

**RULES
OF THE
OIL AND GAS PROGRAM
DIVISION OF WATER RESOURCES**

**CHAPTER 0400-52-07
CASING PROGRAM**

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0400-52-07-.01 CASING REQUIREMENTS.

- (1) Surface Casing
 - (a) The operator shall set surface casing at 100 feet below the lowest known fresh water aquifer. The Supervisor shall have the authority to require distances of less than 100 feet upon specific request from the operator if adequate technical justification can be made. The operator shall use casing that has an external collapse pressure rating great enough to handle the hydrostatic pressure of a class A cement from the casing shoe to surface and internal pressure rating to handle any anticipated down hole pressures. The operator shall use cement with a minimum 500 psi compressive strength and will allow a minimum of 8 hour wait, or until the cement has adequately set, prior to drilling the shoe out. Surface casing shall be used to protect fresh water aquifers. No casing shoe shall be drilled until a cement seal has been brought back to the surface and secured between the surface casing and the well bore, preventing any ground water contamination.
 - (b) In non-Cumberland Plateau wells in areas of known lower pressures, the operator shall set all surface casing 100 feet below the fresh water. The Supervisor shall have the authority to require distances less than 100 feet upon specific request from the operator if adequate technical justification can be made. The operator shall use casing with an external collapse pressure rating great enough to handle the hydrostatic pressure of a class A cement from the casing shoe to surface. A Float shoe or Baffle or Guide shoe with Wiper Plug along with annular cement volume plus 35% excess shall be required on all surface casing cement jobs. Cement shall have a minimum 500 psi compressive strength and have a minimum 8 hour wait, or longer if needed to ensure that cement has adequately set, prior to drilling the shoe out. No casing shoe shall be drilled until a cement seal has been brought back to the surface and secured between the surface casing and the well bore, preventing any ground water contamination. The operator shall present all cement and casing designs on a specifications sheet with permit application for approval.
- (2) If intermediate casing is used, the operator shall set an intermediate string of casing prior to drilling into any known oil and gas producing zone. Casing shall have a minimum internal pressure rating of 110% of maximum formation pressure reasonably expected based on the depth and location of the well. The operator shall cement the intermediate casing at a minimum of 100 feet into the surface casing. Casing string shall be deep enough to prevent underground blowout from anticipated bottomhole pressures. Casing shall have an external collapse pressure rating to handle cement design from casing shoe to surface. The operator shall use cement with 500 psi compressive strength and have a minimum 8 hour wait, or until cement has adequately set, prior to drilling the shoe out.

(Rule 0400-52-07-.01, continued)

- (3) The operator shall present all cement and casing designs on a specifications sheet with permit application for approval. A copy of cement tickets shall be kept on location to be viewed by the inspector until the drill rig is removed. In unknown or over pressured conditions a 5000 psi rating on casing shall apply. The operator shall attach a copy of all cement tickets to the well history tickets and shall include all volumes and pressures of job from start to finish. To ensure adequate annular space for cementing, the annular space outside the casing shall be at least as large as follows for the applicable casing size:

Up to 7" Outside Diameter (O.D.) Casing O.D. + 1 1/2"

More than 7" and less than 10 3/4" O.D. Casing O.D. + 2"

More than 10 3/4 "O.D. Casing O.D + 3"

- (4) Any wells on the Cumberland Plateau drilled to depths above the Chattanooga Shale may be eligible for variances on the casing requirements in this rule by making a specific request to the Supervisor.

Authority: T.C.A §§ 60-1-201 et seq., and 4-5-201 et seq. **Administrative History:** Original rule filed March 20, 2013; effective June 18, 2013.

0400-52-07-.02 CONDUCTOR PIPE.

Conductor pipe or conductor casing shall be used for the purpose of supporting unconsolidated surface deposits. The use and removal of less than 40 feet of conductor pipe during the drilling of any oil or gas well shall be at the option of the operator. If such conductor pipe is to be pulled it shall be pulled prior to the cementing of the surface casing. All conductor casing shall have a cement seal at the surface preventing the possibility of any groundwater contamination and shall remain in the well if not pulled prior to the surface casing cement job. If more than 40 feet of conductor pipe was installed, the conductor pipe may not be pulled.

Authority: T.C.A §§ 60-1-201 et seq., and 4-5-201 et seq. **Administrative History:** Original rule filed March 20, 2013; effective June 18, 2013.

