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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 Management5. Lease Serial No.
NMNM 12374
6. 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: 198' FNL and 2437' FEL Section 33, T24N, R9W
BHL: 2340' FSL and 1890' FEL Section 3, T23N, R9W

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

NMNM 132981A

8. Well Name and No.

Nageezi Unit 325H

9. API Well No.

Pending 30-045-35785

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

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 recompleate 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 recompleation 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 325H survey plats, Drilling Plan and Wellbore Diagram to reflect the following changes:

1. Update SHL from 181' FNL, 2461' to 198' FNL, 2437' FEL
2. Update BHL from 1000' FNL, 2600' FNL to 2340' FSL, 1890' FEL
3. Update POE from 1670' FNL, 1690' FEL to 2280' FNL, 2120' 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.

FOR THE SIGNATURE OR ACCEPTANCE OF THIS
STATE, THE SIGNATURE OF THE LESSEE AND
THE SIGNATURE OF THE BLM MUST OBTAINING ANY OTHER
APPROVAL REQUIRED FOR OPERATIONS
ON FEDERAL AND INDIAN LANDS

OIL CONS. DIV DIST. 3

FEB 13 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

Title

PE

Date

2/8/2017

Office

FFO

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.

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)

NMOCDA

31

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

DISTRICT II
811 S. First St., Artesia, N.M. 88210
Phone: (575) 746-1283 Fax: (575) 746-0720

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

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

State of New Mexico
Energy, Minerals & Natural Resources Department

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 30-045-35785	² Pool Code 98080	³ Pool Name NAGEEZI UNIT HZ (OIL)
⁴ Property Code 315244	⁵ Property Name NAGEEZI UNIT	⁶ Well Number 325H
⁷ GRID No. 282327	⁸ Operator Name ENCANA OIL & GAS (USA) INC.	⁹ Elevation 6954.2'

¹⁰ Surface Location

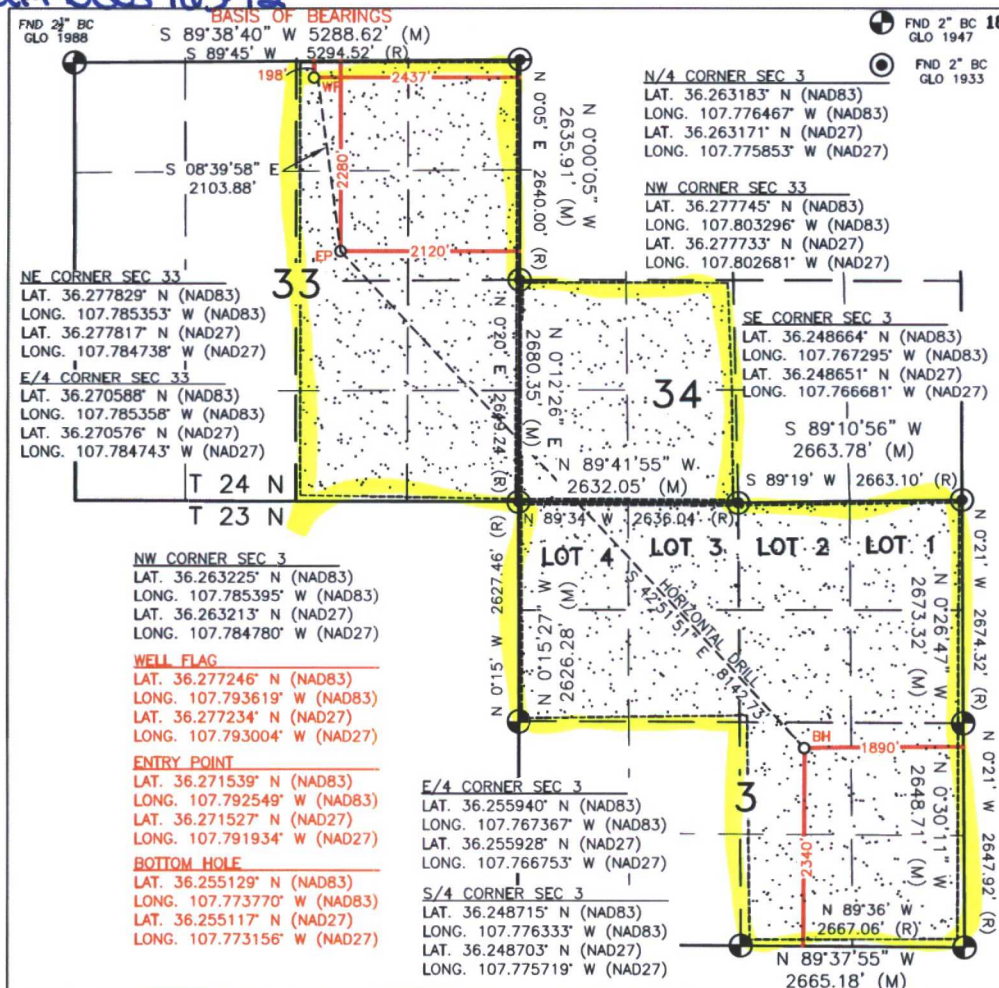
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	33	24N	9W		198'	NORTH	2437'	EAST	SAN JUAN

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
J	3	23N	9W		2340'	SOUTH	1890'	EAST	SAN JUAN

¹² Dedicated Acres 483.4 PENETRATED SPACING UNIT; E/2 SEC. 33 (320 ACRES), SW/4 SEC. 34 (160 ACRES), N/2 & SE/4 SEC. 3 (480 ACRES) - TOTAL 10,415.12 ACRES: SEC. 21-23 (S/2): 25-28, 33-36, 1-4, 8-10 (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
Total Acres 96342 OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



17 OPERATOR CERTIFICATION

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

Katie Wegner 01/26/17
Signature Date

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:

HENRY P. BROADHURST JR.
NEW MEXICO
11393
PROFESSIONAL SURVEYOR
01/17/2017

Certificate Number 11393

DISTRICT I

1625 N. French Dr., Hobbs, N.M. 88240
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Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

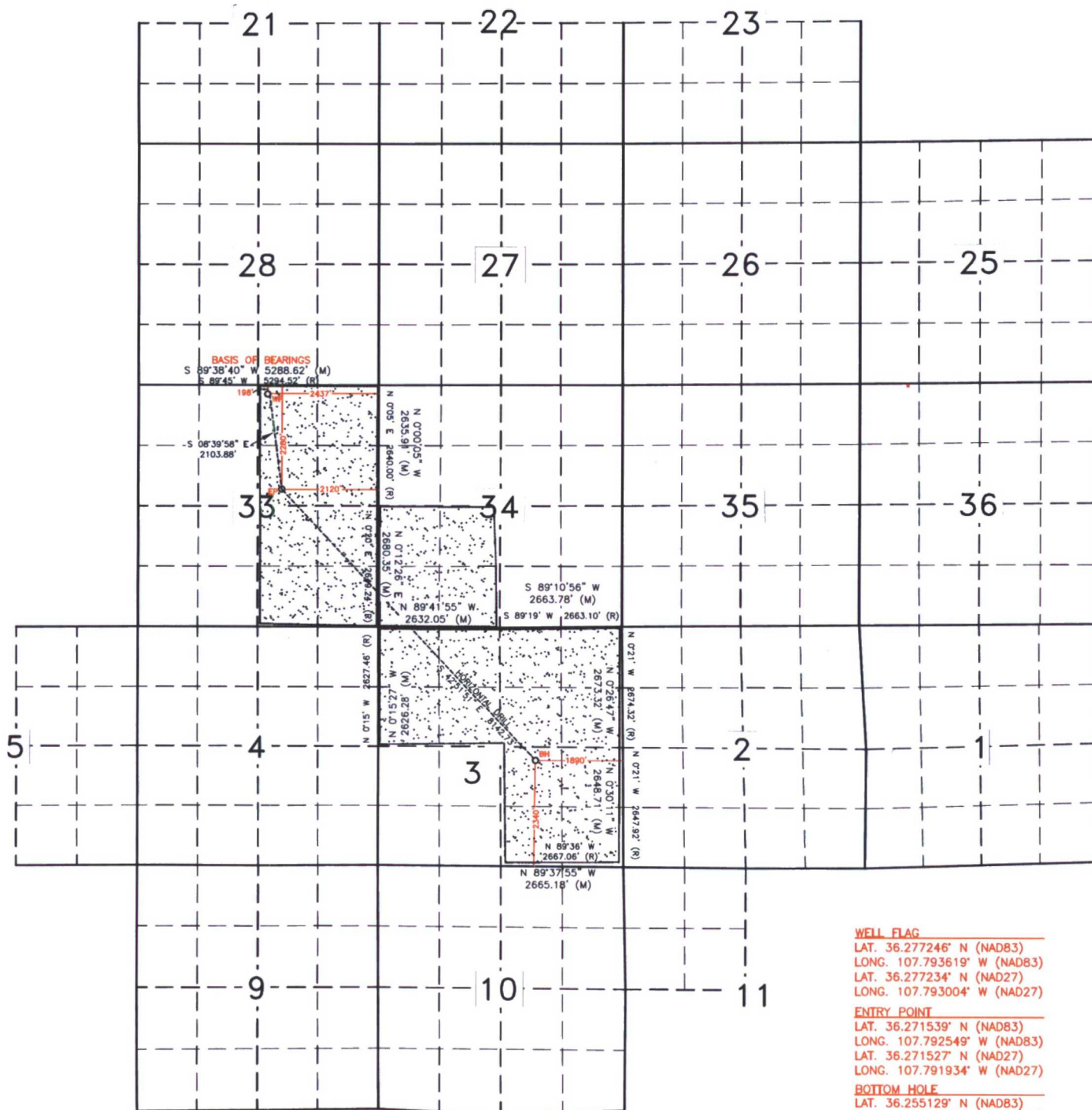
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OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

☐ AMENDED REPORT

ENCANA OIL & GAS (USA) INC.
NAGEEZI UNIT #325H



PENETRATED SPACING UNIT; E/2 SEC. 33 (320 ACRES), SW/4
SEC. 34 (160 ACRES), N/2 & SE/4 SEC. 3 (480 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 325H
 SHL: NWNE Sec 33, T24N R9W
 198' FNL, 2437' FEL
 BHL: NWSE Sec 3, T23N, R9W
 2340' FSL, 1890' 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	4,737
Gallup Fn.	4,997

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	4,737
Oil/Gas	Gallup Fn.	4,997

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 325H

SHL: NWNE Sec 33, T24N R9W

198' FNL, 2437' FEL

BHL: NWSE Sec 3, T23N, R9W

2340' FSL, 1890' 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'-5750'	8 3/4"	7"	26	J55, LTC New
Production Liner	5550'-14104'	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 325H**SHL: NWNE Sec 33, T24N R9W****198' FNL, 2437' FEL****BHL: NWSE Sec 3, T23N, R9W****2340' FSL, 1890' 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'-5750'	100% open hole excess Stage 1 Lead: 664 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	5550'-14104'	30% open hole excess Cement Vol: 808 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 325H**SHL: NWNE Sec 33, T24N R9W****198' FNL, 2437' FEL****BHL: NWSE Sec 3, T23N, R9W****2340' FSL, 1890' 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 4831'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5150'/14104'	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'-5220'/5750'	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"	5220'/5750'- 5150'/14104'	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 325H

SHL: NWNE Sec 33, T24N R9W

198' FNL, 2437' FEL

BHL: NWSE Sec 3, T23N, R9W

2340' FSL, 1890' 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 +/- 2467 psi based on a 9.0 ppg at 5271' 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, 198' FNL, 2437' FEL County: San Juan WELL: Nageezi Unit 325H			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: 957sks	Fresh Wtr 8.3-10	Directional 25°	
Surveys every 30' through the curve	MWD GR Mud Log	KOP	4,831	5,152						
		Mancos Silt	4,737							
		Gallup Fn.	4,997							
		7" Csg	5,220	5,750'						
Surveys every stand to TD unless directed otherwise by Geologist	No OH Logs	Horizontal Target TD	5,271 5,150	14,104			6 1/8	200' overlap at liner top		Horz Inc/TVD 90.7deg/5271'
MWD Gamma Directional		Base Gallup	5,321			8354' Drilled Lateral				TD = 14103.84' MD
								TOC @ Top of Liner (30% open hole excess)	WBM 8.3-10	

ENCANA™

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	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	2149.57	24.99	180.09	2110.32	-268.23	-0.42	2.00	180.09	196.42	
4	5151.61	24.99	180.09	4831.28	-1536.53	-2.43	0.00	0.00	1125.20	
5	5958.77	90.70	137.17	5249.77	-2077.49	315.40	9.00	-45.51	1737.99	NAGEEZI UNIT 325H POE
6	14103.84	90.70	137.17	5150.26	-8050.52	5852.12	0.00	0.00	9882.46	NAGEEZI UNIT 325H PBHL

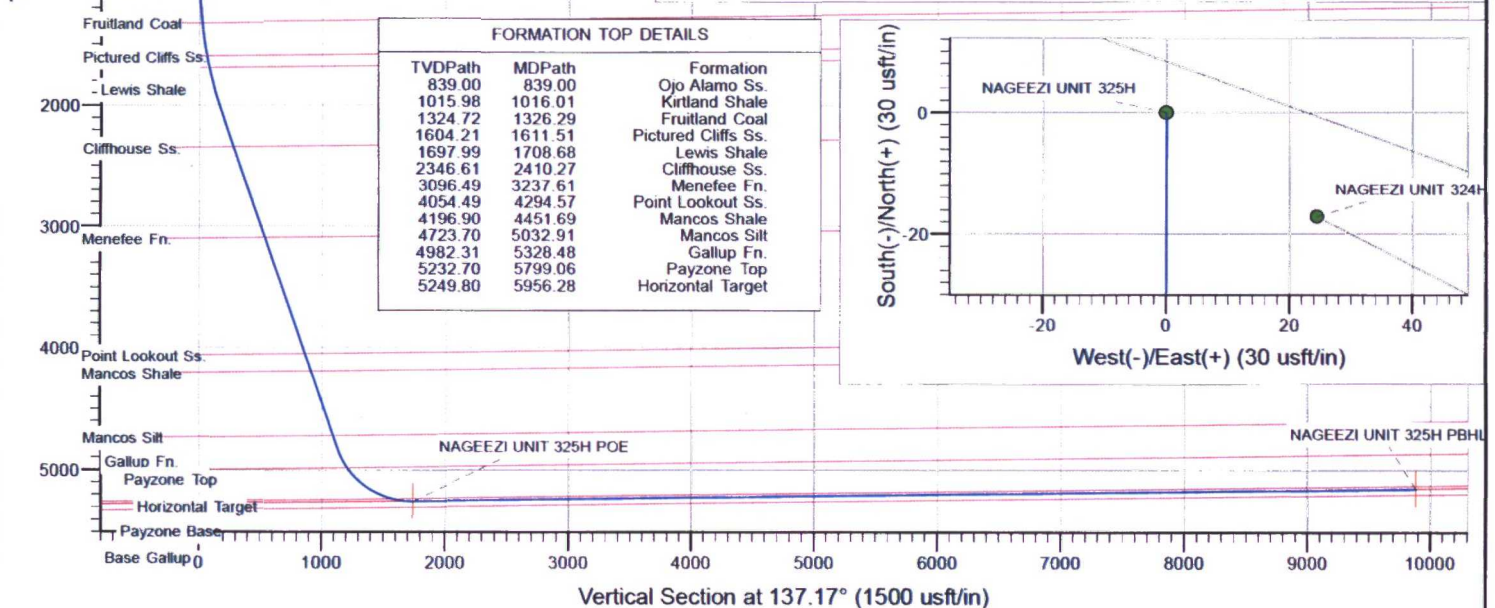
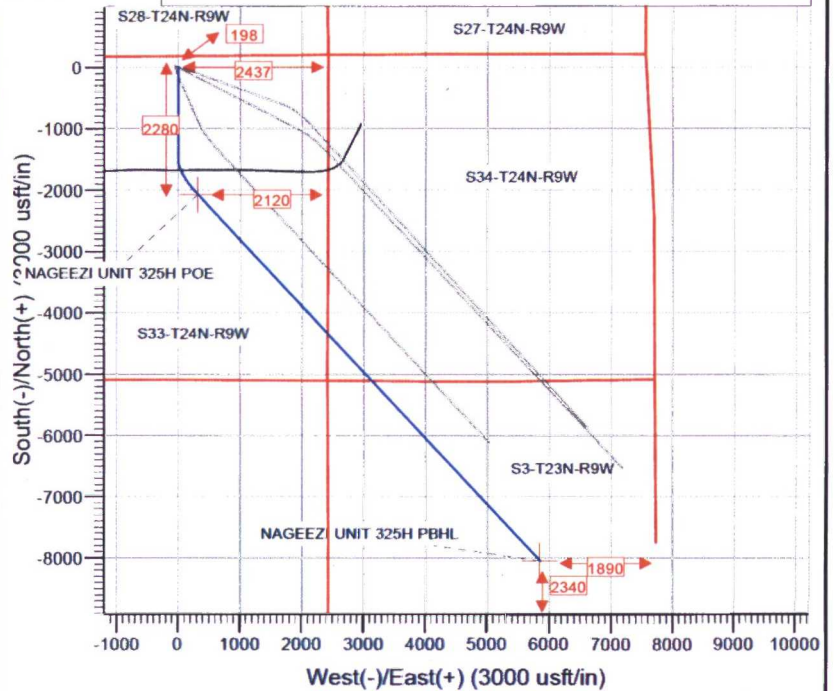
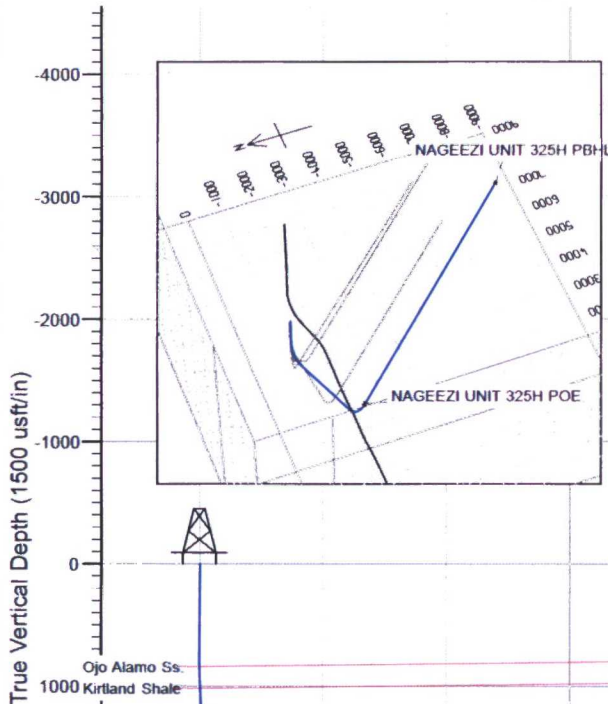
Project: San Juan County, NM
Site: S33-T24N-R9W
Well: NAGEEZI UNIT 325H
Wellbore: OH
Design: Plan #2



