

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: 3-2-15

Well information;

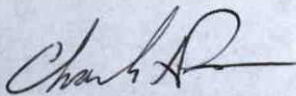
Operator Encana, Well Name and Number Escrito 124A 2409 #4H

API# 30-045-35655, Section 24, Township 24 N/S, Range 09 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 NSI OHC
- ☐ Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- ☐ Regarding the use of a pit, closed loop system or below grade tank, the operator must comply with the following as applicable:
 - A pit requires a complete C-144 be submitted and approved prior to the construction or use of the pit, pursuant to 19.15.17.8.A
 - A closed loop system requires notification prior to use, pursuant to 19.15.17.9.A
 - A below grade tank requires a registration be filed prior to the construction or use of the below grade tank, pursuant to 19.15.17.8.C
- ☐ Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
- ☒ Regarding Hydraulic Fracturing, review EPA Underground Injection Control Guidance 84
- ☒ Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.
- ☒ Well-bore communication is regulated under 19.15.29 NMAC. This requires well-bore Communication to be reported in accordance with 19.15.29.8.


NMOCD Approved by Signature

10-10-2015
Date KC

OIL CONS. DIV DIST. 3

Form 3160-3
(March 2012)

SEP 23 2015

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

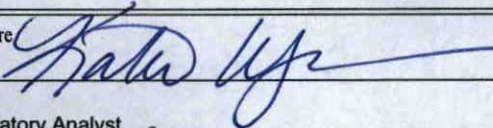
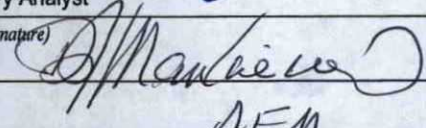
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NM 41650
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. N/A
3a. Address 370 17th Street, Suite 1700 Denver, CO 80202	3b. Phone No. (include area code) 720-876-3533	8. Lease Name and Well No. Escrito I24A-2409 04H
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface 1569' FSL, 61' FEL, Section 24, T24N, R9W At proposed prod. zone 766' FSL, 330' FEL, Section 19, T24N, R8W		9. API Well No. 30-045-35655
14. Distance in miles and direction from nearest town or post office* +/- 36.7 miles South from the intersection of HWY 64 & US HWY 550 in Bloomfield, NM		10. Field and Pool, or Exploratory Basin Mancos
15. Distance from proposed* location to nearest property or lease line, ft. BHL is 330' FEL Section 19, T24N, R8W (Also to nearest drig. unit line, if any)		11. Sec., T. R. M. or Blk. and Survey or Area Section 24, T24N, R9W NMPM
16. No. of acres in lease NM 41650- 320.69 acres		12. County or Parish San Juan
17. Spacing Unit dedicated to this well 320.69 acres- S/2 Section 19, T24N, R8W		13. State NM
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. SHL is +/- 30' S of Escrito I24A-2409 03H		19. Proposed Depth 5473' TVD, 10743' MD
20. BLM/BIA Bond No. on file COB-000235		21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6892' GL; 6908' KB
22. Approximate date work will start* 08/25/2015		23. Estimated duration 20 days

24. Attachments

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

- | | |
|--|---|
| 1. Well plat certified by a registered surveyor. | 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 3/2/15
Title Regulatory Analyst		
Approved by (Signature) 	Name (Printed/Typed) D. Manheim	Date 9/17/15
Title AFM		
Office FFO		

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person 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)

*(Instructions on page 2)

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

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

NMCCD 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

DISTRICT I

1625 N. French Dr., Hobbs, N.M. 88240
Phone: (575) 393-8181 Fax: (575) 393-0720

DISTRICT II

811 S. First St., Artesia, N.M. 88210
Phone: (575) 748-1283 Fax: (575) 748-0720

DISTRICT III

1000 Rio Brazos Rd., Artesia, N.M. 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV

1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 478-3460 Fax: (505) 478-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

Submit one copy to appropriate
District Office

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-045-35655		² Pool Code 97232	³ Pool Name BASIN MANCOS
⁴ Property Code 3152A1	⁵ Property Name ESCRITO 124A-2409		⁶ Well Number 04H
⁷ GRID No. 282327	⁸ Operator Name ENCANA OIL & GAS (USA) INC.		⁹ Elevation 6892.4

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
I	24	24N	9W		1569'	SOUTH	61'	EAST	SAN JUAN

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	19	24N	8W		766'	SOUTH	330'	EAST	SAN JUAN

¹² Dedicated Acres 320.69 ACRES S/2 SEC. 19	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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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

WELL FLAG LAT. 36.296883° N (NAD83) LONG. 107.732113° W (NAD83) LAT. 36.296943° N (NAD27) LONG. 107.731450° W (NAD27)	ENTRY POINT LAT. 36.294680° N (NAD83) LONG. 107.730821° W (NAD83) LAT. 36.294668° N (NAD27) LONG. 107.730208° W (NAD27)	BOTTOM HOLE LAT. 36.294683° N (NAD83) LONG. 107.715042° W (NAD83) LAT. 36.294671° N (NAD27) LONG. 107.714430° W (NAD27)
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17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

[Signature] **3/2/15**
Signature Date

Katie Wegner
Printed Name

Kathryn.Wegner@encana.com
E-mail Address

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

AUGUST 28, 2014
Date of Survey

[Signature]
Signature and Seal of Professional Surveyor:

DAVID R. RUSSELL
REGISTERED PROFESSIONAL SURVEYOR
NEW MEXICO
10201

DAVID RUSSELL
Certificate Number **10201**

Escrito I24A-2409 04H

SHL: 1569' FSL, 61' FEL, Sec 24, T24N, R9W

BHL: 766' FSL, 330' FEL, Sec 19, T24N, R8W

San Juan, New Mexico

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

1. ESTIMATED TOPS OF GEOLOGICAL MARKERS (TVD)

The estimated tops of important geologic markers are as follows:

Formation	Depth (TVD) units = feet
San Jose Fn.	n/a
Nacimiento Fn.	surface
Ojo Alamo Ss.	1,053
Kirtland Shale	1,280
Fruitland Coal	1,535
Pictured Cliffs Ss.	1,819
Lewis Shale	1,913
Cliffhouse Ss.	2,656
Menefee Fn.	3,323
Point Lookout Ss.	4,220
Mancos Shale	4,443
Mancos Silt	4,963
Gallup Fn.	5,241
Base Gallup	5,572

The referenced surface elevation is 6892', KB 6908'

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

Substance	Formation	Depth (TVD) units = feet
Water/Gas	Fruitland Coal	1,535
Oil/Gas	Pictured Cliffs Ss.	1,819
Oil/Gas	Cliffhouse Ss.	2,656
Gas	Menefee Fn.	3,323
Oil/Gas	Point Lookout Ss.	4,220
Oil/Gas	Mancos Shale	4,443
Oil/Gas	Mancos Silt	4,963
Oil/Gas	Gallup Fn.	5,241

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

Escrito I24A-2409 04H

SHL: 1569' FSL, 61' FEL, Sec 24, T24N, R9W

BHL: 766' FSL, 330' FEL, Sec 19, T24N, R8W

San Juan, 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'-5651'	8 3/4"	7"	26#	J55, LTC New
Production Liner	5551'-10743'	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

Escrito I24A-2409 04H

SHL: 1569' FSL, 61' FEL, Sec 24, T24N, R9W

BHL: 766' FSL, 330' FEL, Sec 19, T24N, R8W

San Juan, 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'	228 sks	Type III Cement + 1% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.2% bwoc FL-52A + 58.9% Fresh Water	Surface	1 per joint on bottom 3 joints
Intermediate	0'-5651'	100% open hole excess Stage 1 Lead: 527 sks Stage 1 Tail: 400 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	5551'-10743'	50% OH excess Stage 1 Blend Total: 294sks	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 3000'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5473'/10743'	Gallup

Escrito I24A-2409 04H

SHL: 1569' FSL, 61' FEL, Sec 24, T24N, R9W

BHL: 766' FSL, 330' FEL, Sec 19, T24N, R8W

San Juan, New Mexico

6. DRILLING FLUIDS PROGRAM

a) Surface through Intermediate Casing Point:

Hole Size (in)	Depth (TVD/MD)	Mud Type	Density (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
30"	0-60'/60'	Fresh Water	8.3-9.2	38-100	4-28
12 1/4"	0'-500'/500'	Fresh Water	8.3-10	60-70	NC
8 3/4"	500'/500'-5371'/5651'	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"	5371'/5651'- 5473'/10743'	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 +/- 2570 psi based on a 9.0 ppg at 5491' 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 August 25, 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: 1569' FSL, 61' FEL, Sec 24, T24N, R9W County: San Juan WELL: Escrito I24A-2409 04H			Encana Natural Gas WELL SUMMARY			ENG: 0 RIG: Unassigned GLE: 6892.4 RKBE: 6908.4			2/27/15
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: 228 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	1,053 1,280 1,535 1,819 1,913 2,656 3,323 4,220 4,443			8 3/4	7" 26ppf J55 LTC TOC @ surface (100% OH excess - 70% Lead 30% Tail) Stage 1 Total: 928sks Stage 1 Lead: 527 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: 400 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	3,000 4,963 5,241 5,371	3,000 5,651'					
Surveys every stand to TD unless directed otherwise by Geologist	No OH Logs	Horizontal Target TD Base Gallup	5,491 5,473 5,572	10,743		6 1/8	100' overlap at liner top 5092" Drilled Lateral		Horz Inc/TVD 90.18deg/5491.4ft TD = 10743.2 MD
MWD Gamma Directional							4 1/2" 11.6ppf SB80 LTC TOC @ hanger (50% OH excess) Stage 1 Total: 294sks Stage 1 Blend: 294 sks Premium Lite High Strength FM + 0.7% bwoc R-3 + 3% bwoc Potassium Chloride + 0.25lbs/sack Cello Flake + 0.5% bwoc CD-32 + 1.15% bwoc FL- 52A + 60 lbs/sack Calcium Carbonate + 124.4% Fresh Water. Yield 2.83 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 3000', 8 3/4 inch holesize
- 5) Start curve at 10deg/100' build rate
- 6) Drill to csg point of 5651' MD
- 7) R&C 7" csg, circ cmt to surface
- 8) Land at ~90 deg, drill lateral to 10743' run 4 1/2 inch cemented liner

