

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2014-XXXX

WASTE DISCHARGE REQUIREMENTS

FOR
SUNNYGEM, LLC
ALMOND PROCESSING PLANT
AND
SANDRIDGE PARTNERS, LP
KERN COUNTY

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

1. On 7 June 2007, SunnyGem, LLC submitted a Report of Waste Discharge (RWD) for operation of an almond processing plant (Plant) and the discharge of process wastewater for irrigation of landscape areas around the Plant. A revised RWD was submitted on 11 February 2014 for expansion of the Plant and to increase flows. Additional information was submitted on 12 March and 13 March 2014 to complete the RWD. To handle the increased flows, wastewater will be discharged to supplement irrigation of approximately 32.5 acres of agricultural land north of the Plant.
2. SunnyGem, LLC (hereafter SunnyGem or Discharger) owns and operates the Plant that generates the waste and is responsible for compliance with these Waste Discharge Requirements (WDRs). Sandridge Partners, LP owns the land application area and is named as a Co-discharger in this Order.
3. The Plant is at 500 North F Street in Wasco (Section 1, Township 27 South, Range 24 East, MDB&M). The Plant and land application area occupy Assessor's Parcel Numbers (APNs) 487-250-01, 487-250-12, 487-250-13, 487-250-23, 487-250-24, and 487-010-15, as shown on Attachment A, which is attached hereto and made part of this Order by reference.

Existing Facility and Discharge

4. The Plant operates continuously throughout the year. The Plant receives almonds that have already been hulled and shelled at other facilities for further processing, packaging, and distribution. Almonds brought to the Plant are sorted, graded, and then blanched, dry roasted, sliced, diced, slivered, and/or milled. The Plant can currently process up to 80 million pounds of almond meat per year. With the planned expansion, the Plant's capacity would be increased to about 120 pounds per year.
5. Source water for the Plant is provided by the City of Wasco. According to the City's 2012 Consumer Confidence Report, the source water is relatively good with an

electrical conductivity (EC) of 230 to 369 umhos/cm, total dissolved solids (TDS) of 160 to 240 mg/L, and nitrate as nitrogen (NO₃-N) of 3.3 to 10 mg/L.

6. According to the 2014 RWD, process wastewater to be discharged to the land application area will be from blanching operations at the Plant. Blanching operations are a closed system separate from other operations at the Plant. Process wastewater will consist of blanching water and a small amount of cleaning water. Other waste streams, including domestic waste, boiler condensate, cooling water blowdown, and cleaning water, will be discharged to the City of Wasco's Wastewater Treatment Facility (WWTF).
7. Current total flows at the Plant range from about 40,000 to 100,000 gallons per day. The RWD estimates, that with the planned expansion, wastewater flows from the blanching operation will average about 50,000 gallons per day or 0.05 million gallons per day (mgd).
8. In the blanching process, the almonds are immersed in a hot water stream with mechanical abrasion to remove the outer skins of the almonds. After the blanching process, solids consisting primarily skins will be removed and the wastewater drained to a series of two 20,000-gallon holding tanks. The holding tanks act as settling chambers to settle out the remaining solids.
9. As this discharge has not been previously regulated, there is little data on wastewater quality. Samples of the wastewater were collected in January 2007 and October 2012. The sample collected in 2007 was of the combined waste stream, while the 2012 samples included just wastewater from the blanching operations as well as a sample of the combined waste stream. Table 1 below presents the analytical data for samples collected in 2007 and 2012:

TABLE 1. Wastewater Quality

Constituent	Units	Wastewater Quality		
		1/10/2007 (combined waste stream)	10/3/2012 (blanching wastewater)	10/3/2012 (combined waste stream)
pH	pH units	- - -	6.9	6.2
Electrical Conductivity (EC)	umhos/cm	- - -	510	424
Biochemical Oxygen Demand (BOD)	mg/L	420	1800	1200
Total Dissolved Solids (TDS)	mg/L	930	1800	1200
Nitrate as Nitrogen (NO ₃ -N)	mg/L	<0.5	4.2	3.6
Total Kjeldahl Nitrogen (TKN)	mg/L	70	91	91
Total Nitrogen	mg/L	71	96	95
Sodium	mg/L	28	27	32
Calcium	mg/L	31	15	17
Magnesium	mg/L	12	9.6	8.2
Potassium	mg/L	91	110	78
Sulfate	mg/L	48	43	36

