

RECEIVED

FORM APPROVED
OMB No. 1004-0137
Expires July 31, 2010

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NOV 30 2012

APPLICATION FOR PERMIT TO DRILL FOR REENTER
Bureau of Land Management

5. Lease Serial No.
NM 012374 & NMNM 90843

6. If Indian, Allottee or Tribe Name
N/A

7. If Unit or CA Agreement, Name and No.
PENDING

8. Lease Name and Well No.
Escrito D34-2409 01H

9. API Well No.
30-045-38440

10. Field and Pool, or Exploratory
Bisti Lower - Gallup

11. Sec., T. R. M. or Blk. and Survey or Area
Section 34, T24N, R9W NMPM

1a. Type of work: ☒ DRILL ☐ REENTER

1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone

2. Name of Operator Encana Oil & Gas (USA) Inc.

3a. Address 370 17th Street, Suite 1700
Denver, CO 80202

3b. Phone No. (include area code)
720-876-5331

4. Location of Well (Report location clearly and in accordance with any State requirements.)

At surface 1109' FNL and 509' FWL Section 34, T24N, R9W

At proposed prod. zone 585' FNL and 330' FWL Section 33, T24N, R9W

14. Distance in miles and direction from nearest town or post office*
+/- 35.7 miles south from intersection of US Hwy 550 and US Hwy 64 in Bloomfield, NM

12. County or Parish San Juan
13. State NM

15. Distance from proposed* location to nearest property or lease line, ft.
(Also to nearest drig. unit line, if any)
BHL is 330' from west lease line

16. No. of acres in lease
NM 012374 - 2,240 acres
NMNM 90843 - 440 acres

17. Spacing Unit dedicated to this well
160 acres (N2N2 Section 33, T24N R9W)

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
OHWADA 2 is 418' north of the wellbore

19. Proposed Depth
5163' TVD/ 10595' MD

20. BLM/BIA Bond No. on file
COB-000235
RCVD MAR 13 '13
OIL CONS. DIV.

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
6857' GL, 6870' KB

22. Approximate date work will start*
10/24/2013

23. Estimated duration
25 days
DIST. 3

This action is subject to technical and procedural review pursuant to 43 CFR 3165.9 and appeal pursuant to 43 CFR 3165.4

24. Attachments

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

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
Holly Hill

Name (Printed/Typed)
Holly Hill

Date
11/29/12

Title
Regulatory Analyst

Approved by (Signature)
[Signature]

Name (Printed/Typed)

Date
3/11/13

Title
Acting ARM Minerals

Office

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)

A COMPLETE C-144 MUST BE SUBMITTED TO AND APPROVED BY THE NMOCD FOR: A PIT, CLOSED LOOP SYSTEM, BELOW GRADE TANK, OR PROPOSED ALTERNATIVE METHOD, PURSUANT TO NMOCD PART 19.15.17, PRIOR TO THE USE OR CONSTRUCTION OF THE ABOVE APPLICATIONS.

*(Instructions on page 2)

Hold C104

for Directional Survey
and "As Drilled" plat

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 A

HOLD C104 FOR USE IN SP, DHC

MAY 02 2013 ca

CONFIDENTIAL

NOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENT

Hold C104
for Directional Survey
and "As Drilled" plat

District I
1625 N. French Drive, Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

District II
811 S. First Street, Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

District IV
1220 S. St. Francis Drive, 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 Drive
Santa Fe, NM 87505

AMENDED REPORT
RECEIVED

NOV 30 2012

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number 30-048-38440		2 Pool Code 5890		3 Pool Name on Field Office BISTI Lower of L (GAL) Management	
4 Property Code 39871		5 Property Name ESCRITO D34-2409			6 Well Number 01H
7 GRID No. 282327		8 Operator Name ENCANA OIL & GAS (USA) INC.			9 Elevation 6857'

