

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary

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

David R. Catanach, Division Director
Oil Conservation Division



New Mexico Oil Conservation Division approval and conditions listed below are made in accordance with OCD Rule 19.15.7.11 and are in addition to the actions approved by BLM on the following 3160-3 APD form.

Operator Signature Date: 1-27-15

Well information;

Operator Encano, Well Name and Number Pinon Unit M16 2410 #1H

API# 30-045-35635, Section 16, Township 24 (N)S, Range 10 E(W)

Conditions of Approval:

(See the below checked and handwritten conditions)

- ☒ Notify Aztec OCD 24hrs prior to casing & cement.
- ☒ Hold C-104 for directional survey & "As Drilled" Plat 5.9 compliance
- ☐ Hold C-104 for NSL, NSP, DHC
- ☐ Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- ☐ Regarding the use of a pit, closed loop system or below grade tank, the operator must comply with the following as applicable:
 - A pit requires a complete C-144 be submitted and approved prior to the construction or use of the pit, pursuant to 19.15.17.8.A
 - A closed loop system requires notification prior to use, pursuant to 19.15.17.9.A
 - A below grade tank requires a registration be filed prior to the construction or use of the below grade tank, pursuant to 19.15.17.8.C
- ☐ Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
- ☒ Regarding Hydraulic Fracturing, review EPA Underground Injection Control Guidance 84
- ☒ Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.
- ☒ Well-bore communication is regulated under 19.15.29 NMAC. This requires well-bore Communication to be reported in accordance with 19.15.29.8.

171 5 8 3000


NMOCD Approved by Signature

3-20-2015
Date RC

RECEIVED

RECEIVED

Form 3160-3
(March 2012)

MAR 06 2015

JAN 29 2015

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014NMOCD
DISTRICTUNITED 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.
Pinon Unit N099113676. If Indian, Allottee or Tribe Name
N/A7. If Unit or CA Agreement, Name and No.
Pinon Unit NMNM 133481X8. Lease Name and Well No.
Pinon Unit M16-2410 01H9. API Well No.
30-045-3563510. Field and Pool, or Exploratory
Pinon Unit HZ (Oil)11. Sec., T. R. M. or Blk. and Survey or Area
Sec. 16, T24N, R10W NMPM12. County or Parish
San Juan13. State
NM1a. Type of work: ☒ DRILL☐ REENTER1b. 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 802023b. Phone No. (include area code)
720-876-3533

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

At surface 1278' FSL and 228' FWL in Section 16, T24N, R10W

At proposed prod. zone 260' FSL and 120' FWL in Section 8, T24N, R10W

14. Distance in miles and direction from nearest town or post office*

35.9 miles South from the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM

15. Distance from proposed* location to nearest property or lease line, ft. T24N, R10W
(Also to nearest drig. unit line, if any)

BHL is 120' FWL in Section 8,

16. No. of acres in lease
NMNM 133481X - 8,005.44
Acres17. Spacing Unit dedicated to this well
8,005.44 Acres- W2 Sec. 4; All of Sections 5-10,
15-18 & 21; N2 of Sec 22 and 28, T24N, R10W18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. Pinon Unit M16-2410
02H +/- 30' from the SHL19. Proposed Depth
5109' TVD, 11726' MD20. BLM/BIA Bond No. on file
COB 00023521. Elevations (Show whether DF, KDB, RT, GL, etc.)
6734' GL, 6749' KB22. Approximate date work will start*
07/01/201523. Estimated duration
20 Days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. I, 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

Name (Printed/Typed)

Katie Wegner

Date

01/27/2015

Title

Regulatory Analyst

Approved by (Signature)

Name (Printed/Typed)

Office

FFO

Date

3/4/15

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)

DRILLING OPERATIONS
AUTHORIZED ARE SUBJECT TO
COMPLIANCE WITH ATTACHED
"GENERAL REQUIREMENTS"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 LANDSThis action is subject to technical
and procedural review pursuant to
43 CFR 3165.3 and appeal
pursuant to 43 CFR 3165.4

NMOCD

DISTRICT I
1626 N. French Dr., Hobbs, N.M. 88240
Phone: (575) 393-8181 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 Brason Rd., Aztec, N.M. 87410
Phone: (505) 334-8178 Fax: (505) 334-8170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 478-3460 Fax: (505) 478-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

OIL CONSERVATION DIVISION

1220 South St. Francis Dr. Farmington Field Office
Santa Fe, NM 87505 Bureau of Land Management

JAN 29 2015

Submit one copy to appropriate
District Office

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-045-35635	² Pool Code 98102	³ Pool Name PIÑON UNIT HZ (OIL)
⁴ Property Code 314246	⁵ Property Name PIÑON UNIT M16-2410	⁶ Well Number 01H
⁷ GRID No. 282327	⁸ Operator Name ENCANA OIL & GAS (USA) INC.	⁹ Elevation 6734.8

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
M	16	24N	10W		1278'	SOUTH	228'	WEST	SAN JUAN

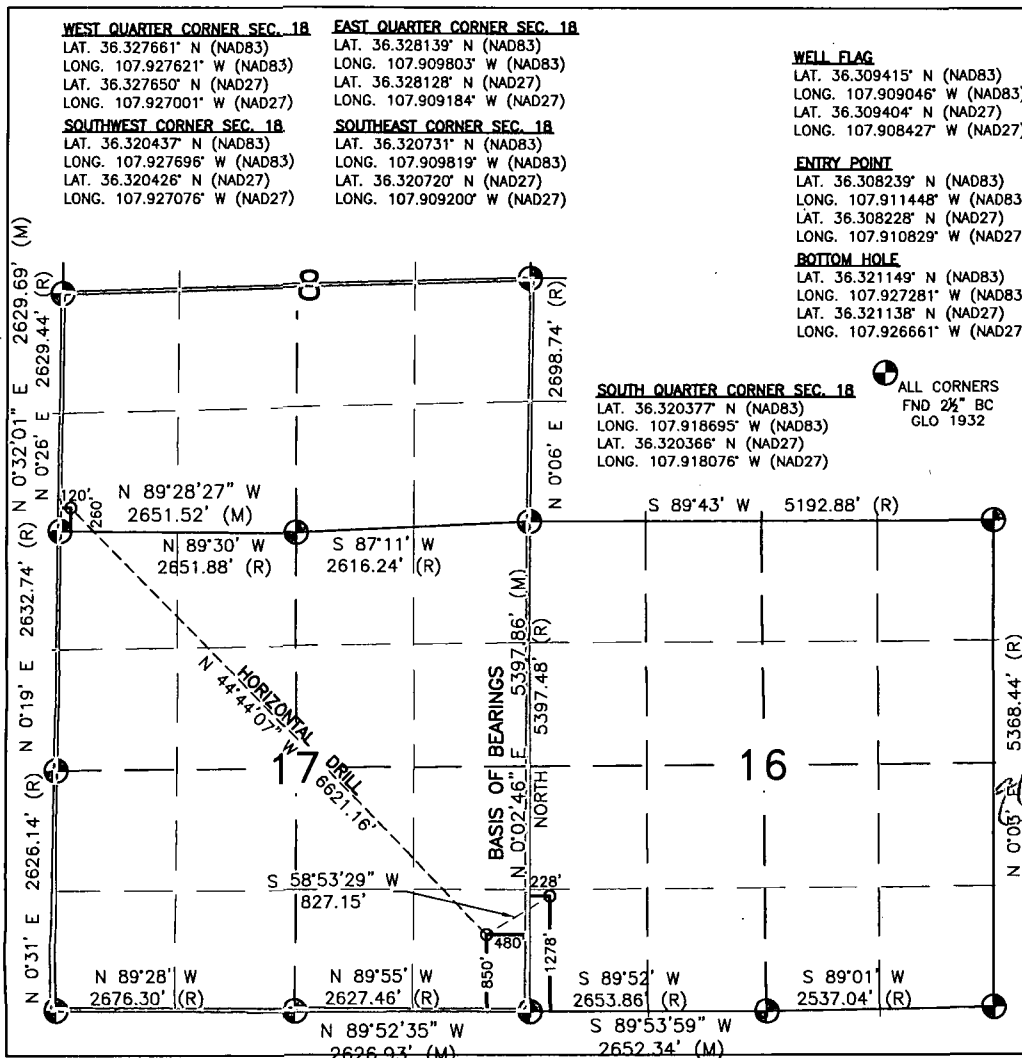
¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	8	24N	10W		260'	SOUTH	120'	WEST	SAN JUAN

¹² Dedicated Acres PROJECT AREA PENETRATED SPACING UNITS: ALL of SEC 17, S2 Sec. 18, T24N, R10W, 960 Acres 8,005.44 ACRES - W2 SEC 4, ALL SEC 5-10, 15-18 & 21; N2 SEC 22 & 28 T24N R10W - UNDIVIDED UNIT	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No. R-13857-A (8,005.44 acres)
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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

18



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: *Katie Wegner* Date: 1/27/15
Katie Wegner

Printed Name

Kathryn.Wegner@encana.com

E-mail Address

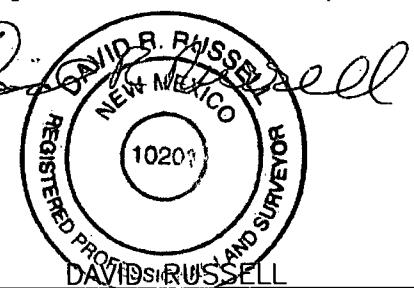
SURVEYOR CERTIFICATION

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

DECEMBER 4, 2014

Date of Survey

Signature and Seal of Professional Surveyor:



