

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary-Designate

Brett F. Woods, Ph.D.
Deputy Cabinet Secretary

Jami Bailey, 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: 5/23/13

Well information:

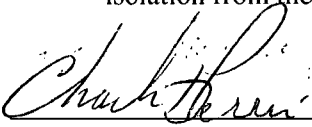
Operator Encana, Well Name and Number Escrito D342409 3H

API# 30-045-35475, Section 34, Township 24 NS, Range 9 EW

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
- ☐ 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


NMOCD Approved by Signature

7-30-2013
Date

ca

RECEIVED

RCVD JUL 23 '13
OIL CONS. DIV.
DIST. 3

MAY 24 2013

Form 3160-3
(August 2007)

UNITED STATES **Farmington Field Office**
DEPARTMENT OF THE INTERIOR **of Land Management**
BUREAU OF LAND MANAGEMENT

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☒ DRILL ☐ REENTER		15. Lease Serial No. NMNM 012374 & NMNM 90843
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name N/A
2. Name of Operator Encana Oil & Gas (USA) Inc.		7. If Unit or CA Agreement, Name and No. PENDING
3a. Address 370 17th Street, Suite 1700 Denver, CO 80202		8. Lease Name and Well No. Escrito D34-2409 03H
3b. Phone No. (include area code) 720-876-5331		9. API Well No. 3004535475
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface ^D 1162' FNL and 536' FWL Section 34, T24N, R9W At proposed prod. zone ^E 1870' FNL and 330' FWL Section 33, T24N, R9W		10. Field and Pool, or Exploratory Bisti Lower-Gallup/Basin Mancos
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		11. Sec., T. R. M. or Blk. and Survey or Area Section 34, T24N, R9W NMPM
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 012374 - 2,240 ac. NMNM 90843 - 440 ac.	17. Spacing Unit dedicated to this well 160 acres (S2N2 Section 33, T24N R9W)
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. OHWADA 2 is 1,231' north of the wellbore	19. Proposed Depth 5,102' TVD/10,553' MD	20. BLM/BIA Bond No. on file COB-000235
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6,857' GL; 6,870' KB	22. Approximate date work will start* 10/03/2013	23. Estimated duration 25 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) Brenda R. Linster	Date 06/23/13
Title Regulatory Lead		

Approved by (Signature) 	Name (Printed Typed) AFM	Date 7/19/13
Title 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.

BLM'S APPROVAL OR ACCEPTANCE OF THIS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 22 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 or for any person to make any such statement or representation knowing it to be false, fictitious or fraudulent.

OPERATOR FROM INDIVIDUAL WITHIN HIS JURISDICTION

(Continued on page 2)

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

AUTHORIZATION REQUIRED FOR OPERATIONS ON FEDERAL AND INDIAN LANDS

DRILLING OPERATIONS AUTHORIZED AND SUBJECT TO COMPLIANCE WITH ALL "GENERAL REQUIREMENTS".

NMOCD
AV

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) 749-1283 Fax: (575) 749-9720

District III
1000 Rio Grazes Road, Aztec, NM 87418
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

RECEIVED
AMENDED

MAY 24 2013

Farmington Field Office
Bureau of Land Management

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-045-35475	Pool Code 5890 / 97232	Pool Name BISTO LOWER-GALLUP / BASIN MANCOS
Property Code 39871	Property Name ESCRITO 034-2409	Well Number 03H
OGRI# No. 282327	Operator Name ENCANA OIL & GAS (USA) INC.	Elevation 5857

