

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary-Designate

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

Jami Bailey, 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 3160-4 or 3160-5 form.

Operator Signature Date: November 18th, 2013.

Application Type:

☐ P&A ☒ Drilling/Casing Change ☐ Recomplete/DHC
☐ Location Change ☐ Other: _____

Well information:

API WELL #	Well Name	Well #	Operator Name	Type	Stat	County	Surf. Owner	UL	Sec	Twp	N/S	Rng	W/E
30-043-21179-00-00	GCU M27 2306	001H	ENCANA OIL & GAS (USA) INC.	O	N	Sandoval	F	M	27	23	N	6	W

Conditions of Approval:

Notify NMOCD 24hrs prior to beginning operations.

Hold C104 for directional survey and "As Drilled" Plat

Per phone and email, Encana will proceed with setting the last completion packer on the legal side of the setback in Section 34 and will set an isolation packer at the setback.

NMOCD Approved by Signature

11-22-13
Date

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

NOV 18 2013

FORM APPROVED
OMB No. 1004-0137
Expires: July 31, 2010

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.

5. Lease Serial No.
NMNM 118128

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

SUBMIT IN TRIPLICATE – Other instructions on page 2.

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

7. If Unit of CA/Agreement, Name and/or No.
N/A

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

8. Well Name and No.
Gallo Canyon Unit M27-2306 01H

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

3b. Phone No. (include area code)
720-876-3941

9. API Well No.
30-043-21179

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

4. Location of Well (Footage, Sec., T, R., M., or Survey Description)
SHL: Sec 27, T23N, R6W 990' FSL and 186' FWL
BHL: Sec 35, T23N, R6W 330' FSL and 335' FWL

11. Country or Parish, State
Sandoval

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
☐ Subsequent Report	☒ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ 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 recompleat 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 recompleat 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. would like to adjust the intermediate casing setting depth on the Gallo Canyon Unit M27-2306 01H well from 6960'MD to 5836'MD. The last completion packer will be approx 7095' MD. Please see attached wellbore diagram, 10 point drilling plan and directional plan for details.

OIL CONS. DIV DIST. 3

NOV 22 2013

CONDITIONS OF APPROVAL

Adhere to previously issued stipulations.

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)

Robynn Haden

Title Engineering Technologist

Signature

Robynn Haden

Date

11/18/13

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Troy Salyers

Title Petroleum Engineer

Date 11/20/2013

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.

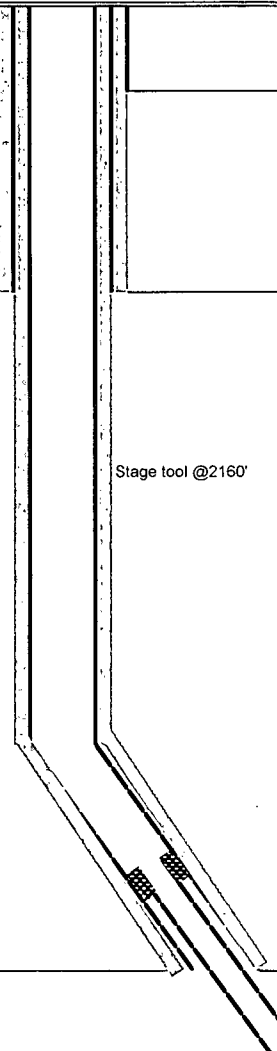
Office

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)

