

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

TENTATIVE  
MONITORING AND REPORTING PROGRAM R5-2021-xxxx  
FOR  
CITY OF MODESTO WATER QUALITY CONTROL FACILITY  
STANISLAUS COUNTY

This Monitoring and Reporting Program (MRP) for the City of Modesto Water Quality Control Facility, which is issued pursuant to Water Code section 13267 establishes monitoring and reporting requirements related to the waste discharges regulated under Waste Discharge Requirements Order R5-2021-XXXX (WDRs Order). Each of the Findings set forth in the WDRs Order, including those pertaining to the need for submission of reports, are hereby incorporated as part of this MRP.

The City of Modesto (Discharger) owns and/or operates the City of Modesto Water Quality Control Facility (WQCF) and the Land Application Areas (LAAs) subject to WDRs Order R5-2021-XXXX. 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.

A glossary of terms used in this MRP is included on the last page.

This MRP may be separately revised by the Executive Officer, in accordance with their delegated authority under Water Code section 13223.

## **I. GENERAL MONITORING REQUIREMENTS**

### **A. Sampling and Sample Analysis**

All samples collected as required herein shall be representative of the volume and nature of the discharge or matrix of material sampled. Except as specified otherwise in this MRP, grab samples will be considered representative of water, wastewater, solids/sludges, biosolids, and groundwater. Composite samples may be either time-proportioned or flow-proportioned, with the proportioning method recorded in the monitoring record. The time, date, and location of each sample shall be recorded on the sample chain of custody form.

Field test instruments, such as those used to measure pH, electrical conductivity, dissolved oxygen, wind speed, and precipitation, may be used provided that:

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

All analyses shall be performed in accordance with the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*, dated 1 March 1991 (Standard Provisions). Laboratory analytical procedures shall comply with the methods and holding times specified in the following (as applicable to the medium to be analyzed):

1. *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater* (EPA)
2. *Test Methods for Evaluating Solid Waste* (EPA)
3. *Methods for Chemical Analysis of Water and Wastes* (EPA)
4. *Methods for Determination of Inorganic Substances in Environmental Samples* (EPA)
5. *Standard Methods for the Examination of Water and Wastewater* (APHA/AWWA/WEF)
6. *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 (EPA) or the State Water Resources Control Board's Environmental Laboratory Accreditation Program (ELAP). The Discharger may propose alternative methods for approval by the Executive Officer. Where technically feasible, laboratory reporting limits shall be lower than concentrations that implement applicable water quality objectives/limits for the constituents to be analyzed.

## **B. Flow Monitoring**

Hydraulic flow rates shall be measured at the monitoring points specified in this MRP. All flow monitoring systems shall be appropriate for the conveyance system (i.e., open channel flow or pressure pipeline) and liquid type. Unless otherwise specified, each flow meter shall be equipped with a flow totalizer to allow reporting of instantaneous flow rate as well as cumulative flow volume. Flow meters shall be calibrated at least annually or at the frequency recommended by the manufacturer if more frequently, and records of calibration shall be maintained for review upon request.

## **C. Monitoring and Sampling Locations**

Samples shall be obtained at the monitoring points specified in this MRP. The Central Valley Water Board Executive Officer shall approve any proposed changes to sampling locations prior to implementation of the change.

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

**Table 1. Monitoring and Sampling Locations**

<b>Location Name</b>	<b>Location Description</b>	<b>Location Classification</b>
SPL-001	Supply water	General sample point
INF-001	Sutter Plant influent (note 1)	General sample point
2-015	Can Seg influent upstream of screening	General sample point
3-015	Can Seg process water downstream of screening (note 2), unblended	General sample point
FAC-001	Facultative pond 1	General sample point
FAC-002	Facultative pond 2	General sample point
FAC-003	Facultative pond 3	General sample point
REC-001	East Recirculation Channel	General sample point
REC-002	North Recirculation Channel	General sample point
REC-003	West Recirculation Channel	General sample point
REC-004	South Recirculation Channel	General sample point
STO-001	Storage pond 1	General sample point
STO-002	Storage pond 2	General sample point
EFF-003	Just downstream of mixing tee and prior to land application	<b>Compliance sample point</b>
MW-12	Mid-gradient	General monitoring wells
TBD (note 3)	Mid-gradient	General monitoring wells
MW-3, MW-13, MW-15	Downgradient	<b>Compliance wells</b>
MW-2	Downgradient	General monitoring well
MW-6, MW-14	Upgradient	General monitoring wells

Location Name	Location Description	Location Classification
TBD (note 4)	Upgradient	General monitoring wells

Table 1 notes:

- 1) This stream includes Can Seg influent during the non-canning season.
- 2) Sample Point 3-015 is located upstream of mixing with recycled and supplemental irrigation water.
- 3) Mid-gradient wells to replace abandoned wells MW-5 and MW-9 have locations and names yet to be determined.
- 4) Upgradient wells to replace abandoned wells MW-1, MW-4, and MW-7 have locations and names yet to be determined.

