



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 5/23/2016
 Invoice #: 80492
 API#: 05-123-42919
 Foreman: Matthew Rosales

Customer: Noble Energy Inc.
Well Name: Shadow State A26-622

County: Weld
 State: Colorado
 Consultant: John Drahota
 Rig Name & Number: H&P 343
 Distance To Location: 15
 Sec: NWSE
 Twp: 306N
 Range: 63W
 Units On Location: 3106
 Time Requested: 1:30pm
 Time Arrived On Location: 12:30pm
 Time Left Location:

WELL DATA		Cement Data	
Casing Size OD (in) :	9.625	Cement Name:	BFN III
Casing Weight (lb) :	36.00	Cement Density (lb/gal) :	14.2
Casing Depth (ft.) :	1,894	Cement Yield (cuft) :	1.49
Total Depth (ft) :	1904	Gallons Per Sack:	7.48
Open Hole Diameter (in.) :	13.50	% Excess:	15%
Conductor Length (ft) :	80	Displacement Fluid lb/gal:	8.7
Conductor ID :	15.25	Fluid Ahead (bbls):	50.0
Shoe Joint Length (ft) :	49	H2O Wash Up (bbls):	20.0
Landing Joint (ft) :	29		
Max Rate:	8	Spacer Ahead Makeup	40h20 10dye
Max Pressure:	1700		

Calculated Results	Displacement:	144.84 bbls
cuft of Shoe 21.27 cuft <small>((Casing ID Squared) X (.005454) X (Shoe Joint ft))</small>	(Casing ID Squared) X (.000714) X (Casing Depth + Landing Joint - Shoe Joint)	
cuft of Conductor 61.05 cuft <small>((Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft))</small>	Pressure of cement in annulus	
cuft of Casing 872.60 cuft <small>((Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length))</small>	Hydrostatic Pressure:	1397.20 PSI
Total Slurry Volume 1085.70 cuft <small>((cuft of Shoe) + (cuft of Conductor) + (cuft of Casing))</small>	Pressure of the fluids inside casing	
bbls of Slurry 193.36 bbls <small>((Total Slurry Volume) X (.1781))</small>	Displacement:	833.76 psi
Sacks Needed 729 sk <small>((Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement))</small>	Shoe Joint:	36.15 psi
Mix Water 129.83 bbls <small>((Sacks Needed) X (Gallons Per Sack) ÷ 42)</small>	Total	869.90 psi
	Differential Pressure:	527.30 psi
	Collapse PSI:	2020.00 psi
	Burst PSI:	3520.00 psi
	Total Water Needed:	200.00 bbls

John Drahota

Authorization To Proceed



**Bison Oil Well Cementing
Single Cement Surface Pipe**

Customer
Well Name

Noble Energy Inc.
Shadow State A26-622

INVOICE #
LOCATION
FOREMAN
Date

80492
Weld
Matthew Rosales
5/23/2016

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

Amount Pumped	Time/Date	Event	Description	Rate	3BLs	Pressure
% Excess 15%	12:30pm	Arrive at Rig	Rig is Running Casing	0.5	2	1500
Mixed bbls 194	2:30pm	Prerig up Safety Meeting				
Total Sacks 729	2:40pm	Rig Up				
bbl Returns 20	3:00pm	JSA				
Water Temp 65	3:16pm	Start Job				
	3:18pm	Fill Lines		1	2	140
Notes:	3:18pm	Pressure Test Lines		0.5	0.5	1500
	3:19pm	Water Spacer	40 bbl H2O 10bbl Dye H2O	7.4	50	195
	3:26pm	Cement	14.2# /gal, 1.49Yield, 7.48gal/sk	5-7.4	194	200
	3:58pm	Shutdown				
	4:00pm	Drop Plug				
	4:10pm	Displace	Cil Based Mud Displace	6.5	42.6	420
	4:33pm	Bump Plug		2		560
	4:34pm	Test Casing		1	1	1000
	4:51pm	Check Floats	Floats Held/			
	6:00pm	Top Off Well		1	5	10
	6:30pm	Rig Down				
	7:00pm	Leave Location				

X John Drabota
Work Performed

X Co-Man
Title

X 5/23/16
Date