Certificate Number

10201

1625 N. French Dr., Hobbs, N.M. 88240
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1000 Rio Brazos Rd., Aztec, N.M. 87410
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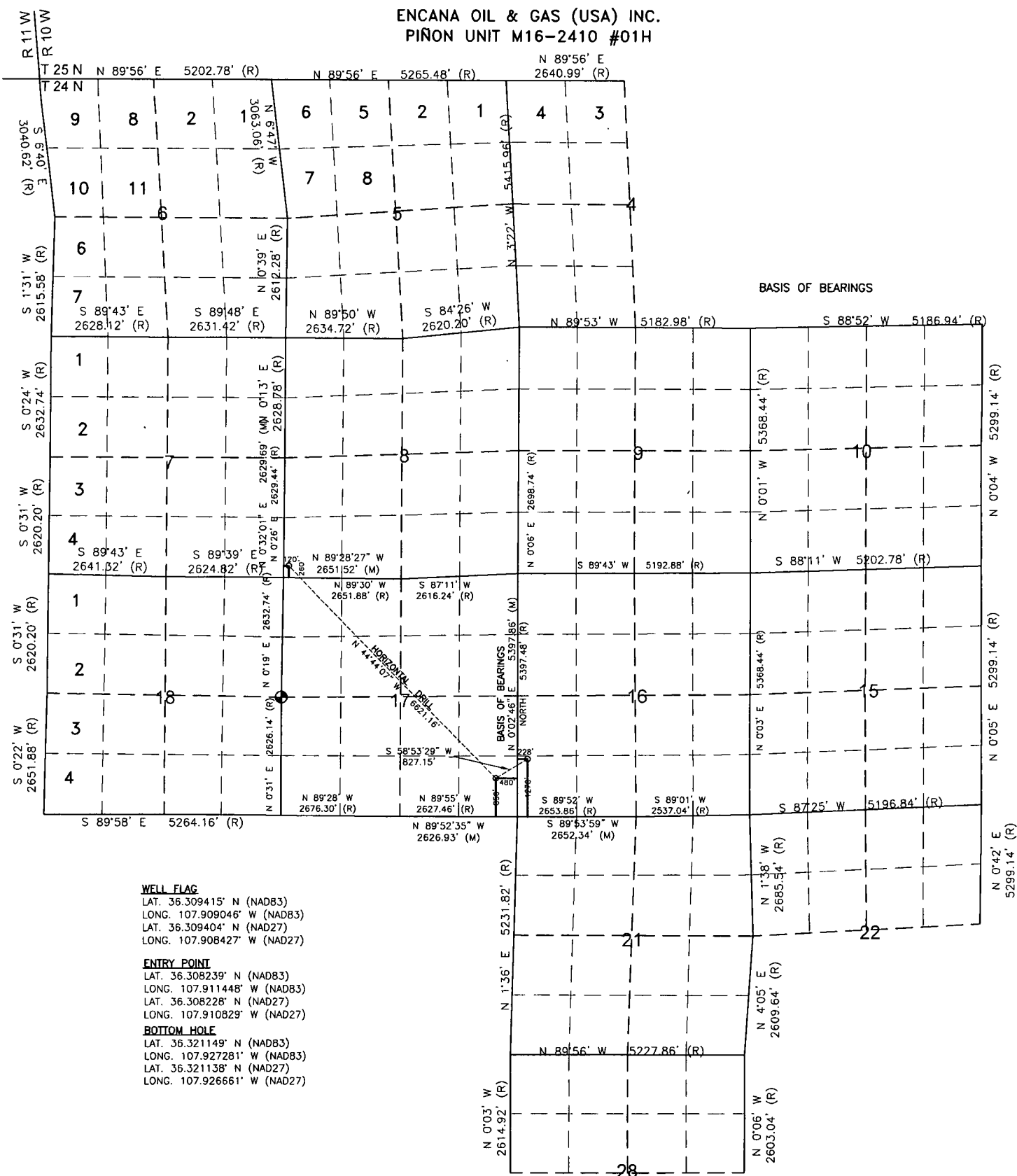
State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

Submit one copy to appropriate
District Office

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, NM 87505

☐ AMENDED REPORT

Pinion Unit M16-2410 01H

SHL: SW/4 SW/4 Sec 16 T24N R10W, 1278' FSL, 228' FWL

BHL: SW/4 SW/4 Sec 8 T24N R10W, 260' FSL, 120' FWL

San Juan, New Mexico

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

1. ESTIMATED TOPS OF GEOLOGICAL MARKERS (TVD)

The estimated tops of important geologic markers are as follows:

Formation	Depth (TVD) units = feet
San Jose Fn.	n/a
Nacimiento Fn.	surface
Ojo Alamo Ss.	586
Kirtland Shale	717
Fruitland Coal	1,148
Pictured Cliffs Ss.	1,385
Lewis Shale	1,577
Cliffhouse Ss.	2,128
Menefee Fn.	2,866
Point Lookout Ss.	3,839
Mancos Shale	3,975
Mancos Silt	4,598
Gallup Fn.	4,856
Base Gallup	5,152

The referenced surface elevation is 6734', KB 6749'

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

Substance	Formation	Depth (TVD) units = feet
Water/Gas	Fruitland Coal	1,148
Oil/Gas	Pictured Cliffs Ss.	1,385
Oil/Gas	Cliffhouse Ss.	2,128
Gas	Menefee Fn.	2,866
Oil/Gas	Point Lookout Ss.	3,839
Oil/Gas	Mancos Shale	3,975
Oil/Gas	Mancos Silt	4,598
Oil/Gas	Gallup Fn.	4,856

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

Pinion Unit M16-2410 01H

SHL: SW/4 SW/4 Sec 16 T24N R10W, 1278' FSL, 228' FWL

BHL: SW/4 SW/4 Sec 8 T24N R10W, 260' FSL, 120' FWL

San Juan, New Mexico

3. PRESSURE CONTROL

- a) Pressure control equipment and configuration will be designed to meet 2M standards.
- b) Working pressure on rams and BOPE will be 3,000 psi.
- c) Function test and visual inspection of the BOP will be conducted daily and noted in the IADC Daily Drilling Report.
- d) The Annular BOP will be pressure tested to a minimum of 50 percent of its rated working pressure.
- e) Blind and Pipe Rams/BOP will be tested against a test plug to 100 percent of rated working pressure.
- f) Pressure tests are required before drilling out from under all casing strings set and cemented in place.
- g) BOP controls must be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned.
- h) BOP testing procedures and testing frequency will conform to Onshore Order No. 2.
- i) BOP remote controls shall be located on the rig floor at a location readily accessible to the driller. Master controls shall be on the ground at the accumulator and shall have the capability to function all preventers.
- j) The kill line shall be 2-inch minimum and contain two kill line valves, one of which shall be a check valve.
- k) The choke line shall be a 2-inch minimum and contain two choke line valves (2-inch minimum).
- l) The choke and manifold shall contain two adjustable chokes.
- m) Hand wheels shall be installed on all ram preventers.
- n) Safety valves and wrenches (with subs for drill string connections) shall be available on the rig floor at all times.
- o) Inside BOP or float sub shall also be available on the rig floor at all times.

Proposed BOP and choke manifold arrangements are attached.

4. CASING & CEMENTING PROGRAM

The proposed casing and cementing program has been designed to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. Any isolating medium other than cement shall receive approval prior to use. The casing setting depth shall be calculated to position the casing seat opposite a competent formation which will contain the maximum pressure to which it will be exposed during normal drilling operations. All indications of useable water shall be reported.

- a) The proposed casing design is as follows:

Casing	Depth (MD)	Hole Size	Csg Size	Weight	Grade
Conductor	0'-60'	26"	16"	42.09#	
Surface	0'-500'	12 1/4"	9 5/8"	36#	J55, STC New
Intermediate	0'-5199'	8 3/4"	7"	26#	J55, LTC New
Production Liner	5099'-11726'	6 1/8"	4 1/2"	11.6#	B80*, LTC New

Casing String				Casing Strength Properties			Minimum Design Factors		
Size	Weight (ppf)	Grade	Connection	Collapse (psi)	Burst (psi)	Tensile (1000lbs)	Collapse	Burst	Tension
9 5/8"	36	J55	STC	2020	3520	394	1.125	1.1	1.5
7"	26	J55	LTC	4320	4980	367	1.125	1.1	1.5
4.5"	11.6	B80	LTC	6350	7780	201	1.125	1.1	1.5

*B80 pipe specifications are attached

Casing design is subject to revision based on geologic conditions encountered

Pinion Unit M16-2410 01H**SHL: SW/4 SW/4 Sec 16 T24N R10W, 1278' FSL, 228' FWL****BHL: SW/4 SW/4 Sec 8 T24N R10W, 260' FSL, 120' FWL****San Juan, New Mexico**

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

b) The proposed cementing program is as follows

Casing	Depth (MD)	Cement Volume (sacks)	Cement Type & Yield	Designed TOC	Centralizers
Conductor	0'-60'	100 sks	Type I Neat 16 ppg	Surface	None
Surface	0'-500'	228 sks	Type III Cement + 1% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.2% bwoc FL-52A + 58.9% Fresh Water	Surface	1 per joint on bottom 3 joints
Intermediate	0'-5199'	100% open hole excess Stage 1 Lead: 482 sks Stage 1 Tail: 371 sks	Lead: PremLite + 3% CaCl + 0.25lb/sk CelloFlake + 5lb/sk LCM, 12.1ppg 2.13cuft/sk Tail: Type III Cmt + 1% CaCl + 0.25lb/sk Cello Flake 14.5ppg 1.38cuft/sk	Surface	1 every 3 joints through water bearing zones
Production Liner	5099'-11726'	50% OH excess Stage 1 Blend Total: 371sks	Blend: Premium Lite High Strength FM + 0.7% bwoc R-3 + 3% bwow Potassium Chloride + 0.25lbs/sack Cello Flake + 0.5% bwoc CD-32 + 1.15% bwoc FL-52A + 60 lbs/sack Calcium Carbonate + 124.4% Fresh Water. Yield 2.63 cuft/sk	Liner Hanger	N/A

