pantaleo Dehydrator under WDR Order R5-2020-0002, Waiver of Waste Discharge Requirements for Small Food Processors, Wineries and Related Agricultural Processors within the Central Valley Region (Enrollee R5-2020-0002-0052). The facility is located at 3636 Grantland, Fresno, CA 93711. The underlying groundwater beneficial uses are MUN, AGR, IND and PRO.

Lamanuzzi & Pantaleo Plant No. 1 is a small grape dehydrating plant. the plant is currently not in operation and has not been in operation since 2014. Historically, the processing season has been from August through December. When operational, it is estimated that the Plant would process about 500 tons of grapes and generate approximately 500,000 to 550,000 gallons per year. Chemicals used during operation include sodium hydroxide and sodium hypochlorite. Wastewater generated at the Facility is collected in an above ground sump and passed through a 10-millimeter stainless steel screen prior to being discharged to a 5.5-acre disposal area. The disposal area consists of 16 irrigation checks. The discharge is manually rotated between the checks. It is estimated that about 0.05 dry tons of residual solids (grape stems) are produced at the Plant. The residual solids are stored in covered bins and hauled off-site for animal feed.

Nutrient Management Requirements

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

Table 2-40. Summary of Lamanuzzi & Pantaleo Plant No. 1 WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Specific Conditions	<ul style="list-style-type: none"> The discharge of waste to wetlands, surface waters or surface water drainage courses is prohibited. The discharge of waste classified as "hazardous" under Title 23 of the California Code of Regulations section 2521 or as "designated" under Water Code section 13173 is prohibited. The discharge shall not create or threaten to create a condition of pollution, contamination, or nuisance as defined by Water Code Section 13050.

Table 2-40. Summary of Lamanuzzi & Pantaleo Plant No. 1 WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Land Application	<ul style="list-style-type: none"> Plant shall comply with the following Tier 3 Waiver requirements applicable to land application of wastewater: <ul style="list-style-type: none"> Land application of up to 1,000,000 gallons of process wastewater per year for irrigation of landscaping or crops with a minimum of 1.0 acres of LAA per 100,000 gallons of wastewater. Land application of residual solids associated with generation of up to 1,000,000 gallons of process wastewater per year as a soil amendment for landscaped or cropped areas with a minimum of 1.0 acres of LAA per 100,000 gallons of wastewater. Wastewater shall be evenly applied across the entire LAA and shall be applied to cropland or landscaped areas at a rate consistent with the water needs of the crop or vegetation grown in the LAA 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). The discharger shall maintain and use at least one acre of cropland and/or landscaped area for each 100,000 gallons of wastewater and/or equivalent mass of residual solids applied to land each year. LAAs for wastewater and residual solids may have a combined use (for example, a one-acre LAA may receive 100,000 gallons of wastewater plus the associated residual solids per year, etc.). If residual solids are applied to land: <ul style="list-style-type: none"> Land application methods, rates, and management practices shall be in accordance with those proposed in the RWD unless the Discharger finds that specific changes are necessary to ensure continued compliance with the conditions of the Waiver. If residual solids that contain free liquids are applied to land, the Discharger shall ensure that all liquid is absorbed into the soil within 12 hours of application and that no liquid runs off the application area. Residual solids shall be applied to land at rates that do not exceed crop demand for plant nutrients based on the nutrient content of the solids, the nutrient requirements of the crops or other vegetation grown on the LAA, and the amount of other forms of fertilizer used. Residual solids shall be evenly applied across the entire LAA.
Monitoring & Reporting	<ul style="list-style-type: none"> An estimate of the total nitrogen loading to the LAA for the calendar year, with calculations showing the contribution from each nitrogen source in lb/ac/year.

2.4.3.31. Laton Wastewater Treatment Facility

Facility Description (CV-SALTS ID: 2717)

Laton Community Services District (CSD) is authorized to discharge from its wastewater treatment facility under WDR Order R5-2016-0079. The facility is located at 6331 Dewoody, Laton, CA 93242. The underlying groundwater beneficial uses are MUN, AGR, IND and PRO. The facility treats and disposes of domestic wastewater from the unincorporated community of Laton.

The WWTF features secondary treatment and consists of a wet well with a grinder, two lift pumps, an aeration basin, clarifier, six evaporation/percolation ponds, emergency basin, two concrete lined sludge drying beds, and surrounding bermed land owned by the District which has been utilized for discharge in the past during pond maintenance activities. In 2016, two additional evaporation/percolation ponds were constructed.

Nutrient Management Requirements

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

Table 2-41. Summary of Laton WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Discharge Specifications	<ul style="list-style-type: none"> Monthly average dry weather discharge flow shall not exceed 0.2 mgd. 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. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.
Groundwater Limitations	<ul style="list-style-type: none"> 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 in excess of natural background quality, whichever is greater, including nitrate as nitrogen of 10 mg/L.
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring includes monthly 8-hour composites of nitrate (as N), ammonia nitrate and total nitrogen.

2.4.3.32. Lion Raisins Selma Plant

Facility Description (CV-SALTS ID: 2473)

Lion Raisins is authorized to discharge wastewater from the Selma Raisin Packing Facility under WDR Order R5-2018-0064. The facility is located at 9500 South DeWolf Avenue, Selma, CA 93662. The underlying groundwater beneficial uses are MUN, AGR, IND and PRO.

Lion Raisins operates a dehydrator plant and a packing plant at the site. The dehydrator plant operates between mid-August and mid-October and discharges only to the Selma-Kingsburg-Fowler Wastewater Treatment Facility (SKF-WWTF). The packing plant generally operates all year and discharges to both the SKF-WWTF and to an onsite LAA. The Facility generates wastewater by washing raisins, equipment, and floors with supply water from two on-site wells. Through an arrangement with SKF-WWTF, 20 percent of the packing plant wastewater and 100 percent of the dehydrator plant wastewater are discharged into the SKF-WWTF, while 80 percent of the packing plant wastewater is discharged to the LAA via a sprinkler system. The LAA includes 57 acres of land to the south and southeast of the processing facilities. Typically, Lion Raisins grows a winter and summer crop on the fields.

Nutrient Management Requirements

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

Table 2-42. Summary of Lion Raisins Selma Plant WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Following discharges are prohibited: <ul style="list-style-type: none"> Wastes to surface waters or surface water drainage courses; Discharge of wastewater from the dehydrator plant to the LAA.
Flow Limitations	<ul style="list-style-type: none"> Wastewater discharged to the LAA shall not exceed a maximum daily flow of 360,000 gpd or a total annual flow of 37 million gallons.
Discharge Specifications	<ul style="list-style-type: none"> No waste constituent shall be released, discharged, or placed where it will cause a violation of the Groundwater Limitations of this Order. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050. The discharge shall remain within the permitted wastewater treatment/containment structures and LAA at all times.

Table 2-42. Summary of Lion Raisins Selma Plant WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Groundwater Limitations	<ul style="list-style-type: none"> Release of waste constituents from any treatment unit, storage unit, delivery system or LAA associated with 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, including nitrate as nitrogen of 10 mg/L.
Land Application	<ul style="list-style-type: none"> Crops or other vegetation which may include pasture grasses, native grasses, trees, and/or ornamental landscaping, shall be grown in the LAA. Vegetation shall be selected based on nutrient uptake, consumptive use of water, and irrigation requirements to maximize crop uptake of nutrients. Cycle average BOD₅ loading rate shall not exceed 100 lbs/acre/day to the LAA. The maximum BOD₅ loading to the designated disposal area shall not exceed 300 lbs/acre on any one day. 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.
Management Plan	<ul style="list-style-type: none"> Wastewater and Nutrient Management Plan – Objective of the Plan is to demonstrate that wastewater loading will occur at reasonable agronomic rates that will preclude degradation of groundwater that will exceed water quality objectives and adversely affect beneficial uses. Plan will include: (a) procedures for monitoring facility operations and discharge; (b) measures to ensure even application of wastewater; (c) an action plan to deal with objectionable odors and/or nuisance conditions; (d) discussion on blending of wastewater and supplemental irrigation water; (e) supporting data and calculations on monthly and annual water and nutrient balances; and (f) management practices that will ensure wastewater, irrigation water and fertilizers are applied at agronomic rates to the LAA.
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring – twice monthly 24-hour composite sample for nitrate (as N), ammonia (as N), TKN and total nitrogen. Source water monitoring – quarterly sample for nitrate (as N), TKN and total nitrogen.

Table 2-42. Summary of Lion Raisins Selma Plant WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
	<ul style="list-style-type: none"> Groundwater monitoring – quarterly for nitrate (as N), TKN and total nitrogen. LAA – annual nitrate loading calculations from wastewater, fertilizers and supplemental irrigation water.

2.4.3.33. London Wastewater Treatment Facility

Facility Description (CV-SALTS ID: 2720)

London CSD is authorized to discharge wastewater from its wastewater treatment facility under WDR Order R5-2017-0109. The facility is located at the corner of Road 60 and Avenue 376, Dinuba, CA 93618. The underlying groundwater beneficial uses are MUN, AGR, IND and PRO. The facility treats and disposes of domestic wastewater from the unincorporated community of London.

The WWTF now consists of a headworks, five aeration ponds and nine evaporation/percolation ponds with no reclamation. The aeration ponds are operated in series. The WWTF has the flexibility of running one of two treatment trains at all times and can alternate between the two treatment trains for maintenance. One treatment train consists of aeration ponds 1, 3, and 4 while the second treatment train consists of aeration pond 2, 3, and 5. Typically, effluent samples are collected at the end of aeration pond 4 or 5 depending on which treatment train is running and before the wastewater goes into the evaporation/percolation ponds.

Nutrient Management Requirements

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

Table 2-43. Summary of London WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Flow Limitations	<ul style="list-style-type: none"> Monthly average dry weather flow shall not exceed 0.30 mgd.
Discharge Specifications	<ul style="list-style-type: none"> No waste constituent shall be released, discharged, or placed where it will cause violation of Groundwater Limitations of this Order. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.

Table 2-43. Summary of London WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Groundwater Limitations	<ul style="list-style-type: none"> 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 in excess of natural background quality, whichever is greater, including nitrate as nitrogen of 10 mg/L.
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring includes quarterly grabs for nitrite (as N), nitrate (as N), ammonia (as N), TKN and total nitrogen.

2.4.3.34. 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.

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 2-44 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-44. Summary of Key Malaga CWD WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Effluent Limitations and Discharge Specifications	<ul style="list-style-type: none"> No waste constituent shall be released, discharged, or placed where it will cause a violation of Groundwater Limitations of this Order.
Groundwater Limitations	<ul style="list-style-type: none"> 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"> Nitrate (as N) of 10 mg/L. For constituents identified in Title 22, the MCLs quantified therein.

Table 2-44. Summary of Key Malaga CWD WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Monitoring & Reporting	<ul style="list-style-type: none"> • Effluent monitoring includes nitrate nitrogen, TKN, and ammonia nitrogen, total nitrogen. • Groundwater monitoring includes nitrate nitrogen, TKN, total ammonia (as N) and total nitrogen. • Source water monitoring includes nitrate (as N).

2.4.3.35. McCall Winery

Facility Description (CV-SALTS ID: 2309)

McCall Winery is authorized to discharge under WDR Order R5-1993-098. This facility is located at 1042 McCall Avenue, Sanger, CA 93657. 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 2-45 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-45. Summary of Key McCall Wineries and Distilleries WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> • Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Discharge Specification	<ul style="list-style-type: none"> • Annual seasonal discharge limit: 55 mgd. • 30-day average discharge limit of 0.165 mgd. • Per season limits on the depth (inches of wastewater) applied to LAAs and length of drying periods.
Land Application Area	<ul style="list-style-type: none"> • 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.

Table 2-45. Summary of Key McCall Wineries and Distilleries WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Groundwater Limitations	<ul style="list-style-type: none"> 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.
Monitoring & Reporting	<ul style="list-style-type: none"> The winery submits monthly WDR reports to the Central Valley Water Board. Groundwater monitoring occurs annually. Wastewater monitoring occurs throughout the year.

2.4.3.36. National Raisin Plant

Facility Description (CV-SALTS ID: 2312)

Sunshine Raisin Corporation (dba National Raisin Company) is authorized to discharge wastewater from its Fowler Raisin and Prune Processing Plant under WDR Order R5-00-045. The facility is located at 626 Fifth, Fowler, CA 93625. The underlying groundwater beneficial uses are MUN, AGR and industrial supply.

The City of Fowler provides the Plant's source water for cleaning fruit and washing down equipment. Processing wastewater is passed through a rotating slotted drum screen, a vibrating screen and centrifugal solids separator prior to discharge to the SKF-WWTF. In its 2000 WDR, the discharger proposed to dispose of the process wastewater by applying it to 245 acres of farmland. Disposal methods would include: (1) sprinkler irrigation of fodder crops; (2) furrow irrigation of vineyard; and (3) application by water truck to field roads within the designated disposal area for dust control. When irrigation requirements are lowest (typically during winter months), wastewater will be discharged to the SKF-WWTF to reduce the hydraulic and waste loading to disposal area soils. Organic solids screened from the wastewater will be recycled in cattle feed or delivered offsite to a local distillery; sand screened from the wastewater will be spread on disposal area soils.

Nutrient Management Requirements

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

Table 2-46. Summary of National Raisin Plant WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Discharge Specifications	<ul style="list-style-type: none"> Maximum workday and monthly average workday discharge to the designated disposal area shall not exceed 130,000 gallons and 78,000 gallons, respectively. Wastewater application to the designated disposal areas shall be at reasonable rates to preclude creation of a nuisance and degradation of groundwater, 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 wastewater, shall not exceed the crop demand. Maximum BOD₅ loading rate to the designated disposal area shall not exceed 300 lbs/acre on any one day, 100 lbs/acre/day as determined by a weekly average of daily BOD₅ loadings 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.
Groundwater Limitations	<ul style="list-style-type: none"> Discharge shall not cause groundwater underlying the disposal areas outside of the designated points of compliance to contain waste constituents in concentrations statistically greater than background water quality, except as measurable by conductivity. The statistical measurable incremental increase in conductivity over any five-year period shall not exceed 20 µmhos/cm.
Land Application	<ul style="list-style-type: none"> When applied, wastewater shall be distributed uniformly on enough acreage to comply with discharge specifications. Furrows shall be designed, constructed and maintained and operated according to the following: <ul style="list-style-type: none"> Furrows will have adequate capacity to handle the combination of wastewater and irrigation water. Furrows will be no longer and slopes shall be no greater than what permits reasonably uniform and maximum practical irrigation efficiency. Furrows will be disked or tilled whenever necessary to maintain aerobic conditions and design infiltrative capacity.

Table 2-46. Summary of National Raisin Plant WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Management Plans and Reports	<ul style="list-style-type: none"> Annual Disposal Area Management Report that includes the following: <ul style="list-style-type: none"> Type of crops of planted, days when crops were harvested and crop nitrogen content (if determined). Amount of fertilizers applied (i.e., quantity of nitrogen and phosphorus applied on a per acre basis), the time of application and the areal extent of the application. Monthly and annual discharge volumes during the previous year to each of the six fields comprising the designated disposal area and to roads within the designated area for dust control. Past year's average and maximum hydraulic and BOD₅ loading rates to the six fields comprising the designated disposal area.
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring – twice monthly 8-hour composite sample for nitrate (as N), ammonia (as N), TKN and total nitrogen. Source water monitoring – annually for nitrate (as N). Groundwater monitoring – quarterly for nitrate (as N). LAA – daily fertilizer loading rates. Soils monitoring – Semi-annual for nitrate (as N), TKN and total nitrogen.

2.4.3.37. A. Nonini Winery

Facility Description (CV-SALTS ID: 2612)

A. Nonini Winery is authorized to discharge winery wash water from its facility to dry wells and land under WDR Order 94-225. The facility is located at 2640 North Dickenson Avenue, Fresno, CA 93723. The underlying groundwater beneficial uses are MUN, AGR and industrial supply.

The facility discharges a maximum of 500 gpd, seven days per week, of winery wash water to a series of seven 30-foot deep dry wells. Wash water flows average 250-500 gpd during a three-week crush season between mid-August and mid-October and less than 120 gpd during the remainder of the year. Wash water generated from the washing of crushing equipment, fermentation tanks, and pumice presses ("fermentation water") flows to a sump at the north end of the facility (hereafter referred to as fermentation sump) from which it gravity drains to five 30-foot deep dry wells. Wash water generated from rinsing diatomaceous earth filters, bottles, bottling equipment, and finish tanks ("polish water") flows to a different sump, at the west side of the facility (hereafter referred to as finishing sump) and is discharged into two 30-

foot deep dry wells. Occasionally, when the discharge exceeds the capacity of the dry wells, wastewater is pumped into a portable storage tank, from which it is sprayed onto a quarter-mile section of dirt road on winery property for dust control. Settled solids generated from washing finishing tanks are pumped directly to the portable storage tank and sprayed on the same section of road. Grape press solids consisting of grape skins and stems are placed in a manure spreader and spread throughout facility-owned vineyards.

Nutrient Management Requirements

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

Table 2-47. Summary of A. Nonini Winery WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Discharge Specifications	<ul style="list-style-type: none"> Monthly average daily crush-season discharge shall not exceed 500 gpd from August 15 through October 15 and the monthly average daily off-season flow shall not exceed 200 gpd from October 16 through August 14.
Groundwater Limitations	<ul style="list-style-type: none"> Discharge, in combination with other sources, shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than receiving water limits, where specified in the Order, or background water quality where not specified.
Land Application (Reclamation Areas)	<ul style="list-style-type: none"> Application of wastewater to any 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 of the reclaimed water shall not exceed the crop demand. Waste application rates for any reclamation areas shall not exceed the environmental conditions at the site or 100 lbs BOD/ac/day.
Monitoring & Reporting	<ul style="list-style-type: none"> No nitrate-related monitoring within the Order.

2.4.3.38. 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 2-48 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-48. Summary of O'Neill Vintners Reedley Winery WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Discharge of waste, including storm water containing waste, to surface waters or surface . water drainage courses is prohibited.
Discharge Specification and Flow Limitations	<ul style="list-style-type: none"> Discharge to the LAAs shall not exceed a monthly average daily flow of 0.61.mgd or an annual flow of 80 mgy. 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. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.
Land Application Area	<ul style="list-style-type: none"> 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. 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). 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

Table 2-48. Summary of O'Neill Vintners Reedley Winery WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
	<p>this Order, considering crop, soil, climate, and irrigation management.</p> <ul style="list-style-type: none"> The Discharger shall maximize the use of available LAAs to minimize waste constituent loading rates.
Groundwater Limitations	<ul style="list-style-type: none"> 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.
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>
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring includes nitrate, nitrite and ammonia (as N), TKN. Source water monitoring includes nitrate (as N). 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. Groundwater monitoring includes nitrate, nitrite, and ammonia (as N) and total nitrogen.

2.4.3.39. Orange Cove Wastewater Treatment Facility

Facility Description (CV-SALTS ID: 2676)

City of Orange Cove is authorized to discharge treated wastewater from its treatment facility under WDR Order 2004-0008. The facility is located at City of Orange Cove, 1805 Monson Avenue, Orange Cove, CA 93646. The underlying groundwater beneficial uses are MUN, AGR, IND and PRO.

The City of Orange Cove owns and operates a wastewater collection and WWTF that provides sewage service to its residents. At the time of the issuance of its WDR, the WWTF consisted of a

headworks, five aeration ponds (in series) with an overflow pond, a sludge settling pond, a flocculation tank, micro-screens, two traveling bridge filters (parallel), a chlorination system, three spillage containment ponds (series), and four evaporation/percolation ponds (storage ponds 1 through 4). A portion of the effluent from the storage ponds was discharged via pipeline to the Orange Cove Irrigation District for unrestricted use.

As part of its Report of Waste Discharge (ROWD) the City submitted its plans to make improvements to and expand the WWTF. The plan included increasing the discharge flow to a monthly dry weather daily average of 2 mgd, a monthly wet weather daily average of 3 mgd, and an annual daily average of 2.3 mgd. The proposed expansion project would consist of a new headworks, conversion of the existing first two aerated ponds to a new extended aeration activated sludge process, aerobic sludge treatment, sludge drying beds, an effluent storage pond and water recycling use area. The expected outcome would be an effluent containing concentrations of BOD₅, TSS, and total nitrogen of 10 mg/L or less each. The City also proposed improving the existing tertiary treatment portion of the WWTF to increase its treatment capacity until the City could purchase sufficient land (total of 425 acres) to bypass the tertiary facility altogether. Eventually 100 percent of the effluent would be recycled onto City-owned property planted in alfalfa.

Nutrient Management Requirements

Table 2-49 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-49. Summary of City of Orange Cove WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Discharge Specifications	<ul style="list-style-type: none"> Monthly average daily dry weather flow shall not exceed 0.9 mgd until appropriate provisions within the permit related to the proposed expansion are satisfied. Permitted monthly average dry weather flow may increase to 1.1 or up to 2.0 mgd depending on the provisions satisfied; Permitted monthly average wet weather flow may range from 2.2 to 3.0 depending on the provisions satisfied. Effluent discharged to storage ponds shall not exceed a monthly average of 10 mg/L or a daily maximum of 15 mg/L (effective on satisfaction of completion of specified provisions). 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.
Groundwater Limitations	<ul style="list-style-type: none"> Release of waste constituents from any storage, treatment or disposal component associated with the WWTF shall not, in combination with other sources of waste constituents, cause groundwater within influence of the WWTF and discharge area(s) to contain waste constituents in concentrations in excess of natural background or that listed in permit, whichever is greater, including total nitrogen of 10 mg/L.
Land Application (Recycling Specifications)	<ul style="list-style-type: none"> Recycled water shall remain within the permitted Use Area. Use of recycled water shall be limited to flood irrigation of fodder, fiber, seed crops, and of crops that undergo extensive commercial, physical, or chemical processing before human consumption. Application of wastewater and commercial fertilizer to use areas shall be at reasonable agronomic rates considering the crop, soil, climate, and irrigation management system in accordance with the use area management plan required under the Order; the annual nutrient loading of use areas, including the nutritive value of organic and chemical fertilizers and of the recycled water shall not exceed the crop demand.
Monitoring & Reporting	<ul style="list-style-type: none"> Secondary effluent monitoring – once/week, 24-hour composite sample for nitrate (as N), ammonia (as N), TKN, total organic nitrogen (as N) and total nitrogen. Groundwater monitoring – quarterly for nitrate (as N), TKN, ammonia and ammonium ion as NH_4 and total nitrogen.

Table 2-49. Summary of City of Orange Cove WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
	<ul style="list-style-type: none"> City Use Area monitoring – quarterly reporting on type of crop(s) irrigated, applications of water and/recycled water (in acre/feet), and chemical and/or organic fertilizers (in pounds of nitrogen/acre).

2.4.3.40. Parlier Wastewater Treatment Facility

Facility Description (CV-SALTS ID: 2677)

The City of Parlier is authorized to discharge treated wastewater from its treatment facility under WDR Order 95-103. The facility is located at 1101 East Parlier Avenue, Parlier, CA 93648. The underlying groundwater beneficial uses are MUN, AGR and industrial supply.

At the time of issuance of the Order the City of Parlier was (a) increasing the size of its West WWTF to increase the design flow capacity from 1.0 to 2.0 mgd; (b) abandoning its East WWTF and redirecting flow from the East WWTF to the West WWTF; and (c) acquiring additional acreage for reclamation disposal. The expanded West WWTF will consist of four aerated lagoons, an oxidation lagoon, six evaporation/percolation lagoons, two sludge beds, a sludge storage area and a 46.7 acre reclamation area. At the time, the reclamation area was irrigated grape vineyards and plum orchards.

Nutrient Management Requirements

Table 2-50 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-50. Summary of City of Parlier WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Discharge Specifications	<ul style="list-style-type: none"> Monthly average dry weather flow (May through October) shall not exceed 2.0 mgd.
Groundwater Limitations	<ul style="list-style-type: none"> Discharge, in combination with other sources, shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than receiving water limits, where specified in the Order, or background water quality where not specified.
Land Application (Reclamation Specifications)	<ul style="list-style-type: none"> Use of reclaimed water shall be limited to flood irrigation of fodder, fiber, seed crops for nonhuman consumption, wine or table grapes, and orchards where no fruit is harvested that has come in contact with the reclaimed water or the irrigated ground. Practice of drying raisins on paper on the ground in the reclamation area is not acceptable unless approved in writing by the Department of Health Services.
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring – Quarterly grab sample for nitrate (as N). Groundwater monitoring – quarterly for nitrate (as N). Annual Land Management Report – Present a mass balance relative to pollutants of concern and hydraulic loading. Report should discuss total water application over the season; the total wastewater applied; the total nutrient loading from wastewater, sludges and chemical fertilizers; and amount of nutrients removed through harvest of the crop.

2.4.3.41. 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 2-51 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-51. Summary of Key POM Wonderful LLC WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Discharge Specifications	<ul style="list-style-type: none"> 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.
Land Application	<ul style="list-style-type: none"> 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. 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. 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). The BOD loading to the LAA calculated as a cycle average shall not exceed 100 pounds per day per acre.
Groundwater Limitations	<ul style="list-style-type: none"> 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"> Nitrate (as N) of 10 mg/L. For constituents identified in Title 22, the MCLs quantified therein.
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring includes TKN and total nitrogen. Groundwater monitoring includes nitrate nitrogen, TKN and total nitrogen.

Table 2-51. Summary of Key POM Wonderful LLC WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
	<ul style="list-style-type: none"> 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.

2.4.3.42. Riverdale Wastewater Treatment Facility

Facility Description (CV-SALTS ID: 2725)

Riverdale Public Utilities District (PUD) is authorized to discharge treated wastewater from its treatment facility under WDR Order R5-2018-0028. Riverdale PUD is located 20896 Malsbary, Riverdale, CA 93656; the WWTF is located about a mile north of the Community of Riverdale, northeast of the intersection of South Brawley and West Harlan Avenues. The underlying groundwater beneficial uses are MUN, AGR, IND and PRO.

At the time of issuance of the Order the existing WWTF was described as follows: Aerated lagoon system designed to remove BOD and TSS. Raw wastewater enters at the headworks where it passes through a comminutor, prior to being discharged to an unlined complete-mix aerated lagoon. From the complete-mix aerated lagoon, the effluent is discharged to one of six unlined oxidation lagoons where the effluent percolates into the underlying soil/substrate and/or evaporates. Influent flows are primarily from residential users, but there are some commercial and institutional connections.

To accommodate estimated growth over the next 20 years, Riverdale PUD plans to upgrade the WWTF in two phases to increase the treatment capacity of the to 0.325 mgd. The first phase will increase disposal capacity to 0.275 mgd and the second phase would increase the disposal capacity to 0.325 mgd in about ten years. The actual percolation capacity of the proposed effluent storage ponds will be evaluated and may require the need for additional effluent storage ponds to achieve the 0.325 mgd disposal capacity of Phase 2. To accommodate the proposed upgrade/expansion of the WWTF, PUD purchased a 40-acre parcel, which is west and directly adjacent the existing WWTF. Approximately 33 acres of the 40-acre land parcel is available for use.

The upgraded WWTF will have a new headworks which will be constructed and designed based on the estimated flows of 0.325 mgd. It will have a self-cleaning screen and a bypass channel with a manual bar screen. The new treatment system will consist of three, high-density polyethylene single-wall lined aeration ponds (one complete mix pond and two partial mix ponds). All three ponds will be active and operated in series. All of the ponds will be equipped with aerators, the complete mix pond will have a surface area of about 0.3 of an acre and will

have a capacity of about 0.8 million gallons. The partial mix ponds will have a surface area of about 1-acre and a capacity of about 2.4 million gallons.

Effluent will be discharged to a series of new disposal (evaporation/percolation) ponds installed in two phases. Some of the existing treatment ponds will be converted to disposal ponds. The first phase will allow for the disposal of up to 0.275 mgd (current flow is 76 percent of the first phase) and will include the construction of approximately 23.4 acres of new disposal (evaporation/percolation) ponds. This will increase the total volume of the disposal ponds to about 96 acre-feet (31.3 million gallons). Phase 2 will allow for the disposal of up to 0.325 mgd (current flow is 64 percent of the second phase) and will provide another 3.4 acres of disposal ponds and increase the total volume of the disposal ponds to about 104 acre-feet (34.1 million gallons). The recycling of effluent to the former LAAs will be discontinued due to the standing water issues and that the inability to find any nearby farmers that wanted to use the effluent for irrigation on their land.

Nutrient Management Requirements

Table 2-52 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-52. Summary of Riverdale WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Flow Limitations	<ul style="list-style-type: none"> Monthly average discharge flow shall not exceed: <ul style="list-style-type: none"> 0.250 mgd until Phase 1 of the WWTF is complete; 0.275 mgd once Phase 1 is completed and additional permit provision satisfied; 0.325 mgd once Phase 2 is complete and additional permit provision is satisfied.
Discharge Specifications	<ul style="list-style-type: none"> No waste constituent shall be released, discharged, or placed where it will cause violation of Groundwater Limitations of this Order. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.
Groundwater Limitations	<ul style="list-style-type: none"> Release of waste constituents from any portion of the WWTF 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, including nitrate as nitrogen of 10 mg/L.
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring includes monthly grabs for nitrate (as N), ammonia (as N), TKN and total nitrogen.

2.4.3.43. Riverland RV Resort

Facility Description (CV-SALTS ID: 3598)

Riverland RV Resort is authorized to discharge domestic wastewater under State Water Board General WDR for Small Domestic Wastewater Treatment Systems (Order 2014-0153-DWQ). Per the NOA, this facility is assigned Order No. 2014-0153-DWQ-R5373. This facility is located at 38743 CA-99 in Kingsburg, CA in Tulare County. The underlying groundwater beneficial uses include: MUN, AGR, IND and PRO.

