

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

JAN 07 2015

FORM APPROVED
OMB No. 1004-0137
Expires: October 31, 2014

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

5. Lease Serial No.
NMNM 17009
6. Indian, Allottee or Tribe Name
N/Amen

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

7. If Unit of CA/Agreement, Name and/or No.
NMNM 131017X

8. Well Name and No.
Gallo Canyon Unit P14-2306 02H

9. API Well No.
Pending

10. Field and Pool or Exploratory Area
Counselors Gallup-Dakota

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
SHL: 49° FSL and 660° FEL, Sec. 14, T23N, R6W
BHL: 40° FNL and 330° FEL, Sec. 25, T23N, R6W

11. County or Parish, State
Rio Arriba, 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	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other <u>Updated SUPO,</u>
	☒ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	<u>Reclamation Plan &</u>
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	<u>Survey Plats</u>

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. wishes to submit an updated Survey Package, Surface Use Plan of Operation, and Reclamation Plan for the Gallo Canyon Unit P14-2306 02H APD package, which was submitted on 08/15/2014. Encana revised these documents to provide more clarity on culvert locations and to add pullout locations for existing and/or proposed roads. Please note that the length of the proposed Gallo Canyon Unit P14-2306 access road changed slightly from 2,269.8' to 2,243', which is due to using a different survey company to complete the updated survey plats.

* Please note, the SHL location shifted 15' to the west due to a measurement error by the previous surveyor; however, the pad corners and footprint of the pad did NOT change. Attached are an updated Directional Drilling Plan, an updated 10-Point Drilling Plan and an updated Wellbore Diagram, which reflect the revised SHL. The plans were also updated to reflect Encana's intent to cement the 4 1/2" production liner, instead of running open hole swell packers, as previously planned. The 7" ICP was also moved from approximately 72 degrees to approximately 55 degrees.

Please replace the documents submitted with the APD with the attached documents.

ADHERE TO PREVIOUS NMOCD
CONDITIONS OF APPROVAL

RECEIVED

MAR 02 2015

NMOCD
DISTRICT III

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

Katie Wegner

Title Regulatory Analyst

Signature

Date

1/6/15

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Title

Date

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

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

14

DISTRICT I
1825 N. French Dr., Hobbs, N.M. 88240
Phone: (505) 393-6161 Fax: (505) 393-0720

DISTRICT II
511 S. First St., Artesia, N.M. 88210
Phone: (505) 746-1883 Fax: (505) 746-9720

DISTRICT III
1000 E. Briscoe Rd., Artesia, N.M. 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1830 S. R. Francis Dr., Santa Fe, NM 87506
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, NM 87506

Submit one copy to appropriate
District Office
Bureau of Land Management

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-029-31265	Pool Code 13379	Pool Name COUNSELORS GALLUP-DAKOTA
Property Code 314241	Property Name GALLO CANYON UNIT P14-2306	Well Number 02H
OGUID No. 282327	Operator Name ENCANA OIL & GAS (USA) INC.	Elevation 6849.6'

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
P	14	23N	6W		49'	SOUTH	660'	EAST	RIO ARRIBA

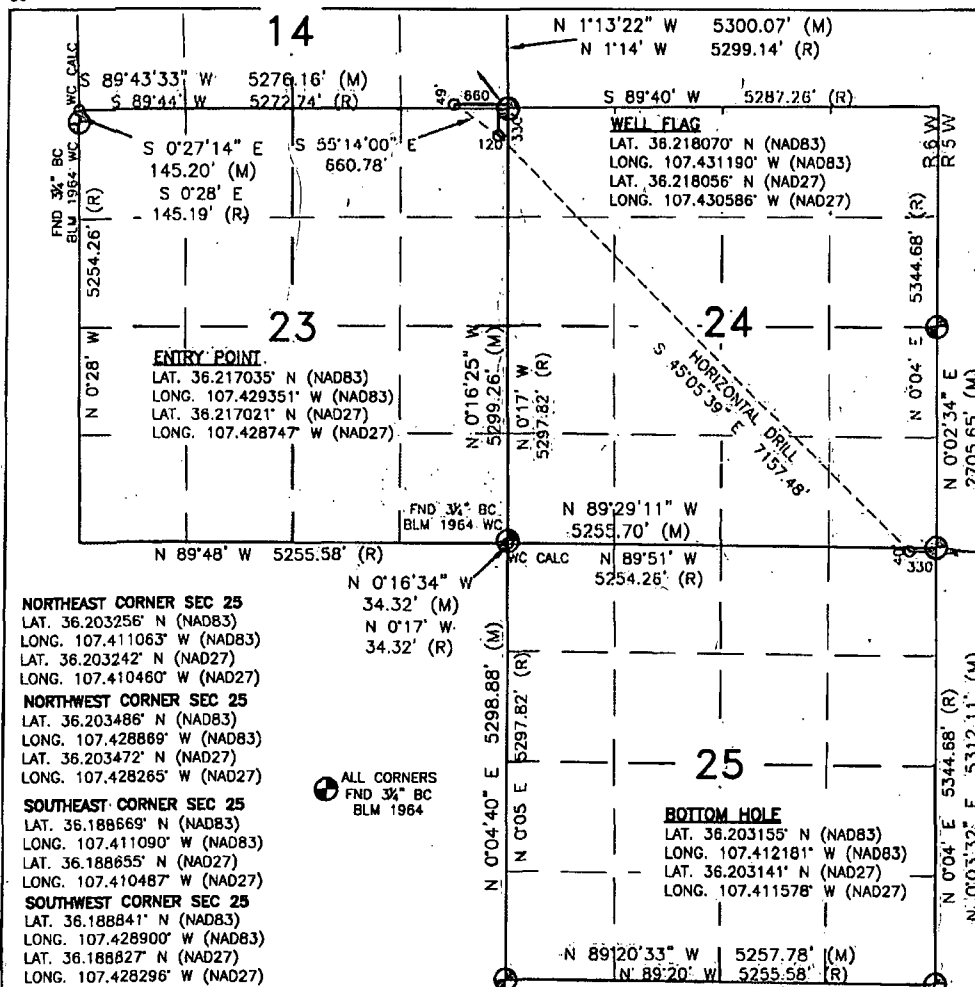
11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	25	23N	6W		40'	NORTH	330'	EAST	SANDOVAL

