



Bison Oil Well Cementing Tail & Lead

Date: 9/15/2018

Invoice #: 666357

API#

Supervisor: Nick Vigil

Customer: Crestone Peak Resources

Well Name: Melbon Ranch 4C-17H

Consultant:

County: Weld

Rig Name & Number: Ensign 122

State: Colorado

Distance To Location: 30 Miles

Sec: 4

Units On Location: 3

Twp: 1N

Time Requested: 5:00

Range: 65W

Time Arrived On Location: 4:30

Time Left Location: 12:30

WELL DATA	Cement Data
<p>Casing Size (in) : 9.625</p> <p>Casing Weight (lb) : 40</p> <p>Casing Depth (ft.) : 2,438</p> <p>Total Depth (ft) : 2445</p> <p>Open Hole Diameter (in) : 13.50</p> <p>Conductor Length (ft) : 90</p> <p>Conductor ID : 15.25</p> <p>Shoe Joint Length (ft) : 44</p> <p>Landing Joint (ft) :</p> <p>Sacks of Tail Requested 190</p> <p>HOC Tail (ft):</p> <p>One or the other, cannot have quantity in both</p> <p>Max Rate: 8</p> <p>Max Pressure: 2500</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 30%</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: 0%</p> <p>Fluid Ahead (bbls) 60.0</p> <p>H2O Wash Up (bbls) 20.0</p> <p>Spacer Ahead Makeup</p> <p>Dye in 2nd 10 bbl.</p>

Lead Calculated Results	Tail Calculated Results
HOC of Lead 1892.60 ft	Tail Cement Volume In Ann 241.30 cuft
Casing Depth - HOC Tail	(HOC Tail) X (OH Ann)
Volume of Lead Cement 924.97 cuft	Total Volume of Tail Cement 222.57 Cuft
HOC of Lead X Open Hole Ann	(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
Volume of Conductor 68.68 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 993.65 cuft	HOC Tail 455.40 ft
(cuft of Lead Cement) + (Cuft of Conductor)	(Tail Cement Volume) ÷ (OH Ann)
bbls of Lead Cement 230.06 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 759.85 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 162.83 bbls	Pressure of cement in annulus
(Sacks Needed) X (Gallons Per Sack) ÷ 42	Hydrostatic Pressure 585.23 PSI
Displacement 181.47 bbls	
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	Collapse PSI: 2570.00 psi
Total Water Needed: 450.94 bbls	Burst PSI: 3950.00 psi

X
Authorization To Proceed



**Bison Oil Well
Two Cement Surface Pipe**

Customer: Crestone Peak Resources
Well Name: Melbon Ranch 4C-17H

Date: 9/15/2018
INVOICE #: 666357
LOCATION: Weld
SUPERVISOR: Nick Vigil

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DESCRIPTION OF JOB EVENTS

Amount Pumped	Time/Date	Event	Description	Rate	BBLs	Pressure
Lead mixed bbls	144.4	4:30	Arrive on Location			
Lead % Excess	30%	4:40	Well Site Assesment			
Lead Sacks	477	8:30	Rig Up Equipment			
		9:30	JSA			
		10:10	Pressure Test			
Tail mixed bbls	108.8	10:14	Spacer Ahead	5.5	60	150
Tail % Excess	0%	10:23	Lead Cement	5.5	144.4	160
Tail Sacks	481	10:48	Tail Cement	5.5	108.8	200
		11:13	Shut Down			
Total Sacks	958	11:14	Drop Plug			
Water Temp	50	11:15	Displacement	5.5	90	340
bbl Returns	0	11:55	Bump Plug	2.5	181.4	700
		11:57	Check Floats			
Notes:		11:58	WOC			
We did not get any cement to surface.		15:13	Pumped Cement	1	14.7	100
		15:35	End Job			
Tagged cement at 80' prior to top off.		15:40	Rig Down Equipment			
		16:00	Crew Left Location			