

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;

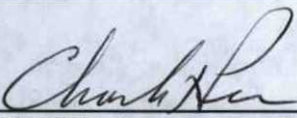
Operator Encana, Well Name and Number Escrito 124A 2409 #5H

API# 30-045-35654, 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 NSL, HC
- ☐ 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 XC

OIL CONS. DIV DIST. 3

Form 3160-3
(March 2012)

SEP 23 2015

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

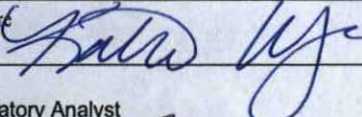
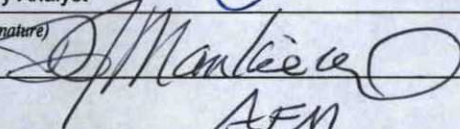
FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMSF 078860
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 05H
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface 1543' FSL, 76' FEL, Section 24, T24N, R9W At proposed prod. zone 638' FSL, 330' FWL, Section 24, T24N, R9W		9. API Well No. 30-045-35654
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' FWL Section 24, T24N, R9W (Also to nearest drig. unit line, if any)	16. No. of acres in lease NMSF 07886- 2,560 acres	11. Sec., T. R. M. or Blk. and Survey or Area Section 24, T24N, R9W NMPM
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. SHL is +/- 30' S of Escrito I24A-2409 04H	19. Proposed Depth 5461' TVD, 10788' MD	12. County or Parish San Juan
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6892' GL; 6908' KB	22. Approximate date work will start* 08/25/2015	13. State NM
17. Spacing Unit dedicated to this well 320 acres- S/2 Section 24, T24N, R9W		
20. BLM/BIA Bond No. on file COB-000235		
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) AFM	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)
technical and procedural review
pursuant to 43 CFR 3165.3 and
appeal pursuant to 43 CFR 3165.4

*(Instructions on page 2)

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

DISTRICT I
1625 N. French Dr., Hobbs, N.M. 88240
Phone: (505) 393-6161 Fax: (505) 393-0720

DISTRICT II
611 S. First St., Artesia, N.M. 88210
Phone: (505) 748-1283 Fax: (505) 748-9720

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410
Phone: (505) 334-6176 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

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 30-045-35654	² Pool Code 97232	³ Pool Name BASIN MANCOS
⁴ Property Code 315291	⁵ Property Name ESCRITO 124A-2409	⁶ Well Number 05H
⁷ OGRID 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		1543'	SOUTH	76'	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
M	24	24N	9W		638'	SOUTH	330'	WEST	SAN JUAN

¹² Dedicated Acres 320.00 ACRES S/2 SEC. 24	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

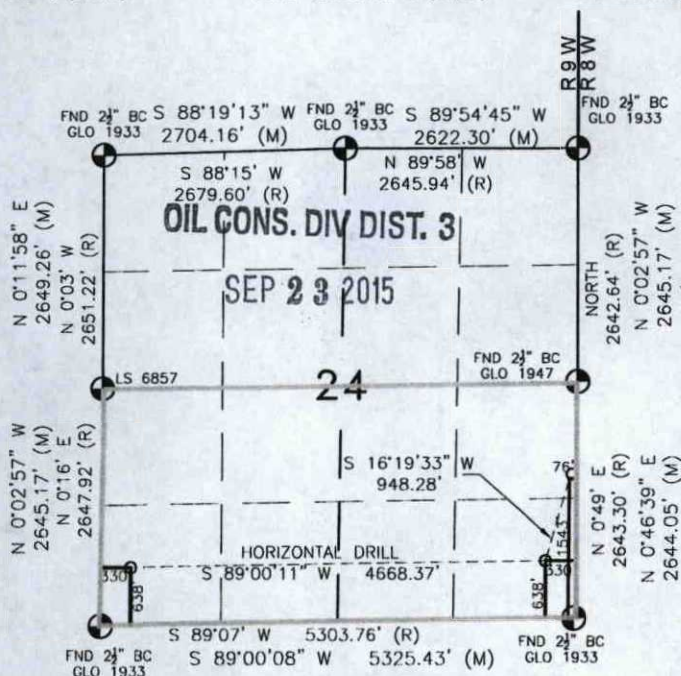
LAT. 36.296811° N (NAD83)
LONG. 107.732162° W (NAD83)
LAT. 36.296799° N (NAD27)
LONG. 107.731549° W (NAD27)

ENTRY POINT

LAT. 36.294312° N (NAD83)
LONG. 107.733066° W (NAD83)
LAT. 36.294300° N (NAD27)
LONG. 107.732453° W (NAD27)

BOTTOM HOLE

LAT. 36.294086° N (NAD83)
LONG. 107.748899° W (NAD83)
LAT. 36.294074° N (NAD27)
LONG. 107.748286° W (NAD27)



NORTHEAST CORNER SEC. 24
LAT. 36.307099° N (NAD83)
LONG. 107.731865° W (NAD83)
LAT. 36.307087° N (NAD27)
LONG. 107.731252° W (NAD27)

NORTHWEST CORNER SEC. 24
LAT. 36.306867° N (NAD83)
LONG. 107.749931° W (NAD83)
LAT. 36.306855° N (NAD27)
LONG. 107.749317° W (NAD27)

SOUTHEAST CORNER SEC. 24
LAT. 36.292576° N (NAD83)
LONG. 107.731976° W (NAD83)
LAT. 36.292564° N (NAD27)
LONG. 107.731363° W (NAD27)

SOUTHWEST CORNER SEC. 24
LAT. 36.292232° N (NAD83)
LONG. 107.750036° W (NAD83)
LAT. 36.292220° N (NAD27)
LONG. 107.749422° W (NAD27)

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.

Kathryn Wegner 3/2/15
Signature Date

Katie Wegner

Printed Name

Kathryn.Wegner@encana.com

E-mail Address

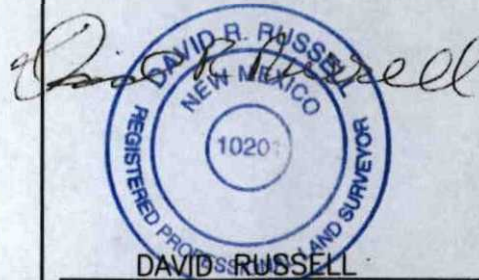
SURVEYOR CERTIFICATION

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 and Seal of Professional Surveyor:



Certificate Number

10201

Escrito I24A-2409 05H

SHL: 1543' FSL, 76' FEL, Sec 24, T24N, R9W

BHL: 638' FSL, 330' FWL, Sec 24, T24N, R9W

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.	1,054
Kirtland Shale	1,281
Fruitland Coal	1,536
Pictured Cliffs Ss.	1,820
Lewis Shale	1,914
Cliffhouse Ss.	2,657
Menefee Fn.	3,324
Point Lookout Ss.	4,221
Mancos Shale	4,444
Mancos Silt	4,959
Gallup Fn.	5,237
Base Gallup	5,568

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	1,536
Oil/Gas	Pictured Cliffs Ss.	1,820
Oil/Gas	Cliffhouse Ss.	2,657
Gas	Menefee Fn.	3,324
Oil/Gas	Point Lookout Ss.	4,221
Oil/Gas	Mancos Shale	4,444
Oil/Gas	Mancos Silt	4,959
Oil/Gas	Gallup Fn.	5,237

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

Escrito I24A-2409 05H

SHL: 1543' FSL, 76' FEL, Sec 24, T24N, R9W

BHL: 638' FSL, 330' FWL, Sec 24, T24N, R9W

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'-5632'	8 3/4"	7"	26#	J55, LTC New
Production Liner	5532'-10788'	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 05H

SHL: 1543' FSL, 76' FEL, Sec 24, T24N, R9W

BHL: 638' FSL, 330' FWL, Sec 24, T24N, R9W

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'-5632'	100% open hole excess Stage 1 Lead: 525 sks Stage 1 Tail: 399 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	5532'- 10788'	50% OH excess Stage 1 Blend Total: 297sks	Blend: 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 2.63 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 2700'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5461'/10788'	Gallup

Escrito I24A-2409 05H

SHL: 1543' FSL, 76' FEL, Sec 24, T24N, R9W

BHL: 638' FSL, 330' FWL, Sec 24, T24N, R9W

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'-5341'/5632	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"	5341'/5632'- 5461'/10788'	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 +/- 2568 psi based on a 9.0 ppg at 5487' 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: 1543' FSL, 76' FEL, Sec 24, T24N, R9W County: San Juan WELL: Escrito I24A-2409 05H			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 0	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	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.	1,054			8 3/4	7" 26ppf J55 LTC TOC @ surface (100% OH excess - 70% Lead 30% Tail) Stage 1 Total: 925sks Stage 1 Lead: 525 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: 399 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°
		Kirtland Shale	1,281						
		Fruiland Coal	1,536						
		Pictured Cliffs Ss.	1,820						
		Lewis Shale	1,914						
Mud logger onsite		Cliffhouse Ss.	2,657						
		Menefee Fn.	3,324						
		Point Lookout Ss.	4,221						
		Mancos Shale	4,444						
		KOP	2,700						
Surveys every 30' through the curve		Mancos Silt	4,959						
		Gallup Fn.	5,237						
		7" Csg	5,341						
Surveys every stand to TD unless directed otherwise by Geologist	No OH Logs	Horizontal Target TD	5,487 5,461	10,788		6 1/8	100' overlap at liner top		Horz Inc/TVD 90.34deg/5487.4ft
		Base Gallup	5,568			5157' Drilled Lateral			
MWD Gamma Directional							4 1/2" 11.6ppf SB80 LTC TOC @ hanger (50% OH excess) Stage 1 Total: 297sks Stage 1 Blend: 297 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 2.63 cuft/sk.	WBM 8.3-10	

NOTES:

- 1) Drill with 26" bit to 60', set 16" 42.09ppf conductor pipe
- 2) Drill surface to 500', R&C 9 5/8" casing
- 3) N/U BOP and surface equipment
- 4) Drill to KOP of 2700', 8 3/4 inch holesize
- 5) Start curve at 10deg/100' build rate
- 6) Drill to csg point of 5632' MD
- 7) R&C 7" csg, circ cmt to surface
- 8) Land at -90 deg, drill lateral to 10788' run 4 1/2 inch cemented liner