Dedicated Acres 5120 ACRES SEC. 22-28, 34-36 - UNDIVIDED UNIT, PENETRATED SPACING UNITS: N/2 SEC. 23, ALL SEC. 24, N/2 SEC. 25	Joint or Infill	Consolidation Code	Order No. R-13718-A (5,120.00 ACRES)
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

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.	
Signature <i>Katie Wegner</i>	Date 12/29/14
Katie Wegner Printed Name	
Kathryn.Wegner@encana.com E-mail Address	
SURVEYOR CERTIFICATION	
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.	
JUNE 19, 2014 Date of Survey	
Signature and Seal of Professional Surveyor <i>David Russell</i>	
DAVID RUSSELL REGISTERED PROFESSIONAL LAND SURVEYOR 10201	
Certificate Number 10201	

DISTRICT I

1625 N. French Dr., Hobbs, N.M. 88240
Phone: (505) 593-6161 Fax: (505) 593-9720

DISTRICT II

811 S. First St., Artesia, N.M. 88210
Phone: (505) 745-1253 Fax: (505) 745-9780

DISTRICT III

1000 Elv Brusos Rd., Acoma, N.M. 87410
Phone: (505) 334-8178 Fax: (505) 334-8170

DISTRICT IV

1820 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 478-3450 Fax: (505) 478-3458

