

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary

Tony Delfin
Deputy Cabinet Secretary

David R. Catanach, Division Director
Oil Conservation Division



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

Operator Signature Date: 2-25-16

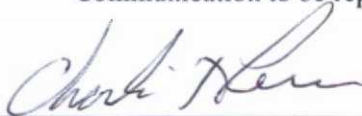
Well information;

Operator Encana, Well Name and Number Nageezi Unit #513H

API# 30-045-35764, Section 9, Township 23 N/S, Range 9 E/W

Conditions of Approval: (See the below checked and handwritten conditions)

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


NMOCD Approved by Signature

5-26-2016
Date jc

RECEIVED

FEB 29 2016

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

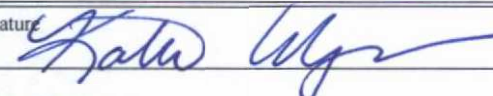
Earmington Field Office
Bureau of Land Management

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NM 8005 (POE)
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other		6. If Indian, Allottee or Tribe Name BIA NO-G-1402-1884 (BHL)
1c. Type of Completion: ☒ Hydraulic Fracturing ☐ Single Zone ☐ Multiple Zone		7. If Unit or CA Agreement, Name and No. NMNM 132981X
2. Name of Operator Encana Oil & Gas (USA) Inc.		8. Lease Name and Well No. NAGEEZI UNIT 513H
3a. Address 370 17th Street, Suite 1700, Denver, CO 80202	3b. Phone No. (include area code) 720-876-3533	9. API Well No. 30045-35764
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 1,271' FSL, 825' FEL, Section 9, T23N, R9W At proposed prod. zone 580' FNL, 330' FWL, Section 9, T23N, R9W		10. Field and Pool, or Exploratory Nageezi Unit HZ (OIL)
11. Sec., T. R. M. or Blk. and Survey or Area Section 9, T23N, R9W NMPM		
12. County or Parish San Juan		13. State NM
14. Distance in miles and direction from nearest town or post office* +/- 38 miles south from the intersection of US HWY 64 & US HWY 550 in Bloomfield, NM		
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	BHL is 330' FWL Section 9, T23N, R9W	16. No of acres in lease NMNM 132981X: 10,415.12 acres
17. Spacing Unit dedicated to this well 10,415.12 acres - Sec 1-4, 9-10, E2 5, NW4 11, T23N, R9W; Sec 25-28, 33-36, S2 21, S2 22, S2 23 T24N R9W	18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. SHL is +/- 30' SW of the Nageezi Unit 514H	19. Proposed Depth 4,833' TVD; 8,839' MD
20. BLM/BIA Bond No. in file COB-000235	21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6802' GL; 6818' KB	22. Approximate date work will start* 06/01/2016
23. Estimated duration 20 days		

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be requested by the BLM.

25. Signature 	Name (Printed/Typed) Katie Wegner	Date 2/25/16
Title Regulatory Analyst		
Approved by (Signature) 	Name (Printed/Typed) B. Mantecor	Date 5/16/16
Title AFM	Office FFO	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached.

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

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

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

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

OIL CONS. DIV DIST. 3

NMOCB
FY

MAY 18 2016

DISTRICT I

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

DISTRICT II

611 S. First St., Artesia, N.M. 88210
Phone: (575) 746-1283 Fax: (575) 746-9720

DISTRICT III

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

DISTRICT IV

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

State of New Mexico
Energy, Minerals & Natural Resources Department

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 30-045-35764	² Pool Code 98080	³ Pool Name NAGEEZI UNIT; Mancos (D)
⁴ Property Code 315244	⁵ Property Name NAGEEZI UNIT	⁶ Well Number 513H
⁷ GRID No. 282327	⁸ Operator Name ENCANA OIL & GAS (USA) INC.	⁹ Elevation 6802'

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	WEST/West line	County
P	9	23N	9W		1271'	SOUTH	825'	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	WEST/West line	County
D	9	23N	9W		580'	NORTH	330'	WEST	SAN JUAN

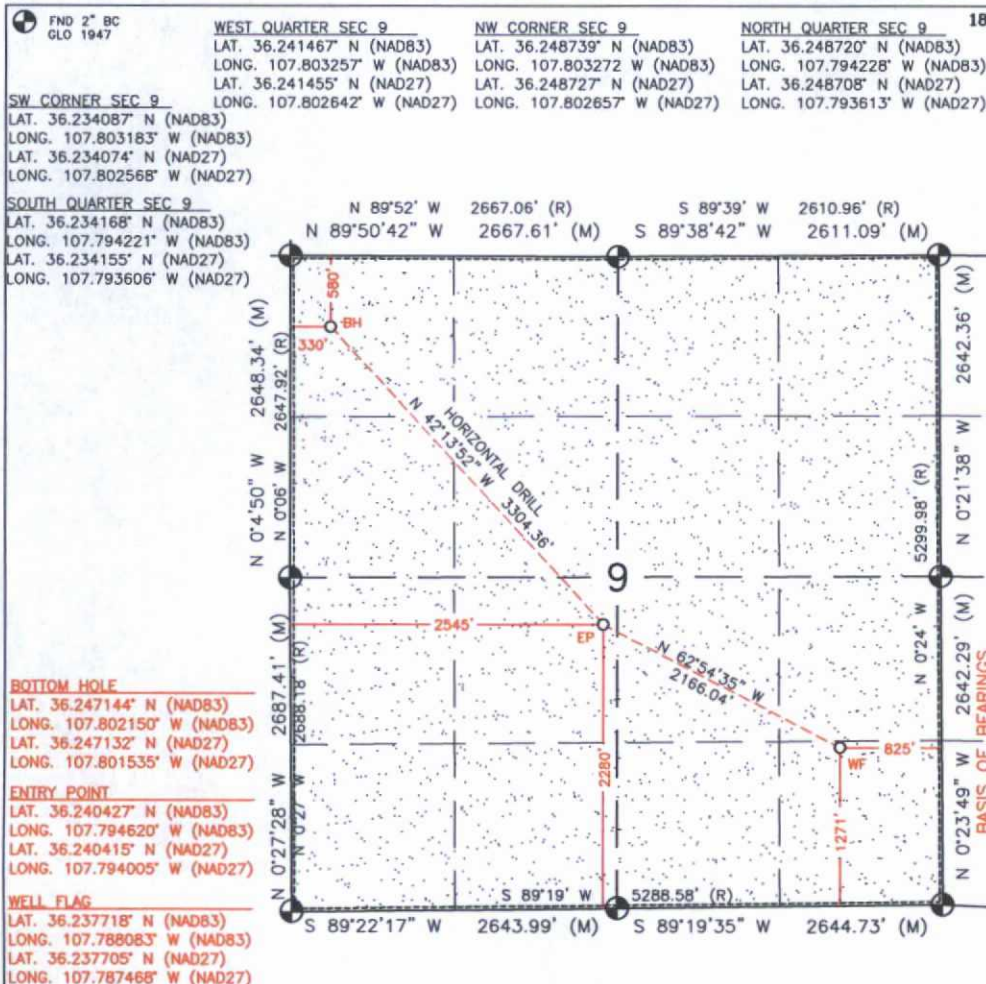
¹² Dedicated Acres
PENETRATED SPACING UNIT: ALL SEC 9 (640
ACRES); 10,415.12 TOTAL ACRES: SEC 21-23 (S/2);
25-28, 33-36, 1-4, 9-10 (ALL); 5 (E/2); 11 (NW/4) -
UNDIVIDED UNIT

¹³ Joint or Infill¹⁴ Consolidation Code¹⁵ Order No.

