

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 L30 2408 #2H

API# 30-045-35661, Section 30, Township 24 N/S, Range 08 E/W

Conditions of Approval:

(See the below checked and handwritten conditions)

- ☒ Notify Aztec OCD 24hrs prior to casing & cement.
- ☒ Hold C-104 for directional survey & "As Drilled" Plat
- ☒ Hold C-104 for NSL, NSP, DHC
- ☐ Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- ☐ Regarding the use of a pit, closed loop system or below grade tank, the operator must comply with the following as applicable:
 - A pit requires a complete C-144 be submitted and approved prior to the construction or use of the pit, pursuant to 19.15.17.8.A
 - A closed loop system requires notification prior to use, pursuant to 19.15.17.9.A
 - A below grade tank requires a registration be filed prior to the construction or use of the below grade tank, pursuant to 19.15.17.8.C
- ☐ Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
- ☒ Regarding Hydraulic Fracturing, review EPA Underground Injection Control Guidance 84
- ☒ Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.
- ☒ Well-bore communication is regulated under 19.15.29 NMAC. This requires well-bore Communication to be reported in accordance with 19.15.29.8.

Charles R. ...
NMOCD Approved by Signature

10-9-2015
Date KC

OIL CONS. DIV DIST. 3

SEP 23 2015

Form 3160-3
(March 2012)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

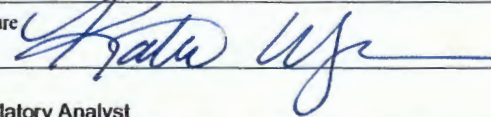
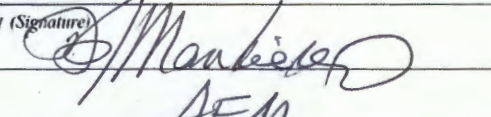
FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NM 54980, NM 54981
1b. Type of Well: <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> 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. Pending NMNM130591
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 L30-2408 02H
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface 2488' FSL, 350' FWL, Section 30, T24N, R8W NWSW At proposed prod. zone 330' FSL, 2400' FEL, Section 30, T24N, RW SWSW		9. API Well No. 30-015-35661
14. Distance in miles and direction from nearest town or post office: +/- 36 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. (Also to nearest drig. unit line, if any) BHL is 330' FSL Section 30, T24N, R9W	16. No. of acres in lease NM 54980- 320 acres NM 54981- 321.16 acres	11. Sec., T. R. M. or Blk. and Survey or Area Section 30, T24N, R8W NMPM
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. SHL is +/- 30' South of Escrito L30-2408 01H	19. Proposed Depth 5311' TVD, 9207' MD	12. County or Parish San Juan
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6814' GL; 6830' KB	22. Approximate date work will start* 08/25/2015	13. State NM
23. Estimated duration 20 days		

24. Attachments

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

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

25. Signature 	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)

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

BLM'S APPROVAL OR ACCEPTANCE OF THIS ACTION DOES NOT RELIEVE THE LESSEE AND OPERATOR FROM OBTAINING ANY OTHER AUTHORIZATION REQUIRED FOR OPERATIONS ON FEDERAL AND INDIAN LANDS

NMOCD AV

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

DISTRICT I

1635 N. French Dr., Hobbs, N.M. 88240
Phone: (505) 963-6161 Fax: (505) 963-0720

DISTRICT II

811 S. First St., Artesia, N.M. 88210
Phone: (505) 745-1853 Fax: (505) 745-9720

DISTRICT III

1000 Rio Bravo Rd., Aztec, N.M. 87410
Phone: (505) 834-8178 Fax: (505) 334-8170

DISTRICT IV

1820 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

*API Number 30-045-35661		*Pool Code 97232	*Pool Name BASIN MANCOS
*Property Code 315288	*Property Name ESCRITO L30-2408		*Well Number 02H
*CORD No. 282327	*Operator Name ENCANA OIL & GAS (USA) INC.		*Elevation 6814.0'

10 Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	30	24N	8W	3	2488'	SOUTH	350'	WEST	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
O	30	24N	8W		330'	SOUTH	2400'	EAST	SAN JUAN

*Dedicated Acres 641.18 ACRES	PROJECT AREA ALL SEC. 30	*Joint or Infill	*Consolidation Code	*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

BOTTOM HOLE
LAT. 36.278989° N (NAD83)
LONG. 107.722230° W (NAD83)
LAT. 36.278977° N (NAD27)
LONG. 107.721617° W (NAD27)

ENTRY POINT
LAT. 36.285987° N (NAD83)
LONG. 107.730903° W (NAD83)
LAT. 36.285975° N (NAD27)
LONG. 107.730290° W (NAD27)

WELL FLAG
LAT. 36.284904° N (NAD83)
LONG. 107.730843° W (NAD83)
LAT. 36.284891° N (NAD27)
LONG. 107.730230° W (NAD27)

NORTHWEST CORNER SEC. 30
LAT. 36.292576° N (NAD83)
LONG. 107.731976° W (NAD83)
LAT. 36.292564° N (NAD27)
LONG. 107.731363° W (NAD27)

NORTHWEST CORNER SEC. 30
LAT. 36.292579° N (NAD83)
LONG. 107.713923° W (NAD83)
LAT. 36.292567° N (NAD27)
LONG. 107.713311° W (NAD27)

SOUTHWEST CORNER SEC. 30
LAT. 36.278070° N (NAD83)
LONG. 107.732078° W (NAD83)
LAT. 36.278058° N (NAD27)
LONG. 107.731465° W (NAD27)

SOUTHWEST CORNER SEC. 30
LAT. 36.278095° N (NAD83)
LONG. 107.714102° W (NAD83)
LAT. 36.278083° N (NAD27)
LONG. 107.713490° 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.

