

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 Energy Minerals and Natural Resources Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505	Form C-101 Revised August 1, 2011 Permit RCVD JUL 27 '12 OIL CONS. DIV. DIST. 3
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APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

¹ Operator Name and Address ENCANA OIL & GAS (USA) INC. 370 17 TH STREET, SUITE 1700 DENVER, CO 80202		² OGRID Number 282327 ³ API Number 30-039-31134
⁴ Property Code 39374	⁵ Property Name ESCRITO A36-2407	⁶ Well No 01H

CONFIDENTIAL

⁷ Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
SHL A	36	24N	7W		614	NORTH	251	EAST	RIO ARRBA
BHL D	36	24N	7W		614	NORTH	330	WEST	RIO ARRIBA

⁸ Pool Information

ESCRITO GALLUP (ASSOCIATED)

Additional Well Information

⁹ Work Type N	¹⁰ Well Type O	¹¹ Cable/Rotary R	¹² Lease Type S	¹³ Ground Level Elevation 6697
¹⁴ Multiple N/A	¹⁵ Proposed Depth 5400' TVD/9759' MD	¹⁶ Formation GALLUP	¹⁷ Contractor AZTEC	¹⁸ Spud Date 01/22/13
Depth to Ground water UNKNOWN		Distance from nearest fresh water well +/- 420'		Distance to nearest surface water 2640' (dry)

¹⁹ Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
CONDUCTOR	30"	20"	94#	60'	100	SURFACE
SURFACE	12 1/4"	9 5/8"	36#	500'	178	SURFACE
INTERMEDIATE	8 1/2"	7"	26#	5728' MD	606 (30% OH EXCESS)	SURFACE
PROD. LINER	6 1/8"	4 1/2"	11 6#	5528'-9759' MD	N/A	N/A

Casing/Cement Program: Additional Comments

HORIZONTAL LATERAL IN THE GALLUP FORMATION. NO CEMENT IN THE PRODUCTION LINER, WILL RUN EXTERNAL SWELL CASING PACKER SYSTEM. WILL USE OIL BASED MUD SYSTEM FROM KOP TO TD OF HORIZONTAL LATERAL

Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
ANNULAR	3000	1500	TBD
DOUBLE RAM	3000	3000	TBD
ROTATING HEAD	3000	1500	TBD

I hereby certify that the information given above is true and complete to the best of my knowledge and belief. NO DRILLING PIT WILL BE USED. I further certify that the drilling pit will be constructed according to NMOCD guidelines ☐ , a general permit ☐ , or an (attached) alternative OCD-approved plan ☐ .		OIL CONSERVATION DIVISION	
Printed name: BRENDA R LINSTER		Approved By: <i>Charles Linster</i> 8-2-2012	
Title: REGULATORY ADVISOR		Title: SUPERVISOR DISTRICT # 3	
E-mail Address: BRENDA.LINSTER@ENCANA.COM		Approved Date: AUG 08 2012	Expiration Date: AUG 08 2014
Date: 07-24-12		Conditions of Approval Attached: <i>Settlement int casing before using oil based mud</i>	
Phone: 720-876-3989		Hold C104 for Directional Survey and "As Drilled" plat	

AUG 08 2012 ca

Av

NOTIFY AZTEC OCD 24 HRS. PRIOR TO CASING & CEMENT

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

OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

N86°26'40"W 2584.56' (MEASURED)
N87°11'W 2586.54' (RECORD)

N86°27'07"W 2585.17' (MEASURED)
N87°11'W 2586.54' (RECORD)

N86°26.8'W 4583.1'

Gallup Penetration Point

605' FNL 398' FEL

END OF LATERAL
LAT: 36.27433°N
LONG: 107.53499°W
DATUM: NAD1927

LAT: 36.27434°N
LONG: 107.53560°W
DATUM: NAD1983

SURFACE LOCATION
LAT: 36.27372°N
LONG: 107.51946°W
DATUM: NAD1927

LAT: 36.27373°N
LONG: 107.52007°W
DATUM: NAD1983

36

N87°36'W 2562.78' (RECORD)
N86°52'35"W 2562.75' (MEASURED)

N87°36'W 2562.78' (RECORD)
N86°55'28"W 2561.75' (MEASURED)

