

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 3160-3 APD form.

Operator Signature Date: 3.14.14

Well information;

Operator Encana, Well Name and Number GCU P26.23D6 #2H

API# 30.043.21209, Section 26, Township 23 N, Range 10 E

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
- ☒ 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.

Chuck Herrin
NMOCD Approved by Signature

6-5-2014
Date

RECEIVED

Form 3160-3
(March 2012)

MAR 18 2014

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Farmington Field Office
Bureau of Land Management

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

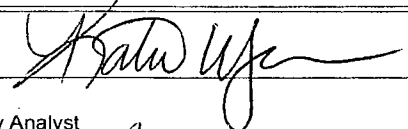
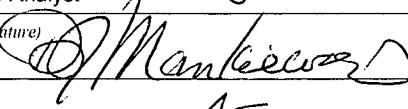
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☒ DRILL ☐ REENTER		6. If Indian, Allottee or Tribe Name N/A
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		7. If Unit or CA Agreement, Name and No. NMNM 131017X
2. Name of Operator Encana Oil & Gas (USA) Inc.		8. Lease Name and Well No. Gallo Canyon Unit P26-2306 02H
3a. Address 370 17th Street, Suite 1700 Denver, CO 80202		9. API Well No. 30-043-21209
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 P 253' FSL and 937' FEL Section 26, T23N, R6W At proposed prod. zone 650' FSL and 330' FEL Section 36, T23N, R6W		11. Sec., T, R, M. or Blk. and Survey or Area Section 26, T23N, R6W NMNM
14. Distance in miles and direction from nearest town or post office*		12. County or Parish Sandoval
		13. State NM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) SHL is 253' from south lease line in Section 26	16. No. of acres in lease NMNM 118128-1920 acres VO 9212-	17. Spacing Unit dedicated to this well 5,120 acres- Sections 22-26, 34-36 OIL CONS. DIV DIST. 3
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. GCU P26-2306 01H SHL is +/- 30 west	19. Proposed Depth 5383' TVD, 13237' MD	20. BLM/BIA Bond No. on file COB-000235 MAY 14 2014
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6872', KB 6888'	22. Approximate date work will start* 09/13/2014	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. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the BLM. |

25. Signature 	Name (Printed/Typed) Katie Wegner	Date 3/14/14
Title Regulatory Analyst		
Approved by (Signature) 	Name (Printed/Typed) AFM	Date 5/19/14
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 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

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

NMOCDA

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

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

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.

Santa Fe, NM 87505

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MAR 18 2014

Farmington Field Office
Bureau of Land Management

Form C-102

Revised August 1, 2011

Submit one copy to appropriate

District Office

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-043-21209		² Pool Code 13379	³ Pool Name COUNSELORS GALLUP-DAKOTA
⁴ Property Code 313261	⁵ Property Name GALLO CANYON UNIT P26-2306		⁶ Well Number 02H
⁷ GRID No. 282327	⁸ Operator Name ENCANA OIL & GAS (USA) INC.		⁹ Elevation 6872

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
P	26	23-N	6-W		253'	SOUTH	937	EAST	SANDOVAL

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	36	23-N	6-W		650'	SOUTH	330	EAST	SANDOVAL

¹² Dedicated Acres 5,120 Acres Sec. 22-26, 34-36 - Undivided Unit Penetrated Spacing Units: E2 and NW Sec 36; SW Sec 25	¹³ Joint or Infill 640 acres	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: 36.189568°N-NAD 83 LONG: 107.432072°W-NAD 83 LAT: 36.18955°N-NAD 27 LONG: 107.43147°W-NAD 27 S/4 SEC. 26: LAT: 36.188927°N-NAD 83 LONG: 107.437785°W-NAD 83 LAT: 36.18891°N-NAD 27 LONG: 107.437181°W-NAD 27 SE SEC. 25: LAT: 36.188840°N-NAD 83 LONG: 107.428899°W-NAD 83 LAT: 36.18883°N-NAD 27 LONG: 107.42830°W-NAD 27 S/4 SEC. 25: LAT: 36.188754°N-NAD 83 LONG: 107.419994°W-NAD 83 LAT: 36.18874°N-NAD 27 LONG: 107.41939°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. <i>Katie Wegner</i> 3/14/14 Signature Date 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. DEC 6, 2013 Date of Survey <i>William E. Mahanke II</i> Signature and Seal of Professional Surveyor WILLIAM E. MAHANKE II # 8466 RECEIVED BUREAU OF LAND MANAGEMENT Certificate Number PLS 8466	

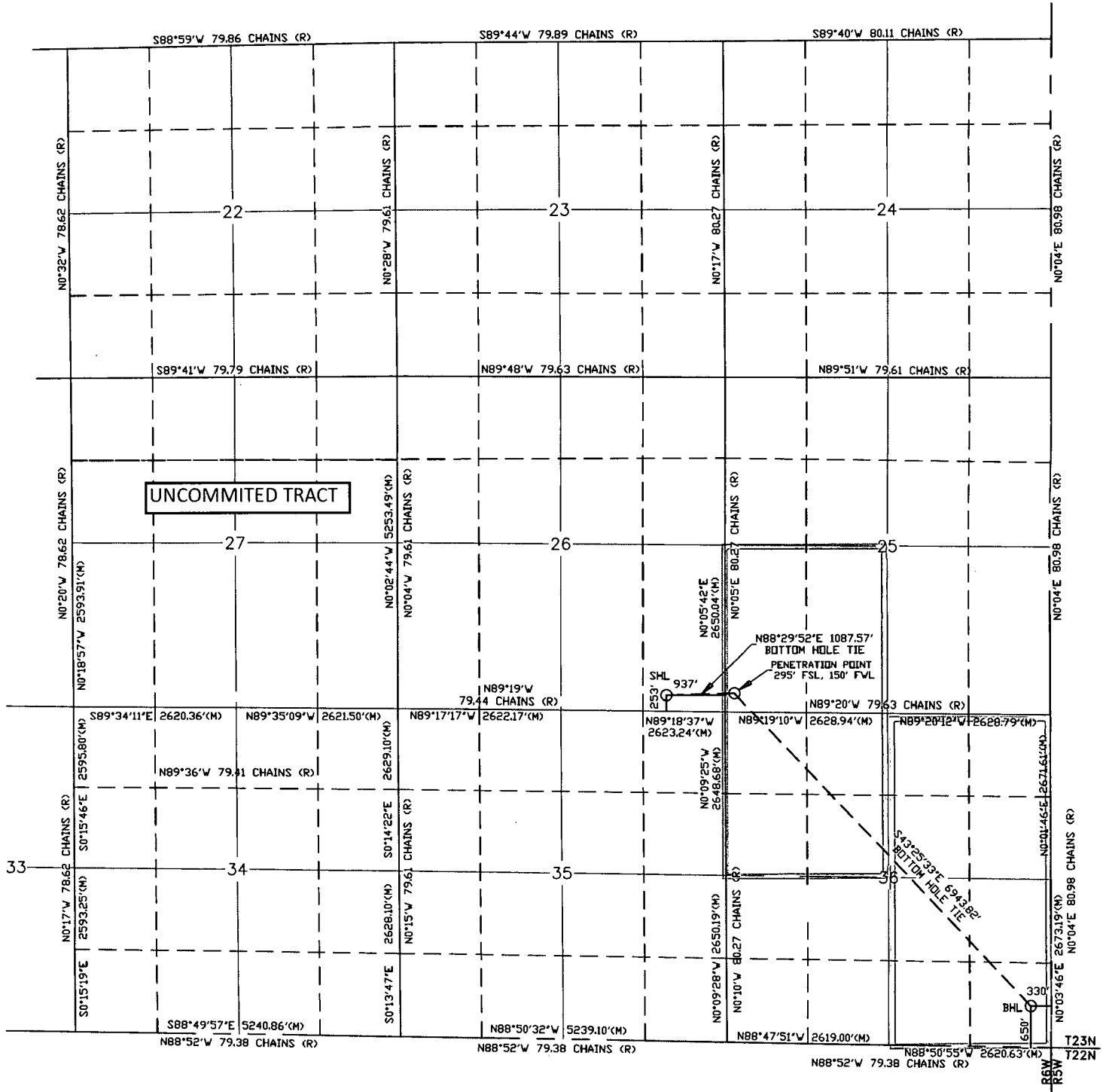
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State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

