Bison Oil Well Cementing
Single Cement Surface Pipe

Date: 5/29/2015
Invoice # 80082
API#
Foreman: Kirk Kallhoff

Customer: Noble Energy Inc.
Well Name: wells ranch aa11-667

County: Weld
State: Colorado
Sec: 17
Twp: 6n
Range: 63w

Consultant: justin
Rig Name & Number: H&P 273
Distance To Location:
Units On Location: 4038-3103/4020-3212
Time Requested: 830 am
Time Arrived On Location: 730am
Time Left Location: 11:45am

WELL DATA

Casing Size OD (in) :	_9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	609
Total Depth (ft) :	652
Open Hole Diameter (in.) :	13.50
Conductor Length (ft) :	100
Conductor ID :	16
Shoe Joint Length (ft) :	41
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):	40.0
H20 Wash Up (bbls):	10.0

Spacer Ahead Makeup

Casing ID 8.921 Casing Grade J-55 only used

Calculated Results

cuft of Shoe 17.80 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 323.39 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 430.28 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 76.63 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 289 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 51.43 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 46.62 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 449.26 PSI

Pressure of the fluids inside casing

Displacement: 244.91 psi
Shoe Joint: 30.25 psi
Total 275.16 psi

Differential Pressure: 174.10 psi

Collapse PSI: 2020.00 psi
Burst PSI: 3520.00 psi

Total Water Needed: 148.05 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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Well Name	wells ranch aa11-667

INVOICE #	80082
LOCATION	Weld
FOREMAN	Kirk Kallhoff
Date	5/29/2015

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DESCRIPTION OF JOB EVENTS

Amount Pumped		Time/Date	Event	Description	Rate	BBLs	Pressure
% Excess	31%	945 am	Rig up				
Mixed bbls	52	1011 am	JSA				
Total Sacks	292	1128 am	Pressure Test		1	1	500
bbl Returns	14	1130 am	Spacer Ahead	10 bbls fresh h2o	5	10	90
Water Temp			Spacer Ahead	10 bbls dye h2o	5	10	
			Spacer Ahead	20 bbls fresh h2o	5	20	
Notes:		1139 am	Lead Cement	292 sks cement 77.4 bbls slurry	5	77.4	120
		1155 am	Shutdown				
		1159 am	Drop Plug				
		1159 am	Start Displacement	46.6 bbls h2o	5	46.6	150
		1112 am	Bump Plug	200 psi before bump	1		450
		1114 am	End Job	release psi			0
		1116 am	Rig Down				
		1145 am	Leave Location				

X _____
Work Preformed

X _____
Title

X 5-29-15
Date