



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 8/28/2015
Invoice #: 90031
API#: 05-123-42021
Supervisor: Nick

Customer: Anadarko Petroleum Corporation
Well Name: Powers 2N-34HZ

County: Weld
State: Colorado
Sec: 27
Twp: 2N
Range: 65W
Consultant: Sean
Rig Name & Number: Noble 2
Distance To Location: 35
Units On Location: 024/3210/4007/3106/3105/320
Time Requested: 7:00
Time Arrived On Location: 5:45
Time Left Location: 11:00

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 36.00
Casing Depth (ft.) : 1,845
Total Depth (ft) : 1856
Open Hole Diameter (in.) : 13.50
Conductor Length (ft) : 40
Conductor ID : 15.25
Shoe Joint Length (ft) : 43
Landing Joint (ft) : 10
Max Rate: 7
Max Pressure: 1750

Cement Data

Cement Name: BFN III
Cement Density (lb/gal) : 14.2
Cement Yield (cuft) : 1.49
Gallons Per Sack: 7.48
% Excess: 20%
Displacement Fluid lb/gal: 8.3
BBL to Pit: 38.0
Fluid Ahead (bbls): 30.0
H2O Wash Up (bbls): 20.0
Spacer Ahead Makeup
30 bbl dye in second 10

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 18.45 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)
cuft of Conductor 30.53 cuft
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)
cuft of Casing 1058.59 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)
Total Slurry Volume 1107.56 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)
bbls of Slurry 197.26 bbls
(Total Slurry Volume) X (.1781)
Sacks Needed 743 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
Mix Water 132.38 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 140.12 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 1361.06 PSI

Pressure of the fluids inside casing

Displacement: 777.20 psi

Shoe Joint: 31.35 psi

Total 808.56 psi

Differential Pressure: 552.50 psi

Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 322.50 bbls

X *Sean Kelly*
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.

X 8/28/15
Date

Powers 2N-34HZ

