

PENWELL ENERGY, INC.  
ORE IDA "14" FEDERAL #13  
APPLICATION FOR PERMIT TO DRILL

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9. CASING CEMENTING & SETTING DEPTH:

|         |              |  |
|---------|--------------|--|
| 13 3/8" | Surface      | Set 250' of 13 3/8" 48#, H-40, ST&C casing.<br>Cement with 250 sacks Class "C" Neet + 2% CaCl <sub>2</sub><br>Circulate cement to surface. |
| 8 5/8"  | Intermediate | Set 3100' of 8 5/8" 36# J-55 ST&C casing.<br>Cement with 500 sx Class "C" + additives<br>Circulate cement to surface.                      |
| 5 1/2"  | Production   | Set 8500' of 5 1/2" 17# , N-80 & J-55 LTC casing.<br>Cement with 600 sx Class "H" + additives. Estimated top of<br>cement @ 5,600'.        |

10. PRESSURE CONTROL EQUIPMENT: Exhibit "E". A Blow-out Preventer (no less than 900 Series 3000 PSI working pressure) consisting of double ram type preventer with bag type preventer. Units will be hydraulically operated. Exhibit "E-1" Choke Manifold and Closing Unit. Blind rams on top, pipe rams on bottom to correspond with size of drill pipe in use. BOP will be nipped up on 13 3/8" casing and remain on well until casing is run and cemented. BOP will be tested as well as choke manifold. BOP will be worked at least once each day while drilling & blind ram will be worked on trips when no drill pipe is in hole. Full opening stabbing valve and upper kelley cock will be utilized. Anticipated BHP 3000 PSI and 185° BHT.

11. PROPOSED MUD CIRCULATING SYSTEM:

| DEPTH         | MUD. WT.  | MUD VISC. | FLUID LOSS      | TYPE MUD   |
|---------------|-----------|-----------|-----------------|--|
| 0' - 250'     | 8.4-8.8   | 29-36     | NC              | Fresh water spud mud use paper for seepage.                        |
| 250' - 3100'  | 10.5-11.0 | 29-32     | NC              | Brine water use paper for seepage control and lime for pH control. |
| 3100' - 7500' | 9.3-10    | 29-34     | NC              | Cut Brine Use paper for seepage control.                           |
| 7500' - 8500' | 9.3-10    | 34 - 38   | 10 cc's or less | Cut brine use Drispac starch & soda ash.                           |

Sufficient mud materials to maintain mud properties, meet lost circulation and weight increase requirements will be kept at wellsite at all times. In order to run casing and log well viscosity may have to be raised and water loss may have to be lowered.