



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 8/14/2014
Invoice # 55013
API#
Foreman: monte

Customer: Noble Energy Inc.

Well Name: cutthrought lc28-78-hnb

County: Weld
State: Colorado

Sec: 29
Twp: 9n
Range: 59w

Consultant: shane
Rig Name & Number: h&p 326
Distance To Location: 64.7
Units On Location: 4028-3102 4020-3212
Time Requested: 3:30pm
Time Arrived On Location: 2:00pm
Time Left Location: 7:30

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 36.00
Casing Depth (ft) : 612
Total Depth (ft) : 628
Open Hole Diameter (in) : 13.75
Conductor Length (ft) : 130
Conductor ID : 15.6
Shoe Joint Length (ft) : 36
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: 20%
Displacement Fluid lb/gal: 8.3
BBL to Pit:
Fluid Ahead (bbls): 50.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup
10 fresh 10 dye 30 fresh

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 15.63 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 304.17 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 426.66 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 75.99 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 336 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 47.11 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 46.85 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 483.24 PSI

Pressure of the fluids inside casing

Displacement: 248.36 psi

Shoe Joint: 28.43 psi

Total 276.79 psi

Differential Pressure: 206.45 psi

Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 163.96 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.
cutthrough lc28-78-hnb

INVOICE #
LOCATION
FOREMAN
Date

55013
Weld
monte
8/14/2014

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

	6:30	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	6:30															
MIRU	6:00															
CIRCULATE	7:03	0	7:31	0	0			0			0			0		
Drop Plug		10	7:34	120	10			10			10			10		
7:31		20	7:36	200	20			20			20			20		
		30	7:38	210	30			30			30			30		
		40	7:41	300	40			40			40			40		
M & P		50	7:43	720	50			50			50			50		
Time	Sacks	60			60			60			60			60		
7:10-7:29	336	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	20%	120			120			120			120			120		
Mixed bbls	47.11	130			130			130			130			130		
Total Sacks	336	140			140			140			140			140		
bbl Returns	22	150			150			150			150			150		
Water Temp	82															

Notes:

Safety Meeting, miru, pressure test per company man circulate 40 bbls ahead with dye in 2nd 10,
mix and pump 336 sks at 20 % excess. drop plug and displace 46.85 bbls h2o

x [Signature]
Work Performed

x WSS
Title

x 8/14/14
Date