

## 1 General

### 1.1 Customer Information

Company	PICEANCE HL
Representative	
Address	

### 1.2 Well/Wellbore Information

Well	RG 713-29-298	Wellbore No.	00
Wellbore Legal Name	RG 713-29-298	Common Wellbore Name	RG 713-29-298
Project	RG 29-02S-098W	Site	RG 24-29-298 Pad
Vertical Section Azimuth	276.78 (°)	North reference	True
Origin N/S		Origin E/W	
Spud date	9/24/2014	UWI	RG 713-29-298
Active datum	KB @7,067.0ft (above Mean Sea Level)		

## 2 Survey Name

### 2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	9/24/2014	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 (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
9/24/2014	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/24/2014	NORMAL	182.0	0.66	234.45	182.00	-0.61	-0.85	0.77	0.36	0.36	0.00	234.45
	NORMAL	241.0	1.32	279.37	240.99	-0.70	-1.80	1.71	1.65	1.12	76.14	73.58
9/25/2014	NORMAL	336.0	3.78	277.87	335.89	-0.09	-5.98	5.93	2.59	2.59	-1.58	357.70
	NORMAL	425.0	5.82	274.49	424.57	0.67	-13.39	13.37	2.31	2.29	-3.80	350.42
	NORMAL	518.0	7.09	278.47	516.98	1.88	-23.77	23.82	1.45	1.37	4.28	21.39
	NORMAL	611.0	8.28	279.98	609.14	3.89	-36.04	36.24	1.30	1.28	1.62	10.38
	NORMAL	705.0	9.09	277.07	702.06	5.97	-50.07	50.43	0.98	0.86	-3.10	330.08
	NORMAL	797.0	8.93	274.85	792.93	7.47	-64.40	64.83	0.42	-0.17	-2.41	244.19
	NORMAL	889.0	10.12	279.33	883.66	9.39	-79.49	80.04	1.52	1.29	4.87	34.14
	NORMAL	981.0	12.05	281.39	973.94	12.59	-96.88	97.69	2.14	2.10	2.24	12.61
	NORMAL	1,073.0	13.28	277.26	1,063.70	15.82	-116.78	117.83	1.66	1.34	-4.49	321.61
9/26/2014	NORMAL	1,166.0	13.01	271.99	1,154.27	17.54	-137.84	138.95	1.32	-0.29	-5.67	254.75
	NORMAL	1,258.0	12.22	265.66	1,244.05	17.16	-157.90	158.82	1.73	-0.86	-6.88	237.19
	NORMAL	1,353.0	11.26	266.80	1,337.06	15.88	-177.18	177.82	1.04	-1.01	1.20	166.97
	NORMAL	1,448.0	11.41	272.05	1,430.21	15.70	-195.84	196.32	1.10	0.16	5.53	84.31
	NORMAL	1,542.0	11.48	279.25	1,522.35	17.54	-214.36	214.93	1.52	0.07	7.66	90.73
	NORMAL	1,638.0	11.08	277.07	1,616.50	20.21	-232.95	233.70	0.61	-0.42	-2.27	225.77
	NORMAL	1,732.0	10.09	277.77	1,708.90	22.43	-250.07	250.97	1.06	-1.05	0.74	172.94
	NORMAL	1,827.0	9.83	277.65	1,802.46	24.64	-266.35	267.40	0.27	-0.27	-0.13	184.51
	NORMAL	1,922.0	8.75	277.11	1,896.22	26.61	-281.56	282.73	1.14	-1.14	-0.57	184.35