## II. SPECIFIC MONITORING REQUIREMENTS

### A. Influent Monitoring

Wastewater flow monitoring shall be conducted continuously using a flow meter and shall be reported in cumulative gallons per day.

#### 1. Domestic influent monitoring (INF-001)

Influent flow rate shall be monitored, and influent samples shall be collected at the headworks prior to treatment. Monitoring requirements may duplicate other existing requirements from state or local agencies that regulate domestic and industrial wastewater discharge. Duplication of sampling and monitoring activities are not required if the monitoring activity satisfies the requirements of this Order. Influent monitoring shall include, at a minimum, the following:

**Table 2. Domestic Influent Monitoring Parameters**

Parameter	Units	Sample Type	Sampling Frequency	Reporting Frequency
Total daily flow rate	MGD	Meter	Daily	Quarterly
Monthly average flow rate	MGD	Calculation	Monthly	Quarterly
5-day Biochemical Oxygen Demand (BOD <sub>5</sub> )	mg/L	24-hour composite	Monthly	Quarterly
Total dissolved solids (TDS)	mg/L	24-hour composite	Monthly	Quarterly
Fixed Dissolved Solids (FDS)	mg/L	24-hour composite	Monthly	Quarterly
Electrical Conductivity (EC)	µmhos/cm	24-hour composite	Monthly	Quarterly
Chloride	mg/L	24-hour composite	Monthly	Quarterly

Parameter	Units	Sample Type	Sampling Frequency	Reporting Frequency
Sodium	mg/L	24-hour composite	Monthly	Quarterly

2. Segregated cannery process water monitoring

Sampling and flow rate measurement of segregated cannery process water influent shall be performed at the Sutter Plant headworks in any month or part of month when Can Seg Line flows are diverted away from the Sutter Plant treatment facility. Monitoring at Sample Point 2-015 is only required when Can Seg flow is diverted away from Sutter Plant treatment facilities and is directed to secondary treatment at Jennings Plant. Monitoring at Sample Point 3-015 is only required when discharging Can Seg influent directly to the LAA without treatment beyond primary screening.

Can Seg influent monitoring shall include, at a minimum, the following:

**Table 3. Can Seg Influent Monitoring Parameters**

Constituent or parameter	Units	Sample Type	Sampling Frequency	Reporting Frequency
Flow rate	MGD	Meter	Daily, as total daily flow	Quarterly
BOD <sub>5</sub>	mg/L	24-hour composite	Monthly	Quarterly
TDS	mg/L	24-hour composite	Monthly	Quarterly
FDS	mg/L	24-hour composite	Monthly	Quarterly
EC	µmhos/cm	24-hour composite	Monthly	Quarterly
Chloride	mg/L	24-hour composite	Monthly	Quarterly
Sodium	mg/L	24-hour composite	Monthly	Quarterly

**B. Effluent Monitoring**

1. Effluent samples shall be obtained downstream of the recycled water and Can Seg process water mixing zone, and prior to discharge to the land application areas, and shall be representative of the irrigation water that is applied to the LAAs.
2. The monitoring report shall document whether segregated cannery process water (Can Seg) was being discharged to Modesto Ranch LAAs or to Jennings Plant secondary treatment at the time of sampling. When no segregated flow is present, it shall be noted in the report.

3. The sampling report shall document whether supplemental irrigation water was being discharged directly to the fields at the time of sampling, and for what period of time supplemental irrigation water was used.
4. Time of the sample collection shall be recorded.
5. At a minimum, wastewater monitoring shall include the parameters as listed in Table 4.

**Table 4. Effluent Monitoring Parameters**

<b>Parameter (sample name)</b>	<b>Units</b>	<b>Sample Point</b>	<b>Sample Type</b>	<b>Sampling Frequency</b>	<b>Reporting Frequency</b>
Flow rate, Recycled Water	MGD	--	Calculation	Daily	Quarterly
Flow rate, Can Seg Effluent	MGD	3-015	Meter	Daily	Quarterly
Flow rate, total	MGD	EFF-003	Meter	Daily	Quarterly
pH	s.u.	EFF-003	Grab	Weekly	Quarterly
TDS	mg/L	EFF-003	24-hour composite	Monthly	Quarterly
FDS	mg/L	EFF-003	24-hour composite	Weekly	Quarterly
Total nitrogen	mg/L	EFF-003	24-hour composite	Weekly	Quarterly
EC	µmhos/cm	EFF-003	24-hour composite	Weekly	Quarterly
BOD <sub>5</sub>	mg/L	EFF-003	24-hour composite	Weekly	Quarterly
Arsenic, dissolved	mg/L	EFF-003	24-hour composite	Quarterly	Quarterly
Iron, dissolved	mg/L	EFF-003	24-hour composite	Quarterly	Quarterly
Manganese, dissolved	mg/L	EFF-003	24-hour composite	Quarterly	Quarterly
Molybdenum, dissolved	mg/L	EFF-003	24-hour composite	Quarterly	Quarterly
Standard minerals (note 1)	mg/L	EFF-003	24-hour composite	Quarterly (note 2)	Quarterly

Table 4 notes:

- 1) Standard Minerals shall include, at a minimum, the following: total alkalinity (including the alkalinity series), calcium, potassium, magnesium, chloride, sodium, and sulfate.
- 2) At least one quarterly sample shall be during peak canning season.

