Michael F. Easley, Governor

William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources

Coleen H. Sullins Director
Division of Water Quality

August 15, 2007

MEMORANDUM

TO: All Permittees, Consultants, Laboratories, and Interested Parties

FROM: Ted L. Bush, Jr., Chief
Aquifer Protection Section

SUBJECT: August 2007 Policy on Submission of Groundwater Compliance Monitoring Data (Form GW-59) from Permitted Facilities

Non-discharge permits require several activities related to groundwater monitoring at facilities, including sample collection and reporting of compliance monitoring data resulting from the analysis of groundwater samples. Attached for your information and use is a list, "Collection And Analysis Of Groundwater Samples" that contains specific points to remember when collecting samples for groundwater compliance monitoring at Division of Water Quality permitted facilities. Permits specify that the data generated must be recorded on a separate "Groundwater Quality Monitoring: Compliance Report Form" (GW-59 Form) for each well, and submitted to the following address prior to the end of the month following the permit-designated sample collection month:

Division of Water Quality
Information Processing Unit
1617 Mail Service Center
Raleigh NC 27699-1617

The GW-59 form includes a second page, "GW-59A Compliance Report Form" (GW-59A Form). The GW-59A form must include a summary of the reporting period's monitoring results. Only one GW-59A form should be completed and submitted each monitoring period with the set of GW-59 forms for the wells required by the permit. A copy of the laboratory reports must also be included. Additional information on the website that can assist in completing the GW-59A include the groundwater quality standards in 15A NCAC 2L .0202 found under Rules at: http://h2o.enr.state.nc.us/aps/gpu/rules.htm

This policy continues the policy on "Submission of Groundwater Compliance Monitoring Data from Permitted Facilities" implemented March 4, 2004. Groundwater compliance monitoring data for all analyses required by the permit must be reported on current forms with a copy of the laboratory reports attached. Current copies of these forms and others are available at the Aquifer Protection Section's website address: http://h2o.enr.state.nc.us/aps/gpu/forms.htm.

The forms may be downloaded and printed on yellow paper. Make as many copies as needed. If you have been using your own computer-generated GW-59 forms, you must make the necessary modifications to duplicate the current form. Use extra care when filling out monitoring forms; make sure that all information is included and that data transferred from the laboratory reports is recorded accurately in the spaces provided and in the correct concentration units. A GW-59 form must be submitted for each permit required well even if the well is dry during any monitoring period, with the "dry" box checked on the current form. The report package must include two (2) sets of data, one original and one copy, consisting of the following:

1) One completed and signed GW-59 form on yellow paper for each well
   (If submitting data for a new well, attach a completed copy of form GW-1, "Well Construction Record")
2) One copy of the laboratory reports
3) One completed and signed "GW-59A Compliance Report Form"

If you have been issued a Non-Discharge permit, and someone else collects your samples and/or reports the data, it is your responsibility to ensure that they have the new forms and information outlined in this memorandum. If you have any questions, please contact Betty Wilcox at (919) 715-6169 or Debra Watts at (919) 715-6699.

Attachments

cc: Environmental Regional Supervisors
Coleen Sullins
Debra Watts
Betty Wilcox
Files

COLLECTION AND ANALYSIS OF GROUNDWATER SAMPLES

1) **Samples should be analyzed as soon as possible after collection by a laboratory certified by the North Carolina Division of Water Quality Laboratory Section.** SAMPLES THAT ARE NOT ANALYZED WITHIN THE HOLDING TIMES SPECIFIED FOR THE METHOD USED (SEE #10 BELOW) MUST BE DISCARDED AND NEW SAMPLES COLLECTED.

2) Sample collectors must have certification for field parameters through the North Carolina Division of Water Quality Laboratory Section, individually or through their companies, if analyzing field parameters required by a permit (example: pH, specific conductance). Determination for specific conductance, pH, temperature, odor, and appearance must be made in the field on unfiltered samples when the sample is collected.

3) Field equipment must be calibrated in accordance with the manufacturers' specifications.

4) **ANALYSES ARE TO BE MADE OF THE MOBILE CONSTITUENTS (COLLOIDAL AS WELL AS DISSOLVED) IN THE GROUNDWATER, NOT THOSE THAT ARE A PART OF SEDIMENT ASSOCIATED WITH WELL CONSTRUCTION OR SAMPLING PROCEDURES. (SEE # 6 AND 8) BELOW FOR REFERENCE TO LOW FLOW RATE PURGING AND SAMPLING WITH A PUMP.) CHECK WITH YOUR LABORATORY ON PROPER PROCEDURES FOR SAMPLE COLLECTION, PRESERVATION, AND SUBMITTAL.**

5) Measure and record the depth of water in the well prior to pumping or bailing any water from the well.

6) Generally purge 3 well volumes of water from the well to ensure stagnant water is removed. At least 1 to 3 volumes of water in the well should be pumped or bailed prior to collecting a sample for analysis. Alternatively, pump or bail until pH, conductivity, and temperature stabilize. Avoid excessive purging to prevent the accelerated movement of water into the well from the surrounding aquifer. Pumping is the preferred method for purging since bailing stirs up sediment in the well and tends to increase turbidity. If the well is pumped/bailed dry once before 3 well volumes are removed, samples can be collected as soon as the well recovers to the point where enough water is available to collect a sample.

7) The sample containers should be labeled at the time of collection with the facility name, well identification number, date and time collected, and other required information.

8) Metals Analyses: Use Standard Method 3030C for sample collection and preparation (mercury excluded). **DO NOT FILTER METALS SAMPLES IN THE FIELD!!!** When sampling from developed wells with high particulate levels, use low flow rate purging and sampling with a pump to improve data quality for groundwater samples. Wells with high turbidity or sediment may be allowed to settle up to 24 hours after purging before samples are collected. Unfiltered samples must be collected for metals, field acidified with 5 milliliters of concentrated nitric acid per liter of sample, maintained at 4° C, and submitted to the lab within 24 hours. Sample preparation in the laboratory (extraction and filtration) must be completed within 72 hours of collection.

9) Total Dissolved Solids (Dissolved Solids, Total): Collect samples unfiltered. For compliance with the Groundwater Quality Standard, samples must be filtered in the lab with standard glass fiber filters as specified in EPA Method 160.1 or Standard Method 2540C.

10) As per title 15A, North Carolina Administrative Code, Subchapter 2L, analytical procedures will be in accordance with the most recent version of methods described in one of the following publications, or by other methods approved beforehand by the Director, Division of Water Quality:

    (a) Standard Methods for the Examination of Water and Wastewater, the most recent version, published jointly by American Public Health Association, American Water Works Association, and Water Pollution Control Federation;

    (b) Methods for Chemical Analysis of Water and Waste, 1979, U.S. Environmental Protection Agency number EPA-600/4-79-020, as revised March 1983;

    (c) Test Methods for Evaluating Solid Wastes: Physical /Chemical Methods, 3rd Edition, 1986, U.S. Environmental Protection Agency publication number SW-846;

    (d) Test Procedures for the Analysis of Pollutants Under the Clean Water Act, Federal Register Vol. 49, No. 209. 40 CFR Part 136, October 26, 1984.

11) An authorized agent is any corporate officer or public official authorized by the company, corporation, or governmental body to sign official documents..