

# CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD CENTRAL VALLEY REGION

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## WASTE DISCHARGE REQUIREMENTS ORDER R5-2024-0007

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### ORDER INFORMATION

<b>Order Type(s):</b>	Waste Discharge Requirements (WDRs)
<b>Status:</b>	Active
<b>Program:</b>	Non-15 Discharges to Land
<b>Region 5 Office:</b>	Fresno
<b>Discharger(s):</b>	City of Lemoore and Leprino Foods Company
<b>Facility:</b>	River Ranch Recycled Water Project
<b>Address:</b>	Southeast corner of Grangeville Blvd. and 25 <sup>th</sup> Ave., Lemoore, CA
<b>County:</b>	Kings County
<b>Prior Order(s):</b>	R5-2019-0008, 98-229, and 96-050

## **CERTIFICATION**

I, PATRICK PULUPA, Executive Officer, hereby certify that the following is a full, true, and correct copy of the order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 16 February 2024.

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PATRICK PULUPA,  
Executive Officer

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## **GLOSSARY**

AF.....	Acre Feet
APN(s).....	Assessor Parcel Number(s)
Antidegradation Policy.....	Statement of Policy with Respect to Maintaining High Quality Waters in California, State Water Board Resolution 68-16
Basin Plan .....	Water Quality Control Plan for the Tulare Lake Basin
bgs .....	Below Ground Surface
BOD .....	Biochemical Oxygen Demand (general term)
BOD <sub>[5]</sub> .....	[Five-Day] Biochemical Oxygen Demand at 20°Celsius (specific analysis)
BPTC.....	Best Practicable Treatment or Control
CDFW .....	California Department of Fish and Wildlife
CEQA .....	California Environmental Quality Act, Public Resources Code section 21000 et seq.
COC[s] .....	Constituent[s] of Concern
COW water.....	Condensate removed during milk processing
DAF .....	Dissolved Air Flotation
DO.....	Dissolved Oxygen
DTSC .....	California Department of Toxic Substances Control
DWR.....	California Department of Water Resources
EC .....	Electrical Conductivity
EIR .....	Environmental Impact Report
FDS .....	Fixed Dissolved Solids
FEMA .....	Federal Emergency Management Agency
HRAS .....	High-Rate Activated Sludge Reactor
LAA(s) .....	Land Application Area(s)
lbs/ac/yr.....	Pounds per Acre per Year
mg[d] .....	Million Gallons [per Day]
mg/L .....	Milligrams per Liter
msl.....	Mean Sea Level
MCL.....	Maximum Contaminant Level per Title 22

**GLOSSARY**

MPN .....	Most Probable Number
MRP .....	Monitoring and Reporting Program
MW.....	Monitoring Well
NO <sub>3</sub> -N.....	Nitrate as Nitrogen
NCP.....	Nitrate Control Program
ND.....	Non-Detect
NM.....	Not Monitored
Recycled Water Policy .....	<i>Policy for Water Quality Control for Recycled Water</i> , State Water Board Resolution 2009-0011, as amended per Resolutions 2013-0003 and 2018-0057
R[O]WD.....	Report of Waste Discharge
RCRA.....	Resource Conservation and Recovery Act
SBR[s].....	Sequencing Batch Reactor[s]
SPRRs .....	Standard Provisions and Reporting Requirements
TDS .....	Total Dissolved Solids
Title 22 .....	California Code of Regulations, Title 22
Title 23 .....	California Code of Regulations, Title 23
Title 27 .....	California Code of Regulations, Title 27
TKN.....	Total Kjeldahl Nitrogen
µg/L.....	Micrograms per Liter
µmhos/cm.....	Micromhos per Centimeter
Unified Guidance.....	Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance (USEPA, 2009)
USEPA.....	United States Environmental Protection Agency
VOC[s].....	Volatile Organic Compound[s]
WDRs.....	Waste Discharge Requirements
WQO[s] .....	Water Quality Objective[s]

## FINDINGS

The Central Valley Regional Water Quality Control Board (Central Valley Water Board) hereby finds as follows:

### Introduction

1. The City of Lemoore (City or Lemoore) provides sanitary wastewater treatment for its approximately 26,000 residents at its wastewater treatment facility (Lemoore WWTF) at 1145 South 18 ½ Avenue, Lemoore, California. Before leaving the Lemoore WWTF, the City's effluent is disinfected to comply with disinfected secondary-23 recycled water requirements as defined in section 60301.225 of California Code of Regulations, Title 22 (Title 22).
2. Leprino Foods Company (Leprino) owns and operates two cheese processing facilities within the City referred to as the Leprino West Plant and the Leprino East Plant. The Leprino West Plant is at 351 North Belle Haven Drive, and the Leprino East Plant is at 490 F Street. The two Leprino facilities process approximately 14 million pounds of milk and produce an average of 1.5 million pounds of mozzarella cheese and related products per day.
3. Since 2002 process water from Leprino's two facilities is temporarily stored in flow equalization tanks at the Leprino West Plant before being conveyed to Leprino's treatment facility, located adjacent to the Lemoore WWTF, at 1250 South 19<sup>th</sup> Avenue for treatment. After treatment, Leprino's process water is combined with the City's disinfected secondary-23 effluent (referred to as combined effluent). Waste Discharge Requirements (WDRs) Order R5-2019-0008 authorizes the discharge of up to 5.0 million gallons per day (mgd) of combined effluent to the 1,896-acre Stone Ranch property, owned by Leprino, approximately four miles west of the City.
4. On 6 May 2022, the City and Leprino submitted a Report of Waste Discharge (RWD) prepared by Kennedy/Jenks Consultants (Kennedy/Jenks) to discharge combined effluent of up to 7.0 mgd (monthly average) to the 1,896-acre Stone Ranch property and to an additional 520 acres of property (Nederend property), also owned by Leprino, located adjacent to the Stone Ranch property. Collectively, the 2,416-acre land application area (LAA) is referred to as the River Ranch Property. The combined effluent will be blended with existing irrigation water and applied to the River Ranch Property for irrigation of annual and perennial crops. The locations of the Lemoore WWTF, Leprino's facilities, and River Ranch Property are depicted on **Attachments A and B**.
5. The City and Leprino are named as co-dischargers in this Order and are responsible for compliance with these WDRs. The City and Leprino are collectively hereafter referred to as Discharger(s).



6. River Ranch is comprised of the following Kings County Assessor Parcel Numbers (APNs):
  - APN 004-230-015
  - APN 022-010-001
  - APN-022-010-002
  - APN 022-110-004
  - APN 022-110-013
  - APN 022-010-004
  - APN 022-010-050
  - APN 022-020-004
  - APN 022-110-014
  - APN 022-120-001
  - APN 022-100-001
  - APN 022-110-001
  - APN 022-110-002
7. The following materials are attached and incorporated as part of this Order:
  - Attachment A – Project Area Map
  - Attachment B – River Ranch Map
  - Attachment C – Process Flow Diagram
  - Attachment D – City and Leprino Monitoring Points
  - Attachment E – Drainage Collection System for River Ranch
  - Attachment F – Recycled Water Symbol
  - Standard Provisions & Reporting Requirements dated 1 March 1991 ([1 March 1991 SPRRs](https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/std_provisions/wdr-mar1991.pdf))  
[https://www.waterboards.ca.gov/centralvalley/board\\_decisions/adopted\\_orders/std\\_provisions/wdr-mar1991.pdf](https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/std_provisions/wdr-mar1991.pdf)
  - Information Sheet
8. Also attached is **Monitoring and Reporting Program R5-2024-0007** (MRP), which requires monitoring and reporting for discharges regulated under these WDRs. The Dischargers shall comply with the MRP, and subsequent revisions thereto as ordered by the Executive Officer or adopted by the Central Valley Water Board.

### **Regulatory History**

9. WDRs Order 96-050 authorized the discharge of up to 2.5 mgd of undisinfected secondary effluent from the Lemoore WWTF (including process wastewater from Leprino's cheese processing facilities) to 50,000 acres of farmland owned by Westlake Farms, Inc. for irrigation of crops. In 2001 Leprino and the City

submitted a complete RWD for Leprino to install a treatment system to pre-treat its process wastewater and increase the combined flow sent to Westlake Farms, Inc. to 4.5 mgd.

10. On 27 March 2018, in response to conditions stipulated by Westlake Farms, Inc. and Sandridge Partners, LP, the City and Leprino were issued Time Schedule Order (TSO) R5-2018-0900 requiring the Dischargers to come into compliance with the salinity requirements in Order 96-050 or find an alternative disposal option. In response to TSO R5-2018-0900 Leprino and the City submitted a RWD in June 2018 to discharge up to 5.0 mgd of combined effluent from the Lemoore WWTF and Leprino to approximately 1,896 acres of farmland (Stone Ranch property) purchased by Leprino. As mentioned above, the Central Valley Water Board adopted R5-2019-0008 to authorize the discharge of up to 5.0 mgd of combined effluent to the Stone Ranch property.
11. The Stone Ranch Property is underlain by a tile drain system that collects subsurface drainage and directs it to an onsite evaporation basin. Discharge of tile drainage water to the evaporation basin at the Stone Ranch property has historically been regulated by WDRs Order 98-229. Conditions stipulated in Order 98-229 for operation of the evaporation basin are carried over in this Order.
12. The WDRs are being updated to incorporate the additional combined effluent flow and the expanded LAA. WDRs Orders 96-050, 98-229, and R5-2019-0008 are, therefore, rescinded and replaced with this Order.

### **Facility and Discharges**

#### Existing Facilities

13. Process water from Leprino's two facilities is combined in five equalization tanks with a combined capacity of 3.5 million gallons and conveyed through a 12,000-foot pipeline to the Leprino treatment facility adjacent to the Lemoore WWTF. The Leprino treatment system utilizes two High-Rate Activated Sludge (HRAS) reactors, two Dissolved Air Flotation (DAF) units, and three Sequencing Batch Reactors (SBRs), as shown in **Attachment C**. The HRAS system is used to remove 70% or more of soluble chemical oxygen demand (COD)/biochemical oxygen demand (BOD). The DAF units act as clarifiers to remove activated sludge from the effluent stream and pump it back into the HRAS reactors. The SBRs are used to remove additional BOD and provide partial nitrification and denitrification. The wastewater then goes through a surge tank and final filtration using a hydrotech disc filter to remove excess suspended solids before it is discharged to an existing outfall pipeline where it is combined with the City's treated sanitary effluent.

14. Solids from Leprino’s wastewater treatment system are removed from the wastewater following treatment, dewatered using a belt press, and sent regularly to the Stone Ranch property or other permitted destination for temporary storage and land application. Solids or off-spec wastewater may also be discharged to one of Leprino’s double-lined (clay liner overlain by an 80-mil HDPE synthetic liner) facultative lagoons and recycled back into the system as shown in **Attachment C**.
  
15. The Lemoore WWTF treatment process consists of two clay-lined aerated ponds (Ponds 1A and 1B) and two partially aerated facultative/storage ponds (Ponds 2 and 3). It is unclear whether the facultative/storage ponds are lined. Barley straw is added to the storage ponds to prevent algal blooms. After leaving the ponds the City’s effluent is disinfected with chlorine gas before being combined with Leprino’s treated process water in the existing recycled water pipeline. The pond layout for the City and Leprino with applicable sampling locations is shown in **Attachment D**.
  
16. Average quality of Leprino’s treated effluent (not combined with the City’s effluent), City’s effluent (prior to disinfection), and the combined effluent for October 2019 through December 2022 is presented in Table 1 below.

**Table 1 – Average Effluent Quality (October 2019 – December 2022)**

<b>Constituent/ Parameter</b>	<b>Units</b>	<b>Leprino Effluent</b>	<b>City Effluent</b>	<b>Combined Effluent</b>
Electrical Conductivity (EC)	µmhos/cm	2,904	1,120	2,335
Biochemical Oxygen Demand (BOD)	mg/L	4.1	58	11.2
Total Suspended Solids (TSS)	mg/L	17	56	67.1
Total Dissolved Solids (TDS)	mg/L	1,616	620	1,310
Fixed Dissolved Solids (FDS)	mg/L	1,265	---	985
Nitrate as Nitrogen	mg/L	3.7	<0.04	2.1
Ammonia as Nitrogen	mg/L	0.5	34	10.8
Total Kjeldahl Nitrogen (TKN)	mg/L	3.9	45.6	23.4
Chloride	mg/L	372	116	287
Boron	mg/L	0.4	0.86	0.57
Sodium	mg/L	396	197	341
Sulfate	mg/L	14	28.2	15.7
Selenium	µg/L	1.3	<0.02	1.1

17. The source water used in the Leprino facilities is supplied by the City. The City’s average source water quality data for Leprino is presented in Table 2 below.

**Table 2. – Source Water Quality**

<b>Constituent/Parameter</b>	<b>Units</b>	<b>Average (see 1 below)</b>
EC	µmhos/cm	853
TDS	mg/L	399
Chloride	mg/L	52.5
Sodium	mg/L	154
Sulfate	mg/L	16.6
Boron	mg/L	0.48

1. Average based on two annual source water samples collected at the Leprino West Plant in 2020 and 2021.
18. Based on daily flow data collected between October 2019 and December 2022, Leprino discharged an average of 2.9 mgd of treated process water. This was combined with an average of 1.7 mgd of treated sanitary effluent from the City to create an average discharge of combined effluent to the LAA of 4.6 mgd.
19. The City’s aerated treatment ponds are periodically dredged, as needed, to remove solids and sludge collected in the ponds. In the past, the sludge removed from the ponds has been taken off site for disposal at a permitted facility in accordance with USEPA requirements including CFR Title 40 Part 503. According to the WWTF Operator, future cleanouts will be handled the same way. The City began implementation of a sludge reduction program including injection of a bio-stimulant (Bio Energizer®) around 2018 to minimize sludge accumulation in the primary treatment ponds and reduce the need for cleanout.
20. The combined effluent is conveyed to the Stone Ranch property through an existing 24-inch pipeline from the Lemoore WWTF. This pipeline has a maximum capacity of 7.3 mgd.

**Proposed Changes**

21. As discussed previously, the 2022 RWD proposes to increase the average monthly discharge flows from 5.0 mgd to 7.0 mgd (about a 40% increase). Flows from the City would increase from about 1.7 mgd to 2.0 mgd (or approximately 0.3 mgd) and flows from Leprino would increase from about 3.0 mgd to 5.0 mgd (or approximately 2.0 mgd).
22. According to a July 2020 Engineering Report prepared by Quad Knopf, Inc., the Lemoore WWTF has a design treatment capacity of about 2.5 mgd, and

therefore, has sufficient treatment and storage capacity to handle the proposed flow increase to 2.0 mgd.

23. The majority of the increase in flows will be from Leprino’s discharge. While there is no proposed increase in production capacity or milk coming into the plants, additional process water will be generated from changes in processing operations to include additional products and specialty lines as well as food safety, and potential stormwater management. The additional flows will be primarily wash water and is anticipated to be of slightly better quality resulting in lower influent loading to Leprino’s wastewater treatment system.
24. The 2022 RWD included a performance assessment of Leprino’s wastewater treatment system prepared by The Probst Group. The performance assessment evaluated Leprino’s wastewater treatment system’s capacity to handle flows of up to 5.0 mgd. The assessment determined that the existing system has sufficient hydraulic capacity to handle flows up to 5.0 mgd. However, this will reduce the residence time in the system, which is anticipated to increase BOD and total nitrogen concentrations in the effluent. Changes in salinity were not evaluated since the treatment system is not designed to reduce salinity. Table 3 compares average influent and effluent quality for Leprino’s wastewater treatment system at current and future flows.

**Table 3 – Leprino BOD and Total Nitrogen Concentrations at Current & Future Flows**

	Current Flows (3.0 mgd)		Future Flows (5.0 mgd)	
	BOD (mg/L)	Total Nitrogen (mg/L)	BOD (mg/L)	Total Nitrogen (mg/L)
Influent	2,766	172	1,621	100
SBR Influent	896	59	1,066	53
Effluent	4.1	6	153-262	19-24

25. Table 4 compares the existing and proposed BOD and total nitrogen concentrations with the respective loading rates to the LAA. No change is expected from the Lemoore WWTF. Even with the increased BOD and total nitrogen effluent concentrations, estimated loading to the expanded LAA will still be at agronomic rates and should not cause nuisance conditions.