NMOCDA

LOC: Sec 27-T23N-R6W County: Sandoval WELL: Gallo Canyon Unit M27-2306 01H			Encana Natural Gas WELL SUMMARY					ENG: 11/18/13 RIG: GLE: 7132 RKBE: 7148	
MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH			HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION
			TVD	MD					
			60	60'		30	20" 94# 100sx Type I Neat 16.0 ppg cmt	Fresh wtr 8.3-9.2	
Surveys After csg is run	None					12 1/4	9 5/8" 36ppf J55 STC TOC @ surface 178 sks Type III Cmt	Fresh wtr 8.4-8.6	Vertical <1°
			500	500					
Surveys every 500'	No OH logs Mud logger onsite	Ojo Alamo Kirtland Fruitland Coal Pictured Cliffs Ss Lewis Shale Cliffhouse Ss Menefee Fn Point Lookout Ss Mancos Sh KICK OFF PT Mancos Silt Gallup Top 7" csg	1500 1697 1871 2110 2216 2878 3625 4331 4495 5035 5087 5355 5600		Stage tool @2160'	8 3/4	7" 26ppf J55 LTC TOC @ surface 30% OH excess: 505 sksTotal. Stage 1 Lead: 199sksPremium 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. Stage 1 Tail: 138sks. Type III Cement + 1% CaCl2 + 0.25#/sk Cello Flake + 0.2% FL-52A. Mixed at 14.6 ppg. Yield 1.38 cuft/sk. Stage 2 Stage 2 Lead: 168sks 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.	Fresh Wtr 8.5-8.8	Vertical <1° KOP 5035 10 deg/100'
Surveys every 500' Gyro at CP MWD Gamma Directional	No OH Logs	horz target Base Gallup	5609 5665	5939		6 1/8	200' overlap at liner top 7480' Lateral 4 1/2" 11.6ppf SB80 LTC Running external swellable csg packers for isolation of prod string	8.6-9.0 OBM Switch to OBM 8.6-9.0	.25deg updip 5570'TVD TD = 13419' MD

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 5035', 8 3/4" hole size,
- 5) PU directional tools and start curve at 10deg/100' build rate
- 6) Drill to casing point of 5836' MD
- 7) R&C 7" casing, circ cmt to surface, switch to OBM
- 8) Land at 90deg, drill 7480' lateral to 13419', run 4 1/2" liner with external swellable csg packers

Gallo Canyon Unit M27-2306 01H API #30-043-21179

**SHL: SWSW Section 27, T23N, R6W
990 FSL and 186 FWL**

**BHL: SWSW Section 35, T23N, R6W
330 FSL and 335 FWL**

Sandoval, New Mexico

Lease Number: NMNM 118128

**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.	1,500
Kirtland Shale	1,697
Fruitland Coal	1,871
Pictured Cliffs Ss.	2,110
Lewis Shale	2,216
Cliffhouse Ss.	2,878
Menefee Fn.	3,625
Point Lookout Ss.	4,331
Mancos Shale	4,495
Mancos Silt	5,087
Gallup Fn.	5,355

The referenced surface elevation is 7,132', KB 7,148'

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

Substance	Formation	Depth (TVD) units = feet
Water/Gas	Fruitland Coal	1,871
Oil/Gas	Pictured Cliffs Ss.	2,110
Oil/Gas	Cliffhouse Ss.	2,878
Gas	Menefee Fn.	3,625
Oil/Gas	Point Lookout Ss.	4,331
Oil/Gas	Mancos Shale	4,495
Oil/Gas	Mancos Silt	5,087
Oil/Gas	Gallup Fn.	5,355

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

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.

Gallo Canyon Unit M27-2306 01H API #30-043-21179**SHL: SWSW Section 27, T23N, R6W****990 FSL and 186 FWL****BHL: SWSW Section 35, T23N, R6W****330 FSL and 335 FWL****Sandoval, New Mexico****Lease Number: NMNM 118128**

- 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.

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	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'-5836'MD	8 3/4"	7"	26#	J55, LTC New
Production Liner	5636'-13419'MD	6 1/8"	4 1/2"	11.6#	B80*, LTC New

Casing String				Casing Strength Properties			Minimum Design Factors		
Size	Weight (lb/ft)	Grade	Connection	Collapse (psi)	Burst (psi)	Tensile (1000lb)	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 1/2"	11.6	B80	LTC	6350	7780	201	1.125	1.1	1.5

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.

Gallo Canyon Unit M27-2306 01H API #30-043-21179

SHL: SWSW Section 27, T23N, R6W
990 FSL and 186 FWL

BHL: SWSW Section 35, T23N, R6W
330 FSL and 335 FWL

Sandoval, New Mexico

Lease Number: NMNM 118128

b) The proposed cementing program is as follows:

Top plugs shall be used to reduce contamination of cement by displacement fluid. A bottom plug or other acceptable technique, such as a pre-flush fluid, inner string cement method, etc. shall be utilized to help isolate the cement from contamination by the mud fluid being displaced ahead of the cement slurry.

