

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 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

Form C-101
Revised July 18, 2013

Energy Minerals and Natural Resources
OIL CONS. DIV DIST. 3
Oil Conservation Division

☐ AMENDED REPORT

APR 06 2015

1220 South St. Francis Dr.

Please Note this is for the Sidekick

Santa Fe, NM 87505

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

Operator Name and Address Encana Oil & Gas (USA) Inc. 370 17 th Street, Suite 1700 Denver, CO 80202		OGRID Number 282327
Property Code 314742		API Number 36-045-35682
Property Name Lybrook E15-2208		Well No. 01H

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
E	15	22N	8W		1906'	North	401'	West	San Juan

8. Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
D	16	22N	8W		800'	North	330'	West	San Juan

9. Pool Information

Pool Name Basin Manos Gas Pool	Pool Code 97232
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SEE ATTACHED NMOCD CONDITIONS OF APPROVAL		Additional Well Information	
11. Work Type N	12. Cable/Rotary R	13. Lease Type S	14. Ground Level Elevation 6658.6
15. Multiple N/A	16. Proposed Depth 4363' TVD, 10034' MD	17. Formation Basin Manos	18. Contractor Aztec
19. Spud Date 09/25/2015			
Depth to Ground water Unknown		Distance from nearest fresh water well Over 3,455'	
		Distance to nearest surface water Over 7,495'	

☒ We will be using a closed-loop system in lieu of lined pits

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Conductor	26"	16	42.09#	60'	100	Surface
Surface	12 1/4"	9 5/8"	36#	300'	276	Surface
Intermediate	8 3/4"	7"	26#	4153'	949	Surface
Production Liner	6 1/8"	4 1/2"	11.6#	4053'-10034'	341	4053'

Casing/Cement Program: Additional Comments

N/A

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Annular	3,000	1,500	TBD
Double RAM	3,000	3,000	TBD
Rotating Head	3,000	1,500	TBD

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief.

I further certify that I have complied with 19.15.14.9 (A) NMAC ☐ and/or 19.15.14.9 (B) NMAC ☒, if applicable.

Signature:

Printed name: Katie Wegner

Title: Regulatory Analyst

E-mail Address: Kathryn.Wegner@encana.com

Date: 04/02/2015

Phone: 720-876-3533

OIL CONSERVATION DIVISION

Approved By:

Title: SUPERVISOR DISTRICT #3

Approved Date: 4-9-2015

Expiration Date:

Conditions of Approval Attached

KC

20

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State of New Mexico

Form C-101
Revised July 18, 2013

OIL CONS. DIV DISTRICT 2 Energy Minerals and Natural Resources

Oil Conservation Division

1220 South St. Francis Dr.

Santa Fe, NM 87505

☐ AMENDED REPORT

Please Note this is for the
Motherbore

APR 06 2015

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

1. Operator Name and Address Encana Oil & Gas (USA) Inc. 370 17th Street, Suite 1700 Denver, CO 80202		2. OGRID Number 282327
3. Property Code 314742		4. Property Name Lybrook E15-2208
5. API Number 30-045-35682		6. Well No. 01H

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
E	15	22N	8W		1906'	North	401'	West	San Juan

8. Proposed Bottom Hole Location Pilot Hole

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
E	15	22N	8W		1906'	North	401'	West	San Juan

9. Pool Information

SEE ATTACHED NMOCD	Pool Name Basin Manos Gas Pool	Pool Code 97232
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CONDITIONS OF APPROVAL Additional Well Information

11. Work Type N	12. Well Type G	13. Cable/Rotary R	14. Lease Type S	15. Ground Level Elevation 6658.6
16. Multiple N/A	17. Proposed Depth 4673' TVD, 4673' MD	18. Formation Gallup	19. Contractor Aztec	20. Spud Date 09/25/2015
Depth to Ground water Unknown		Distance from nearest fresh water well Over 3,455'		Distance to nearest surface water Over 7,495'

☒ We will be using a closed-loop system in lieu of lined pits

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Conductor	26"	16	42.09#	60'	100	Surface
Surface	12 1/4"	9 5/8"	36#	300'	276	Surface
Intermediate	8 3/4"	7"	26#	4153'	949	Surface
Production Liner	6 1/8"					

Casing/Cement Program: Additional Comments

Motherbore is vertical pilot hole. Will drillout of 7" CSG with 6 1/8" BIT to 4673' in the Gallup formation. After running open hole logs, will plugback with cement and kickoff for horizontal lateral in the Gallup formation. Will use gelled fresh water mud system in vertical pilot.

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Annular	3,000	1,500	TBD
Double RAM	3,000	3,000	TBD
Rotating Head	3,000	1,500	TBD

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief.

I further certify that I have complied with 19.15.14.9 (A) NMAC ☐ and/or 19.15.14.9 (B) NMAC ☒ if applicable.

Signature:

Printed name: Katie Wegner

Title: Regulatory Analyst

E-mail Address: Kathryn.Wegner@encana.com

Date: 03/23/2015

Phone: 720-876-3533

OIL CONSERVATION DIVISION

Approved By:

Title:

Approved Date:

Expiration Date:

Conditions of Approval Attached: *

Pilot Hole Info.

