

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-_____

FOR
MORNING STAR PACKING COMPANY, LP. AND FRED GOBEL
MORNING STAR TOMATO PACKING PLANT
COLUSA COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring the ponds, flow to the land application areas, wastewater quality, land application area, groundwater, and residual solids. This MRP is issued pursuant to Water Code section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer.

Central Valley Water Board staff shall approve specific sampling locations prior to any sampling activities. All samples shall be representative of the volume and nature of the discharge. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form.

Field test instruments (such as those used to test pH and electrical conductivity) may be used provided that:

1. The operator is trained in proper use and maintenance of the instruments;
2. The instruments are calibrated prior to monitoring event;
3. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are submitted as described in the "Reporting" section of this MRP.

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. Where technically feasible, laboratory reporting limits shall be lower than the applicable water quality objectives for the constituents to be analyzed.

POND MONITORING

The Settling Pond and Cooling Pond shall each be monitored during periods when process wastewater is generated and/or stored in the pond. If a pond is dry and/or no wastewater was generated, the monitoring report shall so note.

Constituent	Units	Type of Sample	Sample Frequency	Reporting Frequency
Dissolved oxygen ¹	mg/L	Grab	Weekly/Monthly ²	Monthly
pH	pH units	Grab	Weekly/Monthly ²	Monthly
Freeboard	0.1 feet	Measurement	Weekly/Monthly ²	Monthly
Odors	--	Observation	Weekly/Monthly ²	Monthly
Berm/levee condition	--	Observation	Monthly	Monthly

¹ Samples shall be collected at a depth of one foot from each pond in use, opposite the inlet.

² Sample frequency shall be weekly during the processing season and monthly during the non-processing season.

FLOW MONITORING

The Discharger shall monitor wastewater and supplemental irrigation water flows discharged to each land application area field as depicted on Attachment B as follows:

Flow Source	Units	Type of Measurement	Monitoring Frequency	Reporting Frequency
Station 1 - Settling Pond, (includes plant sanitation and clean-up)	gallons	Meter	Daily ¹	Monthly, Annually
Station 2 - Cooling Pond	gallons	Meter	Daily ¹	Monthly, Annually
Supplemental irrigation (GCID)	gallons	Calculation	Daily ^{1,2}	Monthly, Annually
Station 3 - Total discharge to LAAs	gallons and inches	Meter	Daily ³	Monthly, Annually

¹ Report as total daily flow from the flow source to each LAA Field.

² Supplemental irrigation flow amounts shall be calculated based on total discharge minus Cooling Pond discharge minus Settling Pond discharge.

³ Includes all Settling Pond, plant sanitation/clean-up, Cooling Pond, and supplemental irrigation water discharged to the LAAs.

WASTEWATER MONITORING

Wastewater samples shall be collected from the flow metering Station 1 as shown on Attachment B and shall be representative of wastewater from the Settling Pond (including plant sanitation and clean-up water) prior to discharge to the land application areas. Sampling is not required during periods when no wastewater is discharged to the land application areas. At a minimum, wastewater monitoring shall include the following:

Constituents	Units	Type of Sample	Sample Frequency	Reporting Frequency
BOD ₅ ¹	mg/L	Grab	Weekly	Monthly
FDS	mg/L	Grab	Weekly	Monthly
Total nitrogen	mg/L	Grab	Weekly	Monthly

BOD denotes Biochemical oxygen demand. FDS denotes Fixed dissolved solids.

¹ 5-day, 20 degrees Celsius biochemical oxygen demand.

LAND APPLICATION AREA MONITORING

The Discharger shall monitor the land application areas **daily during operation**, and shall submit the results in the corresponding monthly monitoring reports. Evidence of erosion, field saturation, runoff, or the presence of nuisance conditions shall be noted in the report. The report shall also document any corrective actions taken based on observations made.

The Discharger shall perform the following routine monitoring and loading calculations for each LAA field during all months when land application occurs, and shall present the data in the Monthly and Annual Monitoring Reports. If irrigation does not occur during a reporting period, the monitoring report shall so indicate.

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Precipitation	0.1 in	Rain gauge ¹	Daily	Monthly
Hydraulic loading rate (from each source)	in	Calculated ²	Daily	Monthly, Annually
BOD ₅ loading rate as an irrigation cycle average (including Settling Pond solids, residual solids, manure and commercial fertilizers)	lb/ac/day	Calculated ^{3,4}	Daily	Monthly
Total nitrogen loading rate (including Settling Pond solids, residual solids, manure and commercial fertilizers)	lb/ac	Calculated ^{3,5}	Monthly	Monthly, Annually

¹ Data obtained from the nearest National Weather Service, California Irrigation Management Information System (CIMIS), or on-site rain gauge is acceptable.

