



CDQAP - WDR General
Order Reference Binder
TAB 8.2
Revised March 2011

Monitoring Surface Runoff of manure or process wastewater 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 R5-2007-0035 for Existing Milk Cow Dairies (the General Order)¹. The Monitoring and Reporting Program (MRP) of the General Order requires analyses of off-site discharges of manure or process wastewater that may ultimately end up in surface water or pose a hazard to public health in order to determine if pollutants were discharged. This Monitoring and Reporting Program was revised in February, 2011² and describes minimum **off-site discharge sampling** requirements. Unauthorized discharges include both over application of manure (exceeding nutrient management plan application rates) that isn't associated with an off-site discharge as well as off-property discharges of liquid manure from either the production or land application areas. Dairy operators covered under the General Order must comply with the monitoring and reporting requirements for all unauthorized discharges (both on-site and off-site).

Part I. 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 off-site 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 or other test methods for which you have approval by the Executive Officer. A list of accredited labs is maintained at http://www.dhs.ca.gov/ps/ls/ELAP/lab_lists/ELAPLablist.xls.
3. Contact your analytical laboratory to obtain labels, sample containers, sample preservation advice and materials, recordkeeping requirements, and chain of custody forms.

¹ Order No. R5-2007-0035. Waste Discharge Requirements 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.

² 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.

Table 1. Monitoring Requirements for Off-site Discharges of manure or process wastewater

Table 3. DISCHARGE MONITORING
<p><i>Discharges (Including Off-Property Discharges) of Manure or Process Wastewater, from the Production Area or Land Application Area</i></p> <p><u>Daily during each discharge:</u> Record date, time, approximate volume (gallons) or weight (tons), duration, location, source, and ultimate destination of the discharge.</p> <p>Field measurements of the discharge for electrical conductivity, temperature, and pH.</p>
<p>Laboratory analyses of the discharge for nitrate-nitrogen, total ammonia-nitrogen, un-ionized ammonia-nitrogen, total Kjeldahl nitrogen, total phosphorus, potassium, total dissolved solids, BOD₅¹, total suspended solids, and total and fecal coliform.</p> <p><u>Daily during each discharge to surface water:</u> For surface water upstream² and downstream³ of the discharge: Field measurements for electrical conductivity, temperature, dissolved oxygen, and pH.</p> <p>Laboratory analyses for nitrate-nitrogen, total ammonia-nitrogen, un-ionized ammonia-nitrogen, total Kjeldahl nitrogen, total phosphorus, potassium, total dissolved solids, total suspended solids, and total and fecal coliform.</p>
<p>¹ Five-day biochemical oxygen demand.</p> <p>² Upstream samples shall be taken just far enough upstream so as not to be influenced by the discharge.</p> <p>³ 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.</p>

Part II - Sampling Preparation & Location Determination

1. 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. The rationale for all discharge sampling locations shall be included in the Annual Report (in the Storm Water Report for storm water discharges from land application areas).
2. 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 until conditions are safe to do so. If the discharge has ceased at this point, the source of the discharge should be sampled.
3. 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.)

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

Sample container size and type ⁽¹⁾	Preservative	Analytes	Maximum holding time
1 liter (ℓ) P, TP, G ⁽²⁾	ice chest ≤6 C	BOD5	Less than 48 hrs
250 ml to 1 ℓ P, FP, G	H ₂ SO ₄ to ≤2 pH; ice chest ≤6 C	TKN and total ammonia	28 days
Calculated based on results from other analyses		Unionized ammonia-nitrogen	
250 ml to 1 ℓ P, FP, G	ice chest ≤6 C	Nitrate	48 hours
1 ℓ P, FP, G	ice chest ≤6 C	total dissolved solids and total suspended solids	7 days
250 ml P, FP, G	ice chest ≤6 C; H ₂ SO ₄ to <pH 2	total phosphorus	28 days
250 ml P, FP, G	HNO ₃ to <pH 2; cool ≤6 C	potassium	6 months
100 ml sterile bottle P, G	Na ₂ S ₂ O ₃ ; ice chest <10 C	total and fecal coliform	<6 hrs
250 ml P, FP, G	None; analyze immediately	on farm analyses of EC, temp (no hold time--analyze), pH, DO (glass, analyze within 15 min)	Analyze immediately on-farm

⁽¹⁾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.
⁽²⁾Sample container types: P=polyethylene; 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 off-site 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 off-site 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. 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 (accessed March, 2011).

In addition to completing the Priority Reporting form, producers are 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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References:

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/adopted_orders/GeneralOrders/R5-2007-0035.pdf See Monitoring and Reporting Program Pages 7 & 8 and Reporting requirements C. on pages 10 and 11.

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.