10 Surface Location

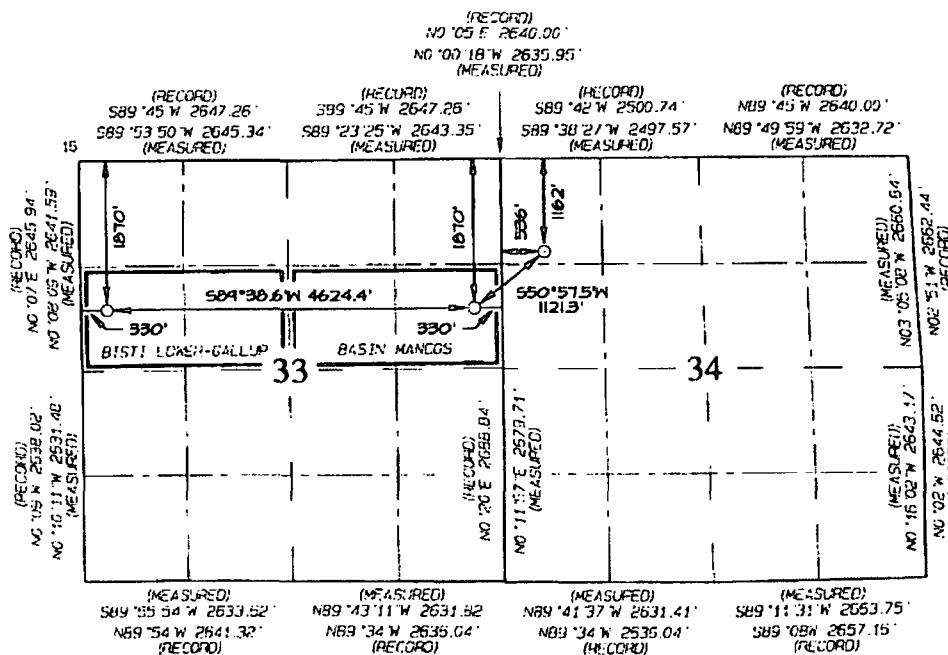
U. or Lot no.	Section	Township	Range	Lot 10n	Feet from the	North/South line	Feet from the	East/West line	County
U	34	24N	9W		1162	NORTH	536	WEST	SAN JUAN

11 Bottom Hole Location If Different From Surface

U. or Lot no.	Section	Township	Range	Lot 10n	Feet from the	North/South line	Feet from the	East/West line	County
E	33	24N	9W		1870	NORTH	330	WEST	SAN JUAN

Dedicated Acres 150.0 Acres	Unit or Entry S/2 N/2 - Section 33	Consolidation Code	Order No.
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NO ALLOWABLE WELL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE
BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



END-OF-LATERAL
1870' FNL 330' FNL
SECTION 33, T24N, R9W
LAT: 36.27260°N
LONG: 107.80155°W
DATUM: NAD1983

POINT-OF-ENTRY
1870' FNL 330' FNL
SECTION 33, T24N, R9W
LAT: 36.27268°N
LONG: 107.78586°W
DATUM: NAD1983

SURFACE LOCATION
1162' FNL 536' FNL
SECTION 34, T24N, R9W
LAT: 36.27464°N
LONG: 107.78292°W
DATUM: NAD1983

12 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: 5/22/13
Printed Name: holly.hill@encana.com
E-mail Address:

13 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 Revised: MARCH 21, 2013
Date of Survey: JULY 23, 2012
Signature and Seal of Professional Surveyor:

JASON C. EDWARDS
NEW MEXICO
REGISTERED PROFESSIONAL SURVEYOR
15269

JASON C. EDWARDS
Certificate Number 15269

Escrito D34-2409 03H

SHL: NWNW Section 34, T24N, R9W

1162 FNL and 536 FWL

BHL: SWNW Section 33, T24N, R9W

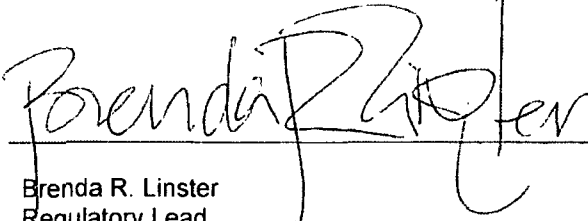
1870 FNL and 330 FWL

San Juan County, New Mexico

Lease Number: NM 012374 & NMNM 90843

**Encana Oil & Gas (USA) Inc.
Certification**

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.



