

## 1 General

### 1.1 Customer Information

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

### 1.2 Well/Wellbore Information

Well	RG 331-23-298	Wellbore No.	00
Wellbore Legal Name	RG 331-23-298	Common Wellbore Name	RG 331-23-298
Project	RG 14-02S-098W	Site	RG 24-14-298 Pad
Vertical Section Azimuth	119.73 (°)	North reference	
Origin N/S		Origin E/W	
Spud date	10/2/2013	UWI	RG 331-23-298
Active datum	KB @6,707.0ft (above Mean Sea Level)		

## 2 Survey Name

### 2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	SDI
Date Started	10/2/2013	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 (°)
10/2/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10/2/2013	NORMAL	299.0	4.60	121.06	298.68	-6.19	10.28	11.99	1.54	1.54	0.00	121.06
	NORMAL	392.0	7.38	110.00	391.17	-10.16	19.09	21.61	3.22	2.99	-11.89	331.89
	NORMAL	484.0	9.28	113.84	482.19	-15.18	31.42	34.81	2.15	2.07	4.17	18.23
	NORMAL	576.0	9.94	115.04	572.90	-21.54	45.40	50.11	0.75	0.72	1.30	17.48
	NORMAL	668.0	11.26	117.58	663.33	-29.06	60.56	67.00	1.52	1.43	2.76	20.74
	NORMAL	761.0	11.96	120.57	754.43	-38.16	76.90	85.71	0.99	0.75	3.22	42.15
	NORMAL	853.0	13.54	121.28	844.16	-48.60	94.32	106.00	1.73	1.72	0.77	6.01
	NORMAL	945.0	14.86	120.84	933.34	-60.24	113.65	128.57	1.44	1.43	-0.48	355.11
	NORMAL	1,039.0	14.16	117.94	1,024.35	-71.81	134.16	152.11	1.07	-0.74	-3.09	224.67
	NORMAL	1,134.0	15.83	119.61	1,116.11	-83.66	155.69	176.68	1.82	1.76	1.76	15.31
	NORMAL	1,229.0	16.27	120.48	1,207.41	-96.81	178.43	202.95	0.53	0.46	0.92	29.08
	NORMAL	1,323.0	16.27	121.45	1,297.64	-110.36	201.01	229.28	0.29	0.00	1.03	90.47
	NORMAL	1,418.0	16.44	121.19	1,388.80	-124.26	223.86	256.02	0.19	0.18	-0.27	336.58
	NORMAL	1,513.0	15.39	117.23	1,480.16	-136.99	246.57	282.05	1.59	-1.11	-4.17	224.07
	NORMAL	1,607.0	13.63	117.50	1,571.16	-147.82	267.49	305.58	1.87	-1.87	0.29	177.93
	NORMAL	1,702.0	13.54	117.58	1,663.50	-158.13	287.27	327.88	0.10	-0.09	0.08	168.25
10/3/2013	NORMAL	1,797.0	14.16	118.64	1,755.74	-168.85	307.33	350.61	0.71	0.65	1.12	22.77
	NORMAL	1,892.0	14.33	119.43	1,847.82	-180.20	327.77	373.99	0.27	0.18	0.83	49.21
	NORMAL	2,176.0	14.16	121.89	2,123.09	-215.82	387.87	443.84	0.22	-0.06	0.87	106.88
	NORMAL	2,271.0	13.63	121.98	2,215.31	-227.89	407.23	466.64	0.56	-0.56	0.09	177.71