APRIL 8, 2014

Date of Survey

Signature and Seal of Professional Surveyor:

David R. Russell
DAVID R. RUSSELL
REGISTERED PROFESSIONAL SURVEYOR
10201
Certificate Number 10201

Escrito L30-2408 02H

SHL: 2488' FSL, 350' FWL, Sec 30, T24N, R8W

BHL: 330' FSL, 2400' FEL, Sec 30, 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.	875
Kirtland Shale	1,102
Fruitland Coal	1,357
Pictured Cliffs Ss.	1,641
Lewis Shale	1,735
Cliffhouse Ss.	2,478
Menefee Fn.	3,145
Point Lookout Ss.	4,042
Mancos Shale	4,265
Mancos Silt	4,812
Gallup Fn.	5,090
Base Gallup	5,421

The referenced surface elevation is 6814', KB 6830'

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

Substance	Formation	Depth (TVD) units = feet
Water/Gas	Fruitland Coal	1,357
Oil/Gas	Pictured Cliffs Ss.	1,641
Oil/Gas	Cliffhouse Ss.	2,478
Gas	Menefee Fn.	3,145
Oil/Gas	Point Lookout Ss.	4,042
Oil/Gas	Mancos Shale	4,265
Oil/Gas	Mancos Silt	4,812
Oil/Gas	Gallup Fn.	5,090

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

Escrito L30-2408 02H

SHL: 2488' FSL, 350' FWL, Sec 30, T24N, R8W

BHL: 330' FSL, 2400' FEL, Sec 30, 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'-5459'	8 3/4"	7"	26#	J55, LTC New
Production Liner	5359'-9207'	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 L30-2408 02H**SHL: 2488' FSL, 350' FWL, Sec 30, T24N, R8W****BHL: 330' FSL, 2400' FEL, Sec 30, 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'-5459'	100% open hole excess Stage 1 Lead: 508 sks Stage 1 Tail: 388 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	5359'-9207'	50% OH excess Stage 1 Blend Total: 222sks	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 2500'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5311'/9207'	Gallup

Escrito L30-2408 02H

SHL: 2488' FSL, 350' FWL, Sec 30, T24N, R8W

BHL: 330' FSL, 2400' FEL, Sec 30, 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'-5209'/5459'	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"	5209'/5459'- 5311'/9207'	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 +/- 2499 psi based on a 9.0 ppg at 5340' 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: 2488' FSL, 350' FWL, Sec 30, T24N, R8W County: San Juan WELL: Escrito L30-2408 02H			Encana Natural Gas WELL SUMMARY			ENG: 0 RIG: Unassigned GLE: 6814 RKBE: 6830			2-27-15
MWD	OPEN HOLE	FORM	DEPTH			HOLE	CASING	MW	DEVIATION
LWD	LOGGING		TVD	MD			SPECS	MUD TYPE	INFORMATION
			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.	0						
		Nacimiento Fn. 9 5/8" Csg	surface 500	500.00					
Survey Every 60'-120', updating anticollision report after surveys. Stop operations and contact drilling engineer if separation factor approaches 1.5 Surveys every 30' through the curve	No OH logs	Ojo Alamo Ss.	875						
		Kirtland Shale	1,102						
		Fruitland Coal	1,357						
		Pictured Cliffs Ss.	1,641						
		Lewis Shale	1,735						
		Cliffhouse Ss.	2,478						
	Mud logger onsite	Menefee Fn.	3,145						
		Point Lookout Ss.	4,042						
		Mancos Shale	4,265						
		KOP	2,500	2,500					
		Mancos Silt	4,812						
		Gallup Fn.	5,090						
		7" Csg	5,209	5,459'					
Surveys every stand to TD unless directed otherwise by Geologist MWD Gamma Directional	No OH Logs	Horizontal Target	5,340			6 1/8	100' overlap at liner top		Horz Inc/TVD 90.53deg/5340ft
		TD	5,311	9,207			3747' Drilled Lateral		TD = 9206.5 MD
		Base Gallup	5,421						
							4 1/2" 11.6ppf SB80 LTC	WBM 8.3-10	
							TOC @ hanger (50% OH excess) Stage 1 Total: 222sks Stage 1 Blend: 222 sks Premium Lite High Strength FM + 0.7% bwoc R-3 + 3% bwow Potassium Chloride + 0.25lbs/sack Cello Flake + 0.5% bwoc CD-32 + 1.15% bwoc FL-52A + 60 lbs/sack Calcium Carbonate + 124.4% Fresh Water. Yield 2.63 cuft/sk.		

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 2500', 8 3/4 inch holesize
- 5) Start curve at 10deg/100' build rate
- 6) Drill to csg point of 5459' MD
- 7) R&C 7" csg, circ cmt to surface
- 8) Land at ~90 deg, drill lateral to 9207' run 4 1/2 inch cemented liner



Project: San Juan County, NM
Site: S30-T24N-R8W
Well: Escrito L30-2408 02H
Wellbore: HZ
Design: Plan #1