DISTRICT I
1825 N. French Dr., Hobbs, N.M. 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

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Phone: (505) 476-3480 Fax: (505) 476-3482

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

Submit one copy to appropriate
District Office

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-045-35682	² Pool Code 97232	³ Pool Name BASIN MANCOS
⁴ Property Code 314742	⁵ Property Name LYBROOK E15-2208	⁶ Well Number 01H
⁷ OGRID No. 282327	⁸ Operator Name ENCANA OIL & GAS (USA) INC.	⁹ Elevation 6658.6'

¹⁰ Surface Location

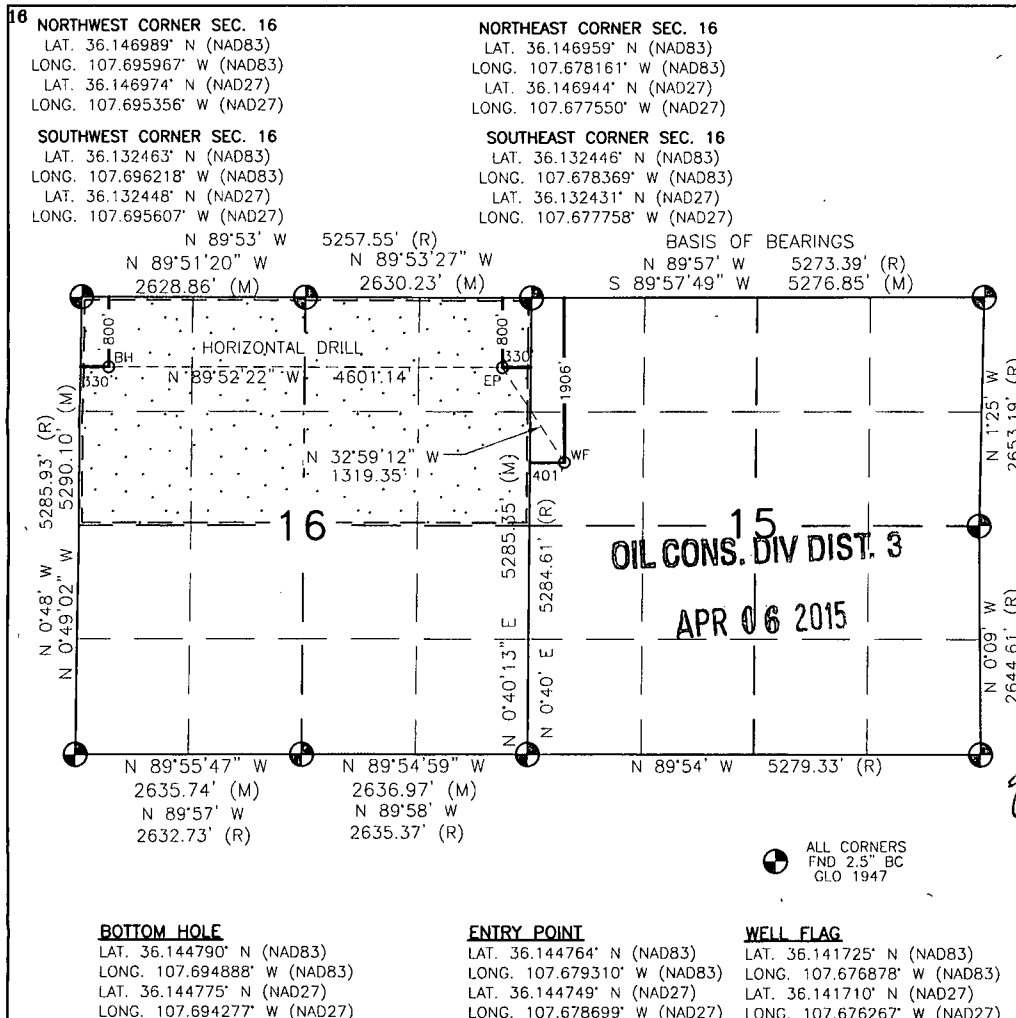
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	15	22N	8W		1906'	NORTH	401'	WEST	SAN JUAN

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	16	22N	8W		800'	NORTH	330'	WEST	SAN JUAN

¹² Dedicated Acres 320.00 ACRES N/2 SEC. 16	¹³ Joint or Infill PROJECT AREA	¹⁴ Consolidation Code	¹⁵ Order No.
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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



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 4/2/15
Signature Date

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.

MARCH 18, 2014
Date of Survey

Signature and Seal of Professional Surveyor:
David R. Russell

DAVID R. RUSSELL
REGISTERED PROFESSIONAL LAND SURVEYOR
10201

Certificate Number 10201

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook E15-2208 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	16' KB @ 6675.0usft
Project:	San Juan County, NM	MD Reference:	16' KB @ 6675.0usft
Site:	S15-T22N-R8W	North Reference:	True
Well:	Lybrook E15-2208 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
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:	S15-T22N-R8W		
Site Position:		Northing:	1,870,921.49 usft
From:	Lat/Long	Easting:	2,769,286.25 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"
		Grid Convergence:	0.09 °

Well:	Lybrook E15-2208 01H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Ground Level:	6,659.0 usft

Wellbore:	HZ		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	9/11/2014	9.39
			Dip Angle
			(°)
			Field Strength
			(nT)
			50,081

