



Bison Oil Well Cementing Tail & Lead

Customer: Crestone Peak Resources
Well Name: Ruegge 3H-4H-N165

Date: 5//2018
Invoice # 900289
API# 05-123-46558
Foreman: Corey Barras

County: Weld
State: Colorado
Sec: 4
Twp: 1N
Range: 65W

Consultant: Jerry Thorstad
Rig Name & Number: Ensign 122
Distance To Location: 36 Miles
Units On Location: 4027-3103/4041-3205/4039-3214
Time Requested: 700
Time Arrived On Location: 630
Time Left Location: 1130

WELL DATA

Casing Size (in) : 9.625
Casing Weight (lb) : 40
Casing Depth (ft.) : 2,440
Total Depth (ft) : 2458
Open Hole Diameter (in) : 13.50
Conductor Length (ft) : 98
Conductor ID : 15.6
Shoe Joint Length (ft) : 74
Landing Joint (ft) : 10

Sacks of Tail Requested 190
HOC Tail (ft): 0

One or the other, cannot have quantity in both

Max Rate:
Max Pressure:

Cement Data

Lead

Cement Name:
Cement Density (lb/gal) : 13.5
Cement Yield (cuft) : 1.68
Gallons Per Sack 8.90
% Excess 15%

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
H2O Wash Up (bbls) 20.0

Spacer Ahead Makeup
60 BBL with Die in 2nd 10

Casing ID	8.835	Casing Grade	J-55 only used
Lead Calculated Results		Tail Calculated Results	
HOC of Lead	1902.73 ft	Tail Cement Volume In Ann	241.30 cuft
Casing Depth - HOC Tail		(HOC Tail) X (OH Ann)	
Volume of Lead Cement	929.92 cuft	Total Volume of Tail Cement	209.80 Cuft
HOC of Lead X Open Hole Ann		(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)	
Volume of Conductor	80.56 cuft	bbls of Tail Cement	42.98 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	1010.48 cuft	HOC Tail	429.27 ft
(cuft of Lead Cement) + (Cuft of Conductor)		(Tail Cement Volume) ÷ (OH Ann)	
bbls of Lead Cement	206.96 bbls	Sacks of Tail Cement	190.00 sk
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)		(Total Volume of Tail Cement) ÷ (Cement Yield)	
Sacks of Lead Cement	691.70 sk	bbls of Tail Mix Water	26.65 bbls
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)		(Sacks of Tail Cement X Gallons Per Sack) ÷ 42	
bbls of Lead Mix Water	146.57 bbls	Pressure of cement in annulus	
(Sacks Needed) X (Gallons Per Sack) ÷ 42		Hydrostatic Pressure	585.23 PSI
Displacement	180.10 bbls	Collapse PSI:	2570.00 psi
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)		Burst PSI:	3950.00 psi
Total Water Needed:	433.32 bbls		

X

Authorization To Proceed



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

Customer
Well Name

Crestone Peak Resources
Ruegge 3H-4H-N165

Date
INVOICE #
LOCATION
FOREMAN

5//2018
900289
Weld
Corey Barras

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DESCRIPTION OF JOB EVENTS

Amount Pumped		Time/Date	Event	Description	Rate	BBLs	Pressure
Lead mixed bbls	146.57	630	Arrive on Location				
Lead % Excess	15%	730	Rig Up				
Lead Sacks	692	815	Safety Meeting	Bison and Rig Crew			
		900	Start Job				
Tail mixed bbls	26.6	902	Test Lines	1500 IPSI	1.5	2	1500
Tail % Excess	0%	904	Pump Spacer	Water	7	60	150
Tail Sacks	190						
		910	Lead Cement	13.5 PPG	7	206	90
Total Sacks	881	945	Tail Cement	15.2 PPG	5	43	80
Water Temp	52						
bbl Returns	14	956	Shut Down				
		1000	Drop Plug	Preloaded in Plug Container			
Notes:							
		1002	Pump Displacement	Water	7	180	230
		1042	Bump Plug	500 PSI over Final Lift (1340 PSI)	2	180	720
				With 1 bbl Back to surface			
		1100	Rig Down				
		1130	Leave Location				

X _____
Work Preformed

X _____
Title

X _____
Date