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 Brenda R. Linster Date 10/24/2012

Brenda R. Linster, Regulatory Advisor

Printed Name

brenda.linster@encana.com

E-mail Address

18 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

Date of Survey: APRIL 19, 2012

Signature and Seal of Professional Surveyor



JASON C. EDWARDS

Certificate Number 15269

614'

330'

614'

251'

NO 34°E 2681.25' (RECORD)
NO 01°20'14"E 2682.70' (MEAS)

NO 34°E 2681.25' (RECORD)
NO 01°21'56"E 2681.53' (MEASURED)

Directions from the Intersection of US Hwy 550 & US Hwy 64
in Bloomfield, NM to Encana Oil & Gas (USA) Inc. Escrito A36-2407 01H
614' FNL & 251' FEL, Section 36, T24N, R7W, N.M.P.M., Rio Arriba County, NM

Latitude: 36.27373°N Longitude: 107.52007°W Datum: NAD1983

From the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM, travel Southerly on US Hwy 550 for 48.4 miles to Mile Marker 102.9;

Go left (North-easterly) for 1.2 miles to fork in road;

Go left (North-westerly) 0.4 miles to fork in road;

Go right (North-easterly) for 2.2 miles to fork in road;

Go left (Westerly) for 0.1 miles to fork in road;

Go right (Northerly) for 200' to new access on left-hand side of existing roadway which continues for 20' to staked location.



Project Rio Arriba County, NM
Site: Escrito A36-2407
Well: Escrito A36-2407 01H
Wellbore: HZ
Design: Plan #1

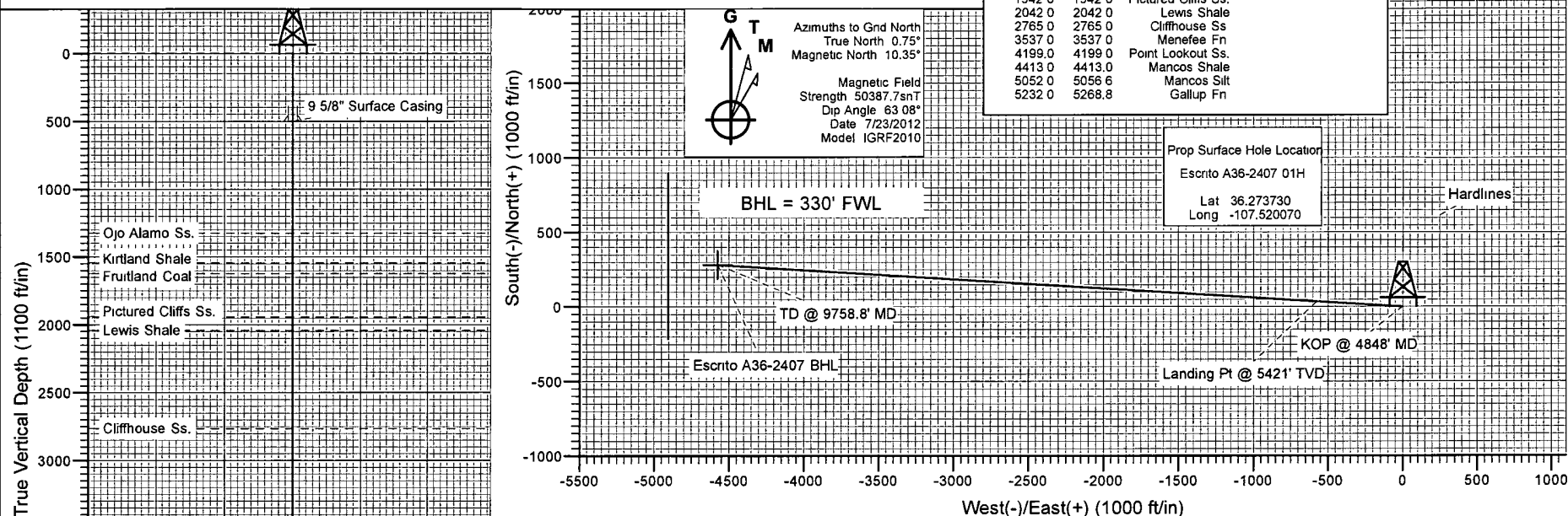


SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSecl	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	4848.0	0.00	0.00	4848.0	0.0	0.0	0.00	0.00	0.0	
3	5751.0	90.30	273.53	5421.0	35.5	-574.9	10.00	273.53	576.0	
4	9758.8	90.30	273.53	5400.0	282.5	-4575.0	0.00	0.00	4583.7	Escrito A36-2407 BHL

