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Farmington Field Office
Bureau of Land Management

Form 3160-5
(March 2012)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: October 31, 2014

**SUNDRY NOTICES AND REPORTS ON WELLS**

***Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.***

***SUBMIT IN TRIPLICATE** – Other instructions on page 2.*

5. Lease Serial No.
NMNM 17009; NMNM 118128;V0 9212

6. If Indian, Allottee or Tribe Name
N/A

7. If Unit of CA/Agreement, Name and/or No.
NMNM 131017X

1. Type of Well
☑ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.
Gallo Canyon Unit O27-2306 01H

2. Name of Operator
Encana Oil & Gas (USA) Inc.

9. API Well No.
30-043-21206

3a. Address
370 17th Street, Suite 1700 Denver, CO 80202

3b. Phone No. *(include area code)*

10. Field and Pool or Exploratory Area
Counselors Gallup-Dakota

4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)*
SHL: 26' FSL and 2044' FEL Section 27, T23N, R6W BHL: 330' FSL and 2525' FWL Section 35, T23N, R6W

11. County or Parish, State
Sandoval County, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

| TYPE OF SUBMISSION | TYPE OF ACTION | | | |
|---|---|---|---|---|
| ☑ Notice of Intent | ☐ Acidize | ☐ Deepen | ☐ Production (Start/Resume) | ☐ Water Shut-Off |
| | ☐ Alter Casing | ☐ Fracture Treat | ☐ Reclamation | ☐ Well Integrity |
| ☐ Subsequent Report | ☐ Casing Repair | ☐ New Construction | ☐ Recomplete | ☑ Other Updated 10-Point Drilling Plan, WBD and C-102 |
| | ☐ Change Plans | ☐ Plug and Abandon | ☐ Temporarily Abandon | |
| ☐ Final Abandonment Notice | ☐ Convert to Injection | ☐ Plug Back | ☐ Water Disposal | |

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

Encana Oil & Gas (USA) Inc. (Encana) is submitting the following information for the Gallo Canyon Unit O27-2306 01H APD package:

1. Drilling Plan - Updated to include the correct MD and TVD. The previously submitted Drilling Plan did not match the information on the Directional Drilling Plan or Form 3160-3. The plan was also updated with the correct cement volumes.
2. Wellbore Diagram - Updated to include the correct MD and TVD. The previously submitted Wellbore Diagram did not match the information on the Directional Drilling Plan or Form 3160-3. The diagram was also updated with the correct cement volumes.
3. Form C-102 - The Dedicated Acres were updated to include the acreage for the penetrated spacing units

Please attach these updates to the Gallo Canyon Unit O27-2306 01H APD package.

CONDITIONS OF APPROVAL

Adhere to previously issued stipulations

OIL CONS. DIV DIST. 3

MAY 28 2014

BLM'S APPROVAL OR ACCEPTANCE OF THIS ACTION DOES NOT RELIEVE THE LESSEE AND OPERATOR FROM OBTAINING ANY OTHER AUTHORIZATION REQUIRED FOR OPERATIONS ON FEDERAL AND INDIAN LANDS

14. I hereby certify that the foregoing is true and correct. Name *(Printed/Typed)*
Katie Wegner

Title Regulatory Analyst

Signature

Date 05/21/2014

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved by William Tambekou

Title Petroleum Engineer

Date 5/23/2014

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office FFO

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

NMOCD

**GCU O27-2306 01H**
**SHL: SWSE Sec 27 T23N R6W**
**26' FSL, 2044' FEL**
**BHL: SESW Sec 35 T23N R6W**
**330' FSL, 2525' FWL**
**Sandoval, New Mexico**

# Encana Oil & Gas (USA) Inc.
# Drilling Plan

## 1. ESTIMATED TOPS OF GEOLOGICAL MARKERS (TVD)

The estimated tops of important geologic markers are as follows:

| Formation | Depth (TVD) units = feet |
|---|---|
| Ojo Alamo Ss. | 1,366 |
| Kirtland Shale | 1,515 |
| Fruitland Coal | 1,678 |
| Pictured Cliffs Ss. | 1,920 |
| Lewis Shale | 2,048 |
| Cliffhouse Ss. | 2,739 |
| Menefee Fn. | 3,470 |
| Point Lookout Ss. | 4,184 |
| Mancos Shale | 4,352 |
| Mancos Silt | 4,959 |
| Gallup Fn. | 5,223 |

The referenced surface elevation is 6984', KB 7000'

## 2. ESTIMATED DEPTH OF POTENTIAL WATER, OIL, GAS, & OTHER MINERAL BEARING FORMATIONS

| Substance | Formation | Depth (TVD) units = feet |
|---|---|---|
| Water/Gas | Fruitland Coal | 1,678 |
| Oil/Gas | Pictured Cliffs Ss. | 1,920 |
| Oil/Gas | Cliffhouse Ss. | 2,739 |
| Gas | Menefee Fn. | 3,470 |
| Oil/Gas | Point Lookout Ss. | 4,184 |
| Oil/Gas | Mancos Shale | 4,352 |
| Oil/Gas | Mancos Silt | 4,959 |
| Oil/Gas | Gallup Fn. | 5,223 |

All shows of fresh water and minerals will be reported and protected.

