

ENSIGN

Directional

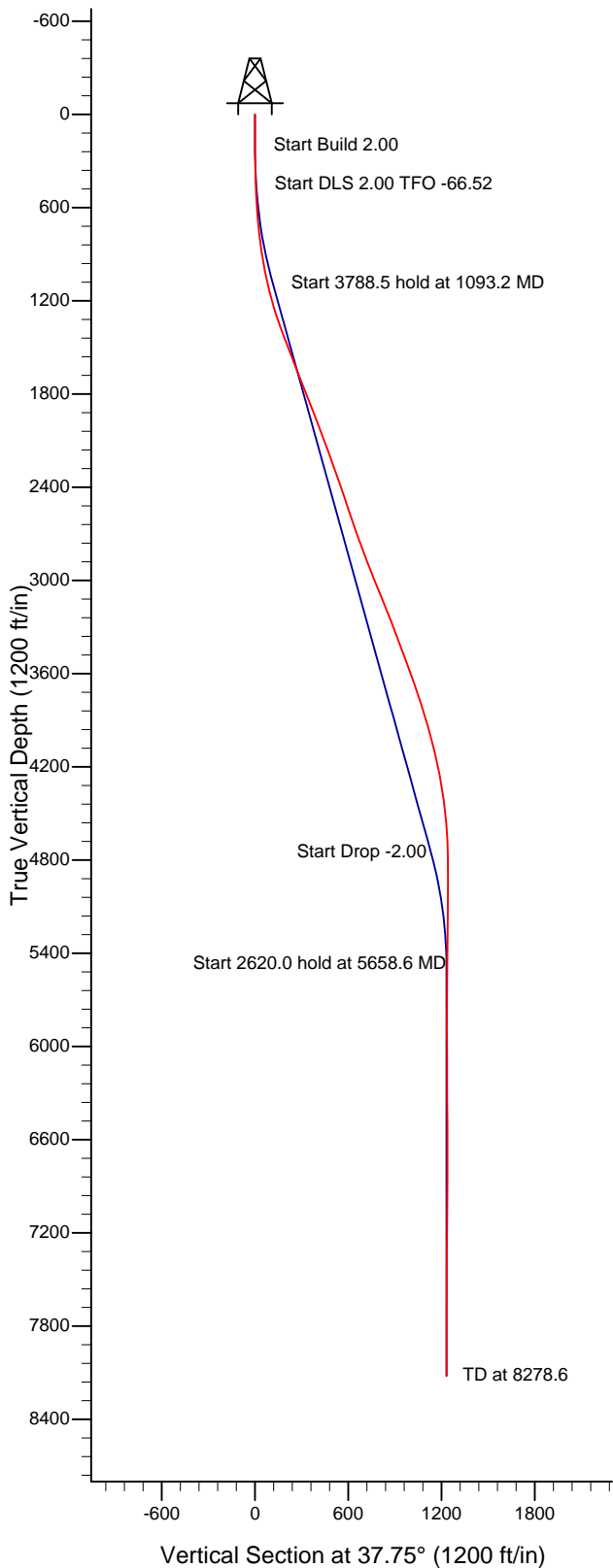
Well Name: **Sprague 4-6-9**

Surface Location: Sprague 4-6-9 Pad Sec.9-T2N-R67W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

