

MONITORING AND REPORTING PROGRAM R5-2017-0000
ATTACHMENT B

SURFACE WATER MONITORING
FOR
CONFINED BOVINE FEEDING OPERATIONS

A. Surface Water Monitoring

The provisions of this attachment to Monitoring and Reporting Program (MRP) R5-2017-0000 are set out pursuant to the Executive Officer's authority under California Water Code (CWC) Section 13267 to order Dischargers to implement monitoring and reporting programs. The purpose of surface water monitoring required by these provisions is to confirm that management practices being employed for the operation of land application areas are protective of surface water quality and comply with Receiving Water Limitation G.1 (Surface Water Limitations) of the Waste Discharge Requirements General Order for Confined Bovine Feeding Operations, Order R5-2017-0000 (Bovine General Order or Order). These surface water monitoring provisions do not preclude the requirement for Dischargers to monitor surface runoff as described in Monitoring Requirements, Section D of MRP R5-2017-0000.

The provisions of this attachment do not apply to Limited Time and Limited Population Bovine Operations or to Full Coverage Confined Bovine Feeding Operations that do not land apply waste to their own cropland.

As an alternative to monitoring surface water for pesticides on an individual basis or as a member of a Joint Monitoring Program pursuant to Section F of this **Attachment B**, Dischargers required to monitor surface water for pesticides may participate in an Irrigated Lands Regulatory Program (ILRP) Monitoring Coalition. Dischargers choosing to participate in an ILRP Coalition shall notify the Central Valley Water Board **within 24 months of the adoption of the Bovine General Order** and identify the Coalition that the Discharger intends to join.

B. Farm Evaluation Survey Form

All Confined Bovine Feeding Operations that farm land not covered under the Irrigated Lands Regulatory Program shall, **within 18 months of adoption of the Order**, complete and submit to the Executive Officer a Farm Evaluation Survey form (**Attachment B-1** to MRP R5-2017-0000). The Farm Evaluation Survey form serves as a summary of farm management practices being used on land application areas to protect surface and groundwater from pesticides and nutrients, including drift. It consists of:

1. A Whole Farm Evaluation (Part A),
2. Evaluation forms for each field regarding irrigation practices; nitrogen management methods; and sediment, drift, and erosion control practices (Parts B and C), and
3. Irrigation well information (Part D).

C. Demonstration of No Potential to Discharge

After completion of a Farm Evaluation Survey form, a Confined Bovine Feeding Operation may be exempted from the surface water monitoring requirements of the Bovine General Order if it can be demonstrated that any discharge from the land application areas associated with the operation, including drift, have no potential to reach surface water. The written demonstration is **due within 24 months of adoption of the Order**, shall be submitted to the Executive Officer for review, and shall include an aerial photograph identifying nearby surface waters (or lack thereof), including any ditches that connect to surface water. Features relied upon to prevent a discharge to surface water shall be discussed, and shall either represent natural conditions such as topography or a lack of nearby surface water, or substantial artificial features such as levees. After review of the demonstration, the Executive Officer will notify the facility if compliance with the surface water monitoring provisions is required.

D. Exclusion of Pesticides from Monitoring

A Discharger may request the Executive Officer that a pesticide in use on a specific land application area be excluded from monitoring based on the overall runoff risk posed by that pesticide. Pesticides identified as having a low overall runoff risk in Publication 8161 (University of California, Division of Agriculture and Natural Resources) or an equivalent peer-reviewed scientific publication would be eligible for an exclusion from monitoring.

A Discharger may request the Executive Officer that a pesticide in use on a specific land application area be excluded from sediment toxicity testing based on the adsorption runoff potential posed by that pesticide. Pesticides identified as having a low adsorption runoff potential in Publication 8161 (University of California, Division of Agriculture and Natural Resources) or an equivalent peer-reviewed scientific publication would be eligible for an exclusion from sediment toxicity testing.

The Executive Officer may issue a list of pesticides that must be included in monitoring programs if used on site and there is a potential for discharge.