10 Surface Location

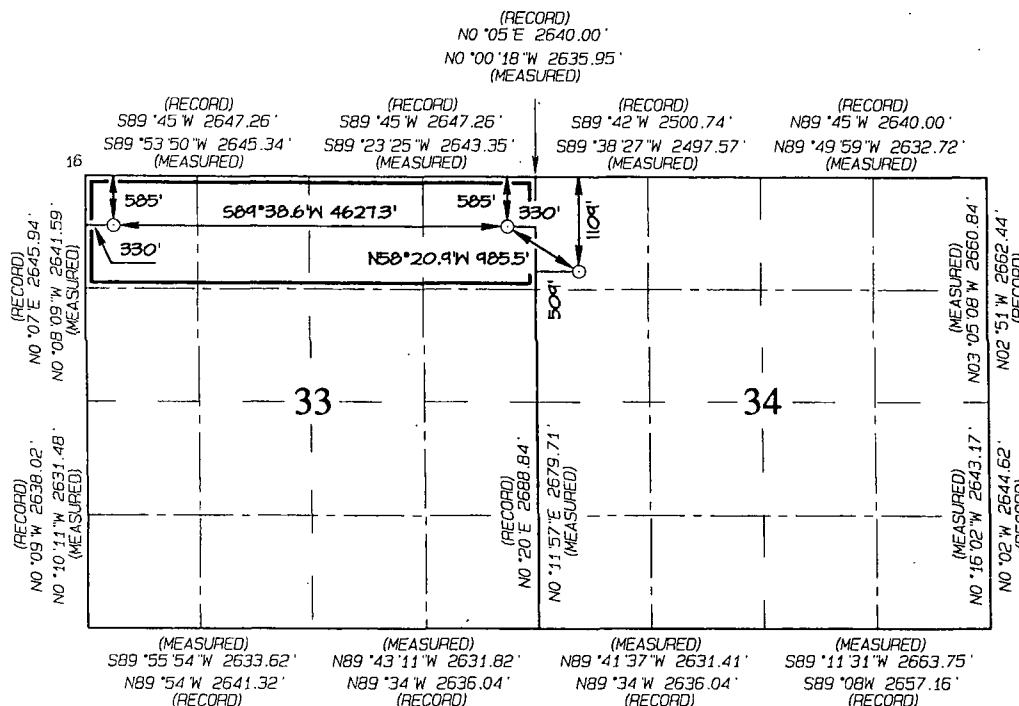
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	34	24N	9W		1109	NORTH	509	WEST	SAN JUAN

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
D	33	24N	9W		585	NORTH	330	WEST	SAN JUAN

12 Dedicated Acres 160.0 Acres N/2 N/2 - Section 33	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



17 OPERATOR CERTIFICATION

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

Signature: Holly Hill Date: 11/29/12

Printed Name: Holly Hill

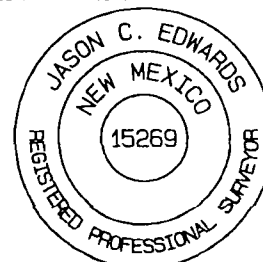
E-mail Address: holly.hill@encana.com

18 SURVEYOR CERTIFICATION

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

Date of Survey: JULY 23, 2012

Signature and Seal of Professional Surveyor



JASON C. EDWARDS
Certificate Number 15269

Directions from the Intersection of US Hwy 550 & US Hwy 64
in Bloomfield, NM to Encana Oil & Gas (USA) Inc. Escrito D34-2409 01H
1109' FNL & 509' FWL, Section 34, T24N, R9W, N.M.P.M., San Juan County, NM

Latitude: 36.27479°N Longitude: 107.78363°W Datum: NAD1983

From the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM, travel Southerly on US Hwy 550 for 27.9 miles to State Hwy #57 @ Mile Marker 123.4;

Go right (South-westerly) on State Hwy #57 for 1.4 miles;

Go left (South-easterly) exiting State Hwy #57 for 1.4 miles to fork in road;

Go right which is straight (South-easterly) for 2.7 miles to 4-way intersection;

Go left (North-easterly) for 0.4 miles to new access on left-hand side of existing roadway which continues for 9081' to staked location;

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585 FNL and 330 FWL
San Juan County, New Mexico
Lease Number: NM 012374 & NMNM 90843

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

1. ESTIMATED TOPS OF GEOLOGICAL MARKERS (TVD)

The estimated tops of important geologic markers are as follows:

<u>Formation</u>	<u>Depth (TVD)</u>
Ojo Alamo	758'
Kirtland	932'
Fruitland Coal	1177'
Pictured Cliffs	1503'
Lewis	1615'
Cliffhouse	2258'
Menefee	3020'
Point Lookout	3930'
Mancos	4088'
Gallup	4905'

The referenced surface elevation is 6857', KB 6870'

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

<u>Substance</u>	<u>Formation</u>	<u>Depth (TVD)</u>
Water	Ojo Alamo	758'
Gas	Fruitland Coal	932'
Gas	Pictured Cliffs	1177'
Gas	Cliffhouse	2258'
Gas	Point Lookout	3930'
Oil/Gas	Mancos	4088'

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

3. PRESSURE CONTROL

- a) Pressure control equipment and configuration will be designed to meet 2M standards.
- b) Working pressure on rams and BOPE will be 3,000 psi.
- c) Function test and visual inspection of the BOP will be conducted daily and noted in the IADC Daily Drilling Report.
- d) The Annular BOP will be pressure tested to a minimum of 50 percent of its rated working pressure.
- e) Blind and Pipe Rams/BOP will be tested against a test plug to 100 percent of rated working pressure.
- f) Pressure tests are required before drilling out from under all casing strings set and cemented in place.
- g) BOP controls must be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned.
- h) BOP testing procedures and testing frequency will conform to Onshore Order No. 2.