Design:	Plan #1		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			270.12

Plan Sections											
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target	
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)		
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)			
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00		
3,465.0	0.00	0.00	3,465.0	0.0	0.0	0.00	0.00	0.00	0.00		
4,309.9	67.59	359.87	4,127.1	443.2	-1.0	8.00	8.00	0.00	359.87		
5,434.5	90.40	270.12	4,394.9	1,106.3	-718.0	8.00	2.03	-7.98	-89.53	Lybrook E15-2208 01	
10,034.0	90.40	270.12	4,362.8	1,116.2	-5,317.4	0.00	0.00	0.00	0.00	Lybrook E15-2208 01	

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook E15-2208 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	16' KB @ 6675.0usft
Project:	San Juan County, NM	MD Reference:	16' KB @ 6675.0usft
Site:	S15-T22N-R8W	North Reference:	True
Well:	Lybrook E15-2208 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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	
110.0	0.00	0.00	110.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo Ss.
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
282.0	0.00	0.00	282.0	0.0	0.0	0.0	0.00	0.00	Kirtland Shale
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	
665.0	0.00	0.00	665.0	0.0	0.0	0.0	0.00	0.00	Fruitland Coal
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	
805.0	0.00	0.00	805.0	0.0	0.0	0.0	0.00	0.00	Pictured Cliffs Ss.
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
934.0	0.00	0.00	934.0	0.0	0.0	0.0	0.00	0.00	Lewis Shale
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	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	
1,542.0	0.00	0.00	1,542.0	0.0	0.0	0.0	0.00	0.00	Cliffhouse Ss.
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
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	
1,900.0	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	
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	
2,215.0	0.00	0.00	2,215.0	0.0	0.0	0.0	0.00	0.00	Menefee Fn.
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	
2,900.0	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	
3,161.0	0.00	0.00	3,161.0	0.0	0.0	0.0	0.00	0.00	Point Lookout Ss.
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	
3,311.0	0.00	0.00	3,311.0	0.0	0.0	0.0	0.00	0.00	Mancos Shale
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	
3,465.0	0.00	0.00	3,465.0	0.0	0.0	0.0	0.00	0.00	KOP @ 3465'
3,500.0	2.80	359.87	3,500.0	0.9	0.0	0.0	8.00	8.00	
3,600.0	10.80	359.87	3,599.2	12.7	0.0	0.1	8.00	8.00	
3,700.0	18.80	359.87	3,695.8	38.2	-0.1	0.2	8.00	8.00	
3,800.0	26.80	359.87	3,787.9	76.9	-0.2	0.3	8.00	8.00	
3,881.0	33.28	359.87	3,858.0	117.5	-0.3	0.5	8.00	8.00	Mancos Silt
3,900.0	34.80	359.87	3,873.7	128.1	-0.3	0.6	8.00	8.00	
4,000.0	42.80	359.87	3,951.6	190.7	-0.4	0.8	8.00	8.00	

Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: EnCana Oil & Gas (USA) Inc
 Project: San Juan County, NM
 Site: S15-T22N-R8W
 Well: Lybrook E15-2208 01H
 Wellbore: HZ
 Design: Plan #1

