

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

WASTE DISCHARGE REQUIREMENTS ORDER R5-2013-XXXX

FOR

PARAMOUNT FARMS INTERNATIONAL, LLC
EL DORADO PISTACHIO PROCESSING PLANT
AND PARAMOUNT FARMING COMPANY, LLC
FRESNO COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Central Valley Water Board), finds that:

1. Paramount Farms International, LLC (hereafter Paramount or Discharger) owns and operates a Pistachio Processing Plant (Plant) at 39840 El Dorado Avenue near Coalinga in Fresno County, Section 26, T20S, R16E, MDB&M, as shown on Attachment A, which is attached hereto and made part of this Order. Process wastewater from the Plant is applied as irrigation water on farmland owned by Paramount Farming Company, LLC, a sister company of Paramount, which is named as a Co-discharger in this Order.
2. The Plant, which has been in operation since 1995, processes, stores, and sorts pistachio nuts. Final processing and packaging takes place at another facility. In general the pistachio processing season takes place over a 30 to 45 day period from late August through October.
3. Waste Discharge Requirements (WDRs) Order 97-131 adopted by the Central Valley Water Board on 20 June 1997, prescribes requirements for the discharge. Order 97-131 allows a seasonal average discharge of up to 0.35 million gallons per day (mgd) for the pistachio processing season, with a maximum daily discharge of up to 0.45 mgd.
4. In 2005, Paramount acquired the Plant from Gold Coast Pistachio, Inc. Following acquisition of the Plant, Paramount determined that the land application area was insufficient to handle the discharge and that the volume of water being used in the Plant was inadequate to meet quality control requirements. In November 2010, Paramount submitted a Report of Waste Discharge to increase flows, and to expand the available land application area for discharge of process wastewater. In November 2012, Paramount submitted an addendum to its RWD to further expand the land application area. A revised RWD was submitted on 15 May 2013 to address comments from Central Valley Water Board staff and consolidate information regarding changes in the discharge. Additional information to complete the RWD was submitted on 11 June 2013.
5. Update of Order 97-131 is necessary to reflect changes and expansion of the Plant's operation and discharge and to ensure that the discharge is consistent with the Central Valley Water Board's plans and policies.

Existing Facility and Discharge

6. During the 30 to 45 day pistachio processing season, the Plant may operate up to 24 hours a day, seven days a week. Pistachios brought in from the fields are cleaned and processed to remove the hulls. Upon arrival, the trailers are weighed and the nuts are unloaded and pre-cleaned to remove leaves and stems. Immediately after pre-cleaning, the hulls of the

pistachios are removed using abrasive rollers. The pistachios are then placed in a float tank to separate out closed and blank pistachios. Blanks and closed pistachios are hauled off-site for further processing at another facility or temporarily stored on-site (till the end of the season) and sold for use as biomass fuel or other industrial use.

7. Wastewater, generated from the cleaning and hulling process, is captured and discharged to an unlined settling pond with an operational capacity of about 10.9 million gallons. Hulls, shells, and skins removed during the hulling process are discharged along with the process wastewater to the settling pond. On an emergency basis, in case of a significant storm event, failure of the irrigation system, or when irrigation is temporarily halted for system maintenance, harvest, or crop demands during the processing season, Paramount may temporarily discharge wastewater to a secondary holding area adjacent to the settling pond consisting of nine shallow blocks with a combined capacity of about 8.5 million gallons. Since the processing and discharge occurs outside of the normal rain season discharge of wastewater to the emergency storage area is unlikely.
8. From the settling pond, the wastewater is pumped out into the irrigation system for reuse on approximately 80 acres of farmland adjacent to the Plant. The Plant and land application area includes parcels 073-090-32S and 073-090-04S.
9. Source water for the Plant is surface water from the California Aqueduct provided by the Westlands Water District. The water is filtered and chlorinated prior to use in the Plant. A sample of the source water collected in July 2011 had an EC of 180 umhos/cm, TDS of 97 mg/L, potassium of 1.5 mg/L, and nitrate (as NO₃) below detection limits.
10. Wastewater from the Plant consists of hulling water and equipment wash down generated during the pistachio processing season. Samples of the wastewater are collected and analyzed for constituents of concern on a weekly basis during the season. The following table presents wastewater quality data for the discharge collected from 2005 through 2011.

Table 1. Effluent Quality

<u>Constituent</u>	<u>Units</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Average</u>
pH	s.u	4.3	9.4	5.1 ¹
Electrical Conductivity (EC)	umhos/cm	1,854	7,400	3,800
Total Dissolved Solids (TDS)	mg/L	3,252	6,880	5,200
Biochemical Oxygen Demand (BOD)	mg/L	4,200	9,800	6,700
Total Nitrogen	mg/L	130	330	227
Chloride	mg/L	42	160	113
Sodium	mg/L	35	84	51
Potassium	mg/L	760	1,300	1,024

¹ Average pH values were calculated by converting the values into hydrogen ion concentrations averaging the data and then converting the resulting concentration back to a pH value.

11. Domestic wastewater generated at the Plant is discharged to an on-site septic tank/leachfield system regulated by Fresno County.

Planned Changes to the Facility and Discharge

12. According to the RWD, Paramount proposes to increase its average seasonal daily flow from 0.35 mgd to 1 mgd (about a 65% increase), with a maximum daily flow limit of 2.5 million gallons and an annual flow limit of 42 million gallons for the season. The increased flows will improve hulling operations and allow for better quality control within the Plant. No increase in the production capacity of the Plant is proposed.
13. With no increase in production capacity, the increased flows are expected to have a diluting effect on the wastewater, which may reduce constituent concentrations by as much as 25 to 60 percent.
14. To handle the increased flows, Paramount plans to expand its land application area to include four pistachio orchards owned by Paramount Farming Company, LLC, a sister company of Paramount. The four pistachio orchards, with a combined net acreage of about 600 acres, include parcels 073-070-22S, 073-070-24S, 085-030-18S and 085-320-26S.
15. Due to factors beyond Paramount's control, installation of a new pipeline to transfer wastewater from the Plant to the new land application areas may not occur prior to the next pistachio processing season. This Order holds wastewater flows to the existing 80-acre land application area at the current limits of 0.35 mgd (seasonal average) and 0.45 mgd (daily maximum) until completion of the new irrigation line, with a time schedule to complete the installation prior to the start of the 2015 season.
16. At the proposed annual flow limit of 42 million gallons per year, process wastewater applied to the pistachio orchards will account for less than 10% of the crop's irrigation demand.
17. Wastewater from the settling pond will be pumped through a series of sand filters to remove fine particulates and then piped to the pistachio orchards and applied via a micro drip irrigation system to supplement existing irrigation water. According to the RWD, wastewater will be applied in 24 hour sets typically with a 7-day resting period between applications.
18. Solids, consisting principally of hulls, shells, and skins will be removed from the bottom of the settling pond following the processing season, at least every other year. Solids removed from the settling pond and pre-cleaning solids collected during the processing season will be spread and incorporated into the soil on the existing 80 acre land application area directly north of the Plant (hereafter referred to as the Solids Reuse Area). A winter fodder crop will then be planted to take advantage of the moisture in the hulls and the winter rain season. This Order requires annual soil sampling within the Solids Reuse Area to evaluate nutrient uptake and monitor constituent concentrations in soil.

Other Considerations

19. Excessive application of food processing wastewater to land can create objectionable odors, soil conditions that are harmful to crops, and degradation of underlying groundwater by overloading the soil profile and causing waste constituents (i.e., organic carbon, nitrates, other salts, and metals) to percolate below the root zone. Typically, irrigation with high-strength wastewater can result in high BOD loading on the day of application, which can deplete oxygen in the soil and lead to anoxic conditions. When insufficient oxygen is present below the ground surface, anaerobic decay of organic matter can create reducing conditions that convert metals naturally present in the soils as relatively insoluble (oxidized) forms to more soluble (reduced) forms. This condition can be exacerbated by acidic soils and/or acidic wastewater. If reducing conditions do not reverse as the percolate travels thorough the vadose zone, these dissolved metals (primarily iron, manganese, and arsenic) can degrade groundwater quality. Many aquifers contain enough dissolved oxygen to reverse the process, but excessive BOD loading over extended periods may cause beneficial use impacts associated with these metals.
20. It is reasonable to expect some attenuation of various waste constituents that percolate below the root zone within the vadose (unsaturated) zone. Specifically, excess nitrogen can be mineralized and denitrified by soil microorganisms, organic constituents (measured as both BOD and volatile dissolved solids) can be oxidized, and the cation exchange capacity of the soil may immobilize some salinity constituents.
21. With an average nitrogen concentration of about 227 mg/L, the nitrogen load at 42 million gallons per year on 600 acres would be about 132 lbs/acre/year. This is less than the annual nitrogen uptake for pistachio trees of about 200 to 250 lbs/acre/year.
22. The maximum BOD loading rate that can be applied to land without creating nuisance conditions or leaching of metals can vary significantly depending on soil conditions and operation of the land application system. *Pollution Abatement in the Fruit and Vegetable Industry*, published by the United States Environmental protection Agency (USEPA Publication 625/3-77-0007), cites BOD loading rates for irrigation purposes in the range of 36 to 100 lbs/acre/day to prevent nuisance, but indicates that loading rates can be even higher under certain conditions. The studies that supported this report did not evaluate actual or potential groundwater degradation associated with those loading rates. There are few studies that have attempted to determine maximum BOD loading rates for protection of groundwater quality. Those that have are not readily adapted to varying soil, groundwater, and climate conditions that are prevalent throughout the region.
23. With an average BOD concentration of about 6,700 mg/L, the average BOD loading to the 600-acre land application area would be about 93 lbs/acre/day for the season. This Order sets a cycle average BOD loading rate of 100 lbs/acre/day and requires the Discharger to prepare a Wastewater and Nutrient Management Plan to establish monitoring procedures and a plan to deal with objectionable odors and/or nuisance conditions should they develop.

