

RECEIVED

JAN 27 2017

Form 3160-5
(June 2015)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

Farmington Field Office
Bureau of Land Management

5. Lease Serial No.
NMNM 12374

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

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator

Encana Oil & Gas (USA) Inc.

3a. Address

370 17th Street, Suite 1700
Denver, CO 80202

3b. Phone No. (include area code)

(720) 876-3533

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

SHL: 215' FNL and 2412' FEL Section 33, T24N, R9W
BHL: 1440' FNL and 550' FEL Section 3, T23N, R9W

7. If Unit of C/A Agreement, Name and/or No.

NMNM 132981A

8. Well Name and No.

Nageezi Unit 324H

9. API Well No.

30-045-35782

10. Field and Pool or Exploratory Area

Nageezi Unit HZ (OIL)

11. Country or Parish, State

San Juan County, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION

TYPE OF ACTION

☒ Notice of Intent☐ Subsequent Report☐ Final Abandonment Notice☐ Acidize☐ Alter Casing☐ Casing Repair☒ Change Plans☐ Convert to Injection☐ Deepen☐ Hydraulic Fracturing☐ New Construction☐ Plug and Abandon☐ Plug Back☐ Production (Start/Resume)☐ Reclamation☐ Recomplete☐ Temporarily Abandon☐ Water Disposal☐ Water Shut-Off☐ Well Integrity☐ Other

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

Encana Oil & Gas (USA) Inc. (Encana) is requesting authorization to modify the Nageezi Unit 324H survey plats, Drilling Plan and Wellbore Diagram to reflect the following changes:

1. Update SHL from 163' FNL, 2486' to 215' FNL, 2412' FEL
2. Update BHL from 2220' FNL, 2520' FEL to 1440' FNL, 550' FEL
3. Update POE from 2280' FNL, 2486' FEL to 1610' FNL, 20' FEL
4. Eliminate the 16" conductor pipe, as this will no longer be necessary
5. Update the surface casing depth from 500' to 320'
6. Changed surface casing weight/grade from J55 to H40
7. Adjusted production liner overlap from 100' to 200'
8. Updated cement details to reflect the above changes
9. Added the following sentence to "Section 4: Casing & Cementing Program": "A higher grade of casing may be run at the Operator's discretion, but a lower grade will not be substituted without prior approval of the BLM."

An updated C-102, Directional Drilling Plan, Drilling Plan and Wellbore Diagram are attached, which reflect these changes.

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

OIL CONS. DIV DIST. 3

FEB 02 2017

14. I hereby certify that the foregoing is true and correct. Name (Printed Typed)

Katie Wegner

Title Senior Regulatory Analyst

Signature

Date

01/26/2017

THE SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

William Tambekou

Title Petroleum Engineer

Date 1/30/2017

Conditions of approval, if any, are attached. Approval of this notice 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.

Office FFD

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.

(Instructions on page 2)

NMOCDAY

**ADHERE TO PREVIOUS NMOCD
CONDITIONS OF APPROVAL**

33

1625 N. French Dr., Hobbs, N.M. 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT 1
811 S. First St., Artesia, N.M. 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

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

1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

Submit one copy to appropriate
District Office

OIL CONSERVATION DIVISION

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-045-35782		² Pool Code 98080	³ Pool Name NAGEEZI UNIT. HZ (OH)
⁴ Property Code 315244	⁵ Property Name NAGEEZI UNIT		⁶ Well Number 324H
⁷ OGRID No. 282327	⁸ Operator Name ENCANA OIL & GAS (USA) INC.		⁹ Elevation 6954.2'

¹⁰ Surface Location

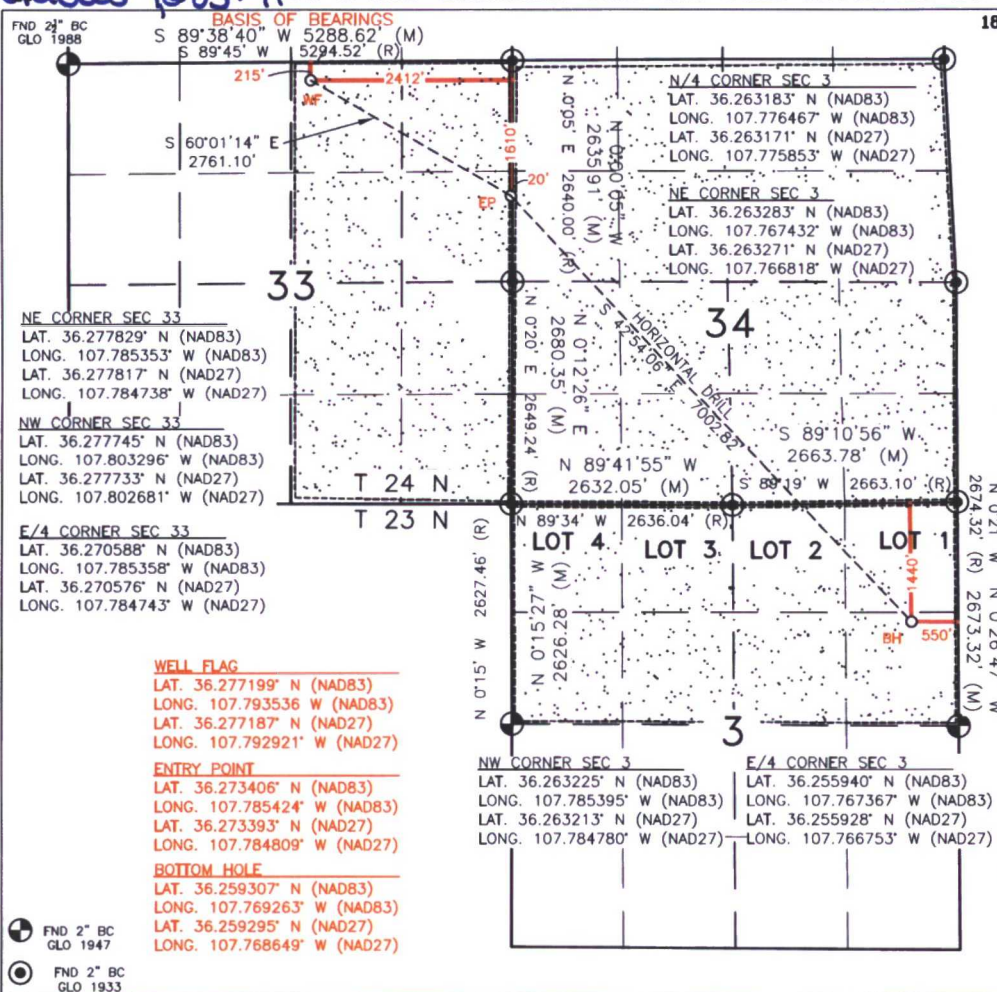
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	33	24N	9W		215'	NORTH	2412'	EAST	SAN JUAN

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
H	3	23N	9W		1440'	NORTH	550'	EAST	SAN JUAN

¹³ Dedicated Acres 33 (320 ACRES), ALL SEC. 34 (640 ACRES), M/2 SEC. 3 (200 ACRES) - TOTAL 10,415.12 ACRES: SEC. 21-23 (5/2); 25-28, 33-36, 1-4, 9-10 (ALL); 5 (W/2); 11 (NW/4) - UNDIVIDED UNIT	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No. R-13856-A (10,415.12 acres)
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
2012 1233.41 OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



18	17	OPERATOR CERTIFICATION
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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 Kathryn Date 01/26/17

Katie Wegner

Printed Name _____

katie.wegner@encana.com

E-mail Address

SURVEYOR CERTIFICATION

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

APRIL 28, 2016

Date of Survey

Signature and Seal of Professional Surveyor:



Certificate Number

1139.3

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Phone: (505) 334-6178 Fax: (505) 334-6170

1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3480 Fax: (505) 476-3482

State of New Mexico
Energy, Minerals & Natural Resources Department.

Form C-102
Revised August 1, 2011

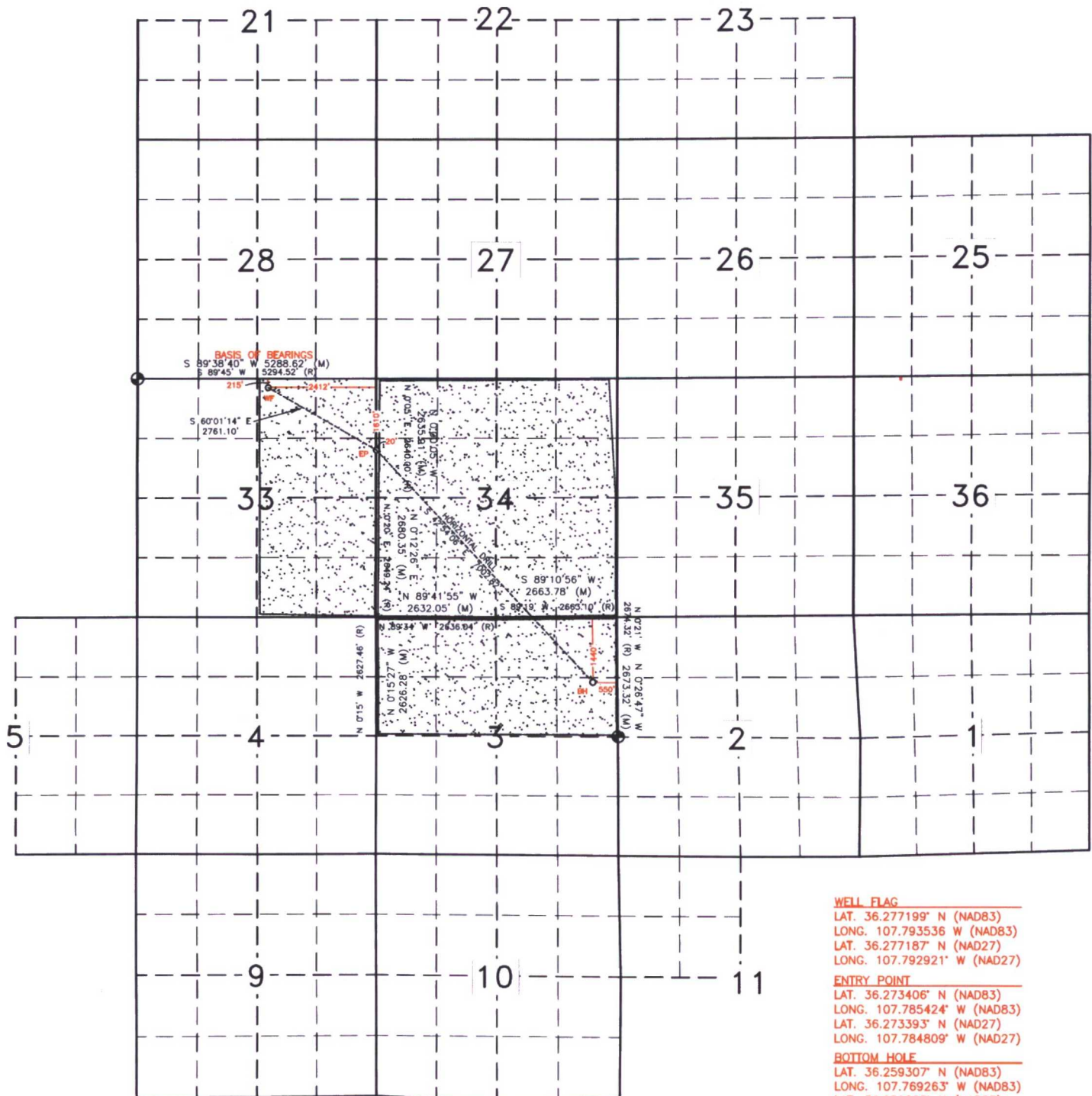
**Submit one copy to appropriate
District Office**

OIL CONSERVATION DIVISION

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

☐ AMENDED REPORT

ENCANA OIL & GAS (USA) INC.
NAGEEZI UNIT #324H



WELL FLAG

LAT. 36.277199° N (NAD83)
LONG. 107.793536 W (NAD83)
LAT. 36.277187° N (NAD27)
LONG. 107.792921° W (NAD27)

ENTRY POINT

LAT. 36.273406° N (NAD83)
LONG. 107.785424° W (NAD83)
LAT. 36.273393° N (NAD27)
LONG. 107.784809° W (NAD27)

BOTTOM HOLE

BOTTOM TROLL
LAT. 36.259307° N (NAD83)
LONG. 107.769263° W (NAD83)
LAT. 36.259295° N (NAD27)
LONG. 107.768649° W (NAD27)

PENETRATED SPACING UNIT; E/2 SEC. 33 (320 ACRES),
ALL SEC. 34 (320 ACRES), N/2 SEC. 3 (320 ACRES)
TOTAL 10,415.12 ACRES: SEC. 21-23 (S/2); 25-28, 33-36,
1-4, 9-10 (ALL); 5 (W/2); 11 (NW/4) - UNDIVIDED UNIT

Nageezi Unit 324H
SHL: NWNE Sec 33, T24N, R9W
215' FNL, 2412' FEL
BHL: SENE Sec 3, T23N, R9W
1440' FNL, 550' FEL
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
Ojo Alamo	839
Kirtland Shale	1,016
Fruitland Coal	1,325
Pictured Cliffs Ss.	1,605
Lewis Shale	1,699
Cliffhouse Ss.	2,350
Menefee Fn.	3,103
Point Lookout Ss.	4,065
Mancos Shale	4,208
Mancos Silt	4,800
Gallup Fn.	5,060

The referenced surface elevation is 6954', KB 6970'

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

Substance	Formation	Depth (TVD) units = feet
Water/Gas	Fruitland Coal	1,325
Water/Gas	Pictured Cliffs Ss.	1,605
Water/Gas	Cliffhouse Ss.	2,350
Water/Gas	Menefee Fn.	3,103
Water/Gas	Point Lookout Ss.	4,065
Oil/Gas	Mancos Shale	4,208
Oil/Gas	Mancos Silt	4,800
Oil/Gas	Gallup Fn.	5,060

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.

Nageezi Unit 324H**SHL: NWNE Sec 33, T24N, R9W****215' FNL, 2412' FEL****BHL: SENE Sec 3, T23N, R9W****1440' FNL, 550' FEL****San Juan, New Mexico**

- 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
- 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 higher grade of casing may be run at the Operator's discretion, but a lower grade will not be substituted without prior approval of the BLM.

- a) The proposed casing design is as follows:

Casing	Depth (MD)	Hole Size	Csg Size	Weight	Grade
Surface	0'-320'	12 1/4"	9 5/8"	32.3	H40, STC New
Intermediate	0'-6050'	8 3/4"	7"	26	J55, LTC New
Production Liner	5850'-13299'	6 1/8"	4 1/2"	11.6	B80*, BTC 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"	32.3	H40	STC	1370	2270	365	1.0	1.1	1.5
7"	26	J55	LTC	4330	4980	367	1.0	1.1	1.5
4.5"	11.6	B80	BTC	6350	7780	267	1.0	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.

Nageezi Unit 324H**SHL: NWNE Sec 33, T24N, R9W****215' FNL, 2412' FEL****BHL: SENE Sec 3, T23N, R9W****1440' FNL, 550' FEL****San Juan, New Mexico**

b) The proposed cementing program is as follows

Casing	Depth (MD)	Cement Volume (sacks)	Cement Type & Yield	Designed TOC	Centralizers
Surface	0'-320'	116 sks	Type 1-2 construction cement w/ 20% fly ash Weight 14.5ppg	Surface	1 per joint on bottom 3 joints
Intermediate	0'-6050'	100% open hole excess Stage 1 Lead: 708 sks Stage 1 Tail: 292 sks	Lead: Extended Class G w/ 6% BWOC bentonite + 5 lb/sk Kol-Seal + 0.125 lb/sk Poly-flake + 0.3% BWOC HR-5 Weight: 12.1ppg Yield: 2.038 ft ³ /sk Tail: Extended Class G w/ 1% BWOC bentonite + 0.3% BWOC Halad-567 + 0.2% BWOC Versaset + 0.05% SA-1015 Weight: 14.6ppg Yield: 1.059 ft ³ /sk	Surface	1 every 3 joints through water bearing zones
Production Liner	5850'-13299'	30% open hole excess Cement Vol: 704 sks	Extended Class G w/ 2.5 lb/sk Kol-seal + 0.7% BWOC Halad-567 + 0.20% BWOC Halad-9 + 0.05% SA-1015 Weight: 13.5ppg Yield: 1.302 ft ³ /sk	Top of Liner	N/A

Nageezi Unit 324H**SHL: NWNE Sec 33, T24N, R9W****215' FNL, 2412' FEL****BHL: SENE Sec 3, T23N, R9W****1440' FNL, 550' FEL****San Juan, New Mexico**

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 5052'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5199'/13299'	Gallup

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)
12 1/4"	0'-320'/320'	Fresh Water	0	60-70	NC
8 3/4"	320'/320'-5255'/6050'	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"	5255'/6050'- 5199'/13299'	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) Mud Logging - Top Mancos to TD
- d) Logging - See below

Nageezi Unit 324H

SHL: NWNE Sec 33, T24N, R9W

215' FNL, 2412' FEL

BHL: SENE Sec 3, T23N, R9W

1440' FNL, 550' FEL

San Juan, New Mexico

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 +/- 2496 psi based on a 9.0 ppg at 5334' 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 March 1st, 2017. 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 10 days.

LOC: Sec 33 T24N R9W, 215' FNL, 2412' FEL County: San Juan WELL: Nageezi Unit 324H			Encana Natural Gas WELL SUMMARY				ENG: L. Hubbard RIG: Unassigned GLE: 6954 RKBE: 6970		1-26-17	
MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH				HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION
			TVD	MD						
Run survey tool at TD and update anticollision scan	None	Nacimiento 9 5/8" Csg	0 320	320		12 1/4	9 5/8" 32.3ppf H40 STC TOC to Surface 14.5ppg type 1-2 cement w/ 20% fly ash	Fresh wtr 8.3-9.2	Vertical <1°	
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 Kirtland Shale Fruitland Coal Pictured Cliffs Ss. Lewis Shale Cliffhouse Ss. Menefee Fn. Point Lookout Ss. Mancos Shale	839 1,016 1,325 1,605 1,699 2,350 3,103 4,065 4,208			8 3/4	7" 26ppf J55 LTC TOC @ surface (100% OH excess) Stage 1 Total: 1000sks	Fresh Wtr 8.3-10	Directional 34.6°	
Surveys every 30' through the curve	MWD GR Mud Log	KOP Mancos Silt Gallup Fn. 7" Csg	5,052 4,800 5,060 5,255	5,700 6,050'						
Surveys every stand to TD unless directed otherwise by Geologist MWD Gamma Directional	No OH Logs	Horizontal Target TD Base Gallup	5,334 5,199 5,384	13,299			6 1/8	200' overlap at liner top 7249' Drilled Lateral TOC @ Top of Liner (30% open hole excess)	WBM 8.3-10	Horz Inc/TVD 90.8deg/5334' TD = 13299.36' MD



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	
3	2631.39	34.63	117.52	2527.90	-234.52	450.03	2.00	117.52	478.08	
4	5646.94	34.63	117.52	5009.27	-1026.41	1969.63	0.00	0.00	2092.40	
5	6295.97	90.80	137.12	5297.15	-1380.64	2391.12	9.00	23.18	2638.78	NAGEEZI UNIT 324H POE
6	13299.36	90.80	137.12	5199.37	-6512.22	7156.07	0.00	0.00	9641.49	NAGEEZI UNIT 324H PBHL

Project: San Juan County, NM
Site: S33-T24N-R9W
Well: NAGEEZI UNIT 324H
Wellbore: OH
Design: Plan #2

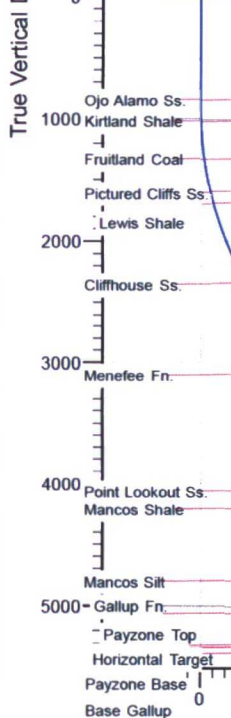
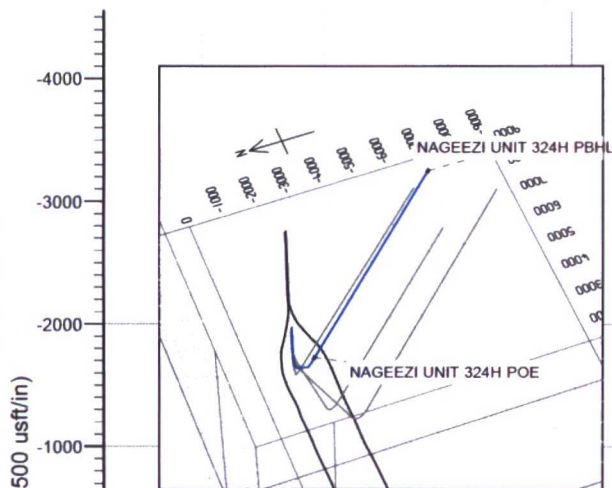


Azimuths to True North
Magnetic North: 9.07°

Magnetic Field
Strength: 49755.6nT
Dip Angle: 62.90°
Date: 1/24/2017
Model: HDGM

Plan #2
NAGEEZI UNIT 324H
10000 LR
10' KB @ 6975.00usft
Ground Level @ 6954.00
North American Datum 1983
Well NAGEEZI UNIT 324H, True North