## 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 (°)
10/3/2013	NORMAL	2,366.0	13.10	121.28	2,307.73	-239.40	425.93	488.59	0.58	-0.56	-0.74	196.64
	NORMAL	2,460.0	13.45	121.10	2,399.22	-250.58	444.39	510.17	0.37	0.37	-0.19	353.18
	NORMAL	2,555.0	14.42	120.66	2,491.42	-262.32	464.03	533.04	1.03	1.02	-0.46	353.55
	NORMAL	2,650.0	14.25	120.66	2,583.47	-274.32	484.26	556.56	0.18	-0.18	0.00	180.00
	NORMAL	2,744.0	15.12	120.57	2,674.40	-286.45	504.77	580.38	0.93	0.93	-0.10	358.45
	NORMAL	2,839.0	14.33	118.55	2,766.28	-298.37	525.77	604.53	0.99	-0.83	-2.13	212.10
	NORMAL	2,934.0	14.16	118.46	2,858.35	-309.53	546.31	627.90	0.18	-0.18	-0.09	187.32
	NORMAL	3,028.0	14.60	121.10	2,949.41	-321.13	566.56	651.24	0.84	0.47	2.81	57.42
	NORMAL	3,123.0	15.65	121.63	3,041.12	-334.03	587.73	676.02	1.11	1.11	0.56	7.76
	NORMAL	3,218.0	14.95	119.17	3,132.75	-346.72	609.34	701.08	1.00	-0.74	-2.59	221.66
	NORMAL	3,313.0	15.04	117.58	3,224.52	-358.40	630.96	725.65	0.44	0.09	-1.67	281.57
	NORMAL	3,351.0	14.86	118.11	3,261.23	-362.98	639.63	735.45	0.59	-0.47	1.39	143.04
11/14/2013	NORMAL	3,453.0	13.54	115.04	3,360.11	-374.20	661.99	760.42	1.49	-1.29	-3.01	208.22
	NORMAL	3,548.0	15.12	111.52	3,452.16	-383.45	683.59	783.77	1.90	1.66	-3.71	329.41
	NORMAL	3,643.0	14.95	116.09	3,543.91	-393.39	706.12	808.26	1.26	-0.18	4.81	100.36
	NORMAL	3,738.0	14.77	117.06	3,635.73	-404.28	727.91	832.59	0.32	-0.19	1.02	126.36
	NORMAL	3,833.0	15.04	121.10	3,727.54	-416.16	749.25	857.01	1.13	0.28	4.25	77.39
	NORMAL	3,927.0	15.04	117.32	3,818.32	-428.06	770.53	881.39	1.04	0.00	-4.02	268.17
	NORMAL	4,022.0	13.52	120.69	3,910.38	-439.38	791.03	904.81	1.82	-1.60	3.55	152.95
	NORMAL	4,117.0	13.63	119.34	4,002.73	-450.54	810.34	927.10	0.35	0.12	-1.42	288.49
	NORMAL	4,211.0	15.21	112.84	4,093.77	-460.75	831.36	950.42	2.40	1.68	-6.91	311.13
	NORMAL	4,306.0	14.86	114.07	4,185.52	-470.56	853.97	974.92	0.50	-0.37	1.29	138.24
	NORMAL	4,401.0	14.42	119.17	4,277.44	-481.29	875.42	998.87	1.43	-0.46	5.37	111.30
	NORMAL	4,495.0	14.33	119.87	4,368.50	-492.79	895.73	1,022.21	0.21	-0.10	0.74	117.72
11/15/2013	NORMAL	4,590.0	14.60	119.78	4,460.49	-504.59	916.32	1,045.94	0.29	0.28	-0.09	355.20
	NORMAL	4,685.0	15.39	118.29	4,552.25	-516.51	937.81	1,070.51	0.93	0.83	-1.57	333.27
	NORMAL	4,780.0	15.04	115.30	4,643.92	-527.76	960.05	1,095.40	0.90	-0.37	-3.15	244.52
	NORMAL	4,875.0	13.06	115.65	4,736.08	-537.67	980.87	1,118.40	2.09	-2.08	0.37	177.71
