

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2013-0096

WASTE DISCHARGE REQUIREMENTS
FOR
SUN-MAID GROWERS OF CALIFORNIA
KINGSBURG FACILITY
FRESNO COUNTY

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

1. Sun-Maid Growers of California (Sun-Maid or Discharger), a California Corporation, submitted three reports in October 2010 in support of a proposed discharge from its Kingsburg facility (the "Facility") to an adjacent 40 acre parcel of farm land formerly cropped with a grape vineyard. The reports prepared by Provost and Pritchard on behalf of Sun-Maid to address the proposed discharge included a Report of Waste Discharge (RWD), an Antidegradation Report, and a Groundwater Monitoring Network Plan. A second Antidegradation Analysis was prepared by Kenneth D. Schmidt and Associates in December 2011.
2. Provost and Pritchard, on behalf of Sun-Maid, submitted a Report of Waste Discharge Addendum (Addendum) dated 5 July 2012. The Addendum was prepared to further address the proposed discharge to Sun-Maid's existing and proposed Land Application Areas. After discussions with Central Valley Water Board staff, Provost and Pritchard submitted updated water and nutrient balances in support of the proposed discharge on 21 March 2013.
3. Sun-Maid owns and operates the Facility and is responsible for compliance with these Waste Discharge Requirements (WDRs). The Facility is just north/northwest of Kingsburg in Fresno County, as shown on Attachment A, which is a part of this Order. The Facility address is 13525 South Bethel Avenue, Kingsburg, CA 93631. The Facility operates 24 hours per day, 5 days a week, for 50 weeks a year.

Existing Facility and Discharge

4. Sun-Maid currently discharges raisin processing water to an existing 45-acre Land Application Area that is regulated by WDRs Order 84-035. WDRs Order 84-035 authorizes the annual spray disposal of up to 0.4 million gallons per day (mgd) or about 68.1 million gallons annually (209 acre-feet) of raisin processing wastewater to land.

5. The Facility is bounded by South Bethel Avenue to the east, South Industrial Avenue to the west, East Mountain View Avenue to the north, and South Golden State Boulevard to the south/southwest, as shown on Attachment B, which is a part of this Order.
6. The Facility and the existing 45-acre Land Application Area are generally in the eastern half of Section 16, Township 16 S, Range 28 E and the western half of Section 7, Township 31 S, Range 22 E, Mount Diablo Base & Meridian (MDB&M).
7. The Facility primarily processes raisins, which includes washing, rinsing, removing inorganics (dirt, pebbles, etc.), and stems, and packaging the raisins. Additionally, the Facility packages other pre-processed dried fruits such as peaches, cranberries, apricots, figs, and apples. These products are not washed and don't contribute to the wash water waste stream.
8. Wastewater is generated from the washing of raisins and equipment sanitation. The wastewater is described in the RWD as, "an organic liquid wastewater stream, composed primarily of suspended and dissolved materials in water. The soluble components include sugars, organics, inorganics, and a minimal amount of cleaning agents used in the process. The smaller particles consist mainly of raisin fragments, grit, sand, and silt." In prior years, raisin wash water and equipment sanitation wash water were distributed to one of three locations:
 - A Cogeneration Plant (Cogen) owned by a third party on the Facility where waste water was concentrated for grape alcohol production;
 - The Selma-Kingsburg-Fowler County Sanitation District Wastewater Treatment Facility (SKF WWTF) for treatment; and
 - The adjacent 45-acre Land Application Area for land discharges.
9. Concentrate from the Cogen was trucked to Sun-Maid's Orange Cove Distillery where it was processed into high-proof alcohol. However in the summer of 2011, the Cogen Plant, which is owned by a third party, altered its operation as a result of regulatory changes with the California Public Utilities Commission and a revised contract with PG&E to deliver electricity. Currently, all of Sun-Maid's discharge is either sent to the SKF WWTF or to the 45-acre Land Application Area.
10. Information in the RWD indicates that as of 2010, an average of about 0.078 mgd of wastewater was conveyed to the Cogen, and about 0.15 mgd was conveyed to the SKF WWTF. The annual calendar average rate of discharge to the 45-acre Land Application Area has been about 0.166 mgd since 2007, with peak average seasonal (i.e. June) discharges as high as 0.343 mgd, which is within the 0.4 mgd effluent flow limit in WDR Order 84-035.

11. The October 2010 RWD characterizes the average effluent quality data based on data representing approximately three and a half years from January 2007 to May 2010. The averages are presented in the following table:

2007 – 2010 EFFLUENT QUALITY DATA

<u>Units</u> ²	<u>Constituent/Parameter</u> ¹					
	<u>Flow</u> mgd	<u>BOD</u> mg/L	<u>Total Nitrogen</u> mg/L	<u>EC</u> ³ umhos/cm	<u>TSS</u> mg/L	<u>pH</u> s.u.
<u>Results</u>	0.166	3,183	43.4	542	771	4.28

1. BOD = biochemical oxygen demand; TDS = total dissolved solids; EC = electrical conductivity; TSS = total suspended
 2. mg/L = milligrams per liter; umhos/cm = micromhos per centimeter; s.u. – standard pH units
 3. EC is not part of the Monitoring and Reporting Program Order 84-035, but the EC of Sun-Maid's effluent is recorded by SKF WWTF personnel. The EC value presented was averaged from two years of SKF data from 2008 – 2010.

12. Recent data from January 2011 through 2012, indicates that the average effluent discharge flow has decreased slightly, while the concentrations for BOD, TSS, and total nitrogen have increased, as shown below:

2011 - 2012 EFFLUENT QUALITY DATA

<u>Units</u>	<u>Constituent/Parameter</u>					
	<u>Flow</u> mgd	<u>BOD</u> mg/L	<u>Total Nitrogen</u> mg/L	<u>EC</u> umhos/cm	<u>TSS</u> mg/L	<u>pH</u> s.u.
<u>Results</u> ¹	0.153	5,399	50	NA	1,201	NA

1. NA = not analyzed

13. To reduce the organic load of its discharge, Sun-Maid screens solids from the waste stream using rotary screens. It then uses sprinkler irrigation to distribute the wastewater over the 45-acre Land Application Area. Grit (mostly sand) removed during the processing is applied to the existing 45-acre Land Application Area.
14. The RWD indicates that solids screened from the discharge are not applied to the 45-acre Land Application Area, and are transported to Sun-Maid's Orange Cove facility. During an inspection on 23 June 2012, Central Valley Water Board staff observed screened raisin solids that had been discharged to the ground around the perimeter and within the interior of the 45-acre Land Application Area. This Order contains Provision F.11, which requires Sun-Maid to develop and submit a Solids Management Plan to address the disposal of processing solids generated at the Facility.

Proposed Discharge

15. Sun-Maid is proposing to expand its land disposal operations by adding approximately 40 acres of farmland for the treatment, reuse, and disposal of wastewater. The proposed 40-acre Land Application Area is situated directly north of the existing 45-acre Land Application Area (Attachment B). The combined Land Application Areas will provide 81.1 acres of irrigable land for the treatment, reuse, and disposal of wastewater.
16. The Addendum proposes a discharge to the Land Application Areas of about 0.39 mgd based on a 50 week, five day per week work schedule. The volume calculates to about 90.6 million gallons annually, or 278 acre feet per year. However, the Addendum's BOD loading estimates are annual averages, not cycle averages, which are typically used to estimate BOD loading. The daily BOD loading rates in the Addendum for the existing 45-acre Land Application Area are as high as 212 lbs/ac/day, and as high as 192 lbs/ac/day for the proposed 40-acre Land Application Area. These rates do not include resting periods between applications.
17. Subsequent to the March 2013 updated water and nutrient balances, the Discharger requested application periods of between 30 minutes to 120 minutes (two hours) followed by a rest period that is twice the application period and a BOD loading rate of 150 lbs/ac/day. Implementation of this request will result in lower loadings than presented in the March 2013 updated water and nutrient balances. This Order sets a maximum application period of two hours followed by a rest period of at least two times the application period. This Order also sets a BOD loading rate for the Land Application Area of 150 lbs/ac/day consistent with Risk Category 2 in the Guidance Manual prepared by the California League of Food Processors for discharges using sprinkler application to land with well drained soils. According to the Guidance Manual, discharges to land under Risk Category 2 pose a minimal risk of unreasonable degradation to groundwater provided reasonable care is taken to properly manage the Land Application Area.
18. The updated water and nutrient balances propose discharging about 107.8 million gallons annually to a combined 81.1 acres (45 acre parcel contains 43.8 acres of farmable land, while the 40 acre parcel contains 37.3 acres). About 58.2 million gallons annually to the existing 45-acre Land Application Area and about 49.6 million gallons annually to the proposed 40-acre Land Application Area. The discharge to the existing 45-acre Land Application Area will average about 0.233 mgd based on a 5 day work week and 250 working days per year. The discharge to the 40-acre Land Application Area will average about 0.199 mgd. These numbers are averages and actual daily applications will be either more or less depending upon climatic conditions and the results of the last three effluent BOD

results which will limit the flow such that the BOD loading will not exceed 150 lbs/ac/day.

