

1 General

1.1 Customer Information

Company	PICEANCE HL
Representative	
Address	

1.2 Well/Wellbore Information

Well	RGU 444-23-198	Wellbore No.	00
Wellbore Legal Name	RGU 444-23-198	Common Wellbore Name	RGU 444-23-198
Project	RG 23-01S-098W	Site	RGU 43-23-198 PAD
Vertical Section Azimuth	178.51 (°)	North reference	True
Origin N/S		Origin E/W	
Spud date	11/2/2014	UWI	RGU 444-23-198
Active datum	KB @6,592.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	11/2/2014	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

9664

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 (°)
11/2/2014	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11/2/2014	NORMAL	85.0	0.79	66.88	85.00	0.23	0.54	-0.22	0.93	0.93	0.00	66.88
	NORMAL	173.0	0.97	168.31	172.99	-0.26	1.25	0.29	1.55	0.20	115.26	135.93
	NORMAL	264.0	2.64	185.36	263.94	-3.10	1.21	3.13	1.91	1.84	18.74	26.47
	NORMAL	355.0	3.08	180.00	354.83	-7.63	1.01	7.66	0.57	0.48	-5.89	326.01
	NORMAL	446.0	2.73	180.26	445.71	-12.25	1.00	12.27	0.38	-0.38	0.29	177.97
	NORMAL	524.0	4.23	178.94	523.57	-16.98	1.05	17.00	1.93	1.92	-1.69	356.28
	NORMAL	616.0	4.67	177.52	615.29	-24.11	1.27	24.14	0.49	0.48	-1.54	345.23
	NORMAL	706.0	4.64	179.97	704.99	-31.41	1.43	31.44	0.22	-0.03	2.72	99.80
	NORMAL	797.0	4.04	177.81	795.73	-38.30	1.56	38.33	0.68	-0.66	-2.37	194.16
	NORMAL	887.0	3.97	174.05	885.51	-44.57	2.00	44.60	0.30	-0.08	-4.18	253.20
	NORMAL	977.0	4.22	172.03	975.28	-50.94	2.78	51.00	0.32	0.28	-2.24	329.01
	NORMAL	1,072.0	4.44	180.86	1,070.01	-58.08	3.21	58.15	0.74	0.23	9.29	76.17
	NORMAL	1,167.0	4.50	183.04	1,164.72	-65.48	2.96	65.53	0.19	0.06	2.29	71.64
	NORMAL	1,263.0	4.04	178.27	1,260.46	-72.62	2.86	72.67	0.60	-0.48	-4.97	215.31
	NORMAL	1,358.0	3.61	175.01	1,355.25	-78.95	3.22	79.00	0.51	-0.45	-3.43	205.21
	NORMAL	1,453.0	3.69	170.44	1,450.05	-84.94	3.99	85.01	0.32	0.08	-4.81	283.09
	NORMAL	1,548.0	2.89	166.84	1,544.90	-90.29	5.04	90.39	0.87	-0.84	-3.79	192.69
	NORMAL	1,643.0	4.04	174.18	1,639.72	-95.95	5.93	96.07	1.30	1.21	7.73	24.78
	NORMAL	1,728.0	4.63	172.24	1,724.48	-102.33	6.70	102.47	0.72	0.69	-2.28	345.07
	NORMAL	1,822.0	4.37	174.82	1,818.19	-109.65	7.53	109.81	0.35	-0.28	2.74	143.38

