



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

Consultant: Buddy

County: Weld

Rig Name & Number: Ensign 153

State: Colorado

Distance To Location: 22 miles

Sec: 19

Units On Location: 4044/4030/4023

Twp: 6N

Time Requested: 12:00

Range: 63W

Time Arrived On Location: 11:30

Time Left Location: 16:00

WELL DATA	Cement Data
<p>Casing Size (in) : 9.625</p> <p>Casing Weight (lb) : 40</p> <p>Casing Depth (ft.) : 2,008</p> <p>Total Depth (ft) : 2023</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) : 46</p> <p>Landing Joint (ft) :</p> <p>Sacks of Tail Requested 405</p> <p>HOC Tail (ft):</p> <div style="border: 1px solid black; padding: 2px; width: fit-content;"> <p>One or the other, cannot have quantity in both</p> </div> <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 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 second 10 bbl</p>

Lead Calculated Results	Tail Calculated Results
HOC of Lead 897.65 ft	Tail Cement Volume In Ann 514.35 cuft
Casing Depth - HOC Tail	(HOC Tail) X (OH Ann)
Volume of Lead Cement 438.71 cuft	Total Volume of Tail Cement 494.77 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 513.49 cuft	HOC Tail 1012.35 ft
(cuft of Lead Cement) + (Cuft of Conductor)	(Tail Cement Volume) ÷ (OH Ann)
bbls of Lead Cement 118.89 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 392.67 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 84.14 bbls	Pressure of cement in annulus
(Sacks Needed) X (Gallons Per Sack) ÷ 42	Hydrostatic Pressure 585.23 PSI
Displacement 148.72 bbls	
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	Collapse PSI: 2570.00 psi
Total Water Needed: 369.66 bbls	Burst PSI: 3950.00 psi



Authorization To Proceed



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

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

Date	11/24/2018
INVOICE #	666389
LOCATION	Weld
FOREMAN	Nick Vigil

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

Amount Pumped	Time/Date	Event	Description	Rate	BBLs	Pressure
Lead mixed bbls	118.8	11:30	Arrive On Location			
Lead % Excess	38%	11:35	Well Site Assessment			
Lead Sacks	393	11:40	Rig Up Equipment			
		12:15	JSA			
		12:35	Test Lines			
Tail mixed bbls	91.6	12:37	Spacer Ahead	8	60	250
Tail % Excess	0%	12:46	Lead Cement	8	118.8	180
Tail Sacks	405	13:08	Tail Cement	5.5	91.6	160
		13:31	Shut Down			
Total Sacks	798	13:32	Drop Plug			
Water Temp	75	13:33	Displace	8	70	380
bbl Returns	19	13:59	Bump Plug	3.5	148.7	650
Notes:		14:05	Check Floats			
		14:25	Pressure Up			
		14:35	Check Floats			
		14:40	Pressure Up			
		15:08	Check Floats			
		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
-------------------------	-------

Supervisor Name	Nick Vigil
-----------------	------------

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