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

All waiting on cement times shall be a minimum of 8 hours or adequate to achieve minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

5. WELL PLAN & DIRECTIONAL DRILLING PROGRAM

The proposed horizontal well will have a kick off point of 2650'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5109'/11726'	Gallup

Pinion Unit M16-2410 01H**SHL: SW/4 SW/4 Sec 16 T24N R10W, 1278' FSL, 228' FWL****BHL: SW/4 SW/4 Sec 8 T24N R10W, 260' FSL, 120' FWL****San Juan, New Mexico****6. DRILLING FLUIDS PROGRAM****a) Surface through Intermediate Casing Point:**

Hole Size (in)	Depth (TVD/MD)	Mud Type	Density (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
30"	0-60'/60'	Fresh Water	8.3-9.2	38-100	4-28
12 1/4"	0'-500'/500'	Fresh Water	8.3-10	60-70	NC
8 3/4"	500'/500'-4993'/5199'	Fresh Water LSND	8.3-10	40-50	8-10

b) Intermediate Casing Point to TD:

Hole Size (in)	Depth (TVD/MD)	Mud Type	Density (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
6 1/8"	4993'/5199'- 5109'/11726'	Fresh Water LSND	8.3-10	15-25	<15

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

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

7. TESTING, CORING, & LOGGING

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

Cased Hole:

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

8. ABNORMAL PRESSURES & HYDROGEN SULFIDE

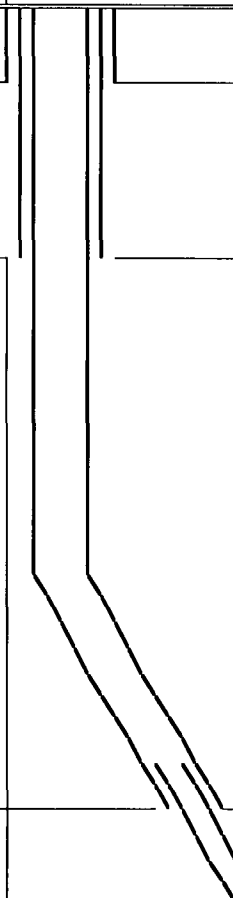
The anticipated bottom hole pressure is +/- 2397 psi based on a 9.0 ppg at 5121' TVD of the horizontal lateral target. No abnormal pressure or temperatures are anticipated.

No hydrogen sulfide gas is anticipated, however, if H₂S is encountered, the guidelines in Onshore Order No. 6 will be followed.

9. ANTICIPATED START DATE AND DURATION OF OPERATIONS

Drilling is estimated to commence on July 1, 2015. It is anticipated that completion operations will begin within 30 days after the well has been drilled depending on fracture treatment schedules with various pumping service companies.

It is anticipated that the drilling of this well will take approximately 20 days.

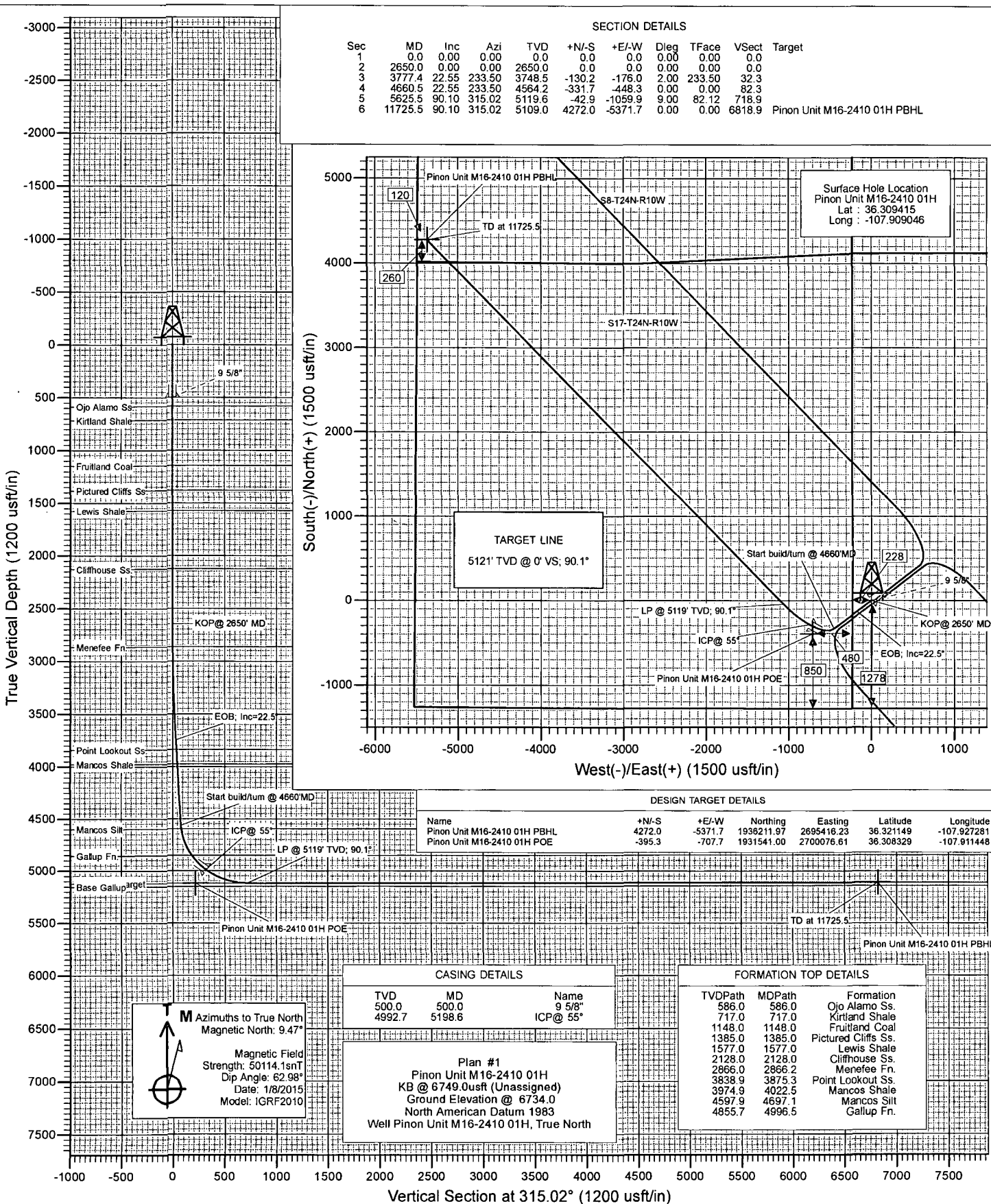
LOC: SW/4 SW/4 Sec 16 T24N R10W, 1278' FS			Encana Natural Gas						ENG: David Scadder 1-27-15	
County: San Juan			WELL SUMMARY						RIG: Aztec 920	
WELL: Pinion Unit M16-2410 01H									GLE: 6734.3	
									RKBE: 6748.8	
MWD	OPEN HOLE	FORM	DEPTH			HOLE	CASING	MW	DEVIATION	
LWD	LOGGING		TVD	MD			SIZE	SPECS	MUD TYPE	INFORMATION
			60	60'		26	16" 42.09# 100sx Type I Neat 16.0ppg cmt	Fresh wtr 8.3-9.2		
Multi-Well pad take survey every stand and run anti-collision report prior to spud	None	San Jose Fn.	0			12 1/4	9 5/8" 36ppf J55 LTC	Fresh wtr	Vertical <1°	
		Nacimiento Fn. 9 5/8" Csg	surface 500				500.00	TOC Surface with 100% OH Excess: 228 sks Type III Cement + 1% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.2% bwoc FL-52A + 58.9% Fresh Water.		8.3-10
Survey Every 60'-120', updating anticollision report after surveys. Stop operations and contact drilling engineer if separation factor approaches 1.5	No OH logs	Ojo Alamo Ss. Kirtland Shale	586 717			8 3/4	7" 26ppf J55 LTC TOC @ surface (100% OH excess - 70% Lead 30% Tail) Stage 1 Total: 854sks Stage 1 Lead: 482 sks Premium Lite FM + 3% CaCl2 + 0.25/sk Cello Flake + 5#/sk LCM-1 + 8% Bentonite + 0.4% FL-52A + 0.4% Sodium Metasilicate. Mixed at 12.1 ppg. Yield 2.13 cuft/sk. Stage 1 Tail: 371 sks Type III Cement + 1% CaCl2 + 0.25#/sk Cello Flake + 0.2% FL-52A. Mixed at 14.6 ppg. Yield 1.38 cuft/sk.	Fresh Wtr 8.3-10	Vertical <1°	
		Fruitland Coal	1,148							
		Pictured Cliffs Ss. Lewis Shale	1,385 1,577							
		Cliffhouse Ss. Menefee Fn.	2,128 2,866							
		Point Lookout Ss. Mancos Shale	3,839 3,975							
Surveys every 30' through the curve	Mud logger onsite	KOP	2,650	2,650						
		Mancos Silt	4,598							
		Gallup Fn. 7" Csg	4,856 4,993	5,199'						
Surveys every stand to TD unless directed otherwise by Geologist	No OH Logs	Horizontal Target TD	5,121 5,109	11,726	6 1/8	100' overlap at liner top		Horz Inc/TVD 90.1deg/5120.8ft		
		Base Gallup	5,152			6527' Drilled Lateral		TD = 11725.5 MD		
MWD Gamma Directional						4 1/2" 11.6ppf SB80 LTC TOC @ hanger (50% OH excess) Stage 1 Total: 371sks Stage 1 Blend: 371 sks Premium Lite High Strength FM + 0.7% bwoc R-3 + 3% bwoc Potassium Chloride + 0.25lbs/sack Cello Flake + 0.5% bwoc CD-32 + 1.15% bwoc FL-52A + 60 lbs/sack Calcium Carbonate + 124.4% Fresh Water. Yield 2.63 cuft/sk.	WBM 8.3-10			