Type	Target	No Target (Freehand)	Azimuth	Origin Type	N/S	E/W	From TVD
Name	NAGEEZI UNIT 324H PBHL		TVD	HP-S	+E/-W	Latitude	Longitude
	NAGEEZI UNIT 324H POE		5199.37	-6512.22	7156.07	36.277199	-107.793536
			5297.15	-1380.64	2391.12	36.273406	-107.786424



Vertical Section at 137.12° (1500 usft/in)

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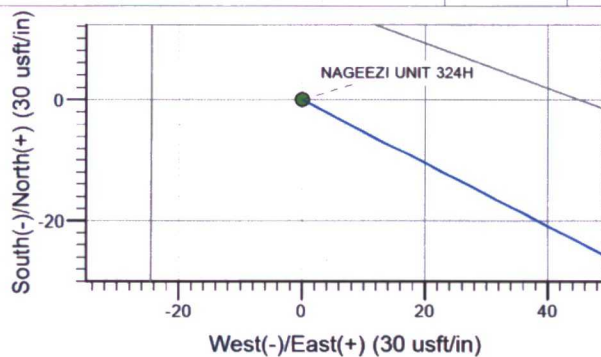
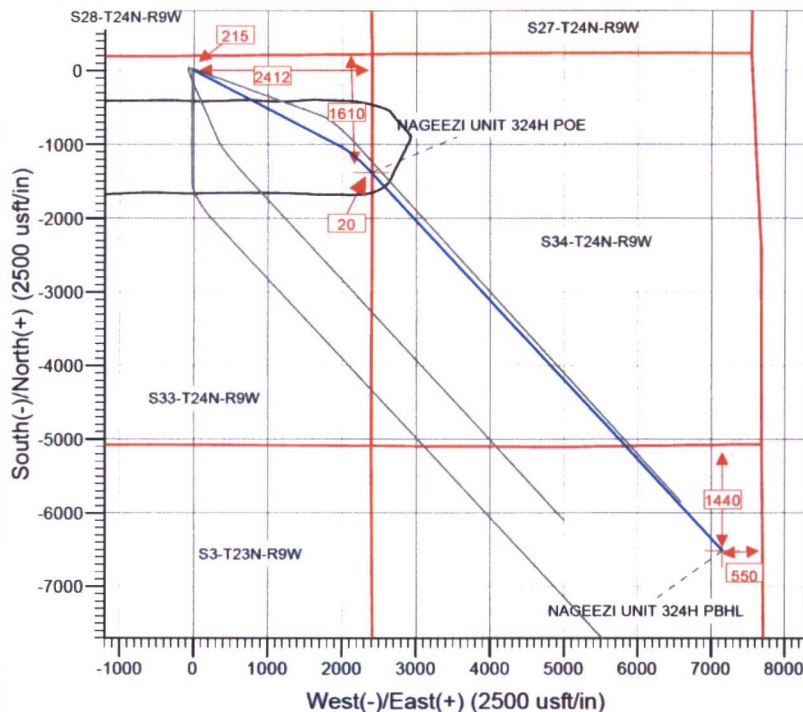
Vertical Section at 137.12° (1500 usft/in)

Vertical Section at 137.12° (1500 usft/in)

Vertical Section at 137.12° (1500 usft/in)

Vertical Section at 137.12° (1500 usft/in)

Vertical Section at 137.12° (1500 usft/in)



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
839.00	839.00	Ojo Alamo Ss.
1015.97	1016.00	Kirtland Shale
1324.58	1326.15	Fruitland Coal
1603.84	1611.13	Pictured Cliffs Ss.
1697.51	1708.19	Lewis Shale
2344.86	2414.41	Cliffhouse Ss.
3091.21	3315.97	Menefee Fn.
4044.55	4474.53	Point Lookout Ss.
4186.26	4646.75	Mancos Shale
4772.93	5359.72	Mancos Silt
5030.58	5673.19	Gallup Fn.
5280.34	6138.04	Payzone Top

WELL DETAILS: NAGEEZI UNIT 324H

+N/-S	+E/-W	North	Ground Level:	6954.00	Latitude	Longitude
0.00	0.00	1920202.00	Easting	2734821.88	36.277199	-107.793536





Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: EnCana Oil & Gas (USA) Inc
 Project: San Juan County, NM
 Site: S33-T24N-R9W
 Well: NAGEEZI UNIT 324H
 Wellbore: OH
 Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 324H
 TVD Reference: 16' KB @ 6970.00usft
 MD Reference: 16' KB @ 6970.00usft
 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 S33-T24N-R9W

Site Position: Northing: 1,920,253.67 usft Latitude: 36.277341
 From: Lat/Long Easting: 2,734,747.88 usft Longitude: -107.793787
 Position Uncertainty: 0.00 usft Slot Radius: 13-3/16" Grid Convergence: 0.02 °

Well NAGEEZI UNIT 324H

Well Position +N-S 0.00 usft Northing: 1,920,202.00 usft Latitude: 36.277199
 +E-W 0.00 usft Easting: 2,734,821.88 usft Longitude: -107.793536
 Position Uncertainty 0.00 usft Wellhead Elevation: 0.00 usft Ground Level: 6,954.00 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	1/24/2017	9.07	62.90	49,756

Design Plan #2

Audit Notes:

Version: Phase: PLAN Tie On Depth: 0.00

Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)
	0.00	0.00	0.00	137.12

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,631.39	34.63	117.52	2,527.90	-234.52	450.03	2.00	2.00	0.00	117.52	
5,646.94	34.63	117.52	5,009.27	-1,026.41	1,969.63	0.00	0.00	0.00	0.00	
6,295.97	90.80	137.12	5,297.15	-1,380.64	2,391.12	9.00	8.65	3.02	23.18	NAGEEZI UNIT 324H
13,299.36	90.80	137.12	5,199.37	-6,512.22	7,156.07	0.00	0.00	0.00	0.00	NAGEEZI UNIT 324H



Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Site: S33-T24N-R9W
Well: NAGEEZI UNIT 324H
Wellbore: OH
Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 324H
TVD Reference: 16' KB @ 6970.00usft
MD Reference: 16' KB @ 6970.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	
839.00	0.00	0.00	839.00	0.00	0.00	0.00	0.00	0.00	Ojo Alamo Ss.
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.00
1,000.00	2.00	117.52	999.98	-0.81	1.55	1.64	2.00	2.00	
1,016.00	2.32	117.52	1,015.97	-1.09	2.08	2.21	2.00	2.00	Kirtland Shale
1,100.00	4.00	117.52	1,099.84	-3.22	6.19	6.57	2.00	2.00	
1,200.00	6.00	117.52	1,199.45	-7.25	13.92	14.78	2.00	2.00	
1,300.00	8.00	117.52	1,298.70	-12.88	24.72	26.27	2.00	2.00	
1,326.15	8.52	117.52	1,324.58	-14.62	28.06	29.81	2.00	2.00	Fruitland Coal
1,400.00	10.00	117.52	1,397.47	-20.11	38.60	41.00	2.00	2.00	
1,500.00	12.00	117.52	1,495.62	-28.93	55.52	58.98	2.00	2.00	
1,600.00	14.00	117.52	1,593.06	-39.33	75.46	80.17	2.00	2.00	
1,611.13	14.22	117.52	1,603.84	-40.58	77.87	82.72	2.00	2.00	Pictured Cliffs Ss.
1,700.00	16.00	117.52	1,689.64	-51.29	98.42	104.55	2.00	2.00	
1,708.19	16.16	117.52	1,697.51	-52.33	100.43	106.69	2.00	2.00	Lewis Shale
1,800.00	18.00	117.52	1,785.27	-64.80	124.34	132.09	2.00	2.00	
1,900.00	20.00	117.52	1,879.82	-79.84	153.21	162.76	2.00	2.00	
2,000.00	22.00	117.52	1,973.17	-96.40	184.99	196.52	2.00	2.00	
2,100.00	24.00	117.52	2,065.21	-114.46	219.64	233.33	2.00	2.00	
2,200.00	26.00	117.52	2,155.84	-133.99	257.12	273.14	2.00	2.00	
2,300.00	28.00	117.52	2,244.94	-154.97	297.37	315.91	2.00	2.00	
2,400.00	30.00	117.52	2,332.39	-177.37	340.37	361.58	2.00	2.00	
2,414.41	30.29	117.52	2,344.86	-180.72	346.78	368.40	2.00	2.00	Cliffhouse Ss.
2,500.00	32.00	117.52	2,418.11	-201.17	386.04	410.10	2.00	2.00	
2,600.00	34.00	117.52	2,501.97	-226.34	434.33	461.41	2.00	2.00	
2,631.39	34.63	117.52	2,527.90	-234.52	450.03	478.08	2.00	2.00	Start 3015.54 hold at 2631.39 MD
2,700.00	34.63	117.52	2,584.35	-252.53	484.60	514.81	0.00	0.00	
2,800.00	34.63	117.52	2,666.64	-278.80	534.99	568.34	0.00	0.00	
2,900.00	34.63	117.52	2,748.92	-305.06	585.39	621.87	0.00	0.00	
3,000.00	34.63	117.52	2,831.21	-331.32	635.78	675.41	0.00	0.00	
3,100.00	34.63	117.52	2,913.50	-357.58	686.17	728.94	0.00	0.00	
3,200.00	34.63	117.52	2,995.78	-383.84	736.56	782.47	0.00	0.00	
3,300.00	34.63	117.52	3,078.07	-410.10	786.96	836.01	0.00	0.00	
3,315.97	34.63	117.52	3,091.21	-414.29	795.00	844.55	0.00	0.00	Menefee Fn.
3,400.00	34.63	117.52	3,160.35	-436.36	837.35	889.54	0.00	0.00	
3,500.00	34.63	117.52	3,242.64	-462.62	887.74	943.07	0.00	0.00	
3,600.00	34.63	117.52	3,324.93	-488.88	938.13	996.61	0.00	0.00	
3,700.00	34.63	117.52	3,407.21	-515.14	988.53	1,050.14	0.00	0.00	
3,800.00	34.63	117.52	3,489.50	-541.40	1,038.92	1,103.67	0.00	0.00	
3,900.00	34.63	117.52	3,571.79	-567.66	1,089.31	1,157.21	0.00	0.00	
4,000.00	34.63	117.52	3,654.07	-593.92	1,139.70	1,210.74	0.00	0.00	
4,100.00	34.63	117.52	3,736.36	-620.18	1,190.10	1,264.28	0.00	0.00	
4,200.00	34.63	117.52	3,818.64	-646.44	1,240.49	1,317.81	0.00	0.00	
4,300.00	34.63	117.52	3,900.93	-672.70	1,290.88	1,371.34	0.00	0.00	



Cathedral Energy Services Planning Report

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Company: EnCana Oil & Gas (USA) Inc
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Site: S33-T24N-R9W
Well: NAGEEZI UNIT 324H
Wellbore: OH
Design: Plan #2

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

Well NAGEEZI UNIT 324H
16' KB @ 6970.00usft
16' KB @ 6970.00usft
True
Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
4,400.00	34.63	117.52	3,983.22	-698.96	1,341.27	1,424.88	0.00	0.00	
4,474.53	34.63	117.52	4,044.55	-718.54	1,378.83	1,464.78	0.00	0.00	Point Lookout Ss.
4,500.00	34.63	117.52	4,065.50	-725.22	1,391.67	1,478.41	0.00	0.00	
4,600.00	34.63	117.52	4,147.79	-751.48	1,442.06	1,531.94	0.00	0.00	
4,646.75	34.63	117.52	4,186.26	-763.76	1,465.62	1,556.97	0.00	0.00	Mancos Shale
4,700.00	34.63	117.52	4,230.07	-777.74	1,492.45	1,585.48	0.00	0.00	
4,800.00	34.63	117.52	4,312.36	-804.00	1,542.84	1,639.01	0.00	0.00	
4,900.00	34.63	117.52	4,394.65	-830.27	1,593.23	1,692.54	0.00	0.00	
5,000.00	34.63	117.52	4,476.93	-856.53	1,643.63	1,746.08	0.00	0.00	
5,100.00	34.63	117.52	4,559.22	-882.79	1,694.02	1,799.61	0.00	0.00	
5,200.00	34.63	117.52	4,641.50	-909.05	1,744.41	1,853.14	0.00	0.00	
5,300.00	34.63	117.52	4,723.79	-935.31	1,794.80	1,906.68	0.00	0.00	
5,359.72	34.63	117.52	4,772.93	-950.99	1,824.90	1,938.65	0.00	0.00	Mancos Silt
5,400.00	34.63	117.52	4,806.08	-961.57	1,845.20	1,960.21	0.00	0.00	
5,500.00	34.63	117.52	4,888.36	-987.83	1,895.59	2,013.74	0.00	0.00	
5,600.00	34.63	117.52	4,970.65	-1,014.09	1,945.98	2,067.28	0.00	0.00	
5,646.94	34.63	117.52	5,009.27	-1,026.41	1,969.63	2,092.40	0.00	0.00	Start DLS 9.00 TFO 23.18
5,650.00	34.88	117.71	5,011.79	-1,027.22	1,971.18	2,094.05	9.00	8.28	
5,673.19	36.81	119.08	5,030.58	-1,033.68	1,983.12	2,106.91	9.00	8.32	Gallup Fn.
5,700.00	39.06	120.51	5,051.73	-1,041.88	1,997.42	2,122.64	9.00	8.38	
5,750.00	43.29	122.83	5,089.36	-1,059.36	2,025.41	2,154.37	9.00	8.46	
5,800.00	47.56	124.82	5,124.44	-1,079.02	2,054.98	2,189.02	9.00	8.54	
5,850.00	51.86	126.56	5,156.77	-1,101.28	2,085.93	2,226.40	9.00	8.60	
5,900.00	56.19	128.09	5,186.14	-1,125.82	2,118.09	2,266.26	9.00	8.65	
5,950.00	60.53	129.49	5,212.36	-1,152.48	2,151.26	2,308.37	9.00	8.68	
6,000.00	64.88	130.76	5,235.28	-1,181.12	2,185.22	2,352.46	9.00	8.71	
6,050.00	69.25	131.95	5,254.76	-1,211.54	2,219.77	2,398.27	9.00	8.73	
6,100.00	73.62	133.07	5,270.68	-1,243.56	2,254.69	2,445.50	9.00	8.75	
6,138.04	76.95	133.89	5,280.34	-1,268.88	2,281.39	2,482.22	9.00	8.76	Payzone Top
6,150.00	78.00	134.14	5,282.93	-1,276.99	2,289.78	2,493.87	9.00	8.76	
6,200.00	82.38	135.18	5,291.45	-1,311.62	2,324.82	2,543.08	9.00	8.76	
6,250.00	86.77	136.20	5,296.17	-1,347.22	2,359.58	2,592.83	9.00	8.77	
6,295.97	90.80	137.12	5,297.15	-1,380.64	2,391.12	2,638.78	9.00	8.77	Start 7003.39 hold at 6295.97 MD
6,300.00	90.80	137.12	5,297.09	-1,383.60	2,393.86	2,642.81	0.00	0.00	
6,400.00	90.80	137.12	5,295.70	-1,456.87	2,461.90	2,742.80	0.00	0.00	
6,500.00	90.80	137.12	5,294.30	-1,530.14	2,529.93	2,842.79	0.00	0.00	
6,600.00	90.80	137.12	5,292.91	-1,603.41	2,597.97	2,942.78	0.00	0.00	
6,700.00	90.80	137.12	5,291.51	-1,676.69	2,666.01	3,042.77	0.00	0.00	
6,800.00	90.80	137.12	5,290.11	-1,749.96	2,734.05	3,142.76	0.00	0.00	
6,900.00	90.80	137.12	5,288.72	-1,823.23	2,802.08	3,242.75	0.00	0.00	
7,000.00	90.80	137.12	5,287.32	-1,896.50	2,870.12	3,342.74	0.00	0.00	
7,100.00	90.80	137.12	5,285.92	-1,969.78	2,938.16	3,442.73	0.00	0.00	
7,200.00	90.80	137.12	5,284.53	-2,043.05	3,006.20	3,542.72	0.00	0.00	
7,300.00	90.80	137.12	5,283.13	-2,116.32	3,074.24	3,642.71	0.00	0.00	
7,400.00	90.80	137.12	5,281.74	-2,189.60	3,142.27	3,742.70	0.00	0.00	
7,500.00	90.80	137.12	5,280.34	-2,262.87	3,210.31	3,842.69	0.00	0.00	
7,600.00	90.80	137.12	5,278.94	-2,336.14	3,278.35	3,942.68	0.00	0.00	
7,700.00	90.80	137.12	5,277.55	-2,409.41	3,346.39	4,042.67	0.00	0.00	
7,800.00	90.80	137.12	5,276.15	-2,482.69	3,414.43	4,142.66	0.00	0.00	
7,900.00	90.80	137.12	5,274.75	-2,555.96	3,482.46	4,242.65	0.00	0.00	
8,000.00	90.80	137.12	5,273.36	-2,629.23	3,550.50	4,342.64	0.00	0.00	
8,100.00	90.80	137.12	5,271.96	-2,702.51	3,618.54	4,442.63	0.00	0.00	



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Well NAGEEZI UNIT 324H
16' KB @ 6970.00usft
16' KB @ 6970.00usft
True
Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
8,200.00	90.80	137.12	5,270.57	-2,775.78	3,686.58	4,542.62	0.00	0.00	
8,300.00	90.80	137.12	5,269.17	-2,849.05	3,754.61	4,642.61	0.00	0.00	
8,400.00	90.80	137.12	5,267.77	-2,922.32	3,822.65	4,742.60	0.00	0.00	
8,500.00	90.80	137.12	5,266.38	-2,995.60	3,890.69	4,842.59	0.00	0.00	
8,600.00	90.80	137.12	5,264.98	-3,068.87	3,958.73	4,942.58	0.00	0.00	
8,700.00	90.80	137.12	5,263.59	-3,142.14	4,026.77	5,042.57	0.00	0.00	
8,800.00	90.80	137.12	5,262.19	-3,215.42	4,094.80	5,142.56	0.00	0.00	
8,900.00	90.80	137.12	5,260.79	-3,288.69	4,162.84	5,242.55	0.00	0.00	
9,000.00	90.80	137.12	5,259.40	-3,361.96	4,230.88	5,342.55	0.00	0.00	
9,100.00	90.80	137.12	5,258.00	-3,435.23	4,298.92	5,442.54	0.00	0.00	
9,200.00	90.80	137.12	5,256.60	-3,508.51	4,366.95	5,542.53	0.00	0.00	
9,300.00	90.80	137.12	5,255.21	-3,581.78	4,434.99	5,642.52	0.00	0.00	
9,400.00	90.80	137.12	5,253.81	-3,655.05	4,503.03	5,742.51	0.00	0.00	
9,500.00	90.80	137.12	5,252.42	-3,728.33	4,571.07	5,842.50	0.00	0.00	
9,600.00	90.80	137.12	5,251.02	-3,801.60	4,639.11	5,942.49	0.00	0.00	
9,700.00	90.80	137.12	5,249.62	-3,874.87	4,707.14	6,042.48	0.00	0.00	
9,800.00	90.80	137.12	5,248.23	-3,948.14	4,775.18	6,142.47	0.00	0.00	
9,900.00	90.80	137.12	5,246.83	-4,021.42	4,843.22	6,242.46	0.00	0.00	
10,000.00	90.80	137.12	5,245.44	-4,094.69	4,911.26	6,342.45	0.00	0.00	
10,100.00	90.80	137.12	5,244.04	-4,167.96	4,979.30	6,442.44	0.00	0.00	
10,200.00	90.80	137.12	5,242.64	-4,241.23	5,047.33	6,542.43	0.00	0.00	
10,300.00	90.80	137.12	5,241.25	-4,314.51	5,115.37	6,642.42	0.00	0.00	
10,400.00	90.80	137.12	5,239.85	-4,387.78	5,183.41	6,742.41	0.00	0.00	
10,500.00	90.80	137.12	5,238.45	-4,461.05	5,251.45	6,842.40	0.00	0.00	
10,600.00	90.80	137.12	5,237.06	-4,534.33	5,319.48	6,942.39	0.00	0.00	
10,700.00	90.80	137.12	5,235.66	-4,607.60	5,387.52	7,042.38	0.00	0.00	
10,800.00	90.80	137.12	5,234.27	-4,680.87	5,455.56	7,142.37	0.00	0.00	
10,900.00	90.80	137.12	5,232.87	-4,754.14	5,523.60	7,242.36	0.00	0.00	
11,000.00	90.80	137.12	5,231.47	-4,827.42	5,591.64	7,342.35	0.00	0.00	
11,100.00	90.80	137.12	5,230.08	-4,900.69	5,659.67	7,442.34	0.00	0.00	
11,200.00	90.80	137.12	5,228.68	-4,973.96	5,727.71	7,542.33	0.00	0.00	
11,300.00	90.80	137.12	5,227.28	-5,047.24	5,795.75	7,642.32	0.00	0.00	
11,400.00	90.80	137.12	5,225.89	-5,120.51	5,863.79	7,742.31	0.00	0.00	
11,500.00	90.80	137.12	5,224.49	-5,193.78	5,931.82	7,842.30	0.00	0.00	
11,600.00	90.80	137.12	5,223.10	-5,267.05	5,999.86	7,942.29	0.00	0.00	
11,700.00	90.80	137.12	5,221.70	-5,340.33	6,067.90	8,042.28	0.00	0.00	
11,800.00	90.80	137.12	5,220.30	-5,413.60	6,135.94	8,142.27	0.00	0.00	
11,900.00	90.80	137.12	5,218.91	-5,486.87	6,203.98	8,242.26	0.00	0.00	
12,000.00	90.80	137.12	5,217.51	-5,560.15	6,272.01	8,342.25	0.00	0.00	
12,100.00	90.80	137.12	5,216.12	-5,633.42	6,340.05	8,442.24	0.00	0.00	
12,200.00	90.80	137.12	5,214.72	-5,706.69	6,408.09	8,542.23	0.00	0.00	
12,300.00	90.80	137.12	5,213.32	-5,779.96	6,476.13	8,642.22	0.00	0.00	
12,400.00	90.80	137.12	5,211.93	-5,853.24	6,544.17	8,742.21	0.00	0.00	
12,500.00	90.80	137.12	5,210.53	-5,926.51	6,612.20	8,842.20	0.00	0.00	
12,600.00	90.80	137.12	5,209.13	-5,999.78	6,680.24	8,942.19	0.00	0.00	
12,700.00	90.80	137.12	5,207.74	-6,073.06	6,748.28	9,042.18	0.00	0.00	
12,800.00	90.80	137.12	5,206.34	-6,146.33	6,816.32	9,142.17	0.00	0.00	
12,900.00	90.80	137.12	5,204.95	-6,219.60	6,884.35	9,242.16	0.00	0.00	
13,000.00	90.80	137.12	5,203.55	-6,292.87	6,952.39	9,342.16	0.00	0.00	
13,100.00	90.80	137.12	5,202.15	-6,366.15	7,020.43	9,442.15	0.00	0.00	
13,200.00	90.80	137.12	5,200.76	-6,439.42	7,088.47	9,542.14	0.00	0.00	
13,299.36	90.80	137.12	5,199.37	-6,512.22	7,156.07	9,641.49	0.00	0.00	TD at 13299.36



