

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: 2-5-15

Well information;

Operator Encana, Well Name and Number Gallo Canyon Unit L25 2306 #24

API# 30-043-21254, Section 25, Township 23 N/S, Range 6 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.

*APD Held for
name change
see Sunday

NMOCD Approved by Signature

8-12-2015

Date

KC

JUN 12 2015

RECEIVED

Form 3160-3
(March 2012)

FEB 06 2015

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. <u>State</u> Gallo Canyon Unit NMNM 131017X	
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name N/A	
2. Name of Operator Encana Oil & Gas (USA) Inc.		7. If Unit or CA Agreement, Name and No. Gallo Canyon Unit NMNM 131017X	
3a. Address 370 17th Street, Suite 1700 Denver, CO 80202		8. Lease Name and Well No. Gallo Canyon Unit L25-2306 02H	
3b. Phone No. (include area code) 720-876-3740		9. API Well No. <u>300-043-21284</u>	
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface 1457' FSL and 650' FWL, Section 25, T23N, R6W <u>NWSW</u> At proposed prod. zone 1550' FNL and 330' FEL, Section 36, T23N, R6W <u>SENE</u>		10. Field and Pool, or Exploratory Counselors Gallup-Dakota	
11. Sec., T. R. M. or Blk. and Survey or Area Section 25, T23N, R6W NMPM		12. County or Parish Sandoval	
13. State NM		14. Distance in miles and direction from nearest town or post office* +/- 57.1 miles South from the intersection of HWY 64 & HWY 550 in Bloomfield, NM	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) BHL is 330' FEL, Section 36, T23N, R6W		16. No. of acres in lease NMNM 131017X- 5,120 acres	
17. Spacing Unit dedicated to this well 5,120 acres- Sections 22-26 and 34-36, T23N, R6W		18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. SHL +/-30' S Gallo Canyon Unit L25-2306 01H	
19. Proposed Depth 5,438' TVD; 10,838' MD		20. BLM/BIA Bond No. on file COB-000235	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6,888' GL; 6,904' KB		22. Approximate date work will start* 07/01/2015	
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:

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

25. Signature <u>Rosalie Thim</u>	Name (Printed/Typed) Rosalie Thim	Date <u>2/5/15</u>
Title Regulatory Analyst		
Approved by (Signature) <u>[Signature]</u>	Name (Printed/Typed) AFM	Date <u>6/10/15</u>
Title 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 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.

(Continued on page 2)

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

APPROVAL OR ACCEPTANCE OF THIS
OPERATOR FROM OBTAINING ANY OTHER
AUTHORIZATION REQUIRED FOR OPERATIONS
ON FEDERAL AND INDIAN LANDS

NMOCDA

*(Instructions on page 2)

DRILLING OPERATIONS
ARE SUBJECT TO
COMPLIANCE WITH ATTACHED
"GENERAL REQUIREMENTS"

DISTRICT I

1680 N. French Dr., Hobbs, N.M. 88240
Phone: (505) 596-6161 Fax: (505) 596-0720

DISTRICT II

511 S. First St., Artesia, N.M. 88210
Phone: (505) 746-1863 Fax: (505) 746-0790

DISTRICT III

1000 Elv. Branos Rd., Aztec, N.M. 87410
Phone: (505) 534-6176 Fax: (505) 334-6170

DISTRICT IV

1880 S. R. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-8460 Fax: (505) 476-8468

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

OIL CONSERVATION DIVISION FEB 06 2015

1220 South St. Francis Dr.
Santa Fe, NM 87505

Submit one copy to appropriate
District Office

Farmington Field Office
Bureau of Land Management

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-043-21254	² Pool Code 13379	³ Pool Name COUNSELORS GALLUP-DAKOTA
⁴ Property Code 315083	⁵ Property Name GALLO CANYON UNIT L25-2306	⁶ Well Number 202H.02H
⁷ GRID No. 282327	⁸ Operator Name ENCANA OIL & GAS (USA) INC.	⁹ Elevation 6887.9'

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
L	25	23N	6W		1457'	SOUTH	650'	WEST	SANDOVAL

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	36	23N	6W		1550'	NORTH	330'	EAST	SANDOVAL

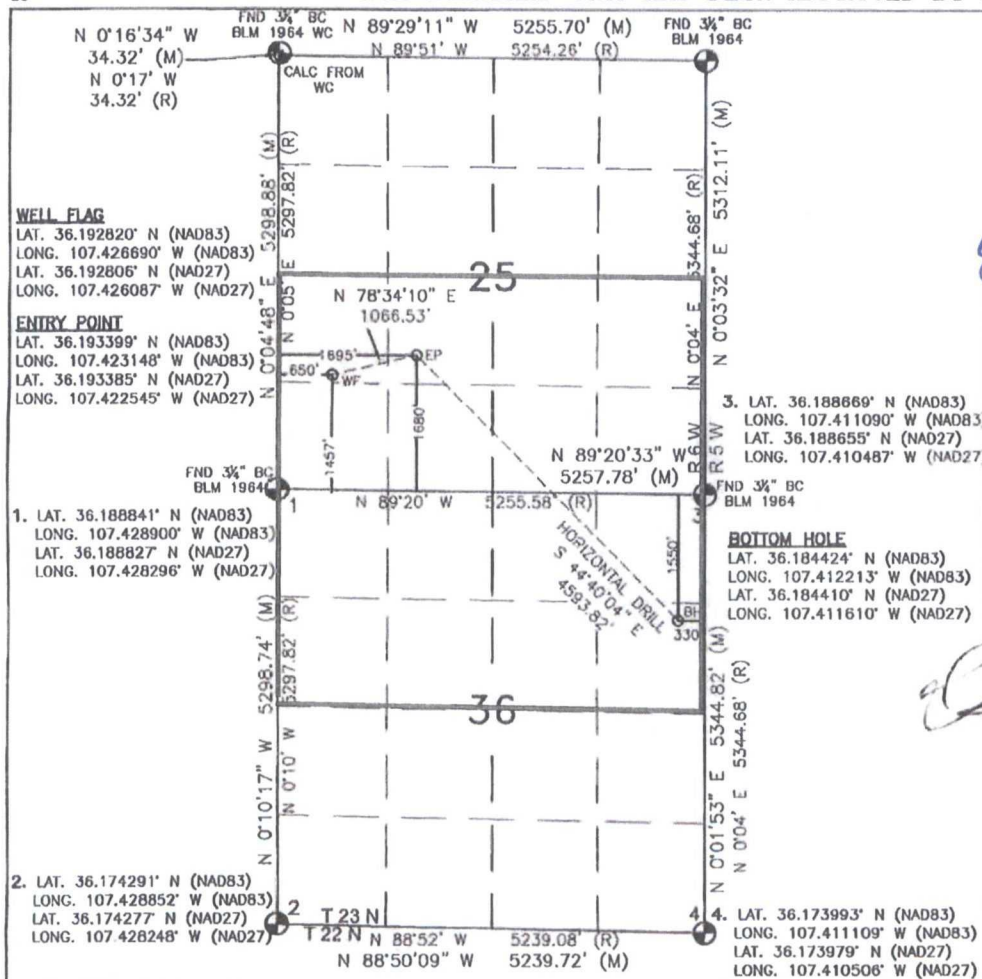
¹² Dedicated Acres
PENETRATED SPACING UNITS: S/2 SEC. 25, N/2
SEC. 36, T23N, R6W, 640 Acres
5,120 ACRES - ALL OF SEC 22-26; 34-36 T23N R6W -
UNDIVIDED UNIT

¹³ Joint or Infill¹⁴ Consolidation Code¹⁵ Order No.