TABLE 1. Wastewater Quality

Constituent	Units	Wastewater Quality		
		1/10/2007 (combined waste stream)	10/3/2012 (blanching wastewater)	10/3/2012 (combined waste stream)
Chloride	mg/L	23	14	14
Bicarbonate as CaCO ₃	mg/L	170	90	65
Iron	mg/L	1.4	0.73	1.4
Boron	mg/L	1.2	0.97	0.76

10. SunnyGem also collects BOD samples of its effluent when discharging to the City's WWTF. Data from 61 samples collected from June through December of 2013 ranged from about 500 to 3,100 mg/L, with an average concentration of about 1,300 mg/L, and average monthly concentrations ranging from about 1,100 to 1,800 mg/L.
11. The blanching wastewater is high in organics (BOD) and nitrogen as TKN, though the EC of the discharge at 510 umhos/cm is relatively low. The increase in concentrations observed between 2007 and 2012 is believed to be the result of increased production at the Plant and water conservation measures to reduce water use.
12. The Discharger adds Biostax 1800, a proprietary blend of non-toxic and non-pathogenic bacteria, to the wastewater to enhance breakdown of oils and organic matter and to help control odors. Other chemicals added to the waste stream include minor amounts of FDA-approved cleaning chemicals used during sanitation of the equipment used in the blanching operations.
13. During the irrigation season, wastewater from the blanching operations will be discharged from the holding tanks to an unlined temporary holding pond. The holding pond has a design capacity of approximately 132,000 gallons with two feet of freeboard. This equates to approximately 2.5 days of storage at 0.05 mgd. There is a high level valve in the holding pond that will switch off the pump and divert wastewater to the City's WWTF to prevent overflow.
14. From the temporary holding pond, the wastewater will be pumped into the irrigation system and used to irrigate the 32.5-acre land application area. Irrigation water will be applied via flood irrigation. There is a tailwater pond on the northern edge of the field to collect excess irrigation water. Tailwater is returned to the holding pond and recirculated back into the irrigation system. Supplemental irrigation water will be from groundwater or surface water provided by the Shafter-Wasco Irrigation District.
15. The land application area (APN 487-010-15) owned by Sandridge Partners, LP is currently planted in alfalfa. However, the Discharger may also plant sudan grass or other fodder crops if feasible. According to the RWD, the land application area will be

irrigated five days a week for a three week period then allowed to rest for three weeks to allow for drying and harvesting of the crop. The RWD estimates that the land application area will be irrigated approximately six times throughout the year resulting in an annual discharge of 4.5 million gallons per year. When not irrigating, wastewater from the blanching operations will be diverted to the City's WWTF.

16. With an estimated nitrogen concentration of about 96 mg/L the annual nitrogen load to the 32.5 acre land application area with an annual discharge of 4.5 million gallons would be approximately 110 lbs/acre/year. This is less than the annual nitrogen uptake for alfalfa or sudan grass of about 480 and 325 lbs/acre/year, respectively (Western Fertilizer Handbook, 9th edition).
17. With average BOD concentrations between 1,100 and 1,800 mg/L, the estimated BOD load to the land application area at 0.05 mgd would be between 70 and 115 lbs/acre/week or 14 and 23 lbs/acre/day.
18. Skins and solids removed during the blanching process are collected and sold as a commodity for use as animal feed. Residual solids removed from the holding tank are collected and disposed of off-site as a solid waste.
19. All processing and production activities take place inside. Stormwater from parking and paved areas around the Plant are discharged under permit to the City of Wasco's stormwater collection system. For the expansion areas, stormwater will either be retained on-site or the Discharger will obtain a revised permit for discharging to the City's stormwater collection system.

Site-Specific Conditions

20. The Plant and land application area are in the southern portion of the San Joaquin Valley. Topography in the area is generally level with an approximate elevation between 325 and 330 feet above mean sea level.
21. Federal Emergency Management Agency (FEMA) maps show that the Plant and land application area are within Flood Zone X, areas determined to be outside the 0.02% annual chance of flooding.
22. United States Department of Agriculture Natural Resources Conservation Service (NRCS) soil survey maps characterize approximately the top six feet of soils. Soils within the land application area are primarily Panoche clay loam, McFarland loam and Wasco sandy loam. Panoche clay loam and McFarland loam are moderate to well drained soils with hydraulic conductivities between 0.57 to 1.98 inches per hour, with a land classification unit of 1 (no restrictions). Wasco sandy loam is a well drained soil with a hydraulic conductivity of 1.98 to 5.9 inches per hour, and land classification unit of 2s (minor restrictions due to droughty soils or excessive drainage).

