



Bison Oil Well Cementing Tail & Lead

Date: 9/21/2018

Invoice # 666364

API#

Supervisor: Nick Vigil

Customer: Crestone Peak Resources

Well Name: Melbon Ranch 4I-17H

County: Weld
State: Colorado
Sec: 19
Twp: 6N
Range: 63W

Consultant: Buddy
Rig Name & Number: Ensign 153
Distance To Location: 30 miles
Units On Location: 4023/4032/4030
Time Requested: 19:30
Time Arrived On Location: 19:00
Time Left Location: 0:30

WELL DATA	Cement Data
<p>Casing Size (in) : 9.625 Casing Weight (lb) : 40 Casing Depth (ft.) : 2,409 Total Depth (ft) : 2424 Open Hole Diameter (in) : 13.50 Conductor Length (ft) : 98 Conductor ID : 15.25 Shoe Joint Length (ft) : 44 Landing Joint (ft) :</p> <p>Sacks of Tail Requested 405 HOC Tail (ft): 0</p> <p>One or the other, cannot have quantity in both</p> <p>Max Rate: 8 Max Pressure: 2000</p>	<p>Lead</p> <p>Cement Name: Cement Density (lb/gal) : 13.5 Cement Yield (cuft) : 1.7 Gallons Per Sack 9.00 % Excess 38%</p> <p>Tail</p> <p>Cement Name: Cement Density (lb/gal) : 15.2 Cement Yield (cuft) : 1.27 Gallons Per Sack: 5.89 % Excess: 0%</p> <p>Fluid Ahead (bbls) 60.0 H2O Wash Up (bbls) 20.0</p> <p>Spacer Ahead Makeup Dye in second 10 bbl</p>

Lead Calculated Results	Tail Calculated Results
HOC of Lead 1296.91 ft	Tail Cement Volume In Ann 514.35 cuft
Casing Depth - HOC Tail	(HOC Tail) X (OH Ann)
Volume of Lead Cement 633.84 cuft	Total Volume of Tail Cement 495.62 Cuft
HOC of Lead X Open Hole Ann	(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
Volume of Conductor 74.79 cuft	bbls of Tail Cement 91.61 bbls
(Conductor ID Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	(HOC of Tail) X (OH Ann) + (Cement Yield) X (Shoe Joint Ann) X (.1781) X (% Excess)
Total Volume of Lead Cement 708.62 cuft	HOC Tail 1014.09 ft
(cuft of Lead Cement) + (Cuft of Conductor)	(Tail Cement Volume) ÷ (OH Ann)
bbls of Lead Cement 174.16 bbls	Sacks of Tail Cement 405.00 sk
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)	(Total Volume of Tail Cement) ÷ (Cement Yield)
Sacks of Lead Cement 575.24 sk	bbls of Tail Mix Water 56.80 bbls
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	(Sacks of Tail Cement X Gallons Per Sack) ÷ 42
bbls of Lead Mix Water 123.26 bbls	Pressure of cement in annulus
(Sacks Needed) X (Gallons Per Sack) ÷ 42	Hydrostatic Pressure 585.23 PSI
Displacement 179.27 bbls	
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	
Total Water Needed: 439.33 bbls	
	Collapse PSI: 2570.00 psi
	Burst PSI: 3950.00 psi

X

Authorization To Proceed