R-13718-A (5,120 acres)

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.

Rosalie Thim 2/6/15
Signature Date

Rosalie Thim

Printed Name

rosalie.thim@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.

MARCH 14, 2014

Date of Survey

Signature and Seal of Professional Surveyor:



DAVID RUSSELL

Certificate Number

10201

DISTRICT I

1635 N. French Dr., Hobbs, N.M. 88240
Phone: (575) 393-5151 Fax: (575) 393-0720

DISTRICT II

811 S. First St., Artesia, N.M. 88210
Phone: (575) 748-1883 Fax: (575) 748-9780

DISTRICT III

1000 Rio Brancos Rd., Artesia, N.M. 87410
Phone: (505) 334-5175 Fax: (505) 334-5170

DISTRICT IV

1880 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 478-3480 Fax: (505) 478-3482

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

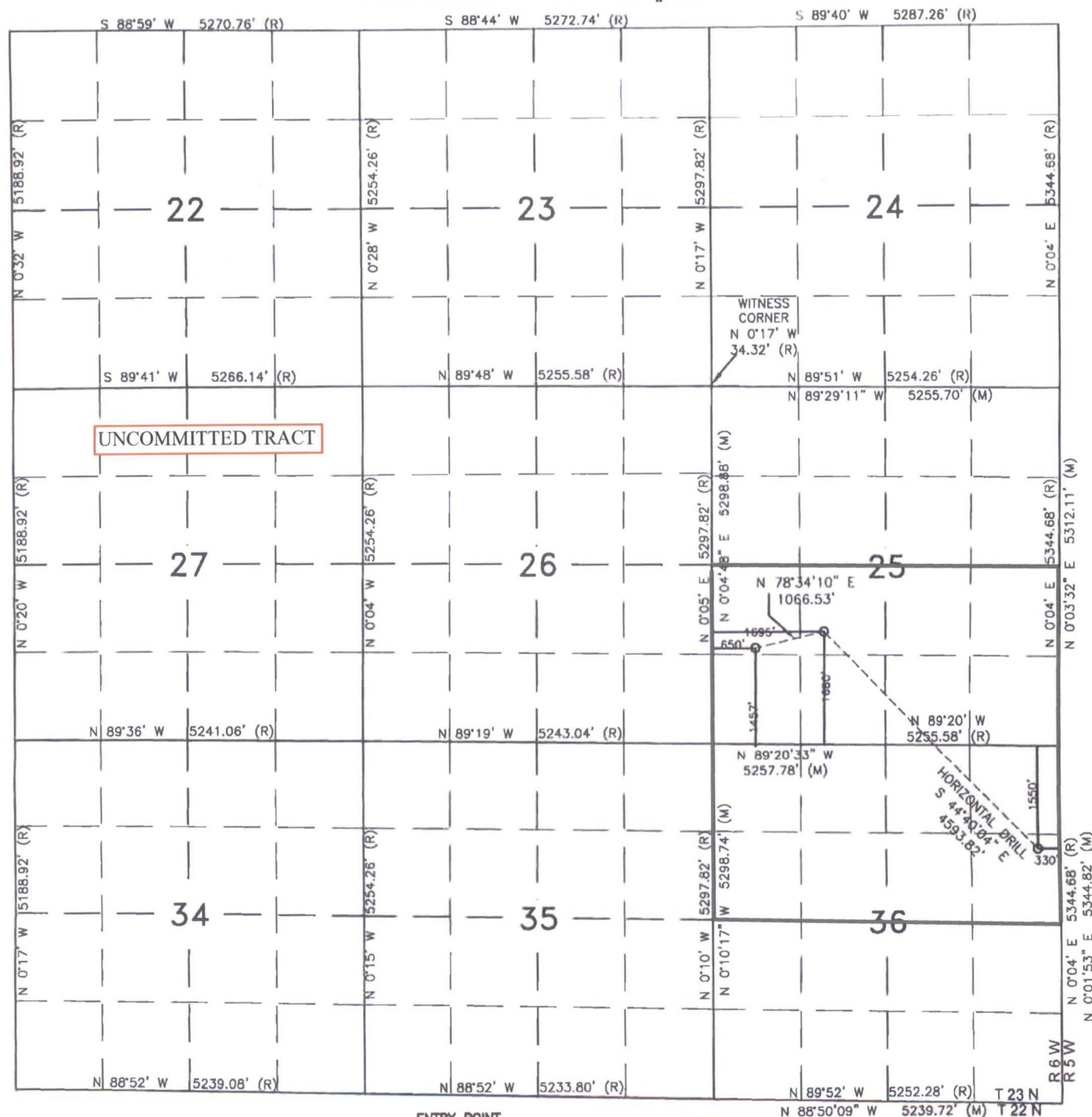
Submit one copy to appropriate
District Office

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, NM 87505

☐ AMENDED REPORT

ENCANA OIL & GAS (USA) INC.
GALLO CANYON UNIT L25-2306 #02H

**WELL FLAG**

LAT. 36.192820° N (NAD83)
LONG. 107.426690° W (NAD83)
LAT. 36.192806° N (NAD27)
LONG. 107.426087° W (NAD27)

ENTRY POINT

LAT. 36.193399° N (NAD83)
LONG. 107.423148° W (NAD83)
LAT. 36.193385° N (NAD27)
LONG. 107.422545° W (NAD27)

BOTTOM HOLE

LAT. 36.184424° N (NAD83)
LONG. 107.412213° W (NAD83)
LAT. 36.184410° N (NAD27)
LONG. 107.411610° W (NAD27)

GCU L25-2306 02H

SHL: 1457' FSL, 650' FWL Sec 25 T23N R06W

BHL: 1550' FNL, 330' FEL Sec 36 T23N R06W

Sandoval, New Mexico

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

1. ESTIMATED TOPS OF GEOLOGICAL MARKERS (TVD)

The estimated tops of important geologic markers are as follows:

Formation	Depth (TVD) units = feet
San Jose Fn.	n/a
Nacimiento Fn.	surface
Ojo Alamo Ss.	1,377
Kirtland Shale	1,485
Fruitland Coal	1,649
Pictured Cliffs Ss.	1,926
Lewis Shale	2,042
Cliffhouse Ss.	2,716
Menefee Fn.	3,438
Point Lookout Ss.	4,142
Mancos Shale	4,341
Mancos Silt	4,958
Gallup Fn.	5,199
Base Gallup	5,524

The referenced surface elevation is 6888', KB 6904'

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

Substance	Formation	Depth (TVD) units = feet
Water/Gas	Fruitland Coal	1,649
Oil/Gas	Pictured Cliffs Ss.	1,926
Oil/Gas	Cliffhouse Ss.	2,716
Gas	Menefee Fn.	3,438
Oil/Gas	Point Lookout Ss.	4,142
Oil/Gas	Mancos Shale	4,341
Oil/Gas	Mancos Silt	4,958
Oil/Gas	Gallup Fn.	5,199

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

GCU L25-2306 02H

SHL: 1457' FSL, 650' FWL Sec 25 T23N R06W

BHL: 1550' FNL, 330' FEL Sec 36 T23N R06W

Sandoval, New Mexico

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'-5135'	8 3/4"	7"	26#	J55, LTC New
Production Liner	5035'-10838'	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

GCU L25-2306 02H

SHL: 1457' FSL, 650' FWL Sec 25 T23N R06W

BHL: 1550' FNL, 330' FEL Sec 36 T23N R06W

Sandoval, New Mexico

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'	276 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'-5135'	100% open hole excess Stage 1 Lead: 679 sks Stage 1 Tail: 519 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	5035'- 10838'	50% OH excess Stage 1 Blend Total: 327sks	Blend: Premium Lite High Strength FM + 0.7% bwoc R-3 + 3% bwow 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 4524'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5438'/10838'	Gallup

GCU L25-2306 02H

SHL: 1457' FSL, 650' FWL Sec 25 T23N R06W

BHL: 1550' FNL, 330' FEL Sec 36 T23N R06W

Sandoval, 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'-5045'/5135'	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"	5045'/5135'- 5438'/10838'	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 +/- 2553 psi based on a 9.0 ppg at 5456' 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.

9. ANTICIPATED START DATE AND DURATION OF OPERATIONS

Drilling is estimated to commence on July 1, 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.

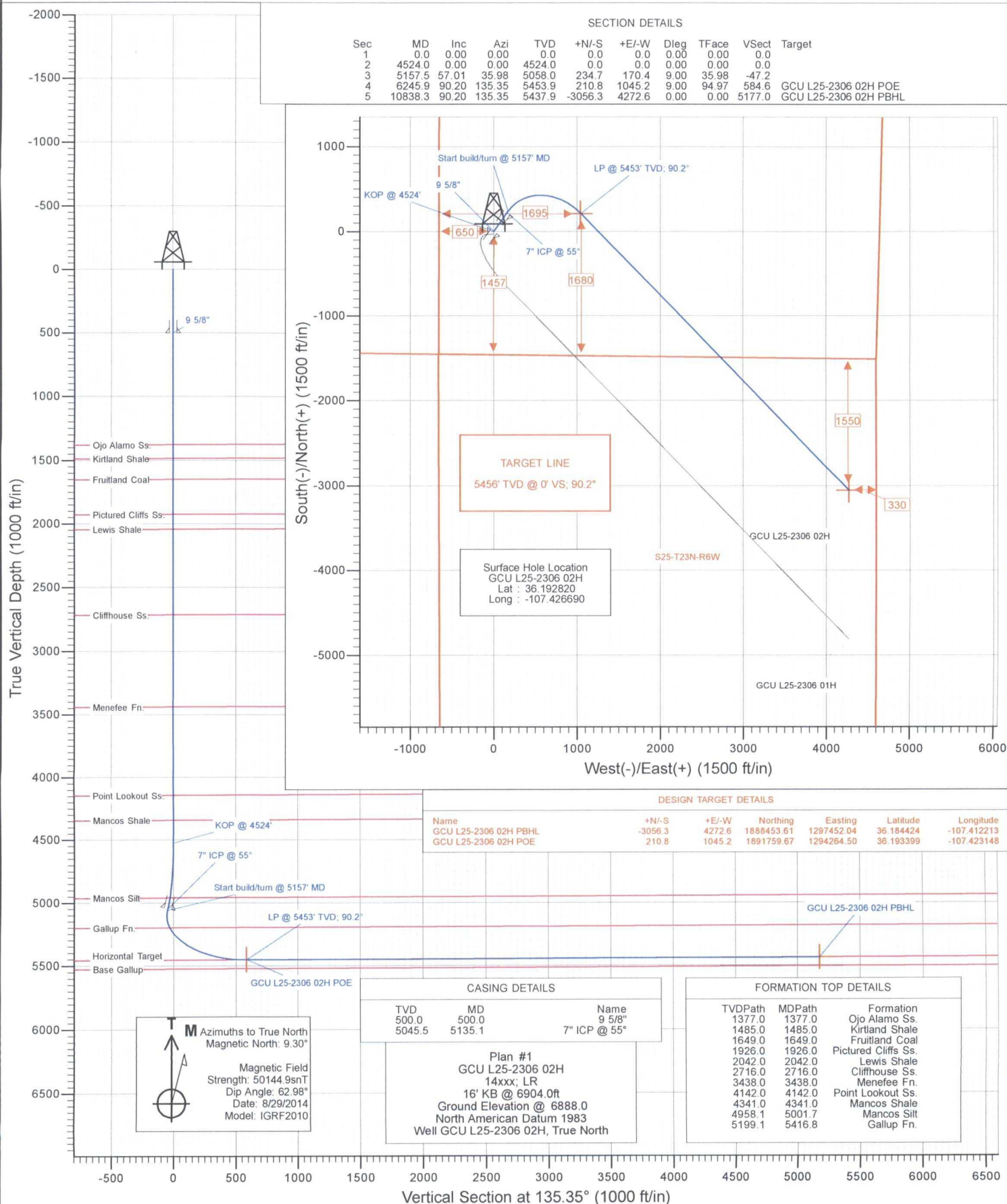
LOC: 1457' FSL, 650' FWL Sec 25 T23N R06E County: Sandoval WELL: GCU L25-2306 02H			Encana Natural Gas WELL SUMMARY				ENG: Michael Sanch RIG: Aztec 950 GLE: 6888 RKBE: 6904		2-3-15	
MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH				HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION
			TVD	MD						
			60	60'			26	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. Nacimiento Fn. 9 5/8" Csg	0 surface 500	 500.00			12 1/4	9 5/8" 36ppf J55 STC TOC Surface with 100% OH Excess: 276 sks Type III Cement + 1% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.2% bwoc FL-52A + 58.9% Fresh Water.	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 Ss. Kirtland Shale Fruitland Coal Pictured Cliffs Ss. Lewis Shale Cliffhouse Ss. Menefee Fn. Point Lookout Ss. Mancos Shale	1,377 1,485 1,649 1,926 2,042 2,716 3,438 4,142 4,341				8 3/4	7" 26ppf J55 LTC TOC @ surface (100% OH excess - 70% Lead 30% Tail) Stage 1 Total: 1198sks Stage 1 Lead: 679 sks Premium Lite FM + 3% CaCl2 + 0.25/sk Cello Flake + 5#/sk LCM-1 + 8% Bentonite + 0.4% FL-52A + 0.4% Sodium Metasilicate. Mixed at 12.1 ppg. Yield 2.13 cuft/sk. Stage 1 Tail: 519 sks Type III Cement + 1% CaCl2 + 0.25#/sk Cello Flake + 0.2% FL-52A. Mixed at 14.6 ppg. Yield 1.38 cuft/sk.	Fresh Wtr 8.3-10	Vertical <1°
Surveys every 30' through the curve	Mud logger onsite	KOP Mancos Silt Gallup Fn. 7" Csg	4,524 4,958 5,199 5,045	4,524 5,135'						
Surveys every stand to TD unless directed otherwise by Geologist	No OH Logs	Horizontal Target TD Base Gallup	5,456 5,438 5,524	10,838			6 1/8	100' overlap at liner top 5703' Drilled Lateral		Horz Inc/TVD 90.2deg/5456ft TD = 10838.3 MD
MWD Gamma Directional								4 1/2" 11.6ppf SB80 LTC TOC @ hanger (50% OH excess) Stage 1 Total: 327sks Stage 1 Blend: 327 sks Premium Lite High Strength FM + 0.7% bwoc R-3 + 3% bwow 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.	WBM 8.3-10	

