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# CHOWCHILLA MANAGEMENT ZONE PRELIMINARY MANAGEMENT ZONE PROPOSAL

PREPARED FOR

MADERA COUNTY FARM BUREAU



PREPARED BY

LUHDORFF & SCALMANINI, CONSULTING ENGINEERS

**GEI CONSULTANTS, INC.** 





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# LIST OF ACRONYMS

Acronym	Definition
AB	Public Water Supply Well Status Abandoned
AGR	Agricultural Supply
	Difference Between Nitrogen Applied and Nitrogen
А-КАК	Removed
A/R Ratio	Ratio of Nitrogen Applied to Nitrogen Removed
AU	Public Water Supply Well Status Active Untreated
Rasin Plans	Water Quality Control Plans for the Sacramento River and
Basin Plans	San Joaquin River Basins and the Tulare Lake Basin
BPA	Basin Plan Amendment
С	Public Water System Type Community
CDP	Census Designated Place
Central Valley Water Board	Central Valley Regional Water Quality Control Board
СЕТНР	California Environmental Health Tracking Program
CIWQS	California Integrated Water Quality System

Acronym	Definition
Coalition	East San Joaquin Water Quality Coalition
CVDRMP	Central Valley Dairy Representative Monitoring Program
CVHM2	Central Valley Hydrologic Model 2.0
C) / CALTE	Central Valley Salinity Alternatives for Long-term
CV-SALTS	Sustainability
CVSC	Central Valley Salinity Coalition
CSD	Community Services District
CWD	Community Water District
CWS	Community Water System
DAC	Disadvantaged Community
DDW	Division of Drinking Water
DS	Public Water Supply Well Status Destroyed
DUC	Disadvantaged Unincorporated Community
DWR	California Department of Water Resources
EAP	Early Action Plan
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
GQMP	Groundwater Quality Management Plan
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
НСМ	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
LAA	Land Application Area
lbs	pounds
LSWS	Local Small Water System
MCL	Maximum Contaminant Level
mg/L	milligrams per liter
mg/L as N	milligrams per liter as nitrogen
MHI	Median Household Income
MPEP	Management Practice Evaluation Program
MPIR	Management Practices Implementation Report
MUN	Municipal and Domestic Supply
MZIP	Management Zone Implementation Plan

Acronym	Definition
Ν	Nitrogen
NOA	Notice of Applicability
NMP	Nutrient Management Plan
NO <sub>3</sub> -N	Nitrate as Nitrogen
NO3N	Nitrate as Nitrogen
NRCS	California Natural Resource Conservation Service
NTC	Notice to Comply
NTNC	Public Water System Type Non-Transient Non-Community
NWIS	National Water Information System
OAL	Office of Administrative Law
PMZP	Preliminary Management Zone Proposal
POU	Point of Use
PRO	Industrial Process Supply
PWS	Public Water System
RO	Reverse Osmosis
SDAC	Severely Disadvantaged Communities
SDWIS	Safe Drinking Water Information System
SGMA	Sustainable Groundwater Management Act
SNMP	Salt and Nitrate Management Plan
sq. mi	square mile
SSWS	State Small Water System
State Water Board	State Water Resources Control Board
TDS	Total Dissolved Solids
TKN	Total Kjeldahl Nitrogen
USGS	United States Geological Survey
WDR	Waste Discharge Requirements
WMP	Waste Management Plan
WWTF	Wastewater Treatment Facility
WWTP	Wastewater Treatment Plant

# **Executive Summary**

# ES 1. Background and Purpose

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The Chowchilla Subbasin, facilitated and coordinated by the Madera County Farm Bureau and Water Wise, initiated the formation of the Chowchilla Management Zone to comply with the State Water Resources Control Board Nitrate Control Program requirements. To address the growing needs of this region of California to solve the nitrate problem in groundwater, representatives from local growers and farmers and other permitted dischargers in the Chowchilla Subbasin elected to pursue Path B to comply with the Nitrate Control Program, which meant forming the Chowchilla Management Zone **(Figure ES-1)**.



The Chowchilla Management Zone was formed to locally solve the nitrate problem in groundwater.

## Figure ES-1. Map of Proposed Chowchilla Management Zone



Due to differences in nitrate groundwater conditions within the subbasins of the Central Valley, the State Water Board assigned priorities based on the urgency of addressing nitrate problems in each groundwater subbasin. The Chowchilla Subbasin and five other subbasins were deemed the highest priority, Priority 1, which means that their compliance with the Nitrate Control Program is on a fast-track.



The Chowchilla Management Zone aims to work collaboratively with permittees to achieve these goals. By forming a local Management Zone, this compliance path (Path B) to meet the requirements of 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 <u>encourages partnership and teamwork</u> within its discharging members to solve the nitrate problem within their Management Zone boundary.

The Chowchilla Management Zone works collaboratively with the permitted dischargers to achieve the Nitrate Control Program goals.

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

This document, the Preliminary Management Zone Proposal, along with one of its main attachments, the Early Action Plan, is the first step to complying with the Nitrate Control Program and starting the process of solving the nitrate problems that occur within the Management Zone boundary. One of the most important components of the development of the Preliminary Management Zone Proposal and Early Action Plan is public outreach and community engagement. California State law (AB 685) declares that "every person in the state has a right to clean, safe, and affordable drinking water."

This policy is commonly referred to as the Human Right to Water. To promote this effort, the Chowchilla 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.

Human Right to Water means that every person in the state of California has a right to clean, safe, and affordable drinking water.



## The contents of this Preliminary Management Zone Proposal include:

# Section 1

## **Background and Purpose**

This section provides an introduction and background information about the Nitrate Control Program, including the Notice to Comply, the intent and purpose of a Management Zone, the formation of the Management Zone, public participation, and the initial participants.

## Section 2

Section 3

# Characterization of Proposed Management Zone

This section contains descriptions of the geography, jurisdictions, Groundwater Sustainability Agencies, water management entities, drinking water systems, Disadvantaged Communities and Disadvantaged Unincorporated Communities, and land use.

# Initial Assessment of Groundwater Conditions

This section is a crucial component to determining the extent of nitrate issues within the Management Zone. This involves a summary of hydrogeology, groundwater elevations and flow, delineation of the Upper Zone of the groundwater system (for which the Nitrate Control Program regulates), and most importantly the nitrate water quality. This section contains several maps illustrating these elements within the Management Zone and describes how the spatial interpretation of ambient nitrate conditions is developed. The ambient nitrate map is used to identify areas within the Management Zone that have elevated nitrate conditions as determined using scientific and analytical techniques with the most recent and complete dataset available at the time.

#### Section 4

## Management Zone Participants

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.

# Section 5

#### Current Nitrate Treatment and Control Efforts or Management Practices

This section 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 by local entities such as cities.

# Section 6

## Early Action Plan Development

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

## Section 7

#### Plan to Finalize Management Zone Proposal

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





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

Table ES-1. Preliminary Management Zone Proposal Requirements (Central Valley Water Board 2020)			
PMZP Requirement	Location in PMZP		
Proposed preliminary boundaries of the Management Zone area	Section 1.3.1		
Identification of Initial Participants/Dischargers	Section 1.5		
Identification of other dischargers and stakeholders in the Management Zone area that the initiating group is in contact with regarding participation in the Management Zone	Section 4.1		
Initial assessment of groundwater conditions based on readily available existing data and information	Section 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 E		
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 6.0; complete Early Action Plan in Attachment E		
Documentation of process utilized to identify affected residents and the outreach utilized to ensure that they are given the opportunity to participate in development of an Early Action Plan	Early Action Plan in Attachment E		
Identification of areas within or adjacent to the Management Zone that overlap with other management areas/activities	Section 2.2		
<ul> <li>Proposed timeline for:</li> <li>Identifying additional participants;</li> <li>Further defining boundary areas;</li> <li>Developing proposed governance and funding structure for administration of the Management Zone;</li> <li>Additional evaluation of groundwater conditions across the Management Zone boundary area, if necessary; and,</li> <li>Preparing and submitting a Final Management Zone Proposal and a Management Zone Implementation Plan.</li> </ul>	Section 7.0		



# ES 2. Characterization of Proposed Management Zone

The Chowchilla Management Zone covers an area of approximately 249 square miles (159,236 acres). This Management Zone includes lands in both Madera and Merced Counties, and it is bounded on the west by the San Joaquin River. The Chowchilla Management Zone contains surface water features including the Chowchilla River, Eastside Bypass, San Joaquin River, Ash Slough, and the Fresno River. Major communities within the Chowchilla Management Zone include the City of Chowchilla, Dairyland, Red Top, Le Grand-Athlone, Fairmead, and El Nido.

There are thirteen Groundwater Sustainability Agencies established under the Sustainable Groundwater Management Act that are located

within the proposed Chowchilla Management Zone. Attachment B to this document contains general information associated with these Groundwater Sustainability Agencies, including contact information and interested parties. Other water management entities, including irrigation districts, water districts, community service districts, and drinking water systems, are also presented in this section. There are eight (8) Public Water Systems with known GIS boundary data within the Chowchilla Management Zone.

There are three (3) Disadvantaged Communities and two (2) Disadvantaged Unincorporated Communities within the Chowchilla Management Zone, covering approximately 15.9 square miles (10,175 acres) and containing an estimated population over 21,100. The majority of the Chowchilla Management Zone is covered by agricultural land, with the most common crop type being Deciduous Fruits and Nuts (comprising about 39% of the total Management Zone area).

# ES 3. Initial Assessment of Groundwater Conditions

The initial assessment of groundwater conditions is based on readily available existing data and information. The hydrogeology of the Chowchilla 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 three main groundwater depressions located in the northeastern area (near the City of Chowchilla), in the central-southern part of the Management Zone, and in the northwestern area of the Subbasin.

As mentioned above, the Nitrate Control Program focuses on the Upper Zone of the groundwater system. This zonation of the subsurface The Nitrate Control Program cares most about the Upper Zone of groundwater, from which most domestic wells draw their water.

is a result of previous efforts from the Central Valley Salinity Coalition that attempted to define the depth from which groundwater is produced from most domestic wells across the Central Valley. In the Chowchilla Management Zone, the depth to the bottom of the Upper Zone ranges from about 60 feet to 270 feet 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, providing the best readily-available groundwater nitrate dataset. Groundwater nitrate data from wells were vetted and categorized based on well depth and/or well type to determine whether the data represent nitrate conditions in the Upper Zone of the Management Zone. Ambient nitrate conditions were developed using spatial interpolation (kriging using a search radius of 1.5 miles) on average post-2000 nitrate sample data for wells categorized into the Upper Zone (actual Upper Zone nitrate data used for this analysis ranged from February 2000 to October



Public and non-public nitrate groundwater data were compiled to develop a spatial interpolation of average recent nitrate conditions.

2020. 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 this map has inherent uncertainty and is adaptive in nature. As more Upper Zone nitrate data become available (through EAP Implementation of well testing or other monitoring programs such as Irrigated Lands Regulatory Program or Groundwater Sustainability Plans), the ambient nitrate analysis will be repeated, the map will be updated (and potentially changed) prior to submittal of the Final Management Zone Proposal.







# ES 4. Management Zone Participants

Management Zone participants include both permitted dischargers subject to requirements of the Nitrate Control Program and nondischargers working collaboratively with the permitted dischargers to support implementation of the Program in general and the Early Action Plan specifically. The CVWB sent <u>Notices to Comply</u> with the Nitrate Control Program to permitted dischargers in the Chowchilla Subbasin on May 29, 2020. <u>Permitted dischargers</u> include growers in the Irrigated Lands Regulatory Program. Other permitted dischargers include Milk Cow Dairies, Confined Bovine Feeding Operations, and

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

Poultry Operations regulated under the Concentrated Animal Feeding Operations General Orders. There are also several individually permitted dischargers that have opted to join the Management Zone. Non-discharger and stakeholder participation consists of a growing list of all interested parties, developed through: (a) local area knowledge of project proponents; (b) direct requests 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 (such as county agencies, water districts, or community service districts).

# ES 5. Current Nitrate Treatment and Control Efforts or Management Practices

The current nitrate treatment and control efforts or management practices being implemented by each of the participating permittees located in the Chowchilla Management Zone are summarized in this PMZP. The <u>PMZP</u> provides a general summary of the permit requirements applicable to permittees that are members of the East San Joaquin Water Quality Coalition or subject to a General Order for a concentrated animal feeding operation. For permittees with an individual discharge permit, the PMZP provides a brief summary of nature of the permitted facility and their existing permit requirements as they relate to the management of nitrate.

# ES 6. Early Action Plan Development

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

Establishment of a Management Zone requires the preparation of an <u>Early Action Plan (EAP)</u> that identifies initial actions the Management Zone will carry out to address sources of drinking water with unsafe nitrate levels. The key element of the EAP, which was developed in collaboration with the community, is the <u>Interim Replacement Water Program</u>. 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 nitrate concentrations exceeding 10 mg/L-N.



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



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

# ES 7. Plan to Finalize Management Zone Proposal

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

Although it is not likely to change, the Management Zone boundary may be refined prior to the submittal of the Final Management Zone Proposal. The groundwater nitrate assessment may also be updated prior to submittal of the Final Proposal. This may be necessary if and when domestic well nitrate results become available through either: 1) implementation of well testing under the Irrigated Lands Regulatory Program, or 2) through implementation of the residential well testing program in the Early Action Plan (Attachment E). The funding mechanism for and governance of the Management Zone will also be provided in the Final Proposal.

The Preliminary Management Zone Proposal was made available for **public comment** on January 29, 2021 prior to submittal on March 8, 2021. A formal public comment period will also occur for at least 30 days after being publicly posted by the CVWB on its website and through the Lyris Management System. The <u>CVWB will provide comments</u> on the Preliminary Management Zone Proposal after completion of this formal public comment process. The Chowchilla Management Zone will submit its Final Management Zone Proposal no later than 180 days after receiving comments from the CVWB on this Preliminary Management Zone Proposal.

# Key Milestones

March 8, 2021 PMZP/EAP Due Formal 30-Day Public Comment Period

May 7, 2021 EAP Implementation Starts

Final Management Zone Proposal Due Management Zone Implementation Plan Due





# **1. BACKGROUND AND PURPOSE**

# **1.1. Nitrate Control Program**

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

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

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

- 1. Ensure safe drinking water supply;
- 2. Reduce salt and nitrate loading so that ongoing discharges neither threaten to degrade high quality waters absent appropriate findings by the Central Valley Board 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 Chowchilla Subbasin as a Priority 1 basin (see Figure N-1 and Table N-1; Central Valley Water Board, 2020).

## **1.2.** Notice to Comply

The Central Valley Water Board 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 Central Valley Water Board.
- 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

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

Defined area that serves as a discrete regulatory compliance unit for complying with the Nitrate Control Program for multiple permittees.



# 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])

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.

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.

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

- Submit a Preliminary Management Zone Proposal (PMZP, or Proposal) to the Central Valley Water Board (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 Central Valley Water Board objects to the Plan.
- Submit a Final Management Zone Proposal within 180 days of the receipt of comments from the Central Valley Water Board 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 Central Valley Water Board's Executive Officer.



This document represents the Preliminary Management Zone Proposal for the management of nitrate within the Chowchilla Subbasin. As described below, the Chowchilla Subbasin boundary, as defined by DWR in 2003, is synonymous with the proposed Chowchilla Management Zone area. This Proposal fulfills the requirements of the Nitrate Control Program as prescribed by the Central Valley Water Board (2020).

	Table 2	L- <b>2</b> summarizes	these requiremer	its and where they a	are addressed in t	this Proposal.
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Table 1-2. Preliminary Management Zone Proposal Requirements (Central Valley Water Board 2020)			
PMZP Requirement	Location in PMZP		
Proposed preliminary boundaries of the Management Zone area	Section 1.3.1		
Identification of Initial Participants/Dischargers	Section 1.5		
Identification of other dischargers and stakeholders in the Management Zone area that the initiating group is in contact with regarding participation in the Management Zone	Section 4.1		
Initial assessment of groundwater conditions based on readily available existing data and information	Section 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 E		
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 6.0; complete Early Action Plan in Attachment E		
Documentation of process utilized to identify affected residents and the outreach utilized to ensure that they are given the opportunity to participate in development of an Early Action Plan	Early Action Plan in Attachment E		
Identification of areas within or adjacent to the Management Zone that overlap with other management areas/activities	Section 2.0		



Table 1-2. Preliminary Management Zone Proposal Requirements		
(Central Valley Water Board 202	.0)	
Proposed timeline for:	Section 7.0	
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,		
Preparing and submitting a Final Management Zone Proposal and a		
Management Zone Implementation Plan.		

## **1.3. 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.

## 1.3.1. Proposed Management Zone Boundary

The boundary of the Chowchilla Management Zone is coincident to the 2003 California Department of Water Resources (DWR) Bulletin 118 delineation of the Chowchilla Subbasin of the San Joaquin Valley Groundwater Basin (**Figure 1-1**). This subbasin delineation was used as the basis for the prioritization of basins/subbasins that the NCP utilized for compliance. The Chowchilla Subbasin, using the 2003 DWR basin boundaries, was deemed a Priority 1 basin for nitrate, triggering the development of this Proposal. This Management Zone boundary contains several Groundwater Sustainability Agencies (GSAs). Some GSAs are contained solely within the Chowchilla Management Zone, and others extend beyond the Management Zone boundary.

The Chowchilla Management Zone boundary overlaps with the following GSAs:

- 1. Chowchilla Water District GSA
- 2. County of Madera GSA Chowchilla
- 3. County of Madera GSA Delta-Mendota
- 4. County of Merced GSA Chowchilla
- 5. Merced Irrigation-Urban GSA
- 6. Merced Subbasin GSA
- 7. New Stone Water District GSA
- 8. Triangle T Water District GSA



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

The Nitrate Control Program also establishes the following characteristics to describe the proposed Management Zone (Table N-4; 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 (NCP) 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 Chowchilla Management Zone is consistent with these three general characteristics.

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

This Management Zone boundary coincides with the entire Chowchilla Subbasin, 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 Management Zone are located within the Management Zone boundary (See Section 4.1.1) and do not discharge outside of the Management Zone boundary.