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

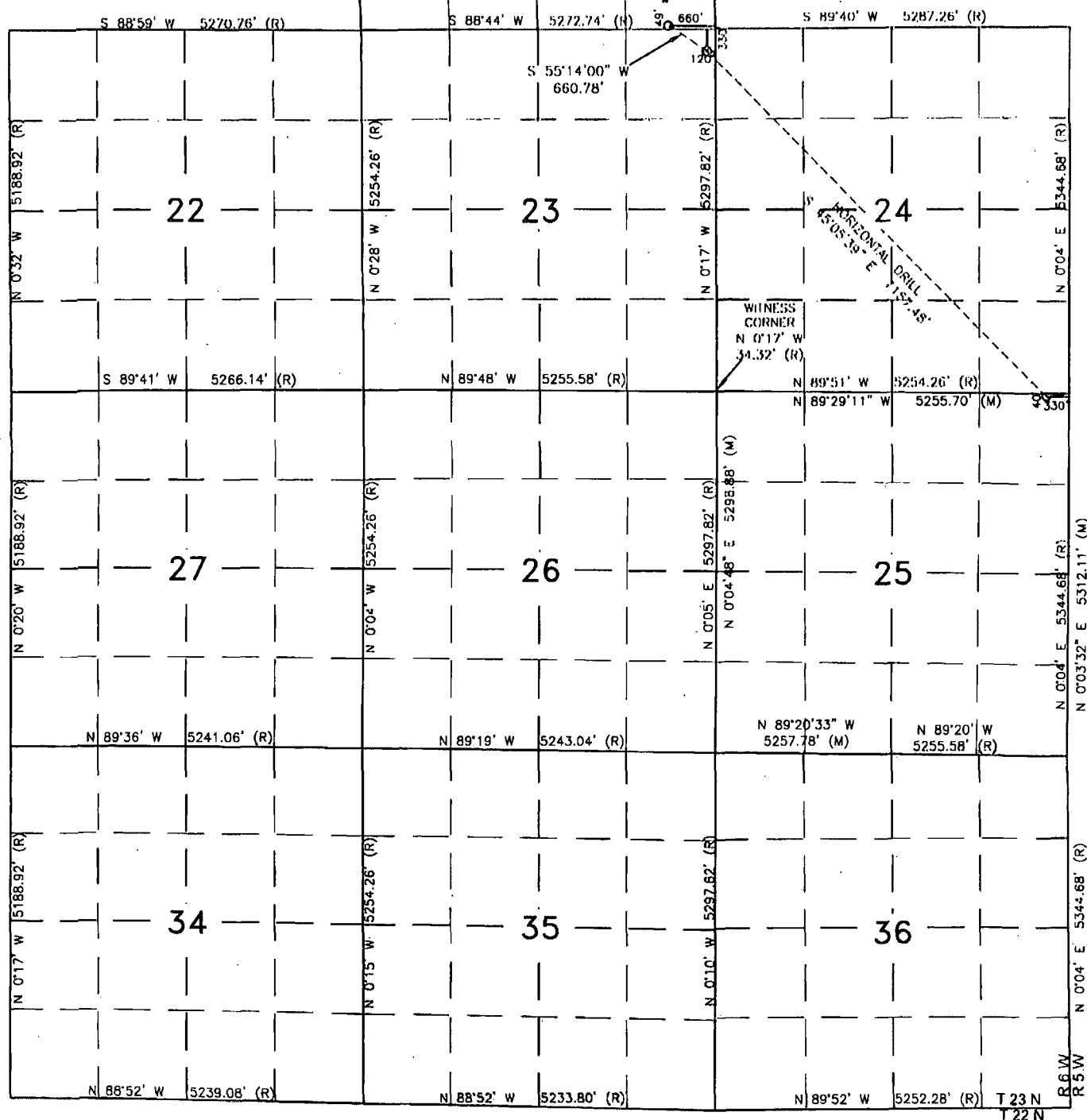
Submit one copy to appropriate
District Office

OIL CONSERVATION DIVISION

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

☐ AMENDED REPORT

ENCANA OIL & GAS (USA) INC.
GALLO CANYON UNIT P14-2306 #02H

**WELL FLAG**

LAT. 36.218070° N (NAD83)
LONG. 107.431190° W (NAD83)
LAT. 36.218056° N (NAD27)
LONG. 107.430586° W (NAD27)

ENTRY POINT

LAT. 36.217035° N (NAD83)
LONG. 107.429351° W (NAD83)
LAT. 36.217021° N (NAD27)
LONG. 107.428747° W (NAD27)

BOTTOM HOLE

LAT. 36.203155° N (NAD83)
LONG. 107.412181° W (NAD83)
LAT. 36.203141° N (NAD27)
LONG. 107.411578° W (NAD27)

GCU P14-2306 02H

SHL: SE/4 SE/4 Sec 14 T23N R6W, 49' FSL, 660' FEL

BHL: NE/4 NE/4 Sec 25 T23N R6W, 40' FNL, 330' FEL

Rio Arriba, 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
Nacimiento Fn.	0
Ojo Alamo Ss.	1,467
Kirtland Shale	1,648
Fruitland Coal	1,884
Pictured Cliffs Ss.	2,000
Lewis Shale	2,131
Cliffhouse Ss.	2,839
Menefee Fn.	3,551
Point Lookout Ss.	4,268
Mancos Shale	4,479
Mancos Silt	5,069
Gallup Fn.	5,307
Horizontal Target	5,558

The referenced surface elevation is 6856', KB 6872'

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

Substance	Formation	Depth (TVD) units = feet
Water/Gas	Fruitland Coal	1,884
Oil/Gas	Pictured Cliffs Ss.	2,000
Oil/Gas	Cliffhouse Ss.	2,839
Gas	Menefee Fn.	3,551
Oil/Gas	Point Lookout Ss.	4,268
Oil/Gas	Mancos Shale	4,479
Oil/Gas	Mancos Silt	5,069
Oil/Gas	Gallup Fn.	5,307

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

GCU P14-2306 02H

SHL: SE/4 SE/4 Sec 14 T23N R6W, 49' FSL, 660' FEL

BHL: NE/4 NE/4 Sec 25 T23N R6W, 40' FNL, 330' FEL

Rio Arriba, New Mexico

3. PRESSURE CONTROL

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

Proposed BOP and choke manifold arrangements are attached.

