

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	GM 12-23	Wellbore No.	
Well Name	GM 12-23	Common Name	GM 12-23
Project	GV 23-06S-096W	Site	MV 10-23 Pad
Vertical Section Azimuth	341.24 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	7/3/2011	UWI	GM 12-23
Active Datum	KB @6,002.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Started	7/3/2011	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)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
7/3/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7/3/2011	NORMAL	84.0	0.18	330.29	84.00	0.11	-0.07	0.13	0.21	0.21	0.00	330.29
	NORMAL	177.0	3.78	340.58	176.93	3.13	-1.16	3.34	3.87	3.87	11.06	10.80
	NORMAL	268.0	5.63	343.04	267.62	10.23	-3.46	10.80	2.04	2.03	2.70	7.45
	NORMAL	360.0	8.01	338.29	358.96	20.51	-7.15	21.71	2.66	2.59	-5.16	344.30
	NORMAL	451.0	10.73	338.12	448.74	34.26	-12.65	36.51	2.99	2.99	-0.19	359.33
	NORMAL	523.0	13.24	340.09	519.16	48.23	-17.95	51.45	3.53	3.49	2.74	10.22
	NORMAL	614.0	16.95	342.02	607.01	70.66	-25.60	75.14	4.11	4.08	2.12	8.65
	NORMAL	706.0	21.66	342.39	693.81	99.61	-34.88	105.54	5.12	5.12	0.40	1.66
	NORMAL	797.0	23.42	341.91	777.86	132.81	-45.58	140.42	1.94	1.93	-0.53	353.81
	NORMAL	888.0	26.10	341.52	860.48	169.00	-57.54	178.52	2.95	2.95	-0.43	356.33
7/4/2011	NORMAL	974.0	26.26	341.11	937.66	204.94	-69.70	216.47	0.28	0.19	-0.48	311.31
	NORMAL	1,070.0	26.47	342.34	1,023.68	245.42	-83.06	259.09	0.61	0.22	1.28	69.52
	NORMAL	1,165.0	26.57	342.22	1,108.68	285.82	-95.98	301.51	0.12	0.11	-0.13	331.76
	NORMAL	1,261.0	26.46	342.39	1,194.58	326.65	-109.00	344.36	0.14	-0.11	0.18	145.47
	NORMAL	1,357.0	26.19	342.95	1,280.63	367.29	-121.68	386.91	0.38	-0.28	0.58	137.64
	NORMAL	1,452.0	25.74	340.12	1,366.04	406.74	-134.85	428.50	1.39	-0.47	-2.98	248.77
	NORMAL	1,548.0	25.67	339.19	1,452.54	445.78	-149.32	470.12	0.43	-0.07	-0.97	259.74
	NORMAL	1,643.0	26.51	340.14	1,537.86	484.95	-163.84	511.88	0.99	0.88	1.00	26.87
	NORMAL	1,739.0	26.96	341.29	1,623.60	525.72	-178.09	555.06	0.71	0.47	1.20	49.50
	NORMAL	1,835.0	26.26	340.53	1,709.43	566.35	-192.15	598.06	0.81	-0.73	-0.79	205.59

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
7/4/2011	NORMAL	1,928.0	26.13	341.06	1,792.88	605.12	-205.66	639.11	0.29	-0.14	0.57	119.30
	NORMAL	2,024.0	26.82	341.71	1,878.81	645.68	-219.32	681.91	0.78	0.72	0.68	23.07
	NORMAL	2,119.0	26.10	340.79	1,963.86	685.76	-232.92	724.24	0.87	-0.76	-0.97	209.24
	NORMAL	2,215.0	26.37	340.76	2,049.97	725.83	-246.89	766.67	0.28	0.28	-0.03	357.17
	NORMAL	2,311.0	25.47	339.96	2,136.31	765.35	-260.99	808.63	1.01	-0.94	-0.83	200.87
	NORMAL	2,406.0	25.72	341.10	2,221.99	804.05	-274.67	849.67	0.58	0.26	1.20	63.60