#### Voluntarily Proposed by Permitted Dischargers

This Preliminary Management Zone Proposal was voluntarily prepared by the permitted dischargers identified in Section 1.5 below. Development of this Preliminary Management Zone Proposal, including the Early Action Plan, occurred through an open, public stakeholder process (see Section 1.4.2 in this document and Section 1.3 in Attachment H – 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 1-3**):



Table 1.3. Delineation and Review of Management Zone (Central Valley Water Board 2020)			
Management Zone Requirement	Location in PMZP		
Management Zone boundaries shall be based primarily on hydrogeology.	PMZP Section 1.3		
Groundwater Management Zone entities shall evaluate potential impacts to groundwater associated with downgradient migration of nitrate from each Management Zone. The evaluation process shall be assessed and clearly documented using quantitative methods.	PMZP Section 1.3.2		
Agreements with adjacent Management Zones regarding responsibility for providing drinking water and restoring groundwater basins or subbasins shall be clearly documented.	PMZP Section 1.3.2		
Areas of contribution associated with discharges, both within and outside of each Management Zone, shall be technically justified.	PMZP Section 1.3.2		
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 for the proposed Chowchilla Management Zone		

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

#### Boundaries Based Primarily on Hydrogeology

This Management Zone boundary coincides with the entire Chowchilla Subbasin, 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 4.1.1) and do not discharge outside of the Management Zone boundary. Part of the nitrate impact analysis included collection of groundwater nitrate data within a 3-mile buffer around the proposed Management Zone boundary, in order to assess the migration of nitrate to and/or from adjacent Management Zones.

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



No other Priority 1 Basins or Subbasins are adjacent to the Chowchilla Management Zone. The Priority 2 subbasins (Merced, Madera, and Delta Mendota Subbasins) located adjacent to the Chowchilla Management Zone 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. All available groundwater nitrate data were collected and compiled for the nitrate impact analysis within a 3-mile buffer around the boundary of the proposed Management Zone, providing ambient conditions within and directly outside the proposed Management Zone.

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

Not applicable. Entire Management Zone is contiguous with the Chowchilla Subbasin. 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<sup>1</sup>. The Chowchilla Management Zone will cooperate with dischargers that choose Path A to ensure that no residents fall through the cracks that may rely on domestic or municipal supply within the boundaries of the Management Zone.

# 1.3.3. Preliminary Governance

The Madera County Farm Bureau, a California nonprofit mutual benefit corporation, established a Memorandum of Agreement (MOA) with permitted dischargers in the Chowchilla Subbasin to form the Chowchilla Management Zone. This MOA ("Management Zone Agreement for Permittees in the Chowchilla Groundwater Basins/Subbasins as identified in the Water Quality Control Plan for the Sacramento and San Joaquin River Basins") serves as the preliminary basis for governance in this Management Zone. The full text of the MOA may be reviewed in **Attachment A**; key elements include:

- Working in good faith with all participants, to establish a new organization, partner with or join an existing organization that will administer the Chowchilla Management Zone Program and submit timely deliverables as required by the Nitrate Control Program.
- Costs (e.g., proposals, reports, plans required to comply with the Nitrate Control Program requirements) will be shared with other participants based on an equitable cost allocation mechanism developed by the participants.

<sup>&</sup>lt;sup>1</sup> As of January 2021, Certainteed is the only discharger that has not yet made a decision on what path to take.



- Madera County Farm Bureau agreed to temporarily act as the fiduciary agent for the Chowchilla Management Zone until participants establish a new organization or identify an existing organization to administer the Nitrate Control Program requirements as required for a Management Zone.
- While participants will seek alternative funding sources for development and implementation of the Nitrate Control Program requirements, e.g., EAP implementation, all participants are ultimately responsible for compliance with these requirements.
- Compliance with the terms of the Nitrate Control Program is ultimately determined by the Central Valley Water Board and not the Madera County Farm Bureau or other participants to the Agreement.
- Each participant is free to withdraw from the MOA at any time upon giving a minimum of 30 days written notification to the Madera County Farm Bureau. Any contributions to the Management Zone are not reimbursable and the participant shall continue to be responsible for its fair share of required contributions during the 30-day notice period unless otherwise agreed to by the participants.
- Participation in the Chowchilla Management Zone and being a party to the MOA 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.

The MOA was signed by permitted dischargers identified as Management Zone participants. The MOA is being implemented by a Steering Committee comprised of representatives of the permitted dischargers. The current representatives and the seats they hold on the Steering Committee are as follows:

- Dairy Industry Two representatives: Greg Hooker (Diamond H Dairy) and Scott Wickstrom (Wickstrom Bros. Dairy)
- Irrigated Lands Regulatory Program (ILRP) Three representatives: Rick Cosyns (Cosyns Farms), Carl Evers III (Hancock Natural Resources Group), and Steve Massaro (Massaro Farms)
- City of Chowchilla One representative: Jason Rogers (City of Chowchilla)
- Manufacturing/Other Ag One representative: Layne Baroldi (Synagro)

The primary focus of the Steering Committee is to develop the Management Zone's cost sharing and governance structures and develop and implement the PMZP program to provide safe drinking water in the Chowchilla Management Zone. Staff supporting the Steering Committee are the Madera County Farm Bureau and Water Wise.

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

The following section describes the process to develop this Proposal.



# 1.4.1. Preliminary Management Zone Proposal Development

The Chowchilla Management Zone Proposal was developed to comply with the requirements of Path B for the Nitrate Control Program. The deliverables for this initial part of the Nitrate Control Program include the Preliminary Management Zone Proposal and the Early Action Plan. The Chowchilla Management Zone began its efforts to develop this PMZP in summer 2020 soon after the Central Valley Water Board sent out the NTC to permitted dischargers. These efforts focused on three areas:

- **Establishment of the Management Zone:** Early meetings focused on coordination with the permit holders receiving the NTC and developing understanding about the Nitrogen Control Program requirements, including the opportunity to form a Management Zone and address EAP requirements. Subsequent meetings transitioned into discussions regarding preliminary governance, and establishment of the MOA and a Steering Committee to administer Management Zone activities (see previous section).
- **Development of Management Zone Deliverables:** Regular meetings were held with the Steering Committee, Management Zone staff, technical team and other interested parties to discuss elements of the PMZP and EAP, in particular the characterization of nitrate water quality in groundwater and program activities to include in the EAP.
- **Community Outreach to the Public and Non-dischargers:** The Management Zone held regular meetings to seek input from the community. Self-Help Enterprises (SHE) provided critical support to develop and conduct these meetings.

Draft PMZP and EAP documents were developed in January 2021 and released to the public for review and comment on January 29, 2021. Comments received on these public draft documents were considered in the preparation of the final PMZP and EAP. The comments and responses to comments are provided in EAP Appendix B-4.

## 1.4.2. Public Participation

This PMZP was developed in collaboration with the community residents and other stakeholders within the proposed Chowchilla Management Zone boundary. Outreach was guided by the Chowchilla Management Zone Nitrate Control Program Communication and Engagement Plan (CEP) (see EAP Appendix A-1; **Attachment E** of this PMZP). The Chowchilla Management Zone developed the CEP to provide a communications strategy to engage stakeholders, including community residents, in the development of the PMZP and EAP for the Chowchilla Subbasin. CEP implementation focused on accomplishing the following goals:

• Educate stakeholders about: (a) Nitrate Control Program and its requirements; (b) permitted dischargers operating in the Management Zone; (c) potential changes to current nitrogen management under the Nitrate Control Program; and (d) how stakeholders will be represented in the PMZP and EAP development process.



- Communicate important Nitrate Control Program deadlines and dates.
- Coordinate outreach and engagement activities among permitted dischargers to ensure efficiencies and to support stakeholders in PMZP and EAP development.
- Articulate strategies and channels for gaining ongoing stakeholder input and feedback to inform PMZP and EAP design and development.
- Encourage stakeholder engagement by communicating dedicated Nitrate Control Program outreach strategies and channels, including meeting and workshop dates and content, as opportunities for stakeholders to provide input in the PMZP and EAP decision-making and planning processes.

To facilitate outreach efforts, the Chowchilla Management Zone partnered with SHE to provide the following support:

- Develop a Management Zone outreach and engagement plan;
- Prepare English/Spanish outreach and meeting materials (e.g., flyers, posters, calendar listings, social media messages) and provide Spanish translation during community outreach meetings;
- Conduct community outreach, e.g., canvassing the local community (to the extent possible given COVID restrictions);
- Participate in community outreach meetings; and
- Review and comment on Management Zone deliverables.

Due to state directives during the COVID pandemic all community outreach meetings were held online using a ZOOM Webinar platform with Spanish translation provided. Three community outreach meetings were held during development of this PMZP (October 16 and December 11, 2020 and January 29, 2021), with much of the focus of these meetings being on EAP development. The EAP (**Attachment E**) provides additional details regarding the content of these meetings.

To inform the community of upcoming public outreach activities, SHE prepared public meeting notices ("flyers") in English and Spanish for distribution to the community. These materials were sent via email to the public and non-dischargers or physically posted at various locations. These flyers directed residents to contact SHE for more information, as needed.

Madera County hosts the Chowchilla Management Zone's website at <u>https://www.maderacountywater.com/cv-salts/</u>. Materials used to support public participation in the development of the PMZP and EAP are posted here. The website also includes a Storymap (<u>https://storymaps.arcgis.com/stories/b7a902ac42b743548d461dddf9c97e75</u>) that provides an easily understood summary of nitrate water quality concerns in the Management Zone and ongoing efforts to provide interim replacement water.

The Chowchilla Management Zone provided local community residents and other Management Zone stakeholders the opportunity to review public drafts of this PMZP and its attached EAP.



The community was notified that the public drafts were available for review and comment on January 29, 2021; comments to the Management Zone were due by February 22, 2021<sup>2</sup>. To notify residents of the opportunity to review this document, the following notification activities were conducted: discussion of public release of draft documents during January 29<sup>th</sup> Public Outreach Meeting, email notification sent to interested parties list, posting on: Madera County website, City of Chowchilla website, Self-Help Enterprises website, and the Madera County Farm Bureau website. Chowchilla Management Zone representatives also offered to provide the documents upon request<sup>3</sup>.

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

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

- Growers enrolled under ILRP General Order R5-2012-0116 (as amended) ("Waste Discharge Requirements General Order for Growers within the Eastern San Joaquin River Watershed that are Members of the Third-Party Group").
- Dairies regulated under General Order R5-2013-0122 ("Reissued Waste Discharge Requirements General Order for Existing Milk Cow Dairies") and enrolled as a member in the Central Valley Dairy Representative Monitoring Program (CVDRMP).
- Confined bovine feeding operations regulated under General Order R5-2017-0058 ("Waste Discharge Requirements General Order for Confined Bovine Feeding Operations") and enrolled as a member in the CVDRMP.
- Poultry operations regulated under General Order R5-2016-0087 (as amended) ("Waste Discharge Requirements General Order for Poultry Operations").
- Individual permitted dischargers, as summarized in Table 1-4

<sup>&</sup>lt;sup>3</sup> A hard copy will be available at the County and the City of Chowchilla.



<sup>&</sup>lt;sup>2</sup> These comments and MZ responses to the comments are provided in **Appendix F**.

Table 1-4. Initial List of Individual Permitted Dischargers Participating in the Chowchilla         Management Zone				
Facility Name	Order No.	Address	PMZP Contact	CVSALT S ID
Baker Farming	2004-0012- DWQ	14920 Flanagan Road, Merced, CA 95340	Layne Baroldi, <u>Ibaroldi@synagro.com</u> 714-299-2943	2764
Chowchilla II Biomass Power Plant	93-205	16457 Avenue 24 1/2, Chowchilla, CA 93610		1896
Chowchilla Pistachio Company	93-005	16333 Avenue 24 1/2, Chowchilla 93610		1897
Chowchilla WWTF	90-271	Avenue 24 1/2 & Rd 16, Chowchilla, CA 93610	Jason Rogers jrogers@cityofchowchilla.org (559) 665-8615 x789	2656
Diamond H Dairy	R5-2010- 0130	9564 Avenue 18 1/2, Chowchilla, CA 93610	Greg Hooker, ghooker@aol.com	89
Double Diamond Dairy	R5-2009- 0011	505 East Washington Road, El Nido, CA 95317		83
El Nido Composting Facility (Synagro/ Menefee River Ranch Company)	R5-2003- 0180	13757 South Harmon Road, Dos Palos, CA 93620	Layne Baroldi, <u>Ibaroldi@synagro.com</u> 714-299-2943	3130
Menefee Ranch (Synagro)	2004-0012- DWQ	Menefee Ranch 1624 E. Pacheco Blvd, Los Banos, CA 93635	Layne Baroldi, <u>Ibaroldi@synagro.com</u> 714-299-2943	3559
Vlot Bros Ranch Sludge Application Site	Pending Order	Road 4 and Avenue 21, Chowchilla, CA 93610		2850





Figure 1-1. Map of the Proposed Chowchilla Management Zone



# 2. CHARACTERIZATION OF PROPOSED MANAGEMENT ZONE

The subsections below describe the area encompassed by the proposed 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 used to characterize the Management Zone.

# 2.1. Geography

The Chowchilla Management Zone is coincident with the 2003 version of DWR's Bulletin 118 Groundwater Basin Boundary for the Chowchilla Subbasin. The Management Zone encompasses an area of approximately 249 square miles (sq. mi.) (159,236 acres). The Management Zone includes lands in both Madera and Merced Counties, and it is bounded on the west by the San Joaquin River. The Management Zone boundary on the western side shares a boundary with the Delta-Mendota Subbasin. The northern boundary of the Management Zone corresponds with the 2003 Basin Boundary for the Merced Subbasin; and the southern boundary corresponds to the Madera Subbasin boundary (DWR, 2004) (**Figure 1-1**).

The Chowchilla Management Zone contains the following surface water features:

- Chowchilla River running across the northern portion of the Management Zone;
- Eastside Bypass running diagonally from the northwest to the southeast on the western side of the Management Zone;
- San Joaquin River along the western boundary of the Management Zone;
- Ash Slough runs along the northeastern portion of the Management Zone, northeast of the City of Chowchilla; and
- a portion of the Fresno River runs in the southern part of the Management Zone.

Figure 2.1 illustrates surface water bodies in and around the Management Zone.



Table 2-1. Key Data Sources to Characterize the Proposed Management Zone			
Boundary Type	Source for Boundary Data	Comments	
Groundwater Sustainability Agency (GSA)	DWR Map Viewer: • DWR Map Viewer: https://sgma.water.ca.gov/webgis/index.jsp?appid=gasmast er&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	DWR Bulletin 118: https://water.ca.gov/Programs/GroundwaterManagement/Bu lletin-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=D947E7AC9E03D122CC5D707369 E581DF41320E50 DWR Basin Boundary Modification Map Viewer: https://sgma.water.ca.gov/basinmod/modrequest/ map;jsessionid=658C11952F60F610812069F4F5860BCD	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://gis.water.ca.gov/arcgis/rest/services/Boundaries/i03_ Wa terDistricts/MapServer	Irrigation Districts, water districts, community service areas, and community service districts	
Systems	https://trackingcalifornia.org/water-systems/water- systemslanding	Drinking Water	
State Small Water Supply Systems	By request from county Environmental Health Departments (Madera County and Merced County)	Boundary data is typically not available for SSWS (usually just an address)	
Disadvantaged Communities (DAC)/ Disadvantaged Unincorporated Communities (DUC)	DACs boundaries available from DWR: <u>https://gis.water.ca.gov/app/dacs/</u> DUCs boundaries available from PolicyLink by request (https://www.policylink.org/)	DUC boundaries only available for portions of the San Joaquin Valley	



# 2.2. Jurisdictions

The Management Zone includes a small part of the southeastern portion of Merced County and the northwestern portion of Madera County (see **Figure 2-2**). Primary communities within each County include:

- Madera County: City of Chowchilla, Dairyland, Red Top, Le Grand-Athlone, Fairmead
- Merced County: El Nido

## 2.3. 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 (GSPs), which require the GSA(s) to develop a Hydrogeologic Conceptual Model (HCM), determine groundwater conditions in the basin (including water quality), and estimate 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 subbasins subject to SGMA, has established a web-based portal for GSA documentation<sup>4</sup>. There are thirteen GSAs that are located within the proposed Chowchilla Management Zone<sup>5</sup> (**Figure 2-2**), including:

- Chowchilla Water District GSA
- County of Fresno GSA Delta-Mendota Management Area B
- County of Madera GSA Chowchilla
- County of Madera GSA Delta-Mendota
- County of Madera GSA Madera
- County of Merced GSA Chowchilla
- County of Merced GSA Delta-Mendota
- Madera Irrigation District GSA
- Merced Irrigation Urban GSA
- Merced Subbasin GSA
- New Stone Water District GSA
- San Joaquin River Exchange Contractors Water Authority GSA
- Triangle T Water District GSA

<sup>&</sup>lt;sup>5</sup> The Chowchilla Subbasin 2020 GSP was developed for the current Chowchilla Subbasin boundary, which is different from the 2003 DWR Chowchilla Subbasin boundary that is required for the Nitrate Control Program.



<sup>&</sup>lt;sup>4</sup> GSA boundaries: <u>https://sgma.water.ca.gov/webgis/index.jsp?appid=gasmaster&rz=true</u>
The majority of the Management Zone is covered by Chowchilla Water District GSA, County of Madera GSA – Chowchilla, and Triangle T Water District GSA. The other GSAs listed above cover smaller portions of the Management Zone area. **Attachment B** to this Preliminary Management Zone Proposal provides a summary of resource management agencies associated with the development of GSAs in and around the proposed Management Zone.

