



Bison Oil Well Cementing Single Cement Surface Pipe


Date: 10/22/2015
Invoice #: 80457
API#: 05-123-40731
Foreman: Calvin Reimers

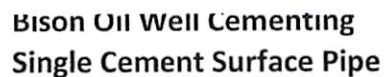
Customer: Noble Energy Inc.
Well Name: Moser H34-769

County: Weld
State: Colorado
Sec: 22
Twp: 3N
Range: 65W
Consultant: JW
Rig Name & Number: H&P 273
Distance To Location: 24 Miles
Units On Location: 4023-3104/4033-3212
Time Requested: 800am
Time Arrived On Location: 545am
Time Left Location: 815pm

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.) :	781	Cement Yield (cuft) :	1.49
Total Depth (ft) :	815	Gallons Per Sack:	7.48
Open Hole Diameter (in.) :	13.50	% Excess:	30%
Conductor Length (ft) :	100	Displacement Fluid lb/gal:	8.3
Conductor ID :	16	BBL to Pit:	15.0
Shoe Joint Length (ft) :	45	Fluid Ahead (bbls):	60.0
Landing Joint (ft) :	29	H2O Wash Up (bbls):	10.0
Max Rate:	7	Spacer Ahead Makeup	
Max Pressure:	1750	60 bbls H2O+Dye in 2nd 10 bbls	

Casing ID	8.921	Casing Grade	J-55 only used
Calculated Results		Displacement: 59.16 bbls	
cuft of Shoe	19.54 cuft	(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
(Casing ID Squared) X (.005454) X (Shoe Joint ft)		Pressure of cement in annulus	
cuft of Conductor	89.10 cuft	Hydrostatic Pressure: 576.14 PSI	
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)		Pressure of the fluids inside casing	
cuft of Casing	432.67 cuft	Displacement: 317.34 psi	
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)		Shoe Joint: 33.20 psi	
Total Slurry Volume	541.31 cuft	Total 350.55 psi	
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)		Differential Pressure: 225.59 psi	
bbls of Slurry	96.41 bbls	Collapse PSI: 2020.00 psi	
(Total Slurry Volume) X (.1781)		Burst PSI: 3520.00 psi	
Sacks Needed	363 sk	Total Water Needed: 193.86 bbls	
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)			
Mix Water	64.70 bbls		
(Sacks Needed) X (Gallons Per Sack) ÷ 42			


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 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.



Noble Energy Inc.
Moser H34-769

10/22/2015

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Date _____