Casing	Depth	Cement Volume (sacks)	Cement Type&Yield	Designed TOC	Centralizers
Conductor	60'	100sk	Type I Neat 16.0 ppg	Surface	None
Surface	500'	178sk	Type III Cement + 1% CaCl + 0.25lb/sk Cello Flake + 0.2% FL, 14.6ppg, 1.38cuf/sk	Surface	1 per joint on bottom 3 joints
Intermediate	5836'MD	30% open hole excess Stage 1 Lead: 199sks Stage 1 Tail: 138sks Stage 2 Lead: 168sks	Lead (Stages 1 and 2): PremLite + 3% CaCl + 0.25lb/sk CelloFlake + 5lb/sk LCM, 12.1ppg 2.13cuf/sk Tail (Stage 1): Type III Cmt + 1% CaCl + 0.25lb/sk Cello Flake 14.5ppg 1.38cuf/sk	Surface	1 per joint for bottom 3 joints, 1 every 3 joints for remaining joints
Production Liner*	5636'-13419'	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 a 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 5035'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5570'/13419'	Gallup

Gallo Canyon Unit M27-2306 01H API #30-043-21179**SHL: SWSW Section 27, T23N, R6W
990 FSL and 186 FWL****BHL: SWSW Section 35, T23N, R6W
330 FSL and 335 FWL****Sandoval, New Mexico****Lease Number: NMNM 118128****6. DRILLING FLUIDS PROGRAM**

a) Surface through Intermediate Casing Point:

Hole Size (in)	Depth (ft)	Mud Type	Density (lb/gal)	Viscosity (sec/qt)	Fluid Loss (cc)
30"	0-60' TVD	Fresh Water	8.3-9.2	38-100	4-28
12 1/4"	0-500' TVD	Fresh Water	8.4-8.6	60-70	NC
8 3/4"	500'TVD- 5600'TVD/5836'MD	Fresh Water LSND	8.5-8.8	40-50	8-10

b) Intermediate Casing Point to TD:

Hole Size (in)	MD (ft)	Mud Type	Density (lb/gal)	Viscosity (sec/qt)	Fluid Loss (cc)
6 1/8"	5836'-13419'	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 and LOGGING

- a) Drill Stem Testing – None anticipated
- b) Coring – None anticipated.
- c) Mud 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 +/- 2625 psi based on a 9.0 ppg at 5609' TVD of the landing point of the horizontal lateral. No abnormal pressure or temperatures are anticipated.

No hydrogen sulfide gas is anticipated, however, if H₂S is encountered, the guidelines in Onshore Order No. 6 will be followed.