With the conditions in this Order, the short processing season (30 to 45 days), and careful management of the land application areas including implementation of best management

practices, such as blending with higher quality irrigation water and allowing for sufficient resting periods between applications, the discharge is not expected to cause reducing and/or nuisance conditions.

24. Food processing wastewater may contain elevated concentrations of total dissolved solids (TDS) resulting from the fruit and vegetable products or materials used for production. Typically, a percentage of the TDS is organic, which will generally decompose into its component elements and can be utilized by plants and microorganisms in the soil. In contrast, the fixed dissolved solids (FDS), is that portion of the TDS which consists of inorganic constituents, which can accumulate in the soil. Excessive salt may leach to groundwater where it can degrade groundwater quality. Growing and harvesting crops provides a means to remove some of these constituents, particularly calcium, magnesium, potassium, phosphorus, nitrate, and ammonia.

Site-Specific Conditions

25. The Plant and land application areas are in western Fresno County. Topographic maps show that the area slopes to the northeast toward the Valley Floor.
26. United States Department of Agriculture Natural Resources Conservation Service (NRCS) soil survey maps characterize approximately the top six feet of soil. Soils in the vicinity of the Plant and land application areas are primarily Polvadero sandy loam, Excelsior sandy loam, and Westhaven loam. These soils are well to moderately well drained, non-saline to slightly saline, with permeability's from about 0.2 to 0.57 inches per hour (Polvadero sandy loam, and Westhaven loam) and 0.57 to 2 inches per hour (Excelsior sandy loam). These soils have irrigated land capability classifications of 1 (Polvadero sandy loam and Westhaven loam) and 2w (Excelsior sandy loam). Class "1" soils have no limitations on the types of crops that can be grown, and Class "2" soils have only moderate limitations that restrict the types of crops that can be grown. Subclass "w" indicates that water in or on the soil may interfere with plant growth or cultivation.
27. The climate in the Coalinga area is characterized by hot dry summers and mild winters. The rainy season generally extends from November through April. Occasional rains occur during the spring and fall months, but summer months are dry. Based on publications from the Department of Water Resources and data from the Western Regional Climate Center, the average annual rainfall for the Coalinga area is about 8.2 inches, with a 100-year-return-period wet year rainfall of about 16.4 inches. From the California Irrigation Management System (CIMIS), the mean reference evapotranspiration rate (ET_o) for the nearby Coalinga station is about 60.39 inches per year.
28. Storm water around the Plant is absorbed into soils at the site, or is collected and diverted into drains in the processing area and discharged to the wastewater settling pond. The Discharger is not required to obtain coverage under a National Pollutant Discharge Elimination System general industrial storm water permit since all storm water runoff is reportedly retained on-site and does not discharge into a water of the U.S.
29. Federal Emergency Management Agency (FEMA) maps show that the Plant including the settling pond and the Solids Reuse Areas lie in Zone X. This area is outside of the one

percent annual chance floodplain. The Zapato Chino Canyon Creek, an ephemeral stream, crosses a portion of the pistachio orchards where process wastewater will be applied. FEMA maps show that this portion of the land application areas lies within Flood Zone A, an area subject to potential flooding though no baseline flood level has been determined. Paramount Farming Company has implemented several management controls including 20-foot setbacks from the creek bed, drip irrigation, and cessation of irrigation during or within 24 hours of a storm event to minimize potential impacts to the creek. With the discharge of wastewater to the fields outside of the normal rain season and implementation of the management controls specified above, the potential for wastewater runoff into the creek is minimal.

30. The Plant and land application areas are generally surrounded by agricultural or open land. There are four mobile homes directly south of the Plant used for employee housing, and the Guijarral Hills Oil Field is immediately south and west of the Plant. Primary crops grown in the vicinity of the site include pistachios, almonds, field, and fodder crops, according to the Fresno County 2010 land use survey.

Groundwater Considerations

31. According to the Westlands Water District Well Survey for 2012, first-encountered groundwater in the vicinity of the Plant and land application areas occurs at about 350 to 400 feet below ground surface (bgs). Regional groundwater flow is to the northeast toward the Valley Floor.
32. The upper groundwater zone above the Corcoran Clay is unconfined or semi-confined consisting of unconsolidated deposits of interbedded sands, silts, and clays. A groundwater report by the United States Geological Survey indicates that the Corcoran Clay layer is thin or lacking in this area (*Groundwater Conditions in the Mendota-Huron Area 1360-G, 1957*). A well log for a well in the vicinity of the expanded land application area reported numerous clay layers alternating with layers of sand and gravel down to about 1,200 feet bgs. Based on the log, there may be as much as 156 cumulative feet of clay between ground surface and first encountered groundwater. The well log indicates that drillers encountered a layer of blue clay, which may be the Corcoran Clay, approximately 10 feet thick at about 1,020 feet bgs.
33. There are few wells in the area. Groundwater in the area is of poor quality with respect to salinity, typical of the west side of the San Joaquin Valley. Published data for groundwater wells in the area show high concentrations of saline constituents (largely sodium and sulfate). Table 2 presents groundwater data for wells in the area obtained from the *Water Quality Portal* database provided by the United States Geological Survey, National Water Quality Monitoring Council, and United States Environmental Protection Agency.

Table 2. Well Data

Parameter	020S016E 32D003M	020S016E 26D002M	020S016E 28D001M	020S016E 36Q001M	020S017E 31N001M
Well Depth (feet bgs)	247	2081	1250	1506	2012
Sample Date (year)	1951	1968	1968	1951	1951
EC (umhos/cm)	2860	2140	2480	1360	1470

Table 2. Well Data

Parameter	020S016E 32D003M	020S016E 26D002M	020S016E 28D001M	020S016E 36Q001M	020S017E 31N001M
TDS (mg/L)	2240	1530	1740	878	898
Nitrate as NO ₃ (mg/L)	65	11	7.2	2	2
Chloride (mg/L)	160	140	170	46	56
Sodium (mg/L)	320	340	440	230	280
Potassium (mg/L)	7	na	na	na	na
Sulfate (mg/L)	1300	780	840	490	430

na = not analyzed

34. Most of these wells were constructed at depths from about 1,200 to 2,000 feet bgs. Only one well (Well 020S016E32D003M) was constructed with a depth of less than 500 feet bgs. Well 020S016E32D003M, sampled in 1951, had the highest reported concentrations for constituents of concern, with EC and TDS of 2,860 umhos/cm and 2,240 mg/L, respectively. Nitrate (as NO₃) in this well in 1951 was reported at 65 mg/L, which exceeds the primary MCL of 45 mg/L.
35. Paramount will not be required to conduct groundwater monitoring at this time. This Order requires wastewater effluent monitoring and loading calculations. Should constituent concentrations and loadings exceed those described in Findings 10, 21, and 23, the monitoring and reporting program will be modified to require a groundwater monitoring evaluation work plan to evaluate any potential impacts from the discharge.

Basin Plan, Beneficial Uses, and Water Quality Objectives

36. The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition, revised January 2004* (Basin Plan) designates beneficial uses, establishes narrative and numerical water quality objectives, contains implementation plans and policies for protecting all waters of the Basin, and incorporates, by reference, plans and policies of the State Water Board. In accordance with Water Code section 13263(a), these requirements implement the Basin Plan.
37. The Plant and land application areas lie within the Westlands Hydrologic Area (551.10) of the South Valley Floor Hydraulic Unit, as depicted on interagency hydrologic maps prepared by the State Water Resources Control Board and the Department of Water Resources, revised in August 1986. Local drainage is to Zapato Chino Canyon Creek and Los Gatos Creek. The Basin Plan designates beneficial uses of South Valley Floor Waters as agricultural supply; industrial service and process supply; water contact and non-contact recreation; warm freshwater habitat; wildlife habitat; rare, threatened, or endangered species; and groundwater recharge.
38. The Plant and land application areas lie within Detailed Analysis Unit (DAU) 244, in the Westside Basin Hydrologic Unit. The Basin Plan identifies the beneficial uses of groundwater as municipal and domestic supply, agricultural supply, and industrial service supply.

39. The Basin Plan encourages the reuse of wastewater and identifies crop irrigation as a reuse option where the opportunity exists to replace an existing or proposed use of fresh water with recycled water.
40. The Basin Plan establishes narrative water quality objectives for Chemical Constituents, Taste and Odors, and Toxicity. The Toxicity objective, in summary, requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial uses. Quantifying a narrative water quality objective requires a site-specific evaluation of those constituents that have the potential to impact water quality and beneficial uses.
41. The Basin Plan Chemical Constituents water quality objective requires, at a minimum, waters designated as domestic or municipal supply to meet the MCLs specified in Title 22 of CCR. The Basin Plan recognizes that the 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.
42. The Basin Plan states that when compliance with a narrative objective is required to protect specific beneficial uses, the Central Valley Water Board will, on a case-by-case basis, adopt numerical limitations in order to implement the narrative objective.
43. In the absence of specific numerical water quality limits, the Basin Plan methodology is to consider any relevant published criteria. General salt tolerance guidelines, such as Water Quality for Agriculture by Ayers and Westcot and similar references indicate that yield reductions in nearly all crops are not evident when irrigation water has an EC less than 700 $\mu\text{mhos/cm}$, sodium of 69 mg/L or less, and chloride of 106 mg/L or less. There is, however, an eight- to ten-fold range in salt tolerance for agricultural crops and the appropriate salinity values to protect agriculture in the Central Valley are considered on a case-by-case basis. It is possible to achieve full yield potential with waters having EC up to 3,000 $\mu\text{mhos/cm}$ if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop. Given the slightly saline soils, limited water available for irrigation, and poor quality of groundwater, growing salt sensitive crops in the area is difficult. Therefore, the most restrictive water quality objectives for protection of agricultural beneficial uses would not be applicable in this case.
44. The Basin Plan identifies the greatest long-term problem facing the entire Tulare Lake Basin as the increase in salinity in groundwater, which has accelerated due to the intensive use of soil and water resources by irrigated agriculture. The Basin Plan recognizes that degradation is unavoidable until there is a long-term solution to the salt imbalance. Until then, the Basin Plan establishes several salt management requirements, including:
 - a. The incremental increase in salts from use and treatment must be controlled to the extent possible. The maximum EC of the effluent discharged to land shall not exceed the EC of the source water plus 500 $\mu\text{mhos/cm}$.
 - b. Discharges to areas that may recharge good quality groundwater shall not exceed an EC of 1,000 $\mu\text{mhos/cm}$, a chloride content of 175 mg/L, or boron content of 1.0 mg/L.

