



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 1/10/2015
Invoice #: 45107
API#: 05-123-40157
Foreman: JASON KELEHER

Customer: Noble Energy Inc.

Well Name: CROW CREEK AA01-776

County: Weld
State: Colorado
Sec: 1
Twp: 6N
Range: 63W

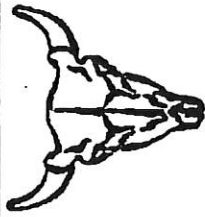
Consultant: CLIFF
Rig Name & Number: H&P 315
Distance To Location: 32
Units On Location: 4031-3107/ 4035-3204
Time Requested: 2200
Time Arrived On Location: 2130
Time Left Location: 100

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) :	662	Cement Yield (cuft) :	1.49
Total Depth (ft) :	692	Gallons Per Sack:	7.48
Open Hole Diameter (in.) :	13.50	% Excess:	26%
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) :	29	H2O Wash Up (bbls):	20.0
Max Rate:	6	Spacer Ahead Makeup	
Max Pressure:	1000	40 BBL WATER W/ DYE IN 2ND 10	

Casing ID	8.921	Casing Grade	J-55 only used
Calculated Results		Displacement: 50.11 bbls	
cuft of Shoe	18.53 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	76.31 cuft	Hydrostatic Pressure:	488.32 PSI
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)		Pressure of the fluids inside casing	
cuft of Casing	344.68 cuft	Displacement:	267.01 psi
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)		Shoe Joint:	31.50 psi
Total Slurry Volume	439.52 cuft	Total	298.51 psi
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)		Differential Pressure:	189.81 psi
bbls of Slurry	78.28 bbls	Collapse PSI: 2020.00 psi	
(Total Slurry Volume) X (.1781)		Burst PSI: 3520.00 psi	
Sacks Needed	295 sk	Total Water Needed: 162.65 bbls	
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)			
Mix Water	52.53 bbls		
(Sacks Needed) X (Gallons Per Sack) ÷ 42			

x *[Signature]*
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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Single Cement Surface Pipe

INVOICE #
LOCATION
FOREMAN
Date

45107
Weld
JASON KELEHER
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Well Name

Noble Energy Inc.
CROW CREEK AA01-776

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

Safety Meeting MIRU CIRCULATE Drop Plug 2340 M & P Time	2240 2130 2310	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
		0	2340	0	0			0			0			0		
		10	2342	80	10			10			10			10		
		20	2344	110	20			20			20			20		
		30	2347	150	30			30			30			30		
		40	2349	250	40			40			40			40		
		50	2352	200	50			50			50			50		
		60	BUMP	850	60			60			60			60		
		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		
		120			120			120			120			120		
		130			130			130			130			130		
		140			140			140			140			140		
		150			150			150			150			150		
% Excess	25%															
Mixed bbls	52.5															
Total Sacks	295															
bbl Returns	15															
Water Temp	45															

Notes:

PRESSURED TESTED TO 1000 PSI AT 2308, PUMPED 40 BBL WATER W/ DYE IN 2ND 10 AT 2310, MIXED AND PUMPED 295 SKS AT 14.2, 78.2 BBL
AT 2320, SHUT DOWN AT 2337, STARTED DISPLACEMENT AT 2340, PLUG LANDED AT 200 PSI AT 2352 AND PRESSURED UP TO 850 PSI, HELD FOR 2
MINUTE AND RELEASED AND CHECKED FLOATS, FLOATS HELD, GOT .5 BBL BACK

X *200 Sam*

X *WSS*

X *1/10/15*

Work Performed

Title

Date