


Bison Oil Well Cementing Single Cement Surface Pipe

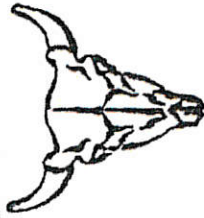
Date: 3/19/2014
Invoice #: 12080
API#: 05-123-38660
Foreman: Calvin Reimers

Customer: Noble
Well Name: Wells Ranch AA 35-66-1AHNC

County: Weld
State: Colorado
Sec: 36
Twp: 6N
Range: 63W
Consultant: Charles
Rig Name & Number: H&P 322
Distance To Location: 32 Miles
Units On Location: 3104/3210
Time Requested: 400pm
Time Arrived On Location: 300pm
Time Left Location: 730pm

WELL DATA		Cement Data	
Casing Size OD (in) :	9.625	Cement Name:	BFN III
Casing Weight (lb) :	36.00	Cement Density (lb/gal) :	15.2
Casing Depth (ft) :	636	Cement Yield (cuft) :	1.27
Total Depth (ft) :	670	Gallons Per Sack:	5.89
Open Hole Diameter (in.) :	13.75	% Excess:	5%
Conductor Length (ft) :	100	Displacement Fluid lb/gal:	8.3
Conductor ID :	16	BBL to Pit:	6.0
Shoe Joint Length (ft) :	47	Fluid Ahead (bbls):	50.0
Landing Joint (ft) :	30	H2O Wash Up (bbls):	20.0
Max Rate:	7	Spacer Ahead Makeup	
Max Pressure:	2500	10bbls H2O+KCL+Dye in 2nd 10bbls	

Casing ID	8.921	Casing Grade	J-55 only used
Calculated Results		Displacement: 47.89 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
cuft of Shoe	20.24 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Pressure of cement in annulus	
cuft of Conductor	89.10 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Hydrostatic Pressure: 502.19 PSI	
cuft of Casing	281.87 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing	
Total Slurry Volume	391.21 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement: 254.13 psi	
bbls of Slurry	73.16 bbls (Total Slurry Volume) X (.1781) X (% Excess Cement)	Shoe Joint: 36.82 psi	
Sacks Needed	323 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total 290.94 psi	
Mix Water	45.36 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Differential Pressure: 211.24 psi	
<div> Authorized to Proceed</div>		Collapse PSI: #N/A psi	
		Burst PSI: #N/A psi	
		Total Water Needed: 163.25 bbls	
Customers hereby acknowledges and specifically agrees to the terms and condition on this work order, including, without limitation, the provisions on this work order.			



Bison Oil Well Cementing
Single Cement Surface Pipe

Customer
Well Name

Noble
Wells Ranch AA 35-66-1AHNC

INVOICE # 12080
LOCATION Weld
FOREMAN Calvin Reimers
Date 3/19/2014

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DESCRIPTION OF JOB EVENTS

	Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
	BBLs	Time	PSI	BBLs	Time	PSI	BBLs	Time	PSI	BBLs	Time	PSI	BBLs	Time	PSI
Safety Meeting	521pm														
MIRU	450pm														
CIRCULATE	544pm														
Drop Plug															
614pm															
M & P															
Time	Sacks														
553pm	323														
609pm															
% Excess	5%														
Mixed bbls	45.36														
Total Sacks	323														
bbl Returns	6														
Water Temp	50														

Notes:

The day

Float Held

1/2 bbl back on bleed off

Casing PSI Test 628pm 1130psi to 643pm 1150psi

X

M. Sutton 3/19/14

Work Performed

X

Title

X

Date