45. The Basin Plan does allow for an exception for food processing industries that discharge to land, where the discharge exhibits a disproportionate increase in EC over source water due to unavoidable concentrations of organic dissolved solids, provided beneficial uses are protected.
46. Samples of the discharge were collected in 2008 and 2009 to compare organic and inorganic dissolved solids in the discharge. Concentrations for TDS and FDS ranged from 4,370 to 6,880 mg/L and 1,470 to 3,000 mg/L, respectively. In general, the results of this sampling showed that there is a 35 to 50 percent increase in TDS due to the presence of organic dissolved solids. In addition, the Discharger implements best management practices including use of cleaning chemicals at labeled rates, and reuse of wastewater for irrigation of crops to manage the salinity of the discharge. Thus, the discharge is eligible for the Basin Plan exception.

This Order will require effluent monitoring for TDS and FDS to ensure exception eligibility continues, and require the Discharger to prepare and implement a salinity control plan to minimize the salinity of the discharge to the extent feasible.

Antidegradation Analysis

47. State Water Board Resolution No. 68-16, the *Policy with Respect to Maintaining High Quality Water of the State* (the "Antidegradation Policy"), prohibits the Board from permitting the degradation of groundwater unless it has been shown that:
 - a. The degradation does not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives;
 - b. The degradation will not unreasonably affect present and anticipated future beneficial uses;
 - c. The Discharger employs Best Practicable Treatment or Control (BPTC) to minimize degradation; and
 - d. The degradation is consistent with the maximum benefit to the people of the state.
48. Constituents of concern in the discharge (those with the greatest potential to affect beneficial uses of receiving water) include organics, nutrients, and salts. However, the discharge is not expected to cause unreasonable groundwater degradation because:
 - a. For organics, with an average BOD concentration of 6,700 mg/L, the average BOD loading rate to the land application area would be about 93 lbs/acre/day for the season. Instantaneous BOD loading rates could range from about 200 lbs/acre/day to as high as 2,300 lbs/acre/day given the maximum flow rate of 2.5 mgd depending on the applied acreage. However, given the short processing season, soil lithology, depth-to-groundwater, and implementation of best management practices including blending with higher quality irrigation water, monitoring of the land application areas, and resting periods between applications, the discharge is not expected to cause groundwater degradation due to organic loading.

To minimize the potential for reducing and/or nuisance conditions, this Order sets a cycle average BOD loading rate of 100 lbs/acre/day, and requires the Discharger to prepare a Wastewater and Nutrient Management Plan.

- b. For nitrogen, with an average nitrogen concentration of about 227 mg/L and an annual flow of 42 million gallons per year, the nitrogen load to the 600-acre land application area would be about 132 lbs/acre/year. This is less than the nitrogen uptake for pistachios of 200 to 250 lbs/acre/year. With proper management of the wastewater, and proper application of additional fertilizers, the discharge should not degrade groundwater for nitrates.
- c. For salinity, with an average effluent EC and TDS of 3,800 umhos/cm and 5,200 mg/L, respectively, the discharge exceeds groundwater quality for the area. However, as discussed in Findings 24 and 46, almost half of the salinity of the discharge is from organic dissolved solids, which will break down in the soil profile. Much of the remaining portion is from potassium, which is a major plant nutrient that moves slowly through the soil profile and is readily taken up by crops. Given the short processing season, with depth-to-groundwater at greater than 350 feet bgs, and percolation of wastewater through soils of alternating layers of sands and clays, the potential for the discharge to reach and significantly impact groundwater is minimal.

In addition, the discharge will make up less than 10% of the pistachio crop's irrigation requirement. Supplemental irrigation water will be primarily surface water provided by the Westlands Water District with a TDS of about 97 mg/L (July 2011). Blending of wastewater and irrigation water will result in a combined TDS of about 600 mg/L, which is less than groundwater quality reported for the area prior to 1968.

- d. For chloride, with an average concentration of 113 mg/L, the concentration in the discharge is less than that reported in groundwater near the Plant and settling pond prior to 1968. For the area around the land application areas east of the Plant, where chloride concentrations in groundwater were slightly better (e.g., 46 and 56 mg/L), dilution with higher quality irrigation water, would result in a combined chloride concentration of about 26.5 mg/L, which is better than groundwater quality in the area and should not cause groundwater degradation for chloride.
- e. For potassium, with an average concentration of about 1,024 mg/L, the potassium load from the discharge at 42 million gallons will be about 600 lbs/acre/year. This exceeds the general agronomic rate for potassium of about 200 lbs/acre/year for pistachio trees. However, potassium readily binds to soil, and crops can and will take up more potassium than required, if available, with no reduction in yield. There are no specific water quality objectives set for potassium other than the overall objectives set for EC and TDS.

Treatment and Control Practices

49. The Discharger provides, or will provide, as required by this Order, treatment and control of the discharge that incorporates:
- a. Use of cleaning chemicals at labeled rates;
 - b. Reuse of wastewater for irrigation of crops;
 - c. Blending with higher quality irrigation water;
 - d. At least daily inspections of the land application areas during times of discharge;
 - e. Preparation of a Salinity Control Plan and Wastewater and Nutrient Management Plan; and
 - f. Appropriate solids disposal practices.

The treatment or control practices described above represent “best practical treatment or control practices” of the discharge.

Antidegradation Conclusions

50. Economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State, and therefore sufficient reason exists to allow limited groundwater degradation around the Plant and land application areas to accommodate the Discharger’s growth. Given depth-to-groundwater of 350 to 400 feet bgs, the short processing season, groundwater quality in the area, and implementation of best management practices including reuse on crops, and blending with higher quality irrigation water, the discharge is not expected to cause unreasonable groundwater degradation.
51. This Order is consistent with the Antidegradation Policy since: (a) the Discharger has implemented best practicable treatment or control of the constituents that will result in the degradation, (b) the limited degradation allowed by this Order will not unreasonably affect present and anticipated future beneficial uses of groundwater, or result in water quality less than water quality objectives, and (c) the limited degradation is of maximum benefit to people of the State.
52. 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 worse than background or the water quality objectives set forth in the Basin Plan.

CEQA

53. On 20 June 1997, Central Valley Water Board, in accordance with the California Environmental Quality Act (Pub. Resources Code, § 21000 et seq.), adopted a Negative Declaration for the operation of a pistachio processing plant at 39840 El Dorado Avenue near Coalinga in Fresno County, with discharge of pistachio processing wastewater of up to

0.45 mgd (maximum) and 0.35 mgd (average) to a wastewater settling pond and then to 80 acres of agricultural land for reuse. The Negative Declaration found that the project would have a less than significant effect on water quality.

54. Changes at the Plant to increase flows by approximately 65% and expand the land application area has the potential to impact the environment as a result of the Central Valley Water Board's discretionary action to adopt this Order. As such, the Central Valley Water Board is the lead agency for the purposes of CEQA. An Initial Study and Mitigated Negative Declaration for this project was submitted to the State Clearing House for distribution on 17 September 2013. The Central Valley Water Board adopted the final Mitigated Negative Declaration on 5/6 December 2013.
55. This Order includes requirements to assure compliance with the Water Code and the Tulare Lake Basin Plan, and implements measures necessary to lessen or avoid significant adverse environmental impacts from the increase in flows and expansion of the land application areas to less than significant levels. Specifically, this Order:
- a. Sets a maximum daily flow, an average seasonal daily flow, and an annual flow limit;
 - b. Sets a cycle average BOD loading rate to the land application areas of 100 lbs/acre/day;
 - c. Requires the application of wastewater be at agronomic rates for nitrogen and hydraulic loading;
 - d. Requires annual soil sampling in the Solids Reuse Area;
 - e. Establishes groundwater limitations; and
 - f. Establishes a monitoring and reporting program.

Designated Waste and Title 27

56. California Code of Regulations, Title 27 (hereafter Title 27) contains regulatory requirements for the treatment, storage, processing, and disposal of solid waste, which includes designated waste, as defined by Water Code section 13173. However, Title 27 exempts certain activities from its provisions. Discharges regulated by this Order are exempt from Title 27 pursuant to a provision that exempts wastewater under specific conditions. This exemption, found at Title 27, section 20090, is described below:
- (b) Wastewater – Discharges of wastewater to land, including but not limited to evaporation ponds, percolation ponds, or subsurface leachfields if the following conditions are met:
 - (1) The applicable regional water quality control board has issued WDRs, reclamation requirements, or waived such issuance;
 - (2) The discharge is in compliance with applicable water quality control plan; and
 - (3) The wastewater does not need to be managed according to Chapter 11, Division 4.5, Title 22 of this code as a hazardous waste.

