



**Bison Oil Well Cementing
Tail & Lead**

Date: 5/6/2018

Invoice # 200275

API# _____

Foreman: Kirk Kallhoff

Customer: Crestone Peak Resources

Well Name: rugge 3I-4h

Consultant: derrick

County: Weld
State: Colorado

Rig Name & Number: ENSIGN 122

Distance To Location: 36

Units On Location: 4028/4039/4041

Time Requested: 430 pm

Time Arrived On Location: 330 pm

Time Left Location: _____

Sec: 4
Twp: 1n
Range: 65w

WELL DATA

Casing Size (in) : 9.625
Casing Weight (lb) : 40
Casing Depth (ft.) : 2,416
Total Depth (ft) : 2462
Open Hole Diameter (in) : 13.50
Conductor Length (ft) : 110
Conductor ID : 15.6
Shoe Joint Length (ft) : 73
Landing Joint (ft) : 12

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 15%

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		Tail Calculated Results	
HOC of Lead	1863.86 ft	Tail Cement Volume In Ann (HOC Tail) X (OH Ann)	241.30 cuft
Casing Depth - HOC Tail		Total Volume of Tail Cement (HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)	210.22 Cuft
Volume of Lead Cement	910.92 cuft	bbls of Tail Cement (HOC of Tail) X (OH Ann) + (Cement Yield) X (Shoe Joint Ann) X (.1781) X (% Excess)	42.98 bbls
HOC of Lead X Open Hole Ann		HOC Tail (Tail Cement Volume) ÷ (OH Ann)	430.14 ft
Volume of Conductor	90.42 cuft	Sacks of Tail Cement (Total Volume of Tail Cement) ÷ (Cement Yield)	190.00 sk
(Conductor ID Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)		bbls of Tail Mix Water (Sacks of Tail Cement X Gallons Per Sack) ÷ 42	26.65 bbls
Total Volume of Lead Cement (cuft of Lead Cement) + (Cuft of Conductor)	1001.35 cuft	Pressure of cement in annulus	
bbls of Lead Cement (Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)	205.09 bbls	Hydrostatic Pressure	585.23 PSI
Sacks of Lead Cement (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	677.38 sk	Collapse PSI:	2570.00 psi
bbls of Lead Mix Water (Sacks Needed) X (Gallons Per Sack) ÷ 42	145.15 bbls	Burst PSI:	3950.00 psi
Displacement (Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	178.51 bbls		
Total Water Needed:	420.31 bbls		

X

Authorization To Proceed