Gallo Canyon Unit M27-2306 01H API #30-043-21179

**SHL: SWSW Section 27, T23N, R6W
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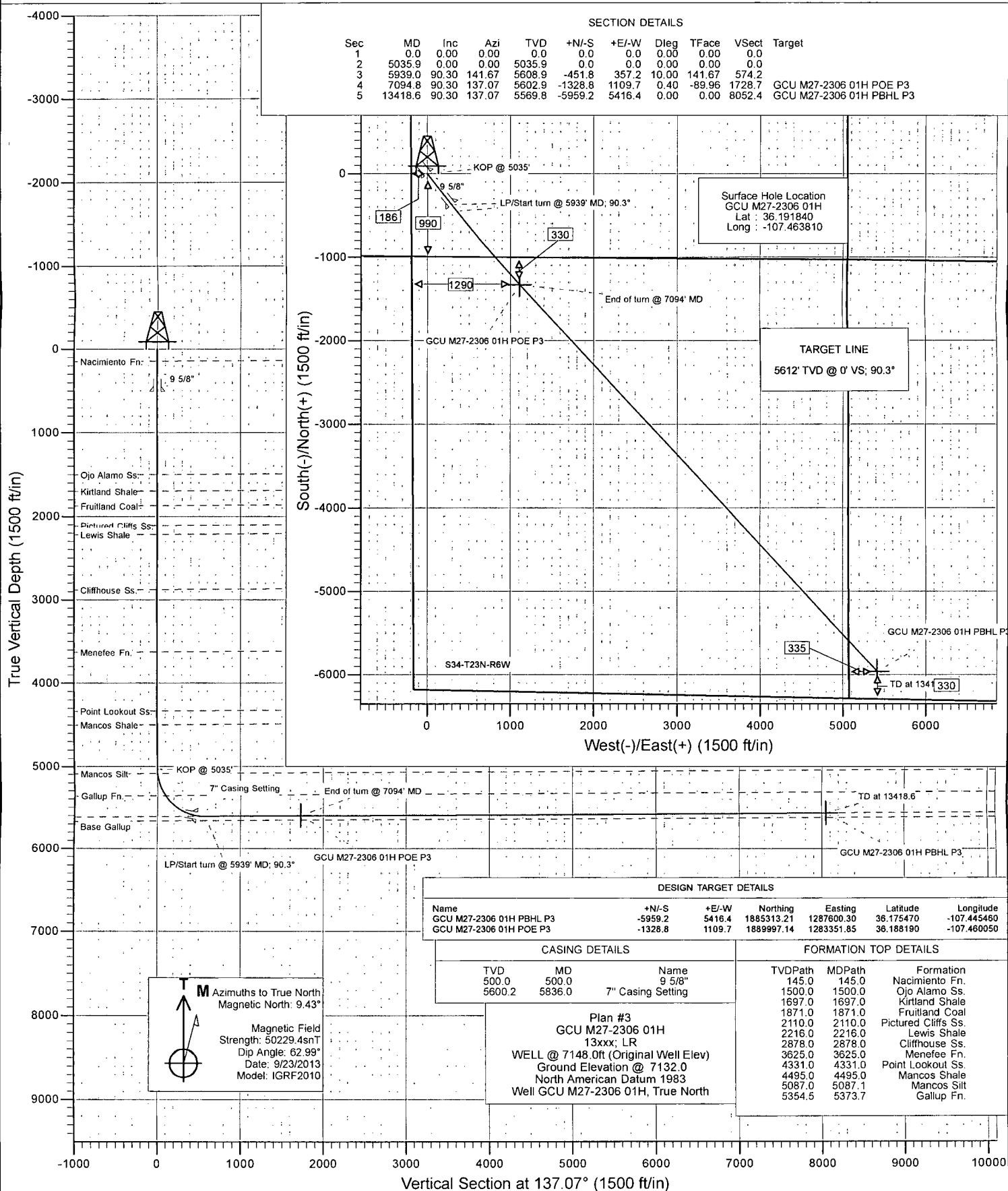
Sandoval, New Mexico

Lease Number: NMNM 118128

9. ANTICIPATED START DATE AND DURATION OF OPERATIONS

Drilling is estimated to commence on November 20, 2013. 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 18 days.



Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: GCU
Well: GCU M27-2306 01H
Wellbore: Hz
Design: Plan #3

Local Co-ordinate Reference: Well GCU M27-2306 01H
TVD Reference: WELL @ 7148.0ft (Original Well Elev)
MD Reference: WELL @ 7148.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

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

Site	GCU				
Site Position:		Northing:	1,888,889.10 ft	Latitude:	36.185100
From:	Lat/Long	Easting:	1,281,990.06 ft	Longitude:	-107.464617
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-0.72 °

Well	GCU M27-2306 01H					
Well Position	+N/-S	0.0 ft	Northing:	1,891,339.73 ft	Latitude:	36.191840
	+E/-W	0.0 ft	Easting:	1,282,258.91 ft	Longitude:	-107.463810
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,132.0 ft	

