

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well/Wellbore Information

Well	RU 13-5	Wellbore No.	00
Wellbore Legal Name	RU 13-5	Common Wellbore Name	RU 13-5
Project	RU 05-07S-093W	Site	RU 23-5 Pad
Vertical Section Azimuth	242.86 (°)	North reference	True
Origin N/S		Origin E/W	
Spud date	11/22/2013	UWI	RU 13-5
Active datum	KB @7,627.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	11/22/2013	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 (°)
11/22/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11/22/2013	NORMAL	95.0	0.88	259.45	95.00	-0.13	-0.72	0.70	0.93	0.93	0.00	259.45
	NORMAL	178.0	3.70	260.51	177.92	-0.69	-3.99	3.86	3.40	3.40	1.28	1.39
	NORMAL	270.0	5.63	246.09	269.62	-3.01	-11.04	11.20	2.44	2.10	-15.67	321.39
	NORMAL	360.0	8.71	243.11	358.90	-7.88	-21.16	22.42	3.45	3.42	-3.31	351.63
	NORMAL	452.0	11.70	240.12	449.44	-15.68	-35.46	38.71	3.30	3.25	-3.25	348.48
	NORMAL	524.0	14.20	238.82	519.60	-23.89	-49.35	54.81	3.50	3.47	-1.81	352.72
	NORMAL	616.0	17.50	240.92	608.09	-36.46	-71.10	79.90	3.64	3.59	2.28	10.87
	NORMAL	708.0	19.76	241.29	695.26	-50.66	-96.83	109.28	2.46	2.46	0.40	3.17
	NORMAL	799.0	21.02	242.60	780.56	-65.56	-124.81	140.97	1.47	1.38	1.44	20.53
	NORMAL	891.0	21.98	240.40	866.16	-81.66	-154.43	174.68	1.36	1.04	-2.39	318.95
	NORMAL	981.0	23.32	239.76	949.22	-98.95	-184.47	209.29	1.51	1.49	-0.71	349.28
	NORMAL	1,072.0	22.15	239.96	1,033.14	-116.61	-214.88	244.41	1.29	-1.29	0.22	176.31
	NORMAL	1,138.0	21.54	242.52	1,094.41	-128.43	-236.40	268.96	1.71	-0.92	3.88	123.82
11/23/2013	NORMAL	1,263.0	21.54	242.77	1,210.68	-149.52	-277.16	314.85	0.07	0.00	0.20	90.12
	NORMAL	1,358.0	21.19	242.07	1,299.15	-165.54	-307.84	349.46	0.46	-0.37	-0.74	215.75
	NORMAL	1,453.0	21.98	244.35	1,387.49	-181.28	-339.04	384.40	1.21	0.83	2.40	47.78
	NORMAL	1,548.0	21.19	244.44	1,475.82	-196.38	-370.55	419.33	0.83	-0.83	0.09	177.64
	NORMAL	1,643.0	22.25	248.57	1,564.08	-210.36	-402.79	454.40	1.96	1.12	4.35	57.19
11/24/2013	NORMAL	1,738.0	21.46	248.31	1,652.26	-223.35	-435.68	489.59	0.84	-0.83	-0.27	186.86