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well NAGEEZI UNIT 324H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	16' KB @ 6970.00usft
Project:	San Juan County, NM	MD Reference:	16' KB @ 6970.00usft
Site:	S33-T24N-R9W	North Reference:	True
Well:	NAGEEZI UNIT 324H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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

Targets									
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude
- Shape									Longitude
NAGEEZI UNIT 324H PI	- plan hits target center	0.00	0.00	5,199.37	-6,512.22	7,156.07	1,913,692.72	2,741,980.63	36.259307
	- Point								-107.769263
NAGEEZI UNIT 324H PI	- plan hits target center	0.00	0.00	5,297.15	-1,380.64	2,391.12	1,918,822.34	2,737,213.57	36.273406
	- Point								-107.785424

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
839.00	839.00	Ojo Alamo Ss.		-0.80	137.12	
1,016.00	1,016.00	Kirtland Shale		-0.80	137.12	
1,326.15	1,325.00	Fruitland Coal		-0.80	137.12	
1,611.13	1,605.00	Pictured Cliffs Ss.		-0.80	137.12	
1,708.19	1,699.00	Lewis Shale		-0.80	137.12	
2,414.41	2,350.00	Cliffhouse Ss.		-0.80	137.12	
3,315.97	3,103.00	Menefee Fn.		-0.80	137.12	
4,474.53	4,065.00	Point Lookout Ss.		-0.80	137.12	
4,646.75	4,208.00	Mancos Shale		-0.80	137.12	
5,359.72	4,800.00	Mancos Silt		-0.80	137.12	
5,673.19	5,060.00	Gallup Fn.		-0.80	137.12	
6,138.04	5,315.00	Payzone Top		-0.80	137.12	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
900.00	900.00	0.00	0.00	Start Build 2.00	
2,631.39	2,527.90	-234.52	450.03	Start 3015.54 hold at 2631.39 MD	
5,646.94	5,009.27	-1,026.41	1,969.63	Start DLS 9.00 TFO 23.18	
6,295.97	5,297.15	-1,380.64	2,391.12	Start 7003.39 hold at 6295.97 MD	
13,299.36	5,199.37	-6,512.22	7,156.07	TD at 13299.36	



EnCana Oil & Gas (USA) Inc

San Juan County, NM

S33-T24N-R9W

NAGEEZI UNIT 324H

OH

Plan #2

Anticollision Report

24 January, 2017



Cathedral Energy Services
Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S33-T24N-R9W
Site Error: 0.00usft
Reference Well: NAGEEZI UNIT 324H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 324H
TVD Reference: 16' KB @ 6970.00usft
MD Reference: 16' KB @ 6970.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Reference Plan #2

Filter type: NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method: Stations
Depth Range: Unlimited
Results Limited by: Maximum center-center distance of 5,280.00usft
Warning Levels Evaluated at: 2.00 Sigma
Error Model: Systematic Ellipse
Scan Method: Closest Approach 3D
Error Surface: Elliptical Conic

Survey Tool Program Date 1/23/2017

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	13,299.36	Plan #2 (OH)	MWD+HDGM	OWSG MWD + HDGM

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						
S33-T24N-R9W						
NAGEEZI UNIT 325H - OH - Plan #2	900.00	900.00	29.85	23.82	4.945	CC, ES
NAGEEZI UNIT 325H - OH - Plan #2	13,299.36	13,890.72	2,008.91	1,553.27	4.409	SF
NAGEEZI UNIT 326H - OH - Plan #2	1,488.64	1,497.03	24.73	14.29	2.369	CC
NAGEEZI UNIT 326H - OH - Plan #2	1,500.00	1,508.38	24.75	14.22	2.350	ES
NAGEEZI UNIT 326H - OH - Plan #2	12,429.58	12,523.86	199.22	52.21	1.355	Level 3, SF
NAGEEZI UNIT 327H - OH - Plan #2	1,030.46	1,035.57	78.15	71.22	11.278	CC, ES
NAGEEZI UNIT 327H - OH - Plan #2	11,600.00	11,923.82	1,321.26	954.91	3.606	SF
S34-T24N-R9W (Escrito)						
Escrito D34-2409 01H - Hz - FINAL	5,713.21	5,735.79	694.34	632.53	11.233	CC, ES
Escrito D34-2409 01H - Hz - FINAL	5,850.00	5,576.73	711.92	646.71	10.918	SF
Nageezi Unit 2409Y 03H - Hz - FINAL	6,500.00	5,309.28	159.58	105.83	2.969	ES, SF
Nageezi Unit 2409Y 03H - Hz - FINAL	6,538.43	5,301.24	155.10	106.62	3.199	CC



Cathedral Energy Services
Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S33-T24N-R9W
Site Error: 0.00usft
Reference Well: NAGEEZI UNIT 324H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 324H
TVD Reference: 16' KB @ 6970.00usft
MD Reference: 16' KB @ 6970.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Offset Design S33-T24N-R9W - NAGEEZI UNIT 325H - OH - Plan #2													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance				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)	Between Centres (usft)	Between Ellipses (usft)			
0.00	0.00	0.00	0.00	0.00	0.00	-55.03	17.11	-24.46	29.85				
100.00	100.00	100.00	100.00	0.15	0.15	-55.03	17.11	-24.46	29.85	29.55	0.30	99.142	
200.00	200.00	200.00	200.00	0.51	0.51	-55.03	17.11	-24.46	29.85	28.84	1.02	29.324	
300.00	300.00	300.00	300.00	0.87	0.87	-55.03	17.11	-24.46	29.85	28.12	1.74	17.206	
400.00	400.00	400.00	400.00	1.23	1.23	-55.03	17.11	-24.46	29.85	27.40	2.45	12.175	
500.00	500.00	500.00	500.00	1.58	1.58	-55.03	17.11	-24.46	29.85	26.68	3.17	9.421	
600.00	600.00	600.00	600.00	1.94	1.94	-55.03	17.11	-24.46	29.85	25.97	3.89	7.683	
700.00	700.00	700.00	700.00	2.30	2.30	-55.03	17.11	-24.46	29.85	25.25	4.60	6.486	
800.00	800.00	800.00	800.00	2.66	2.66	-55.03	17.11	-24.46	29.85	24.53	5.32	5.612	
900.00	900.00	900.00	900.00	3.02	3.02	-55.03	17.11	-24.46	29.85	23.82	6.04	4.945 CC, ES	
1,000.00	999.98	1,000.57	1,000.55	3.36	3.36	-175.69	15.34	-24.47	30.63	23.90	6.73	4.552	
1,100.00	1,099.84	1,100.93	1,100.77	3.70	3.69	175.91	10.07	-24.48	33.43	26.03	7.40	4.519	
1,200.00	1,199.45	1,200.90	1,200.35	4.05	4.03	165.02	1.32	-24.49	39.36	31.29	8.07	4.876	
1,300.00	1,298.70	1,300.28	1,298.98	4.40	4.37	154.69	-10.81	-24.51	49.28	40.52	8.76	5.625	
1,400.00	1,397.47	1,398.89	1,396.37	4.77	4.72	146.45	-26.22	-24.53	63.43	53.96	9.47	6.697	
1,500.00	1,495.62	1,496.55	1,492.25	5.16	5.09	140.34	-44.78	-24.56	81.70	71.49	10.21	8.005	
1,600.00	1,593.06	1,593.10	1,586.35	5.56	5.47	135.88	-66.32	-24.60	103.86	92.89	10.97	9.470	
1,700.00	1,689.64	1,688.38	1,678.46	6.00	5.87	132.56	-90.69	-24.63	129.69	117.93	11.75	11.033	
1,800.00	1,785.27	1,782.25	1,768.37	6.47	6.28	130.03	-117.67	-24.68	159.02	146.45	12.57	12.649	
1,900.00	1,879.82	1,874.61	1,855.92	6.98	6.71	128.02	-147.08	-24.72	191.71	178.29	13.42	14.283	
2,000.00	1,973.17	1,965.33	1,940.94	7.53	7.17	126.37	-178.70	-24.77	227.62	213.32	14.31	15.909	
2,100.00	2,065.21	2,054.32	2,023.34	8.14	7.64	124.97	-212.32	-24.83	266.64	251.40	15.23	17.503	
2,200.00	2,155.84	2,141.51	2,103.01	8.81	8.12	123.73	-247.72	-24.88	308.63	292.43	16.20	19.053	
2,300.00	2,244.94	2,230.74	2,183.90	9.54	8.65	122.79	-285.41	-24.94	353.03	335.78	17.25	20.461	
2,400.00	2,332.39	2,319.45	2,264.30	10.34	9.18	122.30	-322.89	-25.00	399.13	380.77	18.36	21.736	
2,500.00	2,418.11	2,407.16	2,343.80	11.22	9.72	122.11	-359.94	-25.06	446.92	427.39	19.52	22.895	
2,600.00	2,501.97	2,493.77	2,422.30	12.17	10.26	122.12	-396.54	-25.12	496.40	475.68	20.72	23.954	
2,631.39	2,527.90	2,520.72	2,446.72	12.49	10.43	122.15	-407.92	-25.14	512.29	491.18	21.11	24.267	
2,700.00	2,584.35	2,579.48	2,499.98	13.20	10.80	122.87	-432.74	-25.18	547.24	525.27	21.96	24.917	
2,800.00	2,666.64	2,665.12	2,577.60	14.26	11.35	123.77	-468.93	-25.23	598.27	575.05	23.22	25.764	
2,900.00	2,748.92	2,750.76	2,655.22	15.34	11.90	124.53	-505.11	-25.29	649.41	624.91	24.50	26.508	
3,000.00	2,831.21	2,836.40	2,732.85	16.44	12.46	125.19	-541.29	-25.35	700.61	674.82	25.79	27.165	
3,100.00	2,913.50	2,922.05	2,810.47	17.55	13.02	125.75	-577.47	-25.41	751.87	724.77	27.10	27.748	
3,200.00	2,995.78	3,007.69	2,888.10	18.67	13.59	126.24	-613.66	-25.46	803.18	774.77	28.41	28.268	
3,300.00	3,078.07	3,093.33	2,965.72	19.81	14.16	126.67	-649.84	-25.52	854.53	824.79	29.74	28.734	
3,400.00	3,160.35	3,178.97	3,043.34	20.95	14.73	127.05	-686.02	-25.58	905.90	874.83	31.07	29.153	
3,500.00	3,242.64	3,264.62	3,120.97	22.10	15.30	127.40	-722.20	-25.63	957.31	924.89	32.42	29.532	
3,600.00	3,324.93	3,350.26	3,198.59	23.25	15.88	127.70	-758.39	-25.69	1,008.74	974.97	33.76	29.876	
3,700.00	3,407.21	3,435.90	3,276.22	24.41	16.46	127.98	-794.57	-25.75	1,060.19	1,025.07	35.12	30.190	
3,800.00	3,489.50	3,521.54	3,353.84	25.57	17.04	128.23	-830.75	-25.81	1,111.65	1,075.17	36.48	30.476	
3,900.00	3,571.79	3,607.19	3,431.46	26.74	17.62	128.46	-866.93	-25.86	1,163.13	1,125.29	37.84	30.739	
4,000.00	3,654.07	3,692.83	3,509.09	27.91	18.20	128.67	-903.12	-25.92	1,214.62	1,175.41	39.21	30.981	
4,100.00	3,736.36	3,778.47	3,586.71	29.08	18.79	128.87	-939.30	-25.98	1,266.12	1,225.55	40.58	31.204	
4,200.00	3,818.64	3,864.11	3,664.34	30.26	19.37	129.04	-975.48	-26.04	1,317.63	1,275.68	41.95	31.410	
4,300.00	3,900.93	3,949.76	3,741.96	31.44	19.96	129.21	-1,011.66	-26.09	1,369.15	1,325.83	43.33	31.601	
4,400.00	3,983.22	4,035.40	3,819.58	32.62	20.55	129.36	-1,047.85	-26.15	1,420.68	1,375.98	44.71	31.779	
4,500.00	4,065.50	4,121.04	3,897.21	33.80	21.14	129.50	-1,084.03	-26.21	1,472.22	1,426.13	46.09	31.945	
4,600.00	4,147.79	4,206.68	3,974.83	34.98	21.73	129.64	-1,120.21	-26.26	1,523.76	1,476.29	47.47	32.100	
4,700.00	4,230.07	4,292.33	4,052.45	36.17	22.32	129.76	-1,156.39	-26.32	1,575.31	1,526.45	48.86	32.244	
4,800.00	4,312.36	4,377.97	4,130.08	37.36	22.91	129.88	-1,192.58	-26.38	1,626.86	1,576.62	50.24	32.380	
4,900.00	4,394.65	4,463.61	4,207.70	38.54	23.50	129.99	-1,228.76	-26.44	1,678.42	1,626.78	51.63	32.508	
5,000.00	4,476.93	4,549.25	4,285.33	39.73	24.10	130.09	-1,264.94	-26.49	1,729.98	1,676.95	53.02	32.628	

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



Cathedral Energy Services

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S33-T24N-R9W
Site Error: 0.00usft
Reference Well: NAGEEZI UNIT 324H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 324H
TVD Reference: 16' KB @ 6970.00usft
MD Reference: 16' KB @ 6970.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Offset Design S33-T24N-R9W - NAGEEZI UNIT 325H - OH - Plan #2													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.00 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)						
5,100.00	4,559.22	4,634.90	4,362.95	40.92	24.69	130.19	-1,301.12	-26.55	1,781.54	1,727.13	54.41	32.741		
5,200.00	4,641.50	4,720.54	4,440.57	42.11	25.28	130.28	-1,337.31	-26.61	1,833.11	1,777.30	55.81	32.847		
5,300.00	4,723.79	4,806.18	4,518.20	43.30	25.88	130.36	-1,373.49	-26.67	1,884.68	1,827.48	57.20	32.948		
5,400.00	4,806.08	4,891.82	4,595.82	44.50	26.47	130.44	-1,409.67	-26.72	1,936.26	1,877.66	58.60	33.044		
5,500.00	4,888.36	4,974.43	4,676.00	45.69	27.06	112.04	-2,286.73	500.75	1,939.23	1,857.84	81.39	23.825		
5,600.00	4,970.65	5,056.94	4,755.36	46.88	27.65	110.72	-2,325.23	536.45	1,944.57	1,860.38	84.19	23.098		
5,646.94	5,009.27	5,095.59	4,795.06	47.44	28.24	110.10	-2,343.31	553.20	1,948.36	1,862.89	85.46	22.798		
5,650.00	5,011.79	5,100.00	4,800.00	47.48	28.28	109.88	-2,344.49	554.30	1,948.63	1,863.09	85.54	22.779		
5,700.00	5,051.73	5,140.00	4,840.00	48.12	28.92	106.52	-2,365.09	573.40	1,953.46	1,866.51	86.94	22.468		
5,750.00	5,089.36	5,177.55	4,877.55	48.83	29.63	103.57	-2,388.01	594.64	1,958.81	1,870.36	88.44	22.147		
5,800.00	5,124.44	5,212.63	4,912.63	49.62	30.42	100.94	-2,413.11	617.90	1,964.50	1,874.45	90.05	21.815		
5,850.00	5,156.77	5,245.00	4,945.00	50.46	31.26	98.57	-2,440.22	643.03	1,970.34	1,878.59	91.75	21.474		
5,900.00	5,186.14	5,274.96	4,974.96	51.37	32.15	96.44	-2,469.18	669.88	1,976.15	1,882.60	93.55	21.123		
5,950.00	5,212.36	5,301.22	5,001.22	52.33	33.09	94.55	-2,499.82	698.28	1,981.76	1,886.31	95.44	20.764		
6,000.00	5,235.28	5,324.14	5,024.14	53.34	34.08	92.90	-2,531.94	728.06	1,986.98	1,889.57	97.41	20.397		
6,050.00	5,254.76	5,343.38	5,043.38	54.39	35.12	91.49	-2,565.35	759.02	1,991.67	1,892.21	99.46	20.024		
6,100.00	5,270.68	5,359.41	5,059.41	55.46	36.20	90.34	-2,599.84	791.00	1,995.69	1,894.13	101.57	19.649		
6,150.00	5,282.93	5,372.62	5,072.62	56.55	37.33	89.43	-2,635.20	823.77	1,998.94	1,895.20	103.73	19.270		
6,200.00	5,291.45	5,381.72	5,081.72	57.65	38.50	88.79	-2,671.21	857.15	2,001.31	1,895.38	105.93	18.893		
6,250.00	5,296.17	5,386.41	5,086.41	58.75	39.72	88.42	-2,707.64	890.92	2,002.74	1,894.58	108.16	18.517		
6,295.97	5,297.15	5,387.35	5,087.35	59.75	41.00	88.32	-2,741.33	922.15	2,003.19	1,892.99	110.21	18.177		
6,300.00	5,297.09	5,387.37	5,087.37	59.84	41.09	88.32	-2,744.28	924.88	2,003.20	1,892.81	110.39	18.147		
6,400.00	5,295.70	5,385.97	5,085.97	62.02	43.27	88.32	-2,817.62	992.86	2,003.28	1,888.40	114.88	17.438		
6,500.00	5,294.30	5,384.57	5,084.57	64.22	45.52	88.33	-2,890.95	1,060.84	2,003.36	1,883.94	119.42	16.776		
6,600.00	5,292.91	5,383.17	5,083.17	66.45	47.83	88.33	-2,964.28	1,128.81	2,003.44	1,879.44	124.00	16.157		
6,700.00	5,291.51	5,381.77	5,081.77	68.70	50.18	88.34	-3,037.61	1,196.79	2,003.52	1,874.91	128.62	15.578		
6,800.00	5,290.11	5,380.37	5,080.37	70.97	52.57	88.34	-3,110.95	1,264.76	2,003.60	1,870.34	133.27	15.034		
6,900.00	5,288.72	5,378.97	5,078.97	73.25	55.00	88.35	-3,184.28	1,332.74	2,003.68	1,865.73	137.95	14.525		
7,000.00	5,287.32	5,377.57	5,077.57	75.56	57.47	88.35	-3,257.61	1,400.72	2,003.77	1,861.11	142.66	14.046		
7,100.00	5,285.92	5,376.17	5,076.17	77.87	60.00	88.36	-3,330.95	1,468.69	2,003.85	1,856.45	147.39	13.595		
7,200.00	5,284.53	5,374.77	5,074.77	80.20	62.57	88.37	-3,404.28	1,536.67	2,003.93	1,851.78	152.15	13.171		
7,300.00	5,283.13	5,373.37	5,073.37	82.55	65.16	88.37	-3,477.61	1,604.64	2,004.01	1,847.08	156.93	12.770		
7,400.00	5,281.74	5,371.97	5,071.97	84.90	67.79	88.38	-3,550.95	1,672.62	2,004.09	1,842.37	161.72	12.392		
7,500.00	5,280.34	5,370.57	5,070.57	87.27	70.47	88.38	-3,624.28	1,740.60	2,004.17	1,837.64	166.53	12.035		
7,600.00	5,278.94	5,369.17	5,069.17	89.64	73.20	88.39	-3,697.61	1,808.57	2,004.25	1,832.89	171.36	11.696		
7,700.00	5,277.55	5,367.77	5,067.77	92.03	76.00	88.39	-3,770.94	1,876.55	2,004.33	1,828.13	176.20	11.375		
7,800.00	5,276.15	5,366.37	5,066.37	94.42	78.83	88.40	-3,844.28	1,944.52	2,004.42	1,823.36	181.05	11.071		
7,900.00	5,274.75	5,364.97	5,064.97	96.82	81.70	88.40	-3,917.61	2,012.50	2,004.50	1,818.58	185.92	10.781		
8,000.00	5,273.36	5,363.57	5,063.57	99.22	84.62	88.41	-3,990.94	2,080.48	2,004.58	1,813.78	190.80	10.506		
8,100.00	5,271.96	5,362.17	5,062.17	101.64	87.59	88.41	-4,064.28	2,148.45	2,004.66	1,808.97	195.69	10.244		
8,200.00	5,270.57	5,360.77	5,060.77	104.05	90.60	88.42	-4,137.61	2,216.43	2,004.74	1,804.16	200.58	9.995		
8,300.00	5,269.17	5,359.37	5,059.37	106.48	93.65	88.42	-4,210.94	2,284.40	2,004.82	1,799.33	205.49	9.756		
8,400.00	5,267.77	5,357.97	5,057.97	108.91	96.74	88.43	-4,284.28	2,352.38	2,004.90	1,794.50	210.40	9.529		
8,500.00	5,266.38	5,356.57	5,056.57	111.34	99.87	88.43	-4,357.61	2,420.36	2,004.99	1,789.66	215.33	9.311		
8,600.00	5,264.98	5,355.17	5,055.17	113.78	103.04	88.44	-4,430.94	2,488.33	2,005.07	1,784.81	220.26	9.103		
8,700.00	5,263.59	5,353.77	5,053.77	116.23	106.25	88.44	-4,504.27	2,556.31	2,005.15	1,779.96	225.19	8.904		
8,800.00	5,262.19	5,352.37	5,052.37	118.68	109.50	88.45	-4,577.61	2,624.28	2,005.23	1,775.10	230.13	8.713		
8,900.00	5,260.79	5,350.97	5,050.97	121.13	112.79	88.45	-4,650.94	2,692.26	2,005.31	1,770.23	235.08	8.530		
9,000.00	5,259.40	5,349.57	5,049.57	123.58	116.12	88.46	-4,724.27	2,760.24	2,005.39	1,765.36	240.03	8.355		
9,100.00	5,258.00	5,348.17	5,048.17	126.04	119.50	88.46	-4,797.61	2,828.21	2,005.47	1,760.48	244.99	8.186		
9,200.00	5,256.60	5,346.77	5,046.77	128.50	122.93	88.47	-4,870.94	2,896.19	2,005.56	1,755.60	249.96	8.024		
9,300.00	5,255.21	5,345.37	5,045.37	130.97	126.40	88.47	-4,944.27	2,964.16	2,005.64	1,750.71	254.92	7.868		