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 4524', 8 3/4 inch holesize
- 5) Start curve at 10deg/100' build rate
- 6) Drill to csg point of 5135' MD
- 7) R&C 7" csg, circ cmt to surface
- 8) Land at ~90 deg, drill lateral to 10838' run 4 1/2 inch cemented liner



Project: Sandoval County, NM
 Site: S25-T23N-R6W
 Well: GCU L25-2306 02H
 Wellbore: HZ
 Design: Plan #1



Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well GCU L25-2306 02H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	16' KB @ 6904.0ft
Project:	Sandoval County, NM	MD Reference:	16' KB @ 6904.0ft
Site:	S25-T23N-R6W	North Reference:	True
Well:	GCU L25-2306 02H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Project	Sandoval 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	S25-T23N-R6W				
Site Position:		Northing:	1,891,532.00 ft	Latitude:	36.192739
From:	Lat/Long	Easting:	1,293,221.73 ft	Longitude:	-107.426672
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-0.69 °

Well	GCU L25-2306 02H					
Well Position	+N/-S	0.0 ft	Northing:	1,891,561.55 ft	Latitude:	36.192820
	+E/-W	0.0 ft	Easting:	1,293,216.77 ft	Longitude:	-107.426690
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	6,888.0 ft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/29/2014	9.30	62.98	50,145

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	135.35

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	
4,524.0	0.00	0.00	4,524.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,157.5	57.01	35.98	5,058.0	234.7	170.4	9.00	9.00	0.00	35.98	
6,245.9	90.20	135.35	5,453.9	210.8	1,045.2	9.00	3.05	9.13	94.97	GCU L25-2306 02H F
10,838.3	90.20	135.35	5,437.9	-3,056.3	4,272.6	0.00	0.00	0.00	0.00	GCU L25-2306 02H F

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: S25-T23N-R6W
Well: GCU L25-2306 02H
Wellbore: HZ
Design: Plan #1

Local Co-ordinate Reference: Well GCU L25-2306 02H
TVD Reference: 16' KB @ 6904.0ft
MD Reference: 16' KB @ 6904.0ft
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	
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	
1,377.0	0.00	0.00	1,377.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo Ss.
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	
1,485.0	0.00	0.00	1,485.0	0.0	0.0	0.0	0.00	0.00	Kirtland Shale
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	
1,649.0	0.00	0.00	1,649.0	0.0	0.0	0.0	0.00	0.00	Fruitland Coal
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	
1,926.0	0.00	0.00	1,926.0	0.0	0.0	0.0	0.00	0.00	Pictured Cliffs Ss.
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	
2,042.0	0.00	0.00	2,042.0	0.0	0.0	0.0	0.00	0.00	Lewis Shale
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	
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	
2,716.0	0.00	0.00	2,716.0	0.0	0.0	0.0	0.00	0.00	Cliffhouse Ss.
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	
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	
3,438.0	0.00	0.00	3,438.0	0.0	0.0	0.0	0.00	0.00	Menefee Fn.
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	
3,700.0	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	
4,142.0	0.00	0.00	4,142.0	0.0	0.0	0.0	0.00	0.00	Point Lookout Ss.
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	

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: S25-T23N-R6W
Well: GCU L25-2306 02H
Wellbore: HZ
Design: Plan #1