R-13856 (10,415.12 acres)

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

16



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 2/25/16
Signature Date

Katie Wegner

Printed Name

katie.wegner@encana.com

E-mail Address

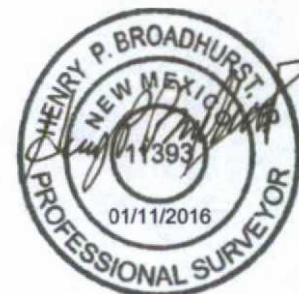
SURVEYOR CERTIFICATION

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.

FEBRUARY 10, 2015

Date of Survey

Signature and Seal of Professional Surveyor:



Certificate Number

11393

SHEET A-1

Nageezi Unit 513H

SHL: SE/4 SE/4 Sec 09 T23N R9W, 1271' FSL, 825' FEL

BHL: NW/4 NW/4 Sec 09 T23N R9W, 580' FNL, 330' FWL

San Juan, New Mexico

Lease Number: NM 8005 & BIA NO-G-1402-1884

Encana Oil & Gas (USA) Inc.**Drilling Plan****1. ESTIMATED TOPS OF GEOLOGICAL MARKERS (TVD)**

The estimated tops of important geologic markers are as follows:

Formation	Depth (TVD) units = feet
San Jose Fn.	n/a
Nacimiento Fn.	surface
Ojo Alamo Ss.	473
Kirtland Shale	643
Fruitland Coal	1,023
Pictured Cliffs Ss.	1,194
Lewis Shale	1,332
Cliffhouse Ss.	1,873
Menefee Fn.	2,603
Point Lookout Ss.	3,573
Mancos Shale	3,726
Mancos Silt	4,270
Gallup Fn.	4,543
Base Gallup	4,869

The referenced surface elevation is 6802', KB 6818'

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

Substance	Formation	Depth (TVD) units = feet
Water/Gas	Fruitland Coal	1,023
Oil/Gas	Pictured Cliffs Ss.	1,194
Oil/Gas	Cliffhouse Ss.	1,873
Gas	Menefee Fn.	2,603
Oil/Gas	Point Lookout Ss.	3,573
Oil/Gas	Mancos Shale	3,726
Oil/Gas	Mancos Silt	4,270
Oil/Gas	Gallup Fn.	4,543

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

Nageezi Unit 513H**SHL: SE/4 SE/4 Sec 09 T23N R9W, 1271' FSL, 825' FEL****BHL: NW/4 NW/4 Sec 09 T23N R9W, 580' FNL, 330' FWL****San Juan, New Mexico****Lease Number: NM 8005 & BIA NO-G-1402-1884****3. PRESSURE CONTROL**

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

Proposed BOP and choke manifold arrangements are attached.

4. CASING & CEMENTING PROGRAM

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

- a) The proposed casing design is as follows:

Casing	Depth (MD)	Hole Size	Csg Size	Weight	Grade
Conductor	0'-60'	26"	16"	42.09#	
Surface	0'-500'	12 1/4"	9 5/8"	36#	J55, STC New
Intermediate	0'-5536'	8 3/4"	7"	26#	J55, LTC New
Production Liner	5436'-8839'	6 1/8"	4 1/2"	11.6#	B80*, LTC New

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

*B80 pipe specifications are attached.

Casing design is subject to revision based on geologic conditions encountered.

Nageezi Unit 513H**SHL: SE/4 SE/4 Sec 09 T23N R9W, 1271' FSL, 825' FEL****BHL: NW/4 NW/4 Sec 09 T23N R9W, 580' FNL, 330' FWL****San Juan, New Mexico****Lease Number: NM 8005 & BIA NO-G-1402-1884**

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

b) The proposed cementing program is as follows:

Casing	Depth (MD)	Cement Volume (sacks)	Cement Type & Yield	Designed TOC	Centralizers
Conductor	0'-60'	100 sks	Type I Neat 16 ppg	Surface	None
Surface	0'-500'	228 sks	Type III Cement + 1% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.2% bwoc FL-52A + 58.9% Fresh Water	Surface	1 per joint on bottom 3 joints
Intermediate	0'-5536'	100% open hole excess Stage 1 Lead: 516 sks Stage 1 Tail: 393 sks	Lead: PremLite + 3% CaCl + 0.25lb/sk CelloFlake + 5lb/sk LCM, 12.1ppg 2.13cuft/sk Tail: Type III Cmt + 1% CaCl + 0.25lb/sk Cello Flake 14.5ppg 1.38cuft/sk	Surface	1 every 3 joints through water bearing zones
Production Liner	5436'-8839'	50% OH excess Stage 1 Blend Total: 198sks	Blend: Premium Lite High Strength FM + 0.7% bwoc R-3 + 3% bwow Potassium Chloride + 0.25lbs/sack Cello Flake + 0.5% bwoc CD-32 + 1.15% bwoc FL- 52A + 60 lbs/sack Calcium Carbonate + 124.4% Fresh Water. Yield 2.63 cuft/sk	Liner Hanger	N/A

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

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

5. WELL PLAN & DIRECTIONAL DRILLING PROGRAM

The proposed horizontal well will have a kick off point of 600'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	4833'/8839'	Gallup

Nageezi Unit 513H**SHL: SE/4 SE/4 Sec 09 T23N R9W, 1271' FSL, 825' FEL****BHL: NW/4 NW/4 Sec 09 T23N R9W, 580' FNL, 330' FWL****San Juan, New Mexico****Lease Number: NM 8005 & BIA NO-G-1402-1884****6. DRILLING FLUIDS PROGRAM****a) Surface through Intermediate Casing Point:**

Hole Size (in)	Depth (TVD/MD)	Mud Type	Density (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
30"	0-60'/60'	Fresh Water	8.3-9.2	38-100	4-28
12 1/4"	0'-500'/500'	Fresh Water	8.3-10	60-70	NC
8 3/4"	500'/500'-4833'/5536'	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"	4833'/5536'- 4833'/8839'	Fresh Water LSND	8.3-10	15-25	<15

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

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

7. TESTING, CORING, & LOGGING

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

Cased Hole:

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

8. ABNORMAL PRESSURES & HYDROGEN SULFIDE

The anticipated bottom hole pressure is +/- 2262 psi based on a 9.0 ppg at 4833' 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 June 1, 2016. It is anticipated that completion operations will begin within 30 days after the well has been drilled depending on fracture treatment schedules with various pumping service companies.