Escrito D34-2409 01H

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- 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	Hole Size	Csg Size	Weight	Grade
Conductor	0-60'	30"	20"	94#	H40, STC New
Surface	0'-500'	12 1/4"	9 5/8"	36#	J55, STC New
Intermediate	0'-5869'MD	8 1/2"	7"	26#	J55, LTC New
Production Liner	5669'-10595'MD	6 1/8"	4 1/2"	11.6#	B80*, LTC New

Casing String				Casing Strength Properties			Minimum Design Factors		
Size	Weight (lb/ft)	Grade	Connection	Collapse (psi)	Burst (psi)	Tensile (1000lb)	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 1/2"	11.6	B80	LTC	6350	7780	201	1.125	1.1	1.5

*B80 pipe specifications are attached

Casing design is subject to revision based on geologic conditions encountered.

All casing strings below the conductor shall be pressure tested to 0.22 psi per foot of casing string length or 1,500 psi, whichever is greater, but not to exceed 70 percent of the minimum internal yield. If pressure declines more than 10 percent in 30 minutes, corrective action shall be taken.

- b) The proposed cementing program is as follows:

Top plugs shall be used to reduce contamination of cement by displacement fluid. A bottom plug or other acceptable technique, such as a pre-flush fluid, inner string cement method, etc. shall be utilized to help isolate the cement from contamination by the mud fluid being displaced ahead of the cement slurry.

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Casing	Depth	Cement Volume (sacks)	Cement Type&Yield	Designed TOC	Centralizers
Conductor	60'	100sk	Type I Neat 14.8ppg	Surface	None
Surface	500'	178sk	Type III Cement + 1% CaCl + 0.25lb/sk Cello Flake + 0.2% FL, 14.6ppg, 1.38cuf/sk	Surface	1 turbolizer per joint on bottom 3 joints
Intermediate	5212'TVD/ 5869'MD	30% open hole excess Stage 1 Lead: 234sk Stage 1 Tail: 161sk Stage 2 Lead: 120sk	Lead (Stages 1 and 2): PremLite + 3% CaCl + 0.25lb/sk CelloFlake + 5lb/sk LCM, 12.1ppg 2.13cuf/sk Tail (Stage 1): Type III Cmt + 1% CaCl + 0.25lb/sk Cello Flake 14.5ppg 1.38cuf/sk	Surface	1 per joint for bottom 3 joints, 1 every 3 joints for remaining joints
Production Liner*	5669'MD- 10595'MD	None – External casing packers	N/A	N/A	N/A

*Production liner clarification: Utilizing external swell casing packer system for zonal isolation will not use cement in the production liner.

Actual volumes will be calculated and determined by conditions onsite. All cement slurries will meet or exceed minimum BLM and New Mexico Oil Conservation Division requirements. Slurries used will be the slurries listed above or equivalent slurries depending on service provider selected. Cement yields may change depending on slurries selected.

All waiting on cement times shall be adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

5. WELL PLAN & DIRECTIONAL DRILLING PROGRAM

The proposed well will be drilled in two phases. A pilot hole will be drilled in the first phase, followed by kicking off a horizontal lateral in the existing wellbore in the second phase. The intent of drilling a pilot hole is to obtain open hole log data. The intent of the second phase of the well is to plug back the pilot hole with cement to the kick off point. After plugging back, the plan is to drill a horizontal lateral from the kick off point in the existing wellbore to the proposed bottom hole location.

Directional plans are attached.

Well Phase	Description	Proposed Depth (TVD/MD)	Formation
1	Vertical Pilot Hole	5428'/5428'	Gallup
2	Horizontal Lateral	5163'/10595'	Gallup

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Proposed Plug Back Procedure:

KOP 4600'

Set kick plug at KOP

1. Spot 400' kick plug from 4400' – 4800'
 - a. 167sx of Class G cement with salt (0.94ft³/sk yield, 17.5ppg)
 - b. Spot tuned spacer
2. Pull uphole and reverse out
3. Pump bottoms up 2 times, pull uphole
4. Tag plug, drill ahead to KOP when cement is solid

6. DRILLING FLUIDS PROGRAM

a) Vertical Pilot Hole:

Hole Size (in)	TVD (ft)	Mud Type	Density (lb/gal)	Viscosity (sec/qt)	Fluid Loss (cc)
30"	0-60'	Fresh Water	8.3-9.2	38-100	4-28
12 1/4"	0-500'	Fresh Water	8.4-8.6	60-70	NC
8 1/2"	500-5428'	Fresh Water LSND	8.5-8.8	40-50	8-10

b) Kick off Point to Intermediate Casing Point:

Hole Size (in)	TVD (ft)	Mud Type	Density (lb/gal)	Viscosity (sec/qt)	Fluid Loss (cc)
8 1/2"	4600' (KOP)- 5212' (5869'MD)	Fresh Water LSND	8.5-8.8	40-50	8-10

c) Intermediate Casing Point to TD:

Hole Size (in)	Depth (ft)	Mud Type	Density (lb/gal)	Viscosity (sec/qt)	Fluid Loss (cc)
6 1/8"	5869'MD- 10595'MD	Synthetic Oil Based Mud	8.6-9.0	15-25	<15

- d) 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.
- e) A closed-loop system will be used to recover drilling fluid and dry cuttings in both phases of the well and on all hole intervals, including fresh water and oil-based operations. Above-ground tanks will be utilized to hold cuttings and fluids for rig operations. A frac tank will be on location to store fresh water. Waste will be disposed of properly at an EPA-approved hazardous waste facility. Fresh water cuttings will be disposed of at Basin Disposal, Inc. and/or Industrial Ecosystems, Inc. The location will be lined in accordance with the Surface Use Plan of Operations.

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7. TESTING, CORING and LOGGING

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

Open Hole:

Triple combo with Spectral Gamma TD to surface casing

Specialty logs will be decided real time by onsite geologists

Cased Hole:

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

8. ABNORMAL PRESSURES & HYDROGEN SULFIDE

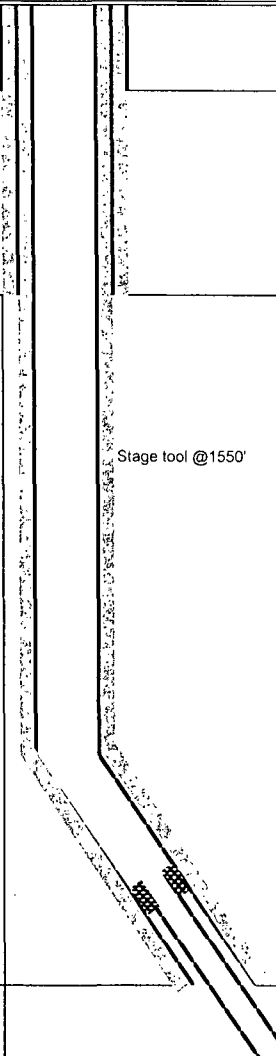
The anticipated bottom hole pressure is +/- 2,540 psi based on a 9.0 ppg at 5428' TVD of the vertical pilot hole. No abnormal pressure or temperatures are anticipated.

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 October 24, 2013. 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 25 days.

LOC: Sec 34-T24N-R9W County: San Juan WELL: Escrito D34-2409 01H			Encana Natural Gas WELL SUMMARY					ENG: J. Fox/ A. RIG: GLE: 6857 RKBE: 6870		11/28/12
MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH TVDMD			HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION	
			60	60'		30	20" 94# 100sx Type I Neat 48.8ppg cmt	Fresh wtr 8.3-9.2		
Surveys After csg is run	None		500	500		12 1/4	9 5/8" 36ppf J55 STC TOC @ surface 178 sks Type III Cmt	Fresh wtr 8.4-8.6	Vertical <1°	
Surveys every 500'	No OH logs	Ojo Alamo Kirtland Fruitland Coal Pictured Cliffs Ss Lewis Shale Cliffhouse Ss Menefee Fn Point Lookout Ss Mancos Sh	758 932 1177 1503 1615 2258 3020 3930 4088			8 1/2	7" 26ppf J55 LTC TOC @ surface 30% OH excess: 515 sks Total Stage 1 Lead: 234 sks Stage 1 Tail: 161 sks Stage 2 Lead: 120 sks	Fresh Wtr 8.5-8.8	Vertical <1°	
	Mud logger onsite	KICK OFF PT Mancos Silt Gallup Top	4600 4648 4905						KOP 4600 10 deg/100'	
			5212	5869						
Surveys every 500' Gyro at CP MWD Gamma Directional	No OH Logs	horz target Base Gallup Pilot Hole TD	5212 5228 5428	5870		6 1/8	200' overlap at liner top 4725' Lateral	8.6-9.0 OBM	.25deg updip 5163'TVD TD = 10595' MD	
							4 1/2" 11.6ppf SB80 LTC Running external swellable csg packers for isolation of prod string Plan on setting top packer within 100' of intermediate casing shoe	Switch to OBM 8.6-9.0		

NOTES:

- 1) Drill with 30" bit to 60', set 20" 94# conductor pipe
- 2) Drill surface to 500', R&C 9 5/8" casing
- 3) N/U BOP and surface equipment
- 4) Drill to pilot hole TD of 5428' and run OH logs.
- 5) Spot cement kick plug
- 6) Kick off at 4600' and start curve at 10deg/100' build rate
- 7) Drill to casing point of 5869' MD
- 8) R&C 7" casing, circ cmt to surface, switch to OBM
- 9) Land at 90deg, drill 4725' lateral to 10595', run 4 1/2" liner with external swellable csg packers



