

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	GM 422-23	Wellbore No.	
Well Name	GM 422-23	Common Name	GM 422-23
Project	GV 23-06S-096W	Site	MV 10-23 Pad
Vertical Section Azimuth	351.14 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	9/7/2011	UWI	GM 422-23
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	9/7/2011	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 (°)
9/7/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/7/2011	NORMAL	88.0	0.09	15.12	88.00	0.07	0.02	0.06	0.10	0.10	0.00	15.12
	NORMAL	177.0	1.85	34.80	176.98	1.31	0.86	1.17	1.98	1.98	22.11	20.66
	NORMAL	268.0	3.43	38.23	267.88	4.66	3.38	4.08	1.74	1.74	3.77	7.43
	NORMAL	360.0	5.45	35.07	359.60	10.40	7.59	9.10	2.21	2.20	-3.43	351.52
	NORMAL	451.0	7.92	35.51	449.98	19.04	13.72	16.70	2.71	2.71	0.48	1.41
	NORMAL	543.0	10.47	34.98	540.79	31.05	22.19	27.26	2.77	2.77	-0.58	357.84
	NORMAL	634.0	12.76	35.95	629.92	45.96	32.84	40.36	2.53	2.52	1.07	5.35
	NORMAL	706.0	14.77	35.75	699.85	59.85	42.87	52.53	2.79	2.79	-0.28	358.55
	NORMAL	797.0	16.76	34.54	787.42	80.07	57.08	70.32	2.22	2.19	-1.33	350.04
	NORMAL	888.0	18.91	34.87	874.04	102.98	72.96	90.52	2.37	2.36	0.36	2.85
	NORMAL	978.0	21.40	35.70	958.52	128.28	90.88	112.76	2.78	2.77	0.92	6.94
9/8/2011	NORMAL	1,071.0	22.53	35.11	1,044.77	156.64	111.03	137.67	1.24	1.22	-0.63	348.68
	NORMAL	1,167.0	22.70	34.77	1,133.39	186.90	132.17	164.31	0.22	0.18	-0.35	322.28
	NORMAL	1,262.0	22.09	34.60	1,221.23	216.66	152.77	190.55	0.65	-0.64	-0.18	185.98
	NORMAL	1,358.0	21.24	34.83	1,310.44	245.79	172.95	216.22	0.89	-0.89	0.24	174.40
	NORMAL	1,453.0	20.80	33.23	1,399.12	274.03	192.02	241.18	0.76	-0.46	-1.68	231.78
	NORMAL	1,549.0	21.33	35.04	1,488.71	302.58	211.39	266.41	0.87	0.55	1.89	51.68
	NORMAL	1,645.0	21.10	33.77	1,578.20	331.24	231.01	291.71	0.54	-0.24	-1.32	242.82
	NORMAL	1,740.0	21.19	35.97	1,666.81	359.35	250.60	316.47	0.84	0.09	2.32	84.56
	NORMAL	1,836.0	21.14	35.69	1,756.33	387.46	270.90	341.11	0.12	-0.05	-0.29	243.55

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 (°)
9/8/2011	NORMAL	1,930.0	19.90	36.90	1,844.37	414.02	290.39	364.35	1.39	-1.32	1.29	161.68
	NORMAL	2,025.0	20.40	36.90	1,933.55	440.19	310.04	387.18	0.53	0.53	0.00	0.00
	NORMAL	2,121.0	20.67	33.85	2,023.45	467.64	329.52	411.30	1.15	0.28	-3.18	282.73
	NORMAL	2,216.0	19.73	36.99	2,112.61	494.37	348.51	434.80	1.51	-0.99	3.31	132.39
	NORMAL	2,312.0	20.36	36.20	2,202.80	520.79	368.13	457.88	0.71	0.66	-0.82	336.37
	NORMAL	2,408.0	21.30	36.32	2,292.52	548.32	388.32	481.97	0.98	0.98	0.12	2.66
9/9/2011	NORMAL	2,502.0	21.69	33.97	2,379.98	576.48	408.13	506.74	1.01	0.41	-2.50	293.27
	NORMAL	2,596.0	21.42	34.62	2,467.41	605.01	427.59	531.93	0.38	-0.29	0.69	138.81
	NORMAL	2,691.0	20.34	34.43	2,556.17	632.91	446.78	556.54	1.14	-1.14	-0.20	183.50
	NORMAL	2,786.0	20.42	34.86	2,645.22	660.12	465.59	580.54	0.18	0.08	0.45	62.09
	NORMAL	2,882.0	21.76	35.34	2,734.79	688.38	485.46	605.40	1.41	1.40	0.50	7.57