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



Cathedral Energy Services
Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S33-T24N-R9W
Site Error: 0.00usft
Reference Well: NAGEEZI UNIT 324H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 324H
TVD Reference: 16' KB @ 6970.00usft
MD Reference: 16' KB @ 6970.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Offset Design S33-T24N-R9W - NAGEEZI UNIT 325H - OH - Plan #2													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
9,400.00	5,253.81	9,991.37	5,200.50	133.44	128.05	88.48	-5,017.61	3,032.14	2,005.72	1,745.82	259.90	7.717	
9,500.00	5,252.42	10,091.37	5,199.28	135.91	130.52	88.48	-5,090.94	3,100.12	2,005.80	1,740.93	264.87	7.573	
9,600.00	5,251.02	10,191.37	5,198.06	138.38	133.00	88.49	-5,164.27	3,168.09	2,005.88	1,736.03	269.85	7.433	
9,700.00	5,249.62	10,291.37	5,196.84	140.86	135.48	88.49	-5,237.60	3,236.07	2,005.96	1,731.13	274.84	7.299	
9,800.00	5,248.23	10,391.37	5,195.62	143.33	137.97	88.50	-5,310.94	3,304.04	2,006.05	1,726.22	279.83	7.169	
9,900.00	5,246.83	10,491.37	5,194.39	145.81	140.45	88.50	-5,384.27	3,372.02	2,006.13	1,721.31	284.82	7.044	
10,000.00	5,245.44	10,591.37	5,193.17	148.30	142.94	88.51	-5,457.60	3,440.00	2,006.21	1,716.40	289.81	6.923	
10,100.00	5,244.04	10,691.36	5,191.95	150.78	145.43	88.51	-5,530.94	3,507.97	2,006.29	1,711.48	294.81	6.805	
10,200.00	5,242.64	10,791.36	5,190.73	153.27	147.92	88.52	-5,604.27	3,575.95	2,006.37	1,706.57	299.81	6.692	
10,300.00	5,241.25	10,891.36	5,189.51	155.75	150.41	88.52	-5,677.60	3,643.92	2,006.45	1,701.65	304.81	6.583	
10,400.00	5,239.85	10,991.36	5,188.29	158.24	152.91	88.53	-5,750.94	3,711.90	2,006.54	1,696.72	309.81	6.477	
10,500.00	5,238.45	11,091.36	5,187.06	160.74	155.40	88.53	-5,824.27	3,779.88	2,006.62	1,691.80	314.82	6.374	
10,600.00	5,237.06	11,191.36	5,185.84	163.23	157.90	88.54	-5,897.60	3,847.85	2,006.70	1,686.87	319.83	6.274	
10,700.00	5,235.66	11,291.36	5,184.62	165.72	160.40	88.54	-5,970.93	3,915.83	2,006.78	1,681.94	324.84	6.178	
10,800.00	5,234.27	11,391.36	5,183.40	168.22	162.90	88.55	-6,044.27	3,983.80	2,006.86	1,677.01	329.85	6.084	
10,900.00	5,232.87	11,491.36	5,182.18	170.71	165.40	88.55	-6,117.60	4,051.78	2,006.95	1,672.07	334.87	5.993	
11,000.00	5,231.47	11,591.36	5,180.96	173.21	167.90	88.56	-6,190.93	4,119.76	2,007.03	1,667.14	339.89	5.905	
11,100.00	5,230.08	11,691.36	5,179.73	175.71	170.41	88.56	-6,264.27	4,187.73	2,007.11	1,662.20	344.91	5.819	
11,200.00	5,228.68	11,791.36	5,178.51	178.21	172.91	88.57	-6,337.60	4,255.71	2,007.19	1,657.26	349.93	5.736	
11,300.00	5,227.28	11,891.36	5,177.29	180.71	175.42	88.57	-6,410.93	4,323.68	2,007.27	1,652.32	354.95	5.655	
11,400.00	5,225.89	11,991.36	5,176.07	183.22	177.92	88.58	-6,484.27	4,391.66	2,007.35	1,647.38	359.98	5.576	
11,500.00	5,224.49	12,091.36	5,174.85	185.72	180.43	88.58	-6,557.60	4,459.64	2,007.44	1,642.43	365.00	5.500	
11,600.00	5,223.10	12,191.36	5,173.63	188.23	182.94	88.59	-6,630.93	4,527.61	2,007.52	1,637.49	370.03	5.425	
11,700.00	5,221.70	12,291.36	5,172.40	190.73	185.45	88.59	-6,704.26	4,595.59	2,007.60	1,632.54	375.06	5.353	
11,800.00	5,220.30	12,391.36	5,171.18	193.24	187.96	88.60	-6,777.60	4,663.56	2,007.68	1,627.59	380.09	5.282	
11,900.00	5,218.91	12,491.36	5,169.96	195.75	190.47	88.60	-6,850.93	4,731.54	2,007.76	1,622.64	385.12	5.213	
12,000.00	5,217.51	12,591.36	5,168.74	198.25	192.98	88.61	-6,924.26	4,799.52	2,007.85	1,617.69	390.15	5.146	
12,100.00	5,216.12	12,691.36	5,167.52	200.76	195.50	88.61	-6,997.60	4,867.49	2,007.93	1,612.74	395.19	5.081	
12,200.00	5,214.72	12,791.36	5,166.29	203.27	198.01	88.62	-7,070.93	4,935.47	2,008.01	1,607.79	400.22	5.017	
12,300.00	5,213.32	12,891.36	5,165.07	205.78	200.52	88.62	-7,144.26	5,003.44	2,008.09	1,602.83	405.26	4.955	
12,400.00	5,211.93	12,991.36	5,163.85	208.30	203.04	88.63	-7,217.60	5,071.42	2,008.17	1,597.88	410.30	4.894	
12,500.00	5,210.53	13,091.36	5,162.63	210.81	205.55	88.63	-7,290.93	5,139.40	2,008.26	1,592.92	415.34	4.835	
12,600.00	5,209.13	13,191.36	5,161.41	213.32	208.07	88.64	-7,364.26	5,207.37	2,008.34	1,587.96	420.37	4.777	
12,700.00	5,207.74	13,291.36	5,160.19	215.83	210.59	88.64	-7,437.59	5,275.35	2,008.42	1,583.00	425.42	4.721	
12,800.00	5,206.34	13,391.36	5,158.96	218.35	213.10	88.65	-7,510.93	5,343.32	2,008.50	1,578.05	430.46	4.666	
12,900.00	5,204.95	13,491.36	5,157.74	220.86	215.62	88.65	-7,584.26	5,411.30	2,008.58	1,573.09	435.50	4.612	
13,000.00	5,203.55	13,591.36	5,156.52	223.38	218.14	88.66	-7,657.59	5,479.28	2,008.67	1,568.12	440.54	4.560	
13,100.00	5,202.15	13,691.36	5,155.30	225.90	220.66	88.66	-7,730.93	5,547.25	2,008.75	1,563.16	445.59	4.508	
13,200.00	5,200.76	13,791.36	5,154.08	228.41	223.18	88.67	-7,804.26	5,615.23	2,008.83	1,558.20	450.63	4.458	
13,299.36	5,199.37	13,890.72	5,152.86	230.91	225.68	88.67	-7,877.12	5,682.77	2,008.91	1,553.27	455.65	4.409 SF	



Cathedral Energy Services

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S33-T24N-R9W
Site Error: 0.00usft
Reference Well: NAGEEZI UNIT 324H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 324H
TVD Reference: 16' KB @ 6970.00usft
MD Reference: 16' KB @ 6970.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Offset Design S33-T24N-R9W - NAGEEZI UNIT 326H - OH - Plan #2												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		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)					
0.00	0.00	0.00	0.00	0.00	0.00	-55.07	34.58	-49.52	60.40				
100.00	100.00	100.00	100.00	0.15	0.15	-55.07	34.58	-49.52	60.40	60.10	0.30	200.581	
200.00	200.00	200.00	200.00	0.51	0.51	-55.07	34.58	-49.52	60.40	59.38	1.02	59.327	
300.00	300.00	300.00	300.00	0.87	0.87	-55.07	34.58	-49.52	60.40	58.66	1.74	34.812	
400.00	400.00	400.00	400.00	1.23	1.23	-55.07	34.58	-49.52	60.40	57.95	2.45	24.633	
500.00	500.00	500.00	500.00	1.58	1.58	-55.07	34.58	-49.52	60.40	57.23	3.17	19.060	
600.00	600.00	600.00	600.00	1.94	1.94	-55.07	34.58	-49.52	60.40	56.51	3.89	15.543	
700.00	700.00	700.00	700.00	2.30	2.30	-55.07	34.58	-49.52	60.40	55.80	4.60	13.122	
800.00	800.00	802.04	802.02	2.66	2.66	-54.62	33.96	-47.81	58.68	53.34	5.34	10.998	
900.00	900.00	903.82	903.64	3.02	3.00	-53.08	32.09	-42.71	53.55	47.47	6.08	8.801	
1,000.00	999.98	1,005.25	1,004.67	3.36	3.36	-167.78	29.01	-34.26	46.83	40.00	6.83	6.855	
1,100.00	1,099.84	1,106.42	1,105.05	3.70	3.73	-163.39	24.70	-22.49	40.37	32.80	7.57	5.334	
1,200.00	1,199.45	1,207.31	1,204.67	4.05	4.10	-156.68	19.20	-7.44	34.40	26.10	8.30	4.145	
1,300.00	1,298.70	1,307.94	1,303.39	4.40	4.50	-146.63	12.52	10.84	29.33	20.31	9.02	3.252	
1,400.00	1,397.47	1,408.30	1,401.10	4.77	4.93	-132.38	4.68	32.31	25.84	16.09	9.75	2.651	
1,488.64	1,484.51	1,497.03	1,486.79	5.11	5.32	-116.83	-3.23	53.95	24.73	14.29	10.44	2.369 CC	
1,500.00	1,495.62	1,508.38	1,497.70	5.16	5.38	-114.75	-4.31	56.90	24.75	14.22	10.53	2.350 ES	
1,600.00	1,593.06	1,608.19	1,593.06	5.56	5.86	-97.24	-14.42	84.56	26.52	15.09	11.43	2.321	
1,700.00	1,689.64	1,707.73	1,687.07	6.00	6.39	-83.17	-25.63	115.25	30.79	18.40	12.39	2.486	
1,800.00	1,785.27	1,806.99	1,779.65	6.47	6.97	-73.20	-37.92	148.88	36.82	23.45	13.37	2.753	
1,900.00	1,879.82	1,905.98	1,870.67	6.98	7.60	-66.44	-51.27	185.40	44.00	29.62	14.38	3.059	
2,000.00	1,973.17	2,004.69	1,960.06	7.53	8.29	-61.86	-65.64	224.74	51.94	36.52	15.43	3.367	
2,100.00	2,065.21	2,103.14	2,047.71	8.14	9.04	-58.74	-81.02	266.83	60.42	43.90	16.52	3.657	
2,200.00	2,155.84	2,201.78	2,134.01	8.81	9.86	-56.70	-97.41	311.68	69.22	51.52	17.70	3.911	
2,300.00	2,244.94	2,301.50	2,220.87	9.54	10.73	-56.78	-114.23	357.69	76.67	57.62	19.05	4.025	
2,400.00	2,332.39	2,401.29	2,307.78	10.34	11.63	-58.90	-131.06	403.74	82.27	61.64	20.63	3.988	
2,500.00	2,418.11	2,501.03	2,394.66	11.22	12.54	-62.77	-147.88	449.77	86.33	63.85	22.48	3.841	
2,600.00	2,501.97	2,600.60	2,481.38	12.17	13.46	-68.32	-164.67	495.72	89.42	64.80	24.62	3.632	
2,631.39	2,527.90	2,631.81	2,508.56	12.49	13.75	-70.40	-169.93	510.12	90.31	64.97	25.35	3.563	
2,700.00	2,584.35	2,699.97	2,567.93	13.20	14.39	-75.05	-181.43	541.58	92.59	65.63	26.96	3.434	
2,800.00	2,666.64	2,799.33	2,654.47	14.26	15.33	-81.37	-198.18	587.43	96.93	67.66	29.28	3.311	
2,900.00	2,748.92	2,898.68	2,741.00	15.34	16.28	-87.09	-214.94	633.28	102.36	70.86	31.50	3.249	
3,000.00	2,831.21	2,998.03	2,827.53	16.44	17.24	-92.20	-231.69	679.12	108.71	75.08	33.62	3.233	
3,100.00	2,913.50	3,097.38	2,914.07	17.55	18.20	-96.72	-248.45	724.97	115.82	80.19	35.63	3.251	
3,200.00	2,995.78	3,196.74	3,000.60	18.67	19.16	-100.69	-265.20	770.82	123.58	86.04	37.54	3.292	
3,300.00	3,078.07	3,296.09	3,087.14	19.81	20.13	-104.19	-281.96	816.67	131.85	92.49	39.36	3.350	
3,400.00	3,160.35	3,395.44	3,173.67	20.95	21.10	-107.26	-298.71	862.52	140.56	99.45	41.12	3.419	
3,500.00	3,242.64	3,494.79	3,260.21	22.10	22.07	-109.97	-315.47	908.36	149.63	106.81	42.82	3.495	
3,600.00	3,324.93	3,594.15	3,346.74	23.25	23.05	-112.37	-332.22	954.21	158.99	114.51	44.47	3.575	
3,700.00	3,407.21	3,693.50	3,433.27	24.41	24.03	-114.50	-348.97	1,000.06	168.59	122.49	46.10	3.657	
3,800.00	3,489.50	3,792.85	3,519.81	25.57	25.01	-116.40	-365.73	1,045.91	178.40	130.71	47.70	3.740	
3,900.00	3,571.79	3,892.20	3,606.34	26.74	25.99	-118.10	-382.48	1,091.76	188.39	139.12	49.27	3.823	
4,000.00	3,654.07	3,991.56	3,692.88	27.91	26.98	-119.62	-399.24	1,137.60	198.52	147.69	50.84	3.905	
4,100.00	3,736.36	4,090.91	3,779.41	29.08	27.96	-121.00	-415.99	1,183.45	208.78	156.40	52.39	3.985	
4,200.00	3,818.64	4,190.26	3,865.95	30.26	28.95	-122.25	-432.75	1,229.30	219.15	165.22	53.93	4.064	
4,300.00	3,900.93	4,289.61	3,952.48	31.44	29.93	-123.39	-449.50	1,275.15	229.62	174.15	55.47	4.140	
4,400.00	3,983.22	4,388.97	4,039.01	32.62	30.92	-124.42	-466.26	1,321.00	240.16	183.16	57.00	4.214	
4,500.00	4,065.50	4,488.32	4,125.55	33.80	31.91	-125.37	-483.01	1,366.84	250.77	192.25	58.52	4.285	
4,600.00	4,147.79	4,587.67	4,212.08	34.98	32.90	-126.24	-499.77	1,412.69	261.45	201.41	60.05	4.354	
4,700.00	4,230.07	4,687.03	4,298.62	36.17	33.89	-127.05	-516.52	1,458.54	272.19	210.62	61.57	4.421	
4,800.00	4,312.36	4,786.38	4,385.15	37.36	34.88	-127.79	-533.28	1,504.39	282.97	219.88	63.09	4.485	
4,900.00	4,394.65	4,885.73	4,471.69	38.54	35.88	-128.48	-550.03	1,550.24	293.79	229.19	64.61	4.547	

