



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 2/24/2017
 Invoice # 900053
 API# 05-123-43364
 Foreman: JASON

Customer: Anadarko Petroleum Corporation
Well Name: CAMENISCH 30N-35HZ

County: Weld Consultant: SEAN
 State: Colorado Rig Name & Number: WM 252
 Distance To Location: 32
 Sec: 2 Units On Location: 4027-3103,4030-3215,4019-321:
 Twp: 1N Time Requested: 1000
 Range: 67W Time Arrived On Location: 900
 Time Left Location: 1430

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>1,820</u>	Cement Yield (cuft) : <u>1.48</u>
Total Depth (ft) : <u>1830</u>	Gallons Per Sack: <u>7.49</u>
Open Hole Diameter (in.) : <u>13.50</u>	% Excess: <u>15%</u>
Conductor Length (ft) : <u>80</u>	Displacement Fluid lb/gal: <u>8.3</u>
Conductor ID : <u>15.25</u>	BBL to Pit: <u>27.0</u>
Shoe Joint Length (ft) : <u>44</u>	Fluid Ahead (bbls): <u>30.0</u>
Landing Joint (ft) : <u>15</u>	H2O Wash Up (bbls): <u>20.0</u>
Max Rate: <u>8</u>	Spacer Ahead Makeup
Max Pressure: <u>2000</u>	<u>30 BBL WATER DYE IN 2ND 10</u>

Calculated Results	Pressure of cement in annulus
Displacement: <u>138.46 bbls</u>	Displacement: <u>138.46 bbls</u>
cuft of Shoe <u>19.23 cuft</u> (Casing ID Squared) X (.005454) X (Shoe Joint ft)	(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Conductor <u>61.05 cuft</u> (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Pressure of cement in annulus
cuft of Casing <u>978.14 cuft</u> (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Hydrostatic Pressure: <u>1342.87 PSI</u>
Total Slurry Volume <u>1058.43 cuft</u> (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Pressure of the fluids inside casing
bbls of Slurry <u>188.51 bbls</u> (Total Slurry Volume) X (.1781)	Displacement: <u>765.79 psi</u>
Sacks Needed <u>715 sk</u> (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Shoe Joint: <u>32.69 psi</u>
Mix Water <u>127.54 bbls</u> (Sacks Needed) X (Gallons Per Sack) ÷ 42	Total <u>798.48 psi</u>
	Differential Pressure: <u>544.39 psi</u>
	Collapse PSI: <u>2020.00 psi</u>
	Burst PSI: <u>3520.00 psi</u>
	Total Water Needed: <u>316.00 bbls</u>

X Sean Kelly
 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.

CAMENISCH 30N-35HZ SURFACE