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

☐ AMENDED REPORT

ENCANA OIL & GAS (USA) INC.
GALLO CANYON UNIT P26-2306 02H



SURFACE HOLE LOCATION:
LAT: 36.189568°N-NAD 83
LONG: 107.432072°W-NAD 83
LAT: 36.18955°N-NAD 27
LONG: 107.43147°W-NAD 27

PENETRATION POINT:
LAT: 36.189646°N-NAD 83
LONG: 107.428389°W-NAD 83
LAT: 36.1863°N-NAD 27
LONG: 107.42779°W-NAD 27

BOTTOM HOLE:
LAT: 36.175795°N-NAD 83
LONG: 107.412224°W-NAD 83
LAT: 36.17578°N-NAD 27
LONG: 107.41162°W-NAD 27

NOT TO SCALE

GCU P26-2306 02H
 SHL: SESE Sec 26 T23N R6W
 253' FSL, 937' FEL
 BHL: SESE Sec 36 T23N R6W
 650' FSL, 330' FEL
 Sandoval, New Mexico

Encana Oil & Gas (USA) Inc. Drilling Plan

1. ESTIMATED TOPS OF GEOLOGICAL MARKERS (TVD)

The estimated tops of important geologic markers are as follows:

Formation	Depth (TVD) units = feet
Ojo Alamo Ss.	1,318
Kirtland Shale	1,432
Fruitland Coal	1,604
Pictured Cliffs Ss.	1,863
Lewis Shale	1,974
Cliffhouse Ss.	2,672
Menefee Fn.	3,205
Point Lookout Ss.	4,068
Mancos Shale	4,288
Mancos Silt	4,902
Gallup Fn.	5,161

The referenced surface elevation is 6872', KB 6888'

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

Substance	Formation	Depth (TVD) units = feet
Water/Gas	Fruitland Coal	1,604
Oil/Gas	Pictured Cliffs Ss.	1,863
Oil/Gas	Cliffhouse Ss.	2,672
Gas	Menefee Fn.	3,205
Oil/Gas	Point Lookout Ss.	4,068
Oil/Gas	Mancos Shale	4,288
Oil/Gas	Mancos Silt	4,902
Oil/Gas	Gallup Fn.	5,161

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.

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

Proposed BOP and choke manifold arrangements are attached.

4. CASING & CEMENTING PROGRAM

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

- a) The proposed casing design is as follows:

Casing	Depth (MD)	Hole Size	Csg Size	Weight	Grade
Conductor	0'-60'	30"	20"	94#	H40, STC New
Surface	0'-500'	12 1/4"	9 5/8"	36#	J55, STC New
Intermediate	0'-5626'	8 3/4"	7"	26#	J55, LTC New
Production Liner	5426'-13237'	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 P26-2306 02H
 SHL: SESE Sec 26 T23N R6W
 253' FSL, 937' FEL
 BHL: SESE Sec 36 T23N R6W
 650' FSL, 330' FEL
 Sandoval, 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'	201 sks	Type III Cement + 1% CaCl + 0.25lb/sk Cello Flake + 0.2% FL, 16ppg, 1.38cuf/sk	Surface	1 per joint on bottom 3 joints
Intermediate	0'-5626'	30% open hole excess Stage 1 Lead: 362 sks Stage 1 Tail: 303 sks Stage 2 Lead: 179 sks	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 every 3 joints through water bearing zones
Production Liner	5426'-13237'	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 4795'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5383'/13237'	Gallup

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	8.4-8.6	60-70	NC
8 3/4"	500'/500'-5363'/5626'	Fresh Water LSND	9.5-8.8	40-50	8-10

GCU P26-2306 02H
SHL: SESE Sec 26 T23N R6W
253' FSL, 937' FEL
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650' FSL, 330' FEL
Sandoval, New Mexico

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"	5363'/5626'- 5383'/13237'	Synthetic Oil Based Mud	8.6-9.0	15-25	<15

- c) There will be sufficient mud on location to control a blowout should one occur. Mud flow and volume will be monitored both visually and with electronic pit volume totalizers. Mud tests shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH.
- d) A closed-loop system will be used to recover drilling fluid and dry cuttings in both phases of the well and on all hole intervals, including fresh water and oil-based operations. Above-ground tanks will be utilized to hold cuttings and fluids for rig operations. A frac tank will be on location to store fresh water. Waste will be disposed of properly at an EPA-approved hazardous waste facility. Fresh water cuttings will be disposed of at Basin Disposal, Inc. and/or Industrial Ecosystems, Inc. The location will be lined in accordance with the Surface Use Plan of Operations.