E. Reduction in Monitoring Frequency

The Discharger may petition the Executive Officer to reduce surface water monitoring frequencies if, after three consecutive years of monitoring for a constituent, there are no exceedances and no trends of degradation that may threaten applicable Basin Plan beneficial uses. The maximum surface water monitoring frequency reduction authorized by this section is one that reduces monitoring frequencies to once every five years. The Executive Officer may reinstate the required monitoring if an exceedance occurs, if a trend of degradation that may threaten applicable Basin Plan beneficial uses is indicated by available data, or if management practices change in a manner that could result in an exceedance or a trend of degradation.

F. Individual Monitoring Requirements

1. Surface Water Monitoring Requirements

a. *Discharges to be Monitored*

A Discharger whose discharges of storm water or irrigation tailwater have the potential to reach surface water shall monitor discharges of storm water, irrigation tailwater, and surface water channel-deposited sediments as specified in Table 6 below, unless modified by the Executive Officer. The purpose of this monitoring is to assess the wastes in discharges from land application areas to surface waters and to evaluate the effectiveness of management practice implementation. Water quality is evaluated with both field-measured parameters and laboratory analytical data. The monitoring required below does not apply to surface water discharges from tile drainage systems. Tile drainage system discharge monitoring requirements are included in Monitoring Requirements Section E.2 of MRP R5-2017-0000. **Monitoring of surface water shall begin within 36 months of the adoption of the Order or, for new or expanding facilities, within 6 months of receipt of the Notice of Applicability.**

TABLE 6. SURFACE WATER MONITORING

The following samples shall be collected each year from one third of the irrigation tailwater discharge points and storm water discharge points.^a The discharge points sampled shall be rotated each year, so that all discharge points from the Discharger's land application areas will be sampled every three years. Sample locations must be chosen such that the samples are representative of the quality and quantity of irrigation tailwater or storm water discharge, and at a point downgradient of water quality management practices.

Irrigation tailwater monitoring is not required where the irrigation system produces an effectively immeasurable^b tailwater discharge.

Irrigation Tailwater and Storm Water Discharges to Surface Water

Irrigation tailwater samples and storm water discharge samples shall be collected during the first hour of discharge per the following frequency:

- D.1 First and final (estimated final irrigation event) discharge of the growing season.
- D.2 First irrigation or storm event discharge that occurs within 60 days of application of a pesticide used on the land application area (sample is not required if there is no irrigation or storm water discharge within 60 days of application).^c For each application of a pesticide, a new 60-day monitoring window begins.
- D.3 Irrigation discharges during employment of fertigation operations.

For each sample, the Discharger shall record the date, time, location,^d and ultimate destination of the discharge. Irrigation tailwater and storm water discharge samples shall be collected and analyzed for the constituents in Table 7 (as noted: D.1, D.2, D.3).

Sediment Toxicity

D.4 Sediment sample during the first irrigation or storm event discharge that occurs within 60 days of application of a pesticide used on the land application area (sample is not required if there is no irrigation tailwater or storm water discharge within 60 days of application). This shall be carried out at each location where surface water discharges are sampled, if sediment is present in the discharge.^e

- a. A discharge point is defined as a location where surface water discharges leaves the Discharger's property. One discharge point per year shall be sampled for Dischargers that have one to three discharge points from land application areas, two discharge points per year shall be sampled for Dischargers that have four to six discharge points, etc.
- b. An effectively immeasurable discharge includes standing water (i.e., ponding, backflow) or where the total volume discharged in a 15-minute period of time is less than what is needed to collect the necessary sample volume.
- c. The list of pesticides that must be monitored is based on the pesticides used on a particular field, as listed in the Farm Water Quality Plan or annual updates provided as part of the Annual Report.
- d. The location of sample collection shall be recorded as latitude and longitude coordinates in decimal degrees, with at least four recorded decimal places.
- e. Not more than one sediment sample is required to be collected each year. Sediment must be present in the discharge in a quantity sufficient for testing; otherwise, testing is not required.

b. *Pesticides to be Monitored*

i. *Surface Water*

The Discharger shall monitor surface water discharges for pesticides identified in the Farm Water Quality Plan as in use on the land application area from which the discharge originated, and those pesticides identified in annual updates provided as part of the Annual Surface Water Monitoring Report.

ii. *Sediment*

The Discharger shall test sediment for pesticides identified in the Farm Water Quality Plan as in use on the land application area from which the discharge originated, and those pesticides identified in annual updates provided as part of the Annual Surface Water Monitoring Report,

Sediment toxicity shall be tested using *Hyaella Azteca*; the *Hyaella azteca* sediment toxicity test endpoint is survival.

