

B. Pressure Rating: 3,000 PSI

4. THE PROPOSED CASING AND CEMENTING PROGRAM:

A. Casing Program: (All New)

Hole Size	Casing Size	Wt./Ft.	Grade	Thread	Coupling	Interval	Length
26"	20"	94#	J-55	8R	ST&C	0 - 425'	425'
17 1/2"	13 3/8"	54.5#	J-55	8R	ST&C	0 - 1550' ^{1850'}	1550' ^{1850'}
12 1/4"	8 5/8" ^{32 3/8"}	32 3/8" ^{32 3/8"}	J-55	8R	ST&C	0 - 2050' ^{2050'}	2050' ^{2050'}
7 7/8"	5 1/2"	17#	N-80	8R	LT&C	0 - TD	13,100' ^{12,900'}

1. Minimum Casing Design Factors: Collapse 1.125, Burst 1.0, Tensile Strength 1.8
2. 8 5/8" casing to be set if lost circulation is encountered.

B. CEMENTING PROGRAM:

Surface Casing: Lead slurry 375 sx Lite "C" 1/4# Cellocel + 2% CaCl₂ with weight of 12.4 ppg and Yield 1.87 cu.ft./sx. Circulate to surface.

Intermediate Casing on 13 3/8" casing: Lead slurry 925 sx Lite "C" with 1/4# Cellocel, 10# salt with weight of 12.4 ppg and Yield of 2.03 cu.ft./sx tail with 200 sx "Class C" with 2% CaCl₂ on 8 5/8" casing lead slurry 700 sx "Lite C" with 1/4# Cellocel, 5# Gilsonite, 2% CaCl₂ with weight of 12.4 ppg and Yield of 1.97 cu.ft./sx tail slurry 200 sx "c" with 1% CaCl₂.

Production Casing: Will be cemented in 3 stages as follows:

Cement Program: Lead Slurry 600 sacks "h" with 8# CSE .89. CF-14, .35% LWL, .35% Thrifty lite. Cement calculated to 9800'. Weight of 14.0 ppg and yield of 1.59 cu.ft./sack. D.V. Tool at approximately 9800'.

2nd stage: D.V. Tool at approximately 6400'. Lead Slurry 525 sacks "Lite H" with 1/4# cellocel, .5% CF-14 with weight of 13.0 ppg and yield of 1.97 cu.ft./sx. Tail slurry 200 sx Class "H" w/7% CF-14 with weight of 15.6 ppg and yield of 1.18 cu.ft./sx. Cement calculated to 6400'.

3rd stage: Lead Slurry 600 sx "Lite H" with 1/4# cellocel, .5% CF-14 with weight of 13.0 ppg and yield of 1.97 cu.ft./sx. Tail slurry 100 sx "H" neat with weight of 15.6 ppg and yield of 1.18 cu.ft./sx. Cement calculated to 3400'. (500' tie back to 8 5/8" casing.)

A greater amount of cement will be used if necessary to ensure that all potentially productive hydrocarbon zones are cemented off. Fill-up to be determined from logs.

5. MUD PROGRAM:

Interval	Type	Weight	Viscosity	Fluid Loss
0 - 425'	FW gel/paper	9.0	34	N/C
425' - 1550'	Brine	10.0	28	N/C
1550' - 3200'	FW	8.4	28	N/C
3200' - 9700'	Cut Brine	8.7	28	N/C
9700' - 10,600'	Brine	10.0	28	N/C
10,600' - TD	XCD, Drispak, Starch	9.5	33	12 CC

Sufficient mud material(s) to maintain mud properties, control lost circulation and contain a blowout will be available at the well site during drilling operations. Mud will be checked tourly by rig personnel.