7. TESTING, CORING, & LOGGING

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

Cased Hole:

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

8. ABNORMAL PRESSURES & HYDROGEN SULFIDE

The anticipated bottom hole pressure is +/- 2532 psi based on a 9.0 ppg at 5410' 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 January 1st, 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: SE/4 SE/4 Sec 26 T23N R6W, 253'			Encana Natural Gas				ENG: S Kuykendall 3/14/14		
County: New Mexico			WELL SUMMARY				RIG: Aztec 950		
WELL: GCU P26-2306 02H							GLE: 6872		
							RKBE: 6888		
MWD	OPEN HOLE	FORM	DEPTH			HOLE	CASING	MW	DEVIATION
LWD	LOGGING		TVD	MD		SIZE	SPECS	MUD TYPE	INFORMATION
			60	60'		30	20" 94# 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 - 201 sks of Type III Cement	Fresh wtr 8.4-8.6	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	1,318 1,432 1,604 1,853 1,974 2,672 3,205 4,068 4,288		Stage tool @ ~ 2,024	8 3/4	7" 26ppf J55 LTC TOC @ surface 30% OH excess: 665 sksTotal. Stage 1 Lead: 362 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: 303 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. 179 Stage 2: 168 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.	Fresh Wtr 8.5-8.8	Vertical <1°
Surveys every 30' through the curve	Mud logger onsite	KOP Mancos Silt Gallup Fn. 7" Csg	4,795 4,902 5,161 5,363	4,794.5 5,625.6					
Surveys every stand to TD unless directed otherwise by Geologist	No OH Logs	Horizontal Target TD Base Gallup	5,410 5,383 5,443	13,237.2		6 1/8	200' overlap at liner top 7612' Drilled Lateral	Horizontal Inclination Horizontal TVD 8.6-9.0 OBM	Horz Inc/TVD 90.2 deg/5410 TD = 13,237.2 MD
MWD Gamma Directional							4 1/2" 11.6ppf SB80 LTC Running external swellable csg packers for isolation of prod string Plan on setting top packer within 100' of intermediate casing shoe	Switch to OBM 8.6-9.0	

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 4795', 8 3/4 inch hoelsize
- 5) PU directional tools and start curve at 10deg/100' build rate
- 6) Drill to csg point of 5626' MD
- 7) R&C 7" csg, circ cmt to surface, switch to OBM
- 8) Land at 90 deg, drill lateral to 13237' run 4 1/2 inch liner with external swellable csg packers



Boomerang Tube LLC

CASING (OR) TUBING DESCRIPTION AND PERFORMANCE PROPERTIES

Pipe Outside Diameter (ins)	_____	4.500
Pipe Wall Thickness (ins)	_____	0.250
Nominal Weight Per Foot (lbs)	_____	11.60
Thread Name	_____	Long Thread CSG
Grade Name	_____	SB-80
Pipe Minimum Yield (psi)	_____	80,000
Pipe Minimum Ultimate (psi)	_____	90,000
Coupling Minimum Yield (psi)	_____	80,000
Coupling Minimum Ultimate (psi)	_____	100,000
Coupling or Joint Outside Diameter (ins)	_____	5.000
Drift Diameter (ins)	_____	3.875
Plain End Weight per Foot (lbs)	_____	11.36
Joint Strength (lbs)	_____	201,000
Internal Yield (psi)	_____	7,780
Collapse Rating (psi)	_____	6,350

MAXIMUM DEPTH/LENGTH BASED ON MUD WTS & SAFETY FACTORS

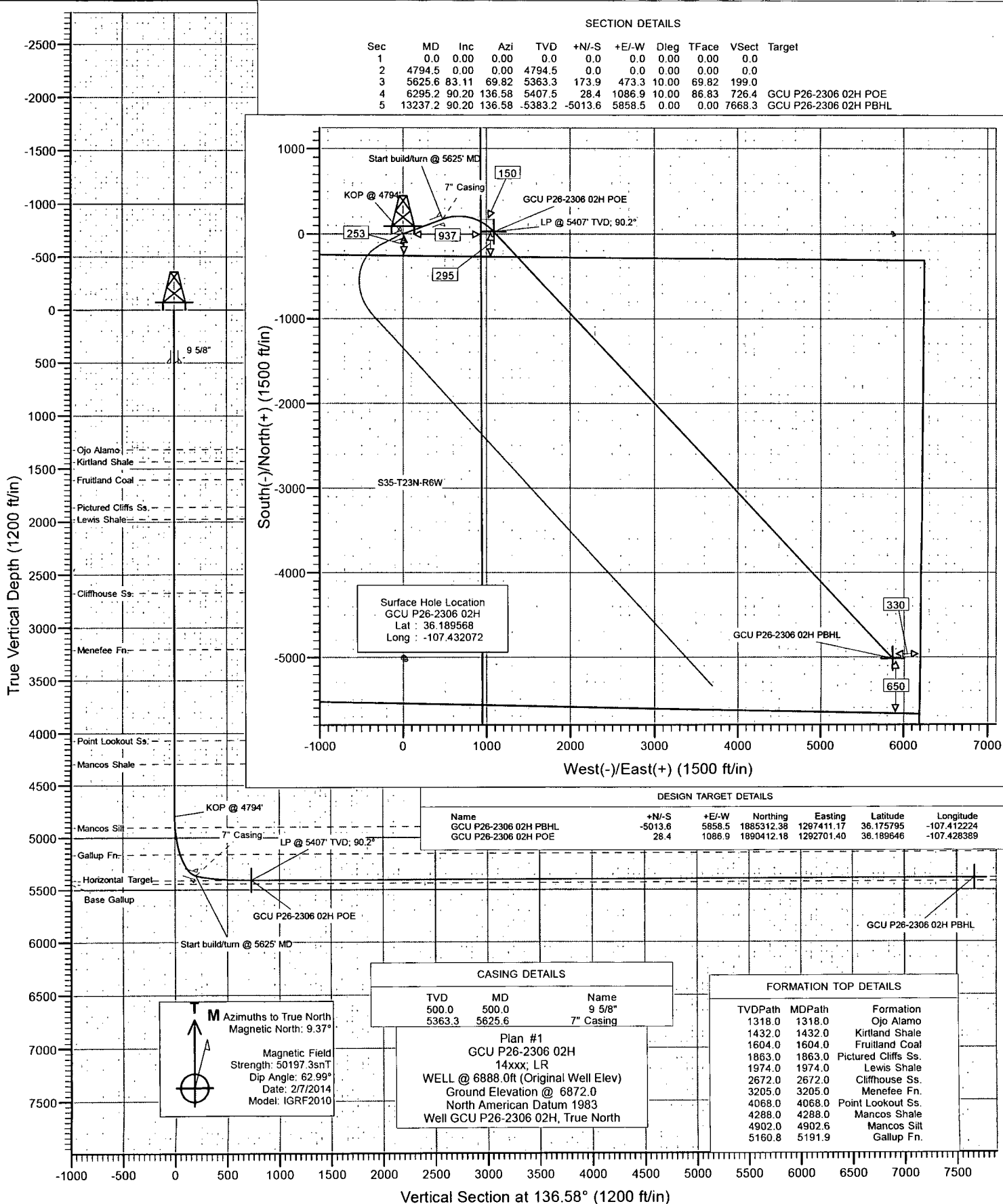
Drilling Mud Weight (ppg)	_____	9.625
Tension Safety Factor	_____	1.80
Maximum Tension Length (ft)	_____	9,630
Internal Yield Safety Factor	_____	1.10
Maximum Depth for Internal Yield (ft)	_____	14,150
Collapse Safety Factor	_____	1.125
Maximum Collapse Depth (ft)	_____	11,290

