



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 5/4/2016

Invoice # 80488

API# 05-123-42920

Foreman: Steve

Customer: Noble Energy Inc.

Well Name: Shadow State A26-614

County: Weld

State: Colorado

Sec: SWSE

Twp: 306N

Range: 63W

Consultant: Johnny Sanchez

Rig Name & Number: H&P 343

Distance To Location:

Units On Location: 3106

Time Requested:

Time Arrived On Location:

Time Left Location:

WELL DATA

Casing Size OD (in) : 9.625

Casing Weight (lb) : 36.00

Casing Depth (ft.) : 1,927

Total Depth (ft) : 1934

Open Hole Diameter (in.) : 12.25 - 13 1/2

Conductor Length (ft) : 80

Conductor ID : 15.25

Shoe Joint Length (ft) : 44

Landing Joint (ft) : 5

Max Rate: 8

Max Pressure: 2000

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

50water

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 19.10 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 902.00 cuft

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

Total Slurry Volume 1117.00 cuft

(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 198.94 bbls

(Total Slurry Volume) X (.1781)

Sacks Needed 750 sk

(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 133.57 bbls

(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 145.92 bbls

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

Pressure of cement in annulus

Hydrostatic Pressure: 1421.55 PSI

Pressure of the fluids inside casing

Displacement: 850.93 psi

Shoe Joint: 32.46 psi

Total 883.39 psi

Differential Pressure: 538.16 psi

Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 200.00 bbls

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.
Shadow State A26-614

INVOICE #
LOCATION
FOREMAN
Date

80488
Weld
Steve
5/5/2016

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

[illegible]

X

Work Performed

x

Title

Y

Date _____