



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 3/22/2015  
Invoice #: 80115  
API#: 05-123-40924  
Foreman: JASON KELEHER

Customer: Noble Energy Inc.  
Well Name: AGGIE STATE AA17-643

County: Weld  
State: Colorado  
Sec: 17  
Twp: 6N  
Range: 63W

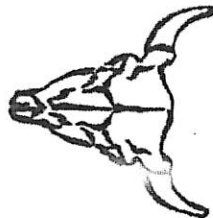
Consultant: JIM  
Rig Name & Number: H&P 343  
Distance To Location: 27  
Units On Location: 4031-3107/ 4034-3211  
Time Requested: 2130  
Time Arrived On Location: 2100  
Time Left Location: 230

WELL DATA	Cement Data
Casing Size OD (in) : 9.625	Cement Name: BFN III
Casing Weight (lb) : 36.00	Cement Density (lb/gal) : 14.2
Casing Depth (ft) : 892	Cement Yield (cuft) : 1.49
Total Depth (ft) : 925	Gallons Per Sack: 7.48
Open Hole Diameter (in.) : 13.50	% Excess: 0%
Conductor Length (ft) : 100	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.25	BBL to Pit: 17.0
Shoe Joint Length (ft) : 42	Fluid Ahead (bbls): 50.0
Landing Joint (ft) : 29	H2O Wash Up (bbls): 20.0
Max Rate: 6	Spacer Ahead Makeup
Max Pressure: 1000	50 BBL WATER W/ DYE IN 2ND 10

Casing ID 8.921	Casing Grade J-55 only used
<b>Calculated Results</b>	Displacement: 67.96 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Shoe 18.11 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	<b>Pressure of cement in annulus</b>
cuft of Conductor 76.31 cuft (Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Hydrostatic Pressure: 657.90 PSI
cuft of Casing 386.99 cuft (Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	<b>Pressure of the fluids inside casing</b>
Total Slurry Volume 481.41 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement: 366.55 psi
bbls of Slurry 85.74 bbls (Total Slurry Volume) X (.1781)	Shoe Joint: 30.78 psi
Sacks Needed 323 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total 397.32 psi
Mix Water 57.54 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Differential Pressure: 260.57 psi
	Collapse PSI: 2020.00 psi
	Burst PSI: 3520.00 psi
	Total Water Needed: 195.50 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 Energy Inc.  
AGGIE STATE AA17-643

INVOICE #  
LOCATION  
FOREMAN  
Date

80115  
Weld  
JASON KELEHER  
3/22/2015

Treatment Report Page 2

**DESCRIPTION OF JOB EVENTS**

Safety Meeting	2350	Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
	2315	BBLs	Time	PSI	BBLs	Time	PSI	BBLs	Time	PSI	BBLs	Time	PSI	BBLs	Time	PSI
MIRU	1223	0	1258	0	0			0			0			0		
CIRCULATE		10	100	70	10			10			10			10		
Drop Plug		20	102	50	20			20			20			20		
1258		30	107	120	30			30			30			30		
		40	109	210	40			40			40			40		
M & P		50	112	250	50			50			50			50		
Time	Sacks	60	114	280	60			60			60			60		
0035-0056	401	70	117	290	70			70			70			70		
		80	BUIMP	730	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	71.4	130			130			130			130			130		
Total Sacks	401	140			140			140			140			140		
bbl Returns	17	150			150			150			150			150		
Water Temp	57															

Notes:

PRESSURED TESTED TO 1500 PSI AT 0021, PUMPED 50 BBL WATER W/ DYE IN 2ND 10 AT 0023, MIXED AND PUMPED 401 SKS AT 14.2, 106.4 BBL

AT 0035, SHUT DOWN AT 0056, STARTED DISPLACEMENT AT 0058, PLUG LANDED AT 290 PSI AT 0117 AND PRESSURED UP TO 730 PSI, HELD FOR 1

MINUTE AND PRESSURED UP TO 1030 PSI TO PERFORM CASING TEST, HELD FOR 15 MINUTES AND THEN RELEASED AND CHECKED FLOATS, FLOATS

HELD, GOT .5 BBL FACK

X ASB

X                     

X                     

Work Performed

Title

Date