

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	GM 334-23	Wellbore No.	
Well Name	GM 334-23	Common Name	GM 334-23
Project	GV 23-06S-096W	Site	MV 10-23 Pad
Vertical Section Azimuth	114.88 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	10/22/2011	UWI	GM 334-23
Active Datum	KB @6,002.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	10/22/2011	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 (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
10/22/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10/22/2011	NORMAL	85.0	0.26	17.05	85.00	0.18	0.06	-0.03	0.31	0.31	0.00	17.05
	NORMAL	177.0	1.67	109.42	176.99	-0.06	1.38	1.28	1.85	1.53	100.40	101.15
	NORMAL	269.0	4.31	115.93	268.85	-2.02	5.76	6.07	2.89	2.87	7.08	10.59
	NORMAL	360.0	8.09	118.39	359.30	-6.56	14.47	15.89	4.16	4.15	2.70	5.25
	NORMAL	451.0	12.05	114.52	448.89	-13.55	28.75	31.78	4.41	4.35	-4.25	348.39
	NORMAL	543.0	15.22	114.52	538.28	-22.55	48.48	53.47	3.45	3.45	0.00	0.00
	NORMAL	634.0	18.04	115.84	625.47	-33.65	72.03	79.50	3.13	3.10	1.45	8.26
	NORMAL	726.0	21.82	115.05	711.94	-47.10	100.35	110.86	4.12	4.11	-0.86	355.55
	NORMAL	797.0	23.66	114.26	777.42	-58.55	125.30	138.30	2.63	2.59	-1.11	350.21
	NORMAL	888.0	26.68	115.18	859.77	-74.74	160.44	177.00	3.35	3.32	1.01	7.80
	NORMAL	939.0	28.05	116.43	905.06	-84.95	181.54	200.43	2.91	2.69	2.45	23.31
10/23/2011	NORMAL	1,071.0	28.15	118.12	1,021.51	-113.44	236.80	262.55	0.61	0.08	1.28	83.59
	NORMAL	1,166.0	28.78	114.73	1,105.03	-133.57	277.34	307.79	1.83	0.66	-3.57	289.81
	NORMAL	1,262.0	29.23	112.34	1,188.99	-152.15	320.01	354.32	1.29	0.47	-2.49	290.17
	NORMAL	1,357.0	28.49	111.12	1,272.19	-169.13	362.60	400.10	1.00	-0.78	-1.28	217.98
	NORMAL	1,453.0	28.32	110.49	1,356.63	-185.35	405.29	445.66	0.36	-0.18	-0.66	240.16
	NORMAL	1,548.0	27.87	109.31	1,440.44	-200.58	447.35	490.22	0.75	-0.47	-1.24	230.48
	NORMAL	1,644.0	27.79	110.37	1,525.33	-215.79	489.51	534.87	0.52	-0.08	1.10	99.65
	NORMAL	1,740.0	27.70	114.41	1,610.31	-232.81	530.81	579.49	1.96	-0.09	4.21	94.53
	NORMAL	1,835.0	28.14	114.50	1,694.25	-251.22	571.30	623.97	0.47	0.46	0.09	5.51

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
10/23/2011	NORMAL	1,929.0	26.82	116.70	1,777.64	-269.94	610.42	667.34	1.77	-1.40	2.34	143.41
	NORMAL	2,025.0	26.75	116.50	1,863.34	-289.31	649.10	710.58	0.12	-0.07	-0.21	232.08
	NORMAL	2,120.0	27.57	115.53	1,947.87	-308.33	688.07	753.93	0.98	0.86	-1.02	331.20
	NORMAL	2,216.0	28.49	114.76	2,032.60	-327.49	728.91	799.05	1.03	0.96	-0.80	338.19
	NORMAL	2,312.0	27.87	114.16	2,117.23	-346.27	770.18	844.38	0.71	-0.65	-0.63	204.30
10/24/2011	NORMAL	2,407.0	26.53	115.08	2,201.72	-364.35	809.66	887.80	1.48	-1.41	0.97	162.99
