

# 1 General

## 1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

## 1.2 Well/Wellbore Information

Well	RU 12-5	Wellbore No.	00
Wellbore Legal Name	RU 12-5	Common Wellbore Name	RU 12-5
Project	RU 05-07S-093W	Site	RU 23-5 Pad
Vertical Section Azimuth	250.54 (°)	North reference	True
Origin N/S		Origin E/W	
Spud date	12/2/2013	UWI	RU 12-5
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	12/2/2013	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 (°)
12/2/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12/2/2013	NORMAL	88.0	0.44	246.01	88.00	-0.14	-0.31	0.34	0.50	0.50	0.00	246.01
	NORMAL	183.0	3.70	240.29	182.92	-1.81	-3.31	3.72	3.43	3.43	-6.02	353.51
	NORMAL	268.0	3.96	245.21	267.73	-4.40	-8.35	9.34	0.49	0.31	5.79	54.12
12/3/2013	NORMAL	360.0	5.63	265.96	359.42	-6.05	-15.74	16.85	2.59	1.82	22.55	56.74
	NORMAL	452.0	8.53	252.69	450.71	-8.39	-26.76	28.03	3.60	3.15	-14.42	323.88
	NORMAL	544.0	13.37	248.99	541.01	-14.24	-43.21	45.49	5.31	5.26	-4.02	349.91
	NORMAL	616.0	16.45	250.07	610.58	-20.70	-60.57	64.01	4.29	4.28	1.50	5.68
	NORMAL	708.0	17.41	249.54	698.59	-29.95	-85.71	90.80	1.06	1.04	-0.58	350.61
	NORMAL	799.0	18.39	248.44	785.18	-39.99	-111.82	118.75	1.14	1.08	-1.21	340.44
	NORMAL	891.0	19.26	247.51	872.26	-51.13	-139.33	148.41	1.00	0.95	-1.01	340.53
	NORMAL	981.0	20.18	246.28	956.98	-63.05	-167.26	178.71	1.12	1.02	-1.37	335.14
	NORMAL	1,072.0	19.64	249.90	1,042.55	-74.62	-196.00	209.66	1.48	-0.59	3.98	115.35
	NORMAL	1,118.0	20.13	250.32	1,085.80	-79.94	-210.71	225.30	1.11	1.07	0.91	16.45
12/4/2013	NORMAL	1,263.0	21.19	250.50	1,221.48	-97.09	-258.91	276.46	0.73	0.73	0.12	3.51
	NORMAL	1,357.0	20.14	250.58	1,309.43	-108.14	-290.18	309.63	1.12	-1.12	0.09	178.50
	NORMAL	1,453.0	20.13	249.88	1,399.56	-119.32	-321.28	342.68	0.25	-0.01	-0.73	267.30
	NORMAL	1,548.0	19.18	252.68	1,489.03	-129.59	-351.53	374.62	1.41	-1.00	2.95	136.56
12/5/2013	NORMAL	1,643.0	19.35	252.34	1,578.71	-139.01	-381.43	405.95	0.21	0.18	-0.36	326.42
	NORMAL	1,738.0	20.05	250.58	1,668.15	-149.20	-411.78	437.96	0.97	0.74	-1.85	318.89
	NORMAL	1,833.0	18.26	253.53	1,757.89	-158.84	-441.42	469.11	2.14	-1.88	3.11	152.98