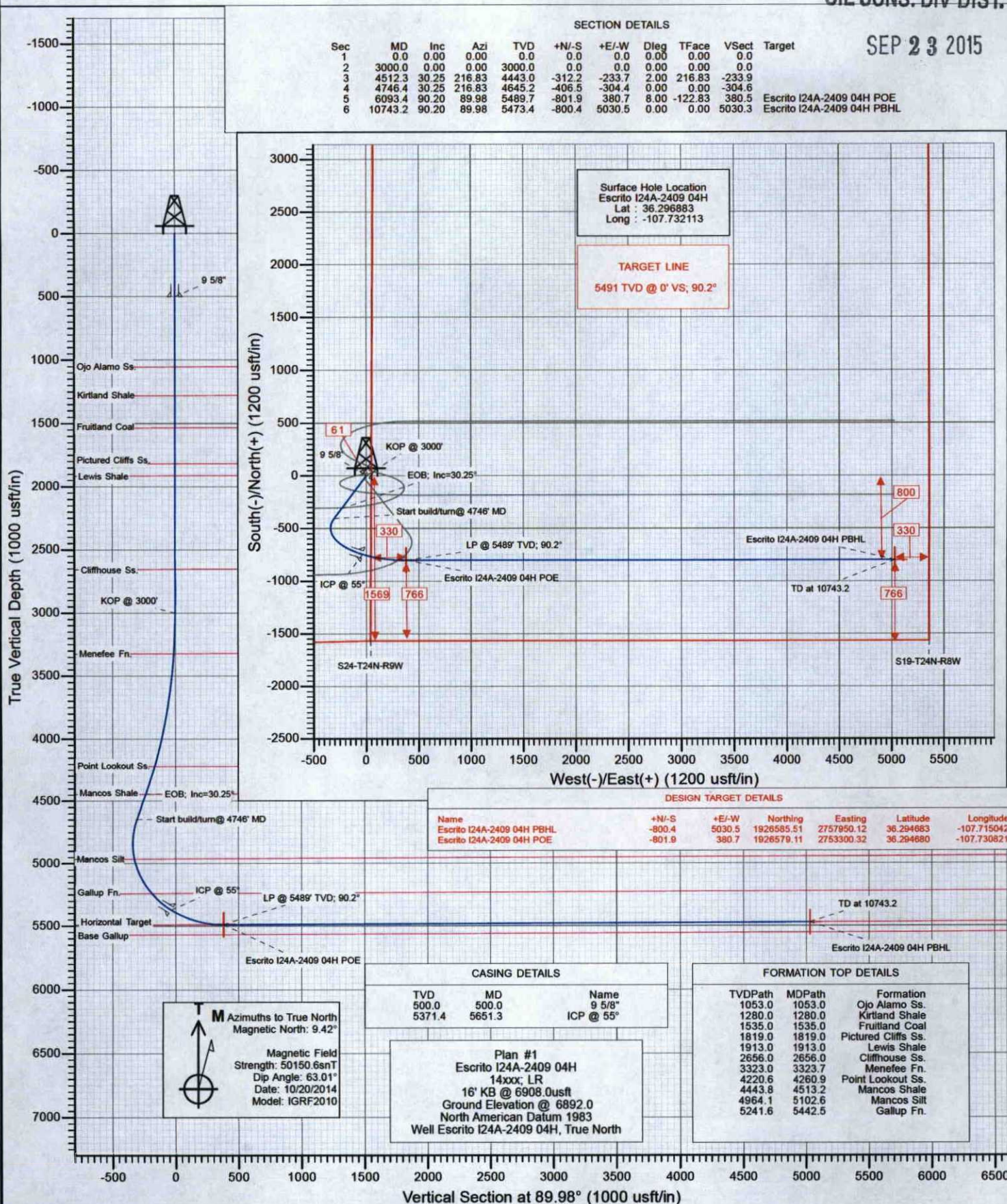


Project: San Juan County, NM
Site: S24-T24N-R9W (Escrito I24)
Well: Escrito I24A-2409 04H
Wellbore: HZ
Design: Plan #1

CATHEDRAL
OIL CONS. DIV DIST. 3

SEP 23 2015

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	3000.0	0.00	0.00	3000.0	0.0	0.0	0.00	0.00	0.0	
3	4512.3	30.25	216.83	4443.0	-312.2	-233.7	2.00	216.83	-233.9	
4	4746.4	30.25	216.83	4645.2	-406.5	-304.4	0.00	0.00	-304.6	
5	6093.4	90.20	89.98	5489.7	-801.9	380.7	8.00	-122.83	380.5	Escrito I24A-2409 04H POE
6	10743.2	90.20	89.98	5473.4	-800.4	5030.5	0.00	0.00	5030.3	Escrito I24A-2409 04H PBHL



Cathedral Energy Services

Planning Report

SEP 23 2015

Database: USA EDM 5000 Multi Users DB
 Company: EnCana Oil & Gas (USA) Inc
 Project: San Juan County, NM
 Site: S24-T24N-R9W (Escrito I24)
 Well: Escrito I24A-2409 04H
 Wellbore: HZ
 Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 04H
 TVD Reference: 16' KB @ 6908.0usft
 MD Reference: 16' KB @ 6908.0usft
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Project San Juan County, NM

Map System: US State Plane 1983
 Geo Datum: North American Datum 1983
 Map Zone: New Mexico Western Zone

System Datum: Mean Sea Level

Site S24-T24N-R9W (Escrito I24)

Site Position: Northing: 1,927,743.45 usft Latitude: 36.297880
 From: Lat/Long Easting: 2,752,780.76 usft Longitude: -107.732580
 Position Uncertainty: 0.0 usft Slot Radius: 13-3/16" Grid Convergence: 0.06 °

Well Escrito I24A-2409 04H

Well Position +N/-S 0.0 usft Northing: 1,927,380.66 usft Latitude: 36.296883
 +E/-W 0.0 usft Easting: 2,752,918.75 usft Longitude: -107.732113
 Position Uncertainty 0.0 usft Wellhead Elevation: 0.0 usft Ground Level: 6,892.0 usft

Wellbore HZ

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/20/2014	9.42	63.01	50,151

Design Plan #1

Audit Notes:

Version: Phase: PLAN Tie On Depth: 0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	89.98

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,512.3	30.25	216.83	4,443.0	-312.2	-233.7	2.00	2.00	0.00	216.83	
4,746.4	30.25	216.83	4,645.2	-406.5	-304.4	0.00	0.00	0.00	0.00	
6,093.4	90.20	89.98	5,489.7	-801.9	380.7	8.00	4.45	-9.42	-122.83	Escrito I24A-2409 04H
10,743.2	90.20	89.98	5,473.4	-800.4	5,030.5	0.00	0.00	0.00	0.00	Escrito I24A-2409 04H

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Site: S24-T24N-R9W (Escrito I24)
Well: Escrito I24A-2409 04H
Wellbore: HZ
Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 04H
TVD Reference: 16' KB @ 6908.0usft
MD Reference: 16' KB @ 6908.0usft
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	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	
1,053.0	0.00	0.00	1,053.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo Ss.
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	
1,280.0	0.00	0.00	1,280.0	0.0	0.0	0.0	0.00	0.00	Kirtland Shale
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	
1,535.0	0.00	0.00	1,535.0	0.0	0.0	0.0	0.00	0.00	Fruitland Coal
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
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	
1,819.0	0.00	0.00	1,819.0	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	
1,913.0	0.00	0.00	1,913.0	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	
2,656.0	0.00	0.00	2,656.0	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	KOP @ 3000'
3,100.0	2.00	216.83	3,100.0	-1.4	-1.0	-1.0	2.00	2.00	
3,200.0	4.00	216.83	3,199.8	-5.6	-4.2	-4.2	2.00	2.00	
3,300.0	6.00	216.83	3,299.5	-12.6	-9.4	-9.4	2.00	2.00	
3,323.7	6.47	216.83	3,323.0	-14.6	-11.0	-11.0	2.00	2.00	Menefee Fn.
3,400.0	8.00	216.83	3,398.7	-22.3	-16.7	-16.7	2.00	2.00	
3,500.0	10.00	216.83	3,497.5	-34.8	-26.1	-26.1	2.00	2.00	
3,600.0	12.00	216.83	3,595.6	-50.1	-37.5	-37.5	2.00	2.00	
3,700.0	14.00	216.83	3,693.1	-68.1	-51.0	-51.0	2.00	2.00	
3,800.0	16.00	216.83	3,789.6	-88.8	-66.5	-66.5	2.00	2.00	
3,900.0	18.00	216.83	3,885.3	-112.2	-84.0	-84.1	2.00	2.00	
4,000.0	20.00	216.83	3,979.8	-138.3	-103.6	-103.6	2.00	2.00	
4,100.0	22.00	216.83	4,073.2	-167.0	-125.0	-125.1	2.00	2.00	
4,200.0	24.00	216.83	4,165.2	-198.3	-148.5	-148.5	2.00	2.00	
4,260.9	25.22	216.83	4,220.6	-218.5	-163.6	-163.7	2.00	2.00	Point Lookout Ss.
4,300.0	26.00	216.83	4,255.8	-232.1	-173.8	-173.9	2.00	2.00	

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Site: S24-T24N-R9W (Escrito I24)
Well: Escrito I24A-2409 04H
Wellbore: HZ
Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 04H
TVD Reference: 16' KB @ 6908.0usft
MD Reference: 16' KB @ 6908.0usft
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
4,400.0	28.00	216.83	4,344.9	-268.4	-201.0	-201.1	2.00	2.00	
4,500.0	30.00	216.83	4,432.4	-307.2	-230.0	-230.2	2.00	2.00	
4,512.3	30.25	216.83	4,443.0	-312.2	-233.7	-233.9	2.00	2.00	EOB; Inc=30.25°
4,513.2	30.25	216.83	4,443.8	-312.5	-234.0	-234.1	0.00	0.00	Mancos Shale
4,600.0	30.25	216.83	4,518.8	-347.5	-260.2	-260.3	0.00	0.00	
4,700.0	30.25	216.83	4,605.2	-387.8	-290.4	-290.6	0.00	0.00	
4,746.4	30.25	216.83	4,645.2	-406.5	-304.4	-304.6	0.00	0.00	Start build/turn@ 4746' MD
4,800.0	28.13	209.16	4,692.1	-428.4	-318.7	-318.8	8.00	-3.95	
4,900.0	25.55	192.32	4,781.4	-470.1	-334.8	-335.0	8.00	-2.58	
5,000.0	25.18	173.60	4,871.9	-512.4	-337.0	-337.2	8.00	-0.37	
5,100.0	27.11	155.92	4,961.8	-554.4	-325.3	-325.5	8.00	1.93	
5,102.6	27.19	155.50	4,964.1	-555.5	-324.9	-325.0	8.00	2.99	Mancos Silt
5,200.0	30.92	141.35	5,049.4	-595.4	-300.0	-300.2	8.00	3.82	
5,300.0	36.00	130.10	5,132.9	-634.4	-261.4	-261.6	8.00	5.08	
5,400.0	41.89	121.46	5,210.7	-670.8	-210.3	-210.6	8.00	5.89	
5,442.5	44.57	118.39	5,241.6	-685.3	-185.1	-185.3	8.00	6.29	Gallup Fn.
5,500.0	48.29	114.68	5,281.3	-703.9	-147.8	-148.1	8.00	6.49	
5,600.0	55.02	109.15	5,343.3	-733.0	-75.1	-75.3	8.00	6.73	
5,651.3	58.56	106.67	5,371.4	-746.1	-34.3	-34.5	8.00	6.90	ICP @ 55°
5,700.0	61.96	104.48	5,395.5	-757.5	6.5	6.2	8.00	6.98	
5,800.0	69.04	100.38	5,437.0	-777.0	95.3	95.0	8.00	7.08	
5,900.0	76.21	96.66	5,466.8	-791.0	189.6	189.3	8.00	7.17	
6,000.0	83.43	93.16	5,484.5	-799.4	287.6	287.3	8.00	7.22	
6,093.4	90.20	89.98	5,489.7	-801.9	380.7	380.5	8.00	7.24	LP @ 5489' TVD; 90.2° - Escrito I24A-2409 04H
6,100.0	90.20	89.98	5,489.6	-801.9	387.3	387.1	0.00	0.00	
6,200.0	90.20	89.98	5,489.3	-801.9	487.3	487.1	0.00	0.00	
6,300.0	90.20	89.98	5,488.9	-801.9	587.3	587.1	0.00	0.00	
6,400.0	90.20	89.98	5,488.6	-801.8	687.3	687.1	0.00	0.00	
6,500.0	90.20	89.98	5,488.2	-801.8	787.3	787.1	0.00	0.00	
6,600.0	90.20	89.98	5,487.9	-801.8	887.3	887.1	0.00	0.00	
6,700.0	90.20	89.98	5,487.5	-801.7	987.3	987.1	0.00	0.00	
6,800.0	90.20	89.98	5,487.2	-801.7	1,087.3	1,087.1	0.00	0.00	
6,900.0	90.20	89.98	5,486.8	-801.7	1,187.3	1,187.1	0.00	0.00	
7,000.0	90.20	89.98	5,486.5	-801.6	1,287.3	1,287.1	0.00	0.00	
7,100.0	90.20	89.98	5,486.1	-801.6	1,387.3	1,387.1	0.00	0.00	
7,200.0	90.20	89.98	5,485.8	-801.6	1,487.3	1,487.1	0.00	0.00	
7,300.0	90.20	89.98	5,485.4	-801.5	1,587.3	1,587.1	0.00	0.00	
7,400.0	90.20	89.98	5,485.1	-801.5	1,687.3	1,687.0	0.00	0.00	
7,500.0	90.20	89.98	5,484.7	-801.5	1,787.3	1,787.0	0.00	0.00	
7,600.0	90.20	89.98	5,484.4	-801.5	1,887.3	1,887.0	0.00	0.00	
7,700.0	90.20	89.98	5,484.0	-801.4	1,987.3	1,987.0	0.00	0.00	
7,800.0	90.20	89.98	5,483.7	-801.4	2,087.3	2,087.0	0.00	0.00	
7,900.0	90.20	89.98	5,483.3	-801.4	2,187.3	2,187.0	0.00	0.00	
8,000.0	90.20	89.98	5,483.0	-801.3	2,287.3	2,287.0	0.00	0.00	
8,100.0	90.20	89.98	5,482.6	-801.3	2,387.3	2,387.0	0.00	0.00	
8,200.0	90.20	89.98	5,482.3	-801.3	2,487.3	2,487.0	0.00	0.00	
8,300.0	90.20	89.98	5,481.9	-801.2	2,587.3	2,587.0	0.00	0.00	
8,400.0	90.20	89.98	5,481.6	-801.2	2,687.3	2,687.0	0.00	0.00	
8,500.0	90.20	89.98	5,481.2	-801.2	2,787.3	2,787.0	0.00	0.00	
8,600.0	90.20	89.98	5,480.9	-801.1	2,887.3	2,887.0	0.00	0.00	
8,700.0	90.20	89.98	5,480.5	-801.1	2,987.3	2,987.0	0.00	0.00	
8,800.0	90.20	89.98	5,480.2	-801.1	3,087.3	3,087.0	0.00	0.00	

