



CDQAP - WDR General  
Order Reference Binder  
Tab 8.3  
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## Monitoring Offsite Discharges of Storm or Tail Waters from the Production Area or Land Application Areas

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In May 2007, the Central Valley Regional Water Quality Control Board (Regional Board) adopted Waste Discharge Requirements General Order No. R5-2007-0035 for Existing Milk Cow Dairies (General Order)<sup>1</sup>. The Monitoring and Reporting Program (MRP) of the General Order requires analyses of offsite discharges of storm water and tailwater that may ultimately end up in surface water in order to determine if pollutants were discharged. This Monitoring and Reporting Program was revised in February, 2011<sup>2</sup> and describes minimum **offsite discharge sampling** requirements. Results must be submitted to the Central Valley Regional Water Quality Control Board as part of the appropriate annual reporting activities (due July 1 of the following calendar year). In addition to the annual report, Part IV of this document lists reporting requirements specific to offsite discharges.

An offsite discharge is defined as the release of waste to land, surface water, or groundwater. There are four categories of offsite discharge that must be monitored, three of which are covered in this publication, including:

- 1) storm water discharge to surface water from the production area;
- 2) storm water discharge to surface water from land application areas<sup>3</sup>;
- 3) tailwater discharge from land application areas to surface water where irrigation has occurred less than 60 days after application of manure and/or process wastewater.

Sampling and analysis requirements for unauthorized discharge of manure or process wastewater from either the production or land application areas is covered in a separate publication (WDR General Order Reference Binder document 8.2<sup>4</sup>).

### Part I – Laboratory Selection and Identification of Sampling and Analytical Requirements

1. Table 1 outlines the constituents and frequency of minimum sampling analysis requirements as specified in the revised MRP. Also contained in Table 1 are the recordkeeping requirements for offsite discharges as specified in the revised MRP.
2. The Regional Board requires that the laboratory analyzing storm or tail water discharges be accredited through the State of California Department of Public Health, Environmental Laboratory Accreditation Program.

<sup>1</sup> Order No. R5-2007-0035. Waste Discharge Requirements for General Order for Existing Milk Cow Dairies. May 3, 2007. Available at [http://www.waterboards.ca.gov/centralvalley/board\\_decisions/adopted\\_orders/general\\_orders/r5-2007-0035.pdf](http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2007-0035.pdf).

<sup>2</sup> Central Valley Regional Water Quality Control Board. 2011. Revised Monitoring And Reporting Program Order No. R5-2007-0035. General Order For Existing Milk Cow Dairies Available at [http://www.waterboards.ca.gov/centralvalley/board\\_decisions/adopted\\_orders/general\\_orders/r5-2007-0035\\_mrp\\_rev.pdf](http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2007-0035_mrp_rev.pdf).

<sup>3</sup> Sample locations must be chosen such that the samples are representative of the quality and quantity of storm water discharged.

<sup>4</sup> WDR Reference Binder available at <http://www.cdqa.org/binder.asp>.

- Contact your analytical laboratory to obtain labels, sample containers, sample preservation advice and materials, recordkeeping requirements, and chain of custody forms.

**Table 1.** Monitoring Requirements for Offsite Discharges of storm or tail water from the production or land application area (MRP Table 3).