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

LOC: SE/4 SE/4 Sec 09 T23N R9W, 1271' FSL County: San Juan WELL: Nageezi Unit 513H			Encana Oil & Gas (USA) Inc. WELL SUMMARY				ENG: 0 RIG: Unassigned GLE: 6802 RKBE: 6818		2/25/16	
MWD	OPEN HOLE	FORM	DEPTH			HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION	
LWD	LOGGING		TVD	MD						
			60	60'		26	16" 42.09# 100sx Type I Neat 16.0ppg cmt	Fresh wtr 8.3-9.2		
Multi-Well pad take survey every stand and run anti-collision report prior to spud	None	San Jose Fn.	0			12 1/4	9 5/8" 36ppf J55 LTC TOC Surface with 100% OH Excess: 228 sks Type III Cement + 1% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.2% bwoc FL-52A + 58.9% Fresh Water.	Fresh wtr 8.3-10	Vertical <1°	
		Nacimiento Fn. 9 5/8" Csg	surface 500		500.00					
Survey Every 60'-120', updating anticollision report after surveys. Stop operations and contact drilling engineer if separation factor approaches 1.5	No OH logs	Ojo Alamo Ss.	473			8 3/4	7" 26ppf J55 LTC TOC @ surface (100% OH excess - 70% Lead 30% Tail) Stage 1 Total: 909sks Stage 1 Lead: 516 sks Premium Lite FM + 3% CaCl2 + 0.25/sk Cello Flake + 5#/sk LCM-1 + 8% Bentonite + 0.4% FL-52A + 0.4% Sodium Metasilicate. Mixed at 12.1 ppg. Yield 2.13 cuft/sk. Stage 1 Tail: 393 sks Type III Cement + 1% CaCl2 + 0.25#/sk Cello Flake + 0.2% FL-52A. Mixed at 14.6 ppg. Yield 1.38 cuft/sk.	Fresh Wtr 8.3-10	Vertical <1°	
		Kirtland Shale	643							
		Fruitland Coal	1,023							
		Pictured Cliffs Ss.	1,194							
		Lewis Shale	1,332							
		Cliffhouse Ss.	1,873							
Surveys every 30' through the curve	Mud logger onsite	Menefee Fn.	2,803							
		Point Lookout Ss.	3,573							
		Mancos Shale	3,726							
		KOP	600	600						
		Mancos Silt	4,270							
		Gallup Fn.	4,543							
		7" Csg	4,833	5,536'						
Surveys every stand to TD unless directed otherwise by Geologist	No OH Logs	Horizontal Target	4,833			6 1/8	100' overlap at liner top		Horz Inc/TVD 90deg/4833ft	
		TD	4,833	8,839			3303' Drilled Lateral		TD = 8839 MD	
MWD Gamma Directional		Base Gallup	4,869				4 1/2" 11.6ppf SB80 LTC TOC @ hanger (50% OH excess) Stage 1 Total: 198sks Stage 1 Blend: 198 sks Premium Lite High Strength FM + 0.7% bwoc R-3 + 3% bwow Potassium Chloride + 0.25lbs/sack Cello Flake + 0.5% bwoc CD-32 + 1.15% bwoc FL-52A + 60 lbs/sack Calcium Carbonate + 124.4% Fresh Water. Yield 2.63 cuft/sk.	WBM 8.3-10		

NOTES:

- 1) Drill with 26" bit to 60', set 16" 42.09ppf conductor pipe
- 2) Drill surface to 500', R&C 9 5/8" casing
- 3) N/U BOP and surface equipment
- 4) Drill to KOP of 600', 8 3/4 inch holesize
- 5) Start curve at 10deg/100' build rate
- 6) Drill to csg point of 5536' MD
- 7) R&C 7" csg, circ cmt to surface
- 8) Land at -55 deg, drill lateral to 8839' run 4 1/2 inch cemented liner



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.0	
3	1965.1	27.30	293.02	1914.0	124.8	-293.7	2.00	293.02	289.8	
4	4882.3	27.30	293.02	4506.3	648.0	-1525.3	0.00	0.00	1505.1	
5	5536.1	90.00	317.76	4833.0	986.2	-1927.7	10.00	27.42	2026.0	NAGEEZI UNIT 513H POE
6	8839.0	90.00	317.76	4833.0	3431.6	-4147.8	0.00	0.00	5328.8	NAGEEZI UNIT 513H PBHL

Project: San Juan County, NM
Site: S9-T23N-R9W
Well: NAGEEZI UNIT 513H
Wellbore: OH
Design: PLAN #1

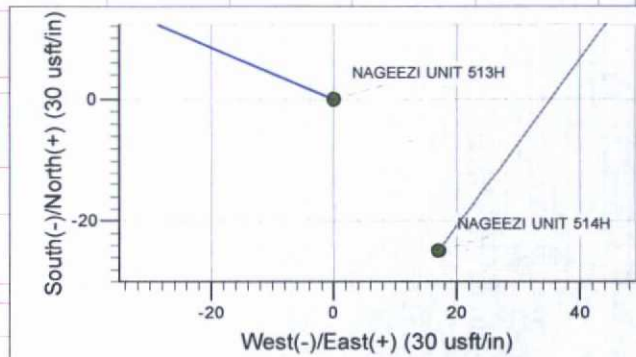
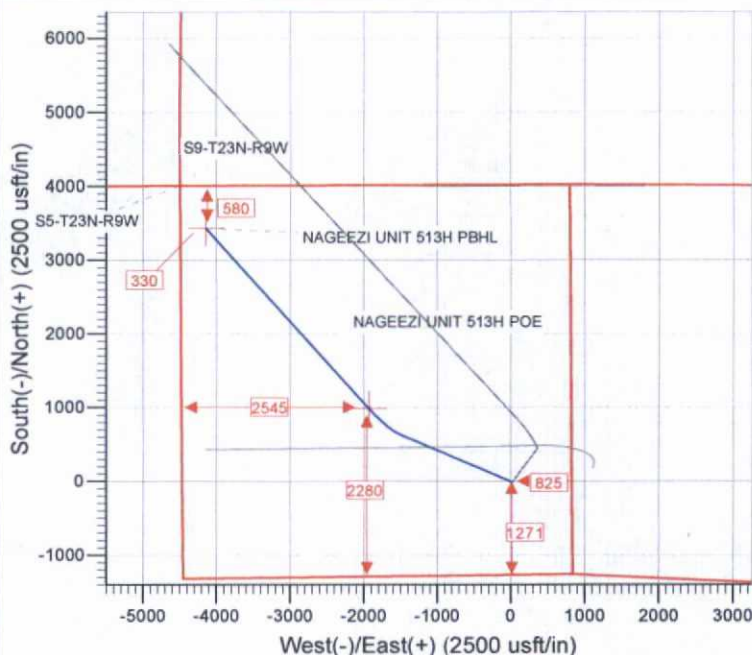
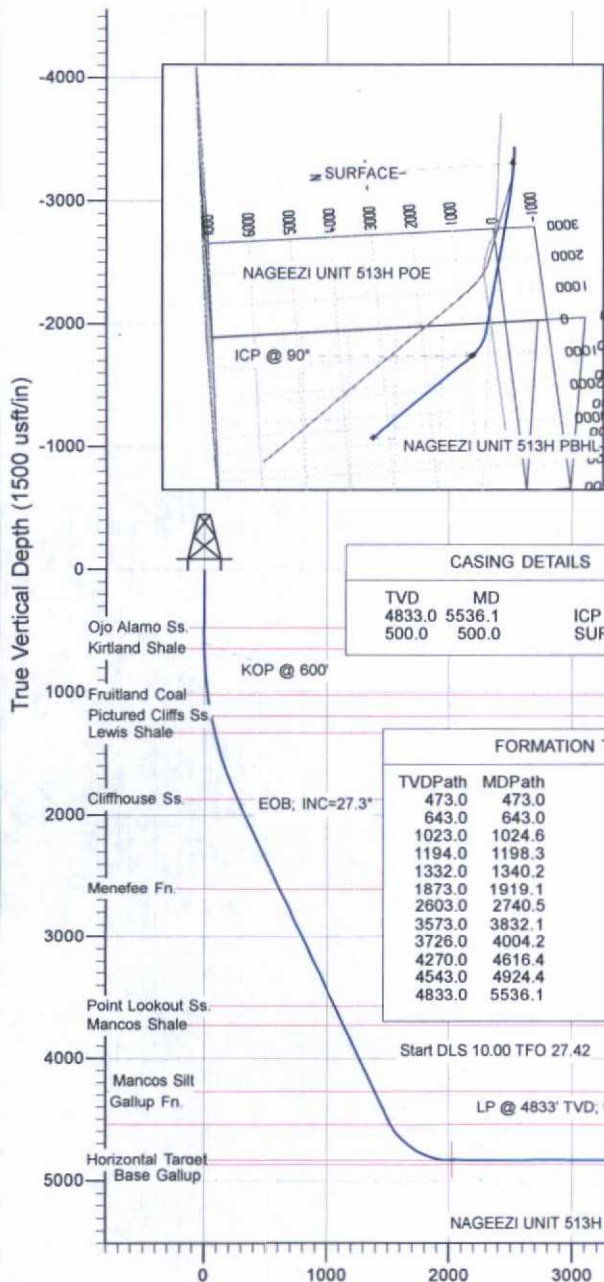