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



Cathedral Energy Services
Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S33-T24N-R9W
Site Error: 0.00usft
Reference Well: NAGEEZI UNIT 324H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 324H
TVD Reference: 16' KB @ 6970.00usft
MD Reference: 16' KB @ 6970.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Offset Design S33-T24N-R9W - NAGEEZI UNIT 326H - OH - Plan #2													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		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)					
5,000.00	4,476.93	4,985.08	4,558.22	39.73	36.87	-129.12	-566.79	1,596.08	304.66	238.53	66.13	4.607	
5,100.00	4,559.22	5,084.44	4,644.75	40.92	37.86	-129.71	-583.54	1,641.93	315.56	247.91	67.64	4.665	
5,200.00	4,641.50	5,183.79	4,731.29	42.11	38.86	-130.27	-600.29	1,687.78	326.49	257.33	69.16	4.721	
5,300.00	4,723.79	5,342.98	4,863.98	43.30	40.67	-130.19	-636.17	1,767.40	331.49	260.49	71.00	4.669	
5,400.00	4,806.08	5,521.95	4,985.56	44.50	43.45	-126.32	-708.26	1,876.24	312.00	240.23	71.77	4.347	
5,500.00	4,888.36	5,669.71	5,057.03	45.69	46.22	-117.84	-789.84	1,976.09	272.26	198.90	73.36	3.711	
5,600.00	4,970.65	5,782.29	5,091.28	46.88	48.50	-104.23	-862.56	2,054.70	222.11	143.21	78.90	2.815	
5,646.94	5,009.27	5,824.69	5,099.37	47.44	49.37	-96.19	-891.80	2,084.31	198.47	115.09	83.38	2.380	
5,650.00	5,011.79	5,827.26	5,099.77	47.48	49.43	-95.93	-893.60	2,086.10	196.99	113.28	83.71	2.353	
5,700.00	5,051.73	5,868.04	5,104.85	48.12	50.27	-90.80	-922.54	2,114.37	175.33	86.11	89.22	1.965	
5,750.00	5,089.36	5,906.81	5,107.35	48.83	51.07	-84.25	-950.64	2,140.96	159.55	65.54	94.01	1.697	
5,800.00	5,124.44	5,943.80	5,107.62	49.62	51.82	-76.58	-977.87	2,165.98	151.11	54.89	96.22	1.571	
5,827.57	5,142.62	5,963.78	5,107.34	50.08	52.23	-72.09	-992.66	2,179.42	149.92	54.16	95.76	1.566	
5,850.00	5,156.77	5,980.63	5,107.11	50.46	52.57	-68.26	-1,005.14	2,190.75	150.65	56.21	94.43	1.595	
5,900.00	5,186.14	6,020.01	5,106.56	51.37	53.38	-59.61	-1,034.28	2,217.22	156.64	67.29	89.36	1.753	
5,950.00	5,212.36	6,061.68	5,105.98	52.33	54.24	-51.55	-1,065.12	2,245.23	166.68	83.59	83.09	2.006	
6,000.00	5,235.28	6,105.38	5,105.37	53.34	55.15	-44.66	-1,097.47	2,274.61	178.51	101.35	77.16	2.314	
6,050.00	5,254.76	6,150.85	5,104.73	54.39	56.11	-39.12	-1,131.12	2,305.18	190.45	118.16	72.29	2.634	
6,100.00	5,270.68	6,197.82	5,104.08	55.46	57.10	-34.88	-1,165.88	2,336.76	201.31	132.66	68.65	2.932	
6,150.00	5,282.93	6,245.98	5,103.40	56.55	58.13	-31.79	-1,201.53	2,369.13	210.29	144.09	66.20	3.177	
6,200.00	5,291.45	6,295.04	5,102.72	57.65	59.18	-29.69	-1,237.84	2,402.12	216.88	152.04	64.84	3.345	
6,250.00	5,296.17	6,344.70	5,102.03	58.75	60.25	-28.46	-1,274.60	2,435.50	220.76	156.27	64.48	3.423	
6,295.97	5,297.15	6,390.62	5,101.38	59.75	61.25	-28.02	-1,308.59	2,466.38	221.77	156.75	65.02	3.411	
6,300.00	5,297.09	6,394.65	5,101.33	59.84	61.34	-28.01	-1,311.57	2,469.09	221.75	156.65	65.10	3.406	
6,400.00	5,295.70	6,494.64	5,099.93	62.02	63.53	-27.76	-1,385.58	2,536.31	221.23	154.08	67.15	3.295	
6,500.00	5,294.30	6,594.64	5,098.54	64.22	65.75	-27.51	-1,459.59	2,603.54	220.72	151.53	69.20	3.190	
6,600.00	5,292.91	6,694.63	5,097.14	66.45	67.99	-27.25	-1,533.60	2,670.77	220.22	148.99	71.23	3.092	
6,700.00	5,291.51	6,794.63	5,095.74	68.70	70.24	-27.00	-1,607.61	2,737.99	219.72	146.46	73.26	2.999	
6,800.00	5,290.11	6,894.62	5,094.35	70.97	72.52	-26.75	-1,681.62	2,805.22	219.22	143.96	75.27	2.913	
6,900.00	5,288.72	6,994.61	5,092.95	73.25	74.81	-26.49	-1,755.63	2,872.44	218.73	141.47	77.26	2.831	
7,000.00	5,287.32	7,094.61	5,091.56	75.56	77.12	-26.23	-1,829.64	2,939.67	218.25	139.01	79.24	2.754	
7,100.00	5,285.92	7,194.60	5,090.16	77.87	79.44	-25.97	-1,903.65	3,006.90	217.76	136.57	81.20	2.682	
7,200.00	5,284.53	7,294.60	5,088.76	80.20	81.77	-25.71	-1,977.66	3,074.12	217.29	134.15	83.14	2.614	
7,300.00	5,283.13	7,394.59	5,087.37	82.55	84.11	-25.45	-2,051.67	3,141.35	216.81	131.76	85.05	2.549	
7,400.00	5,281.74	7,494.58	5,085.97	84.90	86.47	-25.19	-2,125.68	3,208.57	216.34	129.40	86.94	2.488	
7,500.00	5,280.34	7,594.58	5,084.58	87.27	88.83	-24.93	-2,199.69	3,275.80	215.88	127.07	88.81	2.431	
7,600.00	5,278.94	7,694.57	5,083.18	89.64	91.20	-24.66	-2,273.70	3,343.02	215.42	124.76	90.65	2.376	
7,700.00	5,277.55	7,794.57	5,081.78	92.03	93.58	-24.39	-2,347.71	3,410.25	214.96	122.49	92.47	2.325	
7,800.00	5,276.15	7,894.56	5,080.39	94.42	95.97	-24.13	-2,421.72	3,477.48	214.51	120.25	94.26	2.276	
7,900.00	5,274.75	7,994.55	5,078.99	96.82	98.36	-23.86	-2,495.73	3,544.70	214.07	118.04	96.03	2.229	
8,000.00	5,273.36	8,094.55	5,077.59	99.22	100.77	-23.59	-2,569.74	3,611.93	213.63	115.86	97.77	2.185	
8,100.00	5,271.96	8,194.54	5,076.20	101.64	103.17	-23.32	-2,643.75	3,679.15	213.19	113.71	99.48	2.143	
8,200.00	5,270.57	8,294.54	5,074.80	104.05	105.59	-23.05	-2,717.76	3,746.38	212.76	111.60	101.16	2.103	
8,300.00	5,269.17	8,394.53	5,073.41	106.48	108.00	-22.78	-2,791.77	3,813.61	212.33	109.52	102.81	2.065	
8,400.00	5,267.77	8,494.52	5,072.01	108.91	110.43	-22.50	-2,865.78	3,880.83	211.91	107.48	104.43	2.029	
8,500.00	5,266.38	8,594.52	5,070.61	111.34	112.85	-22.23	-2,939.79	3,948.06	211.49	105.47	106.02	1.995	
8,600.00	5,264.98	8,694.51	5,069.22	113.78	115.29	-21.95	-3,013.80	4,015.28	211.08	103.49	107.59	1.962	
8,700.00	5,263.59	8,794.51	5,067.82	116.23	117.72	-21.68	-3,087.82	4,082.51	210.67	101.55	109.12	1.931	
8,800.00	5,262.19	8,894.50	5,066.43	118.68	120.16	-21.40	-3,161.83	4,149.74	210.27	99.64	110.63	1.901	
8,900.00	5,260.79	8,994.49	5,065.03	121.13	122.60	-21.12	-3,235.84	4,216.96	209.87	97.77	112.10	1.872	
9,000.00	5,259.40	9,094.49	5,063.63	123.58	125.05	-20.84	-3,309.85	4,284.19	209.48	95.93	113.55	1.845	
9,100.00	5,258.00	9,194.48	5,062.24	126.04	127.50	-20.56	-3,383.86	4,351.41	209.09	94.13	114.96	1.819	

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



Cathedral Energy Services
Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S33-T24N-R9W
Site Error: 0.00usft
Reference Well: NAGEEZI UNIT 324H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 324H
TVD Reference: 16' KB @ 6970.00usft
MD Reference: 16' KB @ 6970.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Offset Design S33-T24N-R9W - NAGEEZI UNIT 326H - OH - Plan #2													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		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)					
9,200.00	5,256.60	9,294.48	5,060.84	128.50	129.95	-20.28	-3,457.87	4,418.64	208.71	92.36	116.34	1.794	
9,300.00	5,255.21	9,394.47	5,059.45	130.97	132.41	-20.00	-3,531.88	4,485.87	208.33	90.63	117.70	1.770	
9,400.00	5,253.81	9,494.46	5,058.05	133.44	134.87	-19.71	-3,605.89	4,553.09	207.96	88.93	119.02	1.747	
9,500.00	5,252.42	9,594.46	5,056.65	135.91	137.33	-19.43	-3,679.90	4,620.32	207.59	87.27	120.32	1.725	
9,600.00	5,251.02	9,694.45	5,055.26	138.38	139.79	-19.14	-3,753.91	4,687.54	207.23	85.65	121.58	1.704	
9,700.00	5,249.62	9,794.45	5,053.86	140.86	142.25	-18.85	-3,827.92	4,754.77	206.87	84.05	122.82	1.684	
9,800.00	5,248.23	9,894.44	5,052.46	143.33	144.72	-18.57	-3,901.93	4,822.00	206.52	82.50	124.02	1.665	
9,900.00	5,246.83	9,994.43	5,051.07	145.81	147.19	-18.28	-3,975.94	4,889.22	206.17	80.97	125.20	1.647	
10,000.00	5,245.44	10,094.43	5,049.67	148.30	149.66	-17.99	-4,049.95	4,956.45	205.83	79.48	126.35	1.629	
10,100.00	5,244.04	10,194.42	5,048.28	150.78	152.13	-17.70	-4,123.96	5,023.67	205.50	78.03	127.47	1.612	
10,200.00	5,242.64	10,294.42	5,046.88	153.27	154.61	-17.40	-4,197.97	5,090.90	205.17	76.60	128.56	1.596	
10,300.00	5,241.25	10,394.41	5,045.48	155.75	157.09	-17.11	-4,271.98	5,158.13	204.84	75.21	129.63	1.580	
10,400.00	5,239.85	10,494.40	5,044.09	158.24	159.56	-16.82	-4,345.99	5,225.35	204.52	73.86	130.66	1.565	
10,500.00	5,238.45	10,594.40	5,042.69	160.74	162.04	-16.52	-4,420.00	5,292.58	204.21	72.53	131.67	1.551	
10,600.00	5,237.06	10,694.39	5,041.30	163.23	164.52	-16.23	-4,494.01	5,359.80	203.90	71.24	132.66	1.537	
10,700.00	5,235.66	10,794.39	5,039.90	165.72	167.01	-15.93	-4,568.02	5,427.03	203.59	69.97	133.62	1.524	
10,800.00	5,234.27	10,894.38	5,038.50	168.22	169.49	-15.63	-4,642.03	5,494.26	203.29	68.74	134.55	1.511	
10,900.00	5,232.87	10,994.37	5,037.11	170.71	171.97	-15.34	-4,716.04	5,561.48	203.00	67.54	135.46	1.499 Level 3	
11,000.00	5,231.47	11,094.37	5,035.71	173.21	174.46	-15.04	-4,790.05	5,628.71	202.71	66.36	136.35	1.487 Level 3	
11,100.00	5,230.08	11,194.36	5,034.32	175.71	176.95	-14.74	-4,864.06	5,695.93	202.43	65.22	137.22	1.475 Level 3	
11,200.00	5,228.68	11,294.36	5,032.92	178.21	179.44	-14.44	-4,938.07	5,763.16	202.16	64.10	138.06	1.464 Level 3	
11,300.00	5,227.28	11,394.35	5,031.52	180.71	181.93	-14.13	-5,012.08	5,830.39	201.89	63.01	138.88	1.454 Level 3	
11,400.00	5,225.89	11,494.34	5,030.13	183.22	184.42	-13.83	-5,086.09	5,897.61	201.62	61.94	139.68	1.443 Level 3	
11,500.00	5,224.49	11,594.34	5,028.73	185.72	186.91	-13.53	-5,160.10	5,964.84	201.36	60.90	140.46	1.434 Level 3	
11,600.00	5,223.10	11,694.33	5,027.33	188.23	189.40	-13.23	-5,234.11	6,032.06	201.11	59.88	141.23	1.424 Level 3	
11,700.00	5,221.70	11,794.33	5,025.94	190.73	191.89	-12.92	-5,308.12	6,099.29	200.86	58.88	141.98	1.415 Level 3	
11,800.00	5,220.30	11,894.32	5,024.54	193.24	194.39	-12.62	-5,382.13	6,166.51	200.62	57.91	142.71	1.406 Level 3	
11,900.00	5,218.91	11,994.31	5,023.15	195.75	196.88	-12.31	-5,456.14	6,233.74	200.38	56.96	143.42	1.397 Level 3	
12,000.00	5,217.51	12,094.31	5,021.75	198.25	199.38	-12.00	-5,530.15	6,300.97	200.15	56.02	144.13	1.389 Level 3	
12,100.00	5,216.12	12,194.30	5,020.35	200.76	201.87	-11.70	-5,604.16	6,368.19	199.93	55.11	144.82	1.381 Level 3	
12,200.00	5,214.72	12,294.29	5,018.96	203.27	204.37	-11.39	-5,678.17	6,435.42	199.71	54.21	145.49	1.373 Level 3	
12,300.00	5,213.32	12,394.29	5,017.56	205.78	206.87	-11.08	-5,752.18	6,502.64	199.49	53.33	146.16	1.365 Level 3	
12,400.00	5,211.93	12,494.28	5,016.17	208.30	209.37	-10.77	-5,826.19	6,569.87	199.28	52.46	146.82	1.357 Level 3	
12,429.58	5,211.51	12,523.86	5,015.75	209.04	210.11	-10.68	-5,848.09	6,589.76	199.22	52.21	147.02	1.355 Level 3, SF	
12,500.00	5,210.53	12,526.22	5,015.72	210.81	210.17	-10.67	-5,849.84	6,591.34	210.39	73.20	137.19	1.534	
12,600.00	5,209.13	12,526.22	5,015.72	213.32	210.17	-10.67	-5,849.84	6,591.34	260.38	148.04	112.34	2.318	
12,700.00	5,207.74	12,526.22	5,015.72	215.83	210.17	-10.67	-5,849.84	6,591.34	333.66	241.35	92.31	3.615	
12,800.00	5,206.34	12,526.22	5,015.72	218.35	210.17	-10.67	-5,849.84	6,591.34	418.16	338.39	79.77	5.242	
12,900.00	5,204.95	12,526.22	5,015.72	220.86	210.17	-10.67	-5,849.84	6,591.34	508.32	436.09	72.22	7.038	
13,000.00	5,203.55	12,526.22	5,015.72	223.38	210.17	-10.67	-5,849.84	6,591.34	601.60	533.98	67.62	8.897	
13,100.00	5,202.15	12,526.22	5,015.72	225.90	210.17	-10.67	-5,849.84	6,591.34	696.74	632.01	64.73	10.764	
13,200.00	5,200.76	12,526.22	5,015.72	228.41	210.17	-10.67	-5,849.84	6,591.34	793.08	730.22	62.86	12.616	
13,299.36	5,199.37	12,526.22	5,015.72	230.91	210.17	-10.67	-5,849.84	6,591.34	889.61	827.97	61.63	14.434	

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



Cathedral Energy Services
Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S33-T24N-R9W
Site Error: 0.00usft
Reference Well: NAGEEZI UNIT 324H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 324H
TVD Reference: 16' KB @ 6970.00usft
MD Reference: 16' KB @ 6970.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Offset Design S33-T24N-R9W - NAGEEZI UNIT 327H - OH - Plan #2												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
0.00	0.00	0.00	0.00	0.00	0.00	-55.06	51.69	-73.98	90.25				
100.00	100.00	100.00	100.00	0.15	0.15	-55.06	51.69	-73.98	90.25	89.95	0.30	299.723	
200.00	200.00	200.00	200.00	0.51	0.51	-55.06	51.69	-73.98	90.25	89.23	1.02	88.651	
300.00	300.00	300.00	300.00	0.87	0.87	-55.06	51.69	-73.98	90.25	88.52	1.74	52.018	
400.00	400.00	400.00	400.00	1.23	1.23	-55.06	51.69	-73.98	90.25	87.80	2.45	36.808	
500.00	500.00	500.00	500.00	1.58	1.58	-55.06	51.69	-73.98	90.25	87.08	3.17	28.480	
600.00	600.00	600.00	600.00	1.94	1.94	-55.06	51.69	-73.98	90.25	86.37	3.89	23.226	
700.00	700.00	701.89	701.87	2.30	2.29	-55.99	49.88	-73.92	89.19	84.59	4.60	19.387	
800.00	800.00	803.52	803.35	2.66	2.63	-58.90	44.47	-73.73	86.17	80.85	5.31	16.219	
900.00	900.00	904.64	904.06	3.02	2.98	-64.18	35.52	-73.42	81.66	75.63	6.03	13.551	
1,000.00	999.98	1,005.10	1,003.75	3.36	3.33	170.28	23.11	-72.98	78.37	71.65	6.72	11.663	
1,030.46	1,030.42	1,035.57	1,033.89	3.47	3.44	167.36	18.66	-72.83	78.15	71.22	6.93	11.278	CC, ES
1,100.00	1,099.84	1,104.91	1,102.30	3.70	3.70	160.13	7.34	-72.43	79.36	71.95	7.41	10.710	
1,200.00	1,199.45	1,205.89	1,201.49	4.05	4.09	149.55	-11.46	-70.36	84.41	76.27	8.14	10.366	
1,300.00	1,298.70	1,306.55	1,299.80	4.40	4.51	140.02	-32.50	-65.67	92.50	83.60	8.90	10.394	
1,400.00	1,397.47	1,406.86	1,397.12	4.77	4.94	131.85	-55.73	-58.38	103.31	93.62	9.69	10.665	
1,500.00	1,495.62	1,506.84	1,493.31	5.16	5.40	125.05	-81.10	-48.52	116.41	105.90	10.51	11.077	
1,600.00	1,593.06	1,605.47	1,587.60	5.56	5.87	119.93	-107.66	-36.99	131.70	120.34	11.37	11.584	
1,700.00	1,689.64	1,703.71	1,681.48	6.00	6.35	116.96	-134.18	-25.44	149.25	136.99	12.26	12.173	
1,800.00	1,785.27	1,801.79	1,775.21	6.47	6.85	115.60	-160.66	-13.90	168.52	155.33	13.19	12.776	
1,900.00	1,879.82	1,899.60	1,868.68	6.98	7.35	115.40	-187.06	-2.39	189.29	175.13	14.16	13.367	
2,000.00	1,973.17	1,997.03	1,961.79	7.53	7.86	116.01	-213.36	9.07	211.56	196.38	15.17	13.942	
2,100.00	2,065.21	2,093.94	2,054.41	8.14	8.37	117.17	-239.52	20.48	235.42	219.20	16.23	14.508	
2,200.00	2,155.84	2,190.23	2,146.43	8.81	8.88	118.69	-265.52	31.81	261.06	243.74	17.32	15.074	
2,300.00	2,244.94	2,285.77	2,237.73	9.54	9.39	120.44	-291.31	43.05	288.66	270.22	18.44	15.654	
2,400.00	2,332.39	2,380.46	2,328.22	10.34	9.90	122.31	-316.87	54.19	318.40	298.81	19.59	16.256	
2,500.00	2,418.11	2,474.17	2,417.78	11.22	10.41	124.22	-342.17	65.21	350.44	329.69	20.75	16.888	
2,600.00	2,501.97	2,566.79	2,506.29	12.17	10.92	126.10	-367.17	76.11	384.94	363.01	21.93	17.556	
2,631.39	2,527.90	2,595.63	2,533.85	12.49	11.07	126.69	-374.95	79.50	396.29	374.00	22.30	17.774	
2,700.00	2,584.35	2,658.51	2,593.94	13.20	11.42	128.29	-391.93	86.90	421.53	398.43	23.10	18.246	
2,800.00	2,666.64	2,750.16	2,681.53	14.26	11.92	130.31	-416.67	97.68	458.77	434.50	24.27	18.900	
2,900.00	2,748.92	2,841.82	2,769.12	15.34	12.42	132.03	-441.41	108.47	496.44	471.00	25.44	19.513	
3,000.00	2,831.21	2,933.47	2,856.71	16.44	12.93	133.51	-466.16	119.25	534.45	507.84	26.61	20.086	
3,100.00	2,913.50	3,025.13	2,944.30	17.55	13.43	134.80	-490.90	130.03	572.72	544.95	27.77	20.622	
3,200.00	2,995.78	3,116.78	3,031.89	18.67	13.94	135.93	-515.64	140.82	611.22	582.28	28.94	21.124	
3,300.00	3,078.07	3,208.44	3,119.49	19.81	14.45	136.93	-540.39	151.60	649.90	619.80	30.10	21.593	
3,400.00	3,160.35	3,300.09	3,207.08	20.95	14.96	137.81	-565.13	162.39	688.72	657.46	31.26	22.032	
3,500.00	3,242.64	3,391.75	3,294.67	22.10	15.47	138.60	-589.87	173.17	727.68	695.25	32.42	22.443	
3,600.00	3,324.93	3,483.40	3,382.26	23.25	15.98	139.31	-614.61	183.95	766.74	733.15	33.59	22.829	
3,700.00	3,407.21	3,575.06	3,469.85	24.41	16.49	139.96	-639.36	194.74	805.89	771.14	34.75	23.192	
3,800.00	3,489.50	3,666.71	3,557.44	25.57	17.00	140.54	-664.10	205.52	845.12	809.21	35.91	23.534	
3,900.00	3,571.79	3,758.37	3,645.03	26.74	17.51	141.07	-688.84	216.30	884.42	847.34	37.07	23.855	
4,000.00	3,654.07	3,850.03	3,732.62	27.91	18.02	141.56	-713.58	227.09	923.77	885.54	38.24	24.159	
4,100.00	3,736.36	3,941.68	3,820.21	29.08	18.53	142.01	-738.33	237.87	963.18	923.78	39.40	24.445	
4,200.00	3,818.64	4,033.34	3,907.81	30.26	19.04	142.42	-763.07	248.65	1,002.64	962.07	40.57	24.716	
4,300.00	3,900.93	4,124.99	3,995.40	31.44	19.56	142.80	-787.81	259.44	1,042.14	1,000.41	41.73	24.973	
4,400.00	3,983.22	4,216.65	4,082.99	32.62	20.07	143.16	-812.55	270.22	1,081.67	1,038.77	42.90	25.216	
4,500.00	4,065.50	4,308.30	4,170.58	33.80	20.58	143.49	-837.30	281.00	1,121.24	1,077.17	44.06	25.447	
4,600.00	4,147.79	4,399.96	4,258.17	34.98	21.10	143.79	-862.04	291.79	1,160.83	1,115.60	45.23	25.667	
4,700.00	4,230.07	4,491.61	4,345.76	36.17	21.61	144.08	-886.78	302.57	1,200.45	1,154.06	46.39	25.876	
4,800.00	4,312.36	4,583.27	4,433.35	37.36	22.13	144.35	-911.52	313.36	1,240.10	1,192.54	47.56	26.075	
4,900.00	4,394.65	5,744.58	5,068.04	38.54	36.23	123.85	-1,556.17	818.81	1,257.03	1,194.69	62.35	20.162	

