Bison Oil Well Cementing
Single Cement Surface Pipe

Date:	1/26/2016
Invoice #	90065
API#	05-123-40591
Supervisor	Nick

Customer: Noble Energy Inc.

Well Name: Remora LC 34-735

County:	Weld	Consultant:	Justin
State:	Colorado	Rig Name & Number:	H&P 273
		Distance To Location:	55
Sec:	34	Units On Location:	3102/4016/4022/3215
Twp:	9N	Time Requested:	7:30
Range:	59W	Time Arrived On Location:	6:00
		Time Left Location:	11:30

WELL DATA

Casing Size OD (in) :	_9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	609
Total Depth (ft) :	618
Open Hole Diameter (in.) :	13.50
Conductor Length (ft) :	80
Conductor ID :	15.25
Shoe Joint Length (ft) :	41
Landing Joint (ft) :	5
Max Rate:	7
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:	10.0
Fluid Ahead (bbls):	40.0
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 17.80 cuft

(Casing ID Squared) X (.005454) X (Shoe Joint ft)

cuft of Conductor 61.05 cuft

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

cuft of Casing 308.55 cuft

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

Total Slurry Volume 387.40 cuft

(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 68.90 bbls

(Total Slurry Volume) X (.1781)

Sacks Needed 260 sk

Mix Water 46.30 bbls

(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 43.90 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:	150.20 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 #	90065
LOCATION	Weld
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DESCRIPTION OF JOB EVENTS

Amount Pumped		Time/Date	Event	Description	Rate	BBLs	Pressure
% Excess	15%	6:00 AM	Arrive on location	Well site assesment, Hazard hunt			
Mixed bbls	68.9	9:00 AM	Rig up equipment	Rig up safety meeting.			
Total Sacks	260	9:45 AM	Pre job JSA	Held safety meeting with all personnel involved.			
bbl Returns	10	9:58 AM	Pressure Test	Pressure tested lines to 1500 psi.			
Water Temp	42	10:00 AM	Spacer Ahead	Dye in second 10 bbl	7.5	40	180
		10:06 AM	Lead Cement	14.2 ppg Cement	7	68.9	210
Notes:		10:18 AM	Shutdown				
		10:20 AM	Drop Plug	Plug was pre loaded.			
		10:21 AM	Pump Displacement	Displaced with fresh water	5.5	20	230
		10:32 AM	Bump Plug	Bumped 200 psi over final lift pressure	1.4	44	230
		10:33 AM	Casing Test	Tested casing to 1000 psi for 15 min.			1000
		10:48 AM	Check Floats	Floats held (.5 bbl back to truck)			
		10:50 AM	End Job	Rig down safety meeting.			
		11:00 AM	Rig down equipment				
		11:30 AM	Crew left location				

X _____
Work Performed

X WSS
Title

X 1/26
Date