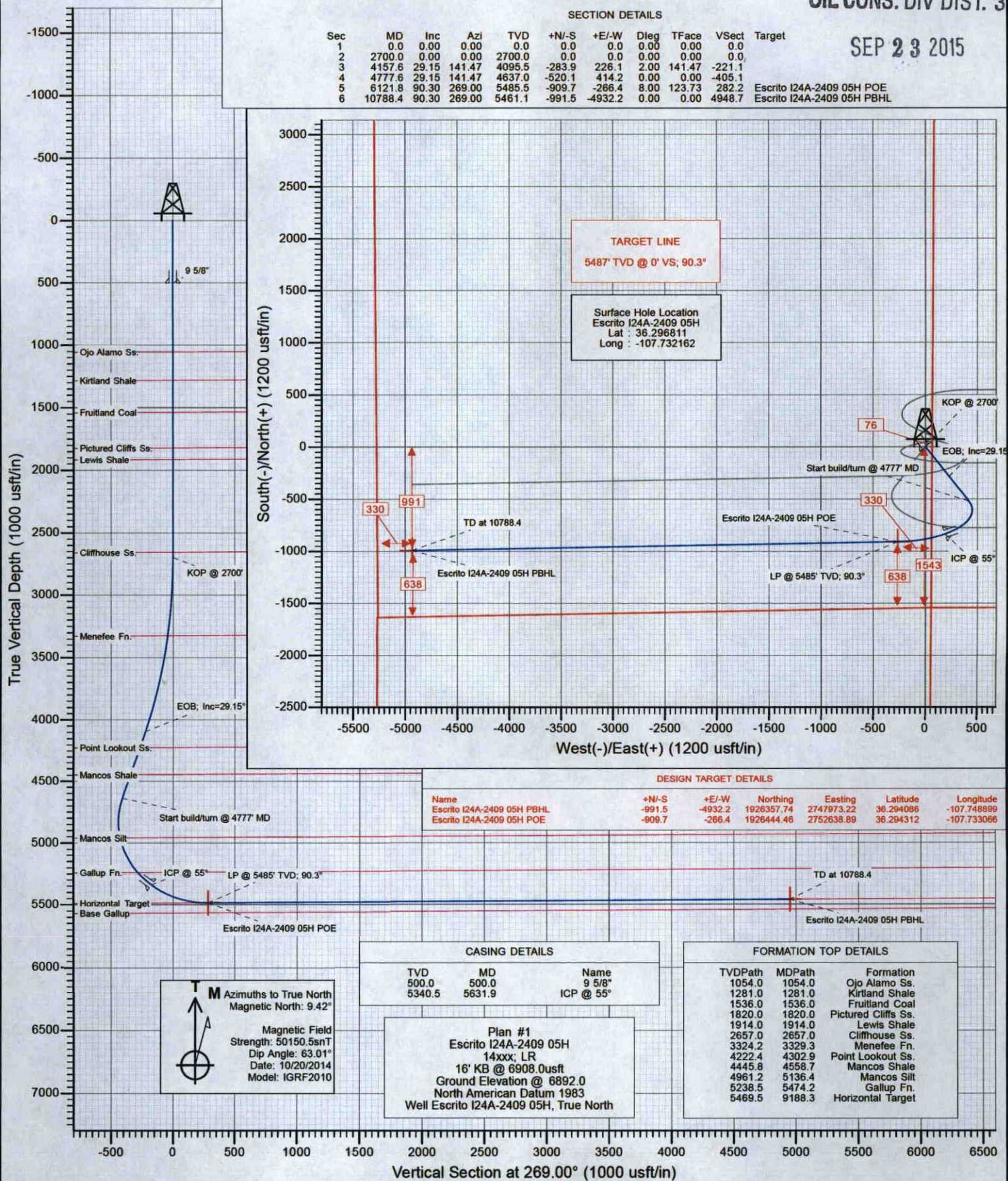


Project: San Juan County, NM
Site: S24-T24N-R9W (Escrito I24)
Well: Escrito I24A-2409 05H
Wellbore: HZ
Design: Plan #1



OIL CONS. DIV DIST. 3

SEP 23 2015



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 05H
 Wellbore: HZ
 Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 05H
 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 System Datum: Mean Sea Level
 Geo Datum: North American Datum 1983
 Map Zone: New Mexico Western Zone

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 05H

Well Position +N/-S 0.0 usft Northing: 1,927,354.44 usft Latitude: 36.296811
 +E/-W 0.0 usft Easting: 2,752,904.34 usft Longitude: -107.732162
 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	269.00

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	
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,157.6	29.15	141.47	4,095.5	-283.9	226.1	2.00	2.00	0.00	141.47	
4,777.6	29.15	141.47	4,637.0	-520.1	414.2	0.00	0.00	0.00	0.00	
6,121.8	90.30	269.00	5,485.5	-909.7	-266.4	8.00	4.55	9.49	123.73	Escrito I24A-2409 05H
10,788.4	90.30	269.00	5,461.1	-991.5	-4,932.2	0.00	0.00	0.00	0.00	Escrito I24A-2409 05H