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 (")
11/2/2014	NORMAL	1,917.0	3.96	174.89	1,912.94	-116.52	8.15	116.70	0.43	-0.43	0.07	179.32
	NORMAL	2,012.0	4.46	183.10	2,007.68	-123.48	8.24	123.65	0.82	0.53	8.64	54.46
11/3/2014	NORMAL	2,107.0	4.39	180.21	2,102.40	-130.80	8.03	130.97	0.25	-0.07	-3.04	251.13
	NORMAL	2,202.0	4.00	179.63	2,197.15	-137.75	8.04	137.92	0.41	-0.41	-0.61	185.92
	NORMAL	2,297.0	4.89	188.49	2,291.86	-145.07	7.46	145.22	1.18	0.94	9.33	42.12
	NORMAL	2,392.0	5.12	191.21	2,386.50	-153.23	6.04	153.34	0.35	0.24	2.86	47.26
	NORMAL	2,488.0	5.04	188.29	2,482.12	-161.61	4.60	161.67	0.28	-0.08	-3.04	251.36
	NORMAL	2,583.0	5.02	183.81	2,576.76	-169.89	3.72	169.92	0.41	-0.02	-4.72	264.86
	NORMAL	2,678.0	4.82	178.13	2,671.41	-178.02	3.57	178.05	0.55	-0.21	-5.98	244.87
	NORMAL	2,773.0	4.76	175.49	2,766.08	-185.94	4.01	185.98	0.24	-0.06	-2.78	253.46
	NORMAL	2,868.0	4.32	179.89	2,860.78	-193.45	4.33	193.50	0.59	-0.46	4.63	143.82
	NORMAL	2,963.0	3.67	182.65	2,955.55	-200.06	4.20	200.10	0.71	-0.68	2.91	164.89
	NORMAL	3,058.0	4.43	183.56	3,050.31	-206.76	3.83	206.79	0.80	0.80	0.96	5.29
	NORMAL	3,153.0	4.74	184.46	3,145.01	-214.34	3.30	214.35	0.33	0.33	0.95	13.51
	NORMAL	3,248.0	4.60	182.08	3,239.69	-222.06	2.85	222.06	0.25	-0.15	-2.51	232.97
	NORMAL	3,344.0	4.56	179.02	3,335.38	-229.72	2.78	229.71	0.26	-0.04	-3.19	259.18
	NORMAL	3,439.0	4.56	174.36	3,430.08	-237.25	3.21	237.26	0.39	0.00	-4.91	267.68
	NORMAL	3,534.0	4.56	171.38	3,524.78	-244.75	4.15	244.77	0.25	0.00	-3.14	268.51
11/4/2014	NORMAL	3,629.0	4.51	172.62	3,619.49	-252.18	5.20	252.23	0.12	-0.05	1.31	117.64
	NORMAL	3,724.0	4.41	169.40	3,714.20	-259.48	6.35	259.56	0.28	-0.11	-3.39	246.63
	NORMAL	3,819.0	4.33	165.55	3,808.92	-266.54	7.92	266.66	0.32	-0.08	-4.05	252.83
	NORMAL	3,890.0	4.12	164.09	3,879.73	-271.59	9.28	271.74	0.33	-0.30	-2.06	206.40
11/6/2014	NORMAL	4,010.0	3.76	164.04	3,999.45	-279.52	11.55	279.72	0.30	-0.30	-0.04	180.52
	NORMAL	4,106.0	3.59	160.29	4,095.25	-285.37	13.43	285.63	0.31	-0.18	-3.91	232.87
	NORMAL	4,201.0	4.36	172.82	4,190.02	-291.76	14.88	292.05	1.22	0.81	13.19	54.81
	NORMAL	4,296.0	4.17	174.92	4,284.76	-298.78	15.64	299.09	0.26	-0.20	2.21	141.62
	NORMAL	4,391.0	5.05	177.37	4,379.45	-306.40	16.14	306.71	0.95	0.93	2.58	13.84
	NORMAL	4,486.0	4.49	179.14	4,474.12	-314.29	16.38	314.61	0.61	-0.59	1.86	166.15
