



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 6/13/2016
Invoice #: 80497
API#: 05-123-40815
Foreman: Matthew Rosales

Customer: Noble Energy Inc.
Well Name: Heston LD06-630

County: Weld
State: Colorado
Sec: SESE 5
Twp: 9N
Range: 58W
Consultant: Woody
Rig Name & Number: H&P517
Distance To Location: 70miles
Units On Location: 3106, 3203
Time Requested: 11:30pm
Time Arrived On Location: 10:30pm
Time Left Location:

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 36.00
Casing Depth (ft.) : 1,923
Total Depth (ft) : 1917
Open Hole Diameter (in.) : 13.50
Conductor Length (ft) : 80
Conductor ID : 15.25
Shoe Joint Length (ft) : 47
Landing Joint (ft) : 33

Max Rate: 8
Max Pressure: 1700

Cement Data

Cement Name: BFN III
Cement Density (lb/gal) : 14.2
Cement Yield (cuft) : 1.49
Gallons Per Sack: 7.48
% Excess: 15%
Displacement Fluid lb/gal: 8.7
Fluid Ahead (bbls): 50.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup

50h20

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 21.50 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)

cuft of Conductor 61.05 cuft
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)

cuft of Casing 882.00 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 1096.00 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 195.00 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 736 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 131.00 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 144.80 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 1418.60 PSI

Pressure of the fluids inside casing

Displacement: 847.76 psi

Shoe Joint: 34.67 psi

Total 882.44 psi

Differential Pressure: 536.16 psi

Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 200.00 bbls

x Wf Bern
Authorization To Proceed

Bison Oil Well Cementing Single Cement Surface Pipe

Customer
Well Name

Noble Energy Inc.
Heston LD06-630

INVOICE #
LOCATION
FOREMAN
Date

| |
|-----------------|
| 80497 |
| Weld |
| Matthew Rosales |
| 6/13/2016 |

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DESCRIPTION OF JOB EVENTS

[illegible]

1x

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|----------------|--|
| Work Performed | |
|----------------|--|

X

Title

X

Date _____