



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 8/5/2014
 Invoice #: 45013
 API#: 05-123-38855
 Foreman: JASON

Customer: Noble Energy Inc.

Well Name: CUTTHROAT LC28-79HNB

County: Weld
 State: Colorado
 Sec: 28
 Twp: 9N
 Range: 59W

Consultant: CHRIS
 Rig Name & Number: H&P 326
 Distance To Location: 68
 Units On Location: 4031-3106/ 4019-3204
 Time Requested: 1930
 Time Arrived On Location: 1900
 Time Left Location: 2330

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.) : 605	Cement Yield (cuft) : 1.27
Total Depth (ft) : 644	Gallons Per Sack: 5.89
Open Hole Diameter (in.) : 13.75	% Excess: 35%
Conductor Length (ft) : 100	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.25	BBL to Pit: 19.0
Shoe Joint Length (ft) : 44	Fluid Ahead (bbls): 45.0
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

Calculated Results	Pressure of cement in annulus
cuft of Shoe 19.23 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Displacement: 45.91 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Conductor 76.31 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Hydrostatic Pressure: 477.32 PSI
cuft of Casing 358.17 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing
Total Slurry Volume 453.72 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement: 241.55 psi
bbls of Slurry 80.81 bbls (Total Slurry Volume) X (.1781)	Shoe Joint: 34.99 psi
Sacks Needed 357 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total 276.53 psi
Mix Water 50.10 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Differential Pressure: 200.79 psi
	Collapse PSI: 2020.00 psi
	Burst PSI: 3520.00 psi

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.
CUTTHROAT LC28-79HNB

INVOICE #
LOCATION
FOREMAN
Date

45013
Weld
JASON
8/5/2014

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

	2100	Displace 1			Displace 2			Displace 3			Displace 4			Displace 5			
		2015	BBLS	Time	PSI	BBLS	Time	PSI									
Safety Meeting	2100																
MIRU	2015																
CIRCULATE	2145	0	2218	0	0			0				0			0		
Drop Plug		10	2221	130	10			10				10			10		
2218		20	2223	180	20			20				20			20		
		30	2227	250	30			30				30			30		
		40	2231	250	40			40				40			40		
M & P		50	2238	260	50			50				50			50		
Time	Sacks	60	BUMP	550	60			60				60			60		
2156-2214	357	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	35%	120			120			120				120			120		
Mixed bbls	50	130			130			130				130			130		
Total Sacks	357	140			140			140				140			140		
bbl Returns	19	150			150			150				150			150		
Water Temp	82																

Notes:

The day

PRESSURE TESTED TO 1000 PSI @ 2143, PUMPED 45 BBL WATER WITH DYE IN 2ND 10 @ 2145, MIX AND PUMPED 357 SKS AT 15.2, 80.7 BBLs AT 2156, STARTED DISPLACEMENT AT 2218, PLUG LANDED AT 2238 PSI AT 260 AND PRESSURED UP TO 550 PSI AND HELD FOR 2 MINUTES, RELEASED PRESSURE AND GOT .25 BBL BACK

X WSS
Work Performed

X WSS
Title

X Aug 5, 2014
Date