



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 7/26/2014
Invoice #: 35007
API#
Foreman: Kirk Kallhoff

Customer: Noble Energy Inc.

Well Name: nclp aa 06-64-1ahna

County: Weld
State: Colorado
Sec: 4
Twp: 6n
Range: 63w

Consultant: cliff/todd
Rig Name & Number: h&p 277
Distance To Location: 30
Units On Location: 4030-3103/4020-3212
Time Requested: 700 pm
Time Arrived On Location: 515 pm
Time Left Location: 10:15 pm

WELL DATA

Casing Size OD (in): 9.625
Casing Weight (lb): 36.00
Casing Depth (ft): 800
Total Depth (ft): 830
Open Hole Diameter (in.): 13.50
Conductor Length (ft): 100
Conductor ID: 16
Shoe Joint Length (ft): 38
Landing Joint (ft): 30

Max Rate:

Max Pressure:

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): 60.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup

Casing ID	8.921	Casing Grade	J-55 only used
Calculated Results		Displacement: 61.23 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
cuft of Shoe	16.49	cuft	Pressure of cement in annulus
(Casing ID Squared) X (.005454) X (Shoe Joint ft)			
cuft of Conductor	89.10	cuft	Hydrostatic Pressure: 631.68 PSI
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)			
cuft of Casing	444.74	cuft	Pressure of the fluids inside casing
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)			
Total Slurry Volume	550.33	cuft	Displacement: 328.56 psi
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)			
bbls of Slurry	98.01	bbls	Shoe Joint: 30.00 psi
(Total Slurry Volume) X (.1781)			
Sacks Needed	433	sk	Total 358.56 psi
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)			
Mix Water	60.77	bbls	Differential Pressure: 273.12 psi
(Sacks Needed) X (Gallons Per Sack) ÷ 42			
			Collapse PSI: 2020.00 psi
			Burst PSI: 3520.00 psi
			Total Water Needed: 202.00 bbls

X *[Signature]*
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

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Well Name

Noble Energy Inc.
nclp aa 06-64-1ahna

INVOICE #
LOCATION
FOREMAN
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35007
Weld
Kirk Kallhoff
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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	802pm															
MIRU	720pm															
CIRCULATE	827pm	0	904pm	10	0			0			0			0		
Drop Plug		10	907pm	90	10			10			10			10		
904pm		20	909pm	120	20			20			20			20		
		30	911pm	200	30			30			30			30		
		40	913pm	280	40			40			40			40		
M & P		50	913pm	350	50			50			50			50		
Time	Sacks	60	919pm	340	60			60			60			60		
839 pm	392	70			70			70			70			70		
859 pm stop		80			80			80			80			80		
		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
% Excess	11%	120			120			120			120			120		
Mixed bbls	55	130			130			130			130			130		
Total Sacks	392	140			140			140			140			140		
bbl Returns	8	150			150			150			150			150		
Water Temp																

Notes:

bumped plug at 917 am 530 psi 89.1 bbls slurry

casing test 1000 psi for 15 min

X Todd Wess
Work Performed

X WSS
Title

X 7-26-14
Date