## 2.4. Water Management Entities

There are several irrigation districts, water districts, and companies that manage and distribute water within the Management Zone. These entities distribute water for irrigation, drinking, or other purposes. **Figure 2-3** illustrates the location of these various management areas within and adjacent to the proposed Management Zone. These entities include:

- Central California Irrigation District
- Chowchilla Water District
- City of Chowchilla
- Clayton Water District
- Columbia Canal Company
- El Nido Mobile Home Park
- Le Grand Athlone Water District
- Le Grand Community Services District
- Madera Irrigation District
- Merced Irrigation District
- New Stone Water District
- San Joaquin River Exchange Contractors Water Authority
- Sierra Water District
- Triangle T Water District

## 2.5. 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 household connections or regularly serves at least 25 individuals at least 60 days per year. The following subsections provide additional information regarding each of these types of water 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,								
Duratio	and Duration of Service per Year (adapted from Boyle et al. 2012) tio Connections: $< 5$ $5 \pm < 15$ $15 \pm < 200$ $200 \pm $							
n of Service	Persons Serve	ed:	< 25		25+			
N/A	Small Water System (SWS) <sup>1</sup>	٨	Connections					
< 60 days/yea r	Local Small Water System	Defined B	Connections & (persons, duration)					
< 60 days/yea r	State Small Water System	ification		Connec (pers dura	tions & sons, tion)			
>= 60 days/yea r	Community Public Water System (PWS) <sup>2</sup>	Class				Connec	tions or (p duration)	oersons,
<sup>1.</sup> Class may Loca <sup>2.</sup> A PV more year	<ul> <li>(PWS)<sup>2</sup></li> <li><sup>1.</sup> Classification as a SWS does not preclude classification as any of the other types. SWS may be regulated by the State Water Board Division of Drinking Water (DDW) or by Local Primary Agency county.</li> <li><sup>2.</sup> A PWS is a system for the provision of water for human consumption that has 15 or more service connections OR regularly serves at least 25 individuals at least 60 days per voar</li> </ul>							

## 2.5.1. 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 at least 60 days per year (see **Table 2-2**). PWS, which are regulated by the DDW, are required to submit water samples of their raw and delivered water for a broad suite of regulated constituents on various schedules that depend on the constituent and the source water context. All PWS data on water quality, source locations, service areas, and historical data are publicly available on the State Water Board website<sup>6</sup>. The California Environmental Health Tracking Program (CEHTP) maintains a dataset of

<sup>&</sup>lt;sup>6</sup> <u>https://data.ca.gov/dataset/drinking-water-public-water-system-information</u>



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 Identification (ID), system name, the number of connections and number of persons served, and the water system type. The PWS ID and system name are reliable except in the few cases where system boundaries are entirely mislocated. 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 Management Zone. There are eight (8) public water systems with known boundaries within the boundary of the Chowchilla Management Zone: Cal Trans CHP Chowchilla River Facility, Chowchilla City Water Department, El Nido Elementary School, El Nido Mobile Home Park, Le Grand Community Services District, MD 85 Valeta, Minturn Huller, and Neighborhood Grocery.

## 2.5.2. State Small Water Systems

SSWS are defined as systems serving at least five but not more than 14 residential households. 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. Merced and Madera 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. Neither Madera County nor Merced County have any record of SSWS in the Chowchilla Management Zone.



## 2.5.3. 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 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. Neither Merced nor Madera County had records of any LSWS in the Chowchilla Management Zone.

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

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

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

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

<sup>&</sup>lt;sup>7</sup> DWR's boundary files for DACs: <u>https://gis.water.ca.gov/app/dacs/</u>



typically a more accurate representation of neighborhoods with qualifying MHIs rather than Tracts or Block Groups. DWR does not provide an assessment of DAC status at the Block level.

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

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

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

There are three Disadvantaged Communities (DAC) and two Disadvantaged Unincorporated Communities (DUC) in the Chowchilla Management Zone. The three DACs are Chowchilla City, El Nido CDP, and Fairmead CDP. The two DUCs are El Nido and Fairmead. **Table 2-3** lists and **Figure 2-5** illustrates the locations of the DUCs in the proposed Management Zone. **Table 2-4** summarizes the characteristics of DACs and DUCs in the Management Zone area. Combined, non-overlapping DAC and DUC areas comprise approximately 6.4% of the Management Zone (10,175 acres or 15.9 sq. mi).

Table 2-3. Population of DACs and DUCs located in the Proposed Chowchilla Management Zone						
DAC/DUC Community DWR DAC Population (2018 CDP) Fraction of DAC area in MZ PolicyLink DUC Population area in MZ PolicyLink DUC Population						
Chowchilla city	18,533	0.85	-	-		
El Nido CDP	328	0.97	155	1.00		
Fairmead CDP	1,876	0.41	786	0.21		



Table 2-4. DAC and DUC Characteristics in the Proposed Chowchilla Management Zone					
CategoryNumber of LocalesAcres (sq mi.) in MZAcres (sq. mi.) overlapTotal DAC & DUC 					Total DAC & DUC Population Estimate
DACs	3	10,159 (15.87)	FF (0.00)	10.175 (15.0)	21 164
DUCs	2	71 (0.11)	55 (0.09)	10,173 (13.9)	21,104

## 2.7. Land Use

**Table 2-5** and **Figure 2-6** provide the land use characteristics of the proposed Management Zone associated with agricultural activity (based on 2016 land use designations from DWR). The land use in the Management Zone is predominantly classified as Deciduous Fruits and Nuts. To the northwest, agricultural activity shifts to an increased use of Field Crops. There are small areas of the Management Zone that are unmapped for land use. Deciduous Fruits and Nuts are the most common crop in the Management Zone, comprising about 39% of the total area.

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 Proposed Chowchilla Management Zone (land use designations based on DWR 2016)						
Land Use Designation	Area (sq. mi.)	Area (acres)	Percent of Total Management Zone Area			
CITRUS AND SUBTROPICAL	0.29	185	0.12%			
Citrus	0.28	182	0.11%			
Dates	0.00	1	0.00%			
Miscellaneous Subtropical Fruits	0.00	2	0.00%			
DECIDUOUS FRUITS AND NUTS	98.15	62,814	39.45%			
Almonds	79.27	50,731	31.86%			
Cherries	0.06	39	0.02%			
Miscellaneous Deciduous	0.30	195	0.12%			
Peaches/Nectarines	0.01	9	0.01%			
Pistachios	16.85	10,787	6.77%			
Plums, Prunes and Apricots	0.25	162	0.10%			
Pomegranates	0.05	32	0.02%			
Walnuts	1.34	858	0.54%			
FIELD CROPS	36.57	23,402	14.70%			
Corn, Sorghum and Sudan	33.22	21,259	13.35%			
Cotton	3.35	2,143	1.35%			
GRAIN AND HAY CROPS	8.54	5,464	3.43%			
Miscellaneous Grain and Hay	2.42	1,547	0.97%			
Wheat	6.12	3,917	2.46%			
IDLE	5.89	3,772	2.37%			
Idle	5.89	3,772	2.37%			



Table 2-5. Land Use Summary for Proposed Chowchilla Management Zone (land use designations based on DWB 2016)						
Land Use Designation	Area (sq. mi.)	Area (acres)	Percent of Total Management Zone Area			
RIPARIAN VEGETATION	0.38	243	0.15%			
Managed Wetland	0.38	243	0.15%			
PASTURE	30.72	19,658	12.35%			
Alfalfa and Alfalfa Mixtures	29.53	18,898	11.87%			
Miscellaneous Grasses	0.43	272	0.17%			
Mixed Pasture	0.76	487	0.31%			
TRUCK NURSERY AND BERRY CROPS	7.46	4,775	3.00%			
Flowers, Nursery and Christmas Tree Farms	0.50	321	0.20%			
Melons, Squash and Cucumbers	0.19	123	0.08%			
Miscellaneous Truck Crops	0.26	164	0.10%			
Onions and Garlic	0.01	3	0.00%			
Tomatoes	6.51	4,163	2.61%			
URBAN	3.58	2,293	1.44%			
Urban	3.58	2,293	1.44%			
VINEYARD	14.80	9,474	5.95%			
Grapes	14.80	9,474	5.95%			
YOUNG PERENNIALS	4.17	2,670	1.68%			
Young Perennials	4.17	2,670	1.68%			
Grand Total	210.55	134,751	84.62%			
Unmapped Area	38.26	24,484	15.38%			
Total Management Zone Area	248.81	159,236	100.00%			





Figure 2-1. Chowchilla Management Zone: Surface Water Characteristics





Figure 2-2. Groundwater Sustainability Agencies Established within and Adjacent to the Proposed Chowchilla Management Zone





Figure 2-3. Water Management Entities Located within and Adjacent to the Proposed Chowchilla Management Zone





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





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





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



# 3. 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, 2016a) 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 Chowchilla Management Zone was obtained via DWR's Bulletin 118 (DWR, 2004). This document contains descriptions of groundwater basins and subbasins in California, with many descriptions updated from their 2003 descriptions in 2016 (DWR, 2016). DWR also released their statewide Groundwater Basin Prioritization in 2014 and 2015<sup>8</sup>, which contains basic information on each groundwater basin.
- GSAs have developed HCMs and other information required for the GSP, including details on groundwater conditions. Madera County published a Groundwater Sustainability Plan in January 2020<sup>9</sup>. This document provides an overview of groundwater conditions (both groundwater levels and groundwater quality) in the Chowchilla Subbasin. The GSP document also contains information including population, population growth, an assessment of public water supply, water demand, groundwater storage change, land use, and other groundwater- and surface water-based information specific to the Chowchilla 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 3-1** summarizes sources of data accessed to update the CV-SALTS nitrate groundwaterdataset for completing the initial assessment of groundwater conditions for this PreliminaryManagement Zone Proposal.

<sup>&</sup>lt;sup>9</sup> <u>https://sgma.water.ca.gov/portal/service/gspdocument/download/2256</u>



<sup>&</sup>lt;sup>8</sup> https://water.ca.gov/LegacyFiles/groundwater/casgem/pdfs/lists/PubRel\_BasinRank\_by\_HR\_5-18-15.pdf

Table 3-1. Data Sources Accessed to Develop Initial Assessment of Groundwater				
Conditions in Proposed	Management Zone			
Data Source	Link			
General Groundwater Conditions				
DWR Bulletin 118 overview of basin/subbasin	https://water.ca.gov/Programs/Groundwa			
conditions (groundwater levels and	ter-Management/Bulletin-118			
groundwater quality)				
DWR's Groundwater Sustainability Basin	https://water.ca.gov/LegacyFiles/groundw			
Prioritization	ater/casgem/pdfs/lists/PubRel BasinRank			
	<u>by HR 5-18-15.pdf</u>			
Individual GSA's Hydrogeologic Conceptual	https://sgma.water.ca.gov/portal/gsp/all			
Model				
CV-SALTS High Resolution Salt and Nitrate	https://www.cvsalinity.org/committees/te			
Mapping for Region 5	chnical-advisory/conceptual-model-			
	developments/171-updated-groundwater-			
	quality-analysis-for-central-valley.html			
Publicly Available Groundwater Quality Data Sou	urces			
GeoTracker GAMA	http://geotracker.waterboards.ca.gov/ga			
	ma/gamamap/public/			
DWR Water Data Library	http://wdl.water.ca.gov/waterdatalibrary/			
	waterquality/index.cfm			
US Geological Survey National Water	https://waterdata.usgs.gov/nwis/qw			
Information System				
GeoTracker Regulated Facilities	http://geotracker.waterboards.ca.gov/			
	and			
	http://geotracker.waterboards.ca.gov/dat			
	adownload			
State Water Board Division of Drinking Water	https://www.waterboards.ca.gov/drinking			
	water/certlic/drinkingwater/EDTlibrary.h			
	<u>tmi</u>			
County-specific Data Available by Request	https://			
Nerced County state small water systems and	nttps://www.co.merced.ca.us/82/Public-			
domestic/local small water systems (water	Health			
quality data)				
Madera County state small water systems and	nttps://www.maderacounty.com/govern			
domestic/local small water systems (water	ment/public-nealth			
Guality Gala)	https://www.co.frospo.co.us/doportmonts			
demostic/local small water systems and	/nups.//www.co.iresno.ca.us/departments			
quality data)				
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			



## 3.1. Hydrogeology

The Chowchilla Subbasin GSP was used to summarize hydrogeologic information in the Subbasin and therefore the Management Zone. This summary of the hydrogeology in the Chowchilla Management Zone is based on a combination of the GSP's HCM (Davids Eng., LSCE et al., 2020) and DWR's Bulletin 118 (2004).

DWR's Bulletin 118 (2004) describes the Chowchilla Subbasin as part of the greater San Joaquin Valley, which represents the southern portion of the Great Central Valley of California. DWR provides a general hydrogeologic description of the San Joaquin Valley as being a structural trough up to 200 miles long and 70 miles wide, filled with up to 32,000 feet of marine and continental sediments deposited during periodic inundation by the Pacific Ocean and by erosion of the surrounding mountains. An alluvial wedge developed when continental deposits eroded from the surrounding mountains. Hydrogeologic units in the Chowchilla Subbasin are of Pleistocene and Holocene age and are divided into: 1) continental deposits of Tertiary and Quaternary ages, and 2) continental deposits of Quaternary age.

According to the GSP's HCM (Davids Eng., LSCE et al., 2020), the Chowchilla Subbasin is underlain by the Corcoran Clay over about the western and central two-thirds of the Subbasin area. Although the Chowchilla basin boundary used for the GSP is slightly altered compared to the 2003 basin boundary used for delineation of the Management Zone, the HCM remains a valid reference for summarizing the hydrogeology of the Management Zone. The depth to the top of the Corcoran Clay varies within the Chowchilla Management Zone from 50 to 100 feet at its northeastern extent to more than 250 feet in the southwestern portion of the Management Zone. The Corcoran Clay, a substantial confining unit, exists in most of the Subbasin, except for a small portion in the eastern side. Where the Corcoran Clay exists, the aquifer system is subdivided into an upper unconfined aquifer above the Corcoran Clay and a lower confined aquifer below the Corcoran Clay. In the easternmost area of the Management Zone, where the Corcoran Clay is absent or not a substantial impedance to vertical flow, the aquifer system is generally considered to be semi-confined with discontinuous clay layers interspersed with more permeable coarse-grained units.

The HCM describes the prevalence of water wells that are constructed mostly within the upper 1,000 feet of sediments, due to the nature of sediments becoming more fine-grained with depth and towards the center of the valley. The HCM describes the mechanism for groundwater recharge occurring as a result of infiltration from precipitation and applied water, streamflow percolation, and other sources. Net subsurface inflows to the Chowchilla Management Zone from adjacent areas also contribute to groundwater recharge, but these are expected to decrease in magnitude as the Chowchilla Subbasin achieves sustainability. An area north of Chowchilla River to south of Berenda Slough, and from the City of Chowchilla on the east to the Eastside Bypass on the west has soils that suggest a higher infiltration capacity and



greater vertical hydraulic conductivity, which suggests this area may have a higher potential for recharge compared to other areas in the Management Zone.

The HCM states that the current primary groundwater discharge from the Subbasin is groundwater pumping for agricultural, municipal, domestic, and industrial uses. The distribution of domestic, agricultural, and public supply wells varies across the Management Zone. Domestic wells are typically completed to depths between 300 and 400 feet, and are most densely located in the central to eastern portions of the Subbasin. Agricultural and public supply wells tend to be somewhat deeper than domestic wells with typical well depths ranging from 500 to 750 feet.

Geologic cross sections compiled and created for the GSP illustrate the vertical distribution of major geologic formations. Significant coarse-grained intervals are present to the full depths of most borings shown on the cross sections, although the HCM analysis indicates that the overall percentage of fine-grained sediments exceeds that of coarse-grained sediments. The geologic cross section in **Figure 3-1** illustrates the delineation of the Older alluvium unit that contains coarse-grained sediments in the upper 800 feet of sediments. The cross section A-A' seen in **Figure 3-1** also shows the extent and approximate thickness of the Corcoran Clay underlying the Management Zone. The majority of the Management Zone falls within the sedimentary deposits associated with the alluvial fan of the ancestral Chowchilla River.

Naturally-occurring concentrations of nitrate in groundwater are typically very low; therefore, observations of nitrate in the groundwater are considered to be primarily a function of contributing land uses at the surface and subsequent processes that transport nitrate from the land surface to the groundwater. The 2020 GSP includes a map showing the soil agricultural groundwater banking index (SAGBI) (O'Geen, 2015); this provides an index related to deep percolation potential that ranges from excellent to very poor. This map was adapted and is presented in **Figure 3-2**. **Figure 3-2** shows that the majority of the central portion of the Management Zone falls within the poor potential for deep percolation category, shifting to very poor to the west. There are some areas of moderately good to excellent potential for deep percolation according to the SAGBI criteria along the northern boundary of the Management Zone and on the eastern side of the Management Zone. The SAGBI mapping is an estimate of percolation, which has some uncertainty associated with it. For example, in the west side of the Chowchilla Subbasin, implemented projects have shown good percolation, which is contrary to what is indicated by the SAGBI mapping.





Figure 3-1. General Hydrogeologic Characteristics of the Chowchilla Management Zone





Figure 3-2. Chowchilla Management Zone: Soil Agricultural Groundwater Banking Index (SAGBI) Deep Percolation Potential, Modified by Tilling of All Restrictive Layers



## **3.2.** 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. However, contours of equal groundwater elevation provided by DWR for Spring 2018 (**Figure 3-3**) show lower groundwater elevations occurring in three main areas: 1) the northeastern area near the City of Chowchilla, 2) an area in the central-southern part of the Management Zone, and 3) in the northwestern area of the Management Zone. A groundwater elevation ridge appears to be located in the central part of the Management Zone, between the two northern depressions. This area of high groundwater elevation reaches about 60 feet above mean sea level, which is about 100 feet above the two nearby depressions to the east and to the west. The MZ has started to quantify the groundwater gradients and flow directions along its borders. This analysis will be finalized in the coming months and included in the Final Management Zones.

## **3.3. Upper Zone Delineation**

The Upper Zone refers to the upper portion of the groundwater aquifer system used for determining ambient nitrate conditions in the Management Zone. The Upper Zone 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 provides the best available indication of well depth. The determination of the Upper Zone depth gives the highest weight to domestic well depths (**Table 3-2**). Where the Corcoran Clay is present, the Upper Zone extends to 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 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 the Groundwater Quality Assessment Report<sup>10</sup>;

<sup>&</sup>lt;sup>10</sup> The 2014 East San Joaquin Water Quality Coalition Groundwater Quality Assessment Report at: (https://www.waterboards.ca.gov/centralvalley/water issues/irrigated lands/water quality/coalitions submittals /east sanjoaquin/ground water/2014 0113 esj gwqar.pdf)



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

The above data were used to create interpolated layers over the Central Valley Floor of different well types and their perforation depths. The well construction layers were then combined in a weighting process to estimate where pumping occurs for the predominant well types. The weights provided in **Table 3-2** were then used for calculating the depth to the bottom of the Upper Zone. **Figure 3-4** 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 60 feet and 270 feet below ground surface in the Management Zone. The depth to the bottom of the Upper Zone is deepest in the northeastern portion of the Management Zone outside the extent of the Corcoran Clay. The depth of the bottom of the Upper Zone decreases from southwest to northeast within the extent of the Corcoran Clay.