05 23 13

Date

Brenda R. Linster
Regulatory Lead
Encana Oil & Gas (USA) Inc.
370 17th Street, Suite 1700
Denver, CO 80202
Phone: (720) 876-3989
Cell: (970) 309-8106

Directions from the Intersection of US Hwy 550 & US Hwy 64
in Bloomfield, NM to Encana Oil & Gas (USA) Inc. Escrito D34-2409 03H
1162' FNL & 536' FWL, Section 34, T24N, R9W, N.M.P.M., San Juan County, NM

Latitude: 36.27465°N Longitude: 107.78354°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;

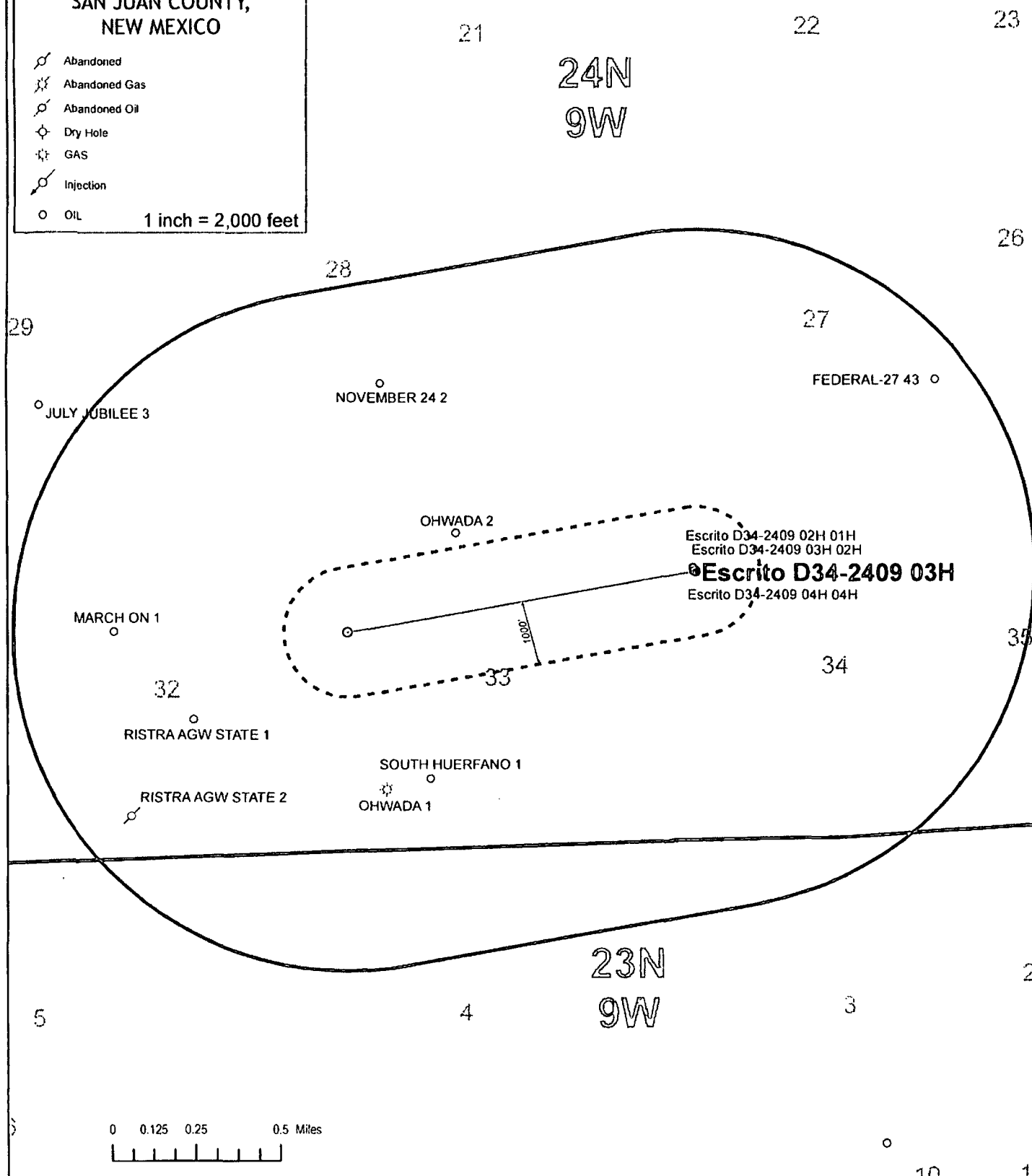


SAN JUAN COUNTY,
NEW MEXICO

- Abandoned
- Abandoned Gas
- Abandoned Oil
- Dry Hole
- GAS
- Injection
- OIL

1 inch = 2,000 feet

☼ MUDDY MUDDY COM 90



Escrito D34-2409 03H
SHL: NWNW Section 34, T24N, R9W
1162 FNL and 536 FWL
BHL: SWNW Section 33, T24N, R9W
1870 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 Ss.	758'
Kirtland	932'
Fruitland Coal	1177'
Pictured Cliffs	1503'
Lewis	1615'
Cliffhouse	2258'
Menefee	3020'
Point Lookout	3930'
Mancos Shale	4088'
Mancos Silt	4648'
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>
Gas	Fruitland Coal	1177'
Gas	Pictured Cliffs	1503'
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 03H

**SHL: NWNW Section 34, T24N, R9W
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San Juan County, New Mexico

Lease Number: NM 012374 & NMNM 90843

- 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'-5835'MD	8 3/4"	7"	26#	J55, LTC New
Production Liner	5635'-10553'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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San Juan County, New Mexico
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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	5835'MD	30% open hole excess Stage 1 Lead: 275sks Stage 1 Tail: 188sks Stage 2 Lead: 135sks	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*	5635'-10553'	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 4400'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5102'/10553'	Gallup

