CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2015-XXXX
FOR
KEENAN FARMS, INC.
KETTLEMAN CITY PISTACHIO PROCESSING FACILITY
KINGS COUNTY

This Monitoring and Reporting Program (MRP) is required pursuant to California Water Code (CWC) 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 Point Name	Monitoring Location Description
FM-01 and FM-02	Location where the volume/flow of wastewater from the facility can be measured prior to discharge to the wastewater lined sump/checks (FM-01) and the location where the volume/flow of wastewater can be measured prior to discharge to the land application areas (FM-02).
EFF-01	Location where a representative water quality sample of the facility wastewater can be obtained prior to discharge to the lined sump/checks or land application areas.
SW-1 and SW-304	Location where a representative sample of the facilities surface water supply (SW-1) can be obtained. If Keenan uses its own groundwater supply well (SW-304) as a supplemental source of irrigation/process water then it shall, collect a representative sample from SW-304. If more than one both sources are used during the processing season, the results shall also be presented as a flow weighted average of the wells used.

EFFLUENT MONITORING

The Discharger shall monitor the volume of wastewater discharged to the wastewater retention pond at FM-01 and the volume of wastewater discharged to the land application areas at FM-02. Upon completion of Provision F.13, the Discharger may discontinue monitoring the volume of the effluent discharged to the lined checks/ponds at FM-01, but shall continue to monitor the volume of effluent discharged to the land application areas at FM-02**.** The Discharger shall monitor effluent at EFF-01 for the constituents listed below. The wastewater samples shall be representative of the volume and nature of the discharges. Time of collection of the samples shall be recorded. Wastewater monitoring shall include at least the following:

Frequency[1]	Constituent/Parameter	Units	Sample Type
Continuous	Flow	mgd	Meter
Daily	pH	pH Units	Grab
Daily	Electrical Conductivity	umhos/cm	Grab
Weekly	Total Dissolved Solids	mg/L	Grab
Weekly	Fixed Dissolved Solids	mg/L	Grab
Weekly	Biochemical Oxygen Demand	mg/L	Grab
Weekly	Nitrate as Nitrogen	mg/L	Grab
Weekly	Nitrite as Nitrogen	mg/L	Grab
Weekly	Ammonia as Nitrogen	mg/L	Grab
Weekly	Total Kjeldahl Nitrogen	mg/L	Grab
Weekly	Total Nitrogen	mg/L	Grab
Monthly[2]	General Minerals	mg/L[2]	Grab

1. The frequency listed is for the discharge during the processing season which typically occurs from early September through mid-October.
2. Twice during the processing season.
3. mg/L or ug/L, as appropriate.

POND MONITORING

Effluent pond monitoring (lined sump/retention pond and/or lined checks) shall include at least the following:

Frequency	Constituent/Parameter	Units	Sample Type
Weekly[1]	DO[2]	mg/L	Grab

1. Measured between 8:00 and 9:00 am on the day of sample collection
2. DO sample collected from within the upper one foot of all wastewater ponds containing effluent opposite the pond inlets.

The Discharger shall inspect the condition of the wastewater contained in the lined sump/retention pond and/or the lined checks 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 wastewater retention pond surface and their location; whether burrowing animals or insects are present; and the color of the pond water (e.g., dark sparkling green, dull green, yellow, gray, tan, brown, etc.).

SOURCE WATER MONITORING

The Discharger shall collect source water samples at SW-1 and/or SW-304, or from any other sources used, and analyze them for the constituents specified in the following table. If the source water is from more than one source (surface and/or groundwater), the results shall also be presented as a flow weighted average of all the sources used.

Frequency	Constituent/Parameter	Units	Sample Type
Annually	EC	mg/L	Grab/Computed average
Annually	TDS	TDS	Grab/Computed average
Annually	Nitrate as Nitrogen	mg/L	Grab/Computed average
Annually	Nitrite as Nitrogen	mg/L	Grab/Computed average
Annually	Ammonia as Nitrogen	mg/L	Grab/Computed average
Annually	Total Kjeldahl Nitrogen	mg/L	Grab/Computed average
Annually	Total Nitrogen	mg/L	Grab/Computed average
Annually	General Minerals	mg/L	Grab/Computed average

LAND APPLICATION AREA MONITORING

The Discharger shall monitor the land application areas daily while wastewater is being discharged and monthly during non-application periods. The volume of the effluent applied will be monitored at FM-02. The monitoring report shall identify the volume of the effluent applied, the specific parcels to which it is applied, the acreage to which it is applied, and the type of crops grown on each parcel. This information shall be submitted as part of the annual monitoring report in addition to a map that shows the specific parcels that received Plant effluent.

In addition, the Discharger shall perform the following monitoring and loading calculations for each land application area. If supplemental irrigation water is used, samples shall be collected

from the irrigation well (SW-304 or any other irrigation well used)). The data shall be collected and presented in both a graphical (map) and tabular format and shall include the following:

Frequency	Constituent/Parameter	Units	Sample Type
Daily	Application area	Acres	n/a
Daily	Wastewater flow	Gallons	Metered
Daily	Wastewater loading	Inches/day	Metered
Daily	Supplemental irrigation	Inches/day	Metered
Daily	Precipitation	Inches	Rain gage[1]
Monthly	Total Hydraulic loading[2]	Inches/acre-month	Calculated
BOD Loading[3]			
Daily	Day of application	lbs/ac/day	Calculated
Cycle	Cycle average	lbs/ac/day	Calculated cycle average
Nitrogen loading[4]			
Annual	From wastewater	lbs/ac/yr	Calculated
Annual	From fertilizers	lbs/ac/yr	Calculated
Annual	From supplemental irrigation water	lbs/ac/yr	Calculated
Salt loading[4]			
Annual	From wastewater	lbs/ac/yr	Calculated
Annual	From supplemental irrigation water	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. Loading rates to be calculated using the applied volume of wastewater, applied acreage, and average of the four most recent concentrations for BOD. The BOD loading rate shall be divided by the #days between applications to determine cycle average.
4. Nitrogen and salt loading shall be calculated using the applied volume of wastewater, applied acreage, and average of the four most recent results for total nitrogen and FDS.