Local Co-ordinate Reference: Well Lybrook E15-2208 01H
 TVD Reference: 16' KB @ 6675.0usft
 MD Reference: 16' KB @ 6675.0usft
 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
4,100.0	50.80	359.87	4,020.0	263.5	-0.6	1.2	8.00	8.00	
4,152.5	55.00	359.87	4,051.7	305.4	-0.7	1.3	8.00	8.00	7" ICP @ 55°
4,200.0	58.80	359.87	4,077.6	345.2	-0.8	1.5	8.00	8.00	
4,286.8	65.74	359.87	4,118.0	422.0	-1.0	1.8	8.00	8.00	Gallup Fn.
4,300.0	66.80	359.87	4,123.3	434.0	-1.0	1.9	8.00	8.00	
4,309.9	67.59	359.87	4,127.1	443.2	-1.0	1.9	8.00	8.00	Start build/turn @ 4309' MD
4,400.0	67.84	352.09	4,161.3	526.2	-6.9	8.0	8.00	0.27	
4,500.0	68.54	343.51	4,198.6	616.9	-26.5	27.8	8.00	0.70	
4,600.0	69.67	335.04	4,234.3	704.1	-59.5	61.0	8.00	1.13	
4,700.0	71.20	326.71	4,267.8	786.3	-105.4	107.0	8.00	1.53	
4,800.0	73.10	318.55	4,298.5	861.9	-163.1	164.9	8.00	1.90	
4,900.0	75.31	310.56	4,325.8	929.3	-231.6	233.6	8.00	2.21	
5,000.0	77.79	302.74	4,349.1	987.3	-309.6	311.7	8.00	2.48	
5,100.0	80.48	295.08	4,367.9	1,034.7	-395.5	397.7	8.00	2.69	
5,200.0	83.34	287.53	4,382.0	1,070.6	-487.7	489.9	8.00	2.86	
5,300.0	86.32	280.08	4,391.0	1,094.3	-584.3	586.6	8.00	2.97	
5,400.0	89.35	272.67	4,394.8	1,105.4	-683.6	685.9	8.00	3.03	
5,434.5	90.40	270.12	4,394.9	1,106.3	-718.0	720.4	8.00	3.05	LP @ 4394' TVD; 90.4° - Lybrook E15-2208 01H
5,500.0	90.40	270.12	4,394.4	1,106.4	-783.5	785.9	0.00	0.00	
5,600.0	90.40	270.12	4,393.7	1,106.6	-883.5	885.9	0.00	0.00	
5,700.0	90.40	270.12	4,393.0	1,106.8	-983.5	985.9	0.00	0.00	
5,800.0	90.40	270.12	4,392.3	1,107.0	-1,083.5	1,085.9	0.00	0.00	
5,900.0	90.40	270.12	4,391.7	1,107.3	-1,183.5	1,185.8	0.00	0.00	
6,000.0	90.40	270.12	4,391.0	1,107.5	-1,283.5	1,285.8	0.00	0.00	
6,100.0	90.40	270.12	4,390.3	1,107.7	-1,383.5	1,385.8	0.00	0.00	
6,200.0	90.40	270.12	4,389.6	1,107.9	-1,483.5	1,485.8	0.00	0.00	
6,300.0	90.40	270.12	4,388.9	1,108.1	-1,583.5	1,585.8	0.00	0.00	
6,400.0	90.40	270.12	4,388.2	1,108.3	-1,683.5	1,685.8	0.00	0.00	
6,500.0	90.40	270.12	4,387.5	1,108.6	-1,783.5	1,785.8	0.00	0.00	
6,600.0	90.40	270.12	4,386.8	1,108.8	-1,883.5	1,885.8	0.00	0.00	
6,700.0	90.40	270.12	4,386.1	1,109.0	-1,983.5	1,985.8	0.00	0.00	
6,800.0	90.40	270.12	4,385.4	1,109.2	-2,083.5	2,085.8	0.00	0.00	
6,900.0	90.40	270.12	4,384.7	1,109.4	-2,183.5	2,185.8	0.00	0.00	
7,000.0	90.40	270.12	4,384.0	1,109.6	-2,283.5	2,285.8	0.00	0.00	
7,100.0	90.40	270.12	4,383.3	1,109.9	-2,383.5	2,385.8	0.00	0.00	
7,200.0	90.40	270.12	4,382.6	1,110.1	-2,483.5	2,485.8	0.00	0.00	
7,300.0	90.40	270.12	4,381.9	1,110.3	-2,583.5	2,585.8	0.00	0.00	
7,400.0	90.40	270.12	4,381.2	1,110.5	-2,683.5	2,685.8	0.00	0.00	
7,500.0	90.40	270.12	4,380.5	1,110.7	-2,783.5	2,785.8	0.00	0.00	
7,600.0	90.40	270.12	4,379.8	1,110.9	-2,883.5	2,885.8	0.00	0.00	
7,700.0	90.40	270.12	4,379.1	1,111.2	-2,983.5	2,985.8	0.00	0.00	
7,800.0	90.40	270.12	4,378.4	1,111.4	-3,083.5	3,085.8	0.00	0.00	
7,900.0	90.40	270.12	4,377.7	1,111.6	-3,183.5	3,185.8	0.00	0.00	
8,000.0	90.40	270.12	4,377.0	1,111.8	-3,283.5	3,285.8	0.00	0.00	
8,100.0	90.40	270.12	4,376.3	1,112.0	-3,383.5	3,385.8	0.00	0.00	
8,200.0	90.40	270.12	4,375.6	1,112.2	-3,483.5	3,485.8	0.00	0.00	
8,300.0	90.40	270.12	4,374.9	1,112.5	-3,583.5	3,585.8	0.00	0.00	
8,400.0	90.40	270.12	4,374.2	1,112.7	-3,683.5	3,685.8	0.00	0.00	
8,500.0	90.40	270.12	4,373.5	1,112.9	-3,783.5	3,785.8	0.00	0.00	
8,600.0	90.40	270.12	4,372.8	1,113.1	-3,883.5	3,885.8	0.00	0.00	
8,700.0	90.40	270.12	4,372.1	1,113.3	-3,983.5	3,985.8	0.00	0.00	
8,800.0	90.40	270.12	4,371.4	1,113.5	-4,083.4	4,085.8	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: S15-T22N-R8W
 Well: Lybrook E15-2208 01H
 Wellbore: HZ
 Design: Plan #1

Local Co-ordinate Reference: Well Lybrook E15-2208 01H
 TVD Reference: 16' KB @ 6675.0usft
 MD Reference: 16' KB @ 6675.0usft
 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
8,900.0	90.40	270.12	4,370.7	1,113.8	-4,183.4	4,185.8	0.00	0.00	
9,000.0	90.40	270.12	4,370.0	1,114.0	-4,283.4	4,285.8	0.00	0.00	
9,100.0	90.40	270.12	4,369.3	1,114.2	-4,383.4	4,385.8	0.00	0.00	
9,200.0	90.40	270.12	4,368.6	1,114.4	-4,483.4	4,485.8	0.00	0.00	
9,300.0	90.40	270.12	4,367.9	1,114.6	-4,583.4	4,585.8	0.00	0.00	
9,400.0	90.40	270.12	4,367.2	1,114.8	-4,683.4	4,685.8	0.00	0.00	
9,500.0	90.40	270.12	4,366.5	1,115.1	-4,783.4	4,785.8	0.00	0.00	
9,600.0	90.40	270.12	4,365.8	1,115.3	-4,883.4	4,885.8	0.00	0.00	
9,700.0	90.40	270.12	4,365.1	1,115.5	-4,983.4	4,985.7	0.00	0.00	
9,800.0	90.40	270.12	4,364.4	1,115.7	-5,083.4	5,085.7	0.00	0.00	
9,900.0	90.40	270.12	4,363.7	1,115.9	-5,183.4	5,185.7	0.00	0.00	
10,000.0	90.40	270.12	4,363.0	1,116.1	-5,283.4	5,285.7	0.00	0.00	
10,034.0	90.40	270.12	4,362.8	1,116.2	-5,317.4	5,319.7	0.00	0.00	TD at 10034.0 - Lybrook E15-2208 01H PBHL