## 3. PRESSURE CONTROL

a) Pressure contol equipment and configuration will be designed to meet 2M standards.
b) Working pressure on rams and BOPE will be 3,000 psi.
c) Function test and visual inspection of the BOP will be conducted daily and noted in the IADC Daily Drilling Report.
d) The Annular BOP will be pressure tested to a minimum of 50 percent of its rated working pressure.
e) Blind and Pipe Rams/BOP will be tested against a test plug to 100 percent of rated working pressure.
f) Pressure tests are required before drilling out from under all casing strings set and cemented in place.

g) BOP controls must be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned.
h) BOP testing procedures and testing frequency will conform to Onshore Order No. 2.
i) BOP remote controls shall be located on the rig floor at a location readily accessible to the driller. Master controls shall be on the ground at the accumulator and shall have the capability to function all preventers.
j) The kill line shall be 2-inch minimum and contain two kill line valves, one of which shall be a check valve.
k) The choke line shall be a 2-inch minimum and contain two choke line valves (2-inch minimum).
l) The choke and manifold shall contain two adjustable chokes.
m) Hand wheels shall be installed on all ram preventers.
n) Safety valves and wrenches (with subs for drill string connections) shall be available on the rig floor at all
o) Inside BOP or float sub shall also be available on the rig floor at all times.

Proposed BOP and choke manifold arrangements are attached.

## 4. CASING & CEMENTING PROGRAM

The proposed casing and cementing program has been designed to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. Any isolating medium other than cement shall receive approval prior to use. The casing setting depth shall be calculated to position the casing seat opposite a competent formation which will contain the maximum pressure to which it will be exposed during normal drilling operations. All indications of useable water shall be reported.

a) The proposed casing design is as follows:

| Casing | Depth (MD) | Hole Size | Csg Size | Weight | Grade |
|---|---|---|---|---|---|
| Conductor | 0'-60' | 30" | 20" | 94# | H40, STC New |
| Surface | 0'-500' | 12 1/4" | 9 5/8" | 36# | J55, STC New |
| Intermediate | 0'-5617' | 8 3/4" | 7" | 26# | J55, LTC New |
| Production Liner | 5417'-12022' | 6 1/8" | 4 1/2" | 11.6# | B80*, LTC New |

| Casing String | | | | Casing Strength Properties | | | Minimum Design Factors | | |
|---|---|---|---|---|---|---|---|---|---|
| Size | Weight (ppf) | Grade | Connection | Collapse (psi) | Burst (psi) | Tensile (1000lbs) | Collapse | Burst | Tension |
| 9 5/8" | 36 | J55 | STC | 2020 | 3520 | 394 | 1.125 | 1.1 | 1.5 |
| 7" | 26 | J55 | LTC | 4320 | 4980 | 367 | 1.125 | 1.1 | 1.5 |
| 4.5" | 11.6 | B80 | LTC | 6350 | 7780 | 201 | 1.125 | 1.1 | 1.5 |

*B80 pipe specifications are attached

Casing design is subject to revision based on geologic conditions encountered

All casing strings below the conductor shall be pressure tested to 0.22 psi per foot of casing string length or 1,500 psi, whichever is greater, but not to exceed 70 percent of the minimum internal yield. If pressure declines more than 10 percent in 30 minutes, corrective action shall be taken.

b) The proposed cementing program is as follows

| Casing | Depth (MD) | Cement Volume (sacks) | Cement Type & Yield | Designed TOC | Centralizers |
|---|---|---|---|---|---|
| Conductor | 0'-60' | 100 sks | Type I Neat 16 ppg | Surface | None |
| Surface | 0'-500' | 201 sks | Type III Cement + 1% CaCl + 0.25lb/sk Cello Flake + 0.2% FL, 16ppg, 1.38cuf/sk | Surface | 1 per joint on bottom 3 joints |
| Intermediate | 0'-5617' | 30% open hole excess Stage 1 Lead: 375 sks Stage 1 Tail: 284 sks Stage 2 Lead: 186 sks | Lead (Stages 1 and 2): PremLite + 3% CaCl + 0.25lb/sk CelloFlake + 5lb/sk LCM, 12.1ppg 2.13cuft/sk Tail (Stage 1): Type III Cmt + 1% CaCl + 0.25lb/sk Cello Flake 14.5ppg 1.38cuft/sk | Surface | 1 every 3 joints through water bearing zones |
| Production Liner | 5417'-12022' | None - External Casing Packers | N/A | N/A | N/A |

