

X 12-16-19
Date



Bison Oil Well Cementing Tail & Lead

Customer: Noble Energy Inc.
Well Name: Guttersen Y05-771

Date: 12/16/2019
Invoice #: 200554
API#: 05-123-48041
Foreman: Kirk Kallhoff

County: Weld
State: Colorado
Sec: 29
Twp: 3N
Range: 64W

Consultant: jim
Rig Name & Number: H&P 321
Distance To Location: 21
Units On Location: 4047/4032/4026
Time Requested: 230 pm
Time Arrived On Location: 130 pm
Time Left Location:

WELL DATA	Cement Data
Casing Size (in) : 9.625	Lead
Casing Weight (lb) : 36	Cement Name: BFN III
Casing Depth (ft.) : 1,898	Cement Density (lb/gal) : 13.5
Total Depth (ft) : 1943	Cement Yield (cuft) : 1.68
Open Hole Diameter (in) : 13.50	Gallons Per Sack : 8.90
Conductor Length (ft) : 110	% Excess : 10%
Conductor ID : 15.15	
Shoe Joint Length (ft) : 40	Tail Type III
Landing Joint (ft) : 3	Cement Name:
	Cement Density (lb/gal) : 15.2
	Cement Yield (cuft) : 1.27
	Gallons Per Sack: 5.80
	% Excess: 0%
Sacks of Tail Requested : 100	Fluid Ahead (bbls) : 30.0
HOC Tail (ft): 0	H2O Wash Up (bbls) : 20.0
One or the other, cannot have quantity in both	
Max Rate: 8	Spacer Ahead Makeup
Max Pressure: 2500	30 BBL ahead with Die in 2nd 10

Casing ID 8.921	Casing Grade J-55 only used
Lead Calculated Results	Tail Calculated Results
HOC of Lead 1560.67 ft	Tail Cement Volume In Ann 127.00 cuft
Casing Depth - HOC Tail	(HOC Tail) X (OH Ann)
Volume of Lead Cement 762.74 cuft	Total Volume of Tail Cement 109.64 Cuft
HOC of Lead X Open Hole Ann	(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
Volume of Conductor 82.12 cuft	bbls of Tail Cement 22.62 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 844.87 cuft	HOC Tail 224.33 ft
(cuft of Lead Cement) + (Cuft of Conductor)	(Tail Cement Volume) ÷ (OH Ann)
bbls of Lead Cement 165.52 bbls	Sacks of Tail Cement 100.00 sk
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)	(Total Volume of Tail Cement) ÷ (Cement Yield)
Sacks of Lead Cement 553.19 sk	bbls of Tail Mix Water 13.81 bbls
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	(Sacks of Tail Cement X Gallons Per Sack) ÷ 42
bbls of Lead Mix Water 117.22 bbls	Pressure of cement in annulus
(Sacks Needed) X (Gallons Per Sack) ÷ 42	Hydrostatic Pressure 585.23 PSI
Displacement 143.86 bbls	
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	Collapse PSI: 2020.00 psi
Total Water Needed: 324.89 bbls	Burst PSI: 3520.00 psi

X

Authorization To Proceed

SERIES 2000

