NOS: 12/18/12
APDP: N/A
MP: State
SMA:
BOND: COB-000235
CA/PA: N/A

Form 3160-3
(August 2007)

CONFIDENTIAL

RECEIVED

FORM APPROVED
OMB No. 1004-0137
Expires: July 31, 2010 2013

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Farmington Field Office
Bureau of Land Management

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM 118133

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

1a. Type of work: ☑ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.
N/A

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

8. Lease Name and Well No.
Escrito L32-2408 01H

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

9. API Well No.
30-045-35451

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

3b. Phone No. *(include area code)*
720-876-3989

10. Field and Pool, or Exploratory
Basin - Mancos

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface 1899' FSL and 226' FWL Section 32, T24N, R8W
At proposed prod. zone 2100' FSL and 330' FWL Section 31, T24N, R8W

11. Sec., T. R. M. or Blk. and Survey or Area
Section 32, T24N, R8W NMPM

14. Distance in miles and direction from nearest town or post office*
+/- 33.7 miles southeast of the intersection of US Hwy 550 & 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
NMNM 118133 - 1,664.8

17. Spacing Unit dedicated to this well
320.0 acres - S/2 Sec 31, T24N R8W

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
New Mexico State 2 is +/- 1300' SE of SHL

19. Proposed Depth
5375' TVD/10379' MD

20. BLM/BIA Bond No. on file
COB-000235

RCVD MAR 29 '13
OIL CONS. DIV.
DIST. 3

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
6937' GL, 6950' KB

22. Approximate date work will start*
10/02/2013

23. Estimated duration
25 days

Hold C104 for Directional Survey and "As Drilled" plat

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.
2. A Drilling Plan.
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).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the BLM.

25. Signature Brenda R. Linster
Name *(Printed Typed)* Brenda R. Linster
Date 12-28-12

Title Regulatory Lead

Approved by *(Signature)* /s/ Maurice Ellis
Name *(Printed Typed)*
Date 3/31/13

Title AFM
Office FFO

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

*(Instructions on page 2)

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

THIS ACTION DOES NOT RELIEVE THE LESSEE AND OPERATOR FROM OBTAINING ANY OTHER AUTHORIZATION REQUIRED FOR OPERATIONS ON FEDERAL AND INDIAN LANDS

BLM'S APPROVAL OR ACCEPTANCE OF

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

NOTIFY AZTEC OCD 24 HRS. PRIOR TO CASING & CEMENT

Hold C104 for Directional Survey and "As Drilled" plat

HOLD C104 FOR NSL

NMOCD

APR 05 2013

RECEIVED

JAN 02 2013

Farmington Field Office
Bureau of Land Management

DISTRICT I
1625 N. French Dr., Hobbs, N.M. 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
DISTRICT II
811 S. First St., Artesia, N.M. 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

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

Form C-102
Revised August 1, 2011

Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-045-35451	97232	BASIN - MANCOS

[4] Property Code	[5] Property Name	[6] Well Number
39788	ESCRITO L32-2408	01H

[7] OGRID No.	[8] Operator Name	[9] Elevation
282327	ENCANA OIL & GAS (USA) INC.	6937.3'

[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	32	24N	8W		1899'	SOUTH	226'	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
L	31	24N	8W	3	2100'	SOUTH	330'	WEST	SAN JUAN

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
PROJECT AREA 320.00 ACRES - S/2 SEC. 31			

