



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 3/13/2017
 Invoice #: 666089
 API#: 05-123-44121
 Foreman: Nick

Customer: Anadarko Petroleum Corporation
Well Name: Chica 4N2-23HZ

County: Weld
 State: Colorado
 Sec: 35
 Twp: 3N
 Range: 67W
 Consultant: Brian/Matt
 Rig Name & Number: WMO 252
 Distance To Location: 23 Miles
 Units On Location: 4023/4020/4019
 Time Requested: 13:00
 Time Arrived On Location: 12:40
 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.) : 2,372	Cement Yield (cuft) : 1.49
Total Depth (ft) : 2382	Gallons Per Sack: 7.48
Open Hole Diameter (in.) : 13.50	% Excess: 15%
Conductor Length (ft) : 80	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.25	BBL to Pit: 0.0
Shoe Joint Length (ft) : 46	Fluid Ahead (bbls): 30.0
Landing Joint (ft) : 10	H2O Wash Up (bbls): 20.0
Max Rate: 8	Spacer Ahead Makeup
Max Pressure: 2000	Dye in the second 10 bbl

Calculated Results	Displacement: 180.59 bbls
cuft of Shoe 19.97 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Conductor 61.05 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	
cuft of Casing 1288.19 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of cement in annulus Hydrostatic Pressure: 1749.82 PSI
Total Slurry Volume 1369.21 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Pressure of the fluids inside casing Displacement: 1002.93 psi Shoe Joint: 33.93 psi Total 1036.86 psi
bbls of Slurry 243.86 bbls (Total Slurry Volume) X (.1781)	Differential Pressure: 712.96 psi
Sacks Needed 919 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Collapse PSI: 2020.00 psi Burst PSI: 3520.00 psi
Mix Water 163.66 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Total Water Needed: 394.25 bbls

X
 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.

Chica 4N2-23HZ