### C. Pond Monitoring and Inspection

The discharger shall monitor ponds when water is present in accordance with the following as listed in Table 5, and as specified below.

**Table 5. Pond Monitoring and Inspection Parameters for Sampling and Reporting**

Parameter	Units	Sample Type	Sampling Frequency	Reporting Frequency
Dissolved oxygen	mg/L	Grab	Weekly	Quarterly
Freeboard depth, to the 0.1 ft (note 1)	ft	Measurement	Weekly	Quarterly
Odors and seepage	--	Observation	Weekly	Quarterly
Solids depth	ft	Measurement	Annually	Annually

Table 5, note 1: Freeboard is to be monitored in all ponds and in the East Recirculation channel (REC-001) only. The other 3 recirculation channels do not have the freeboard monitoring requirement.

1. Sampling will be conducted from permanent monitoring locations, when practical, that will provide samples representative of the wastewater in the treatment and storage ponds.
2. Freeboard shall be measured vertically from the water surface to the lowest elevation of pond berm (or spillway/overflow pipe invert) and shall be measured to the nearest 0.1 feet as indicated on the staff gauge or equivalent.
3. Dissolved oxygen monitoring applies to any pond containing more than two feet of standing water. Samples for dissolved oxygen from each pond in use shall be collected at a depth of one foot, in a location opposite the pond's inlet. Samples shall be collected between 0700 and 0900 hours.
5. The Discharger shall inspect the condition of the ponds once per week and document visual observations. Notations shall include observations of:
  - a. Presence of weeds in the water or along the berm;
  - b. Accumulations of dead algae, vegetation, scum, or debris on the pond surface;
  - c. Animal burrows in the berms;
  - d. Odors
  - e. Evidence of seepage from the berms or downslope of the ponds.

6. Monitoring for seepage shall be performed by observing for signs of seepage on pond containment berms or for surfacing water along the exterior toe. If surfacing water is found, then a sample of the surfacing water shall be collected and tested for total coliform organisms.
7. The Discharger shall evaluate and record the solids depth in each of the facultative ponds every 5 years starting in 2026. If a pond is dry (not in service) this is to be noted in the report, and the solids depth need not be measured.

#### **D. Land Application Area (LAA) Monitoring**

The LAAs which receive recycled water are considered agricultural recycled water Use Areas. Monitoring of the Use Areas shall be conducted during the irrigation season on days when irrigation occurs. Effluent monitoring results shall be used in calculations to determine loading rates on the LAAs. Monitoring of each agricultural recycled water Use Area shall include the following:

##### **1. Field Inspections**

The Discharger shall inspect the LAAs the week prior to the start of irrigation season and at least once weekly during irrigation events. Observations from these inspections shall be documented for inclusion in the quarterly monitoring reports. The following items shall be documented for each field to be irrigated on that day:

- a. Evidence of erosion
- b. Field containment berm condition
- c. Condition of above-ground pipes, flow control valves, and other distribution parts
- d. Soil saturation and or ponding
- e. Irrigation supply and tailwater ditch condition and potential for runoff to off-site areas
- f. Potential and actual discharge of irrigation water or biosolids to off-site areas, including surface waters
- g. Odors that have the potential to be objectionable at or beyond the property boundary
- h. Insects present (e.g. flies, mosquitos)

Temperature, wind direction, and other relevant field conditions shall be observed and recorded. The notations shall also document any corrective actions taken based on observations made. A copy of entries made in the log shall be submitted as part of the Quarterly Monitoring Report. If no irrigation with recycled water or blended recycled water takes place during a given month, then Use Area monitoring is not required that month, and the monitoring report shall so state.

##### **2. Land Application Monitoring**

The Discharger shall perform the following routine monitoring and loading calculations during all months when land application of recycled water or blended



recycled water occurs. Calculations and assumptions must be clearly documented. Precipitation data from the nearest National Weather Service, California Irrigation Management Information System (CIMIS), or on-site rain gauge is acceptable. Loading rates shall be calculated for each Use Area field, in accordance with the equations and procedures described in Section III, summarized as follows:

- a. BOD loading rate shall be calculated using the irrigation cycle volume of recycled water and or blended effluent, actual application area, and the average of the three most recent BOD results for the wastewater.
- b. Total irrigation water nitrogen loading rate shall be calculated using the applied volume of all types of irrigation water, actual application area, and the monthly average of total nitrogen results for the recycled water or blended effluent for the month reported, and the annual total nitrogen results for the supplemental irrigation water.
- c. Cumulative nitrogen loading rate shall be based on loadings from applied irrigation water, biosolids, and supplemental nitrogen (i.e. additional fertilizers). The biosolids nitrogen contribution shall be calculated using the daily applied load, the application area, and the most recent plant-available nitrogen (PAN) monthly loading calculated for biosolids. The supplemental nitrogen contribution shall be calculated using the actual amount used and the application area.