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle
0.0	0.0	Nacimiento Fn	
1325.0	1325.0	Ojo Alamo Ss.	
1545.0	1545.0	Kirtland Shale	
1622.0	1622.0	Fruitland Coal	
1942.0	1942.0	Pictured Cliffs Ss.	
2042.0	2042.0	Lewis Shale	
2765.0	2765.0	Cliffhouse Ss.	
3537.0	3537.0	Menefee Fn	
4199.0	4199.0	Point Lookout Ss.	
4413.0	4413.0	Mancos Shale	
5052.0	5056.6	Mancos Silt	
5232.0	5268.8	Gallup Fn	

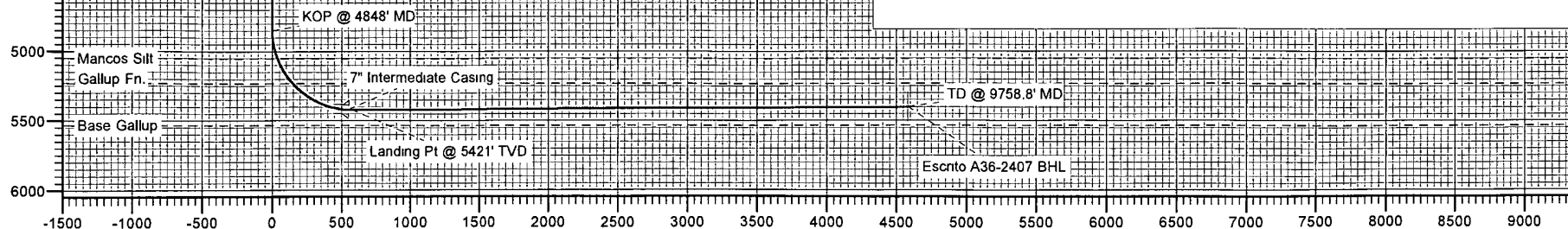


CASING DETAILS

TVD	MD	Name	Size
5420.6	5728.0	7" Intermediate Casing	0.000
500.0	500.0	9 5/8" Surface Casing	0.000

Plan #1
Escrito A36-2407 01H
KBE @ 6710.0R (Original Well Elev)
North American Datum 1983
Well Escrito A36-2407 01H, Gnd North

Type	Target	Azimuth	Origin	Type	N/S	E/W	From TVD
TD	No Target (Freehand)	273.53	Slot		0.0	0.0	0.0
Name	Escrito A36-2407 BHL	TVD	+N/-S	+E/-W	Latitude	Longitude	
		5400.0	282.5	-4575.0	36.274340	-107.535600	



Vertical Section at 273.53° (1100 ft/in)

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Escrito A36-2407 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 6710.0ft (Original Well Elev)
Project:	Rio Arriba County, NM	MD Reference:	KBE @ 6710.0ft (Original Well Elev)
Site:	Escrito A36-2407	North Reference:	Grid
Well:	Escrito A36-2407 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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	Escrito A36-2407		
Site Position:		Northing:	1,921,363.81 ft
From:	Lat/Long	Easting:	1,266,048.02 ft
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in
		Latitude:	36.273730
		Longitude:	-107.520070
		Grid Convergence:	-0.75 °

Well	Escrito A36-2407 01H		
Well Position	+N/-S	0.0 ft	Northing: 1,921,363.81 ft
	+E/-W	0.0 ft	Easting: 1,266,048.02 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	36.273730
		Longitude:	-107.520070
		Ground Level:	6,697.0 ft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	7/23/2012	9.60	63.08	50,388

Design	Plan #1				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.0	
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	273.53	

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(ft)	(ft)	Rate	Rate	Rate	(°)	
(ft)			(ft)			(°/100ft)	(°/100ft)	(°/100ft)		
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,848.0	0.00	0.00	4,848.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,751.0	90.30	273.53	5,421.0	35.5	-574.9	10.00	10.00	0.00	273.53	
9,758.8	90.30	273.53	5,400.0	282.5	-4,575.0	0.00	0.00	0.00	0.00	Escrito A36-2407 BHL

