

**15A NCAC 05H .0XX1 BASELINE SAMPLING AND TESTING REQUIREMENTS**

This Section establishes the general and specific requirements for the collection of water supply samples, testing of water supply samples, reporting water supply analytical test data, and air quality source testing where oil and gas drilling, completion, workover or stimulation of wells takes place. The provisions of this Rule shall apply to all new oil and gas wells for which an initial drilling permit is issued on or after the effective date of this Rule and in accordance with § 113-391.

**15A NCAC 05H .0XX2 WATER SUPPLY SAMPLING AND TESTING**

(a) A well operator shall provide written notice to all surface owners or owners of a water supply, as defined in §113-389, within the presumptive liability distance established pursuant to §113-420(a) and 113-421(a). The written notice shall include the following:

- (1) The well operator's intent to perform baseline sampling and testing of water supplies prior to drilling an oil or gas well.
- (2) The well operator may rebut the presumption established pursuant to §113-421(a) if the surface owner or owner of the water supply refuses the well operator or a representative of the well operator access to conduct pre-drilling sampling and testing of a water supply; and
- (3) The name, address, and telephone number of the Department, to which the surface owner or owner of the water supply may respond.

(b) A well operator shall provide written notice to the Department to rebut the presumption outlined in §113-421(a). The written notice must include the following:

- (1) The name, address, and telephone number of the well operator;
- (2) The desire to conduct pre-drilling sampling and testing of the water supply;
- (3) The name of the person or firm who requested and was refused access to conduct the sampling and testing, the date of the request, and a copy of all documentation proving the request for access was denied; and
- (4) The name, address, and telephone number of the surface owner or owner of the water supply.

(c) Any surface owner or owner of a water supply who suspects contamination as a result of the drilling, alteration or operation of an oil or gas well may notify the Department and request that an investigation be conducted.

- (1) The well operator at the request of the Department shall obtain water supply samples and provide the analytical test results to the Department; and
- (2) The Department may require the well operator to replace the water supply or provide an equivalent water supply.

(d) All water supplies located within the presumptive liability distance, established pursuant to §113-421(a), of the proposed oil or gas wellhead shall be sampled and tested prior to commencement of drilling activities.

- (1) Initial water supply sampling and testing shall be conducted no earlier than 12 months but no later than 30 days prior to commencement of drilling activities to establish a baseline;
- (2) Subsequent water supply sampling and testing shall be conducted at all initial sample locations between 6 and 12 months, and between 18 and 24 months after completion of all permitted oil or gas wells at a well pad;
- (3) When multiple oil or gas wells will be permitted and constructed at a well pad, baseline sampling and testing shall be completed prior to drilling the initial oil or gas well. The sampling and testing analytical results conducted for the initial oil or gas well will serve as the baseline for all future oil or gas wells drilled at the well pad.
  - (i) Interim sampling and testing must be completed every two years, in accordance with Paragraph (g) of this Rule, if all oil or gas well construction is not completed within 4 years of the installation of the initial oil or gas well;
- (4) The Commission incorporates by reference, including subsequent amendments and editions, "U.S. Environmental Protection Agency (EPA), Operating Procedure for Groundwater Sampling, document number SESDPROC-301-R3" published by the U.S. EPA. This document may be obtained online at no charge at <http://www.epa.gov/region4/sesd/fbqstp/Groundwater-Sampling.pdf> or by mail at U.S. EPA, Region 4, Sam Nunn Atlanta Federal Center, 61 Forsyth Street SW, Atlanta, GA 30303. The Commission incorporates by reference, including subsequent amendments and editions, "U.S. EPA Region IV SESD Operating Procedure for Surface Water Sampling, document number SESDPROC-201-R3" published by the U.S. EPA. This document may be obtained online at no charge at <http://www.epa.gov/region4/sesd/fbqstp/Surfacewater-Sampling.pdf> or by mail at U.S. EPA, Region 4, Sam Nunn Atlanta Federal Center, 61 Forsyth Street SW, Atlanta, GA 30303. Water supply sampling shall be conducted in accordance with the U.S. EPA Region IV SESD "Operating Procedure for Groundwater Sampling," document number SESDPROC-301-R3 and "Operating Procedure for Surface Water Sampling," document number SESDPROC-201-R3.
- (5) If a well operator drills an oil or gas well, but does not install production casing and has abandoned the well in accordance with the plugging and abandonment requirements outlined in 15A NCAC 05H .0XX17; subsequent testing pursuant to Paragraph (g) of this Rule is not required; and
- (6) The Department may require additional sampling and testing if the most recent analytical results show an increase in concentration from the previous analytical results for any

water supply within the presumptive liability distance established pursuant to §113-421(a).

