

## INFORMATION SHEET

ORDER NO. R5-2014-XXXX  
SUNNYGEM, LLC  
ALMOND PROCESSING PLANT  
AND SANDRIDGE PARTNERS, LP  
KERN COUNTY

### Background

SunnyGem, LLC (SunnyGem) owns and operates an almond processing plant (Plant) at 500 North F Street in Wasco. The Plant receives almonds that have already been shelled and hulled at other facilities for further processing, packaging, and distribution. Almonds brought to the Plant are sorted and graded and then blanched, dry roasted, sliced, diced, slivered, and/or milled.

SunnyGem submitted a Report of Waste Discharge (RWD) in June 2007 to discharge a portion of its wastewater for landscape irrigation. In February 2014 SunnyGem submitted a revised RWD for expansion of the Plant and to increase flows with the discharge of process wastewater from its blanching operations to nearby farmland owned by Sandridge Partners, LP. Additional information to complete the RWD was submitted on 12 March and 13 March 2014. Process wastewater consists 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).

### Existing Discharge

The Plant operates continuously throughout the year. 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. Current total wastewater 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).

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 sampled at the point where the Plant discharges to the City's WWTF. Table 1 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

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)
Total Dissolved Solids (TDS)	mg/L	930	1800	1200
Nitrate as Nitrogen (NO <sub>3</sub> -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
Chloride	mg/L	23	14	14
Bicarbonate as CaCO <sub>3</sub>	mg/L	170	90	65
Iron	mg/L	1.4	0.73	1.4
Boron	mg/L	1.2	0.97	0.76

SunnyGem does collect BOD samples of its effluent when discharging to the City's WWTF. Data from 61 samples collected from June through December 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.

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 and water conservation measures to reduce water use at the Plant.

### Proposed Discharge

Wastewater from the blanching operations will be discharged to two 20,000-gallon holding tanks. From the holding tanks wastewater will be discharged to an unlined temporary holding pond, with a design capacity of approximately 132,000 gallons. From the holding pond the wastewater will be pumped into the irrigation system for the 32.5-acre land application area. The land application area is owned by Sandridge Partners, LP and consists of agricultural land currently planted in alfalfa; however, the Discharger is also looking into planting other fodder crops such as sudan grass. The wastewater will be applied via flood irrigation. There is a taliwater system on the northern edge of the field to recirculate excess water back into the irrigation system.

According to the RWD the land application area will be irrigated approximately 5 days a week for a three week period and then allowed to rest for three weeks to allow for drying and harvesting the crop. The RWD estimates that the land application area will be irrigated 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. Supplemental

irrigation water will consist of groundwater or surface water provided by the Shafter-Wasco Irrigation District.

With estimated nitrogen and potassium concentrations of 96 mg/L and 110 mg/L the annual nitrogen and potassium load at 4.5 million gallons would be approximately 110 lbs/acre/year and 127 lbs/acre/year, respectively. This is less than the annual crop uptake of nitrogen and potassium for alfalfa and sudan grass. This Order contains a Provision that requires SunnyGem to submit a Wastewater and Nutrient Management plan to ensure application is at reasonable agronomic rates.

BOD loadings were calculated using the minimum and maximum monthly average BOD concentrations reported for June through December of 2013. 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 for the 5-day application cycle.

### **Groundwater Conditions**

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.

The California Department of Water Resources and United State 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. The database identified approximately five wells in the vicinity of the site with water quality data prior to 1968. Based on the data from prior to 1968 groundwater quality in the area was relatively good with an EC ranging from about 162 to 900 umhos/cm, TDS of about 90 to 600 mg/L, and nitrate as nitrogen (NO<sub>3</sub>-N) from below detection limits to about 8.5 mg/L.

More recent data collected 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 NO<sub>3</sub>-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 of about 330 feet bgs and EC ranging from 320 to 400 umhos/cm in 2013.