**Table 6. LAA Monitoring Parameters and Reporting Frequency**

Parameter	Units	Sample Type	Monitoring Frequency	Reporting Frequency
Irrigation water application rate (note 1)	Inches per day (in/d)	Calculation	Daily	Quarterly
Supplemental irrigation water application rate (note 2)	in/d or MGD	Meter	Daily	Quarterly
Precipitation, to 0.1 inch	Inch	Rain gauge	Daily	Quarterly
Acreage used for land application	Acres	Observation	Daily	Quarterly
BOD loading rate, cycle average	lb/ac/day	Calculation	Monthly	Quarterly
Total irrigation water nitrogen loading rate	lb/ac/month	Calculation	Monthly	Quarterly
Cumulative nitrogen loading rate	lb/ac/year	Calculation	Monthly	Quarterly

Table 6 notes:

- 1) Includes all recycled water, blended recycled water, and supplemental irrigation water.
- 2) Flows measured during months when land application does not occur will be reported in the next quarterly land application report.

**E. Groundwater Monitoring**

1. If monitoring consistently shows no significant variation in a constituent concentration or parameter after at least eight (8) consecutive groundwater monitoring events, the Discharger may request this MRP be revised to reduce or modify monitoring frequency, constituent analyses, or monitoring parameters. The proposal must include adequate technical justification for reduction in monitoring frequency or any other change to the MRP.
2. The Discharger shall maintain the groundwater monitoring well network. If a groundwater monitoring well is dry for more than eight consecutive sampling events or is damaged, the Discharger shall submit a workplan and proposed time schedule for its replacement, and the well shall be replaced following approval of the workplan. Alternatively, the Discharger shall submit a report with supporting evidence that a replacement well is not needed.
3. Prior to construction and/or sampling of any new groundwater monitoring wells, the Discharger shall submit a workplan for approval as required by Provision M.2.a. of Order R5-2021-XXXX. Once installed, all new monitoring wells shall be appropriately incorporated into monitoring conducted under this MRP and shall be monitored on a semi-annual basis.

**Table 7. Monitoring Well Classifications**

<b>Monitoring Well</b>	<b>Well Classification</b>
MW-2	Downgradient
MW-3	Downgradient – <b>Compliance well</b>
MW-6	Upgradient
MW-9	Upgradient
MW-12	Mid-gradient
MW-13	Downgradient – <b>Compliance well</b>
MW-14	Upgradient
MW-15	Downgradient – <b>Compliance well</b>

4. The groundwater monitoring program applies to groundwater monitoring wells listed below in Table 8 and any wells subsequently installed under direction of the Central Valley Water Board.
5. Groundwater Limitations
  - a. The groundwater limitations set forth in Section I of Order R5-2021-xxxx shall apply to the specific compliance monitoring wells identified in Table 8 below and any wells subsequently installed under approval of the Central

Valley Water Board which are designated as compliance monitoring wells. Groundwater quality and compliance with groundwater limitations will be determined using intrawell evaluations. For the current groundwater quality limit, concentration trends shall be evaluated. Current groundwater quality will be defined using approved statistical methods described in an approved *Groundwater Limitations Compliance Assessment Plan* (Provision M.2.d). If exceedances of numerical limitations or increasing concentration trends are occurring, upgradient wells shall also be evaluated.

- b. This Groundwater Compliance Wells table is subject to revision by the Executive Officer following construction of any new monitoring wells.
- c. If groundwater monitoring results show that the discharge of waste is causing groundwater to contain any waste constituents in concentrations statistically greater than the Groundwater Limitations of this Order based on intrawell evaluations, within 120 days of the request of the Executive Officer, the Discharger shall submit a *BPTC Evaluation Workplan* that sets forth the scope and time schedule for a systematic and comprehensive technical evaluation of each component of the Facility's waste treatment and disposal system to determine best practicable treatment and control for each waste constituent that exceeds a Groundwater Limitation. The schedule to complete the evaluation shall be as short as practicable and shall not exceed one year. Alternatively, if it can be shown that the increase is the result of activities outside the Discharger's control, a technical report shall be submitted that justifies and supports that determination.