19. The updated nutrient loading calculations indicate the proposed discharge will add about 480 lbs/ac/yr of nitrogen to each Land Application Area. Sun-Maid plans to double crop the Land Application Areas with forage crops like summer sorghum, Sudan Grass (nitrogen utilization of 325 lbs/ac/yr), and winter wheat (175 lbs/ac/yr) that can utilize a combined 500 lbs/ac/yr of nitrogen). The application of wastewater will need to be carefully managed (applied at agronomic rates with proper resting periods between applications) to ensure the discharge does not contribute to the existing regional nitrogen issue in shallow groundwater.

Other Considerations for Food processing Waste

20. Excessive application of food processing wastewater to land can create objectionable odors, soil conditions that are harmful to crops, and unreasonably degrade underlying groundwater. 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. Irrigation with high strength wastewater results in high BOD loading on the day of application. If the rate of oxygen transfer into the soil is not adequate, anaerobic or reducing conditions may result and lead to nuisance conditions. In addition, anaerobic conditions in soil can cause dissolution and leaching of some metals and increases in groundwater alkalinity. The over application of organic materials can also result in an organic film that reduces soil permeability requiring increased soil management. Gypsum applications are often used in agricultural settings to increase soil permeability. The over application of gypsum in response to organic overloading can cause or exacerbate increases in groundwater EC and alkalinity and cause increases in groundwater sodium and sulfate concentrations. The maximum BOD loading rate that can be applied to land without creating the conditions described above can vary significantly depending on soil conditions and operation of the land application system.
22. This Order includes Provision F. 14 requiring Sun-Maid to complete a Nutrient Management Plan for the Land Application Areas, which at a minimum must include procedures for monitoring the Land Application Areas, and management practices that will ensure wastewater, irrigation water, commercial fertilizers and soil amendments are applied at agronomic rates.

Site Specific Conditions

23. Source water is obtained from two onsite supply wells. Each well is capable of producing 1,200 gallons per minute. Source water quality is summarized in the following table.

<u>CONSTITUENT</u>	<u>UNITS</u>	<u>RESULTS</u>	
		<u>WELL #1</u>	<u>WELL #2</u>
pH	Standard pH Units	6.9	6.8
Electrical Conductivity	umhos/cm	210	170
Total Dissolved Solids	mg/L	127	110
Nitrate as Nitrogen	mg/L	1.8	1.2
Boron	mg/L	0.02	0.06

24. The land surface in the area of the Facility and the Land Application Areas is generally flat, with a slight regional slope to the southwest. The elevation of the Facility is about 300 feet above mean sea level.
25. According to Federal Emergency Management Agency map number 06019C2675H, the Facility and Land Application Areas are not located within a 100-year flood plain. The Kings River is located about four miles southeast of the Facility.
26. Soils in the vicinity of the Facility and the Land Application Areas are predominantly the Hanford fine sandy loam and the Hanford sandy loam according to the Web Soil Survey published by the United States Department of Agriculture Natural Resources Conservation Service.
27. The Hanford fine sandy loam and the Hanford sandy loam soils are well drained with a high capacity to transmit water. The Hanford fine sandy loam is described as a Class I soil. Class I soils have few limitations and are suited for a wide range of irrigated crops including almonds, alfalfa, cotton and grapes. The Hanford sandy loam is described as a Class 2s soil. Class 2 soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices. The "s" subclass indicates the soil is limited mainly because it is shallow, droughty, or stony.
28. The Kingsburg area is characterized as semi-arid with hot dry summers and cooler winters. The rainy season generally extends from November through March. Average annual precipitation and pan evaporation for the area are 11 inches and 64 inches, respectively. The annual precipitation with a 100-year return period is approximately 21.63 inches.

Groundwater Considerations

29. Groundwater in the area occurs at various depths within an unconfined aquifer. The depth to water in the unconfined aquifer is approximately 50 feet below the ground surface (bgs), according to information in *Lines of Equal Elevation of Water in Wells in Unconfined Aquifer*, published by DWR, Spring 2004. Regional flow of the unconfined aquifer is generally to the southwest.
30. Some groundwater quality data can be found on the Water Quality Portal web site, a cooperative service provided by the United States Geological Survey (USGS), the Environmental Protection Agency, and the National Water Quality Monitoring Council. Several USGS wells are in the area, but only one shallow well that monitors first encountered groundwater was located. The well (USGS 363251119331901), is about one mile east and upgradient of the Sun-Maid Facility and Land Application Areas at the northeast corner the intersection of East Mountain View Avenue and South Academy Avenue. Based on the direction of groundwater flow being to the southwest, this puts this well upgradient of the Facility and the existing 45-acre Land Application Area. The well is listed as having a depth of 56.4 feet below the ground surface (bgs) and had data for two sampling events in June and October 1989. The results are listed in the following table.

USGS Well 363251119331901

Constituent/Parameter

<u>Date</u>	<u>Electrical Conductivity</u> umhos/cm	<u>Nitrate as Nitrogen</u> mg/L	<u>Alkalinity</u> mg/L
6-22-1989	771	not available	328
10-23-1989	775	9.58	158

31. Sun-Maid has installed six groundwater monitoring wells to monitor first encountered groundwater and is proposing a seventh, as shown on Attachment B. Four wells (MW-1 through MW-4) are present around the existing 45-acre Land Application Area with MW-1 and MW-4 installed as upgradient wells and MW-2 and MW-3 set on the downgradient edge of the existing 45-acre Land Application Area. MW-4 is upgradient of the existing 45-acre Land Application Area and downgradient of the USGS well.
32. Two wells (MW-5 and MW-6) are present around the proposed 40-acre Land Application Area, with MW-5 on the upgradient edge and MW-6 on the downgradient edge of the 40-acre Land Application Area. The quality of groundwater in MW-5 and MW-6 represents the pre-project quality prior to discharge of waste to the proposed 40-acre Land Application Area, and the EC values in MW-5 are similar to the EC values observed in USGS well

363251119331901. The nitrate as nitrogen results in MW-6 are elevated, but do not appear to be related to Sun-Maid's discharge.

33. First encountered groundwater in Sun-Maid's wells is currently at about 55 to 60 feet bgs and generally flows to the southwest, but the flow direction is affected by wastewater application, nearby irrigation, and nearby well pumping practices. The groundwater gradient is reported to be relatively flat (0.001 to 0.0007 feet-per-foot).
34. Results for selected constituents from 2006 through April 2010 are summarized in the following table.

**AVERAGE GROUNDWATER QUALITY
 2006 through April 2010**

<u>Constituent</u>	<u>Units</u>	<u>Well Number</u>					
		<u>MW-1</u>	<u>MW-2</u>	<u>MW-3</u>	<u>MW-4</u> (upgradient)	<u>MW-5</u> (upgradient)	<u>MW-6</u>
pH	s.u.	7.2	7.3	7.4	7.5	7.3	7.4
EC	umhos/cm	828	1223	1226	1063	783	875
NO ₃ -N	mg/L	10.1	19.5	14.5	22.7	10	27.7
Total N	mg/L	10.2	19.6	14.6	23.2	10.7	27.9

35. MW-1 was installed as a background well, but it is set about 40 to 50 feet into the 45-acre Land Application Area and appears to be influenced by the discharge. Beginning in mid-2010, EC and nitrate as nitrogen results from this well began increasing dramatically as shown in the following table. The well was video logged in April 2013 and found to have excess sediment/mud in the base into which the pump was set. It was unclear how the sediment entered the well, but the well service that did the inspection recommended either raising the pump above the sediment or installing a new well. Sun-Maid has elected to replace the well. Provision F.12 requires Sun-Maid to submit a work plan for a groundwater monitoring well assessment. The location and depth of a replacement well for MW-1 can be assessed at that time. In September 2011, Sun-Maid began analyzing samples from MW-1 through MW-4 for an expanded list of constituents. The results for MW-1 through MW-4 are summarized the following table.

GROUNDWATER AVERAGES
September 2011 through October 2012

<u>Constituent</u>	<u>Units</u>	<u>MW-1</u>	<u>MW-2</u>	<u>MW-3</u>	<u>MW-4</u>
EC	umhos/cm	1814	1390	1452	1086
TDS	mg/L	1292	863	1001	757
FDS	mg/L	988	641	756	404
Total Nitrogen	mg/L	41.7	15	16.9	21.3
Total Alkalinity	mg/L	508	527	529	393
Hardness	mg/L	431	488	545	433
Chloride	mg/L	45.7	35	35.9	17.4
Sodium	mg/L	235	133	128	74
Calcium	mg/L	121	135	144	121
Boron	mg/L	0.22	0.18	0.29	0.09
Sulfate	mg/L	251	144	179	95

36. The results indicate that EC concentrations in MW-1 through MW-3 have increased since 2010, while offsite EC concentrations in upgradient well MW-4 have remained relatively stable.
37. Organic overloading of Land Application Area soils and/or the applications of gypsum to maintain soil permeability have resulted in elevated EC, TDS, alkalinity, sodium, calcium, and sulfate concentrations in groundwater underlying and down gradient of the Land Application Area . A contributor to increased groundwater sodium concentrations may be cleaners used at the Facility. Groundwater sodium concentrations exceed 200 mg/L in MW-1 and 125 mg/L in downgradient wells, possibly limiting its use for the irrigation of salt sensitive plants, which based on the soils of the region and the background water quality, can be grown in the area. Sun-Maid reports that it has ceased gypsum applications to the Land Application Area. The Central Valley Salinity Alternatives for Long Term Sustainability (CV Salts) is a collaborative effort that will be addressing how to set agricultural associated water quality objectives.
38. Provision F.12 requires Sun-Maid to complete a work plan to conduct a groundwater monitoring well network evaluation to replace MW-1 and assess the need for additional wells. Provision F.13 requires Sun-Maid to complete a Salinity Management Plan to address salinity in its discharge.