(e) A well operator electing to preserve a defense pursuant to §113-423(f) shall retain a laboratory, certified by the state, to analyze all initial and subsequent water supply samples. Laboratory certification shall be in accordance with 15A NCAC 2H .0800 and laboratory analytical procedures shall be pursuant to 15A NCAC 02L .0112 and 15A NCAC 02B .0103.

(f) The initial baseline sampling and testing shall include pH, specific conductance, total dissolved solids (TDS), turbidity, alkalinity, calcium, chloride, magnesium, potassium, fluoride, sodium, sulfate, arsenic, barium, boron, bromide, chromium, iron, manganese, selenium, strontium, lithium, lead, zinc, uranium, isotopic radium ( $^{226}\text{Ra}$  and  $^{228}\text{Ra}$ ), isotopic strontium ( $^{87}\text{Sr}$  and  $^{86}\text{Sr}$ ), trihalomethanes, benzene, toluene, ethyl benzene, xylenes (BTEX), diesel range organics (DRO), gasoline range organics (GRO), total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAH) (including benzo(a)pyrene), and dissolved methane.

(g) The first series of subsequent sampling and testing shall include all parameters listed in paragraph (f) of this section.

(h) If the results from the first series of subsequent sampling and testing, listed in paragraph (f) of this section, did not exceed the permissible concentrations outlined in 15A NCAC 02L .0202 and 15A NCAC 02B .0200 then the well operator may sample and test for pH, specific conductance, TDS, chloride, divalent cations, and dissolved methane to complete the second series of subsequent sampling and testing.

(i) If there is an increase in the concentration or the occurrence of any constituents listed in Paragraph (h) the well operator shall sample and test for all constituents outlined in Paragraph (g) of this Rule.

(j) If a concentration of dissolved methane is found to be greater than 1.0 milligram per liter (mg/l) in a water supply sample, then a well operator shall direct a certified laboratory to conduct a gas compositional analysis and stable isotope analysis of the methane (carbon and hydrogen –  $^{12}\text{C}$ ,  $^{13}\text{C}$ ,  $^1\text{H}$  and  $^2\text{H}$ ) to determine the gas type.

(k) If the well operator uses a technology that the Department has approved as effective in tracing hydraulic fracturing fluid back to the oil or gas well where the fluid was injected, testing for the tracer may substitute for the subsequent testing required under paragraphs (g) and (h) except that the subsequent testing shall also include testing for methane. If the subsequent testing detects the presence of the tracer substance in the water supply, the well operator shall conduct tests for all of the parameters listed in paragraph (f) of this section and shall carry out subsequent testing as provided in paragraphs (h) and (i). Tracer technology may be approved only if the technology is effective in tracing hydraulic fracturing fluid back to the well where the fluid was injected and can be used without chemical or radiological impacts to groundwater supplies or other adverse impacts to human health or the environment

#### **15A NCAC 05H .0XX3 AIR QUALITY TESTING**

(a) All well operators conducting oil and gas exploration, drilling, completion, workover or stimulation of a well shall conduct source testing in accordance with 15A NCAC 02D .2600 if required in a permit issued

under 15A NCAC 02Q or as requested by the Director of the Division of Air Quality to determine the compliance status of the source.

#### **15A NCAC 05H .0XX4 REPORTING OF TEST RESULTS**

(a) A well operator electing to preserve its defenses pursuant to §113-423(f) shall provide a written copy of all analytical test results to the Department, local health department, surface owners, and owners of water supplies within 30 business days of receipt of the results. The report describing the results of the water supply sampling and testing must be sealed by either a Licensed Geologist or Professional Engineer and contain the following information:

- (1) The surveyed location of the water supply, name, address, and telephone number of the surface owner or owner of the water supply.
- (2) The date of the test, the name of the certified laboratory, and the name of the person who conducted the analytical testing.
- (3) A description of where and how the sample was collected and the name of the person who collected the sample.
- (4) Field observations to include odor, water color, sediment, bubbles, & effervescence.
- (5) A description of the type and age, if known, of the water supply, and treatment, if any.
- (6) The name of the well operator, name and number of the oil or gas well, and API number of the oil or gas well.
- (7) A complete packet of all laboratory analytical test results, to include one paper copy and one electronic copy in PDF format.
- (8) Specific notation showing analytical test results where chemical or biological contaminants are detected above the Maximum Contaminant Levels (MCLs) for public drinking water, as defined in 15A NCAC 18C.

(f) All well operators shall keep records of air pollution emissions and reports covering their discharge into the outdoor atmosphere of the state pursuant to 15A NCAC 02D .0600. All well operators shall report source testing results in accordance with 15A NCAC 02D .2600 if required in a permit issued under 15A NCAC 02Q or as requested by the Director of the Division of Air Quality to determine the compliance status of the source.

#### **15A NCAC 05H .0XX5 RECORD KEEPING AND REPORTING**

(a) The Department shall maintain baseline and subsequent water supply analytical test results and reports, which will be available to the public through the Depar