2.1.2 Survey Stations (Continued)

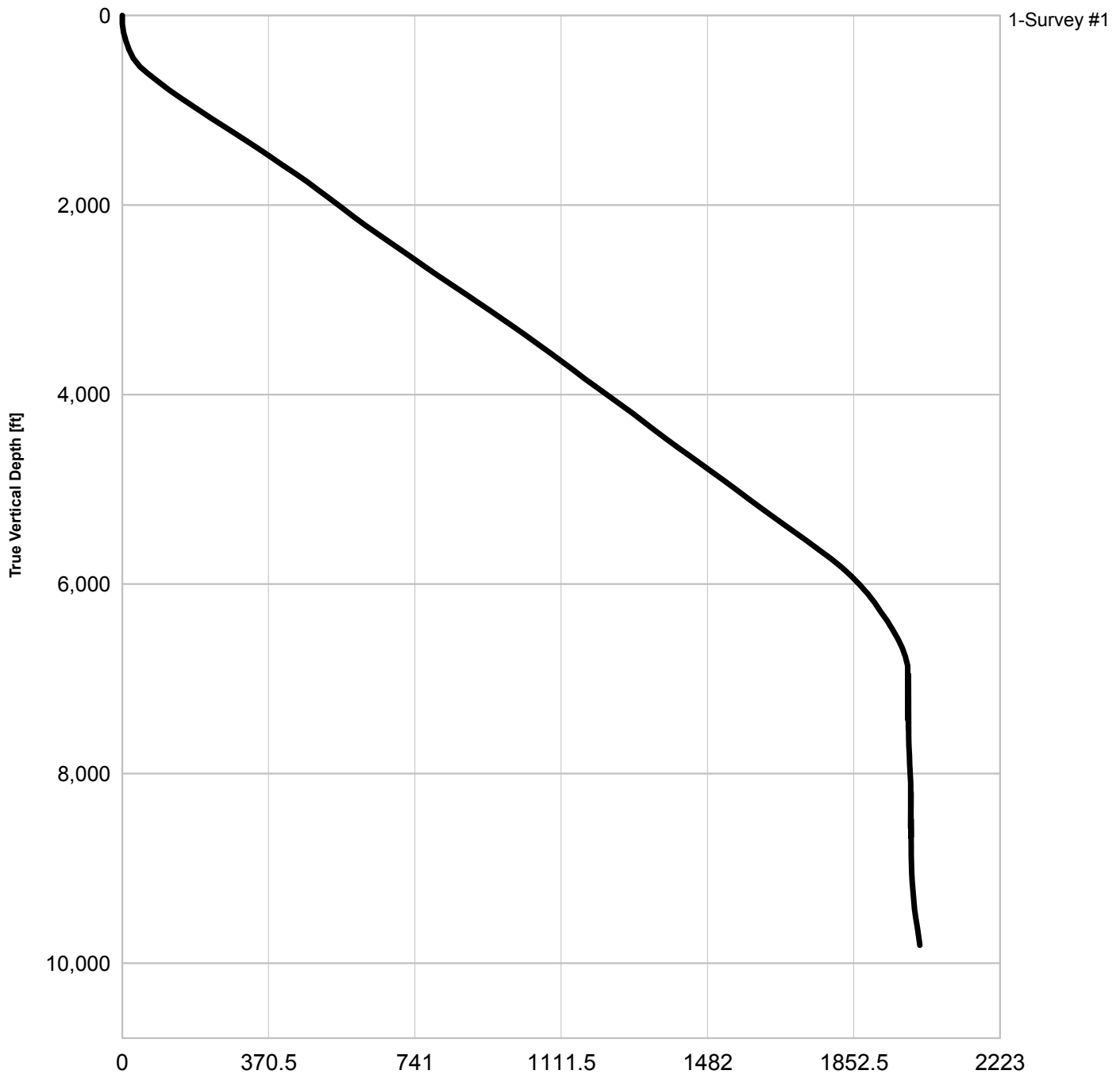
Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
12/5/2013	NORMAL	1,928.0	17.80	253.13	1,848.22	-167.27	-469.58	498.48	0.50	-0.48	-0.42	194.87
	NORMAL	2,024.0	17.94	253.75	1,939.59	-175.66	-497.82	527.90	0.25	0.15	0.65	53.95
	NORMAL	2,119.0	17.50	252.61	2,030.08	-184.03	-525.50	556.79	0.59	-0.46	-1.20	217.72
	NORMAL	2,214.0	17.35	252.42	2,120.72	-192.58	-552.63	585.22	0.17	-0.16	-0.20	200.68
	NORMAL	2,309.0	18.69	252.24	2,211.06	-201.50	-580.63	614.59	1.41	1.41	-0.19	357.53
	NORMAL	2,405.0	19.41	250.86	2,301.80	-211.42	-610.35	645.92	0.88	0.75	-1.44	327.32
	NORMAL	2,501.0	19.17	251.73	2,392.41	-221.59	-640.39	677.63	0.39	-0.25	0.91	130.27
	NORMAL	2,595.0	19.02	250.00	2,481.24	-231.67	-669.44	708.37	0.62	-0.16	-1.84	254.34
	NORMAL	2,691.0	19.09	250.71	2,571.98	-242.20	-698.95	739.72	0.25	0.07	0.74	73.53
	NORMAL	2,786.0	18.75	250.80	2,661.85	-252.36	-728.04	770.52	0.36	-0.36	0.09	175.14
	NORMAL	2,882.0	19.47	251.91	2,752.56	-262.40	-757.82	801.94	0.84	0.75	1.16	27.31
	NORMAL	2,977.0	20.21	250.42	2,841.92	-272.82	-788.33	834.18	0.94	0.78	-1.57	324.95
	NORMAL	3,073.0	19.66	252.06	2,932.17	-283.35	-819.31	866.91	0.82	-0.57	1.71	135.30
	NORMAL	3,169.0	19.52	250.38	3,022.61	-293.71	-849.79	899.09	0.60	-0.15	-1.75	255.25
	NORMAL	3,264.0	19.50	251.38	3,112.16	-304.10	-879.76	930.81	0.35	-0.02	1.05	93.90
	NORMAL	3,359.0	18.91	251.60	3,201.87	-314.02	-909.39	962.06	0.63	-0.62	0.23	173.11
	NORMAL	3,454.0	19.09	251.50	3,291.69	-323.81	-938.73	992.98	0.19	0.19	-0.11	349.70
	NORMAL	3,550.0	18.70	249.93	3,382.52	-334.07	-968.08	1,024.07	0.67	-0.41	-1.64	231.77