Azimuths to True North
Magnetic North: 9.20°

Magnetic Field
Strength: 49832.8nT
Dip Angle: 62.87°
Date: 12/16/2015
Model: HDGM

PLAN #1
NAGEEZI UNIT 513H
15000 LR
1" KB @ 6919 Depth
Ground Level @ 6802.0
North American Datum 1983
Well NAGEEZI UNIT 513H, True North

Type	Target	Apimuth	Origin	Type	N/S	E/W	From
User	No Target (Freeland)		Spot		D/O	D/O	TVD
Name		TVD	+N/-S	+E/-W	Latitude	Longitude	
NAGEEZI UNIT 513H PBHL		4833.0	3431.6	-4147.8	36.247144	-107.882150	
NAGEEZI UNIT 513H POE		4833.0	586.2	-1927.7	36.246427	-107.794625	



Vertical Section at 317.76° (1500 usft/in)

WELL DETAILS: NAGEEZI UNIT 513H

+N/-S	+E/-W	Northing	Easting	Ground Level:	Latitude	Longitude
0.0	0.0	1905830.70	2736435.86	6802.0	36.237718	-107.788083



Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well NAGEEZI UNIT 513H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	16' KB @ 6818.0usft
Project:	San Juan County, NM	MD Reference:	16' KB @ 6818.0usft
Site:	S9-T23N-R9W	North Reference:	True
Well:	NAGEEZI UNIT 513H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1		

Project	San Juan County, NM		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Western Zone		

Site	S9-T23N-R9W			
Site Position:		Northing:	1,905,830.70 usft	Latitude: 36.237718
From:	Lat/Long	Easting:	2,736,435.86 usft	Longitude: -107.788083
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence: 0.03 °

Well	NAGEEZI UNIT 513H			
Well Position	+N/-S	0.0 usft	Northing:	1,905,830.70 usft
	+E/-W	0.0 usft	Easting:	2,736,435.86 usft
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft
			Ground Level:	6,802.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	12/16/2015	9.20	62.87	49,833

Design	PLAN #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	317.76

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
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,965.1	27.30	293.02	1,914.0	124.8	-293.7	2.00	2.00	0.00	293.02	
4,882.3	27.30	293.02	4,506.3	648.0	-1,525.3	0.00	0.00	0.00	0.00	
5,536.1	90.00	317.76	4,833.0	986.2	-1,927.7	10.00	9.59	3.78	27.42	NAGEEZI UNIT 513H
8,839.0	90.00	317.76	4,833.0	3,431.6	-4,147.8	0.00	0.00	0.00	0.00	NAGEEZI UNIT 513H

Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: EnCana Oil & Gas (USA) Inc
 Project: San Juan County, NM
 Site: S9-T23N-R9W
 Well: NAGEEZI UNIT 513H
 Wellbore: OH
 Design: PLAN #1

Local Co-ordinate Reference: Well NAGEEZI UNIT 513H
 TVD Reference: 16' KB @ 6818.0usft
 MD Reference: 16' KB @ 6818.0usft
 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
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
473.0	0.00	0.00	473.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo Ss.
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	SURFACE
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	KOP @ 600'
643.0	0.86	293.02	643.0	0.1	-0.3	0.3	2.00	2.00	Kirtland Shale
700.0	2.00	293.02	700.0	0.7	-1.6	1.6	2.00	2.00	
800.0	4.00	293.02	799.8	2.7	-6.4	6.3	2.00	2.00	
900.0	6.00	293.02	899.5	6.1	-14.4	14.3	2.00	2.00	
1,000.0	8.00	293.02	998.7	10.9	-25.7	25.3	2.00	2.00	
1,024.6	8.49	293.02	1,023.0	12.3	-28.9	28.5	2.00	2.00	Fruitland Coal
1,100.0	10.00	293.02	1,097.5	17.0	-40.1	39.5	2.00	2.00	
1,198.3	11.97	293.02	1,194.0	24.3	-57.3	56.5	2.00	2.00	Pictured Cliffs Ss.
1,200.0	12.00	293.02	1,195.6	24.5	-57.6	56.9	2.00	2.00	
1,300.0	14.00	293.02	1,293.1	33.3	-78.3	77.3	2.00	2.00	
1,340.2	14.80	293.02	1,332.0	37.2	-87.5	86.4	2.00	2.00	Lewis Shale
1,400.0	16.00	293.02	1,389.6	43.4	-102.1	100.8	2.00	2.00	
1,500.0	18.00	293.02	1,485.3	54.8	-129.0	127.3	2.00	2.00	
1,600.0	20.00	293.02	1,579.8	67.6	-159.0	156.9	2.00	2.00	
1,700.0	22.00	293.02	1,673.2	81.6	-192.0	189.5	2.00	2.00	
1,800.0	24.00	293.02	1,765.2	96.8	-228.0	224.9	2.00	2.00	
1,900.0	26.00	293.02	1,855.8	113.4	-266.8	263.3	2.00	2.00	
1,919.1	26.38	293.02	1,873.0	116.7	-274.6	271.0	2.00	2.00	Cliffhouse Ss.
1,965.1	27.30	293.02	1,914.0	124.8	-293.7	289.8	2.00	2.00	EOB; INC=27.3°
2,000.0	27.30	293.02	1,945.0	131.0	-308.5	304.4	0.00	0.00	
2,100.0	27.30	293.02	2,033.9	149.0	-350.7	346.0	0.00	0.00	
2,200.0	27.30	293.02	2,122.8	166.9	-392.9	387.7	0.00	0.00	
2,300.0	27.30	293.02	2,211.6	184.9	-435.1	429.3	0.00	0.00	
2,400.0	27.30	293.02	2,300.5	202.8	-477.3	471.0	0.00	0.00	
2,500.0	27.30	293.02	2,389.3	220.7	-519.5	512.7	0.00	0.00	
2,600.0	27.30	293.02	2,478.2	238.7	-561.8	554.3	0.00	0.00	
2,700.0	27.30	293.02	2,567.0	256.6	-604.0	596.0	0.00	0.00	
2,740.5	27.30	293.02	2,603.0	263.9	-621.1	612.8	0.00	0.00	Menefee Fn.
2,800.0	27.30	293.02	2,655.9	274.5	-646.2	637.6	0.00	0.00	
2,900.0	27.30	293.02	2,744.8	292.5	-688.4	679.3	0.00	0.00	
3,000.0	27.30	293.02	2,833.6	310.4	-730.6	721.0	0.00	0.00	
3,100.0	27.30	293.02	2,922.5	328.3	-772.8	762.6	0.00	0.00	
3,200.0	27.30	293.02	3,011.3	346.3	-815.1	804.3	0.00	0.00	
3,300.0	27.30	293.02	3,100.2	364.2	-857.3	845.9	0.00	0.00	
3,400.0	27.30	293.02	3,189.1	382.1	-899.5	887.6	0.00	0.00	
3,500.0	27.30	293.02	3,277.9	400.1	-941.7	929.2	0.00	0.00	
3,600.0	27.30	293.02	3,366.8	418.0	-983.9	970.9	0.00	0.00	
3,700.0	27.30	293.02	3,455.6	436.0	-1,026.1	1,012.6	0.00	0.00	
3,800.0	27.30	293.02	3,544.5	453.9	-1,068.4	1,054.2	0.00	0.00	
3,832.1	27.30	293.02	3,573.0	459.6	-1,081.9	1,067.6	0.00	0.00	Point Lookout Ss.
3,900.0	27.30	293.02	3,633.4	471.8	-1,110.6	1,095.9	0.00	0.00	
4,000.0	27.30	293.02	3,722.2	489.8	-1,152.8	1,137.5	0.00	0.00	
4,004.2	27.30	293.02	3,726.0	490.5	-1,154.6	1,139.3	0.00	0.00	Mancos Shale
4,100.0	27.30	293.02	3,811.1	507.7	-1,195.0	1,179.2	0.00	0.00	