57. The discharge authorized herein is exempt from the requirements of Title 27 in accordance with Title 27, section 20090(b) because:
- a. The Central Valley Water Board is issuing WDRs.
 - b. The discharge is in compliance with the Basin Plan, and;
 - c. The treated effluent discharged to the land application areas does not need to be managed as hazardous waste.

Other Regulatory Considerations

58. The annual fee for the discharge is based on a Threat to Water Quality and Complexity rating of 2C (Cal. Code Regs., tit. 23, § 2200.), as defined below:
- 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 or water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance.”
 - b. Category C complexity: “Any discharger for which waste discharge requirements have been prescribed pursuant to Section 13263 of the Water Code and not included in Category A or B. Included are dischargers having no waste treatment systems or that must comply with best management practices, dischargers having passive treatment and disposal systems, or dischargers having waste storage systems with land disposal.”

General Findings

59. Pursuant to Water Code section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.
60. The Central Valley Water Board will review this Order periodically and will revise requirements when necessary.
61. Water Code section 13267(b) states that:

In conducting an investigation...the 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 within its region...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 technical reports required by this Order and monitoring reports required by the attached MRP R5-2013-XXXX are necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges the waste subject to this Order.
63. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells, as described in California Well Standards Bulletin 74-90 (June 1991) and Water Well Standards: State of California Bulletin 94-81 (December 1981). These standards, and any more stringent standards adopted by the State or county pursuant to Water Code section 13801, apply to all monitoring wells.
64. All the above and the supplemental information and details in the attached Information Sheet, which is a part of this Order, were considered in establishing the conditions of discharge in this Order.

Public Notice

65. The Discharger and interested agencies and persons have been notified of the intent to prescribe waste discharge requirements for this discharge, and they have been provided an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
66. All comments pertaining to the discharge were heard and considered in a public meeting.

IT IS HEREBY ORDERED that, Waste Discharge Requirements Order 97-131 be rescinded and that, pursuant to sections 13263 and 13267 of the Water Code, Paramount Farms International, LLC, and Paramount Farming Company, LLC, their agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the Water Code and regulations adopted thereunder, shall comply with the following:

A. Prohibitions

1. Discharge of waste, including storm water containing waste, to surface waters or surface water drainage courses is prohibited.
2. Bypass or overflow of untreated wastes, except as allowed by Standard Provisions E.2 in *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*, dated 1 March 1991, is prohibited.
3. Discharge of hazardous wastes, as defined in California Code of Regulations, Title 22, section 66261.3, is prohibited.
4. Discharge of wastewater in a manner or location other than that described herein or in the Report of Waste Discharge is prohibited.

B. Flow Limitations

1. Discharge to the settling pond shall not exceed a maximum daily flow of 0.45 million gallons per day (mgd), or a seasonal average flow of 0.35 mgd until the Discharger has satisfied Provision G.17, after which the discharge to the settling pond shall not exceed a maximum daily flow of 2.5 mgd, an average daily flow for the season of 1 mgd, or an annual flow for the season of 42 million gallons. [Monitored at INF-001]

C. Discharge Specifications

1. The pH of the discharge shall not be less than 4.5 or greater than 9.0. [Monitored at INF-001]
2. No waste constituent shall be released, discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of Groundwater Limitations of this Order.
3. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.
4. The discharge shall remain within the permitted waste treatment/containment structures and land application areas at all times.
5. The Discharger shall operate all systems and equipment to optimize the quality of the discharge.
6. Objectionable odors shall not be perceivable beyond the limits of the Plant or land application areas at an intensity that creates or threatens to create nuisance conditions.
7. Irrigation pipelines and drip lines used to convey wastewater to the land application areas shall be flushed with fresh water after application of wastewater, as needed, to ensure compliance with Discharge Specification C.6.
8. The Plant and wastewater settling pond shall be operated and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
9. The Discharger shall monitor solids accumulation in the settling pond, and shall periodically remove solids, as necessary, to maintain adequate treatment and storage capacity.

D. Land Application Area Specifications

1. For the purpose of this Order, "land application areas" refers to the discharge area described in Finding 14, and if off-site disposal of solids is approved by the Executive Officer pursuant to Solids Specification E.4, for emergency use only, the former 80-acre land application area as described in Finding 8.

2. The cycle average BOD loading rate to the land application areas shall not exceed 100 lbs/acre/day.
3. The perimeter of the land application areas shall be graded to prevent ponding along public roads or other public areas and prevent runoff or overspray onto adjacent properties not owned or controlled by the Discharger.
4. Crops shall be grown within the land application areas. Crops shall be selected based on nutrient uptake, consumptive use of water, and irrigation requirements to maximize crop uptake.
5. Hydraulic loading of wastewater and irrigation water shall be at reasonable agronomic rates designed to minimize the percolation of wastewater and irrigation water below the root zone (i.e., deep percolation).
6. Application of waste constituents shall be at reasonable agronomic rates to preclude creation of a nuisance or degradation of groundwater, considering the crop, soil, climate, and irrigation management. The annual nutritive loading to the land application areas, including the nutritive value of organic and chemical fertilizers and of the wastewater, shall not exceed the annual crop demand, except for potassium.
7. The Discharger shall maximize the use of the available land application areas to minimize waste constituent loading rates.
8. Irrigation with wastewater shall not be performed within 24 hours of a storm event of measurable precipitation or when soils become saturated.
9. The resulting effect of the discharge on soil pH shall not exceed the buffering capacity of the soil profile.
10. The land application areas shall be managed to prevent breeding of mosquitoes. More specifically:
 - a. All applied irrigation water must infiltrate completely within 48-hours;
 - b. Ditches not serving as wildlife habitat should be maintained 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 recycled water.

E. Solids Specifications

Solids generated at the Plant consists of leaves, twigs, and other debris removed from the waste stream during pre-cleaning activities; and pistachio hulls, shells, and skins removed from the settling pond.

1. Solids generated during the pistachio season shall be evenly applied and incorporated into soil within the 80-acre Solids Reuse Area, as needed, to prevent odors and nuisance conditions.
2. Crops shall be grown within the Solids Reuse Area. Crops shall be selected based on nutrient uptake, consumptive use of water, and irrigation requirements to maximize crop uptake.
3. Any drying, handling, and storage of solids on the site shall be temporary, and controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate the groundwater limitations of this Order.
4. Any proposed change in solids use, separation, or disposal practices shall be reported in writing to the Executive Officer for approval at least 90 days in advance of the change.

F. Groundwater Limitations

Release of waste constituents from any treatment, reclamation, or storage component associated with the discharge shall not cause or contribute to groundwater containing constituent concentrations in excess of the concentrations specified below or background quality, whichever is greater:

1. Nitrate (as N) of 10 mg/L.
2. For constituents identified in Title 22, the MCLs quantified therein.

G. Provisions

1. The Discharger shall comply with the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*, dated 1 March 1991 (Standard Provisions), which are part of this Order.
2. The Discharger shall comply with MRP R5-2013-XXXX, which is part of this Order, and any revisions thereto as adopted by the Central Valley Water Board or approved by the Executive Officer.
3. The Discharger shall report promptly to the Central Valley Water Board any material change or proposed change in the character, location, or volume of the discharge.
4. In the event of any change in control or ownership of land or waste treatment and storage facilities presently owned or controlled by the Discharger, the Discharger 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 appropriate Central Valley Water Board office (currently, the Fresno office).

5. To assume operation 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 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.
6. The Discharger shall keep at the Plant a copy of this Order, including its MRP, Information Sheet, attachments, and Standard Provisions, for reference by operating personnel. Key operating personnel shall be familiar with its contents.
7. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Accordingly, the Discharger shall submit to the Central Valley Water Board on or before each report due date the specified document or, if an action is specified, a written report detailing evidence of compliance with the date and task. If noncompliance is being reported, the reasons for such noncompliance shall be stated, plus an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board by letter 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.
8. The Discharger must 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 Discharger 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 Discharger only when the operation is necessary to achieve compliance with the conditions of this Order.
9. The Discharger shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with this Order.
10. The Discharger shall maintain and operate surface impoundments sufficiently to protect the integrity of containment levees and prevent overtopping or overflows. 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 shall never be less than two feet (measured vertically). As a means of management and to discern compliance with this Provision, the Discharger shall install and maintain a permanent marker with calibration that indicates the water level at the design capacity and enables determination of available operational freeboard.

