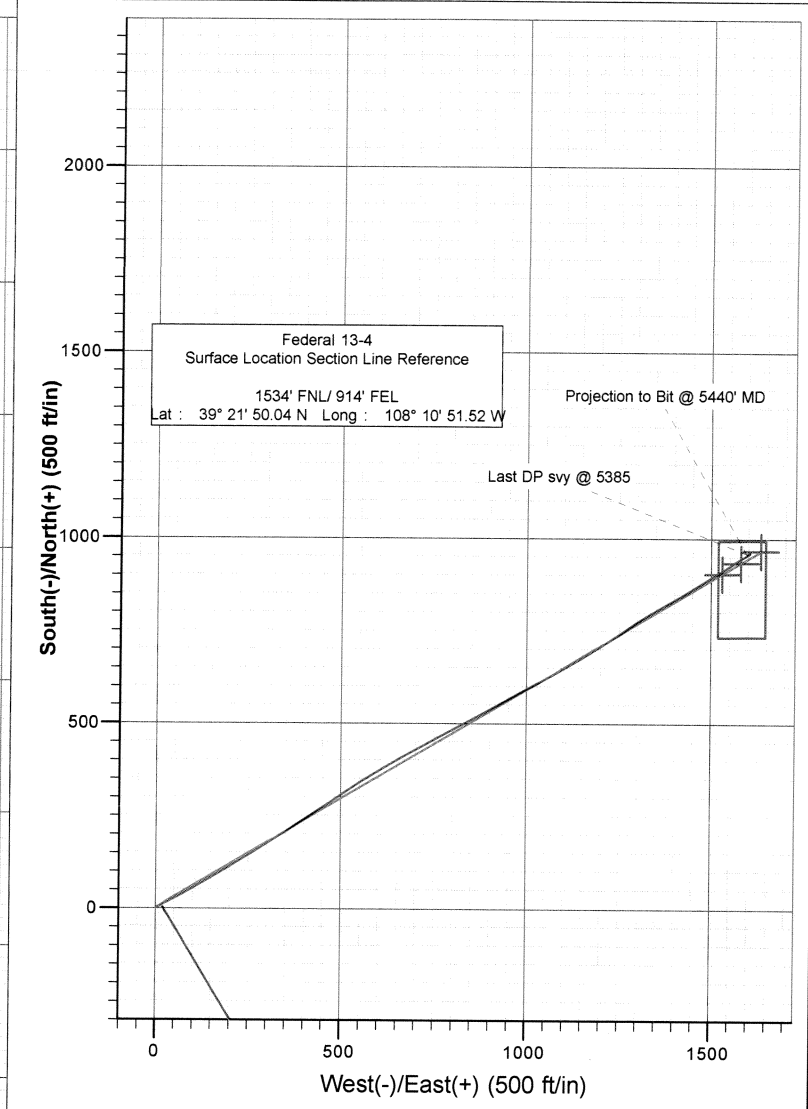
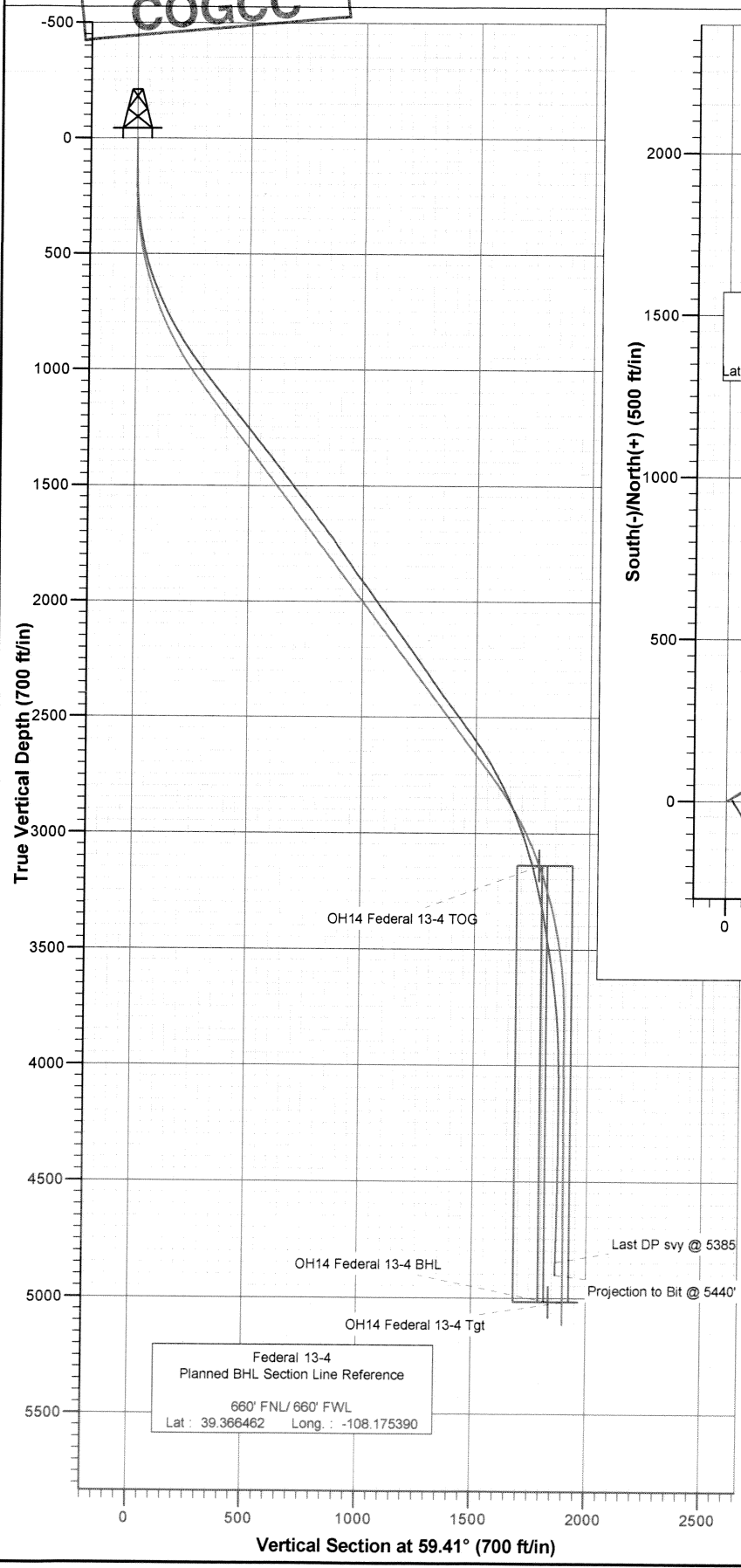