	NORMAL	2,501.0	25.60	342.05	2,307.62	843.07	-287.67	890.80	0.45	-0.13	1.00	106.69
	NORMAL	2,594.0	26.47	343.20	2,391.18	882.03	-299.85	931.61	1.08	0.94	1.24	30.64
	NORMAL	2,690.0	26.17	342.66	2,477.23	922.72	-312.35	974.15	0.40	-0.31	-0.56	218.35
	NORMAL	2,785.0	25.70	341.93	2,562.66	962.30	-324.98	1,015.69	0.60	-0.49	-0.77	213.86
7/5/2011	NORMAL	2,880.0	26.34	341.74	2,648.04	1,001.90	-337.97	1,057.37	0.68	0.67	-0.20	352.49
	NORMAL	2,976.0	25.61	341.56	2,734.34	1,041.81	-351.21	1,099.41	0.76	-0.76	-0.19	186.08
	NORMAL	3,070.0	26.10	341.52	2,818.93	1,080.69	-364.19	1,140.40	0.52	0.52	-0.04	357.94
	NORMAL	3,162.0	24.43	342.32	2,902.12	1,118.01	-376.38	1,179.66	1.85	-1.82	0.87	168.81
	NORMAL	3,257.0	24.31	341.93	2,988.66	1,155.32	-388.41	1,218.86	0.21	-0.13	-0.41	233.11
	NORMAL	3,353.0	25.29	341.01	3,075.81	1,193.50	-401.22	1,259.12	1.10	1.02	-0.96	338.09
	NORMAL	3,448.0	26.39	342.18	3,161.31	1,232.78	-414.28	1,300.53	1.28	1.16	1.23	25.40
	NORMAL	3,544.0	25.85	339.13	3,247.51	1,272.65	-428.27	1,342.78	1.51	-0.56	-3.18	246.73
	NORMAL	3,639.0	27.05	340.52	3,332.56	1,312.37	-442.85	1,385.07	1.42	1.26	1.46	27.91
	NORMAL	3,735.0	27.81	340.27	3,417.77	1,354.03	-457.69	1,429.29	0.80	0.79	-0.26	351.27
	NORMAL	3,830.0	27.32	340.41	3,501.98	1,395.43	-472.48	1,473.25	0.52	-0.52	0.15	172.53
	NORMAL	3,924.0	26.99	341.00	3,585.62	1,435.92	-486.66	1,516.15	0.45	-0.35	0.63	141.05
	NORMAL	4,020.0	26.13	341.25	3,671.49	1,476.54	-500.54	1,559.07	0.90	-0.90	0.26	172.71
	NORMAL	4,115.0	26.66	341.71	3,756.59	1,516.58	-513.96	1,601.30	0.60	0.56	0.48	21.30
	NORMAL	4,211.0	26.08	342.23	3,842.60	1,557.13	-527.16	1,643.94	0.65	-0.60	0.54	158.52
	NORMAL	4,306.0	25.41	342.48	3,928.17	1,596.45	-539.67	1,685.20	0.71	-0.71	0.26	170.91
	NORMAL	4,399.0	25.17	342.75	4,012.25	1,634.37	-551.54	1,724.91	0.29	-0.26	0.29	154.45
	NORMAL	4,494.0	23.43	340.75	4,098.83	1,671.49	-563.76	1,764.00	2.03	-1.83	-2.11	204.41
	NORMAL	4,589.0	21.64	342.94	4,186.58	1,706.07	-575.12	1,800.40	2.08	-1.88	2.31	155.89
	NORMAL	4,685.0	18.75	341.14	4,276.67	1,737.60	-585.31	1,833.53	3.08	-3.01	-1.88	191.29
7/6/2011	NORMAL	4,780.0	17.41	341.46	4,366.98	1,765.53	-594.76	1,863.01	1.41	-1.41	0.34	175.91
	NORMAL	4,876.0	16.44	341.29	4,458.82	1,792.01	-603.69	1,890.96	1.01	-1.01	-0.18	182.84
	NORMAL	4,971.0	16.17	341.10	4,550.00	1,817.26	-612.28	1,917.63	0.29	-0.28	-0.20	191.08
	NORMAL	5,067.0	13.55	341.21	4,642.78	1,840.56	-620.24	1,942.25	2.73	-2.73	0.11	179.44
	NORMAL	5,162.0	12.45	340.53	4,735.34	1,860.75	-627.23	1,963.62	1.17	-1.16	-0.72	187.59
	NORMAL	5,258.0	11.26	340.41	4,829.29	1,879.34	-633.83	1,983.34	1.24	-1.24	-0.12	181.13
