

1 General

1.1 Customer Information

Company	PICEANCE HL
Representative	Eric Kolstad
Address	1515 Arapahoe St., Suite 1000 Denver, CO 80202

1.2 Well Information

Well	RGU 14-24-198	Wellbore No.	OH
Well Name	FEDERAL RGU 14-24-198	Common Name	RGU 14-24-198
Project	RG 24-01S-098W	Site	RGU 13-24-198 Pad
Vertical Section Azimuth	211.29 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	9/17/2011	UWI	RGU 14-24-198
Active Datum	KB @6,560.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	CATHEDRAL
Date Started	9/16/2011	Ended	
Tool Name	MWD	Engineer	

2.1.1 Tie On Point

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)
0.0	0.00	0.00	0.00	0.00	0.00

2.1.2 Survey Stations

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
9/16/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/16/2011	NORMAL	122.0	0.60	220.80	122.00	-0.48	-0.42	0.63	0.49	0.49	0.00	220.80
	NORMAL	213.0	1.80	195.90	212.96	-3.22	-0.92	3.23	0.85	0.85	0.00	195.90
	NORMAL	305.0	3.30	205.00	304.87	-7.01	-2.43	7.25	1.68	1.63	9.89	19.68
	NORMAL	399.0	4.40	207.90	398.66	-12.65	-5.26	13.54	1.19	1.17	3.09	11.49
9/17/2011	NORMAL	491.0	6.20	214.70	490.26	-19.85	-9.74	22.02	2.07	1.96	7.39	22.64
	NORMAL	583.0	6.80	214.10	581.67	-28.44	-15.62	32.42	0.66	0.65	-0.65	353.24
	NORMAL	676.0	7.10	215.90	673.99	-37.66	-22.08	43.65	0.40	0.32	1.94	36.88
	NORMAL	768.0	6.70	212.70	765.32	-46.78	-28.31	54.68	0.60	-0.43	-3.48	222.28
	NORMAL	861.0	7.20	216.40	857.64	-56.04	-34.70	65.91	0.72	0.54	3.98	43.69
	NORMAL	955.0	7.10	212.60	950.91	-65.67	-41.33	77.59	0.51	-0.11	-4.04	256.18
	NORMAL	1,049.0	6.30	199.80	1,044.27	-75.42	-46.21	88.45	1.80	-0.85	-13.62	235.56
	NORMAL	1,143.0	6.60	199.40	1,137.67	-85.37	-49.75	98.79	0.32	0.32	-0.43	351.28
	NORMAL	1,236.0	7.00	197.00	1,230.02	-95.83	-53.18	109.51	0.53	0.43	-2.58	323.41
	NORMAL	1,329.0	7.00	196.60	1,322.33	-106.68	-56.46	120.48	0.05	0.00	-0.43	269.80
	NORMAL	1,422.0	6.10	209.10	1,414.72	-116.43	-60.48	130.90	1.81	-0.97	13.44	128.37
	NORMAL	1,516.0	6.50	215.40	1,508.16	-125.13	-65.99	141.20	0.85	0.43	6.70	63.10
	NORMAL	1,610.0	6.80	218.80	1,601.52	-133.80	-72.56	152.03	0.53	0.32	3.62	54.39
	NORMAL	1,704.0	7.30	220.20	1,694.81	-142.70	-79.90	163.44	0.56	0.53	1.49	19.66
	NORMAL	1,796.0	8.50	212.20	1,785.94	-152.92	-87.30	176.02	1.77	1.30	-8.70	313.49

