



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 3/18/2015

Invoice # 80155

API#

Foreman: Lee Sharp

Customer: Noble Energy Inc.

Well Name: Colt A13-648

County: Weld

State: Colorado

Sec:

Twp:

Range:

Consultant:

Rig Name & Number: HP 321

Distance To Location:

Units On Location: 4015 & 4022

Time Requested: 7:00

Time Arrived On Location: 6:25

Time Left Location:

## WELL DATA

Casing Size OD (in) : 9.625  
 Casing Weight (lb) : 36.00  
 Casing Depth (ft) : 925  
 Total Depth (ft) : 934  
 Open Hole Diameter (in.) : 13.50  
 Conductor Length (ft) : 80  
 Conductor ID : 15.25  
 Shoe Joint Length (ft) : 44  
 Landing Joint (ft) : 0

Max Rate:

Max Pressure:

## Cement Data

Cement Name: BFN III  
 Cement Density (lb/gal) : 14.2  
 Cement Yield (cuft) : 1.49  
 Gallons Per Sack: 7.48  
 % Excess: 10%  
 Displacement Fluid lb/gal: 8.3  
 BBL to Pit:  
 Fluid Ahead (bbls): 60.0  
 H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup

60 dye 2nd

Casing ID

8.921

Casing Grade

J-55 only used

## Calculated Results

cuft of Shoe 19.11 cuft  
 (Casing ID Squared) X (.005454) X (Shoe Joint ft)

cuft of Conductor 61.05 cuft  
 (Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)

cuft of Casing 454.01 cuft  
 (Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 534.17 cuft  
 (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 95.14 bbls  
 (Total Slurry Volume) X (.1781)

Sacks Needed 359 sk  
 (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 63.85 bbls  
 (Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 68.07 bbls  
 (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

## Pressure of cement in annulus

Hydrostatic Pressure: 682.00 PSI

## Pressure of the fluids inside casing

Displacement: 379.64 psi

Shoe Joint: 32.48 psi

Total 412.12 psi

Differential Pressure: 269.88 psi

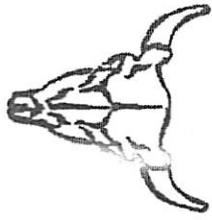
Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 211.91 bbls

Authorization To Proceed

Customers hereby acknowledges and specifically agrees to the terms and condition on this work order, including, without limitation, the provisions on this work order.



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

Customer  
 Well Name

Noble Energy Inc.  
 Colt A13-648

INVOICE #  
 LOCATION  
 FOREMAN  
 Date

80155  
 Weld  
 Lee Sharp  
 3/18/2015

**DESCRIPTION OF JOB EVENTS**

	8:25 7:20	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	8:43	0	0	9:50	0	0	0	0	0	0	0	0	0	0	0	0
MIRRU		10	120	9:52	10	110	20	10	20	30	10	20	20	30	10	20
CIRCULATE		20	110	9:54	20	110	30	20	30	30	20	30	30	30	20	30
Drop Plug		30	170	9:56	30	170	40	30	40	40	30	40	40	40	30	40
		40	250	9:58	40	250	50	40	50	50	40	50	50	50	40	50
M & P		50	300	9:59	50	300	60	50	60	60	50	60	60	60	50	60
Time		60	300	10:00	60	300	70	60	70	70	60	70	70	70	60	70
8:54-9:49		70	450		70	450	80	70	80	80	70	80	80	80	70	80
		80			80		90	80	90	90	80	90	90	90	80	90
		90			90		100	90	100	100	90	100	100	100	90	100
		100			100		110	100	110	110	100	110	110	110	100	110
		110			110		120	110	120	120	110	120	120	120	110	120
% Excess		120			120		130	120	130	130	120	130	130	130	120	130
Mixed bbls		130			130		140	130	140	140	130	140	140	140	130	140
Total Sacks		140			140		150	140	150	150	140	150	150	150	140	150
bbl Returns		150			150			150			150			150		
Water Temp		78			78			78			78			78		

Notes:

The day  
 Job completed  
 issues Bulk Truck would not unload smoothly, Cementer closed valve while pump still engaged blew popoff  
 Plug landed on calculated Casing test began at 10:00-10:15 Floats checked and held 1/2 bbl return.  
 Rig down to leave

X Work Performed

X Title

X Date