*Production liner clarification: Utilizing external swell casing packer system for zonal isolation will not use cement in the production liner

Actual volumes will be calculated and determined by conditions onsite. All cement slurries will meet or exceed minimum BLM and New Mexico Oil Conservation Division requirements. Slurries used will be the slurries listed above or equivalent slurries depending on service provider selected. Cement yields may change depending on slurries selected

All waiting on cement times shall be a minimum of 8 hours or adequate to achieve minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

## 5. WELL PLAN & DIRECTIONAL DRILLING PROGRAM

The proposed horizontal well will have a kick off point of 4840'. Directional plans are attached.

| Description | Proposed Depth (TVD/MD) | Formation |
|---|---|---|
| Horizontal Lateral TD | 5441'/12022' | Gallup |

6. DRILLING FLUIDS PROGRAM

a) Surface through Intermediate Casing Point:

| Holie Size (in) | Depth (TVD/MD) | Mud Type | Density (ppg) | Viscosity (sec/qt) | Fluid Loss (cc) |
|---|---|---|---|---|---|
| 30" | 0-60'/60' | Fresh Water | 8.3-9.2 | 38-100 | 4-28 |
| 12 1/4" | 0'-500'/500' | Fresh Water | 8.4-8.6 | 60-70 | NC |
| 8 3/4" | 500'/500'-5434'/5617 | Fresh Water LSND | 9.5-8.8 | 40-50 | 8-10 |

b) Intermediate Casing Point to TD:

| Holie Size (in) | Depth (TVD/MD) | Mud Type | Density (ppg) | Viscosity (sec/qt) | Fluid Loss (cc) |
|---|---|---|---|---|---|
| 6 1/8" | 5434'/5617'-5441'/12022' | Synthetic Oil Based Mud | 8.6-9.0 | 15-25 | <15 |

c) There will be sufficient mud on location to control a blowout should one occur. Mud flow and volume will be monitored both visually and with electronic pit volume totalizers. Mud tests shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH.

d) A closed-loop system will be used to recover drilling fluid and dry cuttings in both phases of the well and on all hole intervals, including fresh water and oil-based operations. Above-ground tanks will be utilized to hold cuttings and fluids for rig operations. A frac tank will be on location to store fresh water. Waste will be disposed of properly at an EPA-approved hazardous waste facility. Fresh water cuttings will be disposed of at Basin Disposal, Inc. and/or Industrial Ecosystems, Inc. The location will be lined in accordance with the Surface Use Plan of Operations.

## 7. TESTING, CORING, & LOGGING

a) Drill Stem Testing - None anticipated.
b) Coring - None anticipated.
c) Mudd Logging - Mud loggers will be on location from kick off point to TD.
d) Logging - See below

Cased Hole:
CBL/CCL/GR/VDL will be run as needed for perforating control

## 8. ABNORMAL PRESSURES & HYDROGEN SULFIDE

The anticipated bottom hole pressure is +/- 2558 psi based on a 9.0 ppg at 5465' TVD of the horizontal lateral target. No abnormal pressure or temperatures are anticipated.

No hydrogen sulfide gas is anticipated, however, if $H_2S$ is encountered, the guidelines in Onshore Order No. 6 will be followed.

## 9. ANTICIPATED START DATE AND DURATION OF OPERATIONS

Drilling is estimated to commence on September 28, 2014. It is anticipated that completion operations will begin within 30 days after the well has been drilled depending on fracture treatment schedules with various pumping service companies.

It is anticipated that the drilling of this well will take approximately 20 days.

