



Bison Oil Well Cementing Tail & Lead

Date: 5/8/2018

Invoice # 200276

API#

Foreman: Kirk Kallhoff

Customer: Crestone Peak Resources

Well Name: rugge 3j-4h

County: Weld

State: Colorado

Sec: 4

Twp: 1n

Range: 65w

Consultant: nate

Rig Name & Number: ENSIGN 122

Distance To Location: 36

Units On Location: 4028/4039/4041

Time Requested: 1200 am

Time Arrived On Location: 1030 pm

Time Left Location:

WELL DATA

Casing Size (in) : 9.625
Casing Weight (lb) : 40
Casing Depth (ft.) : 2,431
Total Depth (ft) : 2466
Open Hole Diameter (in) : 13.50
Conductor Length (ft) : 110
Conductor ID : 15.6
Shoe Joint Length (ft) : 75
Landing Joint (ft) : 17

Sacks of Tail Requested 190
HOC Tail (ft): 0

One or the other, cannot have quantity in both

Max Rate: 8
Max Pressure: 2000

Cement Data

Lead

Cement Name:
Cement Density (lb/gal) : 13.5
Cement Yield (cuft) : 1.7
Gallons Per Sack 9.00
% Excess 20%

Tail

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

Fluid Ahead (bbls) 60.0
H2O Wash Up (bbls) 10.0

Spacer Ahead Makeup

60 BBL WATER DYE IN 2ND 10

Casing ID

8.835

Casing Grade

J-55 only used

Lead Calculated Results

HOC of Lead 1875.60 ft
Casing Depth - HOC Tail
Volume of Lead Cement 916.66 cuft
HOC of Lead X Open Hole Ann
Volume of Conductor 90.42 cuft
(Conductor ID Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)
Total Volume of Lead Cement 1007.08 cuft
(cuft of Lead Cement) + (Cuft of Conductor)
bbls of Lead Cement 215.23 bbls
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)
Sacks of Lead Cement 710.88 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
bbls of Lead Mix Water 152.33 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42
Displacement 179.87 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)
Total Water Needed: 428.85 bbls

Tail Calculated Results

Tail Cement Volume In Ann 241.30 cuft
(HOC Tail) X (OH Ann)
Total Volume of Tail Cement 209.37 Cuft
(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
bbls of Tail Cement 42.98 bbls
(HOC of Tail) X (OH Ann) + (Cement Yield) X (Shoe Joint Ann) X (.1781) X (% Excess)
HOC Tail 428.40 ft
(Tail Cement Volume) ÷ (OH Ann)
Sacks of Tail Cement 190.00 sk
(Total Volume of Tail Cement) ÷ (Cement Yield)
bbls of Tail Mix Water 26.65 bbls
(Sacks of Tail Cement X Gallons Per Sack) ÷ 42
Pressure of cement in annulus
Hydrostatic Pressure 585.23 PSI
Collapse PSI: 2570.00 psi
Burst PSI: 3950.00 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.

X
Date