4. CASING & CEMENTING PROGRAM

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

- a) The proposed casing design is as follows:

Casing	Depth (MD)	Hole Size	Csg Size	Weight	Grade
Conductor	0'-60'	26"	16"	42.09#	
Surface	0'-500'	12 1/4"	9 5/8"	36#	J55, STC New
Intermediate	0'-5527'	8 3/4"	7"	26#	J55, LTC New
Production Liner	5427'-13067'	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

GCU P14-2306 02H**SHL: SE/4 SE/4 Sec 14 T23N R6W, 49' FSL, 660' FEL****BHL: NE/4 NE/4 Sec 25 T23N R6W, 40' FNL, 330' FEL****Rio Arriba, New Mexico**

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

b) The proposed cementing program is as follows

Casing	Depth (MD)	Cement Volume (sacks)	Cement Type & Yield	Designed TOC	Centralizers
Conductor	0'-60'	100 sks	Type I Neat 16 ppg	Surface	None
Surface	0'-500'	228 sks	Type III Cement + 1% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.2% bwoc FL-52A + 58.9% Fresh Water	Surface	1 per joint on bottom 3 joints
Intermediate	0'-5527'	100% open hole excess Stage 1 Lead: 515 sks Stage 1 Tail: 392 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	5427'- 13067'	50% OH excess Stage 1 Blend Total: 425sks	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 4900'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5490'/13067'	Gallup

GCU P14-2306 02H**SHL: SE/4 SE/4 Sec 14 T23N R6W, 49' FSL, 660' FEL****BHL: NE/4 NE/4 Sec 25 T23N R6W, 40' FNL, 330' FEL****Rio Arriba, New Mexico****6. DRILLING FLUIDS PROGRAM****a) Surface through Intermediate Casing Point:**

Hole Size (in)	Depth (TVD/MD)	Mud Type	Density (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
30"	0-60'/60'	Fresh Water	8.3-9.2	38-100	4-28
12 1/4"	0'-500'/500'	Fresh Water	8.3-10	60-70	NC
8 3/4"	500'/500'-5433'/5527'	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"	5433'/5527'- 5490'/13067'	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 +/- 2601 psi based on a 9.0 ppg at 5558' 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 November 5, 2015. It is anticipated that completion operations will begin within 30 days after the well has been drilled depending on fracture treatment schedules with various pumping service companies.