Basin Plan, Beneficial Uses, and Water Quality Objectives

39. The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition*, revised January 2004 (the "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 waste discharge requirements implement the Basin Plan.

40. The Facility and Land Application Areas are in Detailed Analysis Unit (DAU) No. 236, within the Kings Basin hydrologic unit. The Basin Plan identifies the beneficial uses of groundwater in the DAU as municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.
41. The Facility is in the Consolidated Hydrologic Area (No. 551.70) of the South Valley Floor Hydrologic Unit, as depicted on hydrologic maps prepared by State Water Resources Control Board in August 1986.
42. The Basin Plan includes a water quality objective for chemical constituents that, at a minimum, requires waters designated as MUN to meet the State drinking water MCLs specified in Title 22. 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.
43. 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.
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 salt 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 micromhos per centimeter (umhos/cm). When the source water is from more than one source, the EC shall be a weighted average of all sources.

- 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 milligrams per liter (mg/L), or boron content of 1.0 mg/L.

Antidegradation

45. State Water Board Resolution No. 68-16 (*"Policy with Respect to Maintaining High Quality Waters of the State"*) (hereafter Resolution 68-16) prohibits 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.
 - d. The degradation is consistent with the maximum benefit to the people of the State.
46. Constituents of concern that have the potential to cause degradation of high quality waters include, in part, organics, nutrients, and salts. However, the discharge is not expected to cause groundwater to exceed water quality objectives because:
 - a. Organic loading rates of the existing discharge and historic practices implemented to manage their effects at the soil surface have degraded groundwater beneath the Facility with EC, TDS, sodium, calcium, and sulfate. To ensure that the discharge authorized herein does not have similar results, this Order requires the Sun-Maid to incorporate a 30 to 120 minute discharge followed by twice the amount of time in rest (e.g., 120 minute application followed by at least 240 minutes of rest). This combined with a BOD loading rate of 150 lbs/ac/day or less should prevent organic overloading of the Land Application Areas. At this rate, the BOD loading rate to the 81.1 acres will range from about 72 lbs/ac/day (January and December) to 150 lbs/ac/day (March and May) such that the discharge authorized should not contribute to underlying groundwater degradation from organic loading. This limit is consistent with guidelines drafted by the California League of Food Processors and the U. S. Environmental Protection Agency and should preclude development of nuisance odor conditions.

- b. For nitrogen and nitrates, this Order limits the application of wastewater to agronomic rates for both nutrient and hydraulic loading. This should preclude degradation of groundwater exceeding the Primary Maximum Contaminant Level for nitrate nitrogen plus nitrite nitrogen of 10 mg/L. Discharger's cropping plan is to apply no more than the nitrogen needed for good agricultural practices estimated to be 500 lbs/ac/yr.
- c. For salinity, the Basin Plan contains effluent limits of EC of source water plus 500 umhos/cm and 1,000 umhos/cm maximum for discharges to areas that may recharge to good quality groundwater. As the Tulare Lake Basin is a closed basin, these limits are designed to control the rate of groundwater degradation with respect to salinity. With a source water EC of about 210 umhos/cm, the average reported effluent EC of 542 umhos/cm meets the Basin Plan limit of source water plus 500 umhos/cm (710 umhos/cm). This Order requires effluent sampling for both TDS and FDS. Additionally, sodium concentrations are elevated in MW-1 through MW-3 when compared to MW-4, indicating the discharge is causing the elevated sodium concentrations. The source of the sodium is unknown, but it may have been from the cleaners used to clean the raisin processing equipment, past pH adjustment measures, or from past applications of gypsum to the existing 45-acre Land Application Area. Provision F.13 requires Sun-Maid to submit a Salinity Management Plan that requires Sun-Maid to evaluate salinity sources in its discharge and provide recommendations for alternatives that will add less salt to the discharge.

Treatment and Control Practices

47. The Facility and its irrigation system provide treatment or control of the discharge that incorporates:
 - a. Screening of solids and sediment from the waste stream.
 - b. Sprinkler application of wastewater to the Land Application Areas that will provide even distribution of wastewater over the 81.1 acres at agronomic rates for the type of crop being grown.
 - c. Division of the 81.1 acres of Land Application Areas into 35 separate parcels of about 2.3 acres each.
 - d. Sprinkler application of wastewater to each parcel of the Land Application Areas with a loading rate for BOD of 150 lbs/ac/day or less.
 - e. Sprinkler application of wastewater at rates that will not allow wastewater to stand for more than 48 hours.

- f. Sprinkler application of wastewater to each parcel from 30 to a maximum of 120 minutes, followed by a minimum rest period of twice the application period.
- g. Resting periods between wastewater applications.
- h. At least daily inspection of the Land Application Areas during times of discharge.
- i. Appropriate solids disposal practices.
- j. Elimination of the use of sodium based cleansers for the cleaning and sanitizing of the processing equipment and replacement with peroxide and/or potassium based cleaning products.
- k. Elimination of sodium hypochlorite for source water disinfection and replacement with potassium hypochlorite.
- l. Elimination of sodium hydroxide to adjust pH and replacement with calcium hydroxide.
- m. Implementation of in-plant solids collection and removal of waste raisins and residuals and reduction of the volume of solids washed into the waste stream.

48. These Treatment and Control Practices are reflective of BPTC of the discharge.

Antidegradation Conclusions

49. The existing discharge with no resting periods would continue to unreasonably degrade and/or pollute or threaten to pollute the underlying groundwater. However, by subdividing the 81.1 acres into 35 parcels of about 2.3 acres each and limiting wastewater applications to no more than 120 minutes per application with a resting period in between applications of at least twice as long as the application period, and by applying wastewater at the loading rates authorized by this Order, the continued degradation of groundwater due to organic overloading, and the potential of the discharge to degrade or pollute underlying groundwater with nitrate as nitrogen should be abated.
50. This Order contains Discharge Specification B.4 that limits the BOD loading rate to no more than 150 lbs/ac/day with an application rate of 30 to no more than 120 minutes followed by a resting period no less than two times (60 to 240 minutes) between the applications. Managing the application of wastewater in such a manner will preclude organic loading and further degradation/pollution of the underlying groundwater.

51. This Order establishes terms and conditions to ensure that the discharge does not continue to 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.
52. Economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State. Sun-Maid is a cooperative made up of 750 farmer members. Sun-Maid aids in the economic prosperity of the region by direct employment of between 700 and 750 people, supports the local economy through property and sales taxes, and provides a needed processing service to its local raisin growers. In addition, the use of process wastewater for irrigation in place of higher quality groundwater is of further benefit to people of the State. Provided that discharges from the Facility comply with State and Central Valley Water Board plans and policies, authorized degradation due to the continued operation of the Sun-Maid Facility is to the maximum benefit to the people of the State.

Designated Waste and Title 27

53. 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.
54. 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.

CEQA

55. The County of Fresno Department of Public Works and Planning (County) circulated an *Initial Study Application and Unclassified Conditional Use Permit, Sun-Maid Growers of California (Sun-Maid) On-Site Land Disposal Expansion Project* (Initial Study) report dated 11 February 2011 regarding a proposed discharge/application of raisin process water to an adjacent 40 acre parcel. Central Valley Water Board staff commented in a 30 June 2011 to the County stating the Initial Study application did not provide sufficient information for Central Valley Water Board staff to determine, as a responsible agency under the California Environmental Quality Act, whether the potential project impacts would be adequately mitigated.
56. Sun-Maid subsequently submitted the two additional reports to further characterize its discharge and its potential to affect the quality of the underlying groundwater: a December 2011 *Antidegradation Report* prepared by Kenneth D. Schmidt and Associates (Schmidt), and the 5 July 2012 Addendum prepared by the Provost and Pritchard Consulting Group.
57. Central Valley Water Board staff sent a 31 July 2012 to Fresno County indicating that the letter provided Central Valley Water Board staff enough information to proceed with the preparation of waste discharge requirements for the project.
58. Fresno County approved the Unclassified Conditional Use Permit, Initial Study, and Mitigated Negative Declaration on 11 August 2012.
59. This Order includes requirements to protect water quality, including, but not limited to:
 - a. Discharge Specification B.2 that establishes EC effluent limitations that are reflective of best practicable treatment for this discharge.
 - b. Discharge Specification B.4, which limits the flow to the volume which is in accordance with good agronomic practices for the crops grown, and which will not exceed a daily BOD loading rate of 150 lbs/278 acre feet/day with an application period of 30 to 120 minutes with a resting period of no less than two times the application period (60 to 240 minutes) between wastewater applications.
 - c. Discharge Specification B.8, which stipulates waste constituents cannot be released or discharged in a concentration or mass that causes violation of this Order's groundwater limitations.
 - d. Provisions F.11, F.12, F. 13, and F.14 that require the submittal of Solids Management Plan; a Work Plan to evaluate groundwater quality including the

increases observed in MW-1; a Salinity Management Plan, and a Nutrient Management Plan, respectively.

