

## 1 General

### 1.1 Customer Information

Company	PICEANCE HL
Representative	
Address	

### 1.2 Well/Wellbore Information

Well	RGU 522-24-198	Wellbore No.	00
Wellbore Legal Name	RGU 522-24-198	Common Wellbore Name	RGU 522-24-198
Project	RG 24-01S-098W	Site	RGU 33-24-198 Pad
Vertical Section Azimuth	295.13 (°)	North reference	True
Origin N/S		Origin E/W	
Spud date	4/26/2014	UWI	RGU 522-24-198
Active datum	KB @6,617.0ft (above Mean Sea Level)		

## 2 Survey Name

### 2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	4/26/2014	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

10081

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 (°)
4/26/2014	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4/26/2014	NORMAL	152.0	0.88	278.44	151.99	0.17	-1.15	1.12	0.58	0.58	0.00	278.44
	NORMAL	224.0	2.11	278.96	223.97	0.46	-3.01	2.92	1.71	1.71	0.72	0.89
	NORMAL	316.0	4.93	275.36	315.79	1.09	-8.62	8.27	3.07	3.07	-3.91	353.72
4/27/2014	NORMAL	408.0	6.95	287.05	407.29	3.09	-17.88	17.50	2.55	2.20	12.71	36.82
	NORMAL	501.0	8.27	296.98	499.47	7.78	-29.22	29.76	2.00	1.42	10.68	49.89
	NORMAL	578.0	7.08	291.52	575.78	12.03	-38.57	40.03	1.81	-1.55	-7.09	208.81
	NORMAL	670.0	7.21	291.10	667.07	16.19	-49.23	51.45	0.15	0.14	-0.46	337.90
	NORMAL	762.0	7.24	293.35	758.34	20.57	-59.94	63.00	0.31	0.03	2.45	85.07
	NORMAL	855.0	7.31	300.97	850.59	25.93	-70.39	74.74	1.04	0.08	8.19	89.64
	NORMAL	947.0	6.95	297.51	941.88	31.52	-80.35	86.13	0.61	-0.39	-3.76	228.32
	NORMAL	1,041.0	6.88	298.88	1,035.20	36.86	-90.32	97.43	0.19	-0.07	1.46	113.67
	NORMAL	1,135.0	6.81	295.43	1,128.53	41.97	-100.29	108.62	0.44	-0.07	-3.67	258.63
	NORMAL	1,230.0	6.42	295.49	1,222.90	46.68	-110.17	119.56	0.41	-0.41	0.06	179.01
	NORMAL	1,325.0	6.24	295.49	1,317.32	51.19	-119.62	130.04	0.19	-0.19	0.00	180.00
	NORMAL	1,409.0	6.15	293.06	1,400.83	54.91	-127.88	139.10	0.33	-0.11	-2.89	249.85
	NORMAL	1,503.0	6.19	293.58	1,494.28	58.91	-137.16	149.20	0.07	0.04	0.55	54.67
	NORMAL	1,598.0	5.24	285.91	1,588.81	62.15	-146.03	158.60	1.28	-1.00	-8.07	215.02
	NORMAL	1,693.0	5.03	288.06	1,683.43	64.63	-154.16	167.01	0.30	-0.22	2.26	138.57
	NORMAL	1,787.0	6.97	289.33	1,776.91	67.80	-163.46	176.78	2.07	2.06	1.35	4.55
	NORMAL	1,882.0	7.45	284.88	1,871.16	71.29	-174.85	188.57	0.77	0.51	-4.68	308.46

