**Sampling Supply Wells and Subsurface (Tile) Drainage Systems**
*Compiled by Thomas Harter and Deanne Meyer, August 2007*

In May, 2007 the Central Valley Regional Water Quality Control Board (RB 5) adopted Waste Discharge Requirements General Order R5-2007-0035 for Existing Milk Cow Dairies (the General Order). The General Order requires that all domestic and agricultural supply wells and subsurface (tile) drainage systems present in the production and/or land application areas be sampled within six months of the adoption of the General Order (no later than November 3, 2007), and then annually during coverage under the General Order[1]. If you are covered under the General Order, you will need to comply with groundwater monitoring requirements. Results must be submitted to the Central Valley Regional Water Quality Control Board as part of the first year's reporting activities (due July 1, 2008).

**Identification of wells**
All supply wells (domestic and agricultural) must be identified and sampled once per year, with the first sample collection occurring prior to November 3, 2007. Identification of the wells will be done formally during the mapping process associated with the General Order. It is important to identify each well with a unique identification (name/number) for the purposes of sample collection and data interpretation.

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

1. Select a laboratory that is certified by the California Department of Health Services and that can analyze your samples in accordance with the Title 40 Code of Federal Regulations Part 136 (*Guidelines Establishing Test Procedures for the Analysis of Pollutants*) or other test methods for which you have approval by the Executive Officer.
2. Contact your analytical laboratory to obtain sample bottles and labels and appropriate instructions for sample collection, preservation, sample holding times, required record keeping, and chain of custody forms.

**Part II - Sampling Preparation & Location Determination**
1. Determine how you will identify your samples (e.g., name or number of well or tile drain, sampler, date and time sampled, etc).
2. Gather sampling equipment needed, e.g., disposable gloves, safety goggles if handling sample bottles with preservatives, sample bottles, preservatives, ice and ice chest, labels for sample identification, chain of custody forms, notebook for record-keeping, etc.

[1] 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.

**For Domestic supply wells:**

- Collect water samples before the pressure tank if possible; otherwise collect samples from the tap nearest to the pressure tank.
- Allow water to run for 10 to 20 minutes prior to collecting the sample.

**For Irrigation supply wells:**

- Identify a sampling location nearest the wellhead. Installation of a sampling valve may be useful for future use.
- Allow water to run for at least 30 minutes or three well volumes prior to collecting the sample.

**For Tile drains:**

- Collect tile drain sample at the discharge point into a canal or an irrigation drain.
- The sample collected should represent the nature of the material being discharged.

**Part III – Sample Collection**

1. Label sample bottle with well identification, sampler's name, the date and time of sampling.
2. Put on sampling gloves and safety goggles (if handling sample containers with preservatives).
3. Remove lid from sample bottle. Be sure to keep the lid clean.
4. Rinse the sampling bottle 3 times with the water you will be collecting UNLESS YOUR BOTTLE HAS A PRESERVATIVE IN IT. DO NOT RINSE OUT PRESERVATIVE.
5. Collect sample into the bottle, leaving the proper head-space (open space at the top) as required by the laboratory.
6. Preserve sample as required by your laboratory (typically with sulfuric acid to pH less than 2 for total phosphorus samples). The laboratory may provide sample bottles that include preservative.
7. Tightly cap the bottle.
8. Immediately put the bottle into an ice-cooled chest. DO NOT FREEZE THE SAMPLES.
9. Conduct field analysis of Electrical Conductivity on a separate sample & record results. (If your analytical laboratory will perform EC analysis you will need to take 2 samples. The first will be unpreserved for EC analysis. The second will be preserved for Nitrate-N analysis).
10. Complete a chain of custody form.
11. Deliver to laboratory before the required holding time (typically 48 hours for nitrate-nitrogen and 28 days for total phosphorus).
12. Keep a copy of the chain of custody form and records on sample collection & sample identification

**Recordkeeping requirement:**

Well type and identification:_____

Well or subsurface (tile) drainage system location:_____

Date and time of sample collection: _____

Date sample submitted to laboratory:_____

Name of individual taking sample: _____

Well purge time: _____

Field measurement of electrical conductivity:_____

Location of sample port or tile drainage discharge point:_____

Preservative method used (ice cooling or other):

_____

Laboratory analyses requested: _____

**Sample analyses**

Domestic and Agricultural supply wells:

- Field or laboratory analysis of electrical conductivity (EC)
- Laboratory analysis of Nitrate-Nitrogen.

Tile drain sample:

- Field or laboratory analysis of electrical conductivity (EC)
- Laboratory analysis of Nitrate-Nitrogen.
- Laboratory analysis of total phosphorus

**Additional information**

Contact your analytical laboratory for additional information on sample collection, handling, preservation, and delivery. Contact the Central Valley Regional Water Quality Control Board for any other information requests.