

Bison Oil Well Cementing Tail & Lead

Customer: Noble Energy Inc.
Well Name: SLW Ranch State BB07-633

Date: 8/7/2019
Invoice # 900388
AFE # 205571
Foreman: Corey Bar ras

County: Weld
State: Colorado

Sec: 7
Twp: 5n
Range: 63w

Consultant: Charles
Rig Name & Number: H&P 517
Distance To Location: 19
Units On Location: 4033/3103-4032/3203
Time Requested: 1630
Time Arrived On Location: 1545
Time Left Location:

WELL DATA

Casing Size (in) : 9.625
Casing Weight (lb) : 36
Casing Depth (ft.) : 1,930
Total Depth (ft) : 1972
Open Hole Diameter (in) : 13.50
Conductor Length (ft) : 80
Conductor ID : 15.25
Shoe Joint Length (ft) : 48
Landing Joint (ft) : 0

Sacks of Tail Requested 100
HOC Tail (ft): 0

One or the other, cannot have quantity in both

Max Rate: 8
Max Pressure: 1500

Cement Data

Lead

Cement Name:
Cement Density (lb/gal) : 13.5
Cement Yield (cuft) : 1.7
Gallons Per Sack 9.00
% Excess 10%

Tail

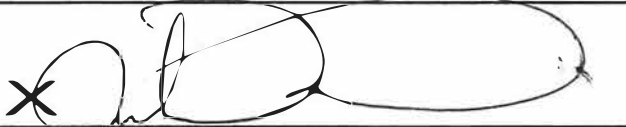
Cement Name:
Cement Density (lb/gal) : 15.2
Cement Yield (cuft) : 1.27
Gallons Per Sack: 5.89
% Excess: 0%

Fluid Ahead (bbls) 30.0
H2O Wash Up (bbls) 20.0

Spacer Ahead Makeup

30BBL WATER DYE IN 2ND 10

Casing ID	8.921	Casing Grade	J-55 only used
Lead Calculated Results		Tail Calculated Results	
HOC of Lead <u>1632.77 ft</u>		Tail Cement Volume In Ann <u>127.00 cuft</u>	
Casing Depth - HOC Tail		(HOC Tail) X (OH Ann)	
Volume of Lead Cement <u>797.98 cuft</u>		Total Volume of Tail Cement <u>106.17 Cuft</u>	
HOC of Lead X Open Hole Ann		(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)	
Volume of Conductor <u>61.05 cuft</u>		bbls of Tail Cement <u>22.62 bbls</u>	
(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 <u>859.03 cuft</u>		HOC Tail <u>217.23 ft</u>	
(cuft of Lead Cement) + (Cuft of Conductor)		(Tail Cement Volume) ÷ (OH Ann)	
bbls of Lead Cement <u>168.29 bbls</u>		Sacks of Tail Cement <u>100.00 sk</u>	
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)		(Total Volume of Tail Cement) ÷ (Cement Yield)	
Sacks of Lead Cement <u>555.85 sk</u>		bbls of Tail Mix Water <u>14.02 bbls</u>	
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)		(Sacks of Tail Cement X Gallons Per Sack) ÷ 42	
bbls of Lead Mix Water <u>119.11 bbls</u>		Pressure of cement in annulus	
(Sacks Needed) X (Gallons Per Sack) ÷ 42		Hydrostatic Pressure <u>585.23 PSI</u>	
Displacement <u>145.48 bbls</u>		Collapse PSI: <u>2020.00 psi</u>	
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)		Burst PSI: <u>3520.00 psi</u>	
Total Water Needed: <u>328.61 bbls</u>			



Authorization To Proceed

Date:

SLW Ranch State BB07-633