General Findings

60. Based on the threat to water quality and complexity of the discharge, the facility is determined to be classified as 2-B. Section 2200 of title 23, CCR, defines these categories to include any of the following:
 - a. Category 2 threat to water quality: “Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance.”
 - b. Category B complexity: “Any discharger not included in Category A that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal), or any Class 2 or Class 3 waste management units.”
61. 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.
62. The Central Valley Water Board will review this Order periodically and will revise requirements when necessary.
63. Water Code section 13267(b) states:

In conducting an investigation specified in subdivision (a), 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 or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters 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.
64. The technical reports required by this Order and the attached Monitoring and Reporting Program R5-2013-0096 are necessary to assure compliance with these WDRs. The Discharger owns and operates the facility that discharges the waste subject to this Order.
65. DWR sets standards for the construction and destruction of groundwater wells, as described in the *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.

Public Notice

66. All of the above and the supplemental information and details in the attached Information Sheet, which is incorporated herein, were considered in establishing the following conditions of discharge.
67. The Discharger and interested agencies and persons have been notified of the intent to prescribe WDRs for this discharge, and they have been provided an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
68. All comments pertaining to the discharge were heard and considered in a public meeting.

IT IS HEREBY ORDERED that, Waste Discharge Requirements Order 84-035 is hereby rescinded, except for enforcement purposes, and that pursuant to Water Code sections 13263 and 13267, Sun-Maid Growers of California, Inc., and its respective 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. Discharge Prohibitions

1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.
2. Bypass of untreated wastes, except as allowed by Provision E.2 of Standard Provisions and Reporting Requirements, is prohibited.
3. Discharge of hazardous wastes, as that term is defined in California Code of Regulations, title 22, section 66261.1 *et seq.*, or of waste classifiable as 'designated', as defined in Water Code section 13173, is prohibited.
4. Application of wastewater in a manner or location other than that described in the report of waste discharge and herein is prohibited.
5. The discharge of wastewater to a septic system is prohibited.
6. The discharge of any water softening ion exchange regeneration brine in the wastewater system is prohibited.

B. Discharge Specifications

1. The Discharger shall measure the volume of the wastewater discharged to the Land Application Areas and the volume of wastewater discharged to the SKF WWTF (Compliance shall be determined at DIS-002 as described in Monitoring and Reporting Program R5-2013-0096).
2. The annual flow-weighted average EC of the discharge shall not exceed the flow weighted average EC of the source water plus 500 umhos/cm or a maximum of 1,000 umhos/cm, whichever is less. The flow-weighted average of the source water shall be a moving average for the most recent 12 months (Compliance shall be determined at DIS-001 as described in Monitoring and Reporting Program R5-2013-0096).
3. The annual volume of wastewater discharged to the Land Application Areas shall not exceed 278 acre-feet.
4. The discharge shall not exceed a BOD loading rate of 150 lbs/ac/day at any time. Compliance with this limit shall be determined by using the average of the last three effluent BOD monitoring results.
5. The Discharger shall operate all systems and equipment to optimize treatment of wastewater and the quality of the discharge.
6. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.
7. The discharge shall remain within the permitted waste treatment/containment structures and Land Application Areas at all times.
8. No waste constituent shall be released or discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of groundwater limitations.
9. All conveyance, treatment, storage, and disposal systems shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
10. The treatment, storage, and disposal areas shall have sufficient capacity to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary inflow and infiltration during the winter while ensuring continuous compliance with all requirements of this Order. Design seasonal precipitation

shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.

11. Objectionable odors shall not be perceivable beyond the limits of the Facility and/or the Land Application Areas at an intensity that creates or threatens to create nuisance conditions.

C. Solids Specifications

1. Any handling and storage of solids and sludge 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 groundwater limitations of this Order.
2. Collected screenings, sludge, and other solids removed from the liquid waste shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27. Removal for further treatment, disposal, or reuse at sites (i.e., landfill, composting sites, soil amendment sites) operated in accordance with valid WDRs issued by a regional water quality control board will satisfy this specification.
3. Any proposed change in solids disposal practices shall be reported to the Executive Officer in writing at least 90 days in advance of the change. Screenings may be land applied to the disposal area provided that, at least 60 days prior to application, the Discharger submits a loading analysis that demonstrates the land application of solids will not cause an exceedance of any specification or groundwater limitation of this Order.

D. Land Application Area Specifications

1. Application of waste constituents to the Land Application Areas shall be at reasonable agronomic rates to preclude creation of a nuisance or degradation of groundwater, considering the crop, soil, climate, and irrigation management system. The annual nutritive loading of the Land Application Areas, including the nutritive value of organic and chemical fertilizers and of the wastewater shall not exceed the annual crop demand.
2. Wastewater shall not be discharged to the Land Application Areas in a manner that causes wastewater to stand for greater than 48 hours after irrigation ceases.
3. Wastewater shall be applied to the Land Application Areas with appropriate resting periods. The maximum application period shall be two hours. The minimum rest period shall be at least twice the preceding application period.

4. Any irrigation runoff shall be confined to the Land Application Areas and shall not enter any surface water drainage course or storm water drainage system.
5. The perimeter of the Land Application Areas shall be graded to prevent ponding along public roads or other public areas and prevent runoff onto adjacent properties not owned or controlled by the Discharger.
6. The volume of wastewater applied to the Land Application Areas on any single day shall not exceed reasonable agronomic rates based on the vegetation grown, pre-discharge soil moisture conditions, and weather conditions.
7. Hydraulic loading of wastewater and supplemental irrigation water including precipitation shall be at reasonable agronomic rates designed to:
 - a. Maximize crop nutrient uptake;
 - b. Maximize breakdown of organic waste constituents in the root zone; and
 - c. Minimize the percolation of waste constituents below the root zone.
8. The irrigation with wastewater shall be managed to minimize erosion within the Land Application Areas.
9. The Land Application Areas shall be managed to prevent breeding of mosquitoes. In particular:
 - a. All applied irrigation water must infiltrate completely within 48 hours;
 - b. Tailwater ditches shall be maintained essentially free of emergent, marginal, and floating vegetation; and
 - c. Low-pressure and unpressurized pipelines and ditches accessible to mosquitoes shall not be used to store wastewater.
10. No physical connection shall exist between wastewater and any domestic water supply or domestic well, or between wastewater piping and any irrigation well that does not have an air gap or reduce pressure principle device.

E. Groundwater Limitations

Release of waste constituents from any treatment unit, delivery system, or Land Application Area associated with the Facility shall not cause or contribute to groundwater containing concentrations of constituents identified below, or natural background quality, whichever is greater.

- a. Nitrate as nitrogen of 10 mg/L.

- b. EC of 900 umhos/cm.
- c. For constituents identified in Title 22, the Primary and Secondary MCLs quantified therein.

F. 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 a part of this Order.
2. The Discharger shall comply with Monitoring and Reporting Program (MRP) R5-2013-0096, 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 keep at the Facility office copies 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.
4. The Discharger must at all times properly operate and maintain its respective facilities and systems of treatment and control (and related appurtenances) that are installed or used 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 only when the operation is necessary to achieve compliance with the conditions of the Order.
5. 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 a person 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.
6. 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.

7. 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 Central Valley Water Board.
8. 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 California 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.
9. 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.
10. As described in the Standard Provisions, 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.
11. **By 27 January 2014**, the Discharger shall submit a Solids Management Plan that details how the Discharger plans to dispose of raisin solids and sand and grit generated from the screening of wastewater, the washing of fruit, and the cleaning of the wastewater sumps. Should land application of the solids be considered, the Plan shall include an analysis demonstrating the additional organic load will not contribute to the degradation of the underlying groundwater.

12. **By 27 January 2014**, the Discharger shall submit a Work Plan to replace monitoring well MW-1 and evaluate the need for additional wells to monitor groundwater. The Work Plan shall include the rationale for the selected location of the well, the proposed construction information (well depth, screened interval) of the well, and shall assess the need for additional wells.
13. **By 27 January 2014**, the Discharger shall submit a Salinity Management Plan, with salinity source reduction goals and an implementation time schedule for Executive Officer approval. The control plan shall 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.
14. **By 27 January 2014**, the Discharger shall submit a Nutrient Management Plan for the Land Application Areas for Executive Officer approval. 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, a discussion on blending of wastewater and supplemental irrigation water, supporting data and calculations for monthly and annual water and nutrient balances, and management practices that will ensure wastewater, irrigation water, commercial fertilizers and soil amendments are applied at agronomic rates.
15. 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 the problem constituents.
16. 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.
17. 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, may issue a complaint for administrative civil liability, or may take other enforcement actions. Failure to comply with this Order may result in the assessment of Administrative Civil Liability of up to \$10,000 per violation, per day, depending on the violation, pursuant to the Water Code, including sections 13268, 13350 and 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

Any person aggrieved by this action may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 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 filing 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 26 July 2013.

Original signed by:

PAMELA C. CREEDON, Executive Officer

Order Attachments:

- A Location Map
- B Site Map

Monitoring and Reporting Program R5-2013-0096
Information Sheet

Standard Provisions (1 March 1991) (separate attachment to the Discharger only)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2013-0096
FOR
SUN-MAID CALIFORNIA GROWERS, INC.
KINGSBURG FACILITY
FRESNO COUNTY

This Monitoring and Reporting Program (MRP) is required pursuant to Water Code section 13267.