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

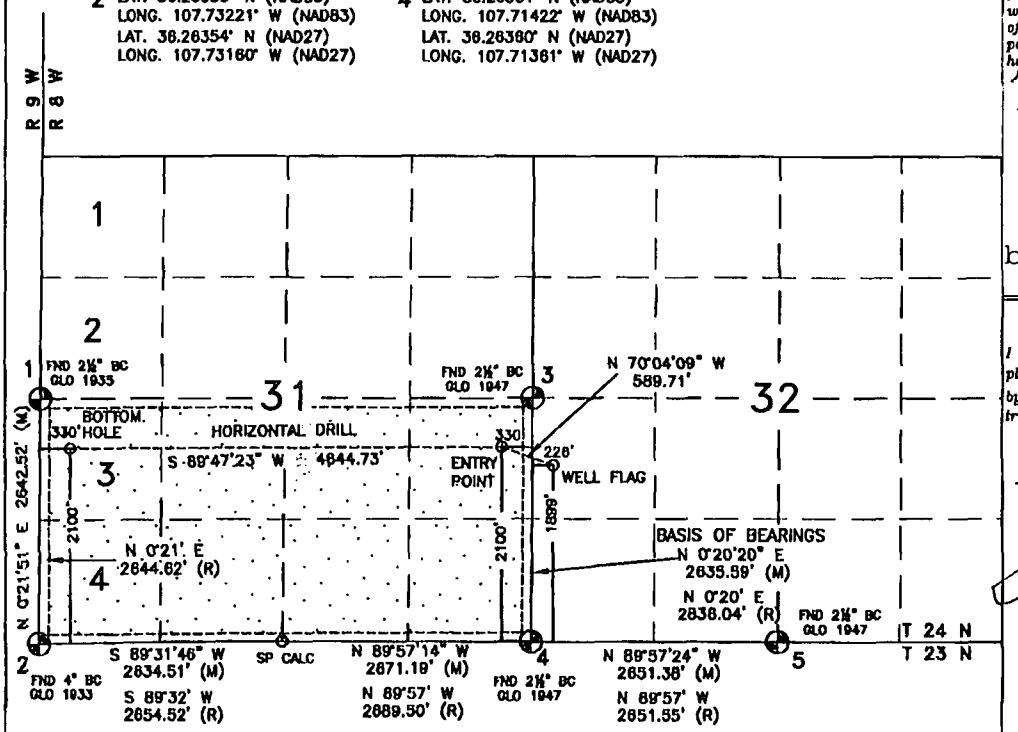
1 LAT. 36.27607° N (NAD83)
LONG. 107.53671° W (NAD83)
LAT. 36.27606° N (NAD27)
LONG. 107.53610° W (NAD27)

2 LAT. 36.26355° N (NAD83)
LONG. 107.73221° W (NAD83)
LAT. 36.26354° N (NAD27)
LONG. 107.73160° W (NAD27)

3 LAT. 36.27084° N (NAD83)
LONG. 107.71416° W (NAD83)
LAT. 36.27083° N (NAD27)
LONG. 107.71355° W (NAD27)

4 LAT. 36.26361° N (NAD83)
LONG. 107.71422° W (NAD83)
LAT. 36.26360° N (NAD27)
LONG. 107.71361° W (NAD27)

5 LAT. 36.26360° N (NAD83)
LONG. 107.70523° W (NAD83)
LAT. 36.26359° N (NAD27)
LONG. 107.70482° W (NAD27)



BOTTOM HOLE
LAT. 36.26933° N (NAD83)
LONG. 107.73104° W (NAD83)
LAT. 36.26932° N (NAD27)
LONG. 107.73043° W (NAD27)

ENTRY POINT
LAT. 36.26937° N (NAD83)
LONG. 107.71529° W (NAD83)
LAT. 36.26936° N (NAD27)
LONG. 107.71468° W (NAD27)

WELL FLAG
LAT. 36.26882° N (NAD83)
LONG. 107.71341° W (NAD83)
LAT. 36.26881° N (NAD27)
LONG. 107.71280° W (NAD27)

18

[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.

Brenda R. Linster 12-28-12
Signature Date

Brenda R. Linster
Printed Name

brenda.linster@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.

OCTOBER 24, 2012
Date of Survey

Signature and Seal of Professional Surveyor:

DAVID R. RUSSELL
NEW MEXICO
10201
REGISTERED PROFESSIONAL LAND SURVEYOR

DAVID RUSSELL
Certificate Number 10201

SHEET A

ENCANA OIL & GAS (USA) INC.

ESCRITO L32-2408 #01H
1899' FSL & 226' FWL
LOCATED IN THE NW/4 SW/4 OF SECTION 32,
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, 30.4 MILES TO MP 115.6 TO THE CELL TOWER ACCESS ON LEFT, ABOUT 0.5 MILES FROM NAGEEZZI POST OFFICE.
2) TURN LEFT AND GO 2.1 MILES TO HARD LEFT TURN CROSSING A CATTLE GUARD.
3) CONTINUE 0.3 MILES TO "Y" INT.
4) TURN RIGHT AND GO 0.4 MILES WHERE ACCESS IS STAKED ON 2-TRACK TO LEFT.

WELL FLAG LOCATED AT LAT. 36.26882° N, LONG.107.71341° W (NAD 83).

