

11" 3M BOP stack to be installed on the 8 5/8" casing. The BOP stack will consist of one blind ram BOP, one pipe ram BOP, and a rotating head. Tested to 3000 psi before drilling the 8 5/8" casing shoe.

4. The proposed casing program including size, grade, weights, type of thread and coupling, and the setting depth of each string and its condition (new or acceptably reconditioned). For exploratory wells, or for wells as otherwise specified by the authorized officer, the operator shall include the minimum design factors for tensions, burst, and collapse that are incorporated into the casing design. In cases where tapered casing strings are utilized, the operator shall also include and/or setting depths of each portion.
  - 17½" hole, 13 3/8" H-40 48# STC csg set @ 850'.
  - 12¼" hole, 3200' 8 5/8" 28# K-55 BTC, 1400' 8 5/8" 32# K-55 LTC csg.set depth @4600'.
  - 7 7/8" hole, 5 1/2" K-55 17# ltc csg @ 9000'.
5. The amount and type(s) of cement, including anticipated additives to be used in setting each casing string, shall be described. If stage cementing techniques are to be employed, the setting depth of the stage collars and amount and type of cement, including additives, and preflush amounts to be used in each stage, shall be given. The expected linear fill-up of each cemented string, or each stage when utilizing stage-cementing techniques, shall also be given.
  - a. 13 3/8" csg: Cmt w/600sxs. Class "C" + 4% gel & 2% CaCl<sub>2</sub>.+ ¼ pps Flocele; tail w/ 200 sxs Class "C" +2% CaCl<sub>2</sub>. Circ. to surface.
  - b. 8 5/8"csg:Stage 1: Lead w/400 sxs Class 'C' Lite + 9 pps salt + 5 pps gilsonite + 1 pps econolite + 1/4 pps flocele, tail w/250 sxs Class 'C' + 2% CaCl<sub>2</sub>. Second Stage: Lead w/750 sxs Class 'C' Lite + 9 pps salt + 1/4 pps flocele, tail w/200 sxs Class 'C' + 2% CaCl<sub>2</sub>. DV Tool @ 2500'. Circ to surface.
  - c. 5½" csg: Cmt. w/ 1st Stage: 600 sx Class 'H' 50/50 POZ +2% gel +.5% Halad-9, +3 pps KCL, +¼ pps Flocele displace to seal plug. Second Stage: Lead w/700 sxs Class 'H' Lite + .6% Halad-9, Tail w/100 sxs Class 'H'. Bring TOC @ +/-4400'.
6. The anticipated characteristics, additives, use, and testing of drilling mud to be employed, along with the types and quantities of mud products to be maintained, shall be given. When air or gas drilling is proposed, the operator shall submit the following specific information:

**Mud Program:**

0-850' fresh water, gel and lime system, MW 8.6 - 9.0, viscosity 32-34  
850-4600' Brine, MW 10.0 - 10.1, (+ 160,000 cl-), viscosity 27-28  
4600-8800' fresh water, MW 8.4 - 8.5, viscosity 29-30