



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 7/28/2014  
Invoice #: 55007  
API#:   
Foreman: monte

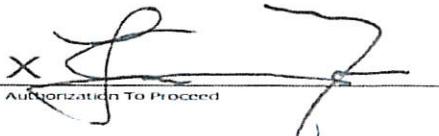
Customer: Noble Energy Inc.

Well Name: five rivers k08-67-1hn

County: Weld  
State: Colorado  
Sec: 9  
Twp: 4N  
Range: 66W

Consultant: lane  
Rig Name & Number: h&p 330  
Distance To Location: 5.9  
Units On Location: 4031-3104 4020-3212  
Time Requested: 1:30pm  
Time Arrived On Location: 12:35  
Time Left Location: 4:30

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) : 597	Cement Yield (cuft) : 1.27
Total Depth (ft) : 637	Gallons Per Sack: 5.89
Open Hole Diameter (in.) : 13.75	% Excess: 25%
Conductor Length (ft) : 130	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.6	BBL to Pit:
Shoe Joint Length (ft) : 44	Fluid Ahead (bbls): 40.0
Landing Joint (ft) : 30	H2O Wash Up (bbls): 20.0
Max Rate: 5	Spacer Ahead Makeup
Max Pressure: 2000	10 fresh 10 dye 20 fresh

Casing ID	8.921	Casing Grade	J-55 only used
<b>Calculated Results</b>		<b>Displacement: 45.07 bbls</b> (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
<b>cuft of Shoe</b> 19.10 <b>cuft</b>	<b>Pressure of cement in annulus</b>		
(Casing ID Squared) X (.005454) X (Shoe Joint ft)	<b>Hydrostatic Pressure: 471.39 PSI</b>		
<b>cuft of Conductor</b> 106.86 <b>cuft</b>	<b>Pressure of the fluids inside casing</b>		
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	<b>Displacement: 238.44 psi</b>		
<b>cuft of Casing</b> 306.99 <b>cuft</b>	<b>Shoe Joint: 34.74 psi</b>		
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length )	<b>Total 273.19 psi</b>		
<b>Total Slurry Volume</b> 432.95 <b>cuft</b>	<b>Differential Pressure: 198.21 psi</b>		
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	<b>Collapse PSI: 2020.00 psi</b>		
<b>bbls of Slurry</b> 77.11 <b>bbls</b>	<b>Burst PSI: 3520.00 psi</b>		
(Total Slurry Volume) X (.1781)	<b>Total Water Needed: 152.88 bbls</b>		
<b>Sacks Needed</b> 341 <b>sk</b>			
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)			
<b>Mix Water</b> 47.81 <b>bbls</b>			
(Sacks Needed) X (Gallons Per Sack) ÷ 42			
 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.  
five rivers k08-67-1hn

INVOICE #  
LOCATION  
FOREMAN  
Date

55007  
Weld  
monte  
7/28/2014

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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	2:30															
MIRU	2:05															
CIRCULATE	3:05	0	3:32	0	0			0			0			0		
Drop Plug		10	3:35	80	10			10			10			10		
3:22		20	3:37	210	20			20			20			20		
		30	3:39	240	30			30			30			30		
		40	3:42	290	40			40			40			40		
M & P		50	3:44	520	50			50			50			50		
Time	Sacks	60			60			60			60			60		
3:13-3:30	351	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	25%	120			120			120			120			120		
Mixed bbls	47.81	130			130			130			130			130		
Total Sacks	341	140			140			140			140			140		
bbl Returns	25	150			150			150			150			150		
Water Temp	85.5															

Notes:

Safety Meeting, miru, pressure test per company manm circulate 40 bbls ahead with dye in 2nd 10, mix and pump 341 sks cement at 25% excess, drop plug and displ  
bumped at Pm, at psi, bbls to pit . CASSING TEST 1000 LB 15 MIN

X   
Mike Pretorius

X WSS  
Title

X 7-28-14  
Date