<p><i>Storm Water Discharges to Surface Water from the Production Area</i></p> <p><u>Daily during each discharge to surface water:</u></p> <p>Record date, time, approximate volume, duration, location, source, and ultimate destination of the discharge.</p> <p>For the discharge<sup>1</sup> and surface water upstream<sup>2</sup> and downstream<sup>3</sup> of the discharge:</p> <p>Field measurements of electrical conductivity, dissolved oxygen, temperature, pH, total ammonia-nitrogen, and un-ionized ammonia-nitrogen.</p> <p>Laboratory analyses for nitrate-nitrogen, turbidity, total phosphorus, and total and fecal coliform.</p>
<p><i>Storm Water Discharges to Surface Water from Each Land Application Area</i></p> <p><u>First storm event of the wet season<sup>4</sup> and during the peak storm season (typically February<sup>5</sup> each year from one third of the land application areas<sup>6</sup> with the land application areas sampled rotated each year<sup>7</sup>:</u></p> <p>Record date, time, approximate volume, duration, location, and ultimate destination of the discharge.</p> <p>Field measurements of the discharge for electrical conductivity, temperature, pH, total ammonia-nitrogen, and un-ionized ammonia-nitrogen.</p> <p>Laboratory analyses of the discharge for nitrate-nitrogen, total phosphorus, turbidity, and total and fecal coliform.</p>
<p><i>Tailwater Discharges to Surface Water from Land Application Areas<sup>8</sup></i></p> <p><u>Each discharge from each land application area where irrigation has occurred less than 60 days after application of manure and/or process wastewater:</u></p> <p>Record date, time, approximate volume (gallons), duration, location, and ultimate destination of the discharge.</p> <p>Field measurements of discharge for electrical conductivity, temperature, pH, total ammonia-nitrogen, and un-ionized ammonia-nitrogen.</p> <p><u>First discharge of the year from any land application area where irrigation has occurred less than 60 days after application of manure and/or process wastewater:</u></p> <p>Laboratory analyses for nitrate-nitrogen, total phosphorus, and total and fecal coliform.</p>

<sup>1</sup> Sample locations must be chosen such that the samples are representative of the quality and quantity of storm water discharged.

<sup>2</sup> Upstream samples shall be taken just far enough upstream so as not to be influenced by the discharge.

<sup>3</sup> Downstream samples shall be taken just far enough downstream where the discharge is blended with the receiving water but not influenced by dilution flows or other discharges.

<sup>4</sup> This sample shall be taken from the first storm event of the season that produces significant storm water discharge such as would occur during continuous storm water runoff for a minimum of one hour, or intermittent storm water runoff for a minimum of three hours in a 12-hour period.

<sup>5</sup> This sample shall be taken during a storm event that produces significant storm water discharge and that is preceded by at least three days of dry weather. The sample shall be taken during the first hour of the discharge.

<sup>6</sup> One land application area shall be sampled for Dischargers that have one to three land application areas, two land application areas shall be sampled for Dischargers that have four to six land application areas, etc.

<sup>7</sup> The Discharger may propose in the annual storm water report to reduce the constituents and/or sampling frequency of storm water discharges to surface water from any land application area based on the previous year's data (see Storm Water Reporting section below).

<sup>8</sup> Tailwater samples shall be collected at the point of discharge to surface water.

## Part II – Sampling Preparation and Sample Collection

- Collect samples as soon as conditions are safe enough to physically access the discharge location. Discharges may occur during storm or irrigation events when operators may be unable to collect samples because of dangerous weather or field conditions (local flooding,

- high winds, tornados, electrical storms, etc.). Documentation of the discharge (including notation regarding the reason no samples were taken) and reporting are still required, even if it is unsafe to collect samples.
2. Each of the three categories of discharges has its own sampling frequency requirements:
    - a) Storm water discharges from the production area to surface water should be **sampled daily** during each discharge.
    - b) Storm water discharges from one-third of the land application areas should be **sampled twice during the wet season** (between October 1<sup>st</sup> and April 30<sup>th</sup>). The first annual samples should be taken during the **first storm event of the season that produces significant storm water discharge**. The **second annual samples should be collected during the peak storm season (typically February)**. Based on the previous year's data, the discharger may propose in the annual storm water report to reduce the constituents and/or sampling frequency of storm water discharges to surface water from any land application area.
    - c) Tailwater discharges should be sampled once during each discharge from each land application area where irrigation has occurred less than 60 days after application of manure and/or process wastewater.
  3. Samples should be collected at the point of the discharge. Sample locations should be selected so that samples represent the actual material discharged. Additionally, samples must be collected both upstream and downstream for discharges from the production area to surface waters.
  4. If it is unsafe to sample the discharge (because of unstable banks, high winds, or other extreme conditions, for example), then the unsafe conditions should be documented and the discharge should not be sampled.
  5. Gather sampling equipment needed (e.g., disposable gloves, safety goggles if handling preservatives, sample containers, sampling pole, preservative, ice and ice chest, labels, chain of custody form, notebook, etc.)  
 Sample containers may be obtained from your analytical laboratory. Be aware that some analyses require sample preservation in the field, so be sure to ask your analytical laboratory about this. Table 2 provides a summary of recommended sample container sizes, types, and additional information about sample preservation and storage.

