

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: 8-14-14

Well information;

Operator Enlana, Well Name and Number Gallo Canyon Unit m14 2306 #1H

API# 30-039-31306, Section 14, 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 & S.A compliance
- ☒ 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

3-11-2015
Date KC

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

AUG 15 2014

RECEIVED

MAR 06 2015

FORM APPROVED
OMB No. 1004-0137
Expires July 31, 2015

NMOC

DISTR

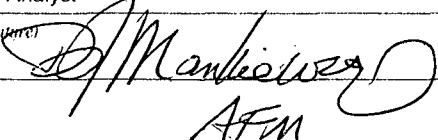
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☒ DRILL ☐ REENTER		7. If Unit or CA Agreement, Name and No. NMNM 131017X
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		8. Lease Name and Well No. Gallo Canyon Unit M14-2306 01H
2. Name of Operator Encana Oil & Gas (USA) Inc.		9. API Well No. 30-039-31306
3a. Address 370 17th Street, Suite 1700 Denver, CO 80202	3b. Phone No. (include area code) 720-876-3533	10. Field and Pool, or Exploratory Counselors Gallup-Dakota
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface 51' FSL and 1279' FWL Section 14, T23N, R6W SWSW At proposed prod. zone 515' FSL and 990' FWL Section 24, T23N, R6W SWSW		11. Sec., T. R. M. or Blk. and Survey or Area Section 14, T23N, R6W NMPM Sec 24, T23N, R6W
14. Distance in miles and direction from nearest town or post office* +/- 55.2 miles southeast of the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM		12. County or Parish Rio Arriba
15. Distance from proposed* location to nearest property or lease line, ft. BHL is 515' from south lease line Section 24, T23N, R6W (Also to nearest drig. unit line, if any)		13. State NM
16. No. of acres in lease NMNM 17009 - 2,560 ac.		17. Spacing Unit dedicated to this well 5,120 acres - Section 22-26 and 33-36
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. Absolut 1 is +/- 122' SW of well lateral		19. Proposed Depth 5529' TVD/12,189' MD
20. BLM/BIA Bond No. on file COB-000235		
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6,911' GL, 6,927' KB	22. Approximate date work will start* 02/07/2015	23. Estimated duration 20 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must be attached to this form:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
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).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the BLM.

25. Signature 	Name (Printed/Typed) Katie Wegner	Date 8/14/14
Title Regulatory Analyst		
Approved by (Signature) 	Name (Printed/Typed) AFM	Date 3/2/15
Title AFM	Office FFO	

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 to knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or reports, or to make any such statement or report which is known to be false, fictitious or fraudulent.

(Continued on page 2)
**DRILLING OPERATIONS
AUTHORIZED ARE SUBJECT TO
COMPLIANCE WITH ATTACHED
"GENERAL REQUIREMENTS"**

**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**

**This action is subject to technical
and procedural review pursuant to
43 CFR 3165.3 and appeal
pursuant to 43 CFR 3165.4**

NMOC

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

RECEIVED Form C-102
Revised August 1, 2011
AUG 15 2014 Submit one copy to appropriate District Office
AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-039-31306	² Pool Code 13379	³ Pool Name COUNSELORS GALLUP-DAKOTA
⁴ Property Code 314242	⁵ Property Name GALLO CANYON UNIT M14-2306	⁶ Well Number 01H
⁷ OGRID No. 282327	⁸ Operator Name ENCANA OIL & GAS (USA) INC.	⁹ Elevation 6911

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
M	14	23-N	6-W		51'	SOUTH	1279'	WEST	RIO ARriba

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
M	24	23-N	6-W		515'	SOUTH	990'	WEST	SANDOVAL

¹² Dedicated Acres 5,120 ACRES - SEC 22-26, 34-36 - UNDIVIDED UNIT PENETRATED SPACING UNITS: N2 & SE4 SEC 23; SW4 SEC 24 (640 acres)	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No. R-13718-A (5,120 acres)
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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.

16 SURFACE HOLE LOCATION: LAT: 36.218032°N-NAD 83 LONG: 107.442501°W-NAD 83 LAT: 36.21802°N-NAD 27 LONG: 107.44190°W-NAD 27 PENETRATION POINT: LAT: 36.216994°N-NAD 83 LONG: 107.440480°W-NAD 83 LAT: 36.21698°N-NAD 27 LONG: 107.43988°W-NAD 27 BOTTOM HOLE: LAT: 36.204796°N-NAD 83 LONG: 107.425531°W-NAD 83 LAT: 36.20478°N-NAD 27 LONG: 107.42493°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: <i>Katie Wegner</i> Date: 8/8/14 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. OCT 3, 2013 Date of Survey Signature and Seal of Professional Surveyor: WILLIAM E. MAHNKE II NEW MEXICO # 8466 REGISTERED PROFESSIONAL Certificate Number: PLS 8466	