11. As a means of discerning compliance with Discharge Specification C.6, the dissolved oxygen (DO) content in the upper one foot of any wastewater pond shall not be less than 1.0 mg/L for three consecutive weekly sampling events. If the DO in any single pond is below 1.0 mg/L for three consecutive sampling events, the discharger shall report the findings to the Central Valley Water Board in writing within 10 days and shall include a specific plan to resolve the low DO results.
12. The Discharger shall submit the technical reports and work plans required by this Order for Central Valley Water Board staff consideration and incorporate comments they may have in a timely manner, as appropriate. The Discharger shall proceed with all work required by the following provisions by the due dates specified.
13. All technical reports and work plans required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1. As required by these laws, completed technical reports and work plans must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work. All reports required herein are required pursuant to Water Code section 13267.
14. Prior to initiating any ground disturbing activities, associated with installation of the new irrigation line to send wastewater to the new land application areas, the Discharger shall contact the San Joaquin Air Pollution Control District to obtain any necessary permits and ensure compliance with requirements of Regulation VIII for Fugitive Dust Control.
15. Prior to initiating any ground disturbing activities, associated with installation of the new irrigation line to send wastewater to the new land application areas, the Discharger shall contact the California Department of Fish and Wildlife (DFW) and the United States Federal Wildlife Service to determine whether pre-construction or protocol level surveys will be required, and ensure appropriate measures will be taken to avoid or mitigate potential impacts to special status or endangered species.
16. Prior to initiating any ground disturbing activities, associated with installation of the new irrigation line to send wastewater to the new land application areas, the Discharger shall contact the Native American Heritage Commission (NAHC) to establish if there are any Native American cultural resources in the area. In the event any cultural resources are unearthed during trenching activities, all work shall be halted in the area of the find, and an Archeologist and the NAHC shall be contacted to evaluate the find and implement any necessary mitigation measures.
17. **By 3 August 2015**, the Discharger shall provide written certification that it has completed installation of the new irrigation line to transfer wastewater from the settling pond to the new land application areas as described in Finding 14. Upon Executive Officer review and written concurrence with the certification, the requirements of this provision will be considered satisfied.

18. **By <6 months following adoption of the Order>**, the Discharger shall submit a Salinity Control Plan, with salinity source reduction goals and an implementation time schedule for Executive Officer approval. The control plan should identify any additional methods that could be used to further reduce the salinity of the discharge to the maximum extent feasible, include an estimate on load reductions that may be attained through the methods identified, and provide a description of the tasks, cost, and time required to investigate and implement various elements in the salinity control plan. The Discharger shall implement the plan in accordance with the approved schedule.
19. **By <6 months following adoption of the Order>**, the Discharger shall submit a Wastewater and Nutrient Management Plan. At a minimum the Plan must include procedures for monitoring the land application areas including daily records of wastewater applications and acreages, an action plan to deal with objectionable odors and/or nuisance conditions, calculations for monthly and annual water and nutrient balances, and management practices that will ensure wastewater, irrigation water, and commercial fertilizers are applied at agronomic rates, except for potassium.
20. If the Central Valley Water Board determines that waste constituents in the discharge have reasonable potential to cause or contribute to an exceedance of an objective for groundwater, this Order may be reopened for consideration of addition or revision of appropriate numerical effluent or groundwater limitations for potential constituents.
21. The Central Valley Water Board is currently implementing the CV-SALTS initiative to develop a Basin Plan amendment that will establish a salt and nitrate management plan for the Central Valley. Through this effort the Basin Plan will be amended to define how the narrative water quality objectives are to be interpreted for the protection of agricultural use. If new information or evidence indicates that groundwater limitations different than those prescribed herein are appropriate, this Order will be reopened to incorporate such limits.
22. The Central Valley Water Board will review this Order periodically and will revise requirements when necessary.

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement, and may issue a complaint for administrative civil liability, or may take other enforcement actions. Failure to comply with this Order or with the WDRs 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.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, section 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order 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 filling petitions may be found on the Internet at:

http://www.waterboards.ca.gov/public_notices/petitions/water_quality/

or will be provided upon request.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on XX December 2013.

PAMELA C. CREEDON, Executive Officer

Order Attachments:

A Site Location Map
Monitoring and Reporting Program R5-2013-XXXX
Information Sheet
Standard Provisions (1 March 1991)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2013-XXXX

FOR

PARAMOUNT FARMS INTERNATIONAL, LLC
EL DORADO PISTACHIO PROCESSING PLANT
AND PARAMOUNT FARMING COMPANY, LLC
FRESNO COUNTY

This Monitoring and Reporting Program (MRP) is required pursuant to Water Code section 13267. This MRP also serves as a Mitigation Monitoring Program for the purposes of compliance with the California Environmental Quality Act Guidelines (Cal. Code Regs., Title 14, § 15370.).

The Discharger shall not implement any changes to this MRP unless and until the Central Valley Water Board adopts, or the Executive Officer issues, a revised MRP. Changes to sample location shall be established with concurrence of Central Valley Water Board staff, and a description of the revised stations shall be submitted for approval by the Executive Officer.

All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. All analyses shall be performed in accordance with **Standard Provisions and Reporting Requirements for Waste Discharge Requirements**, dated 1 March 1991 (Standard Provisions).

Field test instruments (such as pH) may be used provided that the operator is trained in the proper use of the instrument and each instrument is serviced and/or calibrated at the recommended frequency by the manufacturer or in accordance with manufacturer instructions.

Analytical procedures shall comply with the methods and holding times specified in the following: *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater* (EPA); *Test Methods for Evaluating Solid Waste* (EPA); *Methods for Chemical Analysis of Water and Wastes* (EPA); *Methods for Determination of Inorganic Substances in Environmental Samples* (EPA); *Standard Methods for the Examination of Water and Wastewater* (APHA/AWWA/WEF); and *Soil, Plant and Water Reference Methods for the Western Region* (WREP 125). Approved editions shall be those that are approved for use by the United States Environmental Protection Agency or the California Department of Public Health's Environmental Laboratory Accreditation Program). The Discharger may propose alternative methods for approval by the Executive Officer.

If monitoring consistently shows no significant variation in magnitude of a constituent concentration or parameter after at least 12 months of monitoring, the Discharger may request this MRP be revised to reduce monitoring frequency. The proposal must include adequate technical justification for reduction in monitoring frequency.

A glossary of terms used within this MRP is included on page 8.

Monitoring Location Name	Description
INF-001	Location where the Plant's process wastewater flow can be measured and sampled prior to discharge to the settling pond.
EFF-001	Location where a representative sample of the Plant's effluent can be obtained after the settling pond but prior to mixing with fresh irrigation water.
PND-001	Wastewater settling pond.
SPL-001	Source water supply.

INFLUENT MONITORING

The Discharger shall monitor the influent to the settling pond at INF-001 as follows:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Daily	Flow	mgd	Meter
Daily	pH	pH Units	Grab
Daily	EC	umhos/cm	Grab

EFFLUENT MONITORING

The Discharger shall monitor the effluent from the settling pond at EFF-001 as follows:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Daily	Flow	mgd	Meter
Daily	pH	pH Units	Grab
Daily	EC	umhos/cm	Grab
Weekly	BOD ₅	mg/L	Grab
Weekly	TDS	mg/L	Grab
Weekly	FDS	mg/L	Grab
Weekly	Nitrate as N	mg/L	Grab
Weekly	TKN	mg/L	Grab
Weekly	Total Nitrogen	mg/L	Computed
Weekly	Potassium	mg/L	Grab
Monthly ¹	General Minerals ²	mg/L	Grab
Once ³	Metals ⁴	mg/L	Grab

1. At least two samples per season.
2. General minerals analysis shall include; alkalinity (as CaCO₃), aluminum, bicarbonate (as CaCO₃), boron, calcium, carbonate (as CaCO₃), chloride, hardness, iron, magnesium, manganese, nitrate (as N), potassium, sodium, sulfate, and TDS. Samples collected for metals shall be filtered with a 0.45 micron filter prior to preservation, digestion, and analysis.
3. Sample for metals analysis shall be collected once during the middle of the processing season in the first year following adoption of this Order.
4. Metals analysis shall include; chromium, copper, lead, molybdenum, nickel, and zinc.

POND MONITORING

A permanent marker (e.g. staff gauges) shall be placed in the pond. The marker shall have calibrations indicating the water level at design capacity and available operational freeboard. The Discharger shall monitor the settling pond at PND-001 as follows:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Weekly	Freeboard	feet ¹	Grab
Weekly	Dissolved Oxygen ²	mg/L	Grab

1. To nearest tenth of a foot.
2. If there is less than 1-foot of water in the pond, no sample shall be collected for dissolved oxygen.

During the processing season, the Discharger shall inspect the condition of the settling pond weekly and record observations in a bound logbook. Notations shall include observations of whether weeds are developing in the water or along the bank; whether grease, dead algae, vegetation, scum, or debris are accumulating on the pond surface; whether odors are emanating from the pond and their strength (e.g. pungent sour smell noticeable from 100 feet away, mild organic odor at pond surface, etc.); whether burrowing animals or insects are present; and the color of the wastewater (e.g., dark green, dull green, yellow, gray, tan, brown, etc.). A summary of the entries made in the log shall be included in the subsequent monitoring report.

SOURCE WATER MONITORING

The Discharger shall monitor source water for the Plant at SPL-001 as follows:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Annually ¹	pH	s.u.	Grab
Annually ¹	EC	umhos/cm	Grab
Annually ¹	General Minerals	various	Grab

- 1 Sample to be collected annually in August or September during the processing season
- 2 General minerals analysis shall include; alkalinity (as CaCO₃), aluminum, bicarbonate (as CaCO₃), boron, calcium, carbonate (as CaCO₃), chloride, hardness, iron, magnesium, manganese, nitrate (as N), potassium, sodium, sulfate, and TDS. Samples collected for metals shall be filtered with a 0.45 micron filter prior to preservation, digestion, and analysis..

LAND APPLICATION AREA MONITORING

The Discharger shall perform the following routine monitoring and loading calculations for each discrete irrigation area within the Land Application Areas. The data shall be collected and presented in tabular format and shall include the following:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Daily ¹	Application Area	acres	n/a
Daily ¹	Wastewater flow	gallons	Metered

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Daily ¹	Wastewater loading	inches/day	Calculated
Daily ¹	Supplemental irrigation	gallons	Estimated
Daily ¹	Precipitation	inches	Rain gage ²
Monthly ¹	Total Hydraulic Loading ³	inches/acre-month	Calculated
<u>BOD Loading⁴</u>			
Daily	Day of Application	lbs/acre	Calculated
Average	Cycle Average ⁵	lbs/acre-day	Calculated
<u>Nitrogen loading⁴</u>			
Annual	From wastewater	lbs/acre-year	Calculated
Annual	From fertilizers	lbs/acre-year	Calculated
<u>Salt and Potassium loading⁴</u>			
Annual	From wastewater	lbs/acre-year	Calculated

¹ Throughout the processing season, and while wastewater is applied to the land application areas.