Azimuths to True North
Magnetic North: 9.07°

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

Type	Target	No. Target (ft/rev)	Azimuth	Origin Type	N/S	E/W	From TVD
Plan #2	NAGEEZI UNIT 325H POE		197.17	Spot	N	W	0.00
	NAGEEZI UNIT 325H PBHL		197.17	Spot	N	W	0.00



FORMATION TOP DETAILS

TVDPth	MDPath	Formation
839.00	839.00	Ojo Alamo Ss.
1015.98	1016.01	Kirtland Shale
1324.72	1326.29	Fruitland Coal
1604.21	1611.51	Pictured Cliffs Ss.
1697.99	1708.68	Lewis Shale
2346.61	2410.27	Cliffhouse Ss.
3096.49	3237.61	Menefee Fn.
4054.49	4294.57	Point Lookout Ss.
4196.90	4451.69	Mancos Shale
4723.70	5032.91	Mancos Silt
4982.31	5328.48	Gallup Fn.
5232.70	5799.06	Payzone Top
5249.80	5956.28	Horizontal Target

WELL DETAILS: NAGEEZI UNIT 325H

+N/-S	+E/-W	Northing	Ground Level	Easting	Latitude	Longitude
0.00	0.00	1920219.10	6954.00	2734797.41	36.277246	-107.793619

CATHEDRAL





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 325H
Wellbore: OH
Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 325H
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 325H

Well Position +N/-S 0.00 usft Northing: 1,920,219.10 usft Latitude: 36.277246
+E/-W 0.00 usft Easting: 2,734,797.41 usft Longitude: -107.793619
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	137.17

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	
2,149.57	24.99	180.09	2,110.32	-268.23	-0.42	2.00	2.00	0.00	180.09	
5,151.61	24.99	180.09	4,831.28	-1,536.53	-2.43	0.00	0.00	0.00	0.00	
5,958.77	90.70	137.17	5,249.77	-2,077.49	315.40	9.00	8.14	-5.32	-45.51	NAGEEZI UNIT 325H
14,103.84	90.70	137.17	5,150.26	-8,050.52	5,852.12	0.00	0.00	0.00	0.00	NAGEEZI UNIT 325H



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 325H
Wellbore: OH
Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 325H
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	180.09	999.98	-1.75	0.00	1.28	2.00	2.00	
1,016.01	2.32	180.09	1,015.98	-2.35	0.00	1.72	2.00	2.00	Kirtland Shale
1,100.00	4.00	180.09	1,099.84	-6.98	-0.01	5.11	2.00	2.00	
1,200.00	6.00	180.09	1,199.45	-15.69	-0.02	11.49	2.00	2.00	
1,300.00	8.00	180.09	1,298.70	-27.88	-0.04	20.42	2.00	2.00	
1,326.29	8.53	180.09	1,324.72	-31.66	-0.05	23.18	2.00	2.00	Fruitland Coal
1,400.00	10.00	180.09	1,397.47	-43.52	-0.07	31.87	2.00	2.00	
1,500.00	12.00	180.09	1,495.62	-62.60	-0.10	45.84	2.00	2.00	
1,600.00	14.00	180.09	1,593.06	-85.10	-0.13	62.32	2.00	2.00	
1,611.51	14.23	180.09	1,604.21	-87.90	-0.14	64.37	2.00	2.00	Pictured Cliffs Ss.
1,700.00	16.00	180.09	1,689.64	-110.98	-0.18	81.27	2.00	2.00	
1,708.68	16.17	180.09	1,697.99	-113.38	-0.18	83.03	2.00	2.00	Lewis Shale
1,800.00	18.00	180.09	1,785.27	-140.21	-0.22	102.68	2.00	2.00	
1,900.00	20.00	180.09	1,879.82	-172.77	-0.27	126.52	2.00	2.00	
2,000.00	22.00	180.09	1,973.17	-208.60	-0.33	152.76	2.00	2.00	
2,100.00	24.00	180.09	2,065.21	-247.67	-0.39	181.37	2.00	2.00	
2,149.57	24.99	180.09	2,110.32	-268.23	-0.42	196.42	2.00	2.00	Start 3002.03 hold at 2149.57 MD
2,200.00	24.99	180.09	2,156.03	-289.53	-0.46	212.02	0.00	0.00	
2,300.00	24.99	180.09	2,246.67	-331.78	-0.53	242.96	0.00	0.00	
2,400.00	24.99	180.09	2,337.30	-374.03	-0.59	273.90	0.00	0.00	
2,410.27	24.99	180.09	2,346.61	-378.37	-0.60	277.08	0.00	0.00	Cliffhouse Ss.
2,500.00	24.99	180.09	2,427.94	-416.28	-0.66	304.84	0.00	0.00	
2,600.00	24.99	180.09	2,518.58	-458.52	-0.73	335.78	0.00	0.00	
2,700.00	24.99	180.09	2,609.22	-500.77	-0.79	366.72	0.00	0.00	
2,800.00	24.99	180.09	2,699.85	-543.02	-0.86	397.65	0.00	0.00	
2,900.00	24.99	180.09	2,790.49	-585.27	-0.93	428.59	0.00	0.00	
3,000.00	24.99	180.09	2,881.13	-627.52	-0.99	459.53	0.00	0.00	
3,100.00	24.99	180.09	2,971.76	-669.77	-1.06	490.47	0.00	0.00	
3,200.00	24.99	180.09	3,062.40	-712.01	-1.13	521.41	0.00	0.00	
3,237.61	24.99	180.09	3,096.49	-727.90	-1.15	533.04	0.00	0.00	Menefee Fn.
3,300.00	24.99	180.09	3,153.04	-754.26	-1.19	552.34	0.00	0.00	
3,400.00	24.99	180.09	3,243.68	-796.51	-1.26	583.28	0.00	0.00	
3,500.00	24.99	180.09	3,334.31	-838.76	-1.33	614.22	0.00	0.00	
3,600.00	24.99	180.09	3,424.95	-881.01	-1.39	645.16	0.00	0.00	
3,700.00	24.99	180.09	3,515.59	-923.26	-1.46	676.10	0.00	0.00	
3,800.00	24.99	180.09	3,606.22	-965.50	-1.53	707.04	0.00	0.00	
3,900.00	24.99	180.09	3,696.86	-1,007.75	-1.59	737.97	0.00	0.00	
4,000.00	24.99	180.09	3,787.50	-1,050.00	-1.66	768.91	0.00	0.00	
4,100.00	24.99	180.09	3,878.14	-1,092.25	-1.73	799.85	0.00	0.00	
4,200.00	24.99	180.09	3,968.77	-1,134.50	-1.80	830.79	0.00	0.00	
4,294.57	24.99	180.09	4,054.49	-1,174.45	-1.86	860.05	0.00	0.00	Point Lookout Ss.



Cathedral Energy Services Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well NAGEEZI UNIT 325H
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 325H	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
4,300.00	24.99	180.09	4,059.41	-1,176.74	-1.86	861.73	0.00	0.00	
4,400.00	24.99	180.09	4,150.05	-1,218.99	-1.93	892.67	0.00	0.00	
4,451.69	24.99	180.09	4,196.90	-1,240.83	-1.96	908.66	0.00	0.00	Mancos Shale
4,500.00	24.99	180.09	4,240.68	-1,261.24	-2.00	923.60	0.00	0.00	
4,600.00	24.99	180.09	4,331.32	-1,303.49	-2.06	954.54	0.00	0.00	
4,700.00	24.99	180.09	4,421.96	-1,345.74	-2.13	985.48	0.00	0.00	
4,800.00	24.99	180.09	4,512.60	-1,387.99	-2.20	1,016.42	0.00	0.00	
4,900.00	24.99	180.09	4,603.23	-1,430.23	-2.26	1,047.36	0.00	0.00	
5,000.00	24.99	180.09	4,693.87	-1,472.48	-2.33	1,078.30	0.00	0.00	
5,032.91	24.99	180.09	4,723.70	-1,486.39	-2.35	1,088.48	0.00	0.00	Mancos Silt
5,100.00	24.99	180.09	4,784.51	-1,514.73	-2.40	1,109.23	0.00	0.00	
5,151.61	24.99	180.09	4,831.28	-1,536.53	-2.43	1,125.20	0.00	0.00	Start DLS 9.00 TFO -45.51
5,200.00	28.20	173.51	4,874.56	-1,558.13	-1.15	1,141.91	9.00	6.64	
5,250.00	31.79	168.06	4,917.86	-1,582.77	2.91	1,162.74	9.00	7.17	
5,300.00	35.56	163.63	4,959.47	-1,609.61	9.74	1,187.07	9.00	7.55	
5,328.48	37.78	161.46	4,982.31	-1,625.83	14.84	1,202.43	9.00	7.77	Gallup Fn.
5,350.00	39.47	159.96	4,999.12	-1,638.51	19.28	1,214.75	9.00	7.88	
5,400.00	43.48	156.86	5,036.58	-1,669.28	31.49	1,245.61	9.00	8.01	
5,450.00	47.56	154.20	5,071.61	-1,701.72	46.29	1,279.47	9.00	8.16	
5,500.00	51.69	151.85	5,104.00	-1,735.64	63.58	1,316.10	9.00	8.26	
5,550.00	55.86	149.77	5,133.55	-1,770.84	83.26	1,355.29	9.00	8.35	
5,600.00	60.07	147.88	5,160.06	-1,807.08	105.21	1,396.79	9.00	8.41	
5,650.00	64.30	146.14	5,183.39	-1,844.16	129.29	1,440.35	9.00	8.46	
5,700.00	68.55	144.53	5,203.39	-1,881.83	155.36	1,485.70	9.00	8.50	
5,750.00	72.81	143.00	5,219.93	-1,919.87	183.25	1,532.56	9.00	8.53	
5,799.06	77.01	141.58	5,232.70	-1,957.33	212.22	1,579.73	9.00	8.55	Payzone Top
5,800.00	77.09	141.55	5,232.91	-1,958.05	212.79	1,580.64	9.00	8.56	
5,850.00	81.37	140.14	5,242.25	-1,996.13	243.80	1,629.65	9.00	8.57	
5,900.00	85.66	138.77	5,247.90	-2,033.87	276.09	1,679.28	9.00	8.58	
5,950.00	89.95	137.41	5,249.82	-2,071.04	309.45	1,729.22	9.00	8.58	
5,956.28	90.49	137.24	5,249.80	-2,075.66	313.71	1,735.50	9.00	8.58	Horizontal Target
5,958.77	90.70	137.17	5,249.77	-2,077.49	315.40	1,737.99	9.00	8.58	Start 8145.07 hold at 5958.77 MD
6,000.00	90.70	137.17	5,249.27	-2,107.72	343.43	1,779.22	0.00	0.00	
6,100.00	90.70	137.17	5,248.04	-2,181.05	411.41	1,879.21	0.00	0.00	
6,200.00	90.70	137.17	5,246.82	-2,254.39	479.38	1,979.20	0.00	0.00	
6,300.00	90.70	137.17	5,245.60	-2,327.72	547.36	2,079.20	0.00	0.00	
6,400.00	90.70	137.17	5,244.38	-2,401.05	615.33	2,179.19	0.00	0.00	
6,500.00	90.70	137.17	5,243.16	-2,474.39	683.31	2,279.18	0.00	0.00	
6,600.00	90.70	137.17	5,241.94	-2,547.72	751.29	2,379.17	0.00	0.00	
6,700.00	90.70	137.17	5,240.71	-2,621.05	819.26	2,479.17	0.00	0.00	
6,800.00	90.70	137.17	5,239.49	-2,694.38	887.24	2,579.16	0.00	0.00	
6,900.00	90.70	137.17	5,238.27	-2,767.72	955.22	2,679.15	0.00	0.00	
7,000.00	90.70	137.17	5,237.05	-2,841.05	1,023.19	2,779.14	0.00	0.00	
7,100.00	90.70	137.17	5,235.83	-2,914.38	1,091.17	2,879.14	0.00	0.00	
7,200.00	90.70	137.17	5,234.61	-2,987.72	1,159.14	2,979.13	0.00	0.00	
7,300.00	90.70	137.17	5,233.38	-3,061.05	1,227.12	3,079.12	0.00	0.00	
7,400.00	90.70	137.17	5,232.16	-3,134.38	1,295.10	3,179.11	0.00	0.00	
7,500.00	90.70	137.17	5,230.94	-3,207.72	1,363.07	3,279.11	0.00	0.00	
7,600.00	90.70	137.17	5,229.72	-3,281.05	1,431.05	3,379.10	0.00	0.00	
7,700.00	90.70	137.17	5,228.50	-3,354.38	1,499.02	3,479.09	0.00	0.00	
7,800.00	90.70	137.17	5,227.28	-3,427.72	1,567.00	3,579.08	0.00	0.00	
7,900.00	90.70	137.17	5,226.05	-3,501.05	1,634.98	3,679.08	0.00	0.00	



Cathedral Energy Services Planning Report

Database: USA EDM 5000 Multi Users DB
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Project: San Juan County, NM
Site: S33-T24N-R9W
Well: NAGEEZI UNIT 325H
Wellbore: OH
Design: Plan #2

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

Well NAGEEZI UNIT 325H
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
8,000.00	90.70	137.17	5,224.83	-3,574.38	1,702.95	3,779.07	0.00	0.00	
8,100.00	90.70	137.17	5,223.61	-3,647.71	1,770.93	3,879.06	0.00	0.00	
8,200.00	90.70	137.17	5,222.39	-3,721.05	1,838.91	3,979.05	0.00	0.00	
8,300.00	90.70	137.17	5,221.17	-3,794.38	1,906.88	4,079.05	0.00	0.00	
8,400.00	90.70	137.17	5,219.95	-3,867.71	1,974.86	4,179.04	0.00	0.00	
8,500.00	90.70	137.17	5,218.72	-3,941.05	2,042.83	4,279.03	0.00	0.00	
8,600.00	90.70	137.17	5,217.50	-4,014.38	2,110.81	4,379.02	0.00	0.00	
8,700.00	90.70	137.17	5,216.28	-4,087.71	2,178.79	4,479.02	0.00	0.00	
8,800.00	90.70	137.17	5,215.06	-4,161.05	2,246.76	4,579.01	0.00	0.00	
8,900.00	90.70	137.17	5,213.84	-4,234.38	2,314.74	4,679.00	0.00	0.00	
9,000.00	90.70	137.17	5,212.61	-4,307.71	2,382.72	4,778.99	0.00	0.00	
9,100.00	90.70	137.17	5,211.39	-4,381.05	2,450.69	4,878.99	0.00	0.00	
9,200.00	90.70	137.17	5,210.17	-4,454.38	2,518.67	4,978.98	0.00	0.00	
9,300.00	90.70	137.17	5,208.95	-4,527.71	2,586.64	5,078.97	0.00	0.00	
9,400.00	90.70	137.17	5,207.73	-4,601.04	2,654.62	5,178.96	0.00	0.00	
9,500.00	90.70	137.17	5,206.51	-4,674.38	2,722.60	5,278.96	0.00	0.00	
9,600.00	90.70	137.17	5,205.28	-4,747.71	2,790.57	5,378.95	0.00	0.00	
9,700.00	90.70	137.17	5,204.06	-4,821.04	2,858.55	5,478.94	0.00	0.00	
9,800.00	90.70	137.17	5,202.84	-4,894.38	2,926.53	5,578.94	0.00	0.00	
9,900.00	90.70	137.17	5,201.62	-4,967.71	2,994.50	5,678.93	0.00	0.00	
10,000.00	90.70	137.17	5,200.40	-5,041.04	3,062.48	5,778.92	0.00	0.00	
10,100.00	90.70	137.17	5,199.18	-5,114.38	3,130.45	5,878.91	0.00	0.00	
10,200.00	90.70	137.17	5,197.95	-5,187.71	3,198.43	5,978.91	0.00	0.00	
10,300.00	90.70	137.17	5,196.73	-5,261.04	3,266.41	6,078.90	0.00	0.00	
10,400.00	90.70	137.17	5,195.51	-5,334.38	3,334.38	6,178.89	0.00	0.00	
10,500.00	90.70	137.17	5,194.29	-5,407.71	3,402.36	6,278.88	0.00	0.00	
10,600.00	90.70	137.17	5,193.07	-5,481.04	3,470.33	6,378.88	0.00	0.00	
10,700.00	90.70	137.17	5,191.85	-5,554.37	3,538.31	6,478.87	0.00	0.00	
10,800.00	90.70	137.17	5,190.62	-5,627.71	3,606.29	6,578.86	0.00	0.00	
10,900.00	90.70	137.17	5,189.40	-5,701.04	3,674.26	6,678.85	0.00	0.00	
11,000.00	90.70	137.17	5,188.18	-5,774.37	3,742.24	6,778.85	0.00	0.00	
11,100.00	90.70	137.17	5,186.96	-5,847.71	3,810.22	6,878.84	0.00	0.00	
11,200.00	90.70	137.17	5,185.74	-5,921.04	3,878.19	6,978.83	0.00	0.00	
11,300.00	90.70	137.17	5,184.52	-5,994.37	3,946.17	7,078.82	0.00	0.00	
11,400.00	90.70	137.17	5,183.29	-6,067.71	4,014.14	7,178.82	0.00	0.00	
11,500.00	90.70	137.17	5,182.07	-6,141.04	4,082.12	7,278.81	0.00	0.00	
11,600.00	90.70	137.17	5,180.85	-6,214.37	4,150.10	7,378.80	0.00	0.00	
11,700.00	90.70	137.17	5,179.63	-6,287.71	4,218.07	7,478.79	0.00	0.00	
11,800.00	90.70	137.17	5,178.41	-6,361.04	4,286.05	7,578.79	0.00	0.00	
11,900.00	90.70	137.17	5,177.18	-6,434.37	4,354.03	7,678.78	0.00	0.00	
12,000.00	90.70	137.17	5,175.96	-6,507.71	4,422.00	7,778.77	0.00	0.00	
12,100.00	90.70	137.17	5,174.74	-6,581.04	4,489.98	7,878.76	0.00	0.00	
12,200.00	90.70	137.17	5,173.52	-6,654.37	4,557.95	7,978.76	0.00	0.00	
12,300.00	90.70	137.17	5,172.30	-6,727.70	4,625.93	8,078.75	0.00	0.00	
12,400.00	90.70	137.17	5,171.08	-6,801.04	4,693.91	8,178.74	0.00	0.00	
12,500.00	90.70	137.17	5,169.85	-6,874.37	4,761.88	8,278.73	0.00	0.00	
12,600.00	90.70	137.17	5,168.63	-6,947.70	4,829.86	8,378.73	0.00	0.00	
12,700.00	90.70	137.17	5,167.41	-7,021.04	4,897.84	8,478.72	0.00	0.00	
12,800.00	90.70	137.17	5,166.19	-7,094.37	4,965.81	8,578.71	0.00	0.00	
12,900.00	90.70	137.17	5,164.97	-7,167.70	5,033.79	8,678.70	0.00	0.00	
13,000.00	90.70	137.17	5,163.75	-7,241.04	5,101.76	8,778.70	0.00	0.00	
13,100.00	90.70	137.17	5,162.52	-7,314.37	5,169.74	8,878.69	0.00	0.00	



