



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 2/28/2015

Invoice # 35126

API#

Foreman: Kirk Kallhoff

Customer: Noble Energy Inc.

Well Name: reliance e23-62-1hn

County: Weld

State: Colorado

Sec: 23

Twp: 6n

Range: 65w

Consultant: stetson

Rig Name & Number: h&p 321

Distance To Location:

Units On Location: 4038-3103/4020-3212

Time Requested: 400 pm

Time Arrived On Location: 330 pm

Time Left Location: 8:00 pm

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 36.00
Casing Depth (ft) : 803
Total Depth (ft) : 848
Open Hole Diameter (in.) : 13.50
Conductor Length (ft) : 100
Conductor ID : 16
Shoe Joint Length (ft) : 43
Landing Joint (ft) : 35

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: 30%
Displacement Fluid lb/gal: 8.3
BBL to Pit:
Fluid Ahead (bbls): 60.0
H2O Wash Up (bbls): 10.0

Spacer Ahead Makeup

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 18.66 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 446.65 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)
Total Slurry Volume 554.41 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)
bbls of Slurry 98.74 bbls
(Total Slurry Volume) X (.1781)
Sacks Needed 372 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
Mix Water 66.27 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 61.46 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 592.37 PSI

Pressure of the fluids inside casing

Displacement: 327.70 psi

Shoe Joint: 31.72 psi

Total 359.42 psi

Differential Pressure: 232.95 psi

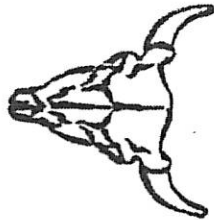
Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 197.73 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.
reliance e23-62-1hn.

INVOICE #
LOCATION
FOREMAN
Date

35126
Weld
Kirk Kalthoff
2/28/2015

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DESCRIPTION OF JOB EVENTS

Safety Meeting	556pm	Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
	500pm	BLS	Time	PSI	BLS	Time	PSI	BLS	Time	PSI	BLS	Time	PSI	BLS	Time	PSI
MIRU	622pm	0	656pm	10	0			0			0			0		
CIRCULATE		10	658pm	110	10			10			10			10		
Drop Plug		20	700pm	120	20			20			20			20		
656 pm		30	702pm	180	30			30			30			30		
		40	704pm	250	40			40			40			40		
M & P		50	706pm	300	50			50			50			50		
Time	Sacks	60	709pm	250	60			60			60			60		
635 pm	337	70			70			70			70			70		
653 pm stop		80			80			80			80			80		
		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
% Excess	18%	120			120			120			120			120		
Mixed bbls	60	130			130			130			130			130		
Total Sacks	337	140			140			140			140			140		
bbl Returns	20	150			150			150			150			150		
Water Temp																

Notes:

bumped plug at 710 pm 460 psi

casing test 1000 psi 15 min

X *[Signature]*
Work Performed

X
Title

X
Date

Co. man
2-28-15