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Farmington Field Office
Bureau of Land Management

Form 3160-5
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM 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.

SUBMIT IN TRIPLICATE *- Other instructions on page 2*

OIL CONS. DIV DIST. 3

APR 27 2017

1. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other	5. Lease Serial No.: NMNM 8005
	6. If Indian, Allottee or Tribe Name: N/A
	7. If Unit of CA/Agreement, Name and/or No.: NMNM 132981A
	8. Well Name and No.: Nageezi Unit 406H
2. Name of Operator: Encana Oil & Gas (USA) Inc.	9. API Well No.: 30-045-35842
3a. Address: 370 17th Street, Suite 1700, Denver, CO 80202	3b. Phone No. *(include area code)*: (720) 876-3533
	10. Field and Pool or Exploratory Area: Nageezi Unit HZ Oil Pool
4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)*: SHL: 1999' FSL and 1724' FWL Section 3, T23N, R9W; BHL: 2400' FSL and 330' FEL Section 10, T23N, R9W	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
	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Subsequent Report	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☑ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
☐ Final Abandonment Notice	☐ 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 recomplete 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 recompletion 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 Encana's Drilling Plan and Wellbore Diagram to reflect the following changes:

1. Eliminate the 16" conductor pipe, as this will no longer be necessary
2. Update the surface casing depth from 500' to 320'
3. Change the tail slurry design of the intermediate casing from 14.6ppg to 13.5ppg
4. Update cement details to reflect the above changes
5. Add 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."
6. Correct surface casing grade typo from "J55" to "H40." Please note, this was simply a typo and the casing strengths have not changed from previous submissions.

An updated Drilling Plan and Wellbore Diagram are attached.

ADHERE TO PREVIOUS NMOCD CONDITIONS OF APPROVAL

14. I hereby certify that the foregoing is true and correct. Name *(Printed/Typed)*: Katie Wegner	Title: Senior Regulatory Analyst
Signature: Katie Wegner	Date: 04/10/2017

THE SPACE FOR FEDERAL OR STATE OFICE USE

Approved by: Jack Savage	Title: PE	Date: 4/21/2017
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.	Office: FFO	

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)

NMOCD

LOC: **Sec 03 T23N R9W, 1999' FSL, 1724' FWL**
County: **San Juan**
WELL: **Nageezi Unit 406H**

Encana Natural Gas

WELL SUMMARY

ENG: **L. Hubbard** **4-10-17**
RIG: **Unassigned**
GLE: **6765**
RKBE: **6781**

MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH TVD	DEPTH MD	HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION
Run survey tool at TD and update anticollision scan	None	Nacimiento	0		**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°
		9 5/8" Csg	**320**	**320**				
		Ojo Alamo	588					
		Kirtland Shale	717			**7" 26ppf J55 LTC**	**Fresh Wtr**	
	No OH logs	Fruitland Coal	1,154					Directional 12.2°
Survey Every 60'-120', updating anticollision report after surveys. Stop operations and contact drilling engineer if separation factor approaches 1.5		Pictured Cliffs Ss.	1,328				8.3-10	
		Lewis Shale	1,456		**8 3/4**	TOC @ surface (100% OH excess) Stage 1 Total: 856sks		
		Cliffhouse Ss.	2,007					
		Menefee Fn.	2,723					
		Point Lookout Ss.	3,696					
	MWD GR Mud Log	Mancos Shale	3,890					
		KOP	**4,214**	**4,291**				
Surveys every 30' through the curve		Mancos Silt	4,340					
		Gallup Fn.	4,616					
		7" Csg	**4,864**	**5,150'**				
					6 1/8	200' overlap at liner top		Horz Inc/TVD 90.4deg/4895'
Surveys every stand to TD unless directed otherwise by Geologist		Horizontal Target	4,892					
		TD	**4,854**	**11,000**		5850' Drilled Lateral		TD = 10999.59' MD
	No OH Logs	Base Gallup	4,947			TOC @ Top of Liner (30% open hole excess)	**WBM** 8.3-10	
MWD Gamma Directional								

Nageezi Unit 406H
SHL: NESW Sec 3, 23N 9W
1999 FSL, 1724 FWL
BHL: NESE Sec 10, 23N 9W
2400 FSL, 330 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	588
Kirtland Shale	717
Fruitland Coal	1,154
Pictured Cliffs Ss.	1,328
Lewis Shale	1,456
Cliffhouse Ss.	2,007
Menefee Fn.	2,723
Point Lookout Ss.	3,696
Mancos Shale	3,890
Mancos Silt	4,340
Gallup Fn.	4,616

The referenced surface elevation is 6765', KB 6781'

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

Substance	Formation	Depth (TVD) units = feet
Water/Gas	Fruitland Coal	1,154
Water/Gas	Pictured Cliffs Ss.	1,328
Water/Gas	Cliffhouse Ss.	2,007
Water/Gas	Menefee Fn.	2,723
Water/Gas	Point Lookout Ss.	3,696
Oil/Gas	Mancos Shale	3,890
Oil/Gas	Mancos Silt	4,340
Oil/Gas	Gallup Fn.	4,616

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

3. PRESSURE CONTROL

a) Pressure contol 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
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'-5150'	8 3/4"	7"	26	J55, LTC New
Production Liner	4950'-11000'	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.

b) The proposed cementing program is as follows

Nageezi Unit 406H
SHL: NESW Sec 3, 23N 9W
1999 FSL, 1724 FWL
BHL: NESE Sec 10, 23N 9W
2400 FSL, 330 FEL
San Juan, New Mexico

Casing	Depth (MD)	Cement Volume (sacks)	Cement Type & Yield	Designed TOC	Centralizers
Surface	0'-320'	116 sks	Class V cement w/ 2% CaCl Weight 15.6ppg Yield: 1.21 ft3/sk	Surface	1 per joint on bottom 3 joints
Intermediate	0'-5150'	100% open hole excess Stage 1 Lead: 619 sks Stage 1 Tail: 237 sks	Lead: Extended Class G w/ 6% BWOC bentonite + 2.5 lb/sk Kol-Seal + 0.125 lb/sk Poly-flake Weight: 12.3ppg Yield: 1.952 ft3/sk Tail: Extended Class G w/ 1% BWOC bentonite + 0.3% BWOC Halad-567 + 0.2% BWOC Versaset + 0.05% SA-1015 Weight: 13.5ppg Yield: 1.305 ft3/sk	Surface	1 every 3 joints through water bearing zones
Production Liner	4950'-11000'	30% open hole excess Cement Vol: 573 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

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 4214'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	4854'/11000'	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'-4864'/5150'	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"	4864'/5150'-4854'/11000'	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

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 +/- 2289 psi based on a 9.0 ppg at 4892' TVD of the horizontal lateral target. No abnormal pressure or temperatures are anticipated.

No hydrogen sulfide gas is anticipated, however, if H_2S 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 April 12, 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.