NOTES:

- 1) Drill with 26" bit to 60', set 16" 42.09ppf conductor pipe
- 2) Drill surface to 500', R&C 9 5/8" casing
- 3) N/U BOP and surface equipment
- 4) Drill to KOP of 2650', 8 3/4 inch holesize
- 5) Start curve at 10deg/100' build rate
- 6) Drill to csg point of 5199' MD
- 7) R&C 7" csg, circ cmt to surface
- 8) Land at ~55 deg, drill lateral to 11726' run 4 1/2 inch cemented liner

encana

Project: San Juan County, NM
Site: S16-T24N-R10W
Well: Pinon Unit M16-2410 01H
Wellbore: Hz
Design: Plan #1



Vertical Section at 315.02° (1200 usft/in)

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Pinon Unit M16-2410 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB @ 6749.0usft (Unassigned)
Project:	San Juan County, NM	MD Reference:	KB @ 6749.0usft (Unassigned)
Site:	S16-T24N-R10W	North Reference:	True
Well:	Pinon Unit M16-2410 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

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	S16-T24N-R10W		
Site Position:		Northing:	1,931,935.77 usft
From:	Lat/Long	Easting:	2,700,784.62 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"
		Latitude:	36.309415
		Longitude:	-107.909046
		Grid Convergence:	-0.04 °

Well	Pinon Unit M16-2410 01H		
Well Position	+N/-S	0.0 usft	Northing: 1,931,935.77 usft
	+E/-W	0.0 usft	Easting: 2,700,784.62 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	36.309415
		Longitude:	-107.909046
		Ground Level:	6,734.0 usft

Wellbore	Hz		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	1/8/2015	9.47
			Dip Angle
			(°)
			62.98
			Field Strength
			(nT)
			50,114

Design	Plan #1		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			315.02

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,650.0	0.00	0.00	2,650.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,777.4	22.55	233.50	3,748.5	-130.2	-176.0	2.00	2.00	0.00	233.50	
4,660.5	22.55	233.50	4,564.2	-331.7	-448.3	0.00	0.00	0.00	0.00	
5,625.5	90.10	315.02	5,119.6	-42.9	-1,059.9	9.00	7.00	8.45	82.12	
11,725.5	90.10	315.02	5,109.0	4,272.0	-5,371.7	0.00	0.00	0.00	0.00	Pinon Unit M16-2410

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Pinon Unit M16-2410 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB @ 6749.0usft (Unassigned)
Project:	San Juan County, NM	MD Reference:	KB @ 6749.0usft (Unassigned)
Site:	S16-T24N-R10W	North Reference:	True
Well:	Pinon Unit M16-2410 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	9 5/8"
586.0	0.00	0.00	586.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo Ss.
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	
717.0	0.00	0.00	717.0	0.0	0.0	0.0	0.00	0.00	Kirtland Shale
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	
1,148.0	0.00	0.00	1,148.0	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	
1,385.0	0.00	0.00	1,385.0	0.0	0.0	0.0	0.00	0.00	Pictured Cliffs Ss.
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	
1,577.0	0.00	0.00	1,577.0	0.0	0.0	0.0	0.00	0.00	Lewis Shale
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	
1,900.0	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	
2,128.0	0.00	0.00	2,128.0	0.0	0.0	0.0	0.00	0.00	Cliffhouse Ss.
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	
2,650.0	0.00	0.00	2,650.0	0.0	0.0	0.0	0.00	0.00	KOP@ 2650' MD
2,700.0	1.00	233.50	2,700.0	-0.3	-0.4	0.1	2.00	2.00	
2,800.0	3.00	233.50	2,799.9	-2.3	-3.2	0.6	2.00	2.00	
2,866.2	4.32	233.50	2,866.0	-4.9	-6.6	1.2	2.00	2.00	Menefee Fn.
2,900.0	5.00	233.50	2,899.7	-6.5	-8.8	1.6	2.00	2.00	
3,000.0	7.00	233.50	2,999.1	-12.7	-17.2	3.2	2.00	2.00	
3,100.0	9.00	233.50	3,098.1	-21.0	-28.4	5.2	2.00	2.00	
3,200.0	11.00	233.50	3,196.6	-31.3	-42.3	7.8	2.00	2.00	
3,300.0	13.00	233.50	3,294.4	-43.7	-59.0	10.8	2.00	2.00	
3,400.0	15.00	233.50	3,391.5	-58.1	-78.5	14.4	2.00	2.00	
3,500.0	17.00	233.50	3,487.6	-74.5	-100.6	18.5	2.00	2.00	
3,600.0	19.00	233.50	3,582.7	-92.8	-125.5	23.0	2.00	2.00	
3,700.0	21.00	233.50	3,676.6	-113.2	-153.0	28.1	2.00	2.00	
3,777.4	22.55	233.50	3,748.5	-130.2	-176.0	32.3	2.00	2.00	EOB; Inc=22.5°
3,800.0	22.55	233.50	3,769.4	-135.4	-183.0	33.6	0.00	0.00	
3,875.3	22.55	233.50	3,838.9	-152.6	-206.2	37.8	0.00	0.00	Point Lookout Ss.
3,900.0	22.55	233.50	3,861.7	-158.2	-213.8	39.2	0.00	0.00	
4,000.0	22.55	233.50	3,954.1	-181.0	-244.7	44.9	0.00	0.00	
4,022.5	22.55	233.50	3,974.9	-186.2	-251.6	46.2	0.00	0.00	Mancos Shale

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Pinon Unit M16-2410 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB @ 6749.0usft (Unassigned)
Project:	San Juan County, NM	MD Reference:	KB @ 6749.0usft (Unassigned)
Site:	S16-T24N-R10W	North Reference:	True
Well:	Pinon Unit M16-2410 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
4,100.0	22.55	233.50	4,046.5	-203.8	-275.5	50.6	0.00	0.00	
4,200.0	22.55	233.50	4,138.8	-226.6	-306.3	56.2	0.00	0.00	
4,300.0	22.55	233.50	4,231.2	-249.4	-337.1	61.9	0.00	0.00	
4,400.0	22.55	233.50	4,323.5	-272.2	-368.0	67.5	0.00	0.00	
4,500.0	22.55	233.50	4,415.9	-295.0	-398.8	73.2	0.00	0.00	
4,600.0	22.55	233.50	4,508.2	-317.9	-429.6	78.8	0.00	0.00	
4,660.5	22.55	233.50	4,564.2	-331.7	-448.3	82.3	0.00	0.00	Start build/turn @ 4660'MD
4,697.1	23.22	241.80	4,597.9	-339.2	-460.3	85.4	9.00	1.83	Mancos Silt
4,700.0	23.29	242.43	4,600.5	-339.8	-461.3	85.7	9.00	2.45	
4,800.0	27.12	261.68	4,691.1	-352.2	-501.4	105.3	9.00	3.83	
4,900.0	32.89	275.57	4,777.8	-352.9	-551.1	139.9	9.00	5.77	
4,996.5	39.52	285.12	4,855.7	-342.3	-606.9	186.9	9.00	6.86	Gallup Fn.
5,000.0	39.77	285.42	4,858.4	-341.7	-609.1	188.8	9.00	7.23	
5,100.0	47.26	292.68	4,930.9	-319.0	-673.9	250.7	9.00	7.49	
5,198.6	55.00	298.27	4,992.7	-285.9	-743.1	323.0	9.00	7.85	ICP @ 55°
5,200.0	55.11	298.34	4,993.5	-285.3	-744.1	324.1	9.00	7.98	
5,300.0	63.18	303.00	5,044.8	-241.5	-817.7	407.2	9.00	8.07	
5,400.0	71.38	307.03	5,083.4	-188.5	-893.1	498.0	9.00	8.20	
5,500.0	79.66	310.68	5,108.4	-127.8	-968.4	594.1	9.00	8.28	
5,600.0	87.97	314.15	5,119.2	-60.8	-1,041.7	693.4	9.00	8.32	
5,625.5	90.10	315.02	5,119.6	-42.9	-1,059.9	718.9	9.00	8.33	LP @ 5119' TVD; 90.1°
5,700.0	90.10	315.02	5,119.5	9.8	-1,112.5	793.3	0.00	0.00	
5,800.0	90.10	315.02	5,119.3	80.5	-1,183.2	893.3	0.00	0.00	
5,900.0	90.10	315.02	5,119.1	151.3	-1,253.9	993.3	0.00	0.00	
6,000.0	90.10	315.02	5,118.9	222.0	-1,324.6	1,093.3	0.00	0.00	
6,100.0	90.10	315.02	5,118.8	292.7	-1,395.3	1,193.3	0.00	0.00	
6,200.0	90.10	315.02	5,118.6	363.5	-1,466.0	1,293.3	0.00	0.00	
6,300.0	90.10	315.02	5,118.4	434.2	-1,536.7	1,393.3	0.00	0.00	
6,400.0	90.10	315.02	5,118.3	504.9	-1,607.3	1,493.3	0.00	0.00	
6,500.0	90.10	315.02	5,118.1	575.7	-1,678.0	1,593.3	0.00	0.00	
6,600.0	90.10	315.02	5,117.9	646.4	-1,748.7	1,693.3	0.00	0.00	
6,700.0	90.10	315.02	5,117.7	717.2	-1,819.4	1,793.3	0.00	0.00	
6,800.0	90.10	315.02	5,117.6	787.9	-1,890.1	1,893.3	0.00	0.00	
6,900.0	90.10	315.02	5,117.4	858.6	-1,960.8	1,993.3	0.00	0.00	
7,000.0	90.10	315.02	5,117.2	929.4	-2,031.5	2,093.3	0.00	0.00	
7,100.0	90.10	315.02	5,117.0	1,000.1	-2,102.1	2,193.3	0.00	0.00	
7,200.0	90.10	315.02	5,116.9	1,070.8	-2,172.8	2,293.3	0.00	0.00	
7,300.0	90.10	315.02	5,116.7	1,141.6	-2,243.5	2,393.3	0.00	0.00	
7,400.0	90.10	315.02	5,116.5	1,212.3	-2,314.2	2,493.3	0.00	0.00	
7,500.0	90.10	315.02	5,116.3	1,283.0	-2,384.9	2,593.3	0.00	0.00	
7,600.0	90.10	315.02	5,116.2	1,353.8	-2,455.6	2,693.3	0.00	0.00	
7,700.0	90.10	315.02	5,116.0	1,424.5	-2,526.3	2,793.3	0.00	0.00	
7,800.0	90.10	315.02	5,115.8	1,495.2	-2,596.9	2,893.3	0.00	0.00	
7,900.0	90.10	315.02	5,115.7	1,566.0	-2,667.6	2,993.3	0.00	0.00	
8,000.0	90.10	315.02	5,115.5	1,636.7	-2,738.3	3,093.3	0.00	0.00	
8,100.0	90.10	315.02	5,115.3	1,707.5	-2,809.0	3,193.3	0.00	0.00	
8,200.0	90.10	315.02	5,115.1	1,778.2	-2,879.7	3,293.3	0.00	0.00	
8,300.0	90.10	315.02	5,115.0	1,848.9	-2,950.4	3,393.3	0.00	0.00	
8,400.0	90.10	315.02	5,114.8	1,919.7	-3,021.1	3,493.3	0.00	0.00	
8,500.0	90.10	315.02	5,114.6	1,990.4	-3,091.7	3,593.3	0.00	0.00	
8,600.0	90.10	315.02	5,114.4	2,061.1	-3,162.4	3,693.3	0.00	0.00	
8,700.0	90.10	315.02	5,114.3	2,131.9	-3,233.1	3,793.3	0.00	0.00	

