

State of New Mexico  
Energy, Minerals and Natural Resources Department

Susana Martinez  
Governor

David Martin  
Cabinet Secretary

Brett F. Woods, Ph.D.  
Deputy Cabinet Secretary

David R. Catanach Division Director  
Oil Conservation Division



New Mexico Oil Conservation Division approval and conditions listed below are made in accordance with OCD Rule 19.15.7.11 and are in addition to the actions approved by BLM on the following 3160-3 APD form.

Operator Signature Date: 1-28-16

Well information;

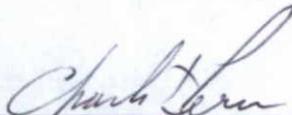
Operator Encona, Well Name and Number Gallo Canyon Unit #210H

API# 30-043-21283, Section 27, Township 23 N S, Range 06 E W

Conditions of Approval:

(See the below checked and handwritten conditions)

- Notify Aztec OCD 24hrs prior to casing & cement.
- Hold C-104 for directional survey & "As Drilled" Plat
- Hold C-104 for NSL, NSP, DHC
- Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- Regarding the use of a pit, closed loop system or below grade tank, the operator must comply with the following as applicable:
  - A pit requires a complete C-144 be submitted and approved prior to the construction or use of the pit, pursuant to 19.15.17.8.A
  - A closed loop system requires notification prior to use, pursuant to 19.15.17.9.A
  - A below grade tank requires a registration be filed prior to the construction or use of the below grade tank, pursuant to 19.15.17.8.C
- Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
- Regarding Hydraulic Fracturing, review EPA Underground Injection Control Guidance 84
- Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.
- Well-bore communication is regulated under 19.15.29 NMAC. This requires well-bore Communication to be reported in accordance with 19.15.29.8.

  
\_\_\_\_\_  
NMOCD Approved by Signature

3-4-2016  
Date PC

MAR 03 2016

JAN 29 2016

Form 3160-3  
(June 2015)

FORM APPROVED  
OMB No. 1004-0137  
Expires: January 31, 2018

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT Farmington Field Office

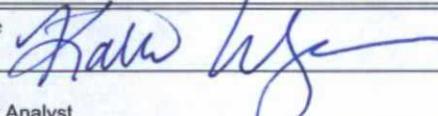
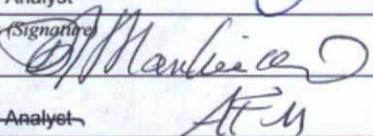
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMNM 118128 (POE)
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		6. If Indian, Allottee or Tribe Name N/A
1c. Type of Completion: <input checked="" type="checkbox"/> Hydraulic Fracturing <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		7. If Unit or CA Agreement, Name and No. NMNM 131017X
2. Name of Operator Encana Oil & Gas (USA) Inc.		8. Lease Name and Well No. Gallo Canyon Unit 210H
3a. Address 370 17th Street, Suite 1700 Denver, CO 80202	3b. Phone No. (include area code) 720-876-3533	9. API Well No. 30-043-21283
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 961' FSL and 182' FWL Section 27, T23N, R6W At proposed prod. zone 330' FSL and 1480' FWL Section 35, T23N, R6W		10. Field and Pool, or Exploratory Counselors Gallup-Dakota
14. Distance in miles and direction from nearest town or post office* +/- 55.8 miles southeast of the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM		11. Sec., T. R. M. or Blk. and Survey or Area Section 27, T23N, R6W NMPM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) BHL is 330' from south lease line in Section 35	16. No of acres in lease NMNM 131017X-5,120 acres	12. County or Parish Sandoval
17. Spacing Unit dedicated to this well 5,120 acres- Sections 22-26, 34-36	13. State NM	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. +/- 30' South of GCU 209H	19. Proposed Depth 5,373' TVD, 12,615' MD	20. BLM/BIA Bond No. in file COB-000235
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 7,139', KB 7,155' GL	22. Approximate date work will start* 06/01/2016	23. Estimated duration 20 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

- |  |   |
|--|---|
| 1. Well plat certified by a registered surveyor.   | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan.  | 5. Operator certification.  |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be requested by the BLM.            |

25. Signature 	Name (Printed/Typed) Katie Wegner	Date 1/28/16
Title Regulatory Analyst		
Approved by 	Name (Printed/Typed) AFM	Date 2/29/16
Title Regulatory Analyst	Office RFO	

Application approval 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.  
Conditions of approval, if any, are attached.

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.



**DISTRICT I**  
 1625 N. French Dr., Hobbs, N.M. 88240  
 Phone: (575) 393-6161 Fax: (575) 393-0720

**DISTRICT II**  
 811 S. First St., Artesia, N.M. 88210  
 Phone: (575) 748-1283 Fax: (575) 748-9720

**DISTRICT III**  
 1000 Rio Brazos Rd., Aztec, N.M. 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

Form C-102  
 Revised August 1, 2011

Submit one copy to appropriate  
 District Office

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

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number 30-043-21283		<sup>2</sup> Pool Code 13379	<sup>3</sup> Pool Name COUNSELOR GALLUP-DAKOTA
<sup>4</sup> Property Code <del>315261</del> 315083	<sup>5</sup> Property Name GALLO CANYON UNIT		<sup>6</sup> Well Number 210H
<sup>7</sup> OGRID No. 282327	<sup>8</sup> Operator Name ENCANA OIL & GAS (USA) INC.		<sup>9</sup> Elevation 7139'

<sup>10</sup> Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	27	23N	6W		961'	SOUTH	182'	WEST	SANDOVAL