	NORMAL	2,502.0	24.89	116.35	2,287.31	-382.22	846.79	929.01	1.82	-1.73	1.34	162.00
	NORMAL	2,595.0	25.06	114.68	2,371.62	-399.13	882.22	968.27	0.78	0.18	-1.80	282.80
	NORMAL	2,690.0	25.32	116.52	2,457.58	-416.60	918.68	1,008.69	0.87	0.27	1.94	72.47
	NORMAL	2,786.0	25.68	117.14	2,544.23	-435.26	955.56	1,050.00	0.47	0.38	0.65	36.83
	NORMAL	2,881.0	26.56	115.47	2,629.53	-453.78	993.06	1,091.80	1.21	0.93	-1.76	319.37
	NORMAL	2,977.0	27.22	114.39	2,715.15	-472.08	1,032.43	1,135.22	0.86	0.69	-1.13	323.01
	NORMAL	3,070.0	27.22	114.36	2,797.85	-489.63	1,071.18	1,177.76	0.01	0.00	-0.03	269.99
	NORMAL	3,163.0	27.50	113.41	2,880.45	-506.94	1,110.26	1,220.49	0.56	0.30	-1.02	302.25
	NORMAL	3,258.0	27.28	113.01	2,964.80	-524.16	1,150.42	1,264.18	0.30	-0.23	-0.42	219.73
	NORMAL	3,354.0	26.35	113.87	3,050.47	-541.38	1,190.16	1,307.47	1.05	-0.97	0.90	157.74
	NORMAL	3,449.0	26.22	114.99	3,135.65	-558.78	1,228.46	1,349.53	0.54	-0.14	1.18	105.19
	NORMAL	3,545.0	26.37	112.80	3,221.72	-576.00	1,267.34	1,392.05	1.02	0.16	-2.28	277.81
	NORMAL	3,640.0	27.97	112.77	3,306.23	-592.80	1,307.33	1,435.40	1.68	1.68	-0.03	359.50
	NORMAL	3,736.0	27.70	114.07	3,391.13	-610.61	1,348.46	1,480.21	0.69	-0.28	1.35	114.55
	NORMAL	3,831.0	26.66	114.29	3,475.64	-628.39	1,388.05	1,523.60	1.10	-1.09	0.23	174.58
	NORMAL	3,925.0	26.05	114.28	3,559.87	-645.55	1,426.08	1,565.32	0.65	-0.65	-0.01	180.41
	NORMAL	4,021.0	25.71	114.21	3,646.24	-662.76	1,464.29	1,607.22	0.36	-0.35	-0.07	185.10
	NORMAL	4,116.0	24.10	115.35	3,732.40	-679.51	1,500.62	1,647.23	1.77	-1.69	1.20	163.91
	NORMAL	4,211.0	23.57	115.56	3,819.30	-696.01	1,535.28	1,685.62	0.57	-0.56	0.22	171.00
	NORMAL	4,306.0	21.94	115.90	3,906.90	-711.96	1,568.38	1,722.36	1.72	-1.72	0.36	175.54
	NORMAL	4,400.0	21.38	114.37	3,994.26	-726.70	1,599.79	1,757.05	0.85	-0.60	-1.63	224.53
	NORMAL	4,495.0	21.05	115.21	4,082.83	-741.11	1,631.00	1,791.42	0.47	-0.35	0.88	137.74
	NORMAL	4,590.0	19.65	113.61	4,171.90	-754.78	1,661.07	1,824.46	1.59	-1.47	-1.68	200.93
	NORMAL	4,686.0	17.23	114.94	4,262.96	-767.24	1,688.76	1,854.82	2.56	-2.52	1.39	170.77
10/25/2011	NORMAL	4,781.0	16.42	115.48	4,353.89	-778.95	1,713.63	1,882.31	0.87	-0.85	0.57	169.34
	NORMAL	4,877.0	16.42	116.65	4,445.98	-790.87	1,738.01	1,909.44	0.34	0.00	1.22	90.56
	NORMAL	4,972.0	15.56	114.68	4,537.30	-802.21	1,761.59	1,935.60	1.07	-0.91	-2.07	211.31
	NORMAL	5,068.0	13.75	113.50	4,630.17	-812.14	1,783.75	1,959.89	1.91	-1.89	-1.23	188.80
	NORMAL	5,163.0	12.39	113.19	4,722.71	-820.66	1,803.48	1,981.36	1.43	-1.43	-0.33	182.80
	NORMAL	5,259.0	11.67	111.88	4,816.60	-828.33	1,821.95	2,001.35	0.80	-0.75	-1.36	200.13
	NORMAL	5,354.0	10.52	113.17	4,909.83	-835.32	1,838.84	2,019.62	1.24	-1.21	1.36	168.45
