



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 2/2/2014
Invoice #: 12823
API#: 05-123-37596
Foreman: Calvin Reimers

Customer: Noble
Well Name: Wells Ranch AA 21-64-1HN

County: Weld
State: Colorado
Sec: 21
Twp: 6N
Range: 63W

Consultant: Jeremy / Mike
Rig Name & Number: Patterson 272
Distance To Location: 29 Miles
Units On Location: 3106/3204
Time Requested: 430am
Time Arrived On Location: 415am
Time Left Location: 1015am

WELL DATA

Casing Size OD (in): 9.6250
Casing Weight (lb): 36
Casing Depth (ft): 934
Total Depth (ft): 968
Open Hole Diameter (in.): 13.75
Conductor Length (ft): 100
Conductor ID: 16
Shoe Joint Length (ft): 44
Landing Joint (ft): 30

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: 0%
Displacement Fluid lb/gal: 8.3
BBL to Pit: 10.0
Fluid Ahead (bbls):
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup
10bbls H2O+KCL+Dye in 2nd 10bbls

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 19.26 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 438.75 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 547.11 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 97.44 bbls
(Total Slurry Volume) X (.1781) X (% Excess Cement)

Sacks Needed 431 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 60.41 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 71.13 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 737.73 PSI

Pressure of the fluids inside casing

Displacement: 383.72 psi

Shoe Joint: 35.04 psi

Total 418.76 psi

Differential Pressure: 318.97 psi

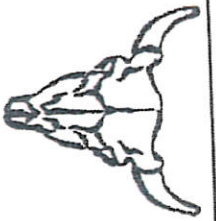
Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed 80.41 bbls

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 21-64-1HN

INVOICE #
LOCATION
FOREMAN
Date

12823
Weld
Calvin Reimers
2/2/2014

Treatment Report Page 2

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	728am															
MIRU	615am															
CIRCULATE	822am															
Drop Plug		0	900am	50	0			0			0			0		
859am		10	903am	150	10			10			10			10		
		20	905am	150	20			20			20			20		
		30	907am	200	30			30			30			30		
		40	908am	290	40			40			40			40		
		50	910am	390	50			50			50			50		
M & P		60	912am	460	60			60			60			60		
Time	Sacks	60	912am	460	70			70			70			70		
		70	914am	370	80			80			80			80		
835am		80	916am	370	90			90			90			90		
855am		90	Bump	540	100			100			100			100		
		100			110			110			110			110		
		110			120			120			120			120		
		120			130			130			130			130		
% Excess		130			140			140			140			140		
Mixed bbls		140			150			150			150			150		
Total Sacks		150														
bbl Returns		10														

Notes:

The day

Float Held

1/2 bbl back on bleed off

Water was 59°F

X

Work performed

X Title 11/5

X Date 2/2/14