**Table 4. – Estimated Loading to the LAA**

Constituent	Existing Leprino Effluent Concentration (mg/L) (see 1 below)	Estimated Leprino Effluent Concentration (mg/L) (see 2 below)	Current Loading from Combined Effluent at 5.0 mgd	Estimated Loading from Combined Effluent at 7.0 mgd	Crop Uptake (lbs/ac/yr)
BOD	4.1	262	0.3 lbs/ac/day	5.2 lbs/ac/day	--
Total Nitrogen	7.6	23	208 lbs/ac/yr	261 lbs/ac/yr	125 – 400 (see 3 below)
FDS	1,265	1,265	7,907 lbs/ac/yr	8,688 lbs/ac/yr	--

- 1 Existing effluent concentration based on average effluent quality from October 2019 to December 2022.
- 2 Estimated effluent quality based on extrapolations from the Probst Group performance assessment provided in 2022 RWD.
- 3 Crop uptake (Western Fertilizer Handbook, 8<sup>th</sup> Edition) range includes; 125 lbs/ac/year for tomatoes, 180 lbs/ac/year for cotton, 250 lbs/ac/year for corn, and 400 lbs/ac/year for alfalfa and double crop of triticale forage and corn.

26. The City currently discharges treated effluent that meets the requirements for disinfected secondary-23 recycled water. According to the RWD, the proposed crops to be grown within the LAA include fodder crops as well as tomatoes, which will undergo a pathogen-destroying process as detailed in the updated Title 22 Engineering Report discussed in detail later. In addition, future plans call for further expansion of recycled water use for irrigation of cannabis crops, landscaping, etc. for third party landowners. Future use of recycled water for third party landowners will be regulated under Statewide General *Water Reclamation Requirements for Recycled Water Use* Order 2016-0068-DWQ (or Recycling General Order).

River Ranch Property

27. The River Ranch property is approximately four miles west of the Lemoore WWTF at Latitude 36° 19' 11.44" N, Longitude 119° 53' 34.98" W (Sections 27, 34, 35, Township 18 South, Ranch 19 East and Sections 2, 3, 10, and 11, Township 19 South, Range 19 East, MDB&M). The River Ranch Property is comprised of the combined Stone Ranch property (1,896 acres) and the Nederend property (520 acres).
28. The Crescent Bypass and a small section of the South Fork of the Kings River (or South Fork) border River Ranch to the east (**Attachment B**). Flows in the

South Fork are controlled by releases from Pine Flat Dam. The Crescent Bypass is a man-made channel constructed in the 1930's between a control structure on the North Fork of the Kings River and the South Fork and is designed to convey flood waters to the Tulare Lake Basin under extreme flow conditions.

29. The Stone Ranch portion of River Ranch has a subsurface drainage collection system and evaporation basin that was installed in 1984 and 1985 (see Attachment E). The LAA fields at Stone Ranch are equipped with subsurface drain lines set approximately 8 feet below ground surface (bgs). Subsurface drainage is collected in sumps and discharged to the onsite evaporation basin. The basin covers approximately 200 acres and is divided into three cells (north cell, east cell, and west cell) with a storage capacity of approximately 710 acre-feet with two feet of freeboard. Maximum depth of the basin is 5.75 feet with a maximum water depth of 3.75 feet and side slopes of approximately 8:1 (horizontal: vertical).
30. Subsurface drainage flows discharge into seven sumps distributed throughout the River Ranch Property. Flows collected in the sumps are pumped to the evaporation basin when high water level sensors are activated in the sumps. Sump flow records provide measurements of flow into the evaporation basin. In addition, the eastern boundary of the LAA and the evaporation basin are surrounded by deeper interceptor drains including the new Nederend Interceptor Drain to capture excess flows and prevent runoff and seepage into the Crescent Bypass and South Fork. Table 5 shows the annual flow in acre-feet captured by each sump and sent to the evaporation basin for 2021 and 2022 (does not include flows from the Nederend Interceptor drain).

**Table 5 – Annual Sump Flow to the Evaporation Basin in Acre Feet**

Year	Sump 3N	Sump 3-10	Sump 11	Sump 27	Sump 34	Sump 35	Total
2021	79.2	200.2	35.5	55.9	86.4	4.2	461.4
2022	31.3	126.5	33.9	15.6	27.3	13.9	248.5

31. The Nederend portion of River Ranch does not have a subsurface drainage infrastructure. Excess tailwater is collected and conveyed to the head of the fields for reapplication. A subsurface collection/interceptor drain was installed in an existing drainage ditch between the Nederend property and the South Fork in 2022 to capture excess flows and prevent runoff and seepage into the river. Drainage flow to the Nederend Interceptor Drain will be collected in a sump (Sump 2E) and pumped to the evaporation basin on the Stone Ranch Property. Table 6 shows the estimated range in maximum water levels in the evaporation basin from the 2022 RWD for various climate conditions and future cropping

scenarios at the proposed future flow of 7.0 mgd from tile drains and interceptor drains including the new Nederend Interceptor Drain.

**Table 6 – Evaporation Basin Water Balance for Three Climate Scenarios (2022 RWD)**

Climate	Rainfall	Actual Evaporation (see 1 below)	Collection Sump Flow (see 2 below)	Evaporation Basin Seepage (see 3 below)	Maximum Evaporation Basin Storage (see 4 below)
Units	(AF)	(AF)	(AF)	(AF)	(AF)
Average	7.4	844	699	106	177
Wet	12.6	835	706	121	276
100-year	25.3	866	706	182	440

1. Evaporation rate is corrected based on evaporation basin salinity.
2. Collection sump flow from RWD soil water and salinity balance equations.
3. Seepage rate based on measured permeability of  $1 \times 10^{-8}$  centimeters per second.
4. Evaporation Basin Maximum Storage is 710 Acre-Feet (AF).

32. Extreme wet weather conditions can occur at the River Ranch Property between October and April. Occasionally precipitation may exceed one inch or there will be multiple days of rain rendering access roads to the fields inaccessible. During such times the irrigation canals could overflow and a float-control pump may discharge effluent directly to the evaporation basin. Based on recent meteorological data this is likely to be a rare occurrence happening only a few times a year. Provision K.7 requires Leprino and the Stone Ranch Land Company (farming contractor) to prepare an extreme weather management plan to minimize potential discharges to the evaporation basin including minimizing storage of excess irrigation water in the irrigation canals when wet weather is anticipated as well as storing excess effluent in Leprinos' lagoons or the Lemoore WWTF facultative/storage ponds during wet weather events.

#### Water Recycling Regulatory Considerations

33. Undisinfected domestic wastewater contains human pathogens that are typically measured using total or fecal coliform as indicator organisms.
34. The State Water Resources Control Board's (State Water Board) Division of Drinking Water (DDW), which has primary statewide responsibility for protecting water quality and public health, has established statewide criteria for the use of recycled water (Title 22, section 60301 et seq.). This Order implements the applicable portions of the Title 22 water recycling regulations.
35. Effluent from the Lemoore WWTF will be treated to meet at least the requirements for disinfected secondary-23 recycled water, under Title 22, section



60301. This Order requires that the combined effluent be used for irrigation on crops at River Ranch in accordance with Title 22, section 60304.
36. On 3 February 2009, the State Water Resources Control Board (State Water Board) adopted Resolution 2009-0011, *Adoption of a Policy for Water Quality Control for Recycled Water*, which was amended per Resolutions 2013-0003 and 2018-0057 (Recycled Water Policy). The Recycled Water Policy promotes the use of recycled water to achieve sustainable local water supplies and reduce greenhouse gas emissions.
37. On 23 April 2009, the Central Valley Water Board adopted Resolution R5-2009-0028, *In Support of Regionalization, Reclamation, Recycling and Conservation for Wastewater Treatment Plants*, which encourages water recycling, water conservation, and the regionalization of wastewater treatment facilities. Specifically, Resolution R5-2009-0028 requires dischargers to document:
- a. Efforts to promote new or expanded wastewater recycling opportunities and programs;
  - b. Water conservation measures; and
  - c. Regional wastewater management opportunities and solutions (e.g., regionalization).
38. Recycling of the Dischargers' combined effluent is consistent with the intent of the State Water Board's Recycled Water Policy and Resolution R5-2009-0028.
39. Title 22, section 60323 requires recyclers of treated municipal wastewater to submit an engineering report detailing the use of recycled water, contingency plans, and safeguards to the State Water Board's Division of Drinking Water (DDW) for approval. Quad Knopf prepared a Title 22 Engineering Report on behalf of the City to demonstrate that the discharge of combined effluent to the Stone Ranch property is consistent with Title 22 requirements for disinfected secondary-23 recycled water. This report was approved by DDW on 27 September 2018.
40. In December 2022, Kennedy/Jenks submitted a revised Title 22 Engineering Report that incorporates the proposed flow increase to 7.0 mgd and LAA acreage expansion from 1,896 to 2,416 acres. The revised Title 22 Engineering Report also addresses the use of recycled water to irrigate tomatoes for canning including application via drip irrigation to minimize potential contact with edible portions of the crop. The harvested tomato crop will be delivered to Los Gatos Tomato Products where the crop will be subjected to pathogen destroying heat treatment during the canning process. DDW conditionally approved the revised Title 22 Engineering Report on 23 June 2023 contingent on the entire harvested

tomato crop being processed in accordance with the conditions specified in the Title 22 Engineering Report. Any proposed change in process or use of the tomato crop shall be reported to DDW.

41. Future, use of recycled water for third party landowners will require submittal of a Notice of Intent for coverage under the Recycling General Order and submittal of an updated Title 22 Engineering Report, as needed.

### Site-Specific Conditions

#### Climate and Land Use

42. Land uses in the vicinity of River Ranch are the Lemoore Naval Air Station and agricultural production. The 2,416-acre River Ranch property has historically been used to grow crops such as cotton, corn, alfalfa, wheat, tomatoes, winter forage, and garlic. The crops proposed for the River Ranch Property were selected to maintain a growing crop cover for most of the year. The crops proposed for River Ranch include alfalfa, triticale silage followed by corn, triticale for grain, winter forage followed by cotton, and tomatoes for canning followed by summer forage.
43. The River Ranch Property is in an arid climate characterized by dry summers and mild winters. Average annual reference evapotranspiration is 61.7 inches per year (in/yr) at the California Irrigation Management Information System (CIMIS) Stratford Station. The average annual precipitation is about 7.4 inches and the 100-year annual return precipitation based on the probability distribution of the annual precipitation dataset is 25.3 in/yr.
44. The predominant soil types at River Ranch are Gepford Clay and Lethent Clay Loam. The Gepford Clay on the east side of River Ranch, is a very deep, poorly drained clay formed in lacustrine sediments. The Lethent Clay Loam soil type predominantly on the west side of River Ranch, generally consists of very deep, moderately well drained soils overlain on alluvial fans.
45. According to Federal Emergency Management Agency (FEMA) Map Number 06031C0135D (Sept. 2015), the majority of River Ranch Property is in Zone X, which has a minimal flood hazard. Some areas on the east side of River Ranch are in Zone AE with a base flood elevation of 206 feet.
46. The "Navy Ditch" runs through River Ranch Property north of the evaporation basin (**Attachment B**). This ditch historically discharged to the Crescent Bypass, but the discharge ceased when the connection was blocked with an earthen dam in the late 1980's.

### Groundwater and Subsurface Conditions

47. There are three primary clay layers in the area that restrict downward migration of groundwater. These layers are lacustrine deposits consisting of very fine, clay-rich textures with very low permeability. The first layer, the "A Clay", is from approximately 60 to 100 feet bgs. The second layer, the "C Clay" is from approximately 250 to 300 feet bgs. The third layer, the "E Clay" (or Corcoran Clay) is from approximately 610 and 700 feet bgs.
48. Regional groundwater flow in the area is to the southwest. This is based on deeper groundwater zones below the E Clay and does not necessarily reflect groundwater flow in the shallower groundwater beneath River Ranch or the Lemoore WWTF ponds.
49. There are no groundwater monitoring wells in the vicinity of the Lemoore WWTF ponds. A July 2020 Antidegradation Analysis for the Lemoore WWTF prepared by Quad Knopf, Inc. evaluated groundwater conditions looking at water supply wells within approximately three miles of the Lemoore WWTF and did not identify evidence of groundwater degradation in the vicinity of the ponds. However, the analysis did not evaluate groundwater conditions in the shallow aquifer above the A Clay since no water supply wells are constructed in this zone. Depth-to-first encountered groundwater beneath the ponds is unknown. However, monitoring wells at a nearby underground storage tank (UST) cleanup site identified depth-to-groundwater ranging from about 12 to 24 feet bgs. This Order includes a Provision requiring the City to conduct a study to evaluate shallow groundwater conditions beneath the Lemoore WWTF ponds
50. In 1983, 25 shallow groundwater observation wells were installed to approximately 12 feet bsg in the area around Stone Ranch prior to installation of the tile drainage system. Water level elevation data indicates that shallow groundwater flow in the area was to the northeast with depth-to-groundwater measurements ranging from one to three feet bsg.
51. In 1992 a series of 20 shallow piezometers in a series of four arrays were installed at varying distances around the evaporation basin. Samples collected from the piezometer array in March 2018 (prior to the initial use of recycled water for irrigation) reported an EC ranging from 932 to 82,500  $\mu\text{mhos/cm}$ , Sodium ranging from 184 to 43,000 mg/L, Chloride ranging from 37 to 35,000 mg/L, and nitrate as nitrogen ranging from 0.1 to 44 mg/L. In 2022 depth to water ranged from 12.7 to 17.2 feet bsg with EC in the piezometers ranging from 1,500 to 100,600  $\mu\text{mhos/cm}$ . The wide variation in EC concentrations are related to proximity to the evaporation basin and potential dilution from the adjacent river.
52. Monitoring Well MW-1 was installed in 1992 at the River Ranch Property between the west and north evaporation basin cells. This well was installed

above the A Clay to a total depth of 69 feet bgs with a screened interval from 46 to 56 feet bgs. According to the RWD, a flexible wall permeability test was performed on a soil sample obtained from this depth. The result of this test indicated a vertical permeability of  $5.2 \times 10^{-8}$  cm/s in the A Clay. Based on data from MW-1 static water level above the A Clay at River Ranch ranges from 4 to 14 feet bgs. Long term water quality at MW-1 (prior to and following the initiation of irrigation using recycled water) is shown in Table 7. Concentrations have generally decreased for most constituents over the past thirty years.

**Table 7 – Groundwater Quality in MW-1 Above the A Clay**

Year	TDS (mg/L)	EC (µmhos/cm)	Boron (mg/L)	Chloride (mg/L)	Sodium (mg/L)	Sulfate (mg/L)
1993	66,000	49,500	55	3,500	17,000	37,300
1998	58,000	47,000	22	3,600	17,000	35,000
2003	51,000	38,000	41	2,900	14,000	30,000
2008	45,000	37,000	50	2,500	13,000	28,000
2013	47,000	37,000	44	2,800	13,000	29,000
2018	46,000	40,000	40	2,900	13,000	30,000
2021	36,000	44,000	44	2,900	13,000	28,000

53. Three monitoring wells (MW-1R, MW-2, and MW-3) were installed at the River Ranch Property in September and October 2021. These wells are installed to depths ranging from 60 to 65 feet bgs with screened intervals ranging from 36 to 42 feet in length. MW-1R is a replacement well for MW-1, which was found to have a cracked casing and was destroyed in conformance with State and County standards (see Finding 103). **Attachment B** shows the locations of the new wells; MW-1R was installed approximately 20 feet west of MW-1.
54. Shallow groundwater above the A Clay has been monitored at monitoring wells (MW-1R, MW-2, and MW-3) since November 2021. Depth to groundwater in these wells has ranged from about 6 feet bgs at MW-3 to 14 feet bgs at MW-1R. MW-2 is the upgradient well and shallow groundwater flows to the northeast at a gradient of 0.001 to 0.0016 feet/foot.
55. Monitoring wells MW-1R, MW-2, and MW-3 are sampled quarterly. Table 8 shows average groundwater quality for these wells from November 2021 to October 2022.