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Site: S24-T24N-R9W (Escrito I24)
Well: Escrito I24A-2409 04H
Wellbore: HZ
Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 04H
TVD Reference: 16' KB @ 6908.0usft
MD Reference: 16' KB @ 6908.0usft
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
8,900.0	90.20	89.98	5,479.8	-801.0	3,187.3	3,187.0	0.00	0.00	
9,000.0	90.20	89.98	5,479.5	-801.0	3,287.3	3,287.0	0.00	0.00	
9,100.0	90.20	89.98	5,479.1	-801.0	3,387.3	3,387.0	0.00	0.00	
9,200.0	90.20	89.98	5,478.8	-800.9	3,487.3	3,487.0	0.00	0.00	
9,300.0	90.20	89.98	5,478.4	-800.9	3,587.3	3,587.0	0.00	0.00	
9,400.0	90.20	89.98	5,478.1	-800.9	3,687.3	3,687.0	0.00	0.00	
9,500.0	90.20	89.98	5,477.8	-800.8	3,787.3	3,787.0	0.00	0.00	
9,600.0	90.20	89.98	5,477.4	-800.8	3,887.3	3,887.0	0.00	0.00	
9,700.0	90.20	89.98	5,477.1	-800.8	3,987.3	3,987.0	0.00	0.00	
9,800.0	90.20	89.98	5,476.7	-800.7	4,087.3	4,087.0	0.00	0.00	
9,900.0	90.20	89.98	5,476.4	-800.7	4,187.3	4,187.0	0.00	0.00	
10,000.0	90.20	89.98	5,476.0	-800.7	4,287.3	4,287.0	0.00	0.00	
10,100.0	90.20	89.98	5,475.7	-800.6	4,387.3	4,387.0	0.00	0.00	
10,200.0	90.20	89.98	5,475.3	-800.6	4,487.3	4,487.0	0.00	0.00	
10,300.0	90.20	89.98	5,475.0	-800.6	4,587.3	4,587.0	0.00	0.00	
10,400.0	90.20	89.98	5,474.6	-800.5	4,687.3	4,687.0	0.00	0.00	
10,500.0	90.20	89.98	5,474.3	-800.5	4,787.3	4,787.0	0.00	0.00	
10,600.0	90.20	89.98	5,473.9	-800.5	4,887.3	4,887.0	0.00	0.00	
10,700.0	90.20	89.98	5,473.6	-800.4	4,987.3	4,987.0	0.00	0.00	
10,743.2	90.20	89.98	5,473.4	-800.4	5,030.5	5,030.3	0.00	0.00	TD at 10743.2 - Escrito I24A-2409 04H PBHL

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Escrito I24A-2409 04H F - plan hits target center - Point	0.00	0.00	5,489.7	-801.9	380.7	1,926,579.11	2,753,300.32	36.294680	-107.730821
Escrito I24A-2409 04H F - plan hits target center - Point	0.00	0.00	5,473.4	-800.4	5,030.5	1,926,585.51	2,757,950.12	36.294683	-107.715042

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
500.0	500.0	9 5/8"	0	0
5,651.3	5,371.4	ICP @ 55°	0	0

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Site: S24-T24N-R9W (Escrito I24)
Well: Escrito I24A-2409 04H
Wellbore: HZ
Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 04H
TVD Reference: 16' KB @ 6908.0usft
MD Reference: 16' KB @ 6908.0usft
North Reference: True
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,053.0	1,053.0	Ojo Alamo Ss.		-0.20	89.98
1,280.0	1,280.0	Kirtland Shale		-0.20	89.98
1,535.0	1,535.0	Fruitland Coal		-0.20	89.98
1,819.0	1,819.0	Pictured Cliffs Ss.		-0.20	89.98
1,913.0	1,913.0	Lewis Shale		-0.20	89.98
2,656.0	2,656.0	Cliffhouse Ss.		-0.20	89.98
3,323.7	3,323.0	Menefee Fn.		-0.20	89.98
4,260.9	4,220.0	Point Lookout Ss.		-0.20	89.98
4,513.2	4,443.0	Mancos Shale		-0.20	89.98
5,102.6	4,963.0	Mancos Silt		-0.20	89.98
5,442.5	5,241.0	Gallup Fn.		-0.20	89.98

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,000.0	3,000.0	0.0	0.0	KOP @ 3000'
4,512.3	4,443.0	-312.2	-233.7	EOB; Inc=30.25°
4,746.4	4,645.2	-406.5	-304.4	Start build/turn@ 4746' MD
6,093.4	5,489.7	-801.9	380.7	LP @ 5489' TVD; 90.2°
10,743.2	5,473.4	-800.4	5,030.5	TD at 10743.2

EnCana Oil & Gas (USA) Inc

San Juan County, NM

S24-T24N-R9W (Escrito I24)

Escrito I24A-2409 04H

HZ

Plan #1

Anticollision Report

23 October, 2014

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Escrito I24A-2409 04H
Project:	San Juan County, NM	TVD Reference:	16' KB @ 6908.0usft
Reference Site:	S24-T24N-R9W (Escrito I24)	MD Reference:	16' KB @ 6908.0usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Escrito I24A-2409 04H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	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:	Stations	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,241.7usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	10/22/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	10,743.2	Plan #1 (HZ)	Geolink MWD	Geolink MWD	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S24-T24N-R9W (Escrito I24)						
Escrito I24A-2409 01H - HZ - Plan #1	3,000.0	3,000.0	90.2	79.8	8.663	CC, ES
Escrito I24A-2409 01H - HZ - Plan #1	3,100.0	3,100.0	92.0	81.2	8.546	SF
Escrito I24A-2409 02H - HZ - Plan #1	3,000.0	3,000.0	60.3	49.9	5.790	CC, ES
Escrito I24A-2409 02H - HZ - Plan #1	3,100.0	3,100.0	62.0	51.3	5.765	SF
Escrito I24A-2409 03H - HZ - Plan #1	3,000.0	3,000.0	30.1	19.7	2.887	CC, ES
Escrito I24A-2409 03H - HZ - Plan #1	10,743.2	10,416.0	637.8	392.1	2.596	SF
Escrito I24A-2409 05H - HZ - Plan #1	2,700.0	2,700.0	29.9	20.6	3.194	CC, ES
Escrito I24A-2409 05H - HZ - Plan #1	2,800.0	2,799.6	30.6	20.9	3.153	SF

Cathedral Energy Services

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S24-T24N-R9W (Escrito I24)
Site Error: 0.0usft
Reference Well: Escrito I24A-2409 04H
Well Error: 0.0usft
Reference Wellbore: HZ
Reference Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 04H
TVD Reference: 16' KB @ 6908.0usft
MD Reference: 16' KB @ 6908.0usft
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 S24-T24N-R9W (Escrito I24) - Escrito I24A-2409 01H - HZ - Plan #1													Offset Site Error: 0.0 usft
Survey Program: 0-Geolink MWD													Offset Well Error: 0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
0.0	0.0	0.0	0.0	0.0	0.0	28.90	79.0	43.6	90.2				
100.0	100.0	100.0	100.0	0.1	0.1	28.90	79.0	43.6	90.2	89.9	0.29	307.736	
200.0	200.0	200.0	200.0	0.3	0.3	28.90	79.0	43.6	90.2	89.6	0.64	140.488	
300.0	300.0	300.0	300.0	0.5	0.5	28.90	79.0	43.6	90.2	89.2	0.99	91.021	
400.0	400.0	400.0	400.0	0.7	0.7	28.90	79.0	43.6	90.2	88.9	1.34	67.317	
500.0	500.0	500.0	500.0	0.8	0.8	28.90	79.0	43.6	90.2	88.5	1.69	53.409	
600.0	600.0	600.0	600.0	1.0	1.0	28.90	79.0	43.6	90.2	88.2	2.04	44.263	
700.0	700.0	700.0	700.0	1.2	1.2	28.90	79.0	43.6	90.2	87.8	2.39	37.792	
800.0	800.0	800.0	800.0	1.4	1.4	28.90	79.0	43.6	90.2	87.5	2.74	32.972	
900.0	900.0	900.0	900.0	1.5	1.5	28.90	79.0	43.6	90.2	87.1	3.09	29.242	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	28.90	79.0	43.6	90.2	86.8	3.43	26.270	
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	28.90	79.0	43.6	90.2	86.4	3.78	23.847	
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	28.90	79.0	43.6	90.2	86.1	4.13	21.833	
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	28.90	79.0	43.6	90.2	85.8	4.48	20.132	
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	28.90	79.0	43.6	90.2	85.4	4.83	18.678	
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	28.90	79.0	43.6	90.2	85.1	5.18	17.419	
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	28.90	79.0	43.6	90.2	84.7	5.53	16.319	
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	28.90	79.0	43.6	90.2	84.4	5.88	15.350	
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	28.90	79.0	43.6	90.2	84.0	6.23	14.490	
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	28.90	79.0	43.6	90.2	83.7	6.58	13.721	
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	28.90	79.0	43.6	90.2	83.3	6.93	13.029	
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	28.90	79.0	43.6	90.2	83.0	7.27	12.404	
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	28.90	79.0	43.6	90.2	82.6	7.62	11.836	
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	28.90	79.0	43.6	90.2	82.3	7.97	11.318	
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	28.90	79.0	43.6	90.2	81.9	8.32	10.843	
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	28.90	79.0	43.6	90.2	81.6	8.67	10.407	
2,600.0	2,600.0	2,600.0	2,600.0	4.5	4.5	28.90	79.0	43.6	90.2	81.2	9.02	10.004	
2,700.0	2,700.0	2,700.0	2,700.0	4.7	4.7	28.90	79.0	43.6	90.2	80.9	9.37	9.631	
2,800.0	2,800.0	2,800.0	2,800.0	4.9	4.9	28.90	79.0	43.6	90.2	80.5	9.72	9.285	
2,900.0	2,900.0	2,900.0	2,900.0	5.0	5.0	28.90	79.0	43.6	90.2	80.2	10.07	8.963	
3,000.0	3,000.0	3,000.0	3,000.0	5.2	5.2	28.90	79.0	43.6	90.2	79.8	10.42	8.663 CC, ES	
3,100.0	3,100.0	3,100.0	3,100.0	5.4	5.4	172.22	79.0	43.6	92.0	81.2	10.76	8.546 SF	
3,200.0	3,199.8	3,199.8	3,199.8	5.6	5.6	172.63	79.0	43.6	97.1	86.1	11.10	8.755	
3,300.0	3,299.5	3,299.5	3,299.5	5.7	5.7	173.21	79.0	43.6	105.8	94.4	11.42	9.262	
3,400.0	3,398.7	3,398.7	3,398.7	5.9	5.9	173.89	79.0	43.6	117.9	106.2	11.74	10.045	
3,500.0	3,497.5	3,497.5	3,497.5	6.1	6.1	174.57	79.0	43.6	133.5	121.4	12.04	11.083	
3,600.0	3,595.6	3,595.6	3,595.6	6.4	6.2	175.22	79.0	43.6	152.5	140.1	12.34	12.361	
3,700.0	3,693.1	3,693.1	3,693.1	6.7	6.4	175.80	79.0	43.6	174.9	162.3	12.62	13.863	
3,800.0	3,789.6	3,789.6	3,789.6	7.0	6.6	176.30	79.0	43.6	200.7	187.8	12.89	15.578	
3,900.0	3,885.3	3,885.3	3,885.3	7.3	6.8	176.74	79.0	43.6	229.9	216.8	13.14	17.496	
4,000.0	3,979.8	3,979.8	3,979.8	7.7	6.9	177.11	79.0	43.6	262.4	249.1	13.38	19.608	
4,100.0	4,073.2	4,073.2	4,073.2	8.2	7.1	177.42	79.0	43.6	298.2	284.6	13.61	21.909	
4,200.0	4,165.2	4,165.2	4,165.2	8.7	7.2	177.54	79.4	42.8	337.1	323.3	13.83	24.371	
4,300.0	4,255.8	4,255.8	4,255.8	9.3	7.4	175.67	84.8	31.0	377.5	363.4	14.07	26.829	
4,400.0	4,344.9	4,344.9	4,344.9	10.0	7.6	172.08	96.0	6.9	419.7	405.4	14.36	29.227	
4,500.0	4,432.4	4,432.4	4,432.4	10.7	7.9	167.64	111.1	-25.9	465.5	450.7	14.77	31.515	
4,512.3	4,443.0	4,443.0	4,443.0	10.8	7.9	167.07	113.2	-30.3	471.5	456.6	14.84	31.779	
4,600.0	4,518.8	4,518.8	4,518.8	11.5	8.3	163.23	128.4	-63.3	515.3	499.8	15.48	33.281	
4,700.0	4,605.2	4,605.2	4,605.2	12.2	8.7	159.05	146.4	-102.3	568.4	552.0	16.36	34.742	
4,746.4	4,645.2	4,645.2	4,645.2	12.6	8.9	157.49	153.7	-117.7	594.4	577.7	16.76	35.473	
4,750.0	4,648.4	4,648.4	4,648.4	12.6	8.9	158.00	154.2	-118.8	596.5	579.8	16.78	35.556	
4,800.0	4,692.1	4,692.1	4,692.1	13.0	9.0	165.62	161.6	-133.2	625.6	608.6	17.02	36.757	

