



Bison Oil Well Cementing Tail & Lead

Customer: Noble Energy Inc.
Well Name: Smith State LD 12-73-1BHN

Date: 12/8/2014
Invoice #: 25098
API#: 05-123-39701
Foreman: Calvin Reimers

County: Weld Consultant: Shane
State: Colorado Rig Name & Number: H&P 326
Distance To Location: 81 Miles
Units On Location: 4023-3104/4024-3203
Sec: 1 Time Requested: 1200pm
Twp: 9N Time Arrived On Location: 1100am
Range: 58W Time Left Location: 4:30 p.m.

WELL DATA

Casing Size (in) 9.625
Casing Weight (lb) 36
Casing Depth (ft) 1,212
Total Depth (ft) 1252
Open Hole Diameter (in) 13.50
Conductor Length (ft) 100
Conductor ID 16
Shoe Joint Length (ft) 43
Landing Joint (ft) 34

Sacks of Tail Requested 100
HOC Tail (ft) 0

One or the other, cannot have quantity in both

Max Rate: 7
Max Pressure: 2500

Cement Data

Lead

Cement Name: BFN III
Cement Density (lb/gal) 13.1
Cement Yield (cuft) 1.84
Gallons Per Sack 10.06
% Excess 20%

Tail

Cement Name: BFN III
Cement Density (lb/gal) 15.2
Cement Yield (cuft) 1.27
Gallons Per Sack 5.89
% Excess: 0%

Fluid Ahead (bbls) 93.0
H2O Wash Up (bbls) 20.0

Spacer Ahead Makeup

40BBLS H2O+Dye in 2nd 10BBLS

Casing ID

8.921

Casing Grade

J-55 only used

Lead Calculated Results

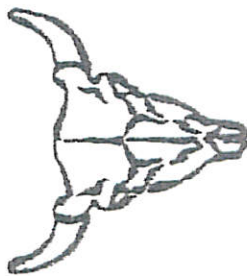
HOC of Lead 856.81 ft
Casing Depth - HOC Tail
Volume of Lead Cement 418.75 cuft
HOC of Lead X Open Hole Ann
Volume of Conductor 89.10 cuft
(Conductor ID Squared) - (Casing Size OD Squared) X (.005454) X
(Conductor Length ft)
Total Volume of Lead Cement 507.84 cuft
(cuft of Lead Cement) + (Cuft of Conductor)
bbls of Lead Cement 108.80 bbls
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)
Sacks of Lead Cement 332.00 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
bbls of Lead Mix Water 79.52 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42
Displacement 92.96 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)
Total Water Needed 299.46 bbls

Tail Calculated Results

Tail Cement Volume in Ann 127.00 cuft
(HOC Tail) X (OH Ann)
Total Volume of Tail Cement 108.24 Cuft
(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
bbls of Tail Cement 22.62 bbls
(HOC of Tail) X (OH Ann) + (Cement Yield) X (Shoe Joint Ann) X (.1781) X (% Excess)
HOC Tail 221.48 ft
(Tail Cement Volume) ÷ (OH Ann)
Sacks of Tail Cement 100.00 sk
(Total Volume of Tail Cement) ÷ (Cement Yield)
bbls of Tail Mix Water 14.02 bbls
(Sacks of Tail Cement X Gallons Per Sack) ÷ 42
Pressure of cement in annulus
Hydrostatic Pressure 585.23 PSI
Collapse PSI: 2020.00 psi
Burst PSI: 3520.00 psi

X

Authorization To Proceed



Bison Oil Well Cementing Two Cement Surface Pipe

Customer
Well Name

Noble Energy Inc.
Smith State LD 12-73-1BHN

Date 12/8/2014
INVOICE # 25098
LOCATION Weld
FOREMAN Calvin Reimers

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

	Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
	BBS	Time	PSI	BBS	Time	PSI	BBS	Time	PSI	BBS	Time	PSI	BBS	Time	PSI
Safety Meeting	0	305pm	100	0			0			0			0		
MIRU	10	307pm	30	10			10			10			10		
CIRCULATE	20	309pm	70	20			20			20			20		
Drop Plug	30	310pm	70	30			30			30			30		
304pm	40	312pm	90	40			40			40			40		
	50	314pm	180	50			50			50			50		
M & P	60	316pm	220	60			60			60			60		
Time	70	318pm	280	70			70			70			70		
242pm	80	320pm	350	80			80			80			80		
301pm	90	322pm	320	90			90			90			90		
	100	324pm	320	100			100			100			100		
	110	Bump	510	110			110			110			110		
	120			120			120			120			120		
	130			130			130			130			130		
Lead mixed bbls	140			140			140			140			140		
Lead % Excess	150			150			150			150			150		
Lead Sacks															

Notes:

1/2 bbl Back on Bleed Off
Casing PSI Test 324pm 1020psi to 339pm 1030psi

Tail mixed bbls 14.02
Tail % Excess 0%
Tail Sacks 100

Total Sacks 432
Water Temp 46.7
bbl Returns 23

X *[Signature]*

X WSS Title

X 12/8/14 Date

Work Performed