**Table 8 – Groundwater Quality MW-1R, MW-2, and MW-3 (Above the A Clay)**

Constituent	Units	MW-1R (see 1 below)	MW-2	MW-3
EC	µmhos/cm	85,240	4,370	47,818
TDS	mg/L	86,000	2,823	45,575
Chloride	mg/L	6,585	147	3,983
Sodium	mg/L	24,575	244	12,950
Sulfate	mg/L	50,975	2,350	31,300
Boron	mg/L	84.1	5.3	34.4
Selenium	µg/L	50	7.7	35
Total Nitrogen	mg/L	3.6	8.9	2.5

1. Note Salinity concentrations from the last sample collected in October 2022 were significantly lower than the average with an EC of 28,960 µmhos/cm, Sodium of 20,800 mg/L, Chloride of 5,030 mg/L, and Sulfate of 40,700.
  
56. Elevated salinity in MW-1R compared to MW-1 may be the result of soil disturbance during installation of MW-1R and limited number of samples (i.e., three). Additional monitoring is necessary to evaluate this. This Order includes requirements to continue quarterly groundwater monitoring.
  
57. There are eight onsite irrigation wells in routine use at River Ranch; all but one are completed in groundwater beneath the A Clay and above the E Clay. One irrigation well is installed to 1,290 feet bgs (below the E Clay). Groundwater pumped from these wells is blended with the combined effluent and used for irrigation at River Ranch. Table 9 shows 2020 to 2021 water quality data for the eight irrigation wells at River Ranch. For all wells, the nitrate (as N) and selenium results were non-detect, below 0.23 mg/L and 2 µg/L, respectively.

**Table 9 – Irrigation Well Water Quality; 2020-2021 (Below the A Clay)**

Irrigation Well ID	Total Depth (ft bgs)	TDS (mg/L)	EC (µmhos/cm)	Boron (mg/L)	Chloride (mg/L)	Sodium (mg/L)	Sulfate (mg/L)	Alkalinity as CaCO <sub>3</sub> (mg/L)
Well 2	220	730	1,150	1.9	70	245	195	315
Well 6	584	1,200	1,800	1.9	140	330	505	230
Well 14	520	440	730	1.6	37	175	35	290
Well 15	530	410	710	2	36	160	32	260
Well 17	540	1,295	8,650	2.5	74	315	675	87
Well 18	540	565	930	1.7	45	200	114	285

Irrigation Well ID	Total Depth (ft bgs)	TDS (mg/L)	EC (µmohs/cm)	Boron (mg/L)	Chloride (mg/L)	Sodium (mg/L)	Sulfate (mg/L)	Alkalinity as CaCO <sub>3</sub> (mg/L)
Well 19	1,290	690	1,100	1.6	86	245	101	335
Well 20	540	850	1,300	2	68	270	300	270

### Statutory Authority

58. This Order is adopted pursuant to Water Code section 13263, subdivision (a), which provides in pertinent part as follows:

*The regional board, after any necessary hearing, shall prescribe requirements as to the nature of any proposed discharge, existing discharge, or material change in an existing discharge..., with relation to the conditions existing in the disposal area or receiving waters upon, or into which, the discharge is made or proposed.*

59. Compliance with section 13263, subdivision (a), including implementation of applicable water quality control plans, is discussed in the findings below.
60. The ability to discharge waste is a privilege, not a right, and adoption of this Order shall not be construed as creating a vested right to continue discharging waste. (Wat. Code, § 13263, subd. (g).)
61. This Order and its associated MRP are also adopted pursuant to Water Code section 13267, subdivision (b)(1), which provides as follows:

[T]he regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste ... shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.

62. The reports required under this Order, as well as under the separately issued MRP, are necessary to verify and ensure compliance with the WDRs. The burden associated with such reports is reasonable relative to the need for their submission.

### Basin Plan Implementation

63. Pursuant to Water Code section 13263, subdivision (a), WDRs must “implement any relevant water quality control plans..., and shall take into consideration the beneficial uses to be protected, the water quality objectives reasonably required for that purpose, other waste discharges, the need to prevent nuisance, and the provisions of Section 13241.”

#### Beneficial Uses of Water

64. This Order implements the Central Valley Water Board’s Water Quality Control Plan for the Tulare Lake Basin (Basin Plan), which designates beneficial uses for surface water and groundwater and establishes water quality objectives (WQOs) necessary to preserve such beneficial uses. (See Wat. Code, § 13241 et seq.)
65. The River Ranch Property is in the southwestern corner of the Kings Groundwater Basin within the Tulare Lake Basin Hydrologic Region. The Basin Plan identifies the following potential beneficial uses of groundwater throughout the basin: municipal (MUN); agricultural (AGR); industrial service supply (IND), industrial process supply (PRO), water contact recreation (REC-1), and wildlife habitat (WILD).
66. The 1998 WDRs (Order No. 98-229) for Stone Ranch stated the following:
- The groundwater in the upper portion of the aquifer within one mile of the Stone Ranch does not have the beneficial use of municipal. The TDS typically exceeds 3,000 mg/L and the water contains excessive amounts of boron, chloride, sulfate, and sodium. This water cannot be used for municipal or domestic supply without extensive treatment, which is uneconomical given that excellent quality surface water (from the California Aqueduct or Kings River) and good quality groundwater (from below the “E” clay) are available. It is therefore not expected to ever supply a public water system.*
- The deeper confined groundwater (about 700 feet deep and beneath the “E” clay) is of good quality and can be beneficially used for municipal, agricultural, and industrial supply.*
67. River Ranch lies within the Lower Kings River Hydrologic Area (No. 551.80). The Basin Plan specifies beneficial uses of the Kings River from Peoples Weir to Empire Weir No. 2 on the South Fork as agricultural supply (AGR), water contact recreation (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); wildlife habitat (WILD); and groundwater recharge (GWR).

### Water Quality Objectives

68. The narrative WQO for chemical constituents in groundwater generally provides that groundwater shall not contain constituents in concentrations adversely affecting beneficial uses. For MUN-designated waters, the Basin Plan further provides that water, at a minimum, meet the primary and secondary maximum contaminant levels (MCLs) specified in Title 22.<sup>1</sup> (See Title 22, §§ 64431, 64444, 64449.)
69. The numeric WQO for bacteria is expressed as the most probable number (MPN) of coliform organisms per 100 mL of water. For MUN-designated groundwater, the WQO is a MPN of 2.2 organisms over any seven-day period.
70. The narrative WQO for toxicity provides that groundwater shall be maintained free of toxic substances in concentrations producing detrimental physiological responses in human, animal, plant or aquatic life associated with designated beneficial uses.
71. To the extent necessary, narrative WQOs are quantified on a site-specific basis as numeric limits for constituents with potential to adversely impact designated beneficial uses. In determining a site-specific numeric limit, the Central Valley Water Board will, on a case-by-case basis, adopt a numerical limitation in order to implement the narrative objective.
72. In determining a numeric limit for salinity protective of agriculture supply (AGR), the Central Valley Water Board relies on general salt tolerance guidelines, which indicate that although yield reductions in nearly all crops are not evident when irrigation water has an electrical conductivity (EC) of less than 700 µmhos/cm, there is however, an eight- to ten- fold range in salt tolerance for agricultural crops (see Ayers & Westcot, Water Quality for Agriculture (1985), §2.3.) For this reason, appropriate salinity values are considered on a case-by-case basis. It is possible to achieve full yield potential with groundwater EC up to 3,000 µmhos/cm, if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop.

### Salt and Nitrate Control Programs

73. The Central Valley Water Board adopted Basin Plan amendments incorporating the Salt and Nitrate Control Programs to address ongoing salt and nitrate

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<sup>1</sup> Central Valley Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.



accumulation in the Central Valley, at its 31 May 2018 Board Meeting (Resolution R5-2018-0034). The Basin Plan amendments became effective on 17 January 2020 and were revised by the Central Valley Water Board in 2020 with [Resolution R5-2020-0057](https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/resolutions/r5-2020-0057), effective 10 November 2021. ([https://www.waterboards.ca.gov/centralvalley/board\\_decisions/adopted\\_orders/resolutions/r5-2020-0057\\_res.pdf](https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/resolutions/r5-2020-0057_res.pdf)).

74. For the Salt Control Program, dischargers that are unable to comply with stringent salinity requirements will instead need to meet performance-based requirements and participate in a basin-wide effort known as the Prioritization and Optimization Study (P&O Study) to develop a long-term salinity strategy for the Central Valley. In 2021, the Dischargers were issued a Notice to Comply for the Salt Control Program (**CV-SALTS ID: 2004**). The Dischargers elected to participate in the P&O Study. In the interim, to maintain existing salt discharges and minimize salinity impacts, this Order does the following:
- a. Requires the dischargers to continue efforts to control salinity in its discharge to the extent feasible; and
  - b. Sets a Salinity Action Level of 1,400 mg/L [as FDS] as an annual average on the discharge of combined effluent sent to the LAA. This Salinity Action Level is based on the 95 percent Upper Tolerance Limit of the average salinity as FDS (for October 2019 to December 2022) for the combined effluent from the Lemoore WWTF and Leprino as a flow weighted average of the proposed flows (i.e., 2.0 mgd for the Lemoore WWTF and 5.0 mgd for Leprino). This is consistent with the existing FDS limit in the current Order R5-2019-0008.
75. For the Nitrate Control Program (NCP), dischargers that are unable to comply with stringent nitrate requirements are required to take on alternate compliance approaches that involve providing replacement drinking water to persons whose drinking water is affected by nitrates. Dischargers may comply with the NCP either individually (Pathway A) or collectively with other dischargers (Pathway B). The River Ranch Property is predominantly within Groundwater Basin 5-237 (Kings Groundwater Basin), which is a Priority 1 Basin. A Notice to Comply for the NCP was issued to the Dischargers on 29 May 2020. To comply, the Dischargers selected Path B and is an active member of the Kings Water Alliance Management Zone.
76. As these strategies are implemented, the Central Valley Water Board may find it necessary to modify the requirements of these WDRs. As such, this Order may be amended or modified to incorporate any newly applicable requirements to ensure that the goals of the Salt and Nitrate Control Programs are met.

Antidegradation Policy

77. The *Statement of Policy with Respect to Maintaining High Quality Waters in California*, State Water Board Resolution 68-16 (Antidegradation Policy), which is incorporated as part of the Basin Plan, prohibits the Central Valley Water Board from authorizing degradation of “high quality waters” unless it is shown that such degradation: (1) will be consistent with the maximum benefit to the people of California; (2) will not unreasonably affect beneficial uses, or otherwise result in water quality less than as prescribed in applicable policies; and (3) is minimized through issuance of WDRs that will result in best practicable treatment or control (BPTC). Groundwater quality monitoring at River Ranch dates back to the 1980s. Compliance with the Antidegradation Policy will be determined based on available data from the 1980s (Antidegradation Baseline).
78. The Antidegradation Policy applies when an activity discharges to high quality waters and will result in some degradation of such high-quality waters. "High quality waters" are defined as those waters where water quality is more than sufficient to support beneficial uses designated in the Basin Plan. Whether a water is a high-quality water is established on a constituent-by-constituent basis, which means that an aquifer can be considered a high-quality water with respect to one constituent, but not for others (SWRCB Order No. WQ 91-10.). If the activity will not result in the degradation of high-quality waters, the Antidegradation Policy does not apply, and the dischargers need only demonstrate that it will use "best efforts" to control the discharge of waste.
79. Table 10 provides a comparison of the average concentrations for constituents of concern in the combined effluent with a) irrigation well water quality at River Ranch, b) first-encountered groundwater above the A Clay since the 1980s, and c) deeper groundwater between the A and E Clays (between about 60 and 600 feet bgs).

**Table 10 – Comparison of Salinity Constituents in the Combined Effluent, Irrigation Water, and Groundwater Above the A Clay**

Constituent	Combined Effluent (see 1 below)	Flow-weighted Irrigation Well Water Quality (see 2 below)	Groundwater Above the A-Clay (see 3 below)	Groundwater Between the A-Clay and C-Clay (see 4 below)
BOD, mg/L	220	---	---	---
Total Nitrogen, mg/L	29.7	<0.23	---	<0.23
EC, $\mu$ mhos/cm	2,335	2,598	42,528	2,328
TDS [FDS], mg/L	1,310 [985]	863	50,288	773
Chloride, mg/L	287	79	3,440	67
Sodium, mg/L	341	259	13,584	238

Constituent	Combined Effluent (see 1 below)	Flow-weighted Irrigation Well Water Quality (see 2 below)	Groundwater Above the A-Clay (see 3 below)	Groundwater Between the A-Clay and C-Clay (see 4 below)
Sulfate, mg/L	15.7	301	31,588	259
Boron, mg/L	0.57	1.9	46	1.8
Iron, mg/L	0.4	--	7.8	--
Manganese, mg/L	1.2	--	1.3	--
Arsenic, µg/L	3.5	1.8	17	--
Selenium, µg/L	1.4	<2	16	--

1. Combined Effluent Average for BOD and total nitrogen based on estimated flow-weighted average of the combined discharge at 7.0 mgd. Combined Effluent Average for salinity constituents based on effluent data collected from October 2019 – December 2022.
2. Flow weighted average irrigation well water quality based on average 2020-2021 water quality and flows
3. Average groundwater data collected from MW-1 within the footprint of the evaporation basin from 1993 - 2017.
4. Average of water quality at irrigation wells: 2, 6, 14, 15, 17, and 18 based on data collected in 2020 and 2021.

80. Constituents of concern that were evaluated in the Antidegradation Analysis include organics, nutrients, pathogens, and salts. These constituents are evaluated in the following findings. As detailed above, shallow groundwater beneath the site is generally of poor quality except for nitrate and pathogens, with concentrations of salt constituents, boron, and some metals above applicable MCLs.

- a. **For organics**, with an estimated average BOD of about 220 mg/L in the combined effluent, the expected organic load to the LAA will be about 5.3 lbs/ac/day (assuming an irrigation rate of about 3 inches per day and a 28-day irrigation cycle). With proper management of the LAA, this extremely low loading rate from the proposed discharge does not have the potential to cause nuisance conditions or degrade underlying groundwater.
- b. **For nitrogen**, with a combined effluent total nitrogen concentration of about 29.7 mg/L, the expected nitrogen loading to the 2,416-acre LAA at 7.0 mgd would be approximately 261 lbs/ac/year. This loading rate is generally below the average nitrogen crop requirements (ranging from 125 to 400 lbs/ac/year) for the crops to be grown within the LAA including tomatoes, cotton, alfalfa, and a double crop of triticale forage and corn. With proper management of the LAA, the discharge is not expected to degrade groundwater quality for

nitrogen. In addition, the Dischargers have elected to participate in the Kings Water Alliance Management Zone as part of the Nitrate Control Program to address nitrate issues in the area.