	NORMAL	4,581.0	4.46	181.91	4,568.83	-321.70	16.32	322.02	0.23	-0.03	2.92	99.28
	NORMAL	4,676.0	4.10	183.78	4,663.57	-328.78	15.97	329.09	0.41	-0.38	1.97	159.74
	NORMAL	4,771.0	5.49	182.37	4,758.23	-336.71	15.56	337.00	1.47	1.46	-1.48	354.45
	NORMAL	4,866.0	4.98	181.85	4,852.84	-345.37	15.24	345.65	0.54	-0.54	-0.55	185.06
	NORMAL	4,961.0	4.77	178.35	4,947.49	-353.44	15.22	353.72	0.38	-0.22	-3.68	233.04
	NORMAL	5,057.0	4.26	176.27	5,043.20	-360.99	15.56	361.27	0.56	-0.53	-2.17	196.76
	NORMAL	5,145.0	4.57	182.58	5,130.94	-367.76	15.62	368.04	0.65	0.35	7.17	60.63
	NORMAL	5,238.0	4.10	178.05	5,223.67	-374.78	15.57	375.06	0.62	-0.51	-4.87	213.83
	NORMAL	5,333.0	5.29	188.07	5,318.35	-382.51	15.07	382.77	1.52	1.25	10.55	39.64
	NORMAL	5,428.0	4.52	187.99	5,413.00	-390.55	13.93	390.78	0.81	-0.81	-0.08	180.47
	NORMAL	5,523.0	3.97	183.12	5,507.74	-397.54	13.23	397.75	0.69	-0.58	-5.13	210.83
	NORMAL	5,618.0	5.21	185.86	5,602.44	-405.12	12.61	405.31	1.33	1.31	2.88	11.40
	NORMAL	5,713.0	4.78	185.53	5,697.08	-413.35	11.79	413.52	0.45	-0.45	-0.35	183.66
11/7/2014	NORMAL	5,808.0	4.93	187.62	5,791.73	-421.34	10.87	421.48	0.24	0.16	2.20	50.75
	NORMAL	5,903.0	5.27	171.81	5,886.36	-429.70	10.95	429.84	1.52	0.36	-16.64	275.64
	NORMAL	5,997.0	4.85	174.06	5,980.00	-437.93	11.97	438.09	0.49	-0.45	2.39	155.83
	NORMAL	6,093.0	4.51	180.19	6,075.68	-445.74	12.38	445.91	0.63	-0.35	6.39	127.24
	NORMAL	6,188.0	3.90	164.13	6,170.42	-452.58	13.25	452.77	1.39	-0.64	-16.91	234.76
	NORMAL	6,282.0	3.90	165.71	6,264.21	-458.75	14.92	458.99	0.11	0.00	1.68	90.79
	NORMAL	6,377.0	3.54	166.32	6,359.01	-464.73	16.41	465.00	0.38	-0.38	0.64	174.03
	NORMAL	6,472.0	3.15	163.96	6,453.85	-470.09	17.82	470.40	0.44	-0.41	-2.48	198.27
	NORMAL	6,567.0	4.45	150.74	6,548.64	-475.82	20.34	476.18	1.64	1.37	-13.92	319.31
	NORMAL	6,662.0	4.48	143.16	6,643.35	-482.00	24.37	482.47	0.62	0.03	-7.98	269.13
	NORMAL	6,757.0	4.85	148.28	6,738.04	-488.39	28.71	488.97	0.59	0.39	5.39	50.95
	NORMAL	6,852.0	5.16	160.07	6,832.68	-495.82	32.27	496.49	1.13	0.33	12.41	79.16
	NORMAL	6,947.0	4.98	165.89	6,927.30	-503.83	34.74	504.57	0.57	-0.19	6.13	112.17
	NORMAL	7,042.0	4.08	173.11	7,022.01	-511.19	36.15	511.95	1.12	-0.95	7.60	151.21
	NORMAL	7,137.0	3.54	160.62	7,116.80	-517.31	37.53	518.11	1.04	-0.57	-13.15	230.82