All sediment samples must be analyzed for total organic carbon (TOC), as specified in Table 7 below. Analysis for TOC is necessary to evaluate the expected magnitude of toxicity to the test species. If the sample is not toxic to the test species, the additional sample volume can be discarded.

Sediment samples that show significant toxicity to *Hyaella azteca* at the end of an acceptable test and exhibit less than 80% organism survival compared to the control will require pesticide analysis of the same sample in an effort to determine the potential cause of toxicity. The pesticide analysis must include, at a minimum, the pesticides that triggered the sediment sampling. If the pesticides used by the Discharger are detected in the sediment sample (sediment toxicity trigger), the Discharger shall prepare a Surface Water Quality Management Plan and resample the receiving water or discharge channel one time per year if a surface water discharge occurs within 60 days of an application of the pesticide. The annual sampling requirement shall be reduced to one sample every 5 years when the sediment toxicity trigger is not exceeded for three consecutive sampling events at the discharge/receiving water location where the sediment toxicity was initially triggered.

If the sediment toxicity sampling frequency is reduced as described above, the Discharger shall continue the current, or equivalent, water quality management practices with respect to pesticide use and sediment and erosion control with sediment toxicity sampling once every 5 years. If equivalent management practices for pesticide use or sediment and erosion control are discontinued, sediment toxicity monitoring reverts to the annual sampling described in Table 6 above. The Discharger may petition the Executive Officer to remove the sediment toxicity monitoring requirement based on information showing that employed management practices protect against sediment toxicity, e.g., practices in place result in no measurable sediment discharge.

TABLE 7. DISCHARGE MONITORING OF TAILWATER, STORM WATER, AND SEDIMENT TOXICITY^(a)	
Constituent	Frequency (as given in Table 1)
Flow or volume of discharge	D.1, D.2, D.3
Duration of discharge	D.1, D.2, D.3
Turbidity	D.1(b)
Temperature (water)	D.3 (c)
pH	D.1, D.3 (c)
Electrical conductivity (EC) (at 25 °C)	D.1
Nitrate + nitrite (as nitrogen)	D.1, D.3
Dissolved oxygen	D.1, D.3
Ammonia	D.3 (d)
E. coli	D.1 (e)
Pesticide(s)	D.3 (f)
Hardness (as CaCO ₃)	D.3 (g)
Sediment toxicity to <i>Hyaella Azteca</i>	D.4
Sediment total organic carbon	D.4
Sediment total suspended solids	D.4
Sediment total settleable solids	D.4

a.	Analytical methods, reporting limits, and reporting units are listed on the Central Valley Water Board website.
b.	When measuring effluent turbidity, upstream receiving water turbidity shall also be measured.
c.	For D.3 discharges, temperature and pH measurements are only required when ammonia is used.
d.	Required when ammonia is used in fertigation.
e.	Required for irrigated pasture operations, as well as any operation type where manure is applied within the last year.
f.	Pesticides that must be monitored are identified through the procedures outlined in this Attachment.
g.	Hardness samples are only required when sampling for dissolved copper.