Local Co-ordinate Reference: Well GCU L25-2306 02H
TVD Reference: 16' KB @ 6904.0ft
MD Reference: 16' KB @ 6904.0ft
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
4,341.0	0.00	0.00	4,341.0	0.0	0.0	0.0	0.00	0.00	Mancos Shale
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	
4,524.0	0.00	0.00	4,524.0	0.0	0.0	0.0	0.00	0.00	KOP @ 4524'
4,600.0	6.84	35.98	4,599.8	3.7	2.7	-0.7	9.00	9.00	
4,700.0	15.84	35.98	4,697.8	19.6	14.2	-3.9	9.00	9.00	
4,800.0	24.84	35.98	4,791.4	47.7	34.6	-9.6	9.00	9.00	
4,900.0	33.84	35.98	4,878.5	87.3	63.4	-17.6	9.00	9.00	
5,000.0	42.84	35.98	4,956.9	137.4	99.8	-27.7	9.00	9.00	
5,001.7	42.99	35.98	4,958.1	138.3	100.4	-27.8	9.00	9.00	Mancos Silt
5,100.0	51.84	35.98	5,024.6	196.9	142.9	-39.6	9.00	9.00	
5,135.1	55.00	35.98	5,045.5	219.7	159.5	-44.2	9.00	9.00	7" ICP @ 55°
5,157.5	57.01	35.98	5,058.0	234.7	170.4	-47.2	9.00	9.00	Start build/turn @ 5157' MD
5,200.0	56.76	40.54	5,081.2	262.6	192.4	-51.6	9.00	-0.58	
5,300.0	56.84	51.30	5,136.1	320.7	252.4	-50.8	9.00	0.08	
5,400.0	57.83	61.93	5,190.2	366.9	322.5	-34.4	9.00	0.99	
5,416.8	58.08	63.69	5,199.1	373.4	335.2	-30.1	9.00	1.51	Gallup Fn.
5,500.0	59.68	72.23	5,242.2	400.1	401.1	-2.7	9.00	1.93	
5,600.0	62.31	82.08	5,290.7	419.4	486.3	43.4	9.00	2.63	
5,700.0	65.60	91.41	5,334.7	424.4	575.8	102.8	9.00	3.29	
5,800.0	69.43	100.23	5,373.0	414.9	667.6	174.0	9.00	3.83	
5,900.0	73.68	108.60	5,404.7	391.2	759.3	255.3	9.00	4.25	
6,000.0	78.25	116.60	5,429.0	353.9	848.8	344.7	9.00	4.57	
6,100.0	83.03	124.33	5,445.3	303.9	933.7	440.0	9.00	4.78	
6,200.0	87.93	131.90	5,453.2	242.5	1,012.1	538.8	9.00	4.90	
6,245.9	90.20	135.35	5,453.9	210.8	1,045.2	584.6	9.00	4.94	LP @ 5453' TVD; 90.2°
6,300.0	90.20	135.35	5,453.7	172.3	1,083.3	638.7	0.00	0.00	
6,400.0	90.20	135.35	5,453.4	101.2	1,153.6	738.7	0.00	0.00	
6,500.0	90.20	135.35	5,453.0	30.0	1,223.8	838.7	0.00	0.00	
6,600.0	90.20	135.35	5,452.7	-41.1	1,294.1	938.7	0.00	0.00	
6,700.0	90.20	135.35	5,452.3	-112.3	1,364.4	1,038.7	0.00	0.00	
6,800.0	90.20	135.35	5,452.0	-183.4	1,434.7	1,138.7	0.00	0.00	
6,900.0	90.20	135.35	5,451.6	-254.5	1,504.9	1,238.7	0.00	0.00	
7,000.0	90.20	135.35	5,451.3	-325.7	1,575.2	1,338.7	0.00	0.00	
7,100.0	90.20	135.35	5,450.9	-396.8	1,645.5	1,438.7	0.00	0.00	
7,200.0	90.20	135.35	5,450.6	-468.0	1,715.8	1,538.7	0.00	0.00	
7,300.0	90.20	135.35	5,450.2	-539.1	1,786.0	1,638.7	0.00	0.00	
7,400.0	90.20	135.35	5,449.9	-610.3	1,856.3	1,738.7	0.00	0.00	
7,500.0	90.20	135.35	5,449.5	-681.4	1,926.6	1,838.7	0.00	0.00	
7,600.0	90.20	135.35	5,449.2	-752.5	1,996.9	1,938.7	0.00	0.00	
7,700.0	90.20	135.35	5,448.8	-823.7	2,067.1	2,038.7	0.00	0.00	
7,800.0	90.20	135.35	5,448.5	-894.8	2,137.4	2,138.7	0.00	0.00	
7,900.0	90.20	135.35	5,448.1	-966.0	2,207.7	2,238.7	0.00	0.00	
8,000.0	90.20	135.35	5,447.8	-1,037.1	2,278.0	2,338.7	0.00	0.00	
8,100.0	90.20	135.35	5,447.4	-1,108.2	2,348.3	2,438.7	0.00	0.00	
8,200.0	90.20	135.35	5,447.1	-1,179.4	2,418.5	2,538.7	0.00	0.00	
8,300.0	90.20	135.35	5,446.7	-1,250.5	2,488.8	2,638.7	0.00	0.00	
8,400.0	90.20	135.35	5,446.4	-1,321.7	2,559.1	2,738.7	0.00	0.00	
8,500.0	90.20	135.35	5,446.0	-1,392.8	2,629.4	2,838.7	0.00	0.00	
8,600.0	90.20	135.35	5,445.7	-1,464.0	2,699.6	2,938.7	0.00	0.00	
8,700.0	90.20	135.35	5,445.3	-1,535.1	2,769.9	3,038.7	0.00	0.00	
8,800.0	90.20	135.35	5,445.0	-1,606.2	2,840.2	3,138.7	0.00	0.00	

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: S25-T23N-R6W
Well: GCU L25-2306 02H
Wellbore: HZ
Design: Plan #1

Local Co-ordinate Reference: Well GCU L25-2306 02H
TVD Reference: 16' KB @ 6904.0ft
MD Reference: 16' KB @ 6904.0ft
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	90.20	135.35	5,444.7	-1,677.4	2,910.5	3,238.7	0.00	0.00	
9,000.0	90.20	135.35	5,444.3	-1,748.5	2,980.7	3,338.7	0.00	0.00	
9,100.0	90.20	135.35	5,444.0	-1,819.7	3,051.0	3,438.7	0.00	0.00	
9,200.0	90.20	135.35	5,443.6	-1,890.8	3,121.3	3,538.7	0.00	0.00	
9,300.0	90.20	135.35	5,443.3	-1,961.9	3,191.6	3,638.7	0.00	0.00	
9,400.0	90.20	135.35	5,442.9	-2,033.1	3,261.8	3,738.7	0.00	0.00	
9,500.0	90.20	135.35	5,442.6	-2,104.2	3,332.1	3,838.7	0.00	0.00	
9,600.0	90.20	135.35	5,442.2	-2,175.4	3,402.4	3,938.7	0.00	0.00	
9,700.0	90.20	135.35	5,441.9	-2,246.5	3,472.7	4,038.7	0.00	0.00	
9,800.0	90.20	135.35	5,441.5	-2,317.7	3,542.9	4,138.7	0.00	0.00	
9,900.0	90.20	135.35	5,441.2	-2,388.8	3,613.2	4,238.7	0.00	0.00	
10,000.0	90.20	135.35	5,440.8	-2,459.9	3,683.5	4,338.7	0.00	0.00	
10,100.0	90.20	135.35	5,440.5	-2,531.1	3,753.8	4,438.7	0.00	0.00	
10,200.0	90.20	135.35	5,440.1	-2,602.2	3,824.0	4,538.7	0.00	0.00	
10,300.0	90.20	135.35	5,439.8	-2,673.4	3,894.3	4,638.7	0.00	0.00	
10,400.0	90.20	135.35	5,439.4	-2,744.5	3,964.6	4,738.7	0.00	0.00	
10,500.0	90.20	135.35	5,439.1	-2,815.6	4,034.9	4,838.7	0.00	0.00	
10,600.0	90.20	135.35	5,438.7	-2,886.8	4,105.2	4,938.7	0.00	0.00	
10,700.0	90.20	135.35	5,438.4	-2,957.9	4,175.4	5,038.7	0.00	0.00	
10,800.0	90.20	135.35	5,438.0	-3,029.1	4,245.7	5,138.7	0.00	0.00	
10,838.3	90.20	135.35	5,437.9	-3,056.3	4,272.6	5,177.0	0.00	0.00	TD at 10838.3