The Riverland RV Resort consists of 8 mobile home units with sewer connection, 38 recreational vehicle (RV) sites with sewer connection (and 64 RV sites without sewer connection), 20 campsites, public restrooms and laundry facilities, a bar/restaurant, a 24-room motel, and a dump station that discharges to the WWTF. The WWTF consists of six septic tanks, an aerated treatment system (325 gallon-settling tank and two 1,280-gallon clarifiers operated in parallel), seven lift pumps, and two leach fields. The leach fields are reported to have a combined disposal capacity of 52,000 gpd. The peak flow rate into the wastewater system is reported to be 19,500 gpd. Septic tank solids are removed every three to six months.

Nitrate Management Requirements

Table 2-53 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-53 Summary of Riverland RV Resort WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> • Direct or indirect discharge of any wastewater to surface waters or surface water drainage courses is prohibited. • The treatment, storage, and/or disposal of waste in or at the wastewater system shall not cause or contribute to a condition of pollution, contamination, or nuisance as defined in Water Code section 13050. • The discharge of waste in violation of, or not consistent with, the applicable Regional Water Board's Basin Plan is prohibited.
Effluent Limitations	<ul style="list-style-type: none"> • In accordance with Section B.1 of the General Order, the treated wastewater discharged to the combined leach field system shall not exceed a 20,000 gpd as a monthly average. • Discharge shall not: <ul style="list-style-type: none"> – Pollute groundwater or surface waters; – Adversely affect beneficial uses of groundwater or cause an exceedance of any applicable Basin Plan water quality objectives for groundwater or surface water.

Table 2-53 Summary of Riverland RV Resort WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring of flow distributed to leach fields includes monthly grab for total nitrogen.

2.4.3.44. San Joaquin Wastewater Treatment Facility

Facility Description (CV-SALTS ID: 2680)

City of San Joaquin is authorized to discharge treated wastewater from its treatment facility under WDR Order R5-2007-0100. The facility is located at along Springfield Avenue, approximately 1.5 miles southwest of the City of San Joaquin. The underlying groundwater beneficial uses are MUN, AGR, IND and PRO.

At the time of issuance of the Order the existing WWTF was described as follows: WWTF consists of three lift stations (one with headworks), an unlined aerated pond (Pond 1), two sedimentation ponds (Ponds 2 and 3), and three evaporation and percolation ponds (Ponds 4 through 6). The WWTF's headworks is contained at the Manning lift station and consists of a 3-inch Parshall flume and a manually-cleaned bar screen immediately upstream of the lift station. Effluent is pumped from the Manning lift station to the WWTF one half mile to the west. Wastewater from the Manning lift station is discharged to aerated Pond 1. Wastewater from Pond 1 is discharged through a splitter box into Ponds 2 and 3, which are operated in series. These ponds are above the initial clay layer, which helps restrict percolation. Effluent from Ponds 2 and 3 discharge to evaporation/percolation Ponds 4, 5 and 6 (disposal ponds). These ponds are below the existing first encountered clay layer to enhance percolation. The Discharger also uses a borrow pit for emergency storage to provide additional capacity during heavy rainfall. The borrow pit will later be converted to a permanent disposal pond.

In its ROWD, the City described its plans to upgrade the existing WWTF facility. Plans include: (a) upgrading the headworks facility and pumping station to accommodate an increase in flow; and (b) construct a new extended aeration biological treatment process to replace the existing mechanical surface aerated pond system. The upgraded treatment process will be operated to allow for de-nitrification. The upgraded WWTF would consist of an aeration basin, an integral clarifier, return and waste activated sludge pumps, a blower building, and sludge handling and storage facilities. Percolation and disposal ponds will be modified as needed to accommodate increased flow.

Nutrient Management Requirements

Table 2-54 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-54. Summary of San Joaquin WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Effluent Limitations	<ul style="list-style-type: none"> Monthly average discharge flow shall not exceed <ul style="list-style-type: none"> 0.252 mgd until WWTF expansion project is complete. 0.5 mgd after expansion project is complete.
Discharge Specifications	<ul style="list-style-type: none"> 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.
Groundwater Limitations	<ul style="list-style-type: none"> Release of waste constituents from any treatment or storage component associated with the WWTF 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, including nitrate as nitrogen of 10 mg/L.
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring includes bimonthly grabs for nitrate (as N), TKN and total nitrogen. Groundwater monitoring includes quarterly grabs for nitrate (as N) and total nitrogen.

2.4.3.45. 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.

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 2-55 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-55. Summary of Key Sanger WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Effluent Limitations and Discharge Specifications	<ul style="list-style-type: none"> 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. 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).
Groundwater Limitations	<ul style="list-style-type: none"> 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"> Nitrate as nitrogen of 10 mg/L. For constituents identified in Title 22, the Primary and Secondary MCLs quantified therein.
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring includes nitrate nitrogen, TKN, ammonia and total nitrogen. Groundwater monitoring includes nitrate nitrogen, TKN, ammonia and total nitrogen.

2.4.3.46. 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.

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 2-56 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-56. Summary of Key Sanger Industrial WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Discharge Specifications	<ul style="list-style-type: none"> 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. 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.
Groundwater Limitations	<ul style="list-style-type: none"> The discharge, in combination with other sources, shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than background water quality.
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring includes nitrate nitrogen, TKN and total nitrogen. Groundwater monitoring includes nitrate nitrogen, TKN and total nitrogen. Soil monitoring includes nitrate nitrogen, TKN and total nitrogen

2.4.3.47. Shady Lakes Mobile Home Park

Facility Description (CV-SALTS ID: 2482)

Shady Lakes Mobile Home Park is authorized to discharge treated wastewater under WDR Order 75-079. The facility is located at 5665 South Chestnut Avenue, Fresno, CA 93725. The underlying groundwater beneficial uses are MUN and AGR (per the 1975 Order). Wastewater is treated by an extended aeration package sewage treatment plant with a design capacity of 0.017 mgd. Effluent is disposed of in a single aerated evaporation/percolation pond. The Order states that the discharger proposed to expand the disposal facilities by either constructing an additional evaporation/percolation pond or reuse the effluent on permanent pasture.

Nutrient Management Requirements

Table 2-57 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-57. Summary of Shady Lakes Mobile Home Park WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Specifications	<ul style="list-style-type: none"> • No discharge to surface water, surface water drainage courses or canals. • Discharge shall not cause degradation of any water supply. • Discharge shall not cause a pollution of ground or surface water. • Neither the treatment nor the discharge shall cause a nuisance as defined by the California Water Code. • 30-day mean daily flow shall not exceed 0.017 million gallons. • No bypass or overflow of untreated or partially treated waste. • Direct reuse of waste water for irrigation is limited to irrigation of permanent pasture where public access is precluded; all other irrigational uses are prohibited.
Monitoring & Reporting	<ul style="list-style-type: none"> • No nitrate-related monitoring within the Order.

2.4.3.48. 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 2-58 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-58. Summary of Six Jewels Dehydrator WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Discharge of wastes to surface waters or surface water drainage courses is prohibited.
Discharge Specifications	<ul style="list-style-type: none"> 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. 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.
Groundwater Limitations	<ul style="list-style-type: none"> 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.")
Monitoring & Reporting	<ul style="list-style-type: none"> Process wastewater monitoring includes nitrate. Source water monitoring includes nitrate. No groundwater monitoring required.

2.4.3.49. Selma-Kingsburg-Fowler County Sanitation District Wastewater Treatment Facility

Facility Description (CV-SALTS ID: 2727)

Selma-Kingsburg-Fowler (SKF) County Sanitation District (CSD) is authorized to discharge treated wastewater under WDR Order 5-01-255. The facility is located at 11301 Conejo, Kingsburg, CA 93245. The underlying groundwater beneficial uses are MUN, AGR, IND and PRO.

The WWTF is an extended aeration activated sludge system that consists of three equalization basins, headworks, two aerated grit chambers, scum removal area, three aeration basins (two with surface aerators; one with diffuse aeration), four clarifiers, two dual media filters, a facultative pond, one dissolved air flotation thickener, one gravity thickener, two aerobic digesters, six disposal ponds, 39 paved sludge drying beds, and a sludge processing and biosolids storage area. The discharge uses equalization basins as a contingency for short-term storage of influent that result in pass-through or interference.

Nutrient Management Requirements

Table 2-59 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-59. Summary of SKF CSD WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses. Recycling of effluent to areas either lacking Board-adopted water reclamation requirements or waiver of said requirements.
Discharge Specifications	<ul style="list-style-type: none"> Monthly average discharge to disposal ponds shall not exceed 8.0 mgd.
Groundwater Limitations	<ul style="list-style-type: none"> Release of waste constituents from any storage, treatment or disposal component associated with the WWTF shall not, in combination with other sources of waste constituents, cause groundwater under and beyond the WWTF and the discharge areas) to exceed constituent concentrations specified below or natural background concentration, whichever is greater, including nitrate as nitrogen of 10 mg/L.
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring includes twice/month 24-hr composite samples for nitrate (as N), ammonia (as N) and total nitrogen. Groundwater monitoring includes quarterly grabs/calculations for nitrate (as N), TKN, total organic nitrogen (as N) and total nitrogen.

2.4.3.50. Stone Ranch Evaporation Basin

Facility Description (CV-SALTS ID: 2004)

The City of Lemoore (City) and the Leprino Foods Company (Leprino), which are located within the Priority 2 Tulare Lake Subbasin, are authorized to discharge treated effluent to a LAA at Stone Ranch (CV-SALTS ID 2004) under WDR Order R5-2019-0008. Stone Ranch is located within the Priority 1 Kings Subbasin. Stone Ranch, 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. 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 used 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 2-60 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-60. Summary of Key Nitrate Management-Related Requirements, as applicable to Stone Ranch	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Discharge of waste to surface waters or surface water drainage courses is prohibited. 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.
Effluent Limitations	<ul style="list-style-type: none"> The discharge of combined effluent to Stone Ranch shall not exceed a monthly average flow of 5.0 mgd.
Discharge Specifications	<ul style="list-style-type: none"> No waste constituent shall be released, discharged, or placed where it will cause a violation of Groundwater Limitations set forth in Section D of the Order. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as Water Code section 13050.
Land Application	<ul style="list-style-type: none"> The BOD loading to the LAA calculated as a cycle average shall not exceed 100 lbs/ac/day. Crops shall be grown on the LAA. 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. 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 nutrient loading of the of the LAA, including the contributions of organic and chemical fertilizers, solids removed from process water, and the combined effluent, shall not exceed the annual crop demand. 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. Ensure that water, BOD, and nitrogen are applied and distributed uniformly across each LAA field; implement changes to the irrigation system and/or operation practices as needed to ensure compliance with this specification.

Table 2-60. Summary of Key Nitrate Management-Related Requirements, as applicable to Stone Ranch	
Category	Summary of Requirements
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 (specific to Stone Ranch)	<ul style="list-style-type: none"> • Combined effluent monitoring nitrate and nitrite (as N), TKN, ammonia (as N) and total nitrogen • Irrigation supply well monitoring includes nitrate (as N) • 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

2.4.3.51. Sun-Maid Kingsburg Plant

Facility Description (CV-SALTS ID: 2877)

Sun Maid Growers of California is authorized to discharge treated wastewater from its Sun-Maid Kingsburg Plant under WDR Order R5-2013-0096. The facility is located at 13525 South Bethel Avenue, Kingsburg, CA 93631. The underlying groundwater beneficial uses are MUN, AGR, IND and PRO.

Wastewater is generated from the washing of raisins and equipment sanitation. Prior to 2011, the facility distributed processed wastewater to three locations: (a) an on-site Cogeneration Plant (Cogen) where the discharge was concentrated for grape alcohol production; however, the concentrator equipment was removed in 2012; (b) SKF CSD WWTF for treatment; and (c) an existing 45-acre LAA for land discharge. Because the ability to send wastewater to the Cogen facility ended, the discharger requested a new WDR which would add a new 40 acre parcel for land application. The proposed new 40-acre LAA is situated directly north of the existing

45-acre LAA. The combined LAAs would provide 81.1 acres of irrigable land for the treatment, reuse and disposal of wastewater.

Nutrient Management Requirements

Table 2-61 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-61. Summary of Sun-Maid Kingsburg Plant WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses. Application of wastewater in a manner or location other than that described in the ROWD and herein.
Discharge Specifications	<ul style="list-style-type: none"> The discharger shall measure the volume of the wastewater discharged to the LAAs and the volume of wastewater discharged to the SKF WWTF. Annual volume of wastewater discharged to the LAAs shall not exceed 278 acre-feet. Discharge shall not exceed a BOD loading rate of 150 lbs/ac/day at any time. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050. Discharge shall remain within the permitted waste treatment/containment structures and LAAs at all times. 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.
Groundwater Limitations	<ul style="list-style-type: none"> Release of waste constituents from any treatment unit, delivery system, or LAA associated with the Facility shall not cause or contribute to groundwater containing concentrations of constituents identified below, or natural background quality, whichever is greater, including nitrate as nitrogen of 10 mg/L.
Land Application	<ul style="list-style-type: none"> 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. Volume of wastewater applied to the LAAs on any single day shall not exceed reasonable agronomic rates based on the vegetation grown, pre-discharge soil moisture conditions, and weather conditions.

Table 2-61. Summary of Sun-Maid Kingsburg Plant WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
	<ul style="list-style-type: none"> Hydraulic loading of wastewater and supplemental irrigation water including precipitation shall be at reasonable agronomic rates designed to: (a) maximize crop nutrient uptake; (b) maximize breakdown of organic waste constituents in the root zone; and (c) minimize the percolation of waste constituents below the root zone.
Management Plan	<ul style="list-style-type: none"> Nutrient Management Plan for the LAAs that includes procedures for monitoring the LAAs 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 on 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.
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring – Monthly 24-hour composite sample for nitrate (as N); monthly grab/calculation for ammonia, TKN and total nitrogen. Source water monitoring – Semi-annually for nitrate (as N), TKN, total nitrogen. Groundwater monitoring – Quarterly grab for nitrate (as N). LAA – Annual nitrogen loading from wastewater and fertilizers.

2.4.3.52. Sun Maid Orange Cove Plant

Facility Description (CV-SALTS ID: 2340)

Sun Maid Growers of California is authorized to discharge treated wastewater from its Sun-Maid Orange Cove Plant under WDR Order 88-060. The facility is located at 9818 South Jacobs, Orange Cove, CA 93646. The underlying groundwater beneficial uses are MUN, AGR and industrial supply. Facility treats wastewater in an anaerobic digester followed by four aerobic digesters. Disposal of wastewater is to four aerated evaporation/percolation ponds. During summer months, wastewater from the ponds is disposed of by thin-spreading on 20 acres of land.

Nutrient Management Requirements

Table 2-62 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-62. Summary of Sun-Maid Orange Cove Plant WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Discharge Specifications	<ul style="list-style-type: none"> Discharge shall not cause degradation of any water supply. Neither the treatment nor discharge shall cause pollution or nuisance as defined by Water Code section 13050. Discharge shall remain within the designated disposal area at all times. 30-day average daily dry weather discharge flow shall not exceed 0.05 million gallons.
Monitoring & Reporting	<ul style="list-style-type: none"> Pond monitoring – Monthly composite sample for nitrate (as N), TKN and total nitrogen. Groundwater monitoring – Quarterly for nitrate (as N), TKN and total nitrogen. Disposal Site Monitoring: (a) area of land utilized for disposal of wastewater shall be estimated and reported monthly; (b) three representative sites for annual soil profile sampling for nitrate (as N), TKN and total nitrogen.

2.4.3.53. 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 2-63 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-63. 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"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Effluent and Mass Loading Limitations	<ul style="list-style-type: none"> The monthly average daily discharge flow shall not exceed 0.06 mgd and the total annual flow shall not exceed 7.3 mgd 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).
Discharge Specifications	<ul style="list-style-type: none"> 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. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.
Land Application	<ul style="list-style-type: none"> 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. 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. Hydraulic loading of wastewater and irrigation water shall be at reasonable agronomic rates.
Groundwater Limitations	<ul style="list-style-type: none"> 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"> Nitrate (as N) of 10 mg/L. For constituents identified in Title 22, the MCLs quantified therein.
Management Plans	<ul style="list-style-type: none"> 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.

Table 2-63. Summary of Key Sunview Dry Fruit and Nut Company WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Monitoring & Reporting	<ul style="list-style-type: none"> • Effluent monitoring includes nitrate, nitrate, TKN, ammonia (as N) and total nitrogen. • 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.

2.4.3.54. 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 2-64 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-64. Summary of Teen Challenge of Southern California WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Discharge Specifications	<ul style="list-style-type: none"> State Water Board General Order provides septic system specifications.
Groundwater Limitations	<ul style="list-style-type: none"> The discharge shall not: <ul style="list-style-type: none"> Pollute ground or surface waters. Adversely affect beneficial uses or cause an exceedance of any applicable Basin Plan water quality objectives for ground or surface waters.
Monitoring & Reporting	<ul style="list-style-type: none"> Groundwater monitoring required for a number of constituents including ammonia and nitrate.

2.4.3.55. 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 2-65 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-65. 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"> Discharge of waste to surface waters or surface water drainage courses is prohibited. Discharge of domestic wastewater to the LAA's or any surface water is prohibited.
Effluent Limitations	<ul style="list-style-type: none"> The monthly average daily discharge flow shall not exceed 0.459 mgd and the total annual flow shall not exceed 70 mgy. 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).
Discharge Specifications	<ul style="list-style-type: none"> 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. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.
Land Application Area	<ul style="list-style-type: none"> 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. 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. Hydraulic loading of wastewater and supplemental irrigation water shall be a reasonable agronomic rates designed to: <ul style="list-style-type: none"> Maximize crop nutrient uptake; Maximize breakdown of organic waste constituents in the root zone; and Minimize the percolation of waste constituents below the root zone.
Groundwater Limitations	<ul style="list-style-type: none"> 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"> Nitrate as Nitrogen of 10 mg/L. For constituents identified in Title 22, the MCLs quantified therein.

Table 2-65. Summary of Key The Wine Group Franzia Winery Sanger WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Management Plans	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.
Monitoring & Reporting	<ul style="list-style-type: none"> • Effluent monitoring, including ammonia (as N), TKN, nitrate and nitrite (as N) and total nitrogen. • Source water monitoring including nitrate and nitrite (as N). • Groundwater monitoring that includes nitrate and nitrite (as N), TKN, ammonia (as N) and total nitrogen. • Soil monitoring including nitrate (as N), TKN and ammonia (as N). • 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.

2.4.3.56. TKI Fresno Pesticide Manufacturing Plant

Facility Description (CV-SALTS ID: 2851)

Tessenderlo Kerley, Inc. (TKI) owns and operates an industrial and agricultural chemical manufacturing plant at 5427 East Central Avenue in Fresno, CA 93725. The facility is permitted to discharge under Order No. R5-2019-0037. The plant is in DAU 233 within the Kings Basin hydrologic unit. The Basin Plan identifies the beneficial uses of groundwater in this DAU as MUN, AGR, IND, PRO, REC-1 and REC-2.

Waste streams generated at the facility include cooling tower blowdown, water softener back-flush (regeneration) and steam plant blowdown (boiler blowdown). Of these three sources, more than 98% of waste stream is generated from cooling tower blowdown. The process wastewater from these three sources are discharged to a 1.5 million gallon unlined pond.

Nutrient Management Requirements

Table 2-66 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-66. Summary of TKI Fresno Manufacturing Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Discharge Specifications	<ul style="list-style-type: none"> Wastewater treatment, storage and disposal shall not cause pollution or a nuisance as defined by the Water Code section 13050. No waste constituent shall be released, discharged or placed where it will cause a violation of groundwater limitations in the Order.
Groundwater Limitations	<ul style="list-style-type: none"> Release of waste constituents from any component of any treatment, storage, delivery system or LAA associated with the discharge shall not cause or contribute to groundwater containing constituent concentrations in excess of concentrations specified as follows (or natural background quality, whichever is greater): nitrate as nitrogen of 10 mg/L.
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring annually for nitrate (as N). Pond monitoring quarterly for nitrate (as N). Source water monitoring annually for nitrate (as N).

2.4.3.57. Traver Wastewater Treatment Facility

Facility Description (CV-SALTS ID: 2574)

Tulare County is authorized to discharge treated wastewater under WDR Order 88-098. The facility is located along Road 44 south of Avenue 368 near the community of Traver. The underlying groundwater beneficial uses are MUN, AGR, IND and PRO. The WDR was issued to permit operation of treatment facilities consisting of two facultative lagoons in parallel with disposal of wastewater in one of two evaporation/percolation ponds (one of these ponds was intended to serve as an emergency backup disposal facility). Design capacity of the facility was 88,000 gpd.

Nutrient Management Requirements

Table 2-67 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-67. Summary of Traver WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Discharge Specifications	<ul style="list-style-type: none"> Discharge shall not cause degradation of any water supply. Neither the treatment nor discharge shall cause pollution or nuisance as defined by Water Code section 13050. Discharge shall remain within the designated disposal area at all times. 30-day average daily dry weather discharge flow shall not exceed 0.089 million gallons.
Monitoring & Reporting	<ul style="list-style-type: none"> No nitrate-related monitoring within the Order.

2.4.3.58. Tri-County Citrus Orange Cove Packing House

Facility Description (CV-SALTS ID: 2353)

Visalia Citrus Packing Group is authorized to discharge wastewater from its Tri-County Citrus Orange Cove Packing House under WDR Order 94-075. The facility is located at 12143 Avenue 456, Orange Cove, CA 93646. The underlying groundwater beneficial uses are MUN, AGR and industrial supply. Packing house packs oranges year-round. Up to 9,000 gpd of wastewater is generated by washing fruit prior to packing. This wastewater, along with wastewater generated from hosing down machinery and concrete floors is discharged to two percolation/evaporation ponds.

Nutrient Management Requirements

Table 2-68 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-68. Summary of Tri-County Citrus Orange Cove Packing House WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Discharge Specifications	<ul style="list-style-type: none"> Discharge shall not cause degradation of any water supply. Neither the treatment nor discharge shall cause pollution or nuisance as defined by Water Code section 13050. Discharge shall remain within the designated disposal area at all times. Monthly average discharge shall not exceed 9,000 gpd.
Groundwater Limitations	<ul style="list-style-type: none"> Discharge, in combination with other sources, shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than receiving water limits, where specified below, or background water quality where not specified.
Monitoring & Reporting	<ul style="list-style-type: none"> No nitrate-related monitoring within the Order.

2.4.3.59. 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 2-69 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-69. Summary of Trinity Presbyterian Church WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Discharge of wastewater at a location or in a manner different from that described above is prohibited. The waste discharge shall not enter surface waters or surface water drainage courses. The treatment and disposal of wastes at the facility shall not cause pollution, contamination, or nuisance as defined in California Water Code Section 13050.
Discharge Specifications	<ul style="list-style-type: none"> State Water Board General Order provides septic system specifications.
Groundwater Limitations	<ul style="list-style-type: none"> The discharge shall not: <ul style="list-style-type: none"> Pollute ground or surface waters. Adversely affect beneficial uses or cause an exceedance of any applicable Basin Plan water quality objectives for ground or surface waters.
Monitoring & Reporting	<ul style="list-style-type: none"> Septic tank monitoring as required by the Order.

2.4.3.60. 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 an 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

2.4.3.61. Verni Olive Oil Extract Facility

Facility Description (CV-SALTS ID: 2937)

Verni Olive Oil Extract Facility is authorized to discharge wastewater from its facility under WDR Order R5-2020-0002, Waiver of Waste Discharge Requirements for Small Food Processors, Wineries and Related Agricultural Processors within the Central Valley Region

(Enrollee R5-2020-0002-0081). Saverio Verni facility is located at 11998 Auberry Road, Clovis, CA 93611. The underlying groundwater beneficial uses are MUN, AGR, IND and PRO.

This facility is enrolled under the Tier 3 conditions of this Waiver. Tier 3 allows land application of up to 1,000,000 gallons of wastewater per year for irrigation of 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.

Wastewater and residual solids from the Facility are applied on 10 acres of almond orchards (totaling 212 acres). The Verni family owns the LAA. Wastewater is distributed evenly via tanker, tractor, or truck each day it is generated. Likewise, residual solids are spread out on the ground each day they are generated and are leveled out with a scraper. The residual solids are disked into the soil along the orchard rows at a later appropriate time.

The primary olive oil extraction season runs from about November through January. Per the ROWD, the facility does not have operations that generate process wastewater or residual solids outside of the primary processing season. Operations and activities that generate process wastewater include the washing, grinding/crushing, kneading (malaxer), centrifuging, and racking (successive decants in an oil/water separator). The facility only processes olives from the on-site olive groves. It is anticipated that the facility will process on average about 73 tons of olives per year (over the next five years). Estimated current production of wastewater is about 96,000 gallons per year over a three-month period (November through January); it is expected that annual production of wastewater will increase over the next five years.

Nutrient Management Requirements

Table 2-70 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-70. Summary of Verni Olive Oil Extract Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Specific Conditions	<ul style="list-style-type: none"> The discharge of waste to wetlands, surface waters or surface water drainage courses is prohibited. The discharge shall not create or threaten to create a condition of pollution, contamination, or nuisance as defined by Water Code Section 13050.
Land Application	<ul style="list-style-type: none"> Plant shall comply with the following Tier 3 Waiver requirements applicable to land application of wastewater: <ul style="list-style-type: none"> Land application of up to 1,000,000 gallons of process wastewater per year for irrigation of landscaping or crops with a minimum of 1.0 acres of LAA per 100,000 gallons of wastewater.

Table 2-70. Summary of Verni Olive Oil Extract Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
	<ul style="list-style-type: none"> ○ Land application of residual solids associated with generation of up to 1,000,000 gallons of process wastewater per year as a soil amendment for landscaped or cropped areas with a minimum of 1.0 acres of LAA per 100,000 gallons of wastewater. • Wastewater shall be evenly applied across the entire LAA and shall be applied to cropland or landscaped areas at a rate consistent with the water needs of the crop or vegetation grown in the LAA 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). • The discharger shall maintain and use at least one acre of cropland and/or landscaped area for each 100,000 gallons of wastewater and/or equivalent mass of residual solids applied to land each year. LAAs for wastewater and residual solids may have a combined use (for example, a one-acre LAA may receive 100,000 gallons of wastewater plus the associated residual solids per year, etc.). • If residual solids are applied to land: <ul style="list-style-type: none"> ○ Land application methods, rates, and management practices shall be in accordance with those proposed in the RWD unless the Discharger finds that specific changes are necessary to ensure continued compliance with the conditions of the Waiver. ○ If residual solids that contain free liquids are applied to land, the Discharger shall ensure that all liquid is absorbed into the soil within 12 hours of application and that no liquid runs off the application area. ○ Residual solids shall be applied to land at rates that do not exceed crop demand for plant nutrients based on the nutrient content of the solids, the nutrient requirements of the crops or other vegetation grown on the LAA, and the amount of other forms of fertilizer used. ○ Residual solids shall be evenly applied across the entire LAA.
Monitoring & Reporting	<ul style="list-style-type: none"> • An estimate of the total nitrogen loading to the LAA for the calendar year, with calculations showing the contribution from each nitrogen source in lb/ac/year.

2.4.3.62. 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 2-71 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-71. 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"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Discharge Specifications & Solids Disposal	<ul style="list-style-type: none"> The maximum daily discharge flow shall not exceed 0.042 mgd from August to September or 2,000 gpd the rest of the year. 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.
Groundwater Limitations	<ul style="list-style-type: none"> The discharge, in combination with other sources, shall not cause underlying ground water to contain waste constituents in concentrations greater than background water quality.
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring includes annual nitrate monitoring. Soil monitoring includes nitrate nitrogen, TKN and total nitrogen. Supply water monitoring includes annual nitrate sample.

2.4.3.63. Wawona Packing Company Facility

Facility Description (CV-SALTS ID: 2774)

The Wawona Packing Company facility is authorized to discharge under order R5-2012-0042. The facility is located at 12133 Avenue 408, Cutler, CA 93615. The facility is 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.

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, 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 and not subject to the Nitrate Control Program (NPDES Permit – WDR Requirements for Limited Threat Discharges to Surface Waters).

Nutrient Management Requirements

Table 2-72 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-72. Summary of Key Wawona Packing Company Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Discharge of waste, including storm water containing waste, to surface waters or surface water drainage courses is prohibited. Storage of solids on areas without means to prevent leachate generation and infiltration into the ground is prohibited.

Table 2-72. Summary of Key Wawona Packing Company Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Specifications & Solids Disposal	<ul style="list-style-type: none"> 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). 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. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code Section 13050. 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.
Land Application Area	<ul style="list-style-type: none"> 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. 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). 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.
Groundwater Limitations	<ul style="list-style-type: none"> 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"> Nitrate (as N) of 10 mg/L; For constituents identified in Title 22, the MCLs quantified therein.
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring includes nitrate (as N), ammonia, TKN and total nitrogen. LAA monitoring: (a) wastewater and supplemental irrigation flow and wastewater loading; and (b) total hydraulic loading.

2.4.3.64. 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.

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 2-73 summarizes the nitrate management-related requirements in this facility's WDR.

Table 2-73. 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"> Prohibits the discharge of waste to surface waters and to surface water drainage courses.
Discharge Specifications	<ul style="list-style-type: none"> Monthly average daily discharge flow shall not exceed 13,000 gpd. 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.
Groundwater Limitations	<ul style="list-style-type: none"> 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.
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring includes nitrate nitrogen and total nitrogen.