API RELATED VALUES and INTERMEDIATE CALCULATION RESULTS

Coupling Thread Fracture Strength	_____	464,000
Pipe Thread Fracture Strength (lbs)	_____	201,000
Pipe Body Plain End Yield (lbs)	_____	267,000
Round Thread Pull-Out (lbs)	_____	219,000
Minimum Make-up Torque (ft-lbs)	_____	1,640
Nominal Make-up Torque (ft-lbs)	_____	2,190
Maximum Make-up Torque (ft-lbs)	_____	2,740
Coupling Internal Yield (psi)	_____	10,660
Pipe Body Internal Yield (psi)	_____	7,780
Leak @ E1 or E7 plane (psi)	_____	17,920
Pipe Hydrostatic Test Pressure @ 80 % SMYS	_____	7,100



Project: Sandoval County, NM
 Site: S26-T23N-R6W
 Well: GCU P26-2306 02H
 Wellbore: Hz
 Design: Plan #1



Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: S26-T23N-R6W
Well: GCU P26-2306 02H
Wellbore: Hz
Design: Plan #1

Local Co-ordinate Reference: Well GCU P26-2306 02H
TVD Reference: WELL @ 6888.0ft (Original Well Elev)
MD Reference: WELL @ 6888.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

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	S26-T23N-R6W		
Site Position:		Northing:	1,890,393.73 ft
From:	Lat/Long	Easting:	1,291,584.38 ft
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in
		Latitude:	36.189558
		Longitude:	-107.432173
		Grid Convergence:	-0.70 °

Well	GCU P26-2306 02H		
Well Position	+N/-S	0.0 ft	Northing: 1,890,397.01 ft
	+E/-W	0.0 ft	Easting: 1,291,614.23 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	36.189568
		Longitude:	-107.432072
		Ground Level:	6,872.0 ft

Wellbore	Hz		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	2/7/2014	(°)
			9.37
			Dip Angle
			(°)
			62.99
			Field Strength
			(nT)
			50,197

Design	Plan #1		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.0	0.0	0.0
			Direction
			(°)
			136.58

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	
4,794.5	0.00	0.00	4,794.5	0.0	0.0	0.00	0.00	0.00	0.00	
5,625.6	83.11	69.82	5,363.3	173.9	473.3	10.00	10.00	0.00	69.82	
6,295.2	90.20	136.58	5,407.5	28.4	1,086.9	10.00	1.06	9.97	86.83	GCU P26-2306 02H F
13,237.2	90.20	136.58	5,383.2	-5,013.6	5,858.5	0.00	0.00	0.00	0.00	GCU P26-2306 02H F

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 MD Reference: WELL @ 6888.0ft (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	
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	
1,318.0	0.00	0.00	1,318.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	
1,432.0	0.00	0.00	1,432.0	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	
1,604.0	0.00	0.00	1,604.0	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	
1,863.0	0.00	0.00	1,863.0	0.0	0.0	0.0	0.00	0.00	Pictured Cliffs Ss.
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	
1,974.0	0.00	0.00	1,974.0	0.0	0.0	0.0	0.00	0.00	Lewis Shale
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	
2,200.0	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	
2,672.0	0.00	0.00	2,672.0	0.0	0.0	0.0	0.00	0.00	Cliffhouse Ss.
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	
2,900.0	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	
3,205.0	0.00	0.00	3,205.0	0.0	0.0	0.0	0.00	0.00	Menefee Fn.
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	
3,700.0	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	
4,068.0	0.00	0.00	4,068.0	0.0	0.0	0.0	0.00	0.00	Point Lookout Ss.
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	
4,288.0	0.00	0.00	4,288.0	0.0	0.0	0.0	0.00	0.00	Mancos Shale