23. Climate in the Central Valley is characterized by hot dry summers and mild winters. The rainy season generally extends from November through April. Occasional rains occur during the spring and fall months, but summer months are dry. Based on publications from the Department of Water Resources and the Western Regional Climate Center, annual rainfall for the Wasco area averages about 6.83 inches, with a 100-year-return-period wet year rainfall of about 14.34 inches. From the California Irrigation Management System (CIMIS), the mean referenced evapotranspiration rate (ET_o) for the nearby Shafter station is about 52.1 inches per year.
24. The site is on the northern edge of the City of Wasco. Land use in the vicinity of the site is mixed, with residential to the west, light industrial to the south, and primarily agricultural land to the north and west. According to the 2006 Kern County land use survey from the Department of Water Resources, primary crops grown in the area include alfalfa, grain crops, almonds, beans, field crops, oranges, pistachios, and walnuts.

Groundwater Conditions

25. According to the Department of Water Resources Groundwater Elevation Maps (Spring 2010) first encountered groundwater in the vicinity of the site occurs at about 290 to 310 feet below ground surface (bgs). Regional flow in the area is to the southwest.
26. The California Department of Water Resources and United States Geological Survey publish information about groundwater quality. Data that is pertinent to characterizing first-encountered groundwater prior to 1968 is limited due to the wide variability in the screened interval of the wells, sampling dates, and constituents monitored. Table 2 presents groundwater data for wells in the area from the *Water Quality Portal* database provided by the United States Geological Survey, National Water Quality Monitoring Council, and United States Environmental Protection Agency.

TABLE 2. Well Data

Parameter	027S025E 06N001M	027S024E 15C001M	026S025E 31P002M	026S024E 34R001M	026S024E 35H001M
Well Depth (feet bgs)	960	261	806	712	880
Sample Date	1952	1956	1953	1952	1952
EC	890	505	186	189	162
TDS	580	324	127	87	213
NO ₃ -N	nd	8.1	0.9	1.6	8.5
Chloride	190	70	24	9.9	5.7
Sodium	130	38	35	11	17
Bicarbonate	150	77	71	57	57
Sulfate	41	50	6.7	6.7	4.8

nd = not detected

27. Recent data from the *Groundwater Ambient Monitoring Program (GAMA)* database and Geotracker identified a supply well within approximately 2 miles of the site that reported EC, TDS, and NO₃-N of 300 to 310 umhos/cm, 200 to 225 mg/L, and 6.4 to 9.8 mg/L, respectively for samples collected between 2004 and 2010, and monitoring wells for a groundwater investigation within one mile of the site measured depth-to-water at about 330 feet bgs and EC ranging from 320 to 400 umhos/cm in 2013.
28. From this data, groundwater in the vicinity of the site appears to be of good quality with an EC between 160 to 900 umhos/cm, TDS between 130 and 500 mg/L, and NO₃-N of less than 10 mg/L.

Basin Plan, Beneficial Uses, and Regulatory Considerations

29. The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition, revised January 2004* (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Board. Pursuant to Water Code section 13263(a), waste discharge requirements must implement the Basin Plan.
30. The Plant and land application area lie within the North Kern Hydrologic Area (558.8), as depicted on interagency hydrologic maps prepared by the State Water Resources Control Board and the Department of Water Resources, revised in August 1986. Local drainage is by sheet flow to the west toward the valley floor. The beneficial uses of valley floor waters, as stated in the Basin Plan, are agricultural supply; industrial service supply; industrial process supply; water contact recreation; non-contact water recreation; warm freshwater habitat; wildlife habitat; rare, threatened, or endangered species; and groundwater recharge.
31. The beneficial uses of underlying groundwater as set forth in the Basin Plan are municipal and domestic supply, agricultural supply, industrial service supply and industrial process supply.
32. The Basin Plan encourages the reuse of wastewater and identifies crop irrigation as a reuse option where the opportunity exists to replace an existing or proposed use of fresh water with reused water.
33. The Basin Plan establishes narrative water quality objectives for chemical constituents, tastes and odors, and toxicity in groundwater.
34. The Basin Plan's narrative water quality objectives for chemical constituents requires, at a minimum, waters designated as domestic or municipal supply to meet the MCLs specified in Title 22 of the California Code of Regulations (hereafter 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.

