



Bison Oil Well Cementing Single Cement Surface Pipe

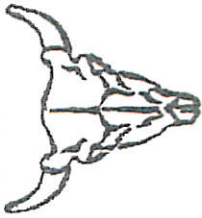
Date: 2/6/2014
Invoice #: 12826
API#: 05-123-38666
Foreman: Calvin Reimers

Customer: Noble
Well Name: Wells Ranch AA 35-69-1AHNC

County: Weld
State: Colorado
Sec: 36
Twp: 6N
Range: 63W
Consultant: Josh / Stetson
Rig Name & Number: H&P 321
Distance To Location: 32 Miles
Units On Location: 3106/3210
Time Requested: 1045pm
Time Arrived On Location: 945pm
Time Left Location: 345am

WELL DATA		Cement Data	
Casing Size OD (in) :	9.6250	Cement Name:	BFN III
Casing Weight (lb) :	36	Cement Density (lb/gal) :	15.2
Casing Depth (ft.) :	602	Cement Yield (cuft) :	1.27
Total Depth (ft) :	642	Gallons Per Sack:	5.89
Open Hole Diameter (in.) :	13.75	% Excess:	30%
Conductor Length (ft) :	100	Displacement Fluid lb/gal:	8.3
Conductor ID :	16	BBL to Pit:	15.0
Shoe Joint Length (ft) :	44	Fluid Ahead (bbls):	
Landing Joint (ft) :	34	H2O Wash Up (bbls):	20.0
Max Rate:	7	Spacer Ahead Makeup	
Max Pressure:	2500	70bbls H2O+Dye in 2nd 10bbls	

Casing ID	8.971	Casing Grade	1-55 only used
Calculated Results		Displacement: 45.84 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
cuft of Shoe	18.96 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:	475.64 PSI
cuft of Casing	264.19 cuft (Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing	
Total Slurry Volume	372.25 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement:	240.90 psi
bbls of Slurry	86.19 bbls (Total Slurry Volume) X (.1781) X (% Excess Cement)	Shoe Joint:	34.49 psi
Sacks Needed	381 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total	275.39 psi
Mix Water	53.44 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Differential Pressure:	200.25 psi
 AUTHORIZED TO PROCEED		Collapse PSI:	2020.00 psi
		Burst PSI:	3520.00 psi
		Total Water Needed	73.44 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

INVOICE #
LOCATION
FOREMAN
Date

12826
Weld
Calvin Reimers
2/6/2014

Customer
Well Name

Noble
Wells Ranch AA 35-69-1AHNC

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DESCRIPTION OF JOB EVENTS

	103am 1145pm 158am	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		0	230am	90	0			0			0			0		
MIRU		10	233am	190	10			10			10			10		
CIRCULATE		20	235am	230	20			20			20			20		
Drop Plug		30	236am	310	30			30			30			30		
229am		40	238am	290	40			40			40			40		
		50	241am	240	50			50			50			50		
M & P		60	Bump	520	60			60			60			60		
Time	Sacks	70			70			70			70			70		
206am	381	80			80			80			80			80		
225am		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
		120			120			120			120			120		
% Excess	30%	130			130			130			130			130		
Mixed bbls	53.44	140			140			140			140			140		
Total Sacks	381	150			150			150			150			150		
bbl Returns	15															

Notes:

The day

Float Held

1/2 bbl back on bleed off

X

X WSS

Time

X 2/7/14

Date

Work Performed