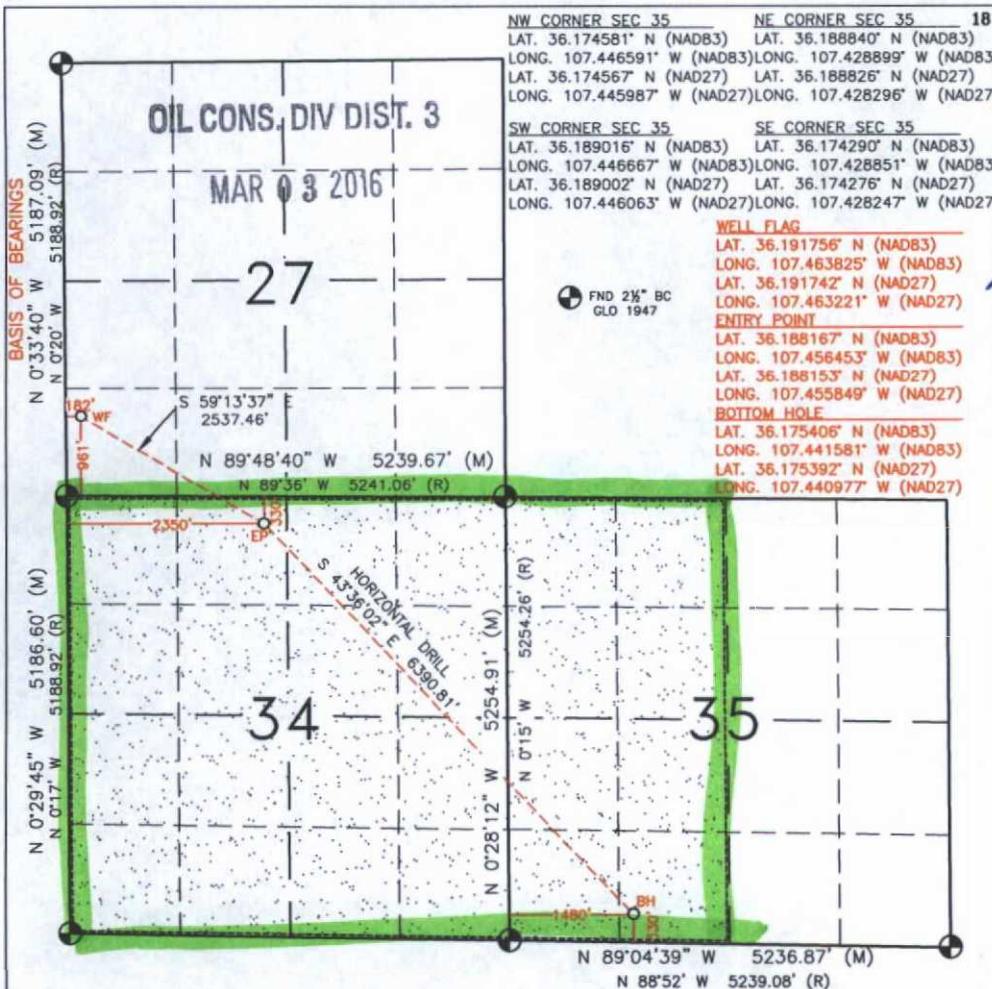
<sup>11</sup> Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	35	23N	6W		330'	SOUTH	1480'	WEST	SANDOVAL

<sup>12</sup> Dedicated Acres PROJECT AREA Penetrated Spacing Units: ALL Sec. 34 - 640 Acres; W/2 Sec. 35 - 320 Acres 5,120 Acres Sec. 22-26, 34-36 - Undivided Unit	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No. R-13718-A - 5,120 ACRES (COMMITTED)
---	-------------------------------	----------------------------------	--

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

16



**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.

*Katie Wegner* 1/28/16  
 Signature Date

Katie Wegner  
 Printed Name  
 katie.wegner@encana.com  
 E-mail Address

**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.

SEPTEMBER 3, 2015  
 Date of Survey  
 Signature and Seal of Professional Surveyor:

**HENRY P. BROADHURST**  
 NEW MEXICO  
 11393  
 11/20/2015  
 PROFESSIONAL SURVEYOR

Certificate Number 11393

Gallo Canyon Unit 210H  
 SHL: SW/4 SW/4 Sec 27 T23N R6W, 961' FSL, 182' FWL  
 BHL: SE/4 SW/4 Sec 35 T23N R6W, 330' FSL, 1480' FWL  
 Sandoval, New Mexico  
 Lease Number: NMNM 118128 (NMNM 131107X)

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

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

The estimated tops of important geologic markers are as follows:

<b>Formation</b>	<b>Depth (TVD) units = feet</b>
San Jose Fn.	n/a
Nacimiento Fn.	surface
Ojo Alamo Ss.	1,514
Kirtland Shale	1,663
Fruitland Coal	1,826
Pictured Cliffs Ss.	2,068
Lewis Shale	2,196
Cliffhouse Ss.	2,787
Menefee Fn.	3,618
Point Lookout Ss.	4,332
Mancos Shale	4,500
Mancos Silt	5,120
Gallup Fn.	5,370
Base Gallup	5,674

The referenced surface elevation is 7139', KB 7155'

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

<b>Substance</b>	<b>Formation</b>	<b>Depth (TVD) units = feet</b>
Water/Gas	Fruitland Coal	1,826
Oil/Gas	Pictured Cliffs Ss.	2,068
Oil/Gas	Cliffhouse Ss.	2,787
Gas	Menefee Fn.	3,618
Oil/Gas	Point Lookout Ss.	4,332
Oil/Gas	Mancos Shale	4,500
Oil/Gas	Mancos Silt	5,120
Oil/Gas	Gallup Fn.	5,370

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

## Gallo Canyon Unit 210H

SHL: SW/4 SW/4 Sec 27 T23N R6W, 961' FSL, 182' FWL

BHL: SE/4 SW/4 Sec 35 T23N R6W, 330' FSL, 1480' FWL

Sandoval, New Mexico

Lease Number: NMNM 118128 (NMNM 131107X)

### 3. PRESSURE CONTROL

- a) Pressure control 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 times.
- 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'	26"	16"	42.09#	
Surface	0'-500'	12 1/4"	9 5/8"	36#	J55, STC New
Intermediate	0'-6224'	8 3/4"	7"	26#	J55, LTC New
Production Liner	6124'-12615'	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.

