



# Bison Oil Well Cementing Tail & Lead

Date: 11/24/2018  
Invoice # 666389  
API#  
Supervisor: Nick Vigil

Customer: Crestone Peak Resources  
Well Name: Herren 1D-33H-H367

County: Weld  
State: Colorado  
Sec: 19  
Twp: 6N  
Range: 63W  
Consultant: Buddy  
Rig Name & Number: Ensign 153  
Distance To Location: 22 miles  
Units On Location: 4044/4030/4023  
Time Requested: 12:00  
Time Arrived On Location: 11:30  
Time Left Location: 16:00

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) : 98 Conductor ID : 15.25 Shoe Joint Length (ft) : 46 Landing Joint (ft) :</p> <p>Sacks of Tail Requested 405 HOC Tail (ft): <div>One or the other, cannot have quantity in both</div></p> <p>Max Rate: 8 Max Pressure: 2000</p>	<p><b>Lead</b> Cement Name: Cement Density (lb/gal) : 13.5 Cement Yield (cuft) : 1.7 Gallons Per Sack 9.00 % Excess 30%</p> <p><b>Tail</b> Cement Name: Cement Density (lb/gal) : 15.2 Cement Yield (cuft) : 1.27 Gallons Per Sack: 5.89 % Excess: 0%</p> <p>Fluid Ahead (bbls) 60.0 H2O Wash Up (bbls) 20.0</p> <p><b>Spacer Ahead Makeup</b> Dye in second 10 bbl</p>

Casing ID	8.835	Casing Grade	J-55 only used
<b>Lead Calculated Results</b>		<b>Tail Calculated Results</b>	
<b>HOC of Lead</b> 897.65 ft		<b>Tail Cement Volume In Ann</b> 514.35 cuft	
Casing Depth - HOC Tail		(HOC Tail) X (OH Ann)	
<b>Volume of Lead Cement</b> 438.71 cuft		<b>Total Volume of Tail Cement</b> 494.77 Cuft	
HOC of Lead X Open Hole Ann		(HOC Tail X OH Ann) - ( Shoe Length X Shoe Joint Ann)	
<b>Volume of Conductor</b> 74.79 cuft		<b>bbls of Tail Cement</b> 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)	
<b>Total Volume of Lead Cement</b> 513.49 cuft		<b>HOC Tail</b> 1012.35 ft	
(cuft of Lead Cement) + (Cuft of Conductor)		(Tail Cement Volume) ÷ (OH Ann)	
<b>bbls of Lead Cement</b> 118.89 bbls		<b>Sacks of Tail Cement</b> 405.00 sk	
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)		(Total Volume of Tail Cement) ÷ (Cement Yield)	
<b>Sacks of Lead Cement</b> 392.67 sk		<b>bbls of Tail Mix Water</b> 56.80 bbls	
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)		(Sacks of Tail Cement X Gallons Per Sack) ÷ 42	
<b>bbls of Lead Mix Water</b> 84.14 bbls		<b>Pressure of cement in annulus</b>	
(Sacks Needed) X (Gallons Per Sack) ÷ 42		<b>Hydrostatic Pressure</b> 585.23 PSI	
<b>Displacement</b> 148.72 bbls		<b>Collapse PSI:</b> 2570.00 psi	
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)		<b>Burst PSI:</b> 3950.00 psi	
<b>Total Water Needed:</b> 369.66 bbls			



Authorization To Proceed



# Bison Oil Well Cementing Two Cement Surface Pipe

Customer  
Well Name

Crestone Peak Resources  
Herren 1D-33H-H367

Date  
INVOICE #  
LOCATION  
FOREMAN

11/24/2018  
666389  
Weld  
Nick Vigil

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## DESCRIPTION OF JOB EVENTS