3. KWA SOUTHERN PORTION (TULARE LAKE SUBBASIN AND SMALL PART OF KAWEAH SUBBASIN) OF THE MANAGEMENT ZONE

Chapter 3 contains the Preliminary Management Zone Requirements for the Southern Portion (Tulare Lake Subbasin and small part of Kaweah Subbasin) 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 and small part of Kaweah Subbasin) 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
Groundwater Sustainability Agency (GSA)	<ul style="list-style-type: none"> DWR Map Viewer: https://sgma.water.ca.gov/webgis/index.jsp?appid=gsa&layer=1&rz=true Individual GSA links for finding “Interested Parties”: https://sgma.water.ca.gov/portal/gsa/all 	GSA boundaries, and also a list of GSA “Interested Parties”
Groundwater Basin/Subbasin	<ul style="list-style-type: none"> DWR Bulletin 118: https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118 Basin Boundary Geographic Information System (GIS) file: https://gis.data.ca.gov/datasets/b5325164abf94d5cbeb48bb542fa616e_0 DWR Basin Boundary Modifications: https://water.ca.gov/Programs/Groundwater-Management/Basin-Boundary-Modifications 	DWR Bulletin 118 basin and subbasin boundaries, including basin boundary modification
Water Districts	DWR by request from the Geology and Groundwater Investigations Section, or here: https://atlas-dwr.opendata.arcgis.com/datasets/45d26a15b96346f1816d8fe187f8570d_0	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
Public Water Supply Systems	California Environmental Health Tracking Program: https://trackingcalifornia.org/water/map-viewer	Division of Drinking Water
State Small Water Supply Systems	By request from county Environmental Health Departments (Kings, Fresno, and Tulare Counties)	Boundary data is typically not available for SSWS (usually just an address)
Disadvantaged Communities (DAC)/Disadvantaged Unincorporated Communities (DUC)	<ul style="list-style-type: none"> DACs boundaries available from DWR: https://gis.water.ca.gov/app/dacs/ DUCs boundaries available from PolicyLink by request (https://www.policylink.org/) 	DUC boundaries only available for portions of the San Joaquin Valley

3.1.1. Geography

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

The Southern Portion (Tulare Lake Subbasin and small part of Kaweah Subbasin) 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 and small part of Kaweah Subbasin) 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 documentation²⁷. There are fifteen GSAs that are located within some portion of the Southern Portion (Tulare Lake Subbasin and small part of Kaweah Subbasin) of the proposed KWAMZ (**Figure 3-2**).

²⁷ 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 and small part of Kaweah Subbasin) are italicized; GSAs that have most of their area within the Southern Portion (Tulare Lake Subbasin and small part of Kaweah Subbasin) portion are bold)²⁸:

- *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 and small part of Kaweah Subbasin) 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 and small part of Kaweah Subbasin) 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.
- Hazienda 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.

²⁸ 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.

- Lakeside Irrigation Water Dist.
- Lost Hills W.D.
- 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) ¹	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) ²					Connections or (persons, duration)		

¹. 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.

². 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 3-2**). 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 website²⁹. 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 225 Public Water Systems with known GIS boundary data in the KWA Management Zone. Ten of these systems are located within some portion of the Southern Portion (Tulare Lake Subbasin and a small portion of the Kaweah Subbasin) 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 July, 2022)³⁰.

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.

²⁹ <https://data.ca.gov/dataset/drinking-water-public-water-system-information>

³⁰ 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.

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 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.

Pursuant to Senate Bill 535, DACs were designated on May 2022 by the California Environmental Protection Agency (CalEPA)³¹. CalEPA based DAC designations on “geographic, socioeconomic, public health, and environmental hazard criteria” and has developed specific criteria and methods for applying those criteria. CalEPA relies on the California Communities Environmental Health Screening Tool (CalEnviroScreen) developed by the Office of Environmental Health Hazard Assessment (OEHHA), who has released a new final version of the CalEnviroScreen Version 4.0 tool. DACs are now defined into four types of geographic areas: 1) census tracts receiving the highest 25 percent of overall scores in CalEnviroScreen 4.0; 2) census tracts lacking overall scores in CalEnviroScreen 4.0 due to data gaps, but receiving the highest 5 percent of CalEnviroScreen 4.0 cumulative pollution burden scores; 3) census tracts identified in the 2017 DAC designation as disadvantaged, regardless of their scores in CalEnviroScreen 4.0; and 4) areas under the control of federally recognized Tribes. DUCs are areas that meet the Median Household Income (MHI) criteria of below 80% of the statewide MHI. PolicyLink (2013) provides the best readily available information on DUCs located in the proposed Management Zone area³². 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.

³¹ SB 535 Disadvantaged Communities available through the CalEPA’s OEHHA website: <https://oehha.ca.gov/calenviroscreen/sb535>, accessed June 2022.

³² The Management Zone is seeking an update of the GIS coverage of DUCs from PolicyLink.

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

There are 8 Disadvantaged Communities (DAC) and 11 Disadvantaged Unincorporated Communities (DUC) in the Southern Portion (Tulare Lake Subbasin and small part of Kaweah Subbasin) 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 532,882 acres (832.6 square miles) of the Southern Portion (Tulare Lake Subbasin and small part of Kaweah Subbasin) of the Management Zone.

Table 3-3. Population of DACs and DUCs located in the Southern Portion (Tulare Lake Subbasin and small part of Kaweah Subbasin) of the KWA Management Zone				
Approximate Location/Community	DAC Population (calculated by fraction of DAC area in Management Zone) (CalEPA, 2022)	DAC Area in Management Zone (Acres)	DUC Population (calculated by fraction of DAC area in Management Zone)	DUC Area in Management Zone (Acres)
Armona	5,358	7,767		
Bel Air Mobile Home Park			293	23
Corcoran	2,168	331	110	53
Hamblin			623	84
Hanford	31,547	8,123		
Home Garden			1,933	227
Kettleman City			1,439	87
Kings Mobile Home Estates			41	21
Laton			11	4
Pixley	23	376		
Shell			538	139
South Corcoran			49	14
Stratford			1,242	111
Unincorporated Fresno County area	23	213		
Unincorporated Kern County area	3	653		
Unincorporated Kings County area	13,735	510,088		
Unincorporated Tulare County area	272	5,309		
Whitley Manor Mobile Home Park			191	59
<i>*Italic entries indicate DUC areas that are not overlapping with CalEPA's 2022 DACs</i>				

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	8	532,861 (833)	802 (1.25)	532,882 (832.6)	53,170
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 and small part of Kaweah Subbasin) 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 and small part of Kaweah Subbasin) 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 and small part of Kaweah Subbasin) 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 and small part of Kaweah Subbasin) 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 and small part of Kaweah Subbasin) of the KWAMZ
CITRUS AND SUBTROPICAL	0.62	397	0.07%
Citrus	0.08	51	0.01%
Kiwis	0.43	275	0.05%
Olives	0.11	72	0.01%
DECIDUOUS FRUITS AND NUTS	79.76	51,048	9.09%
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%
FIELD CROPS	238.80	152,834	27.23%
Corn, Sorghum and Sudan	77.29	49,463	8.81%
Cotton	116.25	74,403	13.25%
Safflower	45.26	28,968	5.16%
GRAIN AND HAY CROPS	48.28	30,897	5.50%
Miscellaneous Grain and Hay	13.37	8,559	1.52%
Wheat	34.90	22,338	3.98%
NATIVE RIPARIAN VEGETATION	21.50	13,757	2.45%
Managed Wetland	21.50	13,757	2.45%
PASTURE	55.15	35,295	6.29%
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%
TRUCK NURSERY AND BERRY CROPS	36.10	23,104	4.12%
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%

Table 3-5. Land Use Summary for the Southern Portion (Tulare Lake Subbasin and small part of Kaweah Subbasin) 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 and small part of Kaweah Subbasin) of the KWAMZ
Lettuce/Leafy Greens	0.11	71	0.01%
Melons, Squash and Cucumbers	0.04	28	0.01%
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%
URBAN	23.27	14,892	2.65%
Urban	23.27	14,892	2.65%
VINEYARDS	6.31	4,038	0.72%
Grapes	6.31	4,038	0.72%
UNCLASSIFIED FALLOW	94.47	60,464	10.77%
Idle	94.47	60,464	10.77%
YOUNG PERENNIALS	17.05	10,915	1.94%
Young Perennials	17.05	10,915	1.94%
Total Mapped Land Use Area	621.32	397,642	70.84%
Unmapped Area	255.80	163,711	29.16%
Total Area in the Southern Portion (Tulare Lake Subbasin and small part of Kaweah Subbasin) of the Kings Water Alliance Management Zone	877.11	561,353	100.00%

Kings Water Alliance Management Zone
Final Management Zone Proposal

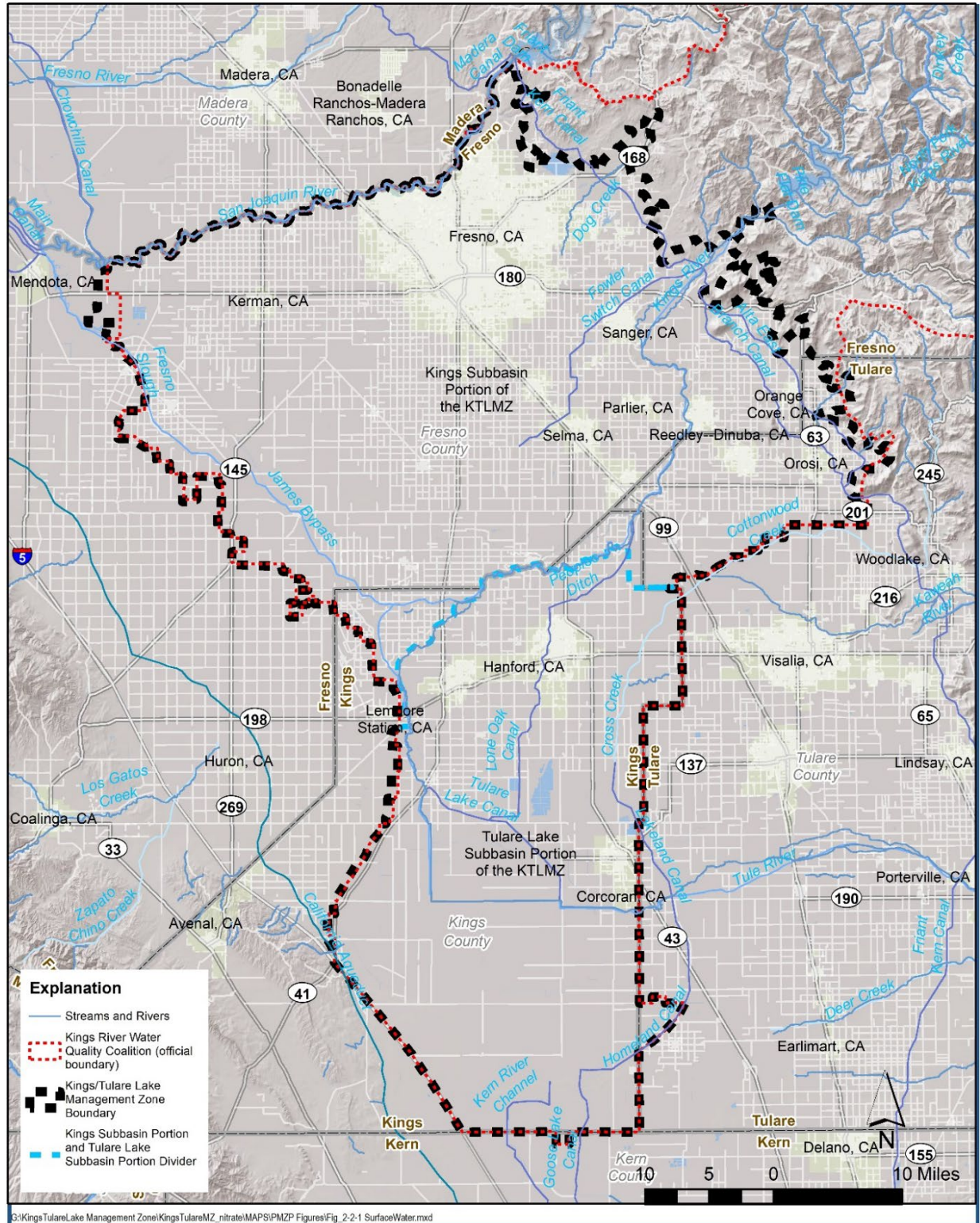


Figure 3-1. Surface Water Characteristics of the Proposed KWA Management Zone

Kings Water Alliance Management Zone Final Management Zone Proposal

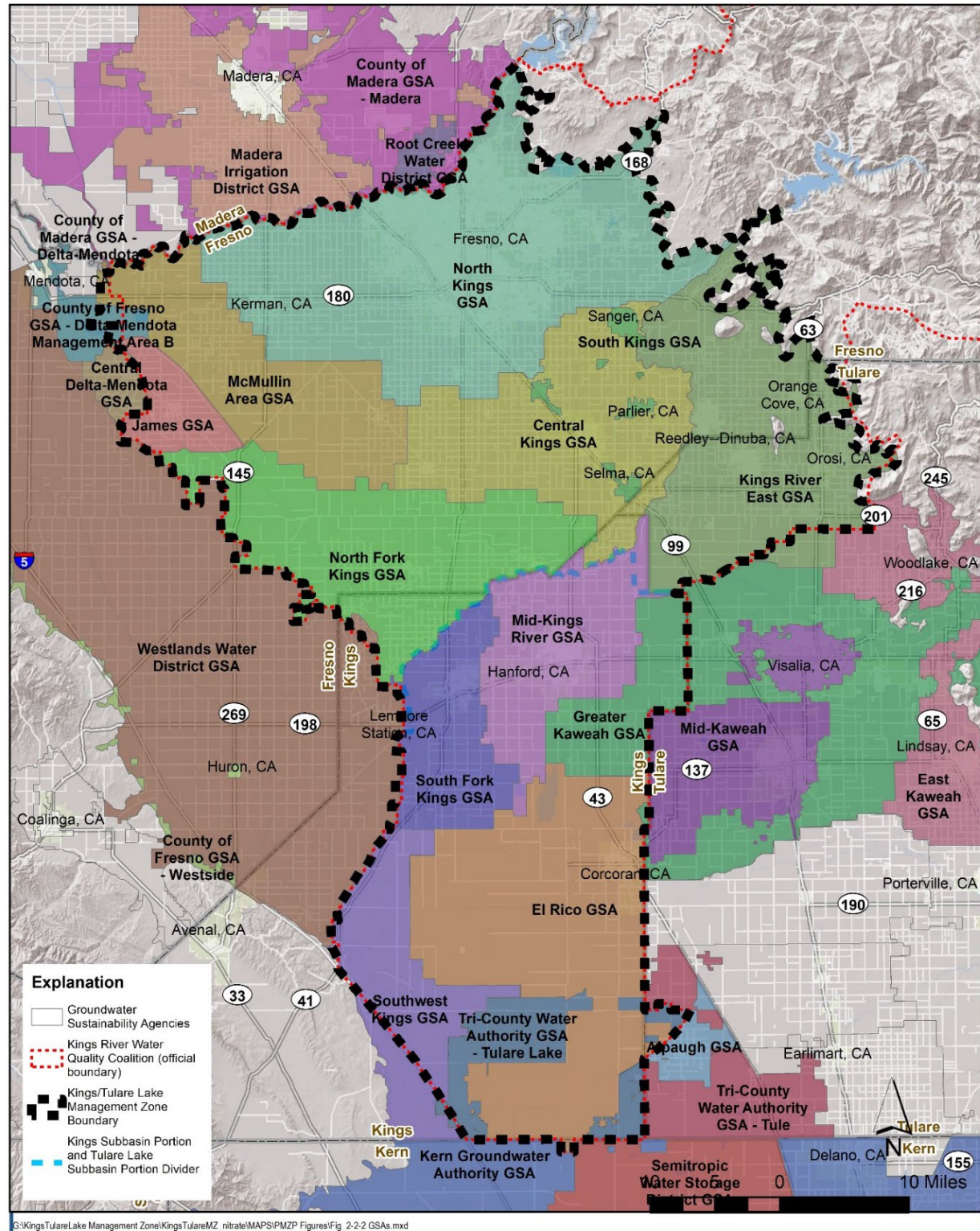


Figure 3-2. Groundwater Sustainability Agencies Established within and adjacent to the Proposed KWA Management Zone.

Kings Water Alliance Management Zone
Final Management Zone Proposal

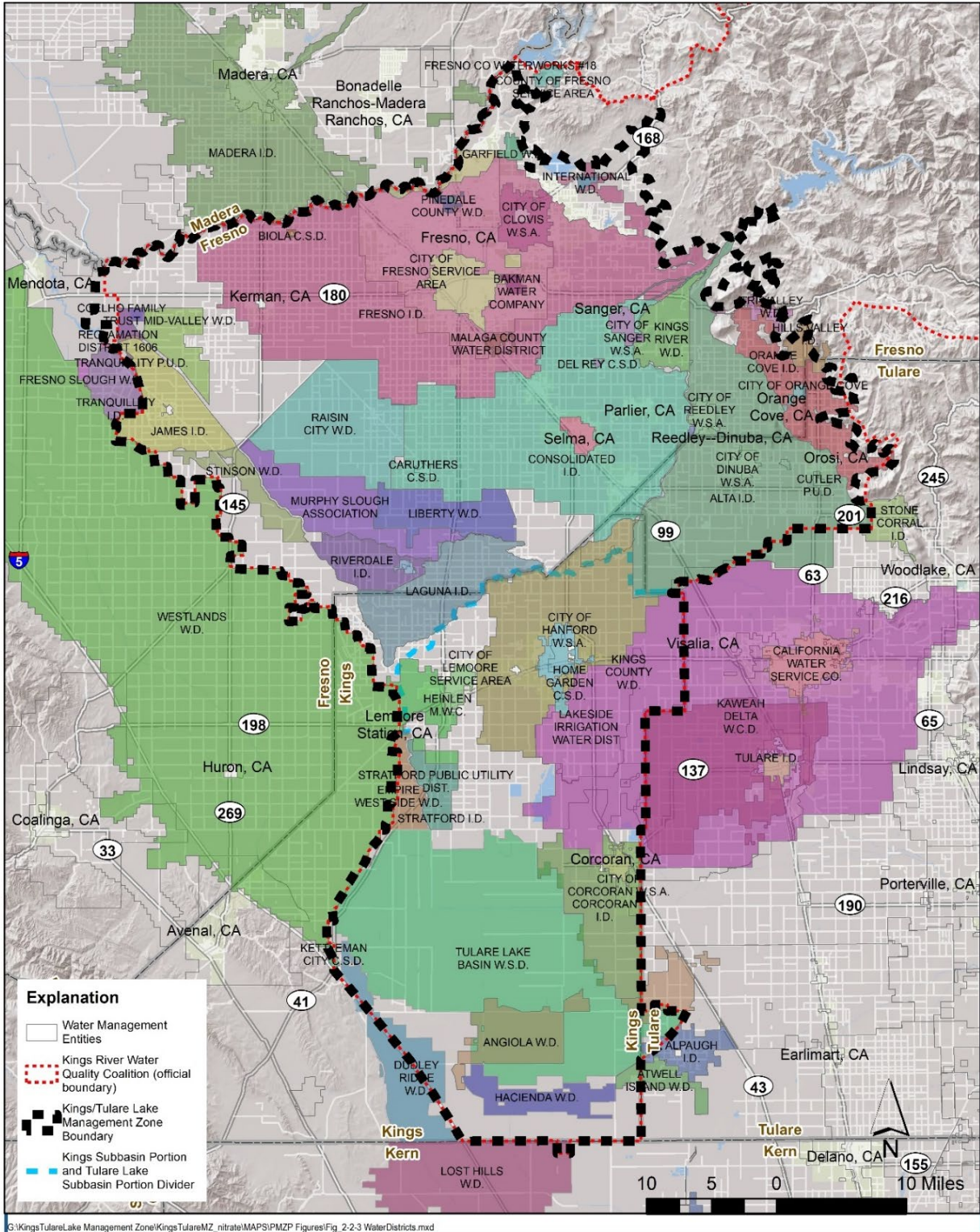


Figure 3-3. Water Management Entities Located Within and Adjacent to the Proposed KWA Management Zone.

Kings Water Alliance Management Zone Final Management Zone Proposal

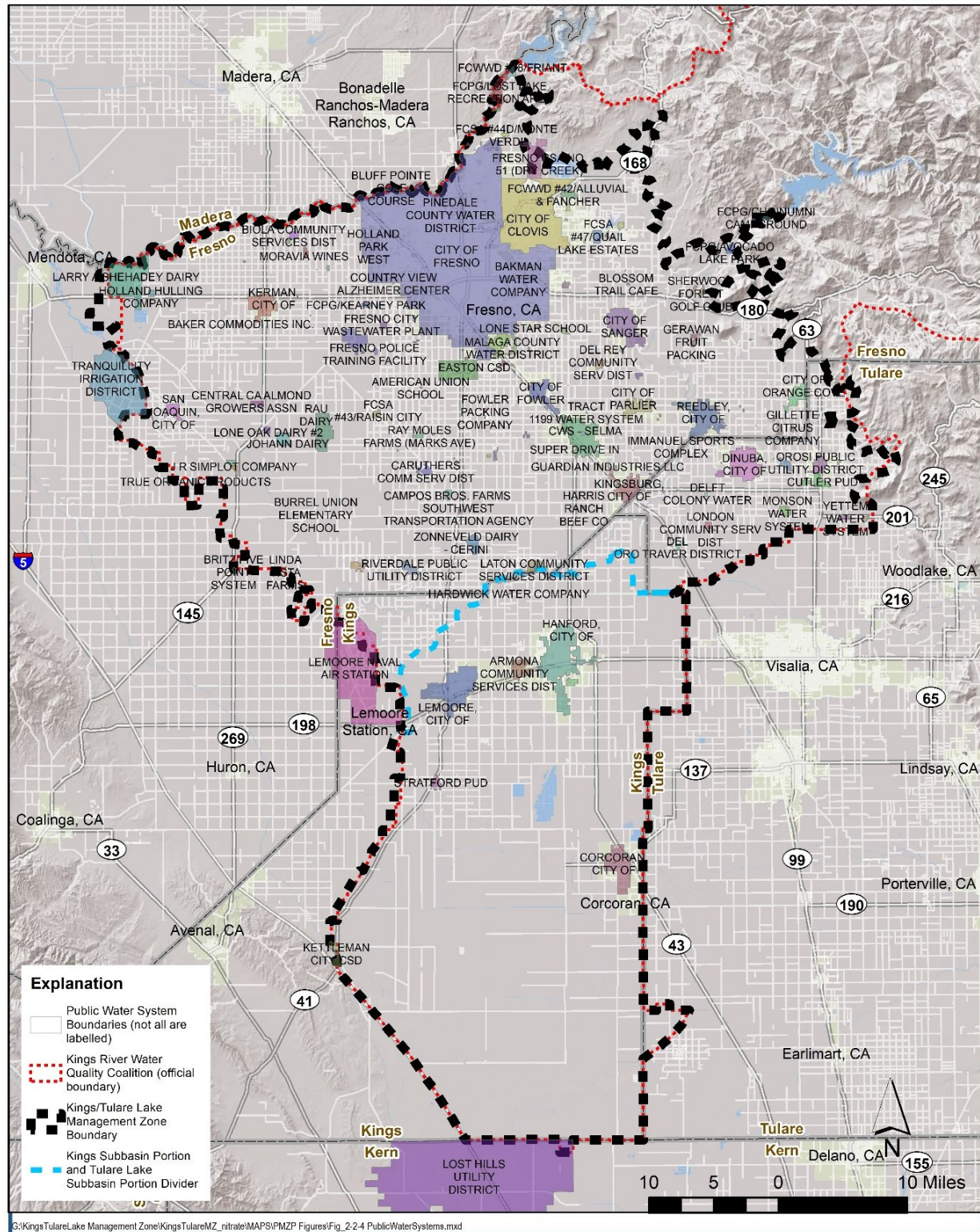


Figure 3-4. Public Water System Boundaries Within and Adjacent to the Proposed KWA Management Zone

Kings Water Alliance Management Zone
Final Management Zone Proposal

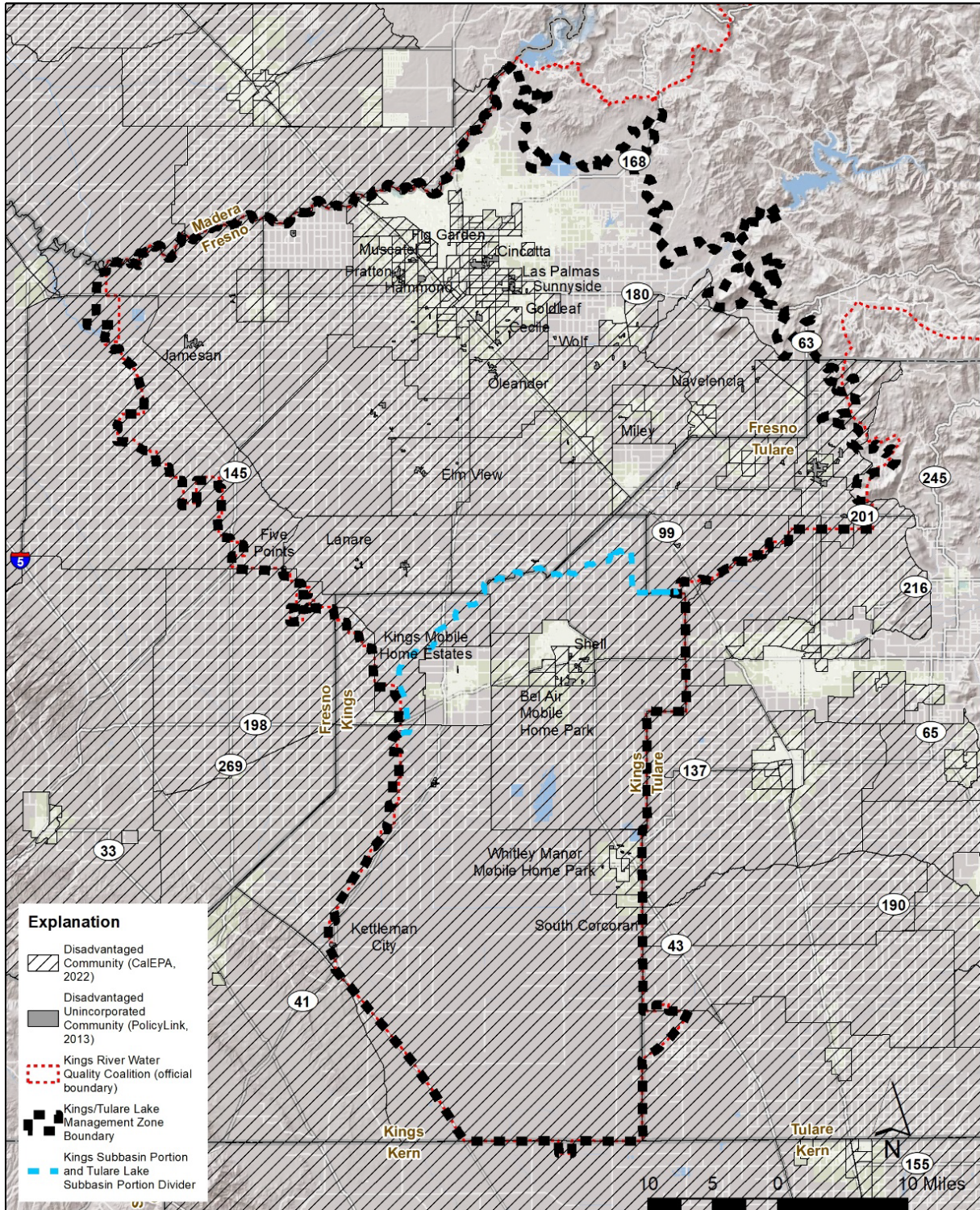


Figure 3-5. Location of DACs and DUCs Within and Adjacent to the Proposed KWA Management Zone

Kings Water Alliance Management Zone
Final Management Zone Proposal

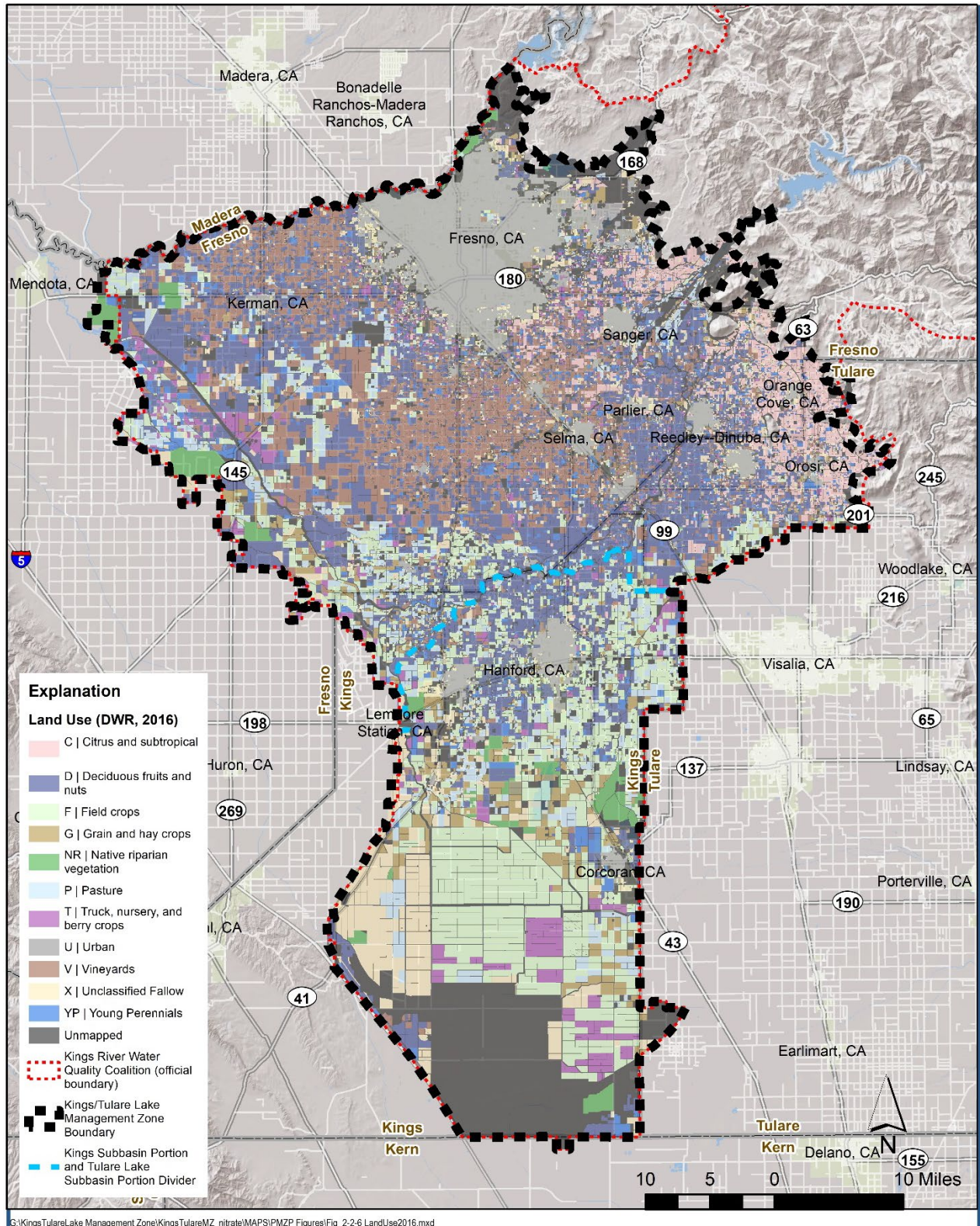


Figure 3-6. Agricultural Land Use in the Proposed KWA Management Zone

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 2015³³, 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 and small part of Kaweah Subbasin) 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.