² National Weather Service or CIMIS data from the nearest weather station is acceptable.

³ Combined loading from wastewater, irrigation water, and precipitation.

⁴ Loading rates shall be calculated using the applied volume of wastewater, applied acreage, and average effluent concentrations for BOD, total nitrogen, FDS, and potassium.

⁵ The BOD loading rate shall be divided by the # of days between applications to determine the cycle average.

In addition, the Discharger shall conduct daily monitoring of the land application areas throughout the processing season and while wastewater is being applied. Evidence of erosion, field saturation, runoff, or the presence of nuisance conditions (i.e., flies, ponding, etc.) shall be noted in field logs and included as part of the annual monitoring report.

SOLIDS REUSE AREA MONITORING

The Discharger shall perform the following routine monitoring and loading calculations for solids applied to the Solids Reuse Area. The Data should include:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Each application	Application location	n/a	n/a
Each application	Amount of solids applied	tons	n/a
Each application	Solids loading	tons/acre	n/a

In addition the Discharger shall conduct annual soil sampling within the Solids Reuse Area. Prior to the initial sampling event, the Discharger shall submit a Soil Sampling Plan. The Sampling Plan shall evaluate soil conditions within the Solids Reuse Area and establish with concurrence from Central Valley Water Board staff at least three soil profile monitoring locations within the Solids Reuse Area and at least one representative background location (i.e., that historically has not received process wastewater or solids applications). The samples shall be collected and analyzed for the following:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Annually ¹	Cation Exchange Capacity	meq/100 grams	6 feet ²
Annually ¹	Soil pH	pH units	6 feet ²
Annually ¹	Buffer pH	mg/kg as CaCO ₃	6 feet ²
Annually ¹	Nitrate as N	mg/kg	6 feet ²
Annually ¹	Total Kjeldahl Nitrogen	mg/kg	6 feet ²
Annually ¹	Potassium	mg/kg	6 feet ²
Annually ¹	Sodium	mg/kg	6 feet ²

¹ Samples to be collected annually in June.

² Samples to be analyzed shall be collected at 2, 4 and 6 feet below grade.

REPORTING

All monitoring results shall be tabulated and submitted in an **Annual Monitoring Report**, which shall be due by **1 February** of the year following the year the samples were collected in.

A transmittal letter shall accompany each Annual Monitoring Report. The transmittal letter shall discuss any violations that occurred during the reporting period and all actions taken or planned for correcting violations, such as operation or Plant modifications. If the Discharger has previously submitted a report describing corrective actions or a time schedule for implementing the corrective actions, reference to the previous correspondence is satisfactory.

The following information is to be included on all monitoring reports, as well as any report transmittal letters, submitted to the Central Valley Water Board:

Paramount Farms International, LLC
El Dorado Pistachio Processing Plant
R5-2013-XXXX
Contact Information (telephone number and email)

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner that illustrates clearly, whether the Discharger complies with waste discharge requirements.

In addition to the details specified in Standard Provision C.3, monitoring information shall include the method detection limit (MDL) and the Reporting limit (RL) or practical quantitation limit (PQL). If the regulatory limit for a given constituent is less than the RL (or PQL), then any analytical results for that constituent that are below the RL (or PQL) but above the MDL shall be reported and flagged as estimated.

Laboratory analysis reports do not need to be included in the monitoring reports; however, the laboratory reports must be retained for a minimum of three years in accordance with Standard Provision C.3.

All monitoring reports shall comply with the signatory requirements in Standard Provision B.3. For a Discharger conducting any of its own analyses, reports must also be signed and certified by the chief of the laboratory.

All monitoring reports that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1.

At any time henceforth, the State or Central Valley Regional Water Board may notify the Discharger to electronically submit monitoring reports using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (<http://www.waterboards.ca.gov/ciwqs/index.html>) or similar system. Until such notification is given, the Discharger shall submit hard copy monitoring reports.

The Annual Monitoring Report, shall include the following:

Facility Information

1. The names and general responsibilities of all persons in charge of wastewater management and reuse.
2. The names and telephone numbers of persons to contact regarding the discharge for emergency and routine situations.
3. A statement certifying when the flow meter and other monitoring instruments and devices were last calibrated, including identification of who performed the calibrations (Standard Provision C.4).
4. A summary of any changes in processing that might affect waste characterization and/or discharge flow rates.

Wastewater Reporting

1. Tabulated results of influent and effluent monitoring specified on page 2.
2. Calculation of the maximum daily flow, seasonal average daily flow, and cumulative annual flow.
3. Tabulated results of pond monitoring specified on page 3, and a summary of the notations made in the pond monitoring log. The entire contents of the log do not need to be submitted.

Source Water Reporting

1. The results of annual source water monitoring for pH, EC, and general minerals specified on page 3.

Land Application Area Reporting

1. The results of the routine monitoring and loading calculations specified on pages 3 and 4.
2. The type of crop(s) grown within the Land Application Area, include planting and harvesting dates, if applicable.
3. A summary of the notations made in the Land Application Area monitoring log. The entire contents of the log do not need to be submitted.

Solids Reuse Area Reporting

1. Accounting of when and volume of solids (in Tons) removed from the settling pond, and land applied, or if not land applied specify method of disposal.
2. Type of crop(s) grown within the Solids Reuse Area including planting and harvesting dates.
3. The results of the solids monitoring and soil sampling specified on pages 4 and 5.

Ordered by: _____
Pamela C. Creedon, Executive Officer

(Date)

GLOSSARY

BOD ₅	Five-day biochemical oxygen demand		
CBOD	Carbonaceous BOD		
DO	Dissolved oxygen		
EC	Electrical conductivity at 25° C		
FDS	Fixed dissolved solids		
NTU	Nephelometric turbidity unit		
TKN	Total Kjeldahl nitrogen		
TDS	Total dissolved solids		
TSS	Total suspended solids		
Continuous	The specified parameter shall be measured by a meter continuously.		
24-Hour Composite	Samples shall be a flow-proportioned composite consisting of at least eight aliquots.		
Daily	Samples shall be collected every day.		
Twice Weekly	Samples shall be collected at least twice per week on non-consecutive days.		
Weekly	Samples shall be collected at least once per week.		
Twice Monthly	Samples shall be collected at least twice per month during non-consecutive weeks.		
Monthly	Samples shall be collected at least once per month.		
Bimonthly	Samples shall be collected at least once every two months (i.e., six times per year) during non-consecutive months.		
Quarterly	Samples shall be collected at least once per calendar quarter. Unless otherwise specified or approved, samples shall be collected in January, April, July, and October.		
Semiannually	Samples shall be collected at least once every six months (i.e., two times per year). Unless otherwise specified or approved, samples shall be collected in April and October.		
Annually	Samples shall be collected at least once per year. Unless otherwise specified or approved, samples shall be collected in October.		
mg/L	Milligrams per liter		
mL/L	Milliliters [of solids] per liter		
ug/L	Micrograms per liter		
umhos/cm	Micromhos per centimeter		
mgd	Million gallons per day		
MPN/100 mL	Most probable number [of organisms] per 100 milliliters		
General Minerals	Analysis for General Minerals shall include at least the following:		
	Alkalinity (as CaCO ₃)	Chloride	Potassium
	Aluminum	Hardness	Sodium
	Bicarbonate (as CaCO ₃)	Iron	Sulfate
	Boron	Magnesium	TDS
	Calcium	Manganese	
	Carbonate (as CA CO ₃)	Nitrate (as N)	
	General Minerals analyses shall be accompanied by documentation of cation/anion balance.		

INFORMATION SHEET

INFORMATION SHEET - ORDER R5-2013-XXXX
PARAMOUNT FARMS INTERNATIONAL, LLC
EL DORADO PISTACHIO PROCESSING PLANT
AND PARAMOUNT FARMING COMPANY, LLC
FRESNO COUNTY

Background

Paramount Farms International, LLC (Paramount or Discharger) owns and operates a Pistachio Processing Plant (Plant) at 39840 El Dorado Avenue near Coalinga in Fresno County. The Plant, which has been in operation since 1995, processes, stores, and sorts pistachio nuts. Final processing and packaging takes place at another facility. In general, the pistachio processing season takes place over a 30 to 45 day period from late August through October.

Waste Discharge Requirements (WDRs) Order 97-131 adopted by the Central Valley Water Board on 20 June 1997, prescribes requirements for the discharge. Order 97-131 allows a seasonal average discharge of up to 0.35 million gallons per day (mgd) for the pistachio processing season with a maximum daily discharge of up to 0.45 mgd.

Existing Plant and Discharge

During the 30 to 45 day processing season, the Plant may operate up to 24 hours a day, seven days a week. Pistachios brought in from the fields are cleaned and processed to remove the hulls. Upon arrival, the trailers are weighed and the nuts are unloaded and pre-cleaned to remove leaves and stems. Immediately after pre-cleaning, the hulls of the pistachios are removed using abrasive rollers. The pistachios are then placed in a float tank to separate out closed and blank pistachios. Blanks and closed pistachios are hauled off-site for further processing at another facility or temporarily stored on-site (till the end of the season) and sold for use as biomass fuel or other industrial use.