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Site: S9-T23N-R9W
Well: NAGEEZI UNIT 513H
Wellbore: OH
Design: PLAN #1

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

Well NAGEEZI UNIT 513H
16' KB @ 6818.0usft
16' KB @ 6818.0usft
True
Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
4,200.0	27.30	293.02	3,899.9	525.6	-1,237.2	1,220.8	0.00	0.00	
4,300.0	27.30	293.02	3,988.8	543.6	-1,279.4	1,262.5	0.00	0.00	
4,400.0	27.30	293.02	4,077.7	561.5	-1,321.7	1,304.2	0.00	0.00	
4,500.0	27.30	293.02	4,166.5	579.4	-1,363.9	1,345.8	0.00	0.00	
4,600.0	27.30	293.02	4,255.4	597.4	-1,406.1	1,387.5	0.00	0.00	
4,616.4	27.30	293.02	4,270.0	600.3	-1,413.0	1,394.3	0.00	0.00	Mancos Silt
4,700.0	27.30	293.02	4,344.2	615.3	-1,448.3	1,429.1	0.00	0.00	
4,800.0	27.30	293.02	4,433.1	633.2	-1,490.5	1,470.8	0.00	0.00	
4,882.3	27.30	293.02	4,506.3	648.0	-1,525.3	1,505.1	0.00	0.00	Start DLS 10.00 TFO 27.42
4,900.0	28.88	294.70	4,521.8	651.4	-1,532.9	1,512.7	10.00	8.94	
4,924.4	31.09	296.77	4,543.0	656.7	-1,543.9	1,524.0	10.00	9.06	Gallup Fn.
5,000.0	38.10	301.77	4,605.2	677.8	-1,581.2	1,564.7	10.00	9.27	
5,100.0	47.60	306.39	4,678.4	716.0	-1,637.3	1,630.7	10.00	9.50	
5,200.0	57.24	309.77	4,739.4	765.0	-1,699.5	1,708.8	10.00	9.64	
5,300.0	66.95	312.49	4,786.1	823.1	-1,765.9	1,796.5	10.00	9.71	
5,400.0	76.70	314.84	4,817.3	888.6	-1,834.5	1,891.1	10.00	9.75	
5,500.0	86.47	317.00	4,831.9	959.6	-1,903.2	1,989.9	10.00	9.77	
5,536.1	90.00	317.76	4,833.0	986.2	-1,927.7	2,025.9	10.00	9.77	LP @ 4833' TVD; 90° - Horizontal Target - ICP
5,600.0	90.00	317.76	4,833.0	1,033.5	-1,970.6	2,089.8	0.01	0.01	
5,700.0	90.00	317.76	4,833.0	1,107.5	-2,037.8	2,189.8	0.00	0.00	
5,800.0	90.00	317.76	4,833.0	1,181.6	-2,105.0	2,289.8	0.00	0.00	
5,900.0	90.00	317.76	4,833.0	1,255.6	-2,172.3	2,389.8	0.00	0.00	
6,000.0	90.00	317.76	4,833.0	1,329.6	-2,239.5	2,489.8	0.00	0.00	
6,100.0	90.00	317.76	4,833.0	1,403.7	-2,306.7	2,589.8	0.00	0.00	
6,200.0	90.00	317.76	4,833.0	1,477.7	-2,373.9	2,689.8	0.00	0.00	
6,300.0	90.00	317.76	4,833.0	1,551.7	-2,441.1	2,789.8	0.00	0.00	
6,400.0	90.00	317.76	4,833.0	1,625.8	-2,508.3	2,889.8	0.00	0.00	
6,500.0	90.00	317.76	4,833.0	1,699.8	-2,575.6	2,989.8	0.00	0.00	
6,600.0	90.00	317.76	4,833.0	1,773.9	-2,642.8	3,089.8	0.00	0.00	
6,700.0	90.00	317.76	4,833.0	1,847.9	-2,710.0	3,189.8	0.00	0.00	
6,800.0	90.00	317.76	4,833.0	1,921.9	-2,777.2	3,289.8	0.00	0.00	
6,900.0	90.00	317.76	4,833.0	1,996.0	-2,844.4	3,389.8	0.00	0.00	
7,000.0	90.00	317.76	4,833.0	2,070.0	-2,911.7	3,489.8	0.00	0.00	
7,100.0	90.00	317.76	4,833.0	2,144.0	-2,978.9	3,589.8	0.00	0.00	
7,200.0	90.00	317.76	4,833.0	2,218.1	-3,046.1	3,689.8	0.00	0.00	
7,300.0	90.00	317.76	4,833.0	2,292.1	-3,113.3	3,789.8	0.00	0.00	
7,400.0	90.00	317.76	4,833.0	2,366.2	-3,180.5	3,889.8	0.00	0.00	
7,500.0	90.00	317.76	4,833.0	2,440.2	-3,247.8	3,989.8	0.00	0.00	
7,600.0	90.00	317.76	4,833.0	2,514.2	-3,315.0	4,089.8	0.00	0.00	
7,700.0	90.00	317.76	4,833.0	2,588.3	-3,382.2	4,189.8	0.00	0.00	
7,800.0	90.00	317.76	4,833.0	2,662.3	-3,449.4	4,289.8	0.00	0.00	
7,900.0	90.00	317.76	4,833.0	2,736.3	-3,516.6	4,389.8	0.00	0.00	
8,000.0	90.00	317.76	4,833.0	2,810.4	-3,583.8	4,489.8	0.00	0.00	
8,100.0	90.00	317.76	4,833.0	2,884.4	-3,651.1	4,589.8	0.00	0.00	
8,200.0	90.00	317.76	4,833.0	2,958.5	-3,718.3	4,689.8	0.00	0.00	
8,300.0	90.00	317.76	4,833.0	3,032.5	-3,785.5	4,789.8	0.00	0.00	
8,400.0	90.00	317.76	4,833.0	3,106.5	-3,852.7	4,889.8	0.00	0.00	
8,500.0	90.00	317.76	4,833.0	3,180.6	-3,919.9	4,989.8	0.00	0.00	
8,600.0	90.00	317.76	4,833.0	3,254.6	-3,987.2	5,089.8	0.00	0.00	
8,700.0	90.00	317.76	4,833.0	3,328.7	-4,054.4	5,189.8	0.00	0.00	
8,800.0	90.00	317.76	4,833.0	3,402.7	-4,121.6	5,289.8	0.00	0.00	
8,839.0	90.00	317.76	4,833.0	3,431.6	-4,147.8	5,328.8	0.00	0.00	TD at 8839.0

Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: EnCana Oil & Gas (USA) Inc
 Project: San Juan County, NM
 Site: S9-T23N-R9W
 Well: NAGEEZI UNIT 513H
 Wellbore: OH
 Design: PLAN #1

Local Co-ordinate Reference: Well NAGEEZI UNIT 513H
 TVD Reference: 16' KB @ 6818.0usft
 MD Reference: 16' KB @ 6818.0usft
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
NAGEEZI UNIT 513H PI - plan hits target center - Point	0.00	0.00	4,833.0	986.2	-1,927.7	1,906,816.00	2,734,507.72	36.240427	-107.794620
NAGEEZI UNIT 513H PI - plan hits target center - Point	0.00	0.00	4,833.0	3,431.6	-4,147.8	1,909,260.34	2,732,286.44	36.247144	-107.802150

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
5,536.1	4,833.0	ICP @ 90°	7	8-3/4
500.0	500.0	SURFACE	9-5/8	12-1/4

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
473.0	473.0	Ojo Alamo Ss.			
643.0	643.0	Kirtland Shale			
1,024.6	1,023.0	Fruitland Coal			
1,198.3	1,194.0	Pictured Cliffs Ss.			
1,340.2	1,332.0	Lewis Shale			
1,919.1	1,873.0	Cliffhouse Ss.			
2,740.5	2,603.0	Menefee Fn.			
3,832.1	3,573.0	Point Lookout Ss.			
4,004.2	3,726.0	Mancos Shale			
4,616.4	4,270.0	Mancos Silt			
4,924.4	4,543.0	Gallup Fn.			
5,536.1	4,833.0	Horizontal Target			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
600.0	600.0	0.0	0.0	KOP @ 600'
1,965.1	1,914.0	124.8	-293.7	EOB; INC=27.3°
4,882.3	4,506.3	648.0	-1,525.3	Start DLS 10.00 TFO 27.42
5,536.1	4,833.0	986.2	-1,927.7	LP @ 4833' TVD; 90°
8,839.0	4,833.0	3,431.6	-4,147.8	TD at 8839.0



EnCana Oil & Gas (USA) Inc

San Juan County, NM

S9-T23N-R9W

NAGEEZI UNIT 513H

OH

PLAN #1

Anticollision Report

16 December, 2015

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well NAGEEZI UNIT 513H
Project:	San Juan County, NM	TVD Reference:	16' KB @ 6818.0usft
Reference Site:	S9-T23N-R9W	MD Reference:	16' KB @ 6818.0usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	NAGEEZI UNIT 513H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	Offset Datum

Reference	PLAN #1		
Filter type:	GLOBAL FILTER APPLIED: All wellpaths within 200'+ 100/1000 of reference		
Interpolation Method:	MD Interval 100.0usft	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,083.9usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 12/16/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	8,839.0	PLAN #1 (OH)	MWD+HDGM	OWSG MWD + HDGM

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S10-T23N-R9W (Good Times)						
Nageezi Unit L10-2309 01H - Hz - Plan #3	5,106.0	7,362.3	312.0	224.6	3.572	CC, ES
Nageezi Unit L10-2309 01H - Hz - Plan #3	5,200.0	7,420.2	327.3	227.6	3.281	SF
S9-T23N-R9W						
NAGEEZI UNIT 514H - OH - PLAN #1	600.0	600.0	30.1	26.2	7.743	CC, ES
NAGEEZI UNIT 514H - OH - PLAN #1	800.0	800.1	35.2	29.9	6.643	SF

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S9-T23N-R9W
Site Error: 0.0usft
Reference Well: NAGEEZI UNIT 513H
Well Error: 0.0usft
Reference Wellbore: OH
Reference Design: PLAN #1

Local Co-ordinate Reference: Well NAGEEZI UNIT 513H
TVD Reference: 16' KB @ 6818.0usft
MD Reference: 16' KB @ 6818.0usft
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 S10-T23N-R9W (Good Times) - Nageezi Unit L10-2309 01H - Hz - Plan #3												Offset Site Error:	0.0 usft
Survey Program: 0-Geolink MWD												Offset Well Error:	0.0 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)			
4,100.0	3,811.1	6,920.3	4,809.9	27.2	57.6	-175.42	465.3	-1,196.4	1,047.7	1,029.7	18.01	58.168	
4,200.0	3,900.0	6,962.2	4,809.9	28.1	58.6	-173.01	464.8	-1,238.2	959.9	941.0	18.86	50.886	
4,300.0	3,988.8	7,004.1	4,809.8	29.0	59.6	-170.24	464.3	-1,280.1	872.6	852.5	20.12	43.378	
4,400.0	4,077.7	7,045.9	4,809.7	29.9	60.6	-167.06	463.8	-1,321.9	786.2	764.2	21.95	35.812	
4,500.0	4,166.5	7,087.8	4,809.6	30.8	61.7	-163.37	463.4	-1,363.8	700.8	676.2	24.62	28.463	
4,600.0	4,255.4	7,129.6	4,809.6	31.7	62.7	-159.08	462.9	-1,405.6	617.0	588.6	28.47	21.674	
4,700.0	4,344.3	7,171.5	4,809.5	32.6	63.7	-154.11	462.4	-1,447.5	535.6	501.6	33.98	15.762	
4,800.0	4,433.1	7,213.3	4,809.4	33.5	64.7	-148.36	461.9	-1,489.3	457.6	415.8	41.82	10.941	
4,900.0	4,521.9	7,255.3	4,809.4	34.4	65.8	-143.56	461.4	-1,531.3	385.5	332.6	52.90	7.288	
5,000.0	4,605.2	7,303.2	4,809.3	35.6	66.9	-143.40	460.9	-1,579.1	332.6	263.9	68.68	4.842	
5,100.0	4,678.4	7,358.7	4,809.2	37.0	68.3	-139.08	460.3	-1,634.7	312.1	225.7	86.36	3.613	
5,106.0	4,682.5	7,362.3	4,809.2	37.1	68.4	-138.71	460.2	-1,638.2	312.0	224.6	87.34	3.572 CC, ES	
5,200.0	4,739.4	7,420.2	4,809.1	38.6	69.8	-131.54	459.6	-1,696.2	327.3	227.6	99.77	3.281 SF	
5,300.0	4,786.1	7,485.9	4,809.0	40.5	71.4	-121.46	458.8	-1,761.9	371.1	263.8	107.34	3.457	
5,400.0	4,817.3	7,553.7	4,808.8	42.5	73.1	-109.88	458.0	-1,829.7	432.4	320.7	111.75	3.870	
5,500.0	4,831.9	7,621.6	4,808.7	44.6	74.7	-98.02	457.3	-1,897.5	503.0	387.9	115.11	4.370	
5,600.0	4,833.0	7,688.1	4,808.6	46.6	76.4	-93.53	456.5	-1,964.1	577.5	459.3	118.18	4.887	
5,700.0	4,833.0	7,754.5	4,808.5	48.7	78.0	-93.11	455.8	-2,030.4	652.2	531.0	121.24	5.380	
5,800.0	4,833.0	7,820.8	4,808.4	50.9	79.6	-92.78	455.0	-2,096.8	727.0	602.7	124.32	5.848	
5,900.0	4,833.0	7,887.2	4,808.2	53.1	81.3	-92.50	454.2	-2,163.2	801.8	674.3	127.41	6.293	
6,000.0	4,833.0	7,953.6	4,808.1	55.3	82.9	-92.28	453.5	-2,229.5	876.5	746.0	130.52	6.716	
6,100.0	4,833.0	8,019.9	4,808.0	57.5	84.5	-92.09	452.7	-2,295.9	951.3	817.7	133.64	7.118	
6,200.0	4,833.0	8,086.3	4,807.9	59.7	86.1	-91.93	452.0	-2,362.2	1,026.1	889.3	136.77	7.502	