| LOC: SW/4 SE/4 Sec 27 T23N R6W, 26' F<br>County: New Mexico<br>WELL: GCU O27-2306 01H | Encana Natural Gas<br>WELL SUMMARY | | | ENG: S Kuykendall 5/21/14<br>RIG: Aztec 950<br>GLE: 6984<br>RKBE: 7000 |
|---|---|---|---|---|

| MWD LWD | OPEN HOLE LOGGING | FORM | DEPTH TVD | DEPTH MD | HOLE SIZE | CASING SPECS | MW MUD TYPE | DEVIATION INFORMATION |
|---|---|---|---|---|---|---|---|---|
| | | | 60 | 60' | 30 | 20" 94#<br>100sx Type I Neat 16.0ppg cmt | Fresh wtr<br>8.3-9.2 | |
| Multi-Well pad - take survey every stand and run anti-collision report prior to spud | None | | | | 12 1/4 | 9 5/8" 36ppf J55 STC | Fresh wtr<br>8.4-8.6 | Vertical<br><1° |
| | | Nacimiento | 0 | | | TOC Surface - 201 sks of Type III Cement | | |
| | | 9 5/8" Csg | 500 | 500.00 | | | | |
| | | Ojo Alamo Ss. | 1,366 | | | | | |
| | | Kirtland Shale | 1,515 | | | | | |
| | No OH logs | Fruitland Coal | 1,678 | | | 7" 26ppf J55 LTC | Fresh Wtr | |
| Survey Every 60'-120', updating anticollision report after surveys. Stop operations and contact drilling engineer if separation factor approaches 1.5 | | Pictured Cliffs Ss. | 1,920 | | | | 8.5-8.8 | Vertical<br><1° |
| | | Lewis Shale | 2,048 | | 8 3/4 | TOC @ surface<br>30% OH excess: 659 sksTotal. | | |
| | | Cliffhouse Ss. | 2,739 | | | | | |
| | | Menefee Fn. | 3,470 | | | Stage 1 Lead: 375 sks Premium Lite FM + 3% CaCl2 + 0.25/sk Cello Flake + 5#/sk LCM-1 + 8% Bentonite + 0.4% FL-52A + 0.4% Sodium Metasilicate. Mixed at 12.1 ppg. Yield 2.13 cuft/sk. | | |
| | | Point Lookout Ss. | 4,184 | | | | | |
| | | Mancos Shale | 4,352 | | | | | |
| | Mud logger onsite | KOP | 4,840 | 4,840.0 | | Stage 1 Tail: 284 sks Type III Cement + 1% CaCl2 + 0.25#/sk Cello Flake + 0.2% FL-52A. Mixed at 14.6 ppg. Yield 1.38 cuft/sk. | | |
| Surveys every 30' through the curve | | Mancos Silt | 4,959 | | | | | |
| | | Gallup Fn. | 5,223 | | | Stage 2: 186 sks Premium Lite FM + 3% CaCl2 + 0.25/sk Cello Flake + 5#/sk LCM-1 + 8% Bentonite + 0.4% FL-52A + 0.4% Sodium Metasilicate. Mixed at 12.1 ppg. Yield 2.13 cuft/sk. | | |
| | | 7" Csg | 5,434 | 5,617.0 | | | | |
| | | | | | 6 1/8 | 200' overlap at liner top | Horizontal Inclination<br>Horizontal TVD | Horz Inc/TVD<br>90.2 deg/5465 |
| Surveys every stand to TD unless directed otherwise by Geologist | | Horizontal Target<br>TD | 5,465<br>5,441 | 12,022.2 | | 6405' Drilled Lateral | 8.6-9.0 OBM | TD = 12,022.2 MD |
| | No OH Logs | Base Gallup | 5,511 | | | 4 1/2" 11.6ppf SB80 LTC<br>Running external swellable csg packers for isolation of prod string | Switch to OBM<br>8.6-9.0 | |
| MWD Gamma Directional | | | | | | | | |

**NOTES:**

1) Drill with 30" bit to 60', set 20" 94# conductor pipe
2) Drill surface to 500', R&C 9 5/8" casing
3) N/U BOP and surface equipment
4) Drill to KOP of 4840', 8 3/4 inch holesize
5) PU directional tools and start curve at 10deg/100' build rate
6) Drill to csg point of 5617' MD
7) R&C 7" csg, circ cmt to surface, switch to OBM
8) Land at 90 deg, drill lateral to12022' run 4 1/2 inch liner with external swellable csg packers

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe. NM 87505

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Farmington Field Office
Bureau of Land Management

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

# WELL LOCATION AND ACREAGE DEDICATION PLAT

| [1] API Number | [2] Pool Code | [3] Pool Name |
|---|---|---|
| | 13379 | COUNSELORS GALLUP-DAKOTA |

| [4] Property Code | [5] Property Name | [6] Well Number |
|---|---|---|
| | GALLO CANYON UNIT 027-2306 | 01H |

| [7] OGRID No. | [8] Operator Name | [9] Elevation |
|---|---|---|
| 282327 | ENCANA OIL & GAS (USA) INC. | 6984 |

## [10] Surface Location

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| O | 27 | 23-N | 6-W | | 26' | SOUTH | 2044' | EAST | SANDOVAL |