35. The narrative toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, animal, plant, or aquatic life associated with designated beneficial uses.
36. 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. The Basin Plan states that when compliance with a narrative objective is required to protect specific beneficial uses, the Central Valley Water Board will, on a case-by-case basis, adopt numerical limitations in order to implement the narrative objective.
37. In the absence of specific numerical water quality limits, the Basin Plan methodology is to consider any relevant published criteria. General salt tolerance guidelines, such as *Water Quality for Agriculture* by Ayers and Westcot and similar references indicate that yield reductions in nearly all crops are not evident when irrigation water has an EC less than 700 $\mu\text{mhos/cm}$. There is, however, an eight- to ten-fold range in salt tolerance for agricultural crops and the appropriate salinity values to protect agriculture in the Central Valley are considered on a case-by-case basis. It is possible to achieve full yield potential with waters having EC up to 3,000 $\mu\text{mhos/cm}$ if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop.
38. The list of crops in Finding 24 is not intended as a definitive inventory of crops that are or could be grown in the area affected by the discharge, but it is representative of current and historical agricultural practices in the area.
39. 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 effluent salinity limits for both municipal and industrial discharges and states that effluent limits established for municipal discharges shall generally apply to industrial discharges. Limits potentially applicable to the proposed discharge, include:
 - a. The incremental increase in salts from use and treatment must be controlled to the extent possible. Dischargers must limit the increase in EC of a point source discharge to land to a maximum of 500 $\mu\text{mhos/cm}$.
 - b. Discharges to areas that may recharge good quality groundwater shall not exceed an EC of 1,000 $\mu\text{mhos/cm}$, a chloride content of 175 mg/L, or a boron content of 1 mg/L.

40. Many surface waters and local groundwater supplies have been degraded with salt. In some areas, the high salinity is naturally occurring, but in many areas it is due to the acts of man. In 2006, the Central Valley Water Board, the State Water Board, and stakeholders began a joint effort to address salinity and nitrate problems in the region and adopt long-term solutions that will lead to enhanced water quality and economic sustainability. Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) is a collaborative basin planning effort aimed at developing and implementing a comprehensive salinity and nitrate management program. Until the program culminates in Basin Plan amendments that address the region-wide salinity issues, it is not reasonable to require dischargers to take extraordinary measures to eliminate salt from wastes discharged to land. However, the Board expects that all regulated dischargers will make a concerted effort to reduce salinity through source control, containment, and conventional treatment to the maximum practical extent.

Other Considerations

41. Excessive application of high organic strength wastewater to land can create objectionable odors, soil conditions that are harmful to crops, and degradation of underlying groundwater with nitrogen species and metals, as discussed below. Such groundwater degradation can be prevented or minimized through implementation of best management practices which include planting crops to take up plant nutrients and maximizing oxidation of BOD to prevent nuisance conditions.
42. 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.
43. With regard to BOD, excessive application can deplete oxygen in the vadose zone and lead to anoxic conditions. At the ground surface, this can result in nuisance odors and fly-breeding. When insufficient oxygen is present below the ground surface, anaerobic decay of the organic matter can create reducing conditions that convert metals that are naturally present in the soil as relatively insoluble (oxidized) forms to more soluble reduced forms. This condition can be exacerbated by acidic soils and/or acidic wastewater. If the reducing conditions do not reverse as the percolate travels down through the vadose zone, these dissolved metals (primarily iron, manganese, and arsenic) can degrade shallow groundwater quality. Many aquifers contain enough dissolved oxygen to reverse the process, but excessive BOD loading over extended periods may cause beneficial use impacts associated with these metals.
44. Typically, irrigation with high strength wastewater results in high BOD loading on the day of application. It is reasonable to expect some oxidation of BOD at the ground

surface, within the evapotranspiration zone and below the root zone within the vadose (unsaturated) zone. The maximum BOD loading rate that can be applied to land without creating nuisance conditions or leaching of metals can vary significantly depending on soil conditions and operation of the land application system.