Table 3-2. 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%				





Figure 3-3. Chowchilla Management Zone: Spring 2018 Contours of Equal Groundwater Elevation (from DWR)





Figure 3-4. Chowchilla Management Zone: Depth to the Bottom of the Upper Zone



## 3.4. Nitrate Groundwater Quality

Table 3.3 summarizes the groundwater q	Table 3.3 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 November 2020.Table 3-3. G	roundwater 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> <li>Former California Department of Public Health (CDPH), now DDW</li> <li>DWR</li> <li>Central Valley Water Board Waste Discharge Requirements (WDR) data per the Dairy General Order</li> <li>Central Valley Water Board Regulated Sites</li> <li>State Water Board/USGS Groundwater Ambient Monitoring and Assessment Program (GAMA)</li> </ul>					
Contractor CAMA <sup>11</sup> (Note: Not all antitias had	USGS     Department of Posticide Regulation					
nitrate data from within the proposed	Department of resticide Regulation     DWR					
Management Zone)	<ul> <li>GAMA – Domestic Wells; Special Studies, and Priority Basin Projects</li> <li>Local Groundwater Projects</li> <li>Monitoring Wells (Central Valley Water Board Regulated Sites)</li> <li>Irrigated Lands Regulatory Program Upper Zone Wells</li> <li>DDW Public Water System Wells (Actual Locations)</li> <li>USGS National Water Information System (NWIS)</li> </ul>					
University of California, Davis SBX2 1 Nitrate	California Spatio-Temporal Information on					
Study	Nitrate in Groundwater (CASTING) database					
Triangle T Water District	Monitoring sites					
Domestic Well Permit Sample Data	Merced and Madera Counties					

Nitrate measurements and well data were compiled for the proposed Management Zone from the data sources listed in **Table 3-3**. Nitrate data were summarized by data source, depth, and recent nitrate exceedances. **Table 3-4** provides a summary of wells with nitrate measurements in the Management Zone by well source. A total of 1,025 wells have nitrate data in the Management Zone, most of them (850 or about 83%) have nitrate measurements since January 2000, and slightly less than a quarter of those wells with recent (post-2000) nitrate

<sup>&</sup>lt;sup>11</sup> <u>https://geotracker.waterboards.ca.gov/gama/gamamap/public/</u>, accessed in November 2020



measurements have nitrate concentrations that exceed the primary maximum contaminant level (MCL) of 10 mg/L nitrate as N.

Wells were categorized into an appropriate depth category (Upper Zone, Lower Zone, and Unknown)<sup>12</sup>. LSCE et al. (2016) produced GIS coverages of the depths to the bottom of the Upper Zone (see **Figure 3-4**). 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/rangesection. 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 in order 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 1,025 wells in the proposed Management Zone with a nitrate measurement, the category with the most wells (428 wells, or about 42%) are completed in the Upper Zone. **Figure 3-5** shows the spatial distribution of wells by depth category.

**Table 3-5** 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 (93%) have post-2000 nitrate measurements, and about 23% have measured nitrate concentrations above the MCL.

**Figure 3-6** 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 nitrate as N; and (2) wells with at least one nitrate measurement exceeding the MCL of 10 mg/L nitrate as N. Upper Zone wells with recent nitrate data are sparse in the eastern and northeastern areas of the Management Zone. Upper Zone wells with measured nitrate above the MCL are scattered throughout the Management Zone, with most located in the western portion 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:

<sup>&</sup>lt;sup>12</sup> See text and CV-SALTS 2016a and 2016b for a description of the development and assignment of Upper Zone delineations.





- Declustering: Annual average nitrate concentrations were calculated for each well for the years 2000-2020 to yield one average nitrate concentration representing recent conditions. Where wells have overlapping x/y coordinates, the average nitrate concentration representing the location is calculated.
- Upper Zone wells outside the Management Zone and within a buffer zone of three miles around the Management Zone boundary were compiled and used in the updated high-resolution analysis because nitrate occurrence does not cease at the border of the Management Zone.
- Geospatial interpolation of the well point data was performed (kriging) using a search radius of 1.5 miles<sup>13</sup>.
- Gap areas were shown to exist where post-2000 Upper Zone nitrate well data were insufficient to produce the spatial interpolation using the 1.5 mile search criterion.

**Figure 3-7** 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 within the Management Zone, particularly in the central portion. Insufficient recent Upper Zone nitrate data are available in small areas of the northeastern area and southern and western areas of the Management Zone to fully assess the extent of potential nitrate contamination across the entire Management Zone.

To test if the ambient average post-2000 nitrate presented in **Figure 3-7** is potentially underestimating conditions in the Upper Zone, the maximum post-2000 nitrate concentration is overlain atop the interpolated ambient Upper Zone nitrate in **Figure 3-8**. 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 are 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. This is a testament to the heterogeneity and variability inherent to groundwater quality conditions, as well as the availability and quality of the data. Nitrate test data for Upper Zone wells that have a maximum nitrate concentration exceeding

<sup>&</sup>lt;sup>13</sup> The 1.5 mile search radius was selected to refine the local ambient nitrate mapping for the proposed Management Zone and recognize the potential variability inherent in groundwater nitrate concentrations spatially. This search radius reduces the reliance on well data from farther away that may not represent local nitrate conditions.



the MCL may be reported to be adjacent to other wells that have no measured nitrate concentrations above the MCL.

Table 3-4. Summary of Wells with Nitrate Data by Source (All Well Depths)							
	All Well Depth Categories						
Source	Wells with Nitrate Wells with Post-2000 Data Nitrate Data		Wells with Post-2000 Nitrate MCL Exceedance				
Irrigated Lands (AGLAND) <sup>14</sup>	186	181	24				
State Water Board Division of Drinking	20	25	F				
water	38	35	5				
DWR	113	0	0				
Dairy <sup>15</sup>	192	192	79				
Madera County	23	23	0				
Merced County	26	24	0				
Triangle T	4	4	0				
UCD SBX2 1 <sup>16</sup>	335	335	90				
USGS	108	56	8				
Total	1,025	850	206				

Table 3-5. Wells with Nitrate Measurements 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	428	399	92	23%			
Lower	196	163	40	25%			
Unknown	401	288	74	26%			
Total	1,025	850	206	24%			

<sup>&</sup>lt;sup>14</sup> The AGLANDS dataset includes sites which discharge agricultural runoff and are regulated by the Irrigated Lands Regulatory Program at the State Water Resources Control Board or one of nine Regional Water Quality Control Boards. Monitoring data from AGLAND groundwater sites are available through GeoTracker (https://geotracker.waterboards.ca.gov/).

<sup>(&</sup>lt;u>http://groundwaternitrate.ucdavis.edu/files/139106.pdf</u>). Their California Ambient Spatio-Temporal Information on Nitrate in Groundwater (CASTING) dataset is accessible via the Water Board's GAMA Groundwater Information System (<u>https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/</u>).



<sup>&</sup>lt;sup>15</sup> Dairy data originated from the CV-SALTS groundwater quality data collection effort as part of the Initial Conceptual Model (ICM) (Task 3.2: Data Source List Memorandum, October 3, 2010). The Regional Water Quality Control Board Waste Discharge Requirements data per the Dairy General Order, which includes nitrate groundwater data for monitoring, domestic, and agricultural wells.

<sup>&</sup>lt;sup>16</sup> UC Davis Report for the State Water Resources Control Board Senate Bill X2 1 Report to the Legislature contains nitrate groundwater data from Technical Report 4 – Groundwater Nitrate Occurrence (July 2012)



Figure 3-5. Wells with Nitrate Data within the Proposed Chowchilla Management Zone by Depth Category





Figure 3-6. Chowchilla Management Zone: Upper Zone Wells with Nitrate Data and Nitrate MCL Exceedances





Figure 3-7. Chowchilla Management Zone: Ambient Post-2000 Nitrate Concentrations in the Upper Zone of Groundwater





Figure 3-8. Chowchilla Management Zone: Maximum Post-2000 Nitrate in the Upper Zone with Ambient Groundwater



## 4. 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 Chowchilla Management Zone.

## 4.1. Permitted Dischargers

The Central Valley Water Board sent a NTC with the Nitrate Control Program to permitted dischargers in the Chowchilla Subbasin on May 29, 2020. At the request of the Management Zone, the Central Valley Water Board provided the list of permitted dischargers in the Chowchilla Subbasin that were sent the NTC. As needed, this list of permitted dischargers was refined in collaboration with Central Valley Water Board staff. The following sections summarize the permittee groups or individual permittees collaborated with during the establishment of this Management Zone and the outcome of those efforts.

## 4.1.1. Irrigated Land Regulatory Program

Growers in the proposed Chowchilla Management Zone 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 represents growers within its respective jurisdiction to assist them in their efforts to comply with ILRP requirements. The East San Joaquin Water Quality Coalition represents the growers in the proposed Chowchilla Management Zone. General Order R5-2012-0116 (as amended) ("Waste Discharge Requirements General Order for Growers within the Eastern San Joaquin River Watershed 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.

## 4.1.2. 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 Chowchilla Management Zone by the dischargers authorized to discharge under these General Orders is discussed in the sections below.



## 4.1.2.1. 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"). Two dairies in the Management Zone are not regulated under this General Order; these permittees are addressed in Section 4.1.3. The NTC with the Nitrate Control Program was sent to each dairy regulated under this General Order on May 29, 2020. **Attachment C, Table 1** lists the milk cow dairies that are members of the CVDRMP and participating in the Chowchilla Management Zone. **Attachment C, Table 2** lists the milk cow dairies that are not CVDRMP members. At the time of the submittal of this PMZP, the status of their participation in the Chowchilla Management Zone is unknown. The Management Zone will continue outreach efforts after PMZP submittal.

## 4.1.2.2. Confined Bovine Feeding Operations

All confined bovine feeding operations located within the proposed Management Zone are regulated under General Order R5-2017-0058 ("Waste Discharge Requirements General Order for Confined Bovine Feeding Operations"). The NTC with the Nitrate Control Program was sent to each facility regulated under this General Order on May 29, 2020. **Attachment C, Table 1** lists the confined bovine feeding operations that are members of the CVDRMP and participating in the Chowchilla Management Zone. **Attachment C, Table 2** lists the confined bovine feeding operations that are of the submittal of this PMZP, the status of their participation in the Chowchilla Management Zone is unknown. The Management Zone will continue outreach efforts after PMZP submittal.

## 4.1.2.3. Poultry Operations

All poultry operations located within the proposed Management Zone are regulated under General Order R5-2016-0087 ("Waste Discharge Requirements General Order for Poultry Operations") (Poultry General Order). The NTC with the Nitrate Control Program was sent to each facility regulated under this General Order on May 29, 2020. Two permitted poultry facilities are located in the Management Zone (**Attachment C, Table 3**); both are participating in the Management Zone. Outreach to these facilities has been coordinated with 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. Both of the facilities in the Management Zone are Low Threat Operations.

## 4.1.3. Individually Permitted Dischargers

**Table 4-1** lists the permitted facilities authorized to discharge waste under an individual WDR.**Figure 4-4** illustrates the location of each of these permitted facilities (map numbers in **Figure**)



**4-4** correspond to the map numbers provided in the first column in **Table 4-1**). Early in the effort to develop this Management Zone, the Madera County Farm Bureau reached out to these dischargers to discuss the Nitrate Control Program requirements and the opportunity to comply with the Program through establishment of a Management Zone. With the exception of Certain-Teed, LLC (No. 2 in **Table 4-1**), all of the individually permitted dischargers listed in **Table 4-1** are currently participants in the Management Zone. Many are also actively participating in the governance of the Management Zone through participation on the Steering Committee (see **Section 1.3.3**).

## 4.2. Non-Discharger/Stakeholder Participation

Active participation by non-dischargers can facilitate the efforts of the Chowchilla Management Zone to achieve the goals of the Nitrate Control Program. This is especially critical to EAP development 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 from long-term efforts to manage nitrate in the Management Zone.

Since work began to establish the proposed Management Zone, the Madera County Farm Bureau has led efforts to identify key non-dischargers to invite them to participate in the development of this PMZP. **Table 4-2** (also in the CEP in EAP Appendix A-1) lists all interested parties, including non-dischargers, currently receiving information about the Management Zone. This list was developed through: (a) local area knowledge of project proponents; (b) direct requests 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 of the interested parties will receive regular communication about Management Zone activities, including stakeholder/community meetings, EAP implementation activities, and opportunities to comment on Management Zone deliverables. The Chowchilla Management Zone will continue to add entities to the interested party outreach list to increase opportunities for collaboration in meeting Nitrate Control Program goals.



	Table 4-1. Chowchilla Management Zone Permitted Dischargers with Individual WDRs							
Map ID.	Facility Name	Facility Type	Permittee Address	County	Order No.	CV-SALTS ID		
1	Baker Farming	Non15	Lisa Baker, 14920 Flanagan Road, Merced, CA 95340	Merced	2004-0012-DWQ	2764		
2	Certain-Teed Fiberglass Manufacturing Plant	Non15	Certain-Teed LLC, 17775 Avenue 23 1/2, Chowchilla, CA 93610	Madera	97-010-DWQ	2017		
3	Chowchilla II Biomass Power Plant	Non15	Global Ampersand LLC, 16457 Avenue 24 1/2, Chowchilla, CA 93610	Madera	93-205	1896		
4	Chowchilla Pistachio Company	Non15	Chowchilla Pistachio Co., 16333 Avenue 24 1/2, Chowchilla 93610	Madera	93-005	1897		
5	Chowchilla WWTF	Non15	City of Chowchilla, Avenue 24 1/2 & Rd 16, Chowchilla, CA 93610	Madera	90-271	2656		
6	Diamond H Dairy	Animal Feeding (Dairy)	MaderaDP2, 9564 Avenue 18 1/2, Chowchilla, CA 93610	Madera	R5-2010-0130	89		
7	Double Diamond Dairy	Animal Feeding (Dairy)	Double Diamond Dairy, 505 East Washington Road, El Nido, CA 95317	Merced	R5-2009-0011	83		
8	El Nido Composting Facility (Synagro)/Menefee River Ranch Company)	Non15	Synagro West LLC, 13757 South Harmon Road, Dos Palos, CA 93620	Merced	R5-2003-0180	3130		
9	Menefee Ranch (Synagro)	Non15	Menefee Ranch 1624 E. Pacheco Blvd, Los Banos, CA 93635	Merced	2004-0012-DWQ	3559		
10	Vlot Bros Ranch Sludge Application Site	Non15	Denali Water Solutions LLC, Road 4 and Avenue 21, Chowchilla, CA 93610	Madera	Pending Order	2850		


Table 4-2. Chowchilla Management Zone Interested Parties List (as of 3/5/2021)			
Interested Party	Name	Email address	
Ampersand Chowchilla Biomass, LLC / Merced Power	Borelli, Michael	mborelli@chownido.com	
Baker Farming	Baker, Lisa	lisabaker2002@aol.com	
Baker Manock & Jensen	Layne, Lauren	llayne@bakermanock.com	
BAPU Almonds	Samran, Karun	karun@bapu.company	
California Association of Sanitation Agencies	Kester, Greg	gkester@casaweb.org	
	Farrell, Jennifer	jennifer.farrell@cdcr.ca.gov	
California Department of Corrections and Rehabilitation	Larabee, Gregor	gregor.larabee@cdcr.ca.gov	
	Lupercio, Paolo	paola.lupercio@cdcr.ca.gov	
California Poultry Federation	Mattos, Bill	bill_mattos@yahoo.com	
Capital Agricultural Property Services Inc.	Arthur, Dale	dale.arthur@pgim.com	
Central Valley Salinity Coalition	Cozad, Daniel	dcozad@cvsalinity.org	
Central Valley Water Board	Walters, Anne	anne.walters@waterboards.ca.gov	
CertainTeed	Cuthbertson, Ben	ben.d.cuthbertson@saint-gobain.com	
Chowchilla Biomass/Merced Power	Fane, Charlie	cfane@chownido.com	
Chowchilla Water District	Tomlinson, Brandon	btomlinson@cwdwater.com	
	Welch, Doug	dwelch@cwdwater.com	
City of Chowchilla	Rogers, Jason	jrogers@cityofchowchilla.org	
Clark Bros.	Clark, Allan	allancbi@yahoo.com	
Clayton Water District	Clayton, Robin	bijourobin@aol.com	
Cogent Consulting & Communication	Cativiela, J.P.	jcativiela@cogentcc.com	
	Castle, Luke	lcastle@condorearth.com	
	Dewitt, Alex	adewitt@condorearth.com	
Condor Earth	Gamez, Jenaro	jgamez@condorearth.com	
	Lane, John	jlane@condorearth.com	
	Solow, Zach	zsolow@condorearth.com	
Cosyns Farms	Cosyns, Rick	racranch@aol.com	
County of Merced	McBride, Lacey	lacey.mcbride@countyofmerced.com	
Cowifornia Dreamin' Dairy	York, Michael	michaeldyork6@aol.com	
CURES, Valley Water	Klassen, Parry	klassenparry@gmail.com	
Collaborative	Thompson, Maureen	maureen.thompson@curesworks.org	
Denali Water Solutions	Elvena, Matthew	matthew.elvena@denaliwater.com	
Diamond H Dairy	Hooker, Greg	ghooker@aol.com	
Double Diamond	VanderDussen, Mike	mike@standardcattle.com	
F&R Ag Services	Riordan, Alex	ariordan@fragservices.com	
Fagundes Dairy	Macias, Allison	amacias@fagundesdairy.com	



