

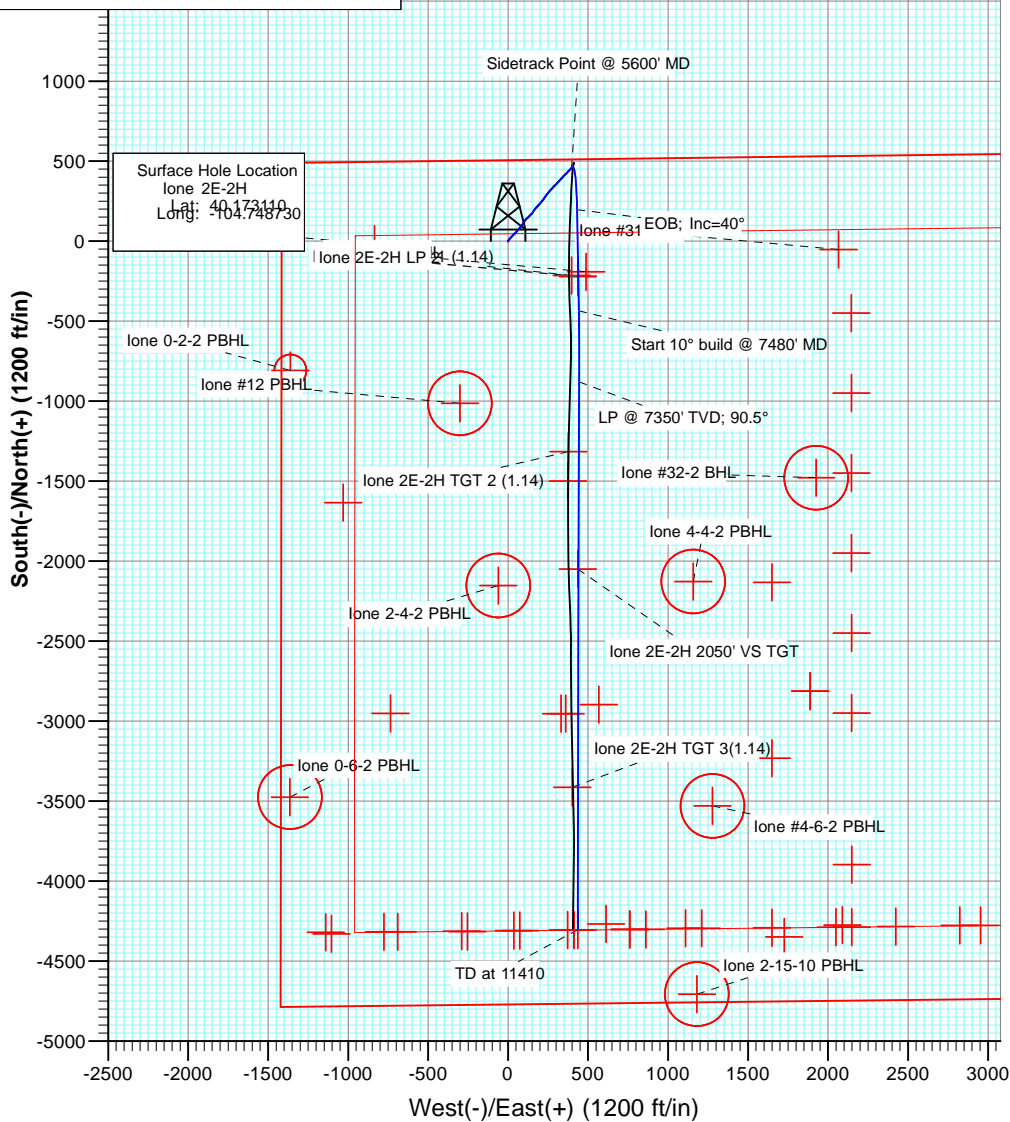
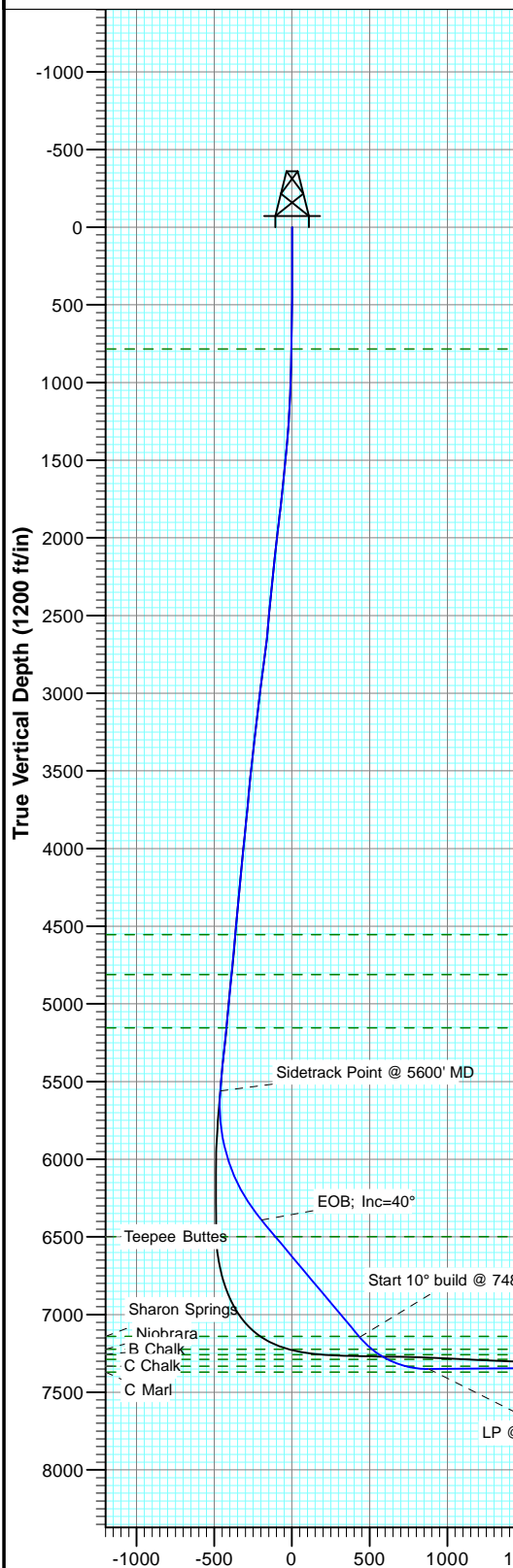


