

MONITORING WELL & MONITORING SUMP PIT SAMPLING INFORMATION
For Manure Storage Facilities

Monitoring wells or sump pits are usually installed as leak detection means around manure storage facilities, confined livestock areas (outdoors or covered) and manure or mortalities composting facilities. The requirement for installation of monitoring wells or sump pits is identified in the review process of an application for permit to construct, modify or expand a [manure storage facility](#) or a [confined livestock area](#) and is site and facility specific. The sump pits shall be considered as monitoring wells for the purpose of the *Livestock Manure and Mortalities Management Regulation (MR 42/98)* and are subject to the sampling requirements pursuant to section 6.1 of the Regulation.

Equipment:

Appropriate sample bottles will be required (consult testing laboratory for requirements) and a dedicated bailer for each monitoring well. A bailer should not be used for multiple wells, as this may introduce cross-contamination of samples. A bailer is typically a long (2 to 3 feet), weighted polyethylene or Teflon tube with a ball check valve and a detachable drain tube. Once samples are collected, each bailer should be tied or fastened to the respective monitoring well which the bailer is used to sample from and stored within the same well for the next sample. Disposable latex gloves are to be used when performing all purging and sampling procedures (new pair for each sample) to prevent contamination of sample.

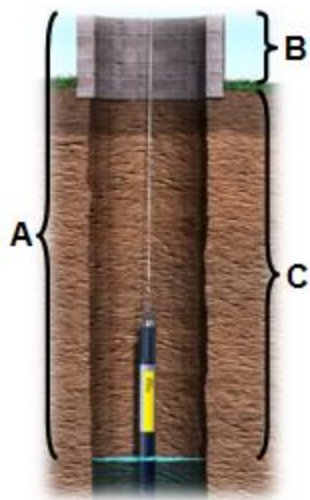
Dates of sampling:

Sampling of monitoring wells shall be carried out between 30 days to 60 days after snow melt, and **before July 1st of every year**, unless notified otherwise in writing by the director. The objective is to sample at a time where the water table is generally elevated, but after normal drainage of snowmelt water has subsided.

Measurement of water level in monitoring wells and leak detection systems:

If a bailer was left in a monitoring well and is submerged, leave the bailer in the well and take the water level measurements as explained below. If the bailer is not completely submerged, remove it from the well but return all water contained in the bailer back into the well before measuring the depth to water in the well.

Measurements must be completed prior to purging and/or sampling the water in the monitoring well or sump pit. The depth from the top of the well casing or sump pit opening to the water level shall be measured using a measuring tape to which a suitable floater is installed at one end of the tape, or a string tied to a lead weight and fishing floater. The height from the natural ground surface in the immediate vicinity of the well or sump pit to the top of the casing or pit is also to be reported at the same time to allow for estimating the depth to the water level from the ground surface.



Measurements are to be recorded in the table on the reporting form. This diagram illustrates the measurements required. Measurements should be recorded in inches.

A: Depth to water level from top of well casing or sump pit

B: Height from natural ground surface to top of well casing of sump pit

C: Depth to water level from natural ground surface

Well Purging:

Prior to obtaining the monitoring well samples, the well should first be purged to remove all stagnant water so that representative water samples can be taken. Ensure that the string or twine attached to the bailer is long enough for the bailer to reach the bottom of the well. Begin removing water and dispose of on ground away from the well. Monitoring wells should be purged dry, or if wells recover quickly, a minimum of 3 well volumes is typically required to be purged before samples are taken.

Note: Typically for a 2 inch diameter monitoring well, one well volume is equal to approximately 2 liters per meter (3.3 feet) of standing water. Therefore, a well with 2 meters of water within it should be purged until 12 liters are removed or the well becomes dry, whichever comes first.

Recharge Period:

Once the well has been purged, the water level should be allowed to recover to approximately 80% of the well's original volume. This can only take a few minutes for fast recharging wells or a few hours to several days for slow recharging wells.

Sample Collection: (with dedicated bailer)

Collect sample water in bailer (wearing new disposable latex gloves) and pour slowly into sample bottles, ensuring that there is very little turbulence or air incorporated into the sample. Any preservatives supplied by the laboratory in a separate vial should be poured into sample bottle immediately after the sample is obtained.

Sample Analysis:

Samples must be submitted and analyzed for the following parameters:

- Nitrate/Nitrite
- Ammonia (NH₃)
- Chloride (Cl)
- Electrical Conductivity (EC).

Sample Storage/Transportation:

Samples should be placed in a cooler and kept on ice/ice packs immediately after collection in field. If temporarily storing samples before submission for analysis, they should be kept cool (refrigerator or cooler). Samples should be sent to the laboratory, on ice/ice packs, within 24 hours of collection. Ensure all samples have date time of sampling and monitoring well location clearly labeled on all bottles and that all chain of custody forms are properly filled out.

Note: Do not send in samples to the laboratory on a Friday or before a holiday because analysis will likely take place after the maximum holding time and new samples may need to be taken and submitted

For comparison purposes, the monitoring well labeling shall be consistent from year to year; to that effect, the wells shall bear a permanent well identification number consisting of its cardinal position relative to the manure facility centre and well number on the site (e.g. NE-1, NW-2, etc...).

Results:

The following form must be completed and accompany laboratory analytical results when submitting to Manitoba Sustainable Development to provide accurate data for filing. If at the time of sampling, any wells are dry, inform Manitoba Sustainable Development of this situation in writing via the reporting form below.

If the analytical results indicate any potential concern, collection and analysis of additional samples may be required.

For any further questions regarding sampling procedures please contact the Technical Review Officer at (204) 945-4384. For specific questions regarding sample analysis, bottles, holding times, and paperwork please contact your laboratory representative.

Proprietary (confidential) information will be protected in accordance with Manitoba law. Personal information is collected under the authority of The Environment Act, the Livestock Manure and Mortalities Management Regulation, and will be used for administration and enforcement purposes. Information collected is protected by the privacy provisions of The Freedom of Information and Protection of Privacy Act. If you have any questions, contact the Access & Privacy Coordinator, Box 85, 200 Saulteaux Crescent, Winnipeg, Manitoba R3J 3W3, (204) 945-4170.

**LIVESTOCK MANURE AND MORTALITIES
MANAGEMENT REGULATION**



Monitoring Well & Monitoring Sump Pit Sampling

Facility Reference Number (permit or registration#): _____

Operating Name of Operation: _____

Legal Name of Operation (if different): _____

Corporate Affiliation: _____ **Not Applicable**

Mailing Address: _____

_____ **Postal Code:** _____

Location of Operation: _____

Qtr Sec Twp Rge E/WPM or River Lot/Parish

Rural Municipality: _____ **Civic Address:** _____

Name of Contact: _____

Contact Numbers: _____

Business Residence Cellular Facsimile

Contact Email Address: _____

Sampling Date: _____

YYYY-MMM-DD

Well ID	A	B	C
	Depth to water level from top of well casing/sump pit	Height from natural ground surface to top of well casing/sump pit	Depth to water level from natural ground surface
inches			

Comments:

For Department Use Only

Preferred Correspondence: Email Fax Mail

Send Completed Form to:
Manitoba Sustainable Development
Environmental Approvals Branch
1007 Century Street, Winnipeg, MB R3H 0W4
Fax 204-945-5229
SourceWater@gov.mb.ca
www.gov.mb.ca/sd/envprograms/livestock