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 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
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	
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	
4,600.0	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	
4,794.5	0.00	0.00	4,794.5	0.0	0.0	0.0	0.00	0.00	KOP @ 4794'
4,800.0	0.55	69.82	4,800.0	0.0	0.0	0.0	10.00	10.00	
4,900.0	10.55	69.82	4,899.4	3.3	9.1	3.8	10.00	10.00	
4,902.6	10.81	69.82	4,902.0	3.5	9.5	4.0	10.00	10.00	Mancos Silt
5,000.0	20.55	69.82	4,995.6	12.6	34.2	14.4	10.00	10.00	
5,100.0	30.55	69.82	5,085.7	27.4	74.7	31.4	10.00	10.00	
5,191.9	39.74	69.82	5,160.8	45.7	124.3	52.3	10.00	10.00	Gallup Fn.
5,200.0	40.55	69.82	5,167.0	47.5	129.2	54.3	10.00	10.00	
5,300.0	50.55	69.82	5,236.9	72.0	196.1	82.4	10.00	10.00	
5,400.0	60.55	69.82	5,293.4	100.5	273.4	114.9	10.00	10.00	
5,500.0	70.55	69.82	5,334.8	131.8	358.7	150.8	10.00	10.00	
5,600.0	80.55	69.82	5,359.7	165.2	449.5	189.0	10.00	10.00	
5,625.6	83.11	69.82	5,363.3	173.9	473.3	199.0	10.00	10.00	Start build/turn @ 5625' MD
5,700.0	83.58	77.30	5,372.0	194.8	544.1	232.5	10.00	0.63	
5,800.0	84.37	87.32	5,382.5	208.1	642.5	290.5	10.00	0.80	
5,900.0	85.34	97.32	5,391.5	204.1	741.9	361.7	10.00	0.97	
6,000.0	86.45	107.28	5,398.6	182.8	839.3	444.1	10.00	1.11	7" Casing
6,100.0	87.66	117.22	5,403.8	145.1	931.6	534.9	10.00	1.21	
6,200.0	88.95	127.14	5,406.8	91.9	1,016.1	631.6	10.00	1.28	
6,295.2	90.20	136.58	5,407.5	28.4	1,086.9	726.4	10.00	1.32	LP @ 5407' TVD; 90.2°
6,300.0	90.20	136.58	5,407.4	25.0	1,090.2	731.2	0.00	0.00	
6,400.0	90.20	136.58	5,407.1	-47.7	1,158.9	831.2	0.00	0.00	
6,500.0	90.20	136.58	5,406.7	-120.3	1,227.7	931.2	0.00	0.00	
6,600.0	90.20	136.58	5,406.4	-192.9	1,296.4	1,031.2	0.00	0.00	
6,700.0	90.20	136.58	5,406.0	-265.6	1,365.1	1,131.2	0.00	0.00	
6,800.0	90.20	136.58	5,405.7	-338.2	1,433.9	1,231.2	0.00	0.00	
6,900.0	90.20	136.58	5,405.3	-410.8	1,502.6	1,331.2	0.00	0.00	
7,000.0	90.20	136.58	5,405.0	-483.5	1,571.3	1,431.2	0.00	0.00	
7,100.0	90.20	136.58	5,404.6	-556.1	1,640.1	1,531.2	0.00	0.00	
7,200.0	90.20	136.58	5,404.3	-628.7	1,708.8	1,631.2	0.00	0.00	
7,300.0	90.20	136.58	5,403.9	-701.4	1,777.5	1,731.2	0.00	0.00	
7,400.0	90.20	136.58	5,403.6	-774.0	1,846.3	1,831.2	0.00	0.00	
7,500.0	90.20	136.58	5,403.2	-846.6	1,915.0	1,931.2	0.00	0.00	
7,600.0	90.20	136.58	5,402.9	-919.3	1,983.7	2,031.2	0.00	0.00	
7,700.0	90.20	136.58	5,402.6	-991.9	2,052.5	2,131.2	0.00	0.00	
7,800.0	90.20	136.58	5,402.2	-1,064.5	2,121.2	2,231.2	0.00	0.00	
7,900.0	90.20	136.58	5,401.9	-1,137.1	2,189.9	2,331.2	0.00	0.00	
8,000.0	90.20	136.58	5,401.5	-1,209.8	2,258.7	2,431.2	0.00	0.00	
8,100.0	90.20	136.58	5,401.2	-1,282.4	2,327.4	2,531.2	0.00	0.00	
8,200.0	90.20	136.58	5,400.8	-1,355.0	2,396.1	2,631.2	0.00	0.00	
8,300.0	90.20	136.58	5,400.5	-1,427.7	2,464.9	2,731.2	0.00	0.00	
8,400.0	90.20	136.58	5,400.1	-1,500.3	2,533.6	2,831.2	0.00	0.00	
8,500.0	90.20	136.58	5,399.8	-1,572.9	2,602.4	2,931.2	0.00	0.00	
8,600.0	90.20	136.58	5,399.4	-1,645.6	2,671.1	3,031.2	0.00	0.00	
8,700.0	90.20	136.58	5,399.1	-1,718.2	2,739.8	3,131.2	0.00	0.00	
8,800.0	90.20	136.58	5,398.7	-1,790.8	2,808.6	3,231.2	0.00	0.00	
8,900.0	90.20	136.58	5,398.4	-1,863.5	2,877.3	3,331.2	0.00	0.00	

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Well GCU P26-2306 02H
 WELL @ 6888.0ft (Original Well Elev)
 WELL @ 6888.0ft (Original Well Elev)
 True
 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
9,000.0	90.20	136.58	5,398.0	-1,936.1	2,946.0	3,431.2	0.00	0.00	
9,100.0	90.20	136.58	5,397.7	-2,008.7	3,014.8	3,531.2	0.00	0.00	
9,200.0	90.20	136.58	5,397.3	-2,081.4	3,083.5	3,631.2	0.00	0.00	
9,300.0	90.20	136.58	5,397.0	-2,154.0	3,152.2	3,731.2	0.00	0.00	
9,400.0	90.20	136.58	5,396.6	-2,226.6	3,221.0	3,831.2	0.00	0.00	
9,500.0	90.20	136.58	5,396.3	-2,299.3	3,289.7	3,931.2	0.00	0.00	
9,600.0	90.20	136.58	5,395.9	-2,371.9	3,358.4	4,031.2	0.00	0.00	
9,700.0	90.20	136.58	5,395.6	-2,444.5	3,427.2	4,131.2	0.00	0.00	
9,800.0	90.20	136.58	5,395.2	-2,517.1	3,495.9	4,231.2	0.00	0.00	
9,900.0	90.20	136.58	5,394.9	-2,589.8	3,564.6	4,331.2	0.00	0.00	
10,000.0	90.20	136.58	5,394.5	-2,662.4	3,633.4	4,431.2	0.00	0.00	
10,100.0	90.20	136.58	5,394.2	-2,735.0	3,702.1	4,531.2	0.00	0.00	
10,200.0	90.20	136.58	5,393.8	-2,807.7	3,770.9	4,631.2	0.00	0.00	
10,300.0	90.20	136.58	5,393.5	-2,880.3	3,839.6	4,731.2	0.00	0.00	
10,400.0	90.20	136.58	5,393.1	-2,952.9	3,908.3	4,831.2	0.00	0.00	
10,500.0	90.20	136.58	5,392.8	-3,025.6	3,977.1	4,931.2	0.00	0.00	
10,600.0	90.20	136.58	5,392.4	-3,098.2	4,045.8	5,031.2	0.00	0.00	
10,700.0	90.20	136.58	5,392.1	-3,170.8	4,114.5	5,131.2	0.00	0.00	
10,800.0	90.20	136.58	5,391.7	-3,243.5	4,183.3	5,231.2	0.00	0.00	
10,900.0	90.20	136.58	5,391.4	-3,316.1	4,252.0	5,331.2	0.00	0.00	
11,000.0	90.20	136.58	5,391.0	-3,388.7	4,320.7	5,431.2	0.00	0.00	
11,100.0	90.20	136.58	5,390.7	-3,461.4	4,389.5	5,531.2	0.00	0.00	
11,200.0	90.20	136.58	5,390.3	-3,534.0	4,458.2	5,631.2	0.00	0.00	
11,300.0	90.20	136.58	5,390.0	-3,606.6	4,526.9	5,731.2	0.00	0.00	
11,400.0	90.20	136.58	5,389.6	-3,679.3	4,595.7	5,831.2	0.00	0.00	
11,500.0	90.20	136.58	5,389.3	-3,751.9	4,664.4	5,931.2	0.00	0.00	
11,600.0	90.20	136.58	5,388.9	-3,824.5	4,733.1	6,031.2	0.00	0.00	
11,700.0	90.20	136.58	5,388.6	-3,897.1	4,801.9	6,131.2	0.00	0.00	
11,800.0	90.20	136.58	5,388.2	-3,969.8	4,870.6	6,231.2	0.00	0.00	
11,900.0	90.20	136.58	5,387.9	-4,042.4	4,939.3	6,331.2	0.00	0.00	
12,000.0	90.20	136.58	5,387.5	-4,115.0	5,008.1	6,431.2	0.00	0.00	
12,100.0	90.20	136.58	5,387.2	-4,187.7	5,076.8	6,531.2	0.00	0.00	
12,200.0	90.20	136.58	5,386.8	-4,260.3	5,145.6	6,631.2	0.00	0.00	
12,300.0	90.20	136.58	5,386.5	-4,332.9	5,214.3	6,731.2	0.00	0.00	
12,400.0	90.20	136.58	5,386.1	-4,405.6	5,283.0	6,831.2	0.00	0.00	
12,500.0	90.20	136.58	5,385.8	-4,478.2	5,351.8	6,931.2	0.00	0.00	
12,600.0	90.20	136.58	5,385.4	-4,550.8	5,420.5	7,031.2	0.00	0.00	
12,700.0	90.20	136.58	5,385.1	-4,623.5	5,489.2	7,131.2	0.00	0.00	
12,800.0	90.20	136.58	5,384.7	-4,696.1	5,558.0	7,231.2	0.00	0.00	
12,900.0	90.20	136.58	5,384.4	-4,768.7	5,626.7	7,331.2	0.00	0.00	
13,000.0	90.20	136.58	5,384.0	-4,841.4	5,695.4	7,431.2	0.00	0.00	
13,100.0	90.20	136.58	5,383.7	-4,914.0	5,764.2	7,531.2	0.00	0.00	
13,200.0	90.20	136.58	5,383.3	-4,986.6	5,832.9	7,631.2	0.00	0.00	
13,237.2	90.20	136.58	5,383.2	-5,013.6	5,858.5	7,668.3	0.00	0.00	TD at 13237.2

