

15A NCAC 02C .0110 WELL TESTS FOR YIELD

(a) Every domestic well shall be tested for capacity by one of the following methods:

- (1) Pump Method
 - (A) select a permanent measuring point, such as the top of the casing;
 - (B) measure and record the static water level below or above the measuring point prior to starting the pump;
 - (C) measure and record the discharge rate at intervals of 10 minutes or less;
 - (D) measure and record water levels using a steel or electric tape at intervals of 10 minutes or less;
 - (E) continue the test for a period of at least one hour; and
 - (F) make measurements within an accuracy of plus or minus one inch.
- (2) Bailer Method
 - (A) select a permanent measuring point, such as the top of the casing;
 - (B) measure and record the static water level below or above the measuring point prior to starting the bailing procedure;
 - (C) bail the water out of the well for a period of one hour or longer;
 - (D) determine and record the bailing rate in gallons per minute at the end of the bailing period; and
 - (E) measure and record the water level after stopping bailing process.
- (3) Air Rotary Drill Method
 - (A) measure and record the amount of water being injected into the well during drilling operations;
 - (B) measure and record the discharge rate in gallons per minute at intervals of one hour or less during drilling operations;
 - (C) after completion of the drilling, continue to blow the water out of the well for 30 minutes or longer and measure and record the discharge rate in gallons per minute at intervals of 10 minutes or less during the period; and
 - (D) measure and record the water level after discharge ceases.
- (4) Air Lift Method. Measurements shall be made through a pipe placed in the well. The pipe shall have an inside diameter of at least five-tenths of an inch or greater and shall extend from top of the well head to a point inside the well that is below the bottom of the air line.
 - (A) Measure and record the static water level prior to starting the air compressor;
 - (B) Measure and record the discharge rate at intervals of 10 minutes or less;
 - (C) Measure and record the pumping level using a steel or electric tape at intervals of 10 minutes or less; and
 - (D) Continue the test for a period of one hour or longer.

(b) Public, Industrial, and Irrigation Wells. Every industrial or irrigation well and, if required by rule adopted by the Commission for Public Health, every well serving a public water supply system upon completion shall be tested for capacity by the following or equivalent method:

- (1) The water level in the well to be pumped and in all observation wells shall be measured and recorded prior to starting the test.
- (2) The well shall be tested by a pump of sufficient size and lift capacity to test the yield of the well, consistent with the well diameter and purpose.
- (3) The pump shall be equipped with throttling devices to reduce the discharge rate to approximately 25 percent of the maximum capacity of the pump.
- (4) The test shall be conducted for a period of 24 hours or longer without interruption and, except for wells constructed in Coastal Plain aquifers, shall be continued for a period of four hours or longer after the pumping water level stabilizes.
- (5) The pump discharge shall be set at a constant rate or rates that can be maintained throughout the testing period. If the well is tested at two or more pumping rates (a step-drawdown test), pumping at each pumping rate shall continue to the point that the pumping water level declines no more than 0.1 feet per hour for a period of four hours or more for each pumping rate, except for wells constructed to Coastal Plain aquifers. In wells constructed in Coastal Plain aquifers, pumping at each pumping rate shall continue for four hours or longer.

- (6) The pump discharge rate shall be measured by an orifice meter, flowmeter, weir, or equivalent metering device. The metering device used shall have a calibration accuracy within plus or minus five percent of a known standard.
- (7) The discharge rate of the pump and time shall be measured and recorded at intervals of 10 minutes or less during the first two hours of the pumping period for each pumping rate. If the pumping rate is constant after the first two hours of pumping, discharge measurements and recording may be made at longer time intervals not to exceed one hour.
- (8) The water level in each well and time shall be measured and recorded at intervals of five minutes or less during the first hour of pumping and at intervals of 10 minutes or less during the second hour of pumping. After the second hour of pumping, the water level in each well shall be measured at such intervals that the lowering of the pumping water level does not exceed three inches between measurements.
- (9) A reference point for water level measurements shall be selected and recorded for the pumping well and each observation well to be measured during the test. All water level measurements shall be made from the selected reference points, which shall be permanently marked.
- (10) All water level measurements shall be made with a steel or electric tape or equivalent measuring device.
- (11) All water level measurements shall be made within an accuracy of plus or minus one inch or to 0.1 foot.
- (12) After the completion of the pumping period, measurements of the water level recovery rate in the pumped well shall be made in the same manner as the drawdown for a period of two hours or greater.

*History Note: Authority G.S. 87-87; 87-88;
Eff. February 1, 1976;
Amended Eff. September 1, 2009, April 1, 2001; December 1, 1992; September 1, 1984; April 20, 1978;
Readopted Eff. September 1, 2019.*