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
9/17/2011	NORMAL	1,889.0	8.70	213.30	1,877.90	-164.61	-94.82	189.92	0.28	0.22	1.18	39.98
	NORMAL	1,982.0	9.10	214.80	1,969.78	-176.53	-102.88	204.29	0.50	0.43	1.61	30.86
	NORMAL	2,075.0	9.10	215.10	2,061.61	-188.59	-111.31	218.97	0.05	0.00	0.32	90.15
	NORMAL	2,169.0	9.00	214.40	2,154.44	-200.74	-119.73	233.73	0.16	-0.11	-0.74	227.41
	NORMAL	2,263.0	8.90	214.90	2,247.29	-212.77	-128.05	248.32	0.13	-0.11	0.53	142.37
	NORMAL	2,357.0	9.10	217.10	2,340.13	-224.66	-136.69	262.98	0.42	0.21	2.34	60.93
	NORMAL	2,450.0	9.00	216.40	2,431.98	-236.38	-145.45	277.54	0.16	-0.11	-0.75	227.41
	NORMAL	2,543.0	9.10	214.50	2,523.82	-248.30	-153.93	292.13	0.34	0.11	-2.04	287.56
	NORMAL	2,637.0	9.30	209.00	2,616.61	-261.07	-161.82	307.14	0.96	0.21	-5.85	280.09
9/18/2011	NORMAL	2,730.0	9.30	209.00	2,708.39	-274.21	-169.11	322.16	0.00	0.00	0.00	0.00
	NORMAL	2,824.0	9.20	207.80	2,801.17	-287.50	-176.29	337.25	0.23	-0.11	-1.28	242.01
	NORMAL	2,915.0	9.10	211.10	2,891.01	-300.10	-183.40	351.70	0.59	-0.11	3.63	102.42
	NORMAL	3,009.0	9.10	212.20	2,983.83	-312.75	-191.20	366.57	0.19	0.00	1.17	90.54
	NORMAL	3,102.0	8.50	209.40	3,075.73	-324.96	-198.50	380.79	0.79	-0.65	-3.01	214.15
	NORMAL	3,195.0	8.30	208.60	3,167.73	-336.85	-205.08	394.37	0.25	-0.22	-0.86	209.90
	NORMAL	3,286.0	8.90	213.10	3,257.71	-348.51	-212.07	407.96	0.99	0.66	4.95	50.52
	NORMAL	3,380.0	9.00	215.60	3,350.57	-360.58	-220.32	422.56	0.43	0.11	2.66	76.82
	NORMAL	3,472.0	8.90	212.80	3,441.45	-372.41	-228.37	436.85	0.49	-0.11	-3.04	255.69
	NORMAL	3,565.0	8.70	211.70	3,533.35	-384.44	-235.96	451.08	0.28	-0.22	-1.18	219.54
	NORMAL	3,659.0	9.10	213.40	3,626.22	-396.70	-243.79	465.61	0.51	0.43	1.81	34.17
	NORMAL	3,752.0	9.00	213.40	3,718.06	-408.91	-251.84	480.23	0.11	-0.11	0.00	180.00
9/20/2011	NORMAL	3,800.0	8.60	213.70	3,765.50	-415.03	-255.90	487.57	0.84	-0.83	0.63	173.60
	NORMAL	3,876.0	7.70	211.90	3,840.73	-424.08	-261.74	498.34	1.23	-1.18	-2.37	194.94
	NORMAL	3,970.0	6.50	207.40	3,934.01	-434.15	-267.52	509.95	1.41	-1.28	-4.79	202.65
	NORMAL	4,063.0	5.50	204.30	4,026.50	-442.89	-271.78	519.62	1.13	-1.08	-3.33	196.42
	NORMAL	4,156.0	4.70	204.20	4,119.13	-450.42	-275.17	527.83	0.86	-0.86	-0.11	180.59
	NORMAL	4,250.0	6.00	217.20	4,212.72	-457.85	-279.72	536.54	1.88	1.38	13.83	49.59
	NORMAL	4,342.0	6.30	212.70	4,304.19	-465.93	-285.36	546.36	0.62	0.33	-4.89	299.64
