Casing Design:

| O.D. | Weight | Grade | Thread | Coupling | Interval | Length |
|---|---|---|---|---|---|---|
| 8 5/8" | 24# | J-55 | 8R | ST & C | 0-2400' | 2400' |

Minimum Casing Design Factors: Collapse 1370, Burst 2950, Tensile Strength 3.81

| O.D. | Weight | Grade | Thread | Coupling | Interval | Length |
|---|---|---|---|---|---|---|
| 8 5/8 | 32# | J-55 | 8R | ST & C | 2400-4200' | 1800' |

Minimum Casing Design Factors: Collapse 2530, Burst 3930, Tensile Strength 5.03

Cement Program:
Lead Slurry: 721 sacks-3565 posC with 6% Bentonite 10% salt & NaCl
Calculated Linear Fill: Est. Hole Volume-3668.76 feet
Slurry Properties: Weight-12.7 ppg Yeild-2.10 cu.ft./sack

Tail Slurry 200 sacks Class "C" with 2% CaCl2
Calculated Linear Fill: Est. Hole Volume-639.68 feet
Slurry Properties: Weight 14.8 ppg Yeild 1.32 cu.ft./ sack

Hole Size: 7 7/8" Total Depth: 8200' Casing Size: 5 1/2"
Setting Depth: 8200' Mud Weight: 8.7 ppg

Casing Design:

| O.D. | Weight | Grade | Thread | Coupling | Interval | Length |
|---|---|---|---|---|---|---|
| 5 1/2 | 15.5# | J-55 | 8R | LT & C | 0-7000' | 7000' |

Minimum Casing Design Factors: Collapse 40.40, Burst 48.10, Tensile Strength 2.17

| | O.D. | Weight | Grade | Thread | Coupling | Interval | Length |
|---|---|---|---|---|---|---|---|
| 1. | 5 1/2 | 17# | J-55 | 8R | LT & C | 7000'-8200' | 1200' |

Minimum Casing Design Factors: Collapse 49.10, Burst 53.20, Tensile Strength 2.47

Cement Program:
Lead Slurry: 556 sacks Class "H" with .3% Flack(Fluid Loss) 3% M117
Calculated Linear Fill: Est. Hole Volume-3785.8
A stage cementing collar will be used and placed at approximately 5500'.
Slurry Properties: Weight-15.6 ppg Yeild-1.18 cu.ft./sack

2nd Stage Lead Slurry: 127 sacks 3565 posC with 6% Bentonite, 10% NaCl
Calculated Linear Fill: Est. Hole Volume-1538.9 feet
Slurry Properties: Weight-12.7 ppg Yeild-2.10 cu.ft./sack

Tail Slurry: 100 sacks Class "C"
Calculated Linear Fill: Est. Hole Volume-761 feet
Slurry Properties: Weight-14.8 ppg Yeild-1.32 cu.ft./sack