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

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S9-T23N-R9W
Site Error: 0.0usft
Reference Well: NAGEEZI UNIT 513H
Well Error: 0.0usft
Reference Wellbore: OH
Reference Design: PLAN #1

Local Co-ordinate Reference: Well NAGEEZI UNIT 513H
TVD Reference: 16' KB @ 6818.0usft
MD Reference: 16' KB @ 6818.0usft
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 S9-T23N-R9W - NAGEEZI UNIT 514H - OH - PLAN #1													Offset Site Error:	0.0 usft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.0 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		
0.0	0.0	0.0	0.0	0.0	0.0	145.36	-24.8	17.1	30.1					
100.0	100.0	100.0	100.0	0.2	0.2	145.36	-24.8	17.1	30.1	29.8	0.30	99.921		
200.0	200.0	200.0	200.0	0.5	0.5	145.36	-24.8	17.1	30.1	29.1	1.02	29.554		
300.0	300.0	300.0	300.0	0.9	0.9	145.36	-24.8	17.1	30.1	28.4	1.74	17.342		
400.0	400.0	400.0	400.0	1.2	1.2	145.36	-24.8	17.1	30.1	27.6	2.45	12.271		
500.0	500.0	500.0	500.0	1.6	1.6	145.36	-24.8	17.1	30.1	26.9	3.17	9.495		
600.0	600.0	600.0	600.0	1.9	1.9	145.36	-24.8	17.1	30.1	26.2	3.89	7.743 CC, ES		
700.0	700.0	700.3	700.2	2.3	2.3	-152.44	-23.3	18.1	31.1	26.5	4.60	6.762		
800.0	799.8	800.1	799.9	2.7	2.7	-164.68	-19.1	21.2	35.2	29.9	5.31	6.643 SF		
900.0	899.5	899.0	898.5	3.0	3.0	-178.81	-12.2	26.3	44.7	38.7	6.02	7.421		
1,000.0	998.7	998.6	995.4	3.4	3.4	169.75	-2.7	33.3	60.6	53.8	6.76	8.960		
1,100.0	1,097.5	1,092.9	1,090.5	3.8	3.7	161.86	9.3	42.1	82.8	75.3	7.51	11.021		
1,200.0	1,195.6	1,189.1	1,185.4	4.2	4.1	157.49	21.8	51.3	109.4	101.2	8.24	13.288		
1,300.0	1,293.1	1,284.4	1,279.4	4.6	4.5	155.33	34.3	60.5	139.5	130.5	8.96	15.569		
1,400.0	1,389.6	1,378.7	1,372.5	5.0	4.8	154.33	46.7	69.5	172.5	162.9	9.68	17.824		
1,500.0	1,485.3	1,472.0	1,464.5	5.5	5.2	153.96	58.9	78.5	208.6	198.2	10.41	20.041		
1,600.0	1,579.8	1,564.0	1,555.4	6.1	5.6	153.96	70.9	87.3	247.6	236.4	11.14	22.218		
1,700.0	1,673.2	1,654.8	1,645.0	6.6	6.0	154.15	82.8	96.0	289.4	277.5	11.88	24.360		
1,800.0	1,765.2	1,744.2	1,733.1	7.3	6.3	154.44	94.5	104.6	334.1	321.5	12.62	26.468		
1,900.0	1,855.8	1,832.0	1,819.8	8.0	6.7	154.78	106.0	113.1	381.7	368.3	13.37	28.546		
2,000.0	1,945.0	1,918.4	1,905.0	8.7	7.0	155.30	117.3	121.4	431.9	417.8	14.12	30.583		
2,100.0	2,033.9	2,004.3	1,989.8	9.5	7.4	156.01	128.6	129.6	482.7	467.9	14.87	32.467		
2,200.0	2,122.8	2,090.3	2,074.7	10.4	7.7	156.58	139.8	137.9	533.6	518.0	15.62	34.157		
2,300.0	2,211.6	2,176.3	2,159.5	11.2	8.1	157.05	151.1	146.1	584.6	568.2	16.38	35.680		
2,400.0	2,300.5	2,262.3	2,244.3	12.0	8.4	157.44	162.3	154.4	635.5	618.4	17.15	37.057		
2,500.0	2,389.3	2,348.2	2,329.2	12.9	8.8	157.78	173.6	162.7	686.5	668.6	17.92	38.307		
2,600.0	2,478.2	2,434.2	2,414.0	13.8	9.2	158.07	184.8	170.9	737.5	718.8	18.69	39.447		
2,700.0	2,567.1	2,520.2	2,498.8	14.6	9.5	158.32	196.1	179.2	788.4	769.0	19.47	40.489		
2,800.0	2,655.9	2,606.2	2,583.7	15.5	9.9	158.54	207.3	187.4	839.4	819.2	20.25	41.445		
2,900.0	2,744.8	2,692.1	2,668.5	16.4	10.2	158.74	218.6	195.7	890.5	869.4	21.04	42.324		
3,000.0	2,833.6	2,778.1	2,753.3	17.3	10.6	158.92	229.8	204.0	941.5	919.7	21.83	43.136		
3,100.0	2,922.5	2,864.1	2,838.2	18.2	10.9	159.07	241.1	212.2	992.5	969.9	22.61	43.888		
3,200.0	3,011.4	2,950.0	2,923.0	19.1	11.3	159.21	252.3	220.5	1,043.5	1,020.1	23.41	44.585		

