

PRELIMINARY DRILLING PROGRAM

1/11/2013

Lease and Well No.

Buchner 2-22H

MUD PROGRAM

Depth	Type	Weight	Remarks
0' - 660'	Freshwater/Native	8.4-9.0	Soap/SAPP, Vis 35-45, YP 4-6, LGS<6%
660' - 5256'	Freshwater/Native	8.4-9.4	Vis 27-30; 8 cc/30min, LGS<6%, YP - No Control
5256.1' - 6591'	Freshwater/Native	9.6-10.0	Vis 40-45; API Filtrate ≤8ML/30 Min, CP 12-18; YP 12-16; LGS<6%
6591' - TD	Freshwater/Native	8.5-8.8	Vis 32-36; API Filtrate <6ML/30min; CP 8-10; YP 6-8; LGS <5%

TUBULAR PROGRAM

String Type	Hole Size	Depth	Feet	Casing Diameter	Weight, Grade, Connection	ERW/ Seamless	Critical Inspection
Surf	13 1/2"	660'	660'	9 5/8"	9-5/8", 36 #, J-55, STC	ERW	BCI & Drift
Float shoe, shoe joint & float collar. Centralize bottom joint then 5 more every other, 1 at conductor							
Int	8 3/4"	6591'	6591'	7"	7", 26#, P-110 IC, LTC	ERW	BCI & Drift
Float shoe, shoe joint & float collar. Centralize bottom 3 joints. Centralize thru curve and across all salts.							
Liner	6"	11110'	5310'	4 1/2"	4-1/2", 11.6 #, P-110, BTC		
Tubing		5840'	5840'	2 3/8"	2-3/8", 4.7 #, J-55, EUE		

Notes: Pipe to end up in hole from top to bottom as shown.

CEMENT PROGRAM

String Type	SHOE/DV Depth	Stage Lead/Tail	Cement Bottom	Cement Top	No Sacks	Cement System	Cement Yield	Cement Weight
		Lead	460'	0'	166	Type III+.04% SF+.25#skCF+.01 gps FP-6L+2.5% SM	2.1	12.5
Surf	660	Tail	660'	460'	105	Type III+.04% SF+.25#skCF+.01 gps FP-6L+.2%FL-25+1%NaCl+2.5% SM	1.45	14.3
(Basis: Gauge hole + 55% excess, tail 30% of length, lead to surface.)								
Int	6591	Lead	5960'	0'	690	PL+.25#skCF+.4%FL-63+3% Gel	1.89	12.5
		Tail	6591'	5960'	83	50:50 (POZ:G)+.4%FL63+3%Gel+1%SMS+20%SF	1.71	13.5
(Basis: Gauge hole + 50% excess, Tail to 200 ft above top Niobrara A, Lead to Surface)								

BOP PROGRAM

Hole Size	Configuration	Pressure Rating	BOP Test Press	Casing Test Press
13 1/2"	Circulate Conductor			
8 3/4"	RRA	5M	5000	
6"	RRA	5M	5000	
Utilize commercial testers every 30 days.				

LOGGING PROGRAM

FROM	TO	TOOLS
BLS	TD	2 man mud logger trailer, 30 ft samples
Surf csg	TD	MWD Surveys, 90 ft & 30 ft thru curve
KOP	TD	MWD Gamma Ray
Surface	DDO	CBL, CCL, Gr

Remarks: 4 1/2 inch Liner to be run. Liner Top @ KOP (5837 ft TVD) and 14 swell packers to be run with liner.
Liner top to be tested successfully to 4500 psi prior to rigging down.

Prepared By:

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