³³ 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
General Groundwater Conditions	
DWR Bulletin 118 overview of basin/subbasin conditions (groundwater levels and groundwater quality)	https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118
DWR's Groundwater Sustainability Basin Prioritization	https://water.ca.gov/Programs/Groundwater-Management/Basin-Prioritization
Individual GSA's Hydrogeologic Conceptual Model	https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management/Groundwater-Sustainable-Agencies and https://sgma.water.ca.gov/portal/gsp/all
CV-SALTS High Resolution Salt and Nitrate Mapping for Region 5	https://www.cvsalinity.org/committees/technical-advisory/conceptual-model-developments/171-updated-groundwater-quality-analysis-for-central-valley.html
Publicly Available Groundwater Quality Data Sources	
GeoTracker GAMA	http://geotracker.waterboards.ca.gov/gama/gamamap/public/
DWR Water Data Library	https://wdl.water.ca.gov/
U.S. Geological Survey National Water Information System	https://waterdata.usgs.gov/nwis/qw
GeoTracker Regulated Facilities	http://geotracker.waterboards.ca.gov/ and http://geotracker.waterboards.ca.gov/datadownload
State Water Board Division of Drinking Water	https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/EDTlibrary.html
County-Specific Data Available by Request	
Kings County state small water systems and domestic/local small water systems (water quality data)	https://www.countyofkings.com/
Madera County state small water systems and domestic/local small water systems (water quality data)	https://www.maderacounty.com/government/public-health
Fresno County state small water systems and domestic/local small water systems (water quality data)	https://www.co.fresno.ca.us/departments/public-health?locale=en
Tulare County state small water systems and domestic/local small water systems (water quality data)	https://tularecounty.ca.gov/county/

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 and small part of Kaweah Subbasin) 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: DWR³⁴) 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**).

3.2.2.1. Areas of Potential Contribution

This section evaluates potential impacts to groundwater associated with downgradient migration of nitrate from the KWA Southern Portion. Using the Spring 2018 GWE Contours from the DWR, hydraulic gradients and groundwater flow directions are quantified along the boundaries of the MZ. The MZ boundary is divided into major segments of distinct groundwater flow direction characteristics, based on this Spring 2018 snapshot in time as provided by DWR's spatial coverage of contours of equal groundwater elevation. Hydraulic gradients and groundwater flow directions are provided in **Table 3-7** to quantify potential areas of contribution associated with possible downgradient migration of nitrate from within the MZ, based on Spring 2018 groundwater conditions, as reported by DWR. Groundwater can flow into and out of the MZ along its border with adjacent subbasins. The adjacent subbasins and their Nitrate Control Program's basin priority are also listed in the table. No gradients were calculated along the western, southern, and southeastern boundary, as hydraulic gradients are unknown in this area with very little to no groundwater elevation data (this part of the Tulare Lake Basin is currently de-designated for municipal and agricultural beneficial uses). Gradients

³⁴ <https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer#gwlevels>

are not calculated along the north between the KWA Southern Portion and KWA Northern Portion, as both of these areas are covered by the KWA.

The table lists the direction of groundwater flow and indicates whether the flow is entering (going into) or exiting (going out) of the MZ. The area of potential contribution³⁵ associated with nitrate originating from the MZ corresponds with spatial areas along the MZ border where groundwater elevation contours (Spring 2018, from DWR) indicate that groundwater flows out of the MZ and into the adjacent subbasin. The border of the MZ where groundwater elevation contour data are available (the northeast) is divided into three segments based on similar characteristics of the direction and magnitude of the hydraulic gradient. The DWR contours of equal groundwater elevation for Spring 2018 suggest that groundwater is not migrating outside of the MZ in this area, and most of the groundwater is flowing into the MZ or parallel to the MZ adjacent to the Kaweah Subbasin (Priority 1 Subbasin).

The Management Zone recognizes that there is uncertainty with the quantification of the areas of potential contribution described above, due to both hydraulic gradients calculated from specific seasons and years, as well as the ambient nitrate map. The Management Zone also recognizes that this analysis represents a snapshot in time, as represented by DWR's Spring 2018 groundwater elevation contour. As additional information is developed, including groundwater flow assessments performed for SGMA and GSP purposes, the areas of potential nitrate contribution will be revisited and future work for the Management Zone Implementation Plan will rely heavily on results from the GSPs in KWA. Revised GSP documents were submitted at the end of July 2022, and coordination efforts between KWA and the GSAs in this area are underway.

³⁵ Area of Contribution: This is the portion(s) of Subbasin (and in this case the Management Zone) where a discharge or discharges will co-mingle with the receiving water (e.g., groundwater) and where the presence of such discharge(s) could be detected.

Table 3-7. Quantification of Areas of Potential Nitrate Contribution (Chowchilla MZ)					
Description of Area Along KWA Border	Approximate Hydraulic Gradient (ft/ft)	GWE Contour Data Source	GW Flow Direction (Into/Out of Management Zone)	Ambient Post-2000 Nitrate Level	Adjacent Subbasin and Priority
Eastern border from Corcoran north to Ave 199	0.00635	Spring 2018 (DWR)	North (Parallel)	<2.5 to >10 mg/L as N	Kaweah Subbasin (Priority 1)
Eastern border from Ave 199 north to Ave 248	0.00510	Spring 2018 (DWR)	North-northeast (In)	<2.5 to >10 mg/L as N	Kaweah Subbasin (Priority 1)
Eastern border from Ave 248 north to Hwy 99	0.00136	Spring 2018 (DWR)	Southwest (In)	<2.5 to >10 mg/L as N	Kaweah Subbasin (Priority 1)

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 3-8**). 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;
- 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

he 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 3-8** 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-north-west. 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 3-8. 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%
Total	100%

3.2.4. Nitrate Water Quality

Table 3-9 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 3-9. 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"> • Former California Department of Public Health (CDPH), now DDW • DWR • Central Valley Water Board Waste Discharge Requirements (WDR) data per the Dairy General Order • Central Valley Water Board Regulated Sites • State Water Board/USGS Groundwater Ambient Monitoring and Assessment Program (GAMA) • USGS
GeoTracker GAMA ³⁶ (Note: Not all entities had nitrate data from within the proposed Management Zone)	<ul style="list-style-type: none"> • Department of Pesticide Regulation • DWR • GAMA – Domestic Wells; Special Studies, and Priority Basin Projects • Local Groundwater Projects • Monitoring Wells (Central Valley Water Board Regulated Sites) • Irrigated Lands Regulatory Program Upper Zone Wells • DDW Public Water System Wells (Actual Locations) • USGS National Water Information System (NWIS)
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 ³⁷
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 3-9**. Nitrate data were summarized by data source, depth, and recent nitrate exceedances. **Table 3-10** provides a summary of wells with nitrate measurements in the Southern Portion (Tulare Lake Subbasin and small part of Kaweah

³⁶ <https://geotracker.waterboards.ca.gov/gama/gamamap/public/>, accessed in November 2020

³⁷ 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.

Subbasin) 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)³⁸. 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-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 and small part of Kaweah Subbasin) 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 and small part of Kaweah Subbasin) 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 3-11 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.

³⁸ See text and CV-SALTS 2016a and 2016b for a description of the development and assignment of Upper Zone delineations.

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 miles³⁹.
- 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 and small part of Kaweah Subbasin) 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 and small part of Kaweah Subbasin) 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

³⁹ 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.

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 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 3-10. Summary of Wells with Nitrate Data Located in the Southern Portion (Tulare Lake Subbasin and small part of Kaweah Subbasin) 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
Total	1,793	1,337	687

Table 3-11. Wells with Nitrate Measurements in the Southern Portion (Tulare Lake Subbasin and small part of Kaweah Subbasin) 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%
Total	1,793	1,337	687	51%

3.2.5. Nitrate Trend Analysis

Future Management Zone work, anticipated for the Management Zone Implementation Plan, will include an analysis of temporal trends in nitrate. Trends are important for understanding and projecting groundwater quality conditions within the Management Zone, with particular focus on nitrate conditions in the Upper Zone where domestic wells are completed. Two main approaches to trend analysis are recommended for future Management Zone work: Parametric and Non-Parametric Statistical Analyses of Trends. An appendix has been prepared that details the groundwater nitrate quality data analysis methods for the Management Zone, including future trends analyses planned for the Management Zone (**Attachment H**)

3.2.6. Inactive Drinking Water Supply Wells

The Management Zone received comments from the Regional Board on the PMZP, one of which involved a concern about inactive drinking water supply wells producing bias in the ambient Upper Zone nitrate analysis. In order to address this concern, the location of inactive supply wells that have had nitrate exceedances are compared to the ambient nitrate map. The DDW's online public water system database website can be used in conjunction with the GAMA database to identify supply wells that are no longer used within the Management Zone. The DDW website provides database files that include a file containing public water system well identification numbers and well status codes.⁴⁰ The wells from the DDW website are not accompanied by location coordinates, but these wells can be linked (using their primary station code ID) to nitrate groundwater quality data from the GAMA dataset which does provide well location coordinates. Wells within the KWA Southern Portion (Tulare Lake Subbasin and small part of Kaweah Subbasin) that have a current status (as provided by DDW, which was last updated in August 2021) of "AB" for abandoned, "DS" for destroyed, "IR" for inactive raw, "IT"

⁴⁰ Water quality database files are publicly accessible here https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/EDTlibrary.html (accessed June, 2022), including the supporting database file SITELOC, which contains primary station codes (well identification numbers) and well status codes that can be used to determine if a well has been abandoned, destroyed, or deemed inactive.

for inactive treated, and “IU” for inactive unused, are considered to be no longer actively used for drinking water.

Within the KWA Southern Portion (Tulare Lake Subbasin and small part of Kaweah Subbasin), a total of 42 supply wells are not currently being used for drinking water according to DDW (5 are abandoned, 27 are destroyed, and 10 are inactive). These wells are all less than 9,229 feet from the nearest Upper Zone well with post-2000 nitrate data, with an average proximity of 4,298 feet from the nearest Upper Zone well with post-2000 nitrate data. Most of the wells not currently being used for drinking water supply (according to DDW) fall within ambient Upper Zone concentrations less than 7.5 mg/L as N (25 out of 42 wells). The remaining 17 wells fall within the ambient Upper Zone concentration reflective of MCL exceedances. **Figure 3-15** shows the locations of the 42 wells in the KWA Southern Portion (Tulare Lake Subbasin and small part of Kaweah Subbasin) not currently being used for drinking water supply in relation to Upper Zone wells with post-2000 data and ambient post-2000 nitrate conditions.

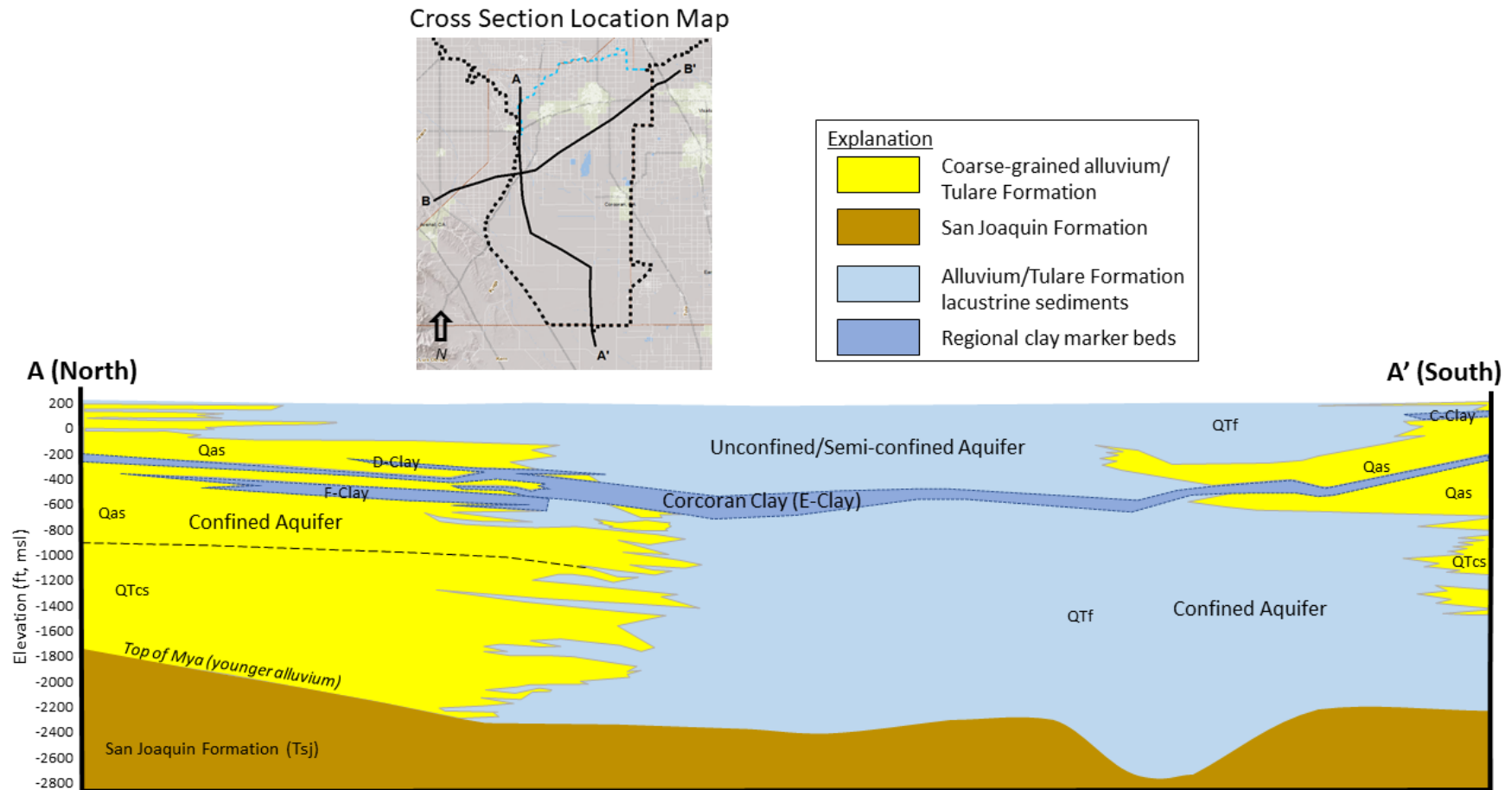


Figure 3-7. Conceptual Cross Section for the Tulare Lake Subbasin (North to South) (adapted from Tulare Lake Subbasin GSP, 2020)

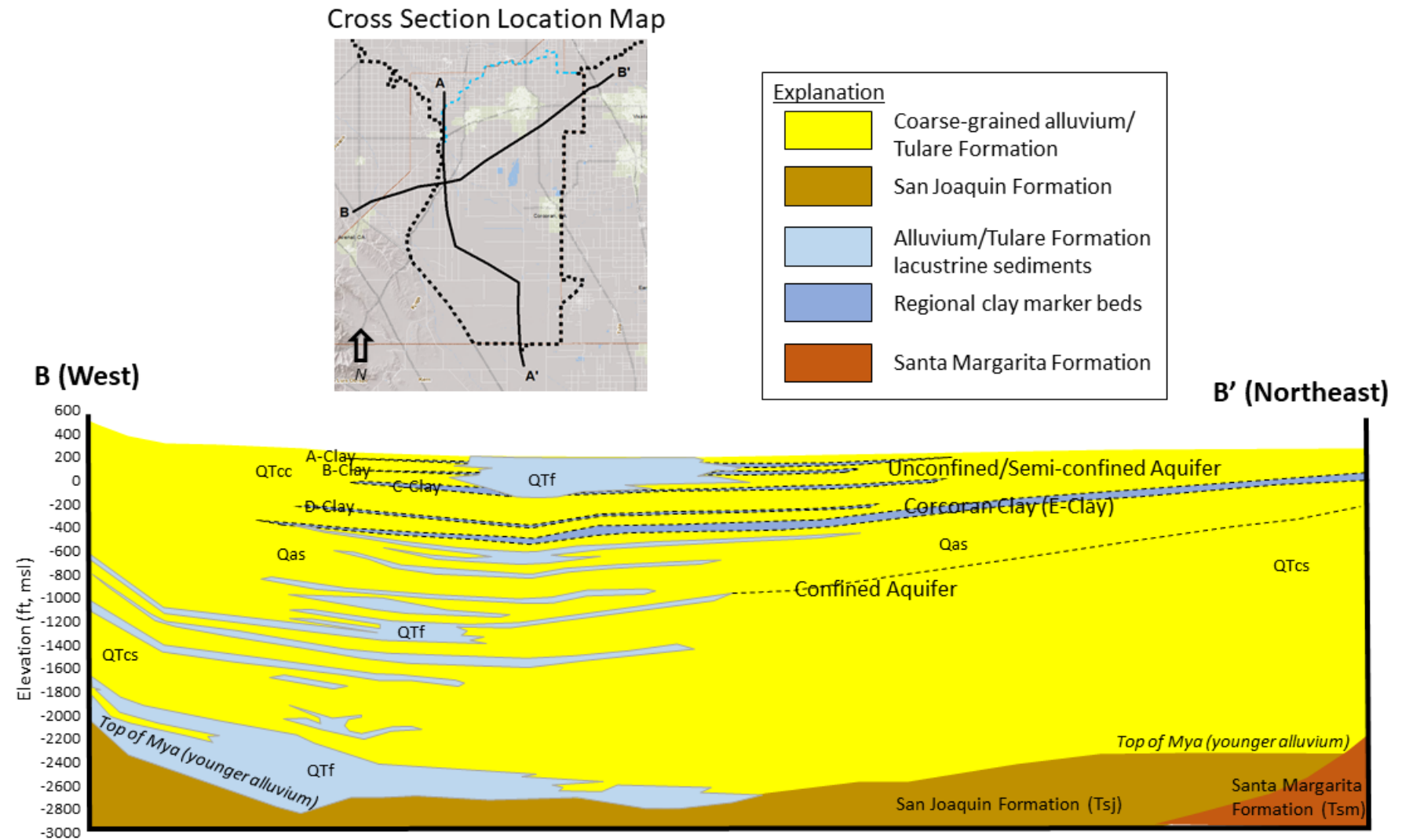


Figure 3-8. Conceptual Cross Section for the Tulare Lake Subbasin (West to East) (adapted from Tulare Lake Subbasin GSP, 2020)

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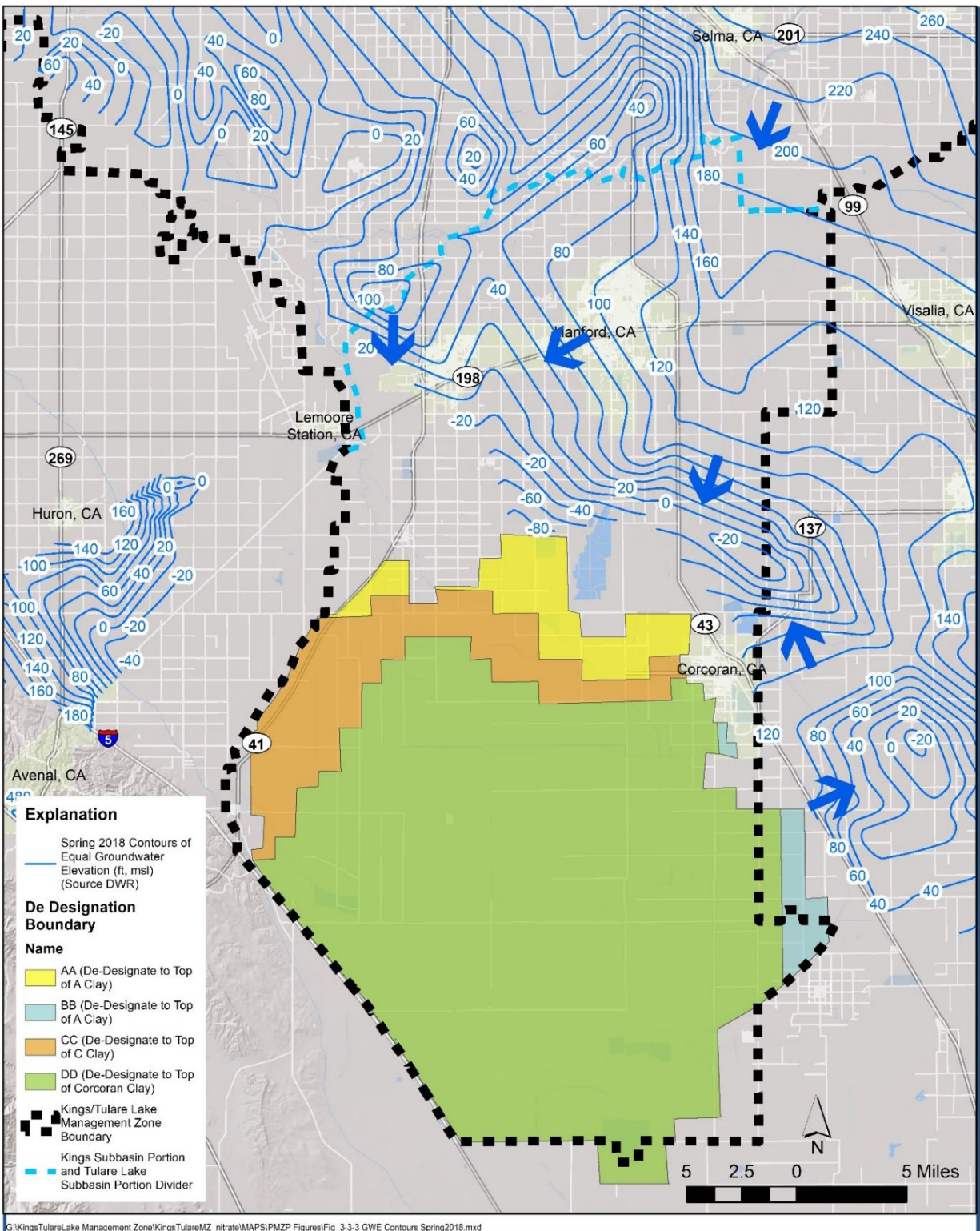


Figure 3-9. Spring 2018 Contours of Equal Groundwater Elevation for the Tulare Lake Subbasin (source: DWR)

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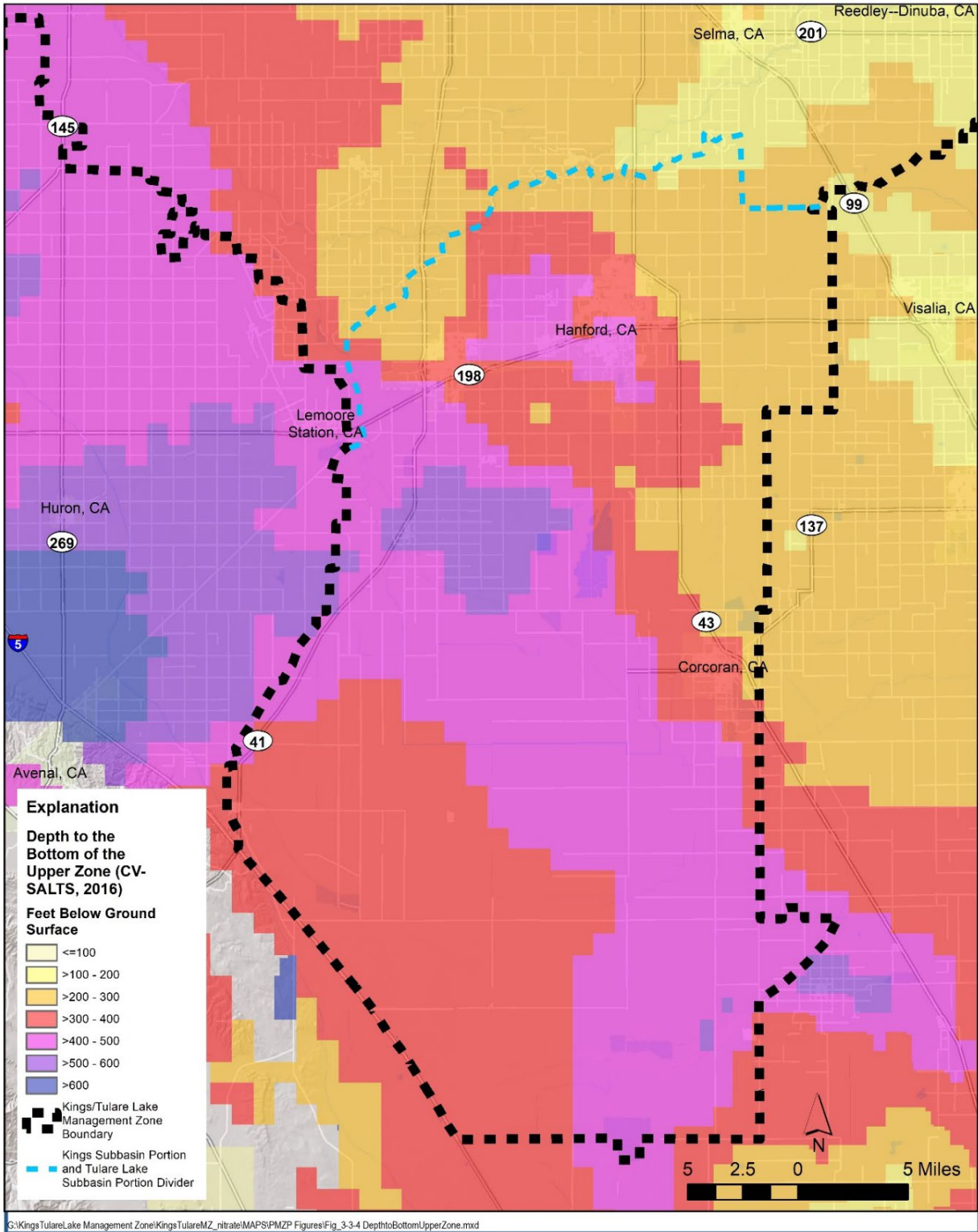


Figure 3-10. Depth to the Bottom of the Upper Zone, Tulare Lake Subbasin

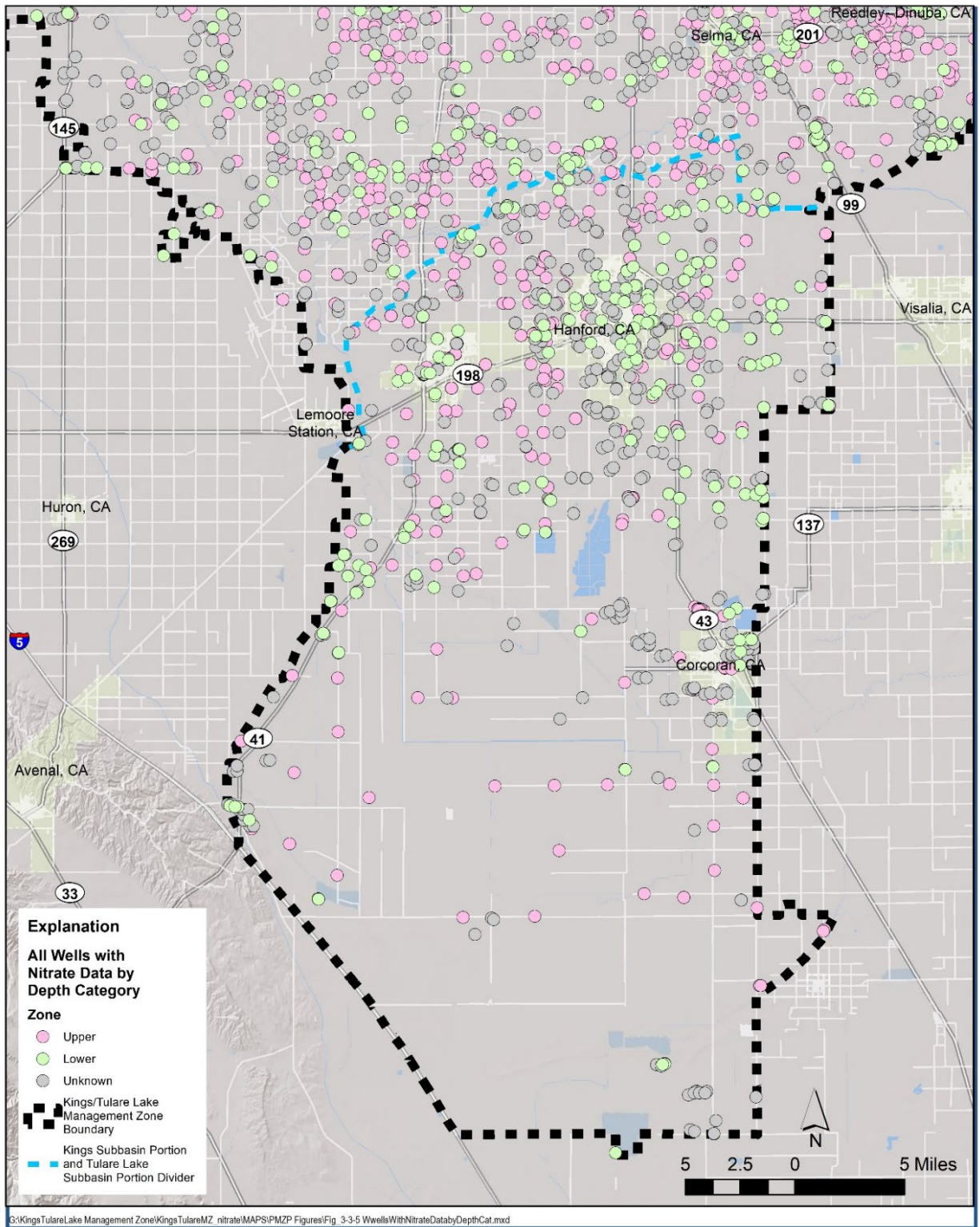


Figure 3-11. Wells with Nitrate Data within the Proposed KWA Management Zone by Depth Category (Southern Portion/Tulare Lake Subbasin and small part of Kaweah Subbasin)