Anticollision Report

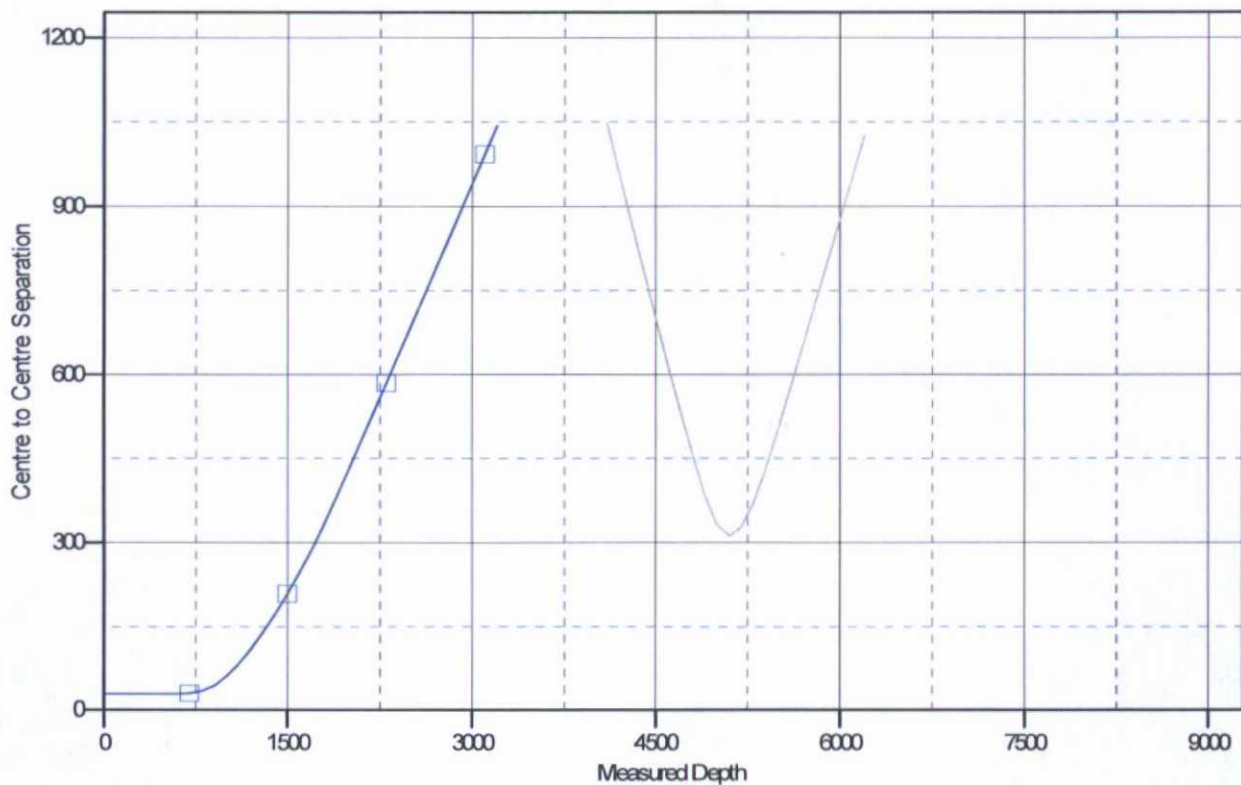
Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S9-T23N-R9W
Site Error: 0.0usft
Reference Well: NAGEEZI UNIT 513H
Well Error: 0.0usft
Reference Wellbore: OH
Reference Design: PLAN #1

Local Co-ordinate Reference: Well NAGEEZI UNIT 513H
TVD Reference: 16' KB @ 6818.0usft
MD Reference: 16' KB @ 6818.0usft
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 @ 6818.0usft
 Offset Depths are relative to Offset Datum
 Central Meridian is -107.833333 °

Coordinates are relative to: NAGEEZI UNIT 513H
 Coordinate System is US State Plane 1983, New Mexico Western Zone
 Grid Convergence at Surface is: 0.03°

Ladder Plot



LEGEND

—■— Nageezi Unit L10-2309 01H, Hz, Plan #3 V0
 —■— NAGEEZI UNIT 514H, OH, PLAN #1 V0

Nageezi Unit # 513H (FKA-P09-2309 01H)

SHL: SESE Section 9, T23N, R9W

1271' FSL and 825' FEL

BHL: NWNW Section 9, T23N, R9W

580' FNL and 330 FWL

San Juan County, New Mexico

Lease Number: NM 8005 & BIA NO-G-1402-1884

Backfilling operations will be performed within a reasonable amount of time to ensure that the trench is not left open for more than 24 hours. If a trench is left open overnight, it will be fenced with a temporary fence or a night watchman will be utilized. After the pipe has been welded and coated a side-boom tractor will be used to place the pipe into the trench. After trenching and pipe placement in the trench, the soils excavated from the trenches will be returned and compacted to prevent subsidence.

2. There will be no fence cuts or cattle guards required for the installation of this pipeline.
3. Any trees larger than 3-inches in diameter will be cut at ground level and delimbed. The trunks will be stacked whole along the access road, well pad, and/or pipeline for wood gathering. Stumps will be cut as close to the ground as possible. Stumps and root balls will be hauled to an approved disposal site or stockpiled at the edge of the well pad and buried in the cut slopes of the pad during interim reclamation.

Any trees smaller than 3-inches in diameter, slash and brush will be chipped, shredded or mulched and incorporated into the topsoil for later use in interim reclamation.

Remaining brush will be brush-hogged or scalped at ground-level prior to ground disturbance.

4. After removal of vegetation, topsoil will be segregated and windrowed on the edge of the access road. Topsoil will be defined as the top six (6) inches of soil. The stockpiled topsoil will be free of brush and tree limbs, trunks and root balls, but may include chipped or mulched material so long as it is incorporated into the topsoil stockpile.

Topsoil will not be stripped when soils are moisture-saturated or frozen below the stripping depth.

5. All construction materials for the pipeline will consist of native borrow and subsoil accumulated during pipeline construction. If additional fill or surfacing material is required, it will be obtained from existing permitted or private sources and will be hauled in by trucks over existing access roads.
6. Construction equipment may include chain saws, a brush hog, scraper, maintainer, excavator, dozer, backhoe, hydrovac, welder, trencher, side-boom and misc. specialty equipment. Construction of the pipeline will take approximately 2-4 weeks.

7. METHODS FOR HANDLING WASTE

A. Cuttings

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

ENCANA OIL & GAS (USA) INC.

NAGEEZI UNIT #513H

1271' FSL & 825' FEL
LOCATED IN THE SE/4 SE/4 OF SECTION 9
T23N, R9W, N.M.P.M.,
SAN JUAN COUNTY, NEW MEXICO

DIRECTIONS

- 1) FROM THE INTERSECTION OF HWY 64 & HWY 550 IN BLOOMFIELD, GO SOUTH ON HWY 550, 36.0 MILES TO NAGEEZI.
- 2) TURN RIGHT ON CR 7800 AND GO 0.4 MILES.
- 3) CR 7800 CURVES RIGHT, HEAD STRAIGHT ONTO CR 7820 AND GO 1.7 MILES TO THE PIPELINE CORRIDOR.
- 4) TURN RIGHT AND GO 0.2 MILES TO UPGRADED ROAD ON LEFT SIDE OF ROAD. FOLLOW TO WHERE NEW ACCESS IS STAKED.

WELL FLAG LOCATED AT LAT. 36.237718° N, LONG. 107.788083° W (NAD 83).



JOB No.: ENC345
DATE: 04/14/2015

CCI

CHENAULT CONSULTING INC.

4800 COLLEGE BLVD.
SUITE 201
FARMINGTON, NM 87402
(505) 325-7707

SHEET C

encana