



Bison Oil Well Cementing
Tail & Lead

Customer: Noble Energy
Well Name: Fiscus Federal LD 15-77HN

Date: 10/27/2014
Invoice #: 13038
API#: 05-123-37367
Foreman: Calvin Reimers

County: Weld
State: Colorado
Sec: 9
Twp: 9N
Range: 58W

Consultant: Tawn
Rig Name & Number: PD 282
Distance To Location: 78 Miles
Units On Location: 4023-3104/4024-3203
Time Requested: 1200pm
Time Arrived On Location: 1140am
Time Left Location: 4:15pm

WELL DATA	Cement Data
<p>Casing Size (in) : 9.625 Casing Weight (lb) : 36 Casing Depth (ft) : 1,194 Total Depth (ft) : 1220 Open Hole Diameter (in) : 13.50 Conductor Length (ft) : 100 Conductor ID : 16 Shoe Joint Length (ft) : 43 Landing Joint (ft) : 21</p> <p>Sacks of Tail Requested : 100 HOC Tail (ft) : 0</p> <p>One or the other, cannot have quantity in both</p> <p>Max Rate: 7 Max Pressure: 2500</p>	<p>Lead</p> <p>Cement Name: BFN III Cement Density (lb/gal) : 13.1 Cement Yield (cuft) : 1.69 Gallons Per Sack : 8.64 % Excess : 30%</p> <p>Tail</p> <p>Cement Name: BFN III Cement Density (lb/gal) : 15.2 Cement Yield (cuft) : 1.27 Gallons Per Sack : 5.89 % Excess : 0%</p> <p>Fluid Ahead (bbls) : 90.5 H2O Wash Up (bbls) : 20.0</p> <p>Spacer Ahead Makeup 40bbls H2O+Dye in 2nd 10bbls</p>

Lead Calculated Results	Tail Calculated Results
<p>HOC of Lead : 852.15 ft Casing Depth - HOC Tail</p> <p>Volume of Lead Cement : 416.47 cuft HOC of Lead X Open Hole Ann</p> <p>Volume of Conductor : 89.10 cuft (Conductor ID Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)</p> <p>Total Volume of Lead Cement : 505.57 cuft (cuft of Lead Cement) + (Cuft of Conductor)</p> <p>bbls of Lead Cement : 117.08 bbls (Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)</p> <p>Sacks of Lead Cement : 389.00 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)</p> <p>bbls of Lead Mix Water : 80.02 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42</p> <p>Displacement : 90.53 bbls (Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)</p> <p>Total Water Needed : 295.12 bbls</p>	<p>Tail Cement Volume In Ann : 127.00 cuft (HOC Tail) X (OH Ann)</p> <p>Total Volume of Tail Cement : 108.15 Cuft (HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)</p> <p>bbls of Tail Cement : 22.62 bbls (HOC of Tail) X (OH Ann) + (Cement Yield) X (Shoe Joint Ann) X (.1781) X (% Excess)</p> <p>HOC Tail : 221.29 ft (Tail Cement Volume) ÷ (OH Ann)</p> <p>Sacks of Tail Cement : 100.00 sk (Total Volume of Tail Cement) ÷ (Cement Yield)</p> <p>bbls of Tail Mix Water : 14.02 bbls (Sacks of Tail Cement X Gallons Per Sack) ÷ 42</p> <p>Pressure of cement in annulus Hydrostatic Pressure : 812.54 PSI</p> <p>Collapse PSI: 2020.00 psi Burst PSI: 3520.00 psi</p>

Authorization To Proceed



**Bison Oil Well Cementing
Two Cement Surface Pipe**

Customer
Well Name

Noble Energy
Fiscus Federal LD 15-77HN

Date 10/27/2014
INVOICE # 13038
LOCATION Weld
FOREMAN Calvin Reimers
Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

		Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
		BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI
Safety Meeting	158pm															
MIRU	135pm															
CIRCULATE	219pm	0	300pm	60	0			0			0			0		
Drop Plug		10	303pm	100	10			10			10			10		
259pm		20	304pm	100	20			20			20			20		
		30	306pm	100	30			30			30			30		
		40	307pm	140	40			40			40			40		
M & P		50	309pm	190	50			50			50			50		
Time	Sacks	60	311pm	250	60			60			60			60		
239pm	489	70	313pm	310	70			70			70			70		
256pm		80	315pm	360	80			80			80			80		
		90	320pm	300	90			90			90			90		
		100	Bump	480	100			100			100			100		
		110			110			110			110			110		
		120			120			120			120			120		
Lead mixed bbls	80.02	130			130			130			130			130		
Lead % Excess	30%	140			140			140			140			140		
Lead Sacks	389	150			150			150			150			150		
Notes:																
Tail mixed bbls	14.02	1/2 bbl back on bleed off														
Tail % Excess	0%	Casing PSI Test 321pm 1010psi to 336pm 1040psi														
Tail Sacks	100															
Total Sacks	489															
Water Temp	52.4															
bbl Returns	27															

X Calvin Reimers
Work Performed

X WSS
Title

X 10/27/14
Date