Escrito D34-2409 03H

SHL: NWNW Section 34, T24N, R9W

1162 FNL and 536 FWL

BHL: SWNW Section 33, T24N, R9W

1870 FNL and 330 FWL

San Juan County, New Mexico

Lease Number: NM 012374 & NMNM 90843

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 3/4"	500'TVD- 5148'TVD/5835'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"	5835'-10553'	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 +/- 2411 psi based on a 9.0 ppg at 5151' TVD of the landing point of the horizontal lateral. 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.

Escrito D34-2409 03H

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1162 FNL and 536 FWL**

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1870 FNL and 330 FWL**

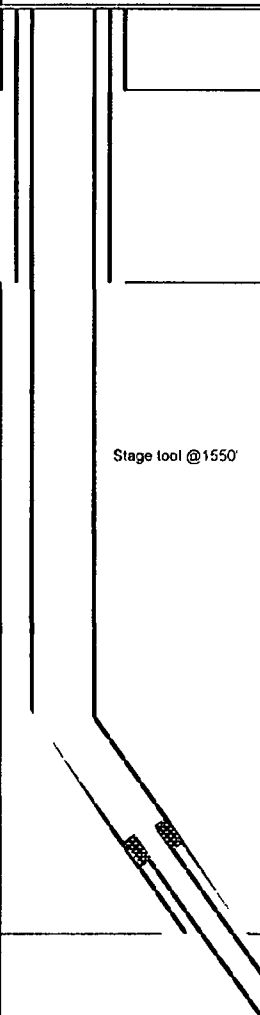
San Juan County, New Mexico

Lease Number: NM 012374 & NMNM 90843

9. ANTICIPATED START DATE AND DURATION OF OPERATIONS

Drilling is estimated to commence on October 3, 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 03H			Encana Natural Gas WELL SUMMARY			encana natural gas		ENG: J. Fox/ A. RIG: GLE: 6857 RKBE: 6870		4/29/13
MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH			HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION	
			TVD	MD						
			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 Menelee Fn Point Lookout Ss Mancos Sh KICK OFF PT Mancos Silt Gallup Top	758 932 1177 1503 1615 2258 3020 3930 4088 4400 4648 4905 5148	5835		8 3/4	7" 26ppf J55 LTC TOC @ surface 30% OH excess: 599 sksTotal. Stage 1 Lead: 275sks Stage 1 Tail: 188sks. Stage 2 Lead: 135sks	Fresh Wtr 8.5-8.8	Vertical <1° KOP 4400 10 deg/100'	
Surveys every 500' Gyro at CP MWD Gamma Directional	No OH Logs	horz target Base Gallup	5151 5210	5927	6 1/8	200' overlap at liner top 4626' Lateral	8.6-9.0 OBM Switch to OBM 8.6-9.0	25deg up/dip 5102' TVD TD = 10553' 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			

