



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 9/3/2017

Invoice # 666198

API# 05-123-43471

Foreman: Nick Vigil

Customer: Anadarko Petroleum Corporation

Well Name: Wagner 2N-10HZ

County: Weld

State: Colorado

Sec: 22

Twp: 1N

Range: 67W

Consultant: Matt/Brian

Rig Name & Number: Cartel 88

Distance To Location: 34 Miles

Units On Location: 4023/4024/4039

Time Requested: 21:00

Time Arrived On Location: 19:50

Time Left Location:

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 36.00
Casing Depth (ft.) : 1,862
Total Depth (ft) : 1871
Open Hole Diameter (in.) : 13.50
Conductor Length (ft) : 80
Conductor ID : 15.25
Shoe Joint Length (ft) : 44
Landing Joint (ft) : 10

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: 5%
Displacement Fluid lb/gal: 8.3
BBL to Pit: 0.0
Fluid Ahead (bbls): 30.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup
Dye in second 10 bbl

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

Total Slurry Volume 994.61 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 177.14 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 668 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 118.88 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 141.32 bbls

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

Pressure of cement in annulus

Hydrostatic Pressure: 1373.60 PSI

Pressure of the fluids inside casing

Displacement: 783.89 psi

Shoe Joint: 32.46 psi

Total 816.35 psi

Differential Pressure: 557.25 psi

Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 310.20 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.

X 9-3-17
Date

Wagner 2N-10HZ