## 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 (°)
4/27/2014	NORMAL	1,977.0	8.13	288.24	1,965.28	74.97	-187.18	201.30	0.86	0.72	3.54	35.48
	NORMAL	2,072.0	7.46	303.24	2,059.42	80.45	-198.72	214.08	2.25	-0.71	15.79	115.56
	NORMAL	2,167.0	7.74	307.22	2,153.58	87.71	-208.97	226.44	0.63	0.29	4.19	63.97
	NORMAL	2,262.0	6.39	305.78	2,247.86	94.67	-218.36	237.89	1.43	-1.42	-1.52	186.76
	NORMAL	2,356.0	6.20	304.83	2,341.29	100.62	-226.77	248.04	0.23	-0.20	-1.01	208.26
4/28/2014	NORMAL	2,451.0	6.12	296.21	2,435.75	105.79	-235.52	258.16	0.98	-0.08	-9.07	260.78
	NORMAL	2,545.0	5.69	292.88	2,529.25	109.81	-244.31	267.82	0.58	-0.46	-3.54	216.80
	NORMAL	2,640.0	5.55	293.44	2,623.79	113.47	-252.87	277.12	0.16	-0.15	0.59	158.89
	NORMAL	2,735.0	5.56	293.27	2,718.35	117.12	-261.31	286.31	0.02	0.01	-0.18	301.20
	NORMAL	2,830.0	5.86	295.63	2,812.87	121.03	-269.91	295.76	0.40	0.32	2.48	39.23
	NORMAL	2,924.0	5.73	295.96	2,906.39	125.16	-278.45	305.25	0.14	-0.14	0.35	165.79
	NORMAL	3,019.0	6.39	290.81	3,000.86	129.12	-287.66	315.27	0.90	0.69	-5.42	317.94
	NORMAL	3,113.0	8.52	285.76	3,094.06	132.87	-299.25	327.35	2.37	2.27	-5.37	340.39
	NORMAL	3,208.0	9.56	286.54	3,187.88	137.03	-313.59	342.10	1.10	1.09	0.82	7.11
	NORMAL	3,303.0	8.98	289.24	3,281.64	141.72	-328.15	357.27	0.76	-0.61	2.84	144.46
	NORMAL	3,398.0	9.54	296.81	3,375.41	147.71	-342.18	372.52	1.41	0.59	7.97	69.08
	NORMAL	3,492.0	9.06	294.63	3,468.17	154.31	-355.86	387.70	0.63	-0.51	-2.32	215.20
	NORMAL	3,587.0	10.26	295.86	3,561.82	161.12	-370.27	403.64	1.28	1.26	1.29	10.37
	NORMAL	3,682.0	10.33	297.97	3,655.30	168.80	-385.41	420.61	0.40	0.07	2.22	80.52
	NORMAL	3,871.0	9.79	294.07	3,841.39	183.30	-415.04	453.60	0.46	-0.29	-2.06	229.69
5/9/2014	NORMAL	4,083.0	11.92	308.61	4,049.63	204.32	-448.62	492.93	1.63	1.00	6.86	59.42
	NORMAL	4,115.0	12.03	308.98	4,080.93	208.48	-453.79	499.38	0.42	0.34	1.16	35.09
	NORMAL	4,209.0	12.80	303.93	4,172.73	220.46	-470.05	519.18	1.42	0.82	-5.37	302.86
	NORMAL	4,304.0	16.18	298.95	4,264.70	232.74	-490.37	542.79	3.79	3.56	-5.24	337.34
	NORMAL	4,399.0	19.58	296.71	4,355.10	246.31	-516.18	571.92	3.65	3.58	-2.36	347.50
5/10/2014	NORMAL	4,494.0	17.02	295.24	4,445.29	259.39	-542.98	601.74	2.74	-2.69	-1.55	189.52
	NORMAL	4,589.0	18.41	291.97	4,535.79	270.93	-569.47	630.63	1.80	1.46	-3.44	322.84
	NORMAL	4,683.0	18.20	294.41	4,625.03	282.55	-596.60	660.13	0.85	-0.22	2.60	106.48