077-09421

Project: Orchard
Site: SENE S14-T8S-R97W (OH14 Pad)
Well: Federal 13-4
Wellbore: DD
Plan: Final Survey



Azimuths to True North
Magnetic North: 10.79°
Magnetic Field
Strength: 52488.3snT
Dip Angle: 65.68°
Date: 5/29/2008
Model: IGRF200510

DESIGN DETAILS: DD

Job# 85228; LR
WELL @ 5318.0ft (Ensign 11)

Target	Azimuth	Origin Type	N/S	E/W	From TVD
No Target (Freehand)	59.41	Slot	0.0	0.0	0.0

Directional Plus

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Federal 13-4
Project:	Orchard	TVD Reference:	WELL @ 5318.0ft (Ensign 11)
Site:	SENE S14-T8S-R97W (OH14 Pad)	MD Reference:	WELL @ 5318.0ft (Ensign 11)
Well:	Federal 13-4	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	EDM 2003.21 US Multi User Db

Project	Orchard		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site		SENE S14-T8S-R97W (OH14 Pad)			
Site Position:		Northing:	1,568,615.48 ft	Latitude:	39° 21' 50.04 N
From:	Lat/Long	Easting:	2,242,116.83 ft	Longitude:	108° 10' 51.52 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	-1.69 °

Well	Federal 13-4					
Well Position	+N/-S	0.0 ft	Northing:	1,568,615.46 ft	Latitude:	39° 21' 50.04 N
	+E/-W	0.0 ft	Easting:	2,242,116.89 ft	Longitude:	108° 10' 51.52 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,304.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	5/29/2008	10.79	65.68	52,488

Design	DD			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	59.41

Survey Program		Date	7/8/2008	
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
112.0	5,440.0	Survey #1 (DD)	MWD	Geolink MWD

