



Bison Oil Well Cementing Tail & Lead

Customer: Encana
Well Name: Lochbuie 2F-31H

Date: 1/20/2014
Invoice #: 12811
API#: 05-123-37785
Foreman: Calvin Reimers

County: Weld
State: Colorado
Sec: 31
Twp: 1N
Range: 65W

Consultant: Nate
Rig Name & Number: H&P 522
Distance To Location: 26 Miles
Units On Location: 3106/3212
Time Requested: 130am
Time Arrived On Location: 1215am
Time Left Location: 6:45 AM

WELL DATA

Casing Size (in) : 9.625
Casing Weight (lb) : 40
Casing Depth (ft) : 1,472
Total Depth (ft) : 1509
Open Hole Diameter (in) : 12.25
Conductor Length (ft) : 84
Conductor ID : 16
Shoe Joint Length (ft) : 44
Landing Joint (ft) : 34

Sacks of Tail Requested : 120
HOC Tail (ft) : 0

One or the other, cannot have quantity in both

Max Rate: 7
Max Pressure: 2500

Cement Data

Lead

Cement Name:
Cement Density (lb/gal) : 13.1
Cement Yield (cuft) : 1.69
Gallons Per Sack : 8.64
% Excess : 60%

Tail

Cement Name:
Cement Density (lb/gal) : 15.2
Cement Yield (cuft) : 1.27
Gallons Per Sack : 5.89
% Excess : 0%

Fluid Ahead (bbls) : 110.8
H2O Wash Up (bbls) : 20.0

Spacer Ahead Makeup

30bbls H2O+KCL+Dye in 2nd 10bbls

Casing ID

8.835

Casing Grade

J-55 only used

Lead Calculated Results

HOC of Lead : 928.08 ft
Casing Depth - HOC Tail : 290.66 cuft
Volume of Lead Cement : 74.84 cuft
HOC of Lead X Open Hole Ann : 365.50 cuft
Volume of Conductor : 104.15 bbls
(Conductor ID Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)
Total Volume of Lead Cement : 346.03 sk
(cuft of Lead Cement) + (Cuft of Conductor)
bbls of Lead Cement : 71.18 bbls
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)
Sacks of Lead Cement : 110.77 bbls
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
bbls of Lead Mix Water : 201.95 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42
Displacement : 110.77 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)
Total Water Needed: 201.95 bbls

Tail Calculated Results

Tail Cement Volume In Ann : 152.40 cuft
(HOC Tail) X (OH Ann)
Total Volume of Tail Cement : 133.49 Cuft
(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
bbls of Tail Cement : 27.14 bbls
(HOC of Tail) X (OH Ann) + (Cement Yield) X (Shoe Joint Ann) X (.1781) X (% Excess)
HOC Tail : 426.23 ft
(Tail Cement Volume) ÷ (OH Ann)
Sacks of Tail Cement : 120.00 sk
(Total Volume of Tail Cement) ÷ (Cement Yield)
bbls of Tail Mix Water : 16.83 bbls
(Sacks of Tail Cement X Gallons Per Sack) ÷ 42
Pressure of cement in annulus : 1001.70 PSI
Hydrostatic Pressure : 2570.00 psi
Collapse PSI: 3950.00 psi
Burst PSI:

X Nate Curley
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.