- c. **For pathogens**, domestic wastewater may contain pathogens particularly total coliform organisms. For coliform organisms, the potential for exceedance of the Basin Plan's numeric WQO depends on the ability of the vadose zone soils to provide adequate filtration. While the Lemoore WWTF provides disinfection of its effluent prior to sending it to the River Ranch Property, the wastewater is stored in several ponds at the Lemoore WWTF prior to disinfection. Given the potential for shallow groundwater in the area and the unknown condition of the ponds at the Lemoore WWTF, it is unclear if there is sufficient filtration beneath the ponds to protect shallow groundwater from pathogens. This Order includes a Provision requiring the City to evaluate shallow groundwater conditions beneath the Lemoore WWTF ponds.
  - d. **For salinity**, while shallow groundwater beneath River Ranch is not considered a high-quality water with respect to salinity, the 2022 RWD provides a detailed analysis of the discharge and its potential impact on shallow groundwater. Water and salt balance analyses of the irrigation program were completed to address percolation beneath the root zone, drain line collection of water and salts, and seepage from the evaporation basin. Potential impacts to groundwater with respect to first encountered groundwater above the A Clay as well as underlying groundwater below the A Clay are further discussed below in Findings 80 and 81. Tables 6 and 7 in the previous sections summarize groundwater quality above the A Clay.
81. Potential salinity impacts of the discharge on groundwater above the A Clay are addressed by comparing percolate water quality beneath the cropped fields and seepage from the evaporation basin to the quality of groundwater above the A Clay. Table 11 summarizes the results of this analysis. The flow weighted average EC, chloride, and sodium are within the range of levels in shallow groundwater. The TDS, boron, and sulfate levels are less than the low end of the range in shallow groundwater.

**Table 11 – Comparison of Weighted Average Seepage/Percolate Water Quality and Shallow Groundwater Above the A Clay**

<b>Constituent</b>	<b>Weighted Average Water Quality for Seepage and Percolate (see 1 below)</b>	<b>Shallow Groundwater Above the A-Clay (see 2 below)</b>
EC, (µmhos/cm)	4,786	3,627 – 87,000
TDS, (mg/L)	1,924	2,827 – 84,450
Boron, (mg/L)	1.1	5.2 – 90
Chloride, (mg/L)	551	151 – 6,900
Sodium, (mg/L)	692	240 – 23,100
Sulfate, (mg/L)	31.6	2,597 – 57,700

1. Weighted average for evaporation basin seepage and irrigated area percolate from 2022 RWD for average climate conditions. The ratio of the percolate EC to combined effluent EC was used to estimate levels of other constituents (i.e., TDS, arsenic, boron, chloride, sodium, and sulfate).
2. Range includes average of last two 2021 samples at MW-1 prior to destruction, two samples at MW-1R in Nov. 2021 and Jan. 2022, three samples at MW-2 in Nov 2021 and Jan. 2022, and two samples at MW-3 in Nov. 2021 and Jan. 2022.

This Order sets a FDS Salinity Action Level on the combined discharge to the land application area to ensure the discharge does not contribute to further degradation of shallow groundwater for salinity.

82. Potential impacts of the discharge on deeper groundwater below the A Clay were addressed by comparing the water quality of the combined effluent with the water quality between the A Clay and E Clay as shown in Table 10 above. The proposed discharge is not expected to cause degradation to groundwater between the A Clay and E Clay because the A Clay is known to have very low permeability. The concentrations in the combined effluent are lower than the groundwater quality levels between the A Clay and E Clay for EC, boron, and sulfate, and while sodium and chloride concentrations in the combined effluent are greater than levels in deeper groundwater, this is balanced out with the lower sulfate concentrations. The use of combined effluent to replace a portion of the groundwater irrigation as part of the proposed project will have a negligible effect on the water quality of the blended water used to irrigate the River Ranch, and the water quality of percolate beneath the land application areas and the seepage beneath the evaporation basins will not be significantly affected. The A Clay is a low permeability barrier to downward flow, preventing vertical flow of poorer quality shallow groundwater into the zone beneath the A Clay

83. Excessive application of high organic strength wastewater to land can lead to objectionable odors, soil conditions harmful to crops and degradation of underlying groundwater with nitrogen species and metals. Such degradation can be prevented or minimized through the implementation of best management practices, which can include planting crops to take up nutrients and maximizing oxidation of BOD<sub>5</sub> to prevent nuisance conditions.

*Pollution Abatement in the Fruit and Vegetable Industry*, published by the United States Environmental Protection Agency (US EPA), cites BOD loading rates in the range of 36 to 600 lbs/ac/day to prevent nuisance, but indicates loading rates can be higher under certain conditions. The studies that supported this report did not evaluate actual or potential groundwater degradation associated with those rates. There are few studies that have attempted to determine a maximum BOD<sub>5</sub> loading rate for protection of groundwater. Those that have are not readily applicable to the varying soil, groundwater, and climate conditions prevalent throughout the region.

84. Further, the California League of Food Processors' *Manual of Good Practices for Land Application of Food Processing/Rinse Water* (Manual of Good Practice) proposes risk categories associated with particular BOD loading rate ranges as follows:
- a. Risk Category 1: (less than 50 lbs/ac/day; depth to groundwater greater than 5 feet) Indistinguishable from good farming operations with good distribution important.
  - b. Risk Category 2: (less than 100 lbs/ac/day; depth to groundwater greater than 5 feet) Minimal risk of unreasonable groundwater degradation with good distribution more important.
  - c. Risk Category 3: (greater than 100 lbs/ac/day; depth to groundwater less than 2 feet) Requires detailed planning and good operation with good distribution very important to prevent unreasonable degradation, as well as use of oxygen transfer design equations that consider site-specific application cycles, soil properties, and special monitoring.

The Manual of Good Practice recommends allowing a 50 percent increase in the BOD loading rates in cases where sprinkler irrigation is used, but recommends additional safety factors be used for sites with heavy and/or compacted soils.

Although it has not been subject to a scientific peer review process, the Manual of Good Practice provides science-based guidance for BOD loading rates that, if fully implemented, are considered a best management practice to prevent groundwater degradation. These WDRs establish a BOD cycle average loading

- rate of less than 100 lbs/ac/day to prevent objectionable odors from occurring and prevent further groundwater degradation due to reduced metals.
85. The City of Lemoore implements measures at the WWTF to meet Title 22 standards for disinfected secondary-23 recycled water, which allows reuse of the effluent for a variety of purposes including replacement of groundwater or surface water that would otherwise be used for irrigation. This constitutes the BPTC for the City's discharge.
  86. Leprino provides advanced treatment of its process wastewater to reduce organics and nitrogen, making it suitable for reuse as an irrigation water supply that can replace groundwater and surface water supplies. Leprino has also implemented process water pretreatment and reuse programs in its facilities to decrease potable water use and lower effluent salinity. These efforts result in water conservation by replacing use of some of the City's source supply with Leprino's treated water within the plants. Leprino's treatment and reuse of milk condensate (COW water) replaces an average of 1.6 mgd of City's potable water. In addition to lowering source water TDS loading by using low TDS COW water, Leprino continues to lower salt loading by improving facility clean-in-place (CIP) systems and use of reverse osmosis to concentrate lactose solids and reusing the byproduct clean water stream within the facilities. These management practices constitute the BPTC for Leprino's discharge.
  87. The existing effluent reuse project at the Stone Ranch property (Order No. R5-2019-0008) beneficially reuses industrial process wastewater and municipal wastewater to grow crops in an area that would otherwise be irrigated entirely with groundwater. The proposed project will expand this existing agricultural operation while using less groundwater and surface water for irrigation supply, conserving valuable water resources.
  88. The economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State. The discharge of Leprino's treated effluent at River Ranch will provide a secure, long-term method of wastewater management that will enable the company to continue to operate its two facilities in Lemoore. The presence of Leprino's processing facilities creates a demand for milk that will continue to provide local area dairies with a stable customer for their milk supply. The two facilities currently support over 100 individual dairies in the local area and the associated jobs at each of those dairies. In turn, the dairies maintain agricultural jobs and a strong market for goods and services. Leprino will continue to be an important employer in the area. Additionally, Leprino's two Lemoore facilities employ approximately 1,400 full time employees. Available information suggests that these two facilities have an annual economic impact of approximately \$4.2 billion, including approximately \$85 million in direct payroll and about \$10 million in local and state taxes. In addition, the citizens of the City of Lemoore will benefit from improved management of their wastewater.

89. This Order establishes terms and conditions to ensure that the discharge does not unreasonably affect present and anticipated future beneficial uses of groundwater or result in groundwater quality greater than background or the water quality objectives set forth in the Basin Plan.
90. As outlined in the Findings above, this Order does not authorize degradation of high-quality waters. With respect to nitrates and pathogens, this Order requires the Dischargers to implement the following best management practices to protect groundwater quality: wastewater applications at agronomic rates and disinfection standards for recycled water consistent with Title 22 requirements for secondary-23 disinfected wastewater. Implementation of these best management practices constitutes BPTC.
91. Based on the forgoing, the adoption of this Order is consistent with the State Water Board's Antidegradation Policy.

### **California Environmental Quality Act**

92. On 3 January 1989 the City certified a final Environmental Impact Report (EIR) in accordance with the California Environmental Quality Act (CEQA) (Pub. Res. Code, sec. 21000 et seq.) for operation of the Lemoore WWTF. As a responsible agency under CEQA, the Central Valley Water Board determined that the project as approved would not have a significant effect on water quality.
93. An EIR was prepared in 1993 for the Stone Ranch evaporation basin. The EIR concluded that the evaporation basin presents a minimal risk of adverse effects on water bird reproduction due to selenium. In 1997, State Water Board Resolution 97-09 modified a previous Stone Ranch WDR (Order 93-156) to require, if selenium contamination existed, the use of US Fish and Wildlife Service (USFWS) protocols to determine the amount and type of wildlife habitat necessary to mitigate wildlife impacts. Use of these protocols for Order 98-229 determined that no wildlife compensation habitat was required. The 1993 EIR was prepared for the operation and use of the tile drainage system and the evaporation basin at the site. Analysis of the combined discharge shows that it is of similar quality to existing irrigation sources and the reuse of the combined effluent in place of groundwater for irrigation of crops will not significantly change the existing use of the site. This Order implements measures necessary to mitigate any adverse impacts to the environment as a result of the discharge to less than significant levels. In addition, this Order carries over requirements for selenium monitoring of water, soil, and invertebrates within the evaporation basin, as well as wildlife monitoring including bird counts and nest egg surveys.
94. As the lead agency for the purposes of CEQA, on 18 September 2018, the City adopted a Mitigated Negative Declaration for construction and operation of the recycled water pipeline to carry effluent to the Stone Ranch property and reuse of



the combined effluent from the City and Leprino for irrigation on the existing farmland (State Clearinghouse No. 2018071046). The Mitigated Negative Declaration determined compliance with waste discharge requirements would ensure that the proposed project would not have a significant impact on water quality.

95. For the River Ranch Recycled Water Project (Project), the Central Valley Water Board is the lead agency for the purposes of CEQA. On 16 February 2024, the Central Valley Water Board adopted a Negative Declaration for the Project covered by this Order, including the increase in discharge flows to 7.0 mgd and expansion of the LAA to 2,416 acres for irrigation of crops. The Negative Declaration determined that the proposed changes would not have a significant impact on the environment.

### **Other Regulatory Considerations**

#### Water Code Section 13149.2

96. These WDRs regulate a facility that may impact a disadvantaged community and nearby tribal communities and includes an alternative compliance path that allows the Dischargers time to come into compliance with applicable water quality objectives (i.e., salinity and nitrates). The Dischargers have joined with other dischargers in the Kings Water Alliance Management Zone as part of the NCP to ensure safe drinking water for affected person(s). In addition, the Dischargers have selected the Alternative Salinity Permitting Approach for the Salt Control Program, which provides an alternative approach for compliance with salinity limits through implementation of specific requirements (i.e., support facilitation and completion of the Salinity P&O Study). The Central Valley Water Board has satisfied the outreach requirements set forth in Water Code section 189.7 by conducting outreach in potentially affected disadvantaged and tribal communities through its notice and comment procedures. Pursuant to Water Code section 13149.2, and as discussed in the following findings, the Central Valley Water Board reviewed readily available information and information raised by interested persons concerning anticipated water quality impacts in disadvantaged or tribal communities resulting from adoption of this Order. The Board also considered environmental justice concerns within the Board's authority previously raised by interested persons with regard to those impacts.
97. The Central Valley Water Board anticipates that the issuance of this Order will result in water quality impacts within the scope of the Board's authority. Specifically, the Order authorizes the continued discharge of wastewater with salinity concentrations above applicable WQOs and total nitrogen concentrations at levels that could cause nitrate in groundwater to be above the primary MCL of 10 mg/L. The combined effluent is expected to have an EC of about 2,335  $\mu$ mhos/cm, FDS around 985 mg/L, and total nitrogen around 29 mg/L. While these

concentrations exceed (or could result in groundwater exceeding) the WQOs for groundwater designated for MUN (municipal and domestic supply), in the case of salinity, as discussed in the antidegradation section above, first encountered groundwater at the site is not high-quality and, with a TDS of over 3,000 mg/L, has historically not been used for the MUN beneficial uses.

98. Based on available data, the current discharge is similar to the existing irrigation supplies and has actually resulted in a slight improvement in shallow groundwater salinity above the A-Clay for some constituents. A database search did not identify any nearby supply wells screened above the Corcoran Clay (see Groundwater and Antidegradation sections for further information). The Central Valley Water Board has identified the following measures available and within the scope of its authority to address the impacts of the Facility to nearby disadvantaged communities in Kings County: 1) require compliance with the Salt Control Program, which currently entails active participation in the P&O Study, which is intended to identify long-term salinity management and control practices and/or technologies; 2) require compliance with the NCP, which currently entails active participation in the Kings Water Alliance Management Zone and which has the goals to ensure a safe drinking water supply and achieve balance nitrate loading within the management zone; 3) require maintenance of current discharge concentrations for salt (e.g., establishing a performance-based salinity limit); and 4) require application of wastewater and fertilizers to crops at agronomic rates with irrigation using supplemental water as needed. All of these measures are required by this Order.

#### Human Right to Water

99. Pursuant to Water Code section 106.3, subdivision (a), it is “the established policy of the state that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes.” Although this Order is not subject to Water Code section 106.3, as it does not revise, adopt or establish a policy, regulation or grant criterion, (see §106.3, subd. (b)), it nevertheless promotes that policy by requiring discharges to meet MCLs designed to protect human health and ensure water is safe for domestic use where applicable. For salinity and nitrate this Order requires compliance with the Salt and Nitrate Control Programs. Although the Basin Plans’ Exceptions Policy for Salinity and Nitrate allows participants in these Programs to obtain limited-term exceptions from MCLs for salinity and nitrate, these Programs are consistent with the Human Right to Water Policy because their over-arching management goals and priorities include short-term provision of safe drinking water to impacted users and long-term restoration of impacted groundwater basins and sub-basins where reasonable, feasible, and practicable.

### Threat-Complexity Rating

100. For the purposes of California Code of Regulations, title 23 (Title 23), section 2200, the River Ranch Recycled Water Project has a threat-complexity rating of **2-B**.
- a. Category 2 threat to water quality: “Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance.”
  - b. Category B complexity: “Any discharger not included in Category A that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal), or any Class 2 or Class 3 waste management units.”

### Title 27 Exemption

101. This Order, which prescribes WDRs of discharges of domestic sewage and treated process water from a municipal treatment plant, is exempt from the prescriptive requirements of California Code of Regulations, title 27 (Title 27) section 20005 et seq. (see Cal. Code Regs., tit.27, § 20090, subd. (b).)

### Stormwater

102. This Order does not cover stormwater and other discharges that are subject to the Clean Water Act’s National Pollutant Discharge Elimination System (NPDES). All onsite stormwater is collected and disposed of onsite where it is stored in onsite basins or comingled with the facilities discharge and applied to the LAA regulated by these WDRs. Because all stormwater is collected and disposed of onsite, the Dischargers are not required to obtain coverage under *State General Permit for Storm Water Discharges Associated with Industrial Activities*, State Water Board Order 2014-0057 DWQ, NPDES General Permit CAS000001 (Industrial General Permit) at this time.

### Sanitary Sewer Overflows

103. Sanitary Sewer Overflows (SSO), which typically consist of a mixture of domestic and commercial wastewater, often contains pathogenic organisms, toxic pollutants, nutrients, oxygen demanding compounds, oil and grease, suspended solids, and other pollutants. When an SSO results in a discharge to surface water, it can cause temporary exceedances of water quality objectives, pose a threat to public health, adversely affect aquatic life, and impair recreational use and aesthetic enjoyment of surface waters in the area. The most common causes are grease blockages, root blockages, debris blockages, sewer line flood

damage, manhole structure failures, vandalism, pump station mechanical failures, power outages, storm or groundwater inflow/infiltration, lack of capacity, and/or contractor-caused blockages.

