



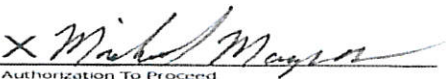
Bison Oil Well Cementing Single Cement Surface Pipe

Date: 7/7/2014
Invoice #: 12130
API#:
Foreman: monte

Customer: noble
Well Name: cutthroat lc28-75-1ahnb

County: weld
State: colorado
Sec: 29
Twp: 9n
Range: 59w
Consultant: jw
Rig Name & Number: h&p 273
Distance To Location: 66.7
Units On Location: 4031-3105 4020-3112
Time Requested: 8:00pm
Time Arrived On Location: 7:45pm
Time Left Location: 11:00

WELL DATA	Cement Data
Casing Size OD (in) : 9.625	Cement Name: BEN III
Casing Weight (lb) : 35.00	Cement Density (lb/gal) : 15.2
Casing Depth (ft.) : 617	Cement Yield (cuft) : 1.27
Total Depth (ft) : 658	Gallons Per Sack: 5.89
Open Hole Diameter (in.) : 13.75	% Excess: 10%
Conductor Length (ft) : 124	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.25	BBL to Pit: 8.0
Shoe Joint Length (ft) : 41	Fluid Ahead (bbls): 40.0
Landing Joint (ft) : 28	H2O Wash Up (bbls): 20.0
Max Rate:	Spacer Ahead Makeup
Max Pressure:	10 fresh 10 dye 20 fresh

Casing ID	8.921	Casing Grade	J-55 only used
Calculated Results		Displacement: 46.69 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
cuft of Shoe	17.80	cuft	Pressure of cement in annulus
(Casing ID Squared) X (.005454) X (Shoe Joint ft)			
cuft of Conductor	94.63	cuft	Hydrostatic Pressure: 487.18 PSI
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)			Pressure of the fluids inside casing
cuft of Casing	285.19	cuft	
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)			
Total Slurry Volume	397.61	cuft	
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)			
bbls of Slurry	70.81	bbls	Displacement: 248.36 psi
(Total Slurry Volume) X (.1781)			Shoe Joint: 32.37 psi
Sacks Needed	313	sk	Total 280.73 psi
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)			Differential Pressure: 206.45 psi
Mix Water	43.91	bbls	Collapse PSI: 2020.00 psi
(Sacks Needed) X (Gallons Per Sack) ÷ 42			Burst PSI: 3520.00 psi
			Total Water Needed: 150.60 bbls
<div> Authorization To Proceed</div> <div>Customers hereby acknowledges and specifically agrees to the terms and condition on this work order, including, without limitation, the provisions on this work order.</div>			



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

Customer
Well Name

noble
cutthroat lc28-75-1ahnb

INVOICE #
LOCATION
FOREMAN
Date

12130
weld
monte
7/7/2014

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

		Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
		BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI
Safety Meeting	8:50															
MIRU	8:10															
CIRCULATE	9:04	0	9:38	0	0			0			0			0		
Drop Plug		10	9:40	50	10			10			10			10		
	9:38	20	9:43	70	20			20			20			20		
		30	9:46	150	30			30			30			30		
		40	9:48	230	40			40			40			40		
M & P		50	9:57	420	50			50			50			50		
Time	Sacks	60			60			60			60			60		
9:15-9:35	313	70			70			70			70			70		
		80			80			80			80			80		
		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
% Excess	0%	120			120			120			120			120		
Mixed bbls	43.91	130			130			130			130			130		
Total Sacks	313	140			140			140			140			140		
bbl Returns	4	150			150			150			150			150		
Water Temp	75															

Notes:

safty meeting. Miru, pressure test per company man. Circulate 50 bbls ahead with dye in 2nd 10, mix and pump 313 bbls at 15.2 lb at 10 % excess, drop plug and d
bump plug at 9:57 pm at 420 psi hold 15 min, 4 bbls back to pit

X *Michael Magar*
Work Performed

X _____
Title

X _____
Date