	NORMAL	1,833.0	20.66	246.12	1,740.91	-236.56	-467.15	523.63	1.18	-0.84	-2.31	223.51

2.1.2 Survey Stations (Continued)

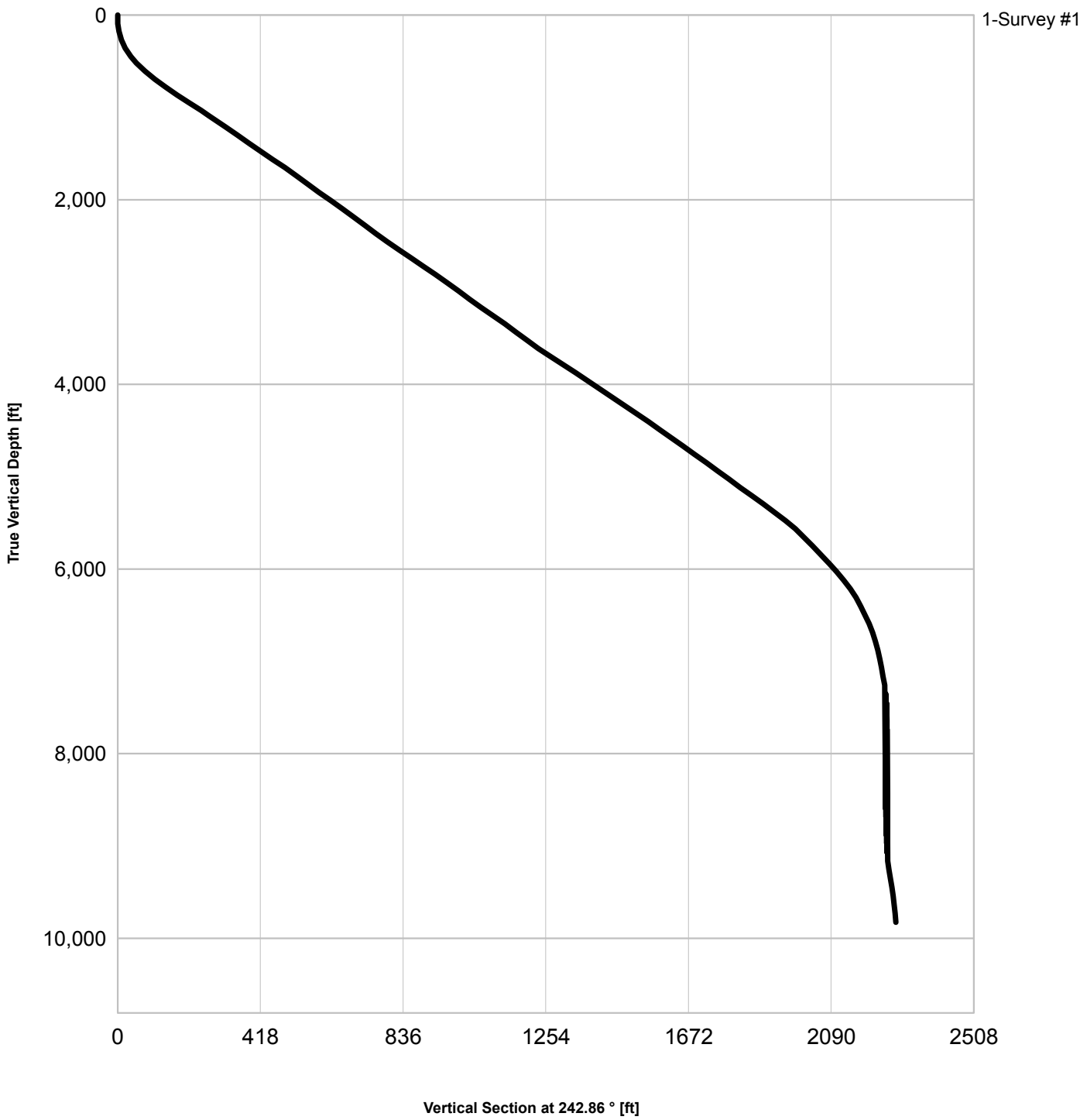
Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
11/24/2013	NORMAL	1,928.0	20.01	246.42	1,829.99	-249.85	-497.37	556.58	0.69	-0.68	0.32	171.03
	NORMAL	2,024.0	20.89	242.09	1,919.94	-264.43	-527.55	590.09	1.82	0.92	-4.51	298.14
	NORMAL	2,120.0	20.95	243.08	2,009.62	-280.21	-557.98	624.37	0.37	0.06	1.03	80.83
	NORMAL	2,215.0	20.49	241.49	2,098.47	-295.84	-587.73	657.97	0.76	-0.48	-1.67	229.98
	NORMAL	2,309.0	20.34	242.99	2,186.57	-311.11	-616.75	690.76	0.58	-0.16	1.60	106.70
	NORMAL	2,405.0	20.24	243.03	2,276.61	-326.22	-646.41	724.05	0.11	-0.10	0.04	172.12
	NORMAL	2,501.0	19.65	243.01	2,366.85	-341.08	-675.59	756.79	0.61	-0.61	-0.02	180.65
	NORMAL	2,595.0	21.41	242.03	2,454.88	-356.30	-704.83	789.76	1.91	1.87	-1.04	348.49
	NORMAL	2,691.0	21.07	241.90	2,544.36	-372.64	-735.53	824.53	0.36	-0.35	-0.14	187.83
	NORMAL	2,787.0	22.09	242.46	2,633.63	-389.12	-766.76	859.84	1.08	1.06	0.58	11.68
	NORMAL	2,882.0	21.74	242.51	2,721.76	-405.50	-798.21	895.29	0.37	-0.37	0.05	176.97
	NORMAL	2,977.0	21.46	242.60	2,810.09	-421.62	-829.24	930.26	0.30	-0.29	0.09	173.29
	NORMAL	3,073.0	21.02	242.60	2,899.57	-437.62	-860.12	965.04	0.46	-0.46	0.00	180.00
	NORMAL	3,169.0	20.18	241.51	2,989.43	-453.44	-889.96	998.81	0.96	-0.88	-1.14	204.03
	NORMAL	3,264.0	19.79	240.84	3,078.71	-469.10	-918.40	1,031.27	0.48	-0.41	-0.71	210.10
	NORMAL	3,359.0	21.54	241.26	3,167.59	-485.32	-947.74	1,064.78	1.85	1.84	0.44	5.04
	NORMAL	3,454.0	21.63	241.01	3,255.93	-502.19	-978.35	1,099.71	0.14	0.09	-0.26	314.26
	NORMAL	3,550.0	20.51	241.32	3,345.51	-518.84	-1,008.58	1,134.21	1.17	-1.17	0.32	174.46
	NORMAL	3,645.0	19.96	240.49	3,434.65	-534.81	-1,037.29	1,167.04	0.65	-0.58	-0.87	207.17
	NORMAL	3,738.0	19.79	241.28	3,522.11	-550.20	-1,064.91	1,198.64	0.34	-0.18	0.85	122.70
	NORMAL	3,834.0	21.46	242.68	3,611.95	-566.07	-1,094.77	1,232.45	1.81	1.74	1.46	17.11
