RULES
OF THE
OIL AND GAS PROGRAM
DIVISION OF WATER RESOURCES

CHAPTER 0400-52-06
DRILLING WELLS

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0400-52-06-.01 DRILLING EQUIPMENT.

All drilling equipment shall be designed, constructed, and operated in such a manner so as to prevent accidents and insure safe operating practices. It is recommended that each operator require the drilling contractor to comply with the general rules and safety procedures of the industry.

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.*

0400-52-06-.02 BLOWOUT PREVENTION.

(1) The operator shall equip and operate all wells in such a manner as to prevent the uncontrolled emission of oil, gas, and water from the well.

(2) The operator shall equip all wells, other than those specified in paragraph (3) of this rule, with a minimum of the equipment specified in this paragraph:

(a) The operator shall install a blowout prevention system with 2 separate units capable of closing with the drill pipe in the hole or other equivalent control system as approved by the Supervisor or his representative. A minimum of 1500 psi working pressure or 110% of maximum surface pressure that would be reasonably expected based on the depth and location of the well is required, whichever is greater. In unknown or expected higher pressures a minimum of 5000 psi working pressure shall be required.

1. The blowout preventers shall be installed above ground level if possible but if a cellar is dug, the equipment shall be accessible during drilling operations. The entire control equipment shall be in good working condition at all times. All outlets, fittings, and connections on the casing, blowout preventers, choke manifold, and auxiliary wellhead equipment that may be subjected to wellhead pressure shall be of a material and construction that shall withstand the anticipated pressure and shall be resistant to fire. The lines from outlets on or below the blowout preventers shall be securely installed, anchored, and protected from damage.

2. Blowout preventers, accumulators, and pumps shall be used in accordance with the product manufacturer's rating and operational specifications. The operator is responsible for seeing that the blowout prevention equipment is in proper working order. This includes the proper operation of the closing unit valving, proper operation of the pressure gauges, and the presence of the manufacturer's recommended accumulator fluids. A combination of any 2 of the following secondary closing systems is acceptable:

(i) Intrinsically safe electric-operated pump;

(Rule 0400-52-06-.02, continued)

(ii) Air-operated pump;

(iii) Hand-operated pump; and

(iv) Nitrogen-operated pump.

Blowout preventer rams shall be of a proper size for the drill pipe being used or production casing being run in the well or shall be variable-type rams that are of the proper size range. Blowout prevention shall be installed before passing through any known production or high pressure zone in the well boring path.

3. Blowout prevention equipment and intermediate casing shall be tested to a pressure of 1,500 psi at surface for not less than 30 minutes. This shall be done prior to drilling the plug on the intermediate casing or at other intervals as approved or requested by the Supervisor. If, at the end of 30 minutes, the pressure shows a drop of 10% or more from the original test pressure, the casing shall be condemned until the leak is corrected. A pressure test demonstrating less than a 10% pressure drop after 30 minutes is proof that the condition has been corrected. A record of each test, including test pressures, times, failures, and each mechanical test of the casings, blowout preventers, surface connections, surface fittings, and auxiliary wellhead equipment shall be entered in the logbook, signed by the driller, and kept available for inspection by the Supervisor or his representative.

4. With the understanding that all permitting procedures have been followed, a well may be deepened to 200' below the bottom of the Chattanooga Shale without initiating other than the usual well control procedures. The casing shall withstand at least 1,500 psi with no more than 10% loss of pressure in 30 minutes.

(b) Accessible controls located both in the rig and at a safe remote location of at least 50 feet from wellhead.

(c) An annular choke valve.

(d) A drill pipe or power head valve capable of pump truck connection.

(e) A flow line or blooey line of the proper size and working pressure shall be installed in the most direct route practicable to pit and shall be anchored securely. The use of closed loop systems or mud tanks is acceptable.

(3) For non-Cumberland Plateau wells in areas of known lower pressures, the operator shall equip all wells with a minimum of the following equipment:

(a) An annular-type blowout preventer or other equivalent control system as approved by the Supervisor or his representative;

(b) Accessible controls located both on the rig floor and at a safe remote location at least 50 feet from wellhead;

(c) An Annular choke valve;

(d) A drill pipe or power head valve capable of pump truck connection;

(e) A flow line of the proper size and working pressure; and

(Rule 0400-52-06-.02, continued)

(f) Blowout prevention equipment that has a rated minimum working pressure of 1500 psi.

1. The blowout preventers shall be installed above ground level if possible but if a cellar is dug, the equipment shall be accessible during drilling operations. The entire control equipment shall be in good working condition at all times. All outlets, fittings, and connections on the casing, blowout preventers, choke manifold, and auxiliary wellhead equipment that may be subjected to wellhead pressure shall be of a material and construction that shall withstand the anticipated pressure and shall be resistant to fire. The lines from outlets on or below the blowout preventers shall be securely installed, anchored, and protected from damage.

2. Blowout preventers, accumulators, and pumps shall be used in accordance with the product manufacturer's rating and operational specifications. The operator is responsible for seeing that the blowout prevention equipment is in proper working order. This includes the proper operation of the closing unit valving, proper operation of the pressure gauges, and the presence of the manufacturer's recommended accumulator fluids. Any of the following closing systems is acceptable:

   (i) Intrinsically safe electric-operated pump;

   (ii) Air-operated pump;

   (iii) Hand-operated pump; and

   (iv) Nitrogen-operated pump.

