



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 3/3/2015
 Invoice # 80101
 API# 05-123-40909
 Foreman: JASON KELEHER

Customer: Noble Energy Inc.

Well Name: COLT A13-613

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

Consultant: _____
 Rig Name & Number: H&P 343
 Distance To Location: 27
 Units On Location: 4027-3106/ 4022-3213
 Time Requested: 2330
 Time Arrived On Location: 2230
 Time Left Location: 430

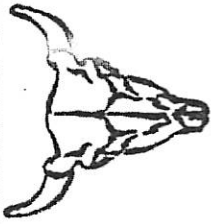
WELL DATA	
Casing Size OD (in) :	<u>9.625</u>
Casing Weight (lb) :	<u>36.00</u>
Casing Depth (ft.) :	<u>898</u>
Total Depth (ft) :	<u>927</u>
Open Hole Diameter (in.) :	<u>13.50</u>
Conductor Length (ft) :	<u>100</u>
Conductor ID :	<u>15.25</u>
Shoe Joint Length (ft) :	<u>45</u>
Landing Joint (ft) :	<u>29</u>
Max Rate:	<u>6</u>
Max Pressure:	<u>1000</u>

Cement Data	
Cement Name:	<u>BFN III</u>
Cement Density (lb/gal) :	<u>14.2</u>
Cement Yield (cuft) :	<u>1.49</u>
Gallons Per Sack:	<u>7.48</u>
% Excess:	<u>15%</u>
Displacement Fluid lb/gal:	<u>8.3</u>
BBL to Pit:	<u>18.0</u>
Fluid Ahead (bbls):	<u>60.0</u>
H2O Wash Up (bbls):	<u>20.0</u>
Spacer Ahead Makeup	
<u>60 BBL WATER W/ DYE IN 2ND 10</u>	

Calculated Results		Displacement: <u>68.16</u> bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
cuft of Shoe	<u>19.57</u> cuft	Pressure of cement in annulus	
(Casing ID Squared) X (.005454) X (Shoe Joint ft)		Hydrostatic Pressure: <u>662.27</u> PSI	
cuft of Conductor	<u>76.31</u> cuft	Pressure of the fluids inside casing	
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)		Displacement: <u>367.66</u> psi	
cuft of Casing	<u>448.37</u> cuft	Shoe Joint: <u>33.26</u> psi	
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)		Total <u>400.91</u> psi	
Total Slurry Volume	<u>544.25</u> cuft	Differential Pressure: <u>261.36</u> psi	
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)		Collapse PSI: <u>2020.00</u> psi	
bbls of Slurry	<u>96.93</u> bbls	Burst PSI: <u>3520.00</u> psi	
(Total Slurry Volume) X (.1781)		Total Water Needed: <u>213.21</u> bbls	
Sacks Needed	<u>365</u> sk		
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)			
Mix Water	<u>65.05</u> bbls		
(Sacks Needed) X (Gallons Per Sack) ÷ 42			

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.
COLT A13-613

INVOICE # 80101
LOCATION Weld
FOREMAN JASON KELEHER
Date 3/3/2015

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	130															
MIRU	2300															
CIRCULATE	203															
Drop Plug		244	0													
		246	70													
		250	40													
		255	120													
		258	170													
		301	230													
M & P																
Time	Sacks	60	305	310	60		60		60		60		60		60	
0219-0242		70	309	310	70		70		70		70		70		70	
		80	BUMP	670	80		80		80		80		80		80	
		90			90		90		90		90		90		90	
		100			100		100		100		100		100		100	
		110			110		110		110		110		110		110	
		120			120		120		120		120		120		120	
% Excess		15%			15%		15%		15%		15%		15%		15%	
Mixed bbls		65			65		65		65		65		65		65	
Total Sacks		365			365		365		365		365		365		365	
bbl Returns		18			18		18		18		18		18		18	
Water Temp		44			44		44		44		44		44		44	

Notes:

PRESSURED TESTED TO 1500 PSI AT 0200, PUMPED 60 BBL WATER W/ DYE IN 2ND 10 AT 0203, MIXED AND PUMPED 365 SKS AT 14.2, 96.8 BBL AT 0219, SHUT DOWN AT 0242, STARTED DISPLACEMENT AT 0244, PLUG LANDED AT 310 PSI AT 0309 AND PRESSURED UP TO 670 PSI, HELD FOR 2 MINUTE AND PRESSURED UP TO 1040 PSI TO PERFORM CASING TEST, HELD FOR 15 MINUTES AND THEN RELEASED AND CHECKED FLOATS, FLOATS HELD, GOT .5 BBL BACK

X Title

X 3-3-15 Date