Project: DJ Wattenberg
Site: S2-T2N-R66W (lone.)
Well: lone 2E-2H
Wellbore: STK 1
Plan: Plan #7



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	5600.0	5.87	35.27	5559.3	460.7	397.9	0.00	0.00	-460.7	
2	6497.0	40.00	179.00	6391.9	196.3	431.1	5.00	147.37	-196.3	
3	7480.7	40.00	179.00	7145.5	-435.9	442.2	0.00	0.00	435.9	
4	7985.8	90.50	180.24	7350.2	-879.9	444.1	10.00	1.61	879.9	
5	11410.0	90.50	180.04	7320.3	-4304.0	435.7	0.01	-90.00	4304.0	



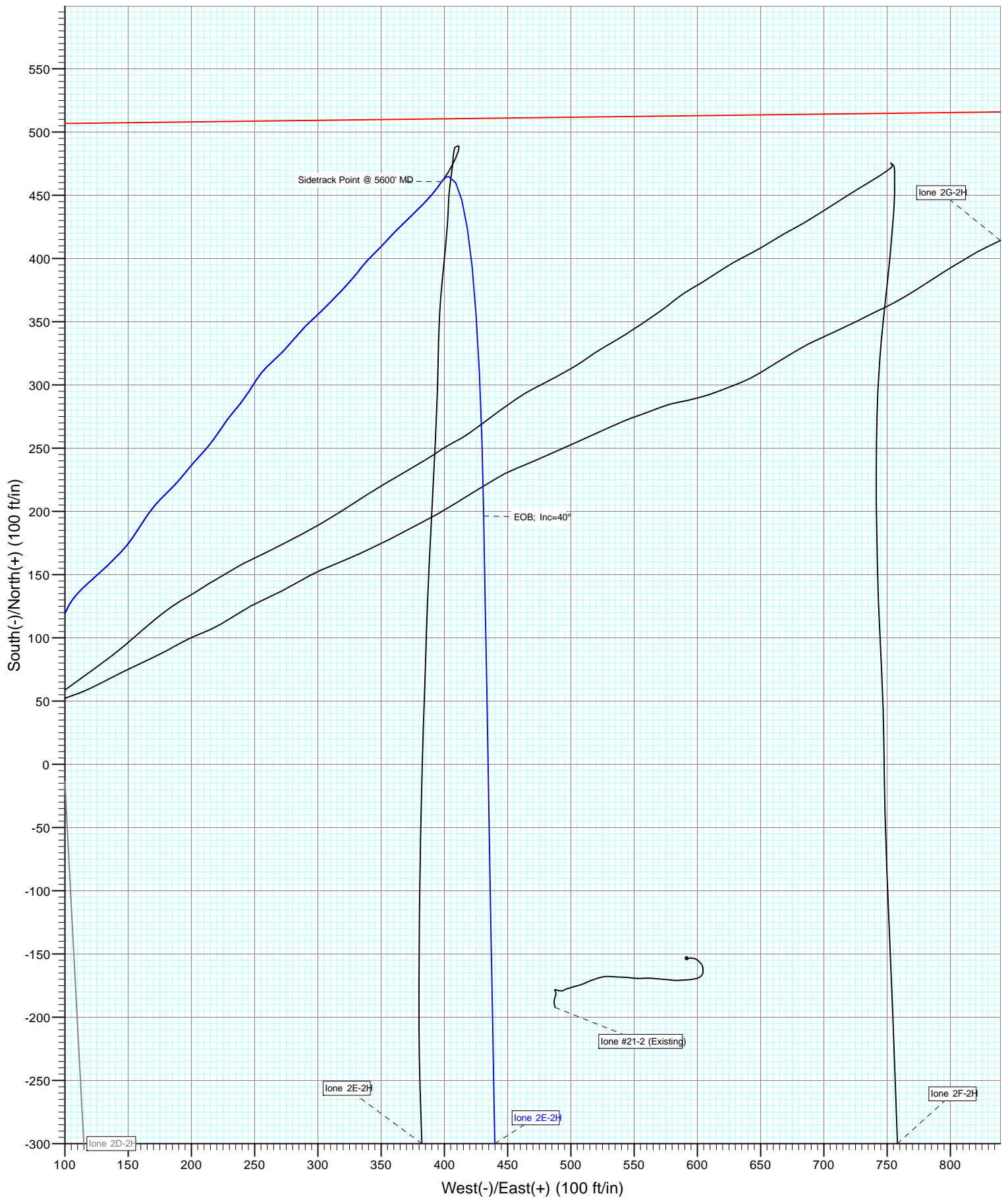
FORMATION TOP DETAILS

TVDPath	MDPath	Formation
784.0	784.0	Fox Hills Base
4554.0	4586.0	Sussex
4811.0	4845.2	Sussex Marker
5154.0	5191.1	Shannon
6498.0	6635.4	Teepee Buttes
7140.0	7473.5	Sharon Springs
7223.0	7591.5	Niobrara
7258.0	7651.2	B Chalk
7288.0	7711.3	B Marl
7332.0	7835.9	C Chalk

lone 2E-2H PBHL (2.6) NEW

TD at 11410

Type	Target	No Target (Freehand)	Azimuth	Origin Type	N/S	E/W	From TVD
lone 2E-2H TGT 2 (1.14)			7298.0	+N/-S	377.2	40.169500	-104.747390
lone 2E-2H LP			7300.0	+E/-W	435.2	40.172502	-104.747173
lone 2E-2H PBHL (2.6) NEW			7320.3	-4305.8	435.8	40.161290	-104.747171
lone 2E-2H 2050' VS TGT			7325.0	-2050.0	435.2	40.167482	-104.747173
lone 2E-2H PBHL (1.15) 460' FSL, 1.825' FWL/345.0			-4305.8	410.8	40.161290	-104.747260	
lone 2E-2H TGT 3(1.14)			7345.0	-3414.6	400.4	40.163736	-104.747297
lone 2E-2H LP 2			7380.0	-221.3	435.2	40.172502	-104.747173



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well lone 2E-2H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=13' @ 5059.0ft (Ensign 124)
Project:	DJ Wattenberg	MD Reference:	KB=13' @ 5059.0ft (Ensign 124)
Site:	S2-T2N-R66W (lone.)	North Reference:	True
Well:	lone 2E-2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	STK 1		
Design:	Plan #7		

Project	DJ Wattenberg		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		S2-T2N-R66W (lone.)			
Site Position:		Northing:	1,306,798.50 ft	Latitude:	40.173110
From:	Lat/Long	Easting:	3,209,901.52 ft	Longitude:	-104.748870
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.49 °