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 a statistically significant number of sampling events, 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 11.

The Discharger shall monitor the following locations to demonstrate compliance with the requirements of this Order:

Monitoring Location Name	Monitoring Location Description
DIS-001	Location where a representative sample of the Facility effluent can be obtained prior to Discharge to the Land Application Areas.
DIS-002	Location where the Facility effluent flow can be measured prior to discharge into the Land Application Area or the SKF WWTF.
SPL-001 and SPL-002	Water Supply Wells No.1 (SPL-001) and No. 2 (SPL-002).
MW-1 through MW-6	Groundwater Monitoring Wells MW-1 through MW-6.

EFFLUENT MONITORING

Effluent samples shall be representative of the volume and nature of the discharges and shall be collected at DIS-001 and DIS-002 (flow only) prior to discharge to the Land Application Areas. Time of collection of the samples shall be recorded. If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the Discharger shall monitor and record data for all of the constituents listed below, after which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge.

Effluent flow shall be recorded at DIS-002 just prior to discharge to the Land Application Areas. Effluent monitoring shall include at least the following:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Continuous	Flow	mgd	Meter
Weekly	pH	pH Units	Grab
Weekly	EC	umhos/cm	Grab
Weekly	TDS	mg/L	24-hour composite
Weekly	FDS	mg/L	24-hour composite
Weekly	BOD ₅	mg/L	24-hour composite
Weekly	TSS	mg/L	24-hour composite
Monthly	Nitrate as N	mg/L	24-hour composite
Monthly	TKN	mg/L	Grab
Monthly	Ammonia	mg/L	Grab
Monthly	Total Nitrogen	mg/L	Computed

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Monthly	Chloride	mg/L	24-hour composite
Monthly	Sodium	mg/L	24-hour composite
Quarterly	General Minerals	mg/L	24-hour composite
Quarterly	Boron, Iron, and Arsenic	mg/L	24-hour composite

SOURCE WATER MONITORING

The Discharger shall monitor each water supply well (SPL-001 and SPL-002), collect samples, and analyze them for the constituents shown in the following table.

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Semi-annually	EC	umhos/cm	Grab
Semi-annually	Nitrate as N	mg/L	Grab
Semi-annually	TDS	mg/L	Grab
Semi-annually	TKN	mg/L	Grab
Semi-annually	Total Nitrogen (equals TKN + Nitrate as N)	mg/L	Calculated
<u>Annually</u>	General Minerals	mg/L	Grab

1. Semi-annually is twice a year, with samples collected in the first quarter (January through March) of the year and the third quarter (July through September) of each year.

LAND APPLICATION AREA MONITORING

The Discharger shall monitor the Land Application Areas daily throughout the processing season and while wastewater is being discharged. The volume of the effluent applied will be monitored at DIS-002. The monitoring report shall identify specific parcels, the acreage to which wastewater is applied, and type of crops grown and shall be submitted as part of the annual monitoring report.

In addition, 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	Application Area	Acres	n/a
Daily	Wastewater flow	Gallons	Metered
Daily	Wastewater loading	inches/day	Calculated
Daily	Supplemental irrigation	Gallons	Estimated
Daily	Precipitation	Inches	Rain gage ¹
Monthly	Total Hydraulic loading ²	inches/acre-month	Calculated
<u>BOD Loading³</u>			
Daily	Day of Application	lbs/acre	Calculated

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
<u>Nitrogen loading⁴</u>			
Annual	From wastewater	lbs/ac/yr	Calculated
Annual	From fertilizers	lbs/ac/yr	Calculated
<u>Salt and Potassium loading⁴</u>			
Annual	From wastewater	lbs/ac/yr	Calculated

1. National Weather Service or CIMIS data from the nearest weather station is acceptable.
2. Combined loading from wastewater, irrigation water, and precipitation.
3. The BOD loading rate shall be calculated using the applied volume of wastewater, applied acreage, and average of the three most recent BOD analytical results.
4. Nitrogen and salt loading shall be calculated using the applied volume of wastewater, applied acreage, and the three most recent analytical results for total nitrogen and FDS.

In addition, the Discharger shall inspect the application areas on a daily basis. 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.

GROUNDWATER MONITORING

After measuring water levels and prior to collecting samples, each monitoring well (MW-1 through MW-6) shall be adequately purged to remove water that has been standing within the well screen and casing that may not be chemically representative of formation water. Depending on the hydraulic conductivity of the geologic setting, the volume removed during purging is typically from 3 to 5 volumes of the standing water within the well casing and screen, or additionally the filter pack pore volume.

The Discharger shall monitor all wells in its Groundwater Monitoring Network, and any additional wells installed pursuant to this MRP, for the following:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Quarterly	Depth to groundwater	Feet ¹	Measured
Quarterly	Groundwater Elevation	Feet ²	Computed
Quarterly	pH	pH Units	Grab
Quarterly	EC	umhos/cm	Grab
Quarterly	Nitrate	mg/L (as N)	Grab
Quarterly	Total Nitrogen	mg/L	Grab
Quarterly	Total Organic Carbon	mg/L	Grab
Quarterly	TDS	mg/L	Grab
Quarterly	Chloride	mg/L	Grab
Quarterly	Sodium	mg/L	Grab
Quarterly	Arsenic	ug/L	Grab
Quarterly	Iron	ug/L	Grab

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Quarterly	Manganese	ug/L	Grab
Annually	General Minerals	mg/L	Grab

¹ To nearest hundredth of a foot

² To nearest tenth of a foot above Mean Sea Level

REPORTING

All monitoring results shall be reported in **Quarterly Monitoring Reports** which are due by the first day of the second month after the calendar quarter. Therefore, monitoring reports are due as follows:

- First Quarter Monitoring Report: **1 May**
- Second Quarter Monitoring Report: **1 August**
- Third Quarter Monitoring Report: **1 November**
- Fourth Quarter Monitoring Report: **1 February.**

A transmittal letter shall accompany each 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 facility 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. Reports shall be submitted whether or not there is a discharge.

The following information is to be included on all monitoring reports, as well as report transmittal letters:

Sun-Maid Growers of California
Kingsburg Facility
MRP R5-2013-0096
Contact Information (telephone 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.

If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the

calculation and reporting of the values required in the Discharge Monitoring Report Form. Such increased frequency shall be indicated on the Discharge Monitoring Report Form.

All monitoring reports shall comply with the signatory requirements in Standard Provision B.3. 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.

A. All Quarterly Monitoring Reports shall include the following:

Effluent Reporting:

1. The results of the effluent monitoring specified on page 2.
2. For each month, calculation of the maximum daily flow, monthly average flow, and cumulative annual flow.
3. For each month, calculation of the 12-month rolling average EC of the discharge using the EC value for that month averaged with the EC values for the previous 11 months.
4. For each month, calculation of the weekly BOD concentration.

Groundwater Reporting:

1. The results of groundwater monitoring specified on page 4 and 5.
2. For each monitoring well, a table showing constituent concentrations through the current quarter.
3. A groundwater contour map based on groundwater elevations for that quarter. The map shall show the gradient and direction of groundwater flow under/around the facility and/or Land Application Areas. The map shall also depict the locations of monitoring wells, storm water ponds, Land Application Area parcels, and irrigation wells.

Land Application Area Reporting

1. The results of the routine monitoring and reporting and loading calculations specified on pages 3 and 4.

2. For each month that wastewater is applied to the Land Application Areas, calculation of the monthly hydraulic load for wastewater and supplemental irrigation water in millions of gallons to each discrete irrigation area.
3. A summary of the notations made in the Land Application Area log during each quarter. The entire contents of the log do not need to be submitted.
4. A summary of daily BOD loading rates.

B. Fourth Quarter (Annual) Monitoring Reports, in addition to the above, by **1 February** of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

Facility Information:

1. The names and general responsibilities of all persons employed to operate the produced water treatment systems.
2. The names and telephone numbers of persons to contact regarding the Facility for emergency and routine situations.
3. A statement certifying when the flow meters and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration (Standard Provision C.4).
4. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the Facility as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.
5. A summary of any changes in processing that might affect waste characterization and/or discharge flow rates.

Source Water Reporting

1. The results of the semi-annual monitoring for the constituents specified on page 3. Results must include supporting calculations.

Solids Reporting

1. Annual production totals solids (excluding trash and recyclables) in dry tons or cubic yards.
2. A description of disposal methods, including the following information related to the disposal methods used. If more than one method is used, include the percentage disposed of by each method.
 - a. For landfill disposal, include: the name and location of the landfill, and the Order number of WDRs that regulate it.

- b. For land application, include: the location of the site, and the Order number of any WDRs that regulate it.
- c. For incineration, include: the name and location of the site where incineration occurs, the Order number of WDRs that regulate the site, the disposal method of ash, and the name and location of the facility receiving ash (if applicable).
- d. For composting, include: the location of the site, and the Order number of any WDRs that regulate it.
- e. For animal feed, include: the location of the site, and the Order number of any WDRs that regulate it.