	NORMAL	3,645.0	18.59	251.94	3,472.54	-343.99	-996.78	1,054.44	0.69	-0.12	2.12	100.66
	NORMAL	3,738.0	18.20	251.29	3,560.78	-353.25	-1,024.63	1,083.78	0.47	-0.42	-0.70	207.43
	NORMAL	3,833.0	18.11	251.38	3,651.06	-362.72	-1,052.67	1,113.38	0.10	-0.09	0.09	162.74
	NORMAL	3,928.0	17.88	252.44	3,741.41	-371.83	-1,080.57	1,142.72	0.42	-0.24	1.12	125.59
	NORMAL	4,023.0	17.32	251.11	3,831.96	-380.81	-1,107.85	1,171.43	0.73	-0.59	-1.40	215.05
	NORMAL	4,118.0	18.47	249.88	3,922.36	-390.57	-1,135.36	1,200.62	1.27	1.21	-1.29	341.22
	NORMAL	4,213.0	18.91	251.21	4,012.35	-400.70	-1,164.07	1,231.06	0.64	0.46	1.40	44.72
	NORMAL	4,308.0	18.47	249.49	4,102.35	-410.93	-1,192.73	1,261.50	0.74	-0.46	-1.81	230.59
	NORMAL	4,403.0	17.86	249.23	4,192.61	-421.37	-1,220.45	1,291.11	0.65	-0.64	-0.27	187.45
12/6/2013	NORMAL	4,498.0	17.06	251.20	4,283.23	-431.03	-1,247.26	1,319.61	1.05	-0.84	2.07	144.48
	NORMAL	4,593.0	17.59	248.65	4,373.92	-440.75	-1,273.83	1,347.89	0.97	0.56	-2.68	303.69
	NORMAL	4,688.0	17.41	248.30	4,464.53	-451.23	-1,300.40	1,376.44	0.22	-0.19	-0.37	210.15
	NORMAL	4,783.0	18.73	249.88	4,554.84	-461.73	-1,327.93	1,405.89	1.48	1.39	1.66	21.12
	NORMAL	4,879.0	18.82	248.04	4,645.73	-472.82	-1,356.76	1,436.78	0.62	0.09	-1.92	277.77
	NORMAL	4,974.0	17.98	248.61	4,735.88	-483.90	-1,384.63	1,466.74	0.90	-0.88	0.60	168.18
	NORMAL	5,070.0	18.57	248.18	4,827.03	-494.99	-1,412.62	1,496.82	0.63	0.61	-0.45	346.92
	NORMAL	5,165.0	18.49	249.40	4,917.11	-505.91	-1,440.76	1,527.00	0.42	-0.08	1.28	102.24
	NORMAL	5,261.0	18.03	250.15	5,008.27	-516.31	-1,468.98	1,557.07	0.54	-0.48	0.78	153.29
	NORMAL	5,356.0	17.39	249.02	5,098.77	-526.38	-1,496.07	1,585.97	0.76	-0.67	-1.19	207.70