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/23/2013	9.42	62.99	50,229

Design	Plan #3			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	137.07

Plan Sections										
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	
5,035.9	0.00	0.00	5,035.9	0.0	0.0	0.00	0.00	0.00	0.00	
5,939.0	90.30	141.67	5,608.9	-451.8	357.2	10.00	10.00	0.00	141.67	
7,094.8	90.30	137.07	5,602.9	-1,328.8	1,109.7	0.40	0.00	-0.40	-89.96	GCU M27-2306 01H I
13,418.6	90.30	137.07	5,569.8	-5,959.2	5,416.4	0.00	0.00	0.00	0.00	GCU M27-2306 01H I

Planning Report

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Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: GCU
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Local Co-ordinate Reference: Well GCU M27-2306 01H
TVD Reference: WELL @ 7148.0ft (Original Well Elev)
MD Reference: WELL @ 7148.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

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	
145.0	0.00	0.00	145.0	0.0	0.0	0.0	0.00	0.00	Nacimiento Fn.
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	9 5/8"
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo Ss.
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
1,697.0	0.00	0.00	1,697.0	0.0	0.0	0.0	0.00	0.00	Kirtland Shale
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	
1,871.0	0.00	0.00	1,871.0	0.0	0.0	0.0	0.00	0.00	Fruitland Coal
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	
2,110.0	0.00	0.00	2,110.0	0.0	0.0	0.0	0.00	0.00	Pictured Cliffs Ss.
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	
2,216.0	0.00	0.00	2,216.0	0.0	0.0	0.0	0.00	0.00	Lewis Shale
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	
2,878.0	0.00	0.00	2,878.0	0.0	0.0	0.0	0.00	0.00	Cliffhouse Ss.
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	
3,625.0	0.00	0.00	3,625.0	0.0	0.0	0.0	0.00	0.00	Menefee Fn.
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	
4,331.0	0.00	0.00	4,331.0	0.0	0.0	0.0	0.00	0.00	Point Lookout Ss.

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: GCU
Well: GCU M27-2306 01H
Wellbore: Hz
Design: Plan #3

Local Co-ordinate Reference: Well GCU M27-2306 01H
TVD Reference: WELL @ 7148.0ft (Original Well Elev)
MD Reference: WELL @ 7148.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