45. *Pollution Abatement in the Fruit and Vegetable Industry*, published by the United States Environmental Protection Agency, cites BOD loading rates in the range of 36 to 600 lb/acre-day to prevent nuisance, but indicates the loading rates can be even higher under certain conditions. The studies that supported this report did not evaluate actual or potential groundwater degradation associated with those rates. There are few studies that have attempted to determine maximum BOD loading rates for protection of groundwater quality. Those that have been done are not readily adapted to the varying soil, groundwater, and climate conditions that are prevalent throughout the region.
46. The California League of Food Processors' *Manual of Good Practice for Land Application of Food Processing/Rinse Water* proposes risk categories associated with particular BOD loading rate ranges as follows:
 - a. Risk Category 1: (less than 50 lb/ac/day; depth to groundwater greater than 5 feet) Indistinguishable from good farming operations with good distribution important.
 - b. Risk Category 2: (less than 100 lb/ac/day; depth to groundwater greater than 5 feet) Minimal risk of unreasonable groundwater degradation with good distribution more important.
 - c. Risk Category 3: (greater than 100 lb/ac/day; depth to groundwater greater than 2 feet) Requires detailed planning and good operation with good distribution very important to prevent unreasonable degradation, as well as use of oxygen transfer design equations that consider site-specific application cycles and soil properties and special monitoring.

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

47. Although it has not been subject to a scientific peer review process, the *Manual of Good Practice* provides science-based guidance for BOD loading rates that, if fully implemented, may be considered management practices to prevent groundwater degradation due to reduced metals.
48. This Order sets an average BOD loading rate for the land application area of 100 lb/acre/day. This Order also includes a Provision requiring the Discharger to prepare a Wastewater and Nutrient Management Plan to address both BOD and nutrient loading rates.

Antidegradation Analysis

49. State Water Resources Control Board Resolution 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; and
 - d. The degradation is consistent with the maximum benefit to the people of the State.
50. Constituents of concern in the discharge (those with the greatest potential to affect beneficial uses of receiving water) include organics, nitrogen, and salts (primarily TDS, and potassium). However, the discharge is not expected to cause groundwater to exceed water quality objectives because:
- a. For organics, using the maximum average BOD concentration of about 1,800 mg/L, the estimated BOD load to the land application area at the permitted flow of 0.05 mgd would be about 115 lbs/acre/week or 23 lbs/acre/day for the weekly irrigation cycle.

To minimize the potential for reducing and/or nuisance conditions, this Order sets an average BOD loading limit of 100 lbs/acre/day, requires the Discharger to cease discharging to the land application area in the event soils become saturated, and requires daily monitoring of the land application area during periods of discharge. With the conditions stipulated in this Order, and depth to groundwater, the discharge is not expected to cause nuisance conditions or unreasonably degrade groundwater with constituents related to organic overloading.
 - b. For nitrogen, the potential for groundwater degradation depends on wastewater quality, crop uptake, and the ability of the vadose zone to support nitrification and denitrification to convert the nitrogen to nitrogen gas before it reaches the water table. Most of the nitrogen in the process wastewater is present as TKN, which can mineralize and be converted to nitrate (with some loss via ammonia volatilization). Groundwater quality in the area is good with respect to nitrates. As discussed in Finding 16, the estimated nitrogen load to the land application area at 4.5 million gallons would be approximately 110 lbs/acre/year, which is less than the nitrogen requirement of the crop (e.g., alfalfa or sudan grass).

Therefore, the discharge is not expected to degrade groundwater to the extent that it exceeds the state Primary Maximum Contaminant Level (MCL) of 10 mg/L.

- c. For salinity, the Basin Plan contains effluent limits such that the increase in EC of the discharge over source water shall not exceed 500 umhos/cm, or a maximum EC of 1,000 umhos/cm for discharges to land overlying good quality groundwater. With an EC of about 510 umhos/cm the discharge is expected to meet these limits and, therefore, should not unreasonably degrade groundwater with respect to salinity.
- d. For potassium, using the estimated potassium concentration in the discharge of about 110 mg/L, the annual potassium load to the land application area at 4.5 million gallons would be approximately 127 lbs/acre/year. This is less than the annual uptake for potassium for alfalfa and sudan grass of about 480 and 475 lbs/acre/year, respectively. Therefore, the discharge is not expected to unreasonably degrade groundwater with potassium.

Treatment and Control Practices

51. The Discharger provides or will provide, as required by this Order treatment and control of the discharge that incorporates:
 - a. Settling to remove solids;
 - b. Reuse of wastewater for irrigation of crops at agronomic rates;
 - c. Discharge to the City's WWTF when not irrigating;
 - d. An average BOD loading rate of less than 100 lbs/acre/day;
 - e. Daily inspections of the land application areas when discharging; and
 - f. Preparation of a Salinity Control Plan and Wastewater and Nutrient Management Plan.