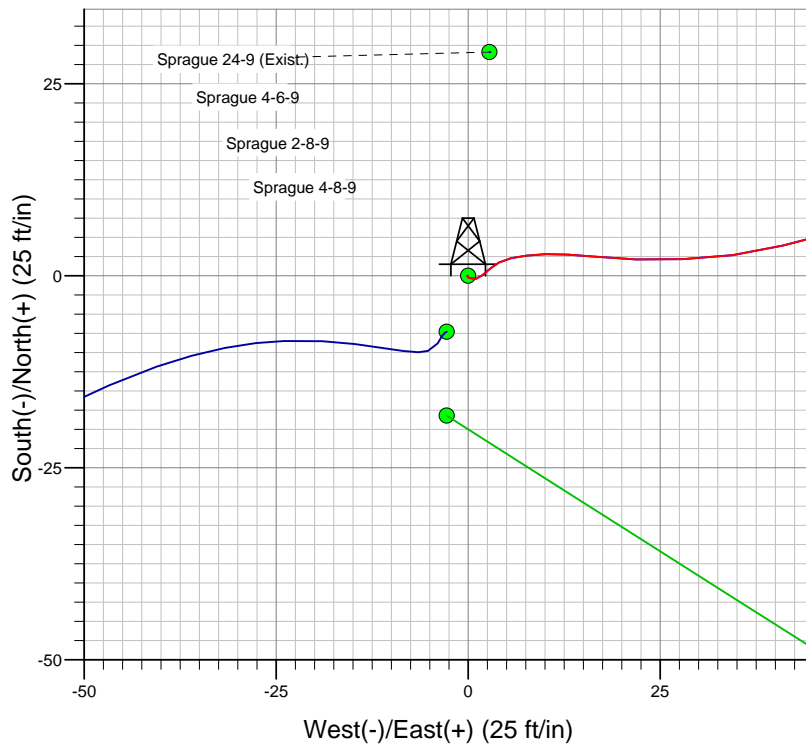
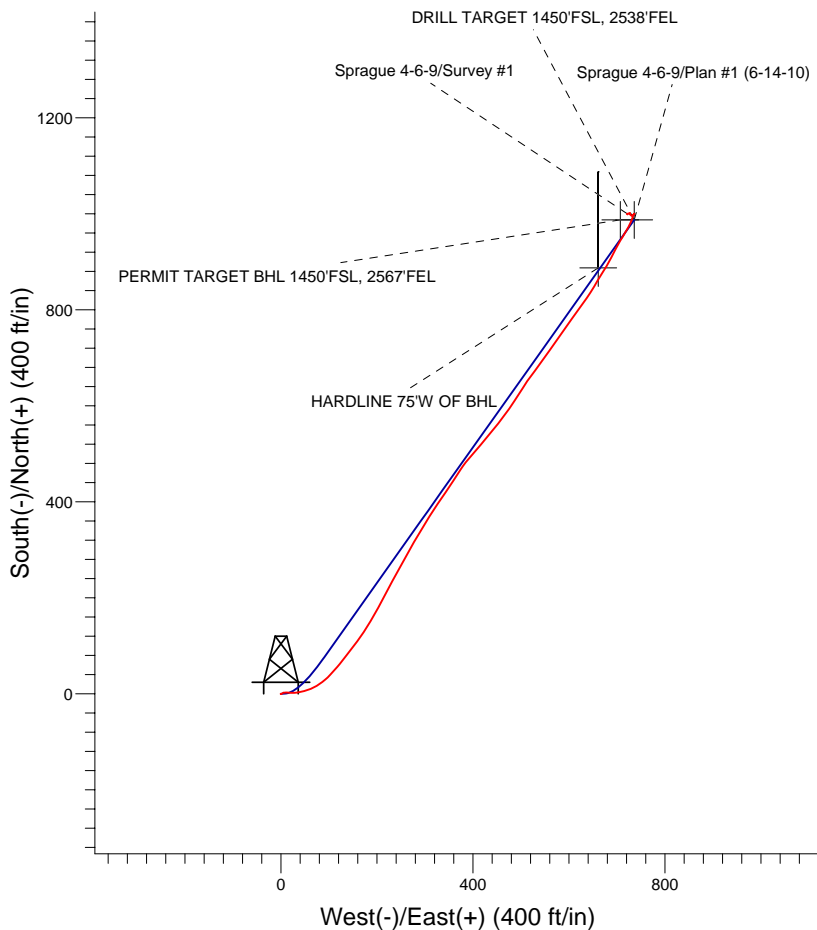
Ground Elevation: 4982.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1296901.88	3168388.72	40° 8' 48.552 N	104° 53' 51.504 W	