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



Cathedral Energy Services
Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S33-T24N-R9W
Site Error: 0.00usft
Reference Well: NAGEEZI UNIT 324H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 324H
TVD Reference: 16' KB @ 6970.00usft
MD Reference: 16' KB @ 6970.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Offset Design S33-T24N-R9W - NAGEEZI UNIT 327H - OH - Plan #2													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		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)				Between Centres (usft)	Between Ellipses (usft)
5,000.00	4,476.93	5,796.88	5,067.31	39.73	37.25	121.75	-1,594.64	854.23	1,231.46	1,164.96	66.50	18.518	
5,100.00	4,559.22	5,849.18	5,066.58	40.92	38.30	119.63	-1,633.10	889.65	1,211.36	1,140.74	70.62	17.153	
5,200.00	4,641.50	5,901.47	5,065.85	42.11	39.36	117.50	-1,671.57	925.07	1,197.01	1,122.40	74.61	16.044	
5,300.00	4,723.79	5,953.77	5,065.12	43.30	40.44	115.35	-1,710.04	960.50	1,188.61	1,110.20	78.41	15.159	
5,387.94	4,796.15	5,999.77	5,064.48	44.35	41.40	113.46	-1,743.87	991.65	1,186.24	1,104.71	81.53	14.550	
5,400.00	4,806.08	6,006.07	5,064.39	44.50	41.53	113.20	-1,748.51	995.92	1,186.29	1,104.35	81.94	14.478	
5,500.00	4,888.36	6,058.37	5,063.66	45.69	42.64	111.05	-1,786.98	1,031.34	1,190.08	1,104.93	85.15	13.976	
5,600.00	4,970.65	6,110.67	5,062.93	46.88	43.76	108.90	-1,825.45	1,066.77	1,199.93	1,111.94	87.99	13.637	
5,646.94	5,009.27	6,135.22	5,062.59	47.44	44.29	107.90	-1,843.50	1,083.39	1,206.61	1,117.41	89.20	13.527	
5,650.00	5,011.79	6,136.83	5,062.56	47.48	44.32	107.63	-1,844.69	1,084.48	1,207.09	1,117.81	89.28	13.521	
5,700.00	5,051.73	6,164.82	5,062.17	48.12	44.93	103.54	-1,865.28	1,103.44	1,215.44	1,124.90	90.54	13.424	
5,750.00	5,089.36	6,195.98	5,061.74	48.83	45.61	99.81	-1,888.20	1,124.55	1,224.58	1,132.71	91.87	13.330	
5,800.00	5,124.44	6,230.11	5,061.26	49.62	46.36	96.38	-1,913.30	1,147.66	1,234.19	1,140.93	93.27	13.233	
5,850.00	5,156.77	6,267.00	5,060.75	50.46	47.17	93.24	-1,940.43	1,172.65	1,243.98	1,149.24	94.75	13.130	
5,900.00	5,186.14	6,306.42	5,060.19	51.37	48.04	90.38	-1,969.43	1,199.35	1,253.65	1,157.34	96.31	13.017	
5,950.00	5,212.36	6,348.13	5,059.61	52.33	48.97	87.81	-2,000.11	1,227.60	1,262.91	1,164.94	97.97	12.891	
6,000.00	5,235.28	6,391.87	5,059.00	53.34	49.95	85.56	-2,032.29	1,257.23	1,271.50	1,171.79	99.71	12.752	
6,050.00	5,254.76	6,437.38	5,058.37	54.39	50.98	83.63	-2,065.76	1,288.06	1,279.20	1,177.64	101.56	12.596	
6,100.00	5,270.68	6,484.37	5,057.71	55.46	52.04	82.04	-2,100.32	1,319.88	1,285.79	1,182.31	103.49	12.425	
6,150.00	5,282.93	6,532.55	5,057.04	56.55	53.14	80.80	-2,135.77	1,352.52	1,291.12	1,185.61	105.51	12.237	
6,200.00	5,291.45	6,581.63	5,056.35	57.65	54.26	79.92	-2,171.87	1,385.76	1,295.04	1,187.44	107.60	12.035	
6,250.00	5,296.17	6,631.30	5,055.66	58.75	55.40	79.40	-2,208.40	1,419.40	1,297.46	1,187.69	109.77	11.820	
6,295.97	5,297.15	6,677.23	5,055.02	59.75	56.46	79.25	-2,242.19	1,450.51	1,298.31	1,186.50	111.81	11.612	
6,300.00	5,297.09	6,681.26	5,054.96	59.84	56.56	79.25	-2,245.15	1,453.24	1,298.33	1,186.34	111.99	11.593	
6,400.00	5,295.70	6,781.26	5,053.56	62.02	58.88	79.25	-2,318.70	1,520.97	1,298.74	1,182.24	116.50	11.148	
6,500.00	5,294.30	6,881.26	5,052.17	64.22	61.22	79.25	-2,392.26	1,588.70	1,299.15	1,178.09	121.06	10.732	
6,600.00	5,292.91	6,981.26	5,050.77	66.45	63.57	79.26	-2,465.81	1,656.44	1,299.56	1,173.92	125.64	10.343	
6,700.00	5,291.51	7,081.26	5,049.38	68.70	65.94	79.26	-2,539.37	1,724.17	1,299.97	1,169.71	130.26	9.980	
6,800.00	5,290.11	7,181.26	5,047.98	70.97	68.32	79.26	-2,612.92	1,791.90	1,300.38	1,165.48	134.90	9.640	
6,900.00	5,288.72	7,281.26	5,046.58	73.25	70.72	79.27	-2,686.48	1,859.63	1,300.79	1,161.22	139.56	9.320	
7,000.00	5,287.32	7,381.25	5,045.19	75.56	73.12	79.27	-2,760.03	1,927.36	1,301.19	1,156.94	144.25	9.020	
7,100.00	5,285.92	7,481.25	5,043.79	77.87	75.53	79.27	-2,833.59	1,995.09	1,301.60	1,152.64	148.96	8.738	
7,200.00	5,284.53	7,581.25	5,042.39	80.20	77.95	79.28	-2,907.14	2,062.82	1,302.01	1,148.32	153.69	8.472	
7,300.00	5,283.13	7,681.25	5,041.00	82.55	80.37	79.28	-2,980.70	2,130.56	1,302.42	1,143.99	158.43	8.221	
7,400.00	5,281.74	7,781.25	5,039.60	84.90	82.80	79.28	-3,054.25	2,198.29	1,302.83	1,139.64	163.19	7.983	
7,500.00	5,280.34	7,881.25	5,038.21	87.27	85.24	79.29	-3,127.81	2,266.02	1,303.24	1,135.27	167.97	7.759	
7,600.00	5,278.94	7,981.25	5,036.81	89.64	87.69	79.29	-3,201.36	2,333.75	1,303.65	1,130.90	172.75	7.546	
7,700.00	5,277.55	8,081.25	5,035.41	92.03	90.14	79.29	-3,274.92	2,401.48	1,304.06	1,126.51	177.55	7.345	
7,800.00	5,276.15	8,181.25	5,034.02	94.42	92.59	79.30	-3,348.47	2,469.21	1,304.47	1,122.11	182.36	7.153	
7,900.00	5,274.75	8,281.25	5,032.62	96.82	95.05	79.30	-3,422.03	2,536.95	1,304.88	1,117.70	187.18	6.971	
8,000.00	5,273.36	8,381.25	5,031.22	99.22	97.51	79.31	-3,495.58	2,604.68	1,305.29	1,113.28	192.00	6.798	
8,100.00	5,271.96	8,481.24	5,029.83	101.64	99.97	79.31	-3,569.14	2,672.41	1,305.69	1,108.86	196.84	6.633	
8,200.00	5,270.57	8,581.24	5,028.43	104.05	102.44	79.31	-3,642.69	2,740.14	1,306.10	1,104.42	201.68	6.476	
8,300.00	5,269.17	8,681.24	5,027.04	106.48	104.92	79.32	-3,716.24	2,807.87	1,306.51	1,099.98	206.53	6.326	
8,400.00	5,267.77	8,781.24	5,025.64	108.91	107.39	79.32	-3,789.80	2,875.60	1,306.92	1,095.53	211.39	6.182	
8,500.00	5,266.38	8,881.24	5,024.24	111.34	109.87	79.32	-3,863.35	2,943.33	1,307.33	1,091.07	216.26	6.045	
8,600.00	5,264.98	8,981.24	5,022.85	113.78	112.35	79.33	-3,936.91	3,011.07	1,307.74	1,086.61	221.13	5.914	
8,700.00	5,263.59	9,081.24	5,021.45	116.23	114.83	79.33	-4,010.46	3,078.80	1,308.15	1,082.15	226.00	5.788	
8,800.00	5,262.19	9,181.24	5,020.05	118.68	117.32	79.33	-4,084.02	3,146.53	1,308.56	1,077.67	230.88	5.668	
8,900.00	5,260.79	9,281.24	5,018.66	121.13	119.80	79.34	-4,157.57	3,214.26	1,308.97	1,073.20	235.77	5.552	
9,000.00	5,259.40	9,381.24	5,017.26	123.58	122.29	79.34	-4,231.13	3,281.99	1,309.38	1,068.71	240.66	5.441	
9,100.00	5,258.00	9,481.24	5,015.87	126.04	124.79	79.34	-4,304.68	3,349.72	1,309.79	1,064.23	245.56	5.334	

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



Cathedral Energy Services
Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S33-T24N-R9W
Site Error: 0.00usft
Reference Well: NAGEEZI UNIT 324H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 324H
TVD Reference: 16' KB @ 6970.00usft
MD Reference: 16' KB @ 6970.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Offset Design S33-T24N-R9W - NAGEEZI UNIT 327H - OH - Plan #2													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
9,200.00	5,256.60	9,581.24	5,014.47	128.50	127.28	79.35	-4,378.24	3,417.46	1,310.20	1,059.74	250.46	5.231	
9,300.00	5,255.21	9,681.23	5,013.07	130.97	129.77	79.35	-4,451.79	3,485.19	1,310.60	1,055.24	255.36	5.132	
9,400.00	5,253.81	9,781.23	5,011.68	133.44	132.27	79.35	-4,525.35	3,552.92	1,311.01	1,050.75	260.27	5.037	
9,500.00	5,252.42	9,881.23	5,010.28	135.91	134.77	79.36	-4,598.90	3,620.65	1,311.42	1,046.24	265.18	4.945	
9,600.00	5,251.02	9,981.23	5,008.88	138.38	137.27	79.36	-4,672.46	3,688.38	1,311.83	1,041.74	270.09	4.857	
9,700.00	5,249.62	10,081.23	5,007.49	140.86	139.77	79.36	-4,746.01	3,756.11	1,312.24	1,037.23	275.01	4.772	
9,800.00	5,248.23	10,181.23	5,006.09	143.33	142.27	79.37	-4,819.57	3,823.85	1,312.65	1,032.72	279.93	4.689	
9,900.00	5,246.83	10,281.23	5,004.70	145.81	144.77	79.37	-4,893.12	3,891.58	1,313.06	1,028.21	284.85	4.610	
10,000.00	5,245.44	10,381.23	5,003.30	148.30	147.27	79.37	-4,966.68	3,959.31	1,313.47	1,023.69	289.78	4.533	
10,100.00	5,244.04	10,481.23	5,001.90	150.78	149.78	79.38	-5,040.23	4,027.04	1,313.88	1,019.17	294.71	4.458	
10,200.00	5,242.64	10,581.23	5,000.51	153.27	152.28	79.38	-5,113.79	4,094.77	1,314.29	1,014.65	299.64	4.386	
10,300.00	5,241.25	10,681.23	4,999.11	155.75	154.79	79.38	-5,187.34	4,162.50	1,314.70	1,010.12	304.57	4.317	
10,400.00	5,239.85	10,781.23	4,997.71	158.24	157.30	79.39	-5,260.90	4,230.23	1,315.11	1,005.60	309.51	4.249	
10,500.00	5,238.45	10,881.22	4,996.32	160.74	159.81	79.39	-5,334.45	4,297.97	1,315.51	1,001.07	314.44	4.184	
10,600.00	5,237.06	10,981.22	4,994.92	163.23	162.32	79.39	-5,408.01	4,365.70	1,315.92	996.54	319.38	4.120	
10,700.00	5,235.66	11,081.22	4,993.52	165.72	164.83	79.40	-5,481.56	4,433.43	1,316.33	992.01	324.33	4.059	
10,800.00	5,234.27	11,181.22	4,992.13	168.22	167.34	79.40	-5,555.12	4,501.16	1,316.74	987.47	329.27	3.999	
10,900.00	5,232.87	11,281.22	4,990.73	170.71	169.85	79.40	-5,628.67	4,568.89	1,317.15	982.94	334.21	3.941	
11,000.00	5,231.47	11,381.22	4,989.34	173.21	172.36	79.41	-5,702.23	4,636.62	1,317.56	978.40	339.16	3.885	
11,100.00	5,230.08	11,481.22	4,987.94	175.71	174.88	79.41	-5,775.78	4,704.36	1,317.97	973.86	344.11	3.830	
11,200.00	5,228.68	11,581.22	4,986.54	178.21	177.39	79.41	-5,849.33	4,772.09	1,318.38	969.32	349.06	3.777	
11,300.00	5,227.28	11,681.22	4,985.15	180.71	179.90	79.42	-5,922.89	4,839.82	1,318.79	964.78	354.01	3.725	
11,400.00	5,225.89	11,781.22	4,983.75	183.22	182.42	79.42	-5,996.44	4,907.55	1,319.20	960.24	358.96	3.675	
11,500.00	5,224.49	11,881.22	4,982.35	185.72	184.94	79.42	-6,070.00	4,975.28	1,319.61	955.69	363.92	3.626	
11,600.00	5,223.10	11,923.82	4,981.76	188.23	185.78	79.42	-6,101.33	5,004.14	1,321.26	954.91	366.36	3.606 SF	
11,700.00	5,221.70	11,923.82	4,981.76	190.73	185.78	79.42	-6,101.33	5,004.14	1,329.77	964.07	365.70	3.636	
11,800.00	5,220.30	11,923.82	4,981.76	193.24	185.78	79.42	-6,101.33	5,004.14	1,345.68	982.60	363.08	3.706	
11,900.00	5,218.91	11,923.82	4,981.76	195.75	185.78	79.42	-6,101.33	5,004.14	1,368.73	1,010.05	358.68	3.816	
12,000.00	5,217.51	11,923.82	4,981.76	198.25	185.78	79.42	-6,101.33	5,004.14	1,398.56	1,045.83	352.73	3.965	
12,100.00	5,216.12	11,923.82	4,981.76	200.76	185.78	79.42	-6,101.33	5,004.14	1,434.76	1,089.23	345.53	4.152	
12,200.00	5,214.72	11,923.82	4,981.76	203.27	185.78	79.42	-6,101.33	5,004.14	1,476.85	1,139.50	337.36	4.378	
12,300.00	5,213.32	11,923.82	4,981.76	205.78	185.78	79.42	-6,101.33	5,004.14	1,524.36	1,195.86	328.50	4.640	
12,400.00	5,211.93	11,923.82	4,981.76	208.30	185.78	79.42	-6,101.33	5,004.14	1,576.78	1,257.57	319.21	4.940	
12,500.00	5,210.53	11,923.82	4,981.76	210.81	185.78	79.42	-6,101.33	5,004.14	1,633.64	1,323.94	309.70	5.275	
12,600.00	5,209.13	11,923.82	4,981.76	213.32	185.78	79.42	-6,101.33	5,004.14	1,694.50	1,394.36	300.14	5.646	
12,700.00	5,207.74	11,923.82	4,981.76	215.83	185.78	79.42	-6,101.33	5,004.14	1,758.95	1,468.27	290.68	6.051	
12,800.00	5,206.34	11,923.82	4,981.76	218.35	185.78	79.42	-6,101.33	5,004.14	1,826.60	1,545.18	281.42	6.491	
12,900.00	5,204.95	11,923.82	4,981.76	220.86	185.78	79.42	-6,101.33	5,004.14	1,897.11	1,624.68	272.43	6.964	
13,000.00	5,203.55	11,923.82	4,981.76	223.38	185.78	79.42	-6,101.33	5,004.14	1,970.17	1,706.41	263.76	7.470	
13,100.00	5,202.15	11,923.82	4,981.76	225.90	185.78	79.42	-6,101.33	5,004.14	2,045.52	1,790.07	255.45	8.008	
13,200.00	5,200.76	11,923.82	4,981.76	228.41	185.78	79.42	-6,101.33	5,004.14	2,122.90	1,875.39	247.51	8.577	
13,299.36	5,199.37	11,923.82	4,981.76	230.91	185.78	79.42	-6,101.33	5,004.14	2,201.59	1,961.59	240.00	9.173	

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



Cathedral Energy Services
Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S33-T24N-R9W
Site Error: 0.00usft
Reference Well: NAGEEZI UNIT 324H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 324H
TVD Reference: 16' KB @ 6970.00usft
MD Reference: 16' KB @ 6970.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Offset Design S34-T24N-R9W (Escrito) - Escrito D34-2409 01H - Hz - FINAL													Offset Site Error: 0.00 usft	
Survey Program: 115-Geolink MWD													Offset Well Error: 0.00 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	
0.00	0.00	0.00	0.00	0.00	0.00	106.71	-876.79	2,919.87	3,050.22					
100.00	100.00	3.07	3.07	0.15	0.00	106.71	-876.79	2,919.87	3,048.67	3,048.52	0.16	N/A		
200.00	200.00	105.86	105.86	0.51	0.16	106.72	-877.01	2,919.75	3,048.62	3,047.96	0.67	4,561.430		
300.00	300.00	216.10	216.10	0.87	0.35	106.73	-877.37	2,919.36	3,048.38	3,047.16	1.22	2,503.494		
400.00	400.00	331.85	331.85	1.23	0.55	106.73	-877.11	2,918.59	3,047.68	3,045.90	1.78	1,712.653		
500.00	500.00	421.64	421.63	1.58	0.71	106.73	-877.00	2,917.79	3,046.80	3,044.50	2.29	1,328.570		
600.00	600.00	513.18	513.17	1.94	0.87	106.73	-877.16	2,917.37	3,046.40	3,043.59	2.81	1,083.716		
700.00	700.00	616.54	616.53	2.30	1.05	106.74	-877.14	2,916.93	3,045.98	3,042.63	3.35	909.251		
800.00	800.00	717.53	717.52	2.66	1.23	106.74	-877.30	2,916.50	3,045.63	3,041.74	3.88	783.985		
900.00	900.00	815.40	815.39	3.02	1.40	106.75	-877.60	2,916.00	3,045.22	3,040.81	4.41	689.877		
1,000.00	999.98	920.63	920.61	3.36	1.58	-10.78	-877.88	2,915.34	3,042.98	3,038.04	4.94	615.494		
1,100.00	1,099.84	1,022.37	1,022.35	3.70	1.76	-10.81	-878.19	2,914.56	3,037.20	3,031.74	5.46	556.263		
1,200.00	1,199.45	1,119.60	1,119.58	4.05	1.93	-10.86	-878.71	2,913.80	3,028.05	3,022.08	5.97	506.993		
1,300.00	1,298.70	1,213.75	1,213.73	4.40	2.09	-10.94	-879.33	2,913.06	3,015.52	3,009.04	6.48	465.101		
1,400.00	1,397.47	1,309.77	1,309.73	4.77	2.26	-11.02	-880.81	2,912.26	2,999.80	2,992.80	7.00	428.439		
1,500.00	1,495.62	1,393.16	1,393.11	5.16	2.41	-11.15	-880.98	2,912.18	2,981.03	2,973.53	7.50	397.460		
1,600.00	1,593.06	1,511.41	1,511.36	5.56	2.61	-11.36	-879.98	2,912.34	2,958.85	2,950.79	8.06	367.045		
1,700.00	1,689.64	1,617.30	1,617.24	6.00	2.80	-11.60	-878.76	2,911.97	2,932.82	2,924.21	8.60	340.837		
1,800.00	1,785.27	1,694.22	1,694.16	6.47	2.93	-11.83	-877.87	2,911.70	2,903.53	2,894.43	9.11	318.888		
1,900.00	1,879.82	1,758.68	1,758.60	6.98	3.04	-12.08	-876.96	2,912.27	2,872.00	2,862.41	9.59	299.402		
2,000.00	1,973.17	1,851.09	1,851.00	7.53	3.20	-12.43	-875.48	2,913.59	2,837.76	2,827.63	10.13	280.121		
2,100.00	2,065.21	1,940.30	1,940.18	8.14	3.36	-12.81	-873.85	2,914.91	2,800.34	2,789.67	10.67	262.444		
2,200.00	2,155.84	2,031.82	2,031.67	8.81	3.52	-13.25	-872.35	2,916.33	2,759.95	2,748.73	11.22	245.976		
2,300.00	2,244.94	2,132.85	2,132.69	9.54	3.70	-13.77	-870.86	2,917.47	2,716.18	2,704.39	11.79	230.379		
2,400.00	2,332.39	2,222.09	2,221.92	10.34	3.85	-14.30	-870.00	2,918.39	2,669.48	2,657.13	12.35	216.142		
2,500.00	2,418.11	2,333.90	2,333.73	11.22	4.05	-14.98	-869.21	2,918.52	2,619.14	2,606.20	12.94	202.348		
2,600.00	2,501.97	2,401.11	2,400.94	12.17	4.17	-15.58	-868.67	2,918.40	2,565.77	2,552.27	13.50	190.116		
2,631.39	2,527.90	2,417.45	2,417.27	12.49	4.19	-15.76	-868.63	2,918.47	2,548.62	2,534.95	13.67	186.437		
2,700.00	2,584.35	2,454.71	2,454.54	13.20	4.26	-15.91	-868.69	2,918.81	2,511.20	2,497.15	14.05	178.759		
2,800.00	2,666.64	2,522.21	2,522.02	14.26	4.38	-16.20	-869.10	2,919.98	2,457.41	2,442.79	14.62	168.039		
2,900.00	2,748.92	2,610.17	2,609.97	15.34	4.53	-16.59	-869.50	2,921.49	2,403.70	2,388.46	15.23	157.805		
3,000.00	2,831.21	2,692.66	2,692.44	16.44	4.67	-16.96	-870.36	2,922.79	2,350.05	2,334.20	15.85	148.284		
3,100.00	2,913.50	2,777.28	2,777.04	17.55	4.82	-17.33	-872.20	2,923.85	2,296.43	2,279.96	16.48	139.372		
3,200.00	2,995.78	2,862.48	2,862.21	18.67	4.97	-17.72	-874.21	2,924.89	2,242.90	2,225.78	17.12	131.023		
3,300.00	3,078.07	2,938.00	2,937.69	19.81	5.10	-18.07	-876.18	2,925.78	2,189.45	2,171.67	17.77	123.203		
3,400.00	3,160.35	3,024.72	3,024.37	20.95	5.25	-18.49	-878.45	2,927.07	2,136.33	2,117.89	18.44	115.861		
3,500.00	3,242.64	3,101.00	3,100.94	22.10	5.40	-18.96	-880.81	2,928.52	2,081.46	2,061.70	19.14	108.805		
3,600.00	3,324.93	3,184.11	3,184.04	23.25	5.55	-19.43	-883.26	2,929.99	2,031.45	2,011.70	19.87	102.459		
3,700.00	3,407.21	3,267.22	3,267.14	24.41	5.70	-19.90	-885.71	2,931.46	1,981.44	1,961.70	20.60	96.613		
3,800.00	3,489.50	3,350.31	3,350.22	25.57	5.85	-20.37	-888.16	2,932.92	1,931.43	1,911.70	21.33	91.167		
3,900.00	3,571.79	3,433.40	3,433.30	26.74	6.00	-20.84	-890.61	2,934.38	1,881.42	1,861.70	22.06	86.421		
4,000.00	3,654.07	3,516.49	3,516.38	27.91	6.15	-21.31	-893.06	2,935.84	1,831.41	1,811.70	22.79	82.175		
4,100.00	3,736.36	3,600.58	3,600.46	29.08	6.30	-21.78	-895.51	2,937.30	1,781.40	1,761.70	23.52	78.429		
4,200.00	3,818.64	3,684.67	3,684.54	30.26	6.45	-22.25	-897.96	2,938.76	1,731.39	1,711.70	24.25	74.683		
4,300.00	3,900.93	3,768.76	3,768.62	31.44	6.60	-22.72	-899.41	2,940.22	1,681.38	1,661.70	24.98	71.437		
4,400.00	3,983.22	3,852.85	3,852.70	32.62	6.75	-23.19	-901.86	2,941.68	1,631.37	1,611.70	25.71	68.691		
4,500.00	4,065.50	3,936.94	3,936.78	33.80	6.90	-23.66	-904.31	2,943.14	1,581.36	1,561.70	26.44	66.445		
4,600.00	4,147.79	4,021.03	4,020.86	34.98	7.05	-24.13	-906.76	2,944.60	1,531.35	1,511.70	27.17	64.699		
4,700.00	4,230.07	4,105.12	4,104.94	36.17	7.20	-24.60	-909.21	2,946.06	1,481.34	1,461.70	27.90	63.453		
4,800.00	4,312.36	4,189.21	4,189.02	37.36	7.35	-25.07	-911.66	2,947.52	1,431.33	1,411.70	28.63	62.707		
4,900.00	4,394.65	4,273.30	4,273.10	38.54	7.50	-25.54	-914.11	2,948.98	1,381.32	1,361.70	29.36	62.461		
5,000.00	4,476.93	4,357.39	4,357.18	39.73	7.65	-26.01	-916.56	2,950.44	1,331.31	1,311.70	30.09	62.715		