Well	lone 2E-2H					
Well Position	+N/-S	0.0 ft	Northing:	1,306,798.78 ft	Latitude:	40.173110
	+E/-W	0.0 ft	Easting:	3,209,940.64 ft	Longitude:	-104.748730
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,046.0 ft

Wellbore	STK 1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	1/26/2013	8.57	66.83	52,868

Design	Plan #7				
Audit Notes:					
Version:	Phase:	PLAN		Tie On Depth:	5,600.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	180.00	

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
5,600.0	5.87	35.27	5,559.3	460.7	397.9	0.00	0.00	0.00	0.00	
6,497.0	40.00	179.00	6,391.9	196.3	431.1	5.00	3.80	16.02	147.37	
7,480.7	40.00	179.00	7,145.5	-435.9	442.2	0.00	0.00	0.00	0.00	
7,985.8	90.50	180.24	7,350.2	-879.9	444.1	10.00	10.00	0.25	1.61	
11,410.0	90.50	180.04	7,320.3	-4,304.0	435.7	0.01	0.00	-0.01	-90.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well lone 2E-2H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=13' @ 5059.0ft (Ensign 124)
Project:	DJ Wattenberg	MD Reference:	KB=13' @ 5059.0ft (Ensign 124)
Site:	S2-T2N-R66W (lone.)	North Reference:	True
Well:	lone 2E-2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	STK 1		
Design:	Plan #7		