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

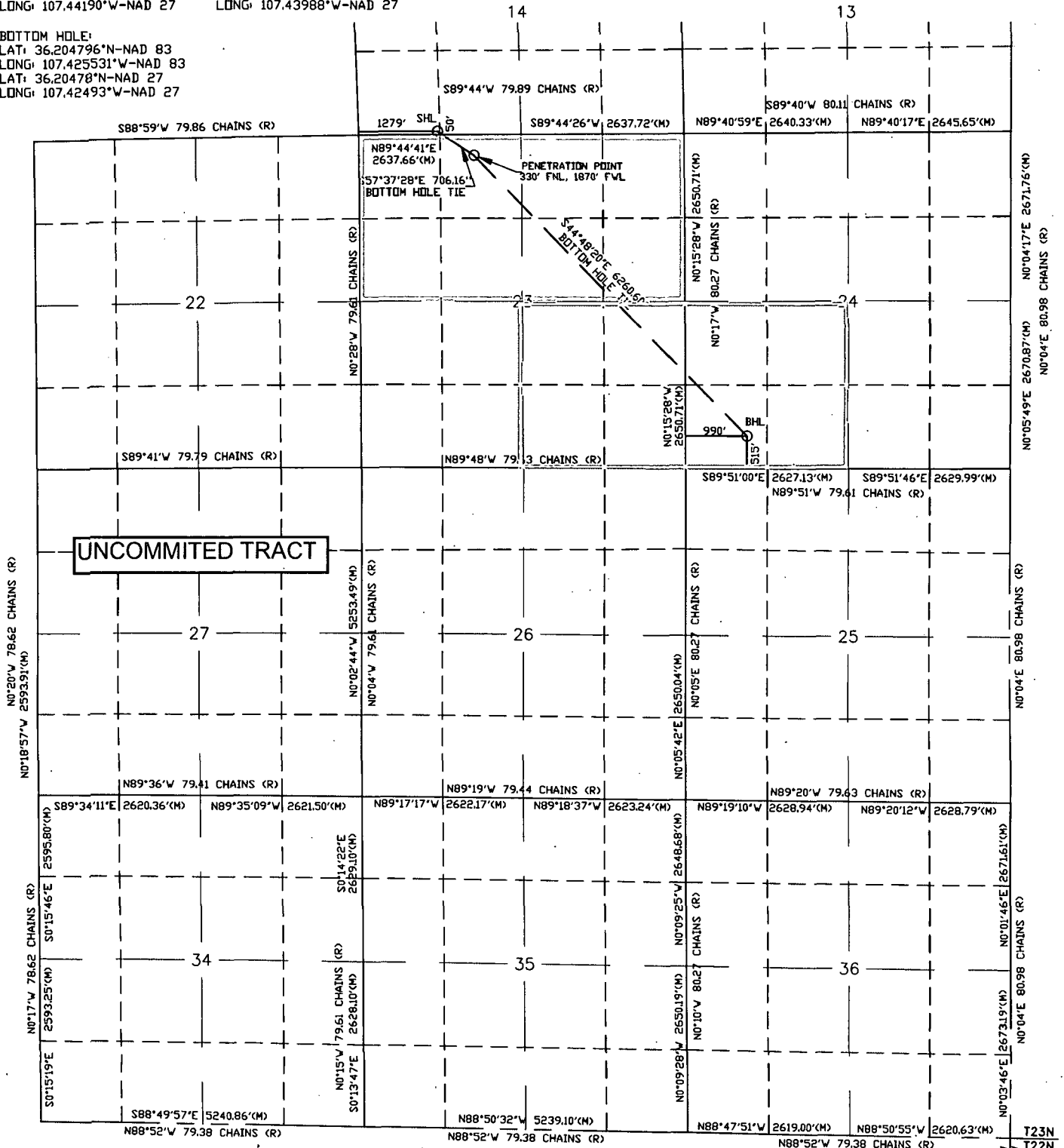
☐ AMENDED REPORT

SURFACE HOLE LOCATION:
LAT: 36.218032°N-NAD 83
LONG: 107.442501°W-NAD 83
LAT: 36.21802°N-NAD 27
LONG: 107.44190°W-NAD 27

BOTTOM HOLE:
LAT: 36.204796°N-NAD 83
LONG: 107.425531°W-NAD 83
LAT: 36.20478°N-NAD 27
LONG: 107.42493°W-NAD 27

PENETRATION POINT:
LAT: 36.216994°N-NAD 83
LONG: 107.4404801°W-NAD 83
LAT: 36.21698°N-NAD 27
LONG: 107.43988°W-NAD 27

ENCANA OIL & GAS (USA) INC.
GALLO CANYON UNIT M14-2306 01H



GCU M14-2306 01H

SHL: SW/4 SW/4 Sec 14 T23N R6W,

51' FSL, 1279' FWL

BHL: SW/4 SW/4 Sec 24 T23N R6W,

515' FSL, 990' FWL

San Juan, 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	1,499
Kirtland Shale	1,680
Fruitland Coal	1,916
Pictured Cliffs Ss.	2,032
Lewis Shale	2,163
Cliffhouse Ss.	2,871
Menefee Fn.	3,583
Point Lookout Ss.	4,300
Mancos Shale	4,511
Mancos Silt	5,101
Gallup Fn.	5,339
Horizontal Target	5,590

