



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 8/24/2018
 Invoice # 300175
 API# 05-123-47350
 Foreman: JASON KELEHER

Customer: Anadarko Petroleum Corporation
Well Name: PETTINGER 18-4HZ

County: Weld Consultant: LEVI
 State: Colorado Rig Name & Number: CARTEL 88
 Sec: 18 Distance To Location: 37
 Twp: 1N Units On Location: 4044-3103,4035-3213,4039-3214
 Range: 65W Time Requested: 1200
 Time Arrived On Location: 2300
 Time Left Location: _____

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>1,824</u>	Cement Yield (cuft) : <u>1.48</u>
Total Depth (ft) : <u>1834</u>	Gallons Per Sack: <u>7.48</u>
Open Hole Diameter (in.) : <u>13.50</u>	% Excess: <u>20%</u>
Conductor Length (ft) : <u>80</u>	Displacement Fluid lb/gal: <u>8.3</u>
Conductor ID : <u>15.25</u>	BBL to Pit:
Shoe Joint Length (ft) : <u>42</u>	Fluid Ahead (bbls): <u>30.0</u>
Landing Joint (ft) : <u>5</u>	H2O Wash Up (bbls): <u>10.0</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>138.12 bbls</u>	(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Shoe <u>18.40</u> cuft	Pressure of cement in annulus
(Casing ID Squared) X (.005454) X (Shoe Joint ft)	Hydrostatic Pressure: <u>1345.56 PSI</u>
cuft of Conductor <u>61.05</u> cuft	Pressure of the fluids inside casing
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Displacement: <u>768.20 psi</u>
cuft of Casing <u>1022.81</u> cuft	Shoe Joint: <u>31.26 psi</u>
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Total <u>799.46 psi</u>
Total Slurry Volume <u>1102.26</u> cuft	Differential Pressure: <u>546.10 psi</u>
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Collapse PSI: <u>2020.00 psi</u>
bbls of Slurry <u>196.31</u> bbls	Burst PSI: <u>3520.00 psi</u>
(Total Slurry Volume) X (.1781)	Total Water Needed: <u>310.76 bbls</u>
Sacks Needed <u>745</u> sk	
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	
Mix Water <u>132.64</u> bbls	
(Sacks Needed) X (Gallons Per Sack) ÷ 42	



Authorization To Proceed

PETTINGER 18-4HZ SURFACE

