

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

Customer
Well Name

encana
lochbuie 2h-31h

Date: 2/16/2014
 INVOICE #: 12287
 LOCATION: Weld
 FOREMAN: kirk
 Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

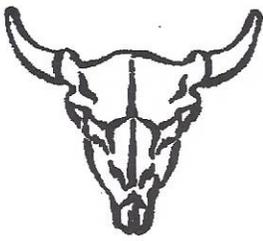
	245am 257 am 352 am	Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
		BLS	Time	PSI	BLS	Time	PSI	BLS	Time	PSI	BLS	Time	PSI	BLS	Time	PSI
Safety Meeting																
MIRU																
CIRCULATE		0	431	10	0			0			0			0		
Drop Plug		10	434	70	10			10			10			10		
		20	436	70	20			20			20			20		
		30	437	70	30			30			30			30		
		40	439	70	40			40			40			40		
		50	441	80	50			50			50			50		
M & P		60	443	170	60			60			60			60		
Time	Sacks	70	445	220	70			70			70			70		
358 am	470	80	447	400	80			80			80			80		
429 am stop		90	449	550	90			90			90			90		
		100	451	520	100			100			100			100		
		110	454	450	110			110			110			110		
		120			120			120			120			120		
Lead mixed bbls	72	130			130			130			130			130		
Lead % Excess	60%	140			140			140			140			140		
Lead Sacks	350	150			150			150			150			150		
Notes:																
		bumped plug at 456 am 920 psi														
Tail mixed bbls	16.8															
Tail % Excess	0%															
Tail Sacks	120															
Total Sacks	470															
bbl Returns	20															

X Work Performed

Steve Carlson

X Title

X 2-16-14 Date



**Bison Oil Well Cementing
Tail & Lead**

Date: 2/16/2014

Invoice # 12287

API#

Foreman: kirk

Customer: encana

Well Name: lochbuie 2h-31h

Consultant: nate

Rig Name & Number: h&p 522

Distance To Location:

Units On Location: 3103-3203

Time Requested: 100 am

Time Arrived On Location: 1215 am

Time Left Location: 5:45am

County: Weld

State: Colorado

Sec: 31

Twp: 1n

Range: 65w

WELL DATA

Casing Size (in) : 9.625
 Casing Weight (lb) : 40
 Casing Depth (ft) : 1,485
 Total Depth (ft) : 1515
 Open Hole Diameter (in) : 12.25
 Conductor Length (ft) : 100
 Conductor ID : 15.5
 Shoe Joint Length (ft) : 40
 Landing Joint (ft) : 30

Sacks of Tail Requested : 120
 HOC Tail (ft) : 0

One or the other, cannot have quantity in both

Max Rate:

Max Pressure:

Cement Data

Lead

Cement Name:
 Cement Density (lb/gal) : 13.1
 Cement Yield (cuft) : 1.69
 Gallons Per Sack : 8.64
 % Excess : 60%

Tail

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

Fluid Ahead (bbls) : 111.8
 H2O Wash Up (bbls) : 20.0

Spacer Ahead Makeup

Casing ID

8.835

Casing Grade

J-55 only used

Lead Calculated Results

HOC of Lead : 922.75 ft
 Casing Depth - HOC Tail
Volume of Lead Cement : 288.99 cuft
 HOC of Lead X Open Hole Ann
Volume of Conductor : 80.51 cuft
 (Conductor ID Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)
Total Volume of Lead Cement : 369.49 cuft
 (cuft of Lead Cement) + (Cuft of Conductor)
bbls of Lead Cement : 105.29 bbls
 (Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)
Sacks of Lead Cement : 349.82 sk
 (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
bbls of Lead Mix Water : 71.96 bbls
 (Sacks Needed) X (Gallons Per Sack) ÷ 42
Displacement : 111.81 bbls
 (Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)
Total Water Needed: 203.77 bbls

Tail Calculated Results

Tail Cement Volume In Ann : 152.40 cuft
 (HOC Tail) X (OH Ann)
Total Volume of Tail Cement : 135.37 Cuft
 (HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
bbls of Tail Cement : 27.14 bbls
 (HOC of Tail) X (OH Ann) + (Cement Yield) X (Shoe Joint Ann) X (.1781) X (% Excess)
HOC Tail : 432.25 ft
 (Tail Cement Volume) ÷ (OH Ann)
Sacks of Tail Cement : 120.00 sk
 (Total Volume of Tail Cement) ÷ (Cement Yield)
bbls of Tail Mix Water : 16.83 bbls
 (Sacks of Tail Cement X Gallons Per Sack) ÷ 42
 Pressure of cement in annulus
Hydrostatic Pressure : 1010.54 PSI
Collapse PSI: 2570.00 psi
Burst PSI: 3950.00 psi

X

Authorization To Proceed