Targets

Target Name	hit/miss target	Dip Angle (°)	Dip Dir (°)	TVD (usft)	+N-S (usft)	+E-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Lybrook E15-2208 01H f	- plan hits target center - Point	0.00	0.00	4,394.9	1,106.3	-718.0	1,872,026.59	2,768,566.43	36.144764	-107.679310
Lybrook E15-2208 01H f	- plan hits target center - Point	0.00	0.00	4,362.8	1,116.2	-5,317.4	1,872,029.13	2,763,967.08	36.144790	-107.694888

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
500.0	500.0	9 5/8"	0	0
4,152.5	4,051.7	7" ICP @ 55°	0	0

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook E15-2208 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	16' KB @ 6675.0usft
Project:	San Juan County, NM	MD Reference:	16' KB @ 6675.0usft
Site:	S15-T22N-R8W	North Reference:	True
Well:	Lybrook E15-2208 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
110.0	110.0	Ojo Alamo Ss.		-0.40	270.12	
282.0	282.0	Kirtland Shale		-0.40	270.12	
665.0	665.0	Fruitland Coal		-0.40	270.12	
805.0	805.0	Pictured Cliffs Ss.		-0.40	270.12	
934.0	934.0	Lewis Shale		-0.40	270.12	
1,542.0	1,542.0	Cliffhouse Ss.		-0.40	270.12	
2,215.0	2,215.0	Menefee Fn.		-0.40	270.12	
3,161.0	3,161.0	Point Lookout Ss.		-0.40	270.12	
3,311.0	3,311.0	Mancos Shale		-0.40	270.12	
3,881.0	3,858.0	Mancos Silt		-0.40	270.12	
4,286.8	4,118.0	Gallup Fn.		-0.40	270.12	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
3,465.0	3,465.0	0.0	0.0	KOP @ 3465'	
4,309.9	4,127.1	443.2	-1.0	Start build/turn @ 4309' MD	
5,434.5	4,394.9	1,106.3	-718.0	LP @ 4394' TVD; 90.4°	
10,034.0	4,362.8	1,116.2	-5,317.4	TD at 10034.0	

EnCana Oil & Gas (USA) Inc

San Juan County, NM

S15-T22N-R8W

Lybrook E15-2208 01H

HZ

Plan #1

Anticollision Report

11 September, 2014

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook E15-2208 01H
Project:	San Juan County, NM	TVD Reference:	16' KB @ 6675.0usft
Reference Site:	S15-T22N-R8W	MD Reference:	16' KB @ 6675.0usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	Lybrook E15-2208 01H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at:	2.00 sigma
Reference Wellbore:	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
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 1,141.9usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date	9/11/2014
From (usft)	To (usft)	Survey (Wellbore)
0.0	10,034.0	Plan #1 (HZ)
	Tool Name	Description
	Geolink MWD	Geolink MWD

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						
S15-T22N-R8W						
Lybrook E15-2208 02H - HZ - Plan #1	3,400.0	3,400.0	30.1	18.2	2.545	CC, ES
Lybrook E15-2208 02H - HZ - Plan #1	3,500.0	3,500.0	30.9	18.8	2.544	SF

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
 Project: San Juan County, NM
 Reference Site: S15-T22N-R8W
 Site Error: 0.0usft
 Reference Well: Lybrook E15-2208 01H
 Well Error: 0.0usft
 Reference Wellbore: HZ
 Reference Design: Plan #1

