



Bison Oil Well Cementing Tail & Lead

Date: 5/20/2018
 Invoice #: 300137
 API#: 05-123-46519
 Foreman: JASON KELEHER

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

County: Weld
 State: Colorado
 Sec: 9
 Twp: 2N
 Range: 66W

Consultant: BRENT
 Rig Name & Number: Ensign 153
 Distance To Location: 26
 Units On Location: 3
 Time Requested: 1930
 Time Arrived On Location: 1830
 Time Left Location: 1230

WELL DATA	Cement Data																												
Casing Size (in) : 9.625 Casing Weight (lb) : 40 Casing Depth (ft.) : 2,265 Total Depth (ft) : 2280 Open Hole Diameter (in) : 13.50 Conductor Length (ft) : 98 Conductor ID : 15.5 Shoe Joint Length (ft) : 86 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>Lead</td> <td>N-Gel-12</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>20%</td> </tr> </table> <table border="0"> <tr> <td>Tail</td> <td>Type III</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>Fluid Ahead (bbls)</td> <td>60.0</td> </tr> <tr> <td>H2O Wash Up (bbls)</td> <td>10.0</td> </tr> </table> <p style="text-align: center;">Spacer Ahead Makeup 60 BBL WATER DYE IN 2ND 10</p>	Lead	N-Gel-12	Cement Name:		Cement Density (lb/gal) :	13.5	Cement Yield (cuft) :	1.7	Gallons Per Sack	9.00	% Excess	20%	Tail	Type III	Cement Name:		Cement Density (lb/gal) :	15.2	Cement Yield (cuft) :	1.27	Gallons Per Sack:	5.89	% Excess:		Fluid Ahead (bbls)	60.0	H2O Wash Up (bbls)	10.0
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Casing ID: 8.835 Casing Grade: J-55 only used

Lead Calculated Results	Tail Calculated Results
HOC of Lead 1846.72 ft	Tail Cement Volume In Ann 204.32 cuft
Casing Depth - HOC Tail	(HOC Tail) X (OH Ann)
Volume of Lead Cement 1025.52 cuft	Total Volume of Tail Cement 241.30 Cuft
HOC of Lead X Open Hole Ann	(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
Volume of Conductor 74.78 cuft	bbls of Tail Cement 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)
Total Volume of Lead Cement 1100.17 cuft	HOC Tail 418.28 ft
(cuft of Lead Cement) + (Cuft of Conductor)	(Tail Cement Volume) ÷ (OH Ann)
bbls of Lead Cement 195.94 bbls	Sacks of Tail Cement 190.00 sk
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)	(Total Volume of Tail Cement) ÷ (Cement Yield)
Sacks of Lead Cement 648.00 sk	bbls of Tail Mix Water 26.64 bbls
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	(Sacks of Tail Cement X Gallons Per Sack) ÷ 42
bbls of Lead Mix Water 138.86 bbls	Pressure of cement in annulus
(Sacks Needed) X (Gallons Per Sack) ÷ 42	Hydrostatic Pressure 611.00 PSI
Displacement 165.70 bbls	
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	Collapse PSI: 2570.00 psi
Total Water Needed: 402.00 bbls	Burst PSI: 3950.00 psi

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.