104. On 6 December 2022, the State Water Board adopted Order 2022-0103-DWQ, *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems*, (SSO General Order), which became effective on 5 June 2023. The SSO General Order requires that all public agencies owning or operating sanitary sewer systems with total system lengths in excess of one mile enroll under the SSO General Order. The City's collection system exceeds one mile in length and the City is currently enrolled in the SSO General Order.

#### Biosolids

105. The United States Environmental Protection Agency (US EPA) has promulgated biosolids reuse regulations in Code of Federal Regulations (CFR), title 40, part 503, *Standards for the Use or Disposal of Sewage Sludge* (Part 503), which establishes management criteria for protection of ground and surface waters, sets limits and application rates for heavy metals, and establishes stabilization and disinfection criteria. The Central Valley Water Board is not the implementing authority for Part 503 regulations. The Dischargers may have separate and/or additional compliance, reporting, and permitting responsibilities to US EPA.

#### Groundwater Wells

106. Existing DWR standards for the construction and destruction of groundwater wells, as well as any more stringent standards that are subsequently adopted, shall apply to all monitoring wells used to monitor impacts of wastewater storage or disposal governed by this Order. (see *Cal. Well Stds. Bulletin 74-90* [DWR, June 1991]; *Water Wells Stds. Bulletin 74-81* [DWR, Dec. 1981].)
107. Statistical data analysis methods outlined in the US EPA's *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* (Unified Guidance) are appropriate for determining compliance with the Groundwater Limitations of this Order. Depending on the circumstances, other methods may also be appropriate.

#### Scope of Order

108. This Order is strictly limited in scope to those waste discharges, activities and processes described and expressly authorized herein.
109. Pursuant to Water Code section 13264, subdivision (a), the Dischargers are prohibited from initiating the discharge of new wastes (i.e., other than those described herein), or making material changes to the character, volume and

timing of waste discharges authorized herein, without filing a new RWD per Water Code section 13260.

110. Failure to file a new RWD before initiating material changes to the character, volume, or timing of discharges authorized herein shall constitute an independent violation of these WDRs.
111. This Order is also strictly limited in applicability to those individuals and/or entities specifically designated herein as “Discharger,” subject only to the Central Valley Water Board’s designation of new or different parties as dischargers subject to this Order.

### **Procedural Matters**

112. All of the above information, as well as the information contained in the attached Information Sheet (incorporated herein), was considered by the Central Valley Water Board in prescribing the WDRs set forth below.
113. The Dischargers, interested agencies, and other interested persons were notified of the Central Valley Water Board’s intent to prescribe the WDRs in this Order, and provided an opportunity to submit their written views and recommendations at a public hearing. (See Wat. Code, § 13167.5.)
114. At a public meeting, the Central Valley Water Board heard and considered all comments pertaining to the discharges regulated under this Order.
115. The Central Valley Water Board will review and revise the WDRs in this Order as necessary.

### **REQUIREMENTS**

**IT IS HEREBY ORDERED**, pursuant to Water Code sections 13263 and 13267: that WDRs Orders R5-2019-0008, 98-229, and 96-050 are rescinded (except for enforcement purposes); and that the Dischargers and their agents, employees and successors shall comply with the following.

#### **A. Standard Provisions**

Except as expressly provided herein, the Dischargers shall comply with [1 March 1991 SPRRs](https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/sd_provisions/wdr-mar1991.pdf), which are incorporated by reference herein. ([https://www.waterboards.ca.gov/centralvalley/board\\_decisions/adopted\\_orders/sd\\_provisions/wdr-mar1991.pdf](https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/sd_provisions/wdr-mar1991.pdf)),

**B. Discharge Prohibitions**

1. Discharge of waste to surface waters or surface water drainage courses is prohibited.
2. Discharge of waste classified as 'hazardous' (per Title 22, § 66261.1 et seq.), is prohibited.
3. Treatment system bypass or overflow of untreated wastes is prohibited, except as allowed by Standard Provisions E.2 in 1 March 1991 SPRRs.
4. Discharge of wastes other than the Facility's treated effluent in a manner or location other than that described and authorized herein is prohibited.
5. Discharge of toxic substances into the wastewater treatment systems for the City and Leprino, such that biological treatment mechanisms are disrupted, is prohibited.
6. Discharge of toxic substances into the evaporation basin at River Ranch is prohibited. Direct discharge of combined effluent from the irrigation canal to the evaporation basin is not prohibited when necessary due to extreme wet weather conditions as described in Finding 32.
7. The discharge of agricultural drainage water to surface water or to surface water drainage courses is prohibited. Drainage water reused for irrigation purposes through ancillary structures (ditches, sumps, and ponds contained within the LAA and associated with its agricultural operations) is not prohibited.
8. Placement of tires, other materials, and artificial structures that could entrap young birds along any evaporation basin cell bank are prohibited.

**C. Flow Limitations**

1. The discharge of combined effluent to the River Ranch Property (Monitoring Location EFF-003) shall not exceed a monthly average flow of 7.0 million gallons per day (mgd). See the MRP for monitoring location details.
2. The effluent discharged from the Leprino Wastewater Treatment Facility (Monitoring Location EFF-002) shall not exceed a monthly average flow of 5.0 mgd. See the MRP for monitoring location details.
3. The treated domestic wastewater from the Lemoore Wastewater Treatment Facility (Monitoring Location EFF-001) shall not exceed a monthly average flow of 2.0 mgd. See the MRP for monitoring location details.

**D. Effluent Limitations**

1. The discharge of the City’s effluent (Monitoring Location EFF-001) shall not exceed the following limitations. See MRP for monitoring location details.

**Table 12 – Effluent Limits at City of Lemoore**

Constituent	Units	7-Day Median	30-Day Maximum	Monthly Average	Daily Maximum
BOD <sub>5</sub> (see 1 below)	mg/L	---	---	40	80
TSS (see 2 below)	mg/L	---	---	40	80
Total Coliform	MPN/100 mL	23	240	---	---

1. Five-day biochemical oxygen demand at 20°C.
2. Total Suspended Solids.

**E. Salinity Action Level**

1. To comply with the Salt Control Program, the Dischargers selected the Alternative Salinity Permitting Approach (i.e., participation in the P&O Study). Therefore, as discussed in Finding 70, these WDRs establish a Salinity Action Level of 1,400 mg/L at Monitoring Location EFF-003 as an annual average for FDS. As part of the Annual Monitoring report required per the MRP, the Dischargers shall evaluate the combined effluent annual average effluent FDS concentration (monitored at EFF-003) to the Salinity Action Level. If the Facility’s discharge exceeds the Salinity Action Level, the Dischargers shall submit a **Salinity Action Level Report by 1 March** of the year following the exceedance of the Salinity Action Level. The Salinity Action Level Report shall, at a minimum, include the following:
  - a. An evaluation of the City’s and Leprino’s salinity effluent levels. This evaluation shall discuss any changes to the source water for the City and/or Leprino, any increased conservation efforts implemented within the Lemoore WWTF or Leprino Plants (with flow data demonstrating decreased flows), and any other changes to Leprino’s or the City’s operations that could have contributed to the increased salinity concentrations.
  - b. If additional time is needed to investigate the source(s) of the salinity in the Facility’s discharge, the Salinity Action Level Report shall include a detailed work plan describing what actions the Dischargers will conduct (with completion dates) to investigate the source(s) of salinity and report its findings to the Central Valley Water Board. The findings from

the investigations shall be submitted to the Central Valley Water Board **no later than October 1<sup>st</sup>** of the year following the exceedance of the Salinity Action Level.

- c. The Salinity Action Level Report shall evaluate the potential impact the increased salinity concentrations could have on underlying groundwater and downgradient users. If additional time is needed for this evaluation, the Salinity Action Level Report shall propose a submittal date (no later than October 1<sup>st</sup> of the year following exceedance of the Salinity Action Level).

#### **F. Discharge Specifications**

1. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.
2. The Dischargers shall operate all treatment systems and equipment to optimize the quality of the discharge.
3. All conveyance, treatment, storage, and disposal units shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
4. Public contact with combined effluent shall be precluded through such means as fences, signs, or acceptable alternatives.
5. Objectionable odors shall not be perceivable beyond the limits of the property where the waste is generated, treated, and/or discharged at an intensity that creates or threatens to create nuisance conditions.
6. As a means of discerning compliance with Discharge Specification F.6, the dissolved oxygen (DO) content in the upper one foot of any wastewater storage and/or disposal pond, not including the River Ranch evaporation basin, shall not be less than 1.0 mg/L for three consecutive sampling events. If nuisance odors are detected by or brought to the attention of the Dischargers, the Dischargers shall monitor the potential source pond(s) at least daily for DO and pH until the odor issue has been resolved and the DO in the pond is greater than 1.0 mg/L.
7. The Dischargers shall design, construct, operate, and maintain all wastewater treatment, storage, and disposal ponds including the River Ranch evaporation basin sufficiently to protect the integrity of containment dams and berms and prevent overtopping and/or structural failure. Unless a California-registered civil engineer certifies (based on design, construction, and conditions of operation and maintenance) that less freeboard is



adequate, the operating freeboard in any pond shall never be less than two feet (measured vertically from the lowest possible point of overflow). As a means of management and to discern compliance with this requirement, the Dischargers shall install and maintain in each pond a permanent staff gauge with calibration marks that clearly show the water level at design capacity and enable determination of available operational freeboard.

8. Wastewater treatment, storage, and disposal ponds or structures shall have sufficient capacity to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary inflow and infiltration during the winter while ensuring continuous compliance with all requirements of this Order. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.
9. On or about **1 August** of each year, available capacity shall at least equal the volume necessary to comply with Flow Limitation C.1 and Discharge Specifications F.8 and F.9.
10. All ponds and open containment structures shall be managed to prevent breeding of mosquitoes. Specifically:
  - a. An erosion control program shall be implemented to ensure that small coves and irregularities are not created around the perimeter of the water surface.
  - b. Weeds shall be minimized through control of water depth, harvesting, or herbicides.
  - c. Dead algae, vegetation, and debris shall not accumulate on the water surface.
  - d. The Dischargers shall consult and coordinate with the local Mosquito Abatement District to minimize the potential for mosquito breeding, as needed, to supplement the above measures.
11. Newly constructed or rehabilitated berms or levees (excluding internal berms that separate ponds or control the flow of water within the pond) shall be designed and constructed under the supervision of a California Registered Civil Engineer.
12. Weeds and aquatic plants shall be minimized through the control of water depth, harvesting, and/or herbicides used in an approved manner. Dead algae, vegetation, and debris shall not accumulate on the water surface. Prior

- to discharging to any basin, the Dischargers shall remove vegetation from the cell.
13. When filling a cell within the evaporation basin, the Dischargers shall employ all feasible measures to attain the required 2-foot minimum depth as quickly as feasible. If the drainage flows diminish and the cell cannot be maintained at a depth of two feet, then the cell will be pumped dry with portable pumps until increased drainage flows occur and additional storage is needed.
  14. The Dischargers shall maintain an effective interceptor system to minimize lateral seepage from the evaporation basin.
  15. Construction, modification, and maintenance of levees, and removal of vegetation from the evaporation basin, shall not take place during the nesting season (April through July) without a survey of bird nests by a qualified wildlife biologist and implementation of mitigation measures as necessary. In event of emergency, the Dischargers shall complete levee maintenance immediately and notify the Central Valley Water Board and California Department of Fish and Wildlife (CDFW) within 24 hours thereafter of the circumstances and action taken.
  16. Should nests be identified below the high-water level of an evaporation basin cell, water levels in that basin shall be managed to the extent practicable to minimize flooding of eggs.
  17. If the geometric mean concentration of selenium in invertebrates in any evaporation basin cell exceeds 4 mg/kg in any one composite sampling event, the Dischargers shall conduct a hazing program that effectively keeps birds moving until the geometric mean concentration is less than 4 mg/kg. Hazing, if necessary, shall be conducted on a daily basis during the months of February through July for all cells where birds are present. Hazing shall consist of whatever is determined to be effective. If a nest is established to the point where it contains one egg or more, hazing shall be terminated in the proximity of the nest for the remainder of the nesting season.
  18. Bird carcasses shall be burned or buried unless an unusual number (more than 15) is found. Upon finding an unusual number, CDFW shall be notified within 24 hours and a bird carcass shall, at the CDFW's discretion, be held for diagnosis. A record of the number, date, and species of carcasses found and burned or buried shall be kept.
  19. If a significant fish population develops within a basin cell, the Dischargers shall implement a fish control and removal program.

**G. Groundwater Limitations**

Release of waste constituents of the combined or individual waste streams from any treatment, storage, delivery system, or LAA associated with the discharge to River Ranch shall not cause or contribute to groundwater containing constituent concentrations in excess of the concentrations specified below or natural background groundwater quality, whichever is greater:

1. Total coliform organism level of 2.2 MPN/100 mL over any seven-day period.
2. Constituents in concentrations that exceed either the Primary or Secondary MCLs established in Title 22 of the California Code of Regulations, excluding salinity and nitrate provided the Dischargers comply with Provision K.3 (i.e., complies with the Salt and Nitrate Control Programs).
3. Contain taste or odor-producing constituents, toxic substances, or any other constituents in concentrations that cause nuisance or adversely affect beneficial uses, (e.g., by creating off-tastes and/or odor, producing detrimental physiological responses in human, plant, animal, or aquatic life [i.e., toxicity]).

**H. Land Application Area Specifications**

For the purposes of this Order “land application areas” (or LAA[s]) refers to the discharge area on the River Ranch Property described in the Findings.

1. The BOD loading to the LAAs, calculated as a cycle average as determined by the method described in the attached MRP, shall not exceed 100 lbs/ac/day. The cycle average BOD loading rate shall be calculated as determined by the method described in the attached MRP.
2. Land application of wastewater shall be managed to minimize erosion.
3. The LAA shall be inspected periodically to determine compliance with the requirements of this Order. If an inspection reveals noncompliance or threat of noncompliance, the Dischargers shall temporarily stop irrigation with combined effluent and implement corrective actions to ensure compliance with this Order.
4. Any runoff of tailwater shall be confined to the LAAs or evaporation basin and shall not enter any surface water drainage course or storm water drainage system that leaves the River Ranch property.
5. The Dischargers may not discharge combined effluent to the LAA during rainfall or when soils are saturated.

6. Crops shall be grown on the LAAs. Crops shall be selected based on nutrient uptake, consumptive use of water, irrigation requirements to maximize crop uptake of water and nutrients, and acceptable crops to receive disinfected secondary-23 recycled water.
7. Application of waste constituents to the LAAs shall be at reasonable agronomic rates to preclude creation of a nuisance or degradation of groundwater, considering the crop, soil, climate, and irrigation management system. The annual nutrient loading of the LAAs, including the contributions of organic and chemical fertilizers, solids removed from process water, and the combined effluent, shall not exceed the annual crop demand.
8. Hydraulic loading of combined effluent and supplemental irrigation water shall be managed to:
  - i. Provide water only when water is needed and in amounts consistent with crop needs;
  - ii. Maximize crop nutrient uptake;
  - iii. Maximize breakdown of organic waste constituents in the root zone; and
  - iv. Minimize the percolation of waste constituents below the root zone.

The Central Valley Water Board recognizes that some leaching of salts is necessary to manage salt in the root zone of the crops. Leaching shall be managed to minimize degradation of groundwater and maintain compliance with the Groundwater Limitations in this Order and prevent pollution.

9. The Dischargers shall ensure that water, BOD, and nitrogen are applied and distributed uniformly across each LAA field. The Dischargers shall implement changes to the irrigation system and/or operation practices as needed to ensure compliance with this specification.
10. The LAA shall be managed to prevent breeding of mosquitos. In particular:
  - a. All applied irrigation water must infiltrate within 48 hours;
  - b. Tailwater ditches shall be maintained essentially free of emergent, marginal, and floating vegetation; and
  - c. Low-pressure and unpressurized pipelines and ditches accessible to mosquitoes shall not be used to store wastewater.