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: S26-T23N-R6W
Well: GCU P26-2306 02H
Wellbore: Hz
Design: Plan #1

Local Co-ordinate Reference: Well GCU P26-2306 02H
TVD Reference: WELL @ 6888.0ft (Original Well Elev)
MD Reference: WELL @ 6888.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Targets

Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
GCU P26-2306 02H POI	0.00	0.00	5,407.5	28.4	1,086.9	1,890,412.18	1,292,701.40	36.189646	-107.428389
- plan hits target center									
- Point									
GCU P26-2306 02H PBI	0.00	0.00	5,383.2	-5,013.6	5,858.5	1,885,312.38	1,297,411.17	36.175795	-107.412224
- plan hits target center									
- Point									

Casing Points

Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter
(ft)	(ft)		(in)	(in)
500.0	500.0	9 5/8"	0.000	0.000
6,000.0	5,398.6	7" Casing	0.000	0.000

Formations

Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(ft)	(ft)			(°)	(°)
1,318.0	1,318.0	Ojo Alamo		-0.20	136.58
1,432.0	1,432.0	Kirtland Shale		-0.20	136.58
1,604.0	1,604.0	Fruitland Coal		-0.20	136.58
1,863.0	1,863.0	Pictured Cliffs Ss.		-0.20	136.58
1,974.0	1,974.0	Lewis Shale		-0.20	136.58
2,672.0	2,672.0	Cliffhouse Ss.		-0.20	136.58
3,205.0	3,205.0	Menefee Fn.		-0.20	136.58
4,068.0	4,068.0	Point Lookout Ss.		-0.20	136.58
4,288.0	4,288.0	Mancos Shale		-0.20	136.58
4,902.6	4,902.0	Mancos Silt		-0.20	136.58
5,191.9	5,161.0	Gallup Fn.		-0.20	136.58

Plan Annotations

Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S	+E/-W	
(ft)	(ft)	(ft)	(ft)	
4,794.5	4,794.5	0.0	0.0	KOP @ 4794'
5,625.6	5,363.3	173.9	473.3	Start build/turn @ 5625' MD
6,295.2	5,407.5	28.4	1,086.9	LP @ 5407' TVD; 90.2°
13,237.2	5,383.2	-5,013.6	5,858.5	TD at 13237.2

EnCana Oil & Gas (USA) Inc

Sandoval County, NM

S26-T23N-R6W

GCU P26-2306 02H

Hz

Plan #1

Anticollision Report

11 February, 2014

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well GCU P26-2306 02H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 6888.0ft (Original Well Elev)
Reference Site:	S26-T23N-R6W	MD Reference:	WELL @ 6888.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	GCU P26-2306 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	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date	2/11/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	13,236.9	Plan #1 (Hz)	Geolink MWD	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						
S26-T23N-R6W						
GCU P26-2306 01H - Hz - Plan #1	4,500.0	4,500.0	30.0	14.4	1.918	CC, ES, SF

Cathedral Energy Services

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Reference Site: S26-T23N-R6W
Site Error: 0.0ft
Reference Well: GCU P26-2306 02H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #1