**Gallo Canyon Unit 210H**

SHL: SW/4 SW/4 Sec 27 T23N R6W, 961' FSL, 182' FWL

BHL: SE/4 SW/4 Sec 35 T23N R6W, 330' FSL, 1480' FWL

Sandoval, New Mexico

Lease Number: NMNM 118128 (NMNM 131107X)

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'	228 sks	Type III Cement + 1% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.2% bwoc FL-52A + 58.9% Fresh Water	Surface	1 per joint on bottom 3 joints
Intermediate	0'-6224'	100% open hole excess Stage 1 Lead: 584 sks Stage 1 Tail: 438 sks	Lead: PremLite + 3% CaCl + 0.25lb/sk CelloFlake + 5lb/sk LCM, 12.1ppg 2.13cuft/sk Tail: 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	6124'- 12615'	50% OH excess Stage 1 Blend Total: 364sks	Blend: Premium Lite High Strength FM + 0.7% bwoc R-3 + 3% bwoc Potassium Chloride + 0.25lbs/sack Cello Flake + 0.5% bwoc CD-32 + 1.15% bwoc FL- 52A + 60 lbs/sack Calcium Carbonate + 124.4% Fresh Water. Yield 2.63 cuft/sk	Liner Hanger	N/A

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 600'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5373'/12615'	Gallup

## Gallo Canyon Unit 210H

SHL: SW/4 SW/4 Sec 27 T23N R6W, 961' FSL, 182' FWL

BHL: SE/4 SW/4 Sec 35 T23N R6W, 330' FSL, 1480' FWL

Sandoval, New Mexico

Lease Number: NMNM 118128 (NMNM 131107X)

### 6. DRILLING FLUIDS PROGRAM

#### a) Surface through Intermediate Casing Point:

Hole 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	8.3-10	60-70	NC
8 3/4"	500'/500'-5418'/6224'	Fresh Water LSND	8.3-10	40-50	8-10

#### b) Intermediate Casing Point to TD:

Hole Size (in)	Depth (TVD/MD)	Mud Type	Density (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
6 1/8"	5418'/6224'- 5373'/12615'	Fresh Water LSND	8.3-10	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. 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 +/- 2544 psi based on a 9.0 ppg at 5435' TVD of the horizontal lateral target. No abnormal pressure or temperatures are anticipated.

No hydrogen sulfide gas is anticipated, however, if H<sub>2</sub>S 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 June 1, 2016. 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 SW/4 Sec 27 T23N R6W, 961' FSL, 182' FWL			Encana Oil & Gas (USA) Inc.			ENG: 0		1/28/16	
County: Sandoval			WELL SUMMARY			RIG: Unassigned		GLE: 7139	
WELL: Gallo Canyon Unit 210H						RKBE: 7155			
MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH		HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION	
			TVD	MD					
			60	60'		16" 42.09# 100sx Type I Neat 16.0ppg cmt	Fresh wtr 8.3-9.2		
Multi-Well pad - take survey every stand and run anti- collision report prior to spud	None	San Jose Fn.	0		26	9 5/8" 36ppf J55 LTC	Fresh wtr 8.3-10	Vertical <1°	
		Nacimiento Fn. 9 5/8" Csg	surface 500	500.00					
Survey Every 60'-120', updating anticollision report after surveys. Stop operations and contact drilling engineer if separation factor approaches 1.5	No OH logs	Ojo Alamo Ss. Kirtland Shale	1,514 1,663		8 3/4	7" 26ppf J55 LTC	Fresh Wtr 8.3-10	Vertical <1°	
		Fruitland Coal	1,826						
		Pictured Cliffs Ss. Lewis Shale	2,068 2,196						
		Cliffhouse Ss. Menefee Fn.	2,787 3,618						
		Point Lookout Ss. Mancos Shale	4,332 4,500						
		KOP	600	600					
Surveys every 30' through the curve	Mud logger onsite	Mancos Silt	5,120		6 1/8	100' overlap at liner top	WBM 8.3-10	TD = 12615.4 MD	
		Gallup Fn.	5,370						
		7" Csg	5,418	6,224'					
Surveys every stand to TD unless directed otherwise by Geologist	No OH Logs	Horizontal Target TD	5,435 5,373	12,615	6 1/8	6392' Drilled Lateral	WBM 8.3-10	TD = 12615.4 MD	
		Base Gallup	5,674						
		MWD Gamma Directional							
						TOC @ hanger (50% OH excess) Stage 1 Total: 364sks			
						Stage 1 Blend: 364 sks Premium Lite High Strength FM + 0.7% bwoc R-3 + 3% bwoc Potassium Chloride + 0.25lbs/sack Cello Flake + 0.5% bwoc CD-32 + 1.15% bwoc FL- 52A + 60 lbs/sack Calcium Carbonate + 124.4% Fresh Water. Yield 2.63 cuft/sk.			

**NOTES:**

- 1) Drill with 26" bit to 60', set 16" 42.09ppf 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 600', 8 3/4 inch holesize
- 5) Start curve at 10deg/100' build rate
- 6) Drill to csg point of 6224' MD
- 7) R&C 7" csg, circ cmt to surface
- 8) Land at ~55 deg, drill lateral to 12615' run 4 1/2 inch cemented liner



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.0	
3	2008.8	28.18	118.48	1952.7	-161.9	298.4	2.00	118.48	322.6	
4	5586.5	28.18	118.48	5106.4	-967.5	1783.2	0.00	0.00	1927.9	
5	6223.8	90.40	136.62	5417.9	-1306.6	2175.6	10.00	20.31	2443.9	GCU 210H POE
6	12615.4	90.40	136.62	5373.3	-5951.7	6565.8	0.00	0.00	8835.4	GCU 210H PBHL