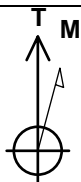
Original Well Elev WELL @ 4995.0ft (Original Well Elev)



EnCana Oil & Gas Weld County CO



Sprague 4-6-9
Wellbore #1
15:23, June 30 2010



Azimuths to True North
Magnetic North: 9.05°
Magnetic Field
Strength: 53087.9snT
Dip Angle: 66.86°
Date: 6/14/2010
Model: IGRF2010



EnCana Oil & Gas Weld County CO

SEC.9-T2N-R67W

Sprague 4-6-9 Pad Sec.9-T2N-R67W

Sprague 4-6-9

Wellbore #1

Survey: Survey #1

Standard Survey Report

30 June, 2010

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
136.0	0.10	262.50	136.0	0.0	-0.1	-0.1	0.07	0.07	0.00	
229.0	0.50	130.60	229.0	-0.3	0.1	-0.2	0.61	0.43	-141.83	
322.0	0.80	74.70	322.0	-0.4	1.0	0.3	0.71	0.32	-60.11	
415.0	2.20	46.20	415.0	1.0	3.0	2.6	1.66	1.51	-30.65	
507.0	4.30	83.30	506.8	2.6	7.7	6.8	3.12	2.28	40.33	
599.0	6.60	95.90	598.4	2.5	16.3	12.0	2.80	2.50	13.70	
691.0	8.00	88.30	689.7	2.2	28.0	18.8	1.85	1.52	-8.26	
783.0	8.50	76.50	780.7	3.9	41.0	28.2	1.92	0.54	-12.83	
891.0	9.80	72.00	887.3	8.6	57.5	42.0	1.37	1.20	-4.17	
978.0	11.60	60.50	972.8	15.2	72.2	56.2	3.20	2.07	-13.22	
1,065.0	12.90	52.60	1,057.8	25.4	87.5	73.7	2.43	1.49	-9.08	
1,153.0	13.90	42.00	1,143.5	39.3	102.4	93.7	3.01	1.14	-12.05	