Cathedral Energy Services Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well NAGEEZI UNIT 325H
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 325H	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
13,200.00	90.70	137.17	5,161.30	-7,387.70	5,237.72	8,978.68	0.00	0.00	
13,300.00	90.70	137.17	5,160.08	-7,461.04	5,305.69	9,078.67	0.00	0.00	
13,400.00	90.70	137.17	5,158.86	-7,534.37	5,373.67	9,178.67	0.00	0.00	
13,500.00	90.70	137.17	5,157.64	-7,607.70	5,441.64	9,278.66	0.00	0.00	
13,600.00	90.70	137.17	5,156.42	-7,681.03	5,509.62	9,378.65	0.00	0.00	
13,700.00	90.70	137.17	5,155.19	-7,754.37	5,577.60	9,478.64	0.00	0.00	
13,800.00	90.70	137.17	5,153.97	-7,827.70	5,645.57	9,578.64	0.00	0.00	
13,900.00	90.70	137.17	5,152.75	-7,901.03	5,713.55	9,678.63	0.00	0.00	
14,000.00	90.70	137.17	5,151.53	-7,974.37	5,781.53	9,778.62	0.00	0.00	
14,103.84	90.70	137.17	5,150.26	-8,050.52	5,852.12	9,882.46	0.00	0.00	TD at 14103.84

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
NAGEEZI UNIT 325H PI	0.00	0.00	5,249.77	-2,077.49	315.40	1,918,141.75	2,735,113.67	36.271539	-107.792549
- plan hits target center									
- Point									
NAGEEZI UNIT 325H PI	0.00	0.00	5,150.26	-8,050.52	5,852.12	1,912,170.99	2,740,652.83	36.255129	-107.773770
- plan hits target center									
- Point									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
839.00	839.00	Ojo Alamo Ss.		-0.70	137.17	
1,016.01	1,016.00	Kirtland Shale		-0.70	137.17	
1,326.29	1,325.00	Fruitland Coal		-0.70	137.17	
1,611.51	1,605.00	Pictured Cliffs Ss.		-0.70	137.17	
1,708.68	1,699.00	Lewis Shale		-0.70	137.17	
2,410.27	2,350.00	Cliffhouse Ss.		-0.70	137.17	
3,237.61	3,103.00	Menefee Fn.		-0.70	137.17	
4,294.57	4,065.00	Point Lookout Ss.		-0.70	137.17	
4,451.69	4,208.00	Mancos Shale		-0.70	137.17	
5,032.91	4,737.00	Mancos Silt		-0.70	137.17	
5,328.48	4,997.00	Gallup Fn.		-0.70	137.17	
5,799.06	5,252.00	Payzone Top		-0.70	137.17	
5,956.28	5,271.00	Horizontal Target		-0.70	137.17	



Cathedral Energy Services
Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well NAGEEZI UNIT 325H
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 325H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
900.00	900.00	0.00	0.00	Start Build 2.00
2,149.57	2,110.32	-268.23	-0.42	Start 3002.03 hold at 2149.57 MD
5,151.61	4,831.28	-1,536.53	-2.43	Start DLS 9.00 TFO -45.51
5,958.77	5,249.77	-2,077.49	315.40	Start 8145.07 hold at 5958.77 MD
14,103.84	5,150.26	-8,050.52	5,852.12	TD at 14103.84



EnCana Oil & Gas (USA) Inc

San Juan County, NM

S33-T24N-R9W

NAGEEZI UNIT 325H

OH

Plan #2

Anticollision Report

24 January, 2017



Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well NAGEEZI UNIT 325H
Project:	San Juan County, NM	TVD Reference:	16' KB @ 6970.00usft
Reference Site:	S33-T24N-R9W	MD Reference:	16' KB @ 6970.00usft
Site Error:	0.00usft	North Reference:	True
Reference Well:	NAGEEZI UNIT 325H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	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	1/24/2017
From (usft)	To (usft)	Survey (Wellbore)
0.00	14,103.84	Plan #2 (OH)
		Tool Name
		MWD+HDGM
		Description
		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 324H - OH - Plan #2	900.00	900.00	29.85	23.82	4.945	CC, ES
NAGEEZI UNIT 324H - OH - Plan #2	14,000.00	13,299.36	2,011.88	1,554.02	4.394	SF
NAGEEZI UNIT 326H - OH - Plan #2	1,074.83	1,076.69	14.46	7.20	1.993	CC, ES, SF
NAGEEZI UNIT 327H - OH - Plan #2	1,870.33	1,869.74	40.05	26.76	3.014	CC
NAGEEZI UNIT 327H - OH - Plan #2	1,900.00	1,899.13	40.12	26.55	2.957	ES
NAGEEZI UNIT 327H - OH - Plan #2	12,129.26	11,923.82	735.19	381.08	2.076	SF
S34-T24N-R9W (Escrito)						
Nageezi Unit 2409Y 03H - Hz - FINAL	5,541.06	7,768.00	140.68	77.29	2.219	CC
Nageezi Unit 2409Y 03H - Hz - FINAL	5,600.00	7,741.37	152.20	70.98	1.874	ES, 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 325H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 325H
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

S33-T24N-R9W - NAGEEZI UNIT 324H - OH - Plan #2													Offset Site Error: 0.00 usft
Survey Program: D-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)		Between Centres (usft)	Between Ellipses (usft)					
0.00	0.00	0.00	0.00	0.00	0.00	124.97	-17.11	24.46	29.85				
100.00	100.00	100.00	100.00	0.15	0.15	124.97	-17.11	24.46	29.85	0.30	99.142		
200.00	200.00	200.00	200.00	0.51	0.51	124.97	-17.11	24.46	29.85	1.02	29.324		
300.00	300.00	300.00	300.00	0.87	0.87	124.97	-17.11	24.46	29.85	1.74	17.206		
400.00	400.00	400.00	400.00	1.23	1.23	124.97	-17.11	24.46	29.85	2.45	12.175		
500.00	500.00	500.00	500.00	1.58	1.58	124.97	-17.11	24.46	29.85	3.17	9.421		
600.00	600.00	600.00	600.00	1.94	1.94	124.97	-17.11	24.46	29.85	3.89	7.683		
700.00	700.00	700.00	700.00	2.30	2.30	124.97	-17.11	24.46	29.85	4.60	6.486		
800.00	800.00	800.00	800.00	2.66	2.66	124.97	-17.11	24.46	29.85	5.32	5.612		
900.00	900.00	900.00	900.00	3.02	3.02	124.97	-17.11	24.46	29.85	6.04	4.945 CC, ES		
1,000.00	999.98	998.95	998.93	3.36	3.36	-58.18	-17.90	25.98	30.61	6.73	4.547		
1,100.00	1,099.84	1,097.70	1,097.54	3.69	3.70	-66.37	-20.26	30.51	33.37	7.42	4.495		
1,200.00	1,199.45	1,196.07	1,195.55	4.03	4.04	-77.01	-24.17	38.02	39.17	8.13	4.820		
1,300.00	1,298.70	1,293.88	1,292.64	4.37	4.38	-87.08	-29.60	48.44	48.89	8.83	5.534		
1,400.00	1,397.47	1,390.95	1,388.55	4.73	4.74	-95.06	-36.50	61.68	62.78	9.54	6.578		
1,500.00	1,495.62	1,487.11	1,483.00	5.10	5.11	-100.85	-44.81	77.63	80.73	10.27	7.863		
1,600.00	1,593.06	1,582.19	1,575.76	5.50	5.49	-104.94	-54.47	96.16	102.51	11.01	9.314		
1,700.00	1,689.64	1,676.06	1,666.61	5.91	5.89	-107.81	-65.39	117.11	127.93	11.77	10.869		
1,800.00	1,785.27	1,768.59	1,755.34	6.36	6.32	-109.81	-77.50	140.34	156.80	12.56	12.482		
1,900.00	1,879.82	1,859.64	1,841.79	6.83	6.77	-111.21	-90.70	165.67	189.00	13.39	14.118		
2,000.00	1,973.17	1,949.12	1,925.82	7.34	7.25	-112.18	-104.90	192.92	224.37	14.25	15.747		
2,100.00	2,065.21	2,036.93	2,007.32	7.88	7.75	-112.81	-120.01	221.92	262.82	15.15	17.349		
2,149.57	2,110.32	2,079.81	2,046.75	8.17	8.01	-113.02	-127.80	236.88	282.97	15.61	18.128		
2,200.00	2,156.03	2,123.09	2,086.27	8.46	8.29	-113.54	-135.95	252.51	304.05	16.09	18.898		
2,300.00	2,246.67	2,208.04	2,163.06	9.06	8.86	-114.08	-152.73	284.71	347.00	17.06	20.344		
2,400.00	2,337.30	2,291.75	2,237.65	9.67	9.48	-114.17	-170.29	318.41	391.41	18.05	21.679		
2,500.00	2,427.94	2,374.10	2,309.91	10.29	10.13	-113.94	-188.54	353.44	437.24	19.08	22.917		
2,600.00	2,518.58	2,455.01	2,379.76	10.93	10.82	-113.50	-207.40	389.62	484.46	20.12	24.078		
2,700.00	2,609.22	2,534.37	2,447.14	11.57	11.54	-112.90	-226.78	426.81	533.09	21.17	25.176		
2,800.00	2,699.85	2,612.11	2,512.00	12.22	12.30	-112.21	-246.59	464.82	583.12	22.23	26.229		
2,900.00	2,790.49	2,695.51	2,580.66	12.88	13.15	-111.44	-268.46	506.80	634.18	23.43	27.072		
3,000.00	2,881.13	2,781.15	2,651.13	13.54	14.06	-110.76	-290.95	549.96	685.36	24.68	27.768		
3,100.00	2,971.76	2,866.79	2,721.60	14.20	14.98	-110.18	-313.44	593.12	736.61	25.95	28.381		
3,200.00	3,062.40	2,952.44	2,792.07	14.87	15.91	-109.67	-335.93	636.27	787.90	27.24	28.924		
3,300.00	3,153.04	3,038.08	2,862.55	15.54	16.86	-109.22	-358.42	679.43	839.24	28.54	29.405		
3,400.00	3,243.68	3,123.72	2,933.02	16.21	17.81	-108.82	-380.91	722.59	890.61	29.85	29.836		
3,500.00	3,334.31	3,209.37	3,003.49	16.89	18.78	-108.47	-403.40	765.75	942.01	31.17	30.221		
3,600.00	3,424.95	3,295.01	3,073.96	17.57	19.75	-108.15	-425.90	808.90	993.43	32.50	30.568		
3,700.00	3,515.59	3,380.65	3,144.43	18.25	20.72	-107.86	-448.39	852.06	1,044.87	33.83	30.882		
3,800.00	3,606.22	3,466.29	3,214.90	18.94	21.70	-107.60	-470.88	895.22	1,096.33	35.18	31.166		
3,900.00	3,696.86	3,551.94	3,285.38	19.62	22.69	-107.37	-493.37	938.38	1,147.81	36.52	31.425		
4,000.00	3,787.50	3,637.58	3,355.85	20.31	23.68	-107.15	-515.86	981.53	1,199.29	37.88	31.662		
4,100.00	3,878.14	3,723.22	3,426.32	20.99	24.67	-106.95	-538.35	1,024.69	1,250.79	39.24	31.879		
4,200.00	3,968.77	3,808.86	3,496.79	21.68	25.67	-106.77	-560.84	1,067.85	1,302.30	40.60	32.079		
4,300.00	4,059.41	3,894.51	3,567.26	22.37	26.67	-106.60	-583.33	1,111.01	1,353.82	41.96	32.263		
4,400.00	4,150.05	3,980.15	3,637.74	23.06	27.67	-106.45	-605.82	1,154.16	1,405.35	43.33	32.433		
4,500.00	4,240.68	4,065.79	3,708.21	23.75	28.67	-106.30	-628.31	1,197.32	1,456.88	44.70	32.590		
4,600.00	4,331.32	4,151.43	3,778.68	24.45	29.68	-106.17	-650.80	1,240.48	1,508.42	46.08	32.737		
4,700.00	4,421.96	4,237.08	3,849.15	25.14	30.69	-106.04	-673.29	1,283.64	1,559.96	47.45	32.873		
4,800.00	4,512.60	4,322.72	3,919.62	25.83	31.70	-105.92	-695.78	1,326.79	1,611.52	48.83	33.000		
4,900.00	4,603.23	4,408.36	3,990.09	26.53	32.71	-105.81	-718.27	1,369.95	1,663.07	50.21	33.119		
5,000.00	4,693.87	4,494.00	4,060.57	27.22	33.72	-105.71	-740.76	1,413.11	1,714.63	51.60	33.230		

