




Bison Oil Well Cementing Single Cement Surface Pipe

Date: 1/14/2015
Invoice #: 35106
API#:
Foreman: Kirk Kallhoff

Customer: Noble Energy Inc.
Well Name: mahalo state aa 09-74-1ahnc

County: Weld
State: Colorado
Sec:
Twp:
Range:
Consultant: martin
Rig Name & Number: pd 829
Distance To Location:
Units On Location: 4030-3103/4032-3211
Time Requested: 100 pm
Time Arrived On Location: 1230 pm
Time Left Location: 6:00pm

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) :	817	Cement Yield (cuft) :	1.49
Total Depth (ft) :	852	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:	
Shoe Joint Length (ft) :	43	Fluid Ahead (bbls):	30.0
Landing Joint (ft) :	25	H2O Wash Up (bbls):	10.0
Max Rate:		Spacer Ahead Makeup	
Max Pressure:			

Casing ID	8.921	Casing Grade	J-55 only used
Calculated Results		Displacement: 61.77 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
cuft of Shoe	18.66 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Pressure of cement in annulus	
cuft of Conductor	89.10 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Hydrostatic Pressure:	602.70 PSI
cuft of Casing	455.54 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing	
Total Slurry Volume	563.31 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement:	333.73 psi
bbls of Slurry	100.32 bbls (Total Slurry Volume) X (.1781)	Shoe Joint:	31.72 psi
Sacks Needed	378 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total	365.46 psi
Mix Water	67.33 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Differential Pressure:	237.25 psi
 Authorization To Proceed		Collapse PSI:	2020.00 psi
		Burst PSI:	3520.00 psi
		Total Water Needed:	169.10 bbls
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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Single Cement Surface Pipe

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Well Name

Noble Energy Inc.
mahalo state aa 09-74-1ahnc

INVOICE #
LOCATION
FOREMAN
Date

35106
Weld
Kirk Kallhoff
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DESCRIPTION OF JOB EVENTS

		Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
		BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI
Safety Meeting	334pm															
MIRU	300pm															
CIRCULATE	403pm	0	446pm	10	0			0			0			0		
Drop Plug		10	449pm	90	10			10			10			10		
446 pm		20	451pm	140	20			20			20			20		
		30	453pm	210	30			30			30			30		
		40	455pm	270	40			40			40			40		
M & P		50	457pm	320	50			50			50			50		
Time	Sacks	60	500pm	290	60			60			60			60		
417 pm	406	70			70			70			70			70		
443 pm stop		80			80			80			80			80		
		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
% Excess	40%	120			120			120			120			120		
Mixed bbls	72.3	130			130			130			130			130		
Total Sacks	406	140			140			140			140			140		
bbl Returns	20	150			150			150			150			150		
Water Temp																

Notes:

bumped plug at 501 pm 500 psi

casing test 1000 psi 15 min

X

Work Performed

X

Title

X

Date

1-14-15
[Signature]