**Table 8. Groundwater Compliance Wells**

<b>Constituent</b>	<b>Compliance Wells</b>
Nitrate Nitrogen	MW-3, MW-13, MW-15
TDS	MW-3, MW-13, MW-15
EC	MW-3, MW-13, MW-15
Iron, dissolved	MW-3, MW-13, MW-15
Manganese, dissolved	MW-3, MW-13, MW-15
Molybdenum, dissolved	MW-3
Molybdenum, dissolved	MW-13, MW-15

- 6. Groundwater Sampling and Analysis
  - a. Prior to purging or sampling, the groundwater depth shall be measured in each well to the nearest 0.01 feet. Groundwater elevations shall then be calculated to determine groundwater gradient and flow direction.

- b. Each monitoring well shall be purged of at least three to five casing volumes until pH, electrical conductivity, and turbidity have stabilized prior to sampling. Alternative sampling methods are acceptable, such as low or no-purge methods, if described in an approved Sampling and Analysis Plan. Groundwater monitoring for all monitoring wells shall include, at a minimum, the following:

**Table 9. Groundwater Monitoring Parameters and Frequencies**

Constituent or Parameter	Units	Sample type	Monitoring Frequency	Reporting Frequency
Depth to Groundwater (note 1)	feet	Measurement	Quarterly	Annually
Groundwater Elevation (note 1)	feet	Calculation	Quarterly	Annually
Hydraulic Gradient (note 1)	feet/feet	Calculation	Quarterly	Annually
Gradient Direction (note 1)	degrees	Calculation	Quarterly	Annually
pH	standard	Grab	Quarterly	Annually
Nitrate nitrogen	mg/L	Grab	Quarterly	Annually
Total coliform organisms (note 2)	MPN/100 mL	Grab	Quarterly	Annually
Arsenic, dissolved	mg/L	Grab	Annually	Annually
Iron, dissolved	mg/L	Grab	Annually	Annually
Manganese, dissolved	mg/L	Grab	Annually	Annually
Molybdenum, dissolved	mg/L	Grab	Annually	Annually
Standard minerals (note 3)	mg/L	Grab	Annually	Annually

Table 9 notes:

- 1) Groundwater elevations shall be determined based on depth-to-water measurements using a surveyed elevation reference point on the well casing, measured to 0.01 ft.
- 2) Using a minimum of 10 tubes.
- 3) Standard Minerals shall include, at a minimum, the following: total alkalinity, including the alkalinity series, calcium, potassium, magnesium, chloride, sodium, and sulfate.

## F. Biosolids Monitoring

1. At a minimum, biosolids shall be monitored on a dry weight basis as shown in Table 10. Monitoring will be conducted for each type of biosolids generated by different treatment processes (i.e. separate monitoring for anaerobically digested primary solids and pond-treated secondary solids). Include the date(s) samples were collected and the date(s) samples were analyzed.

**Table 10. Biosolids Constituent Concentrations**

<b>Constituent</b>	<b>Units</b>
Arsenic	mg/kg
Cadmium	mg/kg
Copper	mg/kg
Lead	mg/kg
Mercury	mg/kg
Molybdenum	mg/kg
Nickel	mg/kg
Selenium	mg/kg
Zinc	mg/kg
Total solids content	%
Ammonia nitrogen, as N	mg/kg
Nitrate nitrogen, as N	mg/kg
Organic nitrogen, as N	mg/kg
Total Phosphorus, as P	mg/kg
Total Potassium	mg/kg

- Application area information shall be tabulated as shown in Table 11 for each month when biosolids land application occurs. Plant-available nitrogen (PAN) and cumulative metals loading rates should be based on average concentrations measured in the quarter that the application occurs.

**Table 11. Biosolids Application Area Monitoring**

<b>Parameter</b>	<b>Units</b>	<b>Monitoring Frequency</b>	<b>Reporting Frequency</b>
Quantity of biosolids applied	dry tons per acre	Monthly	Quarterly
Field number	--	Monthly	Quarterly
Application area size	acres	Monthly	Quarterly
PAN loading	lb PAN/acre	Monthly	Quarterly
Metals loading	lb/acre	Monthly	Quarterly

- Biosolids monitoring shall be conducted as required in 40 CFR Part 503.8(b)(4) at a minimum at the frequency described in Table 12, depending on volume of biosolids generated and removed from the wastewater treatment system for

disposal or treated for beneficial reuse as biosolids. For the purpose of this MRP, “generated” means produced as a separate waste stream by sludge wasting or pond cleanout. It does not apply to solids that accumulate in treatment or storage ponds until the solids are removed for treatment or disposal.