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 05H
Wellbore: HZ
Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 05H
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	
1,054.0	0.00	0.00	1,054.0	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	
1,281.0	0.00	0.00	1,281.0	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	
1,536.0	0.00	0.00	1,536.0	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	
1,820.0	0.00	0.00	1,820.0	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	
1,914.0	0.00	0.00	1,914.0	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	
2,657.0	0.00	0.00	2,657.0	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	KOP @ 2700'
2,800.0	2.00	141.47	2,800.0	-1.4	1.1	-1.1	2.00	2.00	
2,900.0	4.00	141.47	2,899.8	-5.5	4.3	-4.3	2.00	2.00	
3,000.0	6.00	141.47	2,999.5	-12.3	9.8	-9.6	2.00	2.00	
3,100.0	8.00	141.47	3,098.7	-21.8	17.4	-17.0	2.00	2.00	
3,200.0	10.00	141.47	3,197.5	-34.0	27.1	-26.5	2.00	2.00	
3,300.0	12.00	141.47	3,295.6	-49.0	39.0	-38.1	2.00	2.00	
3,329.3	12.59	141.47	3,324.2	-53.8	42.9	-41.9	2.00	2.00	Menefee Fn.
3,400.0	14.00	141.47	3,393.1	-66.6	53.0	-51.8	2.00	2.00	
3,500.0	16.00	141.47	3,489.6	-86.8	69.1	-67.6	2.00	2.00	
3,600.0	18.00	141.47	3,585.3	-109.7	87.4	-85.4	2.00	2.00	
3,700.0	20.00	141.47	3,679.8	-135.1	107.6	-105.3	2.00	2.00	
3,800.0	22.00	141.47	3,773.2	-163.2	130.0	-127.1	2.00	2.00	
3,900.0	24.00	141.47	3,865.2	-193.7	154.3	-150.9	2.00	2.00	
4,000.0	26.00	141.47	3,955.8	-226.8	180.6	-176.6	2.00	2.00	
4,100.0	28.00	141.47	4,044.9	-262.3	208.9	-204.3	2.00	2.00	
4,157.6	29.15	141.47	4,095.5	-283.9	226.1	-221.1	2.00	2.00	EOB; Inc=29.15°
4,200.0	29.15	141.47	4,132.5	-300.0	238.9	-233.7	0.00	0.00	
4,300.0	29.15	141.47	4,219.9	-338.1	269.3	-263.3	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 05H
Wellbore: HZ
Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 05H
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
4,302.9	29.15	141.47	4,222.4	-339.2	270.2	-264.2	0.00	0.00	Point Lookout Ss.
4,400.0	29.15	141.47	4,307.2	-376.2	299.6	-293.0	0.00	0.00	
4,500.0	29.15	141.47	4,394.5	-414.3	330.0	-322.7	0.00	0.00	
4,558.7	29.15	141.47	4,445.8	-436.7	347.8	-340.1	0.00	0.00	Mancos Shale
4,600.0	29.15	141.47	4,481.9	-452.4	360.3	-352.4	0.00	0.00	
4,700.0	29.15	141.47	4,569.2	-490.5	390.7	-382.1	0.00	0.00	
4,777.6	29.15	141.47	4,637.0	-520.1	414.2	-405.1	0.00	0.00	Start build/turn @ 4777' MD
4,800.0	28.19	144.62	4,656.6	-528.7	420.7	-411.4	8.00	-4.28	
4,900.0	24.96	161.05	4,746.2	-568.0	441.3	-431.3	8.00	-3.23	
5,000.0	23.91	180.30	4,837.4	-608.2	448.0	-437.3	8.00	-1.05	
5,100.0	25.31	199.29	4,928.4	-648.8	440.8	-429.4	8.00	1.40	
5,136.4	26.37	205.52	4,961.2	-663.4	434.8	-423.1	8.00	2.92	Mancos Silt
5,200.0	28.81	215.18	5,017.6	-688.7	419.9	-407.8	8.00	3.83	
5,300.0	33.76	227.33	5,103.1	-727.3	385.5	-372.7	8.00	4.95	
5,400.0	39.61	236.49	5,183.3	-763.8	338.4	-325.0	8.00	5.85	
5,474.2	44.33	241.88	5,238.5	-789.0	295.8	-282.0	8.00	6.36	Gallup Fn.
5,500.0	46.02	243.55	5,256.7	-797.4	279.5	-265.6	8.00	6.57	
5,600.0	52.78	249.20	5,321.7	-827.7	210.0	-195.5	8.00	6.76	
5,631.9	54.99	250.78	5,340.5	-836.5	185.8	-171.1	8.00	6.92	ICP @ 55°
5,700.0	59.77	253.90	5,377.3	-853.8	131.1	-116.2	8.00	7.01	
5,800.0	66.89	257.96	5,422.1	-875.4	44.5	-29.2	8.00	7.13	
5,900.0	74.12	261.62	5,455.5	-892.1	-48.2	63.8	8.00	7.22	
6,000.0	81.40	265.02	5,476.7	-903.4	-145.2	160.9	8.00	7.28	
6,100.0	88.70	268.29	5,485.3	-909.2	-244.6	260.4	8.00	7.31	
6,121.8	90.30	269.00	5,485.5	-909.7	-266.4	282.2	8.00	7.31	LP @ 5485' TVD; 90.3° - Escrito I24A-2409 05H
6,200.0	90.30	269.00	5,485.1	-911.1	-344.6	360.4	0.00	0.00	
6,300.0	90.30	269.00	5,484.6	-912.8	-444.5	460.4	0.00	0.00	
6,400.0	90.30	269.00	5,484.0	-914.6	-544.5	560.4	0.00	0.00	
6,500.0	90.30	269.00	5,483.5	-916.3	-644.5	660.4	0.00	0.00	
6,600.0	90.30	269.00	5,483.0	-918.1	-744.5	760.4	0.00	0.00	
6,700.0	90.30	269.00	5,482.5	-919.8	-844.5	860.4	0.00	0.00	
6,800.0	90.30	269.00	5,482.0	-921.6	-944.5	960.4	0.00	0.00	
6,900.0	90.30	269.00	5,481.4	-923.3	-1,044.4	1,060.4	0.00	0.00	
7,000.0	90.30	269.00	5,480.9	-925.1	-1,144.4	1,160.4	0.00	0.00	
7,100.0	90.30	269.00	5,480.4	-926.9	-1,244.4	1,260.4	0.00	0.00	
7,200.0	90.30	269.00	5,479.9	-928.6	-1,344.4	1,360.4	0.00	0.00	
7,300.0	90.30	269.00	5,479.3	-930.4	-1,444.4	1,460.4	0.00	0.00	
7,400.0	90.30	269.00	5,478.8	-932.1	-1,544.4	1,560.4	0.00	0.00	
7,500.0	90.30	269.00	5,478.3	-933.9	-1,644.3	1,660.4	0.00	0.00	
7,600.0	90.30	269.00	5,477.8	-935.6	-1,744.3	1,760.4	0.00	0.00	
7,700.0	90.30	269.00	5,477.2	-937.4	-1,844.3	1,860.4	0.00	0.00	
7,800.0	90.30	269.00	5,476.7	-939.1	-1,944.3	1,960.4	0.00	0.00	
7,900.0	90.30	269.00	5,476.2	-940.9	-2,044.3	2,060.4	0.00	0.00	
8,000.0	90.30	269.00	5,475.7	-942.6	-2,144.3	2,160.4	0.00	0.00	
8,100.0	90.30	269.00	5,475.2	-944.4	-2,244.2	2,260.4	0.00	0.00	
8,200.0	90.30	269.00	5,474.6	-946.1	-2,344.2	2,360.4	0.00	0.00	
8,300.0	90.30	269.00	5,474.1	-947.9	-2,444.2	2,460.4	0.00	0.00	
8,400.0	90.30	269.00	5,473.6	-949.7	-2,544.2	2,560.4	0.00	0.00	
8,500.0	90.30	269.00	5,473.1	-951.4	-2,644.2	2,660.4	0.00	0.00	
8,600.0	90.30	269.00	5,472.5	-953.2	-2,744.2	2,760.4	0.00	0.00	
8,700.0	90.30	269.00	5,472.0	-954.9	-2,844.1	2,860.4	0.00	0.00	
8,800.0	90.30	269.00	5,471.5	-956.7	-2,944.1	2,960.4	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 05H
Wellbore: HZ
Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 05H
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	90.30	269.00	5,471.0	-958.4	-3,044.1	3,060.4	0.00	0.00	
9,000.0	90.30	269.00	5,470.5	-960.2	-3,144.1	3,160.4	0.00	0.00	
9,100.0	90.30	269.00	5,469.9	-961.9	-3,244.1	3,260.4	0.00	0.00	
9,188.3	90.30	269.00	5,469.5	-963.5	-3,332.4	3,348.7	0.00	0.00	Horizontal Target
9,200.0	90.30	269.00	5,469.4	-963.7	-3,344.1	3,360.4	0.00	0.00	
9,300.0	90.30	269.00	5,468.9	-965.4	-3,444.0	3,460.4	0.00	0.00	
9,400.0	90.30	269.00	5,468.4	-967.2	-3,544.0	3,560.4	0.00	0.00	
9,500.0	90.30	269.00	5,467.8	-968.9	-3,644.0	3,660.4	0.00	0.00	
9,600.0	90.30	269.00	5,467.3	-970.7	-3,744.0	3,760.4	0.00	0.00	
9,700.0	90.30	269.00	5,466.8	-972.5	-3,844.0	3,860.4	0.00	0.00	
9,800.0	90.30	269.00	5,466.3	-974.2	-3,944.0	3,960.4	0.00	0.00	
9,900.0	90.30	269.00	5,465.7	-976.0	-4,043.9	4,060.4	0.00	0.00	
10,000.0	90.30	269.00	5,465.2	-977.7	-4,143.9	4,160.4	0.00	0.00	
10,100.0	90.30	269.00	5,464.7	-979.5	-4,243.9	4,260.4	0.00	0.00	
10,200.0	90.30	269.00	5,464.2	-981.2	-4,343.9	4,360.3	0.00	0.00	
10,300.0	90.30	269.00	5,463.7	-983.0	-4,443.9	4,460.3	0.00	0.00	
10,400.0	90.30	269.00	5,463.1	-984.7	-4,543.9	4,560.3	0.00	0.00	
10,500.0	90.30	269.00	5,462.6	-986.5	-4,643.8	4,660.3	0.00	0.00	
10,600.0	90.30	269.00	5,462.1	-988.2	-4,743.8	4,760.3	0.00	0.00	
10,700.0	90.30	269.00	5,461.6	-990.0	-4,843.8	4,860.3	0.00	0.00	
10,788.4	90.30	269.00	5,461.1	-991.5	-4,932.2	4,948.7	0.00	0.00	TD at 10788.4 - Escrito I24A-2409 05H 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 05H F - plan hits target center - Point	0.00	0.00	5,485.5	-909.7	-266.4	1,926,444.46	2,752,638.89	36.294312	-107.733066
Escrito I24A-2409 05H F - plan hits target center - Point	0.00	0.00	5,461.1	-991.5	-4,932.2	1,926,357.74	2,747,973.22	36.294086	-107.748899

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
500.0	500.0	9 5/8"	0	0
5,631.9	5,340.5	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 05H
Wellbore: HZ
Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 05H
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 (")
1,054.0	1,054.0	Ojo Alamo Ss.		-0.30	269.00
1,281.0	1,281.0	Kirtland Shale		-0.30	269.00
1,536.0	1,536.0	Fruitland Coal		-0.30	269.00
1,820.0	1,820.0	Pictured Cliffs Ss.		-0.30	269.00
1,914.0	1,914.0	Lewis Shale		-0.30	269.00
2,657.0	2,657.0	Cliffhouse Ss.		-0.30	269.00
3,329.3	3,324.0	Menefee Fn.		-0.30	269.00
4,302.9	4,221.0	Point Lookout Ss.		-0.30	269.00
4,558.7	4,444.0	Mancos Shale		-0.30	269.00
5,136.4	4,959.0	Mancos Silt		-0.30	269.00
5,474.2	5,237.0	Gallup Fn.		-0.30	269.00
9,188.3	5,487.0	Horizontal Target		-0.30	269.00

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,700.0	2,700.0	0.0	0.0	KOP @ 2700'
4,157.6	4,095.5	-283.9	226.1	EOB; Inc=29.15°
4,777.6	4,637.0	-520.1	414.2	Start build/turn @ 4777' MD
6,121.8	5,485.5	-909.7	-266.4	LP @ 5485' TVD; 90.3°
10,788.4	5,461.1	-991.5	-4,932.2	TD at 10788.4



EnCana Oil & Gas (USA) Inc

San Juan County, NM

S24-T24N-R9W (Escrito I24)

Escrito I24A-2409 05H

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 05H
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 05H	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
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 1,241.7usft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	Systematic Ellipse
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic

Survey Tool Program	Date	10/20/2014
From (usft)	To (usft)	Survey (Wellbore)
0.0	10,788.4	Plan #1 (HZ)
		Tool Name
		Geolink MWD
		Description
		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	2,700.0	2,700.0	120.2	110.8	12.825	CC, ES
Escrito I24A-2409 01H - HZ - Plan #1	3,000.0	2,999.5	127.0	116.6	12.193	SF
Escrito I24A-2409 02H - HZ - Plan #1	2,700.0	2,700.0	90.2	80.9	9.631	CC, ES
Escrito I24A-2409 02H - HZ - Plan #1	10,788.4	10,494.1	648.6	403.6	2.648	SF
Escrito I24A-2409 03H - HZ - Plan #1	2,700.0	2,700.0	60.0	50.6	6.403	CC, ES
Escrito I24A-2409 03H - HZ - Plan #1	2,800.0	2,800.0	60.7	51.0	6.244	SF
Escrito I24A-2409 04H - HZ - Plan #1	2,700.0	2,700.0	29.9	20.6	3.194	CC, ES
Escrito I24A-2409 04H - HZ - Plan #1	2,800.0	2,800.0	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 05H
Well Error: 0.0usft
Reference Wellbore: HZ
Reference Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 05H
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 (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	Between Centres (usft)				Between Ellipses (usft)		
0.0	0.0	0.0	0.0	0.0	0.0	28.89	105.2	58.1	120.2					
100.0	100.0	100.0	100.0	0.1	0.1	28.89	105.2	58.1	120.2	0.29	409.790			
200.0	200.0	200.0	200.0	0.3	0.3	28.89	105.2	58.1	120.2	0.64	187.078			
300.0	300.0	300.0	300.0	0.5	0.5	28.89	105.2	58.1	120.2	0.99	121.206			
400.0	400.0	400.0	400.0	0.7	0.7	28.89	105.2	58.1	120.2	1.34	89.642			
500.0	500.0	500.0	500.0	0.8	0.8	28.89	105.2	58.1	120.2	1.69	71.121			
600.0	600.0	600.0	600.0	1.0	1.0	28.89	105.2	58.1	120.2	2.04	58.943			
700.0	700.0	700.0	700.0	1.2	1.2	28.89	105.2	58.1	120.2	2.39	50.325			
800.0	800.0	800.0	800.0	1.4	1.4	28.89	105.2	58.1	120.2	2.74	43.906			
900.0	900.0	900.0	900.0	1.5	1.5	28.89	105.2	58.1	120.2	3.09	38.939			
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	28.89	105.2	58.1	120.2	3.43	34.982			
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	28.89	105.2	58.1	120.2	3.78	31.755			
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	28.89	105.2	58.1	120.2	4.13	29.073			
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	28.89	105.2	58.1	120.2	4.48	26.809			
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	28.89	105.2	58.1	120.2	4.83	24.872			
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	28.89	105.2	58.1	120.2	5.18	23.196			
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	28.89	105.2	58.1	120.2	5.53	21.731			
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	28.89	105.2	58.1	120.2	5.88	20.441			
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	28.89	105.2	58.1	120.2	6.23	19.295			
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	28.89	105.2	58.1	120.2	6.58	18.271			
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	28.89	105.2	58.1	120.2	6.93	17.350			
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	28.89	105.2	58.1	120.2	7.27	16.517			
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	28.89	105.2	58.1	120.2	7.62	15.761			
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	28.89	105.2	58.1	120.2	7.97	15.071			
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	28.89	105.2	58.1	120.2	8.32	14.439			
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	28.89	105.2	58.1	120.2	8.67	13.858			
2,600.0	2,600.0	2,600.0	2,600.0	4.5	4.5	28.89	105.2	58.1	120.2	9.02	13.321			
2,700.0	2,700.0	2,700.0	2,700.0	4.7	4.7	28.89	105.2	58.1	120.2	9.37	12.825 CC, ES			
2,800.0	2,800.0	2,800.0	2,800.0	4.9	4.9	-113.33	105.2	58.1	120.8	9.72	12.435			
2,900.0	2,899.8	2,899.8	2,899.8	5.0	5.0	-115.52	105.2	58.1	123.0	10.07	12.219			
3,000.0	2,999.5	2,999.5	2,999.5	5.2	5.2	-118.99	105.2	58.1	127.0	10.42	12.193 SF			
3,100.0	3,098.7	3,098.7	3,098.7	5.4	5.4	-123.45	105.2	58.1	133.4	10.77	12.387			
3,200.0	3,197.5	3,197.5	3,197.5	5.6	5.6	-128.51	105.2	58.1	142.6	11.12	12.833			
3,300.0	3,295.6	3,295.6	3,295.6	5.9	5.7	-133.79	105.2	58.1	155.3	11.46	13.559			
3,400.0	3,393.1	3,393.1	3,393.1	6.1	5.9	-138.93	105.2	58.1	171.8	11.79	14.580			
3,500.0	3,489.6	3,489.6	3,489.6	6.5	6.1	-143.70	105.2	58.1	192.3	12.10	15.894			
3,600.0	3,585.3	3,585.3	3,585.3	6.8	6.2	-147.95	105.2	58.1	216.9	12.40	17.493			
3,700.0	3,679.8	3,679.8	3,679.8	7.3	6.4	-151.66	105.2	58.1	245.4	12.68	19.360			
3,800.0	3,773.2	3,773.2	3,773.2	7.7	6.6	-154.84	105.2	58.1	277.8	12.94	21.476			
3,900.0	3,865.2	3,865.2	3,865.2	8.3	6.7	-157.54	105.2	58.1	314.1	13.18	23.825			
4,000.0	3,955.8	3,955.8	3,955.8	8.9	6.9	-159.83	105.2	58.1	353.9	13.41	26.389			
4,100.0	4,044.9	4,044.9	4,044.9	9.6	7.0	-161.77	105.2	58.1	397.3	13.63	29.156			
4,157.6	4,095.5	4,095.5	4,095.5	10.0	7.1	-162.74	105.2	58.1	423.8	13.74	30.839			
4,200.0	4,132.5	4,132.5	4,132.5	10.3	7.2	-163.53	105.2	58.1	443.8	13.87	31.985			
4,300.0	4,219.9	4,188.1	4,188.1	11.1	7.3	-164.78	106.1	56.0	493.8	14.15	34.892			
4,400.0	4,307.2	4,237.7	4,237.3	11.8	7.4	-166.08	108.7	50.5	549.6	14.41	38.146			
4,500.0	4,394.5	4,282.3	4,281.0	12.6	7.5	-167.36	112.3	42.6	610.6	14.65	41.688			
4,600.0	4,481.9	4,322.3	4,319.6	13.5	7.5	-168.56	116.7	33.2	676.2	14.87	45.461			
4,700.0	4,569.2	4,350.0	4,345.9	14.3	7.6	-169.41	120.3	25.4	745.9	15.09	49.421			
4,777.6	4,637.0	4,383.1	4,376.9	14.9	7.7	-170.44	125.2	14.7	802.3	15.26	52.578			
4,800.0	4,656.6	4,400.0	4,392.4	15.1	7.7	-175.45	128.0	8.7	819.0	15.27	53.640			
4,850.0	4,701.1	4,400.0	4,392.4	15.5	7.7	173.86	128.0	8.7	855.7	15.37	55.680			

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 05H
Well Error: 0.0usft
Reference Wellbore: HZ
Reference Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 05H
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)				
4,900.0	4,746.2	4,421.2	4,411.6	15.8	7.8	162.16	131.7	0.6	892.0	876.4	15.62	57.102		
4,950.0	4,791.7	4,450.0	4,437.3	16.1	7.9	150.14	137.2	-11.3	927.9	911.9	15.98	58.055		
5,000.0	4,837.4	4,450.0	4,437.3	16.4	7.9	138.16	137.2	-11.3	962.7	946.3	16.35	58.878		
5,050.0	4,883.0	4,468.1	4,453.1	16.7	8.0	126.56	140.9	-19.3	996.8	980.0	16.77	59.424		
5,100.0	4,928.4	4,483.8	4,466.6	16.9	8.0	115.78	144.3	-26.5	1,029.9	1,012.7	17.18	59.931		
5,150.0	4,973.4	4,500.0	4,480.3	17.1	8.1	106.12	147.9	-34.4	1,061.9	1,044.4	17.57	60.452		
5,200.0	5,017.6	4,515.1	4,492.9	17.3	8.2	97.65	151.4	-42.0	1,092.8	1,074.9	17.91	61.015		
5,250.0	5,060.9	4,530.8	4,505.8	17.5	8.3	90.38	155.2	-50.1	1,122.5	1,104.3	18.21	61.658		
5,300.0	5,103.1	4,550.0	4,521.2	17.6	8.4	84.26	160.0	-60.5	1,150.9	1,132.5	18.45	62.388		
5,350.0	5,144.0	4,550.0	4,521.2	17.8	8.4	78.70	160.0	-60.5	1,178.1	1,159.5	18.63	63.240		
5,400.0	5,183.3	4,577.9	4,543.0	17.9	8.5	74.51	167.3	-76.2	1,203.6	1,184.9	18.79	64.070		
5,450.0	5,221.0	4,600.0	4,559.7	18.0	8.7	70.89	173.3	-89.4	1,227.9	1,209.0	18.90	64.982		

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 05H
Well Error: 0.0usft
Reference Wellbore: HZ
Reference Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 05H
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					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	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	CC, ES
2,800.0	2,800.0	2,800.0	2,800.0	4.9	4.9	-113.57	79.0	43.6	90.9	81.2	9.72	9.356	
2,900.0	2,899.8	2,899.8	2,899.8	5.0	5.0	-116.47	79.0	43.6	93.1	83.1	10.07	9.252	
3,000.0	2,999.5	2,999.5	2,999.5	5.2	5.2	-120.99	79.0	43.6	97.3	86.9	10.41	9.346	
3,100.0	3,098.7	3,098.7	3,098.7	5.4	5.4	-126.60	79.0	43.6	104.2	93.4	10.76	9.679	
3,200.0	3,197.5	3,197.5	3,197.5	5.6	5.6	-132.72	79.0	43.6	114.2	103.1	11.10	10.290	
3,300.0	3,295.6	3,295.6	3,295.6	5.9	5.7	-138.77	79.0	43.6	128.0	116.6	11.43	11.202	
3,400.0	3,393.1	3,393.1	3,393.1	6.1	5.9	-144.35	79.0	43.6	145.9	134.1	11.74	12.419	
3,500.0	3,489.6	3,489.6	3,489.6	6.5	6.1	-149.23	79.0	43.6	167.8	155.7	12.04	13.932	
3,600.0	3,585.3	3,585.3	3,585.3	6.8	6.2	-153.38	79.0	43.6	193.7	181.4	12.32	15.720	
3,700.0	3,679.8	3,679.8	3,679.8	7.3	6.4	-156.85	79.0	43.6	223.5	210.9	12.58	17.763	
3,800.0	3,773.2	3,773.2	3,773.2	7.7	6.6	-159.72	79.0	43.6	257.1	244.3	12.83	20.040	
3,900.0	3,865.2	3,865.2	3,865.2	8.3	6.7	-162.09	79.0	43.6	294.3	281.3	13.06	22.534	
4,000.0	3,955.8	3,998.4	3,997.6	8.9	7.0	-163.23	75.4	55.8	329.6	316.2	13.38	24.633	
4,100.0	4,044.9	4,143.6	4,135.4	9.6	7.3	-160.46	62.6	98.7	354.8	340.9	13.92	25.493	
4,157.6	4,095.5	4,227.2	4,208.9	10.0	7.6	-157.35	51.4	136.7	365.0	350.6	14.43	25.300	
4,200.0	4,132.5	4,287.1	4,258.1	10.3	8.0	-154.51	41.7	169.4	370.6	355.6	14.99	24.731	
4,300.0	4,219.9	4,400.0	4,342.8	11.1	8.8	-147.90	20.0	240.7	379.7	363.1	16.54	22.956	
4,400.0	4,307.2	4,493.1	4,417.0	11.8	9.5	-143.91	-0.8	292.8	391.2	373.3	17.94	21.812	
4,500.0	4,394.5	4,592.6	4,503.3	12.6	10.1	-142.00	-25.2	335.5	404.1	384.9	19.16	21.092	
4,600.0	4,481.9	4,693.8	4,596.6	13.5	10.6	-142.37	-52.0	364.1	416.6	396.6	19.99	20.837	
4,700.0	4,569.2	4,791.9	4,690.0	14.3	11.0	-144.77	-79.1	376.7	429.0	408.7	20.34	21.088	
4,777.6	4,637.0	4,863.2	4,758.3	14.9	11.1	-147.63	-99.1	376.5	439.8	419.5	20.30	21.660	
4,800.0	4,656.6	4,882.9	4,777.2	15.1	11.1	-151.58	-104.6	375.0	443.2	423.0	20.20	21.936	
4,850.0	4,701.1	4,926.0	4,818.2	15.5	11.2	-161.07	-116.7	369.7	451.4	431.5	19.94	22.643	

