



# Bison Oil Well Cementing Tail & Lead

Customer: Crestone Peak Resources  
Well Name: Sam 3B-25H-M166

Date: 5/22/2018  
Invoice # 900300  
API# 05-123-46128  
Foreman: Corey Barras

County: Weld  
State: Colorado

Sec: 4  
Twp: 1N  
Range: 65W

Consultant: Jerry Thorstad  
Rig Name & Number: Ensign 122  
Distance To Location: 40 Miles  
Units On Location: 4027-3103/4041-3205/4039-3214  
Time Requested: 500  
Time Arrived On Location: 445  
Time Left Location:

WELL DATA	Cement Data
<p>Casing Size (in) : <u>9.625</u> Casing Weight (lb) : <u>40</u> Casing Depth (ft.) : <u>2,404</u> Total Depth (ft) : <u>2418</u> Open Hole Diameter (in) : <u>13.50</u> Conductor Length (ft) : <u>98</u> Conductor ID : <u>15.25</u> Shoe Joint Length (ft) : <u>70</u> Landing Joint (ft) : <u>10</u></p> <p>Sacks of Tail Requested <u>190</u> HOC Tail (ft): <u>0</u></p> <p>One or the other, cannot have quantity in both</p> <p>Max Rate: Max Pressure:</p>	<p><b>Lead</b></p> <p>Cement Name: Cement Density (lb/gal) : <u>13.5</u> Cement Yield (cuft) : <u>1.68</u> Gallons Per Sack <u>8.90</u> % Excess <u>25%</u></p> <p><b>Tail</b></p> <p>Cement Name: Cement Density (lb/gal) : <u>15.2</u> Cement Yield (cuft) : <u>1.27</u> Gallons Per Sack: <u>5.89</u> % Excess: <u>0%</u></p> <p>Fluid Ahead (bbls) <u>60.0</u> H2O Wash Up (bbls) <u>20.0</u></p> <p>Spacer Ahead Makeup <u>60 BBL with Die in 2nd 10</u></p>

Lead Calculated Results	Tail Calculated Results
HOC of Lead <u>1863.25 ft</u> Casing Depth - HOC Tail	Tail Cement Volume In Ann <u>241.30 cuft</u> (HOC Tail) X (OH Ann)
Volume of Lead Cement <u>910.62 cuft</u> HOC of Lead X Open Hole Ann	Total Volume of Tail Cement <u>211.50 Cuft</u> (HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
Volume of Conductor <u>74.79 cuft</u> (Conductor ID Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)	bbls of Tail Cement <u>42.98 bbls</u> (HOC of Tail) X (OH Ann) + (Cement Yield) X (Shoe Joint Ann) X (.1781) X (% Excess)
Total Volume of Lead Cement <u>985.41 cuft</u> (cuft of Lead Cement) + (Cuft of Conductor)	HOC Tail <u>432.75 ft</u> (Tail Cement Volume) ÷ (OH Ann)
bbls of Lead Cement <u>219.38 bbls</u> (Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)	Sacks of Tail Cement <u>190.00 sk</u> (Total Volume of Tail Cement) ÷ (Cement Yield)
Sacks of Lead Cement <u>733.19 sk</u> (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	bbls of Tail Mix Water <u>26.65 bbls</u> (Sacks of Tail Cement X Gallons Per Sack) ÷ 42
bbls of Lead Mix Water <u>155.37 bbls</u> (Sacks Needed) X (Gallons Per Sack) ÷ 42	Pressure of cement in annulus
Displacement <u>177.68 bbls</u> (Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	Hydrostatic Pressure <u>585.23 PSI</u>
Total Water Needed: <u>439.69 bbls</u>	Collapse PSI: <u>2570.00 psi</u> Burst PSI: <u>3950.00 psi</u>

X Francis Bowe  
Authorization To Proceed

## Bison Oil Well Cementing Two Cement Surface Pipe

Customer  
Well Name

Crestone Peak Resources  
Sam 3B-25H-M166

Date  
INVOICE #  
LOCATION  
FOREMAN

5/22/2018
900300
Weld
Corey Barras

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### DESCRIPTION OF JOB EVENTS

[illegible]

X

Francis Bowe

Work Preformed	
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**X**

Title

X

Date \_\_\_\_\_