	NORMAL	4,969.0	14.16	115.39	4,827.44	-547.20	1,000.84	1,140.46	1.17	1.17	-0.28	356.69
	NORMAL	5,064.0	13.28	114.86	4,919.72	-556.77	1,021.23	1,162.92	0.94	-0.93	-0.56	187.67
	NORMAL	5,159.0	11.87	112.84	5,012.44	-565.15	1,040.14	1,183.49	1.55	-1.48	-2.13	196.34
	NORMAL	5,253.0	10.55	115.12	5,104.65	-572.55	1,056.84	1,201.67	1.48	-1.40	2.43	162.55
	NORMAL	5,348.0	8.97	116.35	5,198.27	-579.53	1,071.35	1,217.73	1.68	-1.66	1.29	173.09
	NORMAL	5,443.0	7.83	118.90	5,292.25	-585.95	1,083.66	1,231.60	1.26	-1.20	2.68	163.16
	NORMAL	5,537.0	7.83	114.51	5,385.38	-591.70	1,095.09	1,244.38	0.64	0.00	-4.67	267.83
	NORMAL	5,633.0	6.95	117.85	5,480.58	-597.13	1,106.17	1,256.69	1.02	-0.92	3.48	155.63
	NORMAL	5,727.0	6.42	113.72	5,573.94	-601.90	1,116.01	1,267.60	0.76	-0.56	-4.39	220.17
	NORMAL	5,822.0	4.84	117.50	5,668.48	-605.88	1,124.43	1,276.89	1.71	-1.66	3.98	168.67
	NORMAL	5,917.0	3.58	121.29	5,763.22	-609.27	1,130.52	1,283.86	1.36	-1.33	3.99	169.43
	NORMAL	6,011.0	2.11	109.50	5,857.10	-611.38	1,134.66	1,288.50	1.68	-1.56	-12.54	195.89
	NORMAL	6,106.0	1.06	95.26	5,952.07	-612.04	1,137.18	1,291.02	1.17	-1.11	-14.99	193.54
	NORMAL	6,201.0	1.06	31.63	6,047.05	-611.37	1,138.52	1,291.85	1.18	0.00	-66.98	238.19
	NORMAL	6,295.0	1.23	40.59	6,141.03	-609.87	1,139.63	1,292.07	0.26	0.18	9.53	51.02
	NORMAL	6,390.0	1.11	56.91	6,236.01	-608.59	1,141.07	1,292.68	0.37	-0.13	17.18	117.84
	NORMAL	6,485.0	0.55	25.65	6,331.00	-607.68	1,142.04	1,293.07	0.74	-0.59	-32.91	204.04
	NORMAL	6,580.0	0.36	3.82	6,426.00	-606.97	1,142.25	1,292.90	0.27	-0.20	-22.98	211.81
	NORMAL	6,675.0	0.34	276.04	6,521.00	-606.64	1,141.99	1,292.52	0.51	-0.02	-92.40	224.41
	NORMAL	6,769.0	0.62	250.56	6,615.00	-606.78	1,141.24	1,291.93	0.37	0.30	-27.11	309.48
	NORMAL	6,864.0	0.77	264.62	6,709.99	-607.01	1,140.12	1,291.07	0.24	0.16	14.80	55.84
	NORMAL	6,959.0	0.97	257.15	6,804.98	-607.25	1,138.70	1,289.95	0.24	0.21	-7.86	326.67
	NORMAL	7,053.0	1.23	240.09	6,898.96	-607.93	1,137.05	1,288.86	0.44	0.28	-18.15	299.71
	NORMAL	7,148.0	0.25	285.26	6,993.95	-608.38	1,135.98	1,288.14	1.12	-1.03	47.55	170.45
11/16/2013	NORMAL	7,243.0	0.35	266.16	7,088.95	-608.35	1,135.47	1,287.70	0.15	0.11	-20.11	305.18
	NORMAL	7,338.0	0.88	220.06	7,183.95	-608.93	1,134.71	1,287.33	0.72	0.56	-48.53	292.31
	NORMAL	7,433.0	1.19	230.63	7,278.93	-610.11	1,133.48	1,286.85	0.38	0.33	11.13	36.99
	NORMAL	7,528.0	0.53	202.31	7,373.92	-611.14	1,132.55	1,286.55	0.81	-0.69	-29.81	199.17