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: San Juan County, NM
Reference Site: S24-T24N-R9W (Escrito I24)
Site Error: 0.0usft
Reference Well: Escrito I24A-2409 05H
Well Error: 0.0usft
Reference Wellbore: HZ
Reference Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 05H
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: O-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)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	
4,900.0	4,746.2	4,968.1	4,857.8	15.8	11.2	-171.42	-128.5	361.7	460.4	440.7	19.64	23.438	
4,950.0	4,791.7	5,009.2	4,895.9	16.1	11.3	177.56	-139.8	351.3	469.9	450.6	19.34	24.292	
5,000.0	4,837.4	5,050.0	4,933.0	16.4	11.3	166.21	-150.9	338.4	479.9	460.9	19.06	25.180	
5,050.0	4,883.0	5,089.0	4,967.6	16.7	11.2	155.07	-161.3	323.8	490.3	471.5	18.81	26.062	
5,100.0	4,928.4	5,127.7	5,001.1	16.9	11.2	144.53	-171.4	307.2	501.0	482.4	18.61	26.915	
5,150.0	4,973.4	5,165.8	5,033.0	17.1	11.2	134.92	-181.1	288.8	511.8	493.4	18.47	27.708	
5,200.0	5,017.6	5,200.0	5,060.7	17.3	11.2	126.48	-189.5	270.6	522.8	504.4	18.40	28.412	
5,250.0	5,060.9	5,240.3	5,092.0	17.5	11.1	118.93	-199.1	247.2	533.7	515.3	18.38	29.030	
5,300.0	5,103.1	5,276.8	5,119.1	17.6	11.1	112.46	-207.5	224.2	544.5	526.0	18.44	29.521	
5,350.0	5,144.0	5,312.8	5,144.6	17.8	11.1	106.86	-215.4	200.0	555.1	536.5	18.56	29.898	
5,400.0	5,183.3	5,350.0	5,169.5	17.9	11.1	102.00	-223.2	173.5	565.4	546.6	18.75	30.161	
5,450.0	5,221.0	5,383.7	5,190.7	18.0	11.1	97.84	-229.8	148.1	575.3	556.3	19.00	30.282	
5,500.0	5,256.7	5,418.6	5,211.3	18.2	11.2	94.20	-236.4	120.7	584.9	565.6	19.31	30.284	
5,550.0	5,290.3	5,450.0	5,228.5	18.3	11.3	91.09	-241.9	95.1	594.0	574.4	19.62	30.272	
5,600.0	5,321.7	5,487.7	5,247.5	18.4	11.4	88.30	-248.1	63.1	602.5	582.5	20.02	30.092	
5,650.0	5,350.8	5,521.8	5,263.2	18.6	11.6	85.92	-253.2	33.2	610.5	589.9	20.52	29.750	
5,700.0	5,377.3	5,550.0	5,274.9	18.7	11.7	83.93	-257.1	7.9	617.8	596.9	20.97	29.457	
5,750.0	5,401.1	5,589.6	5,289.6	18.9	12.0	82.10	-262.1	-28.5	624.5	602.9	21.60	28.904	
5,800.0	5,422.1	5,623.2	5,300.3	19.1	12.3	80.60	-265.8	-60.1	630.4	608.2	22.23	28.366	
5,850.0	5,440.3	5,650.0	5,307.7	19.4	12.5	79.38	-268.4	-85.7	635.7	612.9	22.79	27.893	
5,900.0	5,455.5	5,690.0	5,316.8	19.6	13.0	78.31	-271.8	-124.5	640.1	616.5	23.60	27.130	
5,950.0	5,467.6	5,723.2	5,322.5	20.0	13.4	77.48	-274.1	-157.2	643.8	619.5	24.35	26.441	
6,000.0	5,476.7	5,750.0	5,326.0	20.3	13.7	76.88	-275.6	-183.7	646.8	621.7	25.03	25.840	
6,050.0	5,482.6	5,789.5	5,329.1	20.7	14.3	76.43	-277.2	-223.0	648.8	622.8	25.96	24.994	
6,100.0	5,485.3	5,824.4	5,329.9	21.2	14.8	76.18	-278.1	-257.8	650.1	623.2	26.83	24.225	
6,121.8	5,485.5	5,843.5	5,329.8	21.4	15.1	76.15	-278.4	-276.9	650.2	622.9	27.31	23.814	
6,200.0	5,485.1	5,921.7	5,329.6	22.3	16.4	76.16	-279.8	-355.1	650.2	620.1	30.13	21.582	
6,300.0	5,484.6	6,021.7	5,329.2	23.6	18.3	76.18	-281.6	-455.1	650.2	616.2	34.00	19.124	
6,400.0	5,484.0	6,121.7	5,328.9	25.1	20.3	76.19	-283.3	-555.0	650.1	612.0	38.08	17.071	
6,500.0	5,483.5	6,221.7	5,328.5	26.8	22.3	76.21	-285.1	-655.0	650.1	607.8	42.32	15.360	
6,600.0	5,483.0	6,321.7	5,328.2	28.6	24.5	76.22	-286.8	-755.0	650.1	603.4	46.67	13.928	
6,700.0	5,482.5	6,421.7	5,327.8	30.5	26.7	76.24	-288.6	-855.0	650.0	598.9	51.11	12.719	
6,800.0	5,482.0	6,521.7	5,327.5	32.5	29.0	76.25	-290.3	-955.0	650.0	594.4	55.60	11.690	
6,900.0	5,481.4	6,621.7	5,327.1	34.6	31.3	76.26	-292.1	-1,055.0	649.9	589.8	60.15	10.806	
7,000.0	5,480.9	6,721.7	5,326.8	36.7	33.6	76.28	-293.8	-1,155.0	649.9	585.2	64.73	10.040	
7,100.0	5,480.4	6,821.7	5,326.4	38.9	35.9	76.29	-295.6	-1,254.9	649.9	580.5	69.35	9.371	
7,200.0	5,479.9	6,921.7	5,326.1	41.1	38.3	76.31	-297.3	-1,354.9	649.8	575.8	73.99	8.782	
7,300.0	5,479.3	7,021.7	5,325.7	43.4	40.7	76.32	-299.1	-1,454.9	649.8	571.1	78.65	8.261	
7,400.0	5,478.8	7,121.7	5,325.4	45.6	43.0	76.34	-300.9	-1,554.9	649.7	566.4	83.33	7.797	
7,500.0	5,478.3	7,221.7	5,325.0	47.9	45.4	76.35	-302.6	-1,654.9	649.7	561.7	88.03	7.380	
7,600.0	5,477.8	7,321.7	5,324.7	50.2	47.8	76.37	-304.4	-1,754.9	649.7	556.9	92.74	7.005	
7,700.0	5,477.2	7,421.7	5,324.3	52.5	50.2	76.38	-306.1	-1,854.8	649.6	552.2	97.46	6.666	
7,800.0	5,476.7	7,521.7	5,324.0	54.9	52.6	76.40	-307.9	-1,954.8	649.6	547.4	102.18	6.357	
7,900.0	5,476.2	7,621.7	5,323.6	57.2	55.1	76.41	-309.6	-2,054.8	649.5	542.6	106.92	6.075	
8,000.0	5,475.7	7,721.7	5,323.3	59.6	57.5	76.43	-311.4	-2,154.8	649.5	537.8	111.67	5.816	
8,100.0	5,475.2	7,821.7	5,322.9	61.9	59.9	76.44	-313.1	-2,254.8	649.5	533.0	116.42	5.579	
8,200.0	5,474.6	7,921.7	5,322.6	64.3	62.3	76.46	-314.9	-2,354.8	649.4	528.2	121.18	5.359	
8,300.0	5,474.1	8,021.7	5,322.2	66.7	64.8	76.47	-316.6	-2,454.7	649.4	523.4	125.94	5.156	
8,400.0	5,473.6	8,121.7	5,321.9	69.1	67.2	76.49	-318.4	-2,554.7	649.3	518.6	130.70	4.968	
8,500.0	5,473.1	8,221.7	5,321.5	71.4	69.7	76.50	-320.1	-2,654.7	649.3	513.8	135.48	4.793	
8,600.0	5,472.5	8,321.7	5,321.2	73.8	72.1	76.52	-321.9	-2,754.7	649.3	509.0	140.25	4.629	
8,700.0	5,472.0	8,421.7	5,320.8	76.2	74.5	76.53	-323.6	-2,854.7	649.2	504.2	145.03	4.476	