**Table 12. Biosolids Monitoring and Reporting Schedule**

<b>Volume Generated (dry metric tons/year)</b>	<b>Monitoring Frequency</b>	<b>Reporting Frequency</b>
0 to 290	Annually	Annually
290 to 1,500	Quarterly or 4 times per year	Quarterly
1,500 to 15,000	Bimonthly or 6 times per year	Quarterly
Greater than 15,000	Monthly or 12 times per year	Quarterly

4. Biosolids monitoring records shall be retained for a minimum of five years in accordance with 40 CFR, Part 503.17. A log shall be kept of biosolids quantities generated and of handling, application, and disposal activities. The frequency of entries is discretionary; however, the log should be complete enough to serve as a basis to report biosolids monitoring.
5. The Discharger shall maintain records that demonstrate that treated sludge (i.e., biosolids) meets Class A or Class B pathogen reduction levels by one of the methods listed in 40 CFR, Part 503.32, and shall maintain records of the operational parameters used to comply with the Vector Attraction Reduction requirements in 40 CFR, Part 503.33(b), as well as records of offsite disposal (quantity, date, disposal site) when such disposal occurs.

**G. Supply Water and Supplemental Irrigation Water Monitoring**

1. Sampling stations shall be established where representative samples of the following can be obtained:
  - City of Modesto municipal water supply
  - Supplemental irrigation water, discharged directly to the irrigation system
2. Each of the City of Modesto municipal water supply sources shall be monitored and concentrations reported as the flow-weighted annual average value. Reporting shall be supplemented with supporting calculations. As an alternative to municipal water supply monitoring, the Discharger may submit a current Consumer Confidence Report. Monitoring requirements may duplicate existing requirements under existing requirements from state or local agencies. Duplication of sampling and monitoring activities are not required if the monitoring activity satisfies the requirements of this Order.

- Supply water monitoring shall include at least the parameters listed in Table 13 for the municipal water supply.

**Table 13. Supply Water Monitoring**

<b>Parameter</b>	<b>Units</b>	<b>Sample type</b>	<b>Monitoring Frequency</b>	<b>Reporting Frequency</b>
EC	µmhos/cm	grab	Annually	Annually
TDS	mg/L	grab	Annually	Annually

- Supplemental irrigation water monitoring shall include at least the parameters listed in Table 14 for each water source used during the previous year.

**Table 14. Supplemental Irrigation Water Monitoring**

<b>Parameter</b>	<b>Units</b>	<b>Sample type</b>	<b>Monitoring Frequency</b>	<b>Reporting Frequency</b>
EC	µmhos/cm	grab	Annually	Annually
FDS	mg/L	grab	Annually	Annually
TDS	mg/L	grab	Annually	Annually
Total nitrogen	mg/L	grab	Annually	Annually

### III. REPORTING REQUIREMENTS

All regulatory documents, submissions, materials, data, monitoring reports, and correspondence should be converted to a searchable Portable Document Format (PDF) and submitted electronically. Documents that are less than 50MB should be emailed to: [CentralValleySacramento@waterboards.ca.gov](mailto:CentralValleySacramento@waterboards.ca.gov).

Documents that are 50 MB or larger shall be transferred to a CD, DVD, or flash drive and mailed to the following address:

Central Valley Regional Water Quality Control Board  
ECM Mailroom  
11020 Sun Center Drive, Suite 200  
Rancho Cordova, California 95670

To ensure that your submittal is routed to the appropriate staff person, the following information should be included in the body of the email or transmittal sheet:

County: Stanislaus  
Facility: City of Modesto WQCF  
Program: Non-15 Compliance  
Order Number: R5-2021-XXXX  
CIWQS Place ID: 273037

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 in the next scheduled monitoring report.

A transmittal letter shall accompany each monitoring report. The letter shall include a discussion of all violations of the WDRs and this MRP during the reporting period and actions taken or planned for correcting each violation. If the Discharger has previously submitted a report describing corrective actions taken and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. Pursuant to Section B.3 of the Standard Provisions the transmittal letter shall contain a statement by the Discharger or the Discharger's authorized agent certifying under penalty of perjury that the report is true, accurate and complete to the best of the signer's knowledge.

Laboratory reports submitted in compliance with this MRP shall include the constituent name, sample location, sample name, sample date, analysis date, analytical method, dilution factor, result, units, and method detection limit (MDL). Laboratory analysis reports do not need to be included in the monitoring reports; however, all laboratory reports must be retained for a minimum of three years in accordance with Standard Provision C.3. For a Discharger conducting any of its own analyses, reports must also be signed and certified by the chief of the laboratory.



In addition to the requirements of 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.

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

### A. Quarterly Monitoring Report

Daily, weekly, and monthly monitoring data shall be reported in the quarterly monitoring report. Quarterly reports shall be submitted to the Central Valley Water Board by the **first day of the second month after the calendar quarter**. Therefore, monitoring reports are due as follows.