## 2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
9/26/2014	NORMAL	2,017.0	7.51	275.50	1,990.26	28.10	-294.91	296.17	1.33	-1.31	-1.69	189.61
	NORMAL	2,112.0	7.42	275.67	2,084.46	29.30	-307.19	308.51	0.10	-0.09	0.18	166.30
	NORMAL	2,206.0	7.11	277.37	2,177.70	30.65	-319.00	320.39	0.40	-0.33	1.81	146.10
9/27/2014	NORMAL	2,312.0	6.93	276.41	2,282.91	32.20	-331.86	333.35	0.20	-0.17	-0.91	212.62
	NORMAL	2,406.0	7.24	281.89	2,376.19	34.06	-343.30	344.92	0.79	0.33	5.83	68.10
	NORMAL	2,509.0	8.00	279.72	2,478.28	36.60	-356.71	358.54	0.79	0.74	-2.11	338.18
	NORMAL	2,603.0	8.53	280.75	2,571.30	39.01	-370.01	372.03	0.59	0.58	1.10	16.12
	NORMAL	2,698.0	9.15	281.04	2,665.18	41.77	-384.34	386.59	0.65	0.65	0.31	4.25
	NORMAL	2,793.0	8.88	274.80	2,759.00	43.83	-399.06	401.45	1.07	-0.28	-6.57	251.50
	NORMAL	2,888.0	8.90	273.36	2,852.86	44.87	-413.71	416.11	0.24	0.02	-1.52	274.42
10/1/2014	NORMAL	3,080.0	10.35	277.34	3,042.16	47.95	-445.64	448.19	0.83	0.76	2.07	26.62
	NORMAL	3,175.0	11.87	278.55	3,135.37	50.49	-463.77	466.49	1.62	1.60	1.27	9.32
10/2/2014	NORMAL	3,269.0	11.83	278.95	3,227.37	53.43	-482.85	485.78	0.10	-0.04	0.43	116.16
	NORMAL	3,364.0	11.96	277.68	3,320.33	56.26	-502.22	505.35	0.31	0.14	-1.34	295.79
	NORMAL	3,459.0	11.61	276.11	3,413.33	58.59	-521.48	524.75	0.50	-0.37	-1.65	221.73
	NORMAL	3,554.0	11.84	274.27	3,506.35	60.33	-540.71	544.05	0.46	0.24	-1.94	300.69
	NORMAL	3,648.0	11.13	279.78	3,598.47	62.59	-559.26	562.74	1.39	-0.76	5.86	125.59
	NORMAL	3,743.0	10.70	282.83	3,691.75	66.11	-576.90	580.67	0.76	-0.45	3.21	128.16
	NORMAL	3,838.0	11.26	284.00	3,785.01	70.31	-594.50	598.64	0.63	0.59	1.23	22.27
	NORMAL	3,933.0	10.50	285.40	3,878.30	74.85	-611.84	616.40	0.85	-0.80	1.47	161.51
	NORMAL	4,028.0	9.49	286.17	3,971.86	79.33	-627.71	632.69	1.07	-1.08	0.81	172.84
	NORMAL	4,122.0	9.28	285.53	4,064.60	83.52	-642.46	647.82	0.25	-0.22	-0.68	206.11
	NORMAL	4,217.0	8.27	289.19	4,158.49	87.82	-656.29	662.07	1.21	-1.08	3.85	152.87
	NORMAL	4,311.0	6.64	288.86	4,251.69	91.80	-667.82	673.98	1.73	-1.73	-0.35	181.34
	NORMAL	4,406.0	5.49	299.05	4,346.16	95.78	-676.99	683.56	1.65	-1.21	10.73	141.88
	NORMAL	4,500.0	4.63	306.97	4,439.80	100.24	-683.95	691.00	1.18	-0.91	8.43	144.81
10/3/2014	NORMAL	4,595.0	3.62	301.83	4,534.55	104.13	-689.56	697.03	1.13	-1.06	-5.41	197.56
	NORMAL	4,690.0	3.16	296.07	4,629.38	106.87	-694.46	702.22	0.60	-0.48	-5.06	213.67