	NORMAL	5,452.0	18.27	249.49	5,190.16	-536.79	-1,523.56	1,615.35	0.93	0.92	0.49	9.51
	NORMAL	5,548.0	18.64	250.67	5,281.22	-547.14	-1,552.13	1,645.74	0.55	0.39	1.23	45.83
	NORMAL	5,642.0	18.76	251.96	5,370.26	-556.80	-1,580.68	1,675.87	0.46	0.13	1.37	74.43
	NORMAL	5,738.0	18.29	252.48	5,461.29	-566.11	-1,609.72	1,706.36	0.52	-0.49	0.54	160.88
12/8/2013	NORMAL	5,833.0	18.09	251.70	5,551.54	-575.23	-1,637.94	1,736.01	0.33	-0.21	-0.82	230.23
	NORMAL	5,929.0	18.45	251.29	5,642.70	-584.78	-1,666.48	1,766.10	0.40	0.38	-0.43	340.16
	NORMAL	6,024.0	17.59	254.01	5,733.04	-593.56	-1,694.51	1,795.46	1.27	-0.91	2.86	136.91
	NORMAL	6,120.0	15.83	253.75	5,824.98	-601.22	-1,721.03	1,823.01	1.83	-1.83	-0.27	182.31
	NORMAL	6,215.0	13.09	255.97	5,916.97	-607.46	-1,743.91	1,846.66	2.94	-2.88	2.34	169.64
12/9/2013	NORMAL	6,311.0	13.10	254.80	6,010.47	-612.94	-1,764.96	1,868.34	0.28	0.01	-1.22	271.59
	NORMAL	6,407.0	11.17	255.86	6,104.32	-618.07	-1,784.48	1,888.45	2.02	-2.01	1.10	173.93
	NORMAL	6,502.0	9.50	256.12	6,197.78	-622.20	-1,801.01	1,905.41	1.76	-1.76	0.27	178.53
	NORMAL	6,598.0	9.76	254.54	6,292.42	-626.27	-1,816.54	1,921.41	0.39	0.27	-1.65	313.75
	NORMAL	6,694.0	9.15	257.50	6,387.12	-630.09	-1,831.84	1,937.11	0.81	-0.64	3.08	142.89
	NORMAL	6,790.0	8.19	255.15	6,482.02	-633.49	-1,845.90	1,951.50	1.07	-1.00	-2.45	199.10
	NORMAL	6,885.0	7.39	255.86	6,576.14	-636.72	-1,858.37	1,964.33	0.85	-0.84	0.75	173.49
	NORMAL	6,980.0	5.98	250.85	6,670.50	-639.84	-1,868.97	1,975.36	1.60	-1.48	-5.27	200.00
	NORMAL	7,075.0	4.04	259.46	6,765.13	-642.07	-1,876.93	1,983.62	2.18	-2.04	9.06	163.07
12/10/2013	NORMAL	7,171.0	2.73	264.91	6,860.96	-642.89	-1,882.53	1,989.17	1.40	-1.36	5.68	168.91