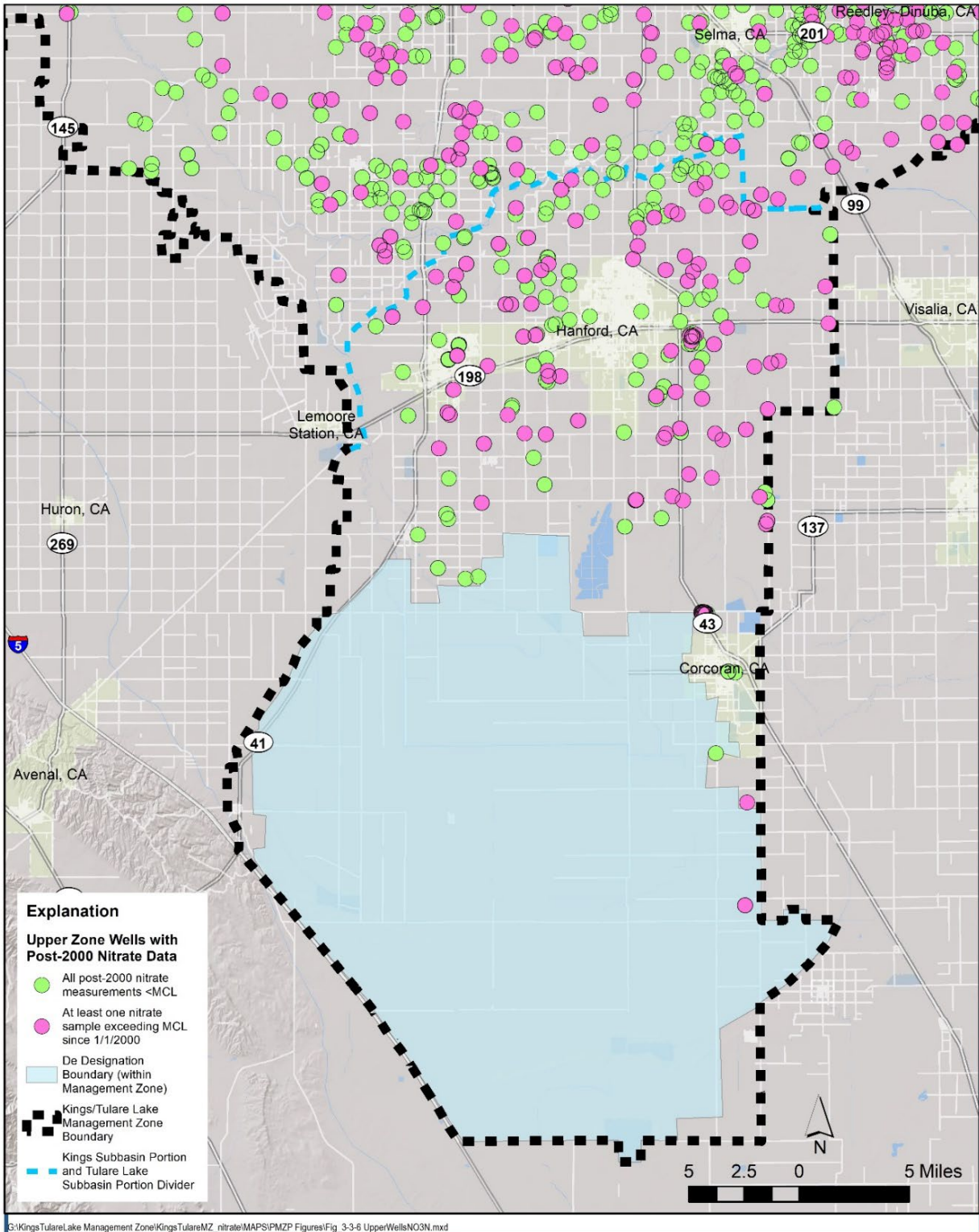


Figure 3-12. Upper Zone Wells with Nitrate Data and Nitrate MCL Exceedances (Post-2000) in the Southern Portion (Tulare Lake Subbasin and small part of Kaweah Subbasin) of the KWA Management Zone

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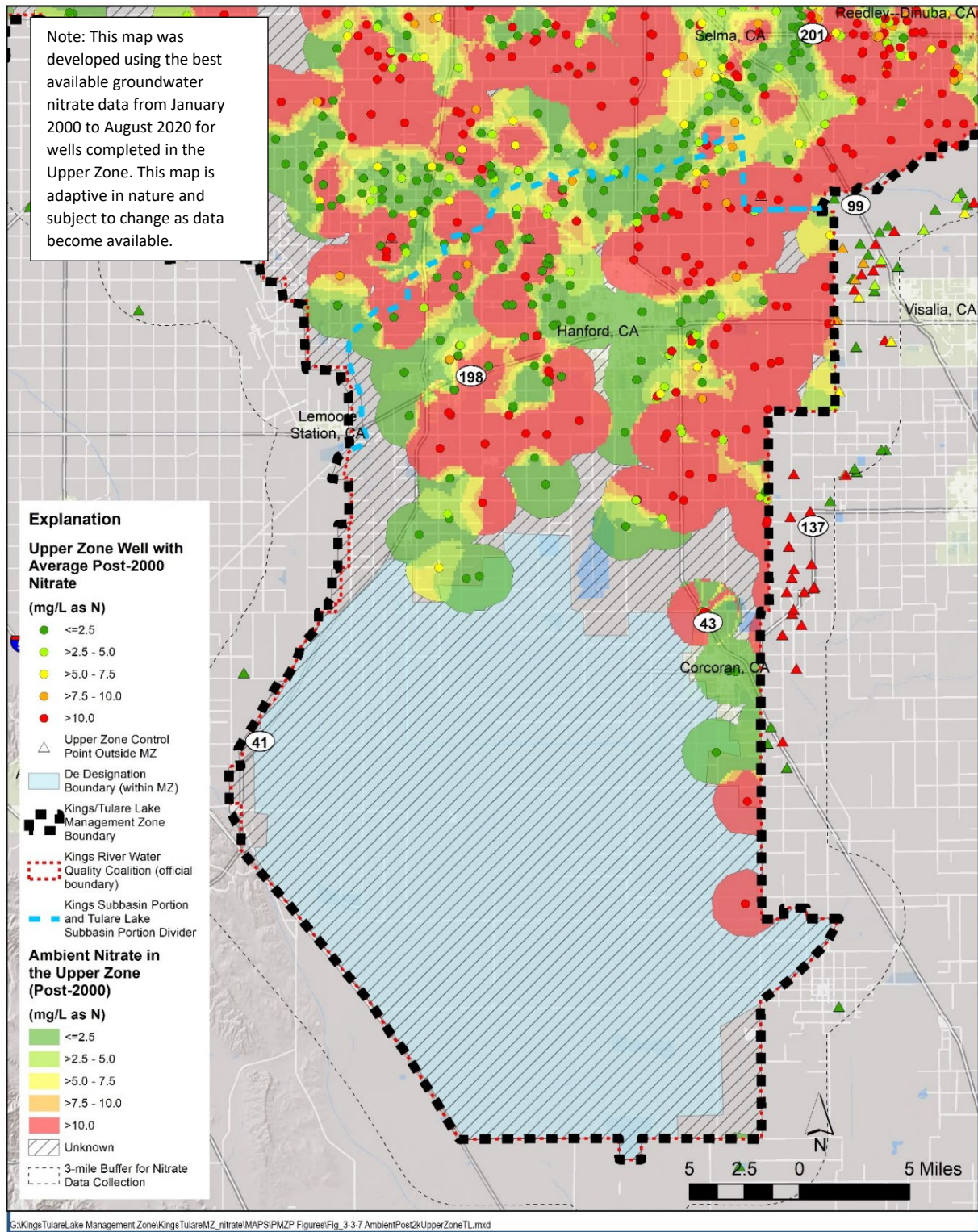


Figure 3-13. Ambient Post-2000 Nitrate Concentrations in the Upper Zone of Groundwater Underlying the Southern Portion (Tulare Lake Subbasin and small part of Kaweah Subbasin) of the Proposed KWA Management Zone.

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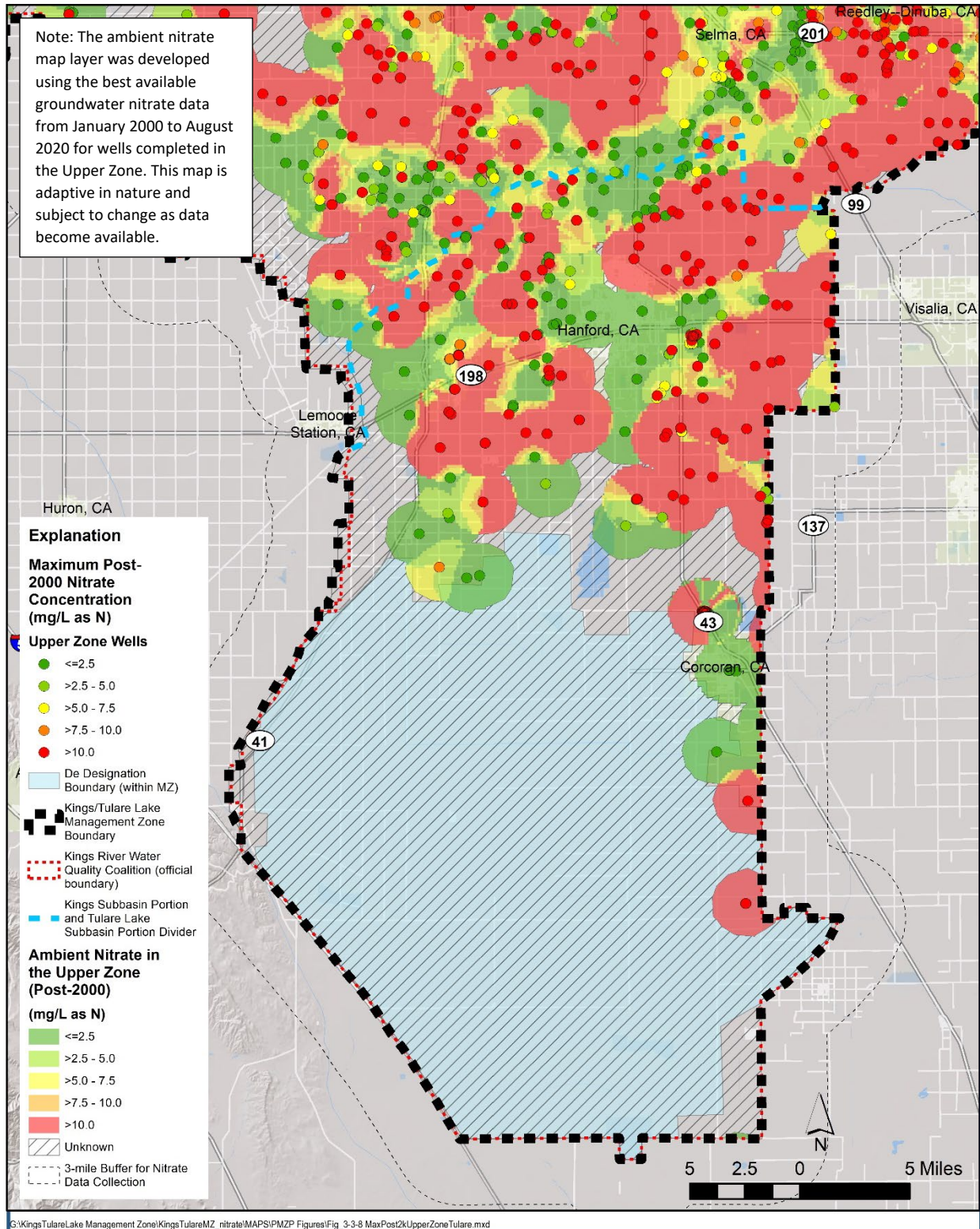


Figure 3-14. Maximum Post-2000 Nitrate in the Upper Zone with Ambient Groundwater Underlying the Proposed KWA Management Zone.

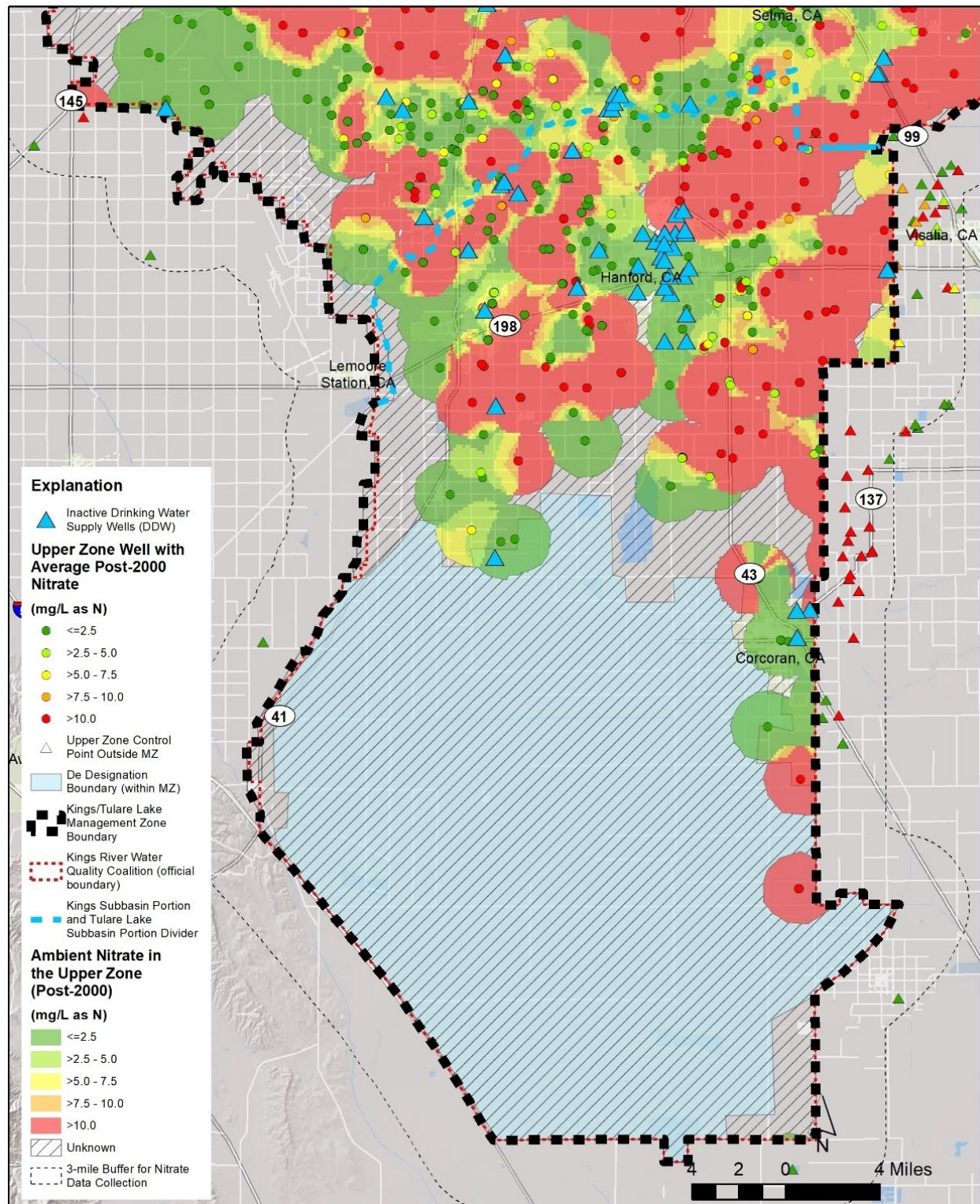


Figure 3-15. Inactive Drinking Water Supply Wells with Post-2000 Ambient Nitrate in the Upper Zone Underlying the Proposed KWA Management Zone (KWA Southern Portion).

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 the permitted dischargers and non-dischargers in the Management Zone located within the following subbasins: Tulare Lake, Kaweah, Westside, Pleasant Valley, Tule and Kern County.

3.3.1. Permitted Dischargers

The CVWB is currently expected to send a NTC with the Nitrate Control Program to permitted dischargers in Priority 2 areas in summer 2023; however, per the regulations it could be as late as early 2024. At the request of the Management Zone, the CVWB provided the list of permitted dischargers that are expected to receive the NTC in Priority 2 areas. This information is provided below. As needed, this list of permitted dischargers will be refined after NTCs are sent out to Priority 2 areas. There are dischargers located within areas of the Tulare Lake Subbasin where MUN and AGR beneficial uses have been de-designated. These facilities are not subject to the Nitrate Control Program and will not receive a NTC (based on communication with the CVWB staff). Accordingly, facilities located in de-designated areas are not included in this FMZP.

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 including both Priority 1 and 2 areas. 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”). The NTC with the Nitrate Control Program was sent to the dairies within the Priority 1 Kaweah Subbasin on May 29, 2020. The NTC has not yet been sent to dairies in the Priority 2 areas (see schedule for Priority 2 areas above). **Attachment B, Tables 2 and 4** list the milk cow dairies in the Kaweah and Tulare Lake Subbasins, respectively, that are members of the CVDRMP and, therefore, are participating (Kaweah subbasin) or are expected to participate (Priority 2 areas) in the KWA Management Zone.

Confined Bovine Feeding Operations

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 confined bovine feeding operations within the Kaweah Subbasin on May 29, 2020. The NTC has not yet been sent to such facilities in the Priority 2 areas (see schedule for Priority 2 areas above). **Attachment B, Tables 2 and 4** list the confined bovine feeding operations in the Kaweah and Tulare Lake Subbasins, respectively, that are members of the CVDRMP and, therefore, are participating (Kaweah subbasin) or are expected to participate (Priority 2 areas) in the KWA Management Zone..

Poultry Operations

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).”). There are no poultry facilities located within the Kaweah Subbasin which was sent the NTC on May 29, 2020. The NTC has not yet been sent to poultry facilities in the Priority 2 areas (see schedule for Priority 2 areas above). **Attachment B, Table 5** lists the poultry facilities within the Tulare Lake Subbasin expected to receive an NTC. These permitted dischargers are expected to 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 3-12 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**).

Table 3-12. Individual Non-CAFO 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
Tulare Lake Subbasin						
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 3/4 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	Corcoran WWTF	Non15	City of Corcoran, Pueblo Avenue & 5 th Avenue, Corcoran, CA 93212	Kings	91-138	2658
6	El Dorado MHP WWTF	Non15	Egik LLC, 9630 Hwy 41, Lemoore, CA 93245	Kings	96-028	1994
7	Hanford Master Reclamation Project	Non15	City of Hanford, 10555 Houston, Hanford, CA 93230	Kings	00-223	1758
8	Hanford WWTF	Non15	City of Hanford, 10555 Houston, Hanford, CA 93230	Kings	01-153	2667
9	Kettleman City WWTF	Non15	City of Kettleman CSD, Racine Avenue, Kettleman City, CA 93239	Kings	79-143	2715

Table 3-12. Individual Non-CAFO 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	Lakeside WD Reclamation Project	Non15	Lakeside Irrigation Water District, 9304 Houston, Hanford, CA 93230	Kings	00-222	2412
11	Lemoore NAS WWTF	Non15	Naval Air Station Lemoore, Hwy 198, Lemoore, CA 93245	Kings	R5-2002-0062	2210
12	Leprino Sludge Discharge	Non15	Leprino Foods Company, 351 North Bell Haven Drive, Lemoore, CA 93245	Kings	-	2789
13	OTP Lemoore Plant	Non15	Olam Spices and Vegetables Inc., 1175 South 19 th Avenue, Lemoore, CA 93245	Kings	R5-2012-0120	2504
14	Stratford WWTF	Non15	Stratford PUD, Lincoln, Stratford, CA 93266	Kings	2014-0153-DWQ	2682
15	Warmerdam Packing Facility	Non15	Warmerdam Packing LLC, 15650 Excelsior, Hanford, CA 93230	Kings	Pending Order	2609
Kaweah Subbasin						
16	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
17	Nichols Pistachio	Non15	Nichols Pistachio, 13762 First, Hanford, CA 93230	Kings	R5-2013-0007	2321

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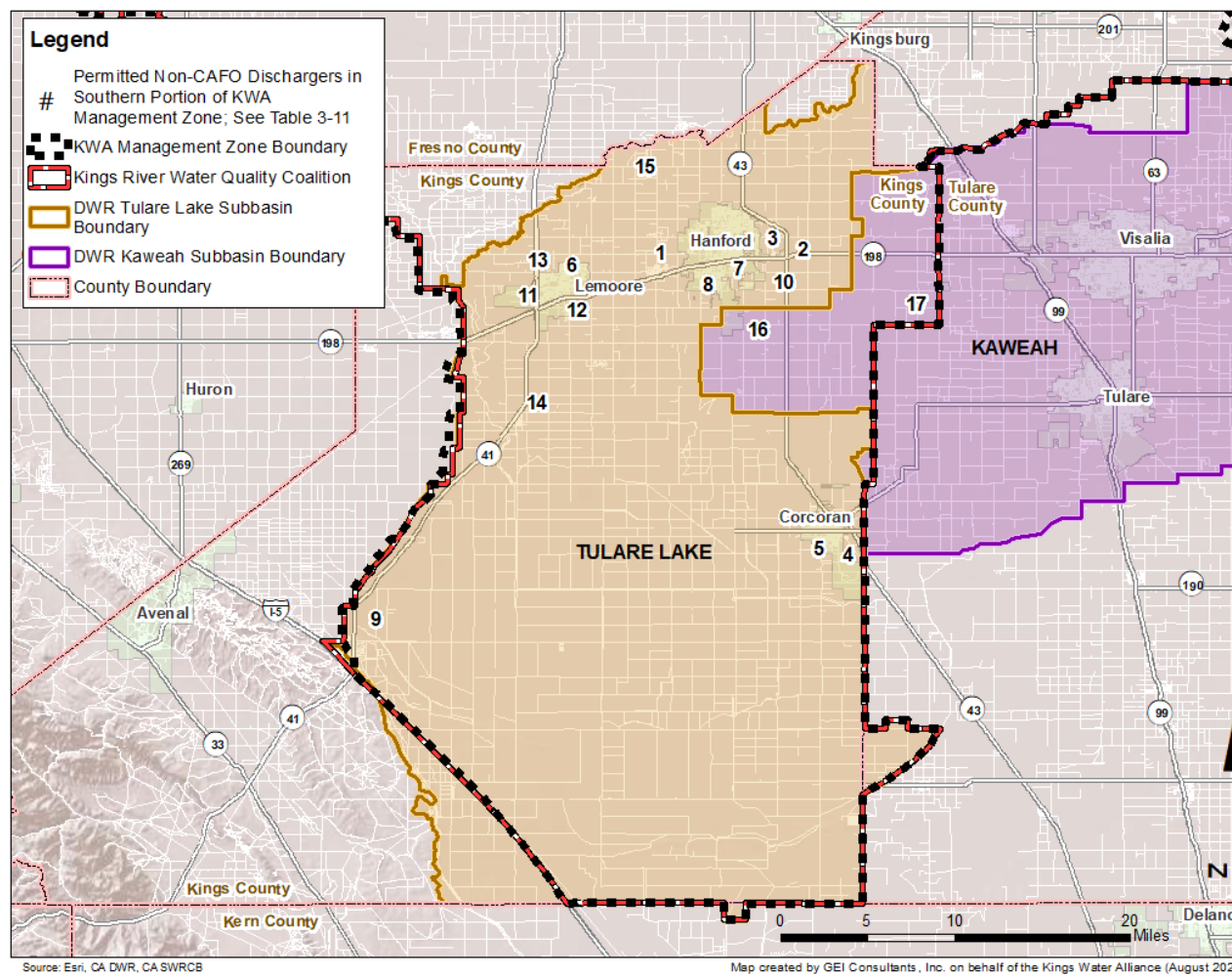


Figure 3-15s. Location of Individually Permitted Dischargers in the Southern Portion (Tulare Lake and Kaweah Subbasin Areas) of the Kings Water Alliance Management Zone (see Table 3-15 to identify permitted dischargers)

KWA has conducted outreach to each individually permitted discharger in the Tulare Lake/Kaweah subbasin areas to discuss the Nitrate Control Program requirements and the opportunity to participate in the Management Zone. Table 1-6 identifies the permitted dischargers in the Kaweah subbasin areas (Priority 1) that have opted to participate in the Management Zone. Permitted discharges within the Tulare Lake subbasin are in the Priority 2 area. While several have already indicated their intent to participate in the Management Zone (see Table 1-7), these dischargers do not have a need to select a Nitrate Control Program compliance pathway until after they receive a NTC with the program.

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 the Management Zone. 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. Note: Information about the nitrate control practices of individual permitted dischargers within Priority 2 are not included at this time. KWA will be submitting an addendum to the FMZP for the Priority 2 areas with an update as the Notice To Comply Timeline is set for these areas.

3.4.1. Irrigated Lands Regulatory Program

General Order R5-2013-0120 (as 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 facilities that have already indicated they will be a Management Zone participant within the Priority 2 Tulare Lake and the Priority 1 Kaweah subbasin areas 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 3-13 summarizes the nitrate management-related requirements in this facility's WDR.

Table 3-13. Summary of Key Baker Commodities Hanford Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses
Discharge Specifications	<ul style="list-style-type: none"> The monthly average daily discharge flow from the facility to the lagoons shall not exceed 0.035 mgd The 124-acre land application area shall be double cropped and irrigated at the reasonable hydraulic rate that meets crop demand
Groundwater Specifications	<ul style="list-style-type: none"> 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)
Management Plans	<ul style="list-style-type: none"> 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
Monitoring & Reporting	<ul style="list-style-type: none"> Lagoon water blended with irrigation water representative of land-applied discharge which includes nitrate nitrogen, TKN, ammonia and total nitrogen Groundwater monitoring which includes nitrate nitrogen Supply water for the facility which includes nitrate nitrogen

3.4.3.2. Central Valley Meats Hanford Facility

Facility Description (CV-SALTS ID: 2112)

Central Valley Meat Company is authorized to discharge under WDR Order R5-2008-0017. This facility is located at 10431 8 ¾ Avenue in Hanford, CA. Beneficial uses of underlying groundwater are MUN, AGR, IND and PRO. The permitted facility is a slaughterhouse and beef processing facility. Cattle are kept in holding pens to provide a continuous supply of animals for processing. The pens are sources of wastewater from pen washing, drinking water spillage, and washing of live cattle. Process wastewater is generated five to six days per week.

Wastewater generated from the various processes drain into individual sumps throughout the facility, which all drain into a large aerated central collection sump (Central Sump). The Central Sump collects all wastewater at the Facility. Wastewater from the facility is discharged to a LAA owned by the Discharger. The LAA consists of six fields totaling approximately 186 acres and is used to grow feed, fodder, and fiber crops such as alfalfa, wheat, corn silage and cotton. Crops grown in the LAA are irrigated with a combination of wastewater, groundwater, and surface water from the Lakeside Irrigation District.

Nitrate Management Requirements

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

Table 3-14. Summary of Key Central Valley Meats WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Prohibits the discharge of waste to surface waters and to surface water drainage courses
Discharge Specifications	<ul style="list-style-type: none"> No waste constituent shall be released or discharged, or place where it will be released or discharged, in a concentration or in a mass that causes violation of groundwater limitations.
Effluent Limitations	<ul style="list-style-type: none"> Monthly average flow rate shall not exceed 0.39 mgd (or up to 0.42 mgd on Parcel 016-130-058 if approved by the Executive Office).
Groundwater Specifications	<ul style="list-style-type: none"> 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 natural background quality or nitrate (as N) of 10 mg/L, whichever is greater.
LAA	<ul style="list-style-type: none"> Hydraulic loading of wastewater and irrigation shall be at reasonable agronomic rates designed to minimize the percolation of wastewater and irrigation water below the root zone. 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

Table 3-14. Summary of Key Central Valley Meats WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
	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.
Management Plans	<ul style="list-style-type: none"> WDR required preparation of a comprehensive irrigation and nutrient management plan that included (a) description of the types of crops to be grown; (b) crop water use and uptake rates; (c) supporting data and calculations for monthly and annual nutrient balances to meet agronomic loading rates considering the crop, soil, climate and irrigation management system.
Monitoring & Reporting	<ul style="list-style-type: none"> Pond influent monitoring, including monthly 24-hr composite for nitrate (as NO₃-N), ammonia (as NH₃-N), TKN and total nitrogen Pond effluent monitoring, including monthly grab for nitrate (as NO₃-N), ammonia (as NH₃-N), TKN and total nitrogen Groundwater monitoring including nitrate (as NO₃-N), ammonia (as NH₃-N), TKN and total nitrogen LAA monitoring: (a) Wastewater and Supplemental Irrigation flow and wastewater loading; (b) BOD loading rates; (c) monthly nitrogen loading from wastewater and fertilizer; and (d) annual cumulative nitrogen loading.