Local Co-ordinate Reference: Well Lybrook E15-2208 01H
 TVD Reference: 16' KB @ 6675.0usft
 MD Reference: 16' KB @ 6675.0usft
 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 S15-T22N-R8W - Lybrook E15-2208 02H - HZ - Plan #1													Offset Site Error: 0.0 usft
Survey Program: 0-Geolink MWD													Offset Well Error: 0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	173.23	-29.8	3.5	30.1				
100.0	100.0	100.0	100.0	0.1	0.1	173.23	-29.8	3.5	30.1	29.8	0.29	102.515	
200.0	200.0	200.0	200.0	0.3	0.3	173.23	-29.8	3.5	30.1	29.4	0.64	46.800	
300.0	300.0	300.0	300.0	0.5	0.5	173.23	-29.8	3.5	30.1	29.1	0.99	30.321	
400.0	400.0	400.0	400.0	0.7	0.7	173.23	-29.8	3.5	30.1	28.7	1.34	22.425	
500.0	500.0	500.0	500.0	0.8	0.8	173.23	-29.8	3.5	30.1	28.4	1.69	17.792	
600.0	600.0	600.0	600.0	1.0	1.0	173.23	-29.8	3.5	30.1	28.0	2.04	14.745	
700.0	700.0	700.0	700.0	1.2	1.2	173.23	-29.8	3.5	30.1	27.7	2.39	12.590	
800.0	800.0	800.0	800.0	1.4	1.4	173.23	-29.8	3.5	30.1	27.3	2.74	10.984	
900.0	900.0	900.0	900.0	1.5	1.5	173.23	-29.8	3.5	30.1	27.0	3.09	9.741	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	173.23	-29.8	3.5	30.1	26.6	3.43	8.751	
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	173.23	-29.8	3.5	30.1	26.3	3.78	7.944	
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	173.23	-29.8	3.5	30.1	25.9	4.13	7.273	
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	173.23	-29.8	3.5	30.1	25.6	4.48	6.707	
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	173.23	-29.8	3.5	30.1	25.2	4.83	6.222	
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	173.23	-29.8	3.5	30.1	24.9	5.18	5.803	
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	173.23	-29.8	3.5	30.1	24.5	5.53	5.436	
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	173.23	-29.8	3.5	30.1	24.2	5.88	5.114	
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	173.23	-29.8	3.5	30.1	23.8	6.23	4.827	
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	173.23	-29.8	3.5	30.1	23.5	6.58	4.571	
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	173.23	-29.8	3.5	30.1	23.1	6.93	4.340	
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	173.23	-29.8	3.5	30.1	22.8	7.27	4.132	
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	173.23	-29.8	3.5	30.1	22.4	7.62	3.943	
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	173.23	-29.8	3.5	30.1	22.1	7.97	3.770	
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	173.23	-29.8	3.5	30.1	21.7	8.32	3.612	
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	173.23	-29.8	3.5	30.1	21.4	8.67	3.467	
2,600.0	2,600.0	2,600.0	2,600.0	4.5	4.5	173.23	-29.8	3.5	30.1	21.0	9.02	3.333	
2,700.0	2,700.0	2,700.0	2,700.0	4.7	4.7	173.23	-29.8	3.5	30.1	20.7	9.37	3.208	
2,800.0	2,800.0	2,800.0	2,800.0	4.9	4.9	173.23	-29.8	3.5	30.1	20.3	9.72	3.093	
2,900.0	2,900.0	2,900.0	2,900.0	5.0	5.0	173.23	-29.8	3.5	30.1	20.0	10.07	2.986	
3,000.0	3,000.0	3,000.0	3,000.0	5.2	5.2	173.23	-29.8	3.5	30.1	19.6	10.42	2.886	
3,100.0	3,100.0	3,100.0	3,100.0	5.4	5.4	173.23	-29.8	3.5	30.1	19.3	10.77	2.792	
3,200.0	3,200.0	3,200.0	3,200.0	5.6	5.6	173.23	-29.8	3.5	30.1	18.9	11.11	2.705	
3,300.0	3,300.0	3,300.0	3,300.0	5.7	5.7	173.23	-29.8	3.5	30.1	18.6	11.46	2.622	
3,400.0	3,400.0	3,400.0	3,400.0	5.9	5.9	173.23	-29.8	3.5	30.1	18.2	11.81	2.545 CC, ES	
3,443.2	3,443.2	3,443.2	3,443.2	6.0	6.0	173.46	-29.8	3.5	30.5	18.6	11.96	2.551	
3,500.0	3,500.0	3,500.0	3,500.0	6.1	6.1	173.54	-29.8	3.5	30.9	18.8	12.15	2.544 SF	
3,600.0	3,599.2	3,599.2	3,599.2	6.3	6.3	175.25	-29.8	3.5	42.7	30.3	12.36	3.452	
3,700.0	3,695.8	3,692.0	3,691.9	6.5	6.4	179.76	-31.9	0.3	70.3	57.9	12.40	5.665	
3,800.0	3,787.9	3,773.3	3,772.1	6.8	6.6	-173.73	-39.0	-10.5	117.5	105.2	12.28	9.563	
3,900.0	3,873.7	3,839.8	3,836.2	7.2	6.7	-168.52	-48.5	-25.0	182.2	170.1	12.06	15.107	
4,000.0	3,951.6	3,890.7	3,884.1	7.8	6.8	-163.85	-57.9	-39.4	260.5	248.7	11.81	22.060	
4,100.0	4,020.0	3,927.0	3,917.5	8.7	7.0	-158.15	-65.7	-51.4	348.6	336.9	11.73	29.707	
4,200.0	4,077.6	3,950.0	3,938.2	9.7	7.0	-148.15	-71.2	-59.7	443.0	430.6	12.45	35.591	
4,300.0	4,123.3	3,963.1	3,949.9	10.9	7.1	-122.24	-74.5	-64.7	541.0	525.0	15.97	33.869	
4,400.0	4,161.3	3,971.0	3,956.9	12.3	7.1	-102.85	-76.5	-67.8	639.4	620.7	18.71	34.171	
4,500.0	4,198.6	3,981.3	3,965.9	13.6	7.2	-95.43	-79.2	-71.9	735.3	715.1	20.18	36.434	
4,600.0	4,234.3	4,000.0	3,982.1	15.1	7.2	-91.45	-84.3	-79.7	828.0	806.6	21.36	38.758	
4,700.0	4,267.8	4,011.0	3,991.6	16.5	7.3	-87.21	-87.3	-84.5	916.6	894.2	22.39	40.932	
4,800.0	4,298.5	4,044.7	4,020.0	18.0	7.5	-85.57	-96.7	-100.0	1,000.2	976.9	23.29	42.945	
4,900.0	4,325.8	4,090.0	4,057.1	19.4	7.7	-84.61	-108.9	-123.0	1,077.9	1,053.7	24.12	44.686	

