



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 7/19/2014  
Invoice #: 55003  
API#:   
Foreman: monte

Customer: Noble Energy Inc.

Well Name: cuthroat lc28-1hn

County: Weld  
State: Colorado

Sec: 29  
Twp: 9n  
Range: 59w

Consultant: jw  
Rig Name & Number: h&p 326  
Distance To Location: 26.7  
Units On Location: 4028-3102 4020-3212  
Time Requested: 5:00pm  
Time Arrived On Location:   
Time Left Location:

## WELL DATA

Casing Size OD (in) : 9.625  
Casing Weight (lb) : 36.00  
Casing Depth (ft) : 552  
Total Depth (ft) : 623  
Open Hole Diameter (in.) : 13.75  
Conductor Length (ft) : 130  
Conductor ID : 15.6  
Shoe Joint Length (ft) : 41  
Landing Joint (ft) : 30

Max Rate: 5  
Max Pressure: 2000

## Cement Data

Cement Name: BFN III  
Cement Density (lb/gal) : 15.2  
Cement Yield (cuft) : 1.27  
Gallons Per Sack: 5.89  
% Excess: 30%  
Displacement Fluid lb/gal: 8.3  
BBL to Pit:   
Fluid Ahead (bbls): 40.0  
H2O Wash Up (bbls): 20.0

### Spacer Ahead Makeup

10 fresh 10 dye 20 fresh

Casing ID

8.921

Casing Grade

J-55 only used

## Calculated Results

**cuft of Shoe** 17.80 cuft  
(Casing ID Squared) X (.005454) X (Shoe Joint ft)

**cuft of Conductor** 106.86 cuft  
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)

**cuft of Casing** 288.50 cuft  
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

**Total Slurry Volume** 413.16 cuft  
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

**bbls of Slurry** 73.58 bbls  
(Total Slurry Volume) X (.1781)

**Sacks Needed** 325 sk  
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

**Mix Water** 45.62 bbls  
(Sacks Needed) X (Gallons Per Sack) ÷ 42

**Displacement:** 41.82 bbls  
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

## Pressure of cement in annulus

**Hydrostatic Pressure:** 435.86 PSI

## Pressure of the fluids inside casing

**Displacement:** 220.33 psi

**Shoe Joint:** 32.37 psi

**Total** 252.71 psi

**Differential Pressure:** 183.15 psi

**Collapse PSI:** 2020.00 psi

**Burst PSI:** 3520.00 psi

**Total Water Needed:** 147.45 bbls

X

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.  
cuthroat lc28-72hnb

INVOICE #  
LOCATION  
FOREMAN  
Date

55003  
Weld  
monte  
7/19/2014

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	6:50															
MIRU	6:25															
CIRCULATE	7:08	0	7:36	0	0			0			0			0		
Drop Plug		10	7:39	40	10			10			10			10		
7:36		20	7:41	140	20			20			20			20		
		30	7:43	200	30			30			30			30		
		40	7:45	220	40			40			40			40		
M & P		50	7:48	520	50			50			50			50		
Time	Sacks	60			60			60			60			60		
7:20-7:36	299	70			70			70			70			70		
		80			80			80			80			80		
		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
% Excess	15%	120			120			120			120			120		
Mixed bbls	41.95	130			130			130			130			130		
Total Sacks	299	140			140			140			140			140		
bbl Returns	9	150			150			150			150			150		
Water Temp	85															

**Notes:**

Safety Meeting, miru, pressure test per company manm circulate 40 bbls ahead with dye in 2nd 10, mix and pump 299 sks cement at 15% excess, drop plug and displ  
bumped at 7:48 p m, at psi, 9 bbls to pit

X

Work Performed

X

Title

X 7/19/14

Date