Antidegradation Conclusions

52. This Order establishes terms and conditions to ensure that the discharge does not unreasonably affect present and anticipated future beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan.
53. Economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State. The Discharger aids in the economic prosperity of the region by direct employment and provides a tax base for local and county governments. Provided the discharge complies with State and Central Valley Water Board plans and

policies, there is sufficient justification for allowing the limited groundwater degradation that may occur pursuant to this Order. In addition, the reuse of process wastewater for irrigation in place of fresh water is of further benefit to people of the State.

54. This Order is consistent with the Antidegradation Policy since; (a) the limited degradation allowed by this Order will not result in water quality less than water quality objectives, or unreasonably affect present and anticipated beneficial uses, (b) the Discharger has implemented BPTC to minimize degradation, and (c) the limited degradation is of maximum benefit to people of the State.

Other Regulatory Considerations

55. On 14 October 2013, the City of Wasco's Planning Department, in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 12000, et, seq.) and the State CEQA guidelines (Title 14, Division 6, California Code of Regulations, as amended) adopted a Negative Declaration in conjunction with a Conditional Use Permit (CUP #03-01) for expansion of the Plant and application of process wastewater for irrigation of nearby farmland.
56. The Negative Declaration evaluated the potential impacts to groundwater quality and found that compliance with the Regional Water Board's permitting requirements will ensure that impacts to water quality would be less than significant. Compliance with this Order will mitigate or avoid significant impacts to water quality.
57. Based on the threat and complexity of the discharge, the facility is determined to be classified as 3B as defined below:
 - a. Category 3 threat to water quality: "Those discharges of waste that could degrade water quality without violating water quality objectives, or could cause a minor impairment of designated beneficial uses as compared with Category 1 and Category 2."
 - b. Category B complexity, defined as: "Any discharger not included [as 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."
58. Title 27 of the California Code of Regulations (hereafter Title 27) contains regulatory requirements for the treatment, storage, processing, and disposal of solid waste. However, Title 27 exempts certain activities from its provisions. Discharges regulated by this Order are exempt from Title 27 pursuant to provisions that exempt wastewater. Title 27, section 20090 states in part:

The following activities shall be exempt from the SWRCB-promulgated provisions of this subdivision, so long as the activity meets, and continues to meet, all preconditions listed:

(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 RWQCB has issued WDRs, reclamation requirements, or waived such issuance;
- (2) the discharge is in compliance with the 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.

59. The discharge authorized herein, and the treatment and storage facilities associated with the discharge, are exempt from the requirements of Title 27 as follows:
 - a. The discharge to the unlined temporary holding pond and land application area are exempt pursuant to Title 27, section 20090(b) because they are discharge of wastewater to land and:
 - i. The Central Valley Water Board is issuing WDRs.
 - ii. The discharge is in compliance with the Basin Plan, and;
 - iii. The treated effluent discharged to the pond and land application area does not need to be managed as hazardous waste.
60. The State Water Board adopted Order 97-03-DWQ (NPDES General Permit CAS000001) specifying waste discharge requirements for discharges of storm water associated with industrial activities, and requiring submittal of a Notice of Intent by all affected industrial dischargers. Since all processing and production at the Plant takes place inside and stormwater runoff is retained on-site or discharged under permit to the City of Wasco's stormwater collection system, the Discharger is not required to obtain coverage under the NPDES General Permit.
61. 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 discharging, or who proposes to discharge within its region ... shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires.

The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports 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.

The technical reports required by this Order and the attached Monitoring and Reporting Program R5-2014-XXXX are necessary to ensure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the waste subject to this Order.

62. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells (hereafter DWR Well Standards), as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981). These standards, and any more stringent standards adopted by the state or county pursuant to Water Code section 13801, apply to all monitoring wells used to monitor the impacts of wastewater storage or disposal governed by this Order.
63. In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This order promotes that policy by requiring discharges to meet maximum contaminant levels designed to protect human health and ensure that water is safe for domestic use.
64. 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.

Public Notice

65. All the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the following conditions of discharge.
66. The Discharger and interested agencies and persons have been notified of the Central Valley Water Board's intent to prescribe waste discharge requirements for this discharge, and they have been provided an opportunity to submit written comments and an opportunity for a public hearing.
67. All comments pertaining to the discharge were heard and considered in a public hearing.

