



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 3/12/2014
Invoice # 12125
API# 05-121-11040
Foreman: LEE

Customer: NOBLE

Well Name: WELLS RANCH STATE AA21-69-1HN

County: WELD
State: Colorado

Consultant: ROGER FOSTER
Rig Name & Number: H & P 277

Sec: 21
Twp: 6N
Range: 63W

Distance To Location:
Units On Location: 4027-3106:
Time Requested: 1:30
Time Arrived On Location: 2:10 AM
Time Left Location: 11:40

WELL DATA

Casing Size OD (in) : 9.6250
Casing Weight (lb) : 36
Casing Depth (ft.) : 953
Total Depth (ft) : 963
Open Hole Diameter (in.) : 13.75
Conductor Length (ft) : 100
Conductor ID : 15.5
Shoe Joint Length (ft) : 43
Landing Joint (ft) : 0

Max Rate:
Max Pressure:

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:
Fluid Ahead (bbls):
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup

30KCLBBL DIE 2ND 10

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 18.55 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)

cuft of Conductor 80.51 cuft
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)

cuft of Casing 448.58 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 547.63 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 121.92 bbls
(Total Slurry Volume) X (.1781) X (% Excess Cement)

Sacks Needed 539 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 75.59 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 70.37 bbls

(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 752.49 PSI

Pressure of the fluids inside casing

Displacement: 392.49 psi

Shoe Joint: 33.74 psi

Total 426.23 psi

Differential Pressure: 326.26 psi

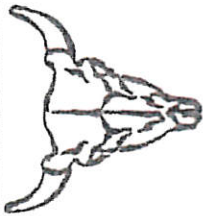
Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 95.59 bbls

[Signature]
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

INVOICE # 12125
LOCATION WELD
FOREMAN LEE
Date 3/12/2014

Customer NOBLE
Well Name WELLS RANCH STATE AA21-69-1HN

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DESCRIPTION OF JOB EVENTS

	Safety Meeting	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
	10:07	0	10:46		0			0			0			0		
MIRU	10:05	10	10:47	170	10			10			10			10		
CIRCULATE	10:18	20	10:49	250	20			20			20			20		
Drop Plug		30	10:51	320	30			30			30			30		
10:46		40	10:53	370	40			40			40			40		
		50	10:55	400	50			50			50			50		
M & P		60	10:57	470	60			60			60			60		
Time	10:20	70	11:00	630	70			70			70			70		
		80			80			80			80			80		
		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
% Excess	24%	120			120			120			120			120		
Mixed bbls	75	130			130			130			130			130		
Total Sacks	535	140			140			140			140			140		
		150			150			150			150			150		
bbl Returns	25															

Notes:

The day DELAY WHEN TRYING TO PRIME PUMP, REMAINDER OF JOB PROCCED AS NORMAL

X *Roubert*

X *WSS*

X *3/12/14*

Work Prepared

Title

Date