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
5,600.0	5.87	35.27	5,559.3	460.7	397.9	-460.7	0.00	0.00	Sidetrack Point @ 5600' MD
5,700.0	3.16	93.65	5,659.0	464.7	403.6	-464.7	5.00	-2.71	
5,800.0	5.96	150.78	5,758.7	460.0	408.9	-460.0	5.00	2.79	
5,900.0	10.53	165.48	5,857.7	446.6	413.7	-446.6	5.00	4.57	
6,000.0	15.37	171.18	5,955.1	424.7	418.0	-424.7	5.00	4.84	
6,100.0	20.29	174.18	6,050.3	394.3	421.8	-394.3	5.00	4.92	
6,200.0	25.23	176.04	6,142.5	355.8	425.1	-355.8	5.00	4.95	
6,300.0	30.20	177.33	6,231.0	309.4	427.7	-309.4	5.00	4.96	
6,400.0	35.17	178.28	6,315.1	255.4	429.8	-255.4	5.00	4.97	
6,497.0	40.00	179.00	6,391.9	196.3	431.1	-196.3	5.00	4.98	EOB; Inc=40°
6,500.0	40.00	179.00	6,394.2	194.4	431.2	-194.4	0.00	0.00	
6,600.0	40.00	179.00	6,470.8	130.1	432.3	-130.1	0.00	0.00	
6,635.4	40.00	179.00	6,498.0	107.3	432.7	-107.3	0.00	0.00	Teepee Buttes
6,700.0	40.00	179.00	6,547.4	65.8	433.4	-65.8	0.00	0.00	
6,800.0	40.00	179.00	6,624.1	1.6	434.5	-1.6	0.00	0.00	
6,900.0	40.00	179.00	6,700.7	-62.7	435.7	62.7	0.00	0.00	
7,000.0	40.00	179.00	6,777.3	-127.0	436.8	127.0	0.00	0.00	
7,100.0	40.00	179.00	6,853.9	-191.3	437.9	191.3	0.00	0.00	
7,200.0	40.00	179.00	6,930.5	-255.5	439.0	255.5	0.00	0.00	
7,300.0	40.00	179.00	7,007.1	-319.8	440.1	319.8	0.00	0.00	
7,400.0	40.00	179.00	7,083.7	-384.1	441.3	384.1	0.00	0.00	
7,473.5	40.00	179.00	7,140.0	-431.3	442.1	431.3	0.00	0.00	Sharon Springs
7,480.7	40.00	179.00	7,145.5	-435.9	442.2	435.9	0.00	0.00	Start 10° build @ 7480' MD
7,500.0	41.93	179.08	7,160.1	-448.6	442.4	448.6	10.00	10.00	
7,591.5	51.08	179.40	7,223.0	-514.9	443.3	514.9	10.00	10.00	Niobrara
7,600.0	51.93	179.42	7,228.3	-521.5	443.3	521.5	10.00	10.00	
7,651.2	57.04	179.56	7,258.0	-563.2	443.7	563.2	10.00	10.00	B Chalk
7,700.0	61.92	179.68	7,282.8	-605.2	444.0	605.2	10.00	10.00	
7,711.3	63.05	179.71	7,288.0	-615.2	444.0	615.2	10.00	10.00	B Marl
7,800.0	71.92	179.89	7,321.9	-697.1	444.3	697.1	10.00	10.00	
7,835.9	75.51	179.96	7,332.0	-731.6	444.3	731.6	10.00	10.00	C Chalk
7,900.0	81.92	180.08	7,344.5	-794.4	444.3	794.4	10.00	10.00	
7,985.8	90.50	180.24	7,350.2	-879.9	444.1	879.9	10.00	10.00	LP @ 7350' TVD; 90.5°
8,000.0	90.50	180.24	7,350.1	-894.1	444.0	894.1	0.01	0.00	
8,100.0	90.50	180.23	7,349.2	-994.1	443.6	994.1	0.01	0.00	
8,200.0	90.50	180.23	7,348.3	-1,094.1	443.2	1,094.1	0.01	0.00	
8,300.0	90.50	180.22	7,347.5	-1,194.1	442.8	1,194.1	0.01	0.00	
