



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 8/22/2015

Invoice # 80521

API#

Foreman: Kirk Kallhoff

Customer: Anadarko Petroleum Corporation

Well Name: powers 2c-27hz

County: Weld

State: Colorado

Sec: 23

Twp: 2n

Range: 65w

Consultant: hayden

Rig Name & Number: noble 2

Distance To Location: 40

Units On Location: 4031-3103/4024-3203

Time Requested: 530 am

Time Arrived On Location: 415 am

Time Left Location: 8:00 pm

WELL DATA

Casing Size OD (in) : 9.625

Casing Weight (lb) : 36.00

Casing Depth (ft) : 1,848

Total Depth (ft) : 1858

Open Hole Diameter (in.) : 13.50

Conductor Length (ft) : 40

Conductor ID : 15.25

Shoe Joint Length (ft) : 42

Landing Joint (ft) : 10

Max Rate:

Max Pressure:

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

BBL to Pit:

Fluid Ahead (bbls): 30.0

H2O Wash Up (bbls): 10.0

Spacer Ahead Makeup

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 18.23 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 1016.17 cuft

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

Total Slurry Volume 1064.92 cuft

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

bbls of Slurry 189.66 bbls

(Total Slurry Volume) X (.1781)

Sacks Needed 715 sk

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

Mix Water 127.29 bbls

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

Displacement: 140.39 bbls

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

Pressure of cement in annulus

Hydrostatic Pressure: 1363.27 PSI

Pressure of the fluids inside casing

Displacement: 778.71 psi

Shoe Joint: 30.98 psi

Total 809.70 psi

Differential Pressure: 553.57 psi

Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 307.68 bbls

X *Bryan Brown* Bryan Brown
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 8-22-15
Date

M/D TOTCO 2000 SERIES

— PSI — Barrels / Minute — Barrels — Lbs / Gallon — Stage Volume