First Quarter Monitoring Report (January – March):	<b>1 May</b>
Second Quarter Monitoring Report (April – June):	<b>1 August</b>
Third Quarter Monitoring Report (July – September):	<b>1 November</b>
Fourth Quarter Monitoring Report (October – December):	<b>1 February</b>

At a minimum the report shall include:

1. Results of Influent Monitoring in tabular form, including domestic and industrial flows and Can Seg as appropriate, with calculated values for total flow and average daily flow for each month, and total annual flow to date.
2. Results of Effluent Monitoring in tabular format for each week and month during the reported quarter.
3. Results of Pond Monitoring in tabular format, along with pond inspection results, for each month during the reported quarter.
4. Results of Land Application Area Monitoring, including field inspection results and the following loading rate calculations for each Use Area LAA field or section.
  - a. Calculated **hydraulic loading rates** for each month during the reported quarter and cumulative annual loading to date.
  - b. **Irrigation cycle average BOD loading rate** (mass of BOD applied to each LAA field or section on an irrigation cycle average basis, reported in lb/ac/day), calculated using the following formula for each LAA field or section and irrigation cycle:

$$M_{BOD} = \frac{8.345(CV_{eff})}{AT}$$

Where:

$M_{\text{BOD}}$  = mass of BOD applied to an LAA field over the irrigation cycle in lb/ac/day

$C$  = concentration of BOD in mg/L based on the average of the three most recent recycled water or blended effluent monitoring results

$V_{\text{eff}}$  = volume of recycled water and blended effluent applied to the LAA field in millions of gallons (MG) during the irrigation cycle

$A$  = area of the irrigated LAA field in acres (ac.)

$T$  = Irrigation cycle length in days, where irrigation cycle is the number of days from the first day water was applied to the last day of the drying time

8.345 = unit conversion factor

- c. **Total Irrigation Water Nitrogen Loading Rate** (mass of irrigation water nitrogen applied to each LAA field or section on a monthly basis), calculated for each LAA field or section for each month using the following formula and compared to published crop demand for the crops actually grown:

$$M_N = \frac{8.345 [C_{N,eff} V_{eff} + C_{N,S} V_S]}{A}$$

Where:

$M_N$  = mass of irrigation water nitrogen applied to land application area in lb/ac/month

$C_{N,eff}$  = average concentration of recycled water or blended effluent total nitrogen in mg/L for the reported month based on the most recent available monitoring results

$V_{eff}$  = volume of recycled water and blended effluent applied to the LAA field in the reporting month in millions of gallons (MG)

$C_{N,S}$  = average concentration of total nitrogen in mg/L in supplemental irrigation water for the reported month based on the most recent available monitoring results

$V_S$  = volume of supplemental irrigation water applied to the LAA field in the reporting month in millions of gallons (MG)

$A$  = area of the irrigated LAA field in acres (ac.)

8.345 = unit conversion factor

- d. **Cumulative Nitrogen Loading Rate** (mass of nitrogen applied to each LAA field or section on an annual basis), calculated for each LAA field or section quarterly using the following formula and compared to agronomic demand for the crops actually grown:

$$M_{N,cum} = \sum_{i=1}^{12} M_{Ni} + \frac{M_x}{A}$$

Where:

$M_{N,cum}$  = mass of nitrogen applied to LAA field in lb/ac/year from all sources

$i$  = the number of the month (e.g., January = 1, February = 2, etc.)

$M_{Ni}$  = mass of irrigation water nitrogen applied to LAA field in lb/ac for month  $i$

$M_x$  = nitrogen mass applied during the year from other amendments (e.g. biosolids, fertilizer) in pounds (lb)

$A$  = area of the irrigated LAA field in acres (ac.)

5. **Biosolids Cumulative Metals Loading rate** (when biosolids are land-applied): calculated for each application field by multiplying the actual applied biosolids load for the reporting period by the most recent biosolids monitoring results, divided by the estimated application area. The cumulative metal(s) loading rate for each field shall be calculated as a running total of biosolids metals loadings to date for each metal.
6. Results of Sludge and Biosolids Monitoring completed during the quarter. Include notation of the date(s) samples were collected and the date(s) samples were analyzed and copies of all lab reports.
7. Results of Biosolids Land Application Monitoring for each month that application occurred, including calculation results, assumptions used, monthly total application rates, monthly metals loadings, and PAN loadings for each LAA field.
8. A comparison of monitoring data to the effluent limitations and discharge specifications and an explanation of any violation of those requirements.
9. For each discrete LAA field, a comparison of monitoring data to the loading rate limitations and discharge specifications and an explanation of any violation of those requirements.
10. A copy of inspection log page(s) documenting inspections and observations completed during the quarter.

## B. Annual Monitoring Report

An Annual Monitoring Report shall be submitted by **1 February** of each year, and shall include the following:

1. Annual Water Supply and Supplemental Irrigation Water Monitoring results in tabular form.

2. Influent Monitoring results including total annual influent flow and the average dry weather flow compared to the flow limitations of the WDRs.
3. Annual time schedule for the field operations including biosolids application windows, crop planting dates, crop cultivation/harvest dates, and dates when runoff was discharged from the site, if applicable.
4. Land Application Area Monitoring results for each LAA field, with a chronological log of dates of supplemental nutrients application, irrigation, and precipitation, along with calculated flow-weighted annual average FDS concentration in irrigation water and determination of compliance with Effluent Limitations of the WDRs.
  - a. The **flow-weighted annual average FDS effluent concentration** shall be calculated using the following formula, considering recycled water and blended effluent:

$$C_{FDS,a} = \frac{\sum_1^{12} [(C_i V_i) + (C_{Si} V_{Si})]}{\sum_1^{12} (V_i + V_{Si})}$$

Where:

$C_{FDS,a}$  = Flow-weighted average annual FDS concentration in mg/L

$i$  = the number of the month (e.g., January = 1, February = 2, etc.)