Boomerang Tube LLC

CASING (OR) TUBING DESCRIPTION AND PERFORMANCE PROPERTIES

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

MAXIMUM DEPTH/LENGTH BASED ON MUD WTS & SAFETY FACTORS

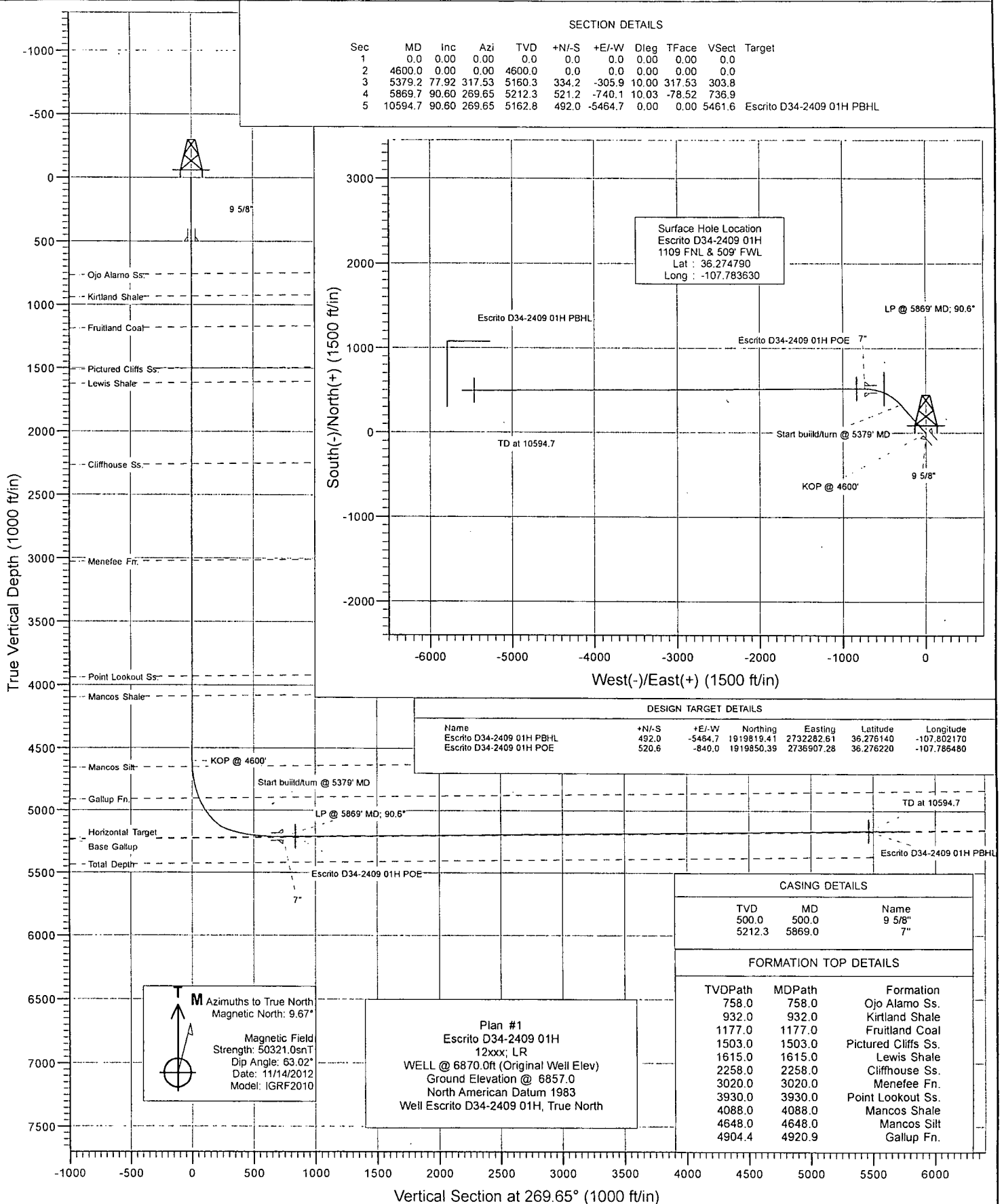
Drilling Mud Weight (ppg)	_____	9.625
Tension Safety Factor	_____	1.80
Maximum Tension Length (ft)	_____	9,630
Internal Yield Safety Factor	_____	1.10
Maximum Depth for Internal Yield (ft)	_____	14,150
Collapse Safety Factor	_____	1.125
Maximum Collapse Depth (ft)	_____	11,290