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Pinon Unit M16-2410 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB @ 6749.0usft (Unassigned)
Project:	San Juan County, NM	MD Reference:	KB @ 6749.0usft (Unassigned)
Site:	S16-T24N-R10W	North Reference:	True
Well:	Pinon Unit M16-2410 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
8,800.0	90.10	315.02	5,114.1	2,202.6	-3,303.8	3,893.3	0.00	0.00	
8,900.0	90.10	315.02	5,113.9	2,273.3	-3,374.5	3,993.3	0.00	0.00	
9,000.0	90.10	315.02	5,113.7	2,344.1	-3,445.2	4,093.3	0.00	0.00	
9,100.0	90.10	315.02	5,113.6	2,414.8	-3,515.8	4,193.3	0.00	0.00	
9,200.0	90.10	315.02	5,113.4	2,485.5	-3,586.5	4,293.3	0.00	0.00	
9,300.0	90.10	315.02	5,113.2	2,556.3	-3,657.2	4,393.3	0.00	0.00	
9,400.0	90.10	315.02	5,113.1	2,627.0	-3,727.9	4,493.3	0.00	0.00	
9,500.0	90.10	315.02	5,112.9	2,697.7	-3,798.6	4,593.3	0.00	0.00	
9,600.0	90.10	315.02	5,112.7	2,768.5	-3,869.3	4,693.3	0.00	0.00	
9,700.0	90.10	315.02	5,112.5	2,839.2	-3,940.0	4,793.3	0.00	0.00	
9,800.0	90.10	315.02	5,112.4	2,910.0	-4,010.6	4,893.3	0.00	0.00	
9,900.0	90.10	315.02	5,112.2	2,980.7	-4,081.3	4,993.3	0.00	0.00	
10,000.0	90.10	315.02	5,112.0	3,051.4	-4,152.0	5,093.3	0.00	0.00	
10,100.0	90.10	315.02	5,111.8	3,122.2	-4,222.7	5,193.3	0.00	0.00	
10,200.0	90.10	315.02	5,111.7	3,192.9	-4,293.4	5,293.3	0.00	0.00	
10,300.0	90.10	315.02	5,111.5	3,263.6	-4,364.1	5,393.3	0.00	0.00	
10,400.0	90.10	315.02	5,111.3	3,334.4	-4,434.8	5,493.3	0.00	0.00	
10,500.0	90.10	315.02	5,111.1	3,405.1	-4,505.4	5,593.3	0.00	0.00	
10,600.0	90.10	315.02	5,111.0	3,475.8	-4,576.1	5,693.3	0.00	0.00	
10,700.0	90.10	315.02	5,110.8	3,546.6	-4,646.8	5,793.3	0.00	0.00	
10,800.0	90.10	315.02	5,110.6	3,617.3	-4,717.5	5,893.3	0.00	0.00	
10,900.0	90.10	315.02	5,110.5	3,688.0	-4,788.2	5,993.3	0.00	0.00	
11,000.0	90.10	315.02	5,110.3	3,758.8	-4,858.9	6,093.3	0.00	0.00	
11,100.0	90.10	315.02	5,110.1	3,829.5	-4,929.6	6,193.3	0.00	0.00	
11,200.0	90.10	315.02	5,109.9	3,900.2	-5,000.2	6,293.3	0.00	0.00	
11,300.0	90.10	315.02	5,109.8	3,971.0	-5,070.9	6,393.3	0.00	0.00	
11,400.0	90.10	315.02	5,109.6	4,041.7	-5,141.6	6,493.3	0.00	0.00	
11,500.0	90.10	315.02	5,109.4	4,112.5	-5,212.3	6,593.3	0.00	0.00	
11,600.0	90.10	315.02	5,109.2	4,183.2	-5,283.0	6,693.3	0.00	0.00	
11,700.0	90.10	315.02	5,109.1	4,253.9	-5,353.7	6,793.3	0.00	0.00	
11,725.5	90.10	315.02	5,109.0	4,272.0	-5,371.7	6,818.9	0.00	0.00	TD at 11725.5

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Pinon Unit M16-2410 01 - hit/miss target - Shape - Point	0.00	359.94	5,109.0	4,272.0	-5,371.7	1,936,211.97	2,695,416.23	36.321149	-107.927281
Pinon Unit M16-2410 01 - plan misses target center by 171.8usft at 5200.0usft MD (4993.5 TVD, -285.3 N, -744.1 E) - Point	0.00	359.95	5,120.5	-395.3	-707.7	1,931,541.00	2,700,076.61	36.308329	-107.911448

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Pinon Unit M16-2410 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB @ 6749.0usft (Unassigned)
Project:	San Juan County, NM	MD Reference:	KB @ 6749.0usft (Unassigned)
Site:	S16-T24N-R10W	North Reference:	True
Well:	Pinon Unit M16-2410 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
5,198.6	4,992.7	ICP @ 55°	5-1/2	6
500.0	500.0	9 5/8"	0	0

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
586.0	586.0	Ojo Alamo Ss.		-0.10	315.02
717.0	717.0	Kirtland Shale		-0.10	315.02
1,148.0	1,148.0	Fruitland Coal		-0.10	315.02
1,385.0	1,385.0	Pictured Cliffs Ss.		-0.10	315.02
1,577.0	1,577.0	Lewis Shale		-0.10	315.02
2,128.0	2,128.0	Cliffhouse Ss.		-0.10	315.02
2,866.2	2,866.0	Menefee Fn.		-0.10	315.02
3,875.3	3,839.0	Point Lookout Ss.		-0.10	315.02
4,022.5	3,975.0	Mancos Shale		-0.10	315.02
4,697.1	4,598.0	Mancos Silt		-0.10	315.02
4,996.5	4,856.0	Gallup Fn.		-0.10	315.02

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,650.0	2,650.0	0.0	0.0	KOP @ 2650' MD
3,777.4	3,748.5	-130.2	-176.0	EOB; Inc=22.5°
4,660.5	4,564.2	-331.7	-448.3	Start build/turn @ 4660'MD
5,625.5	5,119.6	-42.9	-1,059.9	LP @ 5119' TVD; 90.1°
11,725.5	5,109.0	4,272.0	-5,371.7	TD at 11725.5

EnCana Oil & Gas (USA) Inc

San Juan County, NM

S16-T24N-R10W

Pinon Unit M16-2410 01H

Hz

Plan #1

Anticollision Report

16 January, 2015

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Pinon Unit M16-2410 01H
Project:	San Juan County, NM	TVD Reference:	KB @ 6749.0usft (Unassigned)
Reference Site:	S16-T24N-R10W	MD Reference:	KB @ 6749.0usft (Unassigned)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Pinon Unit M16-2410 01H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0usft	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 1/16/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	11,725.5	Plan #1 (Hz)	Geolink MWD	Geolink MWD

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S16-T24N-R10W						
Pinon Unit M16-2410 02H - Hz - Plan #1	2,200.0	2,200.0	30.1	22.4	3.940	CC, ES, SF
Pinon Unit M16-2410 03H - Hz - Plan #1	4,600.7	4,629.4	42.3	18.9	1.810	CC, ES, SF
Pinon Unit M16-2410 04H - Hz - Plan #1	2,500.0	2,500.0	90.2	81.5	10.394	CC, ES
Pinon Unit M16-2410 04H - Hz - Plan #1	2,600.0	2,597.5	91.5	82.5	10.147	SF