2. Reporting Requirements

The results of any water quality monitoring conducted more frequently than required at the locations specified herein shall be maintained in accordance with the requirements specified in Record-Keeping Requirements MRP R5-2017-0000 and included in Annual Surface Water Monitoring Reports.

a. **Farm Water Quality Plan (FWQP)**

Within 24 months of adoption of the Order, the Discharger shall develop a farm-specific water quality plan and submit the plan to the Central Valley Water Board. Dischargers are encouraged to work with technical service organizations such as resource conservation districts, commodity groups, and the University of California Cooperative Extension in the development of the entire FWQP. The Board recommends the University of California, Division of Agriculture and Natural Resources' Publication 8332, *The Farm Water Quality Plan*, as a reference to help complete this requirement. Under a FWQP, the Discharger is required to track and evaluate the farm's current management practices for pesticide use and runoff control and describe those practices needed or currently in use to minimize waste discharge to achieve surface water quality protection. The Executive Officer may require additional surface water quality monitoring to evaluate the effectiveness of the practices implemented. Additional practices/monitoring may be necessary, in an iterative process, to address water quality concerns.

The FWQP shall include, at a minimum:

- i. Description of the operation, including number of land application acres, and crops;
- ii. Pesticides that may be applied, recommended rates, and practices associated with the pesticides that could affect the discharge of pesticides to surface water, such as application methods and irrigation related practices;
- iii. Map(s) showing the location of irrigated production areas, discharge points to surface waters, surface water bodies, and water quality sampling locations;
- iv. Rationale for the water quality sampling locations;

- v. Water quality management practices used or to be used (if planned, include timetable for implementation) to comply with the Order and reduce or eliminate discharge of waste to surface waters. As described in the Order, following are the farm management performance standards that must be achieved:
 - (1) Minimize waste discharge offsite in surface water,
 - (2) Prevent pollution and nuisance, and
 - (3) Minimize or eliminate the discharge of sediment above background levels.

b. *Water Quality Triggers*

This Order requires that Dischargers comply with all adopted water quality objectives and established federal water quality criteria applicable to their discharges. The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins and the Water Quality Control Plan for the Tulare Lake Basin (Basin Plans) contain numeric and narrative water quality objectives applicable to surface water within the Order's coverage area (the Central Valley region). USEPA's 1993 National Toxics Rule and 2000 California Toxics Rule contain water quality criteria which, when combined with Basin Plan beneficial use designations, constitute numeric water quality standards.

This Order establishes water quality triggers for developing SWQMPs. Water quality triggers are based on Basin Plan water quality objectives, some of which are site-specific, and therefore difficult to apply generally across the entire Order coverage area. Consequently, this Order establishes a process for providing Dischargers with water quality triggers for surface water. This process is initiated when the Discharger files a Farm Water Quality Plan. The Executive Officer will review the Plan and may issue an NOA containing surface water quality triggers and any additional monitoring requirements based on review of the Plan. Additional monitoring requirements will include monitoring for compliance with any applicable Basin Plan Total Maximum Daily Loads and associated load limits.

c. *Surface Water Quality Management Plan (SWQMP)*

The Discharger shall develop a SWQMP when required by the Executive Officer. The Plan shall include the following elements.

- i. Constituent(s) for which the SWQMP is required (constituent[s] of concern), relevant sample results, and collection dates of the exceedances, if applicable, that triggered development of the SWQMP;
- ii. Summary of onsite sources of the constituent(s) of concern;
- iii. Description and justification for the proposed management practices that will be implemented to reduce the discharge of the constituent(s) of concern to address the problem triggering preparation of the SWQMP;
- iv. Proposed monitoring plan to evaluate the effectiveness of improved management; and

- v. Proposed time schedule for implementation of management practices to address the problem triggering the preparation of the SWQMP. Time schedule shall be as short as practicable.

d. Annual Surface Water Monitoring Report

The Discharger shall submit to the Executive Officer an annual assessment of the surface water monitoring data due 1 July of each year, **with the first report due 12 months after monitoring begins**. The annual assessment may be attached to the annual report required in MRP R5-2017-0000. The annual assessment shall include a tabulated summary of all field-measured and analytical data collected to date including analytical lab reports for data collected during the past year. The assessment shall include an evaluation of the surface water monitoring program's adequacy to assess compliance with the Surface Water Limitations of the Order. The Annual Surface Water Monitoring Report shall include the following sections and elements:

- i. Surface water monitoring results:

Sample date
Constituent
Sample concentration result and trigger limit
Indicate which results are exceedances of trigger limits
Sample collection location with latitude and longitude coordinates in decimal degrees to at least the fourth decimal place
Sample site name / code

