



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 8/25/2016

Invoice # 666003

API# 05-069-06484

Supervisor Nick

Customer: Anadarko Petroleum Corporation

Well Name: Folley South #1

County: Larimer

State: Colorado

Sec: 13

Twp: 5N

Range: 68W

Consultant: Josh/Joe

Rig Name & Number: Precision 461

Distance To Location: 25

Units On Location: 4028/3103/4032/3203

Time Requested: 14:00

Time Arrived On Location: 13:13

Time Left Location: 19:10

WELL DATA	Cement Data
Casing Size OD (in) : <u>9.625</u>	Cement Name: <u>BFN III</u>
Casing Weight (lb) : <u>36.00</u>	Cement Density (lb/gal) : <u>14.2</u>
Casing Depth (ft) : <u>1,853</u>	Cement Yield (cuft) : <u>1.49</u>
Total Depth (ft) : <u>1842</u>	Gallons Per Sack: <u>7.48</u>
Open Hole Diameter (in.) : <u>13.50</u>	% Excess: <u>10%</u>
Conductor Length (ft) : <u>100</u>	Displacement Fluid lb/gal: <u>8.3</u>
Conductor ID : <u>15.5</u>	BBL to Pit: <u>35.0</u>
Shoe Joint Length (ft) : <u>44</u>	Fluid Ahead (bbls): <u>30.0</u>
Landing Joint (ft) : <u>2</u>	H2O Wash Up (bbls): <u>10.0</u>
Max Rate: <u>7..5</u>	Spacer Ahead Makeup
Max Pressure: <u>1500</u>	30 bbl dye in second 10

Calculated Results	Displacement: 140.01 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Shoe <u>19.10</u> cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Pressure of cement in annulus
cuft of Conductor <u>80.51</u> cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Hydrostatic Pressure: <u>1366.96 PSI</u>
cuft of Casing <u>942.42</u> cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing
Total Slurry Volume <u>1042.02</u> cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement: <u>780.01 psi</u>
bbls of Slurry <u>185.58</u> bbls (Total Slurry Volume) X (.1781)	Shoe Joint: <u>32.46 psi</u>
Sacks Needed <u>699</u> sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total <u>812.47 psi</u>
Mix Water <u>124.55</u> bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Differential Pressure: <u>554.49 psi</u>
	Collapse PSI: <u>2020.00 psi</u>
	Burst PSI: <u>3520.00 psi</u>
	Total Water Needed: <u>304.55 bbls</u>

X Joseph Wallen
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 #1