JOB No.: ENC007
DATE: 11/01/12

Scorpion Survey & Consulting, L.L.C.
Aztec, New Mexico 87410
(505) 334-4007

Escrito L32-2408 01H
SHL: NWSW Section 32, T24N, R8W
1899 FSL and 226 FWL
BHL: NWSW Section 31, T24N, R8W
2100 FSL and 330 FWL
San Juan County, New Mexico
Lease Number: NMNM 118133

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)
Ojo Alamo Ss.	998'
Kirtland	1240'
Fruitland Coal	1432'
Pictured Cliffs	1720'
Lewis	1875'
Cliffhouse	2530'
Menefee	3245'
Point Lookout	4115'
Mancos Shale	4308'
Mancos Silt	4845'
Gallup	5108'

The referenced surface elevation is 6937', KB 6950'

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

Substance	Formation	Depth (TVD)
Gas	Fruitland Coal	1432'
Gas	Pictured Cliffs	1720'
Gas	Cliffhouse	2530'
Gas	Point Lookout	4115'
Oil/Gas	Mancos	4308'

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 L32-2408 01H
SHL: NWSW Section 32, T24N, R8W
1899 FSL and 226 FWL
BHL: NWSW Section 31, T24N, R8W
2100 FSL and 330 FWL
San Juan County, New Mexico
Lease Number: NMNM 118133

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'-5656'MD	8 1/2"	7"	26#	J55, LTC New
Production Liner	5456'-10379'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.

Escrito L32-2408 01H
SHL: NWSW Section 32, T24N, R8W
1899 FSL and 226 FWL
BHL: NWSW Section 31, T24N, R8W
2100 FSL and 330 FWL
San Juan County, New Mexico
Lease Number: NMNM 118133

Casing	Depth	Cement Volume (sacks)	Cement Type&Yield	Designed TOC	Centralizers
Conductor	60'	100sk	Type I Neat 14.8 ppg	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 per joint on bottom 3 joints
Intermediate	5656'MD	30% open hole excess Stage 1 Lead: 210sks Stage 1 Tail: 145sks Stage 2 Lead: 137sks	**Lead** (Stages 1 and 2): PremLite + 3% CaCl + 0.25lb/sk CelloFlake + 5lb/sk LCM, 12.1ppg 2.13cuft/sk **Tail** (Stage 1): Type III Cmt + 1% CaCl + 0.25lb/sk Cello Flake 14.5ppg 1.38cuft/sk	Surface	1 per joint for bottom 3 joints, 1 every 3 joints for remaining joints
Production Liner*	5456'-10379'	None – External casing packers	N/A	N/A	N/A

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

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

All waiting on cement times shall be a minimum of 8 hours or adequate to achieve a 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 4682'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5375'/10379'	Gallup

Escrito L32-2408 01H
SHL: NWSW Section 32, T24N, R8W
1899 FSL and 226 FWL
BHL: NWSW Section 31, T24N, R8W
2100 FSL and 330 FWL
San Juan County, New Mexico
Lease Number: NMNM 118133

6. DRILLING FLUIDS PROGRAM

a) Surface through Intermediate Casing Point:

Hole Size (in)	Depth (ft)	Mud Type	Density (lb/gal)	Viscosity (sec/qt)	Fluid Loss (cc)
30"	0-60' TVD	Fresh Water	8.3-9.2	38-100	4-28
12 1/4"	0-500' TVD	Fresh Water	8.4-8.6	60-70	NC
8 1/2"	500'TVD-5391'TVD/5656'MD	Fresh Water LSND	8.5-8.8	40-50	8-10

b) Intermediate Casing Point to TD:

Hole Size (in)	MD (ft)	Mud Type	Density (lb/gal)	Viscosity (sec/qt)	Fluid Loss (cc)
6 1/8"	5656'-10379'	Synthetic Oil Based Mud	8.6-9.0	15-25	<15

c) There will be sufficient mud on location to control a blowout should one occur. Mud flow and volume will be monitored both visually and with electronic pit volume totalizers. Mud tests shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH.

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

7. TESTING, CORING 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

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 +/- 2527 psi based on a 9.0 ppg at 5399' TVD of the landing point of the horizontal lateral. No abnormal pressure or temperatures are anticipated.