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 325H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 325H
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 324H - 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		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	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)										
5,100.00	4,784.51	4,579.65	4,131.04	27.92	34.73	-105.61	-763.25	1,456.27	1,766.19	1,713.21	52.98	33.335			
5,151.61	4,831.28	4,623.84	4,167.41	28.28	35.26	-105.56	-774.85	1,478.54	1,792.81	1,739.11	53.70	33.386			
5,200.00	4,874.56	4,665.77	4,201.90	28.63	35.75	-97.53	-785.86	1,499.66	1,816.95	1,762.55	54.40	33.399			
5,250.00	4,917.86	4,709.92	4,238.23	29.02	36.28	-90.97	-797.46	1,521.91	1,840.10	1,784.91	55.19	33.340			
5,300.00	4,959.47	4,754.65	4,275.04	29.44	36.81	-85.78	-809.20	1,544.45	1,861.31	1,805.26	56.05	33.211			
5,350.00	4,999.12	4,799.68	4,312.09	29.88	37.34	-81.69	-821.03	1,567.14	1,880.47	1,823.51	56.96	33.014			
5,400.00	5,036.58	4,844.73	4,349.17	30.35	37.87	-78.48	-832.86	1,589.85	1,897.53	1,839.60	57.93	32.755			
5,450.00	5,071.61	4,889.53	4,386.03	30.84	38.41	-75.98	-844.62	1,612.43	1,912.44	1,853.48	58.96	32.439			
5,500.00	5,104.00	4,933.81	4,422.46	31.35	38.93	-74.08	-856.25	1,634.74	1,925.19	1,865.16	60.03	32.070			
5,550.00	5,133.55	4,977.28	4,458.23	31.89	39.45	-72.68	-867.67	1,656.64	1,935.79	1,874.64	61.15	31.655			
5,600.00	5,160.06	5,019.68	4,493.12	32.46	39.95	-71.72	-878.80	1,678.01	1,944.27	1,881.95	62.32	31.198			
5,650.00	5,183.39	5,060.74	4,526.92	33.05	40.44	-71.14	-889.59	1,698.70	1,950.69	1,887.17	63.53	30.706			
5,700.00	5,203.39	5,100.23	4,559.40	33.66	40.91	-70.89	-899.95	1,718.60	1,955.12	1,890.35	64.77	30.184			
5,750.00	5,219.93	5,137.88	4,590.39	34.30	41.36	-70.92	-909.84	1,737.57	1,957.65	1,891.60	66.05	29.638			
5,800.00	5,232.91	5,173.48	4,619.68	34.96	41.78	-71.23	-919.19	1,755.51	1,958.39	1,891.03	67.36	29.075			
5,850.00	5,242.25	5,206.79	4,647.09	35.65	42.18	-71.76	-927.94	1,772.30	1,957.44	1,888.76	68.68	28.501			
5,900.00	5,247.90	5,237.62	4,672.46	36.36	42.55	-72.50	-936.03	1,787.83	1,954.93	1,884.92	70.02	27.921			
5,950.00	5,249.82	5,265.77	4,695.62	37.09	42.88	-73.42	-943.43	1,802.02	1,951.00	1,879.65	71.35	27.343			
5,958.77	5,249.77	5,270.42	4,699.45	37.21	42.94	-73.60	-944.65	1,804.36	1,950.17	1,878.59	71.59	27.242			
6,000.00	5,249.27	5,292.07	4,717.26	37.83	43.20	-74.14	-950.33	1,815.27	1,946.51	1,873.82	72.69	26.777			
6,100.00	5,248.04	5,344.58	4,760.47	39.40	43.82	-75.46	-964.12	1,841.73	1,940.23	1,864.82	75.41	25.728			
6,200.00	5,246.82	5,397.08	4,803.68	41.06	44.45	-76.78	-977.91	1,868.19	1,937.67	1,859.50	78.17	24.788			
6,218.49	5,246.60	5,406.79	4,811.67	41.38	44.56	-77.03	-980.46	1,873.09	1,937.61	1,858.92	78.68	24.625			
6,300.00	5,245.60	5,449.59	4,846.88	42.81	45.07	-78.10	-991.70	1,894.65	1,938.85	1,857.91	80.93	23.956			
6,400.00	5,244.38	5,502.10	4,890.09	44.64	45.70	-79.42	-1,005.49	1,921.11	1,943.75	1,860.07	83.68	23.227			
6,500.00	5,243.16	5,554.61	4,933.29	46.54	46.33	-80.74	-1,019.28	1,947.57	1,952.36	1,865.96	86.40	22.598			
6,600.00	5,241.94	5,607.11	4,976.50	48.50	46.95	-82.06	-1,033.06	1,974.03	1,964.62	1,875.57	89.05	22.062			
6,700.00	5,240.71	5,682.06	5,037.65	50.51	47.87	-83.91	-1,053.42	2,012.26	1,980.39	1,888.26	92.14	21.494			
6,800.00	5,239.49	5,916.69	5,195.25	52.58	51.68	-88.62	-1,151.60	2,153.53	1,996.41	1,897.14	99.27	20.111			
6,900.00	5,238.27	6,307.00	5,297.00	54.68	59.97	-91.68	-1,405.83	2,423.09	2,003.20	1,892.49	110.72	18.093			
7,000.00	5,237.05	6,407.00	5,295.60	56.82	62.15	-91.67	-1,479.11	2,491.13	2,003.29	1,888.07	115.21	17.388			
7,100.00	5,235.83	6,507.00	5,294.20	59.00	64.35	-91.67	-1,552.38	2,559.16	2,003.37	1,883.61	119.75	16.729			
7,200.00	5,234.61	6,607.00	5,292.81	61.21	66.58	-91.66	-1,625.65	2,627.20	2,003.45	1,879.11	124.34	16.113			
7,300.00	5,233.38	6,707.00	5,291.41	63.44	68.83	-91.66	-1,698.92	2,695.24	2,003.53	1,874.57	128.96	15.536			
7,400.00	5,232.16	6,807.00	5,290.02	65.70	71.10	-91.65	-1,772.20	2,763.28	2,003.61	1,870.00	133.61	14.996			
7,500.00	5,230.94	6,907.00	5,288.62	67.97	73.39	-91.65	-1,845.47	2,831.31	2,003.69	1,865.40	138.30	14.488			
7,600.00	5,229.72	7,007.00	5,287.22	70.27	75.69	-91.64	-1,918.74	2,899.35	2,003.77	1,860.77	143.01	14.012			
7,700.00	5,228.50	7,107.00	5,285.83	72.58	78.01	-91.64	-1,992.01	2,967.39	2,003.85	1,856.11	147.74	13.563			
7,800.00	5,227.28	7,207.00	5,284.43	74.91	80.34	-91.63	-2,065.29	3,035.43	2,003.93	1,851.44	152.50	13.141			
7,900.00	5,226.05	7,307.00	5,283.03	77.26	82.69	-91.63	-2,138.56	3,103.47	2,004.02	1,846.74	157.28	12.742			
8,000.00	5,224.83	7,407.00	5,281.64	79.61	85.04	-91.62	-2,211.83	3,171.50	2,004.10	1,842.03	162.07	12.365			
8,100.00	5,223.61	7,507.00	5,280.24	81.98	87.41	-91.62	-2,285.11	3,239.54	2,004.18	1,837.29	166.88	12.009			
8,200.00	5,222.39	7,607.00	5,278.85	84.36	89.78	-91.61	-2,358.38	3,307.58	2,004.26	1,832.55	171.71	11.672			
8,300.00	5,221.17	7,707.00	5,277.45	86.74	92.16	-91.61	-2,431.65	3,375.62	2,004.34	1,827.79	176.55	11.353			
8,400.00	5,219.95	7,807.00	5,276.05	89.14	94.56	-91.60	-2,504.92	3,443.65	2,004.42	1,823.01	181.41	11.049			
8,500.00	5,218.72	7,907.00	5,274.66	91.55	96.96	-91.60	-2,578.20	3,511.69	2,004.50	1,818.23	186.28	10.761			
8,600.00	5,217.50	8,007.00	5,273.26	93.96	99.36	-91.59	-2,651.47	3,579.73	2,004.59	1,813.43	191.15	10.487			
8,700.00	5,216.28	8,107.00	5,271.86	96.38	101.77	-91.59	-2,724.74	3,647.77	2,004.67	1,808.62	196.04	10.226			
8,800.00	5,215.06	8,207.00	5,270.47	98.80	104.19	-91.58	-2,798.01	3,715.81	2,004.75	1,803.81	200.94	9.977			
8,900.00	5,213.84	8,307.00	5,269.07	101.23	106.62	-91.58	-2,871.29	3,783.84	2,004.83	1,798.98	205.85	9.739			
9,000.00	5,212.61	8,407.00	5,267.68	103.67	109.05	-91.57	-2,944.56	3,851.88	2,004.91	1,794.15	210.76	9.513			
9,100.00	5,211.39	8,507.00	5,266.28	106.11	111.48	-91.57	-3,017.83	3,919.92	2,004.99	1,789.31	215.68	9.296			

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 325H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 325H
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 324H - 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)		Between Centres (usft)	Between Ellipses (usft)				Offset +N/-S (usft)	Offset +E/-W (usft)	
9,200.00	5,210.17	8,607.00	5,264.88	108.56	113.92	-91.56	-3,091.10	3,987.96	2,005.07	1,784.46	9.089			
9,300.00	5,208.95	8,707.00	5,263.49	111.01	116.37	-91.56	-3,164.38	4,055.99	2,005.16	1,779.61	8.890			
9,400.00	5,207.73	8,807.00	5,262.09	113.46	118.81	-91.55	-3,237.65	4,124.03	2,005.24	1,774.75	8.700			
9,500.00	5,206.51	8,907.00	5,260.70	115.92	121.27	-91.55	-3,310.92	4,192.07	2,005.32	1,769.88	8.517			
9,600.00	5,205.28	9,007.00	5,259.30	118.38	123.72	-91.54	-3,384.19	4,260.11	2,005.40	1,765.01	8.342			
9,700.00	5,204.06	9,107.00	5,257.90	120.85	126.18	-91.54	-3,457.47	4,328.15	2,005.48	1,760.13	8.174			
9,800.00	5,202.84	9,207.00	5,256.51	123.32	128.64	-91.53	-3,530.74	4,396.18	2,005.56	1,755.25	8.012			
9,900.00	5,201.62	9,307.00	5,255.11	125.79	131.11	-91.53	-3,604.01	4,464.22	2,005.64	1,750.36	7.857			
10,000.00	5,200.40	9,407.00	5,253.71	128.26	133.57	-91.52	-3,677.28	4,532.26	2,005.73	1,745.47	7.707			
10,100.00	5,199.18	9,507.00	5,252.32	130.74	136.05	-91.52	-3,750.56	4,600.30	2,005.81	1,740.58	7.563			
10,200.00	5,197.95	9,607.00	5,250.92	133.22	138.52	-91.51	-3,823.83	4,668.33	2,005.89	1,735.68	7.423			
10,300.00	5,196.73	9,707.00	5,249.53	135.70	140.99	-91.51	-3,897.10	4,736.37	2,005.97	1,730.78	7.289			
10,400.00	5,195.51	9,807.00	5,248.13	138.18	143.47	-91.50	-3,970.38	4,804.41	2,006.05	1,725.87	7.160			
10,500.00	5,194.29	9,907.00	5,246.73	140.67	145.95	-91.50	-4,043.65	4,872.45	2,006.13	1,720.96	7.035			
10,600.00	5,193.07	10,007.00	5,245.34	143.16	148.43	-91.49	-4,116.92	4,940.49	2,006.22	1,716.05	6.914			
10,700.00	5,191.85	10,107.00	5,243.94	145.64	150.92	-91.49	-4,190.19	5,008.52	2,006.30	1,711.14	6.797			
10,800.00	5,190.62	10,207.00	5,242.55	148.14	153.40	-91.48	-4,263.47	5,076.56	2,006.38	1,706.22	6.684			
10,900.00	5,189.40	10,307.00	5,241.15	150.63	155.89	-91.48	-4,336.74	5,144.60	2,006.46	1,701.30	6.575			
11,000.00	5,188.18	10,407.00	5,239.75	153.12	158.38	-91.47	-4,410.01	5,212.64	2,006.54	1,696.37	6.469			
11,100.00	5,186.96	10,507.00	5,238.36	155.62	160.87	-91.47	-4,483.28	5,280.67	2,006.62	1,691.45	6.367			
11,200.00	5,185.74	10,606.99	5,236.96	158.12	163.36	-91.46	-4,556.56	5,348.71	2,006.71	1,686.52	6.267			
11,300.00	5,184.52	10,706.99	5,235.56	160.62	165.86	-91.46	-4,629.83	5,416.75	2,006.79	1,681.59	6.171			
11,400.00	5,183.29	10,806.99	5,234.17	163.12	168.35	-91.45	-4,703.10	5,484.79	2,006.87	1,676.66	6.078			
11,500.00	5,182.07	10,906.99	5,232.77	165.62	170.85	-91.45	-4,776.37	5,552.82	2,006.95	1,671.73	5.987			
11,600.00	5,180.85	11,006.99	5,231.38	168.12	173.35	-91.44	-4,849.65	5,620.86	2,007.03	1,666.79	5.899			
11,700.00	5,179.63	11,106.99	5,229.98	170.62	175.85	-91.44	-4,922.92	5,688.90	2,007.12	1,661.85	5.813			
11,800.00	5,178.41	11,206.99	5,228.58	173.13	178.35	-91.43	-4,996.19	5,756.94	2,007.20	1,656.92	5.730			
11,900.00	5,177.18	11,306.99	5,227.19	175.63	180.85	-91.43	-5,069.46	5,824.98	2,007.28	1,651.97	5.649			
12,000.00	5,175.96	11,406.99	5,225.79	178.14	183.35	-91.42	-5,142.74	5,893.01	2,007.36	1,647.03	5.571			
12,100.00	5,174.74	11,506.99	5,224.39	180.65	185.85	-91.42	-5,216.01	5,961.05	2,007.44	1,642.09	5.495			
12,200.00	5,173.52	11,606.99	5,223.00	183.16	188.36	-91.41	-5,289.28	6,029.09	2,007.52	1,637.14	5.420			
12,300.00	5,172.30	11,706.99	5,221.60	185.67	190.86	-91.41	-5,362.55	6,097.13	2,007.61	1,632.20	5.348			
12,400.00	5,171.08	11,806.99	5,220.21	188.18	193.37	-91.40	-5,435.83	6,165.16	2,007.69	1,627.25	5.277			
12,500.00	5,169.85	11,906.99	5,218.81	190.69	195.88	-91.40	-5,509.10	6,233.20	2,007.77	1,622.30	5.209			
12,600.00	5,168.63	12,006.99	5,217.41	193.20	198.38	-91.39	-5,582.37	6,301.24	2,007.85	1,617.35	5.142			
12,700.00	5,167.41	12,106.99	5,216.02	195.71	200.89	-91.39	-5,655.65	6,369.28	2,007.93	1,612.40	5.076			
12,800.00	5,166.19	12,206.99	5,214.62	198.23	203.40	-91.38	-5,728.92	6,437.32	2,008.02	1,607.44	5.013			
12,900.00	5,164.97	12,306.99	5,213.23	200.74	205.91	-91.38	-5,802.19	6,505.35	2,008.10	1,602.49	4.951			
13,000.00	5,163.75	12,406.99	5,211.83	203.26	208.42	-91.37	-5,875.46	6,573.39	2,008.18	1,597.53	4.890			
13,100.00	5,162.52	12,506.99	5,210.43	205.77	210.94	-91.37	-5,948.74	6,641.43	2,008.26	1,592.58	4.831			
13,200.00	5,161.30	12,606.99	5,209.04	208.29	213.45	-91.36	-6,022.01	6,709.47	2,008.34	1,587.62	4.774			
13,300.00	5,160.08	12,706.99	5,207.64	210.80	215.96	-91.36	-6,095.28	6,777.50	2,008.43	1,582.66	4.717			
13,400.00	5,158.86	12,806.99	5,206.24	213.32	218.48	-91.35	-6,168.55	6,845.54	2,008.51	1,577.70	4.662			
13,500.00	5,157.64	12,906.99	5,204.85	215.84	220.99	-91.35	-6,241.83	6,913.58	2,008.59	1,572.74	4.608			
13,600.00	5,156.42	13,006.99	5,203.45	218.36	223.51	-91.34	-6,315.10	6,981.62	2,008.67	1,567.78	4.556			
13,700.00	5,155.19	13,106.99	5,202.06	220.87	226.02	-91.34	-6,388.37	7,049.66	2,008.76	1,562.82	4.505			
13,800.00	5,153.97	13,206.99	5,200.66	223.39	228.54	-91.33	-6,461.64	7,117.69	2,008.84	1,557.86	4.454			
13,900.00	5,152.75	13,299.36	5,199.37	225.91	230.86	-91.33	-6,529.33	7,180.54	2,008.93	1,553.10	4.407			
14,000.00	5,151.53	13,299.36	5,199.37	228.43	230.86	-91.33	-6,529.33	7,180.54	2,011.88	1,554.02	4.394 SF			
14,103.84	5,150.26	13,299.36	5,199.37	231.05	230.86	-91.33	-6,529.33	7,180.54	2,020.19	1,561.41	4.403			