	NORMAL	5,450.0	9.66	114.30	5,004.34	-842.09	1,854.24	2,036.43	0.92	-0.90	1.18	167.59
	NORMAL	5,545.0	9.33	115.79	5,098.04	-848.72	1,868.44	2,052.10	0.43	-0.35	1.57	144.05
	NORMAL	5,641.0	8.07	114.62	5,192.93	-854.91	1,881.57	2,066.62	1.33	-1.31	-1.22	187.42
	NORMAL	5,737.0	6.87	118.88	5,288.12	-860.49	1,892.73	2,079.09	1.38	-1.25	4.44	157.33
	NORMAL	5,832.0	6.77	121.44	5,382.44	-866.16	1,902.48	2,090.32	0.34	-0.11	2.69	109.48
	NORMAL	5,927.0	5.72	126.28	5,476.88	-871.88	1,911.07	2,100.52	1.24	-1.11	5.09	155.76
	NORMAL	6,023.0	4.67	127.48	5,572.48	-877.09	1,918.03	2,109.03	1.10	-1.09	1.25	174.69
10/26/2011	NORMAL	6,118.0	3.61	124.78	5,667.24	-881.15	1,923.56	2,115.75	1.13	-1.12	-2.84	189.08
	NORMAL	6,214.0	2.90	137.62	5,763.08	-884.66	1,927.68	2,120.97	1.06	-0.74	13.38	140.53
	NORMAL	6,310.0	2.01	136.01	5,858.99	-887.67	1,930.48	2,124.78	0.93	-0.93	-1.68	183.63
	NORMAL	6,405.0	1.23	121.18	5,953.95	-889.40	1,932.51	2,127.34	0.93	-0.82	-15.61	200.98
10/27/2011	NORMAL	6,501.0	1.06	85.67	6,049.94	-889.86	1,934.28	2,129.14	0.75	-0.18	-36.99	239.19
	NORMAL	6,596.0	1.41	64.40	6,144.91	-889.29	1,936.21	2,130.65	0.60	0.37	-22.39	296.41
	NORMAL	6,692.0	1.76	58.60	6,240.88	-888.01	1,938.53	2,132.22	0.40	0.36	-6.04	332.46
	NORMAL	6,786.0	1.49	48.93	6,334.84	-886.46	1,940.69	2,133.52	0.41	-0.29	-10.29	220.68
	NORMAL	6,881.0	1.07	52.38	6,429.82	-885.10	1,942.32	2,134.44	0.45	-0.44	3.63	171.32
	NORMAL	6,977.0	0.40	69.95	6,525.81	-884.44	1,943.34	2,135.09	0.73	-0.70	18.30	170.05
	NORMAL	7,072.0	0.51	113.81	6,620.80	-884.50	1,944.04	2,135.74	0.37	0.12	46.17	95.22
	NORMAL	7,168.0	0.56	162.85	6,716.80	-885.12	1,944.57	2,136.49	0.46	0.05	51.08	108.67
	NORMAL	7,262.0	0.61	178.02	6,810.80	-886.06	1,944.73	2,137.02	0.17	0.05	16.14	79.79

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (%/100ft)	Build Rate (%/100ft)	Turn (%/100ft)	TFace (°)
10/27/2011	NORMAL	7,357.0	1.10	218.40	6,905.79	-887.28	1,944.18	2,137.03	0.79	0.52	42.51	72.26
	NORMAL	7,452.0	1.10	225.52	7,000.77	-888.63	1,942.96	2,136.50	0.14	0.00	7.49	93.56
	NORMAL	7,547.0	0.79	232.63	7,095.76	-889.67	1,941.79	2,135.87	0.35	-0.33	7.48	162.81
	NORMAL	7,643.0	1.41	216.81	7,191.74	-891.02	1,940.55	2,135.32	0.71	0.65	-16.48	325.85
	NORMAL	7,738.0	2.14	214.10	7,286.69	-893.42	1,938.86	2,134.80	0.77	0.77	-2.85	352.08
	NORMAL	7,832.0	1.85	210.39	7,380.63	-896.18	1,937.11	2,134.37	0.34	-0.31	-3.95	202.16
	NORMAL	7,928.0	2.27	229.33	7,476.57	-898.76	1,934.88	2,133.43	0.83	0.44	19.73	68.03
	NORMAL	8,002.0	2.29	237.28	7,550.51	-900.51	1,932.53	2,132.03	0.43	0.03	10.74	90.36
	NORMAL	8,068.0	2.31	244.37	7,616.46	-901.80	1,930.22	2,130.48	0.43	0.03	10.74	89.53