	NORMAL	4,436.0	5.50	213.90	4,397.69	-474.01	-290.65	556.02	0.86	-0.85	1.28	171.83
	NORMAL	4,529.0	6.00	203.60	4,490.23	-482.16	-295.09	565.29	1.23	0.54	-11.08	290.67
	NORMAL	4,622.0	7.00	207.60	4,582.63	-491.64	-299.66	575.76	1.18	1.08	4.30	26.36
	NORMAL	4,715.0	6.10	207.10	4,675.02	-501.06	-304.53	586.35	0.97	-0.97	-0.54	183.38
	NORMAL	4,809.0	5.70	212.40	4,768.52	-509.45	-309.31	595.99	0.72	-0.43	5.64	128.90
	NORMAL	4,903.0	5.50	207.00	4,862.08	-517.40	-313.86	605.15	0.60	-0.21	-5.74	246.54
	NORMAL	4,997.0	5.00	201.50	4,955.68	-525.23	-317.40	613.68	0.75	-0.53	-5.85	222.47
9/21/2011	NORMAL	5,091.0	4.90	196.30	5,049.33	-532.89	-320.03	621.60	0.49	-0.11	-5.53	254.85
	NORMAL	5,185.0	6.60	204.50	5,142.86	-541.66	-323.40	630.84	2.00	1.81	8.72	29.91
	NORMAL	5,278.0	6.50	219.80	5,235.26	-550.57	-328.99	641.35	1.87	-0.11	16.45	100.86
	NORMAL	5,375.0	5.70	223.00	5,331.71	-558.31	-335.79	651.50	0.90	-0.82	3.30	158.56
	NORMAL	5,466.0	6.10	219.00	5,422.23	-565.37	-341.91	660.72	0.63	0.44	-4.40	312.21
	NORMAL	5,560.0	5.70	216.50	5,515.73	-573.01	-347.83	670.32	0.51	-0.43	-2.66	211.48
	NORMAL	5,654.0	5.80	213.60	5,609.25	-580.72	-353.23	679.71	0.33	0.11	-3.09	287.55
	NORMAL	5,747.0	7.00	211.10	5,701.67	-589.48	-358.76	690.07	1.32	1.29	-2.69	345.68
	NORMAL	5,840.0	7.10	209.10	5,793.97	-599.36	-364.49	701.48	0.28	0.11	-2.15	291.17
	NORMAL	5,933.0	6.50	207.20	5,886.32	-609.06	-369.69	712.48	0.69	-0.65	-2.04	199.61
	NORMAL	6,026.0	6.50	221.90	5,978.72	-617.66	-375.61	722.90	1.78	0.00	15.81	97.30
	NORMAL	6,120.0	5.60	220.90	6,072.20	-625.09	-382.16	732.65	0.96	-0.96	-1.06	186.18
	NORMAL	6,214.0	4.70	221.00	6,165.82	-631.46	-387.69	740.97	0.96	-0.96	0.11	179.48
	NORMAL	6,307.0	4.40	211.00	6,258.53	-637.39	-392.03	748.29	0.91	-0.32	-10.75	244.35
	NORMAL	6,399.0	4.20	205.80	6,350.27	-643.45	-395.32	755.18	0.48	-0.22	-5.65	240.27
	NORMAL	6,493.0	4.20	197.60	6,444.02	-649.83	-397.85	761.95	0.64	0.00	-8.72	265.91
	NORMAL	6,586.0	4.00	192.50	6,536.78	-656.25	-399.59	768.33	0.45	-0.22	-5.48	238.73
	NORMAL	6,679.0	3.90	197.00	6,629.56	-662.44	-401.21	774.46	0.35	-0.11	4.84	110.12
	NORMAL	6,773.0	4.20	208.40	6,723.33	-668.52	-403.78	781.00	0.91	0.32	12.13	75.31
9/22/2011	NORMAL	6,866.0	4.60	209.30	6,816.05	-674.77	-407.23	788.13	0.44	0.43	0.97	10.24
	NORMAL	6,960.0	5.50	210.90	6,909.69	-681.92	-411.39	796.40	0.97	0.96	1.70	9.69
	NORMAL	7,054.0	6.00	210.10	7,003.21	-690.04	-416.16	805.82	0.54	0.53	-0.85	350.49