	NORMAL	4,778.0	19.03	294.93	4,715.06	295.21	-624.16	690.45	0.89	0.87	0.55	11.56
	NORMAL	4,873.0	19.03	295.37	4,804.87	308.38	-652.20	721.43	0.15	0.00	0.46	90.21
	NORMAL	4,967.0	19.60	293.27	4,893.58	321.17	-680.53	752.51	0.96	0.61	-2.23	308.38
	NORMAL	5,062.0	21.33	290.09	4,982.58	333.41	-711.40	785.65	2.16	1.82	-3.35	325.77
	NORMAL	5,157.0	19.38	290.41	5,071.65	344.84	-742.40	818.57	2.06	-2.05	0.34	176.88
	NORMAL	5,251.0	18.11	292.04	5,160.66	355.76	-770.56	848.71	1.46	-1.35	1.73	158.36
	NORMAL	5,346.0	18.32	290.49	5,250.90	366.53	-798.23	878.33	0.56	0.22	-1.63	292.70
	NORMAL	5,441.0	17.53	290.97	5,341.29	376.87	-825.58	907.48	0.85	-0.83	0.51	169.64
	NORMAL	5,536.0	17.40	290.50	5,431.91	386.97	-852.24	935.91	0.20	-0.14	-0.49	227.11
	NORMAL	5,631.0	17.59	292.48	5,522.51	397.43	-878.81	964.41	0.66	0.20	2.08	73.24
	NORMAL	5,725.0	18.54	298.03	5,611.89	409.89	-905.13	993.52	2.09	1.01	5.80	63.76
	NORMAL	5,820.0	19.42	303.38	5,701.73	425.67	-931.65	1,024.24	2.05	0.93	5.63	65.72
	NORMAL	5,915.0	17.16	302.14	5,791.92	441.82	-956.71	1,053.78	2.41	-2.38	-1.31	189.18
	NORMAL	6,010.0	18.49	301.32	5,882.36	457.11	-981.45	1,082.67	1.42	1.40	-0.86	348.92
	NORMAL	6,105.0	20.06	300.89	5,972.03	473.31	-1,008.30	1,113.86	1.66	1.65	-0.45	354.63
	NORMAL	6,199.0	18.71	300.00	6,060.70	489.12	-1,035.19	1,144.92	1.47	-1.44	-0.95	191.92
	NORMAL	6,294.0	19.28	296.19	6,150.53	503.66	-1,062.46	1,175.79	1.44	0.60	-4.01	292.88
	NORMAL	6,389.0	17.08	293.32	6,240.79	516.11	-1,089.35	1,205.42	2.50	-2.32	-3.02	200.79
	NORMAL	6,484.0	15.22	295.28	6,332.04	528.96	-1,113.44	1,231.84	2.04	-1.96	2.06	164.60
5/11/2014	NORMAL	6,578.0	14.13	302.11	6,422.97	538.33	-1,134.32	1,255.57	2.17	-1.16	7.27	125.48
	NORMAL	6,673.0	14.13	298.33	6,515.10	549.99	-1,154.35	1,278.65	0.97	0.00	-3.98	268.17
	NORMAL	6,768.0	14.11	288.76	6,607.25	559.22	-1,175.52	1,301.74	2.45	-0.02	-10.07	264.87
	NORMAL	6,863.0	11.98	292.03	6,699.79	566.64	-1,195.63	1,323.10	2.37	-2.24	3.44	162.47
	NORMAL	6,958.0	11.66	295.06	6,792.78	574.41	-1,213.47	1,342.54	0.73	-0.34	3.19	118.75
	NORMAL	7,052.0	11.08	296.00	6,884.93	582.39	-1,230.19	1,361.07	0.65	-0.62	1.00	162.74
	NORMAL	7,147.0	11.58	294.81	6,978.08	590.40	-1,247.05	1,379.74	0.58	0.53	-1.25	334.36
	NORMAL	7,242.0	12.14	294.54	7,071.05	598.55	-1,264.79	1,399.26	0.59	0.59	-0.28	354.21
	NORMAL	7,337.0	12.23	297.71	7,163.91	607.37	-1,282.79	1,419.30	0.71	0.09	3.34	83.89