## I. Recycling Specifications

The following recycled water specifications apply to the reclamation of combined effluent (recycled water) to the LAA at River Ranch. For any other recycled water project, the Dischargers (City and/or Leprino) shall apply for and receive coverage under [State Water Resources Control Board Order WQ 2016-0068-DDW, Water Reclamation Requirements for Recycled Water Use](#) (or subsequently revised Order).

1. No physical connection shall exist between recycled water piping and any domestic or irrigation water supply well that does not have an air gap or reduced pressure principle device.
2. Notwithstanding the following requirements, the production, distribution, and use of recycled water shall conform to a Title 22 Engineering Report prepared pursuant to Title 22 section 60323 and approved by DDW.
3. Recycled water shall be at least disinfected secondary-23 recycled water as defined in Title 22, section 60301.225.
4. Recycled water shall be used in compliance with Title 22, section 60304. All tomato crops irrigated with disinfected secondary-23 recycled water shall be processed for canned tomato products in accordance with Title 22, section 60304(d)(6) to meet the requirements of a “food that undergoes commercial pathogen-destroying processing before being consumed by humans” as described in the approved Title 22 Engineering Report and contingent upon acceptance by the California Department of Public Health Food and Drug Branch (to be confirmed by the Dischargers). DDW shall be informed of any changes to the irrigation, harvesting, and/or pathogen-destroying process of any crops irrigated with recycled water to determine if an updated Title 22 Engineering Report is required.
5. The Dischargers shall designate a use area supervisor responsible for the use and management of recycled water within the use area including but not limited to implementation of routine inspections, reporting, and distribution of harvested crops including the tomato crop as well as training for all farmworkers on safe handling procedures for recycled water use.
6. The Dischargers shall maintain a 100-foot setback distance from all domestic supply wells.
7. The perimeter of the LAA shall be graded to prevent runoff onto adjacent properties not owned or controlled by the Dischargers and to prevent ponding along public roads or other public areas

8. Any discharge of untreated or partially treated wastewater to the use area shall be reported immediately to the Central Valley Water Board, DDW, and local health official, and operations shall cease until the issue is resolved.
9. Public contact with recycled water shall be controlled using signs and/or other appropriate means. Signs of a size no less than four inches high by eight inches wide with proper wording (shown below) shall be placed at all areas of public access and around the perimeter of the LAA and conveyance structures to alert the public of the use of recycled water. All signs shall display an international recycled water symbol similar to that shown in **Attachment E** (incorporated herein), and present the following wording:

“RECYCLED WATER – DO NOT DRINK”  
“AGUA DE DESPERDICIO RECLAMADA – POR FAVOR NO TOME”

#### **J. Solids Disposal Specifications**

1. Sludge<sup>2</sup> and Solid Waste<sup>3</sup> shall be removed from screens, sumps, and ponds as needed to ensure optimal plant operations.
2. Onsite handling, storage, and drying of Solid Waste, and Biosolids<sup>4</sup> shall be temporary (two years or less); and controlled and contained in a manner that minimizes leachate formation and precludes the development of odor nuisance conditions and infiltration of waste constituents into soils in a mass or concentration that will violate the Groundwater Limitations of this Order.
3. Sludge, Biosolids, and Solid Waste shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27, division 2. Removal for further treatment, disposal, or reuse at disposal sites (i.e., landfills, composting sites, soil amendment sites) operated in accordance with valid waste discharge requirements issued by a Regional Water Board will satisfy this specification.

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<sup>2</sup> For the purposes of this section, “**Sludge**” means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes from the City’s domestic WWTF.

<sup>3</sup> For the purposes of this section, “**Solid Waste**” includes screenings, solids, and semi-solids, generated during preliminary and advanced treatment from Leprino’s WWTF.

<sup>4</sup> For the purposes of this section, “**Biosolids**” refers to Sludge removed from the ponds at the Lemoore WWTF that has been treated, tested, and shown to be capable of being beneficially used as a soil amendment for agriculture, silviculture, horticulture, and land reclamation activities pursuant to federal and state regulations.

Solid Waste applied at River Ranch shall be included in the annual nutritive loading to the LAA as required in the MRP.

4. Use of biosolids as a soil amendment shall comply with valid waste discharge requirements issued by a regional water board or the State Water Board except in cases where a local (e.g., county) program has been authorized by a regional water board. In most cases, this will mean the General Biosolids Order (State Water Resources Control Board Water Quality Order 2004-0012-DWQ, "General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities"). For a biosolids use project to be covered by Order 2004-0012-DWQ, the Discharger must file a complete Notice of Intent and receive a Notice of Applicability for each project.
5. Use and disposal of Biosolids shall comply with the self-implementing federal regulations of 40 Code of Federal Regulations part 503, which are subject to enforcement by the U.S. EPA, not the Central Valley Water Board. If during the life of this Order, the State accepts primacy for implementation of part 503, the Central Valley Water Board may also initiate enforcement where appropriate.
6. Any proposed change in solids use or disposal practice shall be reported in writing to the Executive Officer at least **90 days** in advance of the change.

#### **K. Provisions**

1. The Dischargers shall comply with the separately issued **Monitoring and Reporting Program R5-2024-0007**, which is part of this Order, and any subsequent revisions thereto as ordered by the Executive Officer or the Central Valley Water Board. The submittal dates of Discharger self-monitoring reports shall be no later than the submittal date specified in the MRP.
2. A copy of this Order including the MRP, Information Sheet, Attachments, and March 1991 SPRRs, shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.
3. The Dischargers shall comply with the Salt and Nitrate Control Programs adopted in Resolution R5-2018-0034 (as revised per Resolution R5-2020-0057) to address ongoing salt and nitrate accumulation in the Central Valley developed as part of the Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) initiative.
4. The City shall maintain an approved Title 22 Engineering Report with DDW consistent with approved recycled water uses. Prior to initiating any change or

expansion to the recycled water reuse areas the City must consult with DDW and submit an updated Title 22 Engineering Report, if required.

5. The City shall provide certified WWTF operators in accordance with Title 23, division 3, chapter 26.
6. The Dischargers shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Dischargers to achieve compliance with the conditions of this Order. Proper operation and maintenance also include adequate laboratory controls and appropriate quality assurance procedures. This Provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by the Dischargers only when the operation is necessary to achieve compliance with the conditions of this Order.
7. **By 16 May 2024** Leprino shall submit a Wastewater Operations and Management Plan (Plan) for Executive Officer approval. The Plan shall provide a comprehensive analysis of management and irrigation practices for the land application area at River Ranch including operation of the subsurface drainage collection system and evaporation basin to ensure compliance with these WDRs. The Plan shall include details on the direct discharge of combined effluent from the irrigation canal to the evaporation basin during wet weather events including how, when, and where such discharges shall occur. In addition, the Plan shall provide a list of procedures and modifications to be implemented by the City and Leprino as well as adjustments to normal farming practices at River Ranch in anticipation of wet weather events to minimize the need for direct discharge to the evaporation basin.
8. **By 16 August 2026**, the City shall complete a **WWTF Pond and Groundwater Assessment Study** for the area around the Lemoore WWTF ponds in accordance with the following schedule:

Task	Description	Due Dates
1.	<b>WWTF Pond and Groundwater Assessment Work Plan</b> Submit a work plan to evaluate the condition of the City's WWTF ponds and assess depth-to-groundwater and quality of shallow groundwater in the vicinity of the ponds. The work plan shall include a proposal to evaluate the condition of all onsite pond liners and the percolation rates of all ponds used to treat or store wastewater at the WWTF. To the extent the work plan proposes to install groundwater monitoring wells as part of the assessment, the work plan shall include a groundwater monitoring well work	17 February 2025



Task	Description	Due Dates
	plan with a time schedule for installing the wells (as well as a proposed groundwater monitoring plan).	
2.	Update on progress of investigation.	Annually as part of the 4 <sup>th</sup> Quarter Monitoring Report
3.	<p><b>WWTF Pond and Groundwater Assessment Report</b>                      The report shall provide the results of the work plan. The report shall specifically evaluate the potential impacts the City's WWTF ponds have on underlying groundwater for constituents of concern (e.g., pathogens, nitrogen, salinity, and potential for reducing conditions to organic overloading). If the report determines that the City WWTF's ponds are significantly impacting underlying groundwater, the Report shall evaluate options for reducing the WWTF's impact (e.g., properly lining the wastewater ponds).</p>	17 August 2026

9. In accordance with California Business and Professions Code sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain workplans for investigations and studies, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Discharger shall bear the professional's signature and stamp.
  
10. The Dischargers shall comply with all conditions of this Order, including timely submittal of technical and monitoring reports. On or before each report due date, the Dischargers shall submit the specified document to the Central Valley Water Board or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, then the Dischargers shall state the reasons for such noncompliance and provide an estimate of the date when the Dischargers will be in compliance. The Dischargers shall notify the Central Valley Water Board in writing when it returns to compliance with the time schedule. Violations may result in enforcement action, including Central Valley Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.

10. A discharger whose waste flows have been increasing, or are projected to increase, shall estimate when flows will reach the hydraulic and treatment capacity of its treatment, collection, and disposal facilities. The projections shall be made, based on the last three year's average dry weather flows, peak flows, and total annual flows as appropriate and be included as part of the annual report. When a projection shows that the capacity of any part of the system may be exceeded within four years, the Dischargers shall notify the Central Valley Water Board.
11. As described in the Standard Provisions, the Dischargers shall report promptly to the Central Valley Water Board any material change or proposed change in the character, location, or volume of the discharge.
12. At least **90 days** prior to termination or expiration of any lease, contract, or agreement involving disposal or recycling areas or off-site reuse of effluent, used to justify the capacity authorized herein and assure compliance with this Order, the Dischargers shall notify the Central Valley Water Board in writing of the situation and of what measures have been taken or are being taken to assure full compliance with this Order
13. Leprino shall maintain a Financial Assurance Closure Plan (Closure Plan) for decommissioning the drainage system and closing the evaporation basin. The Closure Plan shall assure fiscal capability to properly close the evaporation basin and relocate any waste material including plans for disposal of sediments containing elevated levels of minerals and trace elements per the requirements of Title 27. The Closure Plan shall be updated annually as part of the 4<sup>th</sup> Quarter Annual Monitoring Report due February 1<sup>st</sup> of each year.
14. In the event of any change in control or ownership of the Lemoore WWTF, Leprino's processing facilities or wastewater treatment system, or River Ranch Property, the Dischargers shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.
15. To assume operation as a Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. If approved by the Executive Officer, the transfer request will be submitted to the Central Valley Water Board for its

- consideration of transferring the ownership of this Order at one of its regularly scheduled meetings.
16. Subject to prior notice, and contingent upon a written report of findings being submitted to the Central Valley Water Board, Standard Provision A.8 shall include employees of CDFW, USFWS, and U.S. Geological Survey-Biological Resources Division to the extent necessary to monitor conditions at the evaporation basin.
  17. Operation of the evaporation basin shall not cause violation of the Migratory Bird Treaty Act.
  18. If the Central Valley Water Board determines that there is an increasing trend of selenium in the combined discharge or the evaporation basin that could pose a threat to wildlife, this Order may be reopened for consideration of additional mitigation measures for use of the evaporation basin.
  19. The Central Valley Water Board will review this Order periodically and will revise requirements when necessary.

### **ENFORCEMENT**

If, in the opinion of the Executive Officer, the Dischargers fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement, may issue a complaint for administrative civil liability, or may take other enforcement actions. Failure to comply with this Order may result in the assessment of Administrative Civil Liability of up to \$10,000 per violation, per day, depending on the violation, pursuant to the Water Code, including sections 13268, 13350 and 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

### **ADMINISTRATIVE REVIEW**

Any person aggrieved by this Central Valley Water Board action may petition the State Water Board for review in accordance with Water Code section 13320 and California Code of Regulations, title 23, section 2050 et seq. The State Water Board must receive the petition by 5:00 p.m. on the 30th day after the date of this Order; if the 30th day falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of [the law and regulations applicable to filing petitions](#) are available on the Internet (at the address below) and will be provided upon request.

([http://www.waterboards.ca.gov/public\\_notices/petitions/water\\_quality](http://www.waterboards.ca.gov/public_notices/petitions/water_quality))

## **ATTACHMENTS**

**Attachment A** – Project Area Map

**Attachment B** – River Ranch Map

**Attachment C** – Process Flow Diagrams

**Attachment D** –City and Leprino Monitoring Locations

**Attachment E** – Drainage Collection System

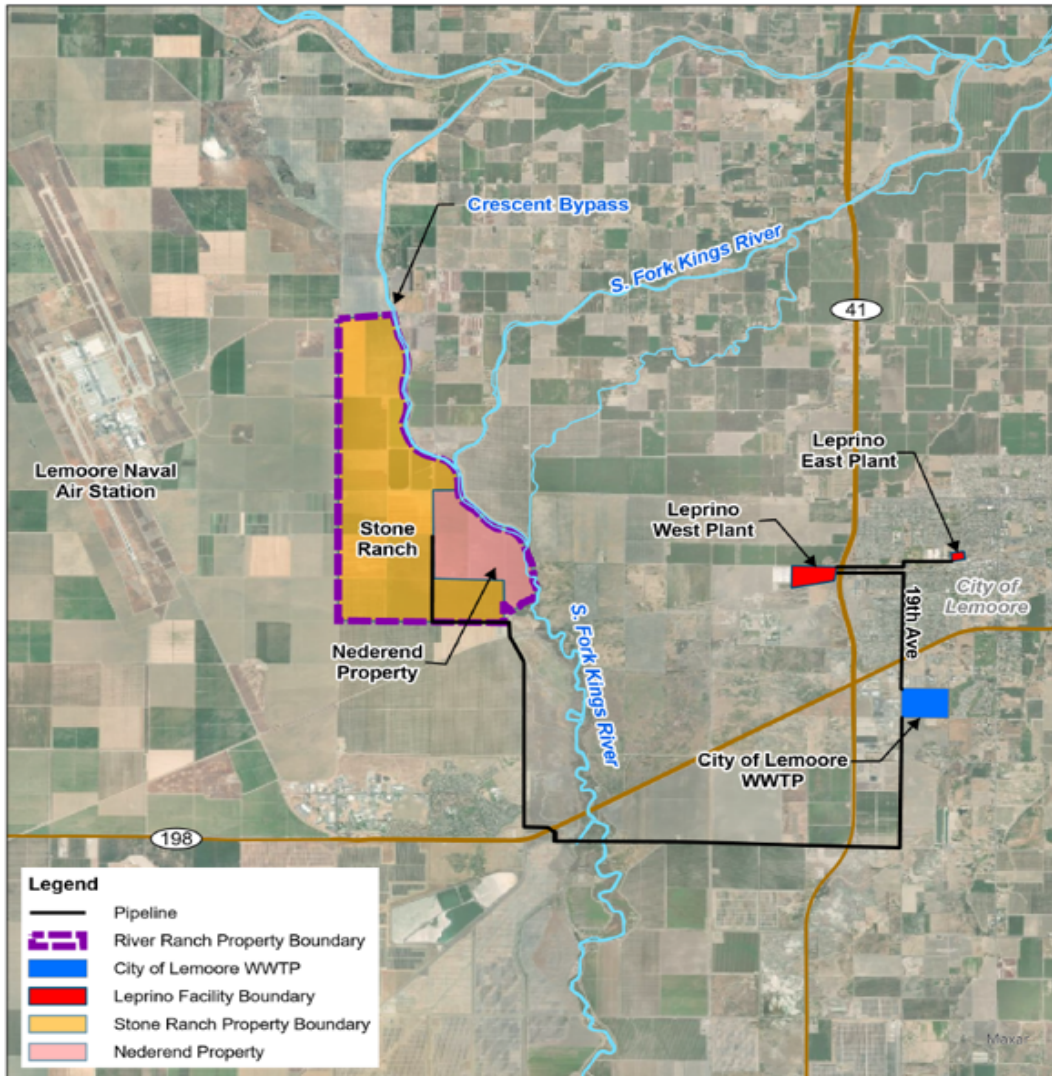
**Attachment F** – Recycled Water Symbol