API RELATED VALUES and INTERMEDIATE CALCULATION RESULTS

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

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSeet	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	4600.0	0.00	0.00	4600.0	0.0	0.0	0.00	0.00	0.0	
3	5379.2	77.92	317.53	5160.3	334.2	-305.9	10.00	317.53	303.8	
4	5869.7	90.60	269.65	5212.3	521.2	-740.1	10.03	-78.52	736.9	
5	10594.7	90.60	269.65	5162.8	492.0	-5464.7	0.00	0.00	5461.6	Escrito D34-2409 01H PBHL



Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: EnCana Oil & Gas (USA) Inc
 Project: San Juan Co, NM
 Site: S34-T24N-R9W (Escrito)
 Well: Escrito D34-2409 01H
 Wellbore: Hz
 Design: Plan #1

Local Co-ordinate Reference: Well Escrito D34-2409 01H
 TVD Reference: WELL @ 6870.0ft (Original Well Elev)
 MD Reference: WELL @ 6870.0ft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Project	San Juan Co, 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	S34-T24N-R9W (Escrito)			
Site Position:		Northing:	1,919,330.26 ft	Latitude: 36.274790
From:	Lat/Long	Easting:	2,737,747.59 ft	Longitude: -107.783630
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence: 0.03 °

Well	Escrito D34-2409 01H			
Well Position	+N/-S	0.0 ft	Northing:	1,919,330.26 ft
	+E/-W	0.0 ft	Easting:	2,737,747.59 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level: 6,857.0 ft

Wellbore	Hz			
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)
	IGRF2010	11/14/2012	9.67	63.02
				Field Strength (nT) 50,321

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	269.65

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,379.2	77.92	317.53	5,160.3	334.2	-305.9	10.00	10.00	0.00	317.53	
5,869.7	90.60	269.65	5,212.3	521.2	-740.1	10.03	2.59	-9.76	-78.52	
10,594.7	90.60	269.65	5,162.8	492.0	-5,464.7	0.00	0.00	0.00	0.00	Escrito D34-2409 01H

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: EnCana Oil & Gas (USA) Inc
 Project: San Juan Co, NM
 Site: S34-T24N-R9W (Escrito)
 Well: Escrito D34-2409 01H
 Wellbore: Hz
 Design: Plan #1

Local Co-ordinate Reference: Well Escrito D34-2409 01H
 TVD Reference: WELL @ 6870.0ft (Original Well Elev)
 MD Reference: WELL @ 6870.0ft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	9 5/8"
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
758.0	0.00	0.00	758.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo Ss.
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	
932.0	0.00	0.00	932.0	0.0	0.0	0.0	0.00	0.00	Kirtland Shale
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	
1,177.0	0.00	0.00	1,177.0	0.0	0.0	0.0	0.00	0.00	Fruitland Coal
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	
1,400.0	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	
1,503.0	0.00	0.00	1,503.0	0.0	0.0	0.0	0.00	0.00	Pictured Cliffs Ss.
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
1,615.0	0.00	0.00	1,615.0	0.0	0.0	0.0	0.00	0.00	Lewis Shale
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	
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	
2,258.0	0.00	0.00	2,258.0	0.0	0.0	0.0	0.00	0.00	Cliffhouse Ss.
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	
3,020.0	0.00	0.00	3,020.0	0.0	0.0	0.0	0.00	0.00	Menefee Fn.
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	
3,930.0	0.00	0.00	3,930.0	0.0	0.0	0.0	0.00	0.00	Point Lookout Ss.
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	
4,088.0	0.00	0.00	4,088.0	0.0	0.0	0.0	0.00	0.00	Mancos Shale
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: San Juan Co, NM
Site: S34-T24N-R9W (Escrito)
Well: Escrito D34-2409 01H
Wellbore: Hz
Design: Plan #1