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
GCU L25-2306 02H PB† - plan hits target center - Point	0.00	0.00	5,437.9	-3,056.3	4,272.6	1,888,453.61	1,297,452.04	36.184424	-107.412213
GCU L25-2306 02H POI - plan hits target center - Point	0.00	0.00	5,453.9	210.8	1,045.2	1,891,759.67	1,294,264.50	36.193399	-107.423148
	500.0	500.0	9 5/8"					0.000	0.000
	5,135.1	5,045.5	7" ICP @ 55°					0.000	0.000

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: S25-T23N-R6W
Well: GCU L25-2306 02H
Wellbore: HZ
Design: Plan #1

Local Co-ordinate Reference: Well GCU L25-2306 02H
TVD Reference: 16' KB @ 6904.0ft
MD Reference: 16' KB @ 6904.0ft
North Reference: True
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,377.0	1,377.0	Ojo Alamo Ss.		-0.20	135.35
1,485.0	1,485.0	Kirtland Shale		-0.20	135.35
1,649.0	1,649.0	Fruitland Coal		-0.20	135.35
1,926.0	1,926.0	Pictured Cliffs Ss.		-0.20	135.35
2,042.0	2,042.0	Lewis Shale		-0.20	135.35
2,716.0	2,716.0	Cliffhouse Ss.		-0.20	135.35
3,438.0	3,438.0	Menefee Fn.		-0.20	135.35
4,142.0	4,142.0	Point Lookout Ss.		-0.20	135.35
4,341.0	4,341.0	Mancos Shale		-0.20	135.35
5,001.7	4,958.0	Mancos Silt		-0.20	135.35
5,416.8	5,199.0	Gallup Fn.		-0.20	135.35

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
4,524.0	4,524.0	0.0	0.0	KOP @ 4524'
5,157.5	5,058.0	234.7	170.4	Start build/turn @ 5157' MD
6,245.9	5,453.9	210.8	1,045.2	LP @ 5453' TVD; 90.2°
10,838.3	5,437.9	-3,056.3	4,272.6	TD at 10838.3

EnCana Oil & Gas (USA) Inc

Sandoval County, NM

S25-T23N-R6W

GCU L25-2306 02H

HZ

Plan #1

Anticollision Report

02 September, 2014

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well GCU L25-2306 02H
Project:	Sandoval County, NM	TVD Reference:	16' KB @ 6904.0ft
Reference Site:	S25-T23N-R6W	MD Reference:	16' KB @ 6904.0ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	GCU L25-2306 02H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	MD Interval 100.0ft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 1,170.9ft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	Systematic Ellipse
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic

Survey Tool Program	Date	9/2/2014
From (ft)	To (ft)	Survey (Wellbore)
0.0	10,837.8	Plan #1 (HZ)
		Tool Name
		Geolink MWD
		Description
		Geolink MWD

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S25-T23N-R6W						
GCU L25-2306 01H - HZ - Plan #1	4,448.0	4,448.2	29.6	14.1	1.912	CC, ES, SF