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



Cathedral Energy Services

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S33-T24N-R9W
Site Error: 0.00usft
Reference Well: NAGEEZI UNIT 324H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 324H
TVD Reference: 16' KB @ 6970.00usft
MD Reference: 16' KB @ 6970.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Offset Design S34-T24N-R9W (Escrito) - Escrito D34-2409 01H - Hz - FINAL														Offset Site Error:	0.00 usft
Survey Program: 115-Geolink MWD														Offset Well Error:	0.00 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		
5,100.00	4,559.22	6,039.66	5,231.04	40.92	29.81	-144.29	-396.64	1,710.10	909.79	869.83	39.95	22.770			
5,200.00	4,641.50	5,988.83	5,230.78	42.11	28.68	-141.15	-397.88	1,760.92	855.90	812.36	43.54	19.859			
5,300.00	4,723.79	5,941.48	5,231.12	43.30	27.64	-138.15	-399.66	1,808.23	807.68	760.38	47.30	17.077			
5,400.00	4,806.08	5,893.26	5,232.14	44.50	26.58	-135.02	-401.77	1,856.40	766.23	715.09	51.14	14.983			
5,500.00	4,888.36	5,843.84	5,233.79	45.69	25.51	-131.74	-404.08	1,905.74	732.54	677.63	54.92	13.339			
5,600.00	4,970.65	5,795.58	5,235.20	46.88	24.48	-128.43	-405.78	1,953.94	707.70	649.26	58.44	12.110			
5,646.94	5,009.27	5,772.05	5,235.94	47.44	23.99	-126.80	-406.48	1,977.46	699.39	639.45	59.94	11.668			
5,650.00	5,011.79	5,770.49	5,235.99	47.48	23.96	-126.87	-406.53	1,979.01	698.93	638.89	60.04	11.642			
5,700.00	5,051.73	5,743.90	5,237.00	48.12	23.40	-127.49	-407.35	2,005.57	694.53	633.07	61.46	11.301			
5,713.21	5,061.91	5,735.79	5,237.34	48.31	23.23	-127.47	-407.61	2,013.66	694.34	632.53	61.81	11.233 CC, ES			
5,750.00	5,089.36	5,711.94	5,238.29	48.83	22.75	-127.07	-408.38	2,037.49	695.83	633.12	62.71	11.096			
5,800.00	5,124.44	5,676.01	5,239.57	49.62	22.02	-125.83	-409.61	2,073.38	702.46	638.69	63.77	11.016			
5,850.00	5,156.77	5,576.73	5,236.24	50.46	20.04	-120.05	-417.00	2,172.23	711.92	646.71	65.21	10.918 SF			
5,900.00	5,186.14	5,509.62	5,231.46	51.37	18.75	-116.06	-425.61	2,238.61	724.62	658.56	66.06	10.969			
5,950.00	5,212.36	5,376.79	5,193.58	52.33	16.39	-107.06	-450.45	2,362.48	737.28	670.35	66.93	11.016			
6,000.00	5,235.28	5,336.29	5,172.64	53.34	15.77	-103.43	-458.81	2,396.09	753.24	685.88	67.36	11.182			
6,050.00	5,254.76	5,306.08	5,154.50	54.39	15.35	-99.98	-465.00	2,419.43	772.78	705.19	67.59	11.433			
6,100.00	5,270.68	5,288.11	5,142.76	55.46	15.12	-96.88	-468.54	2,432.57	795.78	728.11	67.67	11.760			
6,150.00	5,282.93	5,265.58	5,127.17	56.55	14.85	-92.94	-472.73	2,448.28	821.83	754.21	67.62	12.154			
6,200.00	5,291.45	5,239.26	5,108.08	57.65	14.55	-88.31	-477.67	2,465.70	850.16	782.68	67.48	12.599			
6,250.00	5,296.17	5,222.35	5,095.36	58.75	14.37	-83.92	-480.72	2,476.42	880.48	813.19	67.30	13.084			
6,295.97	5,297.15	5,190.64	5,070.67	59.75	14.05	-78.64	-486.27	2,495.52	909.71	842.62	67.08	13.561			
6,300.00	5,297.09	5,185.86	5,066.87	59.84	14.00	-78.36	-487.15	2,498.28	912.28	845.23	67.06	13.604			
6,400.00	5,295.70	5,133.29	5,023.90	62.02	13.52	-75.29	-497.02	2,526.91	977.80	911.28	66.52	14.699			
6,500.00	5,294.30	5,101.94	4,997.51	64.22	13.26	-73.48	-502.74	2,542.83	1,046.72	980.77	65.95	15.871			
6,600.00	5,292.91	5,043.72	4,947.66	66.45	12.81	-70.23	-512.77	2,571.16	1,118.86	1,053.59	65.26	17.143			
6,700.00	5,291.51	5,004.09	4,913.47	68.70	12.51	-68.13	-519.99	2,589.87	1,192.78	1,128.15	64.63	18.455			
6,800.00	5,290.11	4,965.93	4,880.10	70.97	12.23	-66.16	-526.85	2,607.05	1,268.89	1,204.89	64.00	19.827			
6,900.00	5,288.72	4,926.53	4,844.81	73.25	11.96	-64.13	-534.20	2,622.94	1,346.86	1,283.53	63.33	21.266			
7,000.00	5,287.32	4,752.66	4,684.60	75.56	10.92	-55.26	-579.06	2,672.15	1,424.99	1,363.74	61.25	23.265			
7,100.00	5,285.92	4,719.63	4,654.16	77.87	10.73	-53.67	-589.55	2,679.54	1,502.62	1,442.07	60.55	24.818			
7,200.00	5,284.53	4,692.59	4,629.17	80.20	10.57	-52.40	-598.04	2,685.43	1,581.99	1,522.06	59.93	26.396			
7,300.00	5,283.13	4,669.51	4,607.77	82.55	10.44	-51.35	-605.08	2,690.46	1,663.02	1,603.64	59.39	28.004			
7,400.00	5,281.74	4,644.00	4,584.04	84.90	10.30	-50.23	-612.59	2,696.05	1,745.53	1,686.70	58.84	29.668			
7,500.00	5,280.34	4,606.59	4,549.22	87.27	10.10	-48.64	-623.44	2,704.35	1,829.16	1,770.97	58.19	31.432			
7,600.00	5,278.94	4,538.99	4,486.52	89.64	9.74	-45.97	-643.32	2,719.93	1,913.40	1,856.10	57.30	33.392			
7,700.00	5,277.55	4,454.00	4,408.58	92.03	9.28	-42.92	-670.12	2,740.69	1,996.98	1,940.69	56.29	35.475			
7,800.00	5,276.15	4,420.02	4,377.58	94.42	9.09	-41.79	-681.09	2,749.23	2,081.04	2,025.22	55.82	37.281			
7,900.00	5,274.75	4,391.00	4,350.98	96.82	8.94	-40.88	-689.89	2,756.78	2,166.19	2,110.76	55.43	39.080			
8,000.00	5,273.36	4,377.74	4,338.79	99.22	8.87	-40.47	-693.76	2,760.30	2,252.10	2,196.92	55.18	40.810			
8,100.00	5,271.96	4,354.11	4,317.04	101.64	8.75	-39.78	-700.49	2,766.63	2,338.77	2,283.89	54.88	42.619			
8,200.00	5,270.57	4,328.00	4,292.96	104.05	8.62	-39.04	-707.67	2,773.73	2,426.07	2,371.50	54.57	44.457			
8,300.00	5,269.17	4,281.43	4,250.00	106.48	8.39	-37.79	-720.35	2,786.47	2,513.77	2,459.61	54.16	46.415			
8,400.00	5,267.77	4,224.49	4,197.58	108.91	8.13	-36.35	-736.20	2,802.02	2,601.52	2,547.82	53.70	48.445			
8,500.00	5,266.38	4,187.86	4,163.88	111.34	7.96	-35.46	-746.63	2,811.92	2,689.35	2,635.97	53.38	50.380			
8,600.00	5,264.98	4,165.70	4,143.42	113.78	7.86	-34.93	-752.93	2,817.66	2,777.64	2,724.49	53.16	52.255			
8,700.00	5,263.59	4,139.00	4,118.69	116.23	7.75	-34.31	-760.50	2,824.26	2,866.41	2,813.51	52.90	54.184			
8,800.00	5,262.19	4,139.00	4,118.69	118.68	7.75	-34.31	-760.50	2,824.26	2,955.68	2,902.86	52.82	55.957			
8,900.00	5,260.79	4,108.07	4,089.89	121.13	7.62	-33.59	-769.17	2,831.49	3,045.27	2,992.72	52.55	57.951			
9,000.00	5,259.40	4,075.00	4,058.94	123.58	7.49	-32.84	-778.29	2,838.72	3,135.45	3,083.19	52.26	59.995			
9,100.00	5,258.00	4,075.00	4,058.94	126.04	7.49	-32.84	-778.29	2,838.72	3,225.84	3,173.64	52.19	61.806			
9,200.00	5,256.60	4,075.00	4,058.94	128.50	7.49	-32.84	-778.29	2,838.72	3,316.78	3,264.65	52.12	63.632			

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



Cathedral Energy Services

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S33-T24N-R9W
Site Error: 0.00usft
Reference Well: NAGEEZI UNIT 324H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 324H
TVD Reference: 16' KB @ 6970.00usft
MD Reference: 16' KB @ 6970.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Offset Design S34-T24N-R9W (Escrito) - Escrito D34-2409 01H - Hz - FINAL													Offset Site Error: 0.00 usft
Survey Program: 115-Geolink MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		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)					
9,300.00	5,255.21	4,050.94	4,036.30	130.97	7.41	-32.31	-784.74	2,843.71	3,407.97	3,356.06	51.91	65.650	
9,400.00	5,253.81	4,039.55	4,025.54	133.44	7.37	-32.06	-787.70	2,846.00	3,499.60	3,447.82	51.78	67.587	
9,500.00	5,252.42	4,012.00	3,999.43	135.91	7.27	-31.48	-794.64	2,851.36	3,591.68	3,540.12	51.56	69.665	
9,600.00	5,251.02	4,012.00	3,999.43	138.38	7.27	-31.48	-794.64	2,851.36	3,683.87	3,632.37	51.50	71.532	
9,700.00	5,249.62	4,012.00	3,999.43	140.86	7.27	-31.48	-794.64	2,851.36	3,776.45	3,725.01	51.44	73.410	
9,800.00	5,248.23	4,012.00	3,999.43	143.33	7.27	-31.48	-794.64	2,851.36	3,869.40	3,818.01	51.39	75.297	
9,900.00	5,246.83	3,988.03	3,976.59	145.81	7.20	-30.98	-800.36	2,855.90	3,962.46	3,911.25	51.21	77.376	
10,000.00	5,245.44	3,978.62	3,967.61	148.30	7.17	-30.79	-802.50	2,857.68	4,055.86	4,004.74	51.11	79.349	
10,100.00	5,244.04	3,949.00	3,939.23	150.78	7.07	-30.21	-808.91	2,863.24	4,149.66	4,098.74	50.93	81.481	
10,200.00	5,242.64	3,949.00	3,939.23	153.27	7.07	-30.21	-808.91	2,863.24	4,243.41	4,192.53	50.88	83.392	
10,300.00	5,241.25	3,949.00	3,939.23	155.75	7.07	-30.21	-808.91	2,863.24	4,337.44	4,286.59	50.84	85.310	
10,400.00	5,239.85	3,949.00	3,939.23	158.24	7.07	-30.21	-808.91	2,863.24	4,431.73	4,380.92	50.80	87.234	
10,500.00	5,238.45	3,949.00	3,939.23	160.74	7.07	-30.21	-808.91	2,863.24	4,526.26	4,475.50	50.76	89.163	
10,600.00	5,237.06	3,921.30	3,912.59	163.23	7.00	-29.70	-814.49	2,868.39	4,620.79	4,570.17	50.62	91.292	
10,700.00	5,235.66	3,911.31	3,902.97	165.72	6.97	-29.52	-816.43	2,870.23	4,715.58	4,665.03	50.54	93.299	
10,800.00	5,234.27	3,886.00	3,878.54	168.22	6.90	-29.07	-821.17	2,874.84	4,810.59	4,760.17	50.42	95.418	
10,900.00	5,232.87	3,886.00	3,878.54	170.71	6.90	-29.07	-821.17	2,874.84	4,905.61	4,855.22	50.39	97.358	
11,000.00	5,231.47	3,886.00	3,878.54	173.21	6.90	-29.07	-821.17	2,874.84	5,000.83	4,950.47	50.36	99.302	
11,100.00	5,230.08	3,886.00	3,878.54	175.71	6.90	-29.07	-821.17	2,874.84	5,096.23	5,045.90	50.33	101.248	
11,200.00	5,228.68	3,863.13	3,856.41	178.21	6.84	-28.67	-825.29	2,878.91	5,191.67	5,141.44	50.23	103.356	



Cathedral Energy Services
Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S33-T24N-R9W
Site Error: 0.00usft
Reference Well: NAGEEZI UNIT 324H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 324H
TVD Reference: 16' KB @ 6970.00usft
MD Reference: 16' KB @ 6970.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Offset Design S34-T24N-R9W (Escrito) - Nageezi Unit 2409Y 03H - Hz - FINAL												Offset Site Error: 0.00 usft	
Survey Program: 116-Geolink MWD												Offset Well Error: 0.00 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
0.00	0.00	0.00	0.00	0.00	0.00	107.09	-902.27	2,934.61	3,071.75				
100.00	100.00	2.44	2.44	0.15	0.00	107.09	-902.27	2,934.61	3,070.18	3,070.03	0.15	N/A	
200.00	200.00	127.77	127.77	0.51	0.20	107.09	-902.24	2,934.12	3,069.81	3,069.10	0.71	4,322.599	
300.00	300.00	243.00	242.99	0.87	0.40	107.10	-902.00	2,932.58	3,068.43	3,067.16	1.27	2,412.868	
400.00	400.00	347.41	347.38	1.23	0.58	107.10	-901.76	2,931.03	3,066.95	3,065.14	1.81	1,693.041	
500.00	500.00	421.54	421.50	1.58	0.71	107.12	-902.32	2,929.96	3,065.82	3,063.52	2.30	1,335.611	
600.00	600.00	513.60	513.55	1.94	0.88	107.15	-903.78	2,929.01	3,065.29	3,062.48	2.82	1,088.607	
671.34	671.34	573.40	573.34	2.20	0.98	107.17	-904.68	2,928.60	3,065.15	3,061.98	3.18	965.118	
700.00	700.00	598.00	597.94	2.30	1.02	107.17	-904.78	2,928.59	3,065.17	3,061.85	3.32	922.831	
800.00	800.00	710.82	710.76	2.66	1.22	107.17	-904.71	2,928.51	3,065.08	3,061.21	3.88	790.677	
900.00	900.00	815.96	815.90	3.02	1.40	107.17	-904.81	2,928.06	3,064.71	3,060.29	4.42	693.612	
1,000.00	999.98	913.00	912.94	3.36	1.57	-10.37	-904.59	2,927.69	3,062.56	3,057.63	4.93	620.792	
1,100.00	1,099.84	1,004.18	1,004.12	3.70	1.73	-10.41	-904.30	2,927.61	3,057.23	3,051.80	5.43	563.020	
1,200.00	1,199.45	1,107.41	1,107.35	4.05	1.91	-10.48	-904.06	2,927.60	3,048.58	3,042.62	5.95	512.132	
1,300.00	1,298.70	1,212.00	1,211.94	4.40	2.09	-10.56	-904.11	2,927.18	3,036.22	3,029.74	6.48	468.439	
1,400.00	1,397.47	1,293.00	1,292.94	4.77	2.23	-10.66	-904.13	2,927.23	3,020.88	3,013.91	6.97	433.256	
1,500.00	1,495.62	1,376.42	1,376.36	5.16	2.38	-10.79	-904.15	2,927.81	3,002.76	2,995.28	7.47	401.887	
1,600.00	1,593.06	1,490.99	1,490.92	5.56	2.58	-10.98	-903.97	2,928.53	2,981.21	2,973.18	8.03	371.375	
1,700.00	1,689.64	1,592.36	1,592.29	6.00	2.76	-11.19	-903.78	2,928.60	2,955.79	2,947.23	8.56	345.125	
1,800.00	1,785.27	1,682.81	1,682.74	6.47	2.91	-11.41	-903.60	2,928.73	2,927.14	2,918.06	9.09	322.105	
1,900.00	1,879.82	1,778.63	1,778.56	6.98	3.08	-11.68	-903.50	2,928.87	2,895.29	2,885.66	9.62	300.836	
2,000.00	1,973.17	1,876.13	1,876.06	7.53	3.25	-11.98	-903.64	2,928.85	2,860.14	2,849.97	10.17	281.285	
2,100.00	2,065.21	1,969.41	1,969.34	8.14	3.41	-12.31	-904.19	2,928.74	2,821.86	2,811.15	10.71	263.456	
2,200.00	2,155.84	2,058.77	2,058.70	8.81	3.57	-12.68	-904.84	2,928.48	2,780.36	2,769.10	11.25	247.059	
2,300.00	2,244.94	2,153.14	2,153.06	9.54	3.73	-13.11	-905.30	2,928.14	2,735.68	2,723.87	11.81	231.653	
2,400.00	2,332.39	2,238.80	2,238.72	10.34	3.88	-13.60	-905.06	2,928.05	2,688.06	2,675.70	12.36	217.479	
2,500.00	2,418.11	2,325.58	2,325.50	11.22	4.03	-14.16	-904.58	2,928.04	2,637.54	2,624.62	12.92	204.149	
2,600.00	2,501.97	2,411.49	2,411.41	12.17	4.18	-14.78	-904.18	2,927.90	2,584.07	2,570.58	13.49	191.610	
2,631.39	2,527.90	2,437.19	2,437.11	12.49	4.23	-14.99	-904.05	2,927.86	2,566.71	2,553.04	13.67	187.798	
2,700.00	2,584.35	2,494.60	2,494.52	13.20	4.33	-15.23	-903.86	2,927.74	2,528.48	2,514.42	14.06	179.866	
2,800.00	2,666.64	2,581.05	2,580.97	14.26	4.48	-15.59	-903.62	2,927.41	2,472.70	2,458.06	14.64	168.932	
2,900.00	2,748.92	2,658.58	2,658.50	15.34	4.62	-15.94	-903.28	2,927.13	2,416.96	2,401.74	15.22	158.762	
3,000.00	2,831.21	2,725.13	2,725.04	16.44	4.73	-16.27	-902.19	2,927.38	2,361.65	2,345.83	15.82	149.276	
3,100.00	2,913.50	2,802.69	2,802.58	17.55	4.87	-16.68	-900.78	2,928.16	2,306.90	2,290.46	16.44	140.324	
3,200.00	2,995.78	2,893.03	2,892.90	18.67	5.02	-17.18	-899.19	2,928.94	2,252.14	2,235.06	17.08	131.879	
3,300.00	3,078.07	2,971.96	2,971.82	19.81	5.16	-17.62	-898.37	2,929.22	2,197.22	2,179.49	17.72	123.965	
3,400.00	3,160.35	3,037.59	3,037.45	20.95	5.28	-17.95	-899.39	2,929.51	2,142.93	2,124.55	18.38	116.567	
3,500.00	3,242.64	3,182.60	3,181.97	22.10	5.53	-18.42	-910.50	2,926.77	2,087.97	2,068.96	19.01	109.837	
3,600.00	3,324.93	3,251.00	3,249.95	23.25	5.66	-18.58	-917.69	2,924.30	2,032.05	2,012.38	19.68	103.268	
3,700.00	3,407.21	3,322.64	3,320.88	24.41	5.80	-18.68	-927.39	2,921.77	1,976.75	1,956.39	20.36	97.108	
3,800.00	3,489.50	3,428.92	3,425.54	25.57	6.03	-18.72	-945.20	2,917.00	1,921.30	1,900.30	21.00	91.475	
3,900.00	3,571.79	3,617.99	3,610.53	26.74	6.49	-18.59	-979.86	2,899.39	1,861.45	1,839.95	21.51	86.553	
4,000.00	3,654.07	3,678.36	3,669.40	27.91	6.66	-18.52	-991.39	2,892.56	1,800.93	1,778.70	22.23	81.027	
4,100.00	3,736.36	3,749.06	3,738.07	29.08	6.87	-18.37	-1,006.39	2,885.00	1,741.21	1,718.27	22.94	75.894	
4,200.00	3,818.64	3,852.75	3,837.90	30.26	7.21	-17.99	-1,031.56	2,872.78	1,681.20	1,657.60	23.60	71.248	
4,300.00	3,900.93	3,935.16	3,916.73	31.44	7.51	-17.59	-1,052.91	2,861.77	1,620.25	1,595.94	24.30	66.666	
4,400.00	3,983.22	4,068.38	4,041.68	32.62	8.12	-16.52	-1,094.06	2,841.36	1,559.12	1,534.22	24.90	62.619	
4,500.00	4,065.50	4,151.24	4,116.18	33.80	8.58	-15.39	-1,126.18	2,824.56	1,495.35	1,469.68	25.66	58.270	
4,600.00	4,147.79	4,203.09	4,162.09	34.98	8.90	-14.55	-1,147.92	2,814.17	1,432.64	1,406.10	26.54	53.982	
4,700.00	4,230.07	4,285.69	4,169.12	36.17	37.69	109.94	-1,665.16	1,432.49	1,366.22	1,321.16	45.06	30.318	
4,800.00	4,312.36	4,344.99	4,170.44	37.36	36.80	108.46	-1,666.64	1,473.14	1,289.61	1,243.21	46.40	27.793	
4,900.00	4,394.65	4,307.69	4,172.22	38.54	36.00	107.04	-1,668.06	1,510.37	1,214.66	1,166.72	47.94	25.339	