The referenced surface elevation is 6911', KB 6927'

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

Substance	Formation	Depth (TVD) units = feet
Water/Gas	Fruitland Coal	1,916
Oil/Gas	Pictured Cliffs Ss.	2,032
Oil/Gas	Cliffhouse Ss.	2,871
Gas	Menefee Fn.	3,583
Oil/Gas	Point Lookout Ss.	4,300
Oil/Gas	Mancos Shale	4,511
Oil/Gas	Mancos Silt	5,101
Oil/Gas	Gallup Fn.	5,339

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.
- 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.

SHL: SW/4 SW/4 Sec 14 T23N R6W,

51' FSL, 1279' FWL

BHL: SW/4 SW/4 Sec 24 T23N R6W,

515' FSL, 990' FWL

San Juan, New Mexico

- 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'	30"	20"	94#	
Surface	0'-500'	12 1/4"	9 5/8"	36#	J55, STC New
Intermediate	0'-5800'	8 3/4"	7"	26#	J55, LTC New
Production Liner	5600'-12189'	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.

GCU M14-2306 01H

SHL: SW/4 SW/4 Sec 14 T23N R6W,
51' FSL, 1279' FWL

BHL: SW/4 SW/4 Sec 24 T23N R6W,
515' FSL, 990' FWL

San Juan, New Mexico

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'	314 sks	HALCEM™ SYSTEM + 2% CaCl ₂ + 0.125lbm/sk Poly-E-Flake. 15.8 ppg, 1.174 cuft/sk	Surface	1 per joint on bottom 3 joints
Intermediate	0'-5800'	30% open hole excess Stage 1 Lead: 434 sks Stage 1 Tail: 297 sks Stage 2 Lead: 215 sks	Stage 1 Lead: HALCEM™ SYSTEM + 0.2% HR-5 + 5lbm/sk Kol-Seal + 0.125lbm/sk Poly-E-Flake. 12.3 ppg, 1.948 cuft/sk Stage 1 Tail: VARICEM™ CEMENT + .15% CFR-3 + 5lbm/sk Kol-Seal + 0.125% Poly-E-Flake. 13.5 ppg, 1.308 cuft/sk. Stage 2 Contingency: HALCEM™ SYSTEM + 5lbm/sk Kol-Seal + 0.125lbm/sk Poly-E-Flake. 12.3 ppg,	Surface	1 every 3 joints through water bearing zones
Production Liner	5600'-12189'	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 3900'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5529'/12189'	Gallup

GCU M14-2306 01H

SHL: SW/4 SW/4 Sec 14 T23N R6W,
51' FSL, 1279' FWL

BHL: SW/4 SW/4 Sec 24 T23N R6W,
515' FSL, 990' FWL

San Juan, New Mexico

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'-5571'/5800'	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"	5571'/5800'- 5529'/12189'	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 +/- 2616 psi based on a 9.0 ppg at 5590' TVD of the horizontal lateral target. 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.

GCU M14-2306 01H

**SHL: SW/4 SW/4 Sec 14 T23N R6W,
51' FSL, 1279' FWL**

**BHL: SW/4 SW/4 Sec 24 T23N R6W,
515' FSL, 990' FWL**

San Juan, New Mexico

9. ANTICIPATED START DATE AND DURATION OF OPERATIONS

Drilling is estimated to commence on February 7, 2015. 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.