Company:	EnCana Oil & Gas Weld County CO	Local Co-ordinate Reference:	Well Sprague 4-6-9
Project:	SEC.9-T2N-R67W	TVD Reference:	WELL @ 4995.0ft (Original Well Elev)
Site:	Sprague 4-6-9 Pad Sec.9-T2N-R67W	MD Reference:	WELL @ 4995.0ft (Original Well Elev)
Well:	Sprague 4-6-9	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
1,240.0	16.30	42.10	1,227.5	56.1	117.6	116.3	2.76	2.76	0.11	
1,327.0	18.60	36.50	1,310.5	76.3	134.0	142.4	3.27	2.64	-6.44	
1,415.0	20.60	38.20	1,393.3	99.8	151.9	171.9	2.36	2.27	1.93	
1,502.0	21.10	34.00	1,474.7	124.8	170.2	202.8	1.81	0.57	-4.83	
1,589.0	21.20	31.00	1,555.8	151.2	187.0	234.1	1.25	0.11	-3.45	
1,677.0	21.60	28.70	1,637.7	179.1	203.0	265.9	1.06	0.45	-2.61	
1,764.0	22.10	27.70	1,718.5	207.6	218.3	297.8	0.72	0.57	-1.15	
1,851.0	21.90	27.90	1,799.1	236.4	233.5	329.9	0.25	-0.23	0.23	
1,938.0	21.20	28.30	1,880.1	264.6	248.5	361.4	0.82	-0.80	0.46	
2,026.0	21.00	29.40	1,962.2	292.4	263.8	392.7	0.50	-0.23	1.25	
2,113.0	21.10	30.40	2,043.4	319.5	279.4	423.7	0.43	0.11	1.15	
2,200.0	20.20	32.30	2,124.8	345.7	295.3	454.1	1.29	-1.03	2.18	
2,288.0	20.00	31.70	2,207.4	371.3	311.4	484.2	0.33	-0.23	-0.68	
2,375.0	19.30	33.40	2,289.3	396.0	327.1	513.4	1.04	-0.80	1.95	
2,462.0	19.40	34.90	2,371.4	419.8	343.3	542.1	0.58	0.11	1.72	
2,550.0	18.70	32.90	2,454.6	443.7	359.3	570.8	1.09	-0.80	-2.27	
2,637.0	18.90	33.00	2,537.0	467.2	374.6	598.7	0.23	0.23	0.11	
2,724.0	18.40	40.90	2,619.4	489.4	391.2	626.5	2.96	-0.57	9.08	
2,811.0	19.90	40.40	2,701.6	511.1	409.8	655.0	1.73	1.72	-0.57	
2,899.0	20.50	39.40	2,784.2	534.4	429.3	685.3	0.79	0.68	-1.14	
2,986.0	20.40	39.40	2,865.7	557.9	448.6	715.7	0.11	-0.11	0.00	
3,073.0	22.10	36.10	2,946.8	582.8	467.9	747.2	2.39	1.95	-3.79	
3,161.0	22.30	32.90	3,028.3	610.2	486.7	780.4	1.39	0.23	-3.64	
3,248.0	21.80	33.00	3,108.9	637.6	504.5	813.0	0.58	-0.57	0.11	
3,335.0	22.10	35.70	3,189.6	664.4	522.8	845.4	1.21	0.34	3.10	
3,423.0	21.70	36.80	3,271.2	690.9	542.2	878.2	0.65	-0.45	1.25	
3,510.0	20.10	35.00	3,352.5	716.0	560.4	909.3	1.98	-1.84	-2.07	
3,597.0	20.60	34.00	3,434.1	741.0	577.6	939.5	0.70	0.57	-1.15	
3,684.0	20.10	36.10	3,515.7	765.7	594.9	969.7	1.02	-0.57	2.41	
3,772.0	19.30	36.50	3,598.5	789.6	612.5	999.3	0.92	-0.91	0.45	
3,859.0	19.20	35.40	3,680.6	812.9	629.3	1,028.0	0.43	-0.11	-1.26	
3,946.0	19.20	32.30	3,762.8	836.6	645.3	1,056.5	1.17	0.00	-3.56	
4,034.0	17.80	31.00	3,846.3	860.4	659.9	1,084.3	1.66	-1.59	-1.48	
4,121.0	16.00	31.00	3,929.5	882.1	672.9	1,109.4	2.07	-2.07	0.00	
4,208.0	14.90	29.50	4,013.4	902.1	684.6	1,132.4	1.35	-1.26	-1.72	
4,296.0	13.60	27.20	4,098.6	921.1	694.9	1,153.8	1.61	-1.48	-2.61	
4,383.0	12.10	28.40	4,183.5	938.2	703.9	1,172.8	1.75	-1.72	1.38	
4,470.0	10.50	32.20	4,268.8	953.0	712.5	1,189.7	2.03	-1.84	4.37	
4,557.0	9.40	29.70	4,354.5	965.8	720.2	1,204.6	1.36	-1.26	-2.87	
4,645.0	6.80	27.50	4,441.6	976.7	726.2	1,216.9	2.97	-2.95	-2.50	
4,732.0	5.80	22.30	4,528.1	985.4	730.3	1,226.2	1.32	-1.15	-5.98	
4,819.0	4.30	16.80	4,614.7	992.5	732.9	1,233.5	1.81	-1.72	-6.32	
4,907.0	1.80	18.60	4,702.6	997.0	734.3	1,237.9	2.84	-2.84	2.05	
4,994.0	1.50	41.40	4,789.5	999.2	735.4	1,240.3	0.82	-0.34	26.21	
5,081.0	0.50	99.70	4,876.5	999.9	736.6	1,241.6	1.50	-1.15	67.01	
5,212.0	0.70	241.40	5,007.5	999.5	736.4	1,241.1	0.87	0.15	108.17	
5,343.0	0.60	224.80	5,138.5	998.6	735.3	1,239.7	0.16	-0.08	-12.67	
5,474.0	0.50	227.90	5,269.5	997.7	734.3	1,238.5	0.08	-0.08	2.37	
5,605.0	0.50	230.00	5,400.5	997.0	733.5	1,237.4	0.01	0.00	1.60	
5,704.5	0.50	235.62	5,500.0	996.5	732.8	1,236.5	0.05	0.00	5.65	
DRILL TARGET 1450'FSL, 2538'FEL										
5,736.0	0.50	237.40	5,531.5	996.3	732.6	1,236.3	0.05	0.00	5.64	
5,867.0	0.50	269.60	5,662.5	996.0	731.5	1,235.4	0.21	0.00	24.58	
5,998.0	0.70	299.50	5,793.5	996.4	730.2	1,234.9	0.28	0.15	22.82	

