



# Bison Oil Well Cementing Tail & Lead

Date: 10/16/2014

Invoice # 12153

API#

Foreman: Monte Bedeaux

Customer: Noble Energy

Well Name: Oscar Y10-73-1hc

County: Weld

State: Colorado

Sec: 10

Twp: 2n

Range: 64w

Consultant: Cliff

Rig Name & Number: h&p 277

Distance To Location: 25.8

Units On Location: 4028/3102 4022-3213

Time Requested: 5:00pm

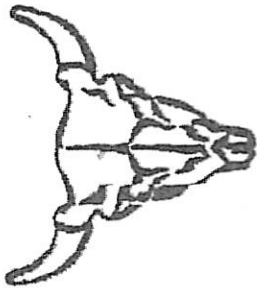
Time Arrived On Location: 4:00pm

Time Left Location: 10:00pm

WELL DATA	Cement Data
<p>Casing Size (in) : 9.625</p> <p>Casing Weight (lb) : 36</p> <p>Casing Depth (ft) : 1,162</p> <p>Total Depth (ft) : 1168</p> <p>Open Hole Diameter (in) : 13.50</p> <p>Conductor Length (ft) : 124</p> <p>Conductor ID : 15.6</p> <p>Shoe Joint Length (ft) : 43</p> <p>Landing Joint (ft) : 34</p> <p>Sacks of Tail Requested : 100</p> <p>HOC Tail (ft) : 0</p> <p>One or the other, cannot have quantity in both</p> <p>Max Rate: 4.5</p> <p>Max Pressure: 2000</p>	<p><b>Lead</b></p> <p>Cement Name:</p> <p>Cement Density (lb/gal) : 13.1</p> <p>Cement Yield (cuft) : 1.69</p> <p>Gallons Per Sack : 8.64</p> <p>% Excess : 25%</p> <p><b>Tail</b></p> <p>Cement Name:</p> <p>Cement Density (lb/gal) : 15.2</p> <p>Cement Yield (cuft) : 1.27</p> <p>Gallons Per Sack : 5.89</p> <p>% Excess : 0%</p> <p>Fluid Ahead (bbls) : 30.0</p> <p>H2O Wash Up (bbls) : 20.0</p> <p><b>Spacer Ahead Makeup</b></p> <p>10 fresh 10 dye 10 fresh</p>

Lead Calculated Results	Tail Calculated Results
HOC of Lead : 782.33 ft	Tail Cement Volume In Ann : 127.00 cuft
Casing Depth - HOC Tail	(HOC Tail) X (OH Ann)
Volume of Lead Cement : 382.35 cuft	Total Volume of Tail Cement : 108.34 Cuft
HOC of Lead X Open Hole Ann	(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
Volume of Conductor : 101.93 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 : 484.28 cuft	HOC Tail : 221.67 ft
(cuft of Lead Cement) + (Cuft of Conductor)	(Tail Cement Volume) ÷ (OH Ann)
bbls of Lead Cement : 107.81 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 : 358.19 sk	bbls of Tail Mix Water : 14.02 bbls
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	(Sacks of Tail Cement X Gallons Per Sack) ÷ 42
bbls of Lead Mix Water : 73.69 bbls	Pressure of cement in annulus
(Sacks Needed) X (Gallons Per Sack) ÷ 42	Hydrostatic Pressure : 790.74 PSI
Displacement : 89.13 bbls	
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	
Total Water Needed: 226.84 bbls	
	Collapse PSI: 2020.00 psi
	Burst PSI: 3520.00 psi

X   
Authorization To Proceed



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

Date 10/16/2014  
INVOICE # 12153  
LOCATION Weld  
FOREMAN Monte Bedeaux

Customer Noble Energy  
Well Name Oscar Y10-73-1hc

Treatment Report Page 2

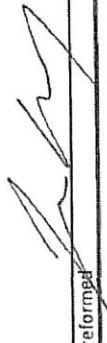
**DESCRIPTION OF JOB EVENTS**

	7:05 6:30 8:12	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		0	8:50	0	0			0			0			0		
MIRU		10	8:53	20	10			10			10			10		
CIRCULATE		20	8:55	50	20			20			20			20		
Drop Plug		30	8:58	110	30			30			30			30		
8:48		40	9:00	120	40			40			40			40		
		50	9:02	220	50			50			50			50		
M & P		60	9:04	280	60			60			60			60		
Time	Sacks	70	9:06	310	70			70			70			70		
8:15-8:46	459	80	9:08	300	80			80			80			80		
		90	9:10	640	90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
		120			120			120			120			120		
Lead mixed bbls	73.69	130			130			130			130			130		
Lead % Excess	25%	140			140			140			140			140		
Lead Sacks	358	150			150			150			150			150		

**Notes:**

14.02 safety meeting, miru, pressure test per company man, circulate 30 bbls ahead with dye in 2nd 10, mix and pump 358 sks lead, 13.1, 1.69 yield, 8.64 h2o  
0% mix and pump 100 sks tail at 15.2, 1.27, 5.89, drop plug and displace 86.49 bbls h2o. Bump plug at 9:10 pm at 640 psi, bumped plug  
100 casing test 1000 psi 15 min

Total Sacks 458  
Water Temp 60  
bbl Returns 34

X   
Work Performed

X

Title

X

Date