



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 5/25/2018
 Invoice #: 900303
 API#: 05-123-46436
 Foreman: Corey Barras

Customer: Anadarko Petroleum Corporation
 Well Name: Gracie 24-2HZ

County: Weld
 State: Colorado
 Sec: 24
 Twp: 2N
 Range: 66W

Consultant: Matt
 Rig Name & Number: Cartel 88
 Distance To Location: 38
 Units On Location: 4027-3103/4041-3214/4039-3214
 Time Requested: 1900
 Time Arrived On Location: 1815
 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.) : 1,884	Cement Yield (cuft) : 1.48
Total Depth (ft) : 1874	Gallons Per Sack: 7.40
Open Hole Diameter (in.) : 13.50	% Excess: 10%
Conductor Length (ft) : 80	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.25	BBL to Pit: 3.0
Shoe Joint Length (ft) : 44	Fluid Ahead (bbls):
Landing Joint (ft) : 15	H2O Wash Up (bbls): 20.0
Max Rate: 8	Spacer Ahead Makeup
Max Pressure: 2000	30 bbl with Die in 2nd 10

Calculated Results	Displacement: 143.41 bbls
cuft of Shoe 19.10 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)	Pressure of cement in annulus Hydrostatic Pressure: 1389.83 PSI
cuft of Casing 969.83 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing Displacement: 793.37 psi Shoe Joint: 32.46 PSI Total 825.83 psi
Total Slurry Volume 1049.98 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Differential Pressure: 563.99 psi
bbls of Slurry 187.00 bbls (Total Slurry Volume) X (.1781)	Collapse PSI: 2020.00 psi Burst PSI: 3520.00 psi
Sacks Needed 709 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total Water Needed: 288.40 bbls
Mix Water 125.00 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	

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.

Gracie 24-2HZ