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

Cathedral Energy Services

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S24-T24N-R9W (Escrito I24)
Site Error: 0.0usft
Reference Well: Escrito I24A-2409 04H
Well Error: 0.0usft
Reference Wellbore: HZ
Reference Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 04H
TVD Reference: 16' KB @ 6908.0usft
MD Reference: 16' KB @ 6908.0usft
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 S24-T24N-R9W (Escrito I24) - Escrito I24A-2409 01H - HZ - Plan #1													Offset Site Error: 0.0 usft	
Survey Program: 0-Geolink MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
4,850.0	4,736.5	4,676.1	4,618.1	13.4	9.2	174.11	169.4	-147.2	655.4	638.1	17.26	37.968		
4,900.0	4,781.4	4,700.0	4,637.4	13.7	9.4	-176.47	176.8	-159.3	685.6	668.2	17.48	39.222		
4,950.0	4,826.6	4,725.4	4,658.3	14.0	9.5	-166.61	184.8	-171.2	716.3	698.6	17.71	40.449		
5,000.0	4,871.9	4,750.0	4,679.0	14.3	9.7	-156.55	192.7	-181.9	747.3	729.4	17.94	41.652		
5,050.0	4,917.1	4,773.4	4,699.0	14.5	9.8	-146.69	200.4	-191.4	778.6	760.4	18.17	42.851		
5,100.0	4,961.8	4,800.0	4,722.1	14.8	10.0	-137.64	209.3	-201.1	810.0	791.6	18.44	43.937		
5,150.0	5,006.0	4,820.8	4,740.5	15.0	10.1	-129.08	216.3	-207.9	841.5	822.8	18.68	45.054		
5,200.0	5,049.4	4,844.5	4,761.6	15.2	10.2	-121.60	224.4	-215.0	873.0	854.0	18.96	46.051		
5,250.0	5,091.7	4,868.3	4,783.0	15.4	10.4	-115.02	232.6	-221.2	904.3	885.1	19.25	46.989		
5,300.0	5,132.9	4,892.4	4,804.9	15.6	10.5	-109.27	241.0	-226.6	935.5	915.9	19.55	47.847		
5,350.0	5,172.6	4,916.9	4,827.4	15.8	10.6	-104.26	249.7	-231.2	966.4	946.5	19.87	48.648		
5,400.0	5,210.7	4,942.1	4,850.6	15.9	10.7	-99.92	258.6	-235.0	997.0	976.8	20.19	49.380		
5,450.0	5,246.9	4,968.0	4,874.7	16.1	10.8	-96.15	267.8	-237.8	1,027.2	1,006.6	20.52	50.066		
5,500.0	5,281.3	4,995.1	4,900.0	16.3	10.9	-92.91	277.5	-239.6	1,056.8	1,036.0	20.85	50.689		
5,550.0	5,313.4	5,023.8	4,926.7	16.5	11.0	-90.15	287.8	-240.3	1,086.0	1,064.8	21.18	51.276		
5,600.0	5,343.3	5,054.4	4,955.3	16.7	11.1	-87.84	298.7	-239.7	1,114.5	1,092.9	21.51	51.801		
5,650.0	5,370.7	5,087.8	4,986.3	17.0	11.2	-85.95	310.7	-237.2	1,142.2	1,120.4	21.84	52.292		
5,700.0	5,395.5	5,124.8	5,020.6	17.2	11.3	-84.50	323.8	-232.5	1,169.1	1,147.0	22.17	52.737		
5,750.0	5,417.7	5,166.8	5,059.1	17.5	11.4	-83.49	338.6	-224.6	1,195.1	1,172.6	22.49	53.136		
5,800.0	5,437.0	5,215.9	5,103.3	17.9	11.5	-82.97	355.6	-211.9	1,220.0	1,197.2	22.80	53.503		

Cathedral Energy Services

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S24-T24N-R9W (Escrito I24)
Site Error: 0.0usft
Reference Well: Escrito I24A-2409 04H
Well Error: 0.0usft
Reference Wellbore: HZ
Reference Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 04H
TVD Reference: 16' KB @ 6908.0usft
MD Reference: 16' KB @ 6908.0usft
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 S24-T24N-R9W (Escrito I24) - Escrito I24A-2409 02H - HZ - Plan #1													Offset Site Error: 0.0 usft
Survey Program: 0-Geolink MWD													Offset Well Error: 0.0 usft
Reference		Offset		Semi Major Axis		Highside		Distance		Total		Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis		
0.0	0.0	0.0	0.0	0.0	0.0	28.93	52.8	29.2	60.3				
100.0	100.0	100.0	100.0	0.1	0.1	28.93	52.8	29.2	60.3	60.0	0.29	205.682	
200.0	200.0	200.0	200.0	0.3	0.3	28.93	52.8	29.2	60.3	59.7	0.64	93.898	
300.0	300.0	300.0	300.0	0.5	0.5	28.93	52.8	29.2	60.3	59.3	0.99	60.835	
400.0	400.0	400.0	400.0	0.7	0.7	28.93	52.8	29.2	60.3	59.0	1.34	44.993	
500.0	500.0	500.0	500.0	0.8	0.8	28.93	52.8	29.2	60.3	58.6	1.69	35.697	
600.0	600.0	600.0	600.0	1.0	1.0	28.93	52.8	29.2	60.3	58.3	2.04	29.584	
700.0	700.0	700.0	700.0	1.2	1.2	28.93	52.8	29.2	60.3	57.9	2.39	25.259	
800.0	800.0	800.0	800.0	1.4	1.4	28.93	52.8	29.2	60.3	57.6	2.74	22.037	
900.0	900.0	900.0	900.0	1.5	1.5	28.93	52.8	29.2	60.3	57.2	3.09	19.544	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	28.93	52.8	29.2	60.3	56.9	3.43	17.558	
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	28.93	52.8	29.2	60.3	56.5	3.78	15.938	
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	28.93	52.8	29.2	60.3	56.2	4.13	14.592	
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	28.93	52.8	29.2	60.3	55.8	4.48	13.456	
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	28.93	52.8	29.2	60.3	55.5	4.83	12.484	
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	28.93	52.8	29.2	60.3	55.1	5.18	11.642	
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	28.93	52.8	29.2	60.3	54.8	5.53	10.907	
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	28.93	52.8	29.2	60.3	54.4	5.88	10.260	
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	28.93	52.8	29.2	60.3	54.1	6.23	9.685	
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	28.93	52.8	29.2	60.3	53.7	6.58	9.171	
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	28.93	52.8	29.2	60.3	53.4	6.93	8.708	
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	28.93	52.8	29.2	60.3	53.0	7.27	8.290	
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	28.93	52.8	29.2	60.3	52.7	7.62	7.911	
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	28.93	52.8	29.2	60.3	52.3	7.97	7.564	
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	28.93	52.8	29.2	60.3	52.0	8.32	7.247	
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	28.93	52.8	29.2	60.3	51.6	8.67	6.955	
2,600.0	2,600.0	2,600.0	2,600.0	4.5	4.5	28.93	52.8	29.2	60.3	51.3	9.02	6.686	
2,700.0	2,700.0	2,700.0	2,700.0	4.7	4.7	28.93	52.8	29.2	60.3	50.9	9.37	6.437	
2,800.0	2,800.0	2,800.0	2,800.0	4.9	4.9	28.93	52.8	29.2	60.3	50.6	9.72	6.206	
2,900.0	2,900.0	2,900.0	2,900.0	5.0	5.0	28.93	52.8	29.2	60.3	50.2	10.07	5.991	
3,000.0	3,000.0	3,000.0	3,000.0	5.2	5.2	28.93	52.8	29.2	60.3	49.9	10.42	5.790 CC, ES	
3,100.0	3,100.0	3,100.0	3,100.0	5.4	5.4	172.32	52.8	29.2	62.0	51.3	10.76	5.765 SF	
3,200.0	3,199.8	3,199.8	3,199.8	5.6	5.6	172.90	52.8	29.2	67.2	56.1	11.10	6.058	
3,300.0	3,299.5	3,299.5	3,299.5	5.7	5.7	173.70	52.8	29.2	75.9	64.5	11.42	6.643	
3,400.0	3,398.7	3,398.7	3,398.7	5.9	5.9	174.54	52.8	29.2	88.0	76.3	11.74	7.498	
3,500.0	3,497.5	3,497.5	3,497.5	6.1	6.1	175.34	52.8	29.2	103.6	91.5	12.04	8.602	
3,600.0	3,595.6	3,595.6	3,595.6	6.4	6.2	176.04	52.8	29.2	122.6	110.3	12.34	9.941	
3,700.0	3,693.1	3,693.1	3,693.1	6.7	6.4	176.63	52.8	29.2	145.1	132.5	12.62	11.499	
3,800.0	3,789.6	3,789.6	3,789.6	7.0	6.6	177.11	52.8	29.2	170.9	158.0	12.88	13.265	
3,900.0	3,885.3	3,884.0	3,884.0	7.3	6.8	177.54	52.7	29.3	200.2	187.0	13.14	15.236	
4,000.0	3,979.8	3,967.9	3,967.5	7.7	6.9	179.63	50.7	36.2	235.4	222.0	13.36	17.615	
4,100.0	4,073.2	4,044.8	4,042.7	8.2	7.1	-176.77	46.1	51.8	278.5	265.0	13.58	20.511	
4,200.0	4,165.2	4,113.3	4,107.5	8.7	7.2	-172.78	39.8	72.8	330.1	316.3	13.82	23.896	
4,300.0	4,255.8	4,172.8	4,161.6	9.3	7.4	-168.96	32.8	96.5	390.0	375.9	14.08	27.695	
4,400.0	4,344.9	4,223.8	4,206.0	10.0	7.6	-165.47	25.7	120.5	457.3	443.0	14.38	31.795	
4,500.0	4,432.4	4,267.1	4,242.0	10.7	7.8	-162.31	18.8	143.6	531.2	516.4	14.73	36.065	
4,512.3	4,443.0	4,272.0	4,246.0	10.8	7.9	-161.94	18.0	146.3	540.6	525.8	14.77	36.594	
4,600.0	4,518.8	4,300.0	4,268.3	11.5	8.0	-160.34	13.2	162.6	609.6	594.5	15.18	40.162	
4,700.0	4,605.2	4,336.8	4,296.3	12.2	8.3	-158.31	6.4	185.4	690.8	675.1	15.73	43.925	
4,746.4	4,645.2	5,860.7	5,329.8	12.6	15.4	171.16	-305.0	-308.6	692.0	673.1	18.91	36.601	
4,750.0	4,648.4	5,861.8	5,329.8	12.6	15.4	171.10	-305.0	-309.7	689.1	670.2	18.99	36.288	
4,800.0	4,692.1	5,875.2	5,329.7	13.0	15.6	170.78	-305.2	-323.1	649.5	629.2	20.22	32.118	