Table 4-2. Chowchilla Management Zone Interested Parties List (as of 3/5/2021)			
Interested Party	Name	Email address	
Esirmond Formo	Littleton, Bill	1billit@comcast.net	
	Littleton, Jason	jlittl@gmail.com	
	Holmes, Denise	denise.holmes@fosterfarms.com	
Foster Farms	Kosta, Justin	justin.kosta@fosterfarms.com	
	Robinson, Diana	diana.robinson@fosterfarms.com	
GEI	Meyerhoff, Richard	rmeyerhoff@geiconsultants.com	
GHD	Petryna, Karen	karen.petryna@ghd.com	
	Avila, Lucas	lavila@hnrg.com	
	Chicoine, Megan	mchicoine@hnrg.com	
Hanagak Natural Pasauras Group	Evers Jr., Carl	cevers@hnrg.com	
nancock Natural Resource Group	Evers, III, Carl	cevers3@hnrg.com	
	Lopes, Samantha	slopes@hnrg.com	
	Thurman, Molly	mthurman@hnrg.com	
Harman Bros.	Harmon, Larkin	hbfarming@aol.com	
Hath Dairy	Amy	hathdairy@sbcglobal.net	
IHI Power Services Inc	Estrada, Maggie	maggie.estrada@ihipower.com	
IHI Power Services Inc.	Moller, Eric	eric.moller@ihipower.com	
Kahn Soares & Conway LLP	Dunham, Tess	tdunham@kscsacramento.com	
Kings River Conservation District	Quist, Rebecca	rquist@krcd.org	
	Tufenkjian, Cristel	ctufenkjian@krcd.org	
Landamskin Onumaal fan kusting	Claiborne, Michael	mclaiborne@leadershipcounsel.org	
and Accountability	Harris, Madeline	mharris@leadershipcounsel.org	
	Monaco, Amanda	amonaco@leadershipcounsel.org	
Lost Family Farms	Elkins, Bryant	bryant@rifinc.com	
	lest, Richie	richie@rifinc.com	
LSCE	Dalgish, Barbara	bdalgish@lsce.com	
	Kretsinger Grabert, Vicki	vkretsinger@lsce.com	
Madera Coalition for Community Justice		maderaccj@yahoo.com	
	Anagnoson, Stephanie	stephanie.anagnoson@maderacounty.com	
	Cunningham, Sam	samuel.cunningham@maderacounty.com	
Madara County	Habben, Jeannie	jeaninne.habben@maderacounty.com	
	Hefner, Kirsten	kirsten.hefner@maderacounty.com	
	Iniguez, Dienel	dienel.iniguez@maderacounty.com	
	Rogers, David	david.rogers@maderacounty.com	
Madara County	Wheeler, Tom	supervisortomwheeler@yahoo.com	
Madera County	Witten, Kim	kim.witten@maderacounty.com	



Table 4-2. Chowchilla Management Zone Interested Parties List (as of 3/5/2021)			
Interested Party	Name	Email address	
Madera County Farm Bureau	Beckstead, Christina	cbeckstead@maderafb.com	
Madera RWMG	Roberson, Jacob	jacob_roberson@outlook.com	
Maricopa Orchards/Touchstone Pistachio	Sherrell, Mark	msherrell@comcast.net	
Massaro Farms	Massaro, Steve	steve@massarofarms.com	
Merced County	Kiriakou, Lacey	lacey.kiriakou@countyofmerced.com	
Merced County Farm Bureau	Ramos, Bree	bramos@mercedfarmbureau.org	
Merced Power, LLC	Deveau, Richard	rdeveau@ihipower.com	
MRF Lands	Frelier, Marc	mrflands@sbcglobal.net	
New Current Water	Orth, Dave	dorth@newcurrentwater.com	
Pitman Farms - Mary's Turkeys, Chickens, Ducks	Pitman, Ben	ben@pitmanfarms.com	
Prudential	Pucheu, Jason	jason.pucheu@pgim.com	
Red Top Jersey	Wickstrom, Scott	wjfi@live.com	
	Boyer, Paul	paulb@selfhelpenterprises.org	
	Collishaw, Tom	tomc@selfhelpenterprises.org	
Solf Holp Entorprises	Islas, Angela	angelai@selfhelpenterprises.org	
	Leon, Manuel	manuell@selfhelpenterprises.org	
	Ocampo, Eddie	eddieo@selfhelpenterprises.org	
	Young, Ashley	ashleyy@selfhelpenterprises.org	
Synagro	Baroldi, Layne	lbaroldi@synagro.com	
	Kaur, Simranpreet	skaur@synagro.com	
The Almond Co	Gill, Luis	luis@thealmondcompany.com	
	Harris, Russell	russell@thealmondcompany.com	
The Catalyst Group, Inc.	Pope, Aaron	aaron@catalystgroupca.com	
	Azevedo, Jennifer	jennifer.azevedo@thewinegroup.com	
The Wine Group	Buwalda, Paul	paul.buwalda@thewinegroup.com	
	Guerrero, Miguel	miguel.guerrero@thewinegroup.com	
	Violett, Terry	terry.violett@thewinegroup.com	
Troost Dairy	Troost, Jeffrey	milkmantroost@gmail.com	
	Vlot, Case	vlotranch@outlook.com	
	Vlot, Cole	colevlot@aol.com	
Vlot Dairy	Vlot, Darcy	ccfarm2015@outlook.com	
	Vlot, Dirk	valvlot7@aol.com	
	Vlot, Dirk	vlotfamilyfarms@aol.com	
Water Wise	Robinson, Kristi	wwkristi@icloud.com	
West Coast Advisors - Dairy	Boccadoro, Michael	mboccadoro@westcoastadvisors.com	
Other Interested Parties	Berry, Julia	juliaberry@sbcglobal.net	



Table 4-2. Chowchilla Management Zone Interested Parties List (as of 3/5/2021)			
Interested Party	Name	Email address	
	Blech, Duane	duaneandreablech@aol.com	
	Cederlof, Linda	lu001@hotmail.com	
	Clark, Andrew	agc77@me.com	
	Clayton, Connley	connleyc@aol.com	
	DeJager, Edgar	ddj2x@aol.com	
	Fagundes	ffchowchilla@sbcglobal.net	
	Faust, Roger	rfaust69@hotmail.com	
	Fitch, Varley	vmfitch@yahoo.com	
	Gomes, Eddie	gomesfarms@yahoo.com	
	Hanebury, Addie	ahanebury@sbcglobal.net	
	Harman, Larkin	larkinhh@aol.com	
	Haynes, Clay	haynesspreading@yahoo.com	
	Hutson, Mark	mdhutson1386@gmail.com	
	Kopshever, Jim	jmkopshever@sbcglobal.net	
	Menefee, Scott	menefeescott@yahoo.com	
	Nyman, Brad	nymanbrad@gmail.com	
	Olsen, Kevin	kdoktb@gmail.com	
	Raudabaugh, Anja	anja@wudairies.com	
	Sherrell, Stephanie	stephsherrell@comcast.net	
	Soares, Kevin	dairylife@live.com	
	Sousa, Paul	paul@wudairies.com	
	Talley, Cliff	ctalley2@gmail.com	
	Talley, David	davidtalley09@gmail.com	
	Upton, Kole	kupton@inreach.com	
	Vandenheuval, Geoffrey	geoffreyvh60@gmail.com	
	Vereway, Philip	philipverwey10@gmail.com	





Figure 4-4. Individually Permitted Dischargers in the Chowchilla Management Zone



# 5. 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.

## 5.1. Irrigated Lands Regulatory Program

General Order R5-2012-0116 (as further amended) establishes the current treatment and control efforts of members of the East San Joaquin Water Quality Coalition, the entity responsible for the implementation of the ILRP within the proposed Chowchilla 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, and 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.

## 5.1.1. Groundwater Quality Assessment Report (GAR)

The GAR designates high/low vulnerability areas within the Coalition region where high vulnerability areas are land where groundwater degradation 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 Central Valley Water Board 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.



# 5.1.2. Management Practices Evaluation Program (MPEP)

To meet the requirements for 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 six 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 These 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.



# 5.1.3. 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.

## 5.1.4. 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 5.1.1); (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 discharges 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.



# 5.1.5. 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 highpriority crops within the Coalition Area.

# 5.1.6. 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<sub>1year</sub>) by crop type
  - A/R Ratio as a running total of the previous three crop years (A/R<sub>3year</sub>) by crop type
  - A-R for the previous crop year (A-R<sub>1year</sub>) by crop type
  - A-R as a running total of the previous three crop years (A-R<sub>3year</sub>) by crop type
- The data submitted by growers to the Coalition are also reported at the following levels:
  - Individual field-level data (A/R Ratio and A-R) by anonymous member identification (ID) - Each member is assigned a unique identifier that remains with the member for as long as they are a member.
  - Individual field-level management practice implementation data by anonymous member ID – any available management practice data reported on either the INMP Summary Reports, Farm Evaluations, and MPIR surveys for the previous crop year.
  - Individual field-level A/R 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.

## 5.2. Concentrated Animal Feeding Operation General Order

## 5.2.1. 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 is in compliance 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.

# 5.2.2. 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 strive for using best efforts.
- Maintain minimum freeboard of two feet in aboveground lagoons and one foot in belowground lagoons.
- Construction standards for new and reconstructed lagoons. Requirements are the same as in the Dairy General Order.
- All dirt or unpaved corrals to be graded to promote drainage.
- Several provisions applicable to the production area for the purpose of minimizing infiltration, ensuring the containment of water that has come into contact with waste, and separation of wastewater from clean rainfall runoff, where necessary.

Bovine General Order R5-2017-058 establishes the reduced treatment and control efforts for Limited Time Operations (i.e., facilities housing animals for fewer than 24 days per calendar



month) and Limited Population Operations (housing between 6 and 99 animal units<sup>17</sup>), because these operations are deemed to pose a low threat to water quality.<sup>18</sup>

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

# 5.2.3. 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. Some pasture poultry operations may also be considered Low Threat Operations. Facilities that generate wastewater or that have a significant amount of manure exposed to the elements are considered Full Coverage Operations and must comply with the full range of requirements in the Poultry General Order. Low threat Operations have significantly lower reporting requirements.

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

- i The facility exports all manure/litter, or if applied to Discharger's cropland, has coverage under the ILRP;
- ii The only wastewater generated by the facility consists of stormwater, and any stormwater that may have contacted more than a de minimis amount of manure and may pose a threat to water quality, is retained in a pond in conformance to the requirements of Pond Specifications C.1 and C.10.b of the Poultry General Order (Stormwater ponds do not trigger the requirements to obtain coverage under this Order provided the stormwater does not come in contact or commingle with waste);
- iii The facility houses birds inside roofed structures with features to limit the entrance of precipitation into the poultry house;
- iv The facility either stores all waste in a roofed structure with features to limit the entrance of precipitation or, throughout the year, removes all waste within 14 days of removal from such a roofed structure. During the wet season (October through May),

<sup>&</sup>lt;sup>18</sup> Additional criteria are included in the definition of Limited Time Operations and Limited Population Operations.



<sup>&</sup>lt;sup>17</sup> One animal unit equals 1,000 lbs of animal weight.

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;

- 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 runon/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 waste water 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.

## **5.3. Individual Permitted Dischargers**

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

## 5.3.1. Baker Farming

#### Facility Description (CV-SALTS ID: 2764)

Synagro applies biosolids it receives from various wastewater treatment facilities in California to approximately 800 acres of farmland owned by Baker Farming. This application of biosolids is authorized under State Water Board Water Quality Order 2004-0012-DWQ ("General WDR for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural and Land Reclamation Activities). The land application area (LAA) is located approximately 9 miles north-northeast of Dos Palos on the east side of Harmon Road, north of highway CA-152 and south of Washington Road in Merced County. The underlying groundwater beneficial uses include: Municipal and domestic supply (MUN), agricultural supply (AGR), industrial service supply (IND) and



industrial process supply (PRO). Per the Notice of Applicability (NOA) for this facility the crops to be grown within the biosolids application area include wheat, corn, cotton, Sudan grass, and alfalfa; the nitrogen requirements for these crops range between 175 to 480 lbs/acre/year. Biosolids are surface-applied and incorporated by plowing or another form of tillage.

### **Nitrate Management Requirements**

Table 5-1. Summary of Key Baker Farming WDR Nitrate Management-Related Requirements as Required by the NOA and Water Quality Order		
Category	Summary of Requirements	
Discharge Prohibitions	<ul> <li>Discharge shall not cause or threaten to cause pollution, as defined in California Water Code §13050</li> <li>Application of biosolids at rates in excess of the nitrogen requirements of the vegetation or at rates that would degrade groundwater</li> </ul>	
Discharge Specifications	<ul> <li>Biosolids application rates shall not exceed the agronomic rate for nitrogen for the crop being planted</li> </ul>	
Monitoring & Reporting	<ul> <li>Annual monitoring report identifying the quantity of biosolids applied to the various fields and cumulative pollutant loading calculations for metals and nutrients</li> </ul>	

## 5.3.2. CertainTeed

## Facility Description (CV-SALTS ID: 2017)

The CertainTeed Fiberglass Facility Manufacturing Plant is authorized to discharge domestic wastewater under WDR Order 97-010-DWQ. The facility is located at 17775 Avenue 23 1/2, Chowchilla, CA 93610. The underlying groundwater beneficial uses include: MUN, AGR, IND and PRO. The plant processes domestic waste generated by 150 CertainTeed employees. For the period of April 2012 through July 2013, the average flow was 1724 gpd.

The current treatment system is a replacement of the original system installed in 1979 and permitted under WDRs issued in 1978 and 1990. The original design of the package treatment plant was 20,000 gpd. It was designed and installed by Pollution Control, Inc. Because of corrosion issues, in 2012 the plant was completely replaced with a new unit supplied by Delta Environmental, the successor to Pollution Control. The original specifications were used, and so the new unit is identical, except for control and equipment updates made in the design since 1979.



CertainTeed's package wastewater treatment system 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. CertainTeed received its Notice of Acceptance from the CVWB on October 8, 2013.

#### **Nutrient Management Requirements**

 Table 5-2 summarizes the nitrate management-related requirements in this facility's WDR.

Table 5-2. Summary of CertainTeed Facility's WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	<ul> <li>Prohibits the discharge of waste to surface waters and to surface water drainage courses</li> <li>Treatment and disposal of wastes at the facility shall not cause pollution, contamination or nuisance as defined in California Water Code 13050</li> </ul>
Discharge Specifications	<ul> <li>State Water Board General Order provides septic system specifications</li> </ul>
Groundwater Limitations	<ul> <li>The discharge shall not:         <ul> <li>Pollute ground or surface waters.</li> <li>Adversely affect beneficial uses or cause an exceedance of any applicable Basin Plan water quality objectives for ground or surface waters.</li> </ul> </li> </ul>
Monitoring & Reporting	• Annual report documenting the quantity and method of disposal of all solids (e.g., screenings and sludge) removed from the onsite system

# 5.3.3. Chowchilla II Biomass Plant

#### Facility Description (CV-SALTS ID: 1896)

This facility, which is authorized to discharge under WDR Order 93-205, is located at 16457 Avenue 24-1/2, Chowchilla, CA 93610. The underlying groundwater beneficial uses where this facility discharges its wastewater include: MUN, AGR, IND and PRO.

## **Treatment and Disposal Process**

The facility produces industrial wastewater; all of which remains onsite. The facility generates about 180,000 gallons per day of liquid waste, consisting of cooling tower blow-



down, boiler blow-down, water treatment backwash, and miscellaneous cooling streams, combined into a single waste stream and discharged to an unlined pond or ponds in the northwestern corner of the site. The facility receives groundwater from an onsite groundwater well. The cooling tower water is directly fed from the well for makeup water without any additional treatment. The cooling tower blow-down water is continuous and flows to the ponds.

A reverse osmosis (RO) unit (with an optional multimedia filter) flows to the demineralization bottles before the boiler. The boiler blow-down has a relatively low electrical conductivity and flows to the cooling towers. The RO unit generates an RO concentrate that can mix and flow to the ponds. Stormwater runoff flows from the power plant area to the ponds. All stormwater, like the wastewater remains onsite. Some of the wastewater is used for dust control and possibly irrigation of onsite landscaping, either pulled directly from the collection system or the ponds.

#### Nitrate Management Requirements

Table 5-3. Summary of Chowchilla II Biomass Plant WDR Nitrate Management- Related Requirements		
Category	Summary of Requirements	
Discharge Prohibitions	<ul> <li>Prohibits the discharge of waste to surface waters and to surface water drainage courses</li> </ul>	
Discharge Specifications	Maximum daily discharge shall not exceed 72,000 gallons	
Groundwater Limitations	• The discharge, in combination with other sources, shall not cause underlying groundwater to: (a) contain waste constituents in concentrations statistically greater than receiving water limits, where specified below or background water quality where not specified; (b) 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; or (c) contain concentrations of chemical constituents in amounts that adversely affect agricultural use	
Monitoring & Reporting	<ul> <li>No monitoring of nitrogen-related constituents is required for this facility</li> </ul>	

Table 5-3 summarizes the nitrate management-related requirements in this facility's WDR.



# 5.3.4. Chowchilla Pistachio Company

## Facility Description (CV-SALTS ID: 1897)

The Chowchilla Pistachio Company is authorized to discharge under WDR Order 93-005. The facility is located at 16333 Avenue 24 1/2, Chowchilla, CA 93610. The underlying groundwater beneficial uses include: MUN, AGR, Industrial Supply. The facility processes and packs pistachio nuts for export and sale to retail and/or wholesale stores. Processing and packing normally begins in September and ends the first week of October. The plant produces wastewater and solid wastes (e.g., nut hulls) from peeling, washing, and packing of pistachio nuts. Wastewater is discharged to a 36-acre disposal site.

#### **Nutrient Management Requirements**

Table 5-4. Summary of Chowchilla Pistachio Company's WDR Nitrate Management-         Related Requirements		
Category	Summary of Requirements	
Discharge Prohibitions	• Prohibits the discharge of waste to surface waters and to surface water drainage courses	
Discharge Specifications	The daily maximum discharge shall not exceed 0.005 million gallons	
Groundwater Limitations	<ul> <li>The discharge, in combination with other sources, shall not cause underlying groundwater to:         <ul> <li>Contain waste constituents in concentrations statistically greater than receiving water limits, where specified below, or background water quality where not specified</li> <li>Contain chemicals, heavy metals, or trace elements in concentrations that adversely affect beneficial uses or exceed maximum contaminant levels specified in the California Code of Regulations, Title 22, Division 4, Chapter 15</li> </ul> </li> </ul>	
Monitoring & Reporting	<ul> <li>No effluent or groundwater monitoring for nitrate-related constituents</li> <li>Disposal monitoring site includes: describing the type of crop grown and include calculations on the BOD5, potassium, and total nitrogen loading rates (in lbs/acre-day)</li> </ul>	

**Table 5-4** summarizes the nitrate management-related requirements in this facility's WDR.

# 5.3.5. Chowchilla Wastewater Treatment Facility

## Facility Description (CV-SALTS ID: 2656)

The Chowchilla WWTF is authorized to discharge under WDR Order 90-271. The facility



is located at Avenue 24 1/2 and Road 16, Chowchilla, CA 93610. The underlying groundwater beneficial uses include: MUN, AGR, Industrial Supply. The facility consists of two inlets, one for municipal and the other for industrial discharge. The treatment plant is split into two treatment trains, each consisting of a grit chamber, a primary floatation sedimentation basin, an activated sludge unit and a secondary clarifier. The effluent is then sent to a final clarifier before being discharged to six evaporation/percolation ponds. Sludge is processed by means of two sludge digesters and eight sludge drying basins. Wasted sludge is dried and hauled to landfill sites for final disposal.