	NORMAL	3,928.0	23.04	241.39	3,698.95	-582.77	-1,126.20	1,268.04	1.76	1.68	-1.37	342.22
11/25/2013	NORMAL	4,023.0	22.81	241.03	3,786.45	-600.59	-1,158.63	1,305.03	0.28	-0.24	-0.38	211.20
	NORMAL	4,118.0	22.51	240.75	3,874.12	-618.39	-1,190.61	1,341.60	0.34	-0.32	-0.29	199.65
	NORMAL	4,213.0	21.47	240.26	3,962.20	-635.90	-1,221.57	1,377.14	1.11	-1.09	-0.52	189.78
	NORMAL	4,308.0	22.25	241.45	4,050.37	-653.12	-1,252.46	1,412.49	0.94	0.82	1.25	30.15
	NORMAL	4,403.0	21.54	241.28	4,138.52	-670.10	-1,283.56	1,447.91	0.75	-0.75	-0.18	185.02
	NORMAL	4,498.0	22.69	248.22	4,226.54	-685.28	-1,315.87	1,483.59	3.00	1.21	7.31	69.48
	NORMAL	4,593.0	22.07	250.07	4,314.39	-698.17	-1,349.67	1,519.54	0.99	-0.65	1.95	132.21
11/26/2013	NORMAL	4,688.0	21.31	248.46	4,402.66	-710.59	-1,382.50	1,554.43	1.02	-0.80	-1.69	217.31
	NORMAL	4,783.0	20.71	248.37	4,491.35	-723.12	-1,414.17	1,588.33	0.63	-0.63	-0.09	183.04
	NORMAL	4,879.0	20.98	246.98	4,581.06	-736.10	-1,445.77	1,622.37	0.59	0.28	-1.45	297.98
	NORMAL	4,974.0	20.50	246.54	4,669.91	-749.37	-1,476.68	1,655.93	0.53	-0.51	-0.46	197.78
	NORMAL	5,070.0	21.34	240.55	4,759.59	-764.65	-1,507.32	1,690.16	2.39	0.88	-6.24	288.63
	NORMAL	5,165.0	21.02	238.47	4,848.17	-782.06	-1,536.89	1,724.42	0.86	-0.34	-2.19	245.97
	NORMAL	5,261.0	20.22	239.77	4,938.02	-799.42	-1,565.90	1,758.16	0.96	-0.83	1.35	150.83
	NORMAL	5,357.0	19.84	238.92	5,028.22	-816.18	-1,594.19	1,790.97	0.50	-0.40	-0.89	217.06
	NORMAL	5,452.0	20.76	242.82	5,117.32	-832.19	-1,622.98	1,823.90	1.72	0.97	4.11	57.63
	NORMAL	5,548.0	20.84	243.24	5,207.06	-847.65	-1,653.36	1,857.99	0.18	0.08	0.44	61.99
	NORMAL	5,642.0	20.22	241.89	5,295.09	-862.84	-1,682.62	1,890.95	0.83	-0.66	-1.44	216.74
	NORMAL	5,738.0	20.31	242.60	5,385.15	-878.32	-1,712.04	1,924.20	0.27	0.09	0.74	70.23
	NORMAL	5,834.0	18.99	246.20	5,475.56	-892.29	-1,741.13	1,956.45	1.87	-1.38	3.75	139.16
	NORMAL	5,929.0	16.13	243.86	5,566.13	-904.35	-1,767.12	1,985.08	3.10	-3.01	-2.46	192.75
	NORMAL	6,024.0	15.21	245.43	5,657.59	-915.34	-1,790.30	2,010.73	1.07	-0.97	1.65	156.01
