



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 3/9/2015
Invoice #: 80006
API#: 05-123-40910
Foreman: Calvin Reimers

Customer: Noble Energy Inc.
Well Name: Colt A 13-645

County: Weld
State: Colorado
Sec: 17
Twp: 6N
Range: 63W
Consultant: Jeremy/Josh
Rig Name & Number: H&P 321
Distance To Location: 26 Miles
Units On Location: 4027-3106/4030-3203
Time Requested: 730pm
Time Arrived On Location: 600pm
Time Left Location: 1015pm

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 36.00
Casing Depth (ft) : 892
Total Depth (ft) : 932
Open Hole Diameter (in.) : 13.50
Conductor Length (ft) : 100
Conductor ID : 16
Shoe Joint Length (ft) : 42
Landing Joint (ft) : 34

Max Rate: 7
Max Pressure: 2500

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: 13.0
Fluid Ahead (bbls): 60.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup
60bbls H2O+Dye in 2nd 10bbls

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 18.44 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)
cuft of Conductor 89.10 cuft
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)
cuft of Casing 425.83 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)
Total Slurry Volume 533.37 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)
bbls of Slurry 94.99 bbls
(Total Slurry Volume) X (.1781)
Sacks Needed 358 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
Mix Water 63.75 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 68.33 bbls

(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 658.10 PSI

Pressure of the fluids inside casing

Displacement: 366.34 psi

Shoe Joint: 31.34 psi

Total 397.68 psi

Differential Pressure: 260.42 psi

Collapse PSI: 2020.00 psi

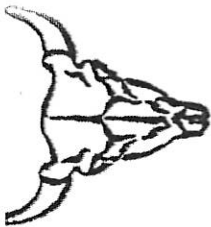
Burst PSI: 3520.00 psi

Total Water Needed: 212.09 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.



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Single Cement Surface Pipe

INVOICE #
LOCATION
FOREMAN
Date

80006
Weld
Calvin Reimers
3/9/2015

Customer
Well Name

Noble Energy Inc.
Colt A 13-645

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DESCRIPTION OF JOB EVENTS

	800pm 700pm 820pm	Displace 1		Displace 2		Displace 3		Displace 4		Displace 5	
		BBS	Time	PSI	BBS	Time	PSI	BBS	Time	BBS	Time
Safety Meeting		0	854pm	80	0			0		0	
MIRU		10	855pm	30	10			10		10	
CIRCULATE		20	857pm	80	20			20		20	
Drop Plug		30	900pm	140	30			30		30	
853pm		40	902pm	210	40			40		40	
		50	904pm	250	50			50		50	
M & P		60	906pm	260	60			60		60	
Time	Sacks	70	910pm	230	70			70		70	
832pm	358	80	Bump	380	80			80		80	
850pm		90			90			90		90	
		100			100			100		100	
		110			110			110		110	
% Excess	10%	120			120			120		120	
Mixed bbls	63.75	130			130			130		130	
Total Sacks	35	140			140			140		140	
bbl Returns	13	150			150			150		150	
Water Temp	62.7										

Notes:

The day

1/2 bbl Back on Bleed Off

Casing PSI Test 911pm 1000psi to 926pm 980psi

X

X WSS

X 3/9/15
Date

Work performed