



**Bison Oil Well Cementing
Tail & Lead**

Date: 11/23/2018

Invoice # 300225

API# 05-123-47733

Foreman: JASON KELEHER

Customer: Crestone Peak Resources

Well Name: HERREN 1C-33H-H367

County: Weld
State: Colorado
Sec: 33
Twp: 3N
Range: 67W

Consultant: BUDDY
Rig Name & Number: Ensign 153
Distance To Location: 24
Units On Location: 3
Time Requested: 730
Time Arrived On Location: 600
Time Left Location: 1500

WELL DATA	Cement Data
<p>Casing Size (in) : 9.625 Casing Weight (lb) : 40 Casing Depth (ft) : 2,008 Total Depth (ft) : 2023 Open Hole Diameter (in) : 13.50 Conductor Length (ft) : 121 Conductor ID : 15.5 Shoe Joint Length (ft) : 45 Landing Joint (ft) : 5</p> <p>Sacks of Tail Requested HOC Tail (ft): 1,000</p> <p>One or the other, cannot have quantity in both</p> <p>Max Rate: 8 Max Pressure: 2000</p>	<p>Lead N-Gel-12</p> <p>Cement Name: Cement Density (lb/gal) : 13.5 Cement Yield (cuft) : 1.7 Gallons Per Sack 9.00 % Excess 30%</p> <p>Tail Type III</p> <p>Cement Name: Cement Density (lb/gal) : 15.2 Cement Yield (cuft) : 1.27 Gallons Per Sack: 5.89 % Excess:</p> <p>Fluid Ahead (bbls) 60.0 H2O Wash Up (bbls) 10.0</p> <p>Spacer Ahead Makeup 60 BBL WATER DYE IN LAST 10</p>

Casing ID 8.835 Casing Grade J-55 only used

Lead Calculated Results	Tail Calculated Results
HOC of Lead 1008.00 ft	Tail Cement Volume In Ann 488.70 cuft
Casing Depth - HOC Tail	(HOC Tail) X (OH Ann)
Volume of Lead Cement 563.52 cuft	Total Volume of Tail Cement 507.79 Cuft
HOC of Lead X Open Hole Ann	(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
Volume of Conductor 97.40 cuft	bbls of Tail Cement 90.40 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 661.30 cuft	HOC Tail 1000.00 ft
(cuft of Lead Cement) + (Cuft of Conductor)	(Tail Cement Volume) ÷ (OH Ann)
bbls of Lead Cement 117.70 bbls	Sacks of Tail Cement 400.00 sk
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)	(Total Volume of Tail Cement) ÷ (Cement Yield)
Sacks of Lead Cement 389.00 sk	bbls of Tail Mix Water 56.10 bbls
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	(Sacks of Tail Cement X Gallons Per Sack) ÷ 42
bbls of Lead Mix Water 83.36 bbls	Pressure of cement in annulus
(Sacks Needed) X (Gallons Per Sack) ÷ 42	Hydrostatic Pressure 612.00 PSI
Displacement 148.70 bbls	
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	Collapse PSI: 2570.00 psi
Total Water Needed: 360.00 bbls	Burst PSI: 3950.00 psi

X

Authorization To Proceed

Dud Burke



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

Customer Crestone Peak Resources
Well Name HERREN 1C-33H-H367

Date 11/23/2018
INVOICE # 300225
LOCATION Weld
FOREMAN JASON KELEHER

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DESCRIPTION OF JOB EVENTS

Amount Pumped	Time/Date	Event	Description	Rate	BBLs	Pressure
Lead mixed bbls	83.36	600	ARRIVE ON LOCATION			
Lead % Excess	30%	800	MIRU			
Lead Sacks	339	830	PRE JOB SAFETY MEETING			
		903	PRESSURE TEST			2000
		937	FRESH WATER SPACER			
			PUMP STARTED LEAKING WATER			
Tail mixed bbls	56.1	940	SHUT DOWN			
Tail % Excess	0%	1144	PRESSURE TEST			2000
Tail Sacks	400	1145	FRESH WATER SPACER	6.5	60	210
		1155	LEAD CEMENT	6.3	117.7	270
Total Sacks	739	1217	TAIL CEMENT	7	90.4	380
Water Temp	54	1235	SHUT DOWN			
bbl Returns	18	1237	DROP PLUG			
		1237	DISPLACEMENT	3	148.7	730
Notes:		1304	BUMP PLUG			1280
		1310	CHECK FLOATS			
		1313	PRESSURE UP WELL			1300
		1320	CHECK FLOATS			
		1326	PRESSURE UP WELL			1310
		1401	CHECK FLOATS			
		1410	RIG DOWN			
		1500	LEAVE LOCATION			

Jason Keleher

X
CUSTOMER SIGNATURE

X
Title

X
Date