



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 12/21/2014
Invoice #: 25110
API#: 05-123-39806
Foreman: Calvin Reimers

Customer: Noble Energy Inc.

Well Name: Davis State LD 02-73HN

County: Weld
State: Colorado

Sec: 2
Twp: 9N
Range: 58W

Consultant: Seth
Rig Name & Number: H&P 343
Distance To Location: 81 Miles
Units On Location: 4023-3104/4024-3203
Time Requested: 1000am
Time Arrived On Location: 930am
Time Left Location: 5:15 pm

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 36.00
Casing Depth (ft) : 1,193
Total Depth (ft) : 1227
Open Hole Diameter (in.) : 13.50
Conductor Length (ft) : 100
Conductor ID : 16
Shoe Joint Length (ft) : 43
Landing Joint (ft) : 29

Max Rate: 7
Max Pressure: 2500

Cement Data

Cement Name: BFN III
Cement Density (lb/gal) : 14.2
Cement Yield (cuft) : 1.49
Gallons Per Sack: 7.48
% Excess: 20%
Displacement Fluid lb/gal: 8.3
BBL to Pit: 23
Fluid Ahead (bbls): 30.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup
30bbls H2O+Dye in 2nd 10bbls

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 18.77 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)
cuft of Conductor 89.10 cuft
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)
cuft of Casing 641.55 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)
Total Slurry Volume 749.42 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)
bbls of Slurry 133.47 bbls
(Total Slurry Volume) X (.1781)
Sacks Needed 503 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
Mix Water 89.58 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 91.11 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 880.30 PSI

Pressure of the fluids inside casing

Displacement: 495.88 psi

Shoe Joint: 31.91 psi

Total 527.79 psi

Differential Pressure: 352.51 psi

Collapse PSI: 2020.00 psi

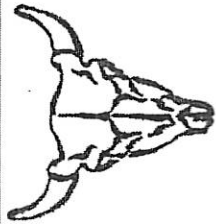
Burst PSI: 3520.00 psi

Total Water Needed: 230.69 bbls

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.
Davis State LD 02-73HN

INVOICE #
LOCATION
FOREMAN
Date

25110
Weld
Calvin Reimers
12/21/2014

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DESCRIPTION OF JOB EVENTS

	258pm 230pm 320pm	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		0	358pm	60	0			0			0			0		
MIRU		10	401pm	30	10			10			10			10		
CIRCULATE		20	403pm	70	20			20			20			20		
Drop Plug		30	405pm	100	30			30			30			30		
		40	407pm	140	40			40			40			40		
		50	409pm	270	50			50			50			50		
M & P		60	411pm	320	60			60			60			60		
Time	Sacks	70	413pm	370	70			70			70			70		
329pm		80	414pm	410	80			80			80			80		
354pm		90	417pm	340	90			90			90			90		
		100	418pm	340	100			100			100			100		
		110	Bump	530	110			110			110			110		
		120			120			120			120			120		
% Excess	20%	130			130			130			130			130		
Mixed bbls	89.58	140			140			140			140			140		
Total Sacks	503	150			150			150			150			150		
bbl Returns	23															
Water Temp	67.8															

Notes:

The day

1/2 bbl back on bleed off

Casing PSI Test 419pm 1000psi to 434pm 960psi

X 

X WSS

X 12/21/14

Work Performed

Title

Date