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

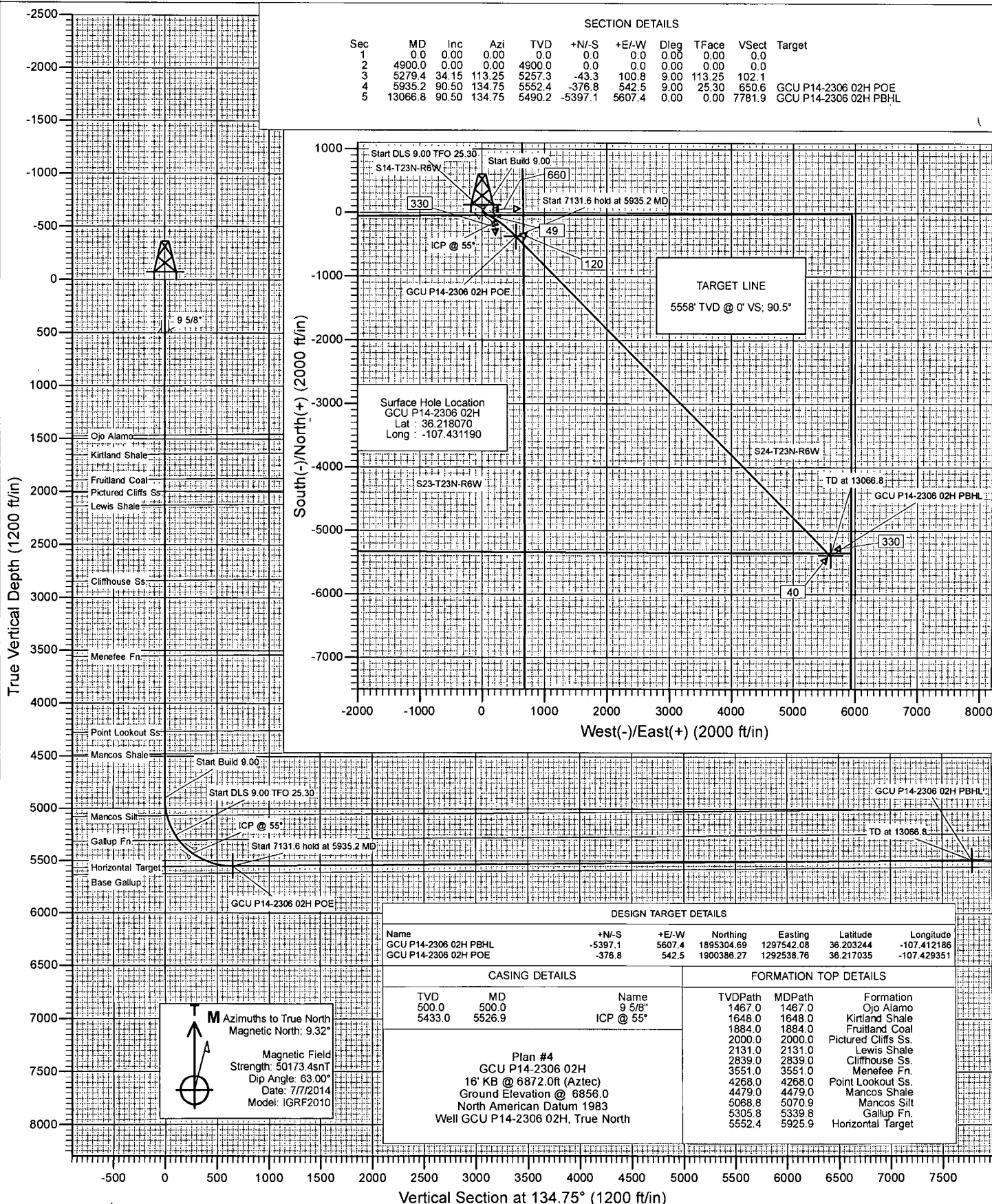
LOC: GCU P14-2306 02H County: Rio Arriba WELL: GCU P14-2306 02H			Encana Natural Gas WELL SUMMARY			ENG: 0 RIG: Unassigned GLE: 6856 RKBE: 6872			1-6-15
MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH			HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION
			TVD	MD					
Multi-Well pad take survey every stand and run anti-collision report prior to spud	None	San Jose Fn.	60	60'		26	16" 42.09# 100sx Type I Neat 16.0ppg cmt	Fresh wtr 8.3-9.2	Vertical <1°
		Nacimiento Fn. 9 5/8" Csg	0 500				9 5/8" 36ppf J55 STC 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	
Survey Every 60'-120', updating anticollision report after surveys. Stop operations and contact drilling engineer if separation factor approaches 1.5 Surveys every 30' through the curve	No OH logs	Ojo Alamo Ss.	1,467			8 3/4	7" 26ppf J55 LTC TOC @ surface (100% OH excess - 70% Lead 30% Tail) Stage 1 Total: 908sks Stage 1 Lead: 515 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: 392 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	1,648						
		Fruitland Coal	1,884						
		Pictured Cliffs Ss.	2,000						
		Lewis Shale	2,131						
	Mud logger onsite	Cliffhouse Ss.	2,839						
		Menefee Fn.	3,551						
		Point Lookout Ss.	4,268						
		Mancos Shale	4,479						
		KOP	4,900	4,900					
		Mancos Silt	5,069						
		Gallup Fn.	5,307						
		7" Csg	5,433	5,527'					
Surveys every stand to TD unless directed otherwise by Geologist MWD Gamma Directional	No OH Logs	Horizontal Target TD	5,558	13,067		6 1/8	100' overlap at liner top	WBM 8.3-10	Horz Inc/TVD 90.5 degdeg/5558ft TD = 13066.8 MD
		Base Gallup	5,490				7540' Drilled Lateral		
			5,626				4 1/2" 11.6ppf SB80 LTC TOC @ hanger (50% OH excess) Stage 1 Total: 425sks Stage 1 Blend: 425 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.		

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 4900', 8 3/4 inch holesize
- 5) Start curve at 10deg/100' build rate
- 6) Drill to csg point of 5527' MD
- 7) R&C 7" csg, circ cmt to surface
- 8) Land at ~90 deg, drill lateral to 13067' run 4 1/2 inch cemented liner



Project: Rio Arriba County, NM
 Site: S14-T23N-R6W
 Well: GCU P14-2306 02H
 Wellbore: HZ
 Design: Plan #4



Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well GCU P14-2306 02H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	16' KB @ 6872.0ft (Aztec)
Project:	Rio Arriba County, NM	MD Reference:	16' KB @ 6872.0ft (Aztec)
Site:	S14-T23N-R6W	North Reference:	True
Well:	GCU P14-2306 02H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #4		

Project	Rio Arriba County, NM		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Central Zone		

Site	S14-T23N-R6W				
Site Position:		Northing:	1,900,796.67 ft	Latitude:	36.218032
From:	Lat/Long	Easting:	1,288,664.11 ft	Longitude:	-107.442501
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-0.70 °

Well	GCU P14-2306 02H					
Well Position	+N/-S	0.0 ft	Northing:	1,900,769.66 ft	Latitude:	36.218070
	+E/-W	0.0 ft	Easting:	1,292,000.86 ft	Longitude:	-107.431190
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	6,856.0 ft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/7/2014	9.32	63.00	50,173

Design	Plan #4			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	134.75

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,279.4	34.15	113.25	5,257.3	-43.3	100.8	9.00	9.00	0.00	113.25	
5,935.2	90.50	134.75	5,552.4	-376.8	542.5	9.00	8.59	3.28	25.30	GCU P14-2306 02H F
13,066.8	90.50	134.75	5,490.2	-5,397.1	5,607.4	0.00	0.00	0.00	0.00	GCU P14-2306 02H F