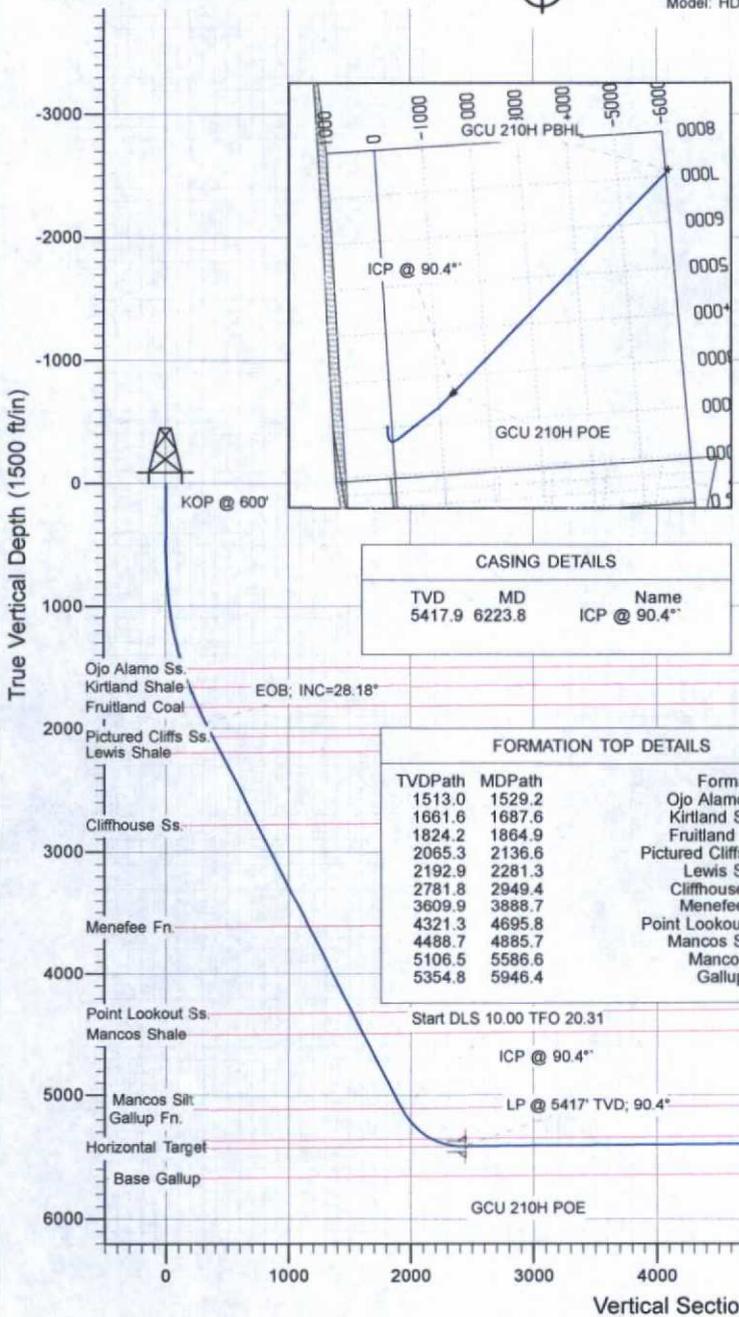
Project: Sandoval County, NM  
 Site: S27-T23N-R6W  
 Well: GCU 210H  
 Wellbore: OH  
 Design: PLAN #1



Azimuths to True North  
 Magnetic North: 9.00°  
 Magnetic Field  
 Strength: 49707.1snT  
 Dip Angle: 62.92°  
 Date: 12/16/2015  
 Model: HDGM

PLAN #1  
 GCU 210H  
 15000.LR  
 16.143 @ 7139.0  
 Ground Level @ 7139.0  
 North American Datum 1983  
 West GCU 210H, True North

Type	Target	Apbnth	Origin	N/S	E/W	From
User	No Target (Freehand)	136.62	Star	0.0	0.0	TVD
Name:		TVD	+N/-S	+E/-W	Latitude	Longitude
GCU 210H PBHL		5373.3	-967.5	6565.8	36.175406	-107.441181
GCU 210H POE		5417.9	-1306.6	2175.6	36.188167	-107.456453

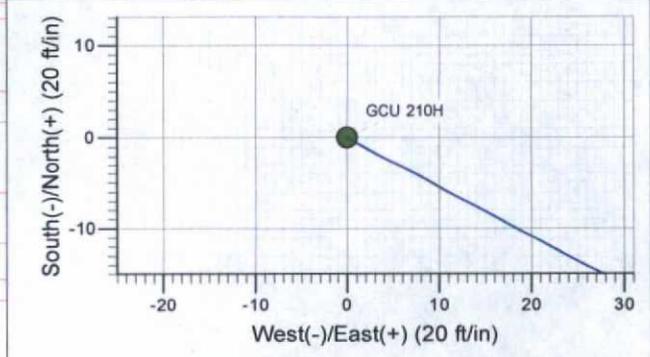
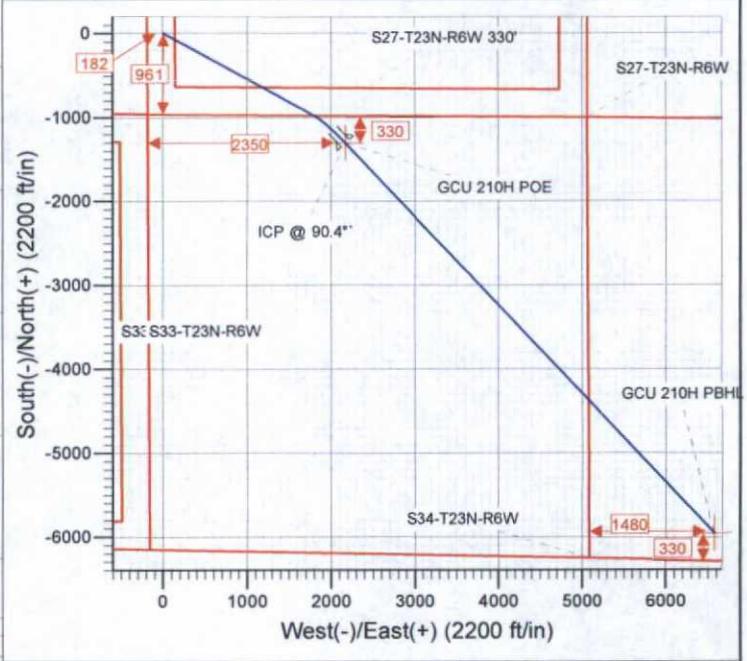


CASING DETAILS

TVD	MD	Name
5417.9	6223.8	ICP @ 90.4°

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1513.0	1529.2	Ojo Alamo Ss.
1661.6	1687.6	Kirtland Shale
1824.2	1864.9	Fruitland Coal
2065.3	2136.6	Pictured Cliffs Ss.
2192.9	2281.3	Lewis Shale
2781.8	2949.4	Cliffhouse Ss.
3609.9	3888.7	Menefee Fn.
4321.3	4695.8	Point Lookout Ss.
4488.7	4885.7	Mancos Shale
5106.5	5586.6	Mancos Silt
5354.8	5946.4	Gallup Fn.