	NORMAL	4,785.0	2.35	301.71	4,724.27	109.04	-698.47	706.46	0.90	-0.85	5.94	164.30
	NORMAL	4,880.0	2.72	302.69	4,819.18	111.28	-702.03	710.25	0.39	0.39	1.03	7.17
	NORMAL	4,974.0	1.68	301.87	4,913.11	113.21	-705.07	713.51	1.11	-1.11	-0.87	181.32
	NORMAL	5,069.0	1.68	302.19	5,008.07	114.69	-707.43	716.03	0.01	0.00	0.34	90.16
	NORMAL	5,164.0	0.96	312.14	5,103.04	115.97	-709.20	717.93	0.79	-0.76	10.47	167.27
	NORMAL	5,259.0	1.20	326.49	5,198.03	117.33	-710.34	719.23	0.38	0.25	15.11	55.74
	NORMAL	5,353.0	0.49	351.44	5,292.02	118.55	-710.95	719.97	0.83	-0.76	26.54	164.70
	NORMAL	5,448.0	0.60	131.18	5,387.02	118.62	-710.63	719.67	1.08	0.12	147.09	157.75
	NORMAL	5,543.0	1.30	155.75	5,482.00	117.31	-709.81	718.70	0.84	0.74	25.86	42.87
10/4/2014	NORMAL	5,638.0	1.20	143.33	5,576.98	115.53	-708.78	717.46	0.30	-0.11	-13.07	243.61
	NORMAL	5,732.0	1.01	151.90	5,670.96	114.01	-707.80	716.31	0.27	-0.20	9.12	143.21
	NORMAL	5,827.0	1.07	166.61	5,765.95	112.41	-707.20	715.53	0.29	0.06	15.48	84.76
	NORMAL	5,922.0	0.73	159.77	5,860.94	110.98	-706.79	714.94	0.37	-0.36	-7.20	194.14
	NORMAL	6,016.0	0.81	166.84	5,954.93	109.77	-706.43	714.45	0.13	0.09	7.52	53.47
10/5/2014	NORMAL	6,111.0	0.48	167.53	6,049.92	108.73	-706.19	714.09	0.35	-0.35	0.73	179.00
	NORMAL	6,206.0	0.61	232.48	6,144.92	108.03	-706.50	714.32	0.63	0.14	68.37	111.86
	NORMAL	6,300.0	0.33	210.68	6,238.92	107.49	-707.04	714.78	0.35	-0.30	-23.19	201.98
	NORMAL	6,395.0	0.69	276.80	6,333.91	107.33	-707.75	715.47	0.67	0.38	69.60	94.59
	NORMAL	6,490.0	0.89	302.14	6,428.90	107.79	-708.94	716.71	0.42	0.21	26.67	73.29
	NORMAL	6,585.0	0.67	308.87	6,523.89	108.53	-710.00	717.84	0.25	-0.23	7.08	160.73
	NORMAL	6,680.0	0.90	311.37	6,618.89	109.37	-710.99	718.93	0.24	0.24	2.63	9.72
	NORMAL	6,775.0	1.26	303.41	6,713.87	110.44	-712.42	720.48	0.41	0.38	-8.38	333.36
	NORMAL	6,870.0	1.28	327.52	6,808.85	111.91	-713.86	722.08	0.56	0.02	25.38	99.94
	NORMAL	6,965.0	0.59	42.86	6,903.84	113.16	-714.10	722.46	1.33	-0.73	79.31	153.21
10/6/2014	NORMAL	7,060.0	0.65	50.47	6,998.83	113.86	-713.35	721.80	0.11	0.06	8.01	57.77
	NORMAL	7,155.0	0.55	40.90	7,093.83	114.55	-712.64	721.18	0.15	-0.11	-10.07	220.34
	NORMAL	7,251.0	0.29	68.06	7,189.82	114.99	-712.11	720.70	0.33	-0.27	28.29	155.61
	NORMAL	7,346.0	0.41	64.48	7,284.82	115.23	-711.58	720.21	0.13	0.13	-3.77	347.88