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 4400', 8 3/4" hole size,
- 5) PU directional tools and start curve at 10deg/100' build rate
- 6) Drill to casing point of 5835' MD
- 7) R&C 7" casing, circ cmt to surface, switch to OBM
- 8) Land at 90deg, drill 4626' lateral to 10553', run 4 1/2" liner with external swellable csg packers



Boomerang Tube LLC

CASING (OR) TUBING DESCRIPTION AND PERFORMANCE PROPERTIES

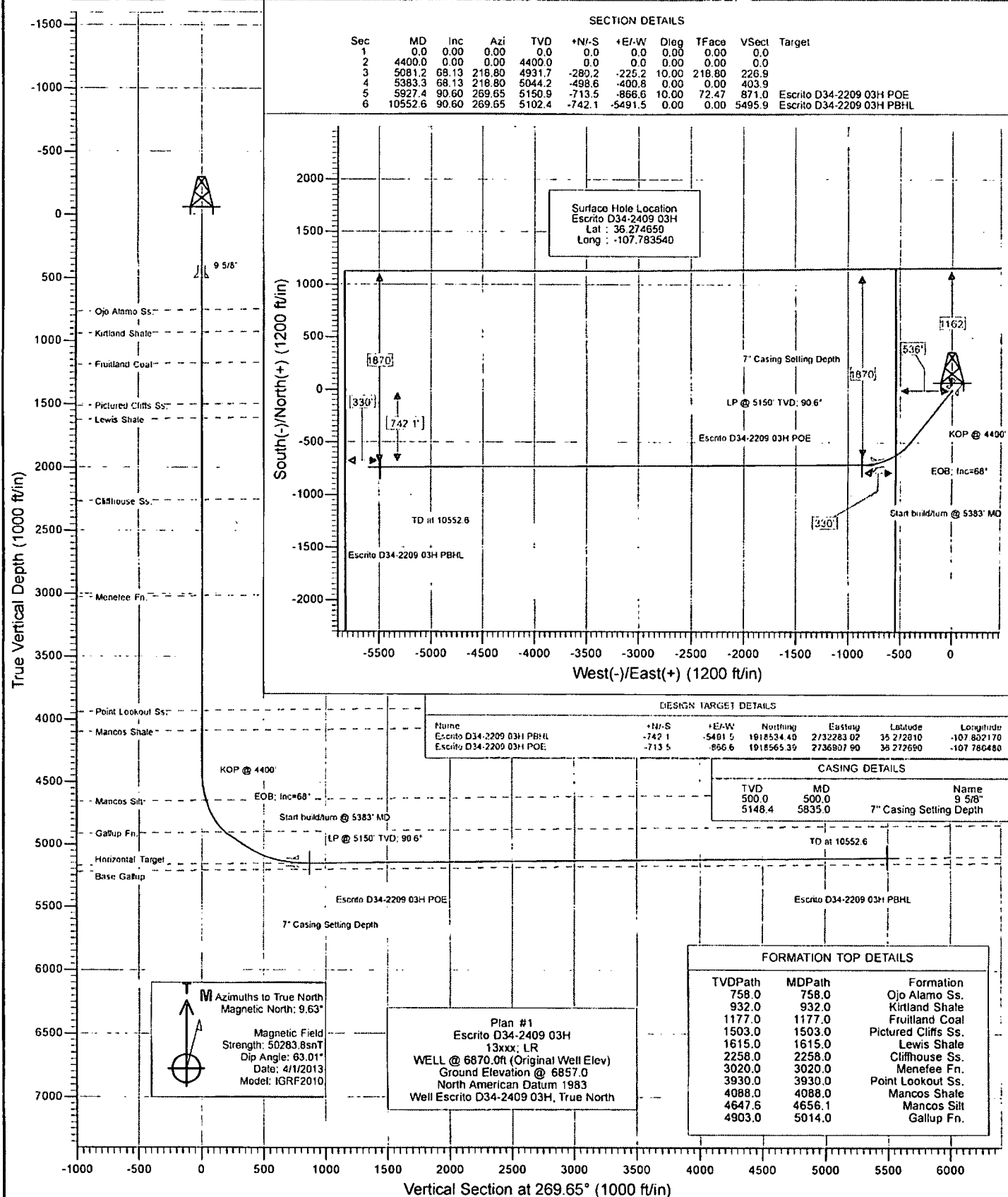
Pipe Outside Diameter (ins)	_____	4.500
Pipe Wall Thickness (ins)	_____	0.250
Nominal Weight Per Foot (lbs)	_____	11.60
Thread Name	_____	Long Thread CSG
Grade Name	_____	SB-80
Pipe Minimum Yield (psi)	_____	80,000
Pipe Minimum Ultimate (psi)	_____	90,000
Coupling Minimum Yield (psi)	_____	80,000
Coupling 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



Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: EnCana Oil & Gas (USA) Inc
 Project: San Juan County, NM
 Site: S34-T24N-R9W (Escrito)
 Well: Escrito D34-2409 03H
 Wellbore: Hz
 Design: Plan #1

Local Co-ordinate Reference: Well Escrito D34-2409 03H
 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 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	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 03H					
Well Position	+N/-S	0.0 ft	Northing:	1,919,279.31 ft	Latitude:	36.274650
	+E/-W	0.0 ft	Easting:	2,737,774.14 ft	Longitude:	-107.783540
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	6,857.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/1/2013	9.63	63.01	50,284

Design	Plan #1				
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	269.65	

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	
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,081.2	68.13	218.80	4,931.7	-280.2	-225.2	10.00	10.00	0.00	218.80	
5,383.3	68.13	218.80	5,044.2	-498.6	-400.8	0.00	0.00	0.00	0.00	
5,927.4	90.60	269.65	5,150.9	-713.5	-866.6	10.00	4.13	9.35	72.47	Escrito D34-2209 03H
10,552.6	90.60	269.65	5,102.4	-742.1	-5,491.5	0.00	0.00	0.00	0.00	Escrito D34-2209 03H

Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: EnCana Oil & Gas (USA) Inc
 Project: San Juan County, NM
 Site: S34-T24N-R9W (Escrito)
 Well: Escrito D34-2409 03H
 Wellbore: Hz
 Design: Plan #1

Local Co-ordinate Reference: Well Escrito D34-2409 03H
 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	

Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: EnCana Oil & Gas (USA) Inc
 Project: San Juan County, NM
 Site: S34-T24N-R9W (Escrito)
 Well: Escrito D34-2409 03H
 Wellbore: Hz
 Design: Plan #1