WELL DETAILS: GCU 210H

+N/-S	+E/-W	Northing	Ground Level:	Easting	Latitude	Longitude
0.0	0.0	1891309.22	7139.0	1282254.10	36.191756	-107.463825



## Planning Report

<b>Database:</b> USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b> Well GCU 210H
<b>Company:</b> EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b> 16' KB @ 7155.0ft
<b>Project:</b> Sandoval County, NM	<b>MD Reference:</b> 16' KB @ 7155.0ft
<b>Site:</b> S27-T23N-R6W	<b>North Reference:</b> True
<b>Well:</b> GCU 210H	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Wellbore:</b> OH	
<b>Design:</b> PLAN #1	

<b>Project</b>	Sandoval County, NM		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	New Mexico Central Zone		

<b>Site</b>	S27-T23N-R6W				
<b>Site Position:</b>		<b>Northing:</b>	1,890,314.91 ft	<b>Latitude:</b>	36.189128
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,285,261.84 ft	<b>Longitude:</b>	-107.453592
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b>	-0.71 °

<b>Well</b>	GCU 210H					
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>	1,891,309.22 ft	<b>Latitude:</b>	36.191756
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>	1,282,254.10 ft	<b>Longitude:</b>	-107.463825
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>	0.0 ft	<b>Ground Level:</b>	7,139.0 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM	12/16/2015	9.00	62.92	49,707

<b>Design</b>	PLAN #1				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PLAN		<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	136.62	

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,008.8	28.18	118.48	1,952.7	-161.9	298.4	2.00	2.00	0.00	118.48	
5,586.5	28.18	118.48	5,106.4	-967.5	1,783.2	0.00	0.00	0.00	0.00	
6,223.8	90.40	136.62	5,417.9	-1,306.6	2,175.6	10.00	9.76	2.85	20.31	GCU 210H POE
12,615.4	90.40	136.62	5,373.3	-5,951.7	6,565.8	0.00	0.00	0.00	0.00	GCU 210H PBHL

Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well GCU 210H
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	16' KB @ 7155.0ft
<b>Project:</b>	Sandoval County, NM	<b>MD Reference:</b>	16' KB @ 7155.0ft
<b>Site:</b>	S27-T23N-R6W	<b>North Reference:</b>	True
<b>Well:</b>	GCU 210H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	KOP @ 600'
700.0	2.00	118.48	700.0	-0.8	1.5	1.7	2.00	2.00	
800.0	4.00	118.48	799.8	-3.3	6.1	6.6	2.00	2.00	
900.0	6.00	118.48	899.5	-7.5	13.8	14.9	2.00	2.00	
1,000.0	8.00	118.48	998.7	-13.3	24.5	26.5	2.00	2.00	
1,100.0	10.00	118.48	1,097.5	-20.8	38.3	41.4	2.00	2.00	
1,200.0	12.00	118.48	1,195.6	-29.9	55.0	59.5	2.00	2.00	
1,300.0	14.00	118.48	1,293.1	-40.6	74.8	80.9	2.00	2.00	
1,400.0	16.00	118.48	1,389.6	-52.9	97.5	105.5	2.00	2.00	
1,500.0	18.00	118.48	1,485.3	-66.9	123.2	133.2	2.00	2.00	
1,529.2	18.58	118.48	1,513.0	-71.2	131.3	142.0	2.00	2.00	Ojo Alamo Ss.
1,600.0	20.00	118.48	1,579.8	-82.4	151.9	164.2	2.00	2.00	
1,687.6	21.75	118.48	1,661.6	-97.3	179.3	193.8	2.00	2.00	Kirtland Shale
1,700.0	22.00	118.48	1,673.2	-99.5	183.4	198.2	2.00	2.00	
1,800.0	24.00	118.48	1,765.2	-118.1	217.7	235.4	2.00	2.00	
1,864.9	25.30	118.48	1,824.2	-131.0	241.5	261.1	2.00	2.00	Fruitland Coal
1,900.0	26.00	118.48	1,855.8	-138.3	254.8	275.5	2.00	2.00	
2,000.0	28.00	118.48	1,944.9	-159.9	294.7	318.7	2.00	2.00	
2,008.8	28.18	118.48	1,952.7	-161.9	298.4	322.6	2.00	2.00	EOB; INC=28.18°
2,100.0	28.18	118.48	2,033.1	-182.4	336.2	363.5	0.00	0.00	
2,136.6	28.18	118.48	2,065.3	-190.7	351.4	379.9	0.00	0.00	Pictured Cliffs Ss.
2,200.0	28.18	118.48	2,121.2	-204.9	377.7	408.4	0.00	0.00	
2,281.3	28.18	118.48	2,192.9	-223.3	411.5	444.9	0.00	0.00	Lewis Shale
2,300.0	28.18	118.48	2,209.4	-227.5	419.2	453.3	0.00	0.00	
2,400.0	28.18	118.48	2,297.5	-250.0	460.7	498.1	0.00	0.00	
2,500.0	28.18	118.48	2,385.7	-272.5	502.2	543.0	0.00	0.00	
2,600.0	28.18	118.48	2,473.8	-295.0	543.7	587.9	0.00	0.00	
2,700.0	28.18	118.48	2,562.0	-317.5	585.2	632.8	0.00	0.00	
2,800.0	28.18	118.48	2,650.1	-340.1	626.7	677.6	0.00	0.00	
2,900.0	28.18	118.48	2,738.3	-362.6	668.3	722.5	0.00	0.00	
2,949.4	28.18	118.48	2,781.8	-373.7	688.7	744.6	0.00	0.00	Cliffhouse Ss.
3,000.0	28.18	118.48	2,826.4	-385.1	709.8	767.4	0.00	0.00	
3,100.0	28.18	118.48	2,914.6	-407.6	751.3	812.2	0.00	0.00	
3,200.0	28.18	118.48	3,002.8	-430.1	792.8	857.1	0.00	0.00	
3,300.0	28.18	118.48	3,090.9	-452.6	834.3	902.0	0.00	0.00	
3,400.0	28.18	118.48	3,179.1	-475.2	875.8	946.9	0.00	0.00	
3,500.0	28.18	118.48	3,267.2	-497.7	917.3	991.7	0.00	0.00	
3,600.0	28.18	118.48	3,355.4	-520.2	958.8	1,036.6	0.00	0.00	
3,700.0	28.18	118.48	3,443.5	-542.7	1,000.3	1,081.5	0.00	0.00	
3,800.0	28.18	118.48	3,531.7	-565.2	1,041.8	1,126.3	0.00	0.00	
3,888.7	28.18	118.48	3,609.9	-585.2	1,078.6	1,166.2	0.00	0.00	Menefee Fn.
3,900.0	28.18	118.48	3,619.8	-587.7	1,083.3	1,171.2	0.00	0.00	
4,000.0	28.18	118.48	3,708.0	-610.3	1,124.8	1,216.1	0.00	0.00	
4,100.0	28.18	118.48	3,796.1	-632.8	1,166.3	1,261.0	0.00	0.00	
4,200.0	28.18	118.48	3,884.3	-655.3	1,207.8	1,305.8	0.00	0.00	
4,300.0	28.18	118.48	3,972.4	-677.8	1,249.3	1,350.7	0.00	0.00	

Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well GCU 210H
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	16' KB @ 7155.0ft
<b>Project:</b>	Sandoval County, NM	<b>MD Reference:</b>	16' KB @ 7155.0ft
<b>Site:</b>	S27-T23N-R6W	<b>North Reference:</b>	True
<b>Well:</b>	GCU 210H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,400.0	28.18	118.48	4,060.6	-700.3	1,290.8	1,395.6	0.00	0.00	
4,500.0	28.18	118.48	4,148.7	-722.9	1,332.3	1,440.4	0.00	0.00	
4,600.0	28.18	118.48	4,236.9	-745.4	1,373.8	1,485.3	0.00	0.00	
4,695.8	28.18	118.48	4,321.3	-767.0	1,413.6	1,528.3	0.00	0.00	Point Lookout Ss.
4,700.0	28.18	118.48	4,325.0	-767.9	1,415.3	1,530.2	0.00	0.00	
4,800.0	28.18	118.48	4,413.2	-790.4	1,456.8	1,575.1	0.00	0.00	
4,885.7	28.18	118.48	4,488.7	-809.7	1,492.4	1,613.5	0.00	0.00	Mancos Shale
4,900.0	28.18	118.48	4,501.3	-812.9	1,498.3	1,619.9	0.00	0.00	
5,000.0	28.18	118.48	4,589.5	-835.4	1,539.8	1,664.8	0.00	0.00	
5,100.0	28.18	118.48	4,677.6	-858.0	1,581.3	1,709.7	0.00	0.00	
5,200.0	28.18	118.48	4,765.8	-880.5	1,622.8	1,754.5	0.00	0.00	
5,300.0	28.18	118.48	4,853.9	-903.0	1,664.3	1,799.4	0.00	0.00	
5,400.0	28.18	118.48	4,942.1	-925.5	1,705.8	1,844.3	0.00	0.00	
5,500.0	28.18	118.48	5,030.2	-948.0	1,747.3	1,889.2	0.00	0.00	
5,586.5	28.18	118.48	5,106.4	-967.5	1,783.2	1,927.9	0.00	0.00	Start DLS 10.00 TFO 20.31
5,586.6	28.18	118.48	5,106.5	-967.5	1,783.2	1,928.0	0.00	0.00	Mancos Silt
5,600.0	29.45	119.44	5,118.3	-970.7	1,788.9	1,934.2	10.10	9.50	
5,700.0	39.01	124.72	5,200.9	-1,000.7	1,836.3	1,988.6	10.00	9.56	
5,800.0	48.72	128.16	5,272.9	-1,042.0	1,891.8	2,056.7	10.00	9.71	
5,900.0	58.51	130.71	5,332.2	-1,093.1	1,953.9	2,136.5	10.00	9.79	
5,946.4	63.07	131.71	5,354.8	-1,119.8	1,984.3	2,176.8	10.00	9.82	Gallup Fn.
6,000.0	68.34	132.77	5,376.9	-1,152.7	2,020.5	2,225.5	10.00	9.84	
6,100.0	78.19	134.56	5,405.6	-1,218.7	2,089.6	2,321.0	10.00	9.85	
6,200.0	88.05	136.23	5,417.6	-1,289.3	2,159.3	2,420.1	10.00	9.86	
6,223.8	90.40	136.62	5,417.9	-1,306.6	2,175.7	2,443.9	9.99	9.86	LP @ 5417' TVD; 90.4° - ICP @ 90.4°
6,300.0	90.40	136.62	5,417.4	-1,361.9	2,228.0	2,520.1	0.00	0.00	
6,400.0	90.40	136.62	5,416.7	-1,434.6	2,296.7	2,620.1	0.00	0.00	
6,500.0	90.40	136.62	5,416.0	-1,507.3	2,365.4	2,720.1	0.00	0.00	
6,600.0	90.40	136.62	5,415.3	-1,580.0	2,434.1	2,820.1	0.00	0.00	
6,700.0	90.40	136.62	5,414.6	-1,652.6	2,502.7	2,920.1	0.00	0.00	
6,800.0	90.40	136.62	5,413.9	-1,725.3	2,571.4	3,020.1	0.00	0.00	
6,900.0	90.40	136.62	5,413.2	-1,798.0	2,640.1	3,120.1	0.00	0.00	
7,000.0	90.40	136.62	5,412.5	-1,870.7	2,708.8	3,220.1	0.00	0.00	
7,100.0	90.40	136.62	5,411.8	-1,943.4	2,777.5	3,320.1	0.00	0.00	
7,200.0	90.40	136.62	5,411.1	-2,016.0	2,846.2	3,420.1	0.00	0.00	
7,300.0	90.40	136.62	5,410.4	-2,088.7	2,914.9	3,520.1	0.00	0.00	
7,400.0	90.40	136.62	5,409.7	-2,161.4	2,983.5	3,620.1	0.00	0.00	
7,500.0	90.40	136.62	5,409.0	-2,234.1	3,052.2	3,720.1	0.00	0.00	
7,600.0	90.40	136.62	5,408.3	-2,306.7	3,120.9	3,820.1	0.00	0.00	
7,700.0	90.40	136.62	5,407.6	-2,379.4	3,189.6	3,920.1	0.00	0.00	
7,800.0	90.40	136.62	5,406.9	-2,452.1	3,258.3	4,020.1	0.00	0.00	
7,900.0	90.40	136.62	5,406.2	-2,524.8	3,327.0	4,120.1	0.00	0.00	
8,000.0	90.40	136.62	5,405.5	-2,597.4	3,395.7	4,220.1	0.00	0.00	
8,100.0	90.40	136.62	5,404.8	-2,670.1	3,464.3	4,320.1	0.00	0.00	
8,200.0	90.40	136.62	5,404.1	-2,742.8	3,533.0	4,420.1	0.00	0.00	
8,300.0	90.40	136.62	5,403.4	-2,815.5	3,601.7	4,520.1	0.00	0.00	
8,400.0	90.40	136.62	5,402.7	-2,888.1	3,670.4	4,620.1	0.00	0.00	
8,500.0	90.40	136.62	5,402.0	-2,960.8	3,739.1	4,720.1	0.00	0.00	
8,600.0	90.40	136.62	5,401.3	-3,033.5	3,807.8	4,820.1	0.00	0.00	
8,700.0	90.40	136.62	5,400.6	-3,106.2	3,876.5	4,920.1	0.00	0.00	
8,800.0	90.40	136.62	5,399.9	-3,178.8	3,945.1	5,020.1	0.00	0.00	
8,900.0	90.40	136.62	5,399.2	-3,251.5	4,013.8	5,120.1	0.00	0.00	