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 05H
Well Error: 0.0usft
Reference Wellbore: HZ
Reference Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 05H
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 Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
8,800.0	5,471.5	8,521.7	5,320.5	78.7	77.0	76.55	-325.4	-2,954.7	649.2	499.4	149.81	4.333		
8,900.0	5,471.0	8,621.7	5,320.1	81.1	79.4	76.56	-327.1	-3,054.6	649.1	494.5	154.60	4.199		
9,000.0	5,470.5	8,721.7	5,319.8	83.5	81.9	76.58	-328.9	-3,154.6	649.1	489.7	159.39	4.072		
9,100.0	5,469.9	8,821.7	5,319.4	85.9	84.3	76.59	-330.7	-3,254.6	649.1	484.9	164.18	3.953		
9,200.0	5,469.4	8,921.7	5,319.1	88.3	86.8	76.61	-332.4	-3,354.6	649.0	480.0	168.97	3.841		
9,300.0	5,468.9	9,021.7	5,318.7	90.7	89.2	76.62	-334.2	-3,454.6	649.0	475.2	173.77	3.735		
9,400.0	5,468.4	9,121.7	5,318.4	93.2	91.7	76.64	-335.9	-3,554.6	648.9	470.4	178.56	3.634		
9,500.0	5,467.8	9,221.7	5,318.0	95.6	94.2	76.65	-337.7	-3,654.5	648.9	465.5	183.36	3.539		
9,600.0	5,467.3	9,321.7	5,317.7	98.0	96.6	76.67	-339.4	-3,754.5	648.9	460.7	188.17	3.448		
9,700.0	5,466.8	9,421.7	5,317.3	100.5	99.1	76.68	-341.2	-3,854.5	648.8	455.9	192.97	3.362		
9,800.0	5,466.3	9,521.7	5,317.0	102.9	101.5	76.70	-342.9	-3,954.5	648.8	451.0	197.78	3.280		
9,900.0	5,465.7	9,621.7	5,316.6	105.3	104.0	76.71	-344.7	-4,054.5	648.7	446.2	202.58	3.202		
10,000.0	5,465.2	9,721.7	5,316.3	107.8	106.4	76.73	-346.4	-4,154.5	648.7	441.3	207.39	3.128		
10,100.0	5,464.7	9,821.7	5,315.9	110.2	108.9	76.74	-348.2	-4,254.5	648.7	436.5	212.20	3.057		
10,200.0	5,464.2	9,921.7	5,315.6	112.7	111.4	76.76	-349.9	-4,354.4	648.6	431.6	217.01	2.989		
10,300.0	5,463.7	10,021.7	5,315.2	115.1	113.8	76.77	-351.7	-4,454.4	648.6	426.8	221.83	2.924		
10,400.0	5,463.1	10,121.7	5,314.9	117.6	116.3	76.79	-353.4	-4,554.4	648.6	421.9	226.64	2.862		
10,500.0	5,462.6	10,221.7	5,314.5	120.0	118.7	76.80	-355.2	-4,654.4	648.5	417.1	231.46	2.802		
10,600.0	5,462.1	10,321.7	5,314.2	122.4	121.2	76.82	-356.9	-4,754.4	648.5	412.2	236.27	2.745		
10,700.0	5,461.6	10,421.7	5,313.9	124.9	123.7	76.83	-358.7	-4,854.4	648.4	407.3	241.09	2.690		
10,758.4	5,461.3	10,480.1	5,313.6	126.3	125.1	76.84	-359.7	-4,912.8	648.4	404.5	243.91	2.658		
10,788.4	5,461.1	10,494.1	5,313.6	127.1	125.5	76.84	-360.0	-4,926.8	648.6	403.6	244.96	2.648 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 05H
Well Error: 0.0usft
Reference Wellbore: HZ
Reference Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 05H
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						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	29.10	52.4	29.2	60.0				
100.0	100.0	100.0	100.0	0.1	0.1	29.10	52.4	29.2	60.0	59.7	0.29	204.596	
200.0	200.0	200.0	200.0	0.3	0.3	29.10	52.4	29.2	60.0	59.3	0.64	93.403	
300.0	300.0	300.0	300.0	0.5	0.5	29.10	52.4	29.2	60.0	59.0	0.99	60.514	
400.0	400.0	400.0	400.0	0.7	0.7	29.10	52.4	29.2	60.0	58.7	1.34	44.755	
500.0	500.0	500.0	500.0	0.8	0.8	29.10	52.4	29.2	60.0	58.3	1.69	35.508	
600.0	600.0	600.0	600.0	1.0	1.0	29.10	52.4	29.2	60.0	58.0	2.04	29.428	
700.0	700.0	700.0	700.0	1.2	1.2	29.10	52.4	29.2	60.0	57.6	2.39	25.126	
800.0	800.0	800.0	800.0	1.4	1.4	29.10	52.4	29.2	60.0	57.3	2.74	21.921	
900.0	900.0	900.0	900.0	1.5	1.5	29.10	52.4	29.2	60.0	56.9	3.09	19.441	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	29.10	52.4	29.2	60.0	56.6	3.43	17.466	
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	29.10	52.4	29.2	60.0	56.2	3.78	15.854	
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	29.10	52.4	29.2	60.0	55.9	4.13	14.515	
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	29.10	52.4	29.2	60.0	55.5	4.48	13.385	
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	29.10	52.4	29.2	60.0	55.2	4.83	12.418	
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	29.10	52.4	29.2	60.0	54.8	5.18	11.581	
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	29.10	52.4	29.2	60.0	54.5	5.53	10.850	
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	29.10	52.4	29.2	60.0	54.1	5.88	10.206	
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	29.10	52.4	29.2	60.0	53.8	6.23	9.633	
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	29.10	52.4	29.2	60.0	53.4	6.58	9.122	
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	29.10	52.4	29.2	60.0	53.1	6.93	8.662	
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	29.10	52.4	29.2	60.0	52.7	7.27	8.247	
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	29.10	52.4	29.2	60.0	52.4	7.62	7.869	
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	29.10	52.4	29.2	60.0	52.0	7.97	7.525	
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	29.10	52.4	29.2	60.0	51.7	8.32	7.209	
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	29.10	52.4	29.2	60.0	51.3	8.67	6.919	
2,600.0	2,600.0	2,600.0	2,600.0	4.5	4.5	29.10	52.4	29.2	60.0	51.0	9.02	6.651	
2,700.0	2,700.0	2,700.0	2,700.0	4.7	4.7	29.10	52.4	29.2	60.0	50.6	9.37	6.403 CC, ES	
2,800.0	2,800.0	2,800.0	2,800.0	4.9	4.9	-113.88	52.4	29.2	60.7	51.0	9.72	6.244 SF	
2,900.0	2,899.8	2,899.8	2,899.8	5.0	5.0	-118.19	52.4	29.2	63.0	52.9	10.07	6.257	
3,000.0	2,999.5	2,999.5	2,999.5	5.2	5.2	-124.63	52.4	29.2	67.5	57.1	10.41	6.487	
3,100.0	3,098.7	3,098.7	3,098.7	5.4	5.4	-132.15	52.4	29.2	75.2	64.4	10.75	6.990	
3,200.0	3,197.5	3,197.5	3,197.5	5.6	5.6	-139.67	52.4	29.2	86.5	75.4	11.08	7.806	
3,300.0	3,295.6	3,295.6	3,295.6	5.9	5.7	-146.42	52.4	29.2	101.9	90.5	11.39	8.941	
3,400.0	3,393.1	3,393.1	3,393.1	6.1	5.9	-152.09	52.4	29.2	121.3	109.7	11.69	10.381	
3,500.0	3,489.6	3,489.6	3,489.6	6.5	6.1	-156.67	52.4	29.2	144.9	132.9	11.97	12.101	
3,600.0	3,585.3	3,585.3	3,585.3	6.8	6.2	-160.31	52.4	29.2	172.2	160.0	12.24	14.075	
3,700.0	3,679.8	3,679.8	3,679.8	7.3	6.4	-163.20	52.4	29.2	203.3	190.8	12.49	16.281	
3,800.0	3,773.2	3,773.2	3,773.2	7.7	6.6	-165.50	52.4	29.2	238.0	225.3	12.73	18.701	
3,900.0	3,865.2	3,865.2	3,865.2	8.3	6.7	-167.35	52.4	29.2	276.1	263.2	12.95	21.321	
4,000.0	3,955.8	3,950.0	3,950.0	8.9	6.9	-168.79	52.4	28.9	317.8	304.6	13.15	24.157	
4,100.0	4,044.9	4,028.1	4,027.7	9.6	7.0	-171.08	50.8	22.0	365.0	351.7	13.31	27.418	
4,157.6	4,095.5	4,067.9	4,066.8	10.0	7.1	-172.67	49.1	14.9	395.4	382.0	13.39	29.534	
4,200.0	4,132.5	4,100.0	4,098.0	10.3	7.1	-174.17	47.4	7.4	418.9	405.4	13.50	31.034	
4,300.0	4,219.9	4,150.0	4,145.7	11.1	7.3	-176.67	44.1	-7.2	477.5	463.8	13.75	34.724	
4,400.0	4,307.2	4,209.5	4,200.7	11.8	7.4	-179.80	39.0	-29.3	540.3	526.3	14.05	38.448	
4,500.0	4,394.5	4,250.0	4,236.8	12.6	7.6	178.01	34.9	-47.1	607.4	593.0	14.35	42.323	
4,600.0	4,481.9	4,300.0	4,279.7	13.5	7.8	175.30	29.2	-72.2	678.2	663.4	14.73	46.029	
4,700.0	4,569.2	4,334.7	4,308.2	14.3	8.0	173.43	24.8	-91.5	752.4	737.3	15.11	49.806	
4,777.6	4,637.0	5,788.3	5,333.6	14.9	14.9	-158.75	-157.3	416.5	785.5	763.7	21.80	36.031	
4,800.0	4,656.6	5,794.7	5,333.6	15.1	15.1	-159.68	-157.2	422.9	772.2	749.9	22.34	34.568	
4,850.0	4,701.1	5,806.5	5,333.6	15.5	15.3	-162.76	-157.2	434.8	743.5	720.1	23.44	31.718	

