

MOORHEAD 13-5

Existing Features	
KB	10

Surface csg shoe at	453
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Bottom of Foxhills (FHM)	897
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Sussex	Top	4378
	Btm	
not productive in 1-mile		

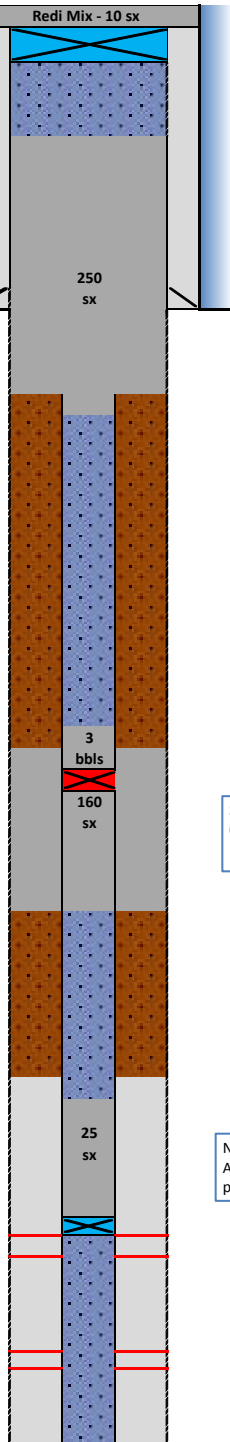
Shannon	Bottom	4872
not productive in 1-mile		

TOC Primary existing (CBL)	5910
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Niobrara	Top	7030
	Perf Top	7030
	Perf Bottom	7194

Geologic Top		
CODELL	Perf Top	7312
	Perf Bottom	7327

4-1/2" CSG 11.6#	7430
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Proposed Additions for P&A

80	CIBP (8-5/8")
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250	TOC
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Cement Blend: Type III w/ cello flake and CaCl₂, mixed at 14.8 ppg and 1.33 cuft/sk. with 20%

1000	Csg Stub
1100	Bottom of Cement

4000	TOC in csg
4175	Top SQZ Hole
4210	4-1/2" CICR

Sussex Cement Blend: "G" w/ 0.25 pps cello flake , 0.4% CD-32, 0.4% ASA - 301, mixed at 15.8 ppg and 1.15 cuft/sk, with 20% excess and 8.25" hole.

4580	Bottom SQZ Hole
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6600	TOC
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NB Cement Blend: "G" w/ 20% silica flour , 0.4% CD -32, 0.4% ASA -301 and R-3 to achieve 2:30 pump time mixed at 15.8 ppg and 1.38 cuft/sk

6960	4-1/2" CIBP
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API# 0512316633				
Well: MOORHEAD 13-5				
Equipment	Specs.	Depth	Capacity (bbl/ft)	Capacity ft ³ /ft
Surface Casina	8 5/8" 24#	453	0.0637	0.3576
Production Casina	4.50 (11.6#)	7430	0.0155	0.0872
Deepend Liner	2-7/8"	7928		
Tubing Size	2-3/8"	7346		
Bit Size	7 7/8		0.0602	0.3382
Hole Size	8.25		0.0661	0.3712
Hole Size	8.5		0.0702	0.3941
Hole Size	13		0.1642	0.9218

Cement Calculations				
Section	Volume cu-ft	Cement Sacks	Excess	Top Plug
8-5/8" csg	72.59	54.58		8.25
OH	250.28	188.18	20%	
4-1/2" csg	8.72	6.56		
Total Top Plug	331.59	249.32	250	Caliper
332.5 cu-ft				

top CICR	18.31	15.92		SX/ SH Plug 8.25
annulus	126.74	110.21	20%	
out CICR	32.26	28.06		
Total	177.31	154.19	160	Caliper
184 cu-ft				

NB/CD Csg	31.39	22.75		NB/CD Plug
Total	31.39	22.75	25	

Cement Yield	1.33	1.15	1.71	1.38
	Top Plug	SX/SH	NB/Cd Squeeze	NB/Cd in pipe

Legend	
	New cement
	Existing cement with CBL
	assumed cement w/ no CBL
	cast iron cement retainer
	cast iron bridge plug
	mud
	2% KCL Water