3.4.3.3. Leprino Sludge Discharge

Facility Description (CV-SALTS ID: 2789)

The Lemoore Cheese Processing Plant is located in the Tulare Lake Subbasin. Sludge from this facility is used in the area around the Cheese Plant. The beneficial uses of the underlying groundwater at all facilities are MUN, AGR and IND. Specific WDR requirements are currently unavailable in CIWQS. Information regarding sludge processing will be evaluated further during MZIP development.

3.4.3.4. Del Monte Foods Hanford Plant #24

Facility Description (CV-SALTS ID: 1951)

Del Monte Foods, Inc. is authorized to discharge under WDR Order R5-2014-1116. This facility is located at 10652 Jackson Avenue, Hanford, CA. Beneficial uses applicable to the underlying groundwater include MUN, AGR, IND and PRO. Del Monte's Plant #24 is a tomato and zucchini processing plant that has been in operation since at least the 1970's. Processing season occurs from June 1 through October 31 and consists of cleaning, sorting, peeling and directly packaging tomatoes and zucchinis into food products. In addition the facility thermally processes

tomatoes into a variety of shelf stable products that are reprocessed during the off season (November 1 to May 31) into a variety of tomato products. Process water is used to supplement irrigation of cropland. Wastewater consist of water generated from sorting, washing, peeling and cooking vegetables, boiler and cooling tower blowdown and water softener regenerate.

Nitrate Management Requirements

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

Table 3-15. Summary of Del Monte Foods Plant #24 WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Specific Conditions	<ul style="list-style-type: none"> The discharge of waste to wetlands, surface waters or surface water drainage courses is prohibited. The discharge shall not create or threaten to create a condition of pollution, contamination, or nuisance as defined by Water Code Section 13050.
Land Application	<ul style="list-style-type: none"> Plant shall comply with the following Tier 3 Waiver requirements applicable to land application of wastewater: <ul style="list-style-type: none"> Land application of up to 1,000,000 gallons of process wastewater per year for irrigation of landscaping or crops with a minimum of 1.0 acres of LAA per 100,000 gallons of wastewater. Land application of residual solids associated with generation of up to 1,000,000 gallons of process wastewater per year as a soil amendment for landscaped or cropped areas with a minimum of 1.0 acres of LAA per 100,000 gallons of wastewater. Wastewater shall be evenly applied across the entire LAA and shall be applied to cropland or landscaped areas at a rate consistent with the water needs of the crop or vegetation grown in the LAA 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). The discharger shall maintain and use at least one acre of cropland and/or landscaped area for each 100,000 gallons of wastewater and/or equivalent mass of residual solids applied to land each year. LAAs for wastewater and residual solids may have a combined use (for example, a one-acre LAA may receive 100,000 gallons of wastewater plus the associated residual solids per year, etc.). If residual solids are applied to land: <ul style="list-style-type: none"> Land application methods, rates, and management practices shall be in accordance with those proposed in the RWD unless the Discharger finds that specific changes are necessary to ensure continued compliance with the conditions of the Waiver.

Table 3-15. Summary of Del Monte Foods Plant #24 WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
	<ul style="list-style-type: none"> ○ If residual solids that contain free liquids are applied to land, the Discharger shall ensure that all liquid is absorbed into the soil within 12 hours of application and that no liquid runs off the application area. ○ Residual solids shall be applied to land at rates that do not exceed crop demand for plant nutrients based on the nutrient content of the solids, the nutrient requirements of the crops or other vegetation grown on the LAA, and the amount of other forms of fertilizer used. ○ Residual solids shall be evenly applied across the entire LAA.
Monitoring & Reporting	<ul style="list-style-type: none"> • An estimate of the total nitrogen loading to the LAA for the calendar year, with calculations showing the contribution from each nitrogen source in lb/ac/year.

3.4.3.5. 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 3-16 summarizes the nitrate management-related requirements in this facility's WDR.

Table 3-16. Summary of Key Nichols Pistachio Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul style="list-style-type: none"> Discharge of waste, including storm water containing waste, to surface waters or surface water drainage courses is prohibited
Discharge and Solids Disposal Specifications	<ul style="list-style-type: none"> 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 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 Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050 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 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.
Land Application Area	<ul style="list-style-type: none"> The cycle average BOD loading rate to the LAA shall not exceed 100 lbs/acre/day. 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. 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). 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. 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

Table 3-16. Summary of Key Nichols Pistachio Facility WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
	infiltration of waste constituents into soils in a mass or concentration that will violate the groundwater limitations of this Order
Groundwater Specifications	<ul style="list-style-type: none"> 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"> Nitrate (as N) of 10 mg/L For constituents identified in Title 22, the MCLs quantified therein
Management Plans	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.
Monitoring & Reporting	<ul style="list-style-type: none"> Effluent monitoring including nitrate (as N), TKN and total nitrogen Soils monitoring that includes TKN and nitrate (as N) LAA monitoring: (a) Wastewater flow and loading; supplemental Irrigation flow; total hydraulic loading; (b) BOD loading rates; (c) nitrogen loading from wastewater and fertilizer

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 FMZP 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 and small part of Kaweah Subbasin) 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 and small part of Kaweah Subbasin) 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 internet⁴¹ 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 and small part of Kaweah Subbasin) 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 and small part of Kaweah Subbasin) of the KWA Management Zone. Of those five wells in the Southern Portion, three wells are considered

⁴¹ <https://sdwis.waterboards.ca.gov/PDWW/>

“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 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 and small part of Kaweah Subbasin) of the Management Zone, out of the four unique PWS with nitrate exceedances located within the Southern Portion (Tulare Lake Subbasin and small part of Kaweah Subbasin) 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).

An assessment of the PWSs that are within the KWA MZ area was completed in July 2022 for this FMZP. There are 215 PWSs within the KWA Northern Portion (Kings Subbasin Area) (**Figure 2-4**). And 10 PWSs within the KWA Southern Portion (Tulare Lake Subbasin and small part of Kaweah Subbasin) (**Figure 3-15**). Tables listing each PWS and any compliance information pertaining to nitrate or other contaminants is available in the EAP. There are three PWSs out of compliance due to nitrate and three PWS are out of compliance due to nitrate plus a co-contaminant (1,2,3-Trichloropropane (1,2,3-TCP)).

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 DWR⁴². 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 and small part of Kaweah Subbasin) of the KWAMZ, there are approximately 216 domestic wells within the PWS residential service areas. It is

⁴² 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.

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

*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.

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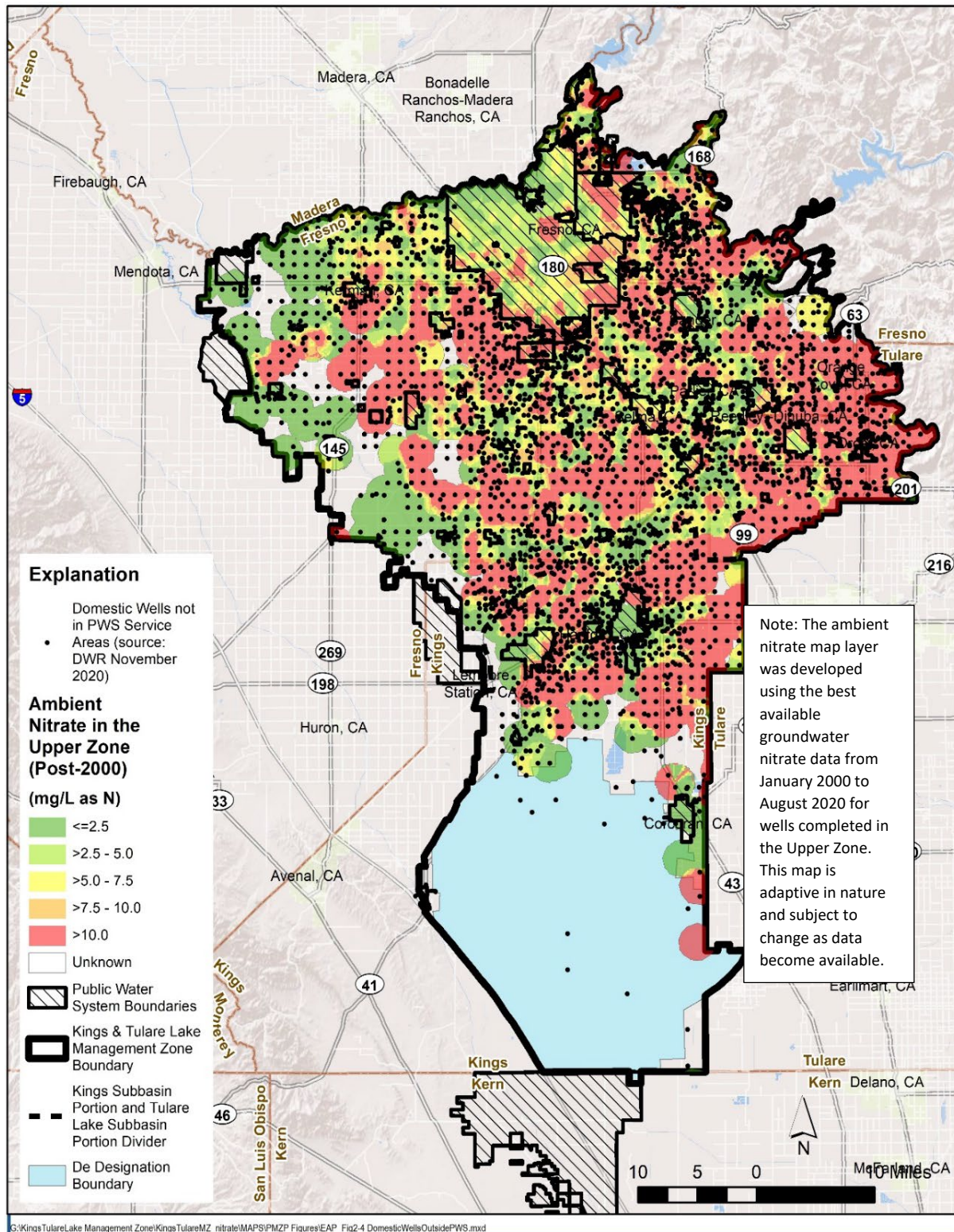


Figure 4-1. Domestic Wells Located Outside Public Water System Areas in the Kings Water Alliance Management Zone.

4.2. Community Outreach

The KWA implemented a community outreach program to support development of the EAP. Section 1.4.4.2 above summarized the community outreach activities completed during the development of the EAP submitted with the PMZP. Section 1.2 of the EAP and the associated attachments in the EAP appendices provided additional information regarding those outreach efforts. As described in the EAP an extensive community outreach program continued after the EAP implementation began on May 8, 2021.

4.3. Key Early Action Plan Elements

This section provides a summary of the key elements of the KWA Management Zone's EAP, which is being implemented in two phases:

- *Phase 1* - EAP implementation is occurring 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. This phase began on May 8, 2021 and will continue until the EAP is replaced by water replacement program established in the MZIP (anticipated in 2023).
- *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 as required by the schedule established in the Nitrate Control Program.

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 are being implemented under the EAP. Outreach is occurring through regular community meetings and other means of communication (website, flyers, email, etc.). 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 bottled water delivery and POU System programs 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 KWA 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

Based on the conditional approval received from the Central Valley Water Board on May 7, 2021, the Management Zone began implementation of Phase 1 of the EAP on 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 reporting 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. For the purposes of preparation of this FMZP, the EAP has been updated based on the Central Valley Water Board’s conditional approval and knowledge gained from EAP implementation since inception of the program.

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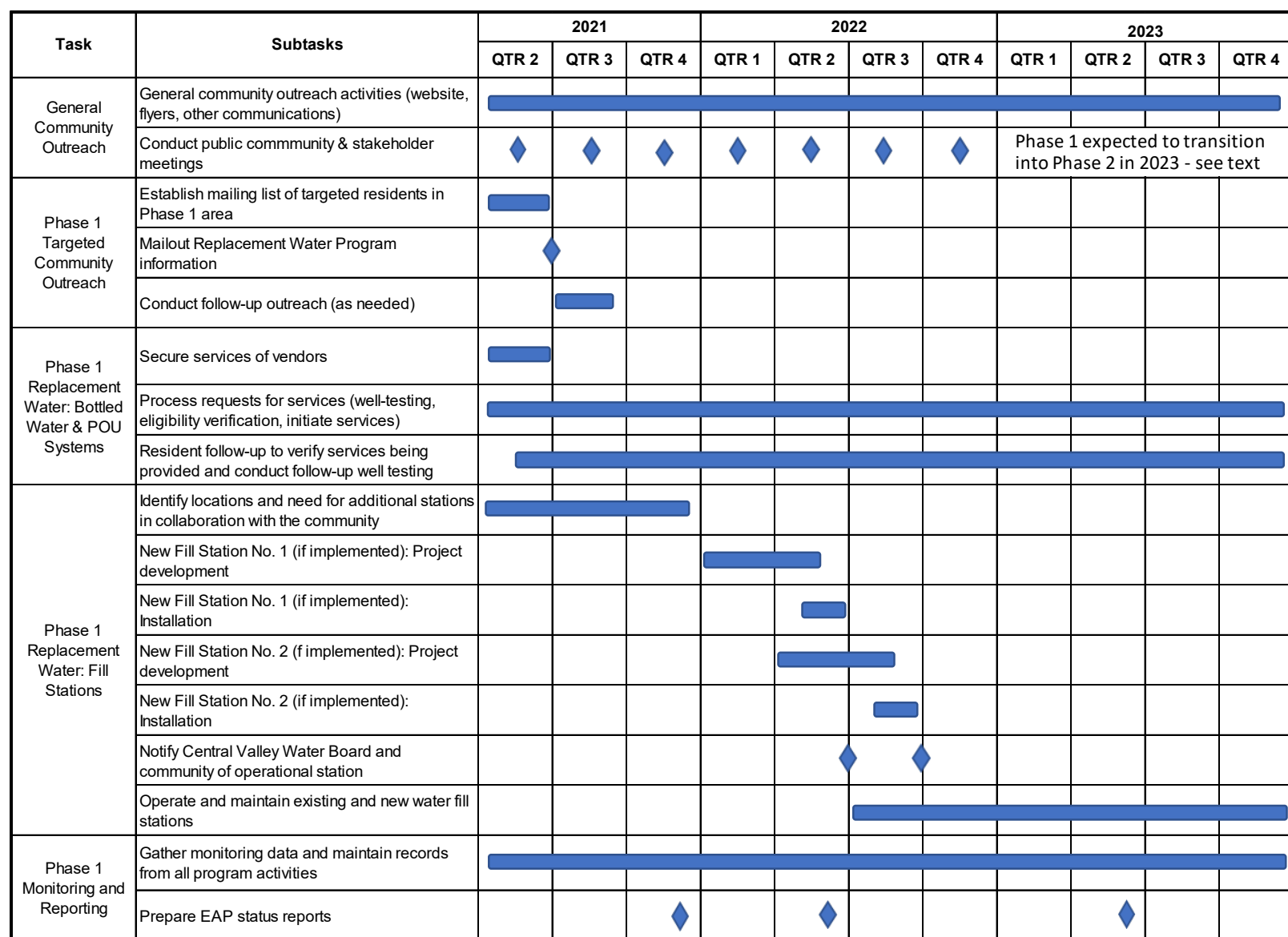


Figure 4-2. General Phase 1 EAP Implementation Schedule

4.5. Status of EAP Implementation Activities

EAP implementation activities began on May 8, 2021. These activities are summarized below:

- **Public Meetings:**
 - May 25, 2021 KWA Kick-Off Webinar – this was held online through Zoom
 - July 27, 2021 Nitrates in Groundwater: The Basics (Webinar #1) – this was held online through Zoom
 - July 28, 2021 Nitrates in Groundwater: The Basics (Webinar #2) – this was held online through Zoom
 - July 29, 2021 How-to: Filling out the Well Test Form – this was held online through Zoom
 - July 30, 2021 How-to: Filling out the Well Test Form – this was held online through Zoom
 - October 12, 2021 Domestic Well Owner Workshop – this was held in Easton, in collaboration between Easton CSD, SHE, Fresno County, and North Kings GSA
- **KWA Community Outreach Events**
 - Food Banks: USDA Food Distribution at Orange Cove (2/28/2022), USDA Food Distribution at Parlier (3/4/2022), USDA Food Distribution at Raisin City (3/15/2022), Neighborhood Market at Orange Cove (4/5/2022), Laton Food Distribution (4/16/2022), Cutler Food Distribution (4/26/2022), Orosi Food Distribution (5/17/2022), and Dinuba Food Distribution (6/3/2022)
 - World Water Day at Fresno State University Campus (3/22/2022)
- **Email Updates to Interested Parties:** 25 email campaigns since March 2021
- **Website Activity:** top website pages include the Well Test link, with a total of 7,950 page views in 2021 and 4,227 page views so far in 2022.
- **Direct Mailers:**
 - June 26, 2021 Targeted Resident mailer (16,500 mailers sent)
 - September, 2021 Vulnerable Populations mailer (1,353 mailers sent)
 - September, 2021 Targeted Resident postcard (25,000 postcards sent)
 - March 21, 2022 Targeted Resident postcard (14,272 postcards sent)
 - May 11, 2022 Targeted Resident postcard (14,272 postcards sent)
- **Flyer Distribution Events:**
 - Well Testing/Drinking Water Flyers distributed during 26 unique events including at various businesses, COVID vaccination centers, by neighbors, community postings, school district distribution, churches, etc.
- **In-Person Canvassing Events:**
 - 6 events between February 2022 and April 2022 in the Orange Cove, Orosi, and Sanger Areas
- **Social Media Presence:**

- Facebook posts and boosted posts (24 posts between July 2021 and February 2022)
- Instagram (maximum number of followers: 69)
- Posted Videos
 - Videos posted to the internet include the Early Action Plan Kick-Off, Nitrate in Groundwater, Instructions to fill out the well test form, Information about free safe water, domestic well owner workshop, bottled water program overview, and KWA interview
- Radio Outreach
 - On September 4, 2021 and January 28, 2022, KWA provided content including an Overview of KWA and the Bottled Water Program on Radio Bilingue
- News Media
 - The Business Journal (6/25/2021) and Press Release (5/30/2022)

All of the outreach as of August 1, 2022 has resulted in a total of 366 domestic well tests, replacement bottled water deliveries to 235 households, and providing an average of over 340 gallons per day of safe drinking water via fill stations. Targeted identification and engagement of residents occurred and will continue to occur during EAP implementation using the map of ambient Upper Zone nitrate to identify portions of the Management Zone where nitrate conditions in the Upper Zone of the groundwater system likely exceed 7.5 mg/L-N and areas with unknown nitrate conditions, excluding areas which are served by a nitrate compliant PWS. After these targeted areas were identified, the KWA utilized both assessor parcel number ownership and physical address information and United States Postal Service rural/highway residential and PO Box routes to engage residents through direct mailing to promote community events, free well sampling and bottled water (if eligible), and fill station locations. Additionally, the KWA identified food distribution locations, schools, community organizations, in-person events, community events, and google ads (located based) within the target areas to further engage residents. As previously discussed, anyone in the Priority 1 area of the Management Zone may contact the KWA at any time to request well sampling or the bottled water program.

Residents that participate in the well testing program can expect to receive well test results on the same day or the next day as the Management Zone receives results from the laboratory (the Management Zone contacts residents typically within 1-8 business hours with an emphasis put on within the first two hours for contact). After the sampling is completed, if the result is over the MCL, the lab notifies KWA within 24 hours. As the Management Zone is notifying the resident about the nitrate results, they are also verifying delivery address, the number of people in the household, and initial bottled water delivery details (number of containers to be delivered, size of containers, if they would like a hand pump delivered with the initial delivery, special delivery instructions, etc.). Once the notification is complete and initial delivery details

confirmed, the Management Zone contacts the vendor with the initial order. The first bottled water delivery from the vendor can range from 2 – 5 business days.

In cases where domestic well nitrate levels are below the safe drinking water standard, the following information is provided to ensure that the resident is informed that their water may not be safe to drink (due to other potential chemicals in the water beside nitrate):

Results from our contracted Environmental Laboratory Accreditation Program (ELAP) laboratory indicate that your Nitrate as Nitrogen (mg/L-N) does not exceed the drinking water standard of 10 mg/L established for safe drinking water. Please be aware that this does not mean that your well water is safe to drink. There are many other types of contamination that could make your drinking water unsafe to consume. We encourage you to have your water tested for other contaminants and the following organizations may offer additional resources:

- *Self Help Enterprises Regional Household Well Assistance Program: 559-802-1285*
 - *Fresno County Environmental Health: 559-600-3357 or EnvironmentalHealth@fresnocountyca.gov*
 - *County of Tulare Environmental Health Division: 559-624-7400*
 - *County of Kings Environmental Health Services: 559-584-1411*

Please let us know if you have any additional questions

The KWA understands that nitrate is the focus and responsibility of the Management Zone, but that co-contaminant testing is also important to understand the safety of residents' drinking water. To that end, KWA anticipates beginning co-contaminant testing in 2023, pending KWA Board approval and discussions with the State Water Board's Division of Drinking Water and Division of Financial Assistance.

4.6. EAP Implementation Metrics

Metrics to determine if outreach and EAP implementation is sufficient have been developed for use by all Management Zones and are provided in **Attachment G**.

4.7. Management Zone Governance & Funding

The Management Zone is governed by the KWA, a non-profit public benefit corporation that filed for non-profit status on November 17, 2020. The KWA is a 501(c)(3) corporation established to organize and operate the proposed Kings Water Alliance that will manage the proposed nitrate Management Zone encompassing the Kings and Tulare Lake subbasins, a portion of the western part of the Kaweah subbasin and very small portions of the Tule, Westside, Pleasant Valley and Kern County groundwater subbasins.

The KWA was established for the following specific purpose: “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.” **Attachment E** provides the Articles of Incorporation and By-laws of the KWA. The following sections describe elements of the governance of the Management Zone.

4.7.1. Roles and Responsibilities

The following sections summarize the key roles and responsibilities associated with the governance of the KWA.

4.7.1.1. Board of Directors (Article IV)

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 hold are as follows:

- Kings River Water Quality Coalition – Three representatives
- CVDRMP - Two representatives
- California Poultry Federation – One representative
- Wine Industry – One representative

The term of office of each director is three years and until a successor has been appointed and qualified. The Board of Directors have general corporate powers to exercise and manage the corporation’s activities and affairs as described in the by-laws (see Attachment E). They also have specific powers related to proper implementation of the purposes of the corporation.

4.7.1.2. Officers (Article V)

Elected officers of the corporation shall be a Chair, Vice Chair, Secretary, and Treasurer and must be on the Board of Directors. Offices of the Secretary and Treasurer may be combined and held by one person at the discretion of the Board. Officers are elected annually by and from among the directors. They serve one-year terms with no limit on the number of terms.

The Chair presides at meetings of the Board and exercise and performs the power and duties assigned by the Board. The Vice Chair assists the Chair of the Board and performs the duties of the Chair in the absence or incapacity of the Chair. Secretary keeps a book of minutes of all meetings, proceedings, and actions of the Board and committees of the Board and provides notice of all meetings. If the Chair/Vice Chair are absent or unable to serve, the Secretary can perform all the duties of the Chair. The Treasurer maintains adequate and correct books, accounts of the corporation's properties and transactions, and financial statements and reports of the corporation.

4.7.1.3. Committees (Article VI)

Committees of the Board may be created by the Board of Directors by resolution. Each committee consists of two or more directors and no persons who are not directors. In addition, the Board may also establish Advisory Committees composed of any number of directors and/or other interested persons who are not directors. The role of the Advisory Committees is to provide advice and recommendations to the Board. Appointments to Advisory Committees are made by the Board or the Chair of the Board.

4.7.1.4. Management Zone Participants

Each Management Zone participant has signed an agreement with the KWA (**Attachment F**). Through this agreement, participants agree to comply with the Nitrate Control Program through contributing to and cooperating with KWA and other participants.

4.7.2. Funding Mechanism

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.

4.7.3. Dispute Resolution Mechanism

Per the KWA Agreement, Management Zone participants agree to work cooperatively to develop and implement all Management Zone related documents and programs. If disputes arise among Management Zone participants, the members of the KWA Board will be informed and every effort will be made to gather appropriate information to support the Board's efforts to resolve the dispute. Once adequate understanding and background are available, the dispute will be brought before the Board at a properly noticed meeting to work with the participants to cooperatively resolve the dispute. The goal of the process will be to resolve the issue as quickly and informally as possible by gaining consensus among the parties to facilitate an agreement. If an agreement is not reached informally, additional meetings or other mechanisms may be employed by the Board, e.g., establishment of a committee as allowed by the bylaws, to resolve

the dispute. Ultimately, the KWA Board has the authority to make any final decisions regarding the dispute between management zone participants based on the available information. If the dispute between participants cannot be resolved in a reasonable manner, a participant is free at any time to withdraw from the Management Zone per the terms of the Agreement (see Attachment F).

4.8. Coordination with Other Programs

The following sections describes how the KWA intends to coordinate implementation of the Nitrate Control Program in the proposed Management Zones with other regulatory programs and dischargers.

4.8.1. SGMA and GSAs

It is anticipated that the MZ will continue to coordinate with GSAs during development of the MZIP, particularly with the development of water budget components, future SGMA water management projects and actions within the subbasins, and future land use changes.

4.8.2. Path A Facilities

The Nitrate Control Program provided recipients of the NTC in the Priority 1 area of the KWA Management Zone the opportunity to select Path A compliance, i.e., comply with the Nitrate Control Program as an individual discharger. Within the Management Zone boundary, nine permitted dischargers have submitted a Notice of Intent (NOI) to the Central Valley Water Board to comply with the Nitrate Control Program under Path A. At the time of submittal of this FMZP, the Central Valley Water Board has not approved the NOIs submitted by these dischargers. Given the uncertainty of the status of these facilities under the Nitrate Control Program, the KWA Management Zone plans to coordinate with each of these permitted dischargers during MZIP development in the following manner:

- *Chateau Fresno Landfill Groundwater Clean-up Site (CV-SALTS ID: 1887)* – The NOI delineates an area around this facility that was used to evaluate potential impacts to drinking water sources (see Figure 6, red circle on pdf page 14 of 146, Pathway A Report, Nitrate Control Program Pathway A Report, April 16, 2021). While the NOI does not specifically define this area as the facility's area of contribution, for the purposes of this FMZP the KWA Management Zone will consider the encircled area as the preliminary boundary of the area that this Path A facility will be responsible for under the Nitrate Control Program. During MZIP development, the KWA Management Zone will work with this permitted discharger and Central Valley Water Board to establish a final boundary between this Path A facility and the Management Zone. Further, during MZIP development the Management Zone will be responsible for addressing any request for a well test outside of this preliminary boundary; in contrast, the discharger will be responsible for well test requests within the preliminary boundary.

- *North Fresno Wastewater Reclamation Facility (WWRF) (CV-SALTS ID: 1931)* – The NOI describes the potential area of contribution relevant to this WWRF and the land application area, an adjacent golf course that is irrigated with tertiary treated wastewater (see Figure 1 in Nitrate Initial Assessment Report, April 2021). Per the NOI, a confining clay layer lies below the WWRF, and it is assumed that this same confining clay layer also underlies all of the irrigated land area. Given the information in the NOI, the KWA Management Zone considers the following as a preliminary boundary between the Management Zone and this permitted facility: Area bounded by Copper Avenue, Friant Road and Willow Avenue. The KWA Management Zone will be responsible for addressing any requests for a well test outside of this preliminary boundary (unless the requested well falls within an area the Management Zone considers under the responsibility of another Path A permitted discharger). In contrast, any residents requesting a well test within this preliminary boundary will be the responsibility of the North Fresno WWRF. The Management Zone will coordinate with the discharger and Central Valley Water Board during MZIP development to develop a final boundary between the Management Zone and the North Fresno WWRF (Note: Final boundary delineation may need to be coordinated with delineation of boundary for the City of Fresno Regional WWTF, CV-SALTS ID: 2665).
- *Fresno Cogeneration Project (CV-SALTS ID: 2039)* – The NOI does not delineate a specific area of contribution but does describe the underlying groundwater flow direction (e.g., see Figure 8 in the Nitrate Discharger Assessment Report, April 26, 2021). Given the information in the NOI and for the purposes of this FMZP, the proposed preliminary boundary between the Management Zone and this permitted facility is a circle with a 1 mile radius centered on the cogeneration facility. The Management Zone will coordinate with the discharger and Central Valley Water Board during MZIP development to develop a final boundary between the Management Zone and this facility. Until then, the Fresno Cogeneration Project will be responsible for addressing any well test requests for wells located within the preliminary boundary; the Management Zone will be responsible for well test requests outside the boundary.
- *Fresno Regional Wastewater Treatment Facility (WWTF) (CV-SALTS ID: 2665)* – The City of Fresno’s NOI identifies an area of contribution that provides the basis for implementation of the Nitrate Control Program, including implementation of its conditionally approved Early Action Plan (e.g., see Figure ES-4, Nitrate Assessment Report, Executive Summary, May 2021). The KWA Management Zone continues to evaluate this assessed area of contribution as it relates to the City’s Regional WWTF. However, the KWA Management Zone also believes that the City of Fresno’s area of responsibility under the Nitrate Control Program should include any area within the jurisdictional boundary of the City. Areas outside the City’s jurisdictional boundary and its assessed area of contribution (i.e., as shown in Figure ES-4) are within the KWA Management Zone and, unless covered by another Path A facility, the Management Zone will be responsible for addressing any requests for a well test. In

contrast, any residents requesting a well test for a well located within the City of Fresno's jurisdiction or within the area of contribution shown on Figure ES-4 of the City's NOI will be the responsibility of the City. During the development of the MZIP, the KWA Management Zone will continue to coordinate with the City of Fresno and Central Valley Water Board to formalize the boundary between the City and the KWA Management Zone. The process to formalize this boundary may need to consider: (a) coordination with efforts to formalize boundaries around other Path A facilities within the City of Fresno area (e.g., North Fresno WWRF, CV-SALTS ID: 1931 and Fresno Recycled Water Application Area, CV-SALTS ID: 3008); and (b) potential presence of Management Zone participants, e.g., milk cow dairies, within the City's delineated area of contribution.