	NORMAL	6,120.0	14.82	240.15	5,750.32	-926.69	-1,812.41	2,035.57	1.48	-0.41	-5.50	251.55
	NORMAL	6,215.0	14.77	246.06	5,842.18	-937.65	-1,834.01	2,059.80	1.59	-0.05	6.22	94.75
	NORMAL	6,321.0	13.63	245.41	5,944.94	-948.33	-1,857.72	2,085.77	1.09	-1.08	-0.61	187.65
11/27/2013	NORMAL	6,407.0	13.28	246.64	6,028.58	-956.46	-1,876.00	2,105.75	0.53	-0.41	1.43	141.32
	NORMAL	6,502.0	12.58	246.92	6,121.17	-964.85	-1,895.54	2,126.96	0.74	-0.74	0.29	175.02
	NORMAL	6,598.0	11.09	245.62	6,215.12	-972.76	-1,913.57	2,146.61	1.58	-1.55	-1.35	189.51
	NORMAL	6,694.0	8.52	248.03	6,309.71	-979.23	-1,928.57	2,162.92	2.71	-2.68	2.51	172.11
	NORMAL	6,790.0	8.06	250.62	6,404.71	-984.12	-1,941.52	2,176.67	0.62	-0.48	2.70	142.21
	NORMAL	6,885.0	7.65	248.49	6,498.82	-988.65	-1,953.68	2,189.56	0.53	-0.43	-2.24	214.32
11/28/2013	NORMAL	6,980.0	7.12	249.98	6,593.03	-992.99	-1,965.10	2,201.70	0.59	-0.56	1.57	160.87
	NORMAL	7,075.0	5.11	250.06	6,687.48	-996.44	-1,974.61	2,211.74	2.12	-2.12	0.08	179.80
	NORMAL	7,171.0	4.31	249.54	6,783.16	-999.16	-1,982.01	2,219.56	0.83	-0.83	-0.54	182.80

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 (°)
11/28/2013	NORMAL	7,266.0	4.40	249.71	6,877.89	-1,001.68	-1,988.77	2,226.72	0.10	0.09	0.18	8.25
	NORMAL	7,362.0	3.21	258.68	6,973.67	-1,003.48	-1,994.86	2,232.97	1.38	-1.24	9.34	157.85
	NORMAL	7,457.0	2.69	256.18	7,068.55	-1,004.53	-1,999.63	2,237.69	0.56	-0.55	-2.63	192.65
	NORMAL	7,552.0	2.89	239.08	7,163.44	-1,006.30	-2,003.85	2,242.25	0.90	0.21	-18.00	274.87
	NORMAL	7,648.0	2.63	243.22	7,259.32	-1,008.53	-2,007.89	2,246.87	0.34	-0.27	4.31	144.58
	NORMAL	7,743.0	1.58	221.33	7,354.26	-1,010.50	-2,010.70	2,250.27	1.37	-1.11	-23.04	206.85
	NORMAL	7,838.0	1.06	204.01	7,449.24	-1,012.29	-2,011.93	2,252.17	0.68	-0.55	-18.23	209.05
	NORMAL	7,933.0	0.26	183.36	7,544.23	-1,013.30	-2,012.30	2,252.97	0.87	-0.84	-21.74	186.41
11/29/2013	NORMAL	8,028.0	0.95	204.45	7,639.22	-1,014.24	-2,012.63	2,253.69	0.75	0.73	22.20	28.62
	NORMAL	8,124.0	0.44	46.60	7,735.22	-1,014.71	-2,012.70	2,253.96	1.42	-0.53	-164.43	186.97