**Standard Provisions & Reporting Requirements (SPRRs), dated 1 March 1991**

**Information Sheet**

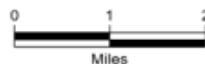
**Monitoring and Reporting Program R5-2024-0007**

**ATTACHMENT A—PROJECT AREA MAP**

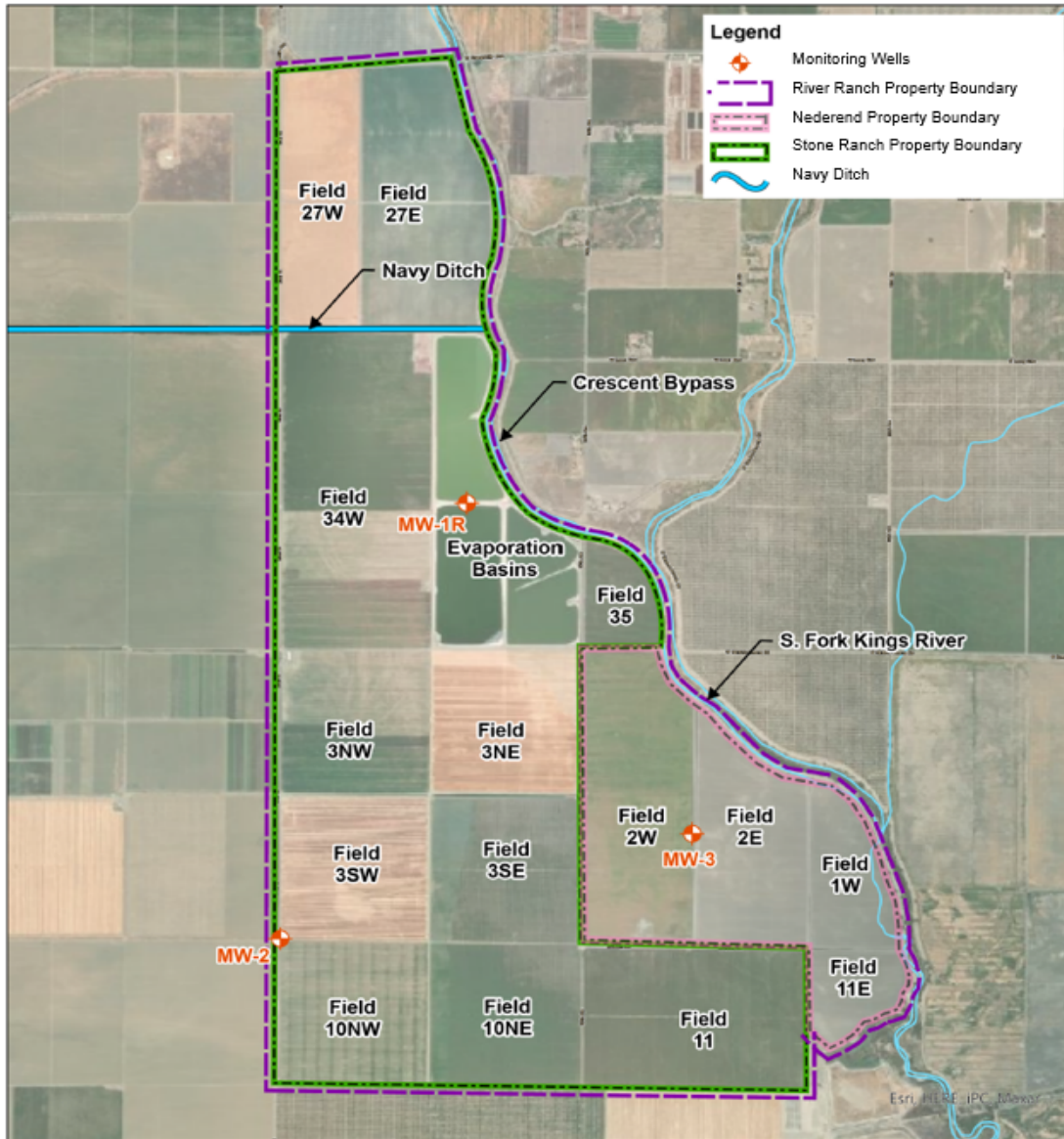


**PROJECT AREA MAP**

ORDER R5-2024-0007  
WASTE DISCHARGE REQUIREMENTS FOR  
CITY OF LEMOORE AND LEPRINO FOODS COMPANY  
RIVER RANCH RECYCLED WATER PROJECT  
KINGS COUNTY



**ATTACHMENT B—RIVER RANCH MAP**



**RIVER RANCH MAP**

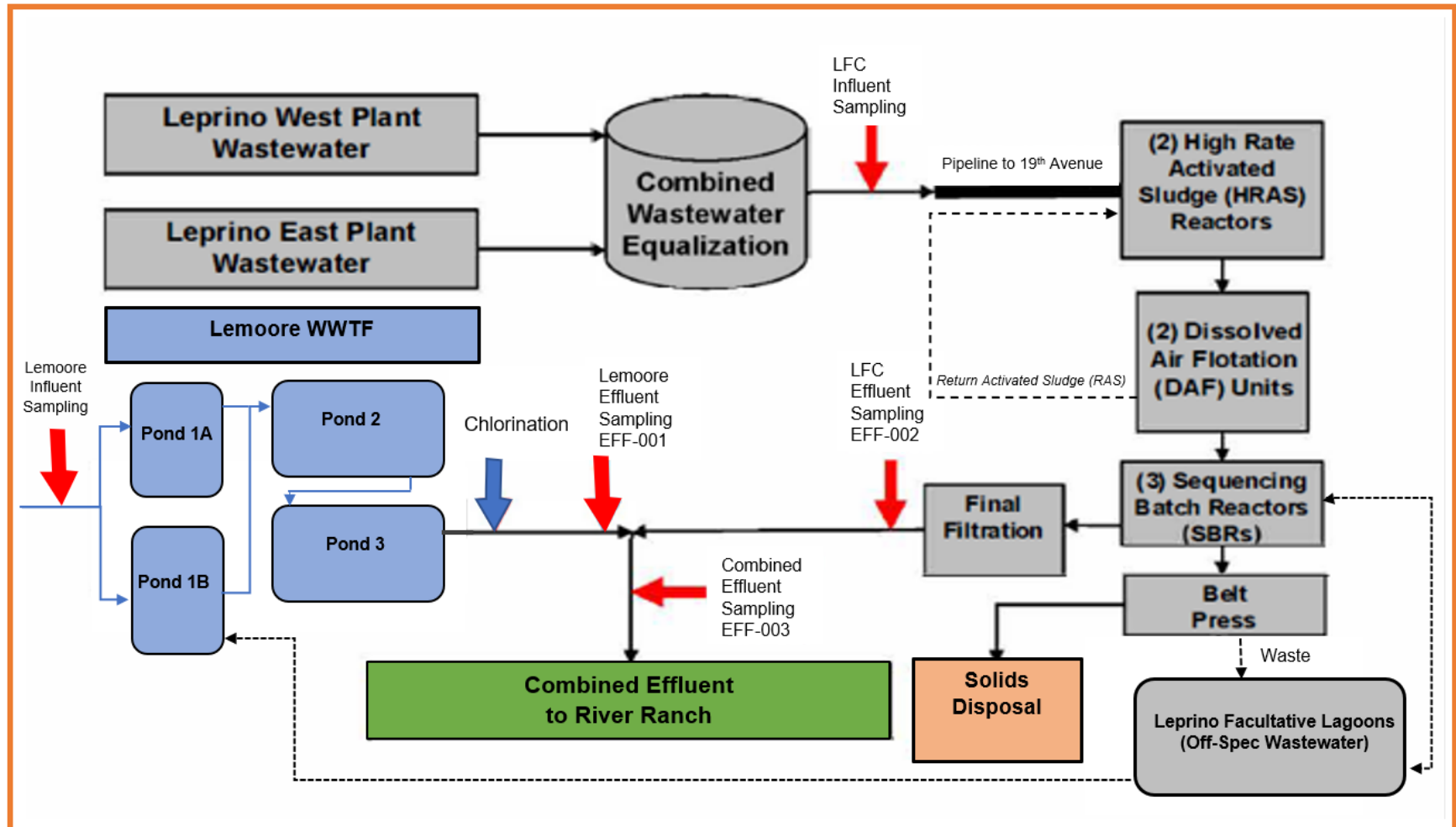
ORDER R5-2024-0007  
WASTE DISCHARGE REQUIREMENTS FOR  
CITY OF LEMOORE AND LEPRINO FOODS COMPANY  
RIVER RANCH RECYCLED WATER PROJECT  
KINGS COUNTY



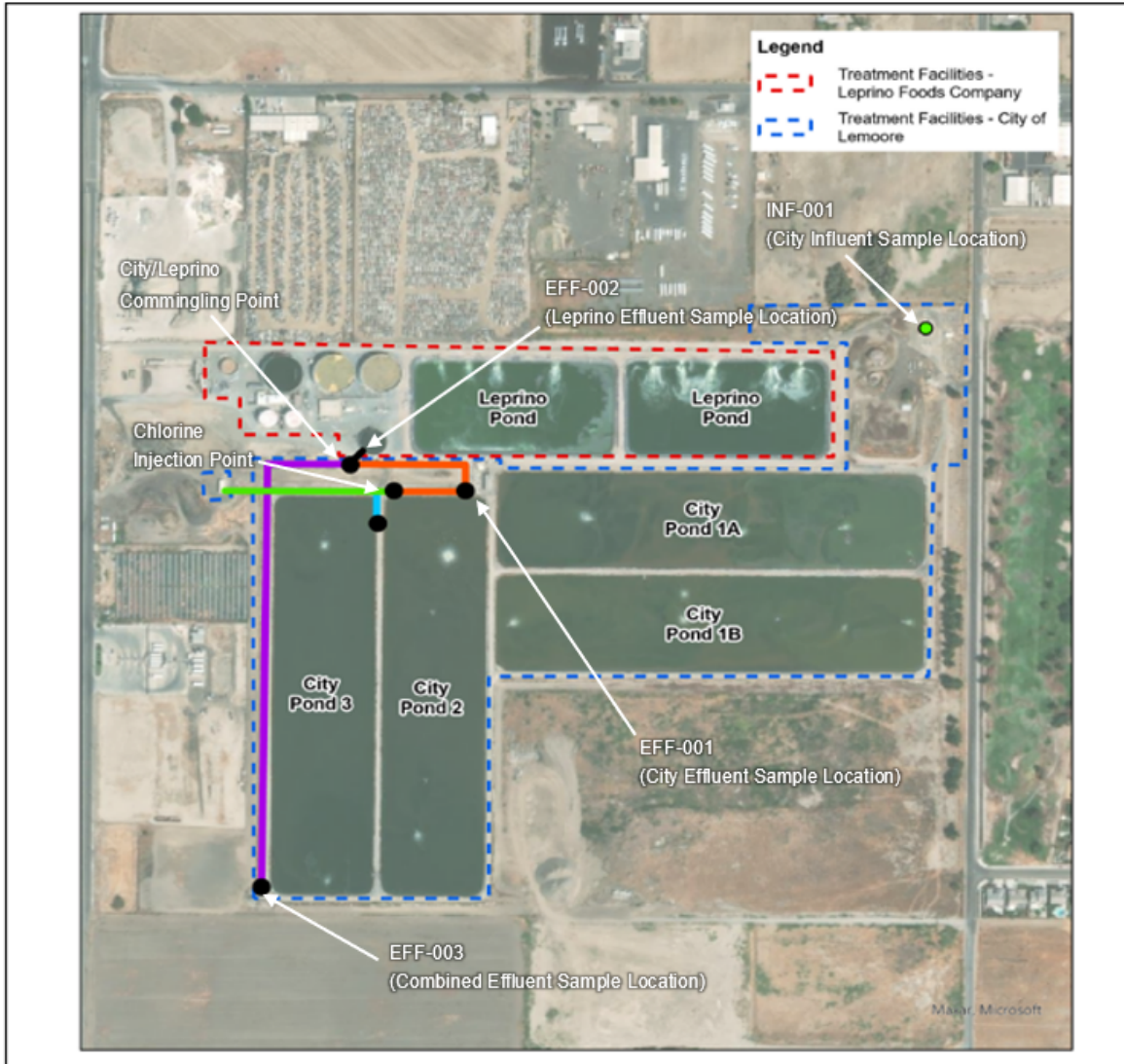
**ATTACHMENT B**



ATTACHMENT C—PROCESS FLOW DIAGRAM

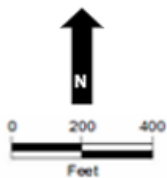


**ATTACHMENT D—CITY AND LEPRINO MONITORING LOCATIONS**



**CITY AND LEPRINO MONITORING POINTS**

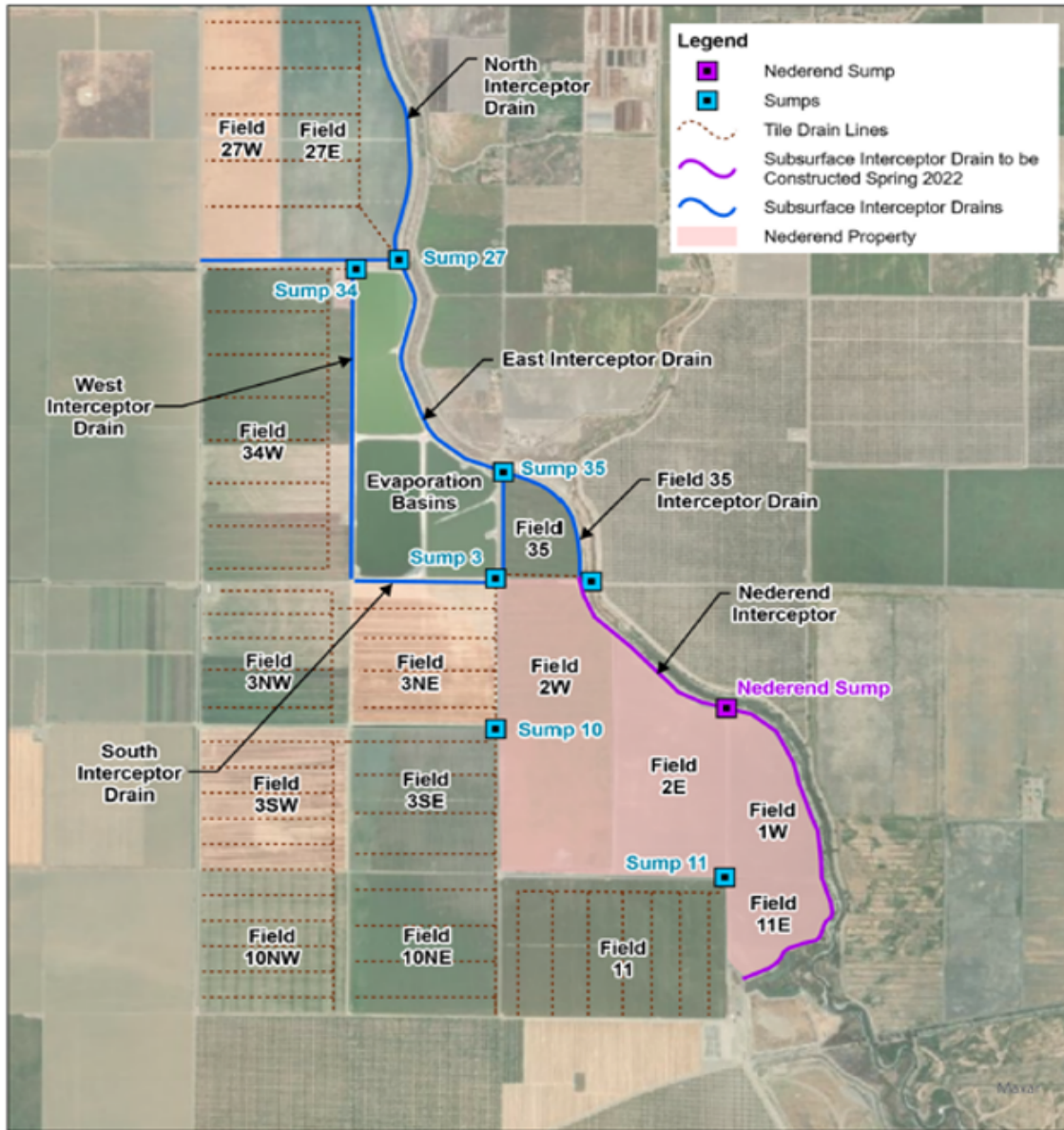
ORDER R5-2024-0007  
WASTE DISCHARGE REQUIREMENTS FOR  
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KINGS COUNTY



**ATTACHMENT D**

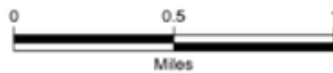


**ATTACHMENT E—DRAINAGE COLLECTION SYSTEM**



**DRAINAGE COLLECTION SYSTEM**

ORDER R5-2024-0007  
WASTE DISCHARGE REQUIREMENTS FOR  
CITY OF LEMOORE AND LEPRINO FOODS COMPANY  
RIVER RANCH RECYCLED WATER PROJECT  
KINGS COUNTY



**ATTACHMENT E**

**ATTACHMENT F—RECYCLED WATER SYMBOL**



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

Waste Discharge Requirements Order R5-2024-0007  
for

City of Lemoore and Leprino Foods Company  
River Ranch Recycled Water Project  
Kings County

**INFORMATION SHEET**

**Background**

The City of Lemoore (City or Lemoore) provides sanitary wastewater treatment for its 26,000 residents at its wastewater treatment facility (Lemoore WWTF). Waste Discharge Requirements (WDRs) Order R5-2019-0008 authorizes 5.0 million gallons per day (mgd) of combine effluent from the Lemoore WWTF and process wastewater from Leprino Foods Company's (Leprino) cheese processing facilities in Lemoore, CA. The combined effluent is used for irrigation on approximately 1,900 acres of farmland four miles west of Lemoore known as Stone Ranch.