## 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 (°)
11/16/2013	NORMAL	7,622.0	1.13	217.25	7,467.91	-612.28	1,131.83	1,286.48	0.67	0.64	15.89	27.41
	NORMAL	7,717.0	0.87	321.93	7,562.90	-612.46	1,130.81	1,285.69	1.67	-0.27	110.19	148.07
	NORMAL	7,812.0	0.82	304.18	7,657.90	-611.60	1,129.94	1,284.51	0.36	-0.26	-18.68	214.07
	NORMAL	7,907.0	0.88	351.55	7,752.89	-610.59	1,129.41	1,283.55	0.68	0.27	49.86	92.12
	NORMAL	8,002.0	1.32	336.26	7,847.87	-608.87	1,128.86	1,282.22	0.55	0.46	-16.09	318.49
	NORMAL	8,096.0	1.41	314.46	7,941.85	-607.07	1,127.60	1,280.23	0.56	0.10	-23.19	268.82
	NORMAL	8,191.0	0.53	49.91	8,036.84	-605.97	1,127.10	1,279.25	1.63	-0.93	100.47	160.13
	NORMAL	8,286.0	0.62	87.53	8,131.83	-605.66	1,127.95	1,279.84	0.40	0.09	39.60	95.87
	NORMAL	8,380.0	0.26	117.85	8,225.83	-605.74	1,128.65	1,280.48	0.44	-0.38	32.26	161.64
	NORMAL	8,475.0	0.35	145.45	8,320.83	-606.08	1,129.01	1,280.96	0.18	0.09	29.05	72.81
	NORMAL	8,570.0	0.53	87.00	8,415.83	-606.30	1,129.61	1,281.59	0.48	0.19	-61.53	260.86
	NORMAL	8,664.0	0.62	126.37	8,509.82	-606.58	1,130.45	1,282.46	0.42	0.10	41.88	97.34
	NORMAL	8,759.0	0.79	168.65	8,604.81	-607.52	1,131.00	1,283.40	0.56	0.18	44.51	93.82
	NORMAL	8,854.0	0.79	192.91	8,699.81	-608.80	1,130.98	1,284.02	0.35	0.00	25.54	102.13
11/17/2013	NORMAL	8,948.0	0.92	218.27	8,793.80	-610.03	1,130.37	1,284.10	0.42	0.14	26.98	84.01
	NORMAL	9,043.0	1.24	35.56	8,888.79	-609.79	1,130.49	1,284.09	2.27	0.34	186.62	178.44
	NORMAL	9,137.0	0.70	49.21	8,982.78	-608.59	1,131.52	1,284.38	0.62	-0.57	14.52	163.56
	NORMAL	9,232.0	0.09	314.81	9,077.77	-608.15	1,131.90	1,284.51	0.75	-0.64	-99.37	187.23
	NORMAL	9,326.0	0.57	290.21	9,171.77	-607.94	1,131.41	1,283.97	0.52	0.51	-26.17	331.01
	NORMAL	9,421.0	0.70	290.29	9,266.77	-607.58	1,130.42	1,282.93	0.14	0.14	0.08	0.43
	NORMAL	9,516.0	0.97	279.48	9,361.76	-607.24	1,129.09	1,281.61	0.33	0.28	-11.38	324.26
	NORMAL	9,611.0	1.44	291.65	9,456.74	-606.67	1,127.18	1,279.67	0.56	0.49	12.81	34.74
	NORMAL	9,705.0	1.54	303.40	9,550.71	-605.54	1,125.03	1,277.24	0.34	0.11	12.50	77.81
	NORMAL	9,800.0	1.98	291.59	9,645.66	-604.23	1,122.44	1,274.34	0.60	0.46	-12.43	314.50
	NORMAL	9,895.0	0.70	239.40	9,740.64	-603.92	1,120.41	1,272.43	1.73	-1.35	-54.94	199.63
	NORMAL	9,990.0	0.62	225.25	9,835.63	-604.58	1,119.55	1,272.01	0.19	-0.08	-14.89	236.90
	NORMAL	10,084.0	1.22	231.10	9,929.62	-605.57	1,118.41	1,271.51	0.65	0.64	6.22	11.83
	NORMAL	10,179.0	1.85	233.34	10,024.58	-607.12	1,116.39	1,270.52	0.67	0.66	2.36	6.56
11/18/2013	NORMAL	10,273.0	2.29	227.54	10,118.50	-609.29	1,113.79	1,269.34	0.52	0.47	-6.17	331.62
	NORMAL	10,368.0	2.37	224.46	10,213.42	-611.98	1,111.02	1,268.26	0.16	0.08	-3.24	301.03
	NORMAL	10,462.0	2.55	230.26	10,307.34	-614.70	1,108.05	1,267.03	0.33	0.19	6.17	57.05
	NORMAL	10,557.0	2.82	237.43	10,402.23	-617.31	1,104.45	1,265.21	0.45	0.28	7.55	54.82
	NORMAL	10,652.0	2.83	242.45	10,497.12	-619.65	1,100.40	1,262.85	0.26	0.01	5.28	90.19
	NORMAL	10,747.0	3.17	240.10	10,591.99	-622.05	1,096.05	1,260.26	0.38	0.36	-2.47	338.94
	NORMAL	10,841.0	3.34	242.39	10,685.83	-624.61	1,091.37	1,257.46	0.23	0.18	2.44	38.56
	NORMAL	10,936.0	3.61	239.23	10,780.66	-627.42	1,086.34	1,254.50	0.35	0.28	-3.33	323.06
	NORMAL	11,006.0	4.04	235.97	10,850.50	-629.93	1,082.41	1,252.32	0.69	0.61	-4.66	331.54
	NORMAL	11,055.0	4.04	235.97	10,899.38	-631.86	1,079.55	1,250.80	0.00	0.00	0.00	0.00