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 (°)	
12/10/2013	NORMAL	7,266.0	0.88	356.14	6,955.92	-642.37	-1,884.84	1,991.17	3.04	-1.95	96.03	162.24	
	NORMAL	7,362.0	1.17	345.74	7,051.91	-640.68	-1,885.13	1,990.88	0.36	0.30	-10.83	322.05	
	NORMAL	7,457.0	1.09	7.98	7,146.89	-638.85	-1,885.24	1,990.38	0.47	-0.08	23.41	111.33	
	NORMAL	7,552.0	0.84	355.30	7,241.87	-637.26	-1,885.17	1,989.78	0.34	-0.26	-13.35	214.28	
	NORMAL	7,648.0	0.15	282.08	7,337.87	-636.53	-1,885.35	1,989.71	0.84	-0.72	-76.27	190.22	
	NORMAL	7,743.0	0.48	289.22	7,432.87	-636.37	-1,885.85	1,990.13	0.35	0.35	7.52	10.36	
	NORMAL	7,838.0	0.65	245.77	7,527.87	-636.46	-1,886.72	1,990.98	0.47	0.18	-45.74	268.96	
	NORMAL	7,933.0	0.62	212.79	7,622.86	-637.12	-1,887.49	1,991.92	0.38	-0.03	-34.72	248.95	
	NORMAL	8,028.0	0.79	192.58	7,717.85	-638.19	-1,887.91	1,992.67	0.31	0.18	-21.27	293.98	
	NORMAL	8,124.0	0.75	233.37	7,813.84	-639.21	-1,888.56	1,993.62	0.56	-0.04	42.49	114.39	
	NORMAL	8,219.0	0.68	218.86	7,908.84	-640.02	-1,889.41	1,994.70	0.20	-0.07	-15.27	241.71	
	NORMAL	8,315.0	0.97	220.07	8,004.83	-641.08	-1,890.29	1,995.88	0.30	0.30	1.26	4.04	
	12/11/2013	NORMAL	8,410.0	0.50	287.27	8,099.82	-641.58	-1,891.20	1,996.91	0.95	-0.49	70.74	149.30
		NORMAL	8,506.0	0.34	312.18	8,195.82	-641.26	-1,891.82	1,997.38	0.25	-0.17	25.95	143.23
NORMAL		8,601.0	0.61	77.00	8,290.82	-640.96	-1,891.53	1,997.01	0.90	0.28	131.39	143.96	
12/12/2013	NORMAL	8,696.0	0.88	214.11	8,385.81	-641.45	-1,891.45	1,997.09	1.46	0.28	144.33	154.48	
	NORMAL	8,791.0	0.88	358.07	8,480.81	-641.32	-1,891.88	1,997.46	1.76	0.00	151.54	161.98	
	NORMAL	8,886.0	0.44	347.00	8,575.80	-640.24	-1,891.99	1,997.20	0.48	-0.46	-11.65	190.68	
	NORMAL	8,981.0	0.53	306.22	8,670.80	-639.62	-1,892.42	1,997.41	0.37	0.09	-42.93	263.63	
	NORMAL	9,076.0	0.86	318.42	8,765.79	-638.83	-1,893.25	1,997.92	0.38	0.35	12.84	30.33	
	NORMAL	9,171.0	0.53	343.84	8,860.78	-637.87	-1,893.85	1,998.17	0.47	-0.35	26.76	149.18	
	NORMAL	9,266.0	0.79	297.25	8,955.78	-637.15	-1,894.55	1,998.59	0.60	0.27	-49.04	271.29	
	NORMAL	9,361.0	0.79	275.55	9,050.77	-636.79	-1,895.79	1,999.63	0.31	0.00	-22.84	259.15	
	NORMAL	9,456.0	1.04	269.69	9,145.76	-636.73	-1,897.30	2,001.04	0.28	0.26	-6.17	336.53	
	NORMAL	9,551.0	1.06	235.12	9,240.74	-637.24	-1,898.88	2,002.70	0.66	0.02	-36.39	254.47	
	NORMAL	9,741.0	1.55	244.38	9,430.69	-639.35	-1,902.64	2,006.95	0.28	0.26	4.87	27.96	
	NORMAL	9,835.0	2.29	233.36	9,524.64	-641.02	-1,905.30	2,010.01	0.88	0.79	-11.72	327.91	
	NORMAL	9,930.0	2.20	219.30	9,619.57	-643.57	-1,907.97	2,013.38	0.59	-0.09	-14.80	253.74	
	12/13/2013	NORMAL	10,025.0	2.21	225.97	9,714.50	-646.25	-1,910.45	2,016.61	0.27	0.01	7.02	91.10
NORMAL		10,120.0	2.99	220.09	9,809.40	-649.42	-1,913.36	2,020.41	0.87	0.82	-6.19	338.17	

### 3 Charts

#### 3.1 Vertical Section View



Vertical Section at 250.54 ° [ft]

3.2 Plan View