2.1.2 Survey Stations (Continued)

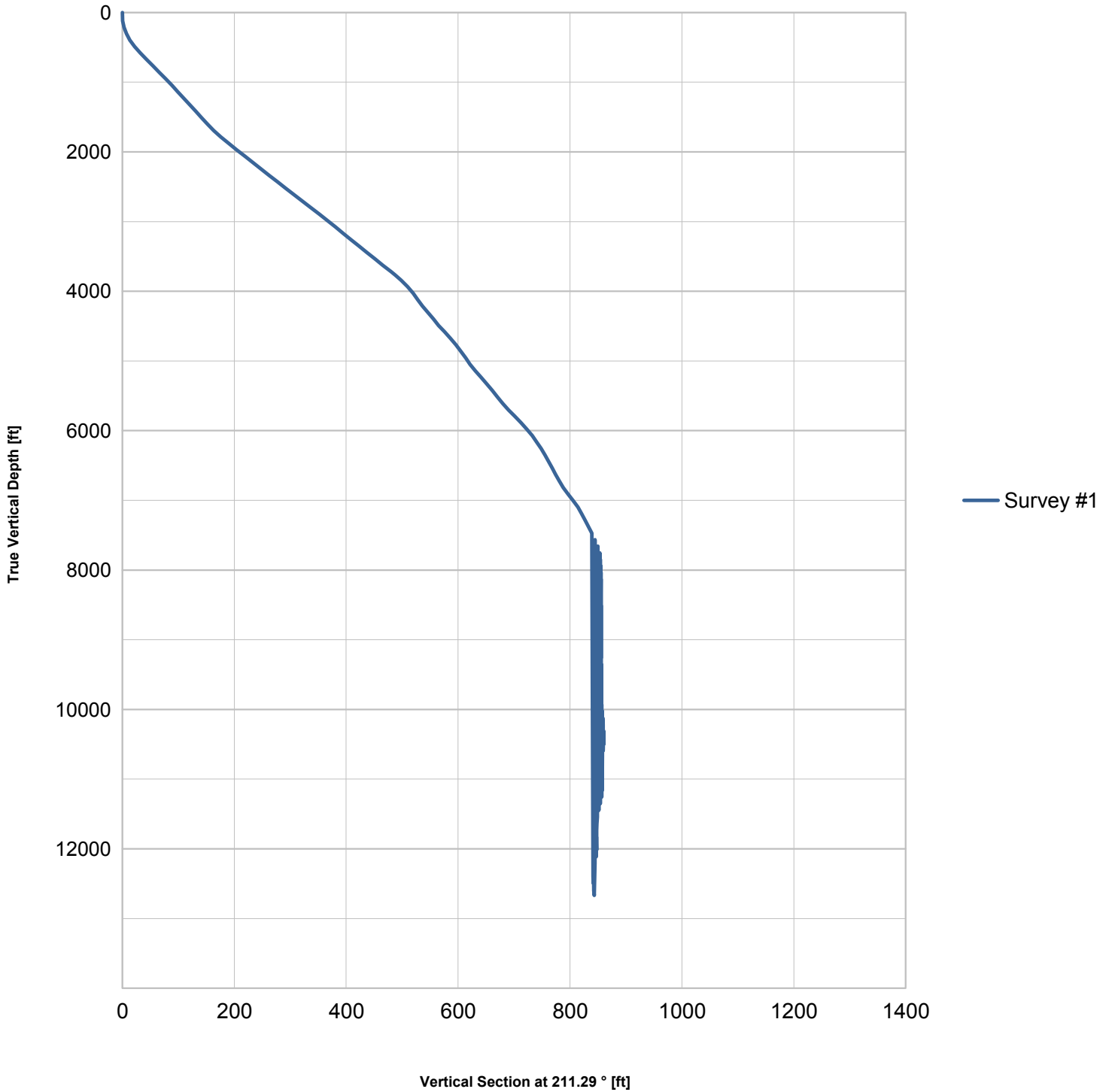
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
9/22/2011	NORMAL	7,148.0	4.10	213.50	7,096.84	-697.09	-420.48	814.09	2.05	-2.02	3.62	172.74
	NORMAL	7,242.0	4.10	218.20	7,190.60	-702.54	-424.42	820.78	0.36	0.00	5.00	92.34
	NORMAL	7,336.0	3.80	222.10	7,284.38	-707.49	-428.58	827.18	0.43	-0.32	4.15	140.09
	NORMAL	7,430.0	3.60	222.80	7,378.18	-711.96	-432.68	833.13	0.22	-0.21	0.74	167.62
	NORMAL	7,524.0	3.80	222.80	7,471.99	-716.41	-436.80	839.07	0.21	0.21	0.00	0.00
	NORMAL	7,617.0	3.40	224.30	7,564.80	-720.65	-440.82	844.78	0.44	-0.43	1.61	167.50
	NORMAL	7,711.0	2.90	225.70	7,658.66	-724.30	-444.47	849.80	0.54	-0.53	1.49	171.95
	NORMAL	7,805.0	1.30	231.20	7,752.60	-726.63	-447.00	853.10	1.71	-1.70	5.85	175.56
	NORMAL	7,898.0	0.40	260.60	7,845.59	-727.35	-448.14	854.31	1.04	-0.97	31.61	168.34
	NORMAL	7,992.0	0.40	270.30	7,939.58	-727.40	-448.79	854.69	0.07	0.00	10.32	94.85
	NORMAL	8,086.0	0.60	247.50	8,033.58	-727.59	-449.58	855.26	0.30	0.21	-24.26	303.37
	NORMAL	8,180.0	0.50	81.40	8,127.58	-727.71	-449.63	855.39	1.16	-0.11	-176.70	186.32
	NORMAL	8,275.0	0.90	88.80	8,222.57	-727.64	-448.47	854.72	0.43	0.42	7.79	16.45
9/23/2011	NORMAL	8,370.0	0.60	119.50	8,317.56	-727.87	-447.29	854.31	0.52	-0.32	32.32	141.43
	NORMAL	8,465.0	0.80	192.40	8,412.56	-728.76	-447.00	854.92	0.89	0.21	76.74	115.50
	NORMAL	8,560.0	0.70	115.80	8,507.55	-729.66	-446.62	855.49	0.98	-0.11	-80.63	226.88
	NORMAL	8,653.0	1.30	103.20	8,600.54	-730.15	-445.08	855.11	0.68	0.65	-13.55	333.50
	NORMAL	8,748.0	0.90	106.80	8,695.52	-730.61	-443.32	854.59	0.43	-0.42	3.79	171.99
	NORMAL	8,842.0	0.60	100.50	8,789.51	-730.91	-442.13	854.23	0.33	-0.32	-6.70	192.23
	NORMAL	8,937.0	0.30	98.50	8,884.51	-731.04	-441.39	853.95	0.32	-0.32	-2.11	182.00
