Bison Oil Well Cementing
Tail & Lead

Date: 11/7/2014
Invoice #: 12189
API#:
Foreman: kirk

Customer: Noble Energy
Well Name: oscar y10-74hn

Consultant: mikr
Rig Name & Number: h&p 315
Distance To Location:
Units On Location: 4030-3103/4018-3204
Time Requested: 1200 am
Time Arrived On Location: 1100 pm
Time Left Location: 5:00am

County: Weld
State: Colorado
Sec: 10
Twp: 2n
Range: 64w

WELL DATA

Casing Size (in)	9.625
Casing Weight (lb)	36
Casing Depth (ft.)	1,154
Total Depth (ft)	1195
Open Hole Diameter (in)	13.50
Conductor Length (ft)	100
Conductor ID	16
Shoe Joint Length (ft)	45
Landing Joint (ft)	35

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

One or the other, cannot have quantity in both

Max Rate:
Max Pressure:

Cement Data

Lead

Cement Name:	bfn III 3%
Cement Density (lb/gal)	13.1
Cement Yield (cuft)	1.69
Gallons Per Sack	8.64
% Excess	30%

Tail

Cement Name:	bfn III 3%
Cement Density (lb/gal)	15.2
Cement Yield (cuft)	1.27
Gallons Per Sack:	5.89
% Excess:	0%

Fluid Ahead (bbls)	30.0
H20 Wash Up (bbls)	20.0

Spacer Ahead Makeup

Casing ID 8.921 Casing Grade J-55 only used

Lead Calculated Results

HOC of Lead Casing Depth - HOC Tail	799.11 ft
Volume of Lead Cement HOC of Lead X Open Hole Ann	390.55 cuft
Volume of Conductor (Conductor ID Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	89.10 cuft
Total Volume of Lead Cement (cuft of Lead Cement) + (Cuft of Conductor)	479.64 cuft
bbls of Lead Cement (Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)	111.05 bbls
Sacks of Lead Cement (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	368.96 sk
bbls of Lead Mix Water (Sacks Needed) X (Gallons Per Sack) ÷ 42	75.90 bbls
Displacement (Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	88.43 bbls
Total Water Needed	125.90 bbls

Tail Calculated Results

Tail Cement Volume In Ann (HOC Tail) X (OH Ann)	127.00 cuft
Total Volume of Tail Cement (HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)	107.47 Cuft
bbls of Tail Cement (HOC of Tail) X (OH Ann) + (Cement Yield) X (Shoe Joint Ann) X (.1781) X (% Excess)	22.62 bbls
HOC Tail (Tail Cement Volume) ÷ (OH Ann)	219.89 ft
Sacks of Tail Cement (Total Volume of Tail Cement) ÷ (Cement Yield)	100.00 sk
bbls of Tail Mix Water (Sacks of Tail Cement X Gallons Per Sack) ÷ 42	14.02 bbls
Pressure of cement in annulus	
Hydrostatic Pressure	785.30 PSI
Collapse PSI:	2020.00 psi
Burst PSI:	3520.00 psi

X Mike Halvorson
Authorization To Proceed

Customers hereby acknowledges and specifically agrees to the terms and condition on this work order, including, without limitation, the provisions on this work order.

Bison Oil Well Cementing
Two Cement Surface Pipe

Customer: Noble Energy
Well Name: oscar y10-74hn

Date: 11/7/2014
INVOICE #: 12189
LOCATION: Weld
FOREMAN: kirk

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

Safety Meeting	240am
MIRU	205am
CIRCULATE	312am
Drop Plug	
353 am	

M & P

Time	Sacks
322 am	468
350 am stop	

Lead mixed bbls	75.6
Lead % Excess	29%
Lead Sacks	368
Tail mixed bbls	14
Tail % Excess	0%
Tail Sacks	100
Total Sacks	467
bbl Returns	20

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
0	353am	10	0			0			0			0		
10	356am	70	10			10			10			10		
20	358am	70	20			20			20			20		
30	400am	80	30			30			30			30		
40	402am	110	40			40			40			40		
50	404am	180	50			50			50			50		
60	407am	240	60			60			60			60		
70	409am	320	70			70			70			70		
80	411am	340	80			80			80			80		
90			90			90			90			90		
100			100			100			100			100		
110			110			110			110			110		
120			120			120			120			120		
130			130			130			130			130		
140			140			140			140			140		
150			150			150			150			150		

Notes:

BUMPED PLUG at 415 am 510 PSI 111 bbls slurry lead 22.6 bbls slurry tail.
casing test 1000 psi 15 min

X _____
Work Preformed

X WSS
Title

X 11-7-14
Date