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Pinon Unit M16-2410 01H
Project:	San Juan County, NM	TVD Reference:	KB @ 6749.0usft (Unassigned)
Reference Site:	S16-T24N-R10W	MD Reference:	KB @ 6749.0usft (Unassigned)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Pinon Unit M16-2410 01H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S16-T24N-R10W - Pinon Unit M16-2410 02H - HZ - Plan #1														Offset Site Error:	0.0 usft
Survey Program: D-Geolink MWD														Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)							
0.0	0.0	0.0	0.0	0.0	0.0	90.69	-0.4	30.1	30.1	29.8	0.30	101.293			
100.0	100.0	100.0	100.0	0.1	0.1	90.69	-0.4	30.1	30.1	29.4	0.65	46.540			
200.0	200.0	200.0	200.0	0.3	0.3	90.69	-0.4	30.1	30.1	29.1	0.99	30.210			
300.0	300.0	300.0	300.0	0.5	0.5	90.69	-0.4	30.1	30.1	28.7	1.34	22.363			
400.0	400.0	400.0	400.0	0.7	0.7	90.69	-0.4	30.1	30.1	28.4	1.69	17.752			
500.0	500.0	500.0	500.0	0.8	0.8	90.69	-0.4	30.1	30.1	28.0	2.04	14.718			
600.0	600.0	600.0	600.0	1.0	1.0	90.69	-0.4	30.1	30.1	27.7	2.39	12.569			
700.0	700.0	700.0	700.0	1.2	1.2	90.69	-0.4	30.1	30.1	27.3	2.74	10.968			
800.0	800.0	800.0	800.0	1.4	1.4	90.69	-0.4	30.1	30.1	27.0	3.09	9.729			
900.0	900.0	900.0	900.0	1.5	1.5	90.69	-0.4	30.1	30.1	26.6	3.44	8.741			
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	90.69	-0.4	30.1	30.1	26.3	3.79	7.935			
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	90.69	-0.4	30.1	30.1	25.9	4.14	7.266			
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	90.69	-0.4	30.1	30.1	25.6	4.49	6.700			
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	90.69	-0.4	30.1	30.1	25.2	4.83	6.217			
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	90.69	-0.4	30.1	30.1	24.9	5.18	5.798			
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	90.69	-0.4	30.1	30.1	24.5	5.53	5.432			
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	90.69	-0.4	30.1	30.1	24.2	5.88	5.110			
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	90.69	-0.4	30.1	30.1	23.8	6.23	4.823			
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	90.69	-0.4	30.1	30.1	23.5	6.58	4.568			
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	90.69	-0.4	30.1	30.1	23.1	6.93	4.337			
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	90.69	-0.4	30.1	30.1	22.8	7.28	4.129			
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	90.69	-0.4	30.1	30.1	22.4	7.63	3.940 CC, ES, SF			
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	90.69	-0.4	30.1	30.1	22.4	7.63	3.940			
2,300.0	2,300.0	2,299.1	2,299.1	4.0	4.0	88.77	0.7	31.4	31.4	23.5	7.97	3.942			
2,400.0	2,400.0	2,398.0	2,397.9	4.2	4.2	83.94	3.8	35.5	35.8	27.4	8.32	4.298			
2,500.0	2,500.0	2,496.5	2,495.9	4.3	4.3	78.12	8.9	42.3	43.4	34.7	8.67	5.003			
2,600.0	2,600.0	2,594.2	2,593.0	4.5	4.5	72.79	16.0	51.6	54.5	45.5	9.03	6.040			
2,700.0	2,700.0	2,691.0	2,688.6	4.7	4.8	-165.03	25.0	63.5	69.6	60.2	9.36	7.435			
2,800.0	2,799.9	2,785.9	2,781.8	4.9	5.0	-168.58	35.7	77.6	91.1	81.4	9.69	9.400			
2,900.0	2,899.7	2,878.4	2,872.0	5.0	5.3	-171.24	47.9	93.8	119.3	109.3	10.01	11.921			
3,000.0	2,999.1	2,967.8	2,958.7	5.2	5.5	-173.16	61.4	111.6	154.0	143.6	10.31	14.933			
3,100.0	3,098.2	3,053.8	3,041.2	5.4	5.9	-174.53	75.9	130.7	194.8	184.2	10.59	18.385			
3,200.0	3,198.6	3,136.0	3,119.4	5.7	6.2	-175.51	91.2	150.8	241.4	230.5	10.86	22.230			
3,300.0	3,294.4	3,214.0	3,192.9	5.9	6.6	-176.24	108.9	171.6	293.5	282.4	11.10	26.433			
3,400.0	3,391.5	3,287.6	3,261.7	6.2	7.0	-176.78	122.8	192.6	350.8	339.5	11.33	30.958			
3,500.0	3,487.6	3,358.5	3,327.2	6.6	7.3	-177.20	139.2	214.2	412.9	401.3	11.54	35.769			
3,600.0	3,582.7	3,434.1	3,396.9	7.0	7.8	-177.56	157.0	237.6	478.3	466.5	11.75	40.699			
3,700.0	3,678.6	3,507.4	3,464.4	7.4	8.2	-177.84	174.2	260.3	546.3	534.3	11.94	45.743			
3,800.0	3,769.4	3,578.3	3,529.7	7.9	8.7	-178.08	190.8	282.3	616.8	604.6	12.15	50.777			
3,900.0	3,861.8	3,648.5	3,594.4	8.5	9.1	-178.32	207.3	304.0	688.0	675.5	12.43	55.339			
4,000.0	3,954.1	3,718.7	3,659.0	9.1	9.5	-178.51	223.8	325.8	759.2	746.5	12.72	59.702			
4,100.0	4,046.5	3,788.8	3,723.7	9.6	10.0	-178.67	240.3	347.5	830.4	817.4	13.00	63.874			
4,200.0	4,138.8	3,859.0	3,788.3	10.3	10.5	-178.80	256.8	369.3	901.6	888.3	13.29	67.864			
4,300.0	4,231.2	3,929.2	3,853.0	10.9	10.9	-178.92	273.2	391.0	972.9	959.3	13.57	71.693			