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

Cathedral Energy Services

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
 Project: San Juan County, NM
 Reference Site: S24-T24N-R9W (Escrito I24)
 Site Error: 0.0usft
 Reference Well: Escrito I24A-2409 04H
 Well Error: 0.0usft
 Reference Wellbore: HZ
 Reference Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 04H
 TVD Reference: 16' KB @ 6908.0usft
 MD Reference: 16' KB @ 6908.0usft
 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 S24-T24N-R9W (Escrito I24) - Escrito I24A-2409 02H - HZ - Plan #1														Offset Site Error:	0.0 usft
Survey Program: 0-Geolink MWD														Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis	Factor			
4,850.0	4,736.5	5,885.2	5,329.7	13.4	15.8	171.69	-305.4	-333.1	610.4	588.9	21.50	28.388			
4,900.0	4,781.4	5,891.8	5,329.7	13.7	15.9	174.03	-305.5	-339.6	572.4	549.8	22.66	25.259			
4,950.0	4,826.6	5,894.8	5,329.7	14.0	15.9	177.77	-305.6	-342.7	536.2	512.6	23.58	22.738			
5,000.0	4,871.9	5,894.4	5,329.7	14.3	15.9	-177.32	-305.6	-342.3	502.3	478.1	24.20	20.757			
5,050.0	4,917.1	5,890.5	5,329.7	14.5	15.9	-171.61	-305.5	-338.4	471.4	446.9	24.51	19.234			
5,100.0	4,961.8	5,883.1	5,329.7	14.8	15.7	-165.47	-305.4	-331.0	444.3	419.8	24.54	18.107			
5,150.0	5,006.0	5,872.4	5,329.7	15.0	15.6	-159.11	-305.2	-320.2	421.5	397.2	24.31	17.338			
5,200.0	5,049.4	5,858.2	5,329.8	15.2	15.3	-152.67	-304.9	-306.0	403.8	379.9	23.88	16.907			
5,250.0	5,091.7	5,840.7	5,329.8	15.4	15.0	-146.18	-304.6	-288.5	391.4	368.1	23.29	16.804			
5,300.0	5,132.9	5,819.1	5,329.9	15.6	14.7	-139.49	-304.2	-267.0	384.5	362.0	22.58	17.034			
5,340.4	5,165.0	5,798.4	5,329.5	15.7	14.4	-133.87	-303.7	-246.4	382.9	360.9	21.96	17.438			
5,350.0	5,172.6	5,793.5	5,329.3	15.8	14.3	-132.56	-303.6	-241.5	383.0	361.2	21.82	17.550			
5,400.0	5,210.7	5,768.4	5,327.7	15.9	14.0	-125.91	-302.7	-216.4	386.4	365.2	21.20	18.223			
5,450.0	5,246.9	5,743.6	5,325.3	16.1	13.6	-119.49	-301.5	-191.7	394.4	373.6	20.75	19.004			
5,500.0	5,281.3	5,719.0	5,321.9	16.3	13.3	-113.29	-300.0	-167.5	406.4	385.9	20.51	19.813			
5,550.0	5,313.4	5,694.7	5,317.7	16.5	13.0	-107.31	-298.4	-143.6	421.7	401.3	20.46	20.616			
5,600.0	5,343.3	5,670.6	5,312.7	16.7	12.7	-101.57	-296.5	-120.1	439.9	419.3	20.59	21.359			
5,650.0	5,370.7	5,650.0	5,307.7	17.0	12.5	-96.44	-294.6	-100.2	460.2	439.3	20.85	22.069			
5,700.0	5,395.5	5,622.8	5,300.2	17.2	12.3	-90.97	-292.0	-74.2	482.0	460.8	21.17	22.762			
5,750.0	5,417.7	5,600.0	5,293.1	17.5	12.1	-86.25	-289.5	-52.7	504.9	483.4	21.50	23.479			
5,800.0	5,437.0	5,575.5	5,284.6	17.9	11.9	-81.76	-286.6	-29.9	528.5	506.7	21.84	24.197			
5,850.0	5,453.4	5,550.0	5,274.9	18.3	11.7	-77.58	-283.3	-6.5	552.5	530.4	22.09	25.010			
5,900.0	5,466.8	5,528.6	5,266.1	18.7	11.6	-74.07	-280.4	12.8	576.5	554.1	22.34	25.805			
5,950.0	5,477.2	5,500.0	5,253.3	19.2	11.5	-70.51	-276.2	38.0	600.3	577.9	22.44	26.746			
6,000.0	5,484.5	5,482.0	5,244.8	19.7	11.4	-67.89	-273.4	53.6	623.6	601.0	22.60	27.594			
6,050.0	5,488.6	5,450.0	5,228.5	20.3	11.3	-64.97	-268.1	80.6	646.5	624.0	22.57	28.647			
6,093.4	5,489.7	5,438.7	5,222.4	20.8	11.2	-63.41	-266.1	90.0	665.6	643.0	22.65	29.389			
6,100.0	5,489.6	5,435.7	5,220.7	20.9	11.2	-63.29	-265.6	92.5	668.5	645.8	22.74	29.394			
6,200.0	5,489.3	5,400.0	5,200.4	22.3	11.2	-61.88	-259.1	121.0	715.7	691.4	24.26	29.497			
6,300.0	5,488.9	5,350.0	5,169.5	23.9	11.1	-59.85	-249.4	159.0	768.6	742.9	25.75	29.845			
6,400.0	5,488.6	5,317.2	5,147.6	25.7	11.1	-58.51	-242.5	182.5	827.0	799.6	27.39	30.194			
6,500.0	5,488.2	5,285.5	5,125.4	27.6	11.1	-57.21	-235.6	204.1	890.2	861.2	29.02	30.671			
6,600.0	5,487.9	5,250.0	5,099.3	29.6	11.1	-55.77	-227.6	226.8	957.6	927.0	30.60	31.295			
6,700.0	5,487.5	5,231.2	5,085.0	31.6	11.1	-55.01	-223.2	238.2	1,028.6	996.2	32.31	31.831			
6,800.0	5,487.2	5,200.0	5,060.7	33.8	11.2	-53.78	-215.7	256.1	1,102.8	1,069.0	33.86	32.566			
6,900.0	5,486.8	5,200.0	5,060.7	35.9	11.2	-53.78	-215.7	256.1	1,179.9	1,144.1	35.77	32.990			

Cathedral Energy Services

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S24-T24N-R9W (Escrito I24)
Site Error: 0.0usft
Reference Well: Escrito I24A-2409 04H
Well Error: 0.0usft
Reference Wellbore: HZ
Reference Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 04H
TVD Reference: 16' KB @ 6908.0usft
MD Reference: 16' KB @ 6908.0usft
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 S24-T24N-R9W (Escrito I24) - Escrito I24A-2409 03H - HZ - Plan #1													Offset Site Error: 0.0 usft
Survey Program: 0-Geolink MWD													Offset Well Error: 0.0 usft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis		
0.0	0.0	0.0	0.0	0.0	0.0	29.34	26.2	14.7	30.1				
100.0	100.0	100.0	100.0	0.1	0.1	29.34	26.2	14.7	30.1	29.8	0.29	102.543	
200.0	200.0	200.0	200.0	0.3	0.3	29.34	26.2	14.7	30.1	29.4	0.64	46.813	
300.0	300.0	300.0	300.0	0.5	0.5	29.34	26.2	14.7	30.1	29.1	0.99	30.330	
400.0	400.0	400.0	400.0	0.7	0.7	29.34	26.2	14.7	30.1	28.7	1.34	22.431	
500.0	500.0	500.0	500.0	0.8	0.8	29.34	26.2	14.7	30.1	28.4	1.69	17.797	
600.0	600.0	600.0	600.0	1.0	1.0	29.34	26.2	14.7	30.1	28.0	2.04	14.749	
700.0	700.0	700.0	700.0	1.2	1.2	29.34	26.2	14.7	30.1	27.7	2.39	12.593	
800.0	800.0	800.0	800.0	1.4	1.4	29.34	26.2	14.7	30.1	27.3	2.74	10.987	
900.0	900.0	900.0	900.0	1.5	1.5	29.34	26.2	14.7	30.1	27.0	3.09	9.744	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	29.34	26.2	14.7	30.1	26.6	3.43	8.754	
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	29.34	26.2	14.7	30.1	26.3	3.78	7.946	
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	29.34	26.2	14.7	30.1	25.9	4.13	7.275	
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	29.34	26.2	14.7	30.1	25.6	4.48	6.708	
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	29.34	26.2	14.7	30.1	25.2	4.83	6.224	
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	29.34	26.2	14.7	30.1	24.9	5.18	5.804	
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	29.34	26.2	14.7	30.1	24.5	5.53	5.438	
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	29.34	26.2	14.7	30.1	24.2	5.88	5.115	
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	29.34	26.2	14.7	30.1	23.8	6.23	4.828	
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	29.34	26.2	14.7	30.1	23.5	6.58	4.572	
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	29.34	26.2	14.7	30.1	23.1	6.93	4.342	
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	29.34	26.2	14.7	30.1	22.8	7.27	4.133	
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	29.34	26.2	14.7	30.1	22.4	7.62	3.944	
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	29.34	26.2	14.7	30.1	22.1	7.97	3.771	
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	29.34	26.2	14.7	30.1	21.7	8.32	3.613	
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	29.34	26.2	14.7	30.1	21.4	8.67	3.468	
2,600.0	2,600.0	2,600.0	2,600.0	4.5	4.5	29.34	26.2	14.7	30.1	21.0	9.02	3.333	
2,700.0	2,700.0	2,700.0	2,700.0	4.7	4.7	29.34	26.2	14.7	30.1	20.7	9.37	3.209	
2,800.0	2,800.0	2,800.0	2,800.0	4.9	4.9	29.34	26.2	14.7	30.1	20.3	9.72	3.094	
2,900.0	2,900.0	2,900.0	2,900.0	5.0	5.0	29.34	26.2	14.7	30.1	20.0	10.07	2.987	
3,000.0	3,000.0	3,000.0	3,000.0	5.2	5.2	29.34	26.2	14.7	30.1	19.7	10.42	2.887 CC, ES	
3,100.0	3,100.0	3,100.0	3,100.0	5.4	5.4	172.92	26.2	14.7	31.8	21.0	10.76	2.955	
3,200.0	3,199.8	3,199.8	3,199.8	5.6	5.6	173.91	26.2	14.7	37.0	25.9	11.10	3.334	
3,300.0	3,299.5	3,299.5	3,299.5	5.7	5.7	175.05	26.2	14.7	45.7	34.3	11.42	3.999	
3,400.0	3,398.7	3,398.7	3,398.7	5.9	5.9	176.08	26.2	14.7	57.8	46.1	11.74	4.926	
3,500.0	3,497.5	3,497.5	3,497.5	6.1	6.1	176.90	26.2	14.7	73.4	61.4	12.04	6.099	
3,600.0	3,595.6	3,595.6	3,595.6	6.4	6.2	177.52	26.2	14.7	92.5	80.2	12.33	7.499	
3,700.0	3,693.1	3,693.1	3,693.1	6.7	6.4	177.99	26.2	14.7	115.0	102.4	12.62	9.114	
3,800.0	3,789.6	3,789.6	3,789.6	7.0	6.6	178.34	26.2	14.7	140.8	128.0	12.88	10.932	
3,900.0	3,885.3	3,885.3	3,885.3	7.3	6.8	178.61	26.2	14.7	170.1	156.9	13.14	12.944	
4,000.0	3,979.8	3,994.9	3,994.8	7.7	6.9	178.22	25.5	11.6	200.8	187.4	13.41	14.975	
4,100.0	4,073.2	4,122.9	4,120.0	8.2	7.2	174.12	19.8	-13.2	222.7	208.9	13.73	16.213	
4,200.0	4,165.2	4,250.1	4,236.9	8.7	7.6	166.55	8.7	-61.6	235.6	221.4	14.22	16.569	
4,300.0	4,255.8	4,366.1	4,333.1	9.3	8.2	156.67	-5.7	-124.6	244.2	229.1	15.13	16.143	
4,400.0	4,344.9	4,453.6	4,405.5	10.0	8.7	150.20	-18.6	-171.7	258.8	242.7	16.08	16.089	
4,500.0	4,432.4	4,546.3	4,488.5	10.7	9.2	146.99	-33.3	-210.2	280.3	263.4	16.97	16.518	
4,512.3	4,443.0	4,557.8	4,499.2	10.8	9.2	146.84	-35.2	-214.1	283.3	266.2	17.06	16.605	
4,600.0	4,518.8	4,639.9	4,576.9	11.5	9.5	147.24	-49.0	-236.2	305.1	287.5	17.65	17.284	
4,700.0	4,605.2	4,730.6	4,665.3	12.2	9.8	149.81	-64.7	-248.6	331.4	313.4	18.00	18.413	
4,746.4	4,645.2	4,770.7	4,704.8	12.6	9.9	151.53	-71.7	-250.0	344.5	326.4	18.05	19.086	
4,750.0	4,648.4	4,773.8	4,707.9	12.6	9.9	152.18	-72.2	-250.0	345.5	327.5	18.04	19.152	
4,800.0	4,692.1	4,815.8	4,749.2	13.0	9.9	161.54	-79.5	-248.5	360.4	342.5	17.93	20.100	