## 2.1.2 Survey Stations (Continued)

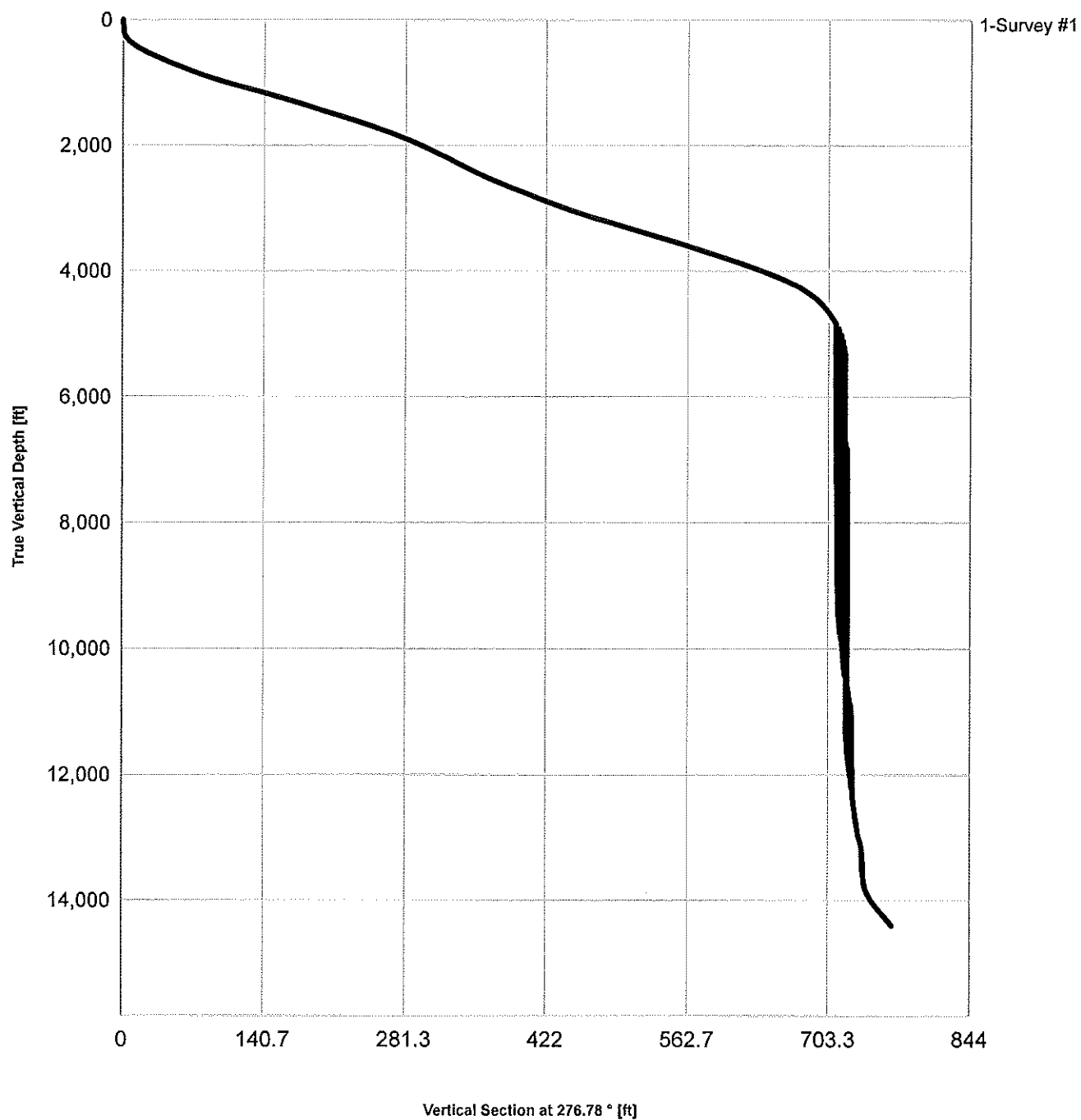
Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	EW (ft)	V. sec. (ft)	DLS (%/100usft)	Build Rate (%/100usft)	Turn (%/100usft)	Tface (°)
10/6/2014	NORMAL	7,441.0	0.47	41.38	7,379.82	115.66	-711.02	719.70	0.20	0.06	-24.32	276.90
	NORMAL	7,536.0	0.83	27.18	7,474.81	116.57	-710.44	719.24	0.41	0.38	-14.95	328.68
	NORMAL	7,631.0	0.95	47.64	7,569.80	117.71	-709.55	718.48	0.36	0.13	21.54	79.74
	NORMAL	7,726.0	1.01	56.37	7,664.79	118.71	-708.27	717.33	0.17	0.06	9.19	72.51
10/7/2014	NORMAL	7,821.0	1.28	69.97	7,759.77	119.53	-706.57	715.74	0.40	0.28	14.32	52.12
10/8/2014	NORMAL	7,914.0	1.25	77.69	7,852.75	120.10	-704.61	713.86	0.19	-0.03	8.30	103.83
	NORMAL	8,010.0	0.21	117.10	7,948.74	120.25	-703.43	712.70	1.14	-1.08	41.05	173.01
	NORMAL	8,105.0	0.71	273.38	8,043.74	120.20	-703.86	713.13	0.95	0.53	164.51	161.63
	NORMAL	8,200.0	0.66	299.72	8,138.73	120.51	-704.92	714.22	0.33	-0.05	27.73	112.03
	NORMAL	8,295.0	0.62	320.70	8,233.73	121.18	-705.72	715.09	0.25	-0.04	22.08	110.07
10/9/2014	NORMAL	8,390.0	0.43	17.17	8,328.72	121.92	-705.94	715.40	0.55	-0.20	59.44	136.86
	NORMAL	8,486.0	1.41	169.33	8,424.71	121.10	-705.62	714.98	1.88	1.02	158.50	158.56
	NORMAL	8,580.0	1.43	172.91	8,518.69	118.80	-705.26	714.35	0.10	0.02	3.81	79.09
	NORMAL	8,675.0	1.21	166.82	8,613.66	116.65	-704.88	713.73	0.27	-0.23	-6.41	209.51
	NORMAL	8,771.0	0.83	158.34	8,709.65	115.01	-704.40	713.05	0.42	-0.40	-8.83	197.46
	NORMAL	8,866.0	0.68	152.08	8,804.64	113.88	-703.88	712.40	0.18	-0.16	-6.59	205.70
	NORMAL	8,961.0	0.47	203.92	8,899.63	113.02	-703.77	712.19	0.57	-0.22	54.57	136.51
10/16/2014	NORMAL	9,049.0	0.20	256.29	8,987.63	112.66	-704.07	712.44	0.43	-0.31	59.51	155.52
	NORMAL	9,144.0	0.09	14.51	9,082.63	112.69	-704.21	712.59	0.27	-0.12	124.44	161.90
	NORMAL	9,238.0	0.32	317.92	9,176.63	112.95	-704.37	712.78	0.30	0.24	-60.20	287.89
10/17/2014	NORMAL	9,333.0	0.18	39.20	9,271.63	113.27	-704.45	712.90	0.36	-0.15	85.56	148.71
	NORMAL	9,428.0	0.26	301.92	9,366.63	113.50	-704.54	713.01	0.35	0.08	-102.40	230.45
	NORMAL	9,523.0	0.37	331.42	9,461.63	113.88	-704.87	713.39	0.20	0.12	31.05	71.20
	NORMAL	9,618.0	0.69	317.57	9,556.63	114.57	-705.40	714.00	0.36	0.34	-14.58	331.16
	NORMAL	9,712.0	0.21	317.51	9,650.62	115.12	-705.90	714.56	0.51	-0.51	-0.06	180.03
	NORMAL	9,807.0	0.79	312.24	9,745.62	115.69	-706.50	715.22	0.61	0.61	-5.55	352.83
	NORMAL	9,901.0	0.44	307.39	9,839.61	116.34	-707.27	716.06	0.38	-0.37	-5.16	186.04