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 05H
Well Error: 0.0usft
Reference Wellbore: HZ
Reference Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 05H
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		Hightide Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N-S (usft)	+E-W (usft)							
4,900.0	4,746.2	5,814.9	5,333.6	15.8	15.4	-167.29	-157.2	443.2	716.7	692.4	24.36	29.418			
4,950.0	4,791.7	5,819.9	5,333.5	16.1	15.5	-173.16	-157.2	448.1	692.2	667.2	25.06	27.625			
5,000.0	4,837.4	5,821.3	5,333.5	16.4	15.6	179.93	-157.2	449.6	670.5	645.0	25.51	26.285			
5,050.0	4,883.0	5,819.3	5,333.5	16.7	15.5	172.43	-157.2	447.6	652.0	626.2	25.72	25.348			
5,100.0	4,928.4	5,813.8	5,333.6	16.9	15.4	164.79	-157.2	442.1	637.0	611.2	25.71	24.779			
5,150.0	4,973.4	5,804.9	5,333.6	17.1	15.3	157.33	-157.2	433.1	625.7	600.2	25.48	24.552			
5,200.0	5,017.6	5,792.5	5,333.6	17.3	15.0	150.21	-157.3	420.8	618.3	593.2	25.09	24.645			
5,250.0	5,060.9	5,776.8	5,333.7	17.5	14.7	143.46	-157.3	405.1	614.8	590.2	24.55	25.042			
5,273.8	5,081.1	5,765.9	5,333.7	17.6	14.5	140.17	-157.2	394.2	614.4	590.2	24.19	25.396			
5,300.0	5,103.1	5,753.4	5,333.4	17.6	14.3	136.66	-157.2	381.7	614.8	591.1	23.79	25.843			
5,350.0	5,144.0	5,729.7	5,332.2	17.8	13.9	130.36	-157.0	358.1	618.2	595.2	23.06	26.812			
5,400.0	5,183.3	5,706.1	5,330.2	17.9	13.5	124.50	-156.6	334.5	624.7	602.3	22.38	27.916			
5,450.0	5,221.0	5,682.6	5,327.4	18.0	13.1	119.01	-156.1	311.2	633.9	612.1	21.80	29.078			
5,500.0	5,256.7	5,659.1	5,323.7	18.2	12.8	113.82	-155.5	288.0	645.5	624.2	21.34	30.256			
5,550.0	5,290.3	5,635.8	5,319.2	18.3	12.4	108.91	-154.6	265.1	659.3	638.3	21.02	31.368			
5,600.0	5,321.7	5,612.5	5,313.9	18.4	12.1	104.24	-153.7	242.5	674.8	654.0	20.84	32.378			
5,650.0	5,350.8	5,589.2	5,307.8	18.6	11.8	99.80	-152.6	220.1	691.7	670.9	20.80	33.257			
5,700.0	5,377.3	5,566.0	5,300.9	18.7	11.5	95.61	-151.4	198.0	709.7	688.9	20.87	34.003			
5,750.0	5,401.1	5,542.9	5,293.2	18.9	11.2	91.66	-150.0	176.2	728.6	707.6	21.02	34.656			
5,800.0	5,422.1	5,519.8	5,284.8	19.1	11.0	87.96	-148.5	154.8	748.0	726.7	21.24	35.215			
5,850.0	5,440.3	5,500.0	5,277.0	19.4	10.8	84.69	-147.1	136.6	767.6	746.1	21.49	35.726			
5,900.0	5,455.5	5,473.8	5,265.8	19.6	10.6	81.34	-145.1	113.0	787.3	765.6	21.72	36.250			
5,950.0	5,467.6	5,450.0	5,254.8	20.0	10.4	78.38	-143.2	92.0	806.9	785.0	21.93	36.796			
6,000.0	5,476.7	5,428.0	5,244.0	20.3	10.3	75.78	-141.2	73.0	826.2	804.0	22.16	37.277			
6,050.0	5,482.6	5,400.0	5,229.2	20.7	10.1	73.18	-138.6	49.3	845.1	822.8	22.30	37.893			
6,100.0	5,485.3	5,382.4	5,219.5	21.2	10.1	71.27	-136.9	34.8	863.2	840.7	22.51	38.340			
6,121.8	5,485.5	5,372.5	5,213.8	21.4	10.0	70.42	-135.9	26.7	870.9	848.4	22.58	38.572			
6,200.0	5,485.1	5,338.4	5,193.3	22.3	9.9	69.19	-132.2	-0.3	900.1	876.4	23.70	37.978			
6,300.0	5,484.6	5,300.0	5,168.6	23.6	9.8	67.74	-127.8	-29.4	942.6	917.3	25.30	37.262			
6,400.0	5,484.0	5,263.1	5,143.3	25.1	9.8	66.31	-123.3	-55.8	990.5	963.5	26.99	36.694			
6,500.0	5,483.5	5,231.1	5,120.1	26.8	9.8	65.04	-119.2	-77.5	1,043.5	1,014.8	28.76	36.288			
6,600.0	5,483.0	5,200.0	5,096.6	28.6	9.8	63.78	-115.0	-97.5	1,101.3	1,070.8	30.53	36.067			
6,700.0	5,482.5	5,176.6	5,078.3	30.5	9.8	62.83	-111.8	-111.6	1,163.3	1,130.9	32.38	35.930			
6,800.0	5,482.0	5,150.0	5,056.9	32.5	9.8	61.75	-108.0	-127.0	1,229.2	1,195.0	34.18	35.967			

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 05H
Well Error: 0.0usft
Reference Wellbore: HZ
Reference Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 05H
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 04H - 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	28.85	26.2	14.4	29.9				
100.0	100.0	100.0	100.0	0.1	0.1	28.85	26.2	14.4	29.9	29.6	0.29	102.055	
200.0	200.0	200.0	200.0	0.3	0.3	28.85	26.2	14.4	29.9	29.3	0.64	46.590	
300.0	300.0	300.0	300.0	0.5	0.5	28.85	26.2	14.4	29.9	28.9	0.99	30.185	
400.0	400.0	400.0	400.0	0.7	0.7	28.85	26.2	14.4	29.9	28.6	1.34	22.324	
500.0	500.0	500.0	500.0	0.8	0.8	28.85	26.2	14.4	29.9	28.2	1.69	17.712	
600.0	600.0	600.0	600.0	1.0	1.0	28.85	26.2	14.4	29.9	27.9	2.04	14.679	
700.0	700.0	700.0	700.0	1.2	1.2	28.85	26.2	14.4	29.9	27.5	2.39	12.533	
800.0	800.0	800.0	800.0	1.4	1.4	28.85	26.2	14.4	29.9	27.2	2.74	10.934	
900.0	900.0	900.0	900.0	1.5	1.5	28.85	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	28.85	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	28.85	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	28.85	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	28.85	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	28.85	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	28.85	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	28.85	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	28.85	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	28.85	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	28.85	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	28.85	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	28.85	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	28.85	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	28.85	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	28.85	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	28.85	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	28.85	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	28.85	26.2	14.4	29.9	20.6	9.37	3.194 CC, ES	
2,800.0	2,800.0	2,800.0	2,800.0	4.9	4.9	-115.62	26.2	14.4	30.6	20.9	9.72	3.153 SF	
2,900.0	2,899.8	2,899.8	2,899.8	5.0	5.0	-123.73	26.2	14.4	33.2	23.2	10.06	3.303	
3,000.0	2,999.5	2,999.5	2,999.5	5.2	5.2	-134.40	26.2	14.4	38.8	28.4	10.40	3.726	
3,100.0	3,098.7	3,099.9	3,099.9	5.4	5.4	-146.20	24.8	13.4	46.8	36.1	10.73	4.362	
3,200.0	3,197.5	3,200.0	3,199.8	5.6	5.6	-158.45	20.6	10.3	57.3	46.2	11.04	5.188	
3,300.0	3,295.6	3,299.3	3,298.8	5.9	5.7	-169.76	13.7	5.1	71.3	60.0	11.33	6.297	
3,400.0	3,393.1	3,397.6	3,396.4	6.1	5.9	-179.37	4.2	-2.1	89.7	78.1	11.63	7.716	
3,500.0	3,489.6	3,494.7	3,492.3	6.5	6.1	172.63	-7.9	-11.1	112.6	100.6	11.95	9.424	
3,600.0	3,585.3	3,590.4	3,586.2	6.8	6.4	166.58	-22.3	-21.9	139.9	127.6	12.30	11.370	
3,700.0	3,679.8	3,684.3	3,677.9	7.3	6.6	161.56	-38.9	-34.3	171.5	158.8	12.71	13.497	
3,800.0	3,773.2	3,776.5	3,767.0	7.7	6.9	157.46	-57.5	-48.2	207.3	194.1	13.17	15.743	
3,900.0	3,865.2	3,866.6	3,853.4	8.3	7.2	154.06	-77.9	-63.5	247.0	233.3	13.69	18.046	
4,000.0	3,955.8	3,954.5	3,936.9	8.9	7.5	151.18	-99.9	-80.0	290.5	276.2	14.27	20.353	
4,100.0	4,044.9	4,040.1	4,017.4	9.6	7.9	148.69	-123.3	-97.5	337.6	322.7	14.93	22.615	
4,157.6	4,095.5	4,086.4	4,062.4	10.0	8.1	147.39	-137.3	-108.0	366.3	351.0	15.33	23.890	
4,200.0	4,132.5	4,123.5	4,094.9	10.3	8.3	146.73	-147.9	-115.9	387.9	372.2	15.68	24.736	
4,300.0	4,219.9	4,205.5	4,170.2	11.1	8.7	145.20	-173.8	-135.3	439.5	423.0	16.55	26.563	
4,400.0	4,307.2	4,286.1	4,243.3	11.8	9.2	143.70	-201.0	-155.7	492.1	474.6	17.48	28.153	
4,500.0	4,394.5	4,365.3	4,314.2	12.6	9.7	142.24	-229.3	-176.9	545.5	527.1	18.47	29.541	
4,600.0	4,481.9	4,442.9	4,382.7	13.5	10.3	140.81	-258.6	-198.8	600.0	580.5	19.51	30.762	
4,700.0	4,569.2	4,519.6	4,449.4	14.3	10.8	139.42	-288.9	-221.5	655.6	635.0	20.59	31.846	
4,777.6	4,637.0	4,583.0	4,504.1	14.9	11.3	138.36	-314.5	-240.7	699.2	677.7	21.48	32.557	
4,800.0	4,656.6	4,601.5	4,520.1	15.1	11.5	135.03	-321.9	-246.2	711.5	689.6	21.90	32.481	
4,850.0	4,701.1	4,644.1	4,556.9	15.5	11.8	127.06	-339.1	-259.1	736.9	714.1	22.82	32.293	