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

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Project:	San Juan County, NM	TVD Reference:	KB @ 6749.0usft (Unassigned)
Reference Site:	S16-T24N-R10W	MD Reference:	KB @ 6749.0usft (Unassigned)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Pinon Unit M16-2410 01H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S16-T24N-R10W - Pinon Unit M16-2410 03H - Hz - Plan #1												Offset Site Error:	0.0 usft
Survey Program: 0-Geolink MWD												Offset Well Error:	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.69	-0.7	60.1	60.1				
100.0	100.0	100.0	100.0	0.1	0.1	90.69	-0.7	60.1	60.1	59.8	0.30	202.586	
200.0	200.0	200.0	200.0	0.3	0.3	90.69	-0.7	60.1	60.1	59.5	0.65	93.080	
300.0	300.0	300.0	300.0	0.5	0.5	90.69	-0.7	60.1	60.1	59.1	0.99	60.420	
400.0	400.0	400.0	400.0	0.7	0.7	90.69	-0.7	60.1	60.1	58.8	1.34	44.727	
500.0	500.0	500.0	500.0	0.8	0.8	90.69	-0.7	60.1	60.1	58.4	1.69	35.505	
600.0	600.0	600.0	600.0	1.0	1.0	90.69	-0.7	60.1	60.1	58.1	2.04	29.436	
700.0	700.0	700.0	700.0	1.2	1.2	90.69	-0.7	60.1	60.1	57.7	2.39	25.138	
800.0	800.0	800.0	800.0	1.4	1.4	90.69	-0.7	60.1	60.1	57.4	2.74	21.936	
900.0	900.0	900.0	900.0	1.5	1.5	90.69	-0.7	60.1	60.1	57.0	3.09	19.457	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	90.69	-0.7	60.1	60.1	56.7	3.44	17.482	
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	90.69	-0.7	60.1	60.1	56.3	3.79	15.871	
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	90.69	-0.7	60.1	60.1	56.0	4.14	14.531	
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	90.69	-0.7	60.1	60.1	55.6	4.49	13.401	
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	90.69	-0.7	60.1	60.1	55.3	4.83	12.433	
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	90.69	-0.7	60.1	60.1	54.9	5.18	11.596	
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	90.69	-0.7	60.1	60.1	54.6	5.53	10.864	
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	90.69	-0.7	60.1	60.1	54.2	5.88	10.219	
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	90.69	-0.7	60.1	60.1	53.9	6.23	9.647	
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	90.69	-0.7	60.1	60.1	53.5	6.58	9.135	
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	90.69	-0.7	60.1	60.1	53.2	6.93	8.675	
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	90.69	-0.7	60.1	60.1	52.8	7.28	8.259	
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	90.69	-0.7	60.1	60.1	52.5	7.63	7.881	
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	90.69	-0.7	60.1	60.1	52.1	7.98	7.536	
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	90.69	-0.7	60.1	60.1	51.8	8.33	7.220	
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	90.69	-0.7	60.1	60.1	51.4	8.67	6.930	
2,600.0	2,600.0	2,600.0	2,600.0	4.5	4.5	90.69	-0.7	60.1	60.1	51.1	9.02	6.661	
2,627.9	2,627.9	2,627.9	2,627.9	4.6	4.6	-142.85	-0.7	60.1	60.2	51.0	9.12	6.596	
2,700.0	2,700.0	2,700.0	2,700.0	4.7	4.7	-143.06	-0.7	60.1	60.5	51.1	9.37	6.451	
2,800.0	2,799.9	2,800.8	2,800.8	4.9	4.9	-144.71	-1.0	59.7	62.9	53.2	9.72	6.475	
2,900.0	2,899.7	2,902.7	2,902.6	5.0	5.0	-146.45	-3.1	56.8	65.7	55.7	10.06	6.534	
3,000.0	2,999.1	3,004.6	3,004.3	5.2	5.2	-148.03	-7.4	51.0	68.5	58.1	10.40	6.590	
3,100.0	3,098.2	3,106.7	3,105.8	5.4	5.4	-149.47	-13.8	42.2	71.3	60.6	10.74	6.642	
3,200.0	3,196.6	3,208.9	3,207.0	5.7	5.6	-150.78	-22.4	30.5	74.1	63.0	11.08	6.686	
3,300.0	3,294.4	3,311.3	3,307.7	5.9	5.9	-151.97	-33.1	15.9	76.8	65.4	11.42	6.723	
3,400.0	3,391.5	3,413.7	3,407.8	6.2	6.1	-153.08	-46.0	-1.6	79.5	67.7	11.77	6.751	
3,500.0	3,487.6	3,516.2	3,507.1	6.6	6.4	-154.09	-60.9	-22.1	82.1	70.0	12.13	6.769	
3,600.0	3,582.7	3,618.9	3,605.6	7.0	6.8	-155.02	-78.0	-45.4	84.6	72.1	12.49	6.777	
3,700.0	3,676.6	3,721.7	3,703.2	7.4	7.2	-155.89	-97.2	-71.6	87.1	74.2	12.86	6.774	
3,800.0	3,769.4	3,824.5	3,799.5	7.9	7.7	-156.67	-118.4	-100.6	89.4	76.2	13.25	6.746	
3,900.0	3,861.8	3,927.5	3,894.6	8.5	8.2	-156.79	-141.7	-132.4	89.4	75.6	13.75	6.500	
4,000.0	3,954.1	4,030.3	3,988.1	9.1	8.9	-155.96	-167.0	-166.9	86.1	71.7	14.33	6.006	
4,100.0	4,046.5	4,132.8	4,079.7	9.6	9.6	-153.95	-194.2	-203.9	79.5	64.5	15.04	5.285	
4,200.0	4,138.8	4,232.8	4,168.0	10.3	10.3	-150.72	-221.9	-241.8	71.0	55.0	15.96	4.445	
4,300.0	4,231.2	4,332.4	4,255.9	10.9	11.0	-146.81	-249.6	-279.6	62.6	45.5	17.13	3.656	
4,400.0	4,323.5	4,431.9	4,343.7	11.5	11.8	-141.28	-277.3	-317.3	54.7	36.1	18.66	2.933	
4,500.0	4,415.9	4,531.4	4,431.6	12.1	12.6	-134.24	-304.9	-355.1	47.5	26.8	20.68	2.296	
4,600.0	4,508.2	4,628.7	4,517.4	12.8	13.3	-124.31	-332.9	-391.2	42.3	18.9	23.34	1.812	
4,600.7	4,508.9	4,629.4	4,518.1	12.8	13.3	-124.27	-333.1	-391.4	42.3	18.9	23.36	1.810 CC, ES, SF	
4,700.0	4,600.5	4,721.1	4,598.7	13.5	14.0	-117.16	-367.5	-417.7	51.7	25.2	26.51	1.951	
4,800.0	4,691.1	4,803.6	4,669.9	14.2	14.6	-124.46	-406.3	-433.2	89.5	61.6	27.93	3.206	
4,900.0	4,777.8	4,869.0	4,724.5	14.9	15.1	-132.60	-441.6	-439.9	151.9	123.9	28.02	5.423	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Pinon Unit M16-2410 01H
Project:	San Juan County, NM	TVD Reference:	KB @ 6749.0usft (Unassigned)
Reference Site:	S16-T24N-R10W	MD Reference:	KB @ 6749.0usft (Unassigned)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Pinon Unit M16-2410 01H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S16-T24N-R10W - Pinon Unit M16-2410 03H - Hz - Plan #1													Offset Site Error: 0.0 usft
Survey Program: 0-Geolink MWD													Offset Well Error: 0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,000.0	4,858.4	4,915.5	4,761.9	15.8	15.4	-138.55	-469.0	-441.5	231.5	204.2	27.29	8.483	
5,100.0	4,930.9	4,950.0	4,788.9	16.7	15.6	-141.62	-490.6	-441.0	322.2	296.2	26.03	12.380	
5,200.0	4,993.5	4,959.9	4,796.5	17.7	15.7	-139.02	-497.0	-440.6	419.1	394.5	24.67	16.992	
5,300.0	5,044.8	4,964.1	4,799.7	18.9	15.7	-41.25	-499.6	-440.4	518.7	501.5	17.26	30.064	
5,400.0	5,083.4	4,950.0	4,788.9	20.1	15.6	16.39	-490.6	-441.0	618.4	601.1	17.25	35.845	
5,500.0	5,108.4	4,950.0	4,788.9	21.5	15.6	18.94	-490.6	-441.0	715.4	700.0	15.45	46.313	
5,600.0	5,119.2	4,932.4	4,775.2	22.9	15.5	20.29	-479.5	-441.4	808.7	794.6	14.08	57.453	
5,700.0	5,119.5	4,900.0	4,749.6	24.4	15.3	21.06	-459.7	-441.2	898.8	884.4	14.46	62.163	
5,800.0	5,119.3	4,900.0	4,749.6	26.0	15.3	21.06	-459.7	-441.2	989.5	974.3	15.17	65.219	

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Pinon Unit M16-2410 01H
Project:	San Juan County, NM	TVD Reference:	KB @ 6749.0usft (Unassigned)
Reference Site:	S16-T24N-R10W	MD Reference:	KB @ 6749.0usft (Unassigned)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Pinon Unit M16-2410 01H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S16-T24N-R10W - Pinon Unit M16-2410 04H - Hz - Plan #1												Offset Site Error:	0.0 usft
Survey Program: 0-Geolink MWD												Offset Well Error:	0.0 usft
Reference	Offset	Semi Major Axis		Distance		Total		Separation		Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis	Factor	
0.0	0.0	0.0	0.0	0.0	0.0	90.69	-1.1	90.2	90.2				
100.0	100.0	100.0	100.0	0.1	0.1	90.69	-1.1	90.2	90.2	89.9	0.30	303.879	
200.0	200.0	200.0	200.0	0.3	0.3	90.69	-1.1	90.2	90.2	89.5	0.65	139.620	
300.0	300.0	300.0	300.0	0.5	0.5	90.69	-1.1	90.2	90.2	89.2	0.99	90.631	
400.0	400.0	400.0	400.0	0.7	0.7	90.69	-1.1	90.2	90.2	88.8	1.34	67.090	
500.0	500.0	500.0	500.0	0.8	0.8	90.69	-1.1	90.2	90.2	88.5	1.69	53.257	
600.0	600.0	600.0	600.0	1.0	1.0	90.69	-1.1	90.2	90.2	88.1	2.04	44.153	
700.0	700.0	700.0	700.0	1.2	1.2	90.69	-1.1	90.2	90.2	87.8	2.39	37.708	
800.0	800.0	800.0	800.0	1.4	1.4	90.69	-1.1	90.2	90.2	87.4	2.74	32.904	
900.0	900.0	900.0	900.0	1.5	1.5	90.69	-1.1	90.2	90.2	87.1	3.09	29.186	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	90.69	-1.1	90.2	90.2	86.7	3.44	26.223	
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	90.69	-1.1	90.2	90.2	86.4	3.79	23.806	
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	90.69	-1.1	90.2	90.2	86.0	4.14	21.797	
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	90.69	-1.1	90.2	90.2	85.7	4.49	20.101	
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	90.69	-1.1	90.2	90.2	85.3	4.83	18.650	
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	90.69	-1.1	90.2	90.2	85.0	5.18	17.394	
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	90.69	-1.1	90.2	90.2	84.6	5.53	16.296	
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	90.69	-1.1	90.2	90.2	84.3	5.88	15.329	
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	90.69	-1.1	90.2	90.2	83.9	6.23	14.470	
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	90.69	-1.1	90.2	90.2	83.6	6.58	13.703	
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	90.69	-1.1	90.2	90.2	83.2	6.93	13.012	
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	90.69	-1.1	90.2	90.2	82.9	7.28	12.388	
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	90.69	-1.1	90.2	90.2	82.5	7.63	11.821	
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	90.69	-1.1	90.2	90.2	82.2	7.98	11.304	
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	90.69	-1.1	90.2	90.2	81.8	8.33	10.830	
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	90.69	-1.1	90.2	90.2	81.5	8.67	10.394 CC, ES	
2,600.0	2,600.0	2,597.5	2,597.5	4.5	4.5	90.06	-0.1	91.5	91.5	82.5	9.02	10.147 SF	
2,700.0	2,700.0	2,694.8	2,694.7	4.7	4.7	-145.36	2.9	95.4	96.0	86.6	9.36	10.251	
2,800.0	2,799.9	2,791.3	2,790.8	4.9	4.9	-148.86	7.8	101.9	106.0	96.3	9.70	10.924	
2,900.0	2,899.7	2,886.2	2,885.0	5.0	5.0	-153.14	14.6	110.9	122.4	112.3	10.03	12.195	
3,000.0	2,999.1	2,979.0	2,976.8	5.2	5.2	-157.33	23.0	122.0	145.4	135.1	10.35	14.048	
3,100.0	3,098.2	3,069.1	3,065.4	5.4	5.5	-160.98	32.9	135.1	175.2	164.5	10.65	16.443	
3,200.0	3,196.6	3,156.0	3,150.3	5.7	5.7	-163.97	44.1	149.8	211.5	200.5	10.94	19.334	
3,300.0	3,294.4	3,239.4	3,231.2	5.9	5.9	-166.33	56.2	165.8	254.0	242.8	11.20	22.670	
3,400.0	3,391.5	3,318.8	3,307.7	6.2	6.2	-168.18	69.1	182.8	302.4	290.9	11.45	26.408	
3,500.0	3,487.6	3,394.0	3,379.6	6.6	6.5	-169.62	82.4	200.5	356.3	344.6	11.68	30.507	
3,600.0	3,582.7	3,464.9	3,446.7	7.0	6.8	-170.74	96.1	218.5	415.3	403.4	11.89	34.927	
3,700.0	3,676.6	3,531.3	3,509.1	7.4	7.1	-171.62	109.8	236.5	479.0	467.0	12.08	39.649	
3,800.0	3,769.4	3,600.0	3,573.2	7.9	7.5	-172.46	124.8	256.5	547.1	534.9	12.29	44.531	
3,900.0	3,861.8	3,652.0	3,621.2	8.5	7.7	-173.12	136.9	272.3	617.5	604.9	12.55	49.206	
4,000.0	3,954.1	3,700.0	3,665.2	9.1	8.0	-173.66	148.4	287.6	689.4	676.6	12.80	53.859	
4,100.0	4,046.5	3,762.6	3,722.1	9.6	8.4	-174.25	164.2	308.4	762.6	749.5	13.08	58.321	
4,200.0	4,138.8	3,814.6	3,769.0	10.3	8.8	-174.68	177.8	326.4	837.1	823.8	13.33	62.794	
4,300.0	4,231.2	3,879.2	3,826.8	10.9	9.2	-175.14	195.2	349.3	912.3	898.7	13.61	67.054	
4,400.0	4,323.5	3,944.9	3,885.7	11.5	9.7	-175.54	212.8	372.6	987.6	973.7	13.88	71.141	