#### **Nutrient Management Requirements**

Table 5-5. Summary of Chowchilla WWTF WDR Nitrate Management-Related Requirements	
Category	Summary of Requirements
Discharge Prohibitions	• Prohibits the discharge of waste to surface waters and to surface water drainage courses
Discharge Specifications	<ul> <li>The monthly average daily discharge flow shall not exceed 1.8 million gallons</li> <li>Use of reclaimed water shall be limited to surface irrigation of orchards and vineyards, and fodder, fiber, and seed crops</li> </ul>
Groundwater Limitations	<ul> <li>Contain waste constituents in concentrations statistically greater than receiving water limits, where specified below, or background water quality where not specified</li> <li>Contain chemicals, heavy metals, or trace elements in concentrations that adversely affect beneficial uses or exceed maximum contaminant levels specified in Title 22, CCR, Division 4, Chapter 15</li> </ul>
Monitoring & Reporting	Effluent and groundwater monitoring includes nitrate (as N)

Table 5-5 summarizes the nitrate management-related requirements in this facility's WDR.

# 5.3.6. Diamond H Dairy

## Facility Description (CV-SALTS ID: 89)

The Diamond H Dairy is authorized to discharge under WDR Order R5-2010-0130, General Order for Dairies with Manure Anaerobic Digester or Co-Digester Facilities. The facility received its NOA under this General Order February 6, 2019. The facility is located at 9564 Avenue 18 1/2, Chowchilla, CA 93610. The underlying groundwater beneficial uses include: MUN, AGR, IND and PRO. This General Order establishes WDRs for discharges of dairy and dairy manure



digester or co-digester waste from dairy facilities with anaerobic digesters or co-digesters permitted by this Order. The NOA was issued after it was demonstrated that the facility was in compliance with the Tier 1 pond design requirements in the General Order. The facility is subject to the monitoring and reporting requirements of the General Order and is a member of the CVDRMP.

#### **Nutrient Management Requirements**

**Table 5-6** summarizes the nitrate management-related requirements in this facility's WDR.

Table 5-6. Summary of Diamond H Dairy WDR Nitrate Management-Related			
	Requirements		
Category	Summary of Requirements		
Discharge Prohibitions	<ul> <li>Except when authorized by a NPDES, the direct or indirect discharge of waste and/or storm water from the production area to surface waters is prohibited</li> <li>Discharge of waste from a milk cow dairy, dairy manure digester, or co-digester which causes or contributes to an exceedance of any applicable water quality objective in the appropriate Basin Plans or any applicable state or federal water quality criteria, or a violation of any applicable state or federal policies or regulations is prohibited</li> <li>Collection, treatment, storage, discharge, or disposal of wastes at an existing milk cow dairy, dairy manure digester, or co-digester operation that results in (1) discharge of waste constituents in a manner which could cause degradation of surface water or groundwater except as allowed by this Order, (2) contamination or pollution of surface water or groundwater, or (3) a condition of nuisance (as defined by the California Water Code Section 13050) is prohibited</li> <li>Land application areas for other than nutrient recycling is prohibited</li> <li>Direct discharge of wastewater into groundwater via backflow through water supply or irrigation supply wells is prohibited</li> <li>Discharge of wastewater to surface waters from cropland without a NPDES permit is prohibited</li> </ul>		
Groundwater Limitations	<ul> <li>Discharge of waste from dairies with a dairy manure digester or co-digester shall not cause the underlying groundwater to exceed water quality objectives or background quality, whichever is greater; to unreasonably affect beneficial uses; or to cause a condition of pollution or nuisance.</li> </ul>		



Table 5-6. Summary of Diamond H Dairy WDR Nitrate Management-Related Requirements		
Category	Summary of Requirements	
Land Application Areas	<ul> <li>Land application of all waste from the facility to areas under the Discharger's control shall be conducted in accordance with a certified Nutrient Management Plan (NMP) consistent with the technical standards for nutrient management specified in the General Order.</li> <li>Land application of wastes for nutrient recycling from the dairy and/or digester/co- digester operations shall not cause the underlying groundwater to contain any waste constituent, degradation product, or any constituent of soil mobilized by the interactions between applied wastes and soil or soil biota, to exceed the groundwater limitations set forth in this Order.</li> <li>Annual calculations showing the total nitrogen, phosphorus, potassium, and non- nutrient salts applied to each field, including from sources other than dry waste or wastewater is required. These calculations will be used to annually modify the NMP if revisions are needed to bring the facility into compliance with the Order.</li> <li>Manure, digestate, and process wastewater applied to the land application area shall be at rates reasonable for the crop, soil, climate, special local situations, management system, and type of manure, digestate, and wastewater. In the absence of site specific data, reasonable application for non-nutrient salt shall mean that annual application rates shall not exceed 2,000 pounds per acre for fields that are single-cropped or 3,000 pounds per acre for fields that are multi- cropped. Non-nutrient salts include but are not limited to sodium, calcium, magnesium, carbonate, bicarbonate, chloride, sulfate, and nutrients (nitrogen, phosphorus, and potassium) not used by the crop. If the non-nutrient salt loading exceeds the rates above, the Discharger must submit information to the Executive Officer demonstrating that its non-nutrient salt loading rates are protective of water quality. Actual application rates for both non-nutrient salts and nutrients in amount actually used by crops are required to be verified annually</li> </ul>	
Monitoring & Reporting	<ul> <li>Monitor process wastewater, manure, digestate, and plant tissue produced at the facility, soil in each land application area and irrigation water used on each land application area for various constituents including where required: nitrate-nitrogen (only when retention pond is aerated), un- ionized ammonia-nitrogen,</li> </ul>	
L		



# 5.3.7. Double Diamond Dairy

### Facility Description (CV-SALTS ID: 83)

The Double Diamond Dairy is authorized to discharge under WDR Order R5-2009-0011. The facility is located at 505 East Washington Road, El Nido, CA 95317. The underlying groundwater beneficial uses include: MUN, AGR, IND and PRO. When the WDR was authorized, Double Diamond Dairy:

- Owned 2,277 acres and leased 40 acres where the facility is located for a total of 2,317 acres. Land under agricultural production at the facility consisted of 2,129 acres. The facility applied liquid waste to 1,990 of the 2,129 acres and solid manure to all of the cropland. Manure solids are used on the cropland or for bedding. The remaining 188 acres were used for the dairy production area, including corrals, freestall barns, milking parlor, holding pens, manure storage and drying areas, hay and commodity storage pads, mechanical separators, settling ponds, and the storage lagoons.
- Had 4,800 milk cows, 720 dry cows, 1,340 bred heifers, 700 heifers aged one year to breeding, 1,540 three-to-twelve month calves, and 770 baby calves for a total herd size of 9,870 Holstein animals. Per the WDR, these maximum number of animals by each age category were not to be exceeded.

Waste produced at the facility consists of wastewater from facility wash down operations and storm water containing manure, urine, milk products, spoiled feed material, bedding (litter), soil, and cleaning compounds. Solid wastes are also produced at the facility and primarily consist of manure with additional fractions of spoiled feed, bedding material and soil. When the WDR was authorized an estimated 110,040 gpd of clean water from the on-site water supply wells was used to wash down the holding pen, wash pen, and milking parlor floors, rinse the cows, and wash down miscellaneous dairy equipment. An additional 20,000 gallons per week of fresh water was used to wash down the calf holding areas. Operation of the dairy was estimated to generate 1.37 cubic feet of manure per animal unit per day, where an animal unit equals 1000 pounds of animal weight. Fifteen percent of the manure is removed as solids through the mechanical separator, leaving a total of 1,760,917 cubic feet of manure wastewater generated over 120 days for a herd of 9,870 animals.

Wastewater generated at the facility is conveyed to a transfer pit and then to two mechanical separators on concrete slabs to settle out solid material from the flushing of the freestall barns. The liquid wastewater is then sent to three settling ponds, which are side by side to settle out any remaining solid material after running through the mechanical separators. Wastewater



then gravity flows into the three main storage lagoons, before it is used for irrigation of the LAA. Wastewater from the process pit is used to flush the lanes.

The facility has three settling ponds and three storage lagoons. The storage lagoons were constructed following the 1984 Title 27 requirements of having underlying soils of no more than ten percent gravel and no less than ten percent clay. The total storage capacity of the three storage lagoons combined, allowing for two feet of freeboard, is 10,332,534 cubic feet.

### **Nutrient Management Requirements**

Table 5-7. Summary of Double Diamond Dairy WDR Nitrate Management-Related         Requirements					
Category	Summary of Requirements				
Discharge Prohibitions	<ul> <li>The direct or indirect discharge of waste and/or storm water from the production area to surface waters is prohibited</li> <li>The discharge of wastewater to surface waters from a LAA is prohibited. Irrigation supply water that comes into contact or is blended with waste or wastewater shall be considered wastewater under this Prohibition</li> <li>The discharge of waste from the facility to surface waters which causes or contributes to an exceedance of any applicable water quality objective in the Basin Plan or any applicable state or federal water quality criteria, or a violation of any applicable state or federal policies or regulations is prohibited</li> <li>The land application of manure or wastewater to LAAs for other than nutrient recycling is prohibited</li> </ul>				
Discharge Specifications	<ul> <li>The collection, treatment, storage, discharge, or disposal of wastes at the facility shall not result in: (1) discharge of waste constituents in a manner which could cause degradation of surface water or groundwater, (2) contamination or pollution of surface water or groundwater, (3) a condition of nuisance, (4) exceedance of water quality objectives, or (5) unreasonably affect beneficial uses (as defined by the California Water Code Section 13050)</li> </ul>				
Land Application Areas	• WDR required submittal of a certified Nutrient Management Plan consistent with permit requirements. A Nutrient Management Plan that meets the requirements. Land application of wastes at the facility shall not pollute underlying groundwater or cause the underlying groundwater to contain any waste constituent, degradation product, or any constituent of soil mobilized by the				



Table 5-7. Summary of Double Diamond Dairy WDR Nitrate Management-Related         Requirements					
Category	Summary of Requirements				
	<ul> <li>interactions between applied waste and soil or soil biota, to exceed groundwater prohibitions and specifications set forth in this Order.</li> <li>The application of waste to LAAs shall be at rates that preclude development of vectors or other nuisance conditions and meet the conditions of the certified Nutrient Management Plan. Application shall be timed to minimize nitrogen movement below</li> </ul>				
	the root zone.				
Groundwater Limitations	<ul> <li>Release of waste constituents from any treatment, storage, or disposal component associated with the facility shall not cause or contribute to groundwater: a. Containing constituent concentrations in excess of the concentrations specified below or background quality: Nitrate as nitrogen of 26 mg/L (background)</li> </ul>				
Monitoring & Reporting	<ul> <li>Wastewater monitoring includes nitrate-nitrogen (only when retention pond is aerated), ammonium-nitrogen, TKN</li> <li>Plant tissue monitoring for total nitrogen</li> <li>Irrigation water monitoring for total nitrogen, ammonium-nitrogen</li> <li>Groundwater monitoring nitrate-nitrogen, ammonium-nitrogen</li> </ul>				

# 5.3.8. El Nido Composting Facility

## Facility Description (CV-SALTS ID: 3130)

The El Nido Composting Facility is authorized to discharge under WDR Order R5-2003-0180. The facility is located at 13757 South Harmon Rd, Dos Palos, CA 93620. The underlying groundwater beneficial uses of this facility include: MUN, AGR, IND and PRO. The 35-acre El Nido Composting Facility includes a 27.5-acre composting area for storage and treatment of incoming wastes (including storage of finished 'Exceptional Quality' compost), a 2.5-acre wood chip and grind area and a 2-acre stormwater retention basin. The facility processes biosolids that originate from regulated wastewater treatment plants. The biosolids are tested by the facility that generates them prior to shipping to the El Nido Composting Facility; only biosolids that meet the requirements for nonhazardous biosolids specified in Title 22, California Code of Regulations, Division 4.5, Chapter 11, Article 3, are accepted.

#### **Nutrient Management Requirements**

**Table 5-8** summarizes the nitrate management-related requirements in this facility's WDR.



Table 5-8. Summary of Key El Nido Composting Facility WDR Nitrate Management-         Related Requirements					
Category	Summary of Requirements				
Discharge Prohibitions	<ul> <li>Discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater is prohibited</li> <li>Discharge shall not cause any increase in the concentration of waste constituents in soil, or other geologic materials outside of a Unit if such waste constituents could migrate to waters of the State and cause a condition of nuisance, degradation, contamination, or pollution</li> </ul>				
Discharge Specifications	<ul> <li>The annual input/capacity of biosolids and bulking agents for composting shall not exceed 182,500 tons</li> <li>Composting shall be limited to composting the sewage biosolids and bulking agents as described in Finding No. 20 (treated biosolids will be mixed on-site with bulking agents consisting of agricultural byproducts (manure, cotton stalks, etc.), yard residues (grass clippings, leaves, etc.), and organic liquids (residuals from animal and food processing facilities))</li> </ul>				
Monitoring & Reporting	<ul> <li>Groundwater includes nitrate, nitrite, Total Kjeldahl Nitrogen (TKN), ammonia and total nitrogen</li> <li>Sludge monitoring (applicable to each source) includes nitrate, TKN and total nitrogen</li> </ul>				

# 5.3.9. Menefee Ranch

## Facility Description (CV-SALTS ID: 3559)

Synagro applies biosolids it receives from various municipal generators throughout California, to approximately 702.1 acres of farmland owned by Scott Menefee in Merced County (Menefee Ranch). This application of biosolids is authorized under State Water Board Water Quality Order 2004-0012-DWQ ("General WDR for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural and Land Reclamation Activities"). The LAA is located approximately 4.5 miles southwest of the census-designated area of El Nido, CA in Merced County. The underlying groundwater beneficial uses include: MUN, AGR, IND and PRO. Biosolids are land applied at the appropriate agronomic rate for the crops present. Biosolids are surface-applied and incorporated by plowing or another form of tillage.

## **Nitrate Management Requirements**

Table 5-9 summarizes the nitrate management-related requirements in this facility's WDR.



Table 5-9. Summary of Key Menefee Ranch WDR Nitrate Management-Related Requirements as Required by the NOA and Water Quality Order					
Category	Summary of Requirements				
Discharge Prohibitions	<ul> <li>Discharge shall not cause or threaten to cause pollution, as defined in California Water Code §13050</li> <li>Application of biosolids at rates in excess of the nitrogen requirements of the vegetation or at rates that would degrade groundwater</li> </ul>				
Discharge Specifications	Biosolids application rates shall not exceed the agronomic rate for nitrogen for the crop being planted				
Monitoring & Reporting	<ul> <li>Annual monitoring report identifying the quantity of biosolids applied to the various fields and cumulative pollutant loading calculations for metals and nutrients</li> </ul>				

# 5.3.10. Vlot Bros Ranch Sludge Application Site

## Facility Description (CV-SALTS ID: 2850)

This facility operated by Denali Water Solutions LLC is located at Road 4 and Avenue 21, Chowchilla, CA 93610. The underlying groundwater beneficial uses in this area include: MUN, AGR, IND and PRO. The WDR that will authorize discharge from this facility is currently pending. This section will be updated as appropriate in the Final Management Zone Proposal.

# 6. EARLY ACTION PLAN DEVELOPMENT

The Nitrate Control Program requires establishment of an EAP for the Chowchilla 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 E** to this PMZP provides the complete EAP for the proposed Chowchilla 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.

# 6.1. Development Approach

The Early Action Plan was developed as part of the overall stakeholder process implemented to develop the Preliminary Management Zone Proposal (see **Section 1.4**). The following sections describe how the Plan was developed, including the community outreach conducted to identify temporary water alternatives for inclusion in the Early Action Plan.

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

# 6.1.1.1. Nitrate-impacted Areas

**Section 3.4** above summarizes sources of nitrate groundwater quality data available for the proposed Management Zone (e.g., see **Table 3-3**) and describes 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 6-2**)<sup>19</sup>. For 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 western, southern, and northeastern areas. **Figure 6-2** 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

<sup>&</sup>lt;sup>19</sup> Note: **Figure 6-2** provides the same information as **Figure 3-7**. The figures are repeated to simplify the presentation and flow of information.



as N). The largest nitrate-impacted area is in the north-west-central area of the Management Zone, as well as some smaller pockets in the central and south-central areas of the Management Zone.

# 6.1.1.2. Potentially Impacted Public Supply Wells

**Section 2.5** above describes how residential water systems are classified in California and summarizes the types of water systems present within the proposed Chowchilla 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 E** 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.

Based on DDW data, there are records for a total of 40 PWS located in the Management Zone. There are 23 PWS (two PWS do not have nitrate data associated with their public supply wells and one of those PWS is mostly located outside of the Management Zone and does not have any public supply wells in the Management Zone). Eight PWS have documented service area boundaries, and the locations of the remaining fifteen PWS are located by either the coordinates associated with their public supply wells or the system's address. A total of 4 PWS had raw water samples from seven wells that exceeded the nitrate MCL in the past (see Table 2-2 in the Early Action Plan, Attachment E). Of those seven wells that have experienced nitrate exceedances, three have been either abandoned or destroyed, leaving four wells that are considered "Active" (Active Raw, i.e., groundwater is sampled directly from the well; or Active Untreated, i.e., groundwater is sampled at a point between the well and a treatment system). Active wells that have experienced concentrations exceeding the MCL are located near El Nido in the northwest, Red Top in the west, and to the southwest of the City of Chowchilla, all adjacent to areas with potentially elevated ambient nitrate conditions (Figure 6-3) (also see Table 2-3 in the Early Action Plan, Attachment E). The four PWS that have experienced nitrate exceedances in their raw source water appear to have all resolved their nitrate problem as of 2009 by either abandoning, destroying, or deepening problem wells.