Local Co-ordinate Reference: Well Escrito D34-2409 03H
 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	KOP @ 4400'
4,500.0	10.00	218.80	4,499.5	-6.8	-5.5	5.5	10.00	10.00	
4,600.0	20.00	218.80	4,596.0	-26.9	-21.6	21.8	10.00	10.00	
4,656.1	25.61	218.80	4,647.6	-43.9	-35.3	35.5	10.00	10.00	Mancos Silt
4,700.0	30.00	218.80	4,686.5	-59.8	-48.1	48.5	10.00	10.00	
4,800.0	40.00	218.80	4,768.3	-104.5	-84.0	84.6	10.00	10.00	
4,900.0	50.00	218.80	4,838.9	-159.5	-128.2	129.2	10.00	10.00	
5,000.0	60.00	218.80	4,896.2	-223.3	-179.5	180.9	10.00	10.00	
5,014.0	61.40	218.80	4,903.0	-232.8	-187.1	188.5	10.00	10.00	Gallup Fn
5,081.2	68.13	218.80	4,931.7	-280.2	-225.2	226.9	10.00	10.00	EOB, Inc=68°
5,100.0	68.13	218.80	4,938.7	-293.7	-236.1	237.9	0.00	0.00	
5,200.0	68.13	218.80	4,975.9	-366.1	-294.3	296.5	0.00	0.00	
5,300.0	68.13	218.80	5,013.2	-438.4	-352.4	355.1	0.00	0.00	
5,383.3	68.13	218.80	5,044.2	-498.6	-400.8	403.9	0.00	0.00	Start build/turn @ 5383' MD
5,400.0	68.64	220.51	5,050.4	-510.6	-410.8	413.9	10.00	3.06	
5,500.0	72.04	230.50	5,084.1	-576.4	-477.9	481.4	10.00	3.40	
5,600.0	75.94	240.08	5,111.7	-631.0	-556.8	560.7	10.00	3.89	
5,700.0	80.19	249.33	5,132.5	-672.7	-645.2	649.3	10.00	4.26	
5,800.0	84.70	258.34	5,145.6	-700.2	-740.3	744.5	10.00	4.50	
5,835.0	86.31	261.46	5,148.4	-706.3	-774.6	778.9	10.00	4.60	7" Casing Setting Depth
5,900.0	89.33	267.22	5,150.8	-712.7	-839.2	843.6	10.00	4.64	
5,927.4	90.60	269.65	5,150.9	-713.5	-866.6	871.0	10.00	4.66	LP @ 5150' TVD; 90.6° - Escrito D34-2209 03H
6,000.0	90.60	269.65	5,150.1	-713.9	-939.2	943.6	0.00	0.00	
6,100.0	90.60	269.65	5,149.1	-714.5	-1,039.2	1,043.6	0.00	0.00	
6,200.0	90.60	269.65	5,148.0	-715.2	-1,139.2	1,143.5	0.00	0.00	
6,300.0	90.60	269.65	5,147.0	-715.8	-1,239.2	1,243.5	0.00	0.00	
6,400.0	90.60	269.65	5,145.9	-716.4	-1,339.2	1,343.5	0.00	0.00	
6,500.0	90.60	269.65	5,144.9	-717.0	-1,439.2	1,443.5	0.00	0.00	
6,600.0	90.60	269.65	5,143.8	-717.6	-1,539.2	1,543.5	0.00	0.00	
6,700.0	90.60	269.65	5,142.8	-718.3	-1,639.2	1,643.5	0.00	0.00	
6,800.0	90.60	269.65	5,141.7	-718.9	-1,739.2	1,743.5	0.00	0.00	
6,900.0	90.60	269.65	5,140.7	-719.5	-1,839.1	1,843.5	0.00	0.00	
7,000.0	90.60	269.65	5,139.6	-720.1	-1,939.1	1,943.5	0.00	0.00	
7,100.0	90.60	269.65	5,138.6	-720.7	-2,039.1	2,043.5	0.00	0.00	
7,200.0	90.60	269.65	5,137.5	-721.3	-2,139.1	2,143.5	0.00	0.00	
7,300.0	90.60	269.65	5,136.5	-722.0	-2,239.1	2,243.5	0.00	0.00	
7,400.0	90.60	269.65	5,135.4	-722.6	-2,339.1	2,343.5	0.00	0.00	
7,500.0	90.60	269.65	5,134.4	-723.2	-2,439.1	2,443.5	0.00	0.00	
7,600.0	90.60	269.65	5,133.3	-723.8	-2,539.1	2,543.5	0.00	0.00	
7,700.0	90.60	269.65	5,132.3	-724.4	-2,639.1	2,643.5	0.00	0.00	
7,800.0	90.60	269.65	5,131.2	-725.1	-2,739.1	2,743.5	0.00	0.00	
7,900.0	90.60	269.65	5,130.2	-725.7	-2,839.1	2,843.5	0.00	0.00	
8,000.0	90.60	269.65	5,129.2	-726.3	-2,939.1	2,943.4	0.00	0.00	
8,100.0	90.60	269.65	5,128.1	-726.9	-3,039.1	3,043.4	0.00	0.00	
8,200.0	90.60	269.65	5,127.1	-727.5	-3,139.0	3,143.4	0.00	0.00	
8,300.0	90.60	269.65	5,126.0	-728.2	-3,239.0	3,243.4	0.00	0.00	
8,400.0	90.60	269.65	5,125.0	-728.8	-3,339.0	3,343.4	0.00	0.00	
8,500.0	90.60	269.65	5,123.9	-729.4	-3,439.0	3,443.4	0.00	0.00	
8,600.0	90.60	269.65	5,122.9	-730.0	-3,539.0	3,543.4	0.00	0.00	
8,700.0	90.60	269.65	5,121.8	-730.6	-3,639.0	3,643.4	0.00	0.00	
8,800.0	90.60	269.65	5,120.8	-731.2	-3,739.0	3,743.4	0.00	0.00	

