



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 3/2/2018
 Invoice #: 900273
 API#: 05-123-46251
 Foreman: Corey Barras

Customer: Anadarko Petroleum Corporation
 Well Name: Verde 13-14HZ

County: Weld
 State: Colorado
 Sec: 13
 Twp: 1N
 Range: 66W

Consultant: Matt
 Rig Name & Number: Cartel 88
 Distance To Location: 37
 Units On Location: 4027-3103/4030-3213/4024-3201
 Time Requested: 2300
 Time Arrived On Location: 2110
 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) : 1,862	Cement Yield (cuft) : 1.48
Total Depth (ft) : 1872	Gallons Per Sack: 7.40
Open Hole Diameter (in.) : 13.50	% Excess: 5%
Conductor Length (ft) : 80	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.25	BBL to Pit:
Shoe Joint Length (ft) : 44	Fluid Ahead (bbls): 30.0
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: 141.71 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 914.46 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Hydrostatic Pressure: 1373.60 PSI
Total Slurry Volume 994.61 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Pressure of the fluids inside casing
bbls of Slurry 177.14 bbls (Total Slurry Volume) X (.1781)	Displacement: 783.89 psi
Sacks Needed 672 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Shoe Joint: 32.46 PSI
Mix Water 118.41 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Total 816.35 psi
	Differential Pressure: 557.25 psi
	Collapse PSI: 2020.00 psi
	Burst PSI: 3520.00 psi
	Total Water Needed: 310.11 bbls

X Authorization To Proceed



**Bison Oil Well Cementing
Single Cement Surface Pipe**

Customer
Well Name

Anadarko Petroleum Corporation
Verde 13-14HZ

INVOICE #
LOCATION
FOREMAN
Date

900273
Weld
Corey Barras
3/3/2018

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DESCRIPTION OF JOB EVENTS

Amount Pumped		Event	Description	Rate	BBLs	Pressure
% Excess	5%	2110	What rig is doing upon Bison Arrival			
Mixed bbls	118.41	2120	JSA			
Total Sacks	672					
bbl Returns	11	1225	Safety Meeting			
Water Temp	51	1253	Start Job			
		1254	Pressure Test			
Notes:						
		1256	Spacer Ahead			
		100	Lead Cement			
			2nd 10 with die	6	30	70
			14.2 ppg	7	177	90
		135	Shutdown			
		136	Drop Plug			
			Preloaded in plug container			
		138	Start Displacement	7	90	330
		200	Bump Plug			
			500 over final lift (1190 PSI)	2	141	530
		202	Floats Held			
		205	End Job			
		208	Rig Down			
		230	Leave Location			

X BB
Work Performed

X C. Mann
Title

X 3-3-18
Date

Verde 13-14HZ