Survey

Measured			Vertical			Vertical	Dogleg	Build	Formations /
Depth	Inclination	Azimuth	Depth	+N/-S	+E/-W	Section	Rate	Rate	Comments
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(°/100ft)	(°/100ft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
112.0	0.40	326.20	112.0	0.3	-0.2	0.0	0.36	0.36	
205.0	1.80	69.40	205.0	1.1	1.0	1.4	2.08	1.51	
299.0	4.90	64.50	298.8	3.4	6.0	6.9	3.31	3.30	
390.0	9.20	61.30	389.1	8.5	15.9	18.0	4.74	4.73	
483.0	13.50	63.30	480.3	17.0	32.1	36.3	4.64	4.62	
575.0	18.00	61.90	568.8	28.5	54.2	61.2	4.91	4.89	
668.0	22.90	60.20	655.9	44.3	82.6	93.7	5.31	5.27	
760.0	26.10	59.70	739.6	63.4	115.6	131.8	3.49	3.48	
853.0	30.30	59.40	821.5	85.7	153.5	175.7	4.52	4.52	
946.0	33.50	58.30	900.5	111.1	195.6	224.9	3.50	3.44	
1,039.0	37.00	58.80	976.4	139.1	241.4	278.5	3.78	3.76	
1,132.0	37.90	57.60	1,050.3	168.9	289.4	335.1	1.25	0.97	

Directional Plus

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Federal 13-4
Project:	Orchard	TVD Reference:	WELL @ 5318.0ft (Ensign 11)
Site:	SENE S14-T8S-R97W (OH14 Pad)	MD Reference:	WELL @ 5318.0ft (Ensign 11)
Well:	Federal 13-4	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	EDM 2003.21 US Multi User Db

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
1,225.0	38.80	57.50	1,123.2	199.9	338.1	392.7	0.97	0.97	
1,255.0	39.10	57.00	1,146.5	210.1	354.0	411.6	1.45	1.00	
1,348.0	39.30	55.40	1,218.6	242.7	402.8	470.3	1.11	0.22	
1,440.0	38.40	56.70	1,290.2	275.0	450.7	527.9	1.32	-0.98	
1,535.0	37.70	55.80	1,365.1	307.5	499.3	586.3	0.94	-0.74	
1,628.0	38.50	56.80	1,438.2	339.3	547.1	643.6	1.09	0.86	
1,721.0	37.00	59.10	1,511.8	369.6	595.3	700.5	2.21	-1.61	
1,814.0	37.70	59.40	1,585.7	398.4	643.8	757.0	0.78	0.75	
1,907.0	37.90	62.30	1,659.2	426.2	693.6	813.9	1.92	0.22	
2,000.0	35.60	60.40	1,733.7	452.8	742.4	869.5	2.76	-2.47	
2,093.0	34.50	61.60	1,809.8	478.7	789.1	922.9	1.40	-1.18	
2,187.0	36.20	61.30	1,886.5	504.7	836.9	977.3	1.82	1.81	
2,279.0	37.00	61.30	1,960.4	531.1	885.0	1,032.1	0.87	0.87	
2,373.0	35.50	60.80	2,036.2	558.0	933.7	1,087.7	1.63	-1.60	
2,466.0	36.40	61.50	2,111.5	584.3	981.5	1,142.2	1.06	0.97	
2,559.0	35.60	62.60	2,186.7	609.9	1,029.8	1,196.8	1.11	-0.86	
2,652.0	35.80	59.90	2,262.2	636.0	1,077.3	1,251.1	1.71	0.22	
2,745.0	34.80	60.60	2,338.1	662.7	1,124.0	1,304.8	1.16	-1.08	
2,838.0	36.00	59.00	2,413.9	689.8	1,170.5	1,358.7	1.63	1.29	
2,931.0	37.40	56.80	2,488.5	719.3	1,217.6	1,414.2	2.06	1.51	
3,024.0	36.70	55.60	2,562.7	750.5	1,264.2	1,470.2	1.08	-0.75	
3,118.0	33.70	57.60	2,639.5	780.4	1,309.4	1,524.3	3.42	-3.19	
3,211.0	30.30	60.40	2,718.4	805.8	1,351.6	1,573.5	3.99	-3.66	
3,304.0	26.60	60.50	2,800.1	827.6	1,390.1	1,617.8	3.98	-3.98	
3,397.0	23.50	57.60	2,884.4	847.8	1,423.9	1,657.2	3.58	-3.33	
3,490.0	20.50	59.00	2,970.6	866.1	1,453.5	1,692.0	3.27	-3.23	
3,583.0	18.00	57.50	3,058.4	882.3	1,479.6	1,722.6	2.74	-2.69	
3,676.0	15.60	58.80	3,147.4	896.5	1,502.4	1,749.5	2.61	-2.58	
3,770.0	12.70	59.30	3,238.6	908.3	1,522.1	1,772.5	3.09	-3.09	
3,863.0	11.00	57.20	3,329.6	918.3	1,538.4	1,791.6	1.89	-1.83	
3,956.0	10.10	57.20	3,421.0	927.5	1,552.7	1,808.6	0.97	-0.97	
4,049.0	9.10	53.70	3,512.7	936.3	1,565.4	1,824.1	1.24	-1.08	
4,142.0	8.30	61.50	3,604.6	943.9	1,577.3	1,838.1	1.53	-0.86	
4,235.0	6.90	61.90	3,696.8	949.7	1,588.1	1,850.4	1.51	-1.51	
4,328.0	5.10	61.20	3,789.3	954.3	1,596.7	1,860.1	1.94	-1.94	
4,421.0	2.30	46.50	3,882.1	957.6	1,601.6	1,866.0	3.15	-3.01	
4,515.0	1.60	30.70	3,976.0	960.0	1,603.7	1,869.0	0.93	-0.74	
4,608.0	1.00	15.30	4,069.0	961.9	1,604.5	1,870.8	0.74	-0.65	
4,701.0	0.70	354.70	4,162.0	963.3	1,604.7	1,871.6	0.46	-0.32	
4,794.0	0.50	304.90	4,255.0	964.1	1,604.3	1,871.7	0.58	-0.22	
4,887.0	0.40	308.50	4,348.0	964.5	1,603.7	1,871.4	0.11	-0.11	
4,980.0	0.50	253.50	4,441.0	964.6	1,603.1	1,870.9	0.46	0.11	
5,074.0	0.90	225.90	4,535.0	964.0	1,602.2	1,869.7	0.54	0.43	
5,167.0	1.00	223.70	4,628.0	962.9	1,601.1	1,868.3	0.11	0.11	
5,261.0	1.30	202.30	4,722.0	961.3	1,600.1	1,866.6	0.55	0.32	
5,354.0	1.50	216.50	4,814.9	959.3	1,599.0	1,864.7	0.43	0.22	
5,385.0	2.00	214.60	4,845.9	958.6	1,598.4	1,863.8	1.62	1.61	Last DP svy @ 5385
5,440.0	2.00	214.60	4,900.9	957.0	1,597.3	1,862.0	0.00	0.00	