Local Co-ordinate Reference: Well Escrito D34-2409 01H
TVD Reference: WELL @ 6870.0ft (Original Well Elev)
MD Reference: WELL @ 6870.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	KOP @ 4600'
4,648.0	4.80	317.53	4,648.0	1.5	-1.4	1.4	10.00	10.00	Mancos Silt
4,700.0	10.00	317.53	4,699.5	6.4	-5.9	5.8	10.00	10.00	
4,800.0	20.00	317.53	4,796.0	25.5	-23.3	23.2	10.00	10.00	
4,900.0	30.00	317.53	4,886.5	56.6	-51.8	51.5	10.00	10.00	
4,920.9	32.09	317.53	4,904.4	64.6	-59.1	58.7	10.00	10.00	Gallup Fn.
5,000.0	40.00	317.53	4,968.3	98.9	-90.5	89.9	10.00	10.00	
5,100.0	50.00	317.53	5,038.9	151.0	-138.2	137.3	10.00	10.00	
5,200.0	60.00	317.53	5,096.2	211.3	-193.4	192.1	10.00	10.00	
5,300.0	70.00	317.53	5,138.4	278.1	-254.5	252.8	10.00	10.00	
5,379.2	77.92	317.53	5,160.3	334.2	-305.9	303.8	10.00	10.00	Start build/turn @ 5379' MD
5,400.0	78.34	315.44	5,164.6	348.9	-319.9	317.8	10.03	2.03	
5,500.0	80.57	305.49	5,182.9	412.6	-394.6	392.1	10.03	2.23	
5,600.0	83.08	295.68	5,197.1	462.9	-479.7	476.9	10.03	2.51	
5,700.0	85.78	285.98	5,206.9	498.2	-572.6	569.6	10.03	2.70	
5,800.0	88.60	276.35	5,211.8	517.5	-670.5	667.3	10.03	2.82	
5,869.0	90.58	269.71	5,212.3	521.2	-739.4	736.2	10.03	2.86	7"
5,869.7	90.60	269.65	5,212.3	521.2	-740.1	736.9	10.03	2.86	LP @ 5869' MD; 90.6°
5,900.0	90.60	269.65	5,212.0	521.0	-770.4	767.2	0.00	0.00	
5,969.7	90.60	269.65	5,211.2	520.6	-840.0	836.9	0.00	0.00	Escrito D34-2409 01H POE
6,000.0	90.60	269.65	5,210.9	520.4	-870.4	867.2	0.00	0.00	
6,100.0	90.60	269.65	5,209.9	519.8	-970.3	967.2	0.00	0.00	
6,200.0	90.60	269.65	5,208.8	519.1	-1,070.3	1,067.1	0.00	0.00	
6,300.0	90.60	269.65	5,207.8	518.5	-1,170.3	1,167.1	0.00	0.00	
6,400.0	90.60	269.65	5,206.7	517.9	-1,270.3	1,267.1	0.00	0.00	
6,500.0	90.60	269.65	5,205.7	517.3	-1,370.3	1,367.1	0.00	0.00	
6,600.0	90.60	269.65	5,204.6	516.7	-1,470.3	1,467.1	0.00	0.00	
6,700.0	90.60	269.65	5,203.6	516.1	-1,570.3	1,567.1	0.00	0.00	
6,800.0	90.60	269.65	5,202.5	515.4	-1,670.3	1,667.1	0.00	0.00	
6,900.0	90.60	269.65	5,201.5	514.8	-1,770.3	1,767.1	0.00	0.00	
7,000.0	90.60	269.65	5,200.4	514.2	-1,870.3	1,867.1	0.00	0.00	
7,100.0	90.60	269.65	5,199.4	513.6	-1,970.3	1,967.1	0.00	0.00	
7,200.0	90.60	269.65	5,198.3	513.0	-2,070.3	2,067.1	0.00	0.00	
7,300.0	90.60	269.65	5,197.3	512.3	-2,170.3	2,167.1	0.00	0.00	
7,400.0	90.60	269.65	5,196.3	511.7	-2,270.3	2,267.1	0.00	0.00	
7,500.0	90.60	269.65	5,195.2	511.1	-2,370.2	2,367.1	0.00	0.00	
7,600.0	90.60	269.65	5,194.2	510.5	-2,470.2	2,467.1	0.00	0.00	
7,700.0	90.60	269.65	5,193.1	509.9	-2,570.2	2,567.1	0.00	0.00	
7,800.0	90.60	269.65	5,192.1	509.2	-2,670.2	2,667.1	0.00	0.00	
7,900.0	90.60	269.65	5,191.0	508.6	-2,770.2	2,767.1	0.00	0.00	
8,000.0	90.60	269.65	5,190.0	508.0	-2,870.2	2,867.1	0.00	0.00	
8,100.0	90.60	269.65	5,188.9	507.4	-2,970.2	2,967.0	0.00	0.00	
8,200.0	90.60	269.65	5,187.9	506.8	-3,070.2	3,067.0	0.00	0.00	
8,300.0	90.60	269.65	5,186.8	506.2	-3,170.2	3,167.0	0.00	0.00	
8,400.0	90.60	269.65	5,185.8	505.5	-3,270.2	3,267.0	0.00	0.00	
8,500.0	90.60	269.65	5,184.7	504.9	-3,370.2	3,367.0	0.00	0.00	
8,600.0	90.60	269.65	5,183.7	504.3	-3,470.2	3,467.0	0.00	0.00	
8,700.0	90.60	269.65	5,182.6	503.7	-3,570.2	3,567.0	0.00	0.00	
8,800.0	90.60	269.65	5,181.6	503.1	-3,670.1	3,667.0	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 Co, NM
 Site: S34-T24N-R9W (Escrito)
 Well: Escrito D34-2409 01H
 Wellbore: Hz
 Design: Plan #1