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well GCU L25-2306 02H
Project:	Sandoval County, NM	TVD Reference:	16' KB @ 6904.0ft
Reference Site:	S25-T23N-R6W	MD Reference:	16' KB @ 6904.0ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	GCU L25-2306 02H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S25-T23N-R6W - GCU L25-2306 01H - HZ - Plan #1														Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Between Centres (ft)	Between Ellipses (ft)							
0.0	0.0	0.0	0.0	0.0	0.0	169.79	-29.5	5.3	30.0						
100.0	100.0	100.0	100.0	0.1	0.1	169.79	-29.5	5.3	30.0	29.7	0.29	102.190			
200.0	200.0	200.0	200.0	0.3	0.3	169.79	-29.5	5.3	30.0	29.3	0.64	46.652			
300.0	300.0	300.0	300.0	0.5	0.5	169.79	-29.5	5.3	30.0	29.0	0.99	30.225			
400.0	400.0	400.0	400.0	0.7	0.7	169.79	-29.5	5.3	30.0	28.6	1.34	22.354			
500.0	500.0	500.0	500.0	0.8	0.8	169.79	-29.5	5.3	30.0	28.3	1.69	17.736			
600.0	600.0	600.0	600.0	1.0	1.0	169.79	-29.5	5.3	30.0	27.9	2.04	14.699			
700.0	700.0	700.0	700.0	1.2	1.2	169.79	-29.5	5.3	30.0	27.6	2.39	12.550			
800.0	800.0	800.0	800.0	1.4	1.4	169.79	-29.5	5.3	30.0	27.2	2.74	10.949			
900.0	900.0	900.0	900.0	1.5	1.5	169.79	-29.5	5.3	30.0	26.9	3.09	9.710			
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	169.79	-29.5	5.3	30.0	26.5	3.43	8.724			
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	169.79	-29.5	5.3	30.0	26.2	3.78	7.919			
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	169.79	-29.5	5.3	30.0	25.8	4.13	7.250			
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	169.79	-29.5	5.3	30.0	25.5	4.48	6.685			
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	169.79	-29.5	5.3	30.0	25.1	4.83	6.202			
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	169.79	-29.5	5.3	30.0	24.8	5.18	5.784			
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	169.79	-29.5	5.3	30.0	24.4	5.53	5.419			
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	169.79	-29.5	5.3	30.0	24.1	5.88	5.097			
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	169.79	-29.5	5.3	30.0	23.7	6.23	4.812			
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	169.79	-29.5	5.3	30.0	23.4	6.58	4.556			
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	169.79	-29.5	5.3	30.0	23.0	6.93	4.327			
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	169.79	-29.5	5.3	30.0	22.7	7.27	4.119			
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	169.79	-29.5	5.3	30.0	22.3	7.62	3.930			
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	169.79	-29.5	5.3	30.0	22.0	7.97	3.758			
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	169.79	-29.5	5.3	30.0	21.6	8.32	3.601			
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	169.79	-29.5	5.3	30.0	21.3	8.67	3.456			
2,600.0	2,600.0	2,600.0	2,600.0	4.5	4.5	169.79	-29.5	5.3	30.0	20.9	9.02	3.322			
2,700.0	2,700.0	2,700.0	2,700.0	4.7	4.7	169.79	-29.5	5.3	30.0	20.6	9.37	3.198			
2,800.0	2,800.0	2,800.0	2,800.0	4.9	4.9	169.79	-29.5	5.3	30.0	20.2	9.72	3.083			
2,900.0	2,900.0	2,900.0	2,900.0	5.0	5.0	169.79	-29.5	5.3	30.0	19.9	10.07	2.976			
3,000.0	3,000.0	3,000.0	3,000.0	5.2	5.2	169.79	-29.5	5.3	30.0	19.5	10.42	2.877			
3,100.0	3,100.0	3,100.0	3,100.0	5.4	5.4	169.79	-29.5	5.3	30.0	19.2	10.77	2.783			
3,200.0	3,200.0	3,200.0	3,200.0	5.6	5.6	169.79	-29.5	5.3	30.0	18.8	11.11	2.696			
3,300.0	3,300.0	3,300.0	3,300.0	5.7	5.7	169.79	-29.5	5.3	30.0	18.5	11.46	2.614			
3,400.0	3,400.0	3,400.0	3,400.0	5.9	5.9	169.79	-29.5	5.3	30.0	18.2	11.81	2.537			
3,500.0	3,500.0	3,500.0	3,500.0	6.1	6.1	169.79	-29.5	5.3	30.0	17.8	12.16	2.464			
3,600.0	3,600.0	3,600.0	3,600.0	6.3	6.3	169.79	-29.5	5.3	30.0	17.5	12.51	2.395			
3,700.0	3,700.0	3,700.0	3,700.0	6.4	6.4	169.79	-29.5	5.3	30.0	17.1	12.86	2.330			
3,800.0	3,800.0	3,800.0	3,800.0	6.6	6.6	169.79	-29.5	5.3	30.0	16.8	13.21	2.268			
3,900.0	3,900.0	3,900.0	3,900.0	6.8	6.8	169.79	-29.5	5.3	30.0	16.4	13.56	2.210			
4,000.0	4,000.0	4,000.0	4,000.0	7.0	7.0	169.79	-29.5	5.3	30.0	16.1	13.91	2.155			
4,100.0	4,100.0	4,100.0	4,100.0	7.1	7.1	169.79	-29.5	5.3	30.0	15.7	14.26	2.102			
4,200.0	4,200.0	4,200.0	4,200.0	7.3	7.3	169.79	-29.5	5.3	30.0	15.4	14.60	2.052			
4,300.0	4,300.0	4,300.0	4,300.0	7.5	7.5	169.79	-29.5	5.3	30.0	15.0	14.95	2.004			
4,400.0	4,400.0	4,400.2	4,400.2	7.7	7.7	171.15	-29.5	4.6	29.9	14.6	15.30	1.951			
4,448.0	4,448.0	4,448.2	4,448.0	7.7	7.7	178.99	-29.6	0.5	29.6	14.1	15.47	1.912 CC, ES, SF			
4,500.0	4,500.0	4,499.2	4,498.3	7.8	7.8	-165.39	-29.7	-7.7	30.8	15.1	15.66	1.965			
4,600.0	4,599.8	4,591.2	4,586.8	8.0	8.0	-169.26	-30.2	-32.7	50.7	34.7	15.93	3.180			
4,700.0	4,697.8	4,669.6	4,658.7	8.2	8.3	-155.15	-30.7	-63.8	100.7	84.8	15.98	6.305			
4,800.0	4,791.4	4,748.6	4,730.8	8.4	8.5	-151.73	-35.5	-95.6	166.0	150.1	15.86	10.467			
4,900.0	4,878.5	4,818.3	4,795.8	8.8	8.7	-152.49	-45.9	-118.3	239.9	224.4	15.53	15.448			
5,000.0	4,956.9	4,874.1	4,848.3	9.3	8.9	-152.77	-58.2	-132.7	322.6	307.5	15.11	21.359			

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Reference Site: S25-T23N-R6W
Site Error: 0.0ft
Reference Well: GCU L25-2306 02H
Well Error: 0.0ft
Reference Wellbore: HZ
Reference Design: Plan #1

Local Co-ordinate Reference: Well GCU L25-2306 02H
TVD Reference: 16' KB @ 6904.0ft
MD Reference: 16' KB @ 6904.0ft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Offset Design S25-T23N-R6W - GCU L25-2306 01H - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
5,100.0	5,024.6	4,913.6	4,885.4	10.1	9.0	-149.86	-69.0	-140.9	413.0	398.1	14.93	27.671		
5,200.0	5,081.2	4,938.1	4,908.3	11.1	9.1	-162.88	-76.5	-145.0	508.7	494.9	13.85	36.734		
5,300.0	5,136.1	4,961.1	4,929.8	12.3	9.2	154.42	-84.2	-148.3	605.9	590.9	15.00	40.380		
5,400.0	5,190.2	4,986.6	4,953.4	13.6	9.2	126.87	-93.4	-151.2	701.7	682.5	19.14	36.666		
5,500.0	5,242.2	5,015.8	4,980.2	15.0	9.3	110.80	-104.7	-153.6	794.4	772.6	21.83	36.387		
5,600.0	5,290.7	5,050.8	5,011.9	16.4	9.4	100.53	-119.4	-155.2	882.8	859.2	23.61	37.398		
5,700.0	5,334.7	5,094.3	5,050.6	17.9	9.6	93.68	-139.2	-155.1	965.7	940.9	24.85	38.860		
5,800.0	5,373.0	5,151.0	5,099.5	19.4	9.8	89.27	-167.7	-151.7	1,041.9	1,016.2	25.73	40.490		
5,900.0	5,404.7	5,228.8	5,163.0	20.9	10.1	86.92	-211.2	-141.0	1,109.9	1,083.6	26.35	42.126		
6,000.0	5,429.0	5,341.0	5,245.8	22.4	10.6	86.45	-281.5	-113.5	1,167.6	1,140.7	26.88	43.433		