Directional Plus

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Federal 13-4
Project:	Orchard	TVD Reference:	WELL @ 5318.0ft (Ensign 11)
Site:	SENE S14-T8S-R97W (OH14 Pad)	MD Reference:	WELL @ 5318.0ft (Ensign 11)
Well:	Federal 13-4	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	EDM 2003.21 US Multi User Db

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)		
OH14 Federal 13-4 Tgt	0.00	0.00	5,018.0	965.6	1,633.4	1,569,532.44	2,243,778.05	39° 21' 59.58 N	108° 10' 30.72 W
- survey misses target center by 122.8ft at 5440.0ft MD (4900.9 TVD, 957.0 N, 1597.3 E)									
- Point									
OH14 Federal 13-4 TOC	0.00	0.00	3,138.0	904.6	1,530.1	1,569,474.48	2,243,673.06	39° 21' 58.98 N	108° 10' 32.04 W
- survey misses target center by 30.4ft at 3675.0ft MD (3146.5 TVD, 896.3 N, 1502.2 E)									
- Point									
OH14 Federal 13-4 BHL	0.00	0.00	5,018.0	934.0	1,579.9	1,569,502.42	2,243,723.68	39° 21' 59.27 N	108° 10' 31.40 W
- survey misses target center by 120.6ft at 5440.0ft MD (4900.9 TVD, 957.0 N, 1597.3 E)									
- Polygon									
Point 1			5,018.0	60.0	-60.0	1,569,564.17	2,243,665.48		
Point 2			5,018.0	-200.0	-60.0	1,569,304.28	2,243,657.81		
Point 3			5,018.0	-200.0	67.0	1,569,300.53	2,243,784.75		
Point 4			5,018.0	60.0	67.0	1,569,560.42	2,243,792.42		

Survey Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
5,385.0	4,845.9	958.6	1,598.4	Last DP svy @ 5385
5,440.0	4,900.9	957.0	1,597.3	Projection to Bit @ 5440' MD

Checked By: _____ Approved By: _____ Date: _____