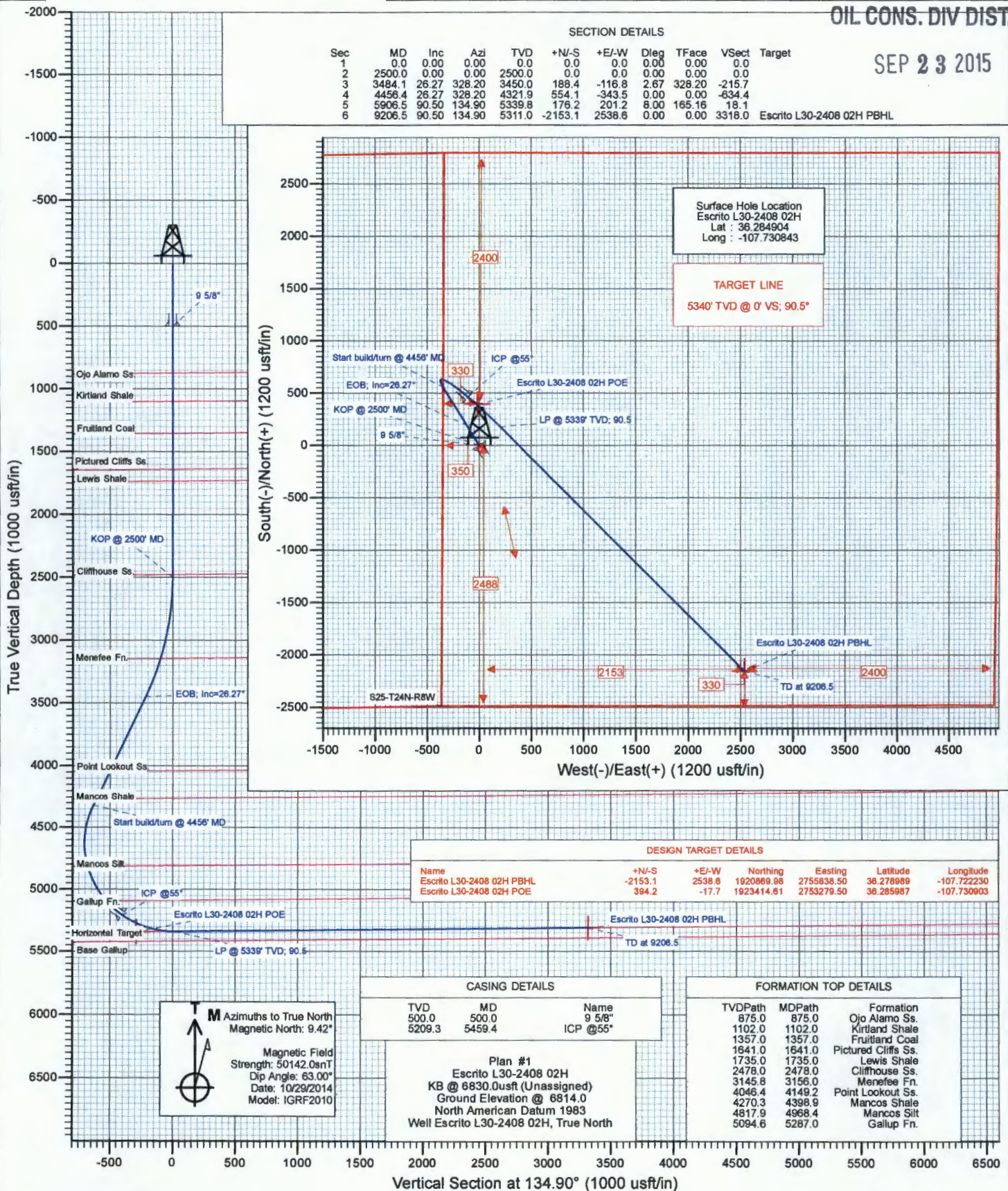


OIL CONS. DIV DIST 3

SEP 23 2015

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2500.0	0.00	0.00	2500.0	0.0	0.0	0.00	0.00	0.0	
3	3484.1	26.27	328.20	3450.0	188.4	-116.8	2.67	328.20	-215.7	
4	4458.4	26.27	328.20	4321.9	554.1	-343.5	0.00	0.00	-634.4	
5	5906.5	90.50	134.90	5339.8	176.2	201.2	8.00	165.16	18.1	
6	9206.5	90.50	134.90	5311.0	-2153.1	2538.6	0.00	0.00	3318.0	Escrito L30-2408 02H 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: S30-T24N-R8W
 Well: Escrito L30-2408 02H
 Wellbore: HZ
 Design: Plan #1

Local Co-ordinate Reference:
 TVD Reference:
 MD Reference:
 North Reference:
 Survey Calculation Method:

Well Escrito L30-2408 02H
 KB @ 6830.0usft (Unassigned)
 KB @ 6830.0usft (Unassigned)
 True
 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 S30-T24N-R8W

Site Position: Northing: 1,925,369.88 usft Latitude: 36.291358
 From: Lat/Long Easting: 2,753,359.06 usft Longitude: -107.730626
 Position Uncertainty: 0.0 usft Slot Radius: 13-3/16" Grid Convergence: 0.06 °

Well Escrito L30-2408 02H

Well Position +N-S 0.0 usft Northing: 1,923,020.39 usft Latitude: 36.284904
 +E-W 0.0 usft Easting: 2,753,297.60 usft Longitude: -107.730843
 Position Uncertainty 0.0 usft Wellhead Elevation: 0.0 usft Ground Level: 6,814.0 usft

Wellbore HZ

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/29/2014	9.42	63.00	50,142

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	134.90

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	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,484.1	26.27	328.20	3,450.0	188.4	-116.8	2.67	2.67	0.00	328.20	
4,456.4	26.27	328.20	4,321.9	554.1	-343.5	0.00	0.00	0.00	0.00	
5,906.5	90.50	134.90	5,339.8	176.2	201.2	8.00	4.43	11.50	165.16	
9,206.5	90.50	134.90	5,311.0	-2,153.1	2,538.6	0.00	0.00	0.00	0.00	Escrito L30-2408 02H

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Site: S30-T24N-R8W
Well: Escrito L30-2408 02H
Wellbore: HZ
Design: Plan #1

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:

Well Escrito L30-2408 02H
KB @ 6830.0usft (Unassigned)
KB @ 6830.0usft (Unassigned)
True
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	
875.0	0.00	0.00	875.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo Ss.
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	
1,102.0	0.00	0.00	1,102.0	0.0	0.0	0.0	0.00	0.00	Kirtland Shale
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	
1,357.0	0.00	0.00	1,357.0	0.0	0.0	0.0	0.00	0.00	Fruitland Coal
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	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
1,641.0	0.00	0.00	1,641.0	0.0	0.0	0.0	0.00	0.00	Pictured Cliffs Ss.
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	
1,735.0	0.00	0.00	1,735.0	0.0	0.0	0.0	0.00	0.00	Lewis Shale
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	
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	
2,478.0	0.00	0.00	2,478.0	0.0	0.0	0.0	0.00	0.00	Cliffhouse Ss.
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	KOP @ 2500' MD
2,600.0	2.67	328.20	2,600.0	2.0	-1.2	-2.3	2.67	2.67	
2,700.0	5.34	328.20	2,699.7	7.9	-4.9	-9.1	2.67	2.67	
2,800.0	8.01	328.20	2,799.0	17.8	-11.0	-20.4	2.67	2.67	
2,900.0	10.68	328.20	2,897.7	31.6	-19.6	-36.2	2.67	2.67	
3,000.0	13.35	328.20	2,995.5	49.3	-30.5	-56.4	2.67	2.67	
3,100.0	16.01	328.20	3,092.2	70.8	-43.9	-81.1	2.67	2.67	
3,156.0	17.51	328.20	3,145.8	84.5	-52.4	-96.8	2.67	2.67	Menefee Fn.
3,200.0	18.68	328.20	3,187.7	96.1	-59.6	-110.1	2.67	2.67	
3,300.0	21.35	328.20	3,281.6	125.2	-77.6	-143.4	2.67	2.67	
3,400.0	24.02	328.20	3,373.9	158.0	-98.0	-180.9	2.67	2.67	
3,484.1	26.27	328.20	3,450.0	188.4	-116.8	-215.7	2.67	2.67	EOB; Inc=26.27°
3,500.0	26.27	328.20	3,464.3	194.4	-120.5	-222.5	0.00	0.00	
3,600.0	26.27	328.20	3,553.9	232.0	-143.8	-265.6	0.00	0.00	
3,700.0	26.27	328.20	3,643.6	269.6	-167.1	-308.7	0.00	0.00	
3,800.0	26.27	328.20	3,733.3	307.2	-190.4	-351.7	0.00	0.00	
3,900.0	26.27	328.20	3,822.9	344.8	-213.8	-394.8	0.00	0.00	
4,000.0	26.27	328.20	3,912.6	382.4	-237.1	-437.9	0.00	0.00	
4,100.0	26.27	328.20	4,002.3	420.0	-260.4	-481.0	0.00	0.00	
4,149.2	26.27	328.20	4,046.4	438.5	-271.9	-502.1	0.00	0.00	Point Lookout Ss.
4,200.0	26.27	328.20	4,092.0	457.7	-283.7	-524.0	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: S30-T24N-R8W
Well: Escrito L30-2408 02H
Wellbore: HZ
Design: Plan #1

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:

Well Escrito L30-2408 02H
KB @ 6830.0usft (Unassigned)
KB @ 6830.0usft (Unassigned)
True
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
4,300.0	26.27	328.20	4,181.6	495.3	-307.0	-567.1	0.00	0.00	
4,398.9	26.27	328.20	4,270.3	532.5	-330.1	-609.7	0.00	0.00	Mancos Shale
4,400.0	26.27	328.20	4,271.3	532.9	-330.4	-610.2	0.00	0.00	
4,456.4	26.27	328.20	4,321.9	554.1	-343.5	-634.4	0.00	0.00	Start build/turn @ 4456' MD
4,500.0	22.91	330.50	4,361.5	569.7	-352.8	-652.0	8.00	-7.70	
4,600.0	15.42	339.26	4,455.9	599.1	-367.1	-682.9	8.00	-7.49	
4,700.0	8.85	1.92	4,553.7	619.3	-371.5	-700.3	8.00	-6.57	
4,800.0	6.80	61.84	4,652.9	629.8	-366.1	-703.8	8.00	-2.05	
4,900.0	11.90	102.07	4,751.7	630.4	-350.7	-693.4	8.00	5.10	
4,968.4	16.74	112.56	4,817.9	625.2	-334.7	-678.4	8.00	7.08	Mancos Silt
5,000.0	19.09	115.60	4,848.0	621.2	-325.9	-669.3	8.00	7.43	
5,100.0	26.73	121.75	4,940.0	602.3	-291.9	-631.9	8.00	7.64	
5,200.0	34.53	125.30	5,026.0	574.0	-249.6	-582.0	8.00	7.80	
5,287.0	41.37	127.40	5,094.6	542.2	-206.6	-529.1	8.00	7.86	Gallup Fn.
5,300.0	42.39	127.67	5,104.3	537.0	-199.7	-520.5	8.00	7.88	
5,400.0	50.29	129.41	5,173.3	491.9	-143.2	-448.6	8.00	7.90	
5,459.4	55.00	130.26	5,209.3	461.6	-107.0	-401.6	8.00	7.92	ICP @55°
5,500.0	58.21	130.79	5,231.6	439.6	-81.2	-367.8	8.00	7.93	
5,600.0	66.15	131.95	5,278.3	381.2	-14.9	-279.6	8.00	7.93	
5,611.6	67.07	132.08	5,282.9	374.0	-7.0	-268.9	8.00	7.94	Escrito L30-2408 02H POE
5,700.0	74.09	132.98	5,312.2	317.7	54.4	-185.7	8.00	7.94	
5,800.0	82.04	133.93	5,332.9	250.5	125.3	-88.0	8.00	7.95	
5,900.0	89.98	134.84	5,339.9	180.7	196.6	11.7	8.00	7.95	
5,906.5	90.50	134.90	5,339.8	176.2	201.2	18.1	8.00	7.95	LP @ 5339' TVD; 90.5
6,000.0	90.50	134.90	5,339.0	110.2	267.4	111.7	0.00	0.00	
6,100.0	90.50	134.90	5,338.1	39.6	338.2	211.6	0.00	0.00	
6,200.0	90.50	134.90	5,337.3	-31.0	409.1	311.6	0.00	0.00	
6,300.0	90.50	134.90	5,336.4	-101.6	479.9	411.6	0.00	0.00	
6,400.0	90.50	134.90	5,335.5	-172.2	550.7	511.6	0.00	0.00	
6,500.0	90.50	134.90	5,334.7	-242.8	621.6	611.6	0.00	0.00	
6,600.0	90.50	134.90	5,333.8	-313.3	692.4	711.6	0.00	0.00	
6,700.0	90.50	134.90	5,332.9	-383.9	763.2	811.6	0.00	0.00	
6,800.0	90.50	134.90	5,332.0	-454.5	834.1	911.6	0.00	0.00	
6,900.0	90.50	134.90	5,331.2	-525.1	904.9	1,011.6	0.00	0.00	
7,000.0	90.50	134.90	5,330.3	-595.7	975.7	1,111.6	0.00	0.00	
7,100.0	90.50	134.90	5,329.4	-666.3	1,046.6	1,211.6	0.00	0.00	
7,200.0	90.50	134.90	5,328.5	-736.8	1,117.4	1,311.6	0.00	0.00	
7,300.0	90.50	134.90	5,327.7	-807.4	1,188.2	1,411.6	0.00	0.00	
7,400.0	90.50	134.90	5,326.8	-878.0	1,259.0	1,511.6	0.00	0.00	
7,500.0	90.50	134.90	5,325.9	-948.6	1,329.9	1,611.6	0.00	0.00	
7,600.0	90.50	134.90	5,325.1	-1,019.2	1,400.7	1,711.6	0.00	0.00	
7,700.0	90.50	134.90	5,324.2	-1,089.8	1,471.5	1,811.6	0.00	0.00	
7,800.0	90.50	134.90	5,323.3	-1,160.3	1,542.4	1,911.6	0.00	0.00	
7,900.0	90.50	134.90	5,322.4	-1,230.9	1,613.2	2,011.6	0.00	0.00	
8,000.0	90.50	134.90	5,321.6	-1,301.5	1,684.0	2,111.6	0.00	0.00	
8,100.0	90.50	134.90	5,320.7	-1,372.1	1,754.9	2,211.6	0.00	0.00	
8,200.0	90.50	134.90	5,319.8	-1,442.7	1,825.7	2,311.6	0.00	0.00	
8,300.0	90.50	134.90	5,318.9	-1,513.3	1,896.5	2,411.6	0.00	0.00	
8,400.0	90.50	134.90	5,318.1	-1,583.9	1,967.4	2,511.6	0.00	0.00	
8,500.0	90.50	134.90	5,317.2	-1,654.4	2,038.2	2,611.6	0.00	0.00	
8,600.0	90.50	134.90	5,316.3	-1,725.0	2,109.0	2,711.6	0.00	0.00	
8,700.0	90.50	134.90	5,315.5	-1,795.6	2,179.9	2,811.5	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: S30-T24N-R8W
Well: Escrito L30-2408 02H
Wellbore: HZ
Design: Plan #1