Anticollision Report

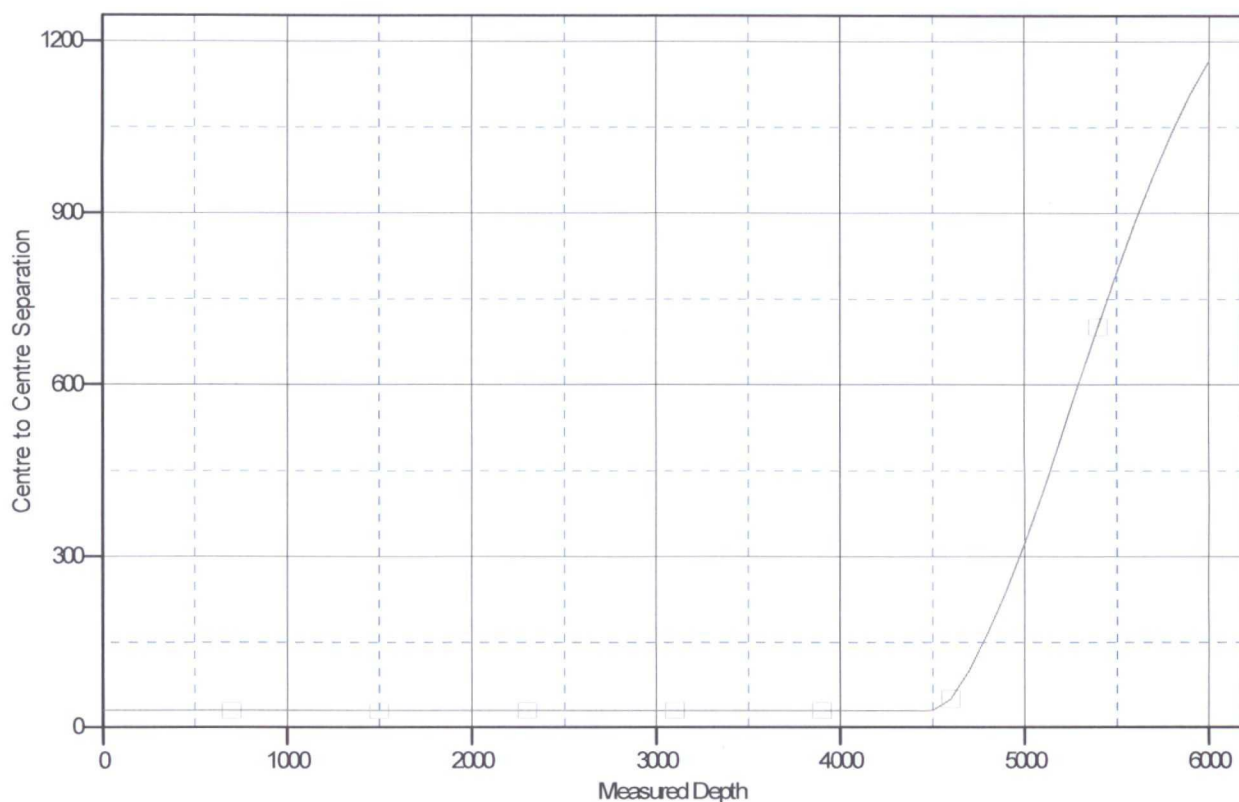
Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Reference Site: S25-T23N-R6W
Site Error: 0.0ft
Reference Well: GCU L25-2306 02H
Well Error: 0.0ft
Reference Wellbore: HZ
Reference Design: Plan #1

Local Co-ordinate Reference: Well GCU L25-2306 02H
TVD Reference: 16' KB @ 6904.0ft
MD Reference: 16' KB @ 6904.0ft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Reference Depths are relative to 16' KB @ 6904.0ft
 Offset Depths are relative to Offset Datum
 Central Meridian is -106.250000 °

Coordinates are relative to: GCU L25-2306 02H
 Coordinate System is US State Plane 1983, New Mexico Central Zone
 Grid Convergence at Surface is: -0.69°

Ladder Plot



LEGEND

GCU L25-2306 01H, HZ, Plan #1 V0

Gallo Canyon Unit L25-2306 02H
SHL: NWSW Section 25, T23N, R6W
1457 FSL and 650 FWL
BHL: SENE Section 36, T23N, R6W
1550 FNL and 330 FEL
Sandoval County, New Mexico
Lease Number: NMNM 131017X

Any trees smaller than 3-inches in diameter, slash and brush will be chipped, shredded or mulched and incorporated into the topsoil for later use in interim reclamation.

Remaining brush will be brush-hogged or scalped at ground-level prior to ground disturbance.

2. After removal of vegetation, topsoil will be segregated and windrowed on the edge of the well pad in the construction zone. Topsoil will be defined as the top six (6) inches of soil. The stockpiled topsoil will be free of brush and tree limbs, trunks and root balls, but may include chipped or mulched material so long as it is incorporated into the topsoil stockpile.

Topsoil will be stockpiled separate from subsoil with a noticeable gap left between the stockpiles. Vehicle/equipment traffic will be prevented from crossing topsoil stockpiles.

Topsoil will not be stripped when soils are moisture-saturated or frozen below the stripping depth.

If the location becomes prone to wind or water erosion, Encana will take appropriate measures to prevent topsoil loss from wind. Such measures may include using tackifiers or water to wet the topsoil stockpile so that a crust is created across the exposed soil to prevent soil loss.

3. All construction materials for the well pad will consist of native borrow and subsoil accumulated during well pad construction. If additional fill or surfacing material is required, it will be obtained from existing permitted or private sources and will be hauled in by trucks over existing access roads.

The maximum cut will be approximately 16.2 feet on the north (between corners 2 and 3) and the maximum fill will be approximately 15.0 feet on the east (between corners 5 and 6).

4. As determined during the onsite on July 23, 2014, the following best management practices will be implemented:
 - Water will be diverted around the well pad from corner 2 toward corner 3 and around to corner 4. Water will also be diverted from corner 2 toward corner 1.
 - Construct silt traps in EOD at corner 4 and corner 1 as per drawing on plat.
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 4 weeks.

C. Pipeline

See Standard SF-299 Application for authorization to construct, operate, maintain and terminate a 3163 foot, up to 6-inch outside diameter, buried steel well connect pipeline that was submitted to the Bureau of Land Management on July 9, 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

ENCANA OIL & GAS (USA) INC.
GALLO CANYON UNIT L25-2306 #02H
1457' FSL & 650' FWL
LOCATED IN THE NW/4 SW/4 OF SECTION 25,
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, 54.5 MILES TO ISR 471 (M.P. 97.1).
- 2) TURN RIGHT ONTO ISR 471 AND GO 2.0 MILES TO ACCESS ROAD ON LEFT.
- 3) FOLLOW ACCESS ROAD FOR 0.6 MILES TO WHERE ACCESS IS STAKED.

WELL FLAG LOCATED AT LAT. 36.192820° N, LONG. 107.426690° W (NAD 83).



WELLHEAD BLOWOUT CONTROL SYSTEM

encana

Well Name and Number:
GCU L25-2306 02H

