



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 8/23/2015

Invoice # 80628

API# 05-123-41953

Foreman: JASON KELEHER

Customer: Anadarko Petroleum Corporation

Well Name: POWERS 27N-27HZ

County: Weld

State: Colorado

Sec: 22

Twp: 2N

Range: 65W

Consultant: BRYAN

Rig Name & Number: NOBLE 2

Distance To Location: 39

Units On Location: 4031-3106/ 4034-3203

Time Requested: 1330

Time Arrived On Location: 1230

Time Left Location: 1730

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 36.00
Casing Depth (ft) : 1,849
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) : 7

Max Rate: 6
Max Pressure: 1250

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: 30.0
Fluid Ahead (bbls): 30.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup
30BBL WATER/ DYE IN 2ND 10

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 18.41 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 1016.51 cuft
(Open Hole Squared) -(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 1065.45 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 189.76 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 715 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 127.35 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 140.18 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 1363.73 PSI

Pressure of the fluids inside casing

Displacement: 778.80 psi

Shoe Joint: 31.29 psi

Total 810.09 psi

Differential Pressure: 553.64 psi

Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 317.53 bbls

X 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.

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POWERS 27N-27HZ SURFACE

