



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 6/11/2015
 Invoice #: 80400
 API#: 05-123-41502-00
 Foreman: Calvin Reimers

Customer: Anadarko Petroleum Corporation

Well Name: English Farms 16N-8HZ

County: Weld
 State: Colorado
 Sec: 8
 Twp: 1N
 Range: 65W

Consultant: Don / Tobin
 Rig Name & Number: Extreme 24
 Distance To Location: 22 Miles
 Units On Location: 4023-3104/4030-3203
 Time Requested: 730am
 Time Arrived On Location: 605am
 Time Left Location: 145pm

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.) :	1,859	Cement Yield (cuft) :	1.49
Total Depth (ft) :	1885	Gallons Per Sack:	7.48
Open Hole Diameter (in.) :	13.50	% Excess:	25%
Conductor Length (ft) :	60	Displacement Fluid lb/gal:	8.3
Conductor ID :	16	BBL to Pit:	43.0
Shoe Joint Length (ft) :	44	Fluid Ahead (bbls):	30.0
Landing Joint (ft) :	19	H2O Wash Up (bbls):	10.0
Max Rate:	6	Spacer Ahead Makeup	
Max Pressure:	1750	30 bbls With Dye in 2nd 10 bbls	

Casing ID: 8.921 Casing Grade: J-55 only used

Calculated Results	Displacement: 141.75 bbls
cuft of Shoe 19.29 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 53.46 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Pressure of cement in annulus
cuft of Casing 1099.01 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Hydrostatic Pressure: 1371.36 PSI
Total Slurry Volume 1171.76 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Pressure of the fluids inside casing
bbls of Slurry 208.69 bbls (Total Slurry Volume) X (.1781)	Displacement: 782.39 psi
Sacks Needed 786 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Shoe Joint: 32.78 psi
Mix Water 140.06 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Total 815.17 psi
	Differential Pressure: 556.19 psi
	Collapse PSI: 2020.00 psi
	Burst PSI: 3520.00 psi
	Total Water Needed: 321.80 bbls

[Signature]
 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.

SERIES 2000