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:

Well Escrito L30-2408 02H
 KB @ 6830.0usft (Unassigned)
 KB @ 6830.0usft (Unassigned)
 True
 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
8,800.0	90.50	134.90	5,314.6	-1,866.2	2,250.7	2,911.5	0.00	0.00	
8,900.0	90.50	134.90	5,313.7	-1,936.8	2,321.5	3,011.5	0.00	0.00	
9,000.0	90.50	134.90	5,312.8	-2,007.4	2,392.4	3,111.5	0.00	0.00	
9,100.0	90.50	134.90	5,312.0	-2,077.9	2,463.2	3,211.5	0.00	0.00	
9,200.0	90.50	134.90	5,311.1	-2,148.5	2,534.0	3,311.5	0.00	0.00	
9,206.5	90.50	134.90	5,311.0	-2,153.1	2,538.6	3,318.0	0.00	0.00	TD at 9206.5 - Escrito L30-2408 02H 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 L30-2408 02H PI			0.00	0.00	5,342.5	394.2	-17.7	1,923,414.61	2,753,279.50	36.285987	-107.730903
- plan misses target center by 63.9usft at 5611.6usft MD (5282.9 TVD, 374.0 N, -7.0 E)											
- Point											
Escrito L30-2408 02H PI			0.00	0.00	5,311.0	-2,153.1	2,538.6	1,920,869.98	2,755,838.50	36.278989	-107.722230
- plan hits target center											
- Point											

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
500.0	500.0	9 5/8"	0	0
5,459.4	5,209.3	ICP @55°	0	0

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
875.0	875.0	Ojo Alamo Ss.		-0.50	134.90
1,102.0	1,102.0	Kirtland Shale		-0.50	134.90
1,357.0	1,357.0	Fruitland Coal		-0.50	134.90
1,641.0	1,641.0	Pictured Cliffs Ss.		-0.50	134.90
1,735.0	1,735.0	Lewis Shale		-0.50	134.90
2,478.0	2,478.0	Cliffhouse Ss.		-0.50	134.90
3,156.0	3,145.0	Menefee Fn.		-0.50	134.90
4,149.2	4,042.0	Point Lookout Ss.		-0.50	134.90
4,398.9	4,265.0	Mancos Shale		-0.50	134.90
4,968.4	4,812.0	Mancos Silt		-0.50	134.90
5,287.0	5,090.0	Gallup Fn.		-0.50	134.90

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Site: S30-T24N-R8W
Well: Escrito L30-2408 02H
Wellbore: HZ
Design: Plan #1

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:

Well Escrito L30-2408 02H
 KB @ 6830.0usft (Unassigned)
 KB @ 6830.0usft (Unassigned)
 True
 Minimum Curvature

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,500.0	2,500.0	0.0	0.0	KOP @ 2500' MD
3,484.1	3,450.0	188.4	-116.8	EOB; Inc=26.27°
4,456.4	4,321.9	554.1	-343.5	Start build/turn @ 4456' MD
5,906.5	5,339.8	176.2	201.2	LP @ 5339' TVD; 90.5
9,206.5	5,311.0	-2,153.1	2,538.6	TD at 9206.5

EnCana Oil & Gas (USA) Inc

San Juan County, NM

S30-T24N-R8W

Escrito L30-2408 02H

HZ

Plan #1

Anticollision Report

31 October, 2014

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Escrito L30-2408 02H
Project:	San Juan County, NM	TVD Reference:	KB @ 6830.0usft (Unassigned)
Reference Site:	S30-T24N-R8W	MD Reference:	KB @ 6830.0usft (Unassigned)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Escrito L30-2408 02H	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:	GLOBAL FILTER APPLIED: All wellpaths within 200' + 100/1000 of reference
Interpolation Method:	MD Interval 100.0usft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 1,120.6usft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	Systematic Ellipse
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic

Survey Tool Program	Date	10/31/2014
From (usft)	To (usft)	Survey (Wellbore)
0.0	9,206.5	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						
S30-T24N-R8W						
Escrito L30-2408 01H - HZ - Plan #1	2,831.4	2,830.1	16.2	6.3	1.640	CC, ES, SF
S32-T24N-R8W (Escrito)						
Escrito D32-2408 01H - Hz - Plan #2	9,206.5	8,331.7	729.3	594.7	5.417	CC, ES, SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Escrito L30-2408 02H
Project:	San Juan County, NM	TVD Reference:	KB @ 6830.0usft (Unassigned)
Reference Site:	S30-T24N-R8W	MD Reference:	KB @ 6830.0usft (Unassigned)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Escrito L30-2408 02H	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

Offset Design S30-T24N-R8W - Escrito L30-2408 01H - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	0.56	30.2	0.3	30.2					
100.0	100.0	100.0	100.0	0.1	0.1	0.56	30.2	0.3	30.2	29.9	0.29	103.049		
200.0	200.0	200.0	200.0	0.3	0.3	0.56	30.2	0.3	30.2	29.6	0.64	47.044		
300.0	300.0	300.0	300.0	0.5	0.5	0.56	30.2	0.3	30.2	29.2	0.99	30.479		
400.0	400.0	400.0	400.0	0.7	0.7	0.56	30.2	0.3	30.2	28.9	1.34	22.542		
500.0	500.0	500.0	500.0	0.8	0.8	0.56	30.2	0.3	30.2	28.5	1.69	17.885		
600.0	600.0	600.0	600.0	1.0	1.0	0.56	30.2	0.3	30.2	28.2	2.04	14.822		
700.0	700.0	700.0	700.0	1.2	1.2	0.56	30.2	0.3	30.2	27.8	2.39	12.855		
800.0	800.0	800.0	800.0	1.4	1.4	0.56	30.2	0.3	30.2	27.5	2.74	11.041		
900.0	900.0	900.0	900.0	1.5	1.5	0.56	30.2	0.3	30.2	27.1	3.09	9.792		
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	0.56	30.2	0.3	30.2	26.8	3.43	8.797		
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	0.56	30.2	0.3	30.2	26.4	3.78	7.985		
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	0.56	30.2	0.3	30.2	26.1	4.13	7.311		
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	0.56	30.2	0.3	30.2	25.7	4.48	6.742		
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	0.56	30.2	0.3	30.2	25.4	4.83	6.254		
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	0.56	30.2	0.3	30.2	25.0	5.18	5.833		
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	0.56	30.2	0.3	30.2	24.7	5.53	5.465		
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	0.56	30.2	0.3	30.2	24.3	5.88	5.140		
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	0.56	30.2	0.3	30.2	24.0	6.23	4.852		
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	0.56	30.2	0.3	30.2	23.6	6.58	4.595		
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	0.56	30.2	0.3	30.2	23.3	6.93	4.363		
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	0.56	30.2	0.3	30.2	22.9	7.27	4.154		
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	0.56	30.2	0.3	30.2	22.6	7.62	3.963		
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	0.56	30.2	0.3	30.2	22.2	7.97	3.790		
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	0.56	30.2	0.3	30.2	21.9	8.32	3.631		
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	0.56	30.2	0.3	30.2	21.5	8.67	3.485		
2,600.0	2,600.0	2,600.0	2,600.0	4.5	4.5	34.91	30.2	0.3	26.3	19.3	9.02	3.136		
2,700.0	2,699.7	2,699.7	2,699.7	4.7	4.7	45.05	30.2	0.3	22.9	13.5	9.36	2.447		
2,800.0	2,799.0	2,799.0	2,799.0	4.9	4.9	74.28	30.2	0.3	16.8	7.1	9.73	1.727		
2,831.4	2,830.1	2,830.1	2,830.1	5.0	4.9	90.00	30.2	0.3	16.2	6.3	9.86	1.640 CC, ES, SF		
2,900.0	2,897.7	2,897.7	2,897.7	5.1	5.0	125.26	30.2	0.3	19.9	9.9	10.07	1.978		
3,000.0	2,995.5	2,995.5	2,995.5	5.3	5.2	152.88	30.2	0.3	36.2	25.9	10.30	3.519		
3,100.0	3,092.2	3,092.2	3,092.2	5.6	5.4	163.77	30.2	0.3	60.0	49.5	10.54	5.693		
3,200.0	3,187.7	3,187.7	3,187.7	6.0	5.5	168.97	30.2	0.3	89.1	78.3	10.77	8.268		
3,300.0	3,281.6	3,281.6	3,281.6	6.4	5.7	171.89	30.2	0.3	122.9	111.9	10.99	11.178		
3,400.0	3,373.9	3,373.9	3,373.9	6.9	5.9	173.70	30.2	0.3	161.2	150.0	11.20	14.397		
3,500.0	3,464.3	3,464.3	3,464.3	7.5	6.0	174.93	30.2	0.3	203.8	192.4	11.41	17.867		
3,600.0	3,553.9	3,553.9	3,553.9	8.1	6.2	175.83	30.2	0.3	247.9	236.2	11.73	21.130		
3,700.0	3,643.6	3,643.6	3,643.6	8.8	6.3	176.46	30.2	0.3	292.1	280.1	12.06	24.217		
3,800.0	3,733.3	3,733.3	3,733.3	9.5	6.5	176.93	30.2	0.3	336.3	323.9	12.39	27.142		
3,900.0	3,822.9	3,822.9	3,822.9	10.2	6.6	177.28	30.2	0.3	380.5	367.8	12.72	29.916		
4,000.0	3,912.6	3,912.6	3,912.6	10.9	6.8	177.57	30.2	0.3	424.7	411.7	13.05	32.551		
4,100.0	4,002.3	4,002.3	4,002.3	11.6	7.0	177.80	30.2	0.3	469.0	455.6	13.38	35.058		
4,200.0	4,092.0	4,092.0	4,092.0	12.4	7.1	177.99	30.2	0.3	513.2	499.5	13.71	37.445		
4,300.0	4,181.6	4,181.6	4,181.6	13.1	7.3	178.15	30.2	0.3	557.4	543.4	14.03	39.721		
4,400.0	4,271.3	4,322.6	4,322.4	13.9	7.5	177.92	35.8	1.7	600.0	585.5	14.45	41.517		
4,500.0	4,361.5	4,543.5	4,533.8	14.8	8.0	171.90	94.9	16.5	625.7	610.3	15.39	40.665		
4,600.0	4,455.9	4,750.5	4,706.4	15.1	8.9	156.50	204.4	44.0	622.5	605.3	17.13	36.341		
4,700.0	4,553.7	4,959.1	4,885.7	15.4	10.3	126.24	338.0	45.0	591.6	572.2	19.37	30.536		
4,800.0	4,652.9	5,139.1	4,996.8	15.6	11.6	59.80	448.9	-2.3	533.5	512.3	21.30	25.053		
4,900.0	4,751.7	5,263.3	5,083.5	15.5	12.9	11.80	519.1	-59.4	455.4	432.5	22.93	19.859		
5,000.0	4,848.0	5,336.7	5,129.7	15.3	13.6	-17.40	557.3	-101.8	365.6	340.2	25.39	14.399		