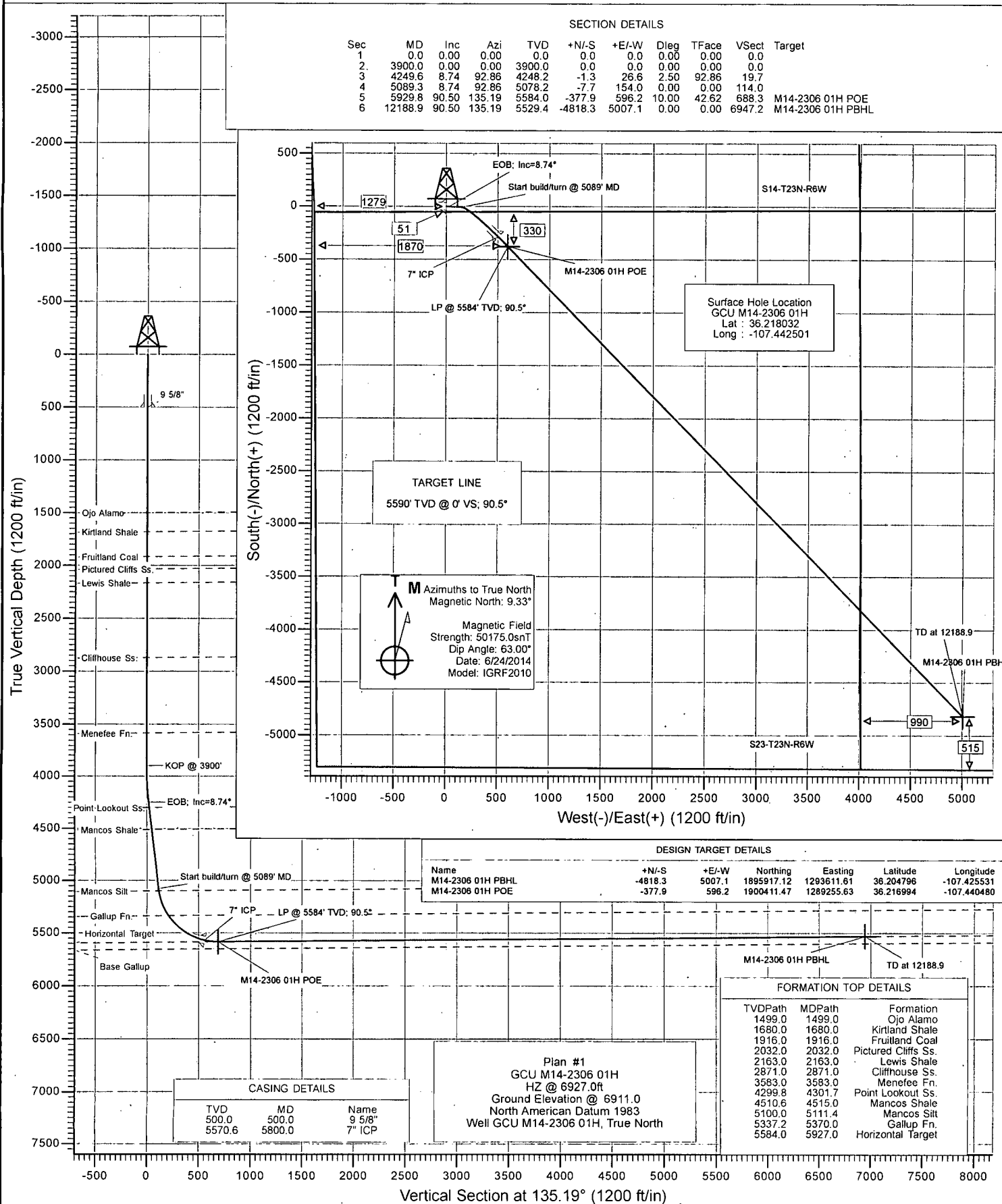
LOC: SW1/4 SW1/4 Sec 14 T23N R6W, 51' F			Encana Natural Gas			ENG: Sydney Kuyke 8/8/14		
County: Rio Arriba			WELL SUMMARY			RIG: Aztec 950		
WELL: GCU M14-2306 01H						GLE: 6911		
						RKBE: 6927		
MWD	OPEN HOLE	FORM	DEPTH		HOLE	CASING	MW	DEVIATION
LWD	LOGGING		TVD	MD	SIZE	SPECS	MUD TYPE	INFORMATION
			60	60'	30	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	Nacimiento 9 5/8" Csg	0 500	500.00	12 1/4	9 5/8" 36ppf J55 STC TOC Surface with 100% OH Excess: 314 sks of HALCEM™ SYSTEM + 2% CaCl2 + 0.125lbm/sk Poly-E-Flake. Mixed at 15.8 ppg. Yield 1.174 cuft/sk.	Fresh wtr 8.3-10	Vertical <1°
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 Kirtland Shale Fruitland Coal Pictured Cliffs Ss. Lewis Shale Cliffhouse Ss. Menefee Fn. Point Lookout Ss. Mancos Shale	1,499 1,680 1,916 2,032 2,163 2,871 3,583 4,300 4,511		8 3/4 Stage tool @ ~ 2,213	7" 26ppf J55 LTC TOC @ surface (30% OH excess) Stage 1 Total: 731sks If necessary, Stage 2 Total: 215sks Stage 1 Lead: 434 sks HALCEM™ SYSTEM + 0.2% HR-5 + 5lbm/sk Kol-Seal + 0.125lbm/sk Poly-E-Flake. Mixed at 12.3 ppg. Yield 1,948 cuft/sk. Stage 1 Tail: 297 sks VARICEM™ CEMENT + .15% CFR-3 + 5lbm/sk Kol-Seal + 0.125% Poly-E-Flake. Mixed at 13.5 ppg. Yield 1,308 cuft/sk. Stage 2: 215 sks HALCEM™ SYSTEM + 5lbm/sk Kol-Seal + 0.125lbm/sk Poly-E-Flake. Mixed at 12.3 ppg. Yield 1,946 cuft/sk.	Fresh Wtr 8.3-10	Vertical <1°
Surveys every 30' through the curve	Mud logger onsite	KOP Mancos Silt Gallup Fn. 7" Csg	3,900 5,101 5,339 5,571	3,900 5,800'	6 1/8	200' overlap at liner top 6389' Drilled Lateral		Horz Inc/TVD 90.5 degdeg/5590ft
Surveys every stand to TD unless directed otherwise by Geologist	No OH Logs	Horizontal Target TD Base Gallup	5,590 5,529 5,658	12,189		4 1/2" 11.6ppf SB80 LTC Running external swellable csg packers for isolation of prod string	WBM 8.3-10	TD = 12188.9 MD
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 3900', 8 3/4 inch holesize
- 5) Start curve at 10deg/100' build rate
- 6) Drill to csg point of 5800' MD
- 7) R&C 7" csg, circ cmt to surface, switch to WBM
- 8) Land at 90 deg, drill lateral to 12189' run 4 1/2 inch liner with external swellable csg packers