	NORMAL	9,031.0	0.30	64.50	8,978.51	-730.97	-440.93	853.65	0.19	0.00	-36.17	253.00
	NORMAL	9,125.0	0.00	280.50	9,072.51	-730.86	-440.71	853.45	0.32	-0.32	0.00	180.00
	NORMAL	9,221.0	0.80	250.40	9,168.50	-731.09	-441.34	853.97	0.83	0.83	0.00	250.40
	NORMAL	9,316.0	1.00	231.40	9,263.49	-731.83	-442.61	855.26	0.38	0.21	-20.00	294.09
9/24/2011	NORMAL	9,411.0	0.60	280.50	9,358.48	-732.25	-443.75	856.22	0.80	-0.42	51.68	143.24
	NORMAL	9,507.0	0.40	311.40	9,454.48	-731.94	-444.49	856.34	0.34	-0.21	32.19	141.34
	NORMAL	9,601.0	1.10	300.00	9,548.47	-731.27	-445.52	856.30	0.76	0.74	-12.13	342.23
	NORMAL	9,694.0	1.00	350.80	9,641.46	-730.03	-446.42	855.70	0.97	-0.11	54.62	121.12
	NORMAL	9,789.0	1.20	308.10	9,736.44	-728.59	-447.34	854.95	0.87	0.21	-44.95	261.75
	NORMAL	9,884.0	0.80	235.60	9,831.43	-728.35	-448.67	855.44	1.29	-0.42	-76.32	218.50
	NORMAL	9,980.0	0.90	243.30	9,927.42	-729.07	-449.89	856.69	0.16	0.10	8.02	52.69
	NORMAL	10,074.0	0.80	285.00	10,021.41	-729.23	-451.19	857.50	0.65	-0.11	44.36	119.63
9/26/2011	NORMAL	10,171.0	0.80	247.20	10,118.40	-729.32	-452.47	858.24	0.53	0.00	-38.97	251.10
	NORMAL	10,266.0	0.70	232.10	10,213.39	-729.93	-453.54	859.32	0.23	-0.11	-15.89	235.75
	NORMAL	10,360.0	0.80	127.30	10,307.39	-730.68	-453.47	859.92	1.27	0.11	-111.49	220.54
	NORMAL	10,455.0	1.20	153.50	10,402.37	-731.98	-452.49	860.52	0.63	0.42	27.58	62.42
	NORMAL	10,549.0	1.10	76.80	10,496.36	-732.65	-451.18	860.41	1.52	-0.11	-81.60	228.51
	NORMAL	10,644.0	0.80	88.60	10,591.35	-732.43	-449.63	859.42	0.38	-0.32	12.42	152.70
	NORMAL	10,739.0	1.30	37.60	10,686.33	-731.56	-448.31	857.99	1.06	0.53	-53.68	271.03
	NORMAL	10,834.0	0.90	63.20	10,781.32	-730.37	-446.98	856.28	0.66	-0.42	26.95	141.47
	NORMAL	10,928.0	0.20	0.00	10,875.31	-729.87	-446.32	855.52	0.88	-0.74	-67.23	192.43
	NORMAL	11,023.0	1.20	133.90	10,970.30	-730.39	-445.61	855.59	1.42	1.05	140.95	140.04