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

Anticollision Report

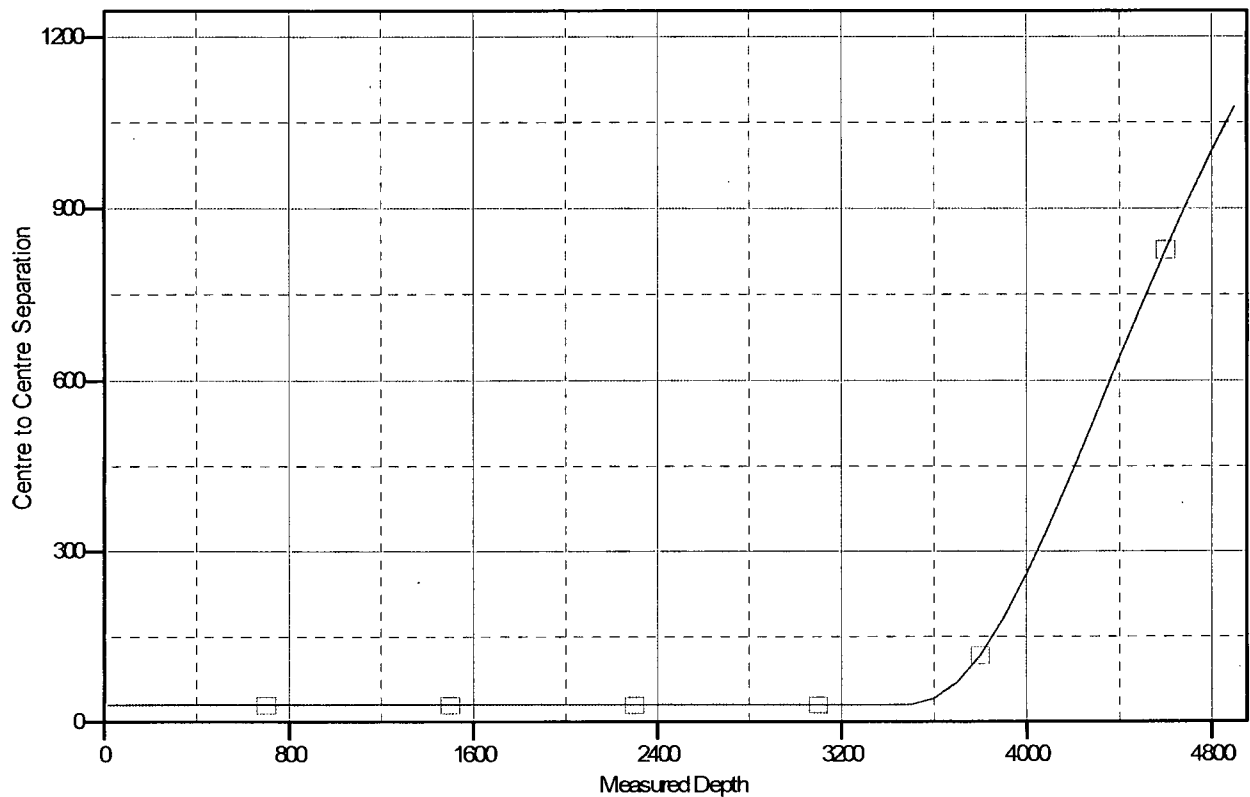
Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S15-T22N-R8W
Site Error: 0.0usft
Reference Well: Lybrook E15-2208 01H
Well Error: 0.0usft
Reference Wellbore: HZ
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lybrook E15-2208 01H
TVD Reference: 16' KB @ 6675.0usft
MD Reference: 16' KB @ 6675.0usft
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 @ 6675.0usft
 Offset Depths are relative to Offset Datum
 Central Meridian is -107.833333 °

Coordinates are relative to: Lybrook E15-2208 01H
 Coordinate System is US State Plane 1983, New Mexico Western Zone
 Grid Convergence at Surface is: 0.09°