2.1.2 Survey Stations (Continued)

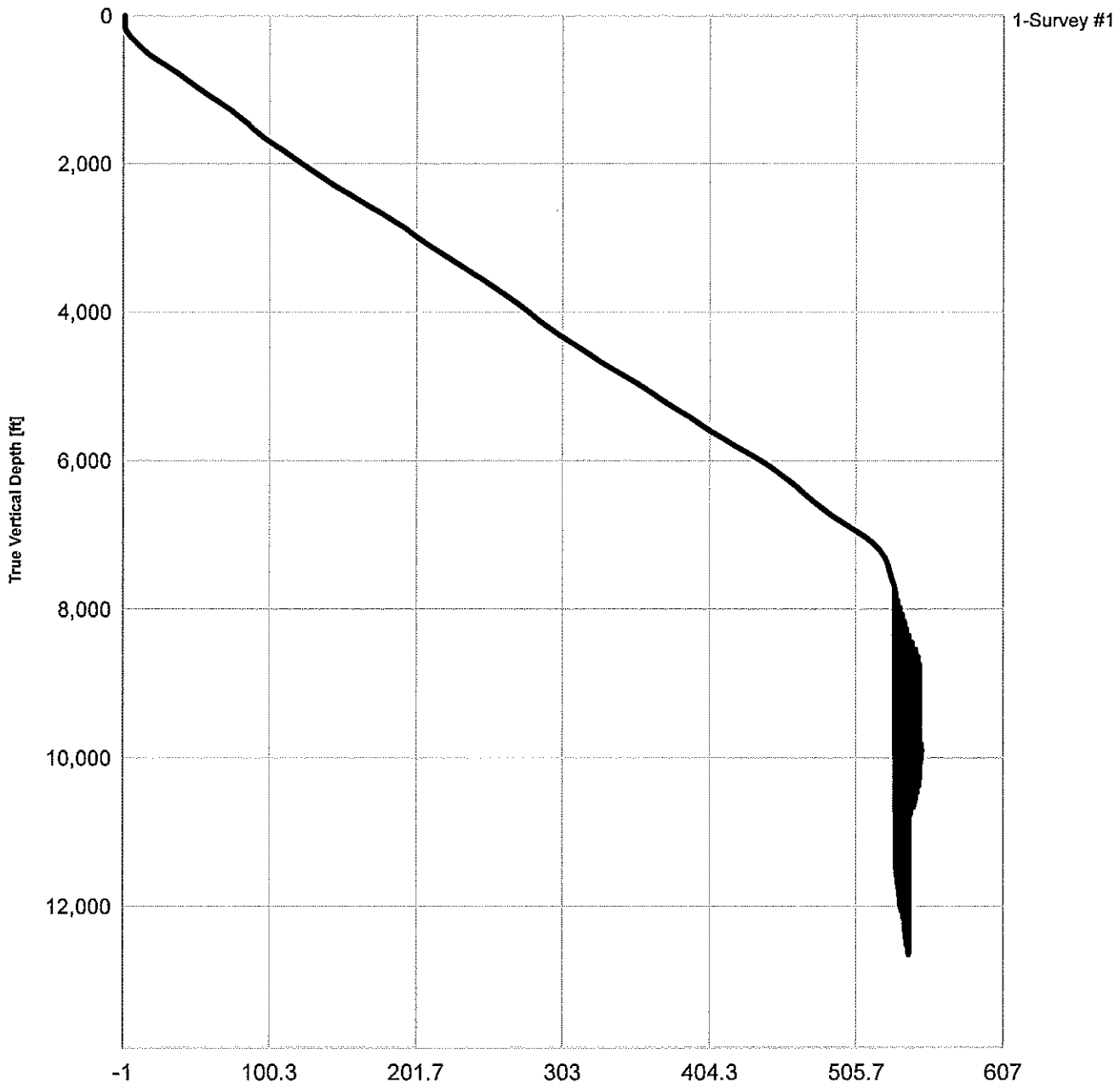
Date	Type	MD (ft)	Inc. (")	Azi. (")	TVD (ft)	N/S (ft)	EW (ft)	V. sec. (ft)	DLS ("/100usft)	Build Rate ("/100usft)	Turn ("/100usft)	Tface (")
11/8/2014	NORMAL	7,232.0	2.23	151.26	7,211.68	-521.70	39.39	522.55	1.46	-1.38	-9.85	195.15
	NORMAL	7,327.0	2.27	147.67	7,306.60	-524.91	41.28	525.80	0.15	0.04	-3.78	284.05
	NORMAL	7,422.0	1.27	120.75	7,401.56	-527.04	43.19	527.98	1.34	-1.05	-28.34	206.82
	NORMAL	7,516.0	1.15	122.00	7,495.54	-528.07	44.89	529.06	0.13	-0.13	1.33	168.22
	NORMAL	7,612.0	1.52	142.81	7,591.51	-529.59	46.47	530.62	0.63	0.39	21.68	63.36
	NORMAL	7,707.0	0.88	146.39	7,686.49	-531.20	47.64	532.26	0.68	-0.67	3.77	175.11
	NORMAL	7,801.0	0.61	166.85	7,780.48	-532.29	48.15	533.37	0.40	-0.29	21.77	145.35
	NORMAL	7,896.0	1.00	154.00	7,875.48	-533.53	48.63	534.61	0.45	0.41	-13.53	328.64
	NORMAL	7,991.0	0.98	188.52	7,970.46	-535.08	48.88	536.17	0.62	-0.02	36.34	109.12
	NORMAL	8,086.0	1.18	207.67	8,065.45	-536.75	48.30	537.82	0.43	0.21	20.16	70.81
	NORMAL	8,181.0	0.88	154.36	8,160.43	-538.27	48.16	539.34	1.01	-0.32	-56.12	227.17
	NORMAL	8,275.0	0.93	153.13	8,254.42	-539.60	48.82	540.69	0.06	0.05	-1.31	338.15
	NORMAL	8,370.0	1.10	175.59	8,349.41	-541.20	49.24	542.30	0.45	0.18	23.64	78.36
11/9/2014	NORMAL	8,465.0	1.58	188.52	8,444.38	-543.41	49.11	544.50	0.59	0.51	13.61	38.78
	NORMAL	8,560.0	1.37	190.12	8,539.35	-545.82	48.72	546.90	0.23	-0.22	1.68	169.70
	NORMAL	8,655.0	0.89	184.83	8,634.33	-547.67	48.46	548.75	0.52	-0.51	-5.57	189.63
	NORMAL	8,750.0	0.30	278.65	8,729.33	-548.37	48.15	549.44	1.01	-0.62	98.76	161.79
11/14/2014	NORMAL	8,877.0	0.06	314.74	8,856.33	-548.27	47.77	549.33	0.20	-0.19	28.42	172.00
