# Bison Oil Well Cementing
# Single Cement Surface Pipe

Date: 1/10/2015
Invoice # 45108
API# 05-123-39780
Foreman: JASON

**Customer:** EnCana Oil & Gas (USA) Inc.

**Well Name:** NEWNAM2I-32H-C264

County: Weld
State: Colorado
Sec: 32
Twp: 2N
Range: 64W

Consultant: RICH
Rig Name & Number: ENSIGN 124
Distance To Location: 23
Units On Location: 4031-3107, 4032-3210
Time Requested: 1000
Time Arrived On Location: 830
Time Left Location: 1400

## WELL DATA

| | |
|---|---|
| Casing Size OD (in) : | _9.625 |
| Casing Weight (lb) : | 40.00 |
| Casing Depth (ft.) : | 1,017 |
| Total Depth (ft) : | 1040 |
| Open Hole Diameter (in.) : | 12.25 |
| Conductor Length (ft) : | 120 |
| Conductor ID : | 15.25 |
| Shoe Joint Length (ft) : | 44 |
| Landing Joint (ft) : | 17 |
| Max Rate: | 6 |
| Max Pressure: | 1500 |

## Cement Data

Cement Name: BFN III

| | |
|---|---|
| Cement Density (lb/gal) : | 15.2 |
| Cement Yield (cuft) : | 1.27 |
| Gallons Per Sack: | 5.89 |
| % Excess: | 50% |
| Displacement Fluid lb/gal: | 8.3 |
| BBL to Pit: | 25.0 |
| Fluid Ahead (bbls): | 30.0 |
| H20 Wash Up (bbls): | 20.0 |

**Spacer Ahead Makeup**

**30 BBL W/ KCL, DYE IN 2ND 10**

Casing ID 8.835 Casing Grade J-55 only used

## Calculated Results

| | | |
|---|---|---|
| cuft of Shoe | 18.83 | cuft |
| (Casing ID Squared) X ( .005454) X (Shoe Joint ft) | | |
| cuft of Conductor | 91.58 | cuft |
| (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft) | | |
| cuft of Casing | 421.30 | cuft |
| (Open Hole Squared)-(Casing Size Squared) X ( .005454) X (Casing Depth - Conductor Length ) | | |
| Total Slurry Volume | 531.71 | cuft |
| (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing) | | |
| bbls of Slurry | 94.70 | bbls |
| (Total Slurry Volume) X (.1781) | | |
| Sacks Needed | 419 | sk |
| (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement) | | |
| Mix Water | 58.71 | bbls |
| (Sacks Needed) X (Gallons Per Sack) ÷ 42 | | |

Displacement: 75.05 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

### Pressure of cement in annulus

Hydrostatic Pressure: 802.88 PSI

### Pressure of the fluids inside casing

| | |
|---|---|
| Displacement: | 419.36 psi |
| Shoe Joint: | 34.93 psi |
| Total | 454.29 psi |
| Differential Pressure: | 348.59 psi |
| Collapse PSI: | 2570.00 psi |
| Burst PSI: | 3950.00 psi |
| Total Water Needed: | 183.77 bbls |

X _____
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**
**Single Cement Surface Pipe**

| | |
|---|---|
| INVOICE # | 45108 |
| LOCATION | Weld |
| FOREMAN | JASON |
| Date | 1/10/2015 |

| | |
|---|---|
| Customer | EnCana Oil & Gas (USA) Inc. |
| Well Name | NEWNAM2I-32H-C264 |

**Treatment Report Page 2**

## DESCRIPTION OF JOB EVENTS

| | | Displace 1 | | | Displace 2 | | | Displace 3 | | | Displace 4 | | | Displace 5 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Safety Meeting | 1100 | BBLS | Time | PSI | BBLS | Time | PSI | BBLS | Time | PSI | BBLS | Time | PSI | BBLS | Time | PSI |
| MIRU | 945 | 0 | 1238 | 0 | 0 | | | 0 | | | 0 | | | 0 | | |
| CIRCULATE | 1150 | 10 | 1241 | 60 | 10 | | | 10 | | | 10 | | | 10 | | |
| Drop Plug | | 20 | 1243 | 80 | 20 | | | 20 | | | 20 | | | 20 | | |
| 1238 | | 30 | 1245 | 160 | 30 | | | 30 | | | 30 | | | 30 | | |
| | | 40 | 1255 | 280 | 40 | | | 40 | | | 40 | | | 40 | | |
| M & P | | 50 | 1305 | 360 | 50 | | | 50 | | | 50 | | | 50 | | |
| **Time** | **Sacks** | 60 | 1309 | 420 | 60 | | | 60 | | | 60 | | | 60 | | |
| 1201-1236 | 419 | 70 | 1313 | 450 | 70 | | | 70 | | | 70 | | | 70 | | |
| | | 80 | 1315 | 460 | 80 | | | 80 | | | 80 | | | 80 | | |
| | | 90 | BUMP | 1040 | 90 | | | 90 | | | 90 | | | 90 | | |
| | | 100 | | | 100 | | | 100 | | | 100 | | | 100 | | |
| | | 110 | | | 110 | | | 110 | | | 110 | | | 110 | | |
| **% Excess** | 50% | 120 | | | 120 | | | 120 | | | 120 | | | 120 | | |
| **Mixed bbls** | 58.7 | 130 | | | 130 | | | 130 | | | 130 | | | 130 | | |
| **Total Sacks** | 419 | 140 | | | 140 | | | 140 | | | 140 | | | 140 | | |
| **bbl Returns** | 25 | 150 | | | 150 | | | 150 | | | 150 | | | 150 | | |
| **Water Temp** | 77 | | | | | | | | | | | | | | | |

Notes:

PRESSURE TEST TO 2000 PSI AT 1147, PUMPED 30 BBL WATER WITH DYE IN THE 2ND 10 AT 1150, MIXED AND PUMPED 419 SKS AT 15.2, 94.7 BBL AT 1201, SHUT DOWN AT 1236, STARTED DISPLACEMENT AT 1238, PLUG LANDED AT 460 PSI AT 1315 AND PRESSURED UP TO 1040 PSI, HELD FOR 2 MINUTES, RELEASED PRESSURE AND GOT .5 BBL BACK AND FLOATS HELD

x Jason L. Born
Work Performed

x Co Man
Title

x 10 Jan 15
Date