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well GCU P14-2306 02H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	16' KB @ 6872.0ft (Aztec)
Project:	Rio Arriba County, NM	MD Reference:	16' KB @ 6872.0ft (Aztec)
Site:	S14-T23N-R6W	North Reference:	True
Well:	GCU P14-2306 02H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #4		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	9 5/8"
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	
1,467.0	0.00	0.00	1,467.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
1,648.0	0.00	0.00	1,648.0	0.0	0.0	0.0	0.00	0.00	Kirtland Shale
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	
1,884.0	0.00	0.00	1,884.0	0.0	0.0	0.0	0.00	0.00	Fruitland Coal
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	Pictured Cliffs Ss.
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	
2,131.0	0.00	0.00	2,131.0	0.0	0.0	0.0	0.00	0.00	Lewis Shale
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	
2,839.0	0.00	0.00	2,839.0	0.0	0.0	0.0	0.00	0.00	Cliffhouse Ss.
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	
3,551.0	0.00	0.00	3,551.0	0.0	0.0	0.0	0.00	0.00	Menefee Fn.
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	
4,268.0	0.00	0.00	4,268.0	0.0	0.0	0.0	0.00	0.00	Point Lookout Ss.
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	

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Project:	Rio Arriba County, NM	MD Reference:	16' KB @ 6872.0ft (Aztec)
Site:	S14-T23N-R6W	North Reference:	True
Well:	GCU P14-2306 02H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #4		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,479.0	0.00	0.00	4,479.0	0.0	0.0	0.0	0.00	0.00	Mancos Shale
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	Start Build 9.00
5,000.0	9.00	113.25	4,999.6	-3.1	7.2	7.3	9.00	9.00	
5,070.9	15.38	113.25	5,068.8	-9.0	20.9	21.2	9.00	9.00	Mancos Silt
5,100.0	18.00	113.25	5,096.7	-12.3	28.6	29.0	9.00	9.00	
5,200.0	27.00	113.25	5,189.0	-27.4	63.8	64.6	9.00	9.00	
5,279.4	34.15	113.25	5,257.3	-43.3	100.8	102.1	9.00	9.00	Start DLS 9.00 TFO 25.30
5,300.0	35.83	114.61	5,274.2	-48.1	111.6	113.2	9.00	8.17	
5,339.8	39.12	116.93	5,305.8	-58.7	133.4	136.1	9.00	8.27	Gallup Fn.
5,400.0	44.17	119.89	5,350.8	-77.7	168.6	174.4	9.00	8.39	
5,500.0	52.69	123.77	5,417.1	-117.3	232.0	247.3	9.00	8.52	
5,526.9	55.00	124.66	5,433.0	-129.5	249.9	268.6	9.00	8.59	ICP @ 55°
5,600.0	61.31	126.85	5,471.5	-165.8	300.3	329.9	9.00	8.63	
5,700.0	69.98	129.46	5,512.7	-222.1	371.8	420.4	9.00	8.68	
5,800.0	78.70	131.79	5,539.7	-284.7	444.7	516.3	9.00	8.71	
5,900.0	87.43	133.99	5,551.8	-352.2	517.4	615.4	9.00	8.73	
5,925.9	89.69	134.55	5,552.4	-370.3	536.0	641.3	9.00	8.74	Horizontal Target
5,935.2	90.50	134.75	5,552.4	-376.8	542.5	650.6	8.99	8.73	Start 7131.6 hold at 5935.2 MD
6,000.0	90.50	134.75	5,551.8	-422.4	588.6	715.4	0.00	0.00	
6,100.0	90.50	134.75	5,551.0	-492.8	659.6	815.4	0.00	0.00	
6,200.0	90.50	134.75	5,550.1	-563.2	730.6	915.4	0.00	0.00	
6,300.0	90.50	134.75	5,549.2	-633.6	801.6	1,015.4	0.00	0.00	
6,400.0	90.50	134.75	5,548.3	-704.0	872.6	1,115.4	0.00	0.00	
6,500.0	90.50	134.75	5,547.5	-774.4	943.7	1,215.4	0.00	0.00	
6,600.0	90.50	134.75	5,546.6	-844.8	1,014.7	1,315.4	0.00	0.00	
6,700.0	90.50	134.75	5,545.7	-915.2	1,085.7	1,415.4	0.00	0.00	
6,800.0	90.50	134.75	5,544.9	-985.6	1,156.7	1,515.4	0.00	0.00	
6,900.0	90.50	134.75	5,544.0	-1,056.0	1,227.7	1,615.4	0.00	0.00	
7,000.0	90.50	134.75	5,543.1	-1,126.4	1,298.8	1,715.3	0.00	0.00	
7,100.0	90.50	134.75	5,542.2	-1,196.8	1,369.8	1,815.3	0.00	0.00	
7,200.0	90.50	134.75	5,541.4	-1,267.2	1,440.8	1,915.3	0.00	0.00	
7,300.0	90.50	134.75	5,540.5	-1,337.6	1,511.8	2,015.3	0.00	0.00	
7,400.0	90.50	134.75	5,539.6	-1,408.0	1,582.8	2,115.3	0.00	0.00	
7,500.0	90.50	134.75	5,538.8	-1,478.4	1,653.9	2,215.3	0.00	0.00	
7,600.0	90.50	134.75	5,537.9	-1,548.7	1,724.9	2,315.3	0.00	0.00	
7,700.0	90.50	134.75	5,537.0	-1,619.1	1,795.9	2,415.3	0.00	0.00	
7,800.0	90.50	134.75	5,536.1	-1,689.5	1,866.9	2,515.3	0.00	0.00	
7,900.0	90.50	134.75	5,535.3	-1,759.9	1,937.9	2,615.3	0.00	0.00	
8,000.0	90.50	134.75	5,534.4	-1,830.3	2,009.0	2,715.3	0.00	0.00	
8,100.0	90.50	134.75	5,533.5	-1,900.7	2,080.0	2,815.3	0.00	0.00	
8,200.0	90.50	134.75	5,532.6	-1,971.1	2,151.0	2,915.3	0.00	0.00	
8,300.0	90.50	134.75	5,531.8	-2,041.5	2,222.0	3,015.3	0.00	0.00	
8,400.0	90.50	134.75	5,530.9	-2,111.9	2,293.0	3,115.3	0.00	0.00	
8,500.0	90.50	134.75	5,530.0	-2,182.3	2,364.1	3,215.3	0.00	0.00	
8,600.0	90.50	134.75	5,529.2	-2,252.7	2,435.1	3,315.3	0.00	0.00	
8,700.0	90.50	134.75	5,528.3	-2,323.1	2,506.1	3,415.3	0.00	0.00	
8,800.0	90.50	134.75	5,527.4	-2,393.5	2,577.1	3,515.3	0.00	0.00	
8,900.0	90.50	134.75	5,526.5	-2,463.9	2,648.1	3,615.3	0.00	0.00	