	NORMAL	8,972.0	0.62	20.70	8,951.32	-547.76	47.92	548.82	0.63	0.59	69.43	71.22
	NORMAL	9,067.0	0.34	82.04	9,046.32	-547.24	48.38	548.31	0.57	-0.29	64.57	146.86
	NORMAL	9,161.0	0.56	358.63	9,140.32	-546.74	48.65	547.82	0.66	0.23	-88.73	243.64
	NORMAL	9,256.0	0.81	309.82	9,235.31	-545.85	48.12	546.91	0.64	0.26	-51.38	267.51
11/16/2014	NORMAL	9,351.0	0.51	97.15	9,330.31	-545.47	48.02	546.53	1.34	-0.32	155.08	167.47
	NORMAL	9,446.0	0.66	124.59	9,425.31	-545.83	48.89	546.92	0.33	0.16	28.88	76.01
	NORMAL	9,541.0	0.61	215.28	9,520.30	-546.55	49.05	547.65	0.95	-0.05	95.46	137.57
	NORMAL	9,636.0	0.34	186.32	9,615.30	-547.25	48.73	548.33	0.37	-0.28	-30.48	207.78
	NORMAL	9,731.0	1.54	240.94	9,710.29	-548.15	47.58	549.20	1.44	1.26	57.49	66.28
	NORMAL	9,826.0	1.49	218.79	9,805.25	-549.73	45.69	550.73	0.61	-0.05	-23.32	254.11
	NORMAL	9,920.0	0.87	292.77	9,899.24	-550.41	44.27	551.37	1.60	-0.66	78.70	146.21
	NORMAL	10,015.0	0.94	299.51	9,994.23	-549.74	42.93	550.67	0.13	0.07	7.09	60.07
	NORMAL	10,110.0	0.82	316.88	10,089.22	-548.86	41.78	549.76	0.31	-0.13	18.28	122.74
	NORMAL	10,206.0	0.51	255.48	10,185.21	-548.47	40.90	549.35	0.76	-0.32	-63.96	217.87
11/17/2014	NORMAL	10,301.0	0.67	268.60	10,280.21	-548.59	39.94	549.44	0.22	0.17	13.81	46.86
	NORMAL	10,396.0	0.87	315.71	10,375.20	-548.09	38.88	548.91	0.68	0.21	49.59	96.96
	NORMAL	10,491.0	1.26	315.03	10,470.18	-546.83	37.63	547.62	0.41	0.41	-0.72	357.80
	NORMAL	10,586.0	0.89	299.77	10,565.17	-545.73	36.26	546.48	0.49	-0.39	-16.06	210.27
	NORMAL	10,681.0	1.16	18.09	10,660.15	-544.45	35.91	545.20	1.38	0.28	82.44	119.97
	NORMAL	10,776.0	1.21	358.98	10,755.14	-542.53	36.19	543.29	0.42	0.05	-20.12	267.59
	NORMAL	10,871.0	1.22	309.59	10,850.12	-540.88	35.40	541.62	1.07	0.01	-51.99	245.82
