



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 3/15/2014  
Invoice #: 12077  
API#: 05-123-38665  
Foreman: Calvin Reimers

Customer: Noble  
Well Name: Wells Ranch AA 35-68-1BHNC

County: Weld  
State: Colorado  
Sec: 36  
Twp: 6N  
Range: 63W  
Consultant: Jim T. / Josh  
Rig Name & Number: H&P 321  
Distance To Location: 32 Miles  
Units On Location: 3104/3211  
Time Requested: 700am  
Time Arrived On Location: 635am  
Time Left Location: 945am

## WELL DATA

Casing Size OD (in): 9.625  
Casing Weight (lb): 36.00  
Casing Depth (ft): 593  
Total Depth (ft): 633  
Open Hole Diameter (in.): 13.75  
Conductor Length (ft): 100  
Conductor ID: 16  
Shoe Joint Length (ft): 43  
Landing Joint (ft): 35  
Max Rate: 7  
Max Pressure: 2500

## Cement Data

Cement Name: BFN III  
Cement Density (lb/gal): 15.2  
Cement Yield (cuft): 1.27  
Gallons Per Sack: 5.89  
% Excess: 25%  
Displacement Fluid lb/gal: 8.3  
BBL to Pit: 20.0  
Fluid Ahead (bbls): 40.0  
H2O Wash Up (bbls): 20.0  
Spacer Ahead Makeup  
10bbls H2O+KCL+Dye in 2nd 10bbls

Casing ID: 8.921 Casing Grade: I-55 only used

## Calculated Results

**cuft of Shoe** 18.46 cuft  
(Casing ID Squared) X (.005454) X (Shoe Joint ft)  
**cuft of Conductor** 89.10 cuft  
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)  
**cuft of Casing** 259.46 cuft  
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)  
**Total Slurry Volume** 367.02 cuft  
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)  
**bbls of Slurry** 81.71 bbls  
(Total Slurry Volume) X (.1781) X (% Excess Cement)  
**Sacks Needed** 361 sk  
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)  
**Mix Water** 50.66 bbls  
(Sacks Needed) X (Gallons Per Sack) ÷ 42

**Displacement:** 45.26 bbls  
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

## Pressure of cement in annulus

**Hydrostatic Pressure:** 468.52 PSI

## Pressure of the fluids inside casing

**Displacement:** 237.51 psi

**Shoe Joint:** 33.59 psi

**Total** 271.10 psi

**Differential Pressure:** 197.43 psi

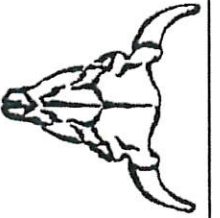
**Collapse PSI:** #N/A psi

**Burst PSI:** #N/A psi

**Total Water Needed:** 155.92 bbls

X   
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.



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

Customer  
Well Name

Noble  
Wells Ranch AA 35-68-18HNC

INVOICE #  
LOCATION  
FOREMAN  
Date

12077  
Weld  
Calvin Reimers  
3/15/2014

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**DESCRIPTION OF JOB EVENTS**

Safety Meeting	735am	Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
	640am	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI
MIRU	753am	0	822am	90	0			0			0			0		
CIRCULATE	Drop Plug	10	825am	180	10			10			10			10		
		20	827am	240	20			20			20			20		
		30	828am	290	30			30			30			30		
		40	830am	280	40			40			40			40		
M & P	Time	50	833am	240	50			50			50			50		
		60	Bump	480	60			60			60			60		
Sacks	Time	70			70			70			70			70		
		80			80			80			80			80		
818am	Sacks	90			90			90			90			90		
		100			100			100			100			100		
	Sacks	110			110			110			110			110		
		120			120			120			120			120		
% Excess	Mixed bbls	130			130			130			130			130		
		140			140			140			140			140		
Total Sacks	bbl Returns	150			150			150			150			150		
		20			20			20			20			20		
Water Temp	Notes:	63														

The day

Float Held

1/2 bbl back on bleed off

Casing PSI Test 835am 1240psi to 850am 1250psi

X

X Title

X 3-15-14 Date