Local Co-ordinate Reference: Well GCU P26-2306 02H
TVD Reference: WELL @ 6888.0ft (Original Well Elev)
MD Reference: WELL @ 6888.0ft (Original Well Elev)
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 S26-T23N-R6W - GCU P26-2306 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			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-96.96	-3.6	-29.8	30.0					
100.0	100.0	100.0	100.0	0.1	0.1	-96.96	-3.6	-29.8	30.0	29.7	0.29	102.410		
200.0	200.0	200.0	200.0	0.3	0.3	-96.96	-3.6	-29.8	30.0	29.4	0.64	46.752		
300.0	300.0	300.0	300.0	0.5	0.5	-96.96	-3.6	-29.8	30.0	29.0	0.99	30.290		
400.0	400.0	400.0	400.0	0.7	0.7	-96.96	-3.6	-29.8	30.0	28.7	1.34	22.402		
500.0	500.0	500.0	500.0	0.8	0.8	-96.96	-3.6	-29.8	30.0	28.3	1.69	17.774		
600.0	600.0	600.0	600.0	1.0	1.0	-96.96	-3.6	-29.8	30.0	28.0	2.04	14.730		
700.0	700.0	700.0	700.0	1.2	1.2	-96.96	-3.6	-29.8	30.0	27.6	2.39	12.577		
800.0	800.0	800.0	800.0	1.4	1.4	-96.96	-3.6	-29.8	30.0	27.3	2.74	10.972		
900.0	900.0	900.0	900.0	1.5	1.5	-96.96	-3.6	-29.8	30.0	26.9	3.09	9.731		
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	-96.96	-3.6	-29.8	30.0	26.6	3.43	8.742		
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	-96.96	-3.6	-29.8	30.0	26.2	3.78	7.936		
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	-96.96	-3.6	-29.8	30.0	25.9	4.13	7.266		
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	-96.96	-3.6	-29.8	30.0	25.5	4.48	6.700		
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	-96.96	-3.6	-29.8	30.0	25.2	4.83	6.216		
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	-96.96	-3.6	-29.8	30.0	24.8	5.18	5.797		
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	-96.96	-3.6	-29.8	30.0	24.5	5.53	5.431		
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	-96.96	-3.6	-29.8	30.0	24.1	5.88	5.108		
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	-96.96	-3.6	-29.8	30.0	23.8	6.23	4.822		
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	-96.96	-3.6	-29.8	30.0	23.5	6.58	4.566		
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	-96.96	-3.6	-29.8	30.0	23.1	6.93	4.336		
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	-96.96	-3.6	-29.8	30.0	22.8	7.27	4.128		
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	-96.96	-3.6	-29.8	30.0	22.4	7.62	3.939		
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	-96.96	-3.6	-29.8	30.0	22.1	7.97	3.766		
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	-96.96	-3.6	-29.8	30.0	21.7	8.32	3.608		
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	-96.96	-3.6	-29.8	30.0	21.4	8.67	3.463		
2,600.0	2,600.0	2,600.0	2,600.0	4.5	4.5	-96.96	-3.6	-29.8	30.0	21.0	9.02	3.329		
2,700.0	2,700.0	2,700.0	2,700.0	4.7	4.7	-96.96	-3.6	-29.8	30.0	20.7	9.37	3.205		
2,800.0	2,800.0	2,800.0	2,800.0	4.9	4.9	-96.96	-3.6	-29.8	30.0	20.3	9.72	3.090		
2,900.0	2,900.0	2,900.0	2,900.0	5.0	5.0	-96.96	-3.6	-29.8	30.0	20.0	10.07	2.983		
3,000.0	3,000.0	3,000.0	3,000.0	5.2	5.2	-96.96	-3.6	-29.8	30.0	19.6	10.42	2.883		
3,100.0	3,100.0	3,100.0	3,100.0	5.4	5.4	-96.96	-3.6	-29.8	30.0	19.3	10.77	2.789		
3,200.0	3,200.0	3,200.0	3,200.0	5.6	5.6	-96.96	-3.6	-29.8	30.0	18.9	11.11	2.702		
3,300.0	3,300.0	3,300.0	3,300.0	5.7	5.7	-96.96	-3.6	-29.8	30.0	18.6	11.46	2.619		
3,400.0	3,400.0	3,400.0	3,400.0	5.9	5.9	-96.96	-3.6	-29.8	30.0	18.2	11.81	2.542		
3,500.0	3,500.0	3,500.0	3,500.0	6.1	6.1	-96.96	-3.6	-29.8	30.0	17.9	12.16	2.469		
3,600.0	3,600.0	3,600.0	3,600.0	6.3	6.3	-96.96	-3.6	-29.8	30.0	17.5	12.51	2.400		
3,700.0	3,700.0	3,700.0	3,700.0	6.4	6.4	-96.96	-3.6	-29.8	30.0	17.2	12.86	2.335		
3,800.0	3,800.0	3,800.0	3,800.0	6.6	6.6	-96.96	-3.6	-29.8	30.0	16.8	13.21	2.273		
3,900.0	3,900.0	3,900.0	3,900.0	6.8	6.8	-96.96	-3.6	-29.8	30.0	16.5	13.56	2.215		
4,000.0	4,000.0	4,000.0	4,000.0	7.0	7.0	-96.96	-3.6	-29.8	30.0	16.1	13.91	2.159		
4,100.0	4,100.0	4,100.0	4,100.0	7.1	7.1	-96.96	-3.6	-29.8	30.0	15.8	14.26	2.106		
4,200.0	4,200.0	4,200.0	4,200.0	7.3	7.3	-96.96	-3.6	-29.8	30.0	15.4	14.60	2.056		
4,300.0	4,300.0	4,300.0	4,300.0	7.5	7.5	-96.96	-3.6	-29.8	30.0	15.1	14.95	2.008		
4,400.0	4,400.0	4,400.0	4,400.0	7.7	7.7	-96.96	-3.6	-29.8	30.0	14.7	15.30	1.962		
4,500.0	4,500.0	4,500.0	4,500.0	7.8	7.8	-96.96	-3.6	-29.8	30.0	14.4	15.65	1.918 CC, ES, SF		
4,600.0	4,600.0	4,596.3	4,596.2	8.0	8.0	-99.41	-5.5	-33.4	34.1	18.1	16.00	2.131		
4,700.0	4,700.0	4,687.7	4,685.6	8.2	8.2	-105.77	-13.9	-49.4	53.3	36.9	16.34	3.260		
4,800.0	4,800.0	4,771.5	4,764.2	8.3	8.4	-179.91	-27.4	-74.9	87.4	70.8	16.65	5.251		
4,900.0	4,899.4	4,841.1	4,825.7	8.5	8.6	177.75	-42.5	-103.6	142.3	125.5	16.74	8.497		
5,000.0	4,995.6	4,890.8	4,867.0	8.7	8.8	176.26	-55.4	-128.1	217.9	201.5	16.46	13.242		
5,100.0	5,085.7	4,921.6	4,891.4	9.0	9.0	174.44	-64.2	-144.8	307.1	291.3	15.85	19.374		

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

Cathedral Energy Services

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Reference Site: S26-T23N-R6W
Site Error: 0.0ft
Reference Well: GCU P26-2306 02H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #1

Local Co-ordinate Reference: Well GCU P26-2306 02H
TVD Reference: WELL @ 6888.0ft (Original Well Elev)
MD Reference: WELL @ 6888.0ft (Original Well Elev)
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 S26-T23N-R6W - GCU P26-2306 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			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,167.0	4,937.1	4,903.2	9.5	9.1	169.15	-68.8	-153.6	403.8	388.7	15.08	26.775		
5,300.0	5,236.9	4,950.0	4,912.9	10.3	9.2	67.11	-72.8	-161.2	503.6	484.9	18.72	26.897		
5,400.0	5,293.4	4,935.1	4,901.7	11.3	9.1	5.64	-68.2	-152.5	602.7	589.7	12.97	46.477		
5,500.0	5,334.8	4,922.7	4,892.2	12.8	9.0	2.51	-64.5	-145.4	699.0	687.0	11.97	58.401		
5,600.0	5,359.7	4,900.0	4,874.4	14.5	8.9	1.30	-58.0	-133.0	790.3	778.9	11.34	69.702		
5,700.0	5,372.0	4,900.0	4,874.4	16.5	8.9	13.27	-58.0	-133.0	877.4	864.8	12.64	69.410		
5,800.0	5,382.5	4,868.1	4,848.4	18.5	8.7	25.92	-49.3	-116.5	963.1	947.2	15.96	60.348		

