



**Bison Oil Well Cementing
Tail & Lead**

Date: 10/22/2014

Invoice # 12185

API#

Foreman: kirk

Customer: Noble Energy
Well Name: rohn state Id 10-62hn

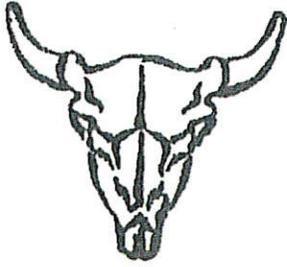
County: Weld
State: Colorado
Sec: 4
Twp: 9n
Range: 58w

Consultant: justin
Rig Name & Number: h&p 273
Distance To Location:
Units On Location: 4030-3103/4020-3212
Time Requested: 1100 am
Time Arrived On Location: 930 am
Time Left Location: 2:45 pm

WELL DATA	Cement Data
<p>Casing Size (in) : 9.625 Casing Weight (lb) : 36 Casing Depth (ft) : 1,158 Total Depth (ft) : 1213 Open Hole Diameter (in) : 13.75 Conductor Length (ft) : 100 Conductor ID : 16 Shoe Joint Length (ft) : 43 Landing Joint (ft) : 35</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: Max Pressure:</p>	<p>Lead</p> <p>Cement Name: bfn III 3% Cement Density (lb/gal) : 13.1 Cement Yield (cuft) : 1.69 Gallons Per Sack : 8.64 % Excess : 25%</p> <p>Tail</p> <p>Cement Name: bfn III 3% Cement Density (lb/gal) : 15.2 Cement Yield (cuft) : 1.27 Gallons Per Sack : 5.89 % Excess : 0%</p> <p>Fluid Ahead (bbls) : 30.0 H2O Wash Up (bbls) : 20.0</p> <p>Spacer Ahead Makeup</p>

Lead Calculated Results	Tail Calculated Results
HOC of Lead : 826.99 ft	Tail Cement Volume In Ann : 127.00 cuft
Casing Depth - HOC Tail	(HOC Tail) X (OH Ann)
Volume of Lead Cement : 434.90 cuft	Total Volume of Tail Cement : 108.34 Cuft
HOC of Lead X Open Hole Ann	(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
Volume of Conductor : 89.10 cuft	bbls of Tail Cement : 22.62 bbls
(Conductor ID Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)	(HOC of Tail) X (OH Ann) + (Cement Yield) X (Shoe Joint Ann) X (.1781) X (% Excess)
Total Volume of Lead Cement : 524.00 cuft	HOC Tail : 206.01 ft
(cuft of Lead Cement) + (Cuft of Conductor)	(Tail Cement Volume) ÷ (OH Ann)
bbls of Lead Cement : 116.66 bbls	Sacks of Tail Cement : 100.00 sk
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)	(Total Volume of Tail Cement) ÷ (Cement Yield)
Sacks of Lead Cement : 387.57 sk	bbls of Tail Mix Water : 14.02 bbls
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	(Sacks of Tail Cement X Gallons Per Sack) ÷ 42
bbls of Lead Mix Water : 79.73 bbls	Pressure of cement in annulus
(Sacks Needed) X (Gallons Per Sack) ÷ 42	Hydrostatic Pressure : 794.82 PSI
Displacement : 89.67 bbls	Collapse PSI : 2020.00 psi
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	Burst PSI : 3520.00 psi
Total Water Needed : 129.73 bbls	

Authorization To Proceed



Bison Oil Well Cementing Two Cement Surface Pipe

Customer
Well Name

Noble Energy
rohn state ld 10-62hn

Date
INVOICE #
LOCATION
FOREMAN
Trea

DESCRIPTION OF JOB EVENTS

		Displace 1			Displace 2			Displace 3			Displace 4		
		BBLs	Time	PSI	BBLs	Time	PSI	BBLs	Time	PSI	BBLs	Time	PS
Safety Meeting	1250pm												
MIRU	1225pm												
CIRCULATE	107pm	0	149pm	10	0			0			0		
Drop Plug		10	152pm	40	10			10			10		
149 pm		20	154pm	80	20			20			20		
		30	156pm	80	30			30			30		
		40	158pm	130	40			40			40		
M & P		50	200pm	180	50			50			50		
Time	Sacks	60	202pm	250	60			60			60		
116 pm	487	70	204pm	320	70			70			70		
145 pm stop		80	206pm	380	80			80			80		
		90			90			90			90		
		100			100			100			100		
		110			110			110			110		
		120			120			120			120		
Lead mixed bbls	79.7	130			130			130			130		
Lead % Excess	25%	140			140			140			140		
Lead Sacks	387	150			150			150			150		

Notes:

Tail mixed bbls	14	BUMPED PLUG at 210 pm 550 PSI 116.6 bbls slurry lead 22.6 bbls slurry tail.										
Tail % Excess	0%											
Tail Sacks	100											
Total Sacks	487											
bbl Returns	1519											

X 
Work Performed

X WSS
Title