



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 9/6/2016
Invoice #: 80526
API#: 05-123-43291
Foreman: Matthew Rosales

Customer: Noble Energy Inc.
Well Name: Harper LD21-668

County: Weld
State: Colorado
Sec: SWNW
Twp: 229N
Range: 58W

Consultant: Johnny
Rig Name & Number: H&P 517
Distance To Location: 65
Units On Location: 3106
Time Requested: 10:00am
Time Arrived On Location: 9:00am
Time Left Location:

WELL DATA

Casing Size OD (in): 9.625
Casing Weight (lb): 36.00
Casing Depth (ft.): 1,932
Total Depth (ft): 1939
Open Hole Diameter (in.): 13.50
Conductor Length (ft): 80
Conductor ID: 15.25
Shoe Joint Length (ft): 48
Landing Joint (ft): 5
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: 8.3
Fluid Ahead (bbls): 50.0
H2O Wash Up (bbls): 20.0
Spacer Ahead Makeup
40 H2O, 10 Dye

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 21.00 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 889.00 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)
Total Slurry Volume 1104.00 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)
bbis of Slurry 197.00 bbis
(Total Slurry Volume) X (.1781)
Sacks Needed 742 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
Mix Water 132.00 bbis
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 145.30 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 1425.24 PSI

Pressure of the fluids inside casing

Displacement: 812.40 psi

Shoe Joint: 35.31 psi

Total 847.71 psi

Differential Pressure: 577.52 psi

Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 300.00 bbis

Authorization To Proceed



Customer
Well Name

Noble Energy Inc.
Harper LD21-668

INVOICE #
LOCATION
FOREMAN
Date

80526

Weld

Matthew Rosales

9/3/2016

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DESCRIPTION OF JOB EVENTS

X Cmt. Surface csg.
Work Performed

X WSS
Title

X 9-7-16
Date