

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2014-XXXX

FOR

SUNNY GEM, LLC
ALMOND PROCESSING PLANT
AND
SANDRIDGE PARTNERS, LP
KERN 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 at least 12 months of monitoring, the Discharger may request this MRP be revised to reduce monitoring frequency. The proposal must include adequate technical justification for reduction in monitoring frequency.

A glossary of terms used within this MRP is included on page 10.

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

Monitoring Location Name	Monitoring Location Description
EFF-001	Location where a representative sample of the effluent can be obtained after all treatment, prior to discharge to the temporary holding pond.
PND-001	Opposite the inlet to the temporary holding pond.
SPL-001	Location where a representative sample of the water supply entering the Plant can be obtained.
IW-001	Location where a representative sample of the supplemental irrigation water can be obtained.

EFFLUENT MONITORING

The Discharger shall monitor treated effluent at EFF-001 for the constituents listed below. Effluent samples shall be representative of the volume and nature of the discharge. Time of collection of the samples shall be recorded. 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 ¹	pH	pH Units	Grab
Weekly ¹	EC	umhos/cm	Grab
Monthly ¹	Biochemical Oxygen Demand	mg/L	Grab
Monthly ¹	Total Dissolved Solids	mg/L	Grab
Monthly ¹	Fixed Dissolved Solids	mg/L	Grab
Monthly ¹	Nitrate as nitrogen	mg/L	Grab
Monthly ¹	Nitrite as nitrogen	mg/L	Grab
Monthly ¹	Ammonia as nitrogen	mg/L	Grab
Monthly ¹	Total Kjeldahl Nitrogen	mg/L	Grab
Monthly ¹	Total Nitrogen	mg/L	Computed
Monthly ¹	Boron	mg/L	Grab
Monthly ¹	Sodium	mg/L	Grab
Monthly ¹	Potassium	mg/L	Grab
Monthly ¹	Chloride	mg/L	Grab
Semi-Annually ¹	General Minerals ²	various	Grab

1. Samples to be collected weekly, monthly, and semi-annually when effluent is being discharged to the land application area.
2. General mineral analysis shall include, alkalinity (as CaCO₃), bicarbonate (as CaCO₃), boron, calcium, carbonate (CaCO₃), chloride, hardness, iron, magnesium, manganese, nitrate as nitrogen, potassium, sodium, sulfate, and TDS. Samples collected for metals shall be filtered with a 0.45 micron filter prior to preservation, digestion, and analysis.

POND MONITORING

A permanent marker (e.g., staff gage) shall be placed in the temporary holding pond. The marker shall have calibrations indicating water level at the design capacity and available operational freeboard. Pond monitoring at PND-001 and shall include at least the following:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Weekly	Freeboard	Feet ¹	Observation
Weekly ²	Dissolved Oxygen	mg/L	Grab
Weekly	Odors	- - -	Observation
Weekly	Condition	- - -	Observation

1. To the nearest tenth of a foot.
2. If there is less than one foot of water in the pond, no sample shall be collected for dissolved oxygen. Should objectionable odors be detected or the DO be below 1 mg/L for three consecutive weekly samples, the Discharger shall take all reasonable action to correct the problem and commence daily DO monitoring until the problem has been resolved.

The Discharger shall inspect the condition of the temporary holding pond once per week and write visual observations in a bound logbook. Notations shall include observations of whether weeds are developing in the water or along the bank, and their location; whether dead algae, vegetation, scum, or debris are accumulating on the storage pond surface and their location; whether burrowing animals or insects are present; and the color of the reservoirs (e.g., dark green, dull green, yellow, gray, tan, brown, etc.).

LAND APPLICATION AREA MONITORING

The Discharger shall monitor the land application areas daily while wastewater is being discharged, and weekly during non-application periods.

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

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Daily ¹	Application Area	Acres	n/a
Daily ¹	Wastewater flow	gallons	Metered
Daily ¹	Wastewater loading	inches/day	Calculated
Daily ¹	Supplemental irrigation	gallons	Estimated
Daily ¹	Precipitation	inches	Rain gage ²
Weekly ¹	Total hydraulic loading ³	inches/acre-month	Calculated
<u>BOD Loading⁴</u>			
Daily	Day of application	lbs/acre-day	Calculated
Average	Irrigation cycle average ⁵	lbs/acre-day	Calculated

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
<u>Nitrogen Loading⁴</u>			
Annual	From wastewater	lbs/acre-year	Calculated
Annual	From fertilizers	lbs/acre-year	Calculated
<u>Salt and Potassium Loading⁴</u>			
Annual	From wastewater	lbs/acre-year	Calculated

1. When discharging and while wastewater is applied to the land application area.
2. National Weather Service or CIMIS data from the nearest weather station is acceptable.
3. Combined loading from wastewater, irrigation water, and precipitation.
4. Loading rates shall be calculated using the applied volume of wastewater, applied acreage, and average effluent concentrations for BOD, total nitrogen, FDS, and potassium.
5. The BOD loading rate shall be divided by the number of days in the irrigation cycle to determine the average daily loading rate for the irrigation cycle.

SOURCE WATER MONITORING

The Discharger shall collect samples of its source water for the Plant at SPL-001, and analyze them for the constituents specified below. If the source water is from more than one source, the results shall be presented as a flow-weighted average of all sources.