IT IS HEREBY ORDERED that, pursuant to Water Code sections 13263 and 13267, SunnyGem, LLC, and Sandridge Partners, LP, their agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the Water Code and regulations adopted hereunder, shall comply with the following:

A. Discharge Prohibitions

1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.
2. Discharge of waste classified as ‘hazardous’, as defined in the California Code of Regulations, title 23, section 2510 et seq., is prohibited.
3. Bypass of untreated or partially treated waste is prohibited, except as allowed by Standard Provision E.2 of the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*.
4. Discharge of waste at a location or in a manner different from that described in the RWD and Findings herein, is prohibited.
5. Discharge of domestic wastewater to the process wastewater treatment system or land application areas is prohibited.
6. Application of residual solids to the land application areas is prohibited.

B. Flow Limitations

1. The discharge shall not exceed a monthly average daily discharge flow of 0.05 mgd or an annual flow of 4.5 million gallons per year. [Monitored at EFF-001]

C. Effluent Limitations

1. The effluent shall not exceed the following limitations: [Monitored at EFF-001]

Constituent	Units	Maximum
Chloride	mg/L	175
Boron	mg/L	1

2. The 12-month rolling average EC of the discharge shall not exceed the 12-month rolling average EC of the source water plus 500 umhos/cm, or a maximum of 1,000 umhos/cm, whichever is more stringent. Compliance with this limitation shall be determined monthly. When source water is from more than one source, the EC shall be a weighted average of all sources. [Monitored at EFF-001]

D. Discharge Specifications

1. No waste constituent shall be released, discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of the Groundwater Limitations of this Order.
2. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.
3. The discharge shall remain within the permitted waste treatment/containment structures and land application areas at all times.
4. The Discharger shall operate all systems and equipment to optimize the quality of the discharge.
5. 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.
6. Objectionable odors shall not be perceivable beyond the limits of the property where the waste is generated, treated, and/or stored and discharged at an intensity that creates or threatens to create nuisance conditions.
7. Irrigation pipelines, sprinklers, and/or drip irrigation lines used to convey wastewater to the land application area shall be flushed with fresh water after application of wastewater, as needed, to ensure compliance with Discharge Specification D.6.
8. All ponds and open containment structures shall be managed to prevent breeding of mosquitoes. Specifically:
 - a. An erosion control program shall be implemented to ensure that small coves and irregularities are not created around the perimeter of the water surface.
 - b. Weeds shall be minimized through control of water depth, harvesting, or herbicides.

- c. Dead algae, vegetation, and debris shall not accumulate on the water surface.
 - d. The Discharger shall consult and coordinate with the local Mosquito Abatement District to minimize the potential for mosquito breeding as needed to supplement the above measures.
9. The Discharger shall periodically monitor the accumulation of solids in the temporary holding pond, and shall periodically remove solids as necessary to maintain adequate storage capacity.

E. Land Application Area Specifications

1. Crops shall be grown in the land application area. Crops shall be selected based on nutrient uptake, consumptive use of water, and irrigation requirements to maximize crop uptake of water and nutrients.
2. The average BOD loading rate to the land application area calculated as determined by the method described in the attached Monitoring and Reporting Program shall not exceed 100 pounds per acre per day.
3. Hydraulic loading of wastewater and irrigation water shall be at reasonable agronomic rates.
4. Application of waste constituents to the land application area shall be at reasonable agronomic rates to preclude creation of a nuisance or unreasonable degradation of groundwater, considering crop, soil, climate, and irrigation management system. The annual nutritive loading of the land application area, including the nutritive value of organic and chemical fertilizers, and of the wastewater shall not exceed the annual crop demand.
5. The Discharger shall not discharge process wastewater to the land application area within 24 hours of a storm event of measurable precipitation or when soils are saturated.
6. Land application of wastewater shall be managed to minimize erosion and ensure even application of wastewater.
7. The land application area shall be managed to prevent breeding of mosquitoes. In particular:
 - a. There shall be no standing water 48 hours after irrigation ceases;
 - 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.
8. The land application area shall be inspected as frequently as necessary to ensure continuous compliance with the requirements of this Order.
9. Any runoff of wastewater or irrigation water shall be confined to the land application area and shall not enter any surface water drainage course or storm water drainage system.

F. Solids Disposal Specifications

Solids as used in this document, means the residual solids including almond skins, and almond pieces removed from wastewater treatment, settling, and storage vessels or ponds.

1. Any handling and storage of residual solids shall be controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate the groundwater limitations of this Order.
2. If removed from the site residual solids shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27, division 2. Removal for reuse as animal feed, or land disposal at facilities (i.e., landfills, composting facilities, soil amendment sites) operated in accordance with valid waste discharge requirements issued by a regional water board will satisfy this specification.
3. Any proposed change in solids use or disposal practice shall be reported in writing to the Executive Officer at least 90 days in advance of the change.