No hydrogen sulfide gas is anticipated, however, if H_2S is encountered, the guidelines in Onshore Order No. 6 will be followed.

Escrito L32-2408 01H
SHL: NWSW Section 32, T24N, R8W
1899 FSL and 226 FWL
BHL: NWSW Section 31, T24N, R8W
2100 FSL and 330 FWL
San Juan County, New Mexico
Lease Number: NMNM 118133

9. ANTICIPATED START DATE AND DURATION OF OPERATIONS

Drilling is estimated to commence on October 2, 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 32-T24N-R8W
County: San Juan
WELL: Escrito L32-2408 01H

Encana Natural Gas

WELL SUMMARY

encana natural gas

ENG: J. Fox/ A.
RIG:
GLE: 6937
RKBE: 6950

12/28/12

MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH TVD	DEPTH MD	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 Mud logger onsite	Ojo Alamo Kirtland Fruitland Coal Pictured Cliffs Ss Lewis Shale Cliffhouse Ss Menefee Fn Point Lookout Ss Mancos Sh KICK OFF PT Mancos Silt Gallup Top	988 1,240 1432 1720 1875 2530 3245 4115 4308 4682 4845 5108 **5391**	**5656**	**8 1/2**	**7" 26ppf J55 LTC** Stage tool @1770' TOC @ surface 30% OH excess: 492 sksTotal. Stage 1 Lead: 210sks Stage 1 Tail: 145sks. Stage 2 Lead: 137sks	Fresh Wtr 8.5-8.8	Vertical <1° KOP 4682 10 deg/100'
Surveys every 500' Gyro at CP MWD Gamma Directional	No OH Logs	horz target Base Gallup	**5399** 5425	**5756**	**6 1/8**	200' overlap at liner top 4623' Lateral **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	8.6-9.0 OBM Switch to OBM 8.6-9.0	.25deg updip 5375'TVD TD = 10379' MD

NOTES:

1) Drill with 30" bit to 60', set 20" 94# conductor pipe
2) Drill surface to 500', R&C 9 5/8" casing
3) N/U BOP and surface equipment
4) Drill to KOP of 4682' , 8 1/2" hole size,
5) PU directional tools and start curve at 10deg/100' build rate
6) Drill to casing point of 5656' MD
7) R&C 7" casing, circ cmt to surface, switch to OBM
8) Land at 90deg, drill 4623' lateral to 10379', run 4 1/2" liner with external swellable csg packers

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Escrito L32-T24N-R8W
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 6950.0ft (Original Well Elev)
Project:	San Juan County, NM	**MD Reference:**	WELL @ 6950.0ft (Original Well Elev)
Site:	S32-T24N-R8W (Escrito)	**North Reference:**	True
Well:	Escrito L32-T24N-R8W	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey

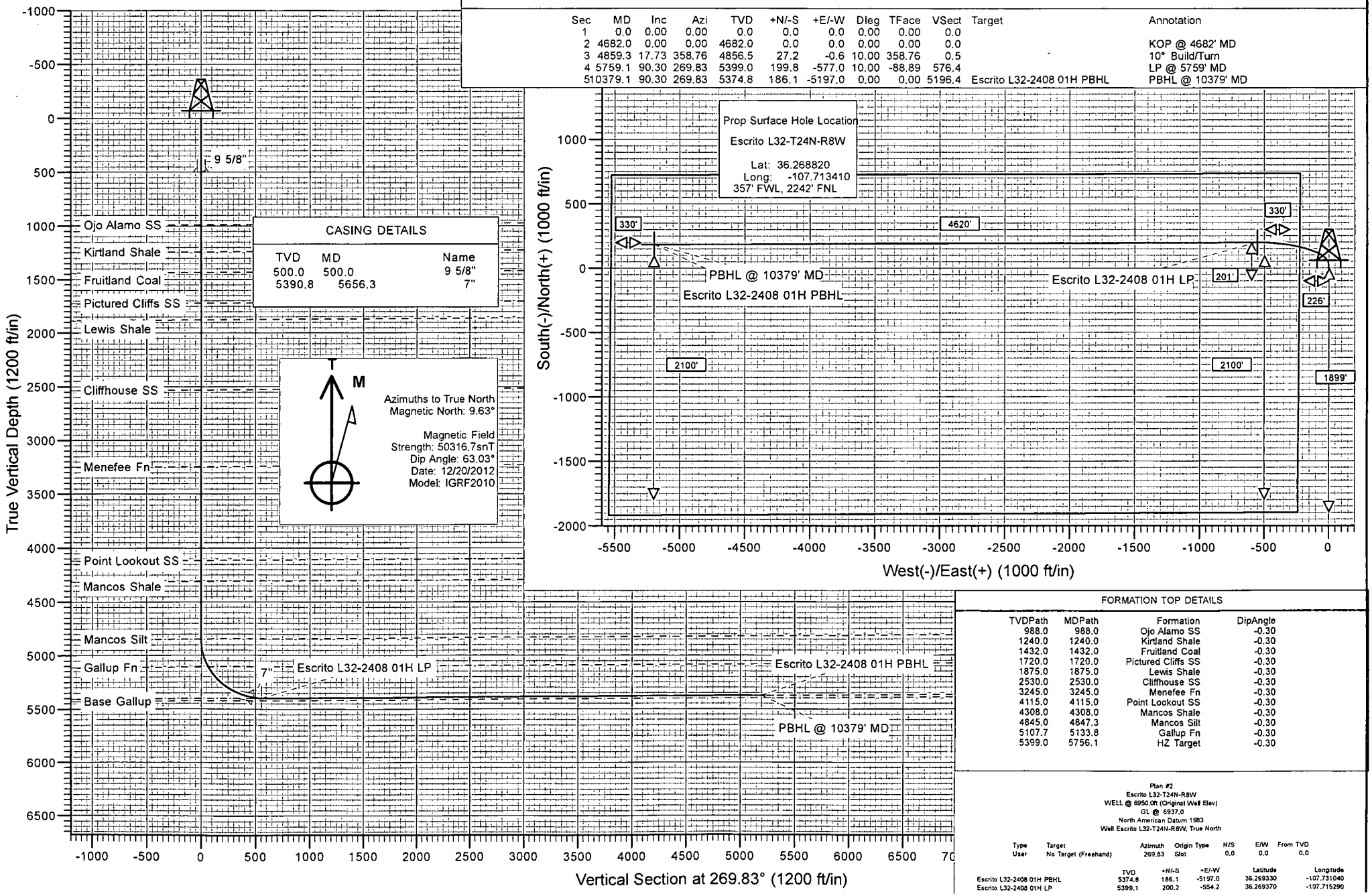
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,308.0	0.00	0.00	4,308.0	0.0	0.0	0.0	0.00	0.00	Mancos Shale
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	
4,682.0	0.00	0.00	4,682.0	0.0	0.0	0.0	0.00	0.00	KOP @ 4682' MD
4,700.0	1.80	358.76	4,700.0	0.3	0.0	0.0	10.00	10.00	
4,800.0	11.80	358.76	4,799.2	12.1	-0.3	0.2	10.00	10.00	
4,847.3	16.53	358.76	4,845.0	23.7	-0.5	0.4	10.00	10.00	Mancos Silt
4,859.3	17.73	358.76	4,856.5	27.2	-0.6	0.5	10.00	10.00	10° Build/Turn
4,900.0	18.25	345.67	4,895.2	39.6	-2.3	2.2	10.00	1.28	
5,000.0	22.70	319.74	4,989.1	69.5	-18.7	18.5	10.00	4.45	
5,100.0	29.85	303.77	5,078.8	98.2	-51.9	51.6	10.00	7.15	
5,133.8	32.58	299.93	5,107.7	107.4	-66.8	66.5	10.00	8.09	Gallup Fn
5,200.0	38.20	293.88	5,161.7	124.6	-101.0	100.6	10.00	8.49	
5,300.0	47.12	287.19	5,235.1	148.0	-164.5	164.0	10.00	8.92	
5,400.0	56.33	282.22	5,297.0	167.7	-240.3	239.8	10.00	9.21	
5,500.0	65.70	278.22	5,345.5	183.0	-326.3	325.8	10.00	9.37	
5,600.0	75.16	274.78	5,378.9	193.6	-419.8	419.3	10.00	9.46	
5,656.3	80.51	272.99	5,390.8	197.3	-474.7	474.1	10.00	9.50	7"
5,700.0	84.67	271.63	5,396.4	199.1	-518.0	517.4	10.00	9.51	
5,756.1	90.01	269.92	5,399.0	199.8	-574.0	573.4	10.00	9.52	HZ Target
5,759.1	90.30	269.83	5,399.0	199.8	-577.0	576.4	10.00	9.52	LP @ 5759' MD
5,800.0	90.30	269.83	5,398.8	199.7	-617.9	617.3	0.00	0.00	
5,900.0	90.30	269.83	5,398.3	199.4	-717.9	717.3	0.00	0.00	
6,000.0	90.30	269.83	5,397.7	199.1	-817.9	817.3	0.00	0.00	
6,100.0	90.30	269.83	5,397.2	198.8	-917.9	917.3	0.00	0.00	
6,200.0	90.30	269.83	5,396.7	198.5	-1,017.9	1,017.3	0.00	0.00	