## 2.1.2 Survey Stations (Continued)

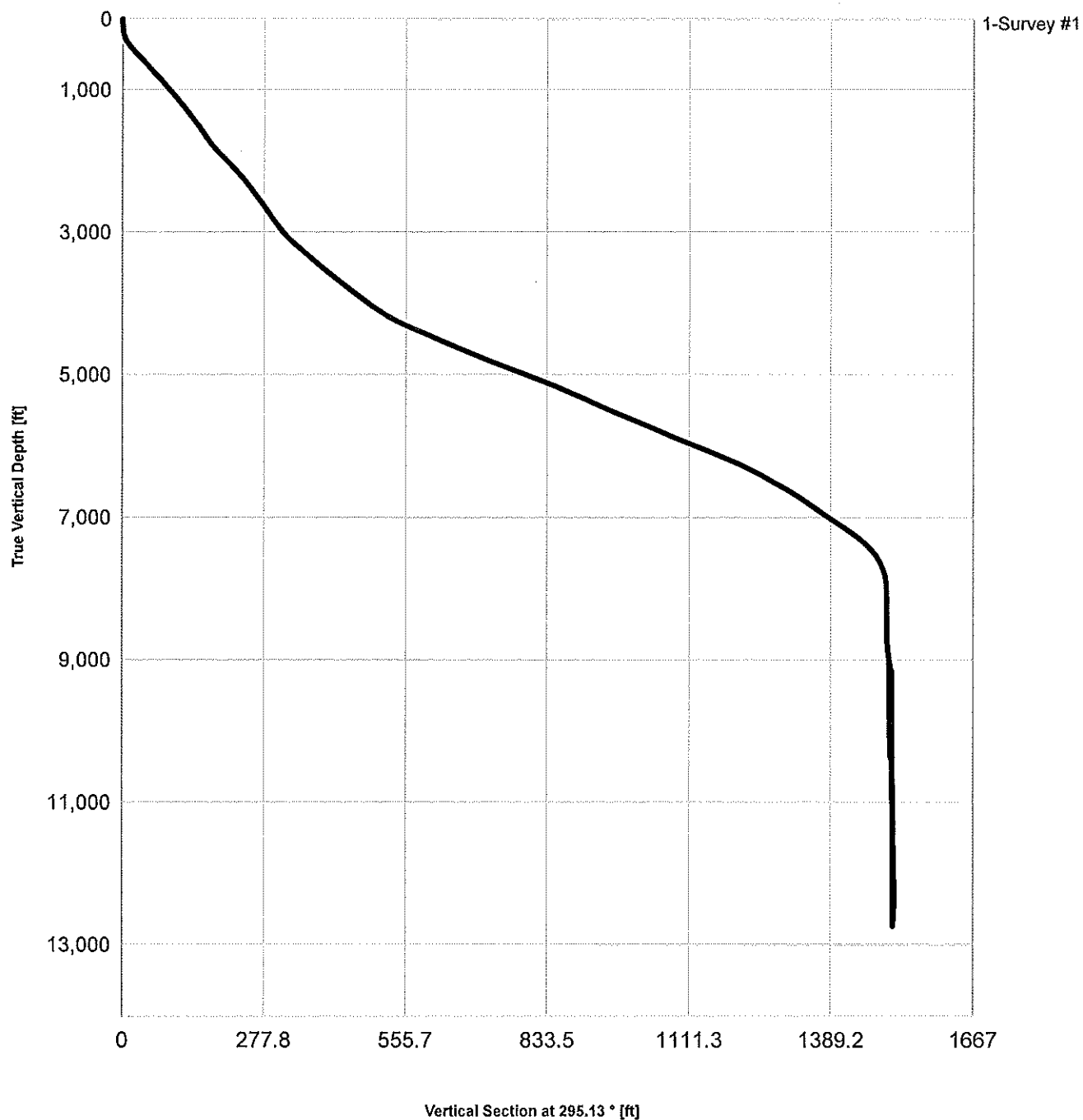
Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
5/11/2014	NORMAL	7,432.0	10.89	295.63	7,256.98	615.93	-1,299.79	1,438.33	1.48	-1.41	-2.19	196.26
	NORMAL	7,526.0	8.71	296.31	7,349.61	622.93	-1,314.17	1,454.33	2.32	-2.32	0.72	177.30
	NORMAL	7,621.0	7.49	293.66	7,443.66	628.60	-1,326.29	1,467.71	1.34	-1.28	-2.79	195.71
	NORMAL	7,716.0	5.33	300.50	7,538.06	633.33	-1,335.77	1,478.29	2.41	-2.27	7.20	163.91
	NORMAL	7,811.0	4.03	299.25	7,632.74	637.20	-1,342.48	1,486.01	1.37	-1.37	-1.32	183.86
	NORMAL	7,906.0	3.04	290.18	7,727.56	639.70	-1,347.76	1,491.85	1.19	-1.04	-9.55	204.99
5/12/2014	NORMAL	8,000.0	2.07	273.13	7,821.47	640.65	-1,351.80	1,495.91	1.30	-1.03	-18.14	209.77
	NORMAL	8,095.0	0.62	257.98	7,916.44	640.64	-1,354.01	1,497.91	1.56	-1.53	-15.95	186.28
	NORMAL	8,190.0	0.69	221.21	8,011.43	640.10	-1,354.89	1,498.48	0.44	0.07	-38.71	260.75
	NORMAL	8,284.0	0.79	215.24	8,105.43	639.15	-1,355.64	1,498.75	0.13	0.11	-6.35	319.36
	NORMAL	8,379.0	0.95	202.36	8,200.42	637.88	-1,356.32	1,498.83	0.26	0.17	-13.56	302.73
	NORMAL	8,474.0	0.45	223.03	8,295.41	636.88	-1,356.87	1,498.90	0.58	-0.53	21.76	163.29
	NORMAL	8,569.0	0.47	278.02	8,390.41	636.66	-1,357.51	1,499.39	0.45	0.02	57.88	115.10
	NORMAL	8,664.0	0.08	174.67	8,485.41	636.65	-1,357.89	1,499.73	0.52	-0.41	-108.79	189.05
	NORMAL	8,758.0	0.05	239.71	8,579.41	636.57	-1,357.92	1,499.72	0.08	-0.03	69.19	142.42
	NORMAL	8,853.0	0.56	232.55	8,674.40	636.26	-1,358.32	1,499.96	0.54	0.54	-7.54	352.14
	NORMAL	8,948.0	0.71	213.93	8,769.40	635.49	-1,359.02	1,500.26	0.27	0.16	-19.60	296.46
	NORMAL	9,043.0	1.15	266.54	8,864.39	634.95	-1,360.30	1,501.19	0.96	0.46	55.38	90.73
5/13/2014	NORMAL	9,137.0	1.47	299.11	8,958.36	635.48	-1,362.30	1,503.22	0.85	0.34	34.65	83.59