Wastewater, generated from the cleaning and hulling process, is captured and discharged to an unlined settling pond, with an operational capacity of about 10.9 million gallons. Hulls, shells, and skins removed during the hulling process are discharged along with the process wastewater to the settling pond. From the settling pond the wastewater is pumped out into the irrigation system for reuse on crops. On an emergency basis in case of a significant storm event, failure of the irrigation system, or when irrigation is temporarily halted for system maintenance, harvest, or crop demands during the processing season, Paramount may temporarily discharge wastewater to a secondary holding area adjacent to the settling pond with a capacity of about 8.5 million gallons. Since the processing and discharge occurs outside of the normal rain season discharge of wastewater to the emergency holding area is unlikely.

Wastewater from the Plant consists of hulling water and equipment wash down generated during the pistachio processing season. Samples of the wastewater are collected and analyzed for constituents of concern on a weekly basis during the processing season. The following table presents wastewater quality data for the discharge collected from 2005 through 2011.

Table 1. Effluent Quality

<u>Constituent</u>	<u>Units</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Average</u>
pH	s.u	4.3	9.4	5.1 ¹
Electrical Conductivity (EC)	umhos/cm	1,854	7,400	3,800

Table 1. Effluent Quality

<u>Constituent</u>	<u>Units</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Average</u>
Total Dissolved Solids (TDS)	mg/L	3,252	6,880	5,200
Biochemical Oxygen Demand (BOD)	mg/L	4,200	9,800	6,700
Total Nitrogen	mg/L	130	330	227
Chloride	mg/L	42	160	113
Sodium	mg/L	35	84	51
Potassium	mg/L	760	1,300	1,024

¹ Average pH values were calculated by converting the values into hydrogen ion concentrations averaging the data and then converting the resulting concentration back to a pH value.

Food processing wastewater may contain elevated concentrations of total dissolved solids resulting from the fruit and vegetable products or materials used for production. Typically, a percentage is from organic constituents, which will generally decompose into its component elements and can be utilized by plants and microorganisms in the soil. In contrast, the fixed dissolved solids, is that portion of the total which consists of inorganic constituents that can accumulate in the soil. Samples of the discharge were collected in 2008 and 2009 to compare the total (TDS) and fixed dissolved solids (FDS) in the discharge. Concentrations for TDS and FDS ranged from 4,370 to 6,880 mg/L and 1,470 to 3,000 mg/L, respectively. The increase in total versus the fixed dissolved solids was calculated by taking the difference between the total and fixed dissolved solids for an individual sampling event and dividing that by the total dissolved solids concentration in the discharge. Taking the samples from 2008 and 2009, the increase in total dissolved solids in the discharge due to organic constituents ranges from about 34 to 50 percent. In looking at additional data from similar pistachio processors, it appears that, in general, there is a 30 to 40 percent increase in total dissolved solids due to organic constituents in the discharge.

Source water for the Plant consists of surface water from the California Aqueduct provided by the Westlands Water District. The water is filtered and chlorinated prior to use in the Plant. A sample of the source water collected in July 2011 had an EC of 180 umhos/cm, TDS of 97 mg/L, potassium of 1.5 mg/L, and nitrate (as NO₃) below detection limits.

Proposed Changes

In 2005, Paramount acquired the Plant from Gold Coast Pistachio, Inc. Following acquisition of the Plant, Paramount determined that the land application area was insufficient to handle the discharge and that the volume of water being used at the Plant was inadequate to meet their quality control requirements. In November 2010, Paramount submitted a Report of Waste Discharge (RWD) to increase flows, and to expand the available land application area for discharge of process wastewater. In November 2012, Paramount submitted an addendum to its RWD to further expand the land application area. A revised RWD was submitted on 15 May 2013 to address comments from Central Valley Water Board staff and consolidate information regarding changes in the discharge. Additional information to complete the RWD was submitted on 11 June 2013.

According to the RWD, Paramount will increase its average seasonal flow from 0.35 mgd to 1 mgd (about a 65% increase), with a maximum daily flow limit of 2.5 million gallons and an annual flow limit of 42 million gallons for the season. With no increase in production capacity, the increased flows are expected to have a diluting effect on the wastewater, which may reduce constituent concentrations by as much as 25 to 60 percent.

To handle the increased flows, Paramount will expand its land application area to include four pistachio orchards owned by Paramount Farming Company, LLC, a sister company of Paramount. The four pistachio orchards, with a combined net acreage of about 600 acres, include parcels 073-070-22S, 073-070-24S, 085 030 18S, and 085 320 26S. At the proposed annual flow limit of 42 million gallons per year, process wastewater applied to the pistachio orchards will account for less than 10% of the crop's irrigation demand. Supplemental irrigation water for the orchards is primarily surface water. Wastewater will be applied to the pistachio orchards via a micro drip irrigation system. According to the RWD, wastewater will be applied in 24 hour sets typically with a 7-day resting period between applications.

Zapato Chino Canyon Creek, an ephemeral stream, crosses a portion of the pistachio orchards where process wastewater will be applied. FEMA maps show that this portion of the Wastewater Reuse Area lies within Flood Zone A, an area subject to potential flooding though no baseline flood level has been determined. Paramount Farming Company has implemented several management controls including 20-foot setbacks from the creek bed, drip irrigation, and cessation of irrigation during or within 24 hours of a storm event to minimize potential impacts to the creek. With the discharge of wastewater to the fields outside of the normal rain season and implementation of the management controls specified above, the potential for wastewater runoff into the creek is minimal.

Solids, consisting principally of hulls, shells, and skins will be removed from the bottom of the settling pond following the harvest, at least every other year, and will be spread and incorporated into the soil on the existing 80 acre land application area north of the Plant (referred to as the Solids Reuse Area). A winter fodder crop will be then planted to take advantage of the moisture in the hulls and the winter rain season. This Order requires annual soil sampling within the Solids Reuse Area to evaluate nutrient uptake and monitor constituent concentrations in soil.

Groundwater Conditions

According to the Westlands Water District Well Survey for 2012, first-encountered groundwater in the vicinity of the Plant and Reuse Areas occurs at about 350 to 400 feet below ground surface (bgs). Regional groundwater flow is to the northeast toward the Valley Floor. The upper groundwater zone above the Corcoran Clay is unconfined or semi-confined consisting of unconsolidated deposits of interbedded sands, silts, and clays. A groundwater report by the United States Geological Survey indicates that the Corcoran Clay layer is thin or lacking in this area (*Groundwater Conditions in the Mendota-Huron Area 1360-G, 1957*). A well log for a well in the vicinity of the expanded land application area reported numerous clay layers alternating with layers of sand and gravel down to about 1,200 feet bgs. Based on the log, as much as 156 cumulative feet of clay may be between ground surface and first encountered groundwater. The well log indicates that drillers encountered a layer of blue clay, which may be the Corcoran Clay, approximately 10 feet thick at about 1,020 feet bgs.

Paramount is not required to monitor groundwater. There are few wells in the area. Groundwater in the area is of poor quality with respect to salinity, typical of the west side of the San Joaquin Valley.

Published data for groundwater wells in the area show high concentrations of saline constituents (largely sodium and sulfate). The *Water Quality Portal* database provided by the United States Geological Survey, National Water Quality Monitoring Council, and United States Environmental Protection Agency identified five wells in the vicinity of the Plant and Reuse Areas. Samples collected from these wells from 1951 through 1968 reported an EC of 1,368 to 2,860 umhos/cm, TDS of 878 to 2,240 mg/L, chloride of 46 to 160 mg/L, sodium of 230 to 440 mg/L, sulfate of 430 to 1,300 mg/L, and nitrate as NO₃ of 2 to 65 mg/L. Most of these wells were constructed to depths of 1,200 to 2,000 feet bgs. Only one well was constructed to a depth of less than 500 feet bgs. This well sampled in 1951 had the highest reported concentrations for EC and TDS at 2,860 umhos/cm and 2,240 mg/L, respectively, and nitrate as NO₃ in excess of the primary MCL at 65 mg/L.

Basin Plan, Beneficial Uses, and Regulatory Considerations

The Facility lies within the Westlands Hydrologic Area (551.10) of the South Valley Floor Hydraulic Unit. Local drainage is to Zapato Chino Canyon Creek and Los Gatos Creek.

The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition*, revised January 2004 (Basin Plan) designates beneficial uses, establishes narrative and numerical water quality objectives, and contains implementation plans and policies for protecting all waters of the Basin. Beneficial uses often determine the water quality objectives that apply to a water body. The receiving water for this discharge is groundwater. The beneficial uses of groundwater in the area include municipal and domestic supply, agricultural supply, and industrial service supply.

The Basin Plan identifies the greatest long-term water quality problem facing the entire Tulare Lake Basin is increasing salinity in groundwater, a process accelerated by man's activities and particularly affected by intensive irrigated agriculture. The Basin Plan recognizes that degradation is unavoidable until there is a long-term solution to the salt imbalance. Until then, the Basin Plan establishes several salt management requirements, including the following discharge limits:

- a. The incremental increase in salts from use and treatment must be controlled to the extent possible. The maximum EC of the effluent discharged to land shall not exceed the EC of the source water plus 500 umhos/cm.
- b. Discharges to areas that may recharge good quality groundwater shall not exceed an EC of 1,000 umhos/cm, a chloride content of 175 mg/L, or boron content of 1.0 mg/L.

The Basin Plan does allow for an exception for food processing industries that discharge to land, where the discharge exhibits a disproportionate increase in EC over source water due to unavoidable concentrations of organic dissolved solids, provided beneficial uses are protected. Samples of the discharge were collected in 2008 and 2009 to compare organic and inorganic dissolved solids in the discharge. In general, the results of this sampling showed that there was a 35 to 50 percent increase in TDS due to the presence of organic dissolved solids. In addition, the Discharger implements best management practices including use of cleaning chemicals at labeled rates, and reuse of wastewater for irrigation of crops to manage the salinity of the discharge. Thus, the discharge is eligible for the Basin Plan exception.