11/18/2014	NORMAL	10,932.0	1.60	309.38	10,911.10	-539.93	34.24	540.63	0.62	0.62	-0.34	359.12
	NORMAL	11,027.0	1.62	346.89	11,006.06	-537.78	32.91	538.45	1.09	0.02	39.48	107.70
	NORMAL	11,122.0	1.70	347.69	11,101.02	-535.09	32.30	535.75	0.09	0.08	0.84	16.56
	NORMAL	11,218.0	0.52	48.69	11,197.01	-533.41	32.33	534.07	1.58	-1.23	63.54	162.56
	NORMAL	11,313.0	0.17	346.09	11,292.00	-532.99	32.62	533.66	0.49	-0.37	-65.89	198.86
	NORMAL	11,408.0	0.65	288.55	11,387.00	-532.68	32.07	533.34	0.61	0.51	-60.57	288.06
	NORMAL	11,503.0	1.35	264.92	11,481.99	-532.61	30.45	533.22	0.84	0.74	-24.87	317.32
	NORMAL	11,598.0	1.41	245.04	11,576.96	-533.20	28.27	533.76	0.51	0.06	-20.93	267.13
	NORMAL	11,693.0	1.04	238.82	11,671.94	-534.14	26.48	534.65	0.41	-0.39	-6.55	196.68
11/19/2014	NORMAL	11,788.0	1.74	256.14	11,766.91	-534.94	24.34	535.39	0.85	0.74	18.23	39.82
	NORMAL	11,883.0	1.38	259.80	11,861.88	-535.48	21.81	535.87	0.39	-0.38	3.85	166.35
	NORMAL	11,978.0	1.42	259.46	11,956.85	-535.90	19.53	536.23	0.04	0.04	-0.36	348.10
	NORMAL	12,074.0	2.07	242.28	12,052.80	-536.93	16.82	537.18	0.86	0.68	-17.90	312.37
	NORMAL	12,170.0	1.53	241.65	12,148.76	-538.34	14.16	538.53	0.56	-0.56	-0.66	181.78
	NORMAL	12,265.0	0.88	241.44	12,243.74	-539.29	12.40	539.43	0.68	-0.68	-0.22	180.28
	NORMAL	12,361.0	1.16	250.86	12,339.72	-539.96	10.84	540.06	0.34	0.29	9.81	35.68
	NORMAL	12,456.0	1.11	254.55	12,434.70	-540.52	9.04	540.58	0.09	-0.05	3.88	126.21

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 (")
11/20/2014	NORMAL	12,551.0	1.24	246.08	12,529.68	-541.19	7.22	541.19	0.23	0.14	-8.92	302.53
	NORMAL	12,663.0	1.24	246.08	12,641.66	-542.17	5.00	542.11	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



Vertical Section at 178.51 ° [ft]