Ladder Plot



LEGEND

Lybrook E15-2208 02H, HZ, Plan #1 V0

LOC: 1906' FNL, 401' FWL Sec 15 T22N R08 County: San Juan WELL: Lybrook E15-2208 01H			Encana Natural Gas WELL SUMMARY				ENG: Michael Sanch RIG: Aztec 950 GLE: 6658.6 RKBE: 6674.6			4/2/15	
MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH TVDMD				HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION	
			60 0	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. Nacimiento Fn. 9 5/8" Csg	surface 300	300.00			12 1/4	9 5/8" 36ppf J55 STC TOC Surface with 100% OH Excess: 276 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°	
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. Kirtland Shale Fruitland Coal Pictured Cliffs Ss. Lewis Shale Cliffhouse Ss. Menefee Fn. Point Lookout Ss. Mancos Shale	110 282 665 805 934 1,542 2,215 3,161 3,311				8 3/4	7" 26ppf J55 LTC TOC @ surface (100% OH excess - 70% Lead 30% Tail) Stage 1 Total: 949sks Stage 1 Lead: 529 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: 420 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°	
Surveys every 30' through the curve	Mud logger onsite	KOP Mancos Silt Gallup Fn. 7" Csg	3,465 3,858 4,118 4,052	3,465 4,153'							
Surveys every stand to TD unless directed otherwise by Geologist	No OH Logs	Horizontal Target TD Base Gallup Pilot Hole TD	4,400 4,363 4,473 4673'	10,034 4673'			6 1/8	100' overlap at liner top 5882' Drilled Lateral		Horz Inc/TVD 90.4deg/4399.6ft TD = 10034 MD	
MWD Gamma Directional								4 1/2" 11.6ppf SB80 LTC TOC @ hanger (50% OH excess) Stage 1 Total: 341sks Stage 1 Blend: 341 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 3465', 8 3/4 inch holesize
- 5) Start curve at 10deg/100' build rate
- 6) Drill to csg point of 4153' MD
- 7) R&C 7" csg, circ cmt to surface
- 8) Land at ~90 deg, drill lateral to 10034' run 4 1/2 inch cemented liner

Lybrook E15-2208 01H

SHL: 1906' FNL, 401' FWL Sec 15 T22N R08W

BHL: 800' FNL, 330' FWL Sec 16 T22N R08W

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
San Jose Fn.	n/a
Nacimiento Fn.	surface
Ojo Alamo Ss.	110
Kirtland Shale	282
Fruitland Coal	665
Pictured Cliffs Ss.	805
Lewis Shale	934
Cliffhouse Ss.	1,542
Menefee Fn.	2,215
Point Lookout Ss.	3,161
Mancos Shale	3,311
Mancos Silt	3,858
Gallup Fn.	4,118
Base Gallup	4,473

The referenced surface elevation is 6659', KB 6675'

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

Substance	Formation	Depth (TVD) units = feet
Water/Gas	Fruitland Coal	665
Oil/Gas	Pictured Cliffs Ss.	805
Oil/Gas	Cliffhouse Ss.	1,542
Gas	Menefee Fn.	2,215
Oil/Gas	Point Lookout Ss.	3,161
Oil/Gas	Mancos Shale	3,311
Oil/Gas	Mancos Silt	3,858
Oil/Gas	Gallup Fn.	4,118

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

Lybrook E15-2208 01H

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San Juan, 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'-300'	12 1/4"	9 5/8"	36#	J55, STC New
Intermediate	0'-4153'	8 3/4"	7"	26#	J55, LTC New
Production Liner	4053'-10034'	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

Lybrook E15-2208 01H

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BHL: 800' FNL, 330' FWL Sec 16 T22N R08W

San Juan, 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'-300'	276 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'-4153'	100% open hole excess Stage 1 Lead: 529 sks Stage 1 Tail: 420 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	4053'- 10034'	50% OH excess Stage 1 Blend Total: 341sks	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 well will be drilled in two phases. A pilot hole will be drilled in the first phase, followed by kicking off a horizontal lateral in the existing wellbore in the second phase. The intent of drilling a pilot hole is to obtain open hole log data. The intent of the second phase of the well is to plug back the pilot hole with cement to the kick off point. After plugging back, the plan is to drill a horizontal lateral from the kick off point in the existing wellbore to the proposed bottom hole location.

Description	Proposed Depth (TVD/MD)	Formation
Vertical Pilot Hole	4673'/4673'	Gallup
Horizontal Lateral TD	4363'/10034'	Gallup

Proposed Plug Back Procedure: KOP 3465'

- Spot 500' kick plug from 3165' - 3665'
 - 209 sks of Clas A cement with salt (1.3 cuft/sk yield)
 - Spot tuned spacer

Lybrook E15-2208 01H

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San Juan, 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'-300'/300'	Fresh Water	8.3-10	60-70	NC
8 3/4"	300'/300'-4673'/4673'	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)
8 3/4"	3465'/3465'-	Fresh Water LSND	9.5-8.8	40-50	8-10

c) Intermediate Casing Point to TD:

Hole Size (in)	Depth (TVD/MD)	Mud Type	Density (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
6 1/8"	4052'/4153'-	Fresh Water LSND	8.3-10	15-25	<15

- d) 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.
- e) 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

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 +/- 2059 psi based on a 9.0 ppg at 4400' 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

9. ANTICIPATED START DATE AND DURATION OF OPERATIONS

Drilling is estimated to commence on September 12, 2015. It is anticipated that completion operations will begin

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

ENCANA OIL & GAS (USA) INC.
LYBROOK E15-2208 #01H
1906' FNL & 401' FWL
LOCATED IN THE SW/4 NW/4 OF SECTION 15,
T22N, R8W, 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, 39.0 MILES TO INDIAN ROUTE 7061 (M.P. 112.6).
- 2) TURN RIGHT AND GO 7.7 MILES TO WHERE ACCESS IS STAKED.

WELL FLAG LOCATED AT LAT. 36.141725° N, LONG. 107.676878° W (NAD 83).



State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary

Brett F. Woods, Ph.D.
Deputy Cabinet Secretary

David R. Catanach
Division Director
Oil Conservation Division



**New Mexico Oil Conservation Division Conditions of Approval
(C-101 Application for permit to drill)**

- ☒ 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
- ☒ 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.

✓ - Add a Gallup plug to the pilot hole to extend
100' above and 100' below the formation top