



# Bison Oil Well Cementing Tail & Lead

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

Customer: Crestone Peak Resources  
 Well Name: Ruegge 30-4H-N165

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																												
Casing Size (in) : 9.625 Casing Weight (lb) : 40 Casing Depth (ft.) : 2,501 Total Depth (ft) : 2510 Open Hole Diameter (in) : 13.50 Conductor Length (ft) : 98 Conductor ID : 15.5 Shoe Joint Length (ft) : 74 Landing Joint (ft) : 5  Sacks of Tail Requested : 190 HOC Tail (ft): <input type="text"/> <small>One or the other, cannot have quantity in both</small>  Max Rate: 8 Max Pressure: 2000	<table border="0"> <tr> <td><b>Lead</b></td> <td><b>N-Gel-12</b></td> </tr> <tr> <td>Cement Name:</td> <td></td> </tr> <tr> <td>Cement Density (lb/gal) :</td> <td>13.5</td> </tr> <tr> <td>Cement Yield (cuft) :</td> <td>1.7</td> </tr> <tr> <td>Gallons Per Sack</td> <td>9.00</td> </tr> <tr> <td>% Excess</td> <td>25%</td> </tr> </table> <table border="0"> <tr> <td><b>Tail</b></td> <td><b>Type III</b></td> </tr> <tr> <td>Cement Name:</td> <td></td> </tr> <tr> <td>Cement Density (lb/gal) :</td> <td>15.2</td> </tr> <tr> <td>Cement Yield (cuft) :</td> <td>1.27</td> </tr> <tr> <td>Gallons Per Sack:</td> <td>5.89</td> </tr> <tr> <td>% Excess:</td> <td></td> </tr> </table> <table border="0"> <tr> <td><b>Fluid Ahead (bbls)</b></td> <td><b>60.0</b></td> </tr> <tr> <td><b>H2O Wash Up (bbls)</b></td> <td><b>10.0</b></td> </tr> </table> <p style="text-align: center;"><b>Spacer Ahead Makeup</b>          60 BBL WATER DYE IN 2ND 10</p>	<b>Lead</b>	<b>N-Gel-12</b>	Cement Name:		Cement Density (lb/gal) :	13.5	Cement Yield (cuft) :	1.7	Gallons Per Sack	9.00	% Excess	25%	<b>Tail</b>	<b>Type III</b>	Cement Name:		Cement Density (lb/gal) :	15.2	Cement Yield (cuft) :	1.27	Gallons Per Sack:	5.89	% Excess:		<b>Fluid Ahead (bbls)</b>	<b>60.0</b>	<b>H2O Wash Up (bbls)</b>	<b>10.0</b>
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Lead Calculated Results	Tail Calculated Results
<b>HOC of Lead</b> 2071.56 ft	<b>Tail Cement Volume In Ann</b> 209.69 cuft
Casing Depth - HOC Tail	(HOC Tail) X (OH Ann)
<b>Volume of Lead Cement</b> 1205.60 cuft	<b>Total Volume of Tail Cement</b> 241.30 Cuft
HOC of Lead X Open Hole Ann	(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
<b>Volume of Conductor</b> 74.79 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> 1280.39 cuft	<b>HOC Tail</b> 429.26 ft
(cuft of Lead Cement) + (Cuft of Conductor)	(Tail Cement Volume) ÷ (OH Ann)
<b>bbls of Lead Cement</b> 228.20 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> 754.00 sk	<b>bbls of Tail Mix Water</b> 26.64 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> 161.57 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> 184.30 bbls	
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	<b>Collapse PSI:</b> 2570.00 psi
<b>Total Water Needed:</b> 444.00 bbls	<b>Burst PSI:</b> 3950.00 psi

X  
 Authorization To Proceed