Project: Rio Arriba County, NM
 Site: S14-T23N-R6W
 Well: GCU M14-2306 01H
 Wellbore: HZ
 Design: Plan #1



Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well GCU M14-2306 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	HZ @ 6927.0ft
Project:	Rio Arriba County, NM	MD Reference:	HZ @ 6927.0ft
Site:	S14-T23N-R6W	North Reference:	True
Well:	GCU M14-2306 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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

Site	S14-T23N-R6W				
Site Position:		Northing:	1,900,796.67 ft	Latitude:	36.218032
From:	Lat/Long	Easting:	1,288,664.11 ft	Longitude:	-107.442501
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-0.70 °

Well	GCU M14-2306 01H					
Well Position	+N/-S	0.0 ft	Northing:	1,900,796.67 ft	Latitude:	36.218032
	+E/-W	0.0 ft	Easting:	1,288,664.11 ft	Longitude:	-107.442501
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	6,911.0 ft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/24/2014	9.33	63.00	50,175

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	135.19

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	
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,249.6	8.74	92.86	4,248.2	-1.3	26.6	2.50	2.50	0.00	92.86	
5,089.3	8.74	92.86	5,078.2	-7.7	154.0	0.00	0.00	0.00	0.00	
5,929.8	90.50	135.19	5,584.0	-377.9	596.2	10.00	9.73	5.04	42.62	M14-2306 01H POE
12,188.9	90.50	135.19	5,529.4	-4,818.3	5,007.1	0.00	0.00	0.00	0.00	M14-2306 01H PBHL

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well GCU M14-2306 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	HZ @ 6927.0ft
Project:	Rio Arriba County, NM	MD Reference:	HZ @ 6927.0ft
Site:	S14-T23N-R6W	North Reference:	True
Well:	GCU M14-2306 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	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	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	
1,499.0	0.00	0.00	1,499.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
1,680.0	0.00	0.00	1,680.0	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	
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	
1,916.0	0.00	0.00	1,916.0	0.0	0.0	0.0	0.00	0.00	Fruitland Coal
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	
2,032.0	0.00	0.00	2,032.0	0.0	0.0	0.0	0.00	0.00	Pictured Cliffs Ss.
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	
2,163.0	0.00	0.00	2,163.0	0.0	0.0	0.0	0.00	0.00	Lewis Shale
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	
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	
2,871.0	0.00	0.00	2,871.0	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	
3,583.0	0.00	0.00	3,583.0	0.0	0.0	0.0	0.00	0.00	Menefee Fn.
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	
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	KOP @ 3900'
4,000.0	2.50	92.86	4,000.0	-0.1	2.2	1.6	2.50	2.50	
4,100.0	5.00	92.86	4,099.7	-0.4	8.7	6.4	2.50	2.50	
4,200.0	7.50	92.86	4,199.1	-1.0	19.6	14.5	2.50	2.50	
4,249.6	8.74	92.86	4,248.2	-1.3	26.6	19.7	2.50	2.50	EOB; Inc=8.74°
4,300.0	8.74	92.86	4,298.1	-1.7	34.2	25.3	0.00	0.00	