Land Application Area Reporting

- 1. The type of crop(s) grown, planting and harvest dates, and the quantified nitrogen and fixed dissolved solids uptakes (as estimated by technical references or, preferably, determined by representative plant tissue analysis). Include any soil and/or tissue sampling results.
- 2. The monthly and annual discharge volumes during the reporting year expressed as million gallons and inches.
- 3. A monthly balance for the reporting year that includes:
 - a. Monthly average ET_0 (observed evapotranspiration) – Information sources include California Irrigation Management Information System (CIMIS) <http://www.cimis.water.ca.gov/>
 - b. Monthly crop uptake
 - i. Crop water utilization rates are available from a variety of publications available from the local University of California Davis extension office.
 - ii. Irrigation efficiency – Frequently, engineers include a factor for irrigation efficiency such that the application rate is slightly greater than the crop utilization rate. A conservative design does not include this value.
 - c. Monthly average precipitation – this data is available at <http://www.cimis.water.ca.gov/> or at <http://www.ncdc.noaa.gov/oa/climate/online/ccd/nrmlprcp.html>.
 - d. Monthly average and annual average discharge flow rate.
 - e. Monthly estimates of the amount of wastewater percolating below the root zone (i.e., amount of wastewater applied in excess of crop requirements).
- 4. A summary of daily BOD loading rates.

5. The total pounds of nitrogen applied to the reuse area(s), as calculated from the sum of the monthly loading, and the total annual nitrogen loading to the reuse area(s) in lbs/ac/yr.
6. The total pounds of fixed dissolved solids (FDS) that have been applied to the reuse area(s), as calculated from the sum of the monthly loadings, and the total annual FDS loading to the reuse area(s) in lbs/ac/yr.

The Discharger shall implement the above monitoring program on the first day of the month following adoption of this Order.

Original signed by:

Ordered by: _____

PAMELA C. CREEDON, Executive Officer

26 July 2013

(Date)

TABLE 1. Land Application Area Monitoring

Reused Water Monitoring Data for Year: _____							
Parcel No. _____ of _____ acres							
		FDS Application			Nitrogen Application		
		As fertilizer	As effluent	FDS applied	As fertilizer	As effluent	Total nitrogen applied
Month	Crop	(lbs/acre)	(lbs/acre)	(lbs/acre)	(lbs/acre)	(lbs/acre)	(lbs/acre)
October							
November							
December							
Subtotal:							
January							
February							
March							
Subtotal:							
April							
May							
June							
Subtotal:							
July							
August							
September							
Subtotal:							
Annual Total:							

* calculated as (AF effluent/acre) x (2.72) x (X mg/l total nitrogen) = lbs nitrogen/acre

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	Unless otherwise specified or approved, 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
µg/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	Chloride	Sodium
Bicarbonate	Hardness	Sulfate
Calcium	Magnesium	TDS
Carbonate	Potassium	

General Minerals analyses shall be accompanied by documentation of cation/anion balance.

INFORMATION SHEET

ORDER NO. R5-2013-0096
SUN-MAID GROWERS OF CALIFORNIA, INC.
KINGSBURG FACILITY
KERN COUNTY

Background

Sun-Maid Growers of California, (Sun-Maid) owns and operates a raisin processing and packaging facility (Facility) in southern Fresno County. Sun-Maid processes raisins, but also packages other pre-processed fruits such as peaches, cranberries, apricots, figs, and apples at the Facility. The Facility is at 13525 South Bethel Avenue just north of the community of Kingsburg in Fresno County.

Sun-Maid submitted three reports in October 2010 in support of a proposed discharge of wastewater to a nearby 40-acre parcel. The reports included a Report of Waste Discharge (RWD), an Antidegradation Report, and a Groundwater Monitoring Network Plan. The October 2010 Antidegradation Report was incomplete. Sun-Maid subsequently submitted two additional antidegradation reports:

- December 2011 *Antidegradation Report* prepared by Kenneth D. Schmidt and Associates (Schmidt); and
- July 2012 *Report of Waste Discharge Addendum* (Addendum) prepared by the Provost and Pritchard.

The December 2011 report by Schmidt indicates the discharge from Sun-Maid has degraded groundwater beneath existing 45-acre Land Application Area, but states no beneficial uses were compromised as there are no downgradient receptors. The report did not demonstrate the discharge would not degrade the underlying groundwater or that if degradation did occur, the resulting water quality would be within water quality objectives.

The Addendum evaluates discharge to both Land Application Areas (~81.1 acres), but did not calculate BOD loading as a cycle average, but rather as an annual average and had BOD loading rates as high as 212 lbs/ac/day. Provost and Pritchard submitted updated water and nutrient balances in March 2013 requesting the limit for BOD loading be set at 150 lbs/ac/day, which is consistent with Risk Category 2 in the Guidance Manual prepared by the California League of Food Processors for discharges using sprinkler application to land with well drained soils.

Existing Discharge

Sun-Maid's existing discharge is regulated by Waste Discharge Requirements (WDRs) Order 84-035 that authorizes the spray disposal of 0.4 mgd or about 68 million gallons annually of raisin processing wastewater to 45 acres of Sun-Maid's property. The annual average rate of discharge to the Land Application Area has been about 0.16 mgd since 2006.

Wastewater is generated from the washing of raisins and equipment sanitation. Prior to 2011, wastewater has historically been distributed to three locations:

- An on-site Cogeneration Plant (Cogen) where the discharge was concentrated for grape alcohol production. This concentrator equipment was removed in 2012.
- The Selma-Kingsburg-Fowler Wastewater Treatment Facility (SKF WWTF) for treatment; and
- The existing 45-acre Land Application Area for land discharge.

The RWD indicates an average of about 0.078 mgd of wastewater was sent to the Cogen. Sun-Maid lost its ability to send waste water to the Cogen in 2011 and has requested new WDR's to add a new 40 acre parcel.

Sun-Maid's Self-Monitoring Report's provide monthly data from 2006 through November 2012 and technical reports provide data from 2007 through 2010 to characterize its effluent and the results are summarized following tables. The table below represents averages from samples collected from January 2007 through May 2010.

**EFFLUENT DATA
 2006 - 20120**

<u>Units</u>	<u>Calendar Ave. Flow</u> mgd	<u>Workday Ave. Flow</u> mgd	<u>BOD</u> mg/L	<u>Total Nitrogen</u> mg/L	<u>EC</u> umhos/cm	<u>TSS</u> mg/L	<u>pH</u> s.u.
<u>Results</u>	0.166	0.243	3,183	43.4	542	771	4.28

Monitoring and Reporting Program (MRP) 84-035 does not require effluent testing for EC and TDS. However, the SKF WWTF analyzes Sun-Maid's discharge to the WWTF for EC. Sun-Maid used SKF EC results from 2007 through 2010 to provide the values listed in the above table. Analysis for EC, TDS, and FDS is required in MRP R5-2013-0096.

Sun-Maid's Self-Monitoring-Reports from 2006 through 2012 contained effluent results for BOD and total nitrogen. The average BOD and total nitrogen effluent concentrations from 2006 through 2012 are depicted in the following table.

AVERAGE EFFLUENT BOD/TOTAL NITROGEN RESULTS

<u>Constituent</u>	<u>Average</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>
BOD (mg/L)	4,022	4,409	2,825	3,327	2,958	3,970	5,883	5,170
Total Nitrogen (mg/L)	44.9	43	41	47	40	47	56	45
Monthly Average Discharge (mgd)	0.16	0.16	0.14	0.18	0.18	0.13	0.14	0.16

BOD and total nitrogen concentrations in effluent increased in 2011 and 2012 and are much greater than the values presented in the 2010 RWD, the Addendum, and the

2013 updated loading calculations. Sun-Maid indicates this is the result of the Cogen going offline and the quality of the most recent raisin crops.

Groundwater Conditions

Regional groundwater data was available on the USGS Water Quality Portal web site. Several wells were present in the vicinity of the Sun-Maid Facility, but only one shallow well that monitors first encountered groundwater was located to the east and upgradient of the Facility. The well (USGS 363251119331901), is listed as having a depth of 56.4 feet below the ground surface (bgs) and had data for two sampling events in June and October 1989. The results are listed in the following table.

USGS Well 363251119331901

Constituent/Parameter

<u>Date</u>	<u>Electrical Conductivity</u> <u>umhos/cm</u>	<u>Nitrate as Nitrogen</u> <u>mg/L</u>	<u>Alkalinity</u> <u>mg/L</u>
6-22-1989	771	not available	328
10-23-1989	775	9.58	158

While limited to just three constituents, the two EC results and the one nitrate result are nearly identical to those in MW-5, background well for the new 40 acre Land Application Area, as shown in the following table on page 4.

Sun-Maid has a six well groundwater monitoring network to monitor the first encountered groundwater beneath and around the Facility and is proposing a seventh. The six wells are set from 63 to 84 feet bgs and the depth to groundwater ranged between about 42 and 53 feet bgs in 2012. The direction of flow is generally to the south/southwest and the groundwater gradient is reported to flat (0.001 to 0.0007 feet per foot).

Attachment A shows the well locations and the Land Application Areas. Wells MW-1 through MW-4 are present around the existing 45-acre Land Application Area with MW-1 and MW-4 described in the RWD as upgradient wells and MW-2 and MW-3 set on the downgradient edge of the existing 45-acre Land Application Area. MW-1 was installed as an upgradient well, but it is actually set within the existing 45-acre Land Application Area, as discussed below. MW-4 is upgradient of the existing 45-acre Land Application Area. The EC and nitrate as nitrogen concentrations in MW-4 were the highest of all of the upgradient wells, as discussed on the following page, but the cause of those elevated concentrations is unknown. It would not appear to be related to the discharge from Sun-Maid.