On 6 May 2022, Leprino and the City submitted a RWD to increase the combined effluent discharge to the Stone Ranch. The RWD proposes to discharge up to 7.0 mgd (monthly average) of the combined effluent for reuse as irrigation water. Leprino has purchased an additional 520 acres, known as the Nederend Property. The proposed discharge will be on approximately 2,420 acres of farmland, known as the River Ranch, comprised of the Stone Ranch and the Nederend Properties. On 23 June 2023, the State Water Resources Control Board, Division of Drinking Water conditionally approved the Title 22 Engineering Report of reuse of disinfected secondary-23 wastewater at River Ranch for irrigation of fodder crops as well as tomatoes for tomato paste (that meets Title 22 requirements for pathogen-destroying treatment).

**Wastewater Generation and Disposal**

The Lemoore WWTF treatment process consists of two clay-lined aerated lagoons (Ponds 1A and 1B) and two partially aerated facultative/storage ponds (Pond 2 and Pond 3). It is unclear if Ponds 2 and 3 are lined. The City's treated effluent is disinfected using gas chlorination prior to commingling with Leprino's effluent. The Lemoore WWTF has a designed treatment capacity of 2.5 mgd, so the increased flows up to 2.0 mgd is not expected to significantly impact the existing treatment system.

Process wastewater from Leprino's two facilities is combined in equalization tanks and conveyed through the Leprino treatment facility adjacent to the Lemoore WWTF. The Leprino treatment system utilizes two High-Rate Activated Sludge (HRAS) reactors, two Dissolved Air Flotation (DAF) units, and three Sequencing Batch Reactors (SBRs). The HRAS system is used to remove 70% or more of soluble chemical oxygen demand (COD)/biochemical oxygen demand (BOD). The DAF units act as clarifiers to remove activated sludge from the effluent stream and pump it back into the HRAS reactors. The

SBRs are used to remove additional BOD, and for nitrification and denitrification. The wastewater then goes through final filtration before it is discharged to an existing pipeline where it is combined with the City’s disinfected sanitary effluent. Leprino’s treatment system also includes two double lined facultative lagoons (clay liner overlain by an 80-mil HDPE synthetic liner) used for off-spec wastewater and wasted solids, if needed.

An analysis by The Probst Group determined that Leprino’s treatment system had sufficient capacity to handle the increase flows up to 5.0 mgd; however, the increased hydraulic loading will likely result in decreased retention time and suspended solids removal leading to higher BOD and nitrogen concentrations in Leprino’s effluent. However, with the expanded LAA actual loading rates will remain within acceptable limits consistent with the existing WDRs.

A wastewater treatment flow schematic showing wastewater flows from the Lemoore WWTF and Leprino is included in Attachment C of the Order. At the River Ranch Property, the combined effluent will be discharged into the irrigation canal system and blended with other irrigation water supplies before being applied to crops.

Average wastewater quality for the City’s treated domestic wastewater, Leprino’s treated process wastewater, and the combined effluent from October 2019 through September 2022 is presented in Table 1 below:

**TABLE 1. Average Wastewater Quality**

<u>Constituent</u>	<u>Units</u>	<u>Lemoore WWTF</u>	<u>Leprino</u>	<u>Combined Effluent</u>
Biochemical Oxygen Demand	mg/L	58	4.1 (see 1 below)	11.2 (see 1 below)
Total Suspended Solids	mg/L	56.1	17	67.1
Electrical Conductivity	µmho/cm	1,120	2,904	2,335
Nitrate as Nitrogen	mg/L	ND	3.7	2.7
Ammonia as Nitrogen	mg/L	34	0.5	10.8
Total Kjeldahl Nitrogen	mg/L	44.9	7.2	21.7
Total Nitrogen	mg/L	45.6	7.6 (see 1 below)	23.4 (see 1 below)
Total Dissolved Solids	mg/L	620	1,616	1,310
Fixed Dissolved Solids	mg/L	---	1,265	985
Sodium	mg/L	197	396	341
Calcium	mg/L	7.6	67.7	43
Chloride	mg/L	117	372	287
Sulfate	mg/L	28	14.0	15.7

<u>Constituent</u>	<u>Units</u>	<u>Lemoore WWTF</u>	<u>Leprino</u>	<u>Combined Effluent</u>
Boron	mg/L	0.86	0.4	0.58
Arsenic	µg/L	<0.01	2.6	3.1
Selenium	µg/L	<0.02	1.3	1.2

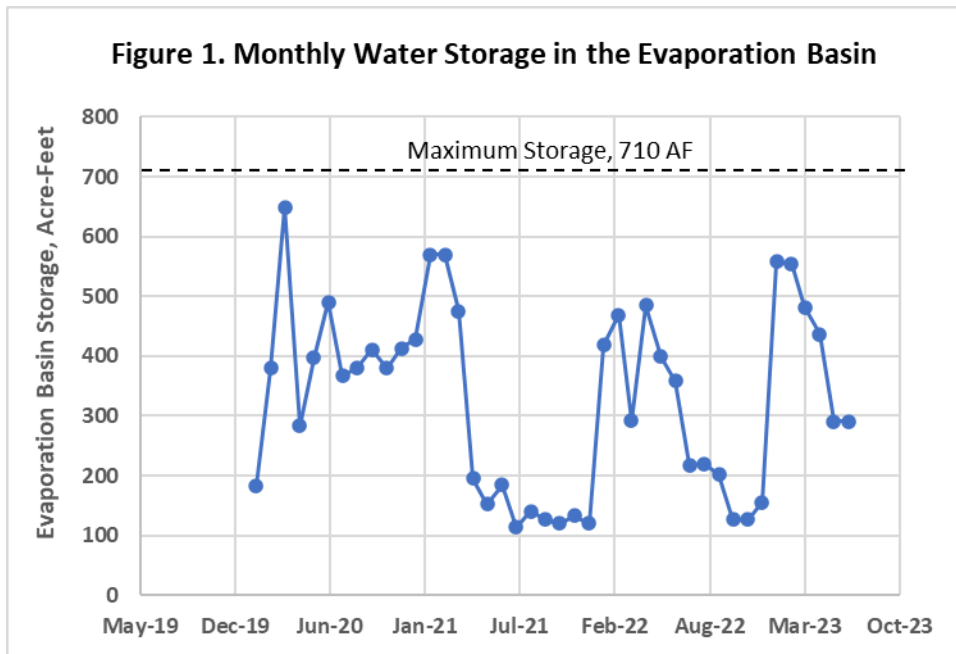
1. Concentrations are likely to increase with the proposed increase in flows.

### **River Ranch Evaporation Basin**

A subsurface drainage system consisting of tile drains, collection sumps, and an evaporation basin were installed at Stone Ranch in 1984 due to shallow groundwater in the area. The Nederend property does not have subsurface drainage. Discharge of tile drainage water to the evaporation basin is currently regulated by existing WDRs Order R5-2019-0008. The basin covers approximately 200 acres and is divided into three cells (north cell, east cell, and west cell) with a storage capacity of approximately 710 acre-feet with two feet of freeboard. Maximum depth of the basin is 5.75 feet with a maximum water depth of 3.75 feet and side slopes of approximately 8:1 (horizontal: vertical).

Sampling shows that selenium levels in the combined effluent are relatively low and of similar quality to existing irrigation water at River Ranch. The reuse of the combined effluent for irrigation of crops at River Ranch is not expected to significantly change selenium levels in the evaporation basin. The Order requires continued monitoring of the combined effluent for selenium and carries over requirements for selenium monitoring of water, sediment and invertebrates in the evaporation basin, and wildlife monitoring including bird counts and nest egg surveys.

Extreme wet weather conditions can occur at the River Ranch Property between October and April. Occasionally precipitation may exceed one inch or there will be multiple days of rain rendering access roads to the fields inaccessible. During such times the irrigation canals could overflow and a float-control pump may discharge effluent directly to the evaporation basin. Based on recent meteorological data this is likely to be a rare occurrence happening only a few times a year. Leprino and the Stone Ranch Land Company (farming contractor) will have an extreme weather management plan in place to minimize potential discharges to the evaporation basin including minimizing storage of excess irrigation water in the irrigation canals when wet weather is anticipated as well as storing excess effluent in Leprino's lagoons or the Lemoore WWTF facultative/storage ponds during wet weather events. The measured monthly average and maximum storage volumes reported in Quarterly Monitoring Reports from 2020 through Spring 2023 were 327 acre-feet and 649 acre-feet, respectively. This is less than the maximum available storage volume of 710 acre-feet as shown in Figure 1.



The increase to 7.0 mgd is not expected to make a significant difference given the short duration of the direct discharge to the evaporation basin and implementation of a management plan to minimize effluent discharge during extreme weather events.

**Groundwater Considerations**

There are three primary clay layers beneath River Ranch that restrict downward migration of groundwater; the “A Clay” between 60 and 100 feet below site grade (bsg); the “C Clay” between 250 and 300 feet bsg; and the “E Clay” (or Corcoran Clay) between about 610 and 700 feet bsg. Shallow groundwater is monitored quarterly at three monitoring wells (MW-1R, MW-2, and MW-3) that were installed in September and October 2021. Shallow groundwater beneath the site ranges from about 6 to 14 feet bsg, based on data from the monitoring wells. Long-term monitoring of shallow groundwater at former well MW-1 is summarized in Table 6 of the Order.

Groundwater considerations are discussed in Findings 47 through 57 of the Order.

**Antidegradation**

Antidegradation analysis and conclusions are discussed in Findings 77 through 91 of the Order.

**Discharge Prohibitions, Effluent Limitations, Discharge Specifications, and Provisions**

The Order limits the maximum monthly average discharge flow to 7.0 mgd on the combined discharge. Of this amount, average monthly limits of 5.0 mgd for Leprino and

2.0 mgd for the City shall apply. This Order sets effluent limits on the City's discharge for BOD and TSS of 40 mg/L (monthly average) and 80 mg/L (daily maximum); and total coliform organisms of 23 MPN/100 mL (7-day median), and 240 MPN/100 ML (30-day maximum). The Order also sets a cycle average BOD<sub>5</sub> loading limit of 100 lbs/ac/day for the LAA, and requires wastewater be applied at agronomic rates for nitrogen. In addition, the Order prescribes groundwater limitations that state that the discharge shall not cause or contribute to groundwater containing concentrations in excess of the maximum contaminant levels (MCLs) identified in Title 22 or in excess of natural background water quality, whichever is greater. The Order also applies a Salinity Action Level to the combined discharge of 1,400 mg/L FDS as an annual average, and sets specific requirements for a Work Plan and salinity evaluation if exceeded.

### **Monitoring Requirements**

Section 13267 of the Water Code authorizes the Central Valley Water Board to require monitoring and technical reports as necessary to investigate the impact of waste discharges on waters of the State. Water Code Section 13268 authorizes assessment of civil administrative liability where appropriate. The Order includes influent, effluent, sludge/solids, source/irrigation water, LAA, groundwater, evaporation basin, and wildlife monitoring requirements. This monitoring is necessary to characterize the discharge and evaluate compliance with the effluent/groundwater limitations, discharge specifications, and provisions prescribed in the Order.

### **Salt and Nitrate Control Programs Regulatory Considerations**

As part of the Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) initiative, the Central Valley Water Board adopted Basin Plan amendments incorporating new programs for addressing ongoing salt and nitrate accumulation in the Central Valley at its 31 May 2018 Board Meeting (Resolution R5-2018-0034). The Basin Plan amendments became effective on 17 January 2020 and were revised by the Central Valley Water Board in 2020 with [Resolution R5-2020-0057](https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/resolutions/r5-2020-0057_res.pdf) ([https://www.waterboards.ca.gov/centralvalley/board\\_decisions/adopted\\_orders/resolutions/r5-2020-0057\\_res.pdf](https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/resolutions/r5-2020-0057_res.pdf)).

For the Salt Control Program, dischargers that are unable to comply with the stringent salinity requirements will instead need to meet performance-based requirements and participate in a basin-wide effort known as the Prioritization and Optimization Study (P&O Study) to develop a long-term salinity strategy for the Central Valley. To comply with the Salt Control Program, the Dischargers (CV-SALTS ID 2004) submitted a Notice of Intent and paid the fees electing to participate in the P&O Study.

For the Nitrate Control Program, dischargers unable to comply with stringent nitrate requirements will be required to take on alternate compliance approaches that involve providing replacement drinking water to persons whose drinking water is affected by nitrates. Dischargers may comply with the new nitrate program either individually

(Pathway A) or collectively with other dischargers (Pathway B). A portion of River Ranch is within Groundwater Basin 5-237 (Kings Groundwater Basin), which is a Priority 1 Basin. To comply with the Nitrate Control Program, the Dischargers have selected Pathway B and is an active member of the Kings Water Alliance Management Zone.

The CV-SALTS initiative will result in regulatory changes that will be implemented through conditional prohibitions and modifications to many WDRs regionwide, including the WDRs that regulate discharges from the Facility. More [information regarding the CV-SALTS regulatory planning process](#) can be found at the following link:  
[https://www.waterboards.ca.gov/centralvalley/water\\_issues/salinity/](https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/)

### **Reopener**

The conditions of discharge in the Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. The Order sets limitations based on the information provided thus far. If applicable laws and regulations change, or once new information is obtained that will change the overall discharge and its potential to impact groundwater, it may be appropriate to reopen the Order.

### **Legal Effect of Rescission of Prior WDRs or Orders on Existing Violations**

The Central Valley Water Board's rescission of prior waste discharge requirements and/or monitoring and reporting orders does not extinguish any violations that may have occurred during the time those waste discharge requirements or orders were in effect. The Central Valley Water Board reserves the right to take enforcement actions to address violations of prior prohibitions, limitations, specifications, requirements, or provisions of rescinded waste discharge requirements or orders as allowed by law.