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well GCU M14-2306 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	HZ @ 6927.0ft
Project:	Rio Arriba County, NM	MD Reference:	HZ @ 6927.0ft
Site:	S14-T23N-R6W	North Reference:	True
Well:	GCU M14-2306 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	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
4,301.7	8.74	92.86	4,299.8	-1.7	34.5	25.5	0.00	0.00	Point Lookout Ss.
4,400.0	8.74	92.86	4,396.9	-2.5	49.4	36.6	0.00	0.00	
4,500.0	8.74	92.86	4,495.7	-3.2	64.6	47.8	0.00	0.00	
4,515.0	8.74	92.86	4,510.6	-3.3	66.9	49.5	0.00	0.00	Mancos Shale
4,600.0	8.74	92.86	4,594.6	-4.0	79.8	59.0	0.00	0.00	
4,700.0	8.74	92.86	4,693.4	-4.7	94.9	70.3	0.00	0.00	
4,800.0	8.74	92.86	4,792.3	-5.5	110.1	81.5	0.00	0.00	
4,900.0	8.74	92.86	4,891.1	-6.3	125.3	92.7	0.00	0.00	
5,000.0	8.74	92.86	4,989.9	-7.0	140.5	104.0	0.00	0.00	
5,089.3	8.74	92.86	5,078.2	-7.7	154.0	114.0	0.00	0.00	Start build/turn @ 5089' MD
5,100.0	9.56	97.24	5,088.8	-7.8	155.7	115.3	10.00	7.61	
5,111.4	10.47	101.12	5,100.0	-8.2	157.7	116.9	10.00	8.06	Mancos Silt
5,200.0	18.47	117.10	5,185.7	-16.1	178.1	136.9	10.00	9.02	
5,300.0	28.10	123.97	5,277.5	-36.5	211.8	175.2	10.00	9.64	
5,370.0	34.97	126.64	5,337.2	-57.8	241.6	211.3	10.00	9.80	Gallup Fn.
5,400.0	37.92	127.51	5,361.3	-68.5	255.8	228.9	10.00	9.85	
5,500.0	47.80	129.76	5,434.5	-111.0	308.8	296.4	10.00	9.88	
5,600.0	57.72	131.39	5,494.9	-162.8	369.2	375.6	10.00	9.92	
5,700.0	67.65	132.70	5,540.7	-222.2	435.0	464.3	10.00	9.93	
5,800.0	77.59	133.84	5,570.6	-287.6	504.4	559.5	10.00	9.94	7" ICP
5,900.0	87.54	134.88	5,583.5	-356.8	575.2	658.5	10.00	9.95	
5,927.0	90.23	135.16	5,584.0	-375.9	594.3	685.5	10.00	9.95	Horizontal Target
5,929.8	90.50	135.19	5,584.0	-377.9	596.2	688.3	10.00	9.95	LP @ 5584' TVD; 90.5°
6,000.0	90.50	135.19	5,583.4	-427.7	645.7	758.5	0.00	0.00	
6,100.0	90.50	135.19	5,582.5	-498.7	716.2	858.5	0.00	0.00	
6,200.0	90.50	135.19	5,581.6	-569.6	786.7	958.5	0.00	0.00	
6,300.0	90.50	135.19	5,580.8	-640.6	857.1	1,058.5	0.00	0.00	
6,400.0	90.50	135.19	5,579.9	-711.5	927.6	1,158.5	0.00	0.00	
6,500.0	90.50	135.19	5,579.0	-782.4	998.1	1,258.5	0.00	0.00	
6,600.0	90.50	135.19	5,578.2	-853.4	1,068.6	1,358.5	0.00	0.00	
6,700.0	90.50	135.19	5,577.3	-924.3	1,139.0	1,458.5	0.00	0.00	
6,800.0	90.50	135.19	5,576.4	-995.3	1,209.5	1,558.5	0.00	0.00	
6,900.0	90.50	135.19	5,575.5	-1,066.2	1,280.0	1,658.5	0.00	0.00	
7,000.0	90.50	135.19	5,574.7	-1,137.2	1,350.4	1,758.5	0.00	0.00	
7,100.0	90.50	135.19	5,573.8	-1,208.1	1,420.9	1,858.5	0.00	0.00	
7,200.0	90.50	135.19	5,572.9	-1,279.0	1,491.4	1,958.5	0.00	0.00	
7,300.0	90.50	135.19	5,572.0	-1,350.0	1,561.9	2,058.5	0.00	0.00	
7,400.0	90.50	135.19	5,571.2	-1,420.9	1,632.3	2,158.5	0.00	0.00	
7,500.0	90.50	135.19	5,570.3	-1,491.9	1,702.8	2,258.5	0.00	0.00	
7,600.0	90.50	135.19	5,569.4	-1,562.8	1,773.3	2,358.5	0.00	0.00	
7,700.0	90.50	135.19	5,568.6	-1,633.8	1,843.7	2,458.5	0.00	0.00	
7,800.0	90.50	135.19	5,567.7	-1,704.7	1,914.2	2,558.5	0.00	0.00	
7,900.0	90.50	135.19	5,566.8	-1,775.7	1,984.7	2,658.5	0.00	0.00	
8,000.0	90.50	135.19	5,565.9	-1,846.6	2,055.2	2,758.5	0.00	0.00	
8,100.0	90.50	135.19	5,565.1	-1,917.5	2,125.6	2,858.5	0.00	0.00	
8,200.0	90.50	135.19	5,564.2	-1,988.5	2,196.1	2,958.4	0.00	0.00	
8,300.0	90.50	135.19	5,563.3	-2,059.4	2,266.6	3,058.4	0.00	0.00	
8,400.0	90.50	135.19	5,562.5	-2,130.4	2,337.0	3,158.4	0.00	0.00	
8,500.0	90.50	135.19	5,561.6	-2,201.3	2,407.5	3,258.4	0.00	0.00	
8,600.0	90.50	135.19	5,560.7	-2,272.3	2,478.0	3,358.4	0.00	0.00	
8,700.0	90.50	135.19	5,559.8	-2,343.2	2,548.5	3,458.4	0.00	0.00	
8,800.0	90.50	135.19	5,559.0	-2,414.1	2,618.9	3,558.4	0.00	0.00	