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 05H
Well Error: 0.0usft
Reference Wellbore: HZ
Reference Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 05H
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 04H - 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)				
4,900.0	4,746.2	4,688.5	4,595.2	15.8	12.2	118.36	-357.0	-272.5	759.4	735.8	23.66	32.094		
4,950.0	4,791.7	6,147.1	5,489.5	16.1	21.6	166.15	-775.7	448.9	722.6	701.3	21.33	33.877		
5,000.0	4,837.4	6,148.6	5,489.5	16.4	21.6	-178.35	-775.7	450.4	673.3	645.7	27.53	24.458		
5,050.0	4,883.0	6,146.6	5,489.5	16.7	21.5	-166.72	-775.7	448.3	624.1	591.3	32.79	19.029		
5,100.0	4,928.4	6,141.1	5,489.5	16.9	21.5	-161.64	-775.7	442.8	575.3	540.4	34.85	16.507		
5,150.0	4,973.4	6,132.1	5,489.5	17.1	21.3	-161.03	-775.7	433.9	527.1	492.0	35.14	15.001		
5,200.0	5,017.6	6,119.8	5,489.6	17.3	21.2	-162.75	-775.7	421.5	480.0	445.3	34.68	13.839		
5,250.0	5,060.9	6,104.1	5,489.6	17.5	21.0	-165.60	-775.7	405.8	434.0	400.1	33.88	12.811		
5,300.0	5,103.1	6,076.2	5,489.5	17.6	20.6	-170.54	-775.7	378.0	389.5	356.8	32.76	11.889		
5,350.0	5,144.0	6,037.6	5,487.9	17.8	20.2	-177.33	-774.8	339.4	346.0	314.6	31.37	11.030		
5,400.0	5,183.3	6,001.9	5,484.7	17.9	19.7	176.17	-773.3	303.9	303.5	273.6	29.85	10.167		
5,450.0	5,221.0	5,968.2	5,480.2	18.0	19.4	169.60	-771.2	270.5	262.5	234.3	28.21	9.305		
5,500.0	5,256.7	5,935.9	5,474.6	18.2	19.0	162.61	-768.5	238.9	223.5	197.1	26.47	8.447		
5,550.0	5,290.3	5,904.8	5,468.0	18.3	18.8	154.87	-765.4	208.7	187.7	163.0	24.67	7.607		
5,600.0	5,321.7	5,874.6	5,460.4	18.4	18.5	146.03	-761.8	179.6	156.5	133.5	22.94	6.819		
5,650.0	5,350.8	5,845.0	5,451.9	18.6	18.2	135.86	-757.8	151.6	132.7	111.1	21.54	6.160		
5,700.0	5,377.3	5,816.0	5,442.6	18.7	18.0	124.38	-753.4	124.5	120.0	99.2	20.77	5.777		
5,720.0	5,387.5	5,804.1	5,438.4	18.8	17.9	119.31	-751.4	113.5	118.8	98.1	20.69	5.739		
5,750.0	5,401.1	5,787.5	5,432.4	18.9	17.8	112.03	-748.6	98.3	121.1	100.4	20.78	5.829		
5,800.0	5,422.1	5,759.3	5,421.5	19.1	17.6	99.71	-743.5	72.8	135.0	113.7	21.30	6.338		
5,850.0	5,440.3	5,731.4	5,409.8	19.4	17.4	88.34	-738.0	48.1	157.5	135.7	21.83	7.215		
5,900.0	5,455.5	5,700.0	5,395.5	19.6	17.2	77.68	-731.3	20.9	185.0	163.0	22.00	8.410		
5,950.0	5,467.6	5,676.4	5,384.2	20.0	17.1	70.45	-725.9	1.0	214.9	193.0	21.92	9.804		
6,000.0	5,476.7	5,650.0	5,370.7	20.3	17.0	64.04	-719.6	-20.9	245.9	224.4	21.50	11.440		
6,050.0	5,482.6	5,622.2	5,355.8	20.7	16.8	58.77	-712.6	-43.2	277.1	256.2	20.93	13.242		
6,100.0	5,485.3	5,600.0	5,343.3	21.2	16.7	55.03	-706.8	-60.6	308.2	287.7	20.45	15.071		
6,121.8	5,485.5	5,583.6	5,333.8	21.4	16.6	53.17	-702.3	-73.2	321.5	301.3	20.16	15.950		
6,200.0	5,485.1	5,550.0	5,313.4	22.3	16.5	51.05	-692.8	-98.2	371.2	350.4	20.87	17.792		
6,300.0	5,484.6	5,500.0	5,281.3	23.6	16.3	48.25	-677.7	-133.4	439.8	418.1	21.77	20.202		
6,400.0	5,484.0	5,450.0	5,246.9	25.1	16.1	45.85	-661.6	-166.0	513.3	490.6	22.73	22.584		
6,500.0	5,483.5	5,423.5	5,227.9	26.8	16.0	44.72	-652.7	-182.2	590.4	566.4	23.97	24.631		
6,600.0	5,483.0	5,400.0	5,210.7	28.6	15.9	43.79	-644.6	-195.9	670.8	645.5	25.24	26.570		
6,700.0	5,482.5	5,365.0	5,184.2	30.5	15.8	42.52	-632.2	-215.1	753.5	727.1	26.39	28.557		
6,800.0	5,482.0	5,350.0	5,172.6	32.5	15.8	42.01	-626.8	-222.9	838.6	810.9	27.75	30.219		
6,900.0	5,481.4	5,318.8	5,147.9	34.6	15.6	41.03	-615.3	-238.3	925.2	896.3	28.91	32.001		
7,000.0	5,480.9	5,300.0	5,132.9	36.7	15.6	40.48	-608.2	-246.9	1,013.4	983.2	30.21	33.544		
7,100.0	5,480.4	5,281.5	5,117.8	38.9	15.5	39.97	-601.2	-255.0	1,102.9	1,071.4	31.50	35.009		
7,200.0	5,479.9	5,250.0	5,091.7	41.1	15.4	39.16	-589.0	-267.8	1,193.7	1,161.1	32.62	36.597		

Cathedral Energy Services

Anticollision Report

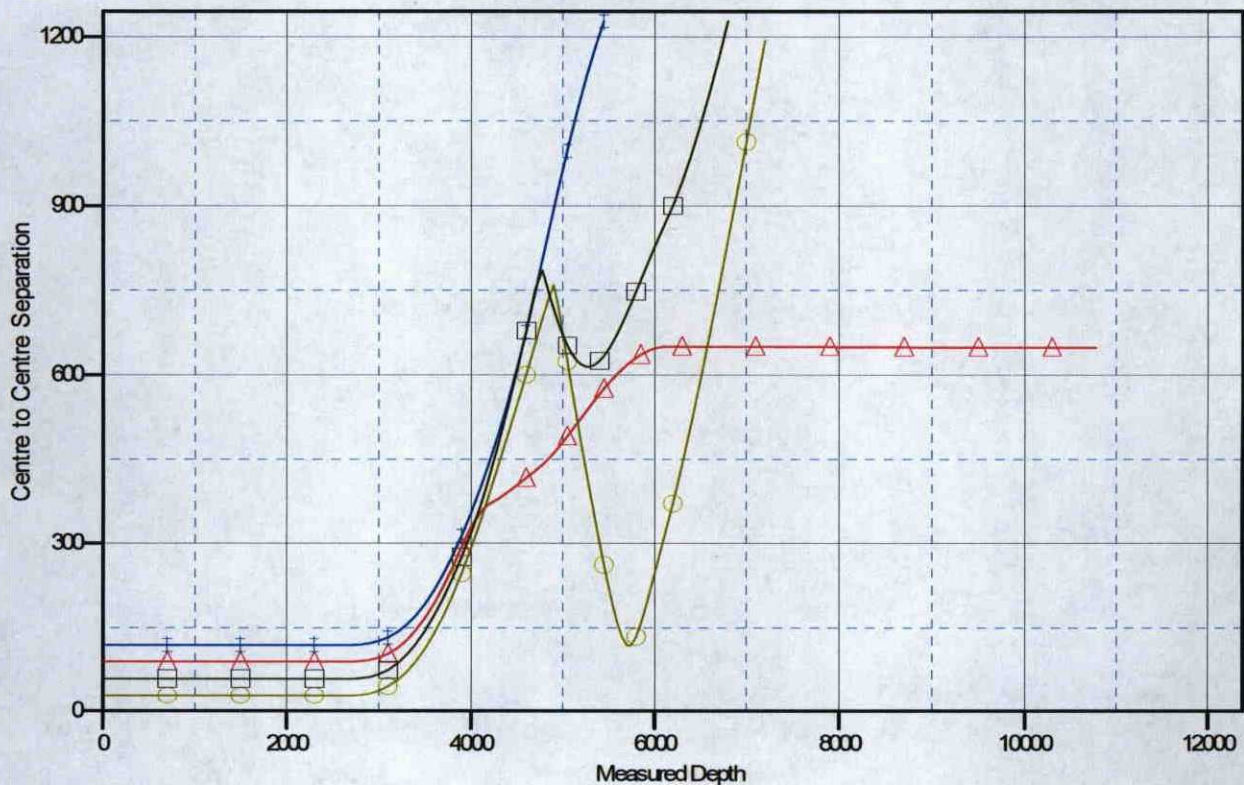
Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S24-T24N-R9W (Escrito I24)
Site Error: 0.0usft
Reference Well: Escrito I24A-2409 05H
Well Error: 0.0usft
Reference Wellbore: HZ
Reference Design: Plan #1

Local Co-ordinate Reference: Well Escrito I24A-2409 05H
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 05H
 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 04H, HZ, Plan #1 V0
- Escrito I24A-2409 01H, HZ, Plan #1 V0
 ■ Escrito I24A-2409 03H, HZ, Plan #1 V0

Escrito I24A-2409 05H

**SHL: NESE Section 24, T24N, R9W
1543 FSL and 76 FEL**

**BHL: SWSW Section 24, T24N, R9W
638 FSL and 330 FWL**

San Juan County, New Mexico

Lease Number: NMSF 078860

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 #05H

1543' FSL & 76' 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. 36.296811° N, LONG. 107.732162° W (NAD 83).



WELLHEAD BLOWOUT CONTROL SYSTEM

encana

Well Name and Number:
Escrito I24A-2409 05H