- *Reedley Wastewater Treatment Facility (CV-SALTS ID: 2679)* – The NOI does not define an area of contribution for this permitted WWTF. However, given that the facility generally serves the City of Reedley, for the purposes of this FMZP, the KWA Management Zone considers the following areas to be subject to the NOI submitted by this permitted discharger: (a) all areas located within the City of Reedley's jurisdictional boundary; and (b) area around the Reedley WWTF bounded as follows: Kings River (East and South); Lac Jac Road (West) and Dinuba Avenue (North). The KWA Management Zone will be responsible for nitrate well testing of any wells that are outside of these areas; in contrast, any residents requesting a well test within these bounded areas will be the responsibility of the City of Reedley. During the development of the MZIP, the Management Zone will coordinate with the City and Central Valley Water Board to formalize the boundary between the City of Reedley and the Management Zone.
- *Caruthers Wastewater Treatment Facility (CV-SALTS ID: 2817)* – The NOI submitted by the Caruthers Community Services District (CSD) delineates a potential area of contribution around its currently active wastewater effluent disposal ponds (see Figure 2-2, Area of Potential Impact in the Nitrate Assessment Report, November 2020). The KWA Management Zone believes that the Caruthers CSD's area of responsibility under the Nitrate Control Program should not be limited to just the area of potential impact delineated around its wastewater treatment facility, but also include any area served by the CSD within the jurisdiction of the Community of Caruthers. For the purposes of this FMZP, these combined areas represent the Caruthers CSD Area of Responsibility. Areas outside of the Caruthers CSD Area of Responsibility are within the KWA Management Zone; accordingly, the Management Zone will be responsible for addressing requests for well tests in this area. In contrast, any residents requesting a well test within the Caruthers CSD Area of Responsibility will be the responsibility of the Caruthers CSD. During the development of the MZIP, the KWA Management Zone will coordinate with the Caruthers CSD and Central Valley Water Board to formalize the boundary between the Management Zone and areas under the responsibility of the Caruthers CSD.

- *Fresno Recycled Water Application Area (CV-SALTS ID: 3008)* – The City of Fresno’s Nitrate Initial Assessment Report prepared as part of its Path A NOI does not describe a specific area of contribution but does summarize the current areas receiving the application of recycled water (e.g., see Table 1, May 2021). The NOI also identifies a number of potential users of recycled water (see Figure 1, NOI, May 2021). For the purposes of this FMZP, the KWA Management Zone considers any current or potential land application areas (plus a surrounding 500-foot buffer) to be within the area of responsibility of the City of Fresno under the Nitrate Control Program. Areas outside of these land application areas with associated 500 foot buffer are within the KWA Management Zone; accordingly, the Management Zone will be responsible for addressing requests for a well test. In contrast, any residents requesting a well test for a well located within the 500 foot buffer around a land application area will be the responsibility of the City of Fresno. During the development of the KWA MZIP, the Management Zone will coordinate with the City of Fresno and Central Valley Water Board to formalize the boundary between this facility’s land application areas and the Management Zone (Note: Final boundary delineation may need to be coordinated with delineation of the boundary for the City of Fresno Regional WWTF, CV-SALTS ID: 2665).
- *Clovis Wastewater Treatment Facility (CV-SALTS ID: 3201)* – The City of Clovis WWTF’s treated effluent is either used for landscape irrigation within the WWTF’s service area or discharged to Fancher Creek. The NOI submitted by the City of Clovis discusses the potential area of contribution only relative to the surface water discharge to Fancher Creek. The NOI does not explicitly delineate a spatially defined area of contribution; however, the NOI does evaluate potential impacts to shallow groundwater within an approximately two-mile wide section along Fancher Creek from the effluent discharge outfall to a point approximately six miles downstream (e.g., see Figure 7 in the Nitrate Initial Assessment Report, April 2021). The KWA Management Zone believes that the City of Clovis’ area of responsibility under the Nitrate Control Program should include areas potentially impacted as shown in the NOI along Fancher Creek and any area within the jurisdiction of the City of Clovis (combined area = City of Clovis Area of Responsibility). Areas outside of the City of Clovis’ Area of Responsibility are within the KWA Management Zone; accordingly, the Management Zone will be responsible for addressing well test requests in this area. In contrast, any residents requesting a well test within the City of Clovis’ Area of Responsibility will be the responsibility of the City of Clovis. During the development of the KWA MZIP, the Management Zone will coordinate with the City of Clovis and Central Valley Water Board to formalize the boundary between the Management Zone and the City of Clovis’ Area of Responsibility.
- *Cutler-Orosi Wastewater Treatment Facility (CV-SALTS ID: 3310)* – The NOI submitted by the Cutler-Orosi Joint Powers Wastewater Authority (Authority) delineates a general potential area of contribution that includes the permitted property and an area downgradient of the

wastewater facility (e.g., Figures 1 and 3 of the NOI's Initial Assessment Report). The KWA Management Zone believes that the Authority's area of responsibility under the Nitrate Control Program should not be limited to just these areas, but should also include the area serviced by the Cutler-Orosi WWTF. For the purpose of this FMZP, these combined areas, or Cutler-Orosi Area of Responsibility, include: (a) area serviced by the Cutler-Orosi WWTF; (b) area within the permitted property of the treatment facility (see Figure 1, Initial Assessment Report); and (c) downgradient area from the permitted property with the following boundary (generally based on Figure 3, Initial Assessment Report): Avenue 404 (north); Road 120 (east); Avenue 392 (south); Road 108 (west). Areas outside of the Cutler-Orosi Area of Responsibility are within the KWA Management Zone; accordingly, the Management Zone will be responsible for addressing any requests for a well test in this area. In contrast, any residents requesting a well test within the Cutler-Orosi Area of Responsibility will be the responsibility of the Authority. During the development of the MZIP, the KWA Management Zone will coordinate with the Authority and Central Valley Water Board to formalize the boundary between the Management Zone and area under the responsibility of this permitted discharger.

4.8.3. ILRP

Well testing regulatory requirements have been established for both the ILRP and permitted dischargers subject to the Nitrate Control Program. Given the overlap between these regulatory programs, the KWA Management Zone recognizes the importance of simplifying efforts by residents with the Management Zone to have their drinking water well tested. Accordingly, the KWA Management Zone will coordinate its Residential Well Testing Program with ILRP's Drinking Water Well Monitoring Program. If a resident applying for a well test under the EAP well testing program is located on an enrolled parcel under the ILRP, the Management Zone will work with the resident and the associated parcel owner within the ILRP Coalition to determine if the well has already been sampled to satisfy ILRP well testing requirements. If the well has been tested and the test result indicates that nitrate exceeds the 10 mg/L-N threshold, the Management Zone will work with the resident and parcel owner to ensure the resident receives replacement water. Similarly, if the well has not been tested for nitrate, consistent with the EAP procedures, the Management Zone will work with all parties to get the well sampled and address any needs for replacement water. Regardless of the situation, the Management Zone will coordinate with all parties so that the resident can receive replacement water if warranted. Also, while the Management Zone is ready to assist residents with having their well tested, any action by the Management Zone under the NCP is not a substitute for or satisfies domestic well testing requirements under the ILRP program.

4.8.4. Central Valley Dairy Representative Monitoring Program

The CVDRMP is working closely with selected dairy and confined bovine feeding operations within the Central Valley to implement a monitoring program to evaluate potential impacts of industry practices on first encountered groundwater. Domestic well testing is not part of the CVDRMP. However, the facilities permitted under the dairy/confined bovine feeding operation general orders and participants in the CVDRMP do test domestic wells and submit findings directly to the Central Valley Water Board. As a participant in the proposed Management Zones, the CVDRMP will encourage dairies and confined bovine feeding operations to share domestic well test results with the KWA to facilitate implementation of the KWA EAP in a more cost effective and efficient manner.

4.8.5. Others (as needed)

Any permittee that requests to join the KWA Management Zone after FMZP submittal, for whatever reason, must obtain approval from the KWA Staff and KWA Board chairperson. KWA staff will inform the permittee requesting Management Zone participation of the requirements to join, including for example the required level of financial support and necessary data submittals.

When a facility submits a ROWD to the Central Valley Water Board for a new or expanded discharge within the KWA Management Zone boundaries, the facility may elect to comply with the Nitrate Control Program through participation in the appropriate Management Zone. The KWA will work with the permittee and the Central Valley Water Board to support efforts by dischargers to join the Management Zone after FMZP submittal.

5. PREPARATION OF MANAGEMENT ZONE IMPLEMENTATION PLAN

The KWA Management Zone will work with the Central Valley Water Board during the review and acceptance of this FMZP. While that process is ongoing, the KWA Board will begin development of the MZIP for the Management Zone. The content of the MZIP will be consistent with the Nitrate Control Program regulations and outcome of ongoing discussions with Central Valley Water Board staff regarding interpretation of these regulations. The KWA Management Zone is committed to submitting its MZIP for its Priority 1 areas to the Central Valley Water Board within six months after this FMZP is accepted by the Executive Officer, as required by the Nitrate Control Program.

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7. ATTACHMENTS

Kings Water Alliance Final Management Zone Proposal 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 and small part of Kaweah Subbasin)
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 & Public Draft Comments and Response Log
Attachment D	Early Action Plan [See Separate EAP Document File]
Attachment E	Kings Water Alliance Articles of Incorporation and By-Laws
Attachment F	Kings Water Alliance Management Zone Participation Agreement
Attachment G	EAP Reporting Metrics
Attachment H	Management Zone Groundwater Nitrate Quality Data Analysis Methods
Attachment I	FMZP/EAP Public Draft Comments and Response Log

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 list⁴³:

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
- 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

⁴³ 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
- 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 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 93637 559.675.7703 x 2265 | stephanie.anagnoson@maderacounty.com 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 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
- 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, Soultz 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

- Point of Contact: Eric Osterling, General Manager, Greater Kaweah GSA, 2975 N. Farmersville Blvd. | Farmersville, CA 93223, (559) 302-9987 | eosterling@greaterkaweahgsa.org 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 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 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 93637 559-673-3514 | 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 <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
- 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
- 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 <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 <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

- 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

- Point of Contact: David Peters, South Kings GSA, 128 S. 5th Street | Fowler, CA 93625, (559) 834-3113 | 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<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 and small part of Kaweah Subbasin)

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 list⁴⁴:

Alpaugh GSA

- Point of Contact: David Kahn, Attorney, Alpaugh GSA, 219 N. Douty Street | Hanford, CA 93230, 559-584-3337 | 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
- 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@jgboswell.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.

⁴⁴ 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>

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.orgwww.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<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.orgwww.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<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, Soultz 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; Soultz 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
- 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
- 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.comwww.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@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.

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<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<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<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<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. Non-Poultry Concentrated Animal Feeding Operations (CAFOs) in the Kings Water Alliance Management Zone (Priority 1 Area - Kings Subbasin) that are Management Zone Participants (primarily through CVDRMP Membership)

CV-SALTS ID	WDID No.	Facility	Address
General Order R5-2013-0122 – Milk Cow Dairies, CVDRMP Members			
1	5D165106N01	Thomas Dairy	20111 Excelsior Ave, Riverdale, CA 93656
13	5C10NC00072	Charles Vander Kooi Dairy	13696 West Elkhorn Avenue, Riverdale, CA 93656
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 S. 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
129	5C10NC00043	Astiasuain Dairy	22654 East Jefferson Avenue, Reedley, CA 93654
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
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

Table 1. Non-Poultry Concentrated Animal Feeding Operations (CAFOs) in the Kings Water Alliance Management Zone (Priority 1 Area - Kings Subbasin) that are Management Zone Participants (primarily through CVDRMP Membership)

CV-SALTS ID	WDID No.	Facility	Address
311	5D165071N01	Eden-Vale Dairy	6944 21 1/2 Avenue, Lemoore, CA 93245
312	5C54NC00060	G-P Dairy	8676 Avenue 360, Visalia, CA 93291
316	5D105046N01	Joe R. Garcia Dairy	20677 East Street, Laton, CA 93242
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 W Mt Whitney, 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
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
611	5C10NC00068	Kiss Cattle, LLC	2585 South Chateau Fresno Avenue, Fresno, CA 93706
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

Table 1. Non-Poultry Concentrated Animal Feeding Operations (CAFOs) in the Kings Water Alliance Management Zone (Priority 1 Area - Kings Subbasin) that are Management Zone Participants (primarily through CVDRMP Membership)

CV-SALTS ID	WDID No.	Facility	Address
653	5C10NC00001	Excelsior Avenue Feedlot	20800 Excelsior Avenue, Riverdale, CA 93656
671	5C10NC00008	CSUF Dairy	5450 North Sierra Vista Avenue, Fresno, CA 93740
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
General Order R5-2017-0058 – Confined Bovine Feeding Operations, CVDRMP Members			
1490	5D545078001	Traver Cattle Ranch	3212 Avenue 352, Traver, CA 93673
1513	5C10NC00098	Hillview Cattle & Farms	12250 West Lincoln Avenue, Fresno, CA 93706
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
1558	5C54NC00253	Olivas Ranch	4505 4th Avenue, Hanford, CA 93230
1701	5B10AP00004	Todd Ventura	4630 South Fig Avenue, Fresno, CA 93706
1706	5C10NC00257	Fontes Heifer Ranch	18109 South Fruit Avenue, Riverdale, CA 93656
1708	5C16NC00195	Contente & Co Ranch	5730 20th Avenue, Riverdale, CA 93656
1720	5C54NC00364	Gary Zysling Feedlot	7437 Avenue 376, Dinuba, CA 93618
Other WDRs – CDVRMP Members			
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
Other Non-Poultry CAFOs (Path B Selected)			
20	5D165108N01	Little Dream Goat Dairy (No Order No. available)	3299 10 th Avenue, Laton, CA 93242

Table 2. Non-Poultry CAFOs in the Kings Water Alliance Management Zone (Priority 1 Area – Kaweah Subbasin) that are Management Zone Participants through CVDRMP Membership

CV-SALTS ID	WDID	Facility	Address
General Order R5-2013-0122 – Milk Cow Dairies, CVDRMP Members			
46	5C16NC00110	Countryside Dairy	21094 4th Avenue, Corcoran, CA 93212
143	5D165093N01	Barreto & Silveira Dairy	11305 2nd Avenue, Hanford, CA 93230
150	5C16NC00101	Bernard Te Velde Dairy #1	1305 Iona Avenue, Hanford, CA 93230
156	5D165069001	Still Water Ranch LP	5001 4 th 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
494	5D165078001	Robert Brazil Dairy	15035 8th Avenue, Hanford, CA 93230
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

Table 2. Non-Poultry CAFOs in the Kings Water Alliance Management Zone (Priority 1 Area – Kaweah Subbasin) that are Management Zone Participants through CVDRMP Membership

CV-SALTS ID	WDID	Facility	Address
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
General Order R5-2017-0058 – Confined Bovine Feeding Operations, CVDRMP Members			
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
Other WDRs – CDVRMP Members			
78	5D165080001	Hollandia Farms North Dairy	7905 Kansas Avenue, Hanford, CA 93230

**Table 3. Poultry Operations in the Kings Water Alliance Management Zone (Priority 1 – Kings Subbasin)
Permitted under 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
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 Shileds Avenue, Kerman, CA 93630
1270	5C10NC00248	Swanson Ranch Complex	3741 West Swamson 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
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

**Table 3. Poultry Operations in the Kings Water Alliance Management Zone (Priority 1 – Kings Subbasin)
Permitted under the Poultry General Order (all facilities are categorized as Low Threat Operations)**

CV-SALTS ID	WDID No.	Facility Name	Address
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
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

**Table 3. Poultry Operations in the Kings Water Alliance Management Zone (Priority 1 – Kings Subbasin)
Permitted under the Poultry General Order (all facilities are categorized as Low Threat Operations)**

CV-SALTS ID	WDID No.	Facility Name	Address
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. Non-Poultry CAFOs in the Kings Water Alliance Management Zone (Priority 2 – Tulare Lake Subbasin)

CV-SALTS ID	WDID No.	Facility	Address
General Order R5-2013-0122 – Milk Cow Dairies, CVDRMP Members			
14	5C16NC00190	Top Line Dairy #1	18386 13 th Avenue, 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
42	5C16NC00115	Yokum Dairy	10234 Lansing Avenue, Hanford, CA 93230
45	5C16NC00134	Big Valley Ranch Dairy	36403 6th Ave, Corcoran, CA 93212
50	NA	Philip Verwey Farms Dairy	19765 13th Avenue, Hanford, CA 93230
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
179	5C16NC00203	Hanford Armona Feedlot	10482 14 ½ Avenue, Lemoore, CA 93245
205	5C16NC00015	Contente & Company Dairy	7900 15th Avenue, Hanford, CA 93230
207	5C16NC00047	Silva & Sons #2 (Dairy)	6700 Excelsior 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
297	5C16NC00042	Vitor Borba Dairy	7721 Flint 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

Table 4. Non-Poultry CAFOs in the Kings Water Alliance Management Zone (Priority 2 – Tulare Lake Subbasin)

CV-SALTS ID	WDID No.	Facility	Address
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
436	5C16NC00031	Sozinho Jerseys	4615 Excelsior 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
705	5C16NC00033	West Creek Dairy	8409 5th Avenue, Hanford, CA 93230
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	516NC00122	Top Line Dairy #5	21009 South 19 th 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
General Order R5-2017-0058 – Confined Bovine Feeding Operations, CVDRMP Members			
1226	5C16NC00202	Jersey Avenue Feedlot	19256 Jersey Avenue, Lemoore, CA 93245
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
1543	5C16NC00058	Joe Soares	11560 8th Avenue, Hanford, CA 93230
1556	5D165073001	MF Cattle Co	11336 7th Avenue, Hanford, CA 93230

Table 4. Non-Poultry CAFOs in the Kings Water Alliance Management Zone (Priority 2 – Tulare Lake Subbasin)

CV-SALTS ID	WDID No.	Facility	Address
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
Other WDRs – CDVRMP Members			
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
Other Non-Poultry CAFOs			
51	NA	Morais Goat Dairy	16152 West Hanford Armona Road, Lemoore, CA 93245
59	NA	Summer Hill Goat Dairy	5784 6th Avenue, Hanford, CA 93230

Table 5. Poultry Operations in the Kings Water Alliance Management Zone (Priority 2 – Tulare Lake Subbasin) Permitted under the 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

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
General Order R5-2013-0122 – Milk Cow Dairies			
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
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

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
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
General Order R5-2017-0058 – Confined Bovine Feeding Operations			
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
Other WDRs – Members of CDVRMP			
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 FMZP Submittal

CV-SALTS ID	WDID	Facility	Address
General Order R5-2013-0122 – Milk Cow Dairies			
517 ¹	5C54NC00038	Tripalm Dairy	2429 Idaho Avenue, Hanford, CA 93230
General Order R5-2017-0058 – Confined Bovine Feeding Operations			
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
Other Permittees – Order No. Unknown¹			
42 ¹	5C16NC00115	Yokum Dairy	10234 Lansing Avenue, Hanford, CA 93230
46 ¹	5C16NC00110	David Lemstra Dairy	21094 4th Avenue, Corcoran, CA 93212

¹ 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 FMZP.
- *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.

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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).

Table C-1 KWA Public Draft Comments and Responses				
Number	Date Received	Comment Received From:	Comment:	Response:
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

Table C-1 KWA Public Draft Comments and Responses

Number	Date Received	Comment Received From:	Comment:	Response:
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.

Table C-1 KWA Public Draft Comments and Responses

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"). ⁸ 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.

Table C-1 KWA Public Draft Comments and Responses

Number	Date Received	Comment Received From:	Comment:	Response:
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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Table C-1 KWA Public Draft Comments and Responses				
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.

Table C-1 KWA Public Draft Comments and Responses

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.	<p>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 being visually appealing.</p> <p>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.</p>
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

Table C-1 KWA Public Draft Comments and Responses

Number	Date Received	Comment Received From:	Comment:	Response:
				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.
19	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability); Jonathan Nelson (Community Water Center)	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	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.
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.

Kings Water Alliance Management Zone
Final Management Zone Proposal

Table C-1 KWA Public Draft Comments and Responses				
Number	Date Received	Comment Received From:	Comment:	Response:
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 (Community Water Center)	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.

Table C-1 KWA Public Draft Comments and Responses

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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.
24	2/22/2021	Amanda Monaco/Michael Claiborne (Leadership Counsel for Justice and Accountability);	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.

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Number	Date Received	Comment Received From:	Comment:	Response:
		Jonathan Nelson (Community Water Center)		
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.
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.

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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.
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

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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.
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	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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		(Community Water Center)		
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

Table C-1 KWA Public Draft Comments and Responses

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				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.
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).

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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
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.

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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.
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.

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48	2/22/2021	Mariah Thompson (California Rural Legal Assistance, Inc.)	<p>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>	<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. 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"> • Over 6,000 direct mailers were sent to residents throughout the Management Zone • 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. • 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. • Targeted outreach to the Environmental Justice Community, Fresno Bee, Fresno County and Kings County Farm Bureaus and the Tachi Yokut Tribe. For the second community outreach meeting held on January 28, 2021, the Management Zone noticed the meeting through the following actions: • Meeting notices in English and Spanish were posted at 52 key locations in 27 communities throughout the Kings Water Alliance Management Zone. • Event notice on the Kings Water Alliance website. • Targeted outreach via local Environmental Justice NGO email distribution lists to 17 local community organizations • Targeted outreach to the Environmental Justice Community, Fresno Bee, and Fresno County Farm Bureau. • Email outreach to the Kings Water Alliance Management Zone email lists. • Outreach to KBIF 900AM Punjabi Radio, Radio Bilingue, and Hmong Radio.

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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"> • Meeting notices in English and Spanish were posted at 52 key locations in 27 communities throughout the Kings Water Alliance Management Zone. • Event notice on the Kings Water Alliance website. • Targeted outreach via local Environmental Justice NGO email distribution lists to 17 local community organizations • Targeted outreach to the Environmental Justice Community, Fresno Bee, and Fresno County Farm Bureau. • Email outreach to the Kings Water Alliance Management Zone email lists. • Outreach to KBIF 900AM Punjabi Radio, Radio Bilingue, and Hmong Radio.

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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.

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52	2/22/2021	Mariah Thompson (California Rural Legal Assistance, Inc.)	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>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"> • Over 6,000 direct mailers were sent to residents throughout the Management Zone • 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. • 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. • Targeted outreach to the Environmental Justice Community, Fresno Bee, Fresno County and Kings County Farm Bureaus and the Tachi Yokut Tribe. <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"> • Meeting notices in English and Spanish were posted at 52 key locations in 27 communities throughout the Kings Water Alliance Management Zone. • Event notice on the Kings Water Alliance website. • Targeted outreach via local Environmental Justice NGO email distribution lists to 17 local community organizations • Targeted outreach to the Environmental Justice Community, Fresno Bee, and Fresno County Farm Bureau. • Email outreach to the Kings Water Alliance Management Zone email lists. • Outreach to KBIF 900AM Punjabi Radio, Radio Bilingue, and Hmong Radio.

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Number	Date Received	Comment Received From:	Comment:	Response:
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.
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 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.

ARTICLES OF INCORPORATION

4666248

FILED EMR/I.O.
Secretary of State
State of California

1 CC NOV 17 2020

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, 2nd 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.


3BL3095

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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

3BL3095

Kings Water Alliance Management Zone
Final Management Zone Proposal

611 20 31



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 1st and ends on June 30th.

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 8th day of March, 2020 at Fresno County, California.


Rodney Kamper, Secretary

Attachment F

Kings Water Alliance Management Zone Participation Agreement

**MANAGEMENT ZONE AGREEMENT FOR PERMITTEES IN THE KINGS WATER ALLIANCE
BOUNDARIES SUBJECT TO THE NITRATE CONTROL PROGRAM IN THE WATER QUALITY
CONTROL PLAN FOR THE TULARE LAKE BASIN**

This Agreement is entered into by and between the KINGS WATER ALLIANCE, a California nonprofit public benefit corporation (hereafter “KWA”) and the _____, (hereafter “Participant” as described in Attachment A) (referred to individually or collectively as Party or Parties). The effective date of this Agreement is _____, 2021.

RECITALS

1. On May 31, 2018, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) adopted Amendments to the Water Quality Control Plans for the Sacramento River and San Joaquin River Basins and the Tulare Lake Basin to Incorporate A Central Valley-Wide Salt and Nitrate Control Program (Basin Plan Amendments). The Basin Plan Amendments were approved by the State Water Resources Control Board (State Water Board) on October 16, 2019, and the Office of Administrative Law on January 15, 2020. Parts of the Basin Plan Amendments became effective upon Office of Administrative Law approval. Other parts become effective after receiving approval from the United States Environmental Protection Agency.
2. The Basin Plan Amendments include the Program to Control and Permit Nitrate Discharges to Groundwater (Nitrate Control Program). The Nitrate Control Program became effective on or about January 15, 2020.
3. The Nitrate Control Program applies to all discharges of nitrate to groundwater basins that are designated with the municipal and domestic supply (MUN) beneficial use. Application of the Nitrate Control Program to discharges that are subject to Central Valley Water Board authority is being implemented based on priorities set forth in the Basin Plan Amendments.
4. The Nitrate Control Program identifies the following six groundwater basins/sub-basins as Priority 1 basins/sub-basins: Kaweah, Turlock, Chowchilla, Tule, Modesto and Kings. Priority 2 basins include: Yolo, Merced, Kern County (Westside South); Tulare Lake; Kern County (Poso); Delta Mendota; Eastern San Joaquin; and Madera. Compliance with the Nitrate Control Program is triggered when the Central Valley Water Board issues a Notice to Comply to permittees that discharge nitrate to groundwater in the identified Priority basins. Upon receipt of the Notice to Comply, permittees need to select one of two pathways for complying with the Nitrate Control Program.
5. On or about May 30, 2020, the Central Valley Water Board sent Notices to Comply to dischargers and irrigated agricultural lands coalition groups that are within the boundaries of the six identified Priority 1 basins. The Notice to Comply requires dischargers to either

meet the new requirements through an individual permitting action or participate in a Management Zone. For those permittees that choose to participate in a Management Zone, a preliminary Management Zone Proposal and Early Action Plan must be submitted to the Central Valley Water Board no later than March 8, 2021. Permittees working together as a Management Zone must then develop and submit a Final Management Zone Proposal within 180 days after Central Valley Water Board review of the preliminary proposal. Six months after the Central Valley Water Board's Executive Officer accepts the Final Management Zone Proposal, the permittees working collaboratively in the Management Zone must develop and submit a Management Zone Implementation Plan.

6. The Nitrate Control Program requires the Central Valley Water Board to send Notices to Comply to dischargers and irrigated agricultural lands coalition groups that are within the boundaries of the identified Priority 2 basins within two (2) to four (4) years after the effective date of the Nitrate Control Program. In anticipation of Notices to Comply being sent in the future to dischargers in Priority 2 basins, KWA has established Management Zone boundaries that will accommodate dischargers in adjacent and related Priority 2 basins. Dischargers in the Priority 2 basins that are within the KWA boundaries have the option of participating in the Management Zone now or waiting until they receive a Notice to Comply from the Central Valley Water Board in the future.
7. The primary purpose of a Management Zone is to develop plans for addressing nitrate in groundwater and help in providing access to safe drinking water for residents impacted by nitrate contamination in groundwater.
8. KWA finds that serving as a coordinating entity for permittees within the KWA boundary area that select the Management Zone pathway, and possibly other basins in the future, is consistent with KWA's specific purposes, which is to maintain and improve the quality of life in 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.

TERMS OF AGREEMENT

1. Participant has either received a Notice to Comply, has members that have received a Notice to Comply, with the Nitrate Control Program, or anticipates receiving a Notice to Comply with the Nitrate Control Program in the future. After reviewing and considering the options available for complying with the Nitrate Control Program, Participant agrees to comply by participating in KWA's Management Zone. Participation in KWA's Management Zone includes contributing to and cooperating with KWA and other participants.
2. Each Party agrees to work in good faith, along with other participants, to develop timely deliverables as required by the Nitrate Control Program and to comply with the Nitrate Control Program provisions in the Basin Plan Amendments.