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6,129.0	0.80	313.20	5,924.5	997.4	728.9	1,234.9	0.16	0.08	10.46	
6,204.6	0.73	326.22	6,000.0	998.2	728.2	1,235.1	0.25	-0.10	17.22	
PERMIT TARGET BHL 1450'FSL, 2567'FEL										
6,260.0	0.70	337.10	6,055.5	998.8	727.9	1,235.3	0.25	-0.05	19.63	
6,391.0	0.40	330.00	6,186.5	999.9	727.4	1,235.9	0.23	-0.23	-5.42	
6,522.0	0.20	352.70	6,317.5	1,000.5	727.1	1,236.2	0.17	-0.15	17.33	
6,653.0	0.30	64.90	6,448.5	1,000.9	727.4	1,236.7	0.23	0.08	55.11	
6,784.0	0.30	4.90	6,579.5	1,001.4	727.7	1,237.3	0.23	0.00	-45.80	
6,914.0	0.04	114.30	6,709.5	1,001.7	727.8	1,237.6	0.24	-0.20	84.15	
7,045.0	0.40	247.00	6,840.5	1,001.5	727.4	1,237.2	0.33	0.27	101.30	
7,176.0	0.30	266.70	6,971.5	1,001.3	726.7	1,236.6	0.12	-0.08	15.04	
7,307.0	0.50	258.40	7,102.5	1,001.2	725.7	1,235.9	0.16	0.15	-6.34	
7,438.0	0.40	241.50	7,233.5	1,000.8	724.8	1,235.1	0.13	-0.08	-12.90	
7,569.0	0.40	243.30	7,364.5	1,000.4	724.0	1,234.2	0.01	0.00	1.37	
7,700.0	0.40	234.80	7,495.4	999.9	723.2	1,233.4	0.05	0.00	-6.49	
7,831.0	0.40	220.90	7,626.4	999.3	722.5	1,232.5	0.07	0.00	-10.61	
7,962.0	0.10	271.00	7,757.4	999.0	722.1	1,232.0	0.26	-0.23	38.24	
8,093.0	0.30	321.90	7,888.4	999.3	721.8	1,232.0	0.19	0.15	38.86	
8,224.0	0.30	359.80	8,019.4	999.9	721.6	1,232.4	0.15	0.00	28.93	
8,268.0	0.30	350.00	8,063.4	1,000.1	721.5	1,232.5	0.12	0.00	-22.27	
8,320.0	0.30	350.00	8,115.4	1,000.4	721.5	1,232.7	0.00	0.00	0.00	
HARDLINE 75'W OF BHL										

Checked By: _____ Approved By: _____ Date: _____