² Rate shall be calculated for each check within each LAA field. Volumes for each check can be estimated based on the duration of flow, the number of checks being irrigated at any one time, and the daily flow rates for each field. Calculations and assumptions shall be clearly documented.

³ Rate shall be calculated for each LAA field.

⁴ BOD₅ shall be calculated using the daily applied volume of wastewater (representative of Settling Pond and plant sanitation/clean-up water), actual application area, average of the three most recent BOD₅ results for the wastewater, and the number of days per irrigation cycle. Loading rates for Settling Pond solids, residual solids, and supplemental nitrogen (including commercial fertilizers, manure from cattle, etc.) shall be calculated using the actual load and application area.

⁵ Total nitrogen loading rates shall be calculated using the applied volume of wastewater (representative of Settling Pond and plant sanitation/clean-up water), actual application area, and average of the three most

recent total nitrogen results for the wastewater. Loading rates for Settling Pond solids, residual solids, and supplemental nitrogen (including commercial fertilizers, manure from cattle, etc.) shall be calculated using the actual load and application area.

At least **once per week** when wastewater is being applied to the land application areas, the application areas in use shall be inspected to identify any equipment malfunction or other circumstance that might allow wastewater or irrigation runoff to leave each LAA and/or create conditions that violate the Waste Discharge Requirements. A log of these inspections shall be kept at the facility and summarized for submittal with the monthly monitoring reports.

APPLICABILITY OF GROUNDWATER LIMITATIONS

Prior to construction and/or sampling of any groundwater monitoring wells, the Discharger shall submit plans and specifications to the Central Valley Water Board for review and approval. Once installed, all new wells shall be added to the compliance monitoring network. The following table lists all existing monitoring wells and designates the purpose of each well.

MW1 ¹	MW2 ²	MW3 ²	MW4 ¹	MW5 ¹	MW6 ²	MW7 ²	MW8 ²	MW9 ²
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¹ Background well not used for compliance monitoring.

² Compliance well.

The Groundwater Limitations set forth in Section E of the WDRs shall apply to the specific compliance monitoring wells tabulated below. This table is subject to revision by the Executive Officer following construction of any new compliance monitoring wells.

Constituent	Groundwater Limitation	Compliance Wells to which Limitation Applies
Nitrate nitrogen	10 mg/L ¹	MW2, MW-6, MW7, MW8
Nitrate nitrogen	Current Groundwater Quality ^{1,2}	MW3, MW9
Manganese	0.05 mg/L ¹	MW2, MW3, MW6, MW9
Manganese	Current Groundwater Quality ^{1,2}	MW7, MW8
All Others	Concentrations that exceed either the Primary or Secondary MCL.	MW2, MW3, MW6, MW7, MW8, MW9
All Others	Contain taste or odor-producing constituents, toxic substances, or any other constituents in concentrations that cause nuisance or adversely affect beneficial uses.	MW2, MW3, MW6, MW7, MW8, MW9

¹ Compliance with this requirement shall be determined on an intrawell basis for each of the specified wells using approved statistical methods.

² "Current groundwater quality" means the quality of groundwater in the well as evidenced by monitoring completed as of the date of WDRs.

GROUNDWATER MONITORING

Prior to sampling, depth to groundwater measurements shall be measured in each monitoring well to the nearest 0.01 feet. Groundwater elevations shall then be calculated to determine groundwater gradient and flow direction.

Low or no-purge sampling methods are acceptable, if described in an approved Sampling and Analysis Plan. Groundwater monitoring for all monitoring wells shall include, at a minimum, the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Depth to groundwater	0.01 feet	Measurement	Semi-annual ³	Semi-annual ³
Groundwater elevation ¹	feet	Calculated	Semi-annual ³	Semi-annual ³
Gradient magnitude	feet/feet	Calculated	Semi-annual ³	Semi-annual ³
Gradient direction	degrees	Calculated	Semi-annual ³	Semi-annual ³
pH	pH units	Grab	Semi-annual ³	Semi-annual ³
TDS	mg/L	Grab	Semi-annual ³	Semi-annual ³
TKN	mg/L	Grab	Semi-annual ³	Semi-annual ³
Nitrate nitrogen	mg/L	Grab	Semi-annual ³	Semi-annual ³
Iron ²	mg/L	Grab	Semi-annual ³	Semi-annual ³
Manganese ²	mg/L	Grab	Semi-annual ³	Semi-annual ³

TDS denotes Total dissolved solids. TKN denotes Total Kjeldahl nitrogen.

¹ Groundwater elevation shall be determined based on depth-to-water measurements using a surveyed measuring point elevation on the well and surveyed reference elevation.

