



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 8/5/2014
Invoice # 35012
API#
Foreman: Kirk Kallhoff

Customer: Noble Energy Inc.
Well Name: five rivers k07-65-1bhn

County: Weld
State: Colorado
Sec: 9
Twp: 4n
Range: 66w

Consultant: john t
Rig Name & Number: h&p 315
Distance To Location: 10
Units On Location: 4030-3103/4017-3211
Time Requested: 900 pm
Time Arrived On Location: 800 pm
Time Left Location: 1:00 pm

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 36.00
Casing Depth (ft) : 595
Total Depth (ft) : 630
Open Hole Diameter (in.) : 13.75
Conductor Length (ft) : 100
Conductor ID : 16
Shoe Joint Length (ft) : 40
Landing Joint (ft) : 30

Max Rate:

Max Pressure:

Cement Data

Cement Name: BFN II
Cement Density (lb/gal) : 15.2
Cement Yield (cuft) : 1.27
Gallons Per Sack: 5.89
% Excess: 30%
Displacement Fluid lb/gal: 8.3
BBL to Pit:
Fluid Ahead (bbls): 50.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 17.36 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 338.41 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 444.87 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 79.23 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 350 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 49.12 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 45.23 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 469.81 PSI

Pressure of the fluids inside casing

Displacement: 239.31 psi

Shoe Joint: 31.58 psi

Total 270.89 psi

Differential Pressure: 198.92 psi

Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 164.35 bbls

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.
five rivers k07-65-1bhn

INVOICE #
LOCATION
FOREMAN
Date

35012
Weld
Kirk Kallhoff
8/6/2014

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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	1054pm															
MIRU	1030pm															
CIRCULATE	1128pm	0	1202am	10	0			0			0			0		
Drop Plug		10	1205am	50	10			10			10			10		
1202 am		20	1207am	150	20			20			20			20		
		30	1210am	220	30			30			30			30		
		40	1213am	250	40			40			40			40		
M & P		50			50			50			50			50		
Time	Sacks	60			60			60			60			60		
1139 pm	321	70			70			70			70			70		
1158 pm stop		80			80			80			80			80		
		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
% Excess	15%	120			120			120			120			120		
Mixed bbls	45	130			130			130			130			130		
Total Sacks	321	140			140			140			140			140		
bbl Returns	15	150			150			150			150			150		
Water Temp																

Notes:

bumped plug at 1216 am 460 psi 72.6 bbls slurry

casing test 1000 psi for 15 min

rig up plug dropper 1115 pm

avg mix 3.8 bbls min

avg disp 3.2 bbls min

casing test start 1218 am release at 1233 am

x John M. Taylor
Work Performed

x W.S.S.
Title

x 8-6-14
Date