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well GCU 210H
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	16' KB @ 7155.0ft
<b>Project:</b>	Sandoval County, NM	<b>MD Reference:</b>	16' KB @ 7155.0ft
<b>Site:</b>	S27-T23N-R6W	<b>North Reference:</b>	True
<b>Well:</b>	GCU 210H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,000.0	90.40	136.62	5,398.5	-3,324.2	4,082.5	5,220.1	0.00	0.00	
9,100.0	90.40	136.62	5,397.8	-3,396.9	4,151.2	5,320.1	0.00	0.00	
9,200.0	90.40	136.62	5,397.1	-3,469.5	4,219.9	5,420.1	0.00	0.00	
9,300.0	90.40	136.62	5,396.4	-3,542.2	4,288.6	5,520.1	0.00	0.00	
9,400.0	90.40	136.62	5,395.7	-3,614.9	4,357.3	5,620.1	0.00	0.00	
9,500.0	90.40	136.62	5,395.0	-3,687.6	4,425.9	5,720.1	0.00	0.00	
9,600.0	90.40	136.62	5,394.3	-3,760.2	4,494.6	5,820.1	0.00	0.00	
9,700.0	90.40	136.62	5,393.6	-3,832.9	4,563.3	5,920.1	0.00	0.00	
9,800.0	90.40	136.62	5,392.9	-3,905.6	4,632.0	6,020.1	0.00	0.00	
9,900.0	90.40	136.62	5,392.2	-3,978.3	4,700.7	6,120.1	0.00	0.00	
10,000.0	90.40	136.62	5,391.5	-4,051.0	4,769.4	6,220.1	0.00	0.00	
10,100.0	90.40	136.62	5,390.9	-4,123.6	4,838.1	6,320.0	0.00	0.00	
10,200.0	90.40	136.62	5,390.2	-4,196.3	4,906.7	6,420.0	0.00	0.00	
10,300.0	90.40	136.62	5,389.5	-4,269.0	4,975.4	6,520.0	0.00	0.00	
10,400.0	90.40	136.62	5,388.8	-4,341.7	5,044.1	6,620.0	0.00	0.00	
10,500.0	90.40	136.62	5,388.1	-4,414.3	5,112.8	6,720.0	0.00	0.00	
10,600.0	90.40	136.62	5,387.4	-4,487.0	5,181.5	6,820.0	0.00	0.00	
10,700.0	90.40	136.62	5,386.7	-4,559.7	5,250.2	6,920.0	0.00	0.00	
10,800.0	90.40	136.62	5,386.0	-4,632.4	5,318.9	7,020.0	0.00	0.00	
10,900.0	90.40	136.62	5,385.3	-4,705.0	5,387.5	7,120.0	0.00	0.00	
11,000.0	90.40	136.62	5,384.6	-4,777.7	5,456.2	7,220.0	0.00	0.00	
11,100.0	90.40	136.62	5,383.9	-4,850.4	5,524.9	7,320.0	0.00	0.00	
11,200.0	90.40	136.62	5,383.2	-4,923.1	5,593.6	7,420.0	0.00	0.00	
11,300.0	90.40	136.62	5,382.5	-4,995.7	5,662.3	7,520.0	0.00	0.00	
11,400.0	90.40	136.62	5,381.8	-5,068.4	5,731.0	7,620.0	0.00	0.00	
11,500.0	90.40	136.62	5,381.1	-5,141.1	5,799.7	7,720.0	0.00	0.00	
11,600.0	90.40	136.62	5,380.4	-5,213.8	5,868.3	7,820.0	0.00	0.00	
11,700.0	90.40	136.62	5,379.7	-5,286.4	5,937.0	7,920.0	0.00	0.00	
11,800.0	90.40	136.62	5,379.0	-5,359.1	6,005.7	8,020.0	0.00	0.00	
11,900.0	90.40	136.62	5,378.3	-5,431.8	6,074.4	8,120.0	0.00	0.00	
12,000.0	90.40	136.62	5,377.6	-5,504.5	6,143.1	8,220.0	0.00	0.00	
12,100.0	90.40	136.62	5,376.9	-5,577.1	6,211.8	8,320.0	0.00	0.00	
12,200.0	90.40	136.62	5,376.2	-5,649.8	6,280.5	8,420.0	0.00	0.00	
12,300.0	90.40	136.62	5,375.5	-5,722.5	6,349.1	8,520.0	0.00	0.00	
12,400.0	90.40	136.62	5,374.8	-5,795.2	6,417.8	8,620.0	0.00	0.00	
12,500.0	90.40	136.62	5,374.1	-5,867.8	6,486.5	8,720.0	0.00	0.00	
12,600.0	90.40	136.62	5,373.4	-5,940.5	6,555.2	8,820.0	0.00	0.00	
12,615.4	90.40	136.62	5,373.3	-5,951.7	6,565.8	8,835.4	0.00	0.00	TD at 12615.4

