

## 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 534-14-298	Wellbore No.	00
Wellbore Legal Name	RG 534-14-298	Common Wellbore Name	RG 534-14-298
Project	RG 14-02S-098W	Site	RG 24-14-298 Pad
Vertical Section Azimuth	88.80 (°)	North reference	
Origin N/S		Origin E/W	
Spud date	10/4/2013	UWI	RG 534-14-298
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	10/4/2013	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

7557

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 (°)
10/4/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10/4/2013	NORMAL	330.0	3.96	88.38	329.74	0.32	11.39	11.40	1.20	1.20	0.00	88.38
	NORMAL	422.0	4.83	89.86	421.47	0.42	18.44	18.45	0.95	0.95	1.61	8.17
	NORMAL	515.0	6.51	95.79	514.01	-0.10	27.60	27.60	1.91	1.81	6.38	22.19
10/5/2013	NORMAL	607.0	8.88	93.85	605.17	-1.10	39.88	39.85	2.59	2.58	-2.11	352.78
	NORMAL	699.0	10.64	89.11	695.84	-1.45	55.46	55.42	2.10	1.91	-5.15	333.11
	NORMAL	791.0	13.10	87.61	785.87	-0.88	74.37	74.34	2.69	2.67	-1.63	352.12
	NORMAL	884.0	14.51	89.46	876.18	-0.33	96.55	96.52	1.59	1.52	1.99	18.28
	NORMAL	976.0	14.16	89.99	965.32	-0.22	119.33	119.30	0.41	-0.38	0.58	159.70
	NORMAL	1,071.0	12.49	89.81	1,057.75	-0.19	141.22	141.19	1.76	-1.76	-0.19	181.34
	NORMAL	1,165.0	12.49	88.14	1,149.53	0.18	161.55	161.52	0.38	0.00	-1.78	269.18
	NORMAL	1,292.0	14.95	91.31	1,272.90	0.25	191.66	191.62	2.02	1.94	2.50	18.54
	NORMAL	1,386.0	15.56	91.04	1,363.59	-0.26	216.38	216.33	0.65	0.65	-0.29	353.23
	NORMAL	1,481.0	16.53	87.09	1,454.89	0.20	242.62	242.57	1.54	1.02	-4.16	309.71
	NORMAL	1,576.0	16.88	85.80	1,545.88	1.89	269.88	269.86	0.54	0.37	-1.36	312.73
	NORMAL	1,671.0	17.06	84.54	1,636.74	4.23	297.50	297.53	0.43	0.19	-1.33	295.48
	NORMAL	1,955.0	16.44	89.99	1,908.71	8.20	379.17	379.26	0.59	-0.22	1.92	114.14
	NORMAL	2,050.0	16.53	90.87	1,999.80	8.00	406.12	406.20	0.28	0.09	0.93	70.60
	NORMAL	2,145.0	15.21	90.16	2,091.18	7.76	432.10	432.17	1.40	-1.39	-0.75	188.03
	NORMAL	2,239.0	12.84	87.35	2,182.37	8.21	454.87	454.94	2.62	-2.52	-2.99	194.67
	NORMAL	2,334.0	11.52	86.03	2,275.23	9.35	474.88	474.97	1.42	-1.39	-1.39	191.27

## 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 (°)
10/5/2013	NORMAL	2,429.0	10.55	85.15	2,368.48	10.74	493.01	493.12	1.04	-1.02	-0.93	189.42
	NORMAL	2,523.0	10.73	83.48	2,460.86	12.47	510.27	510.42	0.38	0.19	-1.78	299.45
	NORMAL	2,618.0	11.78	84.45	2,554.03	14.41	528.71	528.90	1.12	1.11	1.02	10.70
	NORMAL	2,713.0	13.19	85.15	2,646.78	16.26	549.17	549.39	1.49	1.48	0.74	6.47
