



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 6/27/2014

Invoice # 12077

API# 05-123-38689

Foreman: JASON

Customer: NOBLE

Well Name: WELLS RANCH AE30-64-1AHNA

County: Weld County

State: Colorado

Sec: 29

Twp: 6N

Range: 62W

Consultant: KEVIN

Rig Name & Number: H&P 277

Distance To Location: 33

Units On Location: 4031-3106, 4022-3205

Time Requested: 700

Time Arrived On Location: 430

Time Left Location: 1530

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.) : 605	Cement Yield (cuft) : 1.27
Total Depth (ft) : 640	Gallons Per Sack: 5.89
Open Hole Diameter (in.) : 13.75	% Excess: 20%
Conductor Length (ft) : 100	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.25	BBL to Pit: 10.0
Shoe Joint Length (ft) : 44	Fluid Ahead (bbbls): 45.0
Landing Joint (ft) : 25	H2O Wash Up (bbbls): 20.0
Max Rate: 7	Spacer Ahead Makeup
Max Pressure: 2500	45 BBL H2O+KCL+DYE IN 2ND 10

Calculated Results	Pressure of cement in annulus
cuft of Shoe 19.14 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Displacement: 45.30 bbbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Conductor 76.31 cuft (Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Hydrostatic Pressure: 477.98 PSI
cuft of Casing 318.91 cuft (Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing
Total Slurry Volume 414.36 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement: 242.00 psi Shoe Joint: 34.81 psi Total: 276.82 psi
bbbls of Slurry 73.7 88.56 bbbls (Total Slurry Volume) X (.1781) X (% Excess Cement)	Differential Pressure: 201.17 psi
Sacks Needed 326 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Collapse PSI: 2020.00 psi Burst PSI: 3520.00 psi
Mix Water 45.75 bbbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Total Water Needed: 156.05 bbbls

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 AE30-64-1AHNA

INVOICE #
LOCATION
FOREMAN
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Weld County
JASON
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Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

	1310	Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
MIRU	1230	BBLs	Time	PSI												
CIRCULATE		0	1412	0	0			0			0			0		
Drop Plug		10	1414	60	10			10			10			10		
1411		20	1416	150	20			20			20			20		
		30	1419	240	30			30			30			30		
		40	1421	360	40			40			40			40		
M & P		50	1424	240	50			50			50			50		
Time	Sacks	60	BUMP	430	60			60			60			60		
1351-1408	326	70			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	2.0%	120			120			120			120			120		
Mixed bbls	45.7	130			130			130			130			130		
Total Sacks	326	140			140			140			140			140		
bbl Returns	10	150			150			150			150			150		
Water Temp	73															

Notes:

The day

PRESSURE TEST TO 1500 PSI, PUMPED 45 BBL WATER WITH DYE IN THE 2ND 10, MIXED AND PUMPED 326 SKS AT 15.2, 73.7 BBL, DISPLACED 45.3 BBLS

PRESSURING UP TO 430 PSI, PERFORMED CASING TEST AT 1000 PSI FOR 15 MINUTES, RELEASED PRESSURE AND GOT .25 BBL BACK

X Jason [Signature]
Work Performed

X WSS
Title

X 27-Jun-14
Date