



# Bison Oil Well Cementing Tail & Lead

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

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

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
Casing Size (in) : 9.625 Casing Weight (lb) : 40 Casing Depth (ft.) : 2,188 Total Depth (ft) : 2203 Open Hole Diameter (in) : 13.50 Conductor Length (ft) : 98 Conductor ID : 15.5 Shoe Joint Length (ft) : 84 Landing Joint (ft) : 6  Sacks of Tail Requested : 190 HOC Tail (ft): 0 <input type="checkbox"/> One or the other, cannot have quantity in both  Max Rate: Max Pressure:	<b>Lead</b> Cement Name: Cement Density (lb/gal) : 13.5 Cement Yield (cuft) : 1.68 Gallons Per Sack : 8.90 % Excess : 20%  <b>Tail</b> Cement Name: Cement Density (lb/gal) : 15.2 Cement Yield (cuft) : 1.27 Gallons Per Sack: 5.89 % Excess: 0%  Fluid Ahead (bbls) : 60.0 H2O Wash Up (bbls) : 20.0  <b>Spacer Ahead Makeup</b> 60 BBL with Die in 2nd 10

Casing ID: 8.835 Casing Grade: J-55 only used

Lead Calculated Results	Tail Calculated Results
<b>HOC of Lead</b> : 1663.44 ft	<b>Tail Cement Volume In Ann</b> : 241.30 cuft
Casing Depth - HOC Tail	(HOC Tail) X (OH Ann)
<b>Volume of Lead Cement</b> : 812.97 cuft	<b>Total Volume of Tail Cement</b> : 205.54 Cuft
HOC of Lead X Open Hole Ann	(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
<b>Volume of Conductor</b> : 78.90 cuft	<b>bbls of Tail Cement</b> : 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)
<b>Total Volume of Lead Cement</b> : 891.87 cuft	<b>HOC Tail</b> : 420.56 ft
(cuft of Lead Cement) + (Cuft of Conductor)	(Tail Cement Volume) ÷ (OH Ann)
<b>bbls of Lead Cement</b> : 190.61 bbls	<b>Sacks of Tail Cement</b> : 190.00 sk
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)	(Total Volume of Tail Cement) ÷ (Cement Yield)
<b>Sacks of Lead Cement</b> : 637.05 sk	<b>bbls of Tail Mix Water</b> : 26.65 bbls
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	(Sacks of Tail Cement X Gallons Per Sack) ÷ 42
<b>bbls of Lead Mix Water</b> : 134.99 bbls	<b>Pressure of cement in annulus</b>
(Sacks Needed) X (Gallons Per Sack) ÷ 42	<b>Hydrostatic Pressure</b> : 585.23 PSI
<b>Displacement</b> : 159.94 bbls	<b>Collapse PSI:</b> 2570.00 psi
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	<b>Burst PSI:</b> 3950.00 psi
<b>Total Water Needed:</b> 401.58 bbls	

X  
 Authorization To Proceed

Customers hereby acknowledges and specifically agrees to the terms and condition on this work order, including, without limitation, the provisions on this work order.



**Bison Oil Well Cementing  
Two Cement Surface Pipe**

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

Date 5/27/2018  
INVOICE # 900305  
LOCATION Weld  
FOREMAN Corey Barras

**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