

CEMENTING SUMMARY

Liner needed

13.375" Surface Casing

1st Stage: Lead 1: Premium Plus Scavenger Slurry with 10 PPS Diamond Seal
 Lead 2: Thix-Set Cement, 1% Thix-Set A, 0.25% Thix-Set B
 Lead 3: Halliburton Light Premium Plus with 2% CaCl₂, 0.5 PPS Flocele, 5 PPS Gilsonite
 Tail Slurry: Premium Plus with 2% CaCl₂

From Depth	TOC (MD)	Stage	Hole Size	% Excess	Density PPG	Yield ft ³ /sk	Mix Water	Qty Sks	Pump Time	FL cc	FW %	12 Hr Psi	24 Hr Psi
Surf	Surf	Lead 1	17.5"		9.50	7.15	49.9	100					
Surf	Surf	Lead 2	17.5"		14.00	1.52	7.71	100					
900'	Surf	Lead 3	17.5"	50	12.40	2.04	10.78	440					
1200'	900'	Tail	17.5"	50	14.80	1.34	6.31	300					

Remarks: Lead with 10 bbls gelled water
 Cement slurry design may be adjusted based on formation tops and hole conditions
 Use Weatherford-Gemeco for float equipment

Float Equip. Texas pattern shoe, single shoe joint, insert float

Centralizers: Middle of shoe jt., every other jt. to surface

9.625" Intermediate Casing

1st Stage: Lead Slurry: Class H foamed with 350 dcf/bbl N₂
 Lead Slurry: Class H foamed with 150 dcf/bbl N₂
2nd Stage: Lead Slurry: Interfill C w/ 0.25 PPS flocele, 3.0 PPS gilsonite, 0.2% Halad 322
 Tail Slurry: Premium

From Depth	TOC (MD)	Stage	Hole Size	% Excess	Density Ppg	Yield ft ³ /sk	Mix Water	Qty Sks	Pump Time	FL cc	FW %	12 Hr Psi	24 Hr Psi
6800'	0'	2-Lead	12.25"	35	11.9	2.47	13.83	1360	4:50	650	0	173	365
7200'	6800'	2-Tail	12.25"	35	14.8	1.32	6.32	200	2:10	950	1	1100	2400
8300'	7200'	1-Lead	12.25"	60	9.20	2.18	5.2	350					
9500'	8300'	1-Lead	12.25"	60	13.0	1.44	5.18	670					

Remarks: Use open hole caliper volume plus 35% excess for first stage
 Use open hole caliper volume plus 35% excess for second stage
 Cement slurry design may be adjusted based on formation tops and hole conditions
 Use Weatherford-Gemeco for float equipment

Float Equip. Float shoe, single shoe joint, float collar, DV and ECP tool @ 7300' (MD)

Centralizers: Middle of shoe jt., every other jt. to DV collar, 1 below & above DV collar

7" Liner

1st Stage: Lead Slurry: Class H, w/ 0.5% Halad 344, 1 lb.sx Salt, 0.4% CFR3, 5 PPS Gilsonite, 0.2% HR7

From Depth	TOC (MD)	Stage	Hole Size	% Excess	Density Ppg	Yield ft ³ /sk	Mix Water	Qty Sks	Pump Time	FL cc	FW %	12 Hr Psi	24 Hr Psi
9400'	10600'	1-Lead	8.5"	35	13.0	1.67	8.24	250					

Remarks: Use open hole caliper volume plus 35% excess for first stage
 Cement slurry design may be adjusted based on formation tops and hole conditions
 Use Weatherford-Gemeco for float equipment
 Liner hanger contractor: xxxx

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