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 325H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 325H
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		Distance		Total		Separation		Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis		
0.00	0.00	0.00	0.00	0.00	0.00	-55.11	17.47	-25.05	30.54				
100.00	100.00	100.00	100.00	0.15	0.15	-55.11	17.47	-25.05	30.54	30.24	0.30	101.439	
200.00	200.00	200.00	200.00	0.51	0.51	-55.11	17.47	-25.05	30.54	29.53	1.02	30.003	
300.00	300.00	300.00	300.00	0.87	0.87	-55.11	17.47	-25.05	30.54	28.81	1.74	17.605	
400.00	400.00	400.00	400.00	1.23	1.23	-55.11	17.47	-25.05	30.54	28.09	2.45	12.457	
500.00	500.00	500.00	500.00	1.58	1.58	-55.11	17.47	-25.05	30.54	27.38	3.17	9.639	
600.00	600.00	600.00	600.00	1.94	1.94	-55.11	17.47	-25.05	30.54	26.66	3.89	7.861	
700.00	700.00	700.00	700.00	2.30	2.30	-55.11	17.47	-25.05	30.54	25.94	4.60	6.636	
800.00	800.00	801.00	800.98	2.66	2.65	-54.20	16.86	-23.38	28.84	23.51	5.33	5.410	
900.00	900.00	901.75	901.58	3.02	3.00	-50.72	15.04	-18.38	23.80	17.73	6.07	3.918	
1,000.00	999.98	1,002.04	1,001.48	3.36	3.35	143.69	12.01	-10.11	17.14	10.35	6.79	2.524	
1,074.83	1,074.73	1,076.69	1,075.60	3.61	3.62	172.69	8.99	-1.83	14.46	7.20	7.26	1.993 CC, ES, SF	
1,100.00	1,099.84	1,101.69	1,100.37	3.69	3.71	-174.82	7.82	1.35	14.87	7.47	7.41	2.008	
1,200.00	1,199.45	1,200.46	1,197.91	4.03	4.08	-138.50	2.51	15.90	24.23	16.10	8.13	2.980	
1,300.00	1,298.70	1,298.13	1,293.80	4.37	4.46	-124.72	-3.88	33.38	41.44	32.54	8.90	4.655	
1,400.00	1,397.47	1,394.51	1,387.73	4.73	4.87	-119.33	-11.28	53.63	63.39	53.72	9.67	6.557	
1,500.00	1,495.62	1,489.42	1,479.46	5.10	5.29	-116.90	-19.62	76.46	89.27	78.84	10.43	8.556	
1,600.00	1,593.06	1,582.67	1,568.77	5.50	5.74	-115.67	-28.83	101.66	118.82	107.60	11.21	10.596	
1,700.00	1,689.64	1,674.14	1,655.48	5.91	6.21	-114.98	-38.83	129.01	151.86	139.85	12.01	12.645	
1,800.00	1,785.27	1,763.69	1,739.42	6.36	6.71	-114.54	-49.53	158.30	188.29	175.47	12.83	14.678	
1,900.00	1,879.82	1,851.21	1,820.47	6.83	7.25	-114.21	-60.86	189.29	227.99	214.32	13.67	16.673	
2,000.00	1,973.17	1,936.61	1,898.57	7.34	7.81	-113.91	-72.72	221.76	270.84	256.29	14.55	18.614	
2,100.00	2,065.21	2,019.83	1,973.63	7.88	8.40	-113.60	-85.05	255.49	316.72	301.26	15.46	20.491	
2,149.57	2,110.32	2,060.25	2,009.72	8.17	8.71	-113.44	-91.30	272.61	340.54	324.62	15.92	21.388	
2,200.00	2,156.03	2,100.00	2,044.94	8.46	9.01	-113.72	-97.62	289.91	365.35	348.97	16.38	22.300	
2,300.00	2,246.67	2,181.17	2,116.07	9.06	9.69	-113.98	-111.05	326.63	415.71	398.34	17.36	23.942	
2,400.00	2,337.30	2,267.21	2,191.01	9.67	10.43	-114.10	-125.56	366.34	466.67	448.23	18.44	25.305	
2,500.00	2,427.94	2,353.25	2,265.94	10.29	11.20	-114.19	-140.07	406.04	517.63	498.08	19.55	26.479	
2,600.00	2,518.58	2,439.29	2,340.88	10.93	11.97	-114.27	-154.57	445.74	568.59	547.91	20.68	27.496	
2,700.00	2,609.22	2,525.32	2,415.81	11.57	12.76	-114.33	-169.08	485.45	619.56	597.73	21.83	28.382	
2,800.00	2,699.85	2,611.36	2,490.75	12.22	13.56	-114.39	-183.59	525.15	670.52	647.53	23.00	29.158	
2,900.00	2,790.49	2,697.40	2,565.69	12.88	14.37	-114.43	-198.10	564.85	721.49	697.31	24.18	29.840	
3,000.00	2,881.13	2,783.43	2,640.62	13.54	15.18	-114.47	-212.61	604.56	772.45	747.08	25.37	30.443	
3,100.00	2,971.76	2,869.47	2,715.56	14.20	16.00	-114.51	-227.12	644.26	823.42	796.84	26.58	30.980	
3,200.00	3,062.40	2,955.51	2,790.50	14.87	16.83	-114.54	-241.63	683.96	874.38	846.59	27.79	31.459	
3,300.00	3,153.04	3,041.54	2,865.43	15.54	17.66	-114.57	-256.14	723.67	925.35	896.33	29.02	31.889	
3,400.00	3,243.68	3,127.58	2,940.37	16.21	18.49	-114.59	-270.65	763.37	976.31	946.07	30.25	32.277	
3,500.00	3,334.31	3,213.62	3,015.31	16.89	19.33	-114.62	-285.16	803.07	1,027.28	995.79	31.48	32.628	
3,600.00	3,424.95	3,299.66	3,090.24	17.57	20.16	-114.64	-299.67	842.78	1,078.24	1,045.52	32.73	32.946	
3,700.00	3,515.59	3,385.69	3,165.18	18.25	21.00	-114.65	-314.17	882.48	1,129.21	1,095.24	33.98	33.236	
3,800.00	3,606.22	3,471.73	3,240.12	18.94	21.85	-114.67	-328.68	922.18	1,180.18	1,144.95	35.23	33.502	
3,900.00	3,696.86	3,557.77	3,315.05	19.62	22.69	-114.69	-343.19	961.89	1,231.14	1,194.66	36.48	33.745	
4,000.00	3,787.50	3,643.80	3,389.99	20.31	23.54	-114.70	-357.70	1,001.59	1,282.11	1,244.37	37.74	33.969	
4,100.00	3,878.14	3,729.84	3,464.93	20.99	24.39	-114.71	-372.21	1,041.29	1,333.08	1,294.07	39.01	34.176	
4,200.00	3,968.77	3,815.88	3,539.86	21.68	25.24	-114.73	-386.72	1,081.00	1,384.04	1,343.77	40.27	34.367	
4,300.00	4,059.41	3,901.91	3,614.80	22.37	26.09	-114.74	-401.23	1,120.70	1,435.01	1,393.47	41.54	34.544	
4,400.00	4,150.05	3,987.95	3,689.74	23.06	26.94	-114.75	-415.74	1,160.40	1,485.97	1,443.16	42.81	34.709	
4,500.00	4,240.68	4,073.99	3,764.67	23.75	27.79	-114.76	-430.25	1,200.11	1,536.94	1,492.85	44.09	34.862	
4,600.00	4,331.32	4,160.03	3,839.61	24.45	28.65	-114.77	-444.76	1,239.81	1,587.91	1,542.55	45.36	35.005	
4,700.00	4,421.96	4,246.06	3,914.55	25.14	29.50	-114.78	-459.27	1,279.51	1,638.87	1,592.23	46.64	35.139	
4,800.00	4,512.60	4,332.10	3,989.48	25.83	30.36	-114.79	-473.78	1,319.22	1,689.84	1,641.92	47.92	35.264	
4,900.00	4,603.23	4,418.14	4,064.42	26.53	31.21	-114.79	-488.28	1,358.92	1,740.81	1,691.61	49.20	35.382	

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 325H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 325H
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			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	4,693.87	4,504.17	4,139.36	27.22	32.07	-114.80	-502.79	1,398.63	1,791.77	1,741.29	50.48	35.493	
5,100.00	4,784.51	4,590.21	4,214.29	27.92	32.93	-114.81	-517.30	1,438.33	1,842.74	1,790.97	51.77	35.597	
5,151.61	4,831.28	4,634.61	4,252.96	28.28	33.37	-114.81	-524.79	1,458.82	1,869.04	1,816.61	52.43	35.648	
5,200.00	4,874.56	4,676.54	4,289.48	28.63	33.79	-106.66	-531.86	1,478.16	1,893.13	1,840.05	53.08	35.667	
5,250.00	4,917.86	4,720.28	4,327.58	29.02	34.23	-99.93	-539.24	1,498.35	1,916.70	1,862.90	53.80	35.627	
5,300.00	4,959.47	4,764.20	4,365.83	29.44	34.66	-94.53	-546.64	1,518.62	1,938.82	1,884.25	54.57	35.528	
5,350.00	4,999.12	4,808.02	4,404.00	29.88	35.10	-90.20	-554.03	1,538.84	1,959.42	1,904.03	55.39	35.374	
5,400.00	5,036.58	4,851.47	4,441.84	30.35	35.53	-86.72	-561.36	1,558.89	1,978.42	1,922.16	56.26	35.168	
5,450.00	5,071.61	4,894.28	4,479.13	30.84	35.96	-83.94	-568.58	1,578.65	1,995.79	1,938.62	57.16	34.914	
5,500.00	5,104.00	4,936.19	4,515.63	31.35	36.38	-81.73	-575.65	1,597.99	2,011.51	1,953.40	58.11	34.618	
5,550.00	5,133.55	4,976.94	4,551.12	31.89	36.79	-80.00	-582.52	1,616.79	2,025.59	1,966.50	59.08	34.283	
5,600.00	5,160.06	5,016.27	4,585.39	32.46	37.18	-78.67	-589.15	1,634.94	2,038.06	1,977.96	60.10	33.913	
5,650.00	5,183.39	5,053.96	4,618.21	33.05	37.56	-77.70	-595.51	1,652.33	2,048.95	1,987.81	61.14	33.514	
5,700.00	5,203.39	5,089.76	4,649.39	33.66	37.92	-77.02	-601.55	1,668.85	2,058.33	1,996.12	62.20	33.091	
5,750.00	5,219.93	5,123.45	4,678.73	34.30	38.25	-76.59	-607.23	1,684.40	2,066.25	2,002.96	63.29	32.648	
5,800.00	5,232.91	5,154.83	4,706.06	34.96	38.57	-76.38	-612.52	1,698.88	2,072.80	2,008.41	64.39	32.190	
5,850.00	5,242.25	5,183.69	4,731.21	35.65	38.86	-76.37	-617.39	1,712.20	2,078.05	2,012.55	65.50	31.724	
5,900.00	5,247.90	5,209.88	4,754.01	36.36	39.12	-76.52	-621.80	1,724.29	2,082.10	2,015.48	66.62	31.254	
5,950.00	5,249.82	5,236.80	4,777.33	37.09	39.40	-76.89	-626.57	1,736.87	2,085.01	2,017.21	67.80	30.754	
5,958.77	5,249.77	5,241.80	4,781.60	37.21	39.45	-76.98	-627.54	1,739.27	2,085.40	2,017.39	68.01	30.662	
6,000.00	5,249.27	5,267.18	4,803.04	37.83	39.73	-77.59	-632.92	1,751.75	2,087.47	2,018.38	69.09	30.215	
6,100.00	5,248.04	5,347.68	4,867.60	39.40	40.73	-79.44	-654.75	1,794.49	2,094.58	2,022.42	72.16	29.028	
6,200.00	5,246.82	5,468.32	4,952.81	41.06	42.54	-81.87	-700.43	1,866.34	2,103.54	2,027.22	76.32	27.562	
6,300.00	5,245.60	5,650.16	5,049.24	42.81	45.83	-84.60	-795.17	1,987.03	2,111.85	2,029.64	82.21	25.689	
6,400.00	5,244.38	5,897.74	5,106.97	44.64	50.88	-86.27	-961.12	2,159.24	2,115.63	2,025.85	89.78	23.564	
6,500.00	5,243.16	6,023.64	5,106.51	46.54	53.46	-86.30	-1,054.07	2,244.12	2,114.73	2,020.19	94.55	22.367	
6,600.00	5,241.94	6,123.63	5,105.11	48.50	55.54	-86.30	-1,128.08	2,311.35	2,113.73	2,014.89	98.85	21.384	
6,700.00	5,240.71	6,223.62	5,103.72	50.51	57.65	-86.29	-1,202.09	2,378.57	2,112.74	2,009.52	103.21	20.470	
6,800.00	5,239.49	6,323.62	5,102.32	52.58	59.80	-86.28	-1,276.10	2,445.80	2,111.74	2,004.10	107.64	19.618	
6,900.00	5,238.27	6,423.61	5,100.92	54.68	61.97	-86.28	-1,350.11	2,513.03	2,110.74	1,998.62	112.13	18.825	
7,000.00	5,237.05	6,523.61	5,099.53	56.82	64.17	-86.27	-1,424.12	2,580.25	2,109.75	1,993.09	116.66	18.085	
7,100.00	5,235.83	6,623.60	5,098.13	59.00	66.39	-86.26	-1,498.14	2,647.48	2,108.75	1,987.52	121.23	17.395	
7,200.00	5,234.61	6,723.60	5,096.74	61.21	68.64	-86.26	-1,572.15	2,714.71	2,107.75	1,981.92	125.84	16.750	
7,300.00	5,233.38	6,823.59	5,095.34	63.44	70.90	-86.25	-1,646.16	2,781.93	2,106.76	1,976.28	130.48	16.146	
7,400.00	5,232.16	6,923.59	5,093.94	65.70	73.18	-86.24	-1,720.17	2,849.16	2,105.76	1,970.61	135.15	15.581	
7,500.00	5,230.94	7,023.58	5,092.55	67.97	75.48	-86.24	-1,794.18	2,916.38	2,104.76	1,964.91	139.85	15.050	
7,600.00	5,229.72	7,123.58	5,091.15	70.27	77.79	-86.23	-1,868.19	2,983.61	2,103.76	1,959.19	144.57	14.552	
7,700.00	5,228.50	7,223.57	5,089.76	72.58	80.11	-86.22	-1,942.20	3,050.84	2,102.77	1,953.45	149.32	14.082	
7,800.00	5,227.28	7,323.57	5,088.36	74.91	82.45	-86.22	-2,016.21	3,118.06	2,101.77	1,947.69	154.08	13.640	
7,900.00	5,226.05	7,423.56	5,086.96	77.26	84.79	-86.21	-2,090.22	3,185.29	2,100.77	1,941.91	158.87	13.224	
8,000.00	5,224.83	7,523.56	5,085.57	79.61	87.15	-86.20	-2,164.23	3,252.52	2,099.78	1,936.11	163.67	12.830	
8,100.00	5,223.61	7,623.55	5,084.17	81.98	89.52	-86.20	-2,238.24	3,319.74	2,098.78	1,930.30	168.48	12.457	
8,200.00	5,222.39	7,723.55	5,082.77	84.36	91.89	-86.19	-2,312.25	3,386.97	2,097.78	1,924.48	173.31	12.104	
8,300.00	5,221.17	7,823.54	5,081.38	86.74	94.27	-86.18	-2,386.26	3,454.20	2,096.79	1,918.64	178.15	11.770	
8,400.00	5,219.95	7,923.54	5,079.98	89.14	96.66	-86.18	-2,460.28	3,521.42	2,095.79	1,912.79	183.00	11.452	
8,500.00	5,218.72	8,023.53	5,078.59	91.55	99.06	-86.17	-2,534.29	3,588.65	2,094.79	1,906.93	187.86	11.151	
8,600.00	5,217.50	8,123.52	5,077.19	93.96	101.46	-86.16	-2,608.30	3,655.88	2,093.80	1,901.06	192.74	10.864	
8,700.00	5,216.28	8,223.52	5,075.79	96.38	103.87	-86.16	-2,682.31	3,723.10	2,092.80	1,895.18	197.62	10.590	
8,800.00	5,215.06	8,323.51	5,074.40	98.80	106.29	-86.15	-2,756.32	3,790.33	2,091.80	1,889.30	202.51	10.329	
8,900.00	5,213.84	8,423.51	5,073.00	101.23	108.71	-86.14	-2,830.33	3,857.56	2,090.81	1,883.40	207.41	10.081	
9,000.00	5,212.61	8,523.50	5,071.61	103.67	111.13	-86.14	-2,904.34	3,924.78	2,089.81	1,877.50	212.31	9.843	
9,100.00	5,211.39	8,623.50	5,070.21	106.11	113.56	-86.13	-2,978.35	3,992.01	2,088.81	1,871.59	217.22	9.616	

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
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Reference Site: S33-T24N-R9W
Site Error: 0.00usft
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Well Error: 0.00usft
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Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 325H
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	5,210.17	8,723.49	5,068.81	108.56	115.99	-86.12	-3,052.36	4,059.24	2,087.82	1,865.68	222.14	9.399	
9,300.00	5,208.95	8,823.49	5,067.42	111.01	118.43	-86.12	-3,126.37	4,126.46	2,086.82	1,859.76	227.07	9.190	
9,400.00	5,207.73	8,923.48	5,066.02	113.46	120.87	-86.11	-3,200.38	4,193.69	2,085.83	1,853.83	232.00	8.991	
9,500.00	5,206.51	9,023.48	5,064.63	115.92	123.31	-86.10	-3,274.39	4,260.92	2,084.83	1,847.90	236.93	8.799	
9,600.00	5,205.28	9,123.47	5,063.23	118.38	125.76	-86.10	-3,348.40	4,328.14	2,083.83	1,841.96	241.87	8.615	
9,700.00	5,204.06	9,223.47	5,061.83	120.85	128.21	-86.09	-3,422.42	4,395.37	2,082.84	1,836.02	246.82	8.439	
9,800.00	5,202.84	9,323.46	5,060.44	123.32	130.66	-86.08	-3,496.43	4,462.59	2,081.84	1,830.08	251.76	8.269	
9,900.00	5,201.62	9,423.46	5,059.04	125.79	133.12	-86.08	-3,570.44	4,529.82	2,080.84	1,824.13	256.72	8.106	
10,000.00	5,200.40	9,523.45	5,057.64	128.26	135.58	-86.07	-3,644.45	4,597.05	2,079.85	1,818.17	261.67	7.948	
10,100.00	5,199.18	9,623.45	5,056.25	130.74	138.04	-86.06	-3,718.46	4,664.27	2,078.85	1,812.22	266.63	7.797	
10,200.00	5,197.95	9,723.44	5,054.85	133.22	140.50	-86.06	-3,792.47	4,731.50	2,077.85	1,806.26	271.60	7.650	
10,300.00	5,196.73	9,823.44	5,053.46	135.70	142.97	-86.05	-3,866.48	4,798.73	2,076.86	1,800.29	276.56	7.509	
10,400.00	5,195.51	9,923.43	5,052.06	138.18	145.44	-86.04	-3,940.49	4,865.95	2,075.86	1,794.33	281.53	7.373	
10,500.00	5,194.29	10,023.43	5,050.66	140.67	147.91	-86.04	-4,014.50	4,933.18	2,074.87	1,788.36	286.51	7.242	
10,600.00	5,193.07	10,123.42	5,049.27	143.16	150.38	-86.03	-4,088.51	5,000.41	2,073.87	1,782.39	291.48	7.115	
10,700.00	5,191.85	10,223.41	5,047.87	145.64	152.85	-86.02	-4,162.52	5,067.63	2,072.87	1,776.41	296.46	6.992	
10,800.00	5,190.62	10,323.41	5,046.48	148.14	155.33	-86.02	-4,236.53	5,134.86	2,071.88	1,770.44	301.44	6.873	
10,900.00	5,189.40	10,423.40	5,045.08	150.63	157.80	-86.01	-4,310.54	5,202.09	2,070.88	1,764.46	306.42	6.758	
11,000.00	5,188.18	10,523.40	5,043.68	153.12	160.28	-86.00	-4,384.56	5,269.31	2,069.89	1,758.48	311.41	6.647	
11,100.00	5,186.96	10,623.39	5,042.29	155.62	162.76	-86.00	-4,458.57	5,336.54	2,068.89	1,752.50	316.40	6.539	
11,200.00	5,185.74	10,723.39	5,040.89	158.12	165.24	-85.99	-4,532.58	5,403.77	2,067.89	1,746.51	321.38	6.434	
11,300.00	5,184.52	10,823.38	5,039.49	160.62	167.73	-85.98	-4,606.59	5,470.99	2,066.90	1,740.52	326.38	6.333	
11,400.00	5,183.29	10,923.38	5,038.10	163.12	170.21	-85.98	-4,680.60	5,538.22	2,065.90	1,734.54	331.37	6.234	
11,500.00	5,182.07	11,023.37	5,036.70	165.62	172.70	-85.97	-4,754.61	5,605.45	2,064.91	1,728.55	336.36	6.139	
11,600.00	5,180.85	11,123.37	5,035.31	168.12	175.18	-85.96	-4,828.62	5,672.67	2,063.91	1,722.55	341.36	6.046	
11,700.00	5,179.63	11,223.36	5,033.91	170.62	177.67	-85.96	-4,902.63	5,739.90	2,062.92	1,716.56	346.36	5.956	
11,800.00	5,178.41	11,323.36	5,032.51	173.13	180.16	-85.95	-4,976.64	5,807.13	2,061.92	1,710.57	351.35	5.868	
11,900.00	5,177.18	11,423.35	5,031.12	175.63	182.65	-85.94	-5,050.65	5,874.35	2,060.92	1,704.57	356.36	5.783	
12,000.00	5,175.96	11,523.35	5,029.72	178.14	185.14	-85.94	-5,124.66	5,941.58	2,059.93	1,698.57	361.36	5.701	
12,100.00	5,174.74	11,623.34	5,028.33	180.65	187.63	-85.93	-5,198.67	6,008.80	2,058.93	1,692.57	366.36	5.620	
12,200.00	5,173.52	11,723.34	5,026.93	183.16	190.12	-85.92	-5,272.68	6,076.03	2,057.94	1,686.57	371.36	5.542	
12,300.00	5,172.30	11,823.33	5,025.53	185.67	192.62	-85.91	-5,346.69	6,143.26	2,056.94	1,680.57	376.37	5.465	
12,400.00	5,171.08	11,923.33	5,024.14	188.18	195.11	-85.91	-5,420.71	6,210.48	2,055.95	1,674.57	381.38	5.391	
12,500.00	5,169.85	12,023.32	5,022.74	190.69	197.61	-85.90	-5,494.72	6,277.71	2,054.95	1,668.57	386.38	5.318	
12,600.00	5,168.63	12,123.31	5,021.35	193.20	200.10	-85.89	-5,568.73	6,344.94	2,053.96	1,662.56	391.39	5.248	
12,700.00	5,167.41	12,223.31	5,019.95	195.71	202.60	-85.89	-5,642.74	6,412.16	2,052.96	1,656.56	396.40	5.179	
12,800.00	5,166.19	12,323.30	5,018.55	198.23	205.10	-85.88	-5,716.75	6,479.39	2,051.96	1,650.55	401.41	5.112	
12,900.00	5,164.97	12,423.30	5,017.16	200.74	207.59	-85.87	-5,790.76	6,546.62	2,050.97	1,644.54	406.43	5.046	
13,000.00	5,163.75	12,523.29	5,015.76	203.26	210.09	-85.87	-5,864.77	6,613.84	2,049.97	1,638.54	411.44	4.982	
13,023.33	5,163.46	12,526.22	5,015.72	203.84	210.17	-85.87	-5,866.94	6,615.81	2,049.84	1,637.71	412.14	4.974	
13,100.00	5,162.24	12,526.22	5,015.72	205.77	210.17	-85.87	-5,866.94	6,615.81	2,051.28	1,637.43	413.84	4.957	
13,200.00	5,161.02	12,526.22	5,015.72	208.29	210.17	-85.87	-5,866.94	6,615.81	2,052.44	1,642.23	415.21	4.955	
13,300.00	5,160.08	12,526.22	5,015.72	210.80	210.17	-85.87	-5,866.94	6,615.81	2,068.43	1,652.82	415.61	4.977	
13,400.00	5,158.86	12,526.22	5,015.72	213.32	210.17	-85.87	-5,866.94	6,615.81	2,084.16	1,669.08	415.08	5.021	
13,500.00	5,157.64	12,526.22	5,015.72	215.84	210.17	-85.87	-5,866.94	6,615.81	2,104.53	1,690.87	413.66	5.088	
13,600.00	5,156.42	12,526.22	5,015.72	218.36	210.17	-85.87	-5,866.94	6,615.81	2,129.41	1,718.00	411.41	5.176	
13,700.00	5,155.19	12,526.22	5,015.72	220.87	210.17	-85.87	-5,866.94	6,615.81	2,158.64	1,750.24	408.40	5.286	
13,800.00	5,153.97	12,526.22	5,015.72	223.39	210.17	-85.87	-5,866.94	6,615.81	2,192.05	1,787.33	404.72	5.416	
13,900.00	5,152.75	12,526.22	5,015.72	225.91	210.17	-85.87	-5,866.94	6,615.81	2,229.44	1,829.00	400.44	5.568	
14,000.00	5,151.53	12,526.22	5,015.72	228.43	210.17	-85.87	-5,866.94	6,615.81	2,270.62	1,874.97	395.65	5.739	
14,103.84	5,150.26	12,526.22	5,015.72	231.05	210.17	-85.87	-5,866.94	6,615.81	2,317.19	1,926.95	390.23	5.938	

