



Bison Oil Well Cementing Tail & Lead

Customer: Crestone Peak Resources
Well Name: Ruegge 3O-4H-N165

Date: 5/15/2018
Invoice # 300131
API# 05-123-46564
Foreman: JASON KELEHER

County: Weld
State: Colorado
Sec: 4
Twp: 1N
Range: 65W

Consultant: DEREK
Rig Name & Number: Ensign 122
Distance To Location: 36
Units On Location: 3
Time Requested: 1530
Time Arrived On Location: 1430
Time Left Location: 2130

WELL DATA	Cement Data
<p>Casing Size (in) : 9.625</p> <p>Casing Weight (lb) : 40</p> <p>Casing Depth (ft.) : 2,501</p> <p>Total Depth (ft) : 2510</p> <p>Open Hole Diameter (in) : 13.50</p> <p>Conductor Length (ft) : 98</p> <p>Conductor ID : 15.5</p> <p>Shoe Joint Length (ft) : 74</p> <p>Landing Joint (ft) : 5</p> <p>Sacks of Tail Requested 190</p> <p>HOC Tail (ft):</p> <p>One or the other, cannot have quantity in both</p> <p>Max Rate: 8</p> <p>Max Pressure: 2000</p>	<p>Lead N-Gel-12</p> <p>Cement Name:</p> <p>Cement Density (lb/gal) : 13.5</p> <p>Cement Yield (cuft) : 1.7</p> <p>Gallons Per Sack 9.00</p> <p>% Excess 25%</p> <p>Tail Type III</p> <p>Cement Name:</p> <p>Cement Density (lb/gal) : 15.2</p> <p>Cement Yield (cuft) : 1.27</p> <p>Gallons Per Sack: 5.89</p> <p>% Excess:</p> <p>Fluid Ahead (bbls) 60.0</p> <p>H2O Wash Up (bbls) 10.0</p> <p>Spacer Ahead Makeup</p> <p>60 BBL WATER DYE IN 2ND 10</p>

Casing ID 8.835	Casing Grade J-55 only used
Lead Calculated Results	Tail Calculated Results
HOC of Lead 2071.56 ft	Tail Cement Volume In Ann 209.69 cuft
Casing Depth - HOC Tail	(HOC Tail) X (OH Ann)
Volume of Lead Cement 1205.60 cuft	Total Volume of Tail Cement 241.30 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 42.98 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 1280.39 cuft	HOC Tail 429.26 ft
(cuft of Lead Cement) + (Cuft of Conductor)	(Tail Cement Volume) ÷ (OH Ann)
bbls of Lead Cement 228.20 bbls	Sacks of Tail Cement 190.00 sk
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)	(Total Volume of Tail Cement) ÷ (Cement Yield)
Sacks of Lead Cement 754.00 sk	bbls of Tail Mix Water 26.64 bbls
(Total Slurry Volume) ÷ (Cement Yield) X (%) Excess Cement)	(Sacks of Tail Cement X Gallons Per Sack) ÷ 42
bbls of Lead Mix Water 161.57 bbls	Pressure of cement in annulus
(Sacks Needed) X (Gallons Per Sack) ÷ 42	Hydrostatic Pressure 585.23 PSI
Displacement 184.30 bbls	
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	Collapse PSI: 2570.00 psi
Total Water Needed: 444.00 bbls	Burst PSI: 3950.00 psi

X

Authorization To Proceed

Bison Oil Well Cementing Two Cement Surface Pipe