	NORMAL	9,232.0	1.68	293.00	9,053.33	636.61	-1,364.64	1,505.83	0.28	0.22	-6.43	318.27
	NORMAL	9,327.0	1.37	288.59	9,148.29	637.52	-1,367.00	1,508.35	0.35	-0.33	-4.64	198.54
	NORMAL	9,422.0	0.86	21.95	9,243.28	638.54	-1,367.81	1,509.51	1.75	-0.54	98.27	148.85
	NORMAL	9,517.0	0.88	40.86	9,338.27	639.76	-1,367.07	1,509.36	0.30	0.02	19.91	95.51
	NORMAL	9,611.0	0.91	39.84	9,432.26	640.87	-1,366.12	1,508.97	0.04	0.03	-1.09	331.52
	NORMAL	9,706.0	1.43	48.01	9,527.24	642.25	-1,364.75	1,508.32	0.57	0.55	8.60	21.90
	NORMAL	9,801.0	1.12	50.25	9,622.22	643.63	-1,363.16	1,507.46	0.33	-0.33	2.36	171.98
	NORMAL	9,896.0	0.74	55.03	9,717.21	644.58	-1,361.94	1,506.76	0.41	-0.40	5.03	170.84
	NORMAL	9,991.0	0.20	64.27	9,812.20	645.00	-1,361.29	1,506.35	0.57	-0.57	9.73	176.61
	NORMAL	10,085.0	0.41	106.24	9,906.20	644.98	-1,360.82	1,505.92	0.31	0.22	44.65	69.08
	NORMAL	10,180.0	0.29	141.89	10,001.20	644.70	-1,360.34	1,505.37	0.26	-0.13	37.53	135.89
	NORMAL	10,275.0	0.17	155.54	10,096.20	644.38	-1,360.14	1,505.04	0.14	-0.13	14.37	162.18
	NORMAL	10,369.0	0.30	264.84	10,190.20	644.23	-1,360.32	1,505.15	0.42	0.14	116.28	133.55
5/14/2014	NORMAL	10,464.0	0.54	265.23	10,285.20	644.17	-1,361.02	1,505.75	0.25	0.25	0.41	0.88
	NORMAL	10,555.0	1.12	250.56	10,376.19	643.84	-1,362.28	1,506.76	0.67	0.64	-16.12	332.44
	NORMAL	10,650.0	1.45	258.40	10,471.16	643.29	-1,364.34	1,508.38	0.39	0.35	8.25	32.00
	NORMAL	10,745.0	0.71	3.89	10,566.15	643.63	-1,365.47	1,509.56	1.87	-0.78	111.04	157.35
	NORMAL	10,840.0	0.98	357.71	10,661.14	645.03	-1,365.47	1,510.15	0.30	0.28	-6.51	338.24
	NORMAL	10,934.0	1.74	34.00	10,755.12	647.02	-1,364.70	1,510.30	1.18	0.81	38.61	67.69
	NORMAL	11,029.0	1.20	43.30	10,850.08	648.94	-1,363.21	1,509.77	0.62	-0.57	9.79	160.77
	NORMAL	11,124.0	0.31	319.87	10,945.08	649.86	-1,362.70	1,509.69	1.27	-0.94	-87.82	194.81