8,400.0	90.50	180.22	7,346.6	-1,294.1	442.4	1,294.1	0.01	0.00	
8,500.0	90.50	180.21	7,345.7	-1,394.1	442.1	1,394.1	0.01	0.00	
8,600.0	90.50	180.20	7,344.8	-1,494.1	441.7	1,494.1	0.01	0.00	
8,700.0	90.50	180.20	7,344.0	-1,594.1	441.3	1,594.1	0.01	0.00	
8,800.0	90.50	180.19	7,343.1	-1,694.1	441.0	1,694.1	0.01	0.00	
8,900.0	90.50	180.19	7,342.2	-1,794.1	440.7	1,794.1	0.01	0.00	
9,000.0	90.50	180.18	7,341.3	-1,894.1	440.3	1,894.1	0.01	0.00	
9,100.0	90.50	180.17	7,340.5	-1,994.1	440.0	1,994.1	0.01	0.00	
9,200.0	90.50	180.17	7,339.6	-2,094.1	439.7	2,094.1	0.01	0.00	
9,300.0	90.50	180.16	7,338.7	-2,194.0	439.4	2,194.0	0.01	0.00	
9,400.0	90.50	180.16	7,337.9	-2,294.0	439.2	2,294.0	0.01	0.00	
9,500.0	90.50	180.15	7,337.0	-2,394.0	438.9	2,394.0	0.01	0.00	
9,600.0	90.50	180.15	7,336.1	-2,494.0	438.6	2,494.0	0.01	0.00	
9,700.0	90.50	180.14	7,335.2	-2,594.0	438.4	2,594.0	0.01	0.00	
9,800.0	90.50	180.13	7,334.4	-2,694.0	438.2	2,694.0	0.01	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well lone 2E-2H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=13' @ 5059.0ft (Ensign 124)
Project:	DJ Wattenberg	MD Reference:	KB=13' @ 5059.0ft (Ensign 124)
Site:	S2-T2N-R66W (lone.)	North Reference:	True
Well:	lone 2E-2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	STK 1		
Design:	Plan #7		

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
9,900.0	90.50	180.13	7,333.5	-2,794.0	437.9	2,794.0	0.01	0.00	
10,000.0	90.50	180.12	7,332.6	-2,894.0	437.7	2,894.0	0.01	0.00	
10,100.0	90.50	180.12	7,331.7	-2,994.0	437.5	2,994.0	0.01	0.00	
10,200.0	90.50	180.11	7,330.9	-3,094.0	437.3	3,094.0	0.01	0.00	
10,300.0	90.50	180.10	7,330.0	-3,194.0	437.1	3,194.0	0.01	0.00	
10,400.0	90.50	180.10	7,329.1	-3,294.0	436.9	3,294.0	0.01	0.00	
10,500.0	90.50	180.09	7,328.3	-3,394.0	436.8	3,394.0	0.01	0.00	
10,600.0	90.50	180.09	7,327.4	-3,494.0	436.6	3,494.0	0.01	0.00	
10,700.0	90.50	180.08	7,326.5	-3,594.0	436.5	3,594.0	0.01	0.00	
10,800.0	90.50	180.08	7,325.6	-3,694.0	436.3	3,694.0	0.01	0.00	
10,900.0	90.50	180.07	7,324.8	-3,794.0	436.2	3,794.0	0.01	0.00	
11,000.0	90.50	180.06	7,323.9	-3,894.0	436.1	3,894.0	0.01	0.00	
11,100.0	90.50	180.06	7,323.0	-3,994.0	436.0	3,994.0	0.01	0.00	
11,200.0	90.50	180.05	7,322.1	-4,094.0	435.9	4,094.0	0.01	0.00	
11,300.0	90.50	180.05	7,321.3	-4,194.0	435.8	4,194.0	0.01	0.00	
11,400.0	90.50	180.04	7,320.4	-4,294.0	435.7	4,294.0	0.01	0.00	
11,410.0	90.50	180.04	7,320.3	-4,304.0	435.7	4,304.0	0.01	0.00	TD at 11410