MW-4 has poorer water quality than USGS Well 363251119331901, which indicates that either the USGS well is screened over a greater interval that dilutes the water quality in the USGS well, or the water is degraded between the USGS well and MW-4.

Wells MW-5 and MW-6 were installed in the vicinity of the proposed 40-acre Land Application Area MW-5 was installed on the upgradient edge of the 40-acre Land Application Area and MW-6 on the downgradient well. A seventh well is proposed on the southern side of 40-acre Land Application Area and would be a downgradient well.

Groundwater quality averages for the six wells were presented in the October 2010 RWD and are shown in the following table.

**GROUNDWATER AVERAGES
 2006 through April 2010**

<u>Constituent</u>	<u>Units</u>	<u>Well Number</u>					
		<u>MW-1</u>	<u>MW-2</u>	<u>MW-3</u>	<u>MW-4</u> (upgradient)	<u>MW-5</u> (upgradient)	<u>MW-6</u> (crossgradient)
pH	s.u.	7.2	7.3	7.4	7.5	7.3	7.4
EC	umhos/cm	828	1223	1226	1063	783	875
NO ₃ -N	mg/L	10.1	19.5	14.5	22.7	10	27.7
TKN	mg/L	<1	<1	<1	<1	<1	<1
Total N	mg/L	10.2	19.6	14.6	23.2	10.7	27.9

Nitrate as nitrogen results are elevated in all of the wells, suggesting a regional problem, but EC results are higher in downgradient wells suggesting degradation from the discharge of wastewater or related land management practices. The results indicate that water quality in MW-1 was good with the exception of nitrate as nitrogen. EC and nitrate as nitrogen values in MW-1 were less than those observed in upgradient well MW-4, indicating the water quality in MW-4 was not due to the discharge from Sun-Maid. In late 2010, the results in MW-1 began to increase significantly.

At the request of Central Valley Water Board staff, in mid-2010, Sun-Maid began analyzing samples from MW-1 through MW-4 for an expanded list of constituents. Selected results are summarized in the following table.

**GROUNDWATER AVERAGES
 September 2011 through October 2012**

<u>Constituent</u>	<u>Units</u>	<u>MW-1</u>	<u>MW-2</u>	<u>MW-3</u>	<u>MW-4</u>
EC	umhos/cm	1814	1390	1452	1086
TDS	mg/L	1292	863	1001	757
FDS	mg/L	988	641	756	404
Total Nitrogen	mg/L	41.7	15	16.9	21.3
Total Alkalinity	mg/L	508	527	529	393
Hardness	mg/L	431	488	545	433
Chloride	mg/L	45.7	35	35.9	17.4
Sodium	mg/L	235	133	128	74
Calcium	mg/L	121	135	144	121

GROUNDWATER AVERAGES (continued)
September 2011 through October 2012

<u>Constituent</u>	<u>Units</u>	<u>MW-1</u>	<u>MW-2</u>	<u>MW-3</u>	<u>MW-4</u>
Boron	mg/L	0.22	0.18	0.29	0.09
Sulfate	mg/L	251	144	179	95

The increase in MW-1 becomes apparent when the 2006 through 2010 data is compared to the data submitted in 2011 and 2012. MW-1 was installed as an upgradient well to monitor background water quality. However, MW-1 is actually set within the existing 45-acre Land Application Area, not outside of the Land Application Area irrigated with wastewater. The groundwater in this well has been affected by the discharge of wastewater, and does not represent background water quality.

Sun-Maid video logged MW-1 in April 2013. The video revealed that several feet of sediment are inside the well casing, and the pump is set in the sediment. It was not revealed how the sediment entered the well casing, but Sun-Maid has elected to replace the well. Provision F.12 requires Sun-Maid to submit a work plan to replace MW-1 and evaluate the need for additional wells.

Prior to the increase in EC and nitrate as nitrogen concentrations in MW-1, it (MW-1) had the best water quality of the four wells set around the existing 45 acre Land Application Area. EC and nitrate as nitrogen concentrations in MW-4 were elevated when compared to the results of MW-1 prior to the increase, but have remained stable since then. The stable concentrations observed in MW-4 and the increasing concentrations in MW-1 substantiate that Sun-Maid's discharge is affecting the water quality in MW-1 and downgradient wells MW-2 and MW-3.

The table above also illustrates the different water quality in MW-4 when compared to MW-1 through MW-3. Nearly every constituent shown in the table is lower in MW-4 than those observed in MW-1, MW-2, or MW-3. If the source of the increase in MW-1 was from an offsite source, one would expect to see concentrations increase in MW-4 as well, but they have not, they have remained stable. Sun-Maid's discharge has unreasonably degraded groundwater quality in MW-1 through MW-3.

The data also supports the conclusion that Sun-Maid's discharge has affected the EC in downgradient wells. The 2011 to 2012 EC results in MW-2 increased about 150 umhos/cm (1,223 to 1,390 umhos/cm) from the previous average and the same trend was observed at MW-3 with the 2011 to 2012 average EC being about 225 umhos/cm higher than the previous average (1,226 to 1,452 umhos/cm). The increase in MW-3 is slightly higher than that observed in MW-2. MW-3 is downgradient of MW-1, as shown in Attachment A. Sodium concentrations in MW-1 through MW-3 are elevated when compared to MW-4, ranging from 128 to 235 mg/L. Sodium at 235 mg/L may limit the irrigation use of the affected groundwater for salt sensitive plants.

Sun-Maid has and is evaluating the types of cleaning and disinfection products used and have replaced sodium based cleaners with other choices. Specifically, Sun-Maid has replaced sodium based cleaners for the cleaning and sanitizing of the raisin processing equipment with peroxide and potassium based cleaners. Sun-Maid has also replaced sodium hydroxide with calcium hydroxide as a pH buffer and is evaluating potassium hydroxide for use as well. This Order contains Provision F.13, which requires Sun-Maid to submit a Salinity Management Plan, which requires Sun-Maid to further review the potential to decrease salt in its discharge.

Basin Plan, Beneficial Uses, and Regulatory Considerations

The Basin Plan identifies the greatest long-term water quality problem facing the entire Tulare Lake Basin as 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 limits for EC (effluent discharged to land shall not exceed the EC of the source water plus 500 umhos/cm) and the discharges to areas what may recharge good quality groundwater shall not exceed and EC of 1,000 umhos/cm, a chloride content of 175 mg/L, or boron content of 1.0 mg/L.

Sun-Maid's discharge will meet the limit for EC, as its effluent EC is reported to be 542 umhos/cm. Chloride and boron are not part of the current effluent analytical suite, but will be a part of the suite in Monitoring and Reporting Program R5-2013-0096. Groundwater analytical results do not indicate that chloride or boron are elevated in Sun-Maid's discharge.

Antidegradation

Constituents of concern in the discharge that have the potential to degrade groundwater include salts and nutrients. Water quality in the vicinity of the Facility is of good quality, but the application of raisin processing wastewater to the existing Land Application Area and related land management practices have degraded the underlying groundwater. This Order limits the discharge to a BOD loading rate of 150 lbs/ac/day with an application period of 30 to 120 minutes with a resting period of no less than two times the application period (60 to 240 minutes) between wastewater applications. Compliance with the BOD limit shall be determined by using the last three effluent BOD analytical results, and calculating how much wastewater can be applied at a given time and not exceed the limit of 150 lbs/ac/day. Sun-Maid must demonstrate that it is allowing the Land Application Areas to rest for the required time period (twice the time of the wastewater application) prior to the re-application of wastewater to the specific area.

Nitrogen loading would be about 500 lbs/ac/yr, which is right at the upper limit of what can be removed by the proposed crops. The Discharger shall be required to manage the discharge so as to not exacerbate the existing elevated nitrate as nitrogen

concentrations in groundwater that are observed in the area. Excess wastewater that cannot be applied due to the limits can continue to be discharged to the SKF WWTF.

The Basin Plan incorporates the State's Antidegradation Policy. The Antidegradation Policy requires the Central Valley Water Board in regulating discharges of waste to maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Central Valley Water Board's policies (e.g., quality that exceeds water quality objectives). Resolution 68-16 requires that the constituents contributing to degradation be regulated to meet best practicable treatment or control (BPTC) to assure that pollution or nuisance will not occur and that the highest water quality consistent with the maximum benefit to the people of the State will be maintained. With wastewater application at the loading rates authorized by this Order, a 30 to 120 minute application period followed by a resting period that is at least two times the application time, and the sprinkler irrigation of wastewater to 81.1 acres of land on which crops like Sudan grass, sorghum, and winter wheat will be grown, the continued degradation of groundwater due to organic overloading, and the potential of the discharge to degrade or pollute underlying groundwater with nitrate as nitrogen should be abated.

CEQA

The County of Fresno Department of Public Works and Planning (County) circulated an Initial Study in February 2011 for Sun-Maid's proposed discharge of wastewater to an adjacent 40 acre-parcel currently planted with grape vines. Central Valley Water Board staff commented in a 30 June 2011 to the County stating the Initial Study application did not provide sufficient information for Central Valley Water Board staff to determine whether the potential project impacts would be adequately mitigated.