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 325H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 325H
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		Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
0.00	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	701.24	701.22	2.30	2.29	-56.45	32.79	-49.46	59.35	54.75	4.60	12.908	
800.00	800.00	802.23	802.06	2.66	2.63	-60.87	27.45	-49.27	56.44	51.13	5.31	10.638	
900.00	900.00	902.72	902.15	3.02	2.97	-69.18	18.61	-48.96	52.42	46.41	6.01	8.725	
1,000.00	999.98	1,002.69	1,001.36	3.36	3.32	99.42	6.34	-48.53	49.22	42.53	6.69	7.358	
1,100.00	1,099.84	1,102.32	1,099.75	3.69	3.69	87.12	-9.32	-47.98	48.03	40.65	7.38	6.511	
1,200.00	1,199.45	1,202.86	1,198.52	4.03	4.08	74.92	-27.97	-46.00	47.60	39.49	8.10	5.873	
1,300.00	1,298.70	1,303.12	1,296.47	4.37	4.49	62.90	-48.86	-41.41	46.43	37.57	8.86	5.240	
1,400.00	1,397.47	1,402.98	1,393.36	4.73	4.92	49.93	-71.90	-34.24	44.61	34.96	9.65	4.624	
1,500.00	1,495.62	1,502.31	1,488.97	5.10	5.37	34.83	-97.01	-24.56	42.74	32.28	10.45	4.088	
1,600.00	1,593.06	1,601.44	1,583.74	5.50	5.85	17.88	-123.68	-13.00	41.73	30.49	11.24	3.713	
1,700.00	1,689.64	1,700.72	1,678.62	5.91	6.34	1.51	-150.48	-1.32	41.03	29.06	11.97	3.428	
1,800.00	1,785.27	1,800.00	1,773.50	6.36	6.84	-15.30	-177.28	10.36	40.31	27.60	12.70	3.173	
1,870.33	1,851.89	1,869.74	1,840.15	6.69	7.20	-28.12	-196.11	18.56	40.05	26.76	13.29	3.014 CC	
1,900.00	1,879.82	1,899.13	1,868.24	6.83	7.35	-33.85	-204.04	22.02	40.12	26.55	13.56	2.957 ES	
2,000.00	1,973.17	1,998.01	1,962.73	7.34	7.87	-54.37	-230.74	33.65	41.88	27.19	14.69	2.852	
2,100.00	2,065.21	2,096.52	2,056.87	7.88	8.38	-75.10	-257.33	45.24	47.39	31.37	16.01	2.959	
2,149.57	2,110.32	2,145.17	2,103.36	8.17	8.64	-84.56	-270.46	50.97	51.91	35.25	16.66	3.115	
2,200.00	2,156.03	2,194.60	2,150.60	8.46	8.91	-92.98	-283.81	56.78	57.78	40.50	17.28	3.344	
2,300.00	2,246.67	2,292.61	2,244.27	9.06	9.43	-105.12	-310.26	68.32	72.16	53.79	18.38	3.927	
2,400.00	2,337.30	2,390.63	2,337.94	9.67	9.96	-113.05	-336.72	79.85	88.67	69.28	19.39	4.573	
2,500.00	2,427.94	2,488.64	2,431.61	10.29	10.49	-118.44	-363.18	91.38	106.32	85.94	20.38	5.217	
2,600.00	2,518.58	2,586.66	2,525.28	10.93	11.02	-122.29	-389.64	102.91	124.62	103.26	21.36	5.834	
2,700.00	2,609.22	2,684.68	2,618.95	11.57	11.56	-125.14	-416.10	114.44	143.33	120.98	22.35	6.414	
2,800.00	2,699.85	2,782.69	2,712.62	12.22	12.10	-127.34	-442.56	125.98	162.30	138.96	23.34	6.954	
2,900.00	2,790.49	2,880.71	2,806.29	12.88	12.64	-129.07	-469.02	137.51	181.46	157.12	24.34	7.455	
3,000.00	2,881.13	2,978.72	2,899.95	13.54	13.18	-130.47	-495.48	149.04	200.74	175.40	25.34	7.921	
3,100.00	2,971.76	3,076.74	2,993.62	14.20	13.72	-131.63	-521.94	160.57	220.12	193.77	26.35	8.353	
3,200.00	3,062.40	3,174.75	3,087.29	14.87	14.26	-132.60	-548.40	172.10	239.58	212.21	27.37	8.753	
3,300.00	3,153.04	3,272.77	3,180.96	15.54	14.80	-133.42	-574.86	183.63	259.09	230.70	28.39	9.126	
3,400.00	3,243.68	3,370.78	3,274.63	16.21	15.35	-134.13	-601.32	195.17	278.64	249.23	29.41	9.474	
3,500.00	3,334.31	3,468.80	3,368.30	16.89	15.89	-134.75	-627.78	206.70	298.23	267.79	30.44	9.798	
3,600.00	3,424.95	3,566.81	3,461.97	17.57	16.44	-135.29	-654.24	218.23	317.85	286.38	31.47	10.100	
3,700.00	3,515.59	3,664.83	3,555.64	18.25	16.99	-135.77	-680.70	229.76	337.49	304.99	32.50	10.384	
3,800.00	3,606.22	3,762.84	3,649.31	18.94	17.53	-136.19	-707.16	241.29	357.16	323.62	33.54	10.650	
3,900.00	3,696.86	3,860.86	3,742.98	19.62	18.08	-136.57	-733.62	252.83	376.84	342.26	34.57	10.899	
4,000.00	3,787.50	3,958.87	3,836.65	20.31	18.63	-136.91	-760.08	264.36	396.53	360.92	35.61	11.134	
4,100.00	3,878.14	4,056.89	3,930.31	20.99	19.18	-137.22	-786.54	275.89	416.24	379.58	36.66	11.356	
4,200.00	3,968.77	4,154.90	4,023.98	21.68	19.73	-137.51	-813.00	287.42	435.96	398.26	37.70	11.564	
4,300.00	4,059.41	4,252.92	4,117.65	22.37	20.27	-137.76	-839.45	298.95	455.68	416.94	38.74	11.762	
4,400.00	4,150.05	4,350.93	4,211.32	23.06	20.82	-138.00	-865.91	310.49	475.42	435.63	39.79	11.949	
4,500.00	4,240.68	4,448.95	4,304.99	23.75	21.37	-138.22	-892.37	322.02	495.16	454.32	40.84	12.126	
4,600.00	4,331.32	4,546.97	4,398.66	24.45	21.92	-138.42	-918.83	333.55	514.91	473.02	41.88	12.294	
4,700.00	4,421.96	4,644.98	4,492.33	25.14	22.47	-138.60	-945.29	345.08	534.66	491.73	42.93	12.453	
4,800.00	4,512.60	4,743.00	4,586.00	25.83	23.02	-138.78	-971.75	356.61	554.42	510.44	43.98	12.605	
4,900.00	4,603.23	4,849.30	4,686.08	26.53	23.67	-138.47	-1,003.68	372.30	573.67	528.42	45.26	12.676	

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 325H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 325H
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)					
5,000.00	4,693.87	4,955.88	4,779.62	27.22	24.50	-136.52	-1,046.82	399.16	591.38	544.37	47.01	12.580	
5,100.00	4,784.51	5,054.13	4,857.41	27.92	25.42	-133.36	-1,095.82	433.55	608.98	559.92	49.06	12.413	
5,151.61	4,831.28	5,100.48	4,890.74	28.28	25.92	-131.48	-1,121.67	452.74	618.74	568.58	50.15	12.337	
5,200.00	4,874.56	5,141.89	4,918.49	28.63	26.39	-122.95	-1,146.09	471.39	628.49	577.33	51.16	12.285	
5,250.00	4,917.86	5,183.63	4,944.39	29.02	26.90	-115.60	-1,171.87	491.53	638.98	586.81	52.17	12.248	
5,300.00	4,959.47	5,224.42	4,967.60	29.44	27.43	-109.40	-1,198.09	512.44	649.72	596.57	53.15	12.225	
5,350.00	4,999.12	5,264.37	4,988.23	29.88	27.97	-104.10	-1,224.64	534.02	660.57	606.49	54.09	12.213	
5,400.00	5,036.58	5,300.00	5,004.79	30.35	28.47	-99.63	-1,248.96	554.09	671.40	616.55	54.86	12.239	
5,450.00	5,071.61	5,342.17	5,022.08	30.84	29.11	-95.53	-1,278.43	578.79	682.05	626.18	55.86	12.209	
5,500.00	5,104.00	5,380.16	5,035.47	31.35	29.70	-92.03	-1,305.50	601.83	692.41	635.69	56.71	12.210	
5,550.00	5,133.55	5,417.63	5,046.59	31.89	30.31	-88.95	-1,332.60	625.19	702.35	644.83	57.53	12.209	
5,600.00	5,160.06	5,450.00	5,054.49	32.46	30.84	-86.36	-1,356.25	645.83	711.80	653.67	58.13	12.245	
5,650.00	5,183.39	5,491.22	5,062.24	33.05	31.55	-83.89	-1,386.58	672.63	720.60	661.48	59.11	12.190	
5,700.00	5,203.39	5,527.44	5,066.89	33.66	32.19	-81.83	-1,413.35	696.58	728.71	668.82	59.90	12.166	
5,750.00	5,219.93	5,563.32	5,069.48	34.30	32.83	-80.05	-1,439.88	720.58	736.04	675.37	60.67	12.131	
5,800.00	5,232.91	5,600.60	5,070.05	34.96	33.50	-78.50	-1,467.37	745.75	742.52	680.99	61.53	12.067	
5,850.00	5,242.25	5,647.14	5,069.40	35.65	34.37	-77.19	-1,501.61	777.28	747.68	684.83	62.86	11.895	
5,900.00	5,247.90	5,696.69	5,068.71	36.36	35.30	-76.34	-1,538.05	810.84	750.93	686.52	64.41	11.659	
5,950.00	5,249.82	5,746.61	5,068.01	37.09	36.27	-76.01	-1,574.77	844.65	752.18	686.06	66.12	11.377	
5,958.77	5,249.77	5,755.38	5,067.89	37.21	36.44	-76.01	-1,581.22	850.59	752.18	685.76	66.43	11.323	
6,000.00	5,249.27	5,796.61	5,067.31	37.83	37.24	-76.00	-1,611.55	878.51	752.07	684.15	67.92	11.074	
6,100.00	5,248.04	5,896.61	5,065.92	39.40	39.26	-75.98	-1,685.10	946.24	751.79	680.14	71.65	10.493	
6,200.00	5,246.82	5,996.61	5,064.52	41.06	41.33	-75.96	-1,758.65	1,013.97	751.51	675.99	75.52	9.951	
6,300.00	5,245.60	6,096.60	5,063.12	42.81	43.45	-75.94	-1,832.21	1,081.71	751.24	671.73	79.51	9.448	
6,400.00	5,244.38	6,196.60	5,061.73	44.64	45.62	-75.92	-1,905.76	1,149.44	750.96	667.36	83.60	8.983	
6,500.00	5,243.16	6,296.60	5,060.33	46.54	47.82	-75.90	-1,979.32	1,217.17	750.68	662.90	87.78	8.552	
6,600.00	5,241.94	6,396.60	5,058.94	48.50	50.06	-75.89	-2,052.87	1,284.90	750.40	658.37	92.03	8.154	
6,700.00	5,240.71	6,496.60	5,057.54	50.51	52.32	-75.87	-2,126.43	1,352.63	750.13	653.78	96.35	7.786	
6,800.00	5,239.49	6,596.60	5,056.14	52.58	54.60	-75.85	-2,199.98	1,420.36	749.85	649.13	100.72	7.445	
6,900.00	5,238.27	6,696.60	5,054.75	54.68	56.91	-75.83	-2,273.54	1,488.10	749.57	644.43	105.14	7.129	
7,000.00	5,237.05	6,796.60	5,053.35	56.82	59.24	-75.81	-2,347.09	1,555.83	749.29	639.69	109.60	6.836	
7,100.00	5,235.83	6,896.60	5,051.95	59.00	61.58	-75.79	-2,420.65	1,623.56	749.02	634.91	114.11	6.564	
7,200.00	5,234.61	6,996.60	5,050.56	61.21	63.94	-75.77	-2,494.20	1,691.29	748.74	630.10	118.64	6.311	
7,300.00	5,233.38	7,096.60	5,049.16	63.44	66.31	-75.75	-2,567.76	1,759.02	748.46	625.26	123.21	6.075	
7,400.00	5,232.16	7,196.60	5,047.77	65.70	68.69	-75.73	-2,641.31	1,826.76	748.18	620.39	127.80	5.854	
7,500.00	5,230.94	7,296.60	5,046.37	67.97	71.08	-75.71	-2,714.87	1,894.49	747.91	615.49	132.41	5.648	
7,600.00	5,229.72	7,396.60	5,044.97	70.27	73.49	-75.69	-2,788.42	1,962.22	747.63	610.58	137.05	5.455	
7,700.00	5,228.50	7,496.59	5,043.58	72.58	75.90	-75.68	-2,861.98	2,029.95	747.35	605.65	141.70	5.274	
7,800.00	5,227.28	7,596.59	5,042.18	74.91	78.32	-75.66	-2,935.53	2,097.68	747.08	600.70	146.38	5.104	
7,900.00	5,226.05	7,696.59	5,040.78	77.26	80.74	-75.64	-3,009.09	2,165.41	746.80	595.74	151.06	4.944	
8,000.00	5,224.83	7,796.59	5,039.39	79.61	83.18	-75.62	-3,082.64	2,233.15	746.53	590.76	155.76	4.793	
8,100.00	5,223.61	7,896.59	5,037.99	81.98	85.62	-75.60	-3,156.20	2,300.88	746.25	585.77	160.48	4.650	
8,200.00	5,222.39	7,996.59	5,036.60	84.36	88.06	-75.58	-3,229.75	2,368.61	745.97	580.77	165.20	4.516	
8,300.00	5,221.17	8,096.59	5,035.20	86.74	90.51	-75.56	-3,303.31	2,436.34	745.70	575.76	169.94	4.388	
8,400.00	5,219.95	8,196.59	5,033.80	89.14	92.97	-75.54	-3,376.86	2,504.07	745.42	570.74	174.68	4.267	
8,500.00	5,218.72	8,296.59	5,032.41	91.55	95.42	-75.52	-3,450.42	2,571.80	745.14	565.71	179.43	4.153	
8,600.00	5,217.50	8,396.59	5,031.01	93.96	97.89	-75.50	-3,523.97	2,639.54	744.87	560.67	184.20	4.044	
8,700.00	5,216.28	8,496.59	5,029.61	96.38	100.35	-75.48	-3,597.53	2,707.27	744.59	555.63	188.96	3.940	
8,800.00	5,215.06	8,596.59	5,028.22	98.80	102.82	-75.46	-3,671.08	2,775.00	744.32	550.58	193.74	3.842	
8,900.00	5,213.84	8,696.59	5,026.82	101.23	105.29	-75.44	-3,744.64	2,842.73	744.04	545.52	198.52	3.748	
9,000.00	5,212.61	8,796.59	5,025.43	103.67	107.77	-75.42	-3,818.19	2,910.46	743.77	540.46	203.31	3.658	
9,100.00	5,211.39	8,896.58	5,024.03	106.11	110.25	-75.40	-3,891.75	2,978.19	743.49	535.39	208.10	3.573	

