Bison Oil Well Cementing
Single Cement Surface Pipe

Date: 6/23/2015
Invoice # 80097
API#
Foreman: Kirk Kallhoff

Customer: Noble Energy Inc.
Well Name: wells ranch a 36-655

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

Consultant: charles
Rig Name & Number: H&P 273
Distance To Location:
Units On Location: 4038-3103/4022-3213
Time Requested: 1130 am
Time Arrived On Location: 1030 am
Time Left Location: 2:00pm

WELL DATA

Casing Size OD (in) :	9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	813
Total Depth (ft) :	850
Open Hole Diameter (in.) :	13.50
Conductor Length (ft) :	100
Conductor ID :	16
Shoe Joint Length (ft) :	43
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 18.66 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 453.00 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 560.76 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 99.87 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 376 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 67.03 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 62.23 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 599.75 PSI

Pressure of the fluids inside casing

Displacement: 332.01 psi
Shoe Joint: 31.72 psi
Total 363.73 psi

Differential Pressure: 236.02 psi

Collapse PSI: 2020.00 psi
Burst PSI: 3520.00 psi

Total Water Needed: 179.26 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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LOCATION	Weld
FOREMAN	Kirk Kallhoff
Date	6/23/2015

Customer	Noble Energy Inc.
Well Name	wells ranch a 36-655

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DESCRIPTION OF JOB EVENTS

Amount Pumped		Time/Date	Event	Description	Rate	BBLs	Pressure
% Excess	16%	1150 am	Rig up				
Mixed bbls	60	1210 pm	JSA				
Total Sacks	337	1230 pm	Pressure Test		1	1	1100
bbl Returns	10	1232 pm	Spacer Ahead	10 bbls fresh h2o	5	10	90
Water Temp			Spacer Ahead	10 bbls dye h2o	5	10	
			Spacer Ahead	40 bbls fresh h2o	5	20	
Notes:		1242 pm	Lead Cement	337 sks cement 89.4 bbls slurry	5	89.4	120
		1259 pm	Shutdown				
		102 pm	Drop Plug				
		102pm	Start Displacement	62.3 bbls h2o	5	62.3	150
		117 pm	Bump Plug	280 psi before bump	1		540
		120 pm	Pressure Test Casing				
		135 pm	End Job	release psi			0
		140 pm	Rig Down				
		200 pm	Leave Location				

X _____ Work Preformed

X WSS Title

X 6-23-15 Date