Local Co-ordinate Reference: Well Escrito D34-2409 01H
 TVD Reference: WELL @ 6870.0ft (Original Well Elev)
 MD Reference: WELL @ 6870.0ft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
8,900.0	90.60	269.65	5,180.5	502.4	-3,770.1	3,767.0	0.00	0.00	
9,000.0	90.60	269.65	5,179.5	501.8	-3,870.1	3,867.0	0.00	0.00	
9,100.0	90.60	269.65	5,178.5	501.2	-3,970.1	3,967.0	0.00	0.00	
9,200.0	90.60	269.65	5,177.4	500.6	-4,070.1	4,067.0	0.00	0.00	
9,300.0	90.60	269.65	5,176.4	500.0	-4,170.1	4,167.0	0.00	0.00	
9,400.0	90.60	269.65	5,175.3	499.3	-4,270.1	4,267.0	0.00	0.00	
9,500.0	90.60	269.65	5,174.3	498.7	-4,370.1	4,367.0	0.00	0.00	
9,600.0	90.60	269.65	5,173.2	498.1	-4,470.1	4,467.0	0.00	0.00	
9,700.0	90.60	269.65	5,172.2	497.5	-4,570.1	4,567.0	0.00	0.00	
9,800.0	90.60	269.65	5,171.1	496.9	-4,670.1	4,667.0	0.00	0.00	
9,900.0	90.60	269.65	5,170.1	496.3	-4,770.1	4,766.9	0.00	0.00	
10,000.0	90.60	269.65	5,169.0	495.6	-4,870.1	4,866.9	0.00	0.00	
10,100.0	90.60	269.65	5,168.0	495.0	-4,970.1	4,966.9	0.00	0.00	
10,200.0	90.60	269.65	5,166.9	494.4	-5,070.0	5,066.9	0.00	0.00	
10,300.0	90.60	269.65	5,165.9	493.8	-5,170.0	5,166.9	0.00	0.00	
10,400.0	90.60	269.65	5,164.8	493.2	-5,270.0	5,266.9	0.00	0.00	
10,500.0	90.60	269.65	5,163.8	492.5	-5,370.0	5,366.9	0.00	0.00	
10,594.7	90.60	269.65	5,162.8	492.0	-5,464.7	5,461.6	0.00	0.00	TD at 10594.7 - Escrito D34-2409 01H PBHL

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Escrito D34-2409 01H P	0.00	0.00	5,162.8	492.0	-5,464.7	1,919,819.41	2,732,282.61	36.276140	-107.802170
- plan hits target center									
- Polygon									
Point 1			5,162.8	-200.0	-330.0	1,919,619.24	2,731,952.71		
Point 2			5,162.8	585.0	-330.0	1,920,404.24	2,731,952.31		
Point 3			5,162.8	585.0	200.0	1,920,404.51	2,732,482.31		
Point 4			5,162.8	585.0	-330.0	1,920,404.24	2,731,952.31		
Escrito D34-2409 01H P	0.00	0.00	5,211.2	520.6	-840.0	1,919,850.39	2,736,907.28	36.276220	-107.786480
- plan hits target center									
- Polygon									
Point 1			5,211.2	200.0	330.0	1,920,050.56	2,737,237.17		
Point 2			5,211.2	-200.0	330.0	1,919,650.56	2,737,237.38		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
500.0	500.0	9 5/8"	9.625	12.250
5,869.0	5,212.3	7"	7.000	7.500

Cathedral Energy Services

Planning Report

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Well: Escrito D34-2409 01H
Wellbore: Hz
Design: Plan #1

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TVD Reference: WELL @ 6870.0ft (Original Well Elev)
MD Reference: WELL @ 6870.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
758.0	758.0	Ojo Alamo Ss.		-0.60	269.65
932.0	932.0	Kirtland Shale		-0.60	269.65
1,177.0	1,177.0	Fruitland Coal		-0.60	269.65
1,503.0	1,503.0	Pictured Cliffs Ss.		-0.60	269.65
1,615.0	1,615.0	Lewis Shale		-0.60	269.65
2,258.0	2,258.0	Cliffhouse Ss.		-0.60	269.65
3,020.0	3,020.0	Menefee Fn.		-0.60	269.65
3,930.0	3,930.0	Point Lookout Ss.		-0.60	269.65
4,088.0	4,088.0	Mancos Shale		-0.60	269.65
4,648.0	4,648.0	Mancos Silt		-0.60	269.65
4,920.9	4,905.0	Gallup Fn.		-0.60	269.65

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
4,600.0	4,600.0	0.0	0.0	KOP @ 4600'
5,379.2	5,160.3	334.2	-305.9	Start build/turn @ 5379' MD
5,869.7	5,212.3	521.2	-740.1	LP @ 5869' MD; 90.6°
10,594.7	5,162.8	492.0	-5,464.7	TD at 10594.7

WELLHEAD BLOWOUT CONTROL SYSTEM



Well name and number:

Escrito D34-2409 01H

