



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 1/7/2015
Invoice # 25120
API# 05-123-39844
Foreman: Calvin Reimers

Customer: Noble Energy Inc.
Well Name: Moses State LD 11-77-1AHN

County: Weld
State: Colorado
Sec: 2
Twp: 9N
Range: 58W
Consultant: Shane / Gary
Rig Name & Number: H&P 326
Distance To Location: 80 Miles
Units On Location: 4023-3104/4020-3212
Time Requested: 230am
Time Arrived On Location: 215am
Time Left Location: 9:15 am

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 36.00
Casing Depth (ft) : 1,203
Total Depth (ft) : 1243
Open Hole Diameter (in.) : 13.50
Conductor Length (ft) : 100
Conductor ID : 16
Shoe Joint Length (ft) : 43
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: 25%
Displacement Fluid lb/gal: 8.3
BBL to Pit: 2.5
Fluid Ahead (bbls): 30.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup
30bbls H2O+Dye in 2nd 10bbls

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 18.74 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 673.82 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)
Total Slurry Volume 781.66 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)
bbls of Slurry 139.21 bbls
(Total Slurry Volume) X (.1781)
Sacks Needed 525 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
Mix Water 93.43 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 92.27 bbls

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

Pressure of cement in annulus

Hydrostatic Pressure: 887.43 PSI

Pressure of the fluids inside casing

Displacement: 500.08 psi

Shoe Joint: 31.85 psi

Total 531.93 psi

Differential Pressure: 355.50 psi

Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 235.70 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.

[illegible]

LOCATION	Weld
FOREMAN	Calvin Reimers
Date	1/7/2015

Customer	Noble Energy Inc.
Well Name	Moses State LD 11-77-1AHN

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DESCRIPTION OF JOB EVENTS

[illegible]

Notes:

The day

1/2 bbl Back on Bleed Off

Casing PSI Test 810am 1000psi to 825am 990psi

X

Work Preformed

X

[illegible]

X

Date