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	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	
4,495.0	0.00	0.00	4,495.0	0.0	0.0	0.0	0.00	0.00	Mancos Shale
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	
5,035.9	0.00	0.00	5,035.9	0.0	0.0	0.0	0.00	0.00	KOP @ 5035'
5,087.1	5.11	141.67	5,087.0	-1.8	1.4	2.3	10.00	10.00	Mancos Silt
5,100.0	6.41	141.67	5,099.9	-2.8	2.2	3.6	10.00	10.00	
5,200.0	16.41	141.67	5,197.8	-18.3	14.5	23.3	10.00	10.00	
5,300.0	26.41	141.67	5,290.7	-46.9	37.1	59.6	10.00	10.00	
5,373.7	33.78	141.67	5,354.5	-75.9	60.0	96.4	10.00	10.00	Gallup Fn.
5,400.0	36.41	141.67	5,376.0	-87.7	69.4	111.5	10.00	10.00	
5,500.0	46.40	141.67	5,450.9	-139.5	110.3	177.3	10.00	10.00	
5,600.0	56.40	141.67	5,513.2	-200.8	158.7	255.1	10.00	10.00	
5,700.0	66.40	141.67	5,561.0	-269.6	213.1	342.5	10.00	10.00	
5,800.0	76.40	141.67	5,592.9	-343.8	271.8	436.9	10.00	10.00	
5,836.0	80.00	141.67	5,600.2	-371.4	293.7	472.0	10.00	10.00	7" Casing Setting
5,900.0	86.40	141.67	5,607.8	-421.3	333.1	535.3	10.00	10.00	
5,939.0	90.30	141.67	5,608.9	-451.8	357.2	574.2	10.00	10.00	LP/Start turn @ 5939' MD; 90.3°
6,000.0	90.30	141.43	5,608.6	-499.6	395.2	635.0	0.40	0.00	
6,100.0	90.30	141.03	5,608.1	-577.6	457.8	734.7	0.40	0.00	
6,200.0	90.30	140.63	5,607.6	-655.1	521.0	834.5	0.40	0.00	
6,300.0	90.30	140.23	5,607.1	-732.2	584.7	934.3	0.40	0.00	
6,400.0	90.30	139.84	5,606.5	-808.8	648.9	1,034.2	0.40	0.00	
6,500.0	90.30	139.44	5,606.0	-885.0	713.7	1,134.1	0.40	0.00	
6,600.0	90.30	139.04	5,605.5	-960.8	778.9	1,234.0	0.40	0.00	
6,700.0	90.30	138.64	5,605.0	-1,036.1	844.8	1,334.0	0.40	0.00	
6,800.0	90.30	138.25	5,604.4	-1,110.9	911.1	1,433.9	0.40	0.00	
6,900.0	90.30	137.85	5,603.9	-1,185.3	977.9	1,533.9	0.40	0.00	
7,000.0	90.30	137.45	5,603.4	-1,259.2	1,045.3	1,633.9	0.40	0.00	
7,094.8	90.30	137.07	5,602.9	-1,328.8	1,109.7	1,728.7	0.40	0.00	End of turn @ 7094' MD - GCU M27-2306 01H
7,100.0	90.30	137.07	5,602.9	-1,332.6	1,113.2	1,733.9	0.00	0.00	
7,200.0	90.30	137.07	5,602.3	-1,405.8	1,181.3	1,833.9	0.00	0.00	
7,300.0	90.30	137.07	5,601.8	-1,479.0	1,249.4	1,933.9	0.00	0.00	
7,400.0	90.30	137.07	5,601.3	-1,552.3	1,317.5	2,033.9	0.00	0.00	
7,500.0	90.30	137.07	5,600.8	-1,625.5	1,385.6	2,133.9	0.00	0.00	
7,600.0	90.30	137.07	5,600.3	-1,698.7	1,453.7	2,233.9	0.00	0.00	
7,700.0	90.30	137.07	5,599.7	-1,771.9	1,521.8	2,333.9	0.00	0.00	
7,800.0	90.30	137.07	5,599.2	-1,845.2	1,589.9	2,433.9	0.00	0.00	
7,900.0	90.30	137.07	5,598.7	-1,918.4	1,658.0	2,533.9	0.00	0.00	
8,000.0	90.30	137.07	5,598.2	-1,991.6	1,726.1	2,633.9	0.00	0.00	
8,100.0	90.30	137.07	5,597.6	-2,064.8	1,794.2	2,733.9	0.00	0.00	
8,200.0	90.30	137.07	5,597.1	-2,138.0	1,862.3	2,833.9	0.00	0.00	
8,300.0	90.30	137.07	5,596.6	-2,211.3	1,930.4	2,933.9	0.00	0.00	
8,400.0	90.30	137.07	5,596.1	-2,284.5	1,998.5	3,033.9	0.00	0.00	
8,500.0	90.30	137.07	5,595.5	-2,357.7	2,066.6	3,133.9	0.00	0.00	
8,600.0	90.30	137.07	5,595.0	-2,430.9	2,134.7	3,233.9	0.00	0.00	
8,700.0	90.30	137.07	5,594.5	-2,504.2	2,202.8	3,333.9	0.00	0.00	
8,800.0	90.30	137.07	5,594.0	-2,577.4	2,271.0	3,433.9	0.00	0.00	

Planning Report

Database: USA EDM 5000 Multi Users DB
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Project: Sandoval County, NM
Site: GCU
Well: GCU M27-2306 01H
Wellbore: Hz
Design: Plan #3

Local Co-ordinate Reference: Well GCU M27-2306 01H
TVD Reference: WELL @ 7148.0ft (Original Well Elev)
MD Reference: WELL @ 7148.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