3. Participant agrees that costs of the KWA Management Zone program will be shared with other participants based on an equitable cost allocation mechanism that is developed and approved by the KWA Board of Directors.
4. KWA agrees that contributions provided by Participant are for the sole purpose of developing proposals, reports and plans to comply with the Management Zone provisions within the Basin Plan, including reasonable administrative costs, consultant costs and other agreed upon costs incurred by KWA in furtherance of developing and implementing Management Zone proposals and plans.
5. The KWA and the Participant agree to seek alternative funding sources for development and implementation of all or parts of the Early Action Plan, Preliminary Management Zone Proposal, Final Management Zone Proposal, and Management Zone Implementation Plan, if determined appropriate. However, the Participant understands that the permittee participants in the Management Zone are ultimately responsible for the development and implementation of all or parts of the Early Action Plan, Preliminary Management Zone Proposal, Final Management Zone Proposal, and Management Zone Implementation Plan.
6. The Participant understands that compliance with the terms of the Nitrate Control Program is ultimately determined by the Central Valley Water Board and not KWA or other participants to this Agreement.
7. The Participant is free to withdraw from this Agreement at any time upon giving a minimum of 30 days express written notification to the KWA. Any contributions to KWA by a withdrawing Participant prior to giving notice of withdrawal shall not be reimbursable by KWA to the withdrawing Participant. Participant shall continue to be responsible for its fair share of required contributions during the 30-day notice period unless otherwise agreed to by KWA.
8. Prior to withdrawing from this Agreement, the Participant should consult with the Central Valley Water Board regarding its options for complying with the Nitrate Control Program.
9. In the event that the Participant does not fulfill its obligations under this Agreement, the KWA is obligated to notify the Central Valley Water Board of the Participant's failure to meet its obligation for continued participation in the Management Zone.
10. Participant understands that the KWA reserves the right to terminate this Agreement with a Participant after providing written notice at least sixty (60) days in advance of such termination and after providing the Participant with a reasonable period of time to cure any issues that may be the cause for such termination. Any action by the KWA to terminate the Agreement with respect to a single Participant (or group of permittees represented by one Participant) shall include a reason(s) for such termination in writing. The Participant may request that KWA provide Participant an opportunity to appear before the KWA Board of

Directors to oppose such termination prior to the termination becoming effective. The KWA Board of Directors maintains the discretion to grant the request for appearance before the KWA Board of Directors prior to the termination becoming effective. The KWA Board of Directors reserves the ultimate authority to determine if a termination shall become effective.

11. KWA intends to remain the entity for administering the Management Zone. However, in the unlikely event that the KWA finds it necessary to withdraw from administering the Management Zone, KWA agrees to all of the following:
 - a. Provide at least six (6) months' notice in advance of such withdrawal so that participants, in cooperation with the Central Valley Water Board, have the opportunity to identify or create a new successor entity for administering the Management Zone.
 - b. Provide all data, reports, and information to any successor entity identified by the participants and/or the Central Valley Water Board.
 - c. Transfer all remaining funds, after addressing all outstanding liabilities, to any identified successor entity, to the extent allowed by KWA's Bylaws and applicable state and federal law.
 - d. Agree to work cooperatively with the Central Valley Water Board, participants, and any successor entity for an orderly transfer of data, information, reports, and remaining funds, as applicable.
12. The KWA agrees to maintain an accounting system that clearly documents funds provided to the KWA for the Management Zone and funds paid out from KWA for purposes of administering and implementing the Management Zone.
13. Participation in a KWA Management Zone, and being a Party to this Agreement, shall not constitute an admission of liability or fault with respect to nitrate contamination in groundwater that may exist within the Management Zone boundaries, or beyond.
14. The Agreement is not intended for the benefit of any person or entity not a Party and shall not be enforceable by any person or entity who is not a Party.
15. KWA and Participant, along with other participants, agree to work cooperatively to develop and implement all Management Zone related documents and programs and shall not use information obtained through the development and implementation of the Management Zone to materially and legally harm KWA or other participants in the Management Zone.
16. The Agreement shall be interpreted and enforced pursuant to the laws of the State of California. It is agreed that in the event of any litigation arising hereunder, the Parties hereto shall submit to the jurisdiction of any court of competent jurisdiction within the State of California, County of Fresno.

17. If any provision of the Agreement is found invalid or unenforceable, the balance of the Agreement shall remain in full force and effect.
18. The Agreement may be executed in counterparts with the same force and effect as if executed in one complete document by all Parties.
19. This Agreement may only be amended or modified by a written instrument executed by the KWA. The Participant will be given prior notice of any amendment or modification.

[Signatures on next page]

Kings Water Alliance Management Zone
Final Management Zone Proposal

IN WITNESS WHEREOF, the Parties have executed this Agreement effective on the date set forth above.

Date: _____

KINGS WATER ALLIANCE

By: _____
Signature of KWA Board Chair
(or authorized designee)

Print name of KWA Board Chair
(or authorized designee)

PARTICIPANT ENTITY

Date: _____

By: _____
Signature of Participant entity
authorized representative

Print name of Participant entity
authorized representative

Final – Updated 2/26/2021

Attachment A

Participant Contact Information

Entity Name: _____

Physical Address: _____

Mailing Address: _____

CV-SALTS ID: _____

Board Resolution Number
(if applicable) _____

(Please provide a copy of the signed Board Resolution.)

Authorized Representative

Name: _____

Phone number: _____

Email address: _____

Technical Representative

Name: _____

Phone number: _____

Email address: _____

Billing Representative

Name: _____

Phone number: _____

Email address: _____

ATTACHMENT G

EAP Reporting Metrics

The Management Zones submitted their Early Action Plans for the Priority 1 areas on March 8, 2021. On May 7, 2021, the Central Valley Water Board's Executive Officer provided the Valley Water Collaborative, the Chowchilla Management Zone, the Kings Water Alliance, and the Kaweah Water Foundation with Conditional Approval of Early Action Plans. On August 31, 2021, the Central Valley Water Board's Executive Officer provided the Tule Management Zone with their Conditional Approval of Early Action Plan (collectively Conditional Approvals of EAPs).

In the Conditional Approvals of EAPs, the Executive Officer indicated that the Central Valley Water Board would be looking for periodic updates regarding key EAP metrics. The EAP metrics for period updates that were requested by the Executive Officer include:

- Location, Forum Type and General Attendance figures for all outreach efforts
- Number of Residences Tested for Nitrates
- Number of Residences Tested for other Contaminants
- Number of People Being Provided Bottled Water
- Number of operable fill stations/kiosks and usage information for each.

Because the Central Valley Water Board is seeking to obtain periodic updates utilizing the same metrics from all of the Management Zones, the Management Zones have worked collectively to design a periodic reporting scheme that provides the information requested by the Executive Officer. Reporting first started in the fall of 2021, and the information being reporting has been further developed and refined over the first year of the program. Generally, the Management Zones provide the identified information monthly to the CV-SALTS Executive Committee, which includes the Central Valley Water Board. The Central Valley Water Board's Executive Officer shares this information with the Central Valley Water Board in the Executive Officer reports, which are prepared and disseminated approximately six times per year. The information is also publicly available on the Central Valley Salinity Coalition's website at:

<https://www.cvsalinity.org/nitrate-program/management-zones/>.

The Management Zones report this information in numeric and graphic formats. The first graphic, Figure 1 below, illustrates periodic reporting for the non-outreach metrics (e.g., number of residences wells tested, people being served bottled water, and kiosk usage information), as presented to the State Water Resources Control Board at its June 7, 2022 meeting. The first line on the graph represents the number of *Inquiries* received by the Management Zones from residents regarding the program. Inquiries are described as being a new point of contact with a resident and where the resident affirmatively indicates interest in submitting an application to have their well tested, and potentially receive free bottled water. An inquiry may include a phone call, email, or personal communication at a public event. The second line titled *Applications* represents the number of residents that submitted an

application to have their well tested for nitrate, or nitrate and other co-contaminants where applicable. Next, the graph includes the number of wells tested from qualified applicants, followed by the number of wells that tested above the nitrate drinking water standard, and then the number of households that are receiving bottled water.⁴⁵

Notably, the number of applications submitted as compared to the number of wells tested varies for multiple reasons. First, not all applicants will be eligible for the program. In summary, an application must be served by a domestic well that is located within the Management Zone's service area. Second, because the results of the well tests will be reported to the State Water Resources Control Board and be made public, the Management Zones require landowner authorization for well testing. Although Management Zones typically do not find out if landowner authorization is being withheld from a tenant, it may be a reason why some residents do not provide such authorization. Third, residents may apply for well testing and then change their mind and decline to have the Management Zones test their well for nitrate or just not respond to Management Zone follow up efforts.

The number of household equivalents receiving drinking water through kiosks is estimated and reported as well, as shown in the text on the illustrative graphic.

⁴⁵ The Central Valley Water Board's Executive Officer requested that the Management Zones report the number of people being served bottled water. However, because this number may not be reported accurately to the Management Zones, it is more accurate for the Management Zones to report the number of households receiving bottled water.

Early Action Plan Highlights – Year 1

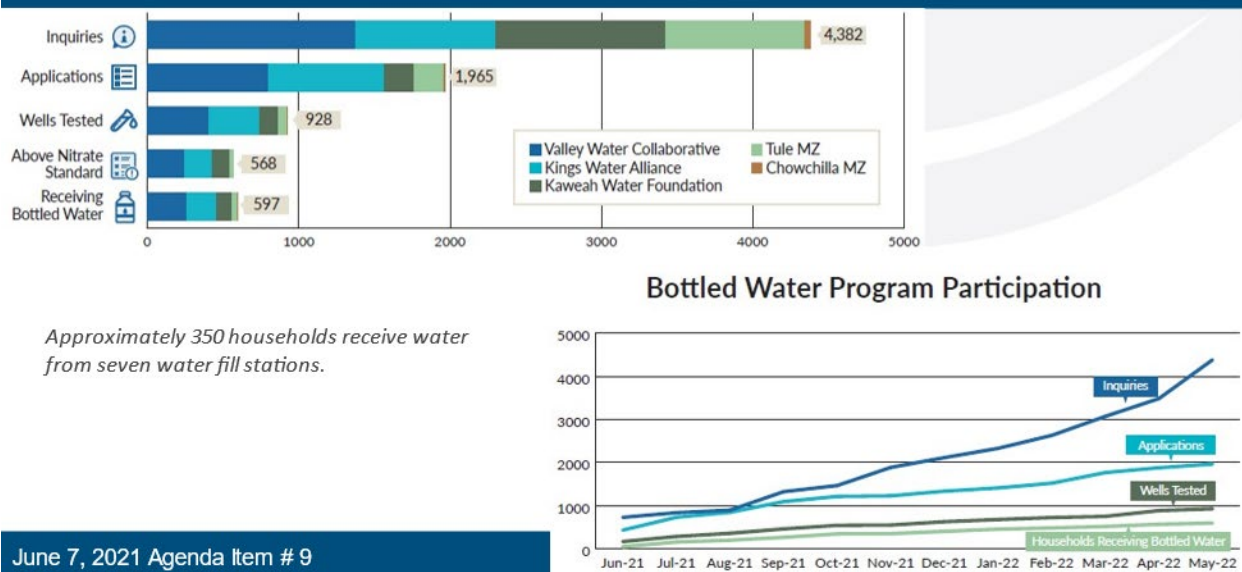


Figure 1. First Year Summary of Well Testing Metrics Reported by the Management Zones

In addition to providing periodic reporting of the metrics described above, the Management Zones also report summary statistics of combined outreach activities. Outreach activities generally fall within the following five categories.

Postcards and flyers – This category includes distribution of flyers and/or postcards through direct mail services and door-to-door canvassing.

One-on-One discussions – This category includes discussions that Management Zone representatives have with residents at community-based events (e.g., County fairs, flea markets, farmers markets, food banks), during door-to-door canvassing events, via phone in response to questions and when Management Zones follow up on pending applications. One to one discussions may include inquiries, but is broader in that one-on-one discussions may not result in a resident showing an affirmative interest in applying for well testing, which would change the one-on-one discussion to an Inquiry, as reported above.

Promotions – This category captures the estimated number of viewers, readers, or listeners that may be exposed to Management Zone messages through paid and earned media promotions, including radio, television, newspapers, social media, etc.

Websites – Each Management Zone manages a website that provides information regarding the program and allows for well testing applications to be submitted on-line. The Management Zones utilize on-line browser tools to track the number of website visitors, and receive and respond to applications submitted via the website.

Meetings and Events – In addition to providing a presence at community-based events such as County fairs, baseball games, flea markets, food banks, and other similar events, where one-on-one discussions may occur, the Management Zones also hold and sponsor in-person and online community meetings and events where they can describe the program in greater detail and encourage participants to apply for the program. This category is intended to track the number of Management Zone held/sponsored events and the number of participants at these events.

Figure 2 below illustrates the periodic outreach reporting that Management Zones provide to the CVSALTS Executive Committee and the Central Valley Water Board. Figure 2 includes the summary statistics from all Priority 1 Management Zones for the first year of the program – May 2021 through May 2022 – as presented to the State Water Resources Control Board at its June 7, 2022 meeting.



Figure 2. First Year Summary of Outreach Metrics Reported by the Management Zones

Until very recently, the Management Zones have only offered and tested wells for nitrate. However, as the Management Zones obtain SAFER grant funding to test for other contaminants and expand well testing to include other contaminants, the Management Zones will expand their reporting metrics to include testing for other contaminants as requested by the Central Valley Water Board's Executive Officer. Reporting for other contaminants is expected to begin as early as August or September of 2022. The Management Zones will continue to provide updates to the CVSALTS Executive Committee, the Central Valley Water Board, the State Water Board and other interested stakeholders.

ATTACHMENT H

Management Zone Groundwater Nitrate Quality Data Analysis Methods

Data Collection

Groundwater quality nitrate data have been collected and compiled from publicly available sources through the Groundwater Ambient Monitoring and Assessment Program (GAMA) groundwater information system⁴⁶ for the Management Zone, including a 3-mile buffer around the border of the Management Zone. Several sources of nitrate data are included in the bulk download from GAMA, including data from: AGLAND (Irrigated Lands Regulatory Program drinking water wells on grower parcels, including groundwater quality trend monitoring (GQTM) wells); State Water Board Division of Drinking Water (DDW, which contains groundwater samples from public supply wells, previously known as “DHS”); DPR (Department of Pesticide Regulation); DWR (Department of Water Resources); EDF (regulated facilities monitoring site data, also known as GeoTracker); GAMA (State Water Board’s Groundwater Ambient Monitoring and Assessment Program); LOCALGW (GAMA data from local water agencies and well owners); UCD CASTING (this contains nitrate data from the University of California Davis nitrate study⁴⁷ associated with the SWRCB SBX2 1 Report to the Legislature); and the USGS (U.S. Geological Survey’s National Water Information System, NWIS).

Other non-publicly available data may be acquired from local entities, including county departments or local irrigation districts. This data must be requested specially and permission must be received from the local entity to publish this data in order for the data to be used for analysis of groundwater conditions in the Management Zone.

Compilation and Standardization

All public data (and locally-derived requested data, as available and permitted to be shared with the public) are compiled in such a way that the naming, formatting, and measurement units are standardized. The groundwater quality nitrate data undergo a cursory quality assurance/quality control (QA/QC) process prior to being utilized for analysis. This process includes removing duplicate entries and marking questionable sample results that appeared to be misreported (typically from incorrect measurement units reported or anomalous/incorrect entries).

⁴⁶ https://www.waterboards.ca.gov/water_issues/programs/gama/online_tools.html accessed June 2022.

⁴⁷ <https://groundwaternitrate.ucdavis.edu/>, accessed March 2021.

Well Depth Zone Assignment

The ambient nitrate analysis considers wells categorized into the “Upper Zone,” “Lower Zone,” and “Below Lower Zone” depth categories⁴⁸. This depth designation is based on the following criteria:

- Well depth and bottom of screened interval depth
- Well type
- Estimated well depth based on DWR’s Well Completion Report spatial representation of statistics⁴⁹
- Comparison of the well’s actual or estimated depth with the CV-SALTS delineation of the bottom of the Upper Zone

Wells from the public dataset do not always have reliable depth information. For wells from the public dataset that do not have well depths or screened interval data reported, the well type serves as a proxy. In this case, all domestic wells are categorized into the Upper Zone (as the depths of domestic wells are what the CV-SALTS’ studies relied on most heavily for developing the depth of the Upper Zone), while other well types were assigned an estimated depth based on DWR’s Well Completion Report spatial representation of well depth statistics, as available. DWR provides a one-mile grid mapping (based on Public Land Survey System (PLSS) sections) of the general statistics of well depths based on well types (well types include domestic, industrial, irrigation, municipal, and monitoring). Although this coverage has limitations (e.g., data and application are subject to change, attribute tables may include missing and duplicate records, incorrect values, and limited spatial resolution). The estimated depth is assigned based on well type and DWR Well Completion Report statistics of mean well depth for the PLSS section that the well falls within. Once an estimate of well depth is assigned to the well, it is plotted using GIS. Well depths are compared to the GIS coverage of the depth to the bottom of the Upper and Lower Zones, as defined by CV-SALTS, and placed in their appropriate well depth category.

Once all the nitrate data are categorized by depth, the groundwater concentration sample data are further scrutinized and standardized. As described above, the publicly-sourced data go through a QA/QC process. This process improves the quality of the dataset (removing erroneous data from the dataset that could potentially skew the spatial interpolation incorrectly). Beyond this QA/QC process, however, the methodology of reporting non-detects is still an outstanding difference between the various public entities reporting data to the GAMA

⁴⁸ See SNMP documents that describe the delineation of the groundwater depth zones, including Luhdorff & Scalmanini (LSCE) and LWA. 2016. CV-SALTS Region 5: Updated Groundwater Quality Analysis and High Resolution Mapping for Central Valley Salt and Nitrate Management Plan. Prepared for San Joaquin Valley Drainage Authority, June 2016.

⁴⁹ As accessible using DWR’s Well Completion Report Map Application (<https://www.arcgis.com/apps/webappviewer/index.html?id=181078580a214c0986e2da28f8623b37>), accessed March 2021.

database. There are multiple methods associated with the GAMA public data that have been used to represent non-detect nitrate sample results. Sometimes this has involved use of the reporting limit value within the “value” field with a qualifier entered as “<”; other times there are non-detects in the public record listed with a value of “0” with or without a reporting limit (RL) in the “RL” field. Non-detect nitrate sample entries were standardized and quantified for purposes of data utility⁵⁰.

The spatial interpolation process known as kriging was used for the analysis of ambient nitrate concentrations within the Management Zone. Spatial interpolation is a way to construct new values based on the range of a dataset (actual data); in this case, the method was used for the analysis of ambient nitrate in the Upper Zone. The specific method of interpolation used is known as kriging. This method relies on numerical values of nitrate to make its calculations; excluding non-detect nitrate levels could result in an artificially higher ambient nitrate level. A sample that returned a non-detect nitrate level should not be discarded simply because its actual low concentration is not quantified. Because non-detect samples are also informative, the method of utilizing half of the reporting limit was adopted when the reporting limit was known (when the reporting limit was unavailable, the nitrate value was assumed to be low, and given an arbitrary value of 0.0225 mg/L as Nitrogen). Laboratory and U.S. Environmental Protection Agency (EPA) methodology of nitrate concentration level measurement in water samples has not changed significantly in the last 20 years, which supports quantifying non-detect samples with a low value for recent nitrate data (post-2010 data as used in the Management Zone analyses).

Declustering Groundwater Nitrate Data

Declustering is a tool employed to better represent data and reduce bias. Declustering data temporally and spatially are important steps to further ensure the most representative and reliable dataset is used for the ambient nitrate analysis. Temporal declustering reduces bias over time by reducing the relative weight of individual sampling points within one year when multiple samples are collected within a short period compared to other years when little to no monitoring is performed on a particular well. The approach of using an annual temporal declustering parameter was also used in previous CV-SALTS projects (including the high-resolution salt and nitrate mapping⁵¹).

The recent time period of post-2010 is selected for the temporal declustering process to ensure that only recent data are used (i.e., no historical data that have limited utility today), and to ensure that sufficient control points are available for the kriging analysis. Time-series data from

⁵⁰ There is uncertainty associated with assigning concentration values to non-detect samples, because it assumes there actually is a concentration greater than “zero” in the sampled water. The methodology incorporated in the ambient analyses attempts to compensate for this limitation by providing nitrate levels, which allow for lower concentrations to zero concentration to all be contained within the lowest nitrate level (≤ 2.5 mg/L as N).

⁵¹ High resolution mapping for the Central Valley is found in LSCE & LWA, 2016.

individual wells are summarized (using the mean) on an annual basis and then each annual value is summarized (again using the mean) over the period selected (post-2010).

Spatial declustering is employed to achieve more representative statistics and better approximate the spatial distribution of variables. Spatial declustering of nitrate is used to reduce the weight of individual wells that are closely spaced. For the Preliminary Management Zone Proposal (PMZP) ambient analysis, wells with overlapping x/y coordinates were declustered. Other spatial distances can be employed for spatial declustering, which depends on the availability of data and the resolution of the analysis. The spatial declustering helps reduce bias when multiple wells completed in the same groundwater depth zone are proximal to each other. Wells with temporally declustered nitrate values that are located close to each other are summarized using the mean and their latitude and longitude coordinates.

Spatial Interpolation (Kriging)

Once the nitrate data are declustered temporally and spatially, the spatial interpolation (kriging) occurs. There are several parameters associated with this geostatistical approach to represent the spatial distribution of ambient nitrate in groundwater. The regional variability of nitrate in groundwater has been mapped within the Management Zone with a method that precludes introducing inappropriate or inaccurate representations of nitrate concentrations when wells used for kriging computations are spatially quite distant from one another. To constrain the distance each data control point can have, a 1.5-mile search radius was employed. Stated another way, this means that if no other well with nitrate data is available within 1.5 miles within the analysis period, the spatial interpolation stops its expansion and does not assign a value of ambient nitrate past 1.5 miles from that control point. The selection of this parameter can result in areas of unknown ambient nitrate levels. Linear ordinary kriging was employed on the declustered dataset for this Management Zone, which fits a linear relationship to the spatial patterns associated with changes in nitrate concentration. Other parameters such as grid spacing (0.1 mile spacing) were assigned to be small enough to allow for high resolution of the interpolated product. Additionally, nitrate data within a buffer zone of three miles outside the boundary of the Management Zone were used to maximize understanding and estimate nitrate conditions along the Management Zone border.

Temporal Trends in Nitrate

Future Management Zone work will include an analysis of temporal trends in nitrate. Trends are key in understanding and projecting groundwater quality conditions. Individual wells and regions with multiple groundwater quality measurements through time provide insights to past and future groundwater conditions. Two main approaches to trend analysis are recommended for future Management Zone work: Parametric and Non-Parametric Statistical Analyses of Trends.

Parametric statistical analyses of trends assume a defined numerical relationship between the measured quantity and time, as well as normally distributed errors between the modeled and measured data. Parametric trends can be estimated in groundwater wells using a linear

regression model. Trends should be analyzed only in wells with three or more data points, as any two points can be fit perfectly with a line. The coefficient of determination (R^2) should be calculated for all trends to assess the linear regression model's fit to the data. R^2 values range from 0 to 1, with values closer to 1 representing better model fits. Linear trends with R^2 values less than 0.5 should not be considered. Water quality changes can be seasonal, rapid, or otherwise not captured by a linear regression model, so these trends are only an approximation of changes in concentration over the period of record. Trends are recommended to be analyzed over two periods of record, with long-term trends in wells with data preceding 2000 and recent trends considering post-2000 data only.

Two different non-parametric statistical analyses of trends are recommended for future Management Zone nitrate work. Both Mann-Kendall and Theil-Sen non-parametric analyses are recommended to be performed to characterize trends non-parametrically for wells within the Management Zone. Mann-Kendall analyses determine whether statistically significant increasing or decreasing monotonic trends exist (Mann, 1945; Kendall, 1975⁵²). Once a significant trend is identified, a Theil-Sen slope analysis is recommended to quantify the magnitude of the trend. The Theil-Sen analysis calculates the slope between all possible pairs of points and uses the median slope as the estimate of the trend (Theil, 1950; Sen, 1968; Gilbert, 1987). Only trends in datasets with at least 8 points and with a 95% trend confidence should be considered. Trends are recommended to be analyzed over the same two periods of record as recommended for parametric trends, with long-term trends in wells with data preceding 2000 and recent trends considering post-2000 data only.

Public Posting of Management Zone Nitrate Data

The groundwater nitrate quality data used for updating the analysis of ambient Upper Zone conditions and performing trends analyses will be made available to the public through the Management Zone's website. It is anticipated that the Management Zone groundwater quality nitrate dataset will be shared in spreadsheet format to enable widespread public utilization.

⁵² Mann, H.B. 1945. Non-parametric tests against trend, *Econometrica* 13:163-171. Kendall, M.G. 1975. *Rank Correlation Methods*, 4th edition, Charles Griffin, London.

ATTACHMENT I

FMZP/EAP Public Draft Comments and Response Log

Public Drafts of the FMZP 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.

Kings Water Alliance Management Zone
Final Management Zone Proposal

Table I-1 KWA Public Draft Comments and Responses for FMZP and EAP								
Comment Number	Date Received	Document (FMZP or EAP)	Section of Document	Page Number & Paragraph	Comment Received From	Comment	Organization	Response
1	8/8/2022	FMZP	Table 2-28 "Land Application Area"	FMZP/Page 140 (PDF page 174)	Joey Giordano	First bullet has a typo, "ILAAs" should be "LAAs".	The Wine Group	Text updated
2	8/8/2022	EAP	Table 2	EAP/Page 84 (PDF page 98)	Joey Giordano	"Orisi" should be "Orosi.	The Wine Group	Text updated
3	8/9/2022	FMZP	ES-1, Page 2, and Page 4	Goal #3; Goal #3; and Intent and Purposes Bullet #3 and goal	Rodney Kamper	1. FMZP ES-1: Nitrate Control Program Goal #3 Implement long-term, managed restoration of impaired water bodies. 2. FMZP Page 2: Nitrate Control Program Goal #3 Implement long-term, managed restoration of impaired water bodies. 3. FMZP Page 4 Intent and Purposes Bullet #3 and goal (3): restoring groundwater basins/subbasins (where reasonable, feasible and practicable) across the	Mt Whitney Dairy	The Nitrate Control Program goals listed in the FMZP document are consistent with the Basin Plan Amendment.

Table I-1 KWA Public Draft Comments and Responses for FMZP and EAP								
						Management Zone. The comment is on the inconsistency of these goals, specifically that #1 and #2 with # 3 above point to water bodies which he believes are related to surface water and too broad for the Nitrate Control Program.		
4	8/12/2022	FMZP	Chapter 6, Section 6.2	N/A	Victor Kral	In the event that I have addressed Comments to the wrong Chapter, please direct my comments to the appropriate source. Thank you! While not a normal consideration, in the severe challenges, water availability issues pose, I would recommend, that the Canals, be periodically cleaned, during dry times, of the tremendous accumulation of garbage that is in the canals. I would	N/A	The KWA Management Zone appreciates this comment, and the topic of the cleanliness of canals throughout the Management Zone has been raised with the KRCD.

Table I-1 KWA Public Draft Comments and Responses for FMZP and EAP								
						venture, to say, that things that are potentially hazardous are lining the bottom and sides of the canals. Not only un-sightly if the canals are low etc. or dry. but also un-healthy. I fully realize that Water, is the primary focus, but aesthetics and sanitation are salient as well. Thank you, for taking my comments.		
5	8/19/2022	FMZP	Chapter 4, Section 4.5 EAP Implementation	N/A	Ngodoo Atume (CWA), Bryan Osorio (CWC), and Kjia Rivers (CWC)	Letter provided to KWA with summarized comments below: A. Outreach: lacking in providing meaningful and robust outreach to communities impacted by nitrate contamination; outreach by KWA could improve with more targeted identification and engagement of residents; the amount of well test inquiries and the number of	Clean Water Action and Community Water Center	Additional text has been added to this section of the FMZP to address these concerns. Targeted outreach has occurred in areas identified on the ambient Upper Zone nitrate map to provide meaningful engagement with residents impacted by elevated nitrate. Domestic well testing continues to cover more and more of the impacted areas within

Table I-1 KWA Public Draft Comments and Responses for FMZP and EAP								
						<p>wells tested indicates that the outreach done by the MZ has not successfully identified affected residents.</p> <p>B. Well testing numbers: 333 wells tested by the KWA Management Zone since May 2022 indicates the current well testing does not identify nitrate impacted residents adequately; 53% of domestic wells tested under the KWA EAP implementation were found to be above the MCL for nitrate contamination, and "When a dramatic majority of the wells tested within the management zone are found to be above the nitrate MCL, as in Kings, preemptive bottled water replacement should be offered while</p>		<p>the Management Zone. KWA does not agree that 53% of domestic wells constitutes a "dramatic majority of the wells tested", and is not currently offering pre-emptive bottled water replacement prior to receiving nitrate test results at this time. KWA's first and foremost concern is nitrate contamination, but continues to consider coordinating sampling of multiple constituents with SAFER funds. It is important to recognize that the Nitrate Control Program only requires sampling wells for nitrate and the EAP must address the requirements of this regulatory program. KWA will continue to</p>

Table I-1 KWA Public Draft Comments and Responses for FMZP and EAP								
						<p>testing continues."</p> <p>C. Testing for Co-Contaminants: missed opportunity to have residents' wells testing for other contaminants of concern; if well test results do not demonstrate nitrate exceedance levels the resident may believe their water is safe to drink; strongly recommend KWA pursue and negotiate a cost-sharing agreement to test for co-contaminants.</p> <p>D. Management Zone Implementation Plan: urge an aggressive long term approach to address nitrate contamination by achieving balanced nitrate loading within the management zone.</p>		<p>determine the best approach to address other contaminants in the Management Zone, including potentially pursuing SAFER funds pending KWA Board approval and discussionw with the State Water Board's Division of Drinking Water and Division of Financial Assistance. Regarding the Management Zone Implementation Plan, KWA appreciates the opportunity to receive input from NGOs during the MZIP development process.</p>