



Bison Oil Well Cementing Tail & Lead

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

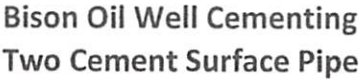
Date: 6/1/2018
Invoice #: 900308
API#: 05-123-46130
Foreman: Corey Barras

County: Weld Consultant: Jerry Thorstad
State: Colorado Rig Name & Number: Ensign 122
Distance To Location: 40 Miles
Units On Location: 4027-3103/4041-3205/4039-3214
Sec: 4 Time Requested: 1830
Twp: 1N Time Arrived On Location: 1710
Range: 65W 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>2,415</u> Total Depth (ft) : <u>2430</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>80</u> Landing Joint (ft) : <u>6</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>Lead</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>Tail</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>

Casing ID	8.835	Casing Grade	J-55 only used
Lead Calculated Results		Tail Calculated Results	
HOC of Lead <u>1886.96 ft</u>		Tail Cement Volume In Ann <u>241.30 cuft</u>	
Casing Depth - HOC Tail		(HOC Tail) X (OH Ann)	
Volume of Lead Cement <u>922.21 cuft</u>		Total Volume of Tail Cement <u>207.24 Cuft</u>	
HOC of Lead X Open Hole Ann		(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)	
Volume of Conductor <u>74.79 cuft</u>		bbls of Tail Cement <u>42.98 bbls</u>	
(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 <u>997.00 cuft</u>		HOC Tail <u>424.04 ft</u>	
(cuft of Lead Cement) + (Cuft of Conductor)		(Tail Cement Volume) ÷ (OH Ann)	
bbls of Lead Cement <u>221.96 bbls</u>		Sacks of Tail Cement <u>190.00 sk</u>	
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)		(Total Volume of Tail Cement) ÷ (Cement Yield)	
Sacks of Lead Cement <u>741.81 sk</u>		bbls of Tail Mix Water <u>26.65 bbls</u>	
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)		(Sacks of Tail Cement X Gallons Per Sack) ÷ 42	
bbls of Lead Mix Water <u>157.19 bbls</u>		Pressure of cement in annulus	
(Sacks Needed) X (Gallons Per Sack) ÷ 42		Hydrostatic Pressure <u>585.23 PSI</u>	
Displacement <u>177.45 bbls</u>			
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)			
Total Water Needed: <u>441.29 bbls</u>		Collapse PSI: <u>2570.00 psi</u>	
		Burst PSI: <u>3950.00 psi</u>	

X [Signature]
Authorization To Proceed



Customer
Well Name

Crestone Peak Resources
Sam 3M-25H-M166

Date _____

6/1/2018

INVOICE #

900308

LOCATION


Weld

FOREMAN

Corey Barras

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DESCRIPTION OF JOB EVENTS

X  _____ Work Performed	X _____ Title	X _____ Date
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