² Samples for metals shall be filtered with a 0.45-micron filter prior to sample preservation. Analytical methods shall be selected to provide reporting limits below the Water Quality Limit for each constituent.

³ Semi-annual groundwater monitoring shall occur in the first (January – March) and third (July - September) quarter of each calendar year.

Groundwater Trigger Concentrations

The following groundwater trigger concentrations are intended only to serve as a means of assessing whether the discharge might potentially cause a violation of one or more of the Groundwater Limitations of the WDRs at some later date.

Constituent	Compliance Wells	Trigger Concentration, mg/L
TDS	MW2, MW3	700
TDS	MW6, MW7, MW8, MW9	1,200
Iron	MW2, MW3, MW6, MW7, MW8, MW9	0.2

If the annual evaluation of groundwater quality performed pursuant to this MRP shows that the annual average of one or more of the trigger concentrations has been exceeded in any compliance well during the calendar year, the Discharger shall submit one or both of the following technical reports by **1 May of the following calendar year** (e.g., if one or more trigger concentrations are exceeded for calendar year 2020, the appropriate report is due by 1 May 2021):

- a. A technical evaluation of the reason[s] for the concentration increase[s] and a technical demonstration on a constituent-by-constituent that, although the concentration has increased more than expected in one or more compliance wells, continuing the discharge without additional treatment or control will not result in exceedance of the applicable groundwater limitation.
- b. An Action Plan that presents a systematic technical evaluation of each component of the facility's waste treatment and disposal system to determine whether additional treatment or control is feasible for each waste constituent that exceeds a trigger concentration. The plan shall evaluate each component of the wastewater treatment, storage, and disposal system (as applicable); describe available treatment and/or control technologies; provide preliminary capital and operation/maintenance cost estimates for each; designate the preferred option[s] for implementation; and specify a proposed implementation schedule. The schedule for full implementation shall not exceed one year, and the Discharger shall immediately implement the proposed improvements.

RESIDUAL SOLIDS MONITORING

The Discharger shall monitor the residual solids generated and disposed of on a monthly basis. The following shall be monitored and reported:

1. Volume of Solids Generated. Solids may include pomace, seeds, stems, diatomaceous earth, screenings, pond solids, and sump solids, or other material.
2. Volume Disposed of Off-site. Describe the disposal method (e.g. animal feed, land application, off-site composting, landfill, etc.); the amount disposed (tons); and the name of the hauling company.
3. Volume Disposed of On-site. Describe the amount disposed (tons); location of on-site disposal (e.g. land application area field); method of application, spreading, and incorporation; application rate (tons/acre), and weekly grab sample analysis for total nitrogen.

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., effluent, pond, etc.), and reported analytical result for each sample

are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported to the Central Valley Water Board.

As required by the California Business and Professions Code sections 6735, 7835, and 7835.1, all Groundwater Monitoring Reports shall be prepared under the direct supervision of a Registered Professional Engineer or Geologist and signed by the registered professional.

A. Monthly Monitoring Reports

Daily, weekly, and monthly monitoring data shall be reported in the monthly monitoring reports. Monthly reports shall be submitted to the Central Valley Water Board on the **1st day of the second month following sampling** (i.e. the January Report is due by 1 March). At a minimum, the reports shall include:

1. Tabulated pond monitoring data.
2. Tabulated daily flow measurements from each wastewater source and supplemental irrigation water to each check in each LAA field.
3. The cumulative annual wastewater (Station 1 and Station 2) flow discharged to the LAAs to date, the average daily flow for the month, and comparison to the average daily flow limit.
4. Tabulated wastewater monitoring data and calculation of the running average for each group of three consecutive sample results for BOD and total nitrogen.
5. A current site plan depicting the irrigation checks within each LAA field that will be used during the calendar year, including all water conveyance ditches and internal berms that divide each LAA (where applicable).
6. Tabulated update cropping information for each LAA field that includes at least:
 - a. The crop that will be grown in each field;
 - b. Planned and actual planting dates;
 - c. Planned and actual harvest dates;
 - d. Planned and actual cattle grazing schedule, location of cattle grazing, including the number of head on each field.
 - e. Typical maximum expected and actual yield at harvest in applicable crop units per acre;

- f. Crop total nitrogen demand; and
 - g. Crop average evapotranspiration rate in inches.
7. Tabulated land application area monitoring data for each LAA field, including; calculation of the hydraulic loading, irrigation cycle average BOD loading, and total nitrogen loading to date from all sources. The average of the three most recent monitoring results shall be used to determine irrigation cycle average BOD and total nitrogen loading. Loading rates for Settling Pond solids, residuals solids, cattle manure and commercial fertilizers shall be calculated separately using actual load analytical results and application areas.
 8. A summary of the daily pre-application inspection reports for the month.
 9. Calculation of the flow-weighted average FDS concentration to date (representative of the Settling Pond and plant sanitation/clean-up water) as monitored at Station 1.
 10. Residual solids monitoring data and monthly mass of residual solids generated and applied to each LAA field and/or disposed of off-site.
 11. A comparison of monitoring data to the flow limitations, effluent limitations; mass loading limitations (for each LAA field), and discharge specifications, and an explanation of any violation of those requirements.
 12. If requested by staff, copies of laboratory analytical report(s).
 13. Copies of current calibration logs for all field test instruments.