## 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 PWSs have treatment facilities to remove nitrate prior to the water being delivered to consumers. Using the best information readily available, it is possible to find DDW sources of water for PWS that are categorized as "treated". This includes the following potential DDW-defined well status categories:

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

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 23 PWS located within any portion of the Management Zone, seven of them have treatment capabilities as indicated by having a treated source in the DDW records. One of those seven water systems indicate treatment via Reverse Osmosis (RO) in their source information (Cold Spring Granite Co Raymond, whose service boundary crosses the Management Zone boundary but whose public supply well is outside the Management Zone); three have treatment with chlorine and/or stage 2 disinfection byproducts (one of which, Le Grand CSD, has a small portion of its southern service boundary cross the Management Zone but whose public supply wells are outside the Management Zone); and three have unknown treatment methods. Treatment capabilities for the five water systems that have wells inside the Management Zone are noted on Figure 6-3 with purple and white circles surrounding active public supply wells connected to a PWS that has treatment capabilities according to DDW. None of the systems that have experienced elevated nitrate samples in any of their supply wells are currently out of compliance due to nitrate.

Table 2-4 in the Early Action Plan (**Attachment E**) summarizes the water system information associated with PWS that have had a nitrate exceedance.



# 6.1.1.3. Potentially Impacted Domestic Wells

**Figure 6-4** illustrates the locations of potentially impacted domestic wells and areas of elevated nitrate (7.5 mg/L to 10 mg/L nitrate as N, and > 10 mg/L nitrate as N). These areas were used along with DWR spatial coverage of domestic well locations based on Well Completion Reports (WCRs) recorded by DWR<sup>20</sup>. There are approximately 14 domestic wells within the PWS residential service areas (based on DWR's section location assignment in the WCR records). It is unknown whether any of these wells are still being used even though they are potentially in a PWS area.

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

- Group 1 Groundwater in the Upper Zone with nitrate as N at or below 2.5 mg/L;
- 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 6-1**).

<sup>&</sup>lt;sup>20</sup> Several domestic well locations provided by DWR's Well Completion Report database may not be exact locations, but rather plot in the center of a 1-square mile township/range-section area. Therefore, several domestic wells may plot at the same location, and their locations are accurate up to one mile.



Table 6-1. Summary of Domestic Wells and Population with Estimated Upper Zone         Nitrate Area Categories								
Estimated Upper Zone	DWR Domestic Wells Located Outside PWS Boundaries		DWR Domestic Wells Within PWS Boundaries	2010 Census Block Analysis (outside PWS service areas)				
2020)	Domestic Well Count Outside of PWS Boundaries	% of Total Domestic Wells Outside PWS	Total Domestic Wells in MZ Within PWS	Population Outside PWS Boundaries				
Group 1: <=2.5 mg/L as N	197	28.5%	5	946				
Group 2: >2.5 – 5.0 mg/L as N	232	33.6%	8	1,759				
Group 3: >5.0 – 7.5 mg/L as N	124	17.9%	0	991				
Group 4: >7.5 – 10.0 mg/L as N	66	9.6%	0	385				
Group 5: >10.0 mg/L as N	64	9.3%	0	401				
Group 6: Unknown*	8	1.2%	1	36				
Total (Outside PWS Boundaries)	691	100%	14	4,518				

\*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.

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 6-1** summarizes the results of this analysis.

## 6.1.2. Community Outreach

The Management Zone implemented a community outreach program in coordination with SHE. This outreach program provided information not only on the development of the EAP but establishment of the Management Zone in general. Section 1.3.4.2 above summarizes the community outreach activities that have been completed to date. Section 1.2 of the EAP and the associated attachments in the EAP appendices provide additional information. The community outreach to date has been conducted to support development of the EAP. However, as described in the EAP an extensive community outreach program will continue during EAP implementation.



# 6.2. Key Early Action Plan Elements

This section provides a summary of the key elements of the Chowchilla Management Zone's EAP. **Attachment E** 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 > 10 mg/L-N (e.g., see Figure 6-2). This method is designed to obtain the addresses of residents in impacted areas so that the Management Zone can reach out directly to let them know of the availability of an interim replacement water program to address nitrate contamination concerns. Even though these residents are targeted for outreach based on the water quality findings described above, anyone in the Management Zone can request to have their well tested to be sure they are not drinking nitrate-contaminated water.
- Community Outreach during EAP Implementation EAP Section 4 describes community outreach activities that will be implemented under the EAP. Outreach will occur through various means (website, flyers, email, etc.), but there will be regular community meetings with the first meeting occurring in May 2021 when the EAP begins implementation.
- Interim Replacement Water Program The EAP includes three options for obtaining safe drinking water that targets areas where the Upper Zone of the groundwater system most likely has nitrate concentrations that exceed 10 mg/L-N:
  - Bottled Water Delivery or Point-of-Use Treatment Systems ("POU System") At the same time that water fill stations are being developed, the Management Zone will implement a bottled water delivery and POU System program for residents that meet specific criteria. These criteria include: (a) resident lives within the Management Zone; (b) resident is willing to establish the necessary agreements to establish requested replacement water services; and (c) the residence receives its drinking water from a source that has nitrate that exceeds 10 mg/L-N.
  - Water Fill Stations For residents that prefer to obtain their water from a water fill station, the Management Zone may install up to two water fill stations in the Management Zone. 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. These fill stations would provide a trusted source 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. 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.

## 6.3. Schedule of Implementation

Unless the Central Valley Water Board objects, the Management Zone will begin implementation of the EAP within 60 days of submittal of this PMZP or by May 7, 2021. **Figure 6-5** provides an overview of the EAP schedule. EAP Table 5-3 provides additional details to support this schedule including the timing of key implementation milestones. The EAP includes regular program monitoring and submittal of periodic status reports to the Central Valley Water Board. 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.





Figure 6-2. Chowchilla Management Zone: Ambient Post-2000 Nitrate Concentrations in the Upper Zone of Groundwater





## Figure 6-3. Chowchilla Management Zone: Potentially Impacted Public Water Supply Wells and All Domestic Wells




Figure 6-4. Chowchilla Management Zone: Domestic Wells Located Outside Public Water System Service Boundaries



<b>T</b> B			2021 2022		22	2023						
Iask	JUDASKS		QTR 3	QTR 4	QTR 1	QTR 2	QTR 3	QTR 4	QTR 1	QTR 2	QTR 3	QTR 4
01	General community outreach activities (website,											
Community	flyers, other communications)											
Outreach	Conduct public commmunity & stakeholder Meetings	•	•	•	•	•	•	•	2023 so	hedule to	o be dete	rmined
	Establish mailing list of targeted residents											
Community Outreach	Mailout Replacement Water Program information											
	Conduct follow-up outreach (as needed)											
Replacement	Secure services of vendors											
Water: Bottled Water & POU Systems	Process requests for services (well-testing, eligibility verification, initiate services)											
	Resident follow-up to verify services being provided and conduct follow-up well testing											
Replacement Water: Water Fil Stationss	Identify locations stations in collaboration with the commmunity											
	Fill Station No. 1: (if implemented) Project development				8							
	Fill Station No. 1: Installation											
	Fill Station No. 2 (if implemented): Project development				ā							
	Fill Station No. 2: Installation											
	Notify Central Valley Water Board and community of operational station											
	Operate and maintain fill stations (if any installed)											
Monitoring and	Gather monitoring data and maintain records from all program activities											
Reporting	Prepare EAP status reports			•		•				•		

Figure 6-5. General EAP Implementation Schedule



# 7. PLAN TO FINALIZE MANAGEMENT ZONE PROPOSAL

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

## 7.1. Identification of Final Management Zone Participants

Most permitted dischargers located within the Chowchilla Management Zone boundary have opted to comply with the Nitrate Control Program through participation in the Management Zone (Path B). Any dischargers that are not included in this PMZP as participants may still join the Management Zone before the Final Management Zone Proposal (FMZP) is submitted. These permittees may be added for the following reasons:

- Permittee did not submit a response to the NTC by the due date May 7, 2021. Although per the Nitrate Control Program regulations, these permittees are subject to an enforcement action, they may still be eligible to select Path B and join the Chowchilla Management Zone.
- Central Valley Water Board may determine that a permittee that selected Path A (comply with the Nitrate Control Program as an individual discharger) may not be able to meet the Path A requirements. These permittees may be eligible to join the Management Zone.

Any permittee that requests to join the Chowchilla Management Zone after PMZP submittal, for whatever reason, must obtain approval from the Chowchilla Management Zone's Steering Committee. The Steering Committee 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.

A permitted discharger identified as a Chowchilla Management Zone participant in the PMZP may withdraw from the Management Zone prior to submittal of the FMZP, subject to the requirements of the MOA. To withdraw from the Management Zone, the discharger must notify the Central Valley Water Board and the Chowchilla Management Zone Steering Committee of the intent to leave the Management Zone. The Central Valley Water Board will consider approval of the request to leave the Management Zone on a case-by-case basis. If approved by the Central Valley Water Board, the permittee will need to comply with Path A requirements, including submitting an initial groundwater assessment as part of its NOI within 30 days of withdrawing from the Management Zone. The permittee must also notify the Management Zone as stipulated in the MOA and fulfill any withdrawal requirements established by the MOA.

When a facility submits a Report of Waste Discharge (ROWD) to the Central Valley Water Board for a new or expanded discharge within the proposed Management Zone boundary, the facility may elect to comply with the Nitrate Control Program through participation in the Chowchilla



Management Zone. The Central Valley Water Board will work with the permittee that submitted the ROWD and the Chowchilla Management Zone to ensure the facility is included in the Final Management Zone Proposal.

## 7.2. Boundary Refinement

The proposed Management Zone encompasses the entire Chowchilla Subbasin. Although it is unlikely that this boundary will be refined, prior to submittal of the Final Management Zone Proposal the Management Zone will verify that there will be no changes to the proposed boundary. If any changes to the proposed Management Zone boundary are recommended in the Final Management Zone Proposal, the proposal will be supported by appropriate documentation.

## 7.3. Groundwater Assessment Updates

Section 3 provides a comprehensive initial assessment of nitrate water quality conditions in the Upper Zone of the groundwater system underlying the proposed Chowchilla Management Zone. This initial groundwater assessment will be updated as needed to support the FMZP and later development of the Management Zone Implementation Plan (MZIP). Examples of additional data that may be incorporated into the FMZP include:

- Domestic well nitrate results that become available through either (a) implementation of well testing under the ILRP; or (b) through implementation of the residential well testing program in the EAP.
- Additional data identified through continued outreach activities to non-dischargers in the Management Zone.

Results of additional data collection from wells already incorporated in the initial assessment that has occurred since preparation of the PMZP.

## 7.4. Management Zone Governance & Funding

The Chowchilla Management Zone is currently governed by the MOA established among the participating permitted dischargers. A Steering Committee comprised of participating dischargers manages the day-to-day activities of the Management Zone (see Section 1.3.3). Funding to implement the EAP and further develop Management Zone deliverables is currently provided by the participating dischargers based on a Steering Committee-approved cost allocation. During implementation of the EAP and development of the FMZP the Steering Committee will evaluate the need for a different or modified governance structure to support Management Zone activities in the future. The Steering Committee will also evaluate cost allocations on at least an annual basis.



# 7.5. Submittal of Deliverables

The Central Valley Water Board will make this PMZP available for public comment for at least 30 days after being publicly posted by the Board on its website and through the Lyris Management System. The Central Valley Water Board will provide comments to the Chowchilla Management Zone on the PMZP after completion of this public comment process. The Chowchilla Management Zone will submit its FMZP to the Central Valley Water Board no later than 180 days after receiving comments from the Central Valley Water Board on this PMZP. The FMZP will include the following:

- Consideration of the comments received on the PMZP;
- Timeline for development of the MZIP, which is to be submitted to the Central Valley Water Board no later than 180 days after the FMZP is accepted by the Board's Executive Officer;
- Updated list of Management Zone participants;
- Updated governance structure (see Section 1.3.3) for current structure) that, at a
  minimum, establishes the following: (a) roles and responsibilities of all participants; (b)
  identification of funding or cost-share agreements to implement short-term nitrate
  management projects/activities, which may include local, state and federal funds that
  are available for such purposes; and (c) a mechanism to resolve disputes among
  participating dischargers;
- Additional evaluation of groundwater conditions in the Chowchilla Management Zone area, if necessary;
- Explanation of how the Chowchilla Management Zone plans to interact and/or coordinate with other similar efforts such as those underway pursuant to SGMA; and,
- Documentation of actions taken so far to implement the EAP (consistent with the schedule included in the EAP see Section 6.1 in **Attachment E**).

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# **ATTACHMENTS**

Attachment A	Memorandum of Agreement among Participating Permitted Dischargers
Attachment B	Groundwater Sustainability Agencies within and Adjacent to the Proposed Management Zone
Attachment C	List of Dairies, Confined Bovine Feeding Operations, and Poultry Farms Permitted under a General Order
Attachment D	Outreach Records for Development of Preliminary Management Zone Proposal
Attachment E	Early Action Plan [Separate File]



## Attachment A

### Memorandum of Agreement among Participating Permitted Dischargers

MANAGEMENT ZONE AGREEMENT FOR PERMITTEES IN THE CHOWCHILLA GROUNDWATER BASINS/SUB-BASINS AS IDENTIFIED IN THE WATER QUALITY CONTROL PLAN FOR THE SACRAMENTO AND SAN JOAQUIN RIVER BASINS

This Agreement is entered into by and between the MADERA COUNTY FARM BUREAU, a California nonprofit mutual benefit corporation (hereafter "MADERA COUNTY FARM BUREAU") and the \_\_\_\_\_\_ [name of other party], (hereafter "Participant") (referred to individually or collectively as Party or Parties). The effective date of this Agreement is \_\_\_\_\_\_, 2020.

#### 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 will be 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. Compliance with the Nitrate Control Program will be triggered by the issuance of a Notice to Comply from the Central Valley Water Board to permittees that discharge nitrate to groundwater in the identified Priority 1 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.

6. Permittees working together as a Management Zone must 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.

7. The MADERA COUNTY FARM BUREAU has agreed to temporarily act as a fiduciary agent for the Chowchilla Management Zone Participants until such time that Participants establish a new organization or identify an existing organization for administration of the Chowchilla Management Zone Program for the Chowchilla groundwater sub-basin.

TERMS OF AGREEMENT

1. Participant has either received a Notice to Comply or has members that have received a Notice to Comply, with the Nitrate Control Program. After reviewing and considering the options available for complying with the Nitrate Control Program, Participant agrees to comply by contributing to and cooperating as part of the Chowchilla Management Zone Program.



2. Each Party agrees to work in good faith, with all Participants, to establish a new organization, partner with or join an existing organization that will administer the Chowchilla Management Zone Program, which includes developing 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 Chowchilla Management Zone Program will be shared with other participants based on an equitable cost allocation mechanism that is to be developed by the permittee Participants in the Chowchilla Management Zone Program.

4. Participant understands that the MADERA COUNTY FARM BUREAU has agreed to serve as a fiduciary agent, in the interim, for the Chowchilla Management Zone Program and that such fiduciary tasks will be transferred to a new or existing organization that is subsequently identified for administration of the Chowchilla Management Zone Program.

5. The MADERA COUNTY FARM BUREAU 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, consultant costs and other agreed upon costs incurred by MADERA COUNTY FARM BUREAU in furtherance of developing and implementing the Chowchilla Management Zone Program.

6. The Participants 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 Chowchilla Management Zone Program and all participants to this Agreement are ultimately responsible for the development and implementation of all of the parts of the Early Action Plan, Preliminary Management Zone Proposal, Final Management Zone Proposal, and Management Zone Proposal, and Preliminary Management Zone Proposal, Final Management Zone Proposal, and Management Zone Proposal, and Management Zone Proposal, Final Management Zone Proposal, and Management Zone Implementation Plan.

7. The Participant understands that compliance with the terms of the Nitrate Control Program is ultimately determined by the Central Valley Water Board and not the MADERA COUNTY FARM BUREAU or other participants to this Agreement.



8. The Participant is free to withdraw from this Agreement at any time upon giving a minimum of 30 days express written notification to the MADERA COUNTY FARM BUREAU. Any contributions to MADERA COUNTY FARM BUREAU for the Chowchilla Management Zone Program by a withdrawing Participant prior to giving notice of withdrawal shall not be reimbursable by MADERA COUNTY FARM BUREAU 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 the Participants.

9. The MADERA COUNTY FARM BUREAU agrees that once the Participants of the Chowchilla Management Zone Program have established a new organization, or identified an existing organization that will administer the Chowchilla Management Zone Program, that all funds paid to the MADERA COUNTY FARM BUREAU for the Chowchilla Management Zone Program (minus any existing liabilities) will be transferred from the MADERA COUNTY FARM BUREAU to the newly identified organization as soon as possible.

10. The MADERA COUNTY FARM BUREAU agrees to maintain an accounting system that clearly documents funds provided to the MADERA COUNTY FARM BUREAU and funds paid out from the MADERA COUNTY FARM BUREAU for purposes of administering the Chowchilla Management Zone Program.

11. Participation in the Chowchilla Management Zone Program, 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.

12. 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.

13. The Parties, 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 the other Party to this Agreement or other Participants in the Chowchilla Management Zone Program.



14. 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 Madera.

15. If any provision of the Agreement is found invalid or unenforceable, the balance of the Agreement shall remain in full force and effect.

16. The Agreement may be executed in counterparts with the same force and effect as if executed in one complete document by all Parties

17. This Agreement contains the entire agreement between the Parties with respect to the matters set forth in it. Any modifications, revisions, or changes to this Agreement must be made in writing and signed by both Parties.