	NORMAL	2,807.0	13.19	84.54	2,738.30	18.19	570.53	570.78	0.15	0.00	-0.65	269.70
	NORMAL	2,902.0	13.72	85.77	2,830.70	20.05	592.55	592.84	0.63	0.56	1.29	28.97
	NORMAL	2,997.0	13.01	85.15	2,923.12	21.79	614.44	614.76	0.76	-0.75	-0.65	191.11
	NORMAL	3,092.0	13.01	86.38	3,015.69	23.37	635.77	636.12	0.29	0.00	1.29	90.60
	NORMAL	3,186.0	12.40	87.26	3,107.38	24.52	656.41	656.78	0.68	-0.65	0.94	162.83
	NORMAL	3,281.0	12.49	87.26	3,200.15	25.49	676.86	677.25	0.09	0.09	0.00	0.00
	NORMAL	3,375.0	11.18	85.49	3,292.15	26.70	696.10	696.51	1.45	-1.39	-1.88	194.62
	NORMAL	3,448.0	11.18	85.49	3,363.77	27.81	710.21	710.64	0.00	0.00	0.00	0.00
10/26/2013	NORMAL	3,457.0	9.37	86.35	3,372.83	27.75	710.69	711.11	2.22	-2.21	1.05	175.58
	NORMAL	3,551.0	7.30	104.31	3,465.85	26.76	724.11	724.52	3.51	-2.20	19.11	137.14
	NORMAL	3,646.0	11.17	94.86	3,559.61	24.49	739.14	739.49	4.36	4.07	-9.95	333.89
	NORMAL	3,741.0	13.63	85.24	3,652.40	24.64	759.47	759.82	3.37	2.59	-10.13	315.21
10/27/2013	NORMAL	3,836.0	12.66	91.22	3,744.91	25.34	781.03	781.39	1.76	-1.02	6.29	128.39
	NORMAL	3,931.0	12.04	91.04	3,837.71	24.94	801.35	801.69	0.65	-0.65	-0.19	183.47
	NORMAL	4,025.0	12.40	84.89	3,929.59	25.66	821.20	821.56	1.44	0.38	-6.54	282.44
	NORMAL	4,120.0	11.52	93.68	4,022.53	25.96	840.83	841.19	2.13	-0.93	9.25	120.04
	NORMAL	4,214.0	12.46	93.76	4,114.48	24.69	860.32	860.64	1.00	1.00	0.09	1.05
	NORMAL	4,309.0	13.01	85.86	4,207.15	24.79	881.21	881.54	1.92	0.58	-8.32	283.65
	NORMAL	4,404.0	12.93	85.15	4,299.73	26.46	902.47	902.82	0.19	-0.08	-0.75	243.00
	NORMAL	4,499.0	13.10	81.55	4,392.29	28.95	923.71	924.11	0.87	0.18	-3.79	280.08
	NORMAL	4,593.0	13.19	89.37	4,483.83	30.63	944.97	945.40	1.89	0.10	8.32	90.92
	NORMAL	4,688.0	12.93	88.14	4,576.37	31.09	966.43	966.87	0.40	-0.27	-1.29	226.31
	NORMAL	4,783.0	11.61	82.52	4,669.21	32.68	986.53	987.00	1.87	-1.39	-5.92	219.42
	NORMAL	4,878.0	12.05	80.76	4,762.19	35.52	1,005.80	1,006.32	0.60	0.46	-1.85	319.78
	NORMAL	4,973.0	11.08	82.34	4,855.26	38.33	1,024.63	1,025.21	1.07	-1.02	1.66	162.69
	NORMAL	5,067.0	9.76	84.45	4,947.71	40.30	1,041.52	1,042.13	1.46	-1.40	2.24	164.91
	NORMAL	5,162.0	10.02	90.51	5,041.30	41.01	1,057.79	1,058.42	1.13	0.27	6.38	78.97
	NORMAL	5,256.0	10.24	85.24	5,133.83	41.63	1,074.30	1,074.94	1.01	0.23	-5.61	280.75
	NORMAL	5,351.0	8.88	86.38	5,227.51	42.79	1,090.03	1,090.69	1.45	-1.43	1.20	172.64
	NORMAL	5,446.0	7.83	91.83	5,321.51	43.05	1,103.82	1,104.48	1.38	-1.11	5.74	145.65