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
8,900.0	90.30	137.07	5,593.5	-2,650.6	2,339.1	3,533.9	0.00	0.00	
9,000.0	90.30	137.07	5,592.9	-2,723.8	2,407.2	3,633.9	0.00	0.00	
9,100.0	90.30	137.07	5,592.4	-2,797.0	2,475.3	3,733.9	0.00	0.00	
9,200.0	90.30	137.07	5,591.9	-2,870.3	2,543.4	3,833.9	0.00	0.00	
9,300.0	90.30	137.07	5,591.4	-2,943.5	2,611.5	3,933.9	0.00	0.00	
9,400.0	90.30	137.07	5,590.8	-3,016.7	2,679.6	4,033.9	0.00	0.00	
9,500.0	90.30	137.07	5,590.3	-3,089.9	2,747.7	4,133.9	0.00	0.00	
9,600.0	90.30	137.07	5,589.8	-3,163.2	2,815.8	4,233.9	0.00	0.00	
9,700.0	90.30	137.07	5,589.3	-3,236.4	2,883.9	4,333.9	0.00	0.00	
9,800.0	90.30	137.07	5,588.7	-3,309.6	2,952.0	4,433.9	0.00	0.00	
9,900.0	90.30	137.07	5,588.2	-3,382.8	3,020.1	4,533.9	0.00	0.00	
10,000.0	90.30	137.07	5,587.7	-3,456.1	3,088.2	4,633.9	0.00	0.00	
10,100.0	90.30	137.07	5,587.2	-3,529.3	3,156.3	4,733.9	0.00	0.00	
10,200.0	90.30	137.07	5,586.6	-3,602.5	3,224.4	4,833.9	0.00	0.00	
10,300.0	90.30	137.07	5,586.1	-3,675.7	3,292.5	4,933.9	0.00	0.00	
10,400.0	90.30	137.07	5,585.6	-3,748.9	3,360.6	5,033.9	0.00	0.00	
10,500.0	90.30	137.07	5,585.1	-3,822.2	3,428.7	5,133.9	0.00	0.00	
10,600.0	90.30	137.07	5,584.6	-3,895.4	3,496.8	5,233.9	0.00	0.00	
10,700.0	90.30	137.07	5,584.0	-3,968.6	3,564.9	5,333.9	0.00	0.00	
10,800.0	90.30	137.07	5,583.5	-4,041.8	3,633.0	5,433.9	0.00	0.00	
10,900.0	90.30	137.07	5,583.0	-4,115.1	3,701.1	5,533.8	0.00	0.00	
11,000.0	90.30	137.07	5,582.5	-4,188.3	3,769.2	5,633.8	0.00	0.00	
11,100.0	90.30	137.07	5,581.9	-4,261.5	3,837.3	5,733.8	0.00	0.00	
11,200.0	90.30	137.07	5,581.4	-4,334.7	3,905.4	5,833.8	0.00	0.00	
11,300.0	90.30	137.07	5,580.9	-4,408.0	3,973.6	5,933.8	0.00	0.00	
11,400.0	90.30	137.07	5,580.4	-4,481.2	4,041.7	6,033.8	0.00	0.00	
11,500.0	90.30	137.07	5,579.8	-4,554.4	4,109.8	6,133.8	0.00	0.00	
11,600.0	90.30	137.07	5,579.3	-4,627.6	4,177.9	6,233.8	0.00	0.00	
11,700.0	90.30	137.07	5,578.8	-4,700.8	4,246.0	6,333.8	0.00	0.00	
11,800.0	90.30	137.07	5,578.3	-4,774.1	4,314.1	6,433.8	0.00	0.00	
11,900.0	90.30	137.07	5,577.7	-4,847.3	4,382.2	6,533.8	0.00	0.00	
12,000.0	90.30	137.07	5,577.2	-4,920.5	4,450.3	6,633.8	0.00	0.00	
12,100.0	90.30	137.07	5,576.7	-4,993.7	4,518.4	6,733.8	0.00	0.00	
12,200.0	90.30	137.07	5,576.2	-5,067.0	4,586.5	6,833.8	0.00	0.00	
12,300.0	90.30	137.07	5,575.7	-5,140.2	4,654.6	6,933.8	0.00	0.00	
12,400.0	90.30	137.07	5,575.1	-5,213.4	4,722.7	7,033.8	0.00	0.00	
12,500.0	90.30	137.07	5,574.6	-5,286.6	4,790.8	7,133.8	0.00	0.00	
12,600.0	90.30	137.07	5,574.1	-5,359.8	4,858.9	7,233.8	0.00	0.00	
12,700.0	90.30	137.07	5,573.6	-5,433.1	4,927.0	7,333.8	0.00	0.00	
12,800.0	90.30	137.07	5,573.0	-5,506.3	4,995.1	7,433.8	0.00	0.00	
12,900.0	90.30	137.07	5,572.5	-5,579.5	5,063.2	7,533.8	0.00	0.00	
13,000.0	90.30	137.07	5,572.0	-5,652.7	5,131.3	7,633.8	0.00	0.00	
13,100.0	90.30	137.07	5,571.5	-5,726.0	5,199.4	7,733.8	0.00	0.00	
13,200.0	90.30	137.07	5,570.9	-5,799.2	5,267.5	7,833.8	0.00	0.00	
13,300.0	90.30	137.07	5,570.4	-5,872.4	5,335.6	7,933.8	0.00	0.00	
13,400.0	90.30	137.07	5,569.9	-5,945.6	5,403.7	8,033.8	0.00	0.00	
13,418.6	90.30	137.07	5,569.8	-5,959.2	5,416.4	8,052.4	0.00	0.00	TD at 13418.6 - GCU M27-2306 01H PBHL P3