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Well:	GCU P14-2306 02H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #4		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,000.0	90.50	134.75	5,525.7	-2,534.3	2,719.2	3,715.3	0.00	0.00	
9,100.0	90.50	134.75	5,524.8	-2,604.7	2,790.2	3,815.3	0.00	0.00	
9,200.0	90.50	134.75	5,523.9	-2,675.1	2,861.2	3,915.3	0.00	0.00	
9,300.0	90.50	134.75	5,523.1	-2,745.5	2,932.2	4,015.3	0.00	0.00	
9,400.0	90.50	134.75	5,522.2	-2,815.8	3,003.2	4,115.3	0.00	0.00	
9,500.0	90.50	134.75	5,521.3	-2,886.2	3,074.3	4,215.3	0.00	0.00	
9,600.0	90.50	134.75	5,520.4	-2,956.6	3,145.3	4,315.2	0.00	0.00	
9,700.0	90.50	134.75	5,519.6	-3,027.0	3,216.3	4,415.2	0.00	0.00	
9,800.0	90.50	134.75	5,518.7	-3,097.4	3,287.3	4,515.2	0.00	0.00	
9,900.0	90.50	134.75	5,517.8	-3,167.8	3,358.3	4,615.2	0.00	0.00	
10,000.0	90.50	134.75	5,516.9	-3,238.2	3,429.4	4,715.2	0.00	0.00	
10,100.0	90.50	134.75	5,516.1	-3,308.6	3,500.4	4,815.2	0.00	0.00	
10,200.0	90.50	134.75	5,515.2	-3,379.0	3,571.4	4,915.2	0.00	0.00	
10,300.0	90.50	134.75	5,514.3	-3,449.4	3,642.4	5,015.2	0.00	0.00	
10,400.0	90.50	134.75	5,513.5	-3,519.8	3,713.4	5,115.2	0.00	0.00	
10,500.0	90.50	134.75	5,512.6	-3,590.2	3,784.5	5,215.2	0.00	0.00	
10,600.0	90.50	134.75	5,511.7	-3,660.6	3,855.5	5,315.2	0.00	0.00	
10,700.0	90.50	134.75	5,510.8	-3,731.0	3,926.5	5,415.2	0.00	0.00	
10,800.0	90.50	134.75	5,510.0	-3,801.4	3,997.5	5,515.2	0.00	0.00	
10,900.0	90.50	134.75	5,509.1	-3,871.8	4,068.5	5,615.2	0.00	0.00	
11,000.0	90.50	134.75	5,508.2	-3,942.2	4,139.6	5,715.2	0.00	0.00	
11,100.0	90.50	134.75	5,507.4	-4,012.6	4,210.6	5,815.2	0.00	0.00	
11,200.0	90.50	134.75	5,506.5	-4,083.0	4,281.6	5,915.2	0.00	0.00	
11,300.0	90.50	134.75	5,505.6	-4,153.3	4,352.6	6,015.2	0.00	0.00	
11,400.0	90.50	134.75	5,504.7	-4,223.7	4,423.6	6,115.2	0.00	0.00	
11,500.0	90.50	134.75	5,503.9	-4,294.1	4,494.7	6,215.2	0.00	0.00	
11,600.0	90.50	134.75	5,503.0	-4,364.5	4,565.7	6,315.2	0.00	0.00	
11,700.0	90.50	134.75	5,502.1	-4,434.9	4,636.7	6,415.2	0.00	0.00	
11,800.0	90.50	134.75	5,501.2	-4,505.3	4,707.7	6,515.2	0.00	0.00	
11,900.0	90.50	134.75	5,500.4	-4,575.7	4,778.7	6,615.2	0.00	0.00	
12,000.0	90.50	134.75	5,499.5	-4,646.1	4,849.8	6,715.2	0.00	0.00	
12,100.0	90.50	134.75	5,498.6	-4,716.5	4,920.8	6,815.2	0.00	0.00	
12,200.0	90.50	134.75	5,497.8	-4,786.9	4,991.8	6,915.2	0.00	0.00	
12,300.0	90.50	134.75	5,496.9	-4,857.3	5,062.8	7,015.1	0.00	0.00	
12,400.0	90.50	134.75	5,496.0	-4,927.7	5,133.8	7,115.1	0.00	0.00	
12,500.0	90.50	134.75	5,495.1	-4,998.1	5,204.9	7,215.1	0.00	0.00	
12,600.0	90.50	134.75	5,494.3	-5,068.5	5,275.9	7,315.1	0.00	0.00	
12,700.0	90.50	134.75	5,493.4	-5,138.9	5,346.9	7,415.1	0.00	0.00	
12,800.0	90.50	134.75	5,492.5	-5,209.3	5,417.9	7,515.1	0.00	0.00	
12,900.0	90.50	134.75	5,491.7	-5,279.7	5,488.9	7,615.1	0.00	0.00	
13,000.0	90.50	134.75	5,490.8	-5,350.1	5,560.0	7,715.1	0.00	0.00	
13,066.8	90.50	134.75	5,490.2	-5,397.1	5,607.4	7,781.9	0.00	0.00	TD at 13066.8