- ii. Copies of all field sheets associated with water quality sample collection;
- iii. Copies of all laboratory certified analytical reports associated with water quality samples;
- iv. For exceedances that have triggered a SWQMP, a summary of the updates to the Farm Water Quality Plan to reduce waste discharge and prevent future exceedances consistent with the requirements of the Order;
- v. For exceedances that have triggered a SQQMP, a summary of the progress made meeting the time schedules approved in the SWQMP; and
- vi. Updates on pesticide use. This section shall list all pesticides used during the annual monitoring period and all planned pesticides for the next reporting period.
- vii. If required by the Executive Officer, water monitoring data shall be submitted in a format suitable for uploading to an electronic database.

e. Record-Keeping Requirements

- i. Records of on-site activities shall include:
 - (1) Date the observations were recorded, measurements were made, or samples were collected;
 - (2) Name and signature of the individual(s) who made the observations, made and recorded the measurements, or conducted the sampling;
 - (3) Location of measurements or sample collection;
 - (4) Procedures used for measurements or sample collection;
 - (5) Unique identifying number assigned to each sample; and
 - (6) Method of sample preservation utilized.
- ii. Records of laboratory analyses shall include:
 - (1) Results for the analyses performed on the samples that were submitted;
 - (2) Chain-of-Custody forms used for sample transport and submission;
 - (3) Form that records the date that samples were received by the laboratory and specifies the analytical tests requested;
 - (4) Name, address, and phone number of the laboratory which performed the analysis;
 - (5) Analytical methods used;
 - (6) Date(s) analyses were performed;
 - (7) Identity of individual(s) who performed the analyses or the lab manager; and
 - (8) Results for the quality control/quality assurance (QA/QC) program for the analyses performed.

All records described in this section will be submitted as part of the Annual Surface Water Monitoring Report

G. Joint Monitoring Program Requirements

As an alternative to conducting individual surface water monitoring as detailed in Section F of this attachment, a group of Dischargers whose discharges of storm water or irrigation tailwater have the potential to reach surface water and which grow similar crops and have similar pesticide use can join together to monitor a representative portion of their combined land application areas. The group of Dischargers shall, **within 24 months of the adoption of the Bovine General Order**, request approval from the Executive Officer to conduct such representative monitoring. The request shall include, at a minimum, the names of the Dischargers in the group; list of crops grown and pesticides used; and a map showing the location of all of their land application areas, and indicating which crops are grown and which pesticides are used on which land application areas. The map shall also show the location of the proposed monitoring points and the crops and pesticides to be monitored by each point. Such joint monitoring shall not commence until written approval is issued by the Executive Officer. **Within 30 months of the adoption of the Bovine General Order**, a Joint Monitoring Program shall submit a workplan for surface water monitoring to the Executive Officer for approval.

All Dischargers in a Joint Monitoring Program shall individually complete a Farm Water Quality Plan and submit it to the Central Valley Water Board. The Joint Monitoring Program shall conduct monitoring and keep records as described in Section F of this attachment for individual monitoring programs. The Joint Monitoring Program shall prepare and submit the Surface Water Quality Management Plan and Annual Surface Water Monitoring Reports to the Central Valley Water Board on behalf of the Dischargers in the Joint Monitoring Program.

A Joint Monitoring Program is not a Discharger. Owners and operators of Confined Bovine Feeding Operations are Dischargers and are responsible and liable for individual compliance and for determining if they are in compliance with the terms of the Order and MRP. Pursuant to the Water Code Section 13267, the Executive Officer may, at any time, order implementation of individual surface water monitoring at a Confined Bovine Feeding Operation, even if the Discharger participates in a Joint Monitoring Program. Such order may occur, for instance, if violations of the Order are documented and/or the facility is found to be in an area where site conditions and characteristics pose a high risk to surface water quality. In the event the Executive Officer orders implementation of individual surface water monitoring to a participant in a Joint Monitoring Program, the Discharger shall no longer be eligible to participate in a Joint Monitoring Program to comply with the surface water monitoring requirements of the MRP.