Bison Oil Well Cementing
Two Cement Surface Pipe

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

Date	11/24/2018
INVOICE #	666390
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	116.4	11:00	Arrive On Location	Rig was landing casing.			
Lead % Excess	30%	11:05	Well Site Assessment	Hazard hunt, rig up safety meeting			
Lead Sacks	385	11:15	Rig Up Equipment				
		11:50	JSA	Held safety meeting with all personell involved in job.			
		12:17	Test Lines	Pressure tested lines to 1800 psi.			
Tail mixed bbls	91.6	12:20	Spacer Ahead	Fresh water with dye in last 10 bbl.	7.3	60	190
Tail % Excess	0%	12:30	Lead Cement	13.5 ppg	7.3	116.4	300
Tail Sacks	405	12:49	Tail Cement	15.2 ppg	6.5	91.6	300
		13:06	Shut Down				
Total Sacks	790	13:07	Drop Plug	Plug was pre loaded.			
Water Temp	75	13:08	Displace	Fresh water	7	70	220
bbl Returns	17	13:33	Bump Plug	Bumped plug 510 psi over final lift (1160 psi)	2.5	147.2	650
Notes:		13:38	Check Floats	Floats were trickling.			
		13:52	Casing Test	Pressured back up to 1320psi.			
		14:44	Check Floats	Floats were trickling.			
		14:50	End Job	Pressured back up to 1300psi.			
		15:00	Top Off	Floats held			
		15:20	Rig Down Equipment				
		15:30	Crew left Location				

X Bob Burke
Signature

X
Title

X
Date

Bison Oil Well Cementing
Tail & Lead

Date: 11/24/2018
Invoice #: 666390
API#:
Supervisor: Nick Vigil

Customer: Crestone Peak Resources
Well Name: Herren 1E-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: 11:30
Time Arrived On Location: 11:00
Time Left Location:

WELL DATA

Casing Size (in) :	_9.625
Casing Weight (lb) :	40
Casing Depth (ft.) :	1,987
Total Depth (ft) :	2002
Open Hole Diameter (in) :	13.50
Conductor Length (ft) :	98
Conductor ID :	15.25
Shoe Joint Length (ft) :	45
Landing Joint (ft) :	
Sacks of Tail Requested	405
HOC Tail (ft):	

One or the other, cannot have quantity in both

Max Rate:	8
Max Pressure:	2000

Cement Data

Lead

Cement Name:	
Cement Density (lb/gal) :	13.5
Cement Yield (cuft) :	1.7
Gallons Per Sack	9.00
% Excess	30%

Tail

Cement Name:	
Cement Density (lb/gal) :	15.2
Cement Yield (cuft) :	1.27
Gallons Per Sack:	5.89
% Excess:	0%

Fluid Ahead (bbls)	60.0
H20 Wash Up (bbls)	20.0

Spacer Ahead Makeup

Dye in last 10 bbl

Casing ID: 8.835
Casing Grade: J-55 only used

Lead Calculated Results

HOC of Lead	875.78 ft
Casing Depth - HOC Tail	
Volume of Lead Cement	428.02 cuft
HOC of Lead X Open Hole Ann	
Volume of Conductor	74.79 cuft
(Conductor ID Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	
Total Volume of Lead Cement	502.80 cuft
(cuft of Lead Cement) + (Cuft of Conductor)	
bbls of Lead Cement	116.41 bbls
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)	
Sacks of Lead Cement	384.50 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	
bbls of Lead Mix Water	82.39 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42	
Displacement	147.20 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	
Total Water Needed:	366.39 bbls

Tail Calculated Results

Tail Cement Volume In Ann	514.35 cuft
(HOC Tail) X (OH Ann)	
Total Volume of Tail Cement	495.19 Cuft
(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)	
bbls of Tail Cement	91.61 bbls
(HOC of Tail) X (OH Ann) + (Cement Yield) X (Shoe Joint Ann) X (.1781) X (% Excess)	
HOC Tail	1013.22 ft
(Tail Cement Volume) ÷ (OH Ann)	
Sacks of Tail Cement	405.00 sk
(Total Volume of Tail Cement) ÷ (Cement Yield)	
bbls of Tail Mix Water	56.80 bbls
(Sacks of Tail Cement X Gallons Per Sack) ÷ 42	
Pressure of cement in annulus	
Hydrostatic Pressure	585.23 PSI
Collapse PSI:	2570.00 psi
Burst PSI:	3950.00 psi

X _____

Authorization To Proceed

Customers hereby acknowledges and specifically agrees to the terms and condition on this work order, including, without limitation, the provisions on this work order.

Herren 1E-33H-H367