$C_i$  = Monthly average recycled water and blended effluent FDS concentration for calendar month  $i$  in mg/L

$C_{Si}$  = Monthly average supplemental irrigation water FDS concentration for calendar month  $i$  in mg/L (considering each supplemental source separately)

$V_{Pi}$  = volume of recycled water and blended effluent applied to LAA field during calendar month  $i$  in million gallons

$V_{Si}$  = volume of supplemental irrigation water applied to LAA field during calendar month  $i$  in million gallons (considering each supplemental source separately)

5. Analytical results for groundwater monitoring, including:
  - a. A narrative description of all preparatory, monitoring, sampling, and sample handling for groundwater monitoring.
  - b. A field log for each well documenting depth to groundwater; method of purging; parameters measured before, during, and after purging; sample preparation (e.g., filtering); and sample preservation.
  - c. Calculation of the groundwater elevation at each monitoring well, and determination of groundwater flow direction and gradient on the date of measurement.

- d. Summary data tables of the previous five years and current water table elevations and analytical results.
  - e. Concentration versus time graphs for each compliance well and monitored constituent listed in Table 7 using all historical groundwater monitoring data. Each graph shall show the current groundwater quality as evidenced by monitoring completed as of the date of the adoption of this Order, background groundwater concentration range (once it is defined), , and the Groundwater Limitation as horizontal lines at the applicable concentration.
  - f. An evaluation of the groundwater quality beneath the site and determination of compliance with Groundwater Limitation H.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-and-analysis tables derived from use of statistical software, as applicable.
6. A copy of calibration log page(s) verifying calibration of all hand-held monitoring instruments performed during the quarter.

### **C. Bi-annual Reporting**

A Bi-annual Report shall be submitted by **1 February** of each alternate year (e.g. 2023, 2025, 2027, etc.) along with that year's Annual Report, and shall include the following:

1. An evaluation of the performance of the WQCF, including discussion of capacity issues, infiltration and inflow rates, nuisance conditions, and a forecast of the flows anticipated in the next two years, as described in Standard Provision E.4
2. 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.
3. A copy of the certification for each certified wastewater treatment plant operator working at the facility and a statement about whether the Discharger is in compliance with Title 23, CCR, Division 3, Chapter 26.
4. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells, surface waters, and groundwater elevation contours referenced to an appropriate datum (e.g., NGVD).
5. Effective 2026 and every four years thereafter, an evaluation of pond solids depth and removal plans pursuant to Pond Monitoring Specification F.5.
6. Monitoring equipment maintenance and calibration records, as described in Standard Provision C.4.

7. A statement of when the wastewater treatment system Operation and Maintenance Manual was last reviewed for adequacy and a description of any changes made during the past two years.
8. A discussion of any data gaps and potential deficiencies or redundancies in the monitoring system or reporting program.

A letter transmitting the monitoring reports shall accompany each report. The letter shall include a discussion of any requirement violations 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 signatory statement by the Discharger or its authorized agent as described in Section B.3 of the Standard Provisions.

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

I, PATRICK PULUPA, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of the Monitoring and Reporting Program issued by the California Regional Water Quality Control Board, Central Valley Region on DD Month 2021.

Ordered by: \_\_\_\_\_  
PATRICK PULUPA, Executive Officer

#### IV. GLOSSARY

µmhos/cm	Micromhos per centimeter
24-hr composite	Flow-proportioned or time-proportioned composite sample consisting of at least eight aliquots over a 24-hour period
Annually	Once per year
APHA	American Public Health Association
AWWA	American Water Works Association
Bi-annually	Once every two years
BOD <sub>5</sub>	Five-day biochemical oxygen demand, also written BOD
Daily	Every day
DO	Dissolved oxygen
EC	Electrical conductivity at 25° C
EPA	United States Environmental Protection Agency
FDS	Fixed dissolved solids
hr	hour
LAA	Land application area
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
MG	Million gallons
MGD	Million gallons per day
Monthly	Once per calendar month
MPN/100 mL	Most probable number [of organisms] per 100 milliliters
TBD	To be determined
TDS	Total dissolved solids
TKN	Total Kjeldahl nitrogen
Total Nitrogen	Nitrate and nitrite nitrogen plus TKN
Quarterly	Once per calendar quarter.
s.u.	Standard Units
Weekly	Once per week
WEF	Water Environment Foundation
WREP	Wetlands Reserve Enhancement Program