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well GCU M14-2306 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	HZ @ 6927.0ft
Project:	Rio Arriba County, NM	MD Reference:	HZ @ 6927.0ft
Site:	S14-T23N-R6W	North Reference:	True
Well:	GCU M14-2306 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	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
8,900.0	90.50	135.19	5,558.1	-2,485.1	2,689.4	3,658.4	0.00	0.00	
9,000.0	90.50	135.19	5,557.2	-2,556.0	2,759.9	3,758.4	0.00	0.00	
9,100.0	90.50	135.19	5,556.3	-2,627.0	2,830.4	3,858.4	0.00	0.00	
9,200.0	90.50	135.19	5,555.5	-2,697.9	2,900.8	3,958.4	0.00	0.00	
9,300.0	90.50	135.19	5,554.6	-2,768.9	2,971.3	4,058.4	0.00	0.00	
9,400.0	90.50	135.19	5,553.7	-2,839.8	3,041.8	4,158.4	0.00	0.00	
9,500.0	90.50	135.19	5,552.9	-2,910.7	3,112.2	4,258.4	0.00	0.00	
9,600.0	90.50	135.19	5,552.0	-2,981.7	3,182.7	4,358.4	0.00	0.00	
9,700.0	90.50	135.19	5,551.1	-3,052.6	3,253.2	4,458.4	0.00	0.00	
9,800.0	90.50	135.19	5,550.2	-3,123.6	3,323.7	4,558.4	0.00	0.00	
9,900.0	90.50	135.19	5,549.4	-3,194.5	3,394.1	4,658.4	0.00	0.00	
10,000.0	90.50	135.19	5,548.5	-3,265.5	3,464.6	4,758.4	0.00	0.00	
10,100.0	90.50	135.19	5,547.6	-3,336.4	3,535.1	4,858.4	0.00	0.00	
10,200.0	90.50	135.19	5,546.7	-3,407.3	3,605.5	4,958.4	0.00	0.00	
10,300.0	90.50	135.19	5,545.9	-3,478.3	3,676.0	5,058.4	0.00	0.00	
10,400.0	90.50	135.19	5,545.0	-3,549.2	3,746.5	5,158.4	0.00	0.00	
10,500.0	90.50	135.19	5,544.1	-3,620.2	3,817.0	5,258.4	0.00	0.00	
10,600.0	90.50	135.19	5,543.3	-3,691.1	3,887.4	5,358.4	0.00	0.00	
10,700.0	90.50	135.19	5,542.4	-3,762.1	3,957.9	5,458.4	0.00	0.00	
10,800.0	90.50	135.19	5,541.5	-3,833.0	4,028.4	5,558.3	0.00	0.00	
10,900.0	90.50	135.19	5,540.6	-3,904.0	4,098.8	5,658.3	0.00	0.00	
11,000.0	90.50	135.19	5,539.8	-3,974.9	4,169.3	5,758.3	0.00	0.00	
11,100.0	90.50	135.19	5,538.9	-4,045.8	4,239.8	5,858.3	0.00	0.00	
11,200.0	90.50	135.19	5,538.0	-4,116.8	4,310.3	5,958.3	0.00	0.00	
11,300.0	90.50	135.19	5,537.2	-4,187.7	4,380.7	6,058.3	0.00	0.00	
11,400.0	90.50	135.19	5,536.3	-4,258.7	4,451.2	6,158.3	0.00	0.00	
11,500.0	90.50	135.19	5,535.4	-4,329.6	4,521.7	6,258.3	0.00	0.00	
11,600.0	90.50	135.19	5,534.5	-4,400.6	4,592.1	6,358.3	0.00	0.00	
11,700.0	90.50	135.19	5,533.7	-4,471.5	4,662.6	6,458.3	0.00	0.00	
11,800.0	90.50	135.19	5,532.8	-4,542.4	4,733.1	6,558.3	0.00	0.00	
11,900.0	90.50	135.19	5,531.9	-4,613.4	4,803.6	6,658.3	0.00	0.00	
12,000.0	90.50	135.19	5,531.0	-4,684.3	4,874.0	6,758.3	0.00	0.00	
12,100.0	90.50	135.19	5,530.2	-4,755.3	4,944.5	6,858.3	0.00	0.00	
12,188.9	90.50	135.19	5,529.4	-4,818.3	5,007.1	6,947.2	0.00	0.00	TD at 12188.9