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									
lone 2E-2H TGT 2 (1.14)	0.00	0.00	7,298.0	-1,314.9	377.2	1,305,487.14	3,210,329.00	40.169500	-104.747380
- plan misses target center by 81.1ft at 8421.5ft MD (7346.4 TVD, -1315.5 N, 442.3 E)									
- Point									
lone 2E-2H LP 2	0.00	0.00	7,380.0	-221.3	435.2	1,306,581.19	3,210,377.70	40.172502	-104.747173
- plan misses target center by 316.4ft at 7500.0ft MD (7160.1 TVD, -448.6 N, 442.4 E)									
- Point									
lone 2E-2H 2050' VS TC	0.00	0.00	7,325.0	-2,050.0	435.2	1,304,752.58	3,210,393.19	40.167482	-104.747173
- plan misses target center by 15.7ft at 9156.0ft MD (7340.0 TVD, -2050.1 N, 439.9 E)									
- Point									
lone 2E-2H TGT 3(1.14)	0.00	0.00	7,345.0	-3,414.6	400.4	1,303,387.65	3,210,369.97	40.163736	-104.747297
- plan misses target center by 40.1ft at 10520.6ft MD (7328.1 TVD, -3414.6 N, 436.7 E)									
- Point									
lone 2E-2H PBHL (2.6) I	0.00	0.00	7,320.3	-4,305.8	435.8	1,302,496.86	3,210,412.90	40.161290	-104.747171
- plan misses target center by 1.8ft at 11410.0ft MD (7320.3 TVD, -4304.0 N, 435.7 E)									
- Point									
lone 2E-2H LP	0.00	0.00	7,300.0	-221.3	435.2	1,306,581.19	3,210,377.70	40.172502	-104.747173
- plan misses target center by 263.8ft at 7461.0ft MD (7130.4 TVD, -423.3 N, 442.0 E)									
- Point									
lone 2E-2H PBHL (1.15)	0.00	0.00	7,345.0	-4,305.8	410.8	1,302,496.65	3,210,387.95	40.161290	-104.747260
- plan misses target center by 35.1ft at 11410.0ft MD (7320.3 TVD, -4304.0 N, 435.7 E)									
- Point									

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well lone 2E-2H
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Project:	DJ Wattenberg	MD Reference:	KB=13' @ 5059.0ft (Ensign 124)
Site:	S2-T2N-R66W (lone.)	North Reference:	True
Well:	lone 2E-2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	STK 1		
Design:	Plan #7		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
784.0	784.0	Fox Hills Base		0.00		
4,586.0	4,554.0	Sussex		0.00		
4,845.2	4,811.0	Sussex Marker				
5,191.1	5,154.0	Shannon				
6,635.4	6,498.0	Teepee Buttes				
7,473.5	7,140.0	Sharon Springs		0.00		
7,591.5	7,223.0	Niobrara		0.00		
7,651.2	7,258.0	B Chalk		0.00		
7,711.3	7,288.0	B Marl		0.00		
7,835.9	7,332.0	C Chalk		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
5,600.0	5,559.3	460.7	397.9	Sidetrack Point @ 5600' MD	
6,497.0	6,391.9	196.3	431.1	EOB; Inc=40°	
7,480.7	7,145.5	-435.9	442.2	Start 10° build @ 7480' MD	
7,985.8	7,350.2	-879.9	444.1	LP @ 7350' TVD; 90.5°	
11,410.0	7,320.3	-4,304.0	435.7	TD at 11410	