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
GCU 210H PBHL - hit/miss target - Shape - Point	0.00	0.00	5,373.3	-5,951.7	6,565.8	1,885,275.83	1,288,744.88	36.175406	-107.441581
GCU 210H POE - plan hits target center - Point	0.00	0.00	5,417.9	-1,306.6	2,175.6	1,889,975.55	1,284,413.22	36.188167	-107.456453

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well GCU 210H
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	16' KB @ 7155.0ft
<b>Project:</b>	Sandoval County, NM	<b>MD Reference:</b>	16' KB @ 7155.0ft
<b>Site:</b>	S27-T23N-R6W	<b>North Reference:</b>	True
<b>Well:</b>	GCU 210H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1		

Casing Points					
	Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
	6,223.8	5,417.9	ICP @ 90.4°	7.000	8.750

Formations						
	Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
	1,529.2	1,514.0	Ojo Alamo Ss.		-0.40	136.62
	1,687.6	1,663.0	Kirtland Shale		-0.40	136.62
	1,864.9	1,826.0	Fruitland Coal		-0.40	136.62
	2,136.6	2,068.0	Pictured Cliffs Ss.		-0.40	136.62
	2,281.3	2,196.0	Lewis Shale		-0.40	136.62
	2,949.4	2,787.0	Cliffhouse Ss.		-0.40	136.62
	3,888.7	3,618.0	Menefee Fn.		-0.40	136.62
	4,695.8	4,332.0	Point Lookout Ss.		-0.40	136.62
	4,885.7	4,500.0	Mancos Shale		-0.40	136.62
	5,586.6	5,120.0	Mancos Silt		-0.40	136.62
	5,946.4	5,370.0	Gallup Fn.		-0.40	136.62

Plan Annotations					
	Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
			+N/-S (ft)	+E/-W (ft)	
	600.0	600.0	0.0	0.0	KOP @ 600'
	2,008.8	1,952.7	-161.9	298.4	EOB; INC=28.18°
	5,586.5	5,106.4	-967.5	1,783.2	Start DLS 10.00 TFO 20.31
	6,223.8	5,417.9	-1,306.6	2,175.6	LP @ 5417' TVD; 90.4°
	12,615.4	5,373.3	-5,951.7	6,565.8	TD at 12615.4

**Gallo Canyon Unit 210H**

**SHL: SWSW Section 27, T23N, R6W  
961 FSL and 182 FWL**

**BHL: SESW Section 35, T23N, R6W  
330 FSL and 1480 FWL**

**Sandoval, New Mexico**

**Lease Number: NMNM 118218**

**Unit Number: NMNM 131017X**

4. As determined during the onsite on February 27, 2013, the following best management practices were implemented:
    - a. Corners 2 and 3 were rounded. The construction zone corner at corner 5 was rounded to add additional distance from an archaeological site.
    - b. Water was diverted upon interim reclamation
  5. Construction equipment included, but was not limited to, chain saws, a brush hog, scraper, maintainer, excavator, and dozer. Construction for the access road and well pad took approximately 2 to 4 weeks.
- C. Pipeline  
See the Plan of Development submitted with the final Standard SF-299 Application for authorization to construct, operate, maintain and terminate a 3,375 foot, up to 6-inch buried, steel well connect pipeline that was submitted to the BLM on September 27, 2013.

**7. METHODS FOR HANDLING WASTE**

**A. Cuttings**

1. A closed-loop system will be used. Cuttings will be moved through a shaker system on the drill rig that separates drilling fluids from the cuttings. Cuttings will be stored onsite in above-ground storage tanks. Cuttings will be pulled from the storage tanks, mixed with saw dust or similar absorbent material, and disposed of at the Envirotech, Inc. and/or Industrial Ecosystem, Inc. waste disposal facilities.
2. The closed-loop system storage tanks will be adequately sized to ensure confinement of all fluids and will provide sufficient freeboard to prevent uncontrolled releases.
3. A 20-mil liner will be installed under tanks, pumps, ancillary facilities, and truck loading/unloading areas associated with the closed-loop system.

**B. Drilling Fluids**

1. A closed-loop system will be used. Drilling fluids will be stored onsite in above-ground storage tanks. Upon termination of drilling operations, the drilling fluids will be recycled and transferred to other permitted closed-loop systems or returned to the vendor for reuse, as practical. Residual fluids will be vacuumed from the storage tanks and disposed of at Basin Disposal, Inc. and/or Industrial Ecosystem, Inc. waste disposal facilities.
2. The closed-loop system storage tanks will be adequately sized to ensure confinement of all fluids and will provide sufficient freeboard to prevent uncontrolled releases.
3. The closed-loop system storage tanks will be placed in bermed secondary containment sized to accommodate a minimum of 110 percent of the volume of the largest storage tank.
4. A 20-mil liner will be installed under tanks, pumps, ancillary facilities, and truck loading/unloading areas associated with the closed-loop system.

**C. Flowback Water**

1. The water-based solution that flows back to the surface during and after completion operations will be placed in storage tanks on the location.

**ENCANA OIL & GAS (USA) INC.**  
**GALLO CANYON UNIT #210H**  
LOCATED IN THE SW/4 SW/4 OF SECTION 27,  
T23N, R6W, N.M.P.M.,  
SANDOVAL COUNTY, NEW MEXICO

**DIRECTIONS**

- 1) FROM THE INTERSECTION OF HWY 64 & HWY 550 IN BLOOMFIELD, GO SOUTH ON HWY 550, 54.4 MILES TO INDIAN ROUTE 454 (COUNSELOR, NM).
- 2) TURN RIGHT ONTO ISR 454 AND GO 0.9 MILES TO A DIRT ROAD ON RIGHT.
- 3) TURN RIGHT AND GO 0.5 MILES TO EXISTING GALLO CANYON UNIT WELL PAD.

WELL FLAG LOCATED AT LAT. 36.191756° N, LONG.107.463825° W (NAD 83).



JOB No.: M27-2306  
DATE: 11/12/15  
DRAWN BY: TWT

**CCI**  
**CHENAULT CONSULTING INC.**

4800 COLLEGE BLVD.  
SUITE 201  
FARMINGTON, NM 87402  
(505)-325-7707

SHEET C

WELLHEAD BLOWOUT CONTROL SYSTEM

**encana**

Well Name and Number:  
Gallo Canyon Unit 210H