	NORMAL	8,219.0	0.95	78.74	7,830.21	-1,014.30	-2,011.66	2,252.85	0.66	0.54	33.83	54.20
	NORMAL	8,315.0	0.35	115.16	7,926.21	-1,014.27	-2,010.61	2,251.91	0.73	-0.63	37.94	162.73
	NORMAL	8,410.0	0.97	109.27	8,021.20	-1,014.66	-2,009.59	2,251.18	0.66	0.65	-6.20	350.80
	NORMAL	8,506.0	0.53	112.87	8,117.19	-1,015.10	-2,008.41	2,250.33	0.46	-0.46	3.75	175.68
	NORMAL	8,601.0	0.88	134.75	8,212.18	-1,015.79	-2,007.49	2,249.82	0.46	0.37	23.03	48.85
11/30/2013	NORMAL	8,696.0	0.59	139.45	8,307.18	-1,016.67	-2,006.66	2,249.48	0.31	-0.31	4.95	170.60
	NORMAL	8,791.0	0.23	251.05	8,402.17	-1,017.10	-2,006.52	2,249.56	0.74	-0.38	117.47	162.41
	NORMAL	8,886.0	0.51	116.24	8,497.17	-1,017.35	-2,006.32	2,249.49	0.73	0.29	-141.91	211.54
	NORMAL	8,981.0	0.62	211.22	8,592.17	-1,017.98	-2,006.21	2,249.68	0.88	0.12	99.98	132.39
	NORMAL	9,076.0	0.59	245.45	8,687.16	-1,018.62	-2,006.92	2,250.61	0.38	-0.03	36.03	111.72
	NORMAL	9,171.0	0.53	313.13	8,782.16	-1,018.52	-2,007.68	2,251.24	0.66	-0.06	71.24	128.41
	NORMAL	9,266.0	0.35	254.73	8,877.16	-1,018.30	-2,008.28	2,251.68	0.48	-0.19	-61.47	220.70
	NORMAL	9,361.0	0.94	209.02	8,972.15	-1,019.06	-2,008.94	2,252.61	0.78	0.62	-48.12	294.48
	NORMAL	9,456.0	1.14	201.38	9,067.14	-1,020.62	-2,009.66	2,253.96	0.26	0.21	-8.04	321.41
	NORMAL	9,551.0	2.20	206.03	9,162.10	-1,023.14	-2,010.81	2,256.13	1.12	1.12	4.89	9.61
	NORMAL	9,646.0	2.81	225.72	9,257.01	-1,026.40	-2,013.28	2,259.81	1.10	0.64	20.73	64.77
	NORMAL	9,741.0	2.90	217.28	9,351.89	-1,029.94	-2,016.40	2,264.21	0.45	0.09	-8.88	277.85
	NORMAL	9,835.0	2.46	218.60	9,445.79	-1,033.41	-2,019.10	2,268.19	0.47	-0.47	1.40	172.67
12/1/2013	NORMAL	9,930.0	2.37	206.74	9,540.70	-1,036.76	-2,021.25	2,271.64	0.53	-0.09	-12.48	253.90
	NORMAL	10,025.0	2.20	218.08	9,635.63	-1,039.95	-2,023.26	2,274.88	0.51	-0.18	11.94	116.21
	NORMAL	10,120.0	1.80	204.18	9,730.57	-1,042.74	-2,025.00	2,277.70	0.66	-0.42	-14.63	223.68
	NORMAL	10,215.0	1.72	205.66	9,825.52	-1,045.39	-2,026.23	2,280.00	0.10	-0.08	1.56	151.13

3 Charts

3.1 Vertical Section View



3.2 Plan View