Samples of supplemental irrigation water used to irrigate the land application area shall be collected at IW-001, and analyzed for the constituents specified below. If supplemental irrigation water is provided by more than one source (e.g, surface water, or irrigation well), during any quarter the volume and a sample from each source shall be provided.

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
<u>Supply Water</u>			
Quarterly	EC	mg/L	Grab
1/three years ¹	General Minerals ²	mg/L	Grab
<u>Irrigation Water</u>			
Quarterly	EC	umhos/cm	Grab
Quarterly	TDS	mg/L	Grab
Quarterly	Volume	acre-feet	Metered

1. Sample to be collected and analyzed for general minerals once every three years. Starting in October following adoption of this Order.
2. General mineral analysis shall include, alkalinity (as CaCO₃), bicarbonate (as CaCO₃), boron, calcium, carbonate (CaCO₃), chloride, hardness, iron, magnesium, manganese, nitrate as nitrogen, potassium, sodium, sulfate, and TDS. Samples collected for metals shall be filtered with a 0.45 micron filter prior to preservation, digestion, and analysis.

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.

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

SunnyGem, LLC
Almond Processing Plant
MRP Order R5-2014-XXXX
Contact Information (telephone number and email)

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner that illustrates clearly, whether the Discharger complies with waste discharge requirements. In addition to the details specified in Standard Provision C.3, monitoring information shall include the method detection limit (MDL) and the Reporting limit (RL) or practical quantitation limit (PQL). If the regulatory limit for a given constituent is less than the RL (or PQL), then any analytical results for that constituent that are below the RL (or PQL) but above the MDL shall be reported and flagged as estimated.

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

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

All monitoring reports that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be

prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1.

A. All Quarterly Monitoring Reports shall include the following:

Effluent Monitoring Reporting:

1. Tabulated results of effluent monitoring specified on page 2.
2. For each month of the quarter, calculation of the maximum daily flow and the monthly average flow.
3. For each month of the quarter, 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.

Pond Monitoring Reporting

1. The results of the monitoring specified on page 3.
2. Summary of the notations made in the pond monitoring log during each quarter. The entire contents of the log do not need to be submitted.

Land Application Area Reporting:

1. The results of monitoring and loading calculations specified on pages 3 and 4.
2. For each week that wastewater is applied to the land application areas, calculation of the weekly hydraulic load for wastewater and supplemental irrigation water in millions of gallons and/or inches.
3. A summary of the notations made in the log book during each quarter. The entire contents of the log do not need to be submitted.
4. For each week, calculation of the daily and average BOD loading for the irrigation cycle, using the BOD results for that month.

Source Water Reporting

1. The results of the source water monitoring for the Plant specified on page 4. If multiple sources are used the Discharger, shall calculate the flow-weighted average concentrations for the specified constituents. Results must include supporting calculations, if required.
2. The results of source water monitoring of supplemental irrigation water specified on page 4. If multiple sources are used the Discharger shall provide sampling results and volume of irrigation water provided from each source.

B. Fourth Quarter Monitoring Reports, in addition to the above, shall include the following:

Facility Information:

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

Effluent Monitoring Reporting:

1. A summary of tabulated results of effluent monitoring specified on page 2.
2. Calculation of the maximum daily flow, monthly average flow, and cumulative annual flow.

Solids Reporting

1. Annual production totals for 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 (field identification), 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.

Source Water Reporting

1. The results of annual monitoring of source water as specified on page 4. If multiple sources are used the Discharger, shall calculate the flow-weighted average concentrations for the specified constituents. Results must include supporting calculations, if required.

Land Application Area Reporting:

1. The type of crop(s) grown, planting and harvest dates, and the quantified nitrogen and fixed dissolved solids uptakes including potassium (as estimated by technical references or, preferably, determined by representative plant tissue analysis).
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_o (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 average and cycle BOD loading rates.
5. The total pounds of nitrogen applied to the land application areas in lbs/acre-year, as calculated from the sum of the monthly loadings.
6. The total pounds of fixed dissolved solids (FDS) and potassium that have been applied to the land application areas in lbs/acre-year, as calculated from the sum of the monthly loadings.

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

Ordered by:

PAMELA C. CREEDON, Executive Officer

(Date)

GLOSSARY

BOD ₅	Five-day biochemical oxygen demand
CBOD	Carbonaceous BOD
DO	Dissolved oxygen
EC	Electrical conductivity at 25° C
FDS	Fixed dissolved solids
NTU	Nephelometric turbidity unit
TKN	Total Kjeldahl nitrogen
TDS	Total dissolved solids
TSS	Total suspended solids
Continuous	The specified parameter shall be measured by a meter continuously.
24-Hour Composite	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
µmhos/cm	Micromhos per centimeter
mgd	Million gallons per day
MPN/100 mL	Most probable number [of organisms] per 100 milliliters
General Minerals	Analysis for General Minerals shall include at least the following:
	Alkalinity (as CaCO ₃) Chloride Potassium
	Bicarbonate (as CaCO ₃) Hardness Sodium
	Calcium Magnesium Sulfate
	Carbonate (as CaCO ₃) Nitrate TDS
	General Minerals analyses shall be accompanied by documentation of cation/anion balance.