

Customers hereby acknowledges and specifically agrees to the terms and conditions on this work order, including, without limitation, the provisions on the reverse hereof which include the release and indemnity.



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 2/5/2017
Invoice #: 900042
API#: 05-123-42993
Foreman: JASON

Customer: Anadarko Petroleum Corporation

Well Name: KEOWN STATE 19N-34HZ

County: Weld

State: Colorado

Sec: 15

Twp: 2N

Range: 68W

Consultant: LANCE

Rig Name & Number: SW 105

Distance To Location: 33

Units On Location: 4027-3103, 4019-3214, 4020-3217

Time Requested: 900

Time Arrived On Location: 800

Time Left Location: 1330

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 36.00
Casing Depth (ft) : 2,343
Total Depth (ft) : 2353
Open Hole Diameter (in.) : 13.50
Conductor Length (ft) : 80
Conductor ID : 15.25
Shoe Joint Length (ft) : 45
Landing Joint (ft) : 33

Max Rate: 8
Max Pressure: 2000

Cement Data

Cement Name: BFN III
Cement Density (lb/gal) : 14.2
Cement Yield (cuft) : 1.48
Gallons Per Sack: 7.49
% Excess: 15%
Displacement Fluid lb/gal: 8.3
BBL to Pit: 35.0
Fluid Ahead (bbls): 30.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup
30 BBL WATER DYE IN 2ND 10

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 19.33 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 1271.97 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 1352.35 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 240.85 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 914 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 162.95 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 180.25 bbls

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

Pressure of cement in annulus

Hydrostatic Pressure: 1728.53 PSI

Pressure of the fluids inside casing

Displacement: 991.11 psi

Shoe Joint: 32.86 psi

Total 1023.97 psi

Differential Pressure: 704.56 psi

Collapse PSI: 2020.00 psi

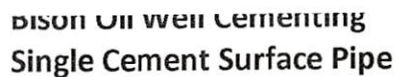
Burst PSI: 3520.00 psi

Total Water Needed: 393.20 bbls

X

Authorization To Proceed

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Anadarko Petroleum Corporation
KEOWN STATE 19N-34HZ

900042
Weld
JASON
2/5/2017

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DESCRIPTION OF JOB EVENTS

A hand-drawn sketch on a grid background. The sketch consists of several overlapping, elongated, and somewhat irregular shapes. It appears to be a stylized representation of a letter, possibly 'Z' or 'S', or perhaps a biological structure like a stylized 'Z' or 'S' shape. The lines are dark and somewhat shaky, suggesting a hand-drawn sketch. The shapes are elongated and somewhat irregular, with some internal lines suggesting depth or structure. The overall impression is that of a quick, gestural drawing on graph paper.

x

Date _____

KEOWN 19N-34HZ SURFACE