B. Semi-Annual Monitoring Reports

The Discharger shall establish a sampling schedule for groundwater monitoring such that samples are obtained during the first and third quarter of each calendar year and obtained approximately every six months. Semi-Annual Groundwater Monitoring Reports shall be submitted to the Central Valley Water Board by the **1st day of the second month after the quarter** (i.e., the January-March quarterly report is due by 1 May each year). The monitoring report shall include the following:

1. Results of the semi-annual monitoring of the groundwater in tabular format.
2. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDR, this MRP, and the Standard Provisions and Reporting Requirements. The narrative shall be supported by field logs for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged;

3. Calculation of groundwater elevations, determination of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends if any;
4. Summary data tables of historical and current groundwater elevations;
5. A scaled map showing relevant structures and features of the facility, land application areas, locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum; and
6. Copies of laboratory analytical report(s) for groundwater monitoring.

C. Annual Monitoring Report

An Annual Report shall be submitted to the Central Valley Water Board by **1 February** each year and shall include the following:

1. A description of the following work conducted after the end of the processing season:
 - a. Irrigation/tailwater ditch draining procedures prior to the release of storm water runoff from the LAAs;
 - b. Depth of total precipitation between dates of last discharge and first off-site release of storm water runoff from the LAAs; and
 - c. Draining and cleaning of the Settling Pond, including the disposal method and location of off-site and/or on-site disposal.
2. Total annual flow measurements from each wastewater source and supplemental irrigation water to the LAAs for the calendar year and comparison to the annual maximum flow limit.
3. Flow-weighted annual average FDS concentration from the Settling Pond (including plant sanitation/clean-up water) for the calendar year with supporting data and calculations and comparison to the effluent limit.
4. Total hydraulic loading rate and total nitrogen loading rate applied to each LAA field for the calendar year with supporting data and calculations and comparison to crop evapotranspiration rate and nitrogen demand.
5. A nitrogen mass balance (from all sources) for the calendar year with supporting data and calculations. Include description of the types of crops planted and dates of planting and harvest for each crop. For each LAA field used for pasture, include description of the number of grazing cattle, start and finish dates of grazing operations, agricultural practices of the pasture land including types of crops planted, and total

nitrogen applied and comparison to the loading limits of the WDRs. If the mass balance indicates that nitrogen has been applied in excess of the agronomic rate, include a discussion of any corrective action performed during the year and a detailed plan and schedule for additional corrective actions that will be implemented to ensure future compliance with the land application area specifications of the WDRs.

6. Concentration vs. time graphs for each monitored constituent using all historic groundwater monitoring data. Each graph shall show the background groundwater concentration range, the trigger concentration specified above (where applicable), and the Groundwater Limitation as horizontal lines at the applicable concentration.
7. An evaluation of the groundwater quality beneath the site and determination of whether any trigger concentrations were exceeded in any compliance well at any time during the calendar year. This shall be determined by comparing the annual average concentration for each well during the calendar year to the corresponding trigger concentration specified above. If any groundwater trigger concentrations were exceeded, include acknowledgment that the technical report described in the Groundwater Trigger Concentrations section of this MRP will be submitted in accordance with the specified schedule.
8. An evaluation of the groundwater quality beneath the site and determination of Compliance with Groundwater Limitation E.1 of the WDRs based on statistical analysis for each constituent monitored for each compliance well in accordance with the approved *Groundwater Limitations Compliance Assessment Plan*. Include all calculations and data input/analysis tables derived from use of statistical software as applicable.
9. A discussion of compliance and the corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements.
10. A discussion of the following:
 - a. Waste constituent reduction efforts implemented in accordance with any required workplan;
 - b. Other treatment or control measures implemented during the calendar year either voluntarily or pursuant to the WDRs, this MRP, or any other Order; and
 - c. Based on monitoring data, an evaluation of the effectiveness of the treatment or control measures implemented to date.
11. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.

A letter transmitting the self-monitoring reports shall accompany each report. The letter shall include a discussion of requirement violations found during the reporting period, and actions

taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provisions General Reporting Requirements Section B.3.

The Discharger shall implement the above monitoring program as of the date of this Order.

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

(Date)

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