Given the poor quality of groundwater in the area, the effluent limit caps for EC, chloride, and boron do not apply to this discharge.

Antidegradation

State Water Resources Control Board Resolution 68-16 requires the regional water boards to maintain high quality waters of the State until it is demonstrated that any change in quality will not result in water quality less than that described in State and Regional Water Board policies or exceed water quality objectives, will not unreasonably affect beneficial uses and is consistent with the maximum benefit to the people of the State.

Constituents of concern in the discharge (those with the greatest potential to affect beneficial uses of receiving water) include organics, nutrients, and salts. However, the discharge is not expected to cause unreasonable groundwater degradation because:

- a. For organics, with an average BOD concentration of 6,700 mg/L, the BOD loading to the 600-acre land application area would be about 93 lbs/acre/day for the season. Instantaneous BOD loading rates could range from about 200 lbs/acre/day to as high as 2,300 lbs/acre/day given the maximum flow rate of 2.5 mgd depending on the applied acreage. However, given the short processing season, soil lithology, depth-to-groundwater, and implementation of best management practices including blending with higher quality irrigation water, monitoring of the Reuse Areas, and resting periods between applications, the discharge is not expected to cause groundwater degradation due to organic loading.

To minimize the potential for reducing and/or nuisance conditions, this Order sets a cycle average BOD loading rate of 100 lbs/acre/day, and requires the Discharger to prepare a Wastewater and Nutrient Management Plan.

- b. For nitrogen, with an average nitrogen concentration of about 227 mg/L and an annual flow of 42 million gallons per year, the nitrogen load to the 600-acre land application area would be about 132 lbs/acre/year. This is less than the nitrogen uptake for pistachios of 200 to 250 lbs/acre/year. With proper management of the wastewater, and proper application of additional fertilizers, the discharge should not degrade groundwater for nitrates.
- c. For salinity, with an average effluent EC and TDS of 3,800 umhos/cm and 5,200 mg/L, respectively, the discharge exceeds groundwater quality for the area. However, almost half of the salinity of the discharge is from organic dissolved solids, which will break down in the soil profile. Much of the remaining portion is from potassium, which is a major plant nutrient that moves slowly through the soil profile, and is readily taken up by crops. Given the short processing season, with groundwater at greater than 350 feet bgs, and percolation of wastewater through soils of alternating layers of sand and clay, the potential for the discharge to reach and significantly impact groundwater is minimal.

In addition, the discharge will make up less than 10% of the pistachio crop's irrigation requirement. Supplemental irrigation water will be primarily surface water provided by the Westlands Water District with a TDS of about 97 mg/L (July 2011). Blending of wastewater and irrigation water will result in a combined TDS of about 600 mg/L, which is less than groundwater quality reported for the area prior to 1968.

- d. For chloride, with an average concentration of 113 mg/L, the concentration in the discharge is less than that reported in groundwater near the Plant and settling pond prior to 1968. For the

area around the Wastewater Reuse Areas east of the Plant, where chloride concentrations in groundwater were slightly better (e.g., 46 and 56 mg/L), dilution with higher quality irrigation water, would result in a combined chloride concentration of about 26.5 mg/L, which is better than groundwater quality in the area and should not cause groundwater degradation for chloride.

- e. For potassium, with an average concentration of about 1,024 mg/L, the potassium load from the discharge at 42 million gallons will be about 600 lbs/acre/year. This exceeds the general agronomic rate for potassium of about 200 lbs/acre/year for pistachio trees. However, potassium readily binds to soil, and crops can and will take up more potassium than required if available, with no reduction in yield. There are no specific water quality objectives set for potassium other than the overall objectives set for EC and TDS.
- f. Economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State, and therefore sufficient reason exists to allow limited groundwater degradation around the Plant and land application areas to accommodate the Discharger's growth. Given depth-to-groundwater of 350 to 400 feet bgs, the short processing season, groundwater quality in the area, and implementation of best management practices including reuse on crops, and blending with higher quality irrigation water, the discharge is not expected to cause unreasonable groundwater degradation.

This Order is consistent with the Antidegradation Policy since: (a) the Discharger has implemented best practicable treatment or control of the constituents that will result in the degradation, (b) the limited degradation allowed by this Order will not unreasonably affect present and anticipated future beneficial uses of groundwater, or result in water quality less than water quality objectives, and (c) the limited degradation is of maximum benefit to people of the State.

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 worse than background or the water quality objectives set forth in the Basin Plan.

CEQA

On 20 June 1997, Central Valley Water Board, in accordance with the California Environmental Quality Act (Pub. Resources Code, § 21000 et seq.), adopted a Negative Declaration for the operation of a pistachio processing plant at 39840 El Dorado Avenue near Coalinga in Fresno County, with discharge of pistachio processing wastewater of up to 0.45 mgd (maximum) and 0.35 mgd (average) to a wastewater settling pond and then to 80 acres of agricultural land for reuse. The Negative Declaration found that the project would have a less than significant effect on water quality.

Changes at the Plant to increase flows by approximately 65% and expand the Reuse Area has the potential to impact the environment as a result of the Central Valley Water Board's discretionary action to adopt this Order. As such, the Central Valley Water Board is the lead agency for the purposes of CEQA. An Initial Study and Mitigated Negative Declaration for this project was submitted to the State Clearing House for distribution on 17 September 2013. The Central Valley Water Board proposes to adopt the final Mitigated Negative Declaration on 5/6 December 2013.

This Order includes requirements to assure compliance with the Water Code and the Tulare Lake Basin Plan, and implements measures necessary to lessen or avoid significant adverse environmental impacts from the increase in flows and expansion of the land application areas to less than significant levels.

Title 27

Unless exempt, the release of designated waste is subject to full containment pursuant to Title 27 requirements. Here, the discharge is exempt from the requirements of Title 27 pursuant to the wastewater exemptions found at Title 27, sections 20090(b), since:

- a. The Central Valley Water Board is issuing WDRs;
- b. The discharge is in compliance with the Basin Plan; and
- c. The treated effluent does not need to be managed as hazardous waste.

Proposed Order Terms and Conditions

Discharge Prohibitions, Specifications and Provisions

The proposed Order prohibits discharge to surface waters and drainage courses, and requires daily monitoring of the land application areas during the processing season when wastewater is being applied.

The proposed Order holds wastewater flows to current limits of 0.35 mgd (seasonal average) and 0.45 mgd (daily maximum) until completion of the new irrigation line to send wastewater to the new land application areas, with a time schedule to complete the installation prior to the start of the 2015 season, after which, the proposed Order sets an average daily seasonal limit of 1 mgd, a maximum daily limit of 2.5 mgd, and an annual limit of 42 million gallons per year.

The proposed Order sets a pH limit such that the pH of the discharge shall not be less than 4.5 or greater than 9.0, and requires that the pH of the discharge not exceed the buffering capacity of the soil. The lower pH limit is not expected to contribute to soil acidity within the land application areas due to the limited seasonal discharge, and supplemental irrigation with high quality irrigation water. Effective management of the land application areas should mitigate any adverse effects on crops and would be preferable to chemically adjusting the pH of the effluent on a continuous basis.

The proposed Order sets a cycle average BOD loading rate of 100 lbs/acre/day, and requires that wastewater be applied at agronomic rates, except for potassium. Potassium readily binds to soil, and crops can and will take up more potassium than required, if available, with no reduction in yield. Therefore, limiting potassium to agronomic rates is unnecessary. Given the limited processing season, soil conditions, and depth-to-groundwater, excess potassium is not expected to reach groundwater at concentrations that would significantly degrade groundwater quality. The proposed Order requires the Discharger to prepare a Salinity Control Plan and Wastewater and Nutrient Management Plan to control the salinity of the discharge and ensure application at agronomic rates.

The proposed Order requires monitoring of the discharge for biochemical oxygen demand, nitrogen, potassium, and total and fixed dissolved solids. The Order also requires a detailed accounting of the application of wastewater to the land application areas. For each discrete area to which wastewater is

applied, the Order requires calculated hydraulic loading rates, and loading rates of biochemical oxygen demand, nutrients, and salts.

The proposed Order would prescribe groundwater limitations that implement water quality objectives for groundwater from the Basin Plan. The limitations require that the discharge not cause or contribute to exceedances of these objectives or natural background water quality, and sets a specific groundwater limit for nitrate at the Primary MCL of 10 mg/L.

The Central Valley Water Board is currently implementing the CV-SALTS initiative to develop a Basin Plan amendment that will establish a salt and nitrate management plan for the Central Valley. Through this effort the Basin Plan will be amended to define how the narrative water quality objectives are to be interpreted for the protection of agricultural use. If new information or evidence indicates that groundwater limitations different than those prescribed herein are appropriate, this Order will be reopened to incorporate such limits.

Monitoring Requirements

Water Code section 13267 authorizes the Central Valley Water Board to require monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the State. Water Code section 13268 authorizes the assessment of administrative civil liability where appropriate. The proposed Order includes effluent and pond monitoring requirements. In addition, the proposed Order requires soil sampling within the Solids Reuse Area, and requires loading calculations for organics, nutrients, and salts. This monitoring is necessary to characterize the discharge, and evaluate compliance with limitations and specifications prescribed in the Order.

Reopener

The conditions of discharge in the proposed 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. It may be appropriate to reopen the Order if new technical information is provided or if applicable laws and regulations change