	NORMAL	9,996.0	0.68	303.46	9,934.61	116.87	-708.03	716.88	0.26	0.25	-4.14	348.94
	NORMAL	10,090.0	0.57	310.50	10,028.60	117.48	-708.85	717.76	0.14	-0.12	7.49	148.57
	NORMAL	10,185.0	0.07	240.85	10,123.60	117.76	-709.26	718.20	0.58	-0.53	-73.32	186.86
	NORMAL	10,280.0	0.48	298.85	10,218.60	117.93	-709.66	718.62	0.47	0.43	61.05	65.63
	NORMAL	10,374.0	0.24	271.80	10,312.60	118.12	-710.20	719.18	0.31	-0.26	-28.78	202.29
	NORMAL	10,469.0	0.57	289.81	10,407.60	118.29	-710.85	719.84	0.37	0.35	18.96	30.26
	NORMAL	10,564.0	1.28	291.60	10,502.58	118.84	-712.28	721.33	0.75	0.75	1.88	3.23
	NORMAL	10,659.0	0.70	295.66	10,597.57	119.48	-713.79	722.90	0.61	-0.61	4.27	175.13
	NORMAL	10,754.0	0.71	284.41	10,692.56	119.88	-714.88	724.03	0.15	0.01	-11.84	268.49
10/18/2014	NORMAL	10,848.0	0.59	310.43	10,786.56	120.34	-715.81	725.01	0.34	-0.13	27.68	124.79
	NORMAL	10,943.0	0.54	291.69	10,881.55	120.82	-716.60	725.85	0.20	-0.05	-19.73	245.62
	NORMAL	11,038.0	0.67	295.42	10,976.55	121.22	-717.52	726.81	0.14	0.14	3.93	18.73
	NORMAL	11,133.0	0.35	138.42	11,071.55	121.25	-717.83	727.12	1.05	-0.34	-165.26	187.85
	NORMAL	11,227.0	1.54	139.05	11,165.53	120.08	-716.81	725.97	1.27	1.27	0.67	0.82
	NORMAL	11,322.0	2.57	135.31	11,260.47	117.60	-714.47	723.36	1.09	1.08	-3.94	350.71
	NORMAL	11,417.0	2.11	169.51	11,355.40	114.36	-712.66	721.18	1.52	-0.48	36.00	124.81
	NORMAL	11,512.0	2.43	211.67	11,450.33	110.93	-713.40	721.50	1.75	0.34	44.38	100.70
	NORMAL	11,606.0	0.33	100.46	11,544.30	109.18	-714.18	722.07	2.73	-2.23	-118.31	186.88
	NORMAL	11,701.0	0.45	293.70	11,639.30	109.29	-714.25	722.16	0.82	0.13	-175.54	187.64
	NORMAL	11,796.0	0.60	302.13	11,734.30	109.70	-715.01	722.96	0.18	0.16	8.87	31.50
	NORMAL	11,890.0	0.50	309.47	11,828.29	110.22	-715.75	723.75	0.13	-0.11	7.81	148.47
10/19/2014	NORMAL	11,985.0	0.42	278.23	11,923.29	110.54	-716.41	724.45	0.27	-0.08	-32.88	237.10
	NORMAL	12,080.0	0.55	287.79	12,018.29	110.72	-717.19	725.25	0.16	0.14	10.06	36.74
	NORMAL	12,175.0	0.53	291.03	12,113.28	111.02	-718.03	726.12	0.04	-0.02	3.41	124.84
	NORMAL	12,269.0	0.63	288.88	12,207.28	111.34	-718.93	727.05	0.11	0.11	-2.29	346.65
	NORMAL	12,364.0	0.46	286.81	12,302.27	111.62	-719.79	727.93	0.18	-0.18	-2.18	185.57
	NORMAL	12,460.0	0.25	259.59	12,398.27	111.70	-720.36	728.51	0.27	-0.22	-28.35	205.69
	NORMAL	12,555.0	0.53	288.42	12,493.27	111.80	-720.98	729.14	0.35	0.29	30.35	50.02
10/20/2014	NORMAL	12,650.0	0.53	282.01	12,588.27	112.03	-721.83	730.01	0.06	0.00	-6.75	266.80