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

Date:\_\_\_\_\_

MADERA COUNTY FARM BUREAU

By:\_\_\_\_\_\_ Signature of MADERA COUNTY FARM BUREAU Representative

Print name of MADERA COUNTY FARM BUREAU Representative



#### Date: \_\_\_\_\_ [NAME OF PARTICIPANT ENTITY]\_\_\_\_\_

Ву:\_\_\_\_\_

Signature of Participant entity authorized representative

Print name of Participant entity authorized representative



# Attachment B – Groundwater Sustainability Agencies within and Adjacent to the Proposed Chowchilla Management Zone

There are thirteen GSAs that are located within the Chowchilla Management Zone. They are listed below:

- Chowchilla Water District GSA
- County of Fresno GSA Delta-Mendota Management Area B
- County of Madera GSA Chowchilla
- County of Madera GSA Delta-Mendota
- County of Madera GSA Madera
- County of Merced GSA Chowchilla
- County of Merced GSA Delta-Mendota
- Madera Irrigation District GSA
- Merced Irrigation Urban GSA
- Merced Subbasin GSA
- New Stone Water District GSA
- San Joaquin River Exchange Contractors Water Authority GSA
- Triangle T Water District GSA

The following sections provide a brief summary of each GSA, including points of contact, information about who makes up the GSA, and other interested parties that have been contacted by the GSAs. Member agencies or interested parties for the listed GSAs include but are not limited to the following list<sup>21</sup>:

#### **Chowchilla Water District GSA**

- Point of Contact: Doug Welch, General Resource Manager, Chowchilla Water District GSA, 327 S. Chowchilla Blvd. | Chowchilla, CA 93610559-665-3747
   <u>dwelch@cwdwater.com http://www.cwdwater.com/index.php</u>
- Member Agency: Chowchilla Water District

<sup>&</sup>lt;sup>21</sup> GSA information including points of contact, interested parties and member agencies are listed here: <u>https://sgma.water.ca.gov/portal/gsa/all</u>



• Other Interested Parties: City of Chowchilla, Madera County, Merced County, Sierra Vista Mutual Water Company, agricultural users, domestic well owners, Madera CASGEM Group, Merced Area Groundwater Pool Interests

#### 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 Madera GSA – Chowchilla

- Point of Contact: Stephanie Anagnoson, Director of Water Resources, County of Madera GSA - Chowchilla200 West Fourth Street | Madera, CA 93637559.675.7703 x 2265
   <u>stephanie.anagnoson@maderacounty.com</u> <u>maderacountywater.com</u>
- Member Agency: Madera County
- Other Interested Parties: Agricultural users, Domestic well owners, 2 Public Water Systems and one Mutual Water Company, Alview School, the Madera-Chowchilla CASGEM Group

#### County of Madera GSA – Delta-Mendota

- Point of Contact: : Stephanie Anagnoson, Director of Water Resources, County of Madera GSA – Delta-Mendota, 200 West Fourth Street | Madera, CA 93637559.675.7703 x 2265 | <u>stephanie.anagnoson@maderacounty.com</u> <u>maderacountywater.com</u>
- Member Agency: Madera County
- Other Interested Parties: none listed

#### 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 | <u>stephanie.anagnoson@maderacounty.com</u> <u>maderacountywater.com</u>
- Member Agency: Madera County
- Other Interested Parties: none listed

#### County of Merced GSA – Chowchilla



- Point of Contact: Lacey Kiriakou, Water Resources Coordinator, County of Merced GSA -Chowchilla2222 M Street | Merced, CA 95340209-385-7654
   <u>Ikiriakou@countyofmerced.com</u> www.countyofmerced.com
- Member Agency: Merced County
- Other Interested Parties: Agricultural users, Domestic well owners, Sierra Vista Mutual Water Company

#### County of Merced GSA – Delta-Mendota

- Point of Contact: Lacey Kiriakou, Water Resources Coordinator, County of Merced GSA -Delta-Mendota2222 M Street | Merced, CA 95340209-385-7654
   <u>lkiriakou@countyofmerced.com</u> www.countyofmerced.com
- Member Agency: Merced County
- Other Interested Parties: Agricultural users, Domestic well owners, California Department of Fish and Wildlife, U.S. Fish and Wildlife Services, DACs Santa Nella, Volta, Dos Palos, Gustine, and Los Banos, The San Luis & Delta-Mendota Water Authority

#### **Madera Irrigation District GSA**

- Point of Contact: Thomas Greci, General Manager, Madera Irrigation District GSA, 12152 Road 28 1/4 | Madera, CA 93637559-673-3514 | <u>tgreci@madera-id.org</u> <u>http://www.madera-id.org/</u>
- Member Agency: Madera Irrigation District
- Other Interested Parties: none listed

#### Merced Irrigation – Urban GSA

- Point of Contact: Hicham Eltal, Deputy General Manager, Water, Merced Irrigation-Urban GSA, 744 W. 20th Street | Merced, CA 95340209-354-2854
   <u>heltal@mercedid.org www.mercedid.org</u>
- Member Agency: Merced Irrigation District
- Other Interested Parties: Agricultural users, Domestic well owners, Municipal well operators: Cities of Merced, Atwater, and Livingston; Community Services Districts: Planada, Le Grand, and Winton Water and Sanitary District

#### Merced Subbasin GSA



- Point of Contact: Lacey Kiriakou, Water Resources Coordinator, Merced Subbasin GSA, 2222 M Street | Merced, CA 95340, 209-385-7654 | <u>lkiriakou@countyofmerced.com</u> <u>www.countyofmerced.com</u>
- Member Agency: Merced County
- Other Interested Parties: Agricultural users, Domestic well owners, U.S. Fish and Wildlife Services, East Merced Resource Conservation District, Stevinson Water District, Merquin County Water District

#### New Stone Water District GSA

- Point of Contact: Roger Skinner, District Representative, New Stone Water District GSA, 9500 S. De Wolf | Selma, CA 93662559-834-6677 | <u>rskinner@lionraisins.com</u>
- Member Agency: New Stone Water District
- Other Interested Parties: none listed

#### San Joaquin River Exchange Contractors Water Authority GSA

- Point of Contact: Steve Chedester, Executive Director, San Joaquin River Exchange Contractors Water Authority GSA, 541 H Street, P.O Box 2115 | Los Banos, CA 93635, 209-827-8616 | <u>stevechedester@sjrecwa.net http://www.sjrecwa.net/</u>
- Member Agency: San Joaquin River Exchange Contractors Water Authority
- Other Interested Parties: none listed

#### Triangle T Water District GSA

- Point of Contact: Brian Ehlers, GSA Manager, Triangle T Water District GSA, 286 W. Cromwell Avenue | Fresno, CA 93711 (559) 449-2700 | <u>behlers@ppeng.com</u>
- Member Agency: Triangle T Water District
- Other Interested Parties: Agricultural users, Domestic well owners



# Attachment C - Permitted Milk Cow Dairies, Confined Bovine Feeding Operations and Poultry Operations in the Management Zone

Table 1. Milk Cow Dairies and Confined Bovine Feeding Operations in the Chowchilla Management Zone that
are Management Zone Participants through CVDRMP Membership

CV-SALTS ID	WDID No.	Facility	Address			
General Order R5-2013-0122 – Milk Cow Dairies						
4		Jose D Soares Dairy	Road 1 & 1.5 miles S of Avenue 21, Dos Palos, CA 93620			
27	5F20C328764	Red Top Jerseys Dairy	21463 Road 4, Chowchilla, CA 93610			
89	5B20NC00018	Diamond H Dairy	9564 Avenue 18 1/2, Chowchilla, CA 93610			
99	5C205024N01	Silveira Dairy	11277 Avenue 21 1/2, Chowchilla, CA 93610			
106	5C205031001	AJF Dairy	23435 Road 12, Chowchilla, CA 93610			
110	5B20NC00008	Alfred Soares Dairy	21282 Road 6, Chowchilla, CA 93610			
114	5B20NC00045	Andrade Dairy	10221 Avenue 21 1/2, Chowchilla, CA 93610			
191	5B24NC00309	Coelho Farms LP	5615 Avenue 24, Chowchilla, CA 93610			
223	5C205009001	Mcree East Dairy	11812 Avenue 18, Chowchilla, CA 93610			
235	5C205008N01	Domingos Ribeiro Dairy	12718 Avenue 25, Chowchilla, CA 93610			
241	5B20NC00027	Double DJ Farms Dairy	14768 Avenue 27, Chowchilla, CA 93610			
275	5B24NC00034	Faust Family Dairy	10077 Avenue 26, Chowchilla, CA 93610			
305	5B20NC00020	Fagundes Dairy	23548 Road 12, Chowchilla, CA 93610			
338	5B20NC00033	Hansen & Sons Dairy	13348 Avenue 20, Chowchilla, CA 93610			
499	5C205011001	Triangle M Dairy	11302 Avenue 18 1/2, Chowchilla, CA 93610			
528	5B20NC00039	Neva Gayle Farms Dairy	7500 Avenue 14, Madera, CA 93637			
541	5C205017N01	Avila Family Dairy	13644 Avenue 18 1/2, Chowchilla, CA 93610			
558	5C205028N01	Philip Verwey Dairy, Inc.	12852 Road 9, Madera, CA 93637			
567	5C205014N01	J Y Jimenez Dairy	18177 Road 10 1/2, Chowchilla, CA 93610			
614	5C205007N01	Mr Dairy	18899 Road 16, Chowchilla, CA 93610			
630	5C205029N01	Costa View Dairy North	9499 Avenue 20, Chowchilla, CA 93610			
650	5B20NC00011	Vitoria Farms Dairy	12433 Avenue 24, Chowchilla, CA 93610			
668	5C205023N01	Troost Dairy	27000 Road 9, Chowchilla, CA 93610			
699	5C205037001	Vlot Calf Ranch	20330 Road 4, Chowchilla, CA 93610			
801	5B24NC00036	De Jager Dairy So.	8002 South Bliss Road, Chowchilla, CA 93610			
802	5B24NC00037	DeJager Dairy #1 North	11375 South Ivy Avenue, Chowchilla, CA 93610			
803	5B24NC00038	DeJager Dairy #2 North	11140 South Ivy Avenue, Chowchilla, CA 93610			
813	5B24NC00051	Luis Correia Dairy	11775 South Arbor Way, El Nido, CA 95317			
815	5B24NC00053	Antonio Azevedo Dairy #3	227 West El Nido Road, El Nido, CA 95317			
816	5B24NC00054	Brasil Dairy	13701 South Hwy 59, El Nido, CA 95317			
817	5B24NC00056	Antonio Azevedo Dairy #2	7618 South Hwy 59, El Nido, CA 95317			
818	5B24NC00059	Pedretti Ranches	2331 East Roosevelt Road, El Nido, CA 95317			
819	5B24NC00060	DCB Farming LLC	1581 East Roosevelt Road, El Nido, CA 95317			
820	5B24NC00061	Antonio Azevedo Dairy #4	1257 West Roosevelt Road, El Nido, CA 95317			
821	5B24NC00062	Hath Dairy	508 West Roosevelt Road, El Nido, CA 95317			
822	5B24NC00063	Luis Correia Dairy	11132 Shultz Road, El Nido, CA 95317			
823	5B24NC00064	Coelho Frank & Sons L.P.Dairy	2031 East Washington Road, El Nido, CA 95317			





Table 1. Milk Cow Dairies and Confined Bovine Feeding Operations in the Chowchilla Management Zone that
are Management Zone Participants through CVDRMP Membership

CV-SALTS ID	WDID No.	Facility	Address		
887	5B24NC00201	Antonio Brasil Dairy	15373 South Flanagan Road, Dos Palos, CA 93620		
NA <sup>1</sup>	5B20NC00046	Lest Family Farms	NA <sup>1</sup>		
NA <sup>1</sup>	5B24NC00035	Vista Verde Dairy	NA <sup>1</sup>		
NA <sup>1</sup>	5B24NC00280	F& A Lemos Dairy	NA <sup>1</sup>		
NA <sup>1</sup>	5C205022N01	Tri-Lest Dairy	NA <sup>1</sup>		
General Order R5-2017-0058 – Confined Bovine Feeding Operations					
1600	5B20NC00119	Massaro (H-1)	20691 Road 16, Chowchilla, CA 93610		
1601	5B20NC00120	Mandala (H-2)	15321 Avenue 20, Chowchilla, CA 93610		
1615	5B20NC00121	AJF Heifer Ranch	22800 Road 14 1/2, Chowchilla, CA 93610		
NA <sup>1</sup>	5B24NC00389	County Line Cattle	NA <sup>1</sup>		

<sup>1</sup> Facility on CVDRMP list (February 16, 2021) but was not included on Central Valley Water Board's list (January 12, 2021); NA = CV-SALTS ID number and address unavailable.

Table 2. Milk Cow Dairies and Confined Bovine Feeding Operations in the Chowchilla Management Zone
that are Not Currently Members of the CVDRMP and Status of Management Zone Participation is
Unknown at time of PMZP Submittal

CVSALTS ID	WDID No.	Facility	Address		
General Order R5-2013-0122 – Milk Cow Dairies					
602	5B20NC00010	Michael Mcree South Dairy	11304 Avenue 18, Chowchilla, CA 93610		
780	5C20NC00012	Banos Dairy	4667 Avenue 23 1/2, Chowchilla, CA 93610		
111 <sup>1</sup>	5B20NC00037	Defense Ranch Dairy	10726 Avenue 19, Chowchilla, CA 93610		
266 <sup>1</sup>	5B20NC00044	Dr Dairy	16554 Road 9, Chowchilla, CA 93610		
General Order R5-2017-0058 – Confined Bovine Feeding Operations					
1542	5B20NC00038	Sinks	20686 Road 13, Chowchilla, CA 93610		
1608	5B20NC00122	Proctor	24220 Road 14, Chowchilla, CA 93610		
1658	5B24NC00387	Antonio Azevedo Heifer Ranch	511 West Roosevelt Road, El Nido, CA 95317		
55 <sup>1, 2</sup>	NA <sup>2</sup>	DeJager Dairy Heifer Facility	11525 Knowles Road, El Nido, CA 95317		
83 <sup>3</sup>	5B24NC00314	Double Diamond Dairy	505 East Washington Road, El Nido, CA 95317		

<sup>1</sup> On Central Valley Water Board's Chowchilla Permittee List (January 12, 2021) but Not on CVDRMP list of known milk cow dairies or confined bovine feeding operations

<sup>2</sup> Presumed to be under General Order R5-2017-0058 (NA = WDID No not available)

<sup>3</sup> This facility is currently in discussion with the CVDRMP and Central Valley Water Board regarding membership in the CVDRMP

Table 3. Poultry Operations in the Chowchilla Management Zone that are Management Zone
Participants through the Poultry General Order (both are Low Threat Operations)

CV-SALTS ID	WDID No.	Facility Name	Address
1325	5B24NC00349	Jefferson Ranch	894 West Jefferson Road, El Nido, CA 95317
1481	5B50NC00104	Snow Ranch	15555 Avenue 22, Chowchilla, CA 93610



# Attachment D- 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 <a href="https://www.maderacountywater.com/cv-salts/">https://www.maderacountywater.com/cv-salts/</a>, and other outreach materials including meeting notices, flyers, and survey results are found in the Early Action Plan Appendix B.

- October 16, 2020 Public Meeting The Chowchilla Management Zone distributed CV-SALTS and Nitrate Control Program brochures in both English and Spanish, as well as a flyer advertising the first public meeting (in both English and Spanish). This public meeting provided an overview of what nitrate is and why it is important to understand how it gets into the drinking water system; an overview of where people get their water from (public water system vs. private domestic well); the Nitrate Control Program regulation; possible solutions to the nitrate problem; description of how the public can participate in the Management Zone process; outreach efforts, schedule, and contact info. Spanish translation was provided during this live public meeting.
- December 18, 2020 Public Meeting & Public Survey The Chowchilla Management Zone distributed public outreach flyers for this public meeting in both English and Spanish. This public meeting provided an overview of the Nitrate Control Program and its requirements; an initial assessment of the nitrate characterization; a discussion of drinking water solutions to be included in the EAP; a discussion of outreach and participation; and an overview of the schedule and timeline of the development of the PMZP and EAP. A public survey was initiated during this public meeting in both English and Spanish. Spanish translation was also provided during this live public meeting.
- January 29, 2021 Public Meeting & Public Survey The Chowchilla Management Zone distributed public outreach flyers for this public meeting in both English and Spanish. This public meeting provided an overview of the Nitrate Control Program and its regulatory requirements including a description of the contents of the Public Draft PMZP and EAP documents; the process for which the MZ is identifying potentially impacted residents; a discussion of the drinking water solutions to be presented in the Early Action Plan; a discussion of the outreach and public participation; and an overview of the schedule and timeline associated with the development of the PMZP and EAP. An interactive map was also presented during this public meeting, which was a tool the Management Zone developed to educate and empower residents throughout the area to know what the initial assessment of nitrate conditions are in the Upper Zone (where their domestic wells are potentially



drawing drinking water from). Additionally, during this meeting, the call went out to residents to volunteer to have their private domestic well tested at no cost to the resident by Self-Help Enterprises. Two representatives from Self-Help were present during this meeting and the actual well testing operator introduced himself to the audience. Sign-up information was provided for residents to volunteer to have their well tested for free by Self-Help during this public meeting. A public survey was initiated during this public meeting in both English and Spanish. Spanish translation was also provided during this live public meeting.

- February 26, 2021 Public Meeting The Chowchilla Management Zone distributed public outreach flyers for this public meeting in both English and Spanish. This public meeting started with an overview of the Nitrate Control Program; provided a description of the contents of the two required documents – the PMZP and the EAP; a description of the methodology used for identifying potentially impacted residents; an overview of the drinking water solutions the Management Zone is offering as part of the Early Action Plan; a discussion of the outreach and public participation; and a discussion of the schedule and timeline associated with the PMZP and EAP. A public survey was initiated during this public meeting in both English and Spanish. Spanish translation was also provided during this live public meeting.
- Chowchilla Management Zone Steering Committee This group of stakeholders and MZ participants met weekly in December 2020, and January 2021 to discuss the progress and development of the PMZP and EAP.
- Public Draft Preliminary Management Zone Proposal and Early Action Plan Documents Posted for Initial Public Comment Period on January 29, 2021. Comments were requested to be submitted by February 22, 2021 with the caveat that comments received after that date would be accepted but may not be included in the PMZP/EAP document. The comment and response log is provided in EAP Appendix B-4.



## Attachment E – Early Action Plan [Separate File]

See attached separate document for the entire Early Action Plan.