	NORMAL	5,541.0	7.74	89.72	5,415.63	42.87	1,116.68	1,117.34	0.32	-0.09	-2.22	251.48
	NORMAL	5,636.0	7.74	92.27	5,509.76	42.65	1,129.47	1,130.12	0.36	0.00	2.68	91.26
	NORMAL	5,731.0	6.24	75.66	5,604.07	43.68	1,140.87	1,141.53	2.63	-1.58	-17.48	225.37
	NORMAL	5,825.0	4.84	84.89	5,697.63	45.30	1,149.77	1,150.47	1.76	-1.49	9.82	152.06
	NORMAL	5,920.0	5.28	83.75	5,792.26	46.13	1,158.11	1,158.82	0.48	0.46	-1.20	346.56
	NORMAL	6,015.0	4.57	80.67	5,886.91	47.22	1,166.19	1,166.92	0.80	-0.75	-3.24	198.90
	NORMAL	6,109.0	3.87	100.71	5,980.66	47.24	1,173.00	1,173.73	1.72	-0.74	21.32	125.16
	NORMAL	6,204.0	4.75	96.49	6,075.39	46.19	1,180.06	1,180.77	0.98	0.93	-4.44	338.07
	NORMAL	6,299.0	4.66	95.96	6,170.07	45.35	1,187.80	1,188.49	0.11	-0.09	-0.56	205.52
10/28/2013	NORMAL	6,393.0	3.96	71.35	6,263.81	45.99	1,194.68	1,195.38	2.08	-0.74	-26.18	237.29
	NORMAL	6,488.0	2.20	52.81	6,358.67	48.14	1,199.24	1,199.98	2.11	-1.85	-19.52	200.47
	NORMAL	6,583.0	2.20	56.41	6,453.60	50.25	1,202.21	1,203.00	0.15	0.00	3.79	91.80
	NORMAL	6,678.0	1.42	62.50	6,548.55	51.81	1,204.77	1,205.59	0.84	-0.82	6.41	169.18
	NORMAL	6,772.0	1.14	35.14	6,642.53	53.11	1,206.34	1,207.19	0.71	-0.30	-29.11	232.12
	NORMAL	6,867.0	0.35	298.90	6,737.52	54.02	1,206.63	1,207.50	1.29	-0.83	-101.31	196.46
	NORMAL	6,962.0	0.26	237.82	6,832.52	54.05	1,206.20	1,207.07	0.34	-0.09	-64.29	225.42
	NORMAL	7,057.0	0.77	185.39	6,927.52	53.30	1,205.96	1,206.81	0.68	0.54	-55.19	288.95
	NORMAL	7,151.0	0.44	216.90	7,021.51	52.38	1,205.68	1,206.51	0.49	-0.35	33.52	149.78
	NORMAL	7,246.0	0.79	181.57	7,116.51	51.43	1,205.44	1,206.26	0.53	0.37	-37.19	294.12
	NORMAL	7,341.0	0.18	243.00	7,211.50	50.71	1,205.29	1,206.09	0.76	-0.64	64.66	167.34
	NORMAL	7,436.0	0.18	188.95	7,306.50	50.50	1,205.14	1,205.93	0.17	0.00	-56.89	242.98
	NORMAL	7,531.0	0.55	247.49	7,401.50	50.17	1,204.69	1,205.48	0.51	0.39	61.62	77.15

## 2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	NS (ft)	E/W (ft)	V. sec. (ft)	DLS (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
10/28/2013	NORMAL	7,625.0	0.70	106.77	7,495.50	49.83	1,204.82	1,205.60	1.25	0.16	-149.70	202.09
	NORMAL	7,720.0	0.26	190.53	7,590.50	49.46	1,205.34	1,206.11	0.76	-0.46	88.17	158.95
	NORMAL	7,815.0	0.79	198.36	7,685.49	48.62	1,205.09	1,205.85	0.56	0.56	8.24	11.64
	NORMAL	7,910.0	0.88	208.81	7,780.48	47.36	1,204.54	1,205.26	0.19	0.09	11.00	64.71
	NORMAL	8,005.0	0.35	236.15	7,875.48	46.56	1,203.94	1,204.66	0.62	-0.56	28.78	164.23
