



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 8/18/2015
 Invoice # 80520
 API#
 Foreman: Kirk Kallhoff

Customer: Anadarko Petroleum Corporation
 Well Name: powers 14n-22hz

County: Weld
 State: Colorado
 Sec: 23
 Twp: 2n
 Range: 65w

Consultant: hayden
 Rig Name & Number: noble 2
 Distance To Location: 40
 Units On Location: 4031-3103/4024-3203
 Time Requested: 1100 pm
 Time Arrived On Location: 1000 pm
 Time Left Location: 1:30 pm

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.) : 1,862	Cement Yield (cuft) : 1.49
Total Depth (ft) : 1872	Gallons Per Sack: 7.48
Open Hole Diameter (in.) : 13.50	% Excess: 15%
Conductor Length (ft) : 40	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.25	BBL to Pit:
Shoe Joint Length (ft) : 42	Fluid Ahead (bbls): 30.0
Landing Joint (ft) : 10	H2O Wash Up (bbls): 10.0
Max Rate:	Spacer Ahead Makeup
Max Pressure:	

Calculated Results	Pressure of cement in annulus
cuft of Shoe 18.23 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Displacement: 141.47 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Conductor 30.53 cuft (Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Hydrostatic Pressure: 1373.60 PSI
cuft of Casing 1024.03 cuft (Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing
Total Slurry Volume 1072.79 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement: 784.75 psi Shoe Joint: 30.98 psi Total 815.73 psi
bbls of Slurry 191.06 bbls (Total Slurry Volume) X (.1781)	Differential Pressure: 557.86 psi
Sacks Needed 720 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Collapse PSI: 2020.00 psi Burst PSI: 3520.00 psi
Mix Water 128.23 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Total Water Needed: 309.70 bbls

X *Hayden Shea*
 Authorization To Proceed

M/D TOTCO 2000 SERIES

— PSI — Barrels / Minute — Barrels — Lbs / Gallon — Stage Volume