Cathedral Energy Services

Anticollision Report

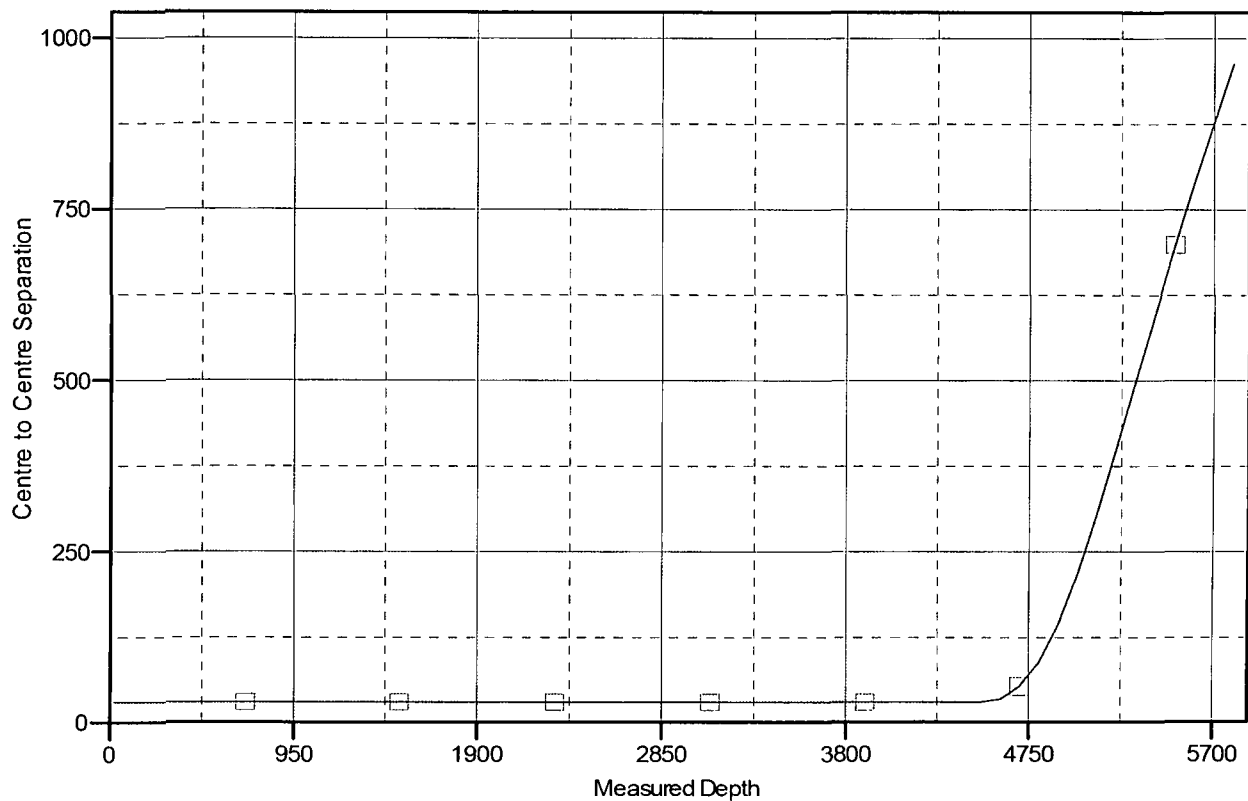
Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Reference Site: S26-T23N-R6W
Site Error: 0.0ft
Reference Well: GCU P26-2306 02H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #1

Local Co-ordinate Reference: Well GCU P26-2306 02H
TVD Reference: WELL @ 6888.0ft (Original Well Elev)
MD Reference: WELL @ 6888.0ft (Original Well Elev)
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 WELL @ 6888.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -106.250000 °

Coordinates are relative to: GCU P26-2306 02H
Coordinate System is US State Plane 1983, New Mexico Central Zone
Grid Convergence at Surface is: -0.70°

Ladder Plot



LEGEND

— GCU P26-2306 01H, Hz, Plan #1 V0

Directions from the Intersection of US Hwy 550 & US Hwy 64

in Bloomfield, NM to Encana Oil & Gas (USA) Inc. Gallo Canyon Unit P26-2306 02H

250" FSL and 967' FEL, Section 26, T23N, R6W, N.M.P.M., Sandoval County, NM

Latitude: 36.189558° N Longitude: 107.432173° W Datum NAD1983

From the intersection of US Hwy 64 and US Hwy 550 in Bloomfield, NM travel south 53.6 miles on US Hwy 550.

Turn right at MP 197.7.

Travel South on BIA road 474 0.9 miles to staked access road on left.

Turn left and travel East along staked access road 0.9 miles to the new well pad.

encana

SANDOVAL COUNTY,
NEW MEXICO

- ⊗ Abandoned
- ⊗ Abandoned Gas
- ⊗ Abandoned Oil
- ⊗ Dry Hole
- ⊗ GAS
- ⊗ Injection
- OIL

Basin Mancos
Gas Pool

1 inch = 2,333 feet

**COUNSELORS GALLUP
DAKOTA POOL**

GCU
P14-2306 01H

Lybrook
M13-2306 01H

CHADWELL 1

GULF-FEDERAL-24 1

24

19

TEXAS NATIONAL 1
GULF FEDERAL-25 1

27

26
GULF-FEDERAL 1K

25

30

GCU O27-2306 01H
GCU O27-2306 02H

GCU M26-2306 01H

GCU P26-2306 01H

GCU P26-2306 02H

WARNER-SOVT 1

GULF STATE 36-1

34

35

36

31

23N
6W

23N
5W

22N
6W

22N
5W

Lybrook
A03-2206 01H

Chaco 2206-02H 225H

Lybrook A01-2206 01H
Lybrook A01-2206 02H
Lybrook A01-2206 03H
Lybrook A01-2206 04H

Lybrook H03-2206 01H

Lybrook G01-2206 01H
Lybrook G01-2206 02H
Lybrook H01-2206 01H

LOGOS 2

Lybrook P03-2206 01H

Lybrook N02-2206 01H

Chaco 2206-02P 228H

Lybrook P03-2206 02H

Lybrook N02-2206 02H

0 0.125 0.25 0.5 Miles

WELLHEAD BLOWOUT CONTROL SYSTEM

encana

Well Name and Number:
GCU P26-2306 02H