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



Cathedral Energy Services

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S33-T24N-R9W
Site Error: 0.00usft
Reference Well: NAGEEZI UNIT 324H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 324H
TVD Reference: 16' KB @ 6970.00usft
MD Reference: 16' KB @ 6970.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Offset Design S34-T24N-R9W (Escrito) - Nageezi Unit 2409Y 03H - Hz - FINAL													Offset Site Error:	0.00 usft
Survey Program: 116-Geolink MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						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)	Total Uncertainty Axis	Separation Factor		
5,000.00	4,476.93	6,267.89	5,174.70	39.73	35.15	105.44	-1,669.83	1,550.06	1,141.70	1,092.13	49.57	23.032		
5,100.00	4,559.22	6,222.99	5,178.00	40.92	34.21	103.53	-1,672.15	1,594.78	1,070.85	1,019.60	51.26	20.893		
5,200.00	4,641.50	6,162.68	5,182.62	42.11	32.96	100.77	-1,675.45	1,654.82	1,001.94	949.17	52.77	18.988		
5,300.00	4,723.79	6,046.05	5,189.78	43.30	30.60	94.73	-1,677.76	1,771.18	932.67	879.69	52.99	17.602		
5,400.00	4,806.08	5,978.99	5,191.85	44.50	29.25	90.71	-1,677.18	1,838.20	863.82	809.30	54.52	15.843		
5,500.00	4,888.36	5,934.13	5,192.45	45.69	28.36	87.73	-1,677.16	1,883.05	798.13	741.26	56.87	14.034		
5,600.00	4,970.65	5,892.66	5,193.37	46.88	27.56	84.80	-1,677.75	1,924.51	737.41	677.96	59.45	12.404		
5,646.94	5,009.27	5,871.99	5,194.00	47.44	27.17	83.29	-1,678.19	1,945.16	710.87	650.23	60.64	11.723		
5,650.00	5,011.79	5,870.63	5,194.04	47.48	27.14	83.19	-1,678.22	1,946.53	709.19	648.47	60.72	11.680		
5,700.00	5,051.73	5,838.54	5,194.99	48.12	26.55	81.19	-1,679.02	1,978.59	681.55	619.90	61.65	11.055		
5,750.00	5,089.36	5,799.59	5,194.78	48.83	25.85	79.16	-1,679.88	2,017.53	653.23	590.90	62.34	10.479		
5,800.00	5,124.44	5,776.02	5,194.23	49.62	25.43	78.70	-1,680.45	2,041.09	624.55	561.11	63.44	9.845		
5,850.00	5,156.77	5,731.12	5,192.90	50.46	24.66	76.96	-1,681.48	2,085.95	595.50	531.71	63.80	9.334		
5,900.00	5,186.14	5,687.76	5,190.16	51.37	23.93	75.55	-1,681.56	2,129.22	565.14	501.03	64.11	8.815		
5,950.00	5,212.36	5,630.53	5,184.90	52.33	22.98	73.11	-1,680.01	2,186.18	533.36	469.59	63.78	8.363		
6,000.00	5,235.28	5,585.37	5,179.06	53.34	22.25	71.71	-1,677.07	2,230.86	499.80	436.07	63.73	7.842		
6,050.00	5,254.76	5,547.08	5,173.60	54.39	21.64	71.09	-1,673.59	2,268.59	464.93	401.10	63.84	7.283		
6,100.00	5,270.68	5,516.82	5,168.26	55.46	21.17	71.32	-1,670.62	2,298.23	429.29	365.06	64.23	6.684		
6,150.00	5,282.93	5,484.35	5,160.84	56.55	20.69	71.17	-1,667.09	2,329.64	392.87	328.46	64.41	6.099		
6,200.00	5,291.45	5,448.76	5,149.85	57.65	20.18	70.08	-1,662.71	2,363.20	355.87	291.59	64.27	5.537		
6,250.00	5,296.17	5,398.62	5,129.37	58.75	19.49	64.86	-1,653.16	2,407.88	317.27	254.54	62.73	5.058		
6,295.97	5,297.15	5,370.81	5,115.69	59.75	19.11	62.02	-1,645.87	2,430.96	280.89	218.73	62.16	4.519		
6,300.00	5,297.09	5,369.04	5,114.76	59.84	19.09	61.53	-1,645.37	2,432.38	277.70	215.56	62.15	4.468		
6,400.00	5,295.70	5,335.99	5,096.43	62.02	18.65	51.34	-1,635.44	2,458.02	205.33	143.91	61.41	3.343		
6,500.00	5,294.30	5,309.28	5,080.47	64.22	18.31	42.05	-1,626.57	2,477.50	159.58	105.83	53.75	2.969 ES, SF		
6,538.43	5,293.76	5,301.24	5,075.52	65.08	18.21	39.16	-1,623.72	2,483.16	155.10	106.62	48.48	3.199 CC		
6,600.00	5,292.91	5,289.40	5,068.15	66.45	18.06	34.90	-1,619.45	2,491.39	166.39	127.23	39.15	4.250		
6,700.00	5,291.51	5,275.00	5,059.07	68.70	17.88	29.78	-1,614.15	2,501.23	221.67	192.61	29.06	7.628		
6,800.00	5,290.11	5,259.62	5,049.21	70.97	17.69	24.49	-1,608.34	2,511.51	300.00	271.23	28.77	10.427		
6,900.00	5,288.72	5,244.00	5,039.02	73.25	17.50	19.40	-1,602.27	2,521.66	387.91	355.98	31.93	12.147		
7,000.00	5,287.32	5,244.00	5,039.02	75.56	17.50	19.40	-1,602.27	2,521.66	480.20	445.45	34.75	13.820		
7,100.00	5,285.92	5,231.34	5,030.62	77.87	17.34	15.52	-1,597.21	2,529.68	574.81	538.30	36.51	15.744		
7,200.00	5,284.53	5,224.48	5,026.02	80.20	17.26	13.53	-1,594.43	2,533.94	670.86	633.06	37.80	17.746		
7,300.00	5,283.13	5,212.00	5,017.58	82.55	17.11	10.11	-1,589.27	2,541.54	767.87	729.10	38.77	19.806		
7,400.00	5,281.74	5,212.00	5,017.58	84.90	17.11	10.11	-1,589.27	2,541.54	865.38	825.90	39.48	21.921		
7,500.00	5,280.34	5,212.00	5,017.58	87.27	17.11	10.11	-1,589.27	2,541.54	963.40	923.37	40.03	24.069		
7,600.00	5,278.94	5,212.00	5,017.58	89.64	17.11	10.11	-1,589.27	2,541.54	1,061.79	1,021.32	40.47	26.237		
7,700.00	5,277.55	5,201.00	5,010.04	92.03	16.98	7.31	-1,584.63	2,548.07	1,160.31	1,119.46	40.85	28.404		
7,800.00	5,276.15	5,197.72	5,007.76	94.42	16.94	6.51	-1,583.24	2,549.98	1,259.09	1,217.94	41.15	30.594		
7,900.00	5,274.75	5,194.74	5,005.69	96.82	16.91	5.81	-1,581.97	2,551.70	1,358.03	1,316.62	41.41	32.793		
8,000.00	5,273.36	5,192.02	5,003.79	99.22	16.88	5.18	-1,580.80	2,553.26	1,457.10	1,415.46	41.63	34.999		
8,100.00	5,271.96	5,180.00	4,995.31	101.64	16.74	2.54	-1,575.61	2,560.02	1,556.37	1,514.54	41.83	37.204		
8,200.00	5,270.57	5,180.00	4,995.31	104.05	16.74	2.54	-1,575.61	2,560.02	1,655.59	1,613.59	42.00	39.421		
8,300.00	5,269.17	5,180.00	4,995.31	106.48	16.74	2.54	-1,575.61	2,560.02	1,754.89	1,712.75	42.15	41.639		
8,400.00	5,267.77	5,180.00	4,995.31	108.91	16.74	2.54	-1,575.61	2,560.02	1,854.27	1,811.99	42.28	43.857		
8,500.00	5,266.38	5,180.00	4,995.31	111.34	16.74	2.54	-1,575.61	2,560.02	1,953.72	1,911.31	42.40	46.075		
8,600.00	5,264.98	5,178.21	4,994.03	113.78	16.72	2.17	-1,574.83	2,561.01	2,053.21	2,010.70	42.52	48.292		
8,700.00	5,263.59	5,169.62	4,987.88	116.23	16.62	0.46	-1,571.14	2,565.72	2,152.74	2,110.12	42.62	50.511		
8,800.00	5,262.19	5,160.59	4,981.33	118.68	16.51	-1.21	-1,567.32	2,570.63	2,252.28	2,209.57	42.71	52.733		
8,900.00	5,260.79	5,151.09	4,974.36	121.13	16.41	-2.83	-1,563.38	2,575.73	2,351.83	2,309.04	42.79	54.958		
9,000.00	5,259.40	5,149.00	4,972.81	123.58	16.38	-3.17	-1,562.53	2,576.84	2,451.40	2,408.53	42.87	57.177		
9,100.00	5,258.00	5,149.00	4,972.81	126.04	16.38	-3.17	-1,562.53	2,576.84	2,551.00	2,508.05	42.95	59.392		

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



Cathedral Energy Services

Anticollision Report

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Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 324H
TVD Reference: 16' KB @ 6970.00usft
MD Reference: 16' KB @ 6970.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Offset Design S34-T24N-R9W (Escrito) - Nageezi Unit 2409Y 03H - Hz - FINAL												Offset Site Error:	0.00 usft
Survey Program: 116-Geolink MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance					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)	Total Uncertainty Axis		Separation Factor
9,200.00	5,256.60	5,149.00	4,972.81	128.50	16.38	-3.17	-1,562.53	2,576.84	2,650.63	2,607.61	43.03	61.604	
9,300.00	5,255.21	5,149.00	4,972.81	130.97	16.38	-3.17	-1,562.53	2,576.84	2,750.29	2,707.19	43.10	63.813	
9,400.00	5,253.81	5,149.00	4,972.81	133.44	16.38	-3.17	-1,562.53	2,576.84	2,849.97	2,806.80	43.17	66.018	
9,500.00	5,252.42	5,149.00	4,972.81	135.91	16.38	-3.17	-1,562.53	2,576.84	2,949.68	2,906.44	43.24	68.220	
9,600.00	5,251.02	5,149.00	4,972.81	138.38	16.38	-3.17	-1,562.53	2,576.84	3,049.40	3,006.10	43.30	70.419	
9,700.00	5,249.62	5,135.56	4,962.78	140.86	16.24	-5.22	-1,557.01	2,583.89	3,149.02	3,105.67	43.35	72.643	
9,800.00	5,248.23	5,134.18	4,961.74	143.33	16.22	-5.42	-1,556.44	2,584.61	3,248.75	3,205.34	43.41	74.841	
9,900.00	5,246.83	5,132.86	4,960.75	145.81	16.21	-5.60	-1,555.90	2,585.29	3,348.50	3,305.03	43.47	77.036	
10,000.00	5,245.44	5,131.59	4,959.79	148.30	16.20	-5.78	-1,555.38	2,585.93	3,448.25	3,404.73	43.52	79.227	
10,100.00	5,244.04	5,130.38	4,958.88	150.78	16.18	-5.95	-1,554.88	2,586.55	3,548.02	3,504.44	43.58	81.414	
10,200.00	5,242.64	5,117.00	4,948.71	153.27	16.04	-7.69	-1,549.34	2,593.26	3,647.90	3,604.29	43.61	83.646	
10,300.00	5,241.25	5,117.00	4,948.71	155.75	16.04	-7.69	-1,549.34	2,593.26	3,747.67	3,704.01	43.67	85.823	
10,400.00	5,239.85	5,117.00	4,948.71	158.24	16.04	-7.69	-1,549.34	2,593.26	3,847.46	3,803.74	43.72	87.996	
10,500.00	5,238.45	5,117.00	4,948.71	160.74	16.04	-7.69	-1,549.34	2,593.26	3,947.25	3,903.48	43.78	90.165	
10,600.00	5,237.06	5,117.00	4,948.71	163.23	16.04	-7.69	-1,549.34	2,593.26	4,047.06	4,003.23	43.83	92.329	
10,700.00	5,235.66	5,117.00	4,948.71	165.72	16.04	-7.69	-1,549.34	2,593.26	4,146.87	4,102.99	43.89	94.487	
10,800.00	5,234.27	5,117.00	4,948.71	168.22	16.04	-7.69	-1,549.34	2,593.26	4,246.70	4,202.76	43.94	96.641	
10,900.00	5,232.87	5,117.00	4,948.71	170.71	16.04	-7.69	-1,549.34	2,593.26	4,346.53	4,302.53	44.00	98.790	
11,000.00	5,231.47	5,117.00	4,948.71	173.21	16.04	-7.69	-1,549.34	2,593.26	4,446.37	4,402.32	44.05	100.934	
11,100.00	5,230.08	5,117.00	4,948.71	175.71	16.04	-7.69	-1,549.34	2,593.26	4,546.22	4,502.11	44.11	103.072	
11,200.00	5,228.68	5,117.00	4,948.71	178.21	16.04	-7.69	-1,549.34	2,593.26	4,646.07	4,601.91	44.16	105.205	
11,300.00	5,227.28	5,117.00	4,948.71	180.71	16.04	-7.69	-1,549.34	2,593.26	4,745.93	4,701.71	44.22	107.333	
11,400.00	5,225.89	5,117.00	4,948.71	183.22	16.04	-7.69	-1,549.34	2,593.26	4,845.79	4,801.52	44.27	109.455	
11,500.00	5,224.49	5,117.00	4,948.71	185.72	16.04	-7.69	-1,549.34	2,593.26	4,945.66	4,901.34	44.33	111.572	
11,600.00	5,223.10	5,117.00	4,948.71	188.23	16.04	-7.69	-1,549.34	2,593.26	5,045.54	5,001.16	44.38	113.683	
11,700.00	5,221.70	5,117.00	4,948.71	190.73	16.04	-7.69	-1,549.34	2,593.26	5,145.42	5,100.98	44.44	115.788	
11,800.00	5,220.30	5,117.00	4,948.71	193.24	16.04	-7.69	-1,549.34	2,593.26	5,245.31	5,200.81	44.49	117.888	



Cathedral Energy Services

Anticollision Report

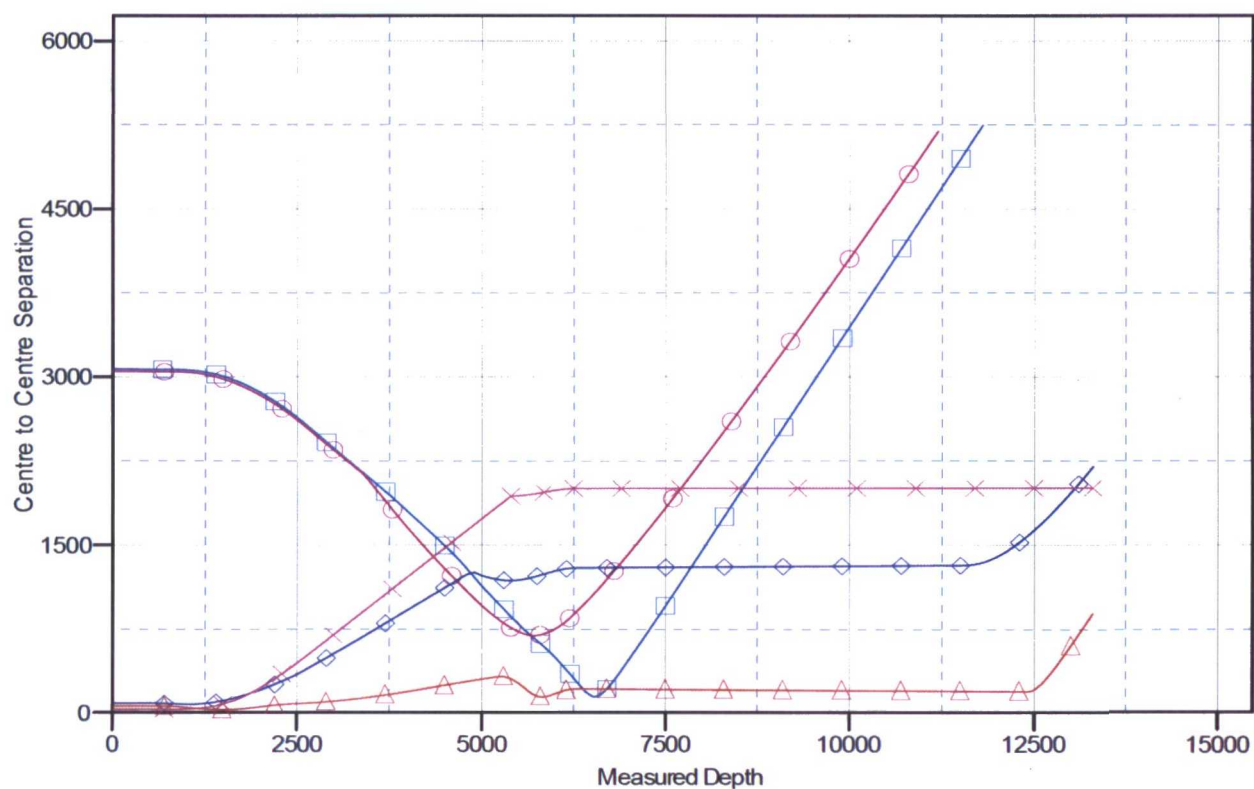
Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S33-T24N-R9W
Site Error: 0.00usft
Reference Well: NAGEEZI UNIT 324H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 324H
TVD Reference: 16' KB @ 6970.00usft
MD Reference: 16' KB @ 6970.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Reference Depths are relative to 16' KB @ 6970.00usft
Offset Depths are relative to Offset Datum
Central Meridian is -107.833333°

Coordinates are relative to: NAGEEZI UNIT 324H
Coordinate System is US State Plane 1983, New Mexico Western Zone
Grid Convergence at Surface is: 0.02°

Ladder Plot



LEGEND

■ Nageezi Unit 2409Y 03H, Hz, FINAL V0 ◆ NAGEEZI UNIT 327H, OH, Plan #2 V0 ▲ NAGEEZI UNIT 326H, OH, Plan #2 V0
● Escrito D34-2409 01H, Hz, FINAL V0 ✕ NAGEEZI UNIT 325H, OH, Plan #2 V0