Based on 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 NO<sub>3</sub>-N of less than 10 mg/L.

**Source Water:** 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

NO<sub>3</sub>-N of 3.3 to 10 mg/L. There are no samples of the irrigation water for the land application area.

### **Basin Plan, Beneficial Uses, and Regulatory Considerations**

The Plant and land application area lie within the North Kern Hydrologic Area (558.8) of the South Valley Floor Hydraulic unit. Local drainage is to the valley floor.

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

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 umhos/cm.
- b. Discharges to areas that may recharge good quality groundwater shall not exceed an EC of 1,000 umhos/cm, a chloride content of 175 mg/L, or a boron content of 1 mg/L.

With an EC of about 510 umhos/cm the discharge should be able to comply with these limits.

### **Antidegradation**

State Water Board Resolution 68-16, the Statement of Policy with Respect to Maintaining High Quality of Waters in California (Anti-Degradation Policy), requires the regional water boards to maintain high quality waters of the State until it is demonstrated that any change in quality will not result in water quality less than that described in State and Regional Water Board policies or exceed water quality objectives, will not unreasonably affect beneficial uses and is consistent with the maximum benefit to the people of the State.

As discussed in the Findings in the WDRs the discharge as authorized by this Order is not expected to unreasonably affect present and anticipated future beneficial uses or result in groundwater quality that exceeds water quality objectives. The Discharger provides or will

provide as a condition of this Order treatment and control measures intended to minimize degradation to the extent feasible.

With wastewater application at the loading rates authorized by this Order, appropriate application and resting periods, and reuse of wastewater on crops, the discharge will not cause impermissible degradation of the underlying groundwater.

Degradation of groundwater by some of the typical waste constituents released with discharge from a food processing facility after effective source reduction is consistent with maximum benefit to the people of the State. SunnyGem contributes to the economic prosperity of the region by direct employment of 125 to 200 workers at the Plant, provides incomes for numerous surrounding almond growers and associated trucking firms, and provides a tax base for local and county governments. Economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State, and therefore sufficient reason to accommodate growth and groundwater degradation provided terms of the Basin Plan are met.

The Order establishes effluent limits and groundwater limits for the Plant that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan.

### **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 meets the above requirements and is therefore exempt from Title 27.

## **CEQA**

On 14 October 2013, the City of Wasco's Planning Department, in accordance with the California Environmental Quality Act (CEQA), 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. 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

## **Proposed Order Terms and Conditions**

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

The proposed Order would prohibit discharge to surface waters and surface water drainage courses.

The proposed Order would limit the monthly average daily discharge flow to 50,000 gpd, and set a maximum annual flow limit of 4.5 million gallons.

The proposed Order would include effluent limits for chloride and boron of 175 mg/L, and 1 mg/L, respectively, and set an average EC limit of 500 umhos/cm plus source water (rolling 12-month average) or a maximum EC limit of 1,000 umhos/cm. These limits are consistent with the Basin Plan for discharges overlying good quality groundwater. Discharge requirements regarding dissolved oxygen and freeboard in the temporary holding pond are consistent with Central Valley Water Board policy for the prevention of nuisance conditions, and are applied to all such facilities.

The proposed Order sets an average BOD loading limit of 100 lbs/acre/day, requires that wastewater be applied at agronomic rates, and includes provisions requiring the Discharger to prepare and implement a Salinity Control Plan and Wastewater and Nutrient Management Plan.

The proposed Order would prescribe groundwater limitations that implement water quality objectives for groundwater from the Basin Plan. The limitations require that the discharge not cause or contribute to exceedance of these objectives or natural background water quality, whichever is greatest, and sets a specific limit for NO<sub>3</sub>-N of 10 mg/L consistent with the Primary MCL.

### **Monitoring Requirements**

Section 13267 of the CWC 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, pond, source water, irrigation water, and solids monitoring. This monitoring is necessary to evaluate the extent of the potential degradation from the discharge.

### **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.