



Bison Oil Well Cementing Tail & Lead

Customer: Crestone Peak Resources
Well Name: sam 3g-25h-m166

Date: 5/27/2018
Invoice #: 200293
API#:
Foreman: Kirk Kallhoff

County: Weld
State: Colorado
Sec: 4
Twp: 1n
Range: 65w
Consultant: satch
Rig Name & Number: ENSIGN 122
Distance To Location: 40
Units On Location: 4028/4040/4034/4032
Time Requested: 700 am
Time Arrived On Location: 600 am
Time Left Location: 12:00pm

WELL DATA	Cement Data
<p>Casing Size (in) : 9.625</p> <p>Casing Weight (lb) : 40</p> <p>Casing Depth (ft.) : 2,417</p> <p>Total Depth (ft) : 2430</p> <p>Open Hole Diameter (in) : 13.50</p> <p>Conductor Length (ft) : 110</p> <p>Conductor ID : 15.6</p> <p>Shoe Joint Length (ft) : 79</p> <p>Landing Joint (ft) : 17</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: 8</p> <p>Max Pressure: 2000</p>	<p>Lead</p> <p>Cement Name:</p> <p>Cement Density (lb/gal) : 13.5</p> <p>Cement Yield (cuft) : 1.7</p> <p>Gallons Per Sack : 9.00</p> <p>% Excess : 25%</p> <p>Tail</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:</p> <p>Fluid Ahead (bbls) : 60.0</p> <p>H2O Wash Up (bbls) : 10.0</p> <p>Spacer Ahead Makeup</p> <p>60 BBL WATER DYE IN 2ND 10</p>

Casing ID	8.835	Casing Grade	J-55 only used
Lead Calculated Results		Tail Calculated Results	
HOC of Lead	1865.09 ft	Tail Cement Volume In Ann	241.30 cuft
Casing Depth - HOC Tail		(HOC Tail) X (OH Ann)	
Volume of Lead Cement	911.52 cuft	Total Volume of Tail Cement	207.67 Cuft
HOC of Lead X Open Hole Ann		(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)	
Volume of Conductor	90.42 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	1001.95 cuft	HOC Tail	424.91 ft
(cuft of Lead Cement) + (Cuft of Conductor)		(Tail Cement Volume) ÷ (OH Ann)	
bbls of Lead Cement	223.06 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	736.72 sk	bbls of Tail Mix Water	26.65 bbls
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)		(Sacks of Tail Cement X Gallons Per Sack) ÷ 42	
bbls of Lead Mix Water	157.87 bbls	Pressure of cement in annulus	
(Sacks Needed) X (Gallons Per Sack) ÷ 42		Hydrostatic Pressure	585.23 PSI
Displacement	178.51 bbls	Collapse PSI:	2570.00 psi
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)		Burst PSI:	3950.00 psi
Total Water Needed:	433.02 bbls		

X Francis Bowl

Authorization To Proceed

X 5-27-18
Date