Bison Oil Well Cementing
Single Cement Surface Pipe

Date: 11/21/2015
Invoice # 80470
API# 05-123-40754
Foreman: Calvin Reimers

Customer: Noble Energy Inc.
Well Name: Moser H22-715

County: Weld
State: Colorado

Sec: 27
Twp: 3N
Range: 65W

Consultant: Cliff / Bryan
Rig Name & Number: H&P 343
Distance To Location: 24 Miles
Units On Location: 4023-3104/4032-3215
Time Requested: 700pm
Time Arrived On Location: 535pm
Time Left Location: 1215am

WELL DATA

Casing Size OD (in) :	_9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	855
Total Depth (ft) :	887
Open Hole Diameter (in.) :	13.50
Conductor Length (ft) :	100
Conductor ID :	16
Shoe Joint Length (ft) :	45
Landing Joint (ft) :	29
Max Rate:	7
Max Pressure:	1750

Cement Data

Cement Name:	BFN III
Cement Density (lb/gal) :	14.2
Cement Yield (cuft) :	1.49
Gallons Per Sack:	7.48
% Excess:	25%
Displacement Fluid lb/gal:	8.3
BBL to Pit:	20.0
Fluid Ahead (bbls):	60.0
H20 Wash Up (bbls):	10.0

Spacer Ahead Makeup
60 bbls H2O+Dye in 2nd 10 bbls

Casing ID 8.921 Casing Grade J-55 only used

Calculated Results

cuft of Shoe 19.74 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 460.98 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 569.81 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 101.48 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 382 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 68.11 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 64.75 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 630.42 PSI

Pressure of the fluids inside casing

Displacement: 348.86 psi
Shoe Joint: 33.55 psi
Total 382.41 psi

Differential Pressure: 248.00 psi

Collapse PSI: 2020.00 psi
Burst PSI: 3520.00 psi

Total Water Needed: 202.86 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 #	80470
LOCATION	Weld
FOREMAN	Calvin Reimers
Date	11/22/2015

Customer	Noble Energy Inc.
Well Name	Moser H22-715

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

Amount Pumped		Time/Date	Event	Description	Rate	BBLs	Pressure
% Excess	25%	915pm	MIRU				
Mixed bbls	68.11	948pm	JSA				
Total Sacks	382	1028pm	Pressure Test	Test Lines	0.5	1	1300
bbl Returns	20	1030pm	Spacer Ahead	60 bbls H2O + Dye in 2nd 10 bbls	6	60	130
Water Temp	64.7	1042pm	Cement	14.2 ppg 382 sks	6.5	101.48	380
		1104pm	Shutdown				
Notes:		1108pm	Drop Plug				
		1109pm	Start Displacement		6	64.75	60
		1123pm	End Displacement		1		350
		1123pm	Pressure Test Casing	1123pm 1040psi to 1138pm 1040psi			300
		1138pm	Floats Held	1/2 bbl back on bleed off			800
		1145pm	Rig Down				
		1215am	Leave Location				

X _____ Work Preformed

X _____ Title

X 11/22/15 CDT Date