Cathedral Energy Services

Planning Report

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Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Escrito A36-2407 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 6710.0ft (Original Well Elev)
Project:	Rio Arriba County, NM	MD Reference:	KBE @ 6710.0ft (Original Well Elev)
Site:	Escrito A36-2407	North Reference:	Grid
Well:	Escrito A36-2407 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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	Nacimiento Fn
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" Surface Casing
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	
1,325.0	0.00	0.00	1,325.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo Ss
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	
1,545.0	0.00	0.00	1,545.0	0.0	0.0	0.0	0.00	0.00	Kirtland Shale
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
1,622.0	0.00	0.00	1,622.0	0.0	0.0	0.0	0.00	0.00	Fruitland Coal
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	
1,942.0	0.00	0.00	1,942.0	0.0	0.0	0.0	0.00	0.00	Pictured Cliffs Ss.
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	
2,042.0	0.00	0.00	2,042.0	0.0	0.0	0.0	0.00	0.00	Lewis Shale
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	
2,300.0	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	
2,765.0	0.00	0.00	2,765.0	0.0	0.0	0.0	0.00	0.00	Cliffhouse Ss.
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	
3,200.0	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	
3,537.0	0.00	0.00	3,537.0	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	
4,199.0	0.00	0.00	4,199.0	0.0	0.0	0.0	0.00	0.00	Point Lookout Ss.
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Escrito A36-2407 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 6710.0ft (Original Well Elev)
Project:	Rio Arriba County, NM	MD Reference:	KBE @ 6710.0ft (Original Well Elev)
Site:	Escrito A36-2407	North Reference:	Grid
Well:	Escrito A36-2407 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	
4,413.0	0.00	0.00	4,413.0	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	
4,848.0	0.00	0.00	4,848.0	0.0	0.0	0.0	0.00	0.00	KOP @ 4848' MD
4,900.0	5.20	273.53	4,899.9	0.1	-2.4	2.4	10.00	10.00	
5,000.0	15.20	273.53	4,998.2	1.2	-20.0	20.0	10.00	10.00	
5,056.6	20.85	273.53	5,052.0	2.3	-37.5	37.5	10.00	10.00	Mancos Silt
5,100.0	25.20	273.53	5,092.0	3.4	-54.4	54.5	10.00	10.00	
5,200.0	35.20	273.53	5,178.3	6.5	-104.5	104.7	10.00	10.00	
5,268.8	42.08	273.53	5,232.0	9.1	-147.4	147.7	10.00	10.00	Gallup Fn
5,300.0	45.20	273.53	5,254.6	10.4	-168.9	169.2	10.00	10.00	
5,400.0	55.20	273.53	5,318.5	15.2	-245.5	245.9	10.00	10.00	
5,500.0	65.20	273.53	5,368.1	20.5	-332.0	332.6	10.00	10.00	
5,600.0	75.20	273.53	5,402.0	26.3	-425.8	426.6	10.00	10.00	
5,700.0	85.20	273.53	5,419.0	32.4	-524.0	525.0	10.00	10.00	
5,728.0	88.00	273.53	5,420.6	34.1	-551.9	552.9	10.00	10.00	7" Intermediate Casing
5,751.0	90.30	273.53	5,421.0	35.5	-574.9	576.0	10.00	10.00	Landing Pt @ 5421' TVD
5,800.0	90.30	273.53	5,420.7	38.5	-623.7	624.9	0.00	0.00	
5,900.0	90.30	273.53	5,420.2	44.7	-723.5	724.9	0.00	0.00	
6,000.0	90.30	273.53	5,419.7	50.8	-823.4	824.9	0.00	0.00	
6,100.0	90.30	273.53	5,419.2	57.0	-923.2	924.9	0.00	0.00	
6,200.0	90.30	273.53	5,418.6	63.2	-1,023.0	1,024.9	0.00	0.00	
6,300.0	90.30	273.53	5,418.1	69.3	-1,122.8	1,124.9	0.00	0.00	
6,400.0	90.30	273.53	5,417.6	75.5	-1,222.6	1,224.9	0.00	0.00	
6,500.0	90.30	273.53	5,417.1	81.7	-1,322.4	1,324.9	0.00	0.00	
6,600.0	90.30	273.53	5,416.5	87.8	-1,422.2	1,424.9	0.00	0.00	
6,700.0	90.30	273.53	5,416.0	94.0	-1,522.0	1,524.9	0.00	0.00	
6,800.0	90.30	273.53	5,415.5	100.1	-1,621.8	1,624.9	0.00	0.00	
6,900.0	90.30	273.53	5,415.0	106.3	-1,721.6	1,724.9	0.00	0.00	
7,000.0	90.30	273.53	5,414.4	112.5	-1,821.4	1,824.9	0.00	0.00	
7,100.0	90.30	273.53	5,413.9	118.6	-1,921.2	1,924.9	0.00	0.00	
7,200.0	90.30	273.53	5,413.4	124.8	-2,021.1	2,024.9	0.00	0.00	
7,300.0	90.30	273.53	5,412.9	131.0	-2,120.9	2,124.9	0.00	0.00	
7,400.0	90.30	273.53	5,412.4	137.1	-2,220.7	2,224.9	0.00	0.00	
7,500.0	90.30	273.53	5,411.8	143.3	-2,320.5	2,324.9	0.00	0.00	
7,600.0	90.30	273.53	5,411.3	149.4	-2,420.3	2,424.9	0.00	0.00	
7,700.0	90.30	273.53	5,410.8	155.6	-2,520.1	2,524.9	0.00	0.00	
7,800.0	90.30	273.53	5,410.3	161.8	-2,619.9	2,624.9	0.00	0.00	
7,900.0	90.30	273.53	5,409.7	167.9	-2,719.7	2,724.9	0.00	0.00	
8,000.0	90.30	273.53	5,409.2	174.1	-2,819.5	2,824.9	0.00	0.00	
8,100.0	90.30	273.53	5,408.7	180.3	-2,919.3	2,924.9	0.00	0.00	
8,200.0	90.30	273.53	5,408.2	186.4	-3,019.1	3,024.9	0.00	0.00	
8,300.0	90.30	273.53	5,407.6	192.6	-3,118.9	3,124.9	0.00	0.00	
8,400.0	90.30	273.53	5,407.1	198.7	-3,218.8	3,224.9	0.00	0.00	
8,500.0	90.30	273.53	5,406.6	204.9	-3,318.6	3,324.9	0.00	0.00	
8,600.0	90.30	273.53	5,406.1	211.1	-3,418.4	3,424.9	0.00	0.00	
8,700.0	90.30	273.53	5,405.5	217.2	-3,518.2	3,524.9	0.00	0.00	
8,800.0	90.30	273.53	5,405.0	223.4	-3,618.0	3,624.9	0.00	0.00	
8,900.0	90.30	273.53	5,404.5	229.6	-3,717.8	3,724.9	0.00	0.00	