	NORMAL	5,353.0	9.42	342.73	4,922.75	1,895.50	-639.25	2,000.38	1.99	-1.94	2.44	168.39
	NORMAL	5,449.0	7.42	341.43	5,017.71	1,908.88	-643.55	2,014.44	2.09	-2.08	-1.35	184.79
	NORMAL	5,544.0	7.38	338.30	5,111.91	1,920.36	-647.76	2,026.66	0.43	-0.04	-3.29	262.78
	NORMAL	5,640.0	6.43	337.10	5,207.22	1,931.04	-652.13	2,038.18	1.00	-0.99	-1.25	188.04
7/7/2011	NORMAL	5,736.0	6.61	333.65	5,302.60	1,940.95	-656.68	2,049.02	0.45	0.19	-3.59	292.96
	NORMAL	5,831.0	5.76	330.52	5,397.04	1,950.00	-661.45	2,059.13	0.96	-0.89	-3.29	200.09
	NORMAL	5,926.0	5.98	334.61	5,491.55	1,958.62	-665.92	2,068.73	0.50	0.23	4.31	64.30
	NORMAL	6,022.0	4.94	336.46	5,587.11	1,966.92	-669.71	2,077.81	1.10	-1.08	1.93	171.31
	NORMAL	6,118.0	2.84	355.28	5,682.89	1,973.08	-671.56	2,084.24	2.53	-2.19	19.60	157.86
	NORMAL	6,213.0	2.32	359.92	5,777.79	1,977.35	-671.76	2,088.34	0.59	-0.55	4.88	160.42
	NORMAL	6,309.0	1.67	328.46	5,873.73	1,980.49	-672.49	2,091.55	1.30	-0.68	-32.77	224.23
	NORMAL	6,404.0	1.59	308.92	5,968.70	1,982.50	-674.24	2,094.01	0.59	-0.08	-20.57	252.12
	NORMAL	6,595.0	0.70	18.55	6,159.66	1,985.27	-675.93	2,097.18	0.78	-0.47	36.46	154.01
	NORMAL	6,691.0	0.48	12.68	6,255.66	1,986.22	-675.66	2,097.99	0.24	-0.23	-6.11	192.44
7/8/2011	NORMAL	6,785.0	0.62	72.56	6,349.65	1,986.75	-675.08	2,098.31	0.60	0.15	63.70	107.48
	NORMAL	6,880.0	0.60	29.14	6,444.65	1,987.34	-674.35	2,098.64	0.48	-0.02	-45.71	245.93
	NORMAL	6,976.0	0.30	304.76	6,540.65	1,987.92	-674.31	2,099.18	0.67	-0.31	-87.90	207.62
	NORMAL	7,071.0	0.26	227.21	6,635.65	1,987.92	-674.68	2,099.29	0.37	-0.04	-81.63	226.14
	NORMAL	7,167.0	0.44	144.24	6,731.64	1,987.47	-674.62	2,098.85	0.50	0.19	-86.43	244.73
	NORMAL	7,261.0	1.02	184.00	6,825.64	1,986.34	-674.47	2,097.73	0.78	0.62	42.30	62.19
	NORMAL	7,356.0	0.88	318.58	6,920.63	1,986.05	-675.01	2,097.62	1.85	-0.15	141.66	159.05

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
7/8/2011	NORMAL	7,451.0	0.79	310.79	7,015.62	1,987.02	-675.99	2,098.86	0.15	-0.09	-8.20	227.74
	NORMAL	7,546.0	0.66	258.07	7,110.61	1,987.34	-677.02	2,099.49	0.69	-0.14	-55.49	233.39
	NORMAL	7,642.0	1.14	259.90	7,206.60	1,987.06	-678.50	2,099.70	0.50	0.50	1.91	4.34
	NORMAL	7,738.0	0.62	313.16	7,302.59	1,987.24	-679.82	2,100.30	0.95	-0.54	55.48	147.14
	NORMAL	7,831.0	0.70	353.81	7,395.59	1,988.15	-680.25	2,101.30	0.50	0.09	43.71	101.03
	NORMAL	7,927.0	0.58	300.75	7,491.58	1,988.98	-680.73	2,102.24	0.61	-0.12	-55.27	232.84
	NORMAL	8,020.0	0.88	247.16	7,584.57	1,988.95	-681.79	2,102.55	0.76	0.32	-57.62	265.35
	NORMAL	8,034.0	0.89	269.97	7,598.57	1,988.91	-682.00	2,102.58	2.50	0.07	162.93	99.80
	NORMAL	8,090.0	0.89	269.97	7,654.57	1,988.90	-682.87	2,102.86	0.00	0.00	0.00	0.00