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

Cathedral Energy Services

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
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Reference Site: S24-T24N-R9W (Escrito I24)
Site Error: 0.0usft
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Well Error: 0.0usft
Reference Wellbore: HZ
Reference Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 04H
TVD Reference: 16' KB @ 6908.0usft
MD Reference: 16' KB @ 6908.0usft
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 S24-T24N-R9W (Escrito I24) - Escrito I24A-2409 03H - HZ - Plan #1													Offset Site Error: 0.0 usft
Survey Program: 0-Geolink MWD													Offset Well Error: 0.0 usft
Reference	Offset	Semi Major Axis		Distance		Total		Separation		Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis	Factor	
4,850.0	4,736.5	4,856.9	4,789.5	13.4	10.0	171.59	-86.7	-244.4	375.8	358.0	17.82	21.089	
4,900.0	4,781.4	4,900.0	4,831.3	13.7	10.0	-177.69	-94.1	-237.3	391.6	373.9	17.72	22.103	
4,950.0	4,826.6	4,937.1	4,866.9	14.0	10.0	-166.82	-100.4	-228.9	407.7	390.0	17.66	23.086	
5,000.0	4,871.9	4,976.3	4,903.8	14.3	10.0	-155.90	-107.0	-217.7	423.8	406.2	17.63	24.041	
5,050.0	4,917.1	5,014.9	4,939.5	14.5	9.9	-145.43	-113.3	-204.5	439.9	422.3	17.64	24.940	
5,100.0	4,961.8	5,050.0	4,971.3	14.8	9.9	-135.79	-119.0	-190.5	455.9	438.2	17.70	25.766	
5,150.0	5,006.0	5,090.8	5,007.1	15.0	9.9	-127.01	-125.3	-172.2	471.7	453.9	17.79	26.518	
5,200.0	5,049.4	5,128.2	5,038.9	15.2	9.8	-119.31	-131.0	-153.3	487.1	469.2	17.93	27.174	
5,250.0	5,091.7	5,165.2	5,069.2	15.4	9.8	-112.61	-136.4	-132.8	502.1	484.0	18.10	27.736	
5,300.0	5,132.9	5,200.0	5,096.6	15.6	9.8	-106.82	-141.2	-111.9	516.6	498.3	18.31	28.213	
5,350.0	5,172.6	5,238.5	5,125.6	15.8	9.8	-101.79	-146.4	-87.1	530.5	511.9	18.57	28.561	
5,400.0	5,210.7	5,274.8	5,151.5	15.9	9.8	-97.47	-151.0	-62.0	543.8	524.9	18.88	28.804	
5,450.0	5,246.9	5,311.0	5,175.8	16.1	9.9	-93.74	-155.3	-35.7	556.4	537.1	19.24	28.921	
5,500.0	5,281.3	5,350.0	5,200.4	16.3	10.0	-90.51	-159.7	-5.7	568.2	548.6	19.61	28.973	
5,550.0	5,313.4	5,382.8	5,219.7	16.5	10.1	-87.75	-163.1	20.6	579.2	559.2	20.04	28.906	
5,600.0	5,343.3	5,418.6	5,239.1	16.7	10.2	-85.35	-166.6	50.4	589.4	568.9	20.54	28.691	
5,650.0	5,370.7	5,450.0	5,254.8	17.0	10.4	-83.31	-169.4	77.5	598.7	577.7	21.06	28.432	
5,700.0	5,395.5	5,489.8	5,272.7	17.2	10.7	-81.55	-172.6	112.9	607.1	585.3	21.72	27.944	
5,750.0	5,417.7	5,525.3	5,286.9	17.5	11.1	-80.07	-175.1	145.4	614.5	592.1	22.42	27.411	
5,800.0	5,437.0	5,560.8	5,299.2	17.9	11.4	-78.84	-177.3	178.6	620.9	597.7	23.17	26.802	
5,850.0	5,453.4	5,600.0	5,310.7	18.3	11.9	-77.84	-179.3	216.0	626.3	602.3	24.03	26.067	
5,900.0	5,466.8	5,631.7	5,318.3	18.7	12.4	-77.05	-180.7	246.8	630.7	605.9	24.86	25.369	
5,950.0	5,477.2	5,667.1	5,325.1	19.2	12.9	-76.47	-181.9	281.5	634.1	608.3	25.79	24.585	
6,000.0	5,484.5	5,700.0	5,329.6	19.7	13.4	-76.08	-182.7	314.0	636.4	609.7	26.72	23.819	
6,050.0	5,488.6	5,738.0	5,332.7	20.3	14.1	-75.87	-183.3	351.9	637.6	609.9	27.78	22.950	
6,093.4	5,489.7	5,768.8	5,333.7	20.8	14.6	-75.85	-183.5	382.6	637.9	609.2	28.69	22.235	
6,100.0	5,489.6	5,775.1	5,333.7	20.9	14.7	-75.85	-183.5	389.0	637.8	608.9	28.93	22.051	
6,134.2	5,489.5	5,806.9	5,333.6	21.4	15.3	-75.85	-183.5	420.8	637.8	607.7	30.18	21.136	
6,200.0	5,489.3	5,872.8	5,333.3	22.3	16.6	-75.85	-183.4	486.6	637.8	605.1	32.72	19.491	
6,300.0	5,488.9	5,972.8	5,333.0	23.9	18.6	-75.85	-183.4	586.6	637.8	601.1	36.78	17.343	
6,400.0	5,488.6	6,072.8	5,332.7	25.7	20.7	-75.85	-183.4	686.6	637.8	596.8	40.99	15.559	
6,500.0	5,488.2	6,172.8	5,332.3	27.6	22.9	-75.85	-183.3	786.6	637.8	592.5	45.33	14.071	
6,600.0	5,487.9	6,272.8	5,332.0	29.6	25.2	-75.85	-183.3	886.6	637.8	588.1	49.75	12.821	
6,700.0	5,487.5	6,372.8	5,331.6	31.6	27.4	-75.85	-183.3	986.6	637.8	583.6	54.23	11.761	
6,800.0	5,487.2	6,472.8	5,331.3	33.8	29.8	-75.85	-183.2	1,086.6	637.8	579.1	58.77	10.854	
6,900.0	5,486.8	6,572.8	5,330.9	35.9	32.1	-75.85	-183.2	1,186.6	637.8	574.5	63.34	10.070	
7,000.0	5,486.5	6,672.8	5,330.6	38.1	34.5	-75.85	-183.2	1,286.6	637.8	569.9	67.94	9.388	
7,100.0	5,486.1	6,772.8	5,330.2	40.4	36.8	-75.85	-183.1	1,386.6	637.8	565.3	72.57	8.789	
7,200.0	5,485.8	6,872.8	5,329.9	42.6	39.2	-75.85	-183.1	1,486.6	637.8	560.6	77.23	8.259	
7,300.0	5,485.4	6,972.8	5,329.5	44.9	41.6	-75.85	-183.1	1,586.6	637.8	555.9	81.89	7.789	
7,400.0	5,485.1	7,072.8	5,329.2	47.2	44.0	-75.85	-183.0	1,686.6	637.8	551.3	86.58	7.367	
7,500.0	5,484.7	7,172.8	5,328.8	49.6	46.4	-75.85	-183.0	1,786.6	637.8	546.6	91.27	6.988	
7,600.0	5,484.4	7,272.8	5,328.5	51.9	48.9	-75.85	-183.0	1,886.6	637.8	541.9	95.98	6.646	
7,700.0	5,484.0	7,372.8	5,328.1	54.3	51.3	-75.85	-182.9	1,986.6	637.8	537.1	100.69	6.335	
7,800.0	5,483.7	7,472.8	5,327.8	56.6	53.7	-75.85	-182.9	2,086.6	637.8	532.4	105.41	6.051	
7,900.0	5,483.3	7,572.8	5,327.4	59.0	56.1	-75.85	-182.9	2,186.6	637.8	527.7	110.14	5.791	
8,000.0	5,483.0	7,672.8	5,327.1	61.4	58.6	-75.85	-182.8	2,286.6	637.8	523.0	114.87	5.552	
8,100.0	5,482.6	7,772.8	5,326.7	63.8	61.0	-75.85	-182.8	2,386.6	637.8	518.2	119.61	5.332	
8,200.0	5,482.3	7,872.8	5,326.4	66.2	63.5	-75.85	-182.8	2,486.6	637.8	513.5	124.36	5.129	
8,300.0	5,481.9	7,972.8	5,326.0	68.5	65.9	-75.85	-182.7	2,586.6	637.8	508.7	129.11	4.940	
8,400.0	5,481.6	8,072.8	5,325.7	71.0	68.4	-75.85	-182.7	2,686.6	637.8	504.0	133.86	4.765	
8,500.0	5,481.2	8,172.8	5,325.3	73.4	70.8	-75.85	-182.7	2,786.6	637.8	499.2	138.61	4.602	