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 325H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 325H
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)	
9,200.00	5,210.17	8,996.58	5,022.63	108.56	112.73	-75.39	-3,965.30	3,045.93	743.21	530.32	212.89	3.491		
9,300.00	5,208.95	9,096.58	5,021.24	111.01	115.21	-75.37	-4,038.86	3,113.66	742.94	525.24	217.70	3.413		
9,400.00	5,207.73	9,196.58	5,019.84	113.46	117.70	-75.35	-4,112.41	3,181.39	742.66	520.16	222.50	3.338		
9,500.00	5,206.51	9,296.58	5,018.44	115.92	120.19	-75.33	-4,185.97	3,249.12	742.39	515.08	227.31	3.266		
9,600.00	5,205.28	9,396.58	5,017.05	118.38	122.68	-75.31	-4,259.52	3,316.85	742.11	509.99	232.12	3.197		
9,700.00	5,204.06	9,496.58	5,015.65	120.85	125.17	-75.29	-4,333.08	3,384.59	741.84	504.90	236.94	3.131		
9,800.00	5,202.84	9,596.58	5,014.25	123.32	127.66	-75.27	-4,406.63	3,452.32	741.56	499.81	241.75	3.067		
9,900.00	5,201.62	9,696.58	5,012.86	125.79	130.16	-75.25	-4,480.19	3,520.05	741.29	494.72	246.57	3.006		
10,000.00	5,200.40	9,796.58	5,011.46	128.26	132.65	-75.23	-4,553.74	3,587.78	741.01	489.62	251.40	2.948		
10,100.00	5,199.18	9,896.58	5,010.07	130.74	135.15	-75.21	-4,627.30	3,655.51	740.74	484.52	256.22	2.891		
10,200.00	5,197.95	9,996.58	5,008.67	133.22	137.65	-75.19	-4,700.85	3,723.24	740.47	479.42	261.05	2.836		
10,300.00	5,196.73	10,096.58	5,007.27	135.70	140.15	-75.17	-4,774.41	3,790.98	740.19	474.31	265.88	2.784		
10,400.00	5,195.51	10,196.58	5,005.88	138.18	142.65	-75.15	-4,847.96	3,858.71	739.92	469.21	270.71	2.733		
10,500.00	5,194.29	10,296.58	5,004.48	140.67	145.15	-75.13	-4,921.52	3,926.44	739.64	464.10	275.54	2.684		
10,600.00	5,193.07	10,396.57	5,003.08	143.16	147.66	-75.11	-4,995.07	3,994.17	739.37	458.99	280.38	2.637		
10,700.00	5,191.85	10,496.57	5,001.69	145.64	150.16	-75.09	-5,068.63	4,061.90	739.09	453.88	285.21	2.591		
10,800.00	5,190.62	10,596.57	5,000.29	148.14	152.67	-75.07	-5,142.18	4,129.63	738.82	448.77	290.05	2.547		
10,900.00	5,189.40	10,696.57	4,998.90	150.63	155.18	-75.05	-5,215.74	4,197.37	738.55	443.66	294.89	2.504		
11,000.00	5,188.18	10,796.57	4,997.50	153.12	157.68	-75.03	-5,289.29	4,265.10	738.27	438.54	299.73	2.463		
11,100.00	5,186.96	10,896.57	4,996.10	155.62	160.19	-75.01	-5,362.84	4,332.83	738.00	433.43	304.57	2.423		
11,200.00	5,185.74	10,996.57	4,994.71	158.12	162.70	-74.99	-5,436.40	4,400.56	737.73	428.31	309.41	2.384		
11,300.00	5,184.52	11,096.57	4,993.31	160.62	165.21	-74.97	-5,509.95	4,468.29	737.45	423.20	314.25	2.347		
11,400.00	5,183.29	11,196.57	4,991.91	163.12	167.72	-74.95	-5,583.51	4,536.02	737.18	418.08	319.10	2.310		
11,500.00	5,182.07	11,296.57	4,990.52	165.62	170.24	-74.93	-5,657.06	4,603.76	736.90	412.96	323.94	2.275		
11,600.00	5,180.85	11,396.57	4,989.12	168.12	172.75	-74.91	-5,730.62	4,671.49	736.63	407.85	328.78	2.240		
11,700.00	5,179.63	11,496.57	4,987.73	170.62	175.26	-74.89	-5,804.17	4,739.22	736.36	402.73	333.63	2.207		
11,800.00	5,178.41	11,596.57	4,986.33	173.13	177.77	-74.87	-5,877.73	4,806.95	736.08	397.61	338.47	2.175		
11,900.00	5,177.18	11,696.57	4,984.93	175.63	180.29	-74.85	-5,951.28	4,874.68	735.81	392.49	343.32	2.143		
12,000.00	5,175.96	11,796.56	4,983.54	178.14	182.81	-74.83	-6,024.84	4,942.41	735.54	387.37	348.16	2.113		
12,100.00	5,174.74	11,896.56	4,982.14	180.65	185.32	-74.82	-6,098.39	5,010.15	735.27	382.25	353.01	2.083		
12,129.26	5,174.38	11,923.82	4,981.76	181.38	185.78	-74.81	-6,118.44	5,028.60	735.19	381.08	354.11	2.076 SF		
12,200.00	5,173.52	11,923.82	4,981.76	183.16	185.78	-74.81	-6,118.44	5,028.60	738.58	386.28	352.31	2.096		
12,300.00	5,172.30	11,923.82	4,981.76	185.67	185.78	-74.81	-6,118.44	5,028.60	754.76	410.13	344.62	2.190		
12,400.00	5,171.08	11,923.82	4,981.76	188.18	185.78	-74.81	-6,118.44	5,028.60	783.46	451.48	331.98	2.360		
12,500.00	5,169.85	11,923.82	4,981.76	190.69	185.78	-74.81	-6,118.44	5,028.60	823.38	507.41	315.97	2.606		
12,600.00	5,168.63	11,923.82	4,981.76	193.20	185.78	-74.81	-6,118.44	5,028.60	872.98	574.78	298.21	2.927		
12,700.00	5,167.41	11,923.82	4,981.76	195.71	185.78	-74.81	-6,118.44	5,028.60	930.73	650.74	279.98	3.324		
12,800.00	5,166.19	11,923.82	4,981.76	198.23	185.78	-74.81	-6,118.44	5,028.60	995.19	732.99	262.20	3.796		
12,900.00	5,164.97	11,923.82	4,981.76	200.74	185.78	-74.81	-6,118.44	5,028.60	1,065.15	819.76	245.39	4.341		
13,000.00	5,163.75	11,923.82	4,981.76	203.26	185.78	-74.81	-6,118.44	5,028.60	1,139.60	909.78	229.83	4.959		
13,100.00	5,162.52	11,923.82	4,981.76	205.77	185.78	-74.81	-6,118.44	5,028.60	1,217.72	1,002.13	215.59	5.648		
13,200.00	5,161.30	11,923.82	4,981.76	208.29	185.78	-74.81	-6,118.44	5,028.60	1,298.84	1,096.16	202.68	6.408		
13,300.00	5,160.08	11,923.82	4,981.76	210.80	185.78	-74.81	-6,118.44	5,028.60	1,382.44	1,191.43	191.01	7.238		
13,400.00	5,158.86	11,923.82	4,981.76	213.32	185.78	-74.81	-6,118.44	5,028.60	1,468.09	1,287.61	180.48	8.135		
13,500.00	5,157.64	11,923.82	4,981.76	215.84	185.78	-74.81	-6,118.44	5,028.60	1,555.45	1,384.48	170.98	9.097		
13,600.00	5,156.42	11,923.82	4,981.76	218.36	185.78	-74.81	-6,118.44	5,028.60	1,644.26	1,481.86	162.40	10.125		
13,700.00	5,155.19	11,923.82	4,981.76	220.87	185.78	-74.81	-6,118.44	5,028.60	1,734.28	1,579.64	154.65	11.215		
13,800.00	5,153.97	11,923.82	4,981.76	223.39	185.78	-74.81	-6,118.44	5,028.60	1,825.34	1,677.72	147.62	12.365		
13,900.00	5,152.75	11,923.82	4,981.76	225.91	185.78	-74.81	-6,118.44	5,028.60	1,917.30	1,776.05	141.25	13.574		
14,000.00	5,151.53	11,923.82	4,981.76	228.43	185.78	-74.81	-6,118.44	5,028.60	2,010.02	1,874.57	135.45	14.840		
14,103.84	5,150.26	11,923.82	4,981.76	231.05	185.78	-74.81	-6,118.44	5,028.60	2,107.01	1,977.04	129.97	16.212		

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 325H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 325H
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		Total		Separation		Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis		
0.00	0.00	0.00	0.00	0.00	0.00	107.26	-919.37	2,959.08	3,100.16				
100.00	100.00	2.44	2.44	0.15	0.00	107.26	-919.37	2,959.08	3,098.61	3,098.46	0.15	N/A	
200.00	200.00	128.17	128.17	0.51	0.20	107.26	-919.35	2,958.58	3,098.24	3,097.53	0.71	4,358.080	
300.00	300.00	243.37	243.35	0.87	0.40	107.27	-919.11	2,957.04	3,096.86	3,095.59	1.27	2,433.999	
400.00	400.00	347.75	347.72	1.23	0.59	107.27	-918.87	2,955.49	3,095.37	3,093.56	1.81	1,708.184	
500.00	500.00	421.56	421.53	1.58	0.72	107.29	-919.42	2,954.43	3,094.25	3,091.95	2.30	1,347.970	
600.00	600.00	513.53	513.48	1.94	0.88	107.32	-920.89	2,953.47	3,093.73	3,090.91	2.82	1,098.746	
671.01	671.01	573.07	573.01	2.20	0.98	107.34	-921.78	2,953.07	3,093.59	3,090.41	3.17	974.610	
700.00	700.00	598.00	597.94	2.30	1.02	107.34	-921.88	2,953.06	3,093.61	3,090.29	3.32	931.388	
800.00	800.00	710.90	710.84	2.66	1.22	107.34	-921.82	2,952.97	3,093.52	3,089.64	3.88	797.981	
900.00	900.00	816.08	816.02	3.02	1.40	107.34	-921.92	2,952.53	3,093.15	3,088.73	4.42	700.012	
1,000.00	999.98	913.00	912.94	3.36	1.57	-72.80	-921.70	2,952.16	3,092.20	3,087.27	4.93	627.504	
1,100.00	1,099.84	1,004.22	1,004.15	3.69	1.73	-72.92	-921.41	2,952.08	3,090.47	3,085.06	5.41	570.799	
1,200.00	1,199.45	1,107.50	1,107.44	4.03	1.91	-73.14	-921.17	2,952.06	3,087.84	3,081.91	5.93	520.726	
1,300.00	1,298.70	1,212.18	1,212.12	4.37	2.09	-73.43	-921.22	2,951.64	3,083.93	3,077.47	6.46	477.561	
1,400.00	1,397.47	1,293.00	1,292.94	4.73	2.23	-73.75	-921.24	2,951.69	3,079.50	3,072.54	6.96	442.715	
1,500.00	1,495.62	1,375.85	1,375.78	5.10	2.38	-74.13	-921.26	2,952.27	3,074.78	3,067.31	7.47	411.427	
1,600.00	1,593.06	1,490.68	1,490.61	5.50	2.58	-74.71	-921.08	2,952.99	3,069.18	3,061.11	8.07	380.538	
1,700.00	1,689.64	1,592.25	1,592.18	5.91	2.75	-75.32	-920.89	2,953.07	3,062.29	3,053.63	8.66	353.743	
1,800.00	1,785.27	1,682.33	1,682.26	6.36	2.91	-75.95	-920.70	2,953.19	3,054.80	3,045.55	9.25	330.091	
1,900.00	1,879.82	1,778.51	1,778.44	6.83	3.08	-76.68	-920.61	2,953.33	3,046.81	3,036.92	9.89	308.008	
2,000.00	1,973.17	1,876.56	1,876.49	7.34	3.25	-77.49	-920.74	2,953.32	3,038.29	3,027.72	10.57	287.576	
2,100.00	2,065.21	1,971.31	1,971.24	7.88	3.42	-78.34	-921.31	2,953.20	3,029.44	3,018.17	11.27	268.854	
2,149.57	2,110.32	2,016.36	2,016.29	8.17	3.49	-78.78	-921.66	2,953.04	3,024.89	3,013.26	11.63	260.159	
2,200.00	2,156.03	2,060.79	2,060.71	8.46	3.57	-79.12	-921.96	2,952.94	3,020.35	3,008.35	12.00	251.754	
2,300.00	2,246.67	2,155.85	2,155.77	9.06	3.74	-79.86	-922.42	2,952.60	3,011.61	2,998.86	12.76	236.077	
2,400.00	2,337.30	2,241.89	2,241.81	9.67	3.89	-80.55	-922.14	2,952.52	3,003.55	2,990.03	13.52	222.195	
2,500.00	2,427.94	2,335.86	2,335.78	10.29	4.05	-81.31	-921.65	2,952.50	2,996.09	2,981.79	14.31	209.439	
2,600.00	2,518.58	2,427.80	2,427.72	10.93	4.21	-82.06	-921.31	2,952.42	2,988.03	2,973.11	15.07	196.884	
2,700.00	2,609.22	2,518.44	2,518.36	11.57	4.37	-82.78	-921.00	2,952.34	2,979.03	2,964.01	15.83	184.429	
2,800.00	2,699.85	2,609.07	2,609.00	12.22	4.53	-83.43	-920.69	2,952.26	2,970.03	2,955.01	16.59	172.074	
2,900.00	2,790.49	2,700.71	2,700.64	12.88	4.69	-84.08	-920.38	2,952.18	2,961.03	2,946.01	17.35	159.819	
3,000.00	2,881.13	2,791.35	2,791.28	13.54	4.85	-84.73	-920.07	2,952.10	2,952.03	2,937.01	18.11	147.564	
3,100.00	2,971.76	2,882.00	2,881.92	14.20	5.01	-85.38	-919.76	2,952.02	2,943.03	2,928.01	18.87	135.309	
3,200.00	3,062.40	2,972.64	2,972.56	14.87	5.17	-86.03	-919.45	2,951.94	2,934.03	2,919.01	19.63	123.054	
3,300.00	3,153.04	3,063.28	3,063.20	15.54	5.33	-86.68	-919.14	2,951.86	2,925.03	2,910.01	20.39	110.800	
3,400.00	3,243.68	3,154.00	3,153.92	16.21	5.49	-87.33	-918.83	2,951.78	2,916.03	2,901.01	21.15	98.545	
3,500.00	3,334.31	3,244.64	3,244.56	16.89	5.65	-87.98	-918.52	2,951.70	2,907.03	2,892.01	21.91	86.290	
3,600.00	3,424.95	3,335.28	3,335.20	17.57	5.81	-88.63	-918.21	2,951.62	2,898.03	2,883.01	22.67	74.035	
3,700.00	3,515.59	3,425.92	3,425.84	18.25	5.97	-89.28	-917.90	2,951.54	2,889.03	2,874.01	23.43	61.780	
3,800.00	3,606.22	3,516.56	3,516.48	18.94	6.13	-89.93	-917.59	2,951.46	2,880.03	2,865.01	24.19	49.525	
3,900.00	3,696.86	3,607.20	3,607.12	19.62	6.29	-90.58	-917.28	2,951.38	2,871.03	2,856.01	24.95	37.270	
4,000.00	3,787.50	3,697.84	3,697.76	20.31	6.45	-91.23	-916.97	2,951.30	2,862.03	2,847.01	25.71	25.015	
4,100.00	3,878.14	3,788.48	3,788.40	20.99	6.61	-91.88	-916.66	2,951.22	2,853.03	2,838.01	26.47	12.760	
4,200.00	3,968.77	3,879.12	3,879.04	21.68	6.77	-92.53	-916.35	2,951.14	2,844.03	2,829.01	27.23	0.505	
4,300.00	4,059.41	3,969.76	3,969.68	22.37	6.93	-93.18	-916.04	2,951.06	2,835.03	2,820.01	27.99		
4,400.00	4,150.05	4,060.40	4,060.32	23.06	7.09	-93.83	-915.73	2,950.98	2,826.03	2,811.01	28.75		
4,500.00	4,240.68	4,151.04	4,150.96	23.75	7.25	-94.48	-915.42	2,950.90	2,817.03	2,802.01	29.51		
4,600.00	4,331.32	4,241.68	4,241.60	24.45	7.41	-95.13	-915.11	2,950.82	2,808.03	2,793.01	30.27		
4,700.00	4,421.96	4,332.32	4,332.24	25.14	7.57	-95.78	-914.80	2,950.74	2,799.03	2,784.01	31.03		
4,800.00	4,512.60	4,422.96	4,422.88	25.83	7.73	-96.43	-914.49	2,950.66	2,790.03	2,775.01	31.79		
4,900.00	4,603.23	4,513.60	4,513.52	26.53	7.89	-97.08	-914.18	2,950.58	2,781.03	2,766.01	32.55		

