



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 1/23/2018

Invoice # 666263

API# 05-123-46018

Foreman: Nick Vigil

Customer: Anadarko Petroleum Corporation

Well Name: Verde 13-2HZ

County: Weld

State: Colorado

Sec: 13

Twp: 1N

Range: 66W

Consultant: Brian/Truett

Rig Name & Number: Cartel 88

Distance To Location: 37 Miles

Units On Location: 4023/4039/4041

Time Requested: 20:00

Time Arrived On Location: 20:00

Time Left Location: 23:30

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 36.00
Casing Depth (ft.) : 1,866
Total Depth (ft) : 1857
Open Hole Diameter (in.) : 13.50
Conductor Length (ft) : 80
Conductor ID : 15.25
Shoe Joint Length (ft) : 44
Landing Joint (ft) : 10

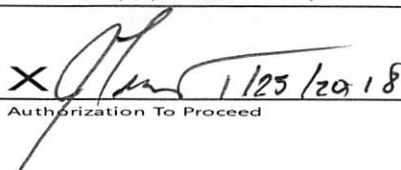
Max Rate: 8
Max Pressure: 2000

Cement Data

Cement Name: BFN III
Cement Density (lb/gal) : 14.2
Cement Yield (cuft) : 1.49
Gallons Per Sack: 7.48
% Excess: 5%
Displacement Fluid lb/gal: 8.3
BBL to Pit:
Fluid Ahead (bbls): 30.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup
Dye in second 10 bbl

Casing ID	8.921	Casing Grade	J-55 only used
Calculated Results		Displacement: 141.63 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	
cuft of Casing 916.51 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)		Hydrostatic Pressure: 1376.55 PSI	
Total Slurry Volume 996.66 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)		Pressure of the fluids inside casing	
bbls of Slurry 177.51 bbls (Total Slurry Volume) X (.1781)		Displacement: 785.61 psi	
Sacks Needed 669 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)		Shoe Joint: 32.46 psi	
Mix Water 119.13 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42		Total 818.07 psi	
		Differential Pressure: 558.48 psi	
		Collapse PSI: 2020.00 psi	
		Burst PSI: 3520.00 psi	
		Total Water Needed: 310.76 bbls	

X  1/23/2018
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.

Date _____

Verde 13-2HZ

