



Bison Oil Well Cementing Tail & Lead

Date: 9/16/2018

Invoice #: 666359

API#

Supervisor: Nick Vigil

Customer: Crestone Peak Resources

Well Name: Melbon Ranch 4D-17H

Consultant: Brett

County: Weld

Rig Name & Number: Ensign 153

State: Colorado

Distance To Location: 30 miles

Sec: 19

Units On Location: 4023/4032

Twp: 6N

Time Requested: 10:30

Range: 63W

Time Arrived On Location: 10:00

Time Left Location: 17:30

WELL DATA	Cement Data
<p>Casing Size (in) : 9.625</p> <p>Casing Weight (lb) : 36</p> <p>Casing Depth (ft.) : 2,442</p> <p>Total Depth (ft) : 2450</p> <p>Open Hole Diameter (in) : 13.50</p> <p>Conductor Length (ft) : 98</p> <p>Conductor ID : 15.25</p> <p>Shoe Joint Length (ft) : 44</p> <p>Landing Joint (ft) :</p> <p>Sacks of Tail Requested 405</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 50%</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 second 10 bbl</p>

Casing ID 8.921 Casing Grade J-55 only used

Lead Calculated Results	Tail Calculated Results
HOC of Lead 1330.65 ft	Tail Cement Volume In Ann 514.35 cuft
Casing Depth - HOC Tail	(HOC Tail) X (OH Ann)
Volume of Lead Cement 650.33 cuft	Total Volume of Tail Cement 495.25 Cuft
HOC of Lead X Open Hole Ann	(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
Volume of Conductor 74.79 cuft	bbls of Tail Cement 91.61 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 725.12 cuft	HOC Tail 1013.35 ft
(cuft of Lead Cement) + (Cuft of Conductor)	(Tail Cement Volume) ÷ (OH Ann)
bbls of Lead Cement 193.72 bbls	Sacks of Tail Cement 405.00 sk
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)	(Total Volume of Tail Cement) ÷ (Cement Yield)
Sacks of Lead Cement 639.81 sk	bbls of Tail Mix Water 56.80 bbls
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	(Sacks of Tail Cement X Gallons Per Sack) ÷ 42
bbls of Lead Mix Water 137.10 bbls	Pressure of cement in annulus
(Sacks Needed) X (Gallons Per Sack) ÷ 42	Hydrostatic Pressure 585.23 PSI
Displacement 185.37 bbls	
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	Collapse PSI: 2020.00 psi
Total Water Needed: 459.26 bbls	Burst PSI: 3520.00 psi

X
Authorization To Proceed



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

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

Date: 9/16/2018
INVOICE #: 666359
LOCATION: Weld
FOREMAN: Nick Vigil

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DESCRIPTION OF JOB EVENTS

Amount Pumped		Time/Date	Event	Description	Rate	BBLs	Pressure
Lead mixed bbls	194.7	10:00	Arrive On Location	Rig was rigging up to running casing.			
Lead % Excess	50%	10:05	Well Site Assessment	Hazard hunt, rig up safety meeting			
Lead Sacks	643	13:15	Rig Up Equipment				
		14:20	JSA	Held safety meeting with all personell involved in job.			
		14:54	Test Lines	Pressure tested lines to 2000 psi.			
Tail mixed bbls	90.9	14:56	Spacer Ahead	Fresh water with dye in second 10 bbls.	5.5	60	180
Tail % Excess	0%	15:06	Lead Cement	13.5 ppg	5.5	193.7	170
Tail Sacks	405	15:44	Tail Cement	15.2 ppg	5.5	91.6	190
		16:05	Shut Down				
Total Sacks	1048	16:07	Drop Plug	Plug was pre loaded.			
Water Temp	75	16:08	Displace	Fresh water	5.5	90	580
bbl Returns	60	16:50	Bump Plug	Bumped plug 410 psi over final lift (1910 psi)	2.4	185.3	1500
Notes:		16:54	Check Floats	Floats held (flowed back 2 bbls)			
		16:55	End Job				
		17:00	Rig Down Equipment				
		17:30	Crew Left Location				

X
Signature _____

X
Title _____

X
Date _____