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 325H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 325H
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		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)			
5,000.00	4,693.87	7,849.56	5,139.28	27.22	71.97	175.27	-1,678.03	-6.23	581.00	550.38	30.63	18.971	
5,100.00	4,784.51	7,848.66	5,139.29	27.92	71.95	176.46	-1,678.03	-5.33	481.34	451.70	29.63	16.242	
5,151.61	4,831.28	7,848.27	5,139.29	28.28	71.94	176.97	-1,678.03	-4.94	429.97	400.99	28.98	14.837	
5,200.00	4,874.56	7,846.98	5,139.30	28.63	71.91	166.48	-1,678.03	-3.66	382.05	354.01	28.04	13.626	
5,250.00	4,917.86	7,846.98	5,139.30	29.02	71.91	163.84	-1,678.03	-3.66	333.40	307.04	26.37	12.645	
5,300.00	4,959.47	7,836.53	5,139.38	29.44	71.66	168.53	-1,678.02	6.80	286.22	262.07	24.16	11.849	
5,350.00	4,999.12	7,827.67	5,139.50	29.88	71.45	172.21	-1,678.02	15.66	241.65	220.35	21.30	11.343	
5,400.00	5,036.58	7,816.14	5,139.71	30.35	71.17	176.84	-1,678.00	27.19	201.36	181.89	19.47	10.342	
5,450.00	5,071.61	7,801.92	5,140.07	30.84	70.83	177.55	-1,677.97	41.41	168.21	141.59	26.62	6.319	
5,500.00	5,104.00	7,783.98	5,140.67	31.35	70.39	170.38	-1,677.91	59.33	146.59	100.98	45.61	3.214	
5,541.06	5,128.48	7,768.00	5,141.25	31.79	70.01	163.72	-1,677.84	75.30	140.68	77.29	63.40	2.219 CC	
5,550.00	5,133.55	7,764.11	5,141.39	31.89	69.92	162.07	-1,677.82	79.18	140.96	74.10	66.87	2.108	
5,600.00	5,160.06	7,741.37	5,142.08	32.46	69.37	152.14	-1,677.66	101.91	152.20	70.98	81.22	1.874 ES, SF	
5,650.00	5,183.39	7,717.09	5,142.69	33.05	68.78	141.23	-1,677.42	126.19	176.33	88.94	87.39	2.018	
5,700.00	5,203.39	7,691.30	5,143.28	33.66	68.16	129.88	-1,677.13	151.97	208.21	119.25	88.95	2.341	
5,750.00	5,219.93	7,663.88	5,143.94	34.30	67.50	118.91	-1,676.77	179.38	244.13	155.40	88.73	2.751	
5,800.00	5,232.91	7,636.85	5,144.65	34.96	66.85	109.33	-1,676.31	206.40	281.98	193.90	88.09	3.201	
5,850.00	5,242.25	7,609.57	5,145.52	35.65	66.20	101.21	-1,675.59	233.65	320.70	233.29	87.42	3.669	
5,900.00	5,247.90	7,580.48	5,146.59	36.36	65.50	94.50	-1,674.55	262.70	359.58	272.79	86.79	4.143	
5,950.00	5,249.82	7,549.20	5,147.53	37.09	64.74	89.11	-1,673.35	293.95	398.01	311.80	86.21	4.617	
5,958.77	5,249.77	7,543.64	5,147.67	37.21	64.61	88.29	-1,673.13	299.50	404.69	318.57	86.12	4.699	
6,000.00	5,249.27	7,515.48	5,148.28	37.83	63.93	88.59	-1,672.03	327.63	435.98	350.34	85.64	5.091	
6,100.00	5,248.04	7,438.32	5,149.64	39.40	62.07	89.16	-1,670.03	404.75	511.07	426.72	84.35	6.059	
6,200.00	5,246.82	7,363.77	5,150.50	41.06	60.29	89.49	-1,669.81	479.30	584.58	501.30	83.28	7.019	
6,300.00	5,245.60	7,291.31	5,151.63	42.81	58.56	89.77	-1,669.97	551.75	657.77	575.37	82.40	7.983	
6,400.00	5,244.38	7,225.85	5,153.44	44.64	57.01	90.06	-1,670.38	617.18	730.71	648.97	81.75	8.939	
6,500.00	5,243.16	7,163.24	5,155.35	46.54	55.53	90.31	-1,670.34	679.77	804.12	722.93	81.19	9.904	
6,600.00	5,241.94	7,095.24	5,156.77	48.50	53.92	90.48	-1,670.03	747.75	877.79	797.18	80.62	10.888	
6,700.00	5,240.71	7,007.73	5,159.15	50.51	51.86	90.70	-1,670.75	835.21	950.57	870.66	79.92	11.894	
6,800.00	5,239.49	6,939.78	5,161.15	52.58	50.28	90.86	-1,671.92	903.13	1,022.78	943.29	79.49	12.866	
6,900.00	5,238.27	6,877.27	5,162.84	54.68	48.83	90.98	-1,672.78	965.61	1,095.22	1,016.06	79.16	13.836	
7,000.00	5,237.05	6,819.22	5,164.62	56.82	47.48	91.09	-1,673.09	1,023.63	1,168.24	1,089.36	78.88	14.811	
7,100.00	5,235.83	6,755.63	5,165.67	59.00	46.01	91.14	-1,672.92	1,087.20	1,241.78	1,163.20	78.58	15.802	
7,200.00	5,234.61	6,674.31	5,166.66	61.21	44.13	91.17	-1,673.12	1,168.52	1,314.97	1,236.74	78.24	16.808	
7,300.00	5,233.38	6,570.93	5,166.72	63.44	41.78	91.13	-1,675.05	1,271.88	1,387.08	1,309.25	77.83	17.821	
7,400.00	5,232.16	6,489.80	5,167.11	65.70	39.97	91.13	-1,678.12	1,352.95	1,457.79	1,380.20	77.59	18.788	
7,500.00	5,230.94	6,419.09	5,168.45	67.97	38.41	91.18	-1,680.95	1,423.59	1,528.38	1,450.95	77.43	19.739	
7,600.00	5,229.72	6,355.83	5,170.03	70.27	37.04	91.24	-1,683.37	1,486.78	1,599.11	1,521.79	77.32	20.682	
7,700.00	5,228.50	6,265.64	5,174.86	72.58	35.10	91.45	-1,687.05	1,576.77	1,669.73	1,592.56	77.17	21.637	
7,800.00	5,227.28	6,184.06	5,181.01	74.91	33.40	91.70	-1,691.40	1,657.99	1,739.46	1,662.37	77.09	22.564	
7,900.00	5,226.05	6,139.70	5,184.28	77.26	32.50	91.82	-1,693.64	1,702.18	1,809.54	1,732.44	77.00	23.470	
8,000.00	5,224.83	6,100.99	5,186.77	79.61	31.72	91.90	-1,694.66	1,740.79	1,881.06	1,803.95	77.10	24.397	
8,100.00	5,223.61	6,069.59	5,188.55	81.98	31.07	91.96	-1,694.92	1,772.14	1,953.81	1,876.72	77.10	25.343	
8,200.00	5,222.39	6,023.21	5,190.81	84.36	30.13	92.02	-1,694.68	1,818.47	2,027.56	1,950.48	77.08	26.305	
8,300.00	5,221.17	5,989.60	5,193.19	86.74	27.69	92.03	-1,694.73	1,942.04	2,101.11	2,024.00	77.11	27.247	
8,400.00	5,219.95	5,818.40	5,195.07	89.14	26.19	92.05	-1,696.58	2,023.19	2,172.90	2,095.72	77.18	28.154	
8,500.00	5,218.72	5,748.89	5,193.65	91.55	24.96	91.95	-1,698.30	2,092.66	2,244.49	2,167.22	77.27	29.048	
8,600.00	5,217.50	5,715.90	5,192.06	93.96	24.40	91.88	-1,698.71	2,125.61	2,316.86	2,239.54	77.31	29.968	
8,700.00	5,216.28	5,675.99	5,189.26	96.38	23.73	91.75	-1,698.57	2,165.42	2,390.23	2,312.87	77.37	30.895	
8,800.00	5,215.06	5,657.97	5,187.73	98.80	23.43	91.69	-1,698.22	2,183.38	2,464.65	2,387.30	77.36	31.861	
8,900.00	5,213.84	5,645.99	5,186.57	101.23	23.24	91.65	-1,697.81	2,195.29	2,540.36	2,463.06	77.31	32.861	
9,000.00	5,212.61	5,614.99	5,183.01	103.67	22.73	91.51	-1,696.25	2,226.04	2,617.05	2,539.74	77.31	33.850	

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 325H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 325H
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		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)				
9,100.00	5,211.39	5,584.99	5,179.01	106.11	22.25	-91.36	-1,694.15	2,255.70	2,694.76	2,617.44	77.32	34.852
9,200.00	5,210.17	5,567.02	5,176.51	108.56	21.96	-91.27	-1,692.62	2,273.43	2,773.37	2,696.11	77.27	35.892
9,300.00	5,208.95	5,525.61	5,169.95	111.01	21.31	-91.04	-1,688.60	2,314.12	2,852.77	2,775.44	77.33	36.889
9,400.00	5,207.73	5,493.99	5,163.26	113.46	20.83	-90.81	-1,685.29	2,344.84	2,932.65	2,855.30	77.35	37.912
9,500.00	5,206.51	5,463.99	5,154.94	115.92	20.39	-90.54	-1,681.83	2,373.44	3,013.21	2,935.84	77.36	38.949
9,600.00	5,205.28	5,463.99	5,154.94	118.38	20.39	-90.54	-1,681.83	2,373.44	3,094.50	3,017.30	77.19	40.087
9,700.00	5,204.06	5,449.36	5,150.06	120.85	20.19	-90.38	-1,679.90	2,387.11	3,176.63	3,099.52	77.11	41.197
9,800.00	5,202.84	5,433.00	5,144.01	123.32	19.96	-90.19	-1,677.33	2,402.08	3,259.75	3,182.73	77.02	42.322
9,900.00	5,201.62	5,433.00	5,144.01	125.79	19.96	-90.19	-1,677.33	2,402.08	3,343.53	3,266.69	76.84	43.514
10,000.00	5,200.40	5,433.00	5,144.01	128.26	19.96	-90.19	-1,677.33	2,402.08	3,428.18	3,351.53	76.65	44.725
10,100.00	5,199.18	5,433.00	5,144.01	130.74	19.96	-90.19	-1,677.33	2,402.08	3,513.64	3,437.18	76.46	45.953
10,200.00	5,197.95	5,417.86	5,137.87	133.22	19.75	-90.00	-1,674.51	2,415.62	3,599.56	3,523.19	76.37	47.134
10,300.00	5,196.73	5,401.00	5,130.46	135.70	19.52	-89.77	-1,670.83	2,430.31	3,686.42	3,610.14	76.28	48.327
10,400.00	5,195.51	5,401.00	5,130.46	138.18	19.52	-89.77	-1,670.83	2,430.31	3,773.59	3,697.50	76.09	49.592
10,500.00	5,194.29	5,401.00	5,130.46	140.67	19.52	-89.77	-1,670.83	2,430.31	3,861.39	3,785.48	75.91	50.870
10,600.00	5,193.07	5,401.00	5,130.46	143.16	19.52	-89.77	-1,670.83	2,430.31	3,949.76	3,874.04	75.72	52.162
10,700.00	5,191.85	5,401.00	5,130.46	145.64	19.52	-89.77	-1,670.83	2,430.31	4,038.68	3,963.14	75.54	53.465
10,800.00	5,190.62	5,401.00	5,130.46	148.14	19.52	-89.77	-1,670.83	2,430.31	4,128.10	4,052.74	75.36	54.778
10,900.00	5,189.40	5,386.81	5,123.76	150.63	19.33	-89.56	-1,667.33	2,442.31	4,217.77	4,142.49	75.28	56.031
11,000.00	5,188.18	5,370.00	5,115.26	153.12	19.10	-89.31	-1,662.75	2,456.08	4,308.17	4,232.97	75.20	57.288
11,100.00	5,186.96	5,370.00	5,115.26	155.62	19.10	-89.31	-1,662.75	2,456.08	4,398.67	4,323.63	75.03	58.624
11,200.00	5,185.74	5,370.00	5,115.26	158.12	19.10	-89.31	-1,662.75	2,456.08	4,489.57	4,414.70	74.87	59.968
11,300.00	5,184.52	5,370.00	5,115.26	160.62	19.10	-89.31	-1,662.75	2,456.08	4,580.85	4,506.14	74.70	61.320
11,400.00	5,183.29	5,370.00	5,115.26	163.12	19.10	-89.31	-1,662.75	2,456.08	4,672.49	4,597.94	74.55	62.680
11,500.00	5,182.07	5,370.00	5,115.26	165.62	19.10	-89.31	-1,662.75	2,456.08	4,764.46	4,690.07	74.39	64.046
11,600.00	5,180.85	5,370.00	5,115.26	168.12	19.10	-89.31	-1,662.75	2,456.08	4,856.75	4,782.51	74.24	65.419
11,700.00	5,179.63	5,355.27	5,107.36	170.62	18.90	-89.07	-1,658.44	2,467.74	4,949.18	4,875.00	74.18	66.715
11,800.00	5,178.41	5,338.00	5,097.60	173.13	18.67	-88.78	-1,653.18	2,480.98	5,042.08	4,967.94	74.14	68.011
11,900.00	5,177.18	5,338.00	5,097.60	175.63	18.67	-88.78	-1,653.18	2,480.98	5,135.02	5,061.03	74.00	69.396
12,000.00	5,175.96	5,338.00	5,097.60	178.14	18.67	-88.78	-1,653.18	2,480.98	5,228.23	5,154.37	73.86	70.785



Cathedral Energy Services
Anticollision Report

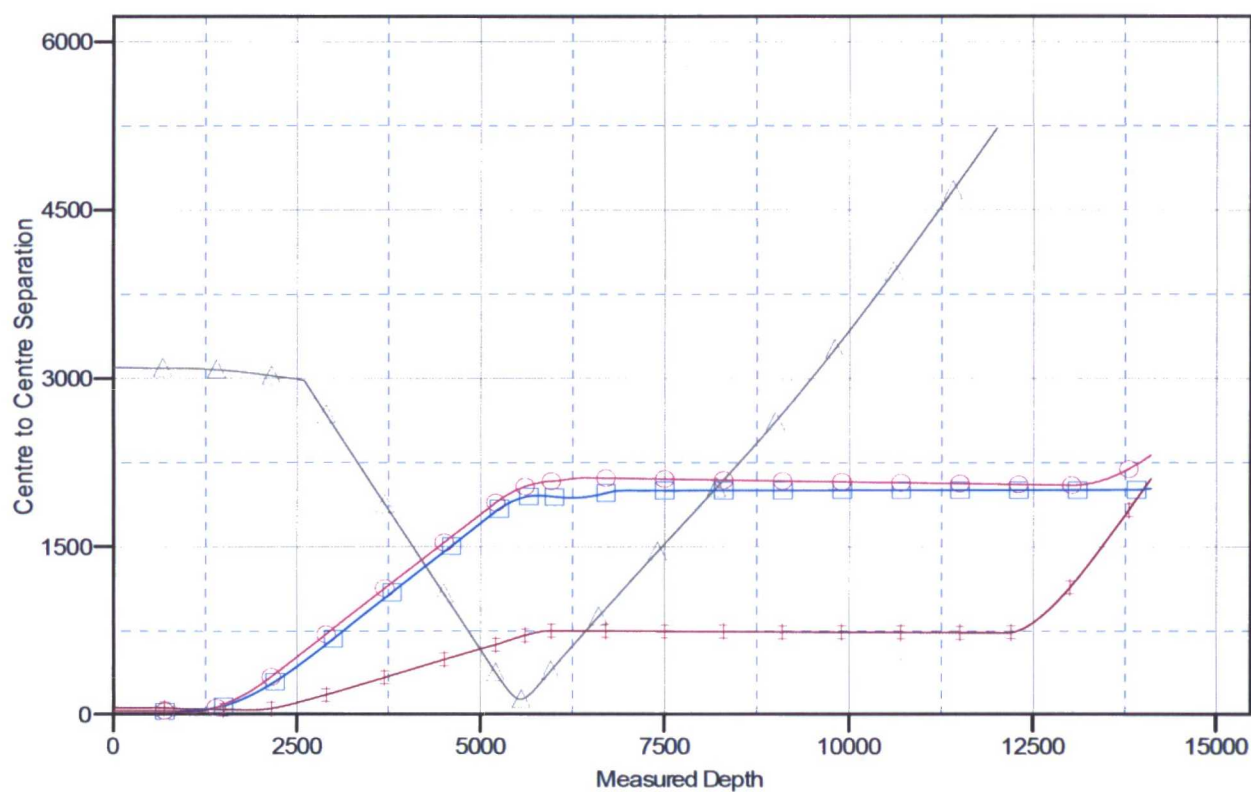
Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S33-T24N-R9W
Site Error: 0.00usft
Reference Well: NAGEEZI UNIT 325H
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: Plan #2

Local Co-ordinate Reference: Well NAGEEZI UNIT 325H
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 325H
Coordinate System is US Staté 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 324H, OH, Plan #2 V0
- NAGEEZI UNIT 327H, OH, Plan #2 V0
- NAGEEZI UNIT 326H, OH, Plan #2 V0