Bison Oil Well Cementing
Single Cement Surface Pipe

Date: 7/11/2015
Invoice # 80502
API#
Foreman: Kirk Kallhoff

Customer: Noble Energy Inc.
Well Name: 70 ranch bb 18-622

County: Weld
State: Colorado

Sec: 17
Twp: 5n
Range: 63w

Consultant: steve
Rig Name & Number: H&P 343
Distance To Location:
Units On Location: 4038-3103/4024-3210
Time Requested: 300 am
Time Arrived On Location: 200 am
Time Left Location: 7:30 am

WELL DATA

Casing Size OD (in) :	9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	713
Total Depth (ft) :	758
Open Hole Diameter (in.) :	13.50
Conductor Length (ft) :	100
Conductor ID :	16
Shoe Joint Length (ft) :	42
Landing Joint (ft) :	35
Max Rate:	
Max Pressure:	

Cement Data

Cement Name:	BFN III
Cement Density (lb/gal) :	14.2
Cement Yield (cuft) :	1.49
Gallons Per Sack:	7.48
% Excess:	30%
Displacement Fluid lb/gal:	8.3
BBL to Pit:	
Fluid Ahead (bbls):	50.0
H20 Wash Up (bbls):	10.0

Spacer Ahead Makeup

Casing ID 8.921 Casing Grade J-55 only used

Calculated Results

cuft of Shoe 18.23 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)

cuft of Conductor 89.10 cuft
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)

cuft of Casing 389.47 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 496.79 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 88.48 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 333 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 59.38 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 54.58 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 525.98 PSI

Pressure of the fluids inside casing

Displacement: 289.32 psi
Shoe Joint: 30.98 psi
Total 320.31 psi

Differential Pressure: 205.67 psi

Collapse PSI: 2020.00 psi
Burst PSI: 3520.00 psi

Total Water Needed: 173.96 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.

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FOREMAN	Kirk Kallhoff
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DESCRIPTION OF JOB EVENTS

Amount Pumped		Time/Date	Event	Description	Rate	BBLs	Pressure
% Excess	27%	500 am	Rig up				
Mixed bbls	58	534 am	JSA				
Total Sacks	326	558 am	Pressure Test		1	1	1100
bbl Returns	12	600 am	Spacer Ahead	10 bbls fresh h2o	5	10	90
Water Temp			Spacer Ahead	10 bbls dye h2o	5	10	
			Spacer Ahead	30 bbls fresh h2o	5	30	
Notes:		609 am	Lead Cement	326 sks cement 86.5 bbls slurry	5	86.5	120
		627 am	Shutdown				
		631 am	Drop Plug				
		631 am	Start Displacement	54.5 bbls h2o	5	54.5	150
		644 am	Bump Plug	230 psi before bump	1		480
		646 am	Pressure Test Casing				
		701 am	End Job	release psi			0
		710 am	Rig Down				
		730 am	Leave Location				

X Cmt. Surface Csg
Work Preformed

X
Title

X 7-11-15
Date