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	Local Co-ordinate Reference:	Well Escrito L30-2408 02H
Project:	San Juan County, NM	TVD Reference:	KB @ 6830.0usft (Unassigned)
Reference Site:	S30-T24N-R8W	MD Reference:	KB @ 6830.0usft (Unassigned)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Escrito L30-2408 02H	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

Offset Design S30-T24N-R8W - Escrito L30-2408 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		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		
5,100.0	4,940.0	5,373.2	5,151.3	14.9	13.9	-55.54	575.1	-125.1	270.6	242.7	27.88	9.703		
5,200.0	5,026.0	5,384.2	5,157.7	14.3	14.1	-89.09	580.3	-132.4	178.4	150.8	25.61	6.886		
5,300.0	5,104.3	5,377.2	5,153.7	13.6	14.0	-97.04	577.0	-127.8	98.0	71.8	24.18	3.972		
5,358.5	5,145.8	5,366.9	5,147.6	13.2	13.9	-91.85	572.1	-121.0	78.3	51.9	24.43	3.125		
5,400.0	5,173.3	5,357.2	5,141.9	12.9	13.8	-84.36	567.4	-114.7	66.6	61.9	24.69	3.507		
5,500.0	5,231.6	5,327.2	5,123.9	12.3	13.5	-58.27	552.5	-96.0	156.8	133.6	23.15	6.772		
5,600.0	5,278.3	5,289.4	5,100.3	11.7	13.1	-35.29	533.0	-73.8	241.2	222.5	18.76	12.858		
5,700.0	5,312.2	5,245.7	5,072.0	11.4	12.7	-21.64	509.8	-50.1	324.8	309.5	15.29	21.238		
5,800.0	5,332.9	5,200.0	5,041.2	11.2	12.3	-13.87	484.1	-27.9	403.9	390.5	13.46	30.015		
5,900.0	5,339.9	5,150.0	5,006.5	11.8	11.9	-8.78	455.3	-6.5	477.2	464.4	12.79	37.311		
6,000.0	5,339.0	5,100.0	4,970.7	12.9	11.4	-8.57	425.5	11.7	548.2	535.4	12.81	42.783		
6,100.0	5,338.1	5,050.0	4,934.0	14.2	11.0	-4.44	395.0	26.6	621.9	609.0	12.87	48.322		
6,200.0	5,337.3	5,000.0	4,896.8	15.6	10.7	-2.29	363.8	38.1	698.3	685.4	12.95	53.914		
6,300.0	5,336.4	4,970.0	4,874.0	17.2	10.4	-0.99	344.9	43.4	777.0	763.9	13.12	59.223		
6,400.0	5,335.5	4,936.8	4,848.7	18.8	10.2	0.44	323.7	47.8	857.9	844.6	13.30	64.524		
6,500.0	5,334.7	4,900.0	4,820.6	20.6	9.9	2.00	300.2	50.8	940.7	927.2	13.50	69.700		
6,600.0	5,333.8	4,860.0	4,805.3	22.4	9.8	2.85	287.4	51.7	1,025.0	1,011.3	13.74	74.598		
6,700.0	5,332.9	4,850.0	4,782.3	24.3	9.6	4.11	268.1	52.0	1,111.0	1,096.9	14.02	79.245		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Escrito L30-2408 02H
Project:	San Juan County, NM	TVD Reference:	KB @ 6830.0usft (Unassigned)
Reference Site:	S30-T24N-R8W	MD Reference:	KB @ 6830.0usft (Unassigned)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Escrito L30-2408 02H	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

Offset Design S32-T24N-R8W (Escrito) - Escrito D32-2408 01H - Hz - Plan #2													Offset Site Error:	0.0 usf
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 usf
Reference		Offset		Semi Major Axis			Distance							
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	Warning	
8,700.0	5,315.5	8,889.8	5,440.2	85.4	77.0	90.03	-2,883.1	2,181.9	1,087.5	957.4	130.08	8.360		
8,800.0	5,314.8	8,819.1	5,440.5	87.5	75.3	90.10	-2,882.9	2,252.8	1,016.8	885.8	130.98	7.783		
8,900.0	5,313.7	8,548.4	5,440.9	89.8	73.8	90.17	-2,882.8	2,323.3	948.1	814.2	131.87	7.174		
9,000.0	5,312.8	8,477.7	5,441.3	71.7	71.9	90.28	-2,882.7	2,394.0	875.3	742.8	132.77	6.593		
9,100.0	5,312.0	8,407.0	5,441.6	73.8	70.2	90.37	-2,882.6	2,464.7	804.6	671.0	133.68	6.019		
9,200.0	5,311.1	8,336.3	5,442.0	75.9	68.5	90.49	-2,882.4	2,535.3	733.9	599.3	134.58	5.453		
9,206.5	5,311.0	8,331.7	5,442.0	76.1	68.4	90.50	-2,882.4	2,539.9	729.3	594.7	134.84	5.417	CC, ES, SF	