Amount Pumped		Time/Date	Event	Description	Rate	BBLs	Pressure
Lead mixed bbls	118.8	11:30	Arrive On Location	Rig was landing casing.			
Lead % Excess	38%	11:35	Well Site Assessment	Hazard hunt, rig up safety meeting			
Lead Sacks	393	11:40	Rig Up Equipment				
		12:15	JSA	Held safety meeting with all personell involved in job.			
		12:35	Test Lines	Pressure tested lines to 1800 psi.			
Tail mixed bbls	91.6	12:37	Spacer Ahead	Fresh water with dye in last 10 bbl.	8	60	250
Tail % Excess	0%	12:46	Lead Cement	13.5 ppg	8	118.8	180
Tail Sacks	405	13:08	Tail Cement	15.2 ppg	5.5	91.6	160
		13:31	Shut Down				
Total Sacks	798	13:32	Drop Plug	Plug was pre loaded.			
Water Temp	75	13:33	Displace	Fresh water	8	70	380
bbl Returns	19	13:59	Bump Plug	Bumped plug 550 psi over final lift (1200 psi)	3.5	148.7	650
Notes:		14:05	Check Floats	Floats were trickling.			
		14:25	Pressure Up	Pressured back up to 1300psi.			
		14:35	Check Floats	Floats were trickling.			
		14:40	Pressure Up	Pressured back up to 1300psi.			
		15:08	Check Floats	Floats held			
		15:20	Rig Down Equipment				
		16:00	Crew left Location				

X  
Signature

X  
Title

X  
Date



# Bison Oil Well Cementing Tail & Lead

## Cementing Customer Satisfaction Survey

Service Date	11/24/2018
Well Name	Herren 1D-33H-H367
County	Weld
State	Colorado
SEC	19
TWP	6N
RNG	63W

Invoice Number	666389
API #	0
Job Type	Surface Pipe
Company Name	Crestone Peak Resources

Customer Representative	Buddy
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Supervisor Name	Nick Vigil
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Employee Name (Including Supervisor)
Nick V.
Belino M.
Corey B.
Bryon R.
Aaron C.

Exposure Hours (Per Employee)
4.5
4.5
4.5
4.5
4.5
22.5

Total Exposure Hours

Did we encounter any problems on this job? ☐ Yes ☐ No

### To Be Completed By Customer

#### Rating/Description

- 5 - Superior Performance (Established new quality/performance standards)  
4 - Exceeded Expectation (Provided more than what was required/expected)  
3 - Met Expectations (Did what was expected)  
2 - Below Expectations (Job problems/failures occurred - \*Recovery made)  
1 - Poor Performance (Job problems/failures occurred - \*Some recovery made)  
\*Recovery: resolved issue(s) on jobsite in a timely and professional manner

RATING	CATEGORY	CUSTOMER SATISFACTION RATING
	Personnel -	Did our personnel perform to your satisfaction?
	Equipment -	Did our equipment perform to your satisfaction?
	Job Design -	Did we perform the job to the agreed upon design?
	Product/Material -	Did our products and materials perform as you expected?
	Health & Safety -	Did we perform in a safe and careful manner (Pre/post mtgs, PPE, TSMR, etc..)?
	Environmental -	Did we perform in an environmentally sound manner (spills, leaks, cleanup, etc..)?
	Timeliness -	Was job performed as scheduled (On time to site, accessible to customers, completed when expected)?
	Condition/Appearance -	Did the equipment condition and appearance meet your expectations?
	Communication -	How well did our personnel communicate during mobilization, rig up and job execution?

#### Please Circle:

- |     |    |  |
|-----|----|--|
| Yes | No | Did an accident or injury occur?                 |
| Yes | No | Did an injury requiring medical treatment occur? |
| Yes | No | Did a first-aid injury occur?                    |
| Yes | No | Did a vehicle accident occur?                    |
| Yes | No | Was a post-job safety meeting held?              |

#### Please Circle:

- |     |    |                                      |
|-----|----|--------------------------------------|
| Yes | No | Was a pre-job safety meeting held?   |
| Yes | No | Was a job safety analysis completed? |
| Yes | No | Were emergency services discussed?   |
| Yes | No | Did environmental incident occur?    |
| Yes | No | Did any near misses occur?           |

Additional Comments:

THE INFORMATION HEREIN IS CORRECT -

X

Customer Representative's Signature

DATE:

Any additional Customer Comments or HSE concerns should be described on the back of this form