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Well:	GCU P14-2306 02H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #4		

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
GCU P14-2306 02H POI	0.00	0.00	5,552.4	-376.8	542.5	1,900,386.27	1,292,538.76	36.217035	-107.429351
- plan hits target center									
- Point									
GCU P14-2306 02H PBI	0.00	0.00	5,490.2	-5,397.1	5,607.4	1,895,304.69	1,297,542.08	36.203244	-107.412186
- plan hits target center									
- Point									

Casing Points				
Measured Depth	Vertical Depth		Casing Diameter	Hole Diameter
(ft)	(ft)	Name	(in)	(in)
500.0	500.0	9 5/8"	9.625	12.250
5,526.9	5,433.0	ICP @ 55°	5.500	6.000

Formations					
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(ft)	(ft)			(°)	(°)
1,467.0	1,467.0	Ojo Alamo		-0.50	134.75
1,648.0	1,648.0	Kirtland Shale		-0.50	134.75
1,884.0	1,884.0	Fruitland Coal		-0.50	134.75
2,000.0	2,000.0	Pictured Cliffs Ss.		-0.50	134.75
2,131.0	2,131.0	Lewis Shale		-0.50	134.75
2,839.0	2,839.0	Cliffhouse Ss.		-0.50	134.75
3,551.0	3,551.0	Menefee Fn.		-0.50	134.75
4,268.0	4,268.0	Point Lookout Ss.		-0.50	134.75
4,479.0	4,479.0	Mancos Shale		-0.50	134.75
5,070.9	5,069.0	Mancos Silt		-0.50	134.75
5,339.8	5,307.0	Gallup Fn.		-0.50	134.75
5,925.9	5,558.0	Horizontal Target		-0.50	134.75

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		
(ft)	(ft)	+N/-S	+E/-W	Comment
(ft)	(ft)	(ft)	(ft)	
4,900.0	4,900.0	0.0	0.0	Start Build 9.00
5,279.4	5,257.3	-43.3	100.8	Start DLS 9.00 TFO 25.30
5,935.2	5,552.4	-376.8	542.5	Start 7131.6 hold at 5935.2 MD
13,066.8	5,490.2	-5,397.1	5,607.4	TD at 13066.8