   Blowout preventers shall be of a proper size for the drill pipe being used or production casing being run.

3. Blowout prevention equipment and surface casing shall be tested to a pressure of 400 psi at surface for not less than 30 minutes before drilling the plug on the surface casing and at other intervals as approved or requested by the Supervisor. If at the end of 30 minutes the pressure shows a drop of 10% or more from the original test pressure, the casing shall be condemned until the leak is corrected. A pressure test demonstrating less than a 10% pressure drop after 30 minutes is proof that the condition has been corrected. A record of each test, including test pressures, times, failures, and each mechanical test of the casings, blowout preventers, surface connections, surface fittings, and auxiliary wellhead equipment shall be entered in the logbook, signed by the driller, and kept available for inspection by the Supervisor or his representative. If the casing is to be tested at the time of surface casing, cementing 150 psi for a period of ten minutes may be used. The annulus shall be filled with fluid and the plug shall have been landed prior to the test beginning. If a drop of over 10% or more from the original test pressure is found the casing shall be condemned until the leak is corrected. The previous criteria concerning recording of the test shall be followed.

4. The casing shall withstand at least 400 psi with no more than 10% loss of pressure in 30 minutes.

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.*

0400-52-06-.03 CASINGHEADS.

All wells shall be equipped with casingheads with a test pressure in conformance with conditions to be anticipated in wells in which they are used. Casinghead bodies shall be equipped with proper connections and valves accessible to the surface as soon as installed. Reconditioning shall be required on any well leaking gas or oil.

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.*

0400-52-06-.04 ENVIRONMENTAL PROTECTION.

(1) Oil and gas wells shall be drilled and operated in a manner that protects aquifers and surface waters. Wells shall be designed to ensure the environmentally sound, safe production of hydrocarbons by containing them inside the well, isolating the productive formations from fresh water formations, and properly executing fracturing and other stimulation operations. Well design and construction must ensure that no leaks occur through or between casing strings. The fluids produced from the well (oil, water, gas) must travel directly from the producing zone to the surface inside the well conduit.

(2) All oil and gas operations shall be conducted in a manner that shall prevent or mitigate adverse environmental impacts such as soil erosion and water pollution. All areas disturbed by the operations, including access roads, shall be reclaimed as prescribed in Rule 0400-52-09-.05. Access roads shall be constructed in such a manner as to reduce erosion to a practical minimum. Sediment ponds, berms, diversion ditches, hay bales, and other measures designed to prevent erosion and discharge from well sites shall be taken to prevent or minimize soil erosion and pollution of surface waters. Erosion prevention and sediment controls at all oil and gas operations shall meet or exceed the following:

(a) The erosion prevention controls shall be designed and implemented to minimize the dislodging and suspension of soil in water. Sediment controls shall be designed and implemented to retain mobilized sediment on site.

(b) All control measures shall be properly selected, installed, and maintained in accordance with the manufacturer's specifications (where applicable) and standard engineering practices. All control measures selected shall be able to slow runoff so that rill and gully formation is prevented. When steep slopes and/or fine particle soils are present at the site, additional physical or chemical treatment of storm water runoff may be required. If periodic inspections or other information indicates a control has been used inappropriately, or incorrectly, the operator shall replace or modify the control for relevant site situations.

(c) If sediment escapes the drilling, production, and/or roadway areas, off-site accumulations of sediment that have not reached a stream shall be removed at a frequency sufficient to minimize offsite impacts. Fugitive sediment that has escaped the drill area and has collected in a drainage ditches or roadways shall be removed so that it is not subsequently washed into culverts and streams by the next rain and/or so that it does not pose a safety hazard. Permittees shall not initiate remediation/restoration of a stream without consulting the Department first.

(d) Sediment shall be removed from sediment traps, silt fences, sedimentation ponds, and other sediment controls as necessary.

(Rule 0400-52-06-.04, continued)

(e) Upon attainment of stability, materials used for erosion prevention and sediment control should be removed or otherwise prevented from becoming a pollutant source for storm water discharges.

(f) Pre-construction vegetative ground cover shall not be destroyed, removed or disturbed more than 30 days prior to grading or earth moving unless the area is seeded and/or mulched or other temporary cover is installed.

(g) Clearing and grubbing shall be held to the minimum necessary for drilling and/or production activities.

(h) Construction shall be sequenced to minimize the exposure time of graded or denuded areas.

(i) Erosion prevention and sediment control measures shall be in place and functional before drilling activities begin, and shall be properly maintained throughout the drilling and production phase.

(j) Permanent stabilization with perennial vegetation (using native herbaceous and woody plants where practicable) or other permanently stable, non-eroding surface shall replace any temporary measures as soon as practicable.

(3) The operator shall notify the oil and gas inspector at least 24 hours prior to beginning fracturing or acid treatment activities. The operator shall maintain personnel on-site during fracturing activities, and during the initial flow back period, until such time as the well pressure returns to near pre-fracturing reservoir pressure. Unmanned flowback operations shall be checked routinely.

(4) For fracturing treatments using more than 200,000 gallons of water-based liquids, the operator shall conduct pressure monitoring during the fracturing treatment to monitor for a successful treatment and for protection of the groundwater. Annulus pressure shall be continuously monitored and recorded for all such fracturing treatments. If intermediate casing has been set, the pressure in the annulus between the intermediate casing and the production casing shall also be monitored and recorded. Records of pressure monitoring shall be included as part of the well history reporting requirements.

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.*