Bison Oil Well Cementing
Single Cement Surface Pipe

Date:	9/29/2016
Invoice #	666011
API#	05-123-43319
Foreman:	Nick
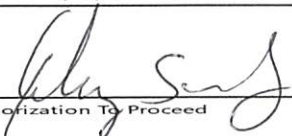
Customer: Noble Energy Inc.

Well Name: Ellie LD26-635

County:	Weld	Consultant:	Johnny
State:	Colorado	Rig Name & Number:	H&P 517
		Distance To Location:	64
Sec:	28	Units On Location:	4023,3104,4032,3107
Twp:	9N	Time Requested:	5:00
Range:	58W	Time Arrived On Location:	3:45
		Time Left Location:	12:15

WELL DATA

Casing Size OD (in) :	9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	1,927
Total Depth (ft) :	1937
Open Hole Diameter (in.) :	13.50
Conductor Length (ft) :	80
Conductor ID :	15.5
Shoe Joint Length (ft) :	48
Landing Joint (ft) :	0
Max Rate:	8
Max Pressure:	1500

Cement Data

Cement Name:	BFN III
Cement Density (lb/gal) :	14.2
Cement Yield (cuft) :	1.49
Gallons Per Sack:	7.48
% Excess:	15%
Displacement Fluid lb/gal :	8.3
BBL to Pit:	32.0
Fluid Ahead (bbls):	50.0
H20 Wash Up (bbls):	20.0

Spacer Ahead Makeup

Dye in second 10 bbl

Casing ID   8.921   Casing Grade   J-55 only used

Calculated Results

cuft of Shoe   20.83   cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)

cuft of Conductor   64.40   cuft
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)

cuft of Casing   1038.09   cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume   1123.33   cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry   200.06   bbls
(Total Slurry Volume) X (.1781)

Sacks Needed   754   sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water   134.27   bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 145.26   bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 1421.55 PSI

Pressure of the fluids inside casing

Displacement:	810.19 psi
Shoe Joint:	35.41 psi
Total	845.60 psi
Differential Pressure:	575.95 psi
Collapse PSI:	2020.00 psi
Burst PSI:	3520.00 psi
Total Water Needed:	349.53 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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INVOICE #	666011
LOCATION	Weld
FOREMAN	Nick
Date	9/29/2016

Customer: Noble Energy Inc.
Well Name: Ellie LD26-635

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DESCRIPTION OF JOB EVENTS

Amount Pumped		Time/Date	Event	Description	Rate	BBLs	Pressure
% Excess	15%	3:45	Arrive On Location	Rig was running casing.			
Mixed bbls	218.5	3:50	Well Site Assessment	Hazard hunt, Rig up safety meeting			
Total Sacks	815	6:15	Rig up				
bbl Returns	32	6:45	JSA	Held safety meeting with all personell involved.			
Water Temp	59	7:08	Test Lines	Pressure tested lines to 1300 psi.			
		7:11	Spacer Ahead	Fresh water dye in second 10.	4.5	50	130
Notes:		7:23	Pump Cement	14.2 ppg (yield 1.49 gal/sk 7.48)	4.5	200	190
		8:37	Shut Down				
		8:38	Drop Plug	Plug was pre loaded.			
		8:38	Pump Displacement	Displaced with fresh water.	5.5	70	430
		9:14	Bump Plug	Bumped plug 200 psi over final lift.	1.7	145.3	550
		9:15	Casing Test	Pressured up casing to 1000 psi and held for 15 min			
		9:30	Check Floats	Floats held flowed back .5 bbl			
		10:30	Top Off	70 sks	1	18.5	0
		11:30	End Job	Rig down safety meeting.			
		11:32	Rig Down	Wash up and rig down.			
		12:15	Crew Left Location				

X _Cmt Surfce csg._
Work Preformed

X _WCS_
Title

X _9-28-16_
Date