In addition, the Discharger shall inspect the application areas and 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.

SOIL MONITORING

The Discharger shall establish, with Central Valley Water Board staff concurrence, a suitable number of monitoring locations within the land application area and at least three locations to represent background conditions in areas that are cropped in a manner similar to land application area, but that do not receive applications of pistachio processing wastewater. The annual soil sampling shall be conducted one to two months prior to the start of pistachio processing season and the annual discharge of wastewater to the land application areas. The samples shall be collected and analyzed for the following constituents.

Frequency	Constituent/Parameter	Units	Sample Type
Annually	Soil pH	pH units	4 feet[1]
Annually	Sodium	mg/kg	4 feet[1]

Annually	Chloride	mg/kg	4 feet[1]
Annually	EC	umhos/cm	4 feet[1]
Annually	Nitrate as nitrogen	mg/kg	4 feet[1]
Annually	Total Kjeldahl Nitrogen	mg/kg	4 feet[1]

1. Samples to be analyzed shall be collected at 6-inches, 2, and 4 feet below the ground surface.

REPORTING

All monitoring results shall be tabulated and submitted in an **Annual Report,** which shall be due by no later than 1 February of the year following the processing season (i.e., 2015 monitoring shall be due 1 February 2016).

The Central Valley Water Board has gone to a Paperless Office System. All regulatory documents, submissions, materials, data, monitoring reports, and correspondence shall be converted to a searchable Portable Document Format (PDF) and submitted electronically. Documents that are less than 50MB should be mailed to: centralvalleyfresno@waterboards.ca.gov. Documents that are 50MB or larger should be transferred to a disc and mailed to the appropriate regional water board office, in this case 1685 E Street, Fresno, CA, 93706.

To ensure that your submittals are routed to the appropriate staff, the following information block should be included in any email used to transmit documents to this office:

Program: Non-15, WDID: 5D162022001, Facility Name: Keenan Farms, Inc. Kettleman Facility, Order: R5-2015-XXXX.

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, and 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.

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. 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. Annual Monitoring Reports shall include the following:

Wastewater Reporting:

1. The results of effluent monitoring specified on page 2.
2. For each processing season, calculation of the daily average flows and the maximum daily flow from the wastewater stream.
3. For each processing season, calculation of the daily average EC of the discharge.
4. A summary of daily BOD loading rates.

Pond Monitoring Reporting

1. The results of the monitoring specified on page 3.

Source Water Reporting

1. For each processing season, the results of the source water monitoring specified on page 3. Results must include supporting calculations.

Land Application Area Reporting

1. The results of the monitoring and reporting and loading calculations specified on pages 3 and 4.
2. For each processing season that wastewater is applied to the land application areas, calculation of the hydraulic load for wastewater and supplemental irrigation water in millions of gallons and/or acre-feet to each discrete irrigation area.
3. A summary of the notations made in the land application areas log during each week of the processing season. The entire contents of the log do not need to be submitted.
4. For each processing season, calculation of the daily BOD cycle average using the BOD results for the processing season.
5. The type of crop(s) grown, planting and harvest dates, and the quantified nitrogen and fixed dissolved solids uptakes (determined by representative plant tissue analysis). Include any soil and/or tissue sampling results.

6. The monthly and annual discharge volumes during the reporting year expressed as million gallons and inches.
7. 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 http://www.ncdc.noaa.gov/oa/climate/online/ccd/nrmlprcp.html.
   d. Monthly average and annual average discharge flow rate.
8. A summary of daily and cycle average BOD loading rates.
9. The total pounds of nitrogen applied to the land application areas from all sources (wastewaters, fertilizers, and irrigation waters) as calculated from the sum of the monthly loading to the land application areas in lbs/ac/yr.
10. The total pounds of FDS that have been applied to the land application areas, as calculated from the sum of the monthly loadings to the land application areas in lbs/ac/yr.

Solids Reporting

1. Annual production of 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.

Soils Reporting

1. The results of soil monitoring specified on pages 4 and 5. The analytical results should be presented in tabular form and include depth of sample. If no sample is collected at a specified depth it should be noted in the table along with the reason no sample was collected.

2. A site map showing the location of each sampling point. The map shall also include the locations of all monitoring wells and wastewater storage and/or discharge areas.

Facility Information:

1. The names and general responsibilities of all persons in charge of wastewater handling and disposal.
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 calibrations (Standard Provision C.4).
4. A statement whether the current operation and maintenance manual, sampling plan, nutrient management plan, and contingency plan, reflect the Facility as currently constructed and operated, and the dates when these documents were last reviewed for adequacy.
8. A summary of any changes in processing that might affect waste characterization and/or discharge flow rates.

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	Chloride	Sodium
Bicarbonate	Hardness	Sulfate
Calcium	Magnesium	TDS
Carbonate	Potassium	

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