



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 8/24/2016

Invoice # 666002

API# 05-069-06483

Supervisor Nick

Customer: Anadarko Petroleum Corporation

Well Name: Folley South #3

County: Larimer

State: Colorado

Sec: 13

Twp: 5N

Range: 68W

Consultant: Joe

Rig Name & Number: Precision 461

Distance To Location: 25

Units On Location: 4028/3103/4032/3203

Time Requested: 15:00

Time Arrived On Location: 13:55

Time Left Location:

WELL DATA	Cement Data
Casing Size OD (in) : 9.625	Cement Name: BFN III
Casing Weight (lb) : 36.00	Cement Density (lb/gal) : 14.2
Casing Depth (ft.) : 1,865	Cement Yield (cuft) : 1.49
Total Depth (ft) : 1856	Gallons Per Sack: 7.48
Open Hole Diameter (in.) : 13.50	% Excess: 12%
Conductor Length (ft) : 100	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.5	BBL to Pit: 40.0
Shoe Joint Length (ft) : 44	Fluid Ahead (bbls): 20.0
Landing Joint (ft) : 2	H2O Wash Up (bbls): 8.0
Max Rate: 7.5	Spacer Ahead Makeup
Max Pressure: 1500	20 bbl dye in second 10

Calculated Results	Pressure of cement in annulus
cuft of Shoe 19.10 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Displacement: 140.93 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Conductor 80.51 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Hydrostatic Pressure: 1375.81 PSI
cuft of Casing 966.12 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing
Total Slurry Volume 1065.72 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement: 785.18 psi Shoe Joint: 32.46 psi Total: 817.64 psi
bbls of Slurry 189.81 bbls (Total Slurry Volume) X (.1781)	Differential Pressure: 558.17 psi
Sacks Needed 715 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Collapse PSI: 2020.00 psi Burst PSI: 3520.00 psi
Mix Water 127.38 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Total Water Needed: 296.32 bbls

 8-24-2016
 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.

Folley South #3