Cathedral Energy Services
Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Escrito A36-2407 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 6710 0ft (Original Well Elev)
Project:	Rio Arriba County, NM	MD Reference:	KBE @ 6710 0ft (Original Well Elev)
Site:	Escrito A36-2407	North Reference:	Grnd
Well:	Escrito A36-2407 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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	90.30	273.53	5,404.0	235.7	-3,817.6	3,824.9	0.00	0.00	
9,100.0	90.30	273.53	5,403.4	241.9	-3,917.4	3,924.9	0.00	0.00	
9,200.0	90.30	273.53	5,402.9	248.0	-4,017.2	4,024.9	0.00	0.00	
9,300.0	90.30	273.53	5,402.4	254.2	-4,117.0	4,124.9	0.00	0.00	
9,400.0	90.30	273.53	5,401.9	260.4	-4,216.8	4,224.9	0.00	0.00	
9,500.0	90.30	273.53	5,401.4	266.5	-4,316.7	4,324.9	0.00	0.00	
9,600.0	90.30	273.53	5,400.8	272.7	-4,416.5	4,424.9	0.00	0.00	
9,700.0	90.30	273.53	5,400.3	278.9	-4,516.3	4,524.9	0.00	0.00	
9,758.8	90.30	273.53	5,400.0	282.5	-4,575.0	4,583.7	0.00	0.00	TD @ 9758.8' MD