	NORMAL	8,100.0	0.53	263.83	7,970.48	46.35	1,203.27	1,203.97	0.29	0.19	29.14	64.14
	NORMAL	8,194.0	0.26	205.12	8,064.47	46.11	1,202.74	1,203.45	0.48	-0.29	-62.46	209.36
	NORMAL	8,289.0	0.35	112.49	8,159.47	45.81	1,202.92	1,203.62	0.47	0.09	-97.51	231.71
10/29/2013	NORMAL	8,384.0	1.23	176.56	8,254.46	44.68	1,203.25	1,203.92	1.18	0.93	67.44	80.36
	NORMAL	8,478.0	0.26	198.71	8,348.46	43.47	1,203.24	1,203.89	1.06	-1.03	23.56	174.34
	NORMAL	8,573.0	0.41	242.63	8,443.45	43.11	1,202.87	1,203.51	0.30	0.16	46.23	82.92
	NORMAL	8,668.0	0.44	170.41	8,538.45	42.59	1,202.63	1,203.26	0.53	0.03	-76.02	236.66
	NORMAL	8,762.0	0.70	227.36	8,632.45	41.85	1,202.27	1,202.88	0.63	0.28	60.59	95.67
	NORMAL	8,857.0	0.88	224.90	8,727.44	40.94	1,201.33	1,201.92	0.19	0.19	-2.59	348.10
	NORMAL	8,952.0	0.44	236.50	8,822.43	40.22	1,200.51	1,201.09	0.48	-0.46	12.21	168.85
	NORMAL	9,046.0	0.44	237.91	8,916.43	39.83	1,199.90	1,200.47	0.01	0.00	1.50	90.70
	NORMAL	9,141.0	0.00	232.19	9,011.43	39.63	1,199.59	1,200.16	0.46	-0.46	0.00	180.00
	NORMAL	9,235.0	0.98	225.06	9,105.43	39.07	1,199.02	1,199.58	1.04	1.04	0.00	225.06
	NORMAL	9,330.0	0.35	264.36	9,200.42	38.46	1,198.16	1,198.70	0.78	-0.66	41.37	162.64
	NORMAL	9,425.0	0.62	247.38	9,295.42	38.24	1,197.39	1,197.93	0.32	0.28	-17.87	323.31
	NORMAL	9,519.0	0.44	276.05	9,389.41	38.08	1,196.57	1,197.10	0.34	-0.19	30.50	137.94
	NORMAL	9,614.0	0.35	253.81	9,484.41	38.04	1,195.92	1,196.46	0.19	-0.09	-23.41	228.78
	NORMAL	9,709.0	0.44	258.65	9,579.41	37.88	1,195.29	1,195.82	0.10	0.09	5.09	22.77
	NORMAL	9,804.0	0.44	253.99	9,674.41	37.71	1,194.58	1,195.11	0.04	0.00	-4.91	267.67
	NORMAL	9,898.0	0.53	190.01	9,768.40	37.18	1,194.16	1,194.67	0.55	0.10	-68.06	246.46
	NORMAL	9,993.0	0.35	260.58	9,863.40	36.70	1,193.79	1,194.30	0.56	-0.19	74.28	141.41
	NORMAL	10,088.0	1.41	249.42	9,958.39	36.25	1,192.41	1,192.91	1.13	1.12	-11.75	345.21
10/30/2013	NORMAL	10,182.0	3.56	238.37	10,052.30	34.31	1,188.85	1,189.30	2.33	2.29	-11.76	341.88
	NORMAL	10,277.0	2.11	245.20	10,147.18	32.03	1,184.75	1,185.16	1.56	-1.53	7.19	170.28
	NORMAL	10,371.0	0.35	304.09	10,241.15	31.46	1,182.94	1,183.34	2.08	-1.87	62.65	171.17
	NORMAL	10,466.0	0.70	266.47	10,336.15	31.59	1,182.12	1,182.52	0.50	0.37	-39.60	295.57
	NORMAL	10,561.0	0.44	230.35	10,431.15	31.32	1,181.26	1,181.66	0.45	-0.27	-38.02	216.97
	NORMAL	10,620.0	0.70	164.52	10,490.14	30.83	1,181.18	1,181.57	1.11	0.44	-111.58	256.50
	NORMAL	11,100.0	0.70	164.52	10,970.11	25.18	1,182.75	1,183.01	0.00	0.00	0.00	0.00