



# Bison Oil Well Cementing Tail & Lead

**Customer:** Crestone Peak Resources  
**Well Name:** Davis 1H-9H-G266

**Date:** 5/27/2018  
**Invoice #** 900305  
**API#** 05-123-46512  
**Foreman:** Corey Barras

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

**Consultant:** Jerry Thorstad  
**Rig Name & Number:** Ensign 135  
**Distance To Location:** 26 Miles  
**Units On Location:** 4027-3103/4035-3213/ 3/4024-3201  
**Time Requested:** 1630  
**Time Arrived On Location:** 1520  
**Time Left Location:** 2100

WELL DATA	Cement Data
<p>Casing Size (in) : 9.625</p> <p>Casing Weight (lb) : 40</p> <p>Casing Depth (ft.) : 2,188</p> <p>Total Depth (ft) : 2203</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) : 84</p> <p>Landing Joint (ft) : 6</p> <p>Sacks of Tail Requested 190</p> <p>HOC Tail (ft): 0</p> <p>One or the other, cannot have quantity in both</p> <p>Max Rate:</p> <p>Max Pressure:</p>	<p><b>Lead</b></p> <p>Cement Name:</p> <p>Cement Density (lb/gal) : 13.5</p> <p>Cement Yield (cuft) : 1.68</p> <p>Gallons Per Sack 8.90</p> <p>% Excess 20%</p> <p><b>Tail</b></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: 0%</p> <p><b>Fluid Ahead (bbls) 60.0</b></p> <p><b>H2O Wash Up (bbls) 20.0</b></p> <p><b>Spacer Ahead Makeup</b></p> <p>60 BBL with Die in 2nd 10</p>

Casing ID 8.835	Casing Grade J-55 only used
<b>Lead Calculated Results</b>	<b>Tail Calculated Results</b>
<b>HOC of Lead 1663.44 ft</b>	<b>Tail Cement Volume In Ann 241.30 cuft</b>
Casing Depth - HOC Tail	(HOC Tail) X (OH Ann)
<b>Volume of Lead Cement 812.97 cuft</b>	<b>Total Volume of Tail Cement 205.54 Cuft</b>
HOC of Lead X Open Hole Ann	(HOC Tail X OH Ann) - ( Shoe Length X Shoe Joint Ann)
<b>Volume of Conductor 78.90 cuft</b>	<b>bbls of Tail Cement 42.98 bbls</b>
(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)
<b>Total Volume of Lead Cement 891.87 cuft</b>	<b>HOC Tail 420.56 ft</b>
(cuft of Lead Cement) + (Cuft of Conductor)	(Tail Cement Volume) ÷ (OH Ann)
<b>bbls of Lead Cement 190.61 bbls</b>	<b>Sacks of Tail Cement 190.00 sk</b>
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)	(Total Volume of Tail Cement) ÷ (Cement Yield)
<b>Sacks of Lead Cement 637.05 sk</b>	<b>bbls of Tail Mix Water 26.65 bbls</b>
(Total Slurry Volume) ÷ (Cement Yield) X (%) Excess Cement)	(Sacks of Tail Cement X Gallons Per Sack) ÷ 42
<b>bbls of Lead Mix Water 134.99 bbls</b>	<b>Pressure of cement in annulus</b>
(Sacks Needed) X (Gallons Per Sack) ÷ 42	<b>Hydrostatic Pressure 585.23 PSI</b>
<b>Displacement 159.94 bbls</b>	
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	<b>Collapse PSI: 2570.00 psi</b>
<b>Total Water Needed: 401.58 bbls</b>	<b>Burst PSI: 3950.00 psi</b>
<p>X</p> <p>Authorization To Proceed</p> <p>Customers hereby acknowledges and specifically agrees to the terms and condition on this work order, including, without limitation, the provisions on this work order.</p>	



Bison Oil Well Cementing  
Two Cement Surface Pipe

Customer  
Well Name

Crestone Peak Resources
Davis 1H-9H-G266

Date  
INVOICE #  
LOCATION  
FOREMAN

5/27/2018
900305
Weld
Corey Barras

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DESCRIPTION OF JOB EVENTS

Amount Pumped		Time/Date	Event	Description	Rate	BBLs	Pressure
Lead mixed bbls	134.99	1520	Arrive on Location				
Lead % Excess	20%	1700	Rig Up				
Lead Sacks	637	1745	Safety Meeting	Bison and Rig Crew			
		1820	Start Job				
Tail mixed bbls	26.6	1822	Test Lines	1500 IPSI	1.5	2	1500
Tail % Excess	0%	1824	Pump Spacer	Water	7	60	170
Tail Sacks	190						
		1830	Lead Cement	13.5 PPG	7	190	150
Total Sacks	827	1905	Tail Cement	15.2 PPG	6	43	160
Water Temp	60						
bbl Returns	25	1915	Shut Down				
		1917	Drop Plug	Preloaded in Plug Container			
Notes:							
		1919	Pump Displacement	Water	7	90	310
		1945	Bump Plug	500 PSI over Final Lift (1190 PSI)	2	159	640
		1955	Check Floats	With 1 bbl Back to surface			
		2000	Rig Down				
		2030	Leave Location				

X  
Work Preformed

X  
Title

X  
Date