

## Casing Policy (2)

All Conductor casing will have a cement seal at the surface preventing the possibility of any ground water contamination and will remain in the well if not pulled prior to the Surface casing cement job.

All Surface casing will be set 50 feet below the fresh water and use class A cement only, Casing will have an external collapse pressure rating great enough to handle the hydrostatic pressure of a class A cement from the casing shoe to surface. Float shoe or Baffle or Guide shoe with Wiper Plug along with annular cement volume plus 35% excess will be required on all surface casing cement jobs. Cement must have a minimum 500 psi compressive strength and have a minimum 8 hour wait prior to drilling the shoe out. No casing shoe shall be drilled until a cement seal has been secured between the Surface casing and the well bore (Annular fill up with cement on cement basket installed on surface casing below conductor pipe) preventing any ground water contamination. When Gel or water circulates back to surface but no cement returns are received then a 25 foot trimming pipe must be used and cement must be brought back to surface.

All cement and casing designs will be presented on a specifications sheet with Permit Application for approval. Copy of Cement tickets will be kept on location to be viewed by inspector until drill rig is removed. In unknown or over pressured conditions a 5000 psi rating on casing will apply.

A copy of all cement tickets will be attached to the well history, tickets should include all volumes and pressures of job from start to finish.

To insure adequate annular space for cementing the following chart should be followed.

Casing Size	Minimum Hole Size
Up to 7" Outside Diameter	Casing O.D. + 1 ½"
More than 7" O.D.	Casing O.D. + 2"
More than 10 ¾ " O.D.	Casing O.D. + 3"

## Blowout Prevention (2)

A annular-type blowout preventer or other equivalent control system as approved by the supervisor or authorized representative of the supervisor.

(b) Accessible controls 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 Air head valve capable of pump truck Connection

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

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

(2) The blowout preventers shall be installed above ground level. No cellar shall be deeper than 4 feet. 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 will withstand the anticipated pressure. Must be fireproof. The lines from

outlets on or below the blowout preventers shall be securely installed, anchored, and protected from damage.

(3) Blowout preventers and pumps shall be certified as operable under the product manufacturer's minimum operational specifications. Certification shall include the proper operation of the closing unit valving, the pressure gauges, and the manufacturer's recommended accumulator fluids. Certification shall be obtained through an independent company that tests blowout preventers, stacks, and casings. Certification shall be required annually and shall be posted on the rig floor. In addition to the primary closing system, the blowout preventers shall have a secondary system. A combination of any 2 of the following secondary closing systems is acceptable:

- (a) Electric-operated pump.
- (b) Air-operated pump.
- (c) Hand-operated pump.
- (d) Nitrogen-operated pump.

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

(4) Blowout prevention equipment and Surface casing shall be tested to a pressure of 500 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 authorized representative of the supervisor. The Site Coordinator must be present for the pressure test.

(5) No pre existing well may be deepened without a (MIT) mechanical integrity test of 500 psi with no more than 10% loss of pressure in 30 minutes, must be witnessed by inspector.