



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 8/23/2015

Invoice # 80628

API# 05-123-41953

Foreman: JASON KELEHER

Customer: Anadarko Petroleum Corporation

Well Name: POWERS 27N-27HZ

County: Weld

State: Colorado

Sec: 22

Twp: 2N

Range: 65W

Consultant: BRYAN

Rig Name & Number: NOBLE 2

Distance To Location: 39

Units On Location: 4031-3106/ 4034-3203

Time Requested: 1330

Time Arrived On Location: 1230

Time Left Location: 1730

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.) : 1,849	Cement Yield (cuft) : 1.49
Total Depth (ft) : 1858	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: 30.0
Shoe Joint Length (ft) : 42	Fluid Ahead (bbls): 30.0
Landing Joint (ft) : 7	H2O Wash Up (bbls): 20.0
Max Rate: 6	Spacer Ahead Makeup
Max Pressure: 1250	30BBL WATER/ DYE IN 2ND 10

Casing ID 8.921 Casing Grade J-55 only used

Calculated Results	Pressure of cement in annulus
cuft of Shoe 18.41 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Displacement: 140.18 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: 1363.73 PSI
cuft of Casing 1016.51 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing
Total Slurry Volume 1065.45 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement: 778.80 psi
bbls of Slurry 189.76 bbls (Total Slurry Volume) X (.1781)	Shoe Joint: 31.29 psi
Sacks Needed 715 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total 810.09 psi
Mix Water 127.35 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Differential Pressure: 553.64 psi
	Collapse PSI: 2020.00 psi
	Burst PSI: 3520.00 psi
	Total Water Needed: 317.53 bbls

X Bryan Brown
Bryan Brown
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.

POWERS 27N-27HZ SURFACE