	NORMAL	11,118.0	1.70	156.80	11,065.27	-732.38	-444.33	856.63	0.80	0.53	24.11	61.04
9/27/2011	NORMAL	11,213.0	1.50	126.50	11,160.24	-734.41	-442.78	857.56	0.90	-0.21	-31.89	241.86
	NORMAL	11,308.0	1.30	57.60	11,255.22	-734.58	-440.87	856.71	1.68	-0.21	-72.53	229.61
	NORMAL	11,404.0	1.80	38.90	11,351.18	-732.82	-439.00	854.24	0.73	0.52	-19.48	305.07
	NORMAL	11,500.0	1.60	34.40	11,447.14	-730.54	-437.30	851.40	0.25	-0.21	-4.69	211.49
	NORMAL	11,595.0	1.20	27.80	11,542.11	-728.57	-436.09	849.09	0.45	-0.42	-6.95	198.68
	NORMAL	11,690.0	0.60	323.70	11,637.10	-727.28	-435.92	847.90	1.14	-0.63	-67.47	209.92
	NORMAL	11,785.0	1.00	311.00	11,732.09	-726.34	-436.84	847.57	0.46	0.42	-13.37	329.66
	NORMAL	11,880.0	0.90	302.40	11,827.08	-725.40	-438.09	847.42	0.18	-0.11	-9.05	230.71
	NORMAL	11,975.0	1.10	295.80	11,922.06	-724.60	-439.54	847.49	0.24	0.21	-6.95	326.73
	NORMAL	12,070.0	0.70	315.80	12,017.05	-723.79	-440.77	847.43	0.53	-0.42	21.05	151.57
	NORMAL	12,165.0	0.70	343.50	12,112.05	-722.81	-441.34	846.90	0.35	0.00	29.16	103.85
	NORMAL	12,260.0	2.20	46.00	12,207.02	-720.99	-440.19	844.75	2.08	1.58	65.79	80.80
	NORMAL	12,356.0	1.90	90.70	12,302.96	-719.73	-437.28	842.15	1.65	-0.31	46.56	122.43
9/28/2011	NORMAL	12,332.0			12,278.95	-719.10	-437.93	841.95	1.65	-0.31	46.56	122.43

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
9/29/2011	NORMAL	12,450.0	0.30	136.50	12,396.94	-719.93	-435.55	841.42	1.81	-1.70	48.72	172.75
	NORMAL	12,546.0	0.30	197.80	12,492.94	-720.35	-435.45	841.73	0.32	0.00	63.85	120.65
	NORMAL	12,641.0	0.60	214.60	12,587.94	-721.00	-435.81	842.47	0.34	0.32	17.68	32.29
	NORMAL	12,653.0	0.60	235.00	12,599.94	-721.08	-435.90	842.59	1.77	0.00	170.00	100.20
	NORMAL	12,720.0	0.60	235.00	12,666.93	-721.49	-436.47	843.24	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