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: GCU
Well: GCU M27-2306 01H
Wellbore: Hz
Design: Plan #3

Local Co-ordinate Reference: Well GCU M27-2306 01H
TVD Reference: WELL @ 7148.0ft (Original Well Elev)
MD Reference: WELL @ 7148.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Targets										
Target Name										
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting		Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)			
GCU M27-2306 01H PB	0.00	0.00	5,569.8	-5,959.2	5,416.4	1,885,313.21	1,287,600.30		36.175470	-107.445460
- plan hits target center										
- Point										
GCU M27-2306 01H PB	0.00	0.00	5,557.8	-5,959.2	5,416.4	1,885,313.21	1,287,600.30		36.175470	-107.445460
- plan misses target center by 12.0ft at 13418.6ft MD (5569.8 TVD, -5959.2 N, 5416.4 E)										
- Point										
GCU M27-2306 01H PO	0.00	0.00	5,602.9	-1,328.8	1,109.7	1,889,997.14	1,283,351.85		36.188190	-107.460050
- plan hits target center										
- Point										

Casing Points						
Measured Depth	Vertical Depth			Casing Diameter	Hole Diameter	
(ft)	(ft)	Name		(in)	(in)	
500.0	500.0	9 5/8"		0.000	0.000	
5,836.0	5,600.2	7" Casing Setting		0.000	0.000	

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
145.0	145.0	Nacimiento Fn.		-0.30	137.07	
1,500.0	1,500.0	Ojo Alamo Ss.		-0.30	137.07	
1,697.0	1,697.0	Kirtland Shale		-0.30	137.07	
1,871.0	1,871.0	Fruitland Coal		-0.30	137.07	
2,110.0	2,110.0	Pictured Cliffs Ss.		-0.30	137.07	
2,216.0	2,216.0	Lewis Shale		-0.30	137.07	
2,878.0	2,878.0	Cliffhouse Ss.		-0.30	137.07	
3,625.0	3,625.0	Menefee Fn.		-0.30	137.07	
4,331.0	4,331.0	Point Lookout Ss.		-0.30	137.07	
4,495.0	4,495.0	Mancos Shale		-0.30	137.07	
5,087.1	5,087.0	Mancos Silt		-0.30	137.07	
5,373.7	5,355.0	Gallup Fn.		-0.30	137.07	

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(ft)	(ft)	+N/-S	+E/-W	Comment	
(ft)	(ft)	(ft)	(ft)		
5,035.9	5,035.9	0.0	0.0	KOP @ 5035'	
5,939.0	5,608.9	-451.8	357.2	LP/Start turn @ 5939' MD; 90.3°	
7,094.8	5,602.9	-1,328.8	1,109.7	End of turn @ 7094' MD	
13,418.6	5,569.8	-5,959.2	5,416.4	TD at 13418.6	