## 2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
10/20/2014	NORMAL	12,745.0	0.62	301.08	12,683.26	112.39	-722.70	730.91	0.22	0.09	20.07	74.55
	NORMAL	12,840.0	0.60	299.60	12,778.26	112.90	-723.57	731.84	0.03	-0.02	-1.56	217.49
	NORMAL	12,935.0	0.50	288.78	12,873.25	113.28	-724.40	732.70	0.15	-0.11	-11.39	220.76
	NORMAL	13,030.0	1.04	297.65	12,968.24	113.81	-725.55	733.92	0.58	0.57	9.34	16.91
	NORMAL	13,126.0	0.97	288.77	13,064.23	114.48	-727.09	735.52	0.18	-0.07	-9.25	241.40
	NORMAL	13,221.0	0.81	268.41	13,159.22	114.72	-728.53	736.98	0.37	-0.17	-21.43	233.23
	NORMAL	13,316.0	0.87	208.36	13,254.21	114.06	-729.54	737.90	0.89	0.06	-63.21	243.51
	NORMAL	13,411.0	1.16	166.84	13,349.20	112.49	-729.66	737.84	0.81	0.31	-43.71	269.89
10/22/2014	NORMAL	13,497.0	1.31	178.38	13,435.18	110.66	-729.44	737.40	0.34	0.17	13.42	64.76
	NORMAL	13,592.0	1.49	214.03	13,530.15	108.55	-730.10	737.81	0.92	0.19	37.53	96.51
10/23/2014	NORMAL	13,688.0	0.51	237.79	13,626.13	107.29	-731.16	738.71	1.09	-1.02	24.75	168.64
	NORMAL	13,783.0	0.44	304.87	13,721.13	107.27	-731.82	739.36	0.56	-0.07	70.61	129.88
	NORMAL	13,878.0	1.24	292.24	13,816.12	107.87	-733.07	740.68	0.86	0.84	-13.29	340.60
10/25/2014	NORMAL	13,973.0	1.98	291.12	13,911.08	108.85	-735.55	743.26	0.78	0.78	-1.18	357.01
	NORMAL	14,068.0	2.57	299.37	14,006.01	110.49	-738.94	746.81	0.71	0.62	8.68	33.20
	NORMAL	14,163.0	3.25	299.50	14,100.89	112.86	-743.14	751.26	0.72	0.72	0.14	0.62
	NORMAL	14,258.0	3.40	304.51	14,195.73	115.78	-747.80	756.24	0.34	0.16	5.27	65.21
	NORMAL	14,353.0	3.54	307.06	14,290.55	119.14	-752.46	761.27	0.22	0.15	2.68	49.07
	NORMAL	14,462.0	3.54	307.06	14,399.34	123.20	-757.83	767.08	0.00	0.00	0.00	0.00

### 3 Charts

#### 3.1 Vertical Section View



### 3.2 Plan View