6,300.0	90.30	269.83	5,396.2	198.2	-1,117.9	1,117.3	0.00	0.00	
6,400.0	90.30	269.83	5,395.6	197.9	-1,217.9	1,217.3	0.00	0.00	
6,500.0	90.30	269.83	5,395.1	197.6	-1,317.9	1,317.3	0.00	0.00	
6,600.0	90.30	269.83	5,394.6	197.3	-1,417.9	1,417.3	0.00	0.00	
6,700.0	90.30	269.83	5,394.1	197.0	-1,517.9	1,517.3	0.00	0.00	
6,800.0	90.30	269.83	5,393.6	196.7	-1,617.9	1,617.3	0.00	0.00	
6,900.0	90.30	269.83	5,393.0	196.4	-1,717.9	1,717.3	0.00	0.00	
7,000.0	90.30	269.83	5,392.5	196.2	-1,817.9	1,817.3	0.00	0.00	
7,100.0	90.30	269.83	5,392.0	195.9	-1,917.9	1,917.3	0.00	0.00	
7,200.0	90.30	269.83	5,391.5	195.6	-2,017.9	2,017.3	0.00	0.00	
7,300.0	90.30	269.83	5,390.9	195.3	-2,117.9	2,117.3	0.00	0.00	
7,400.0	90.30	269.83	5,390.4	195.0	-2,217.9	2,217.3	0.00	0.00	
7,500.0	90.30	269.83	5,389.9	194.7	-2,317.9	2,317.3	0.00	0.00	
7,600.0	90.30	269.83	5,389.4	194.4	-2,417.9	2,417.3	0.00	0.00	
7,700.0	90.30	269.83	5,388.8	194.1	-2,517.9	2,517.3	0.00	0.00	
7,800.0	90.30	269.83	5,388.3	193.8	-2,617.9	2,617.3	0.00	0.00	
7,900.0	90.30	269.83	5,387.8	193.5	-2,717.9	2,717.3	0.00	0.00	
8,000.0	90.30	269.83	5,387.3	193.2	-2,817.9	2,817.3	0.00	0.00	
8,100.0	90.30	269.83	5,386.7	192.9	-2,917.9	2,917.3	0.00	0.00	
8,200.0	90.30	269.83	5,386.2	192.6	-3,017.9	3,017.3	0.00	0.00	
8,300.0	90.30	269.83	5,385.7	192.3	-3,117.9	3,117.3	0.00	0.00	
8,400.0	90.30	269.83	5,385.2	192.0	-3,217.9	3,217.3	0.00	0.00	
8,500.0	90.30	269.83	5,384.6	191.7	-3,317.9	3,317.3	0.00	0.00	
8,600.0	90.30	269.83	5,384.1	191.4	-3,417.9	3,417.3	0.00	0.00	
8,700.0	90.30	269.83	5,383.6	191.1	-3,517.9	3,517.3	0.00	0.00	