0400-52-07-.03 SURFACE CASING.

- (1) The operator shall submit a proposed casing program for approval by the Supervisor, on Application for Permit to Drill (Form CN-0211). If the Supervisor deems the casing program inadequate to protect fresh water zones and potential minable coal and other minerals, etc., he shall prescribe the casing program with which the operator shall comply. Unless an exception is granted by the Supervisor, suitable and sufficient surface casing shall be run and cemented to a depth not less than 100 feet below all fresh water strata encountered in the well and in a manner that shall protect such fresh water from contamination resulting from drilling operations. The Supervisor shall have the authority to require distances of less than 100 feet upon specific request from the operator if adequate technical justification can be made. The cement shall fill the annular space behind the surface casing from the base thereof to the surface of the ground. If cement returns are not received to the surface, then the annulus shall be cemented from the top.
- (2) The Supervisor or his representative shall be given notice of cementing of surface casing at least 12 hours prior to conducting such operation. The Supervisor or his representative may witness the cementing operation. Form CN-0221 shall be accompanied by a copy of the drilling contractor's or service company's ticket for the work performed.

(Rule 0400-52-07-.03, continued)

- (3) The operator shall run a cement basket on the surface casing one joint below the conductor pipe, or between the first and second joints if no conductor pipe is utilized, or as directed by the Supervisor. The operator shall utilize a centralizer in order to center the casing in the well bore and ensure it will be completely surrounded or encased by cement and achieve the required isolation.

Authority: T.C.A §§ 60-1-201 et seq., and 4-5-201 et seq. **Administrative History:** Original rule filed March 20, 2013; effective June 18, 2013.

0400-52-07-.04 PRODUCTION CASING.

The production, oil, or flow string, is that casing used for the purpose of segregating the zone from which production is obtained and affording a means of communication between such zone and the surface. If production casing is used in a vertical well, the operator shall cement the production casing at a minimum of 100 feet into the intermediate casing and extend the cementing across the producing formation, unless the casing is set on a packer or set and cemented above the production zone. Alternative casing and cementing designs may be approved by the Supervisor upon request if adequate technical justification can be made. Casing shall have an external collapse pressure rating to handle cement design from total depth to surface. The operator shall use cement with 500 psi compressive strength and have a minimum 8 hour wait, or until cement has adequately set. The operator shall present all cement and casing designs on a specifications sheet with Permit Application for approval. A copy of cement tickets shall be kept on location to be viewed by the inspector until the drill rig is removed. In unknown or over pressured conditions a 5000 psi rating on casing shall apply. The operator shall attach a copy of all cement tickets to the well history tickets and shall include all volumes and pressures of job from start to finish. A description of the work done under this rule shall be reported to the Supervisor on Well History, Work Summary, and Completion or Recompletion Report (Form CN-0221) within 60 days after completion.

Authority: T.C.A §§ 60-1-201 et seq., and 4-5-201 et seq. **Administrative History:** Original rule filed March 20, 2013; effective June 18, 2013.

0400-52-07-.05 ISOLATION OF OIL, GAS AND FRESH-WATER-BEARING STRATA, AND POTENTIAL MINABLE COAL AND OTHER MINERAL DEPOSITS.

Notwithstanding compliance with the foregoing requirements, all potential minable coal and other minerals shall be isolated from any possible communication through the annulus with oil-, gas- or water-bearing strata or deposits of other potential minable coal or other minable minerals. Pressure testing of casing as specified in Rule 0400-52-06-.02 and documentation of cementing as required in Rule 0400-52-07-.01 shall constitute the minimum requirements for maintaining isolation through well integrity. In order to ascertain whether cementing has been effectively performed, the operator may elect to either run a cement bond log, or block squeeze each stratum or zone which is required to be isolated. If the cement bond log indicates a minimum of 25 feet of cement bond above the top and 25 feet of bond below the base of each stratum or zone to be isolated, then the provision of this rule shall have been complied with. If such bonding is not shown by the bond log, the Supervisor may require the operator to perform the necessary work to assure the isolation of such above described strata zones.

Authority: T.C.A §§ 60-1-201 et seq., and 4-5-201 et seq. **Administrative History:** Original rule filed March 20, 2013; effective June 18, 2013.