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

Cathedral Energy Services

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S24-T24N-R9W (Escrito I24)
Site Error: 0.0usft
Reference Well: Escrito I24A-2409 04H
Well Error: 0.0usft
Reference Wellbore: HZ
Reference Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 04H
TVD Reference: 16' KB @ 6908.0usft
MD Reference: 16' KB @ 6908.0usft
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 S24-T24N-R9W (Escrito I24) - Escrito I24A-2409 03H - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 usft
Reference	Offset	Semi Major Axis		Distance		Total		Separation		Warning				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Tooface (")	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis	Factor		
8,600.0	5,480.9	8,272.8	5,325.0	75.8	73.3	-75.85	-182.6	2,886.6	637.8	494.5	143.37	4.449		
8,700.0	5,480.5	8,372.8	5,324.6	78.2	75.7	-75.85	-182.6	2,986.6	637.8	489.7	148.13	4.306		
8,800.0	5,480.2	8,472.8	5,324.3	80.6	78.2	-75.85	-182.6	3,086.6	637.8	484.9	152.90	4.172		
8,900.0	5,479.8	8,572.8	5,323.9	83.0	80.6	-75.85	-182.5	3,186.6	637.8	480.2	157.66	4.046		
9,000.0	5,479.5	8,672.8	5,323.6	85.5	83.1	-75.85	-182.5	3,286.6	637.8	475.4	162.43	3.927		
9,100.0	5,479.1	8,772.8	5,323.2	87.9	85.5	-75.85	-182.5	3,386.6	637.8	470.6	167.20	3.815		
9,200.0	5,478.8	8,872.8	5,322.9	90.3	88.0	-75.85	-182.4	3,486.6	637.8	465.9	171.97	3.709		
9,300.0	5,478.4	8,972.8	5,322.5	92.8	90.4	-75.85	-182.4	3,586.6	637.8	461.1	176.74	3.609		
9,400.0	5,478.1	9,072.8	5,322.2	95.2	92.9	-75.85	-182.4	3,686.6	637.8	456.3	181.52	3.514		
9,500.0	5,477.8	9,172.8	5,321.8	97.6	95.4	-75.85	-182.3	3,786.6	637.8	451.5	186.29	3.424		
9,600.0	5,477.4	9,272.8	5,321.5	100.1	97.8	-75.85	-182.3	3,886.6	637.8	446.8	191.07	3.338		
9,700.0	5,477.1	9,372.8	5,321.1	102.5	100.3	-75.85	-182.3	3,986.6	637.8	442.0	195.84	3.257		
9,800.0	5,476.7	9,472.8	5,320.8	105.0	102.7	-75.85	-182.2	4,086.6	637.8	437.2	200.62	3.179		
9,900.0	5,476.4	9,572.8	5,320.4	107.4	105.2	-75.85	-182.2	4,186.6	637.8	432.4	205.40	3.105		
10,000.0	5,476.0	9,672.8	5,320.1	109.8	107.7	-75.85	-182.2	4,286.6	637.8	427.6	210.18	3.035		
10,100.0	5,475.7	9,772.8	5,319.7	112.3	110.1	-75.85	-182.1	4,386.6	637.8	422.9	214.97	2.967		
10,200.0	5,475.3	9,872.8	5,319.4	114.7	112.6	-75.85	-182.1	4,486.6	637.8	418.1	219.75	2.903		
10,300.0	5,475.0	9,972.8	5,319.0	117.2	115.1	-75.85	-182.1	4,586.6	637.8	413.3	224.53	2.841		
10,400.0	5,474.6	10,072.8	5,318.7	119.6	117.5	-75.85	-182.0	4,686.6	637.8	408.5	229.31	2.781		
10,500.0	5,474.3	10,172.8	5,318.3	122.1	120.0	-75.85	-182.0	4,786.6	637.8	403.7	234.10	2.725		
10,600.0	5,473.9	10,272.8	5,318.0	124.5	122.5	-75.85	-182.0	4,886.6	637.8	398.9	238.88	2.670		
10,700.0	5,473.6	10,372.8	5,317.6	127.0	124.9	-75.85	-181.9	4,986.6	637.8	394.2	243.67	2.618		
10,743.2	5,473.4	10,416.0	5,317.5	128.1	126.0	-75.85	-181.9	5,029.8	637.8	392.1	245.74	2.596 SF		

Cathedral Energy Services

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S24-T24N-R9W (Escrito I24)
Site Error: 0.0usft
Reference Well: Escrito I24A-2409 04H
Well Error: 0.0usft
Reference Wellbore: HZ
Reference Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 04H
TVD Reference: 16' KB @ 6908.0usft
MD Reference: 16' KB @ 6908.0usft
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 S24-T24N-R9W (Escrito I24) - Escrito I24A-2409 05H - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-151.15	-26.2	-14.4	29.9					
100.0	100.0	100.0	100.0	0.1	0.1	-151.15	-26.2	-14.4	29.9	29.6	0.29	102.055		
200.0	200.0	200.0	200.0	0.3	0.3	-151.15	-26.2	-14.4	29.9	29.3	0.64	46.590		
300.0	300.0	300.0	300.0	0.5	0.5	-151.15	-26.2	-14.4	29.9	28.9	0.99	30.185		
400.0	400.0	400.0	400.0	0.7	0.7	-151.15	-26.2	-14.4	29.9	28.6	1.34	22.324		
500.0	500.0	500.0	500.0	0.8	0.8	-151.15	-26.2	-14.4	29.9	28.2	1.69	17.712		
600.0	600.0	600.0	600.0	1.0	1.0	-151.15	-26.2	-14.4	29.9	27.9	2.04	14.679		
700.0	700.0	700.0	700.0	1.2	1.2	-151.15	-26.2	-14.4	29.9	27.5	2.39	12.533		
800.0	800.0	800.0	800.0	1.4	1.4	-151.15	-26.2	-14.4	29.9	27.2	2.74	10.934		
900.0	900.0	900.0	900.0	1.5	1.5	-151.15	-26.2	-14.4	29.9	26.8	3.09	9.697		
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	-151.15	-26.2	-14.4	29.9	26.5	3.43	8.712		
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	-151.15	-26.2	-14.4	29.9	26.1	3.78	7.908		
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	-151.15	-26.2	-14.4	29.9	25.8	4.13	7.240		
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	-151.15	-26.2	-14.4	29.9	25.4	4.48	6.676		
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	-151.15	-26.2	-14.4	29.9	25.1	4.83	6.194		
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	-151.15	-26.2	-14.4	29.9	24.7	5.18	5.777		
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	-151.15	-26.2	-14.4	29.9	24.4	5.53	5.412		
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	-151.15	-26.2	-14.4	29.9	24.0	5.88	5.091		
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	-151.15	-26.2	-14.4	29.9	23.7	6.23	4.805		
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	-151.15	-26.2	-14.4	29.9	23.3	6.58	4.550		
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	-151.15	-26.2	-14.4	29.9	23.0	6.93	4.321		
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	-151.15	-26.2	-14.4	29.9	22.6	7.27	4.114		
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	-151.15	-26.2	-14.4	29.9	22.3	7.62	3.925		
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	-151.15	-26.2	-14.4	29.9	22.0	7.97	3.753		
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	-151.15	-26.2	-14.4	29.9	21.6	8.32	3.596		
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	-151.15	-26.2	-14.4	29.9	21.3	8.67	3.451		
2,600.0	2,600.0	2,600.0	2,600.0	4.5	4.5	-151.15	-26.2	-14.4	29.9	20.9	9.02	3.318		
2,700.0	2,700.0	2,700.0	2,700.0	4.7	4.7	-151.15	-26.2	-14.4	29.9	20.6	9.37	3.194 CC, ES		
2,800.0	2,800.0	2,799.6	2,799.5	4.9	4.9	-154.14	-27.6	-13.4	30.6	20.9	9.72	3.153 SF		
2,900.0	2,900.0	2,898.9	2,898.7	5.0	5.0	-162.21	-31.6	-10.1	33.2	23.2	10.07	3.300		
3,000.0	3,000.0	2,997.7	2,997.2	5.2	5.2	-172.84	-38.3	-4.8	38.7	28.3	10.41	3.717		
3,100.0	3,100.0	3,095.9	3,094.6	5.4	5.4	-41.18	-47.6	2.6	46.6	35.9	10.77	4.330		
3,200.0	3,199.8	3,193.2	3,190.8	5.6	5.6	-53.08	-59.3	11.9	56.8	45.7	11.11	5.117		
3,300.0	3,299.5	3,289.4	3,285.3	5.7	5.8	-64.00	-73.5	23.2	70.5	59.1	11.45	6.157		
3,400.0	3,398.7	3,384.3	3,377.8	5.9	6.1	-73.21	-89.8	36.2	88.3	76.5	11.81	7.476		
3,500.0	3,497.5	3,477.6	3,468.1	6.1	6.4	-80.58	-108.3	50.9	110.4	98.2	12.19	9.052		
3,600.0	3,595.6	3,569.3	3,556.0	6.4	6.7	-86.35	-128.6	67.1	136.6	124.0	12.61	10.839		
3,700.0	3,693.1	3,659.0	3,641.2	6.7	7.1	-90.82	-150.6	84.6	167.0	153.9	13.06	12.784		
3,800.0	3,789.6	3,746.8	3,723.6	7.0	7.5	-94.29	-174.1	103.4	201.3	187.7	13.57	14.832		
3,900.0	3,885.3	3,832.3	3,803.1	7.3	7.9	-96.98	-199.0	123.2	239.2	225.1	14.13	16.932		
4,000.0	3,979.8	3,915.7	3,879.5	7.7	8.4	-99.06	-225.0	143.9	280.7	265.9	14.74	19.039		
4,100.0	4,073.2	4,000.0	3,955.8	8.2	8.9	-100.75	-253.0	166.2	325.5	310.1	15.43	21.100		
4,200.0	4,165.2	4,075.4	4,023.2	8.7	9.4	-101.85	-279.6	187.3	373.5	357.4	16.16	23.111		
4,300.0	4,255.8	4,151.6	4,090.3	9.3	9.9	-102.73	-307.8	209.8	424.6	407.6	16.96	25.029		
4,400.0	4,344.9	4,234.3	4,162.5	10.0	10.6	-103.64	-339.3	234.9	477.8	460.0	17.86	26.751		
4,500.0	4,432.4	4,316.7	4,234.4	10.7	11.2	-104.51	-370.7	259.9	532.2	513.4	18.83	28.272		
4,512.3	4,443.0	4,326.7	4,243.2	10.8	11.3	-104.62	-374.5	263.0	539.0	520.0	18.95	28.448		
4,600.0	4,518.8	4,398.3	4,305.8	11.5	11.8	-106.33	-401.8	284.7	587.6	567.7	19.87	29.578		
4,700.0	4,605.2	4,480.0	4,377.1	12.2	12.5	-107.97	-432.9	309.5	643.4	622.4	20.94	30.719		
4,746.4	4,645.2	4,517.8	4,410.1	12.6	12.8	-108.65	-447.3	321.0	669.4	647.9	21.45	31.204		
4,750.0	4,648.4	4,520.8	4,412.7	12.6	12.8	-108.32	-448.5	321.9	671.4	649.9	21.51	31.209		
4,800.0	4,692.1	4,562.7	4,449.3	13.0	13.2	-103.26	-464.4	334.6	697.8	675.5	22.33	31.254		