G. Groundwater Limitations

Release of waste constituents associated with the discharge shall not cause or contribute to groundwater containing constituent concentrations in excess of the concentrations specified below or natural background quality for the specified constituents, whichever is greater:

1. Nitrate as nitrogen of 10 mg/L.
2. For constituents identified in Title 22 of the California Code of Regulations, the MCLs quantified therein.

H. Provisions

1. The Discharger shall comply with Monitoring and Reporting Program R5-2014-XXXX, which is part of this Order, and any revisions thereto as ordered by the Executive Officer. The submittal dates of Discharger self-monitoring reports shall be no later than the submittal date specified in the MRP.
2. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and made part of this Order by reference. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."
3. 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.
4. A copy of this Order including the MRP, Information Sheet, Attachments, and Standard Provisions, shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.
5. In the event of any change in control or ownership of the facility, the Discharger must 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.
6. To assume operation as Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. If approved by the Executive Officer, the transfer request will be submitted to the Central Valley Water Board for its consideration of transferring the ownership of this Order at one of its regularly scheduled meetings.
7. As a means of discerning compliance with Discharge Specification D.6, the dissolved oxygen (DO) content in the upper one foot of any treatment/storage pond shall not be less than 1.0 mg/L for three consecutive sampling events. If the DO in any single pond is below 1.0 mg/L for three consecutive sampling events, the Discharger shall report the findings to the Central Valley Water Board in writing within 10 days and shall include a specific plan to resolve the low DO results within 30 days.

8. The Discharger shall operate and maintain all treated and untreated wastewater and storm water ponds sufficiently to protect the integrity of containment dams and berms and prevent overtopping and/or structural failure. Unless a California-registered civil engineer certifies (based on design, construction, and conditions of operation and maintenance) that less freeboard is adequate, the operating freeboard in any pond shall never be less than two feet (measured vertically from the lowest possible point of overflow).
9. The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by the Discharger when the operation is necessary to achieve compliance with the conditions of this Order.
10. The Discharger shall comply with all conditions of this Order, including timely submittal of technical and monitoring reports. On or before each report due date, the Discharger shall submit the specified document to the Central Valley Water Board or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, then the Discharger shall state the reasons for such noncompliance and provide an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board in writing when it returns to compliance with the time schedule. Violations may result in enforcement action, including Central Valley Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.
11. The Discharger shall submit the technical reports and work plans required by this Order for consideration by the Executive Officer, and incorporate comments the Executive Officer may have in a timely manner, as appropriate. Unless expressly stated otherwise in this Order, the Discharger shall proceed with all work required by the foregoing provisions by the due dates specified.
12. In accordance with California Business and Professions Code sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain workplans for investigations and studies, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Discharger shall bear the professional's signature and stamp.

13. At least **90 days** prior to termination or expiration of any lease, contract, or agreement involving disposal or recycling areas or off-site reuse of effluent, used to justify the capacity authorized herein and assure compliance with this Order, the Discharger shall notify the Central Valley Water Board in writing of the situation and of what measures have been taken or are being taken to assure full compliance with this Order.
14. **By <6 months following adoption of the Order>**, the Discharger shall submit a Salinity Control Plan, with salinity source reduction goals and an implementation schedule for Executive Officer approval. The control plan shall identify existing salinity control measures as well as 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 obtained, and provide a description of the tasks, cost, and time required to investigate and implement various elements in the Salinity Control Plan.
15. **By <6 months following adoption of the Order>**, the Discharger shall submit a Wastewater and Nutrient Management Plan. At a minimum the Plan must include procedures for monitoring Plant operations and discharge, measures to ensure even application of wastewater, and an action plan to deal with objectionable odors and/or nuisance conditions. The Plan should also include supporting data and calculations for monthly and annual water and nutrient balances, and management practices that will ensure wastewater, irrigation water, and fertilizers are applied at agronomic rates.
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 or with the WDRs may result in the assessment of Administrative Civil Liability of up to \$10,000 per violation, per day, depending on the violation, pursuant to the Water Code, including sections 13268, 13350 and 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, 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 that the foregoing is a full true, and correct copy of an Order adopted by the California Regional Water Quality Control Board on XX June 2014.

PAMELA C. CREEDON, Executive Officer