Sun-Maid submitted a 5 July 2012 *Report of Waste Discharge Addendum* (Addendum) prepared by the Provost and Pritchard Consulting Group. Central Valley Water Board staff sent a 31 July 2012 to the County indicating that while the discharge as proposed would still cause the degradation of the underlying groundwater, the degradation would likely be within water quality objectives and the project could proceed. Provost and Pritchard submitted the updated water and nutrient balances in March 2013 requesting the 150 lbs/ac/day limit for BOD.

Fresno County approved an Initial Study and Mitigated Negative Declaration in conjunction with its approval of a Conditional Use Permit for the facility on 11 August 2012. The County's CEQA analysis was predicated on a wastewater discharge volume that would not exceed 278 acre-feet per year. For discharges of food processing wastewater to land, the limiting factor is generally not volume, but BOD, nutrient, or salt loading. Sun-Maid subsequently requested that the discharge limits be based on BOD loading, not on the volume of wastewater. However, because the Central Valley Water Board is acting as responsible agency, any Board-issued permit

must be consistent with the County's environmental documents. Therefore, these waste discharge requirements include an annual discharge volume limit of 278 acre-feet.

The application of 278 acre-feet of water equally over the 81.1 irrigable acres of the two Land Application Areas equates to an application rate of approximately 3.4 feet of water per year. This is generally less than required for double cropping in the San Joaquin Valley. Sun-Maid is exploring options so that it may discharge more wastewater to its Land Application Areas, thereby reducing its reliance on supplemental irrigation water. Irrigation with treated process wastewater of suitable quality is preferable to irrigation with higher quality groundwater that can be reserved for higher uses.

Should Sun-Maid provide the Central Valley Water Board with appropriate evidence demonstrating that increased discharges will comply with applicable water quality objectives, and evidence that it has completed the CEQA process and obtained a modified Conditional Use Permit, Board staff will bring this Order back to the Central Valley Water Board for modification or removal of the annual volume limit.

Title 27

Title 27 of the California Code of Regulations, section 20005 et seq (Title 27) contains regulations to address certain discharges to land. Title 27 establishes a waste classification system, specifies siting and construction standards for full containment of classified waste, requires extensive monitoring of groundwater and the unsaturated zone for any indication of failure of containment, and specifies closure and post-closure maintenance requirements. Generally, no degradation of groundwater quality by any waste constituent in a classified waste is acceptable under Title 27 regulations.

Unless exempt, release of designated waste is subject to full containment pursuant to Title 27 requirements. Title 27 Section 20090(b) exempts discharges of designated waste to land from Title 27 containment standards and other Title 27 requirements provided the following conditions are met:

- a. The applicable regional water board has issued waste discharge requirements, or waived such issuance;
- b. The discharge is in compliance with the applicable basin plan; and
- c. The waste is not hazardous waste and need not be managed according to Title 22, CCR, Division 4.5, Chapter 11, as a hazardous waste.

The discharge from Sun-Maid's Kingsburg Facility meets the above requirements, and with loading at the limits outlined in this Order and proper application and resting periods between wastewater applications, degradation of the underlying groundwater causing exceedances of water quality objectives is not anticipated. The Order contains Discharge Specification B.2 that requires the discharge to meet the Basin Plan effluent

limit for EC (quality of the source water plus 500 umhos/cm). This Order contains Land Application Area Specifications D.1, D.2, and D.3 which require the discharge of wastewater to be at reasonable agronomic rates; for the discharge not to stand in the Land Application Areas for greater than 48 hours after ceasing irrigation; and resting periods between wastewater applications. Additionally, none of the waste regulated by the proposed Order is hazardous waste nor required to be treated as hazardous waste. The discharge is therefore exempt from Title 27.

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 assessment of civil administrative liability where appropriate.

The proposed Order includes effluent, groundwater, Land Application Area, and source water monitoring. The monitoring requires Sun-Maid to report on the overall quality of the effluent discharged by Sun-Maid and the quality of the source water provided to the Facility.

Provisions

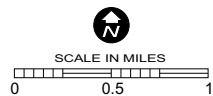
Provision F.2 of the proposed Order requires Sun-Maid to comply with the requirements contained in the attached MRP Order R5-2013-0096. Provisions F.11 through F.14 require the submittal of technical reports to monitor solids disposal practices, to assess groundwater quality beneath the Facility and to assess the increasing concentrations observed in MW-1, and to address salinity and nutrient management of the discharge, respectively.

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. The proposed Order would set limitations based on the information provided thus far. If applicable laws and regulations change, or once new information is obtained that will change the overall discharge and its potential to impact groundwater, it may be appropriate to reopen the Order.

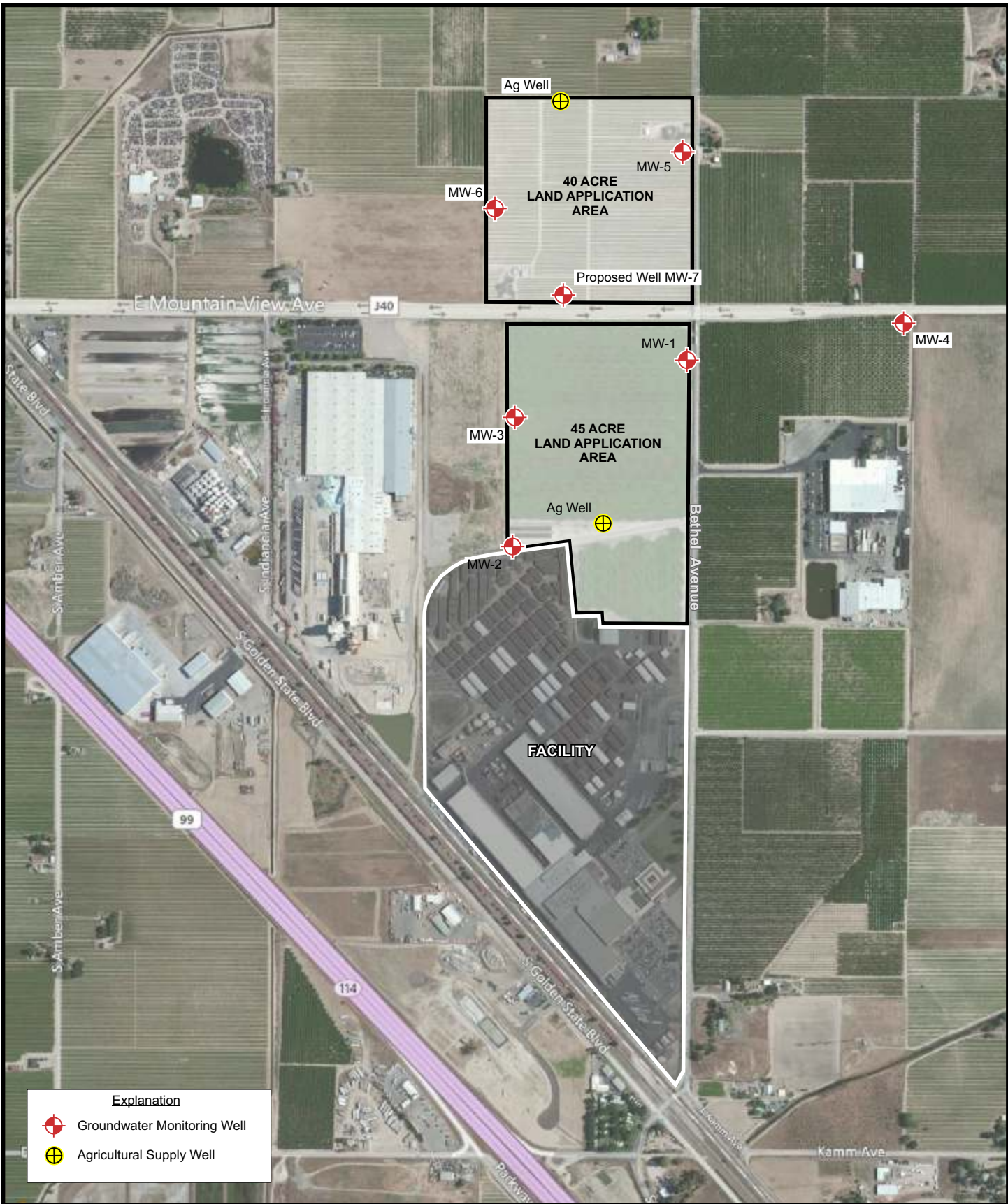


Map Source:
 ESRI's ArcGIS Online Premium Services
 Section 16, T16S, R22E, MDB&M





LOCATION MAP
 ORDER NO. R5-2013-0096
 WASTE DISCHARGE REQUIREMENTS
 FOR
 SUN-MAID GROWERS OF CALIFORNIA, INC.
 KINGSBURG FACILITY
 FRESNO COUNTY

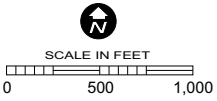
ATTACHMENT A



Explanation

-  Groundwater Monitoring Well
-  Agricultural Supply Well

Map Source:
 ESRI's ArcGIS Online Premium Services
 Section 16, T16S, R22E, MDB&M



SITE MAP
 ORDER NO. R5-2013-0096
 WASTE DISCHARGE REQUIREMENTS
 FOR
 SUN-MAID GROWERS OF CALIFORNIA, INC.
 KINGSBURG FACILITY
 FRESNO COUNTY