	NORMAL	11,218.0	0.42	262.71	11,039.08	650.01	-1,363.20	1,510.21	0.39	0.12	-60.81	256.88
	NORMAL	11,313.0	0.57	240.34	11,134.07	649.73	-1,363.96	1,510.78	0.25	0.16	-23.55	296.28
5/15/2014	NORMAL	11,408.0	0.23	273.16	11,229.07	649.51	-1,364.56	1,511.23	0.42	-0.36	34.55	161.69
	NORMAL	11,503.0	0.44	26.83	11,324.07	649.84	-1,364.58	1,511.39	0.60	0.22	119.65	135.26
	NORMAL	11,597.0	0.46	17.18	11,418.07	650.53	-1,364.31	1,511.43	0.08	0.02	-10.27	279.92
	NORMAL	11,692.0	0.24	21.69	11,513.07	651.08	-1,364.12	1,511.50	0.23	-0.23	4.75	175.11
	NORMAL	11,786.0	0.29	319.84	11,607.06	651.44	-1,364.20	1,511.73	0.29	0.05	-65.80	248.02
	NORMAL	11,881.0	0.27	297.56	11,702.06	651.73	-1,364.56	1,512.17	0.12	-0.02	-23.45	248.58
	NORMAL	11,976.0	0.44	306.70	11,797.06	652.05	-1,365.05	1,512.75	0.19	0.18	9.62	23.03
	NORMAL	12,070.0	0.24	297.51	11,891.06	652.36	-1,365.51	1,513.30	0.22	-0.21	-9.78	190.69
	NORMAL	12,165.0	0.24	245.51	11,986.06	652.36	-1,365.87	1,513.63	0.22	0.00	-54.74	244.00
	NORMAL	12,259.0	0.48	212.28	12,080.06	651.95	-1,366.26	1,513.80	0.33	0.26	-35.35	301.55
	NORMAL	12,354.0	0.54	243.93	12,175.05	651.42	-1,366.87	1,514.13	0.30	0.06	33.32	94.10
	NORMAL	12,449.0	0.71	262.88	12,270.05	651.15	-1,367.86	1,514.91	0.28	0.18	19.95	60.30
	NORMAL	12,543.0	0.18	93.28	12,364.05	651.07	-1,368.29	1,515.27	0.94	-0.56	-180.43	182.10
	NORMAL	12,638.0	1.10	60.56	12,459.04	651.51	-1,367.35	1,514.60	1.00	0.97	-34.44	321.42

## 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 (°)
5/15/2014	NORMAL	12,732.0	1.42	54.69	12,553.02	652.62	-1,365.61	1,513.50	0.37	0.34	-6.24	335.08
	NORMAL	12,827.0	1.36	57.73	12,647.99	653.91	-1,363.70	1,512.32	0.10	-0.06	3.20	130.65
	NORMAL	12,914.0	1.36	57.73	12,734.94	655.01	-1,361.95	1,511.20	0.00	0.00	0.00	0.00

### 3 Charts

#### 3.1 Vertical Section View



3.2 Plan View