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Escrito A36-2407 BHL	0.00	0.00	5,400.0	282.5	-4,575.0	1,921,646.29	1,261,473.04	36.274340	-107.535600
- plan hits target center									
- Polygon									
Point 1			5,400.0	614.0	-330.0	1,922,260.29	1,261,143.04		
Point 2			5,400.0	-500.0	-330.0	1,921,146.29	1,261,143.04		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
5,728.0	5,420.6	7" Intermediate Casing	0.000	0.000	
500.0	500.0	9 5/8" Surface Casing	0.000	0.000	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
0.0	0.0	Nacimiento Fn.			
1,325.0	1,325.0	Ojo Alamo Ss			
1,545.0	1,545.0	Kirtland Shale			
1,622.0	1,622.0	Fruitland Coal			
1,942.0	1,942.0	Pictured Cliffs Ss			
2,042.0	2,042.0	Lewis Shale			
2,765.0	2,765.0	Cliffhouse Ss			
3,537.0	3,537.0	Menefee Fn			
4,199.0	4,199.0	Point Lookout Ss.			
4,413.0	4,413.0	Mancos Shale			
5,056.6	5,052.0	Mancos Silt			
5,268.8	5,232.0	Gallup Fn			

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Escrito A36-2407 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 6710 0ft (Original Well Elev)
Project:	Rio Arriba County, NM	MD Reference:	KBE @ 6710 0ft (Original Well Elev)
Site:	Escrito A36-2407	North Reference:	Grid
Well:	Escrito A36-2407 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
4,848.0	4,848.0	0.0	0.0	KOP @ 4848' MD
5,751.0	5,421.0	35.5	-574.9	Landing Pt @ 5421' TVD
9,758.8	5,400.0	282.5	-4,575.0	TD @ 9758.8' MD

LOC: Sec 36-T24N-R7W County: Rio Arriba WELL: Escrito A36-2407 01H			Encana Natural Gas New Mexico Mancos Test WELL SUMMARY			encana natural gas		ENG: J. Fox/ A. 7/25/12 RIG: GLE: 6697 RKBE: 6710	
MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH			HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION
			TVD	MD					
			60	60'		30	20" 94# 100sx Type I Neat 48.8ppg cmt	Fresh wtr 8 3-9 2	
Surveys After csg is run	None		500	500		12 1/4	9 5/8" 36ppf J55 STC TOC @ surface 178 sks Type III Cmt	Fresh wtr 8 4-8 6	Vertical <1°
Surveys every 500'	No OH logs Mud logger onsite	Ojo Alamo Kirtland Shale Fruitland Coal Pictured Cliffs Ss Lewis Shale Cliffhouse Ss Menefee Fn Point Lookout Ss Mancos Sh KICK OFF PT Mancos Silt	1,325 1,545 1622 1942 2042 2765 3537 4199 4413 4848 5052	5728		8 1/2	7" 26ppf J55 LTC TOC @ surface 30% OH excess 606sks Lead 155 sks Prem Lite Cmt Tail 451sks Type III Cmt	Fresh Wtr 8 5-8 8	Vertical <1° KOP 4848 10 deg/100'
			5420	5728		6 1/8	200' overlap at liner top		
							4000' Lateral	8 6-9 0 OBM	
Surveys every 500' Gyro at CP MWD Gamma Directional	No OH Logs	Gallup Top horz target Base Gallup	5232 5421 5534	5751			4 1/2" 11.6ppf SB80 LTC Running external swellable csg packers for isolation of prod string	Fresh Wtr mud 8 5-8 8 Switch to OBM at K/O 8 6-9 0	25deg updip 5400'TVD TD = 9759' MD

NOTES:

- 1) Drill with 30" bit to 60', set 20" 94# 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 4848', 8 1/2" hole size, switch to OBM
- 5) PU directional tools and start curve at 10deg/100' build rate
- 6) Drill to casing point of 5728' MD (85deg)
- 7) R&C 7" casing, circ cmt 50' into sur csg shoe
- 8) Land at 90deg, drill 4000' lateral to 9759', run 4 1/2" liner with external swellable csg packers