Planning Report

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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	5,119.7	-731.9	-3,839.0	3,843.4	0.00	0.00	
9,000.0	90.60	269.65	5,118.7	-732.5	-3,939.0	3,943.4	0.00	0.00	
9,100.0	90.60	269.65	5,117.6	-733.1	-4,039.0	4,043.4	0.00	0.00	
9,200.0	90.60	269.65	5,116.6	-733.7	-4,139.0	4,143.4	0.00	0.00	
9,300.0	90.60	269.65	5,115.5	-734.3	-4,239.0	4,243.4	0.00	0.00	
9,400.0	90.60	269.65	5,114.5	-735.0	-4,339.0	4,343.4	0.00	0.00	
9,500.0	90.60	269.65	5,113.4	-735.6	-4,439.0	4,443.4	0.00	0.00	
9,600.0	90.60	269.65	5,112.4	-736.2	-4,538.9	4,543.4	0.00	0.00	
9,700.0	90.60	269.65	5,111.3	-736.8	-4,638.9	4,643.4	0.00	0.00	
9,800.0	90.60	269.65	5,110.3	-737.4	-4,738.9	4,743.3	0.00	0.00	
9,900.0	90.60	269.65	5,109.2	-738.0	-4,838.9	4,843.3	0.00	0.00	
10,000.0	90.60	269.65	5,108.2	-738.7	-4,938.9	4,943.3	0.00	0.00	
10,100.0	90.60	269.65	5,107.1	-739.3	-5,038.9	5,043.3	0.00	0.00	
10,200.0	90.60	269.65	5,106.1	-739.9	-5,138.9	5,143.3	0.00	0.00	
10,300.0	90.60	269.65	5,105.0	-740.5	-5,238.9	5,243.3	0.00	0.00	
10,400.0	90.60	269.65	5,104.0	-741.1	-5,338.9	5,343.3	0.00	0.00	
10,500.0	90.60	269.65	5,103.0	-741.8	-5,438.9	5,443.3	0.00	0.00	
10,552.6	90.60	269.65	5,102.4	-742.1	-5,491.5	5,495.9	0.00	0.00	TD at 10552.6 - Escrito D34-2209 03H PBHL

Targets

Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- Shape									
Escrito D34-2209 03H P	0.00	0.00	5,150.9	-713.5	-866.6	1,918,565.39	2,736,907.90	36.272690	-107.786480
- plan hits target center									
- Point									
Escrito D34-2209 03H P	0.00	0.00	5,102.4	-742.1	-5,491.5	1,918,534.40	2,732,283.02	36.272610	-107.802170
- 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"	0.000	0.000
5,835.0	5,148.4	7" Casing Setting Depth	0.000	0.000

Planning Report

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Wellbore: Hz
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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	
4,656.1	4,648.0	Mancos Silt		-0.60	269.65	
5,014.0	4,905.0	Gallup Fn.		-0.60	269.65	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
4,400.0	4,400.0	0.0	0.0	KOP @ 4400'	
5,081.2	4,931.7	-280.2	-225.2	EOB; Inc=68°	
5,383.3	5,044.2	-498.6	-400.8	Start build/turn @ 5383' MD	
5,927.4	5,150.9	-713.5	-866.6	LP @ 5150' TVD; 90.6°	
10,552.6	5,102.4	-742.1	-5,491.5	TD at 10552.6	

WELLHEAD BLOWOUT CONTROL SYSTEM



Well name and number:

Escrito D34-2409 03H

