



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 7/21/2014
Invoice # 45006
API# 05-123-39559
Foreman: JASON

Customer: Noble Energy Inc.
Well Name: SHABLE K08-68-1HN

County: Weld
State: Colorado
Sec: 7
Twp: 4N
Range: 66W

Consultant:
Rig Name & Number: H&P 321
Distance To Location: 9
Units On Location: 4033-3106/ 4018-3204
Time Requested: 130
Time Arrived On Location: 2330
Time Left Location: 530

WELL DATA	Cement Data
Casing Size OD (in) : 9.625	Cement Name: BFN III
Casing Weight (lb) : 36.00	Cement Density (lb/gal) : 15.2
Casing Depth (ft.) : 593	Cement Yield (cuft) : 1.27
Total Depth (ft) : 633	Gallons Per Sack: 5.89
Open Hole Diameter (in.) : 13.75	% Excess: 20%
Conductor Length (ft) : 100	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.25	BBL to Pit: 15.0
Shoe Joint Length (ft) : 43	Fluid Ahead (bbls): 40.0
Landing Joint (ft) : 34	H2O Wash Up (bbls): 20.0
Max Rate: 7	Spacer Ahead Makeup
Max Pressure: 2500	H2O WITH KCL, 2ND 10 WITH DYE

Casing ID	8.921	Casing Grade	J-55 only used
Calculated Results		Displacement: 45.19 bbls	
cuft of Shoe 18.71 cuft		(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
cuft of Conductor 76.31 cuft		Pressure of cement in annulus	
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)		Hydrostatic Pressure: 468.53 PSI	
cuft of Casing 311.35 cuft		Pressure of the fluids inside casing	
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)		Displacement: 237.27 psi	
Total Slurry Volume 406.38 cuft		Shoe Joint: 34.04 psi	
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)		Total 271.31 psi	
bbls of Slurry 72.38 bbls		Differential Pressure: 197.23 psi	
(Total Slurry Volume) X (.1781)		Collapse PSI: 2020.00 psi	
Sacks Needed 320 sk		Burst PSI: 3520.00 psi	
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)		Total Water Needed: 150.06 bbls	
Mix Water 44.87 bbls			
(Sacks Needed) X (Gallons Per Sack) ÷ 42			

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.



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

Customer
Well Name

Noble Energy Inc.
SHABLE K08-68-1HN

INVOICE #
LOCATION
FOREMAN
Date

45006
Weld
JASON
7/21/2014

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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	310															
MIRU	230															
CIRCULATE	334	0	403	0	0			0			0			0		
Drop Plug		10	406	100	10			10			10			10		
403		20	409	180	20			20			20			20		
		30	411	290	30			30			30			30		
		40	414	220	40			40			40			40		
M & P		50	416	450	50			50			50			50		
Time	Sacks	60	BUMP	770	60			60			60			60		
0346-0400	320	70			70			70			70			70		
		80			80			80			80			80		
		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
% Excess	20%	120			120			120			120			120		
Mixed bbls	44.87	130			130			130			130			130		
Total Sacks	320	140			140			140			140			140		
bbl Returns	15	150			150			150			150			150		
Water Temp	77															

Notes:

The day

PRESSURE TESTED TO 1000 PSI @ 0331, PUMPED 40 BBL WATER WITH DYE IN 2ND 10 @ 0334, MIX AND PUMPED 320 SKS AT 15.2, 72.3 BBLs AT 0346, STARTED DISPLACEMENT AT 0403, PLUG LANDED AT 250 PSI AT 0416 AND PRESSURED UP TO 770 PSI AND HELD FOR 2 MINUTES, RELEASED PRESSURE AND GOT .5 BBL BACK

X

Work Performed

X

Title

X

Date