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
M14-2306 01H PBHL - hit/miss target - Shape - plan hits target center - Point	0.00	0.00	5,529.4	-4,818.3	5,007.1	1,895,917.12	1,293,611.61	36.204796	-107.425531
M14-2306 01H POE - plan hits target center - Point	0.00	0.00	5,584.0	-377.9	596.2	1,900,411.47	1,289,255.63	36.216994	-107.440480

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Rio Arriba County, NM
Site: S14-T23N-R6W
Well: GCU M14-2306 01H
Wellbore: HZ
Design: Plan #1

Local Co-ordinate Reference: Well GCU M14-2306 01H
TVD Reference: HZ @ 6927.0ft
MD Reference: HZ @ 6927.0ft
North Reference: True
Survey Calculation Method: Minimum Curvature

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
500.0	500.0	9 5/8"	9.625	12.250
5,800.0	5,570.6	7" ICP	5.500	6.000

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,499.0	1,499.0	Ojo Alamo		-0.50	135.19
1,680.0	1,680.0	Kirtland Shale		-0.50	135.19
1,916.0	1,916.0	Fruitland Coal		-0.50	135.19
2,032.0	2,032.0	Pictured Cliffs Ss.		-0.50	135.19
2,163.0	2,163.0	Lewis Shale		-0.50	135.19
2,871.0	2,871.0	Cliffhouse Ss.		-0.50	135.19
3,583.0	3,583.0	Menefee Fn.		-0.50	135.19
4,301.7	4,300.0	Point Lookout Ss.		-0.50	135.19
4,515.0	4,511.0	Mancos Shale		-0.50	135.19
5,111.4	5,101.0	Mancos Silt		-0.50	135.19
5,370.0	5,339.0	Gallup Fn.		-0.50	135.19
5,927.0	5,590.0	Horizontal Target		-0.50	135.19

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
3,900.0	3,900.0	0.0	0.0	KOP @ 3900'
4,249.6	4,248.2	-1.3	26.6	EOB; Inc=8.74°
5,089.3	5,078.2	-7.7	154.0	Start build/turn @ 5089' MD
5,929.8	5,584.0	-377.9	596.2	LP @ 5584' TVD; 90.5°
12,188.9	5,529.4	-4,818.3	5,007.1	TD at 12188.9

Gallo Canyon Unit M14-2306 01H
SHL: SWSW Section 14, T23N, R6W
51 FSL and 1279 FWL
BHL: SWSW Section 24, T23N, R6W
515 FSL and 990 FWL
Rio Arriba County, New Mexico
Lease Number: NM 17009

4. As determined during the onsite on March 11, 2014, the following best management practices will be implemented:

Water will be diverted around the pad and silt traps will be installed as needed upon interim reclamation.

5. Construction equipment may include chain saws, a brush hog, scraper, maintainer, excavator, and dozer. Construction for the access road and well pad will take approximately 3 weeks.

C. Pipeline

See the Standard SF-299 Application for authorization to construct, operate, maintain and terminate a 2246 foot, up to 6-inch outside diameter, buried steel well connect pipeline that was submitted to the Bureau of Land Management on February 11, 2014.

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.
2. Flowback water will be confined to a storage tank for a period not to exceed 90 days after initial production and will be disposed of at Basin Disposal, Inc. and/or Industrial Ecosystem, Inc. waste disposal facilities.

Driving Directions:

1. From the intersection of US Hwy 64 and US Hwy 550 in Bloomfield N.M. travel south 53.6 miles on US Hwy 550.
2. Turn right at MP 197.7.
3. Turn left at intersection of US Hwy 550 and Rio Arriba CO RD 379.
4. Travel north on Rio Arriba CO Road 379 for 0.89 miles.
5. Turn right and travel south at intersection.
6. Travel south 0.2 miles to intersection
7. Turn left and travel east and south along two track and staked access road 0.5 miles to staked well pad

WELLHEAD BLOWOUT CONTROL SYSTEM

encana

Well Name and Number:
GCU M14-2306 01H