encana™ natural gas

Project: San Juan County, NM
Site: S32-T24N-R8W (Escrito)
Well: Escrito L32-T24N-R8W
Wellbore: HZ
Design: Plan #2

CATHEDRAL

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	4682.0	0.00	0.00	4682.0	0.0	0.0	0.00	0.00	0.0		KOP @ 4682' MD
3	4859.3	17.73	358.76	4856.5	27.2	-0.6	10.00	358.76	0.5		10° Build/Turn
4	5759.1	90.30	269.83	5399.0	199.8	-577.0	10.00	-88.89	576.4		LP @ 5759' MD
510379.1		90.30	269.83	5374.8	186.1	-5197.0	0.00	0.00	5196.4	Escrito L32-2408 01H PBHL	PBHL @ 10379' MD



FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle
988.0	988.0	Ojo Alamo SS	-0.30
1240.0	1240.0	Kirtland Shale	-0.30
1432.0	1432.0	Fruitland Coal	-0.30
1720.0	1720.0	Pictured Cliffs SS	-0.30
1875.0	1875.0	Lewis Shale	-0.30
2530.0	2530.0	Cliffhouse SS	-0.30
3245.0	3245.0	Menefee Fn	-0.30
4115.0	4115.0	Point Lookout SS	-0.30
4308.0	4308.0	Mancos Shale	-0.30
4845.0	4847.3	Mancos Silt	-0.30
5107.7	5133.8	Gallup Fn	-0.30
5399.0	5756.1	HZ Target	-0.30

Plan #2
Escrito L32-T24N-R8W
WELL @ 6950.0ft (Original Well Elev)
GL @ 6937.0
North American Datum 1983
Well Escrito L32-T24N-R8W, True North

Type	Target	Azimuth	Origin Type	N/S	E/W	From TVD
User	No Target (Freehand)	269.83	Slot	0.0	0.0	0.0

	TVD	+N/-S	+E/-W	Latitude	Longitude
Escrito L32-2408 01H PBHL	5374.8	186.1	-5197.0	36.269330	-107.731040
Escrito L32-2408 01H LP	5399.1	200.2	-554.2	36.269370	-107.715290

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Escrito L32-T24N-R8W
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 6950.0ft (Original Well Elev)
Project:	San Juan County, NM	**MD Reference:**	WELL @ 6950.0ft (Original Well Elev)
Site:	S32-T24N-R8W (Escrito)	**North Reference:**	True
Well:	Escrito L32-T24N-R8W	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

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 S32-T24N-R8W (Escrito)

Site Position:		**Northing:**	1,917,175.15 ft	**Latitude:**	36.268820
From:	Lat/Long	**Easting:**	2,758,448.22 ft	**Longitude:**	-107.713410
Position Uncertainty:	0.0 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.07 °

Well Escrito L32-T24N-R8W

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,917,175.15 ft	**Latitude:**	36.268820
	+E/-W	0.0 ft	**Easting:**	2,758,448.22 ft	**Longitude:**	-107.713410
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	6,937.0 ft

Wellbore HZ

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/20/2012	9.63	63.03	50,317

Design Plan #2

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	269.83

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	
4,682.0	0.00	0.00	4,682.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,859.3	17.73	358.76	4,856.5	27.2	-0.6	10.00	10.00	0.00	358.76	
5,759.1	90.30	269.83	5,399.0	199.8	-577.0	10.00	8.07	-9.88	-88.89	
10,379.1	90.30	269.83	5,374.8	186.1	-5,197.0	0.00	0.00	0.00	0.00	Escrito L32-2408 01H

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Escrito L32-T24N-R8W
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 6950.0ft (Original Well Elev)
Project:	San Juan County, NM	**MD Reference:**	WELL @ 6950.0ft (Original Well Elev)
Site:	S32-T24N-R8W (Escrito)	**North Reference:**	True
Well:	Escrito L32-T24N-R8W	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	9 5/8"
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
988.0	0.00	0.00	988.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo SS
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	
1,240.0	0.00	0.00	1,240.0	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	
1,432.0	0.00	0.00	1,432.0	0.0	0.0	0.0	0.00	0.00	Fruitland Coal
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	
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	
1,720.0	0.00	0.00	1,720.0	0.0	0.0	0.0	0.00	0.00	Pictured Cliffs SS
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	
1,875.0	0.00	0.00	1,875.0	0.0	0.0	0.0	0.00	0.00	Lewis Shale
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	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	
2,530.0	0.00	0.00	2,530.0	0.0	0.0	0.0	0.00	0.00	Cliffhouse SS
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	
3,100.0	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	
3,245.0	0.00	0.00	3,245.0	0.0	0.0	0.0	0.00	0.00	Menefee Fn
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	
4,115.0	0.00	0.00	4,115.0	0.0	0.0	0.0	0.00	0.00	Point Lookout SS
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Escrito L32-T24N-R8W
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 6950.0ft (Original Well Elev)
Project:	San Juan County, NM	**MD Reference:**	WELL @ 6950.0ft (Original Well Elev)
Site:	S32-T24N-R8W (Escrito)	**North Reference:**	True
Well:	Escrito L32-T24N-R8W	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