Cathedral Energy Services

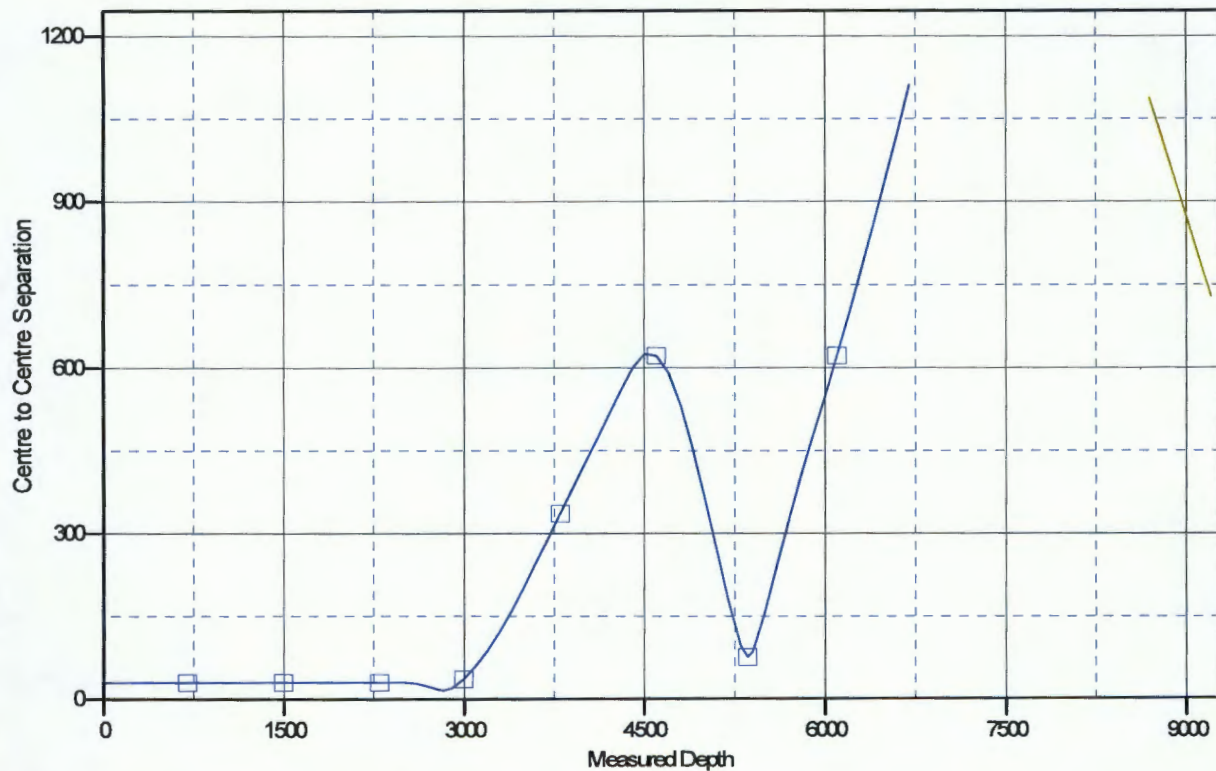
Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Escrito L30-2408 02H
Project:	San Juan County, NM	TVD Reference:	KB @ 6830.0usft (Unassigned)
Reference Site:	S30-T24N-R8W	MD Reference:	KB @ 6830.0usft (Unassigned)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Escrito L30-2408 02H	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 Depths are relative to KB @ 6830.0usft (Unassigned)
 Offset Depths are relative to Offset Datum
 Central Meridian is -107.833333 °

Coordinates are relative to: Escrito L30-2408 02H
 Coordinate System is US State Plane 1983, New Mexico Western Zone
 Grid Convergence at Surface is: 0.06°

Ladder Plot



LEGEND

■ Escrito L30-2408 01H, HZ, Plan #1 V0
 ■ Escrito D32-2408 01H, HZ, Plan #2 V0

Escrito L30-2408 02H

**SHL: NWSW Section 30, T24N, R8W
2488 FSL and 350 FWL**

**BHL: SWSE Section 30, T24N, R8W
330 FSL and 2400 FEL**

San Juan County, New Mexico

Lease Number: NM 54980 & NM 54981

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

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

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

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

The maximum cut will be approximately 18.7 feet between corner 2 and corner 3, and the maximum fill will be approximately 15.8 feet corner 6.

4. 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 center right toward corner 2 into a silt trap. Water will be diverted around the pad center right toward corner 3 into a silt trap.
 - b. One silt trap will be constructed at corner 2 within the EOD. One silt trap will be constructed at corner 3 within the EOD. See Sheet G-2 for details
5. Construction equipment may include chain saws, a brush hog, scraper, maintainer, excavator, and dozer. Construction for the access road and well pad will take approximately 2 to 4 weeks.

C. Pipeline

Final modifications to the Plan of Development submitted with the final Standard SF-299 Application for authorization to construct, operate, maintain and terminate a 245 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.

B. Drilling Fluids

ENCANA OIL & GAS (USA) INC.

ESCRITO L30-2408 #02H

2488' FSL & 350' FWL

LOCATED IN THENW/4 SW/4 OF SECTION 30, T24N, R8W, 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 ISR 459. (M.P. 116.6).
- 2) TURN LEFT AND GO 0.7 MILES TO "Y" INTERSECTION.
- 3) CONTINUE LEFT AND GO 0.3 MILES TO WHERE ACCESS IS STAKED ON RIGHT SIDE OF ROAD.

WELL FLAG LOCATED AT LAT. 36.284904° N, LONG. 107.730843° W (NAD 83).



WELLHEAD BLOWOUT CONTROL SYSTEM

encana

Well Name and Number:
Escrito L30-2408 02H