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

Cathedral Energy Services

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S24-T24N-R9W (Escrito I24)
Site Error: 0.0usft
Reference Well: Escrito I24A-2409 04H
Well Error: 0.0usft
Reference Wellbore: HZ
Reference Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 04H
TVD Reference: 16' KB @ 6908.0usft
MD Reference: 16' KB @ 6908.0usft
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 S24-T24N-R9W (Escrito I24) - Escrito I24A-2409 05H - HZ - Plan #1														Offset Site Error:	0.0 usft
Survey Program: 0-Geolink MWD														Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Total Uncertainty Axis	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)					
4,850.0	4,736.5	4,606.5	4,487.5	13.4	13.5	-97.08	-481.1	347.9	721.4	698.3	23.10	31.232			
4,900.0	4,781.4	4,651.8	4,527.1	13.7	13.9	-89.96	-498.4	361.6	741.9	718.1	23.81	31.154			
4,950.0	4,826.6	4,698.5	4,567.9	14.0	14.3	-82.18	-516.2	375.8	759.3	734.9	24.46	31.038			
5,000.0	4,871.9	4,743.8	4,618.2	14.3	22.0	19.58	-936.8	-332.8	745.8	724.1	21.78	34.250			
5,050.0	4,917.1	4,789.8	4,663.5	14.5	21.9	45.44	-936.8	-328.8	696.8	675.8	20.93	33.283			
5,100.0	4,961.8	4,834.4	4,709.7	14.8	21.8	64.26	-936.6	-321.4	648.2	625.9	22.21	29.185			
5,150.0	5,006.0	4,881.5	4,756.0	15.0	21.7	78.01	-936.4	-310.5	600.3	576.8	23.46	25.594			
5,200.0	5,049.4	4,927.3	4,801.8	15.2	21.6	88.28	-936.2	-296.3	553.5	529.2	24.26	22.813			
5,250.0	5,091.7	4,969.6	4,843.0	15.4	21.3	95.47	-935.8	-274.1	507.9	483.3	24.59	20.657			
5,300.0	5,132.9	5,011.8	4,885.0	15.6	20.8	96.99	-933.8	-220.7	462.9	438.7	24.16	19.162			
5,350.0	5,172.6	5,051.5	4,924.7	15.8	20.5	98.23	-930.9	-175.8	418.2	394.4	23.79	17.579			
5,400.0	5,210.7	5,091.6	4,965.1	15.9	20.1	98.94	-927.4	-136.3	374.2	350.7	23.45	15.955			
5,450.0	5,246.9	5,131.7	5,001.0	16.1	19.9	98.93	-923.4	-100.6	331.0	307.9	23.11	14.322			
5,500.0	5,281.3	5,166.0	5,035.3	16.3	19.7	98.04	-919.0	-67.6	289.1	266.3	22.78	12.690			
5,550.0	5,313.4	5,197.1	5,065.4	16.5	19.5	96.09	-914.2	-36.7	248.8	226.3	22.49	11.062			
5,600.0	5,343.3	5,227.0	5,095.3	16.7	19.3	92.87	-909.1	-7.4	210.8	188.6	22.21	9.493			
5,650.0	5,370.7	5,254.4	5,124.2	17.0	19.2	88.15	-903.7	20.5	176.4	154.4	21.96	8.033			
5,700.0	5,395.5	5,279.1	5,148.9	17.2	19.0	81.71	-897.9	47.1	147.4	125.7	21.68	6.799			
5,750.0	5,417.7	5,301.3	5,170.0	17.5	18.9	73.44	-891.8	72.7	127.0	105.7	21.32	5.956			
5,800.0	5,437.0	5,320.0	5,188.0	17.9	18.8	63.57	-885.5	97.3	118.8	98.1	20.75	5.725			
5,804.1	5,438.4	5,321.4	5,189.4	17.9	18.8	62.70	-884.9	99.3	118.8	98.1	20.69	5.739			
5,850.0	5,453.4	5,336.4	5,203.4	18.3	18.7	52.76	-878.8	120.9	124.5	104.7	19.82	6.280			
5,900.0	5,466.8	5,349.8	5,216.8	18.7	18.6	42.01	-871.9	143.7	141.6	123.0	18.59	7.615			
5,950.0	5,477.2	5,359.2	5,226.2	19.2	18.5	32.20	-864.7	165.6	166.0	148.7	17.24	9.625			
6,000.0	5,484.5	5,366.5	5,233.5	19.7	18.4	23.80	-857.2	186.6	194.3	178.3	16.02	12.130			
6,050.0	5,488.6	5,370.6	5,237.6	20.3	18.4	16.87	-849.5	206.8	224.5	209.5	15.08	14.891			
6,093.4	5,489.7	5,371.7	5,238.7	20.8	18.3	11.90	-842.6	223.7	251.4	236.9	14.56	17.268			
6,100.0	5,489.6	5,371.6	5,238.6	20.9	18.3	11.46	-841.5	226.2	255.6	241.0	14.51	17.612			
6,200.0	5,489.3	5,371.3	5,238.3	22.3	18.2	6.06	-826.2	259.9	322.3	308.3	13.98	23.057			
6,300.0	5,488.9	5,370.9	5,237.9	23.9	18.1	2.29	-812.3	286.9	395.5	381.7	13.78	28.702			
6,400.0	5,488.6	5,370.6	5,237.6	25.7	18.0	-0.45	-799.7	308.6	473.4	459.6	13.81	34.289			
6,500.0	5,488.2	5,370.2	5,237.2	27.6	17.9	-2.24	-790.0	324.0	554.8	540.8	13.99	39.661			
6,600.0	5,487.9	5,369.9	5,236.9	29.6	17.8	-4.05	-778.5	340.5	639.0	624.7	14.27	44.766			
6,700.0	5,487.5	5,369.5	5,236.5	31.6	17.8	-4.95	-772.0	349.1	725.5	710.9	14.61	49.653			
6,800.0	5,487.2	5,369.2	5,236.2	33.8	17.7	-6.27	-761.4	362.2	813.6	798.5	15.06	54.021			
6,900.0	5,486.8	5,368.8	5,235.8	35.9	17.6	-7.15	-753.5	371.1	903.3	887.7	15.54	58.141			
7,000.0	5,486.5	5,368.5	5,235.5	38.1	17.6	-7.75	-747.5	377.3	994.1	978.1	16.02	62.063			
7,100.0	5,486.1	5,368.1	5,235.1	40.4	17.5	-8.32	-741.6	383.2	1,086.0	1,069.5	16.54	65.672			
7,200.0	5,485.8	5,367.8	5,234.8	42.6	17.5	-8.95	-734.4	389.9	1,178.7	1,161.6	17.13	68.829			

Cathedral Energy Services

Anticollision Report

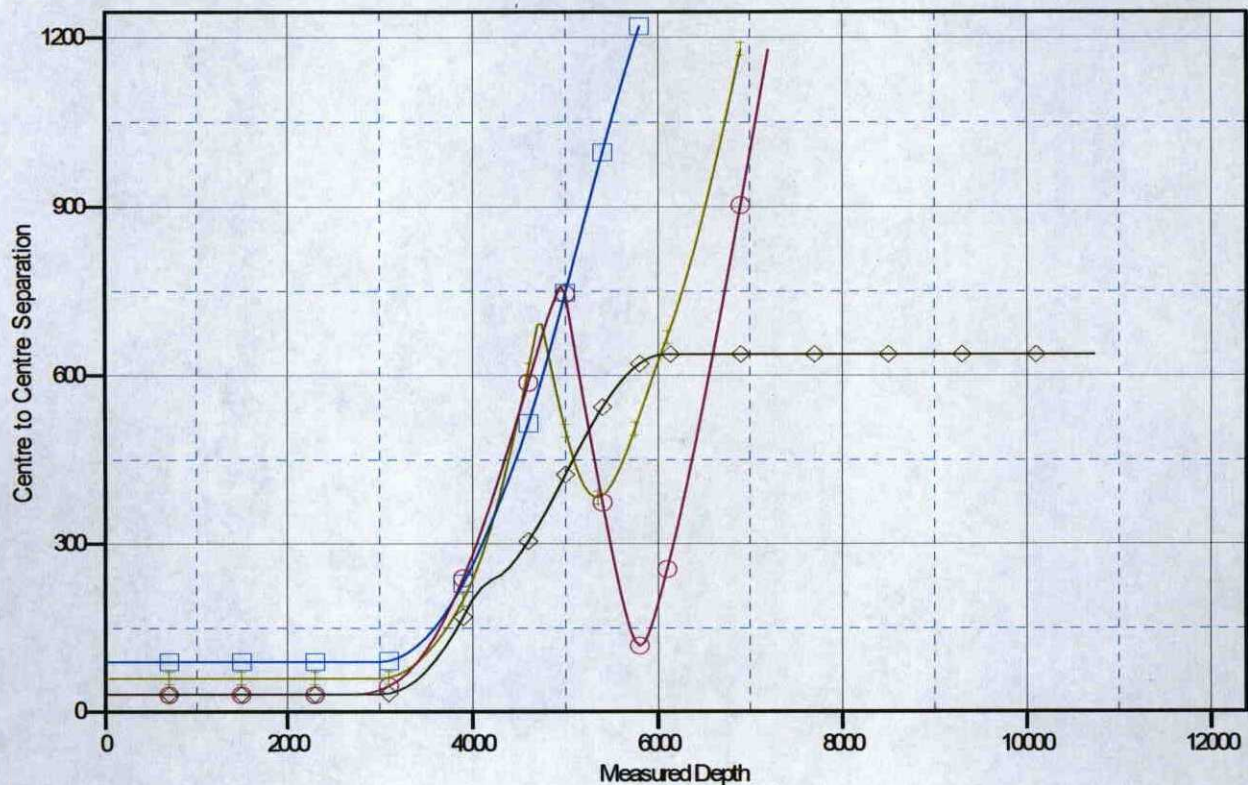
Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S24-T24N-R9W (Escrito I24)
Site Error: 0.0usft
Reference Well: Escrito I24A-2409 04H
Well Error: 0.0usft
Reference Wellbore: HZ
Reference Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 04H
TVD Reference: 16' KB @ 6908.0usft
MD Reference: 16' KB @ 6908.0usft
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 @ 6908.0usft
 Offset Depths are relative to Offset Datum
 Central Meridian is -107.833333 °

Coordinates are relative to: Escrito I24A-2409 04H
 Coordinate System is US State Plane 1983, New Mexico Western Zone
 Grid Convergence at Surface is: 0.06°

Ladder Plot



LEGEND

Escrito I24A-2409 02H, HZ, Plan #1 V0
 Escrito I24A-2409 05H, HZ, Plan #1 V0
 Escrito I24A-2409 01H, HZ, Plan #1 V0
 Escrito I24A-2409 03H, HZ, Plan #1 V0

Escrito I24A-2409 04H

SHL: NESE Section 24, T24N, R9W
1569 FSL and 61 FEL

BHL: SESE Section 19, T24N, R8W
766 FSL and 330 FEL

San Juan County, New Mexico

Lease Number: NM 41650

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.

4. 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 7.8 feet on corner 2 and the maximum fill will be approximately 9.1 feet on corner 5.

5. As determined during the onsite on September 10, 2014, the following best management practices will be implemented:
 - a. Water will be diverted around the pad from corner 2 toward corner 3. Water will be diverted around the pad from corner 2 toward corner 6.
6. 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 2 to 4 weeks.
7. There will be 9 feet of Fill on Escrito I24 Pad and it will be pulled back in upon interim reclamation.

C. Pipeline

See the Plan of Development submitted with the final modifications to the Standard SF-299 Application for authorization to construct, operate, maintain and terminate a 73 foot, up to 6-inch outside diameter, buried steel well connect pipeline that was submitted to the BLM concurrently with the APD.

7. METHODS FOR HANDLING WASTE

A. Cuttings

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

ENCANA OIL & GAS (USA) INC.

ESCRITO I24A-2409 #04H

1569' FSL & 61' FEL

LOCATED IN THE NE/4 SE/4 OF SECTION 24, T24N, R9W, N.M.P.M.,
SAN JUAN COUNTY, NEW MEXICO

DIRECTIONS

- 1) FROM THE INTERSECTION OF HWY 64 & HWY 550 IN BLOOMFIELD, GO SOUTH ON HWY 550, 35.0 MILES TO INDIAN SERVICE ROAD 459 (M.P. 116.6) .
- 2) TURN LEFT ONTO ISR 459 AND GO 0.7 MILES TO "Y" INTERSECTION.
- 3) CONTINUE LEFT ON ISR 459 AND GO 0.9 MILES.
- 4) TURN RIGHT AND GO 0.1 MILE TO WHERE PAD IS STAKED ON EAST SIDE OF ROAD.

WELL FLAG LOCATED AT LAT. 36.296883° N, LONG. 107.732113° W (NAD 83).



WELLHEAD BLOWOUT CONTROL SYSTEM

encana

Well Name and Number:
Escrito I24A-2409 04H

