

**NATURAL RESOURCES CONSERVATION SERVICE  
MONTANA CONSERVATION PRACTICE STANDARD**

**GROUNDWATER TESTING (NUMBER)**

**CODE 355**

**DEFINITION**

Testing the physical, biological, and chemical quality of groundwater from a water well or spring.

**PURPOSE**

This practice is applied to determine the quality of a groundwater supply with respect to its intended use.

**CONDITIONS WHERE PRACTICE APPLIES**

This standard applies to groundwater from a production well or spring used for agricultural or wildlife purposes.

This practice does not apply to monitoring wells installed to sample, monitor, or test groundwater quality parameters related to contamination associated with waste management systems. **In this case, practice standard, Monitoring Well (Code 353), shall be used.**

**CRITERIA**

Select the parameters for testing consistent with the intended use or concerns identified with the well or spring. **Water testing for livestock suitability should include the following parameters:**

- Sodium
- Chloride
- Bicarbonate
- Nitrate Nitrogen
- Copper
- Calcium
- Conductivity
- pH
- Total Dissolved Solids
- Magnesium
- Sulfate
- Iron

Test results can be interpreted with the assistance of **Environmental Technical Note, MT-1 (Rev. 2), Assessing Water Quality for Human Consumption, Agriculture, and Aquatic Life Uses, dated June 2011.**

Use sampling and testing procedures that comply with the Environmental Protection Agency's "Manual of Methods for Chemical Analysis of Water and Wastes."

**CONSIDERATIONS**

Consider using a computerized total farm record keeping system for ease of data input, analysis, and retrieval of testing results.

**PLANS AND SPECIFICATIONS**

Prepare plans and specifications for groundwater testing that describe the requirements for applying the practice to achieve the intended purpose. Include the following:

1. Document the location and depth of supply.
2. **Identify the vertical and horizontal ground coordinates of each sample site utilizing UTM (horizontal) and USGS (vertical) coordinates. Include reference information identifying the datum for both the vertical and horizontal coordinate systems.**
3. Document aquifer characteristics, geology, and history of site relative to sources of potential contamination, such as surface water, septic systems, chemical storage facilities, landfills, roads, animal waste storage or treatment facilities, or naturally occurring sources of contamination.
4. Document the construction method used to install the well or spring development. **Include the well log if available. Well logs as well as**

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**Conservation practice standards are reviewed periodically and updated if needed. To obtain the current version of this standard contact the Natural Resources Conservation Service.**

**NOTE:** This type of font (**AaBbCcDdEe 123..**) indicates NRCS National Standards.  
This type of font (**AaBbCcDdEe 123..**) indicates Montana Supplement.

**other well database information can be found at Montana Bureau of Mines and Geology Groundwater Information Center (GWIC).**

5. Include a description of the collection process, storing, transporting, and testing samples; and the reporting of test results. **Sample collection procedures shall include provisions to purge the well by 3-well volumes in order to remove stagnant water within and around the well location.**
6. **Designate a protocol for labeling each sample. Include in the label the elevation and/or depth at which the sample was collected.**

## **OPERATION AND MAINTENANCE**

Maintain the water test records for the design life of the well or spring. Include the following items as part of the water test records:

- Sample site location by ground coordinates, such as by Global Positioning System (GPS), or other suitable method **and on-site photos.**
  - Name and title of person who collected sample(s)
  - Planned use of the water
  - Depth interval where sample was taken **and static water level.**
  - **Depth of well screen and, if applicable, depth of pump location.**
  - Date and time of water sampling
  - **Number of samples collected and label information.**
  - Type of sampler and volume of sample
  - Standard collection procedure used **including the length of time and flowrate at which the well was purged.**
  - Date of water quality analyses
  - Name and address of laboratory that performed analyses
  - Parameters tested
  - Schedule of additional testing, if required by the applicable water quality standard
- Records to evaluate trends and the effects of any remedial actions to produce water of quality suitable for the intended purpose
  - Observations of well or spring condition at time of sampling
  - Installation date of well or spring development
  - Other records as required by regulations

## **REFERENCES**

U.S. Environmental Protection Agency, Mar. 1983. "Manual of Methods for Chemical Analysis of Water and Wastes", EPA/600/4 79/020, Office of Research and Development, Washington, DC 20460, 552 p.

**USDA NRCS, Environmental Technical Note, MT-1 (Rev. 2), Assessing Water Quality for Human Consumption, Agriculture, and Aquatic Life Uses, June 2011.**

**Practical Guide for Ground-Water Sampling. EPA/600/2-85/104, September 1985.**