**Table 2.** Sample container types, preservation requirements, analytes, and holding times.

Sample container size and type <sup>(1)</sup>	Preservative	Analytes	Maximum holding time
1 liter (ℓ) P, TP, G <sup>(2)</sup>	Ice chest (≤6 C)	Turbidity	<48 hrs
250 ml to 1 ℓ P, FP, G	Ice chest (≤ 6 C)	Nitrate-N	48 hours
250 ml P, FP, G	H <sub>2</sub> SO <sub>4</sub> to ≤pH 2	Total phosphorus	28 days
100 ml sterile bottle P, G	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> ; ice chest (≤ 10 C)	Total and fecal coliform	<6 hrs
250 ml P, FP, G	None	On farm analyses of Electrical conductivity, temp (take immediately), pH (within 15 minutes), total ammonia-nitrogen, and unionized ammonia-nitrogen	Within 15 minutes
250 ml P, FP, G	Ice chest (≤6 C)	EC (may be done in laboratory)	28 days
250 ml P, FP, G	Ice chest (≤6C), H <sub>2</sub> SO <sub>4</sub> to ≤pH 2	Ammonia-nitrogen (may be done in laboratory)	28 days

<sup>(1)</sup>Container type, preservation techniques and holding times are from Table II of Part 136 of Title 40 of the Code of Federal Regulations. Federal Register Vol 72. NO 47. March 12, 2007. Page 11236.  
<sup>(2)</sup>Sample container types: P=polyethelene; FP = fluoropolymer; G= glass.

### Part III – Sample Collection

1. A sampling pole should be used to extend the reach in order to submerge a sample bottle into the liquid to be sampled. A wood pole may be adequate, but an extendable aluminum pole, such as those used for cleaning swimming pools, can allow a greater reach. Sample bottles should be securely attached to the pole to ensure the safety of the operator, retrieval of the sample, and to avoid over topping.
2. Individuals collecting samples need to understand the importance of ensuring that the sample location site is safe. Sampling offsite discharges may put someone in an area of high flowing or rapidly rising waters, high winds, or unstable footing. Safety measures should include:
  - a) always work in pairs and attached to a life line, when necessary;
  - b) personal flotation devices should be available;
  - c) wear safety goggles and protective latex, rubber or nitrile gloves when collecting and especially when preserving samples;
  - d) keep a supply of fresh water available to flush skin or other organs exposed to preservatives (usually strong acids or bases).
3. Individuals collecting samples must be trained and familiar with sample collection, preservation, storage techniques and requirements, and maximum holding times.
4. Bottles should be filled to nearly full, capped tightly, placed upright in coolers, stored in a cold environment, and submitted to the laboratory within the required holding time.
5. Individuals collecting the samples also need to understand how to complete a chain of custody form. Your analytical laboratory will provide the form with sample bottles and instructions for collection and preservation of samples. Review the chain of custody form before a discharge occurs. Contact your laboratory if you have questions. Because discharge events don't always occur during business hours, take the time to resolve any problems before you need to sample.
6. All samples must be properly identified with sufficient information to allow completion of the chain of custody form obtained from the analytical laboratory. At a minimum, the sample container label should include the following information: site location (as identified in the nutrient and waste management plans), sample number, sample location (farm), date and time of sampling, and initials of the individual who took the sample. Use permanent markers when writing on sample bottle labels. It is best to have the label affixed to the bottle and completely filled out prior to retrieving the sample, since labels do not stick well on wet or chilled bottles.
7. The chain of custody is the detailed history of the collection and handling of the sample and is required to ensure the legal integrity of sample collection and handling. Keep copies of all chain of custody forms as they are delivered to the laboratory with samples.
8. Deliver samples to the laboratory as soon as possible after collection. This provides the greatest flexibility for the laboratory for processing. Each offsite discharge analyte has a specified holding time defined in Title 40 Code of Federal Regulations Part 136 (Guidelines Establishing Test Procedures for the Analysis of Pollutants). The times listed in Table 2 are the maximum times that samples may be held before the start of analysis and still be considered valid (e.g., samples analyzed for fecal coliform may be held up to 6 hours prior to commencing analysis). If the discharge event occurs at a time when the specified delivery window cannot be met, document the circumstances in writing and include documentation in all reports to the Regional Water Quality Control Board. Expired samples should not be presented to the laboratory for analysis. It may be valuable to contact the laboratory while in route to assure that the samples may be analyzed upon arrival to the laboratory. Close communication with the laboratory staff is helpful.