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
8,800.0	90.30	269.83	5,383.1	190.8	-3,617.9	3,617.3	0.00	0.00	
8,900.0	90.30	269.83	5,382.6	190.5	-3,717.9	3,717.3	0.00	0.00	
9,000.0	90.30	269.83	5,382.0	190.2	-3,817.9	3,817.3	0.00	0.00	
9,100.0	90.30	269.83	5,381.5	189.9	-3,917.9	3,917.3	0.00	0.00	
9,200.0	90.30	269.83	5,381.0	189.6	-4,017.9	4,017.3	0.00	0.00	
9,300.0	90.30	269.83	5,380.5	189.3	-4,117.9	4,117.3	0.00	0.00	
9,400.0	90.30	269.83	5,379.9	189.0	-4,217.9	4,217.3	0.00	0.00	
9,500.0	90.30	269.83	5,379.4	188.7	-4,317.9	4,317.3	0.00	0.00	
9,600.0	90.30	269.83	5,378.9	188.4	-4,417.8	4,417.3	0.00	0.00	
9,700.0	90.30	269.83	5,378.4	188.1	-4,517.8	4,517.3	0.00	0.00	
9,800.0	90.30	269.83	5,377.8	187.8	-4,617.8	4,617.3	0.00	0.00	
9,900.0	90.30	269.83	5,377.3	187.5	-4,717.8	4,717.3	0.00	0.00	
10,000.0	90.30	269.83	5,376.8	187.3	-4,817.8	4,817.3	0.00	0.00	
10,100.0	90.30	269.83	5,376.3	187.0	-4,917.8	4,917.3	0.00	0.00	
10,200.0	90.30	269.83	5,375.7	186.7	-5,017.8	5,017.3	0.00	0.00	
10,300.0	90.30	269.83	5,375.2	186.4	-5,117.8	5,117.3	0.00	0.00	
10,379.1	90.30	269.83	5,374.8	186.1	-5,197.0	5,196.4	0.00	0.00	PBHL @ 10379' MD

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Escrito L32-2408 01H LI	0.00	0.00	5,399.1	200.2	-554.2	1,917,374.69	2,757,893.79	36.269370	-107.715290
- plan misses target center by 0.6ft at 5736.3ft MD (5398.7 TVD, 199.8 N, -554.2 E)									
- Point									
Escrito L32-2408 01H PI	0.00	0.00	5,374.8	186.1	-5,197.0	1,917,354.85	2,753,251.04	36.269330	-107.731040
- plan hits target center									
- Point									

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
5,656.3	5,390.8	7"	7.000	7.500

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Escrito L32-T24N-R8W
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 6950.0ft (Original Well Elev)
Project:	San Juan County, NM	**MD Reference:**	WELL @ 6950.0ft (Original Well Elev)
Site:	S32-T24N-R8W (Escrito)	**North Reference:**	True
Well:	Escrito L32-T24N-R8W	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
988.0	988.0	Ojo Alamo SS		-0.30	269.79
1,240.0	1,240.0	Kirtland Shale		-0.30	269.79
1,432.0	1,432.0	Fruitland Coal		-0.30	269.79
1,720.0	1,720.0	Pictured Cliffs SS		-0.30	269.79
1,875.0	1,875.0	Lewis Shale		-0.30	269.79
2,530.0	2,530.0	Cliffhouse SS		-0.30	269.79
3,245.0	3,245.0	Menefee Fn		-0.30	269.79
4,115.0	4,115.0	Point Lookout SS		-0.30	269.79
4,308.0	4,308.0	Mancos Shale		-0.30	269.79
4,847.3	4,845.0	Mancos Silt		-0.30	269.79
5,133.8	5,108.0	Gallup Fn		-0.30	269.79
5,756.1	5,402.0	HZ Target		-0.30	269.79

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
4,682.0	4,682.0	0.0	0.0	KOP @ 4682' MD
4,859.3	4,856.5	27.2	-0.6	10° Build/Turn
5,759.1	5,399.0	199.8	-577.0	LP @ 5759' MD
10,379.1	5,374.8	186.1	-5,197.0	PBHL @ 10379' MD

WELLHEAD BLOWOUT CONTROL SYSTEM

encana
natural gas

Well name and number:

Escrito L32-2408 01H