## [11] Bottom Hole Location If Different From Surface

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| N | 35 | 23-N | 6-W | | 330' | SOUTH | 2525' | WEST | SANDOVAL |

| [12] Dedicated Acres | [13] Joint or Infill | [14] Consolidation Code | [15] Order No. |
|---|---|---|---|
| 5,120 Acres Sec. 22-26, 34-36 - Undivided Unit Penetrated Spacing Units: W2 Sec 35; NE Sec 34 (480 acres) | | | R-13718-A (5,120 acres) |

**No allowable will be assigned to this completion until all interest have been consolidated or a non-standard unit has been approved by the division.**

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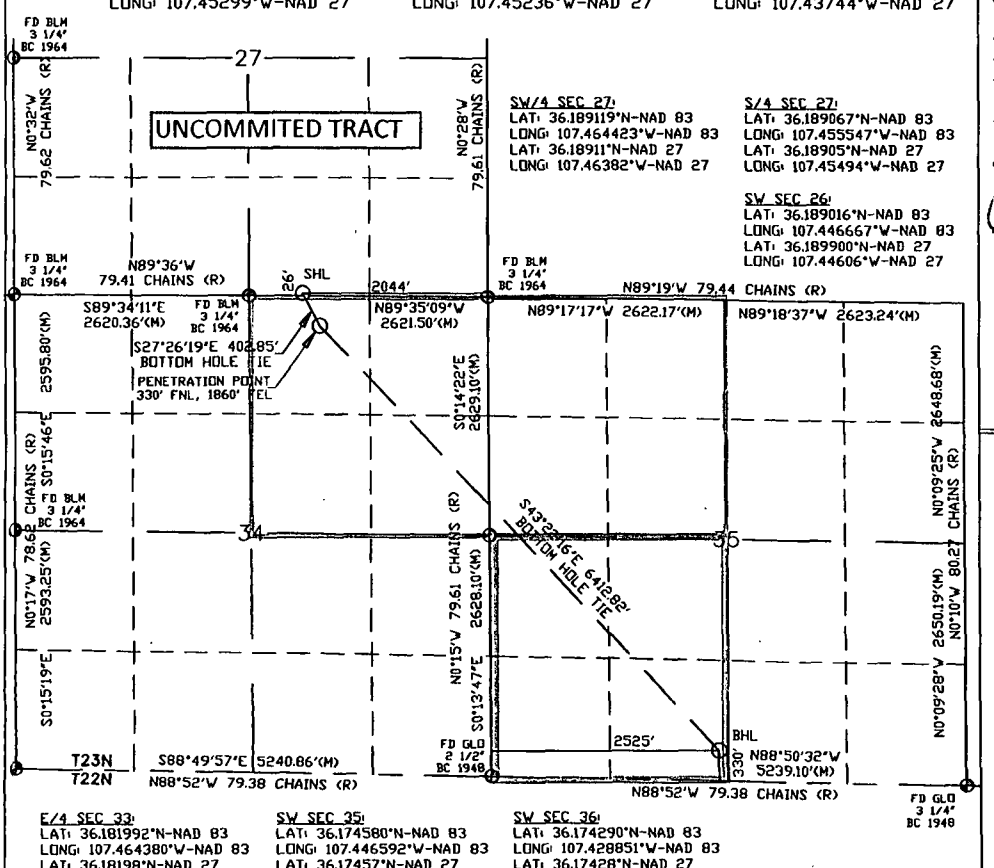
SURFACE HOLE LOCATION:
LAT: 36.189128°N-NAD 83
LONG: 107.453592°W-NAD 83
LAT: 36.18911°N-NAD 27
LONG: 107.45299°W-NAD 27

PENETRATION POINT:
LAT: 36.188146°N-NAD 83
LONG: 107.452963°W-NAD 83
LAT: 36.18813°N-NAD 27
LONG: 107.45236°W-NAD 27

BOTTOM HOLE:
LAT: 36.175347°N-NAD 83
LONG: 107.438044°W-NAD 83
LAT: 36.17533°N-NAD 27
LONG: 107.43744°W-NAD 27




## 17 OPERATOR CERTIFICATION

*I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.*

Signature — Date: 5/21/14

Katie Wegner
Printed Name

Katie.Wegner@encana.com
E-mail Address

## 18 SURVEYOR CERTIFICATION

*I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.*

AUG 31, 2013
Date of Survey

Signature and Seal of Professional Surveyor:

WILLIAM E. MAHNKE II
NEW MEXICO
# 8466
REGISTERED PROFESSIONAL LAND SURVEYOR

WILLIAM E. MAHNKE II
Certificate Number PLS 8466