9. All field testing equipment must be maintained regularly and calibrated prior to running an analysis. Maintenance and calibration should be documented. In addition, personnel operating field testing equipment must be properly trained.

**Part IV – Additional Requirements**

The General Order has specific recordkeeping and reporting requirements for discharge events. Tailwater discharges where manure has been applied in the last 60 days do not require additional notification and recordkeeping. The results of these laboratory analyses will be included in the Annual Report.

The Central Valley Regional Board has prepared a form for reporting significant storm events (WDR Reference Binder document #6.16). This document is also available at: [http://www.waterboards.ca.gov/centralvalley/water\\_issues/dairies/complying\\_with\\_general\\_order/dairy\\_forms/priority\\_reporting.pdf](http://www.waterboards.ca.gov/centralvalley/water_issues/dairies/complying_with_general_order/dairy_forms/priority_reporting.pdf) (accessed March, 2011).

In addition to completing the Priority Reporting form, producers are also obligated to notify the following agencies, by telephone, **within 24** hours of the discharge from a significant event. If you leave a message, include: time, date, location, nature of the discharge, name and contact information of the reporting party. Voice messaging systems should be available for each of these agencies.

- Central Valley Regional Water Quality Control Board Contact information for dairy sampling questions
  - o Rancho Cordova: (916) 464-3291
  - o Fresno: (559) 445-5116
  - o Redding: (530) 224-4845
- Local environmental health department
- California Office of Emergency Services (OES)

OES Inland Region North 1740 Walnut Street Red Bluff, CA 96080 (530) 529-0409 Fax: (530) 529-5079	OES Inland Region Headquarters 3650 Schriever Avenue Mather, CA 95687 (916) 845-8470 Fax: (916) 845-8474	OES Inland Region South 2550 Mariposa Mall, Room 181 Fresno, CA 93721 (209) 445-5672 Fax: (209) 445-5987
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*Information in this document was compiled by UCCE and CDQAP to assist dairy producers in understanding and complying with the General Order Waste Discharge Requirements for Existing Milk Cow Dairies (Central Valley Regional Water Quality Control Board Order R5-2007-0035). Effort has been made to ensure accuracy, but these summaries are not official regulatory guidance and are not legal advice. Producers are advised that these summaries are not intended to be a substitute for producers reading the complete order and consulting their own legal counsel to ensure compliance with the waste discharge requirements. Should any information here conflict with the General Order and/or official information provided by the Regional Board, Board-provided information takes precedence.*

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