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Pinon Unit M16-2410 01H
Project:	San Juan County, NM	TVD Reference:	KB @ 6749.0usft (Unassigned)
Reference Site:	S16-T24N-R10W	MD Reference:	KB @ 6749.0usft (Unassigned)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Pinon Unit M16-2410 01H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 6749.0usft (Unassigned)

Offset Depths are relative to Offset Datum

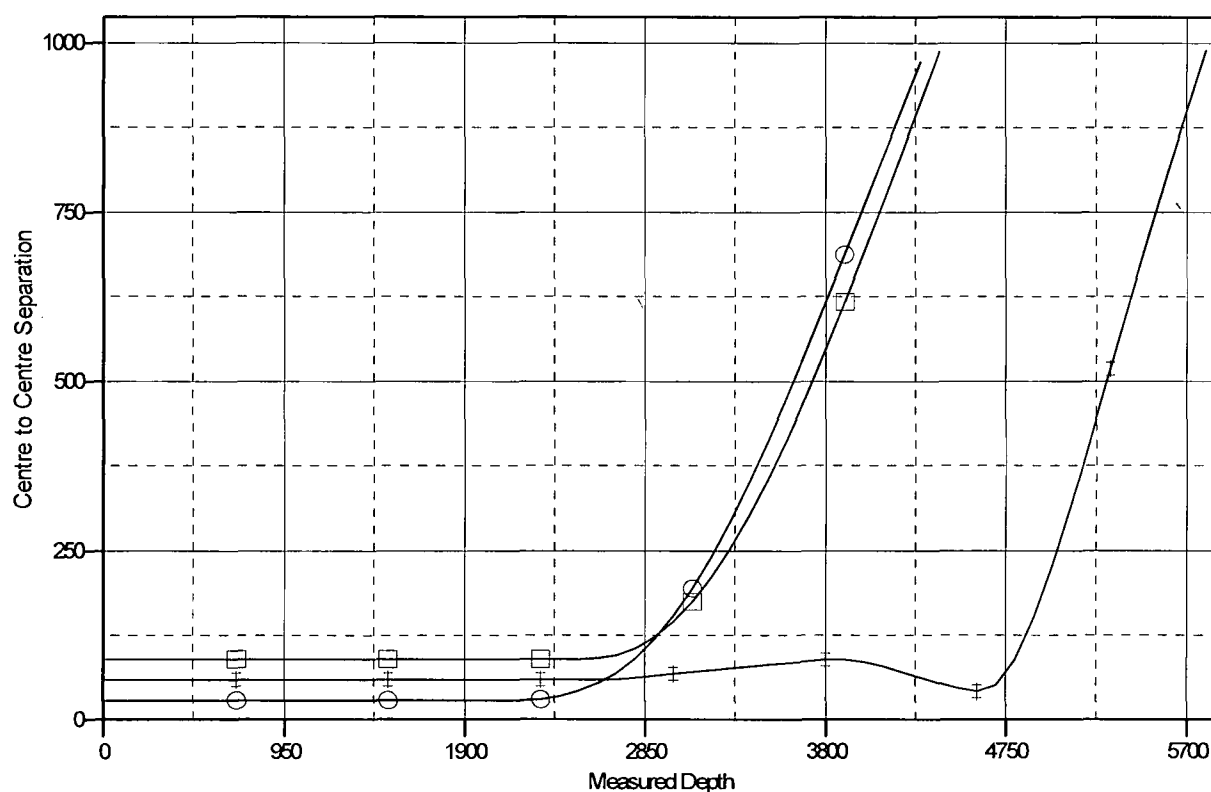
Central Meridian is -107.833333 °

Coordinates are relative to: Pinon Unit M16-2410 01H

Coordinate System is US State Plane 1983, New Mexico Western Zone

Grid Convergence at Surface is: -0.04°

Ladder Plot



LEGEND

Pinon Unit M16-2410 04H, Hz, Plan #1 V0
 Pinon Unit M16-2410 03H, Hz, Plan #1 V0
 Pinon Unit M16-2410 02H, Hz, Plan #1 V0

Pinon Unit M16-2410 #01H
SHL: SWSW Section 16, T24N, R10W
1278' FSL and 228' FWL
BHL: SWSW Section 8, T24N, R10W
260' FSL and 120' FWL
San Juan County, New Mexico
Lease Number: NMNM 133481X

The maximum cut will be approximately 15.0 feet on the south east corner (corner 3) and the maximum fill will be approximately 12.8 feet on the north west corner (corner 6).

4. As determined during the onsite on December 23, 2014, the following best management practices will be implemented:
 - a. Split drainage from corner 3 to 5 and 3 to 2.
 - b. On reclamation drain to a 50 X 50 silt trap in north west corner #6.
 - c. Reroute fence on reclamation so that silt trap is located on north northwest side of fence.
 - d. Water will be diverted around the pad and silt traps installed upon interim reclamation. See Sheet G-2 for details.

5. Construction equipment may include chain saws, a brush hog, scraper, maintainer, excavator, and dozer. Construction for the access road and well pad will take approximately 2 to 4 weeks.

C. Pipeline

The pipeline being constructed will be on lease. See the attached Plan of Development for detailed information on construct, operation, maintenance and termination of a 10,788 foot, up to 6-inch outside diameter, buried steel well connect pipeline.

7. METHODS FOR HANDLING WASTE

A. Cuttings

1. A closed-loop system will be used. Cuttings will be moved through a shaker system on the drill rig that separates drilling fluids from the cuttings. Cuttings will be stored onsite in above-ground storage tanks. Cuttings will be pulled from the storage tanks, mixed with saw dust or similar absorbent material, and disposed of at the Envirotech, Inc. and/or Industrial Ecosystem, Inc. waste disposal facilities.
2. The closed-loop system storage tanks will be adequately sized to ensure confinement of all fluids and will provide sufficient freeboard to prevent uncontrolled releases.
3. A 20-mil liner will be installed under tanks, pumps, ancillary facilities, and truck loading/unloading areas associated with the closed-loop system.

B. Drilling Fluids

1. A closed-loop system will be used. Drilling fluids will be stored onsite in above-ground storage tanks. Upon termination of drilling operations, the drilling fluids will be recycled and transferred to other permitted closed-loop systems or returned to the vendor for reuse, as practical. Residual fluids will be vacuumed from the storage tanks and disposed of at Basin Disposal, Inc. and/or Industrial Ecosystem, Inc. waste disposal facilities.
2. The closed-loop system storage tanks will be adequately sized to ensure confinement of all fluids and will provide sufficient freeboard to prevent uncontrolled releases.
3. The closed-loop system storage tanks will be placed in bermed secondary containment sized to accommodate a minimum of 110 percent of the volume of the largest storage tank.
4. A 20-mil liner will be installed under tanks, pumps, ancillary facilities, and truck loading/unloading areas associated with the closed-loop system.

C. Flowback Water

1. The water-based solution that flows back to the surface during and after completion operations will be placed in storage tanks on the location.

ENCANA OIL & GAS (USA) INC.

PIÑON UNIT M16-2410 #01H
1278' FSL & 228' FWL
LOCATED IN THE SW/4SW/4 OF SECTION 16, T24N, R10W, N.M.P.M.,
SAN JUAN COUNTY, NEW MEXICO

DIRECTIONS

- 1) FROM THE INTERSECTION OF HWY 64 & HWY 550 IN BLOOMFIELD, TRAVEL SOUTH FOR 28.2 MILES. (M.P. 123.4).
- 2) TURN RIGHT ON HWY 57 AND GO 3.1 MILES TO CR 7610.
- 3) TURN RIGHT ONTO CR 7610 AND GO 2.6 MILES TO CR 7515.
- 4) TURN LEFT ON CR 7515 AND GO 0.4 MILES TO "Y" INTERSECTION.
- 5) TURN RIGHT AND GO 1.1 MILES.
- 6) TURN RIGHT AND GO 0.5 MILES TO WHERE ACCESS IS STAKED ON RIGHT SIDE OF ROAD.

WELL FLAG LOCATED AT LAT. 36.309415° N, LONG. 107.909046° W (NAD 83).



WELLHEAD BLOWOUT CONTROL SYSTEM

encana

Well Name and Number:
Pinion Unit M16-2410 01H

