

15A NCAC 05H .1605 CASING AND EQUIPMENT REQUIREMENTS

(a) All casing and tubing installed in oil or gas wells shall be steel, steel alloy, or other material that has been manufactured to meet or exceed the American Petroleum Institute (API) standards. All casing and tubing material shall be manufactured according to API standards; all previously used casing shall comply with design parameters for the oil or gas well, pass a hydrostatic test, a drift test, and a wall thickness test pursuant to API Specification 5CT "Specification for Casing and Tubing," and API Specification 5B "Specification for Threading, Gauging, and Thread Inspection of Casing, Tubing, and Line Pipe Threads," which are incorporated by reference, including subsequent amendments and editions. These documents may be viewed online for no charge at <http://publications.api.org/>. The casing shall be marked to verify the test results and the permittee shall provide a copy of the test results to the Department before the casing is installed in the wellbore.

- (1) Casing shall be designed to have a minimum internal yield pressure rating that is 20 percent greater than the maximum anticipated pressure to which the casing may be subjected during drilling, completion, or production operations.
- (2) Where subsurface reservoir pressure is unknown and cannot be reasonably anticipated by the applicant or permittee, the permittee shall assume a pressure gradient of 0.433 pounds per square inch (psi) per foot in a fully evacuated hole, under shut-in conditions.
- (3) All casing and tubing connections shall be torqued to the manufacturer's specifications and shall comply with API Recommended Practice 5A3 "Recommended Practice on Thread Compounds for Casing, Tubing, Line Pipe, and Drill Stem Elements," and API Recommended Practice 5C5 "Recommended Practice on Procedures for Testing Casing and Tubing Connections," which are incorporated by reference, including subsequent amendments and editions. These documents may be viewed online for no charge at <http://publications.api.org/>.

(b) The permittee shall verify casing integrity by pressure testing each cemented casing string greater than 200 feet in length in accordance with the following test method:

- (1) test the casing string, prior to drilling the cement plug or stimulating the oil or gas well, at a minimum pump pressure in psi, that is calculated by multiplying the length of the casing string, in feet, by 0.2. The pressure test shall not exceed 1,500 psi;
- (2) this pressure test shall be conducted for 30 minutes; and
- (3) if the pressure has dropped by more than 10 percent, then the casing string has failed to meet the integrity requirements. The permittee shall not drill the cement plug or stimulate the oil or gas well until the condition has been corrected; or
- (4) if the pressure has dropped by no more than 10 percent, then the casing string has met the integrity requirements. The casing string has met the integrity requirements if the pressure has dropped by no more than 10 percent of testing pressure.

(c) The wiper plug and float collar assembly shall be set with a minimum cement displacement pressure of 500 psi.

(d) All casing shall be centralized to allow the cement to fill the annular space to the surface in order to isolate critical zones including: aquifers, flow zones, voids, lost circulation zones, coal layers, and hydrocarbon production zones. Casing strings shall comply with API Recommended Practice 10D-2 "Recommended Practice for Centralizer Placement and Stop Collar Testing," which is incorporated by reference, including subsequent amendments and editions. This document may be viewed online for no charge at <http://publications.api.org/>.

- (1) All bow-spring centralizers shall comply with API Specification 10D "Specification for Bow-Spring Casing Centralizers," which is incorporated by reference, including subsequent amendments and editions. This document may be viewed online for no charge at <http://publications.api.org/>.
- (2) All rigid centralizers shall comply with API Technical Report 10TR4 "Considerations Regarding Selection of Centralizers for Primary Cementing Operations," which is incorporated by reference, including subsequent amendments and editions. This document may be viewed online for no charge at <http://publications.api.org/>.

(e) All packers and bridge plugs shall comply with API Specification 11D1 "Packers and Bridge Plugs," which is incorporated by reference, including subsequent amendments and editions. This document may be viewed online for no charge at <http://publications.api.org/>.

*History Note: Authority G.S. 113-391(a)(5)c;
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