	NORMAL	2,977.0	21.86	35.46	2,822.99	717.15	505.90	630.68	0.12	0.11	0.13	24.08
	NORMAL	3,071.0	20.79	36.14	2,910.55	744.88	525.89	654.99	1.17	-1.14	0.72	167.30
	NORMAL	3,163.0	20.34	33.74	2,996.69	771.36	544.40	678.31	1.04	-0.49	-2.61	240.79
	NORMAL	3,259.0	21.12	32.87	3,086.48	799.76	563.06	703.50	0.87	0.81	-0.91	338.05
	NORMAL	3,354.0	20.94	33.71	3,175.15	828.26	581.77	728.77	0.37	-0.19	0.88	121.23
	NORMAL	3,450.0	20.47	34.20	3,264.95	856.41	600.73	753.67	0.52	-0.49	0.51	160.00
	NORMAL	3,545.0	20.64	35.49	3,353.90	883.79	619.78	777.78	0.51	0.18	1.36	70.03
	NORMAL	3,641.0	20.64	35.81	3,443.74	911.28	639.51	801.91	0.12	0.00	0.33	90.15
	NORMAL	3,736.0	21.07	35.70	3,532.52	938.73	659.27	825.99	0.45	0.45	-0.12	354.74
	NORMAL	3,832.0	20.62	35.73	3,622.23	966.47	679.21	850.32	0.47	-0.47	0.03	178.66
	NORMAL	3,926.0	20.67	35.71	3,710.20	993.37	698.56	873.93	0.05	0.05	-0.02	351.96
	NORMAL	4,021.0	20.51	35.96	3,799.13	1,020.46	718.12	897.68	0.19	-0.17	0.26	151.33
	NORMAL	4,116.0	21.07	35.80	3,887.94	1,047.78	737.88	921.63	0.59	0.59	-0.17	354.13
	NORMAL	4,212.0	21.34	35.01	3,977.44	1,076.08	758.00	946.50	0.41	0.28	-0.82	313.01
	NORMAL	4,307.0	21.21	33.98	4,065.97	1,104.49	777.52	971.56	0.42	-0.14	-1.08	250.34
	NORMAL	4,401.0	21.07	33.45	4,153.64	1,132.69	796.33	996.52	0.25	-0.15	-0.56	233.53
	NORMAL	4,496.0	20.31	34.27	4,242.51	1,160.56	815.03	1,021.18	0.86	-0.80	0.86	159.52
	NORMAL	4,590.0	19.17	35.06	4,330.99	1,186.68	833.08	1,044.21	1.25	-1.21	0.84	167.20
	NORMAL	4,686.0	18.20	33.56	4,421.93	1,212.07	850.43	1,066.63	1.13	-1.01	-1.56	205.65
	NORMAL	4,782.0	17.68	33.52	4,513.26	1,236.72	866.76	1,088.46	0.54	-0.54	-0.04	181.34
	NORMAL	4,877.0	16.30	33.46	4,604.11	1,259.87	882.08	1,108.98	1.45	-1.45	-0.06	180.70
	NORMAL	4,973.0	13.80	34.77	4,696.81	1,280.52	896.04	1,127.23	2.63	-2.60	1.36	172.88
	NORMAL	5,068.0	12.77	34.51	4,789.27	1,298.48	908.45	1,143.06	1.09	-1.08	-0.27	183.19
	NORMAL	5,164.0	11.77	32.22	4,883.07	1,315.50	919.68	1,158.16	1.16	-1.04	-2.39	204.84
	NORMAL	5,260.0	10.90	33.91	4,977.20	1,331.32	929.97	1,172.20	0.97	-0.91	1.76	159.93
9/10/2011	NORMAL	5,355.0	10.56	34.50	5,070.54	1,345.95	939.91	1,185.12	0.38	-0.36	0.62	162.39
	NORMAL	5,450.0	9.15	35.32	5,164.14	1,359.29	949.21	1,196.87	1.49	-1.48	0.86	174.72
	NORMAL	5,546.0	7.91	36.20	5,259.07	1,370.85	957.52	1,207.01	1.30	-1.29	0.92	174.43
	NORMAL	5,641.0	6.60	36.02	5,353.31	1,380.54	964.59	1,215.50	1.38	-1.38	-0.19	180.90
	NORMAL	5,737.0	4.92	39.78	5,448.82	1,388.16	970.47	1,222.13	1.79	-1.75	3.92	169.21
	NORMAL	5,833.0	3.33	44.11	5,544.57	1,393.33	975.05	1,226.53	1.69	-1.66	4.51	171.07
	NORMAL	5,928.0	2.01	53.78	5,639.47	1,396.30	978.31	1,228.95	1.46	-1.39	10.18	165.95
	NORMAL	6,023.0	2.19	62.74	5,734.40	1,398.11	981.27	1,230.29	0.39	0.19	9.43	65.79
	NORMAL	6,119.0	1.33	64.68	5,830.36	1,399.43	983.91	1,231.19	0.90	-0.90	2.02	177.01
9/11/2011	NORMAL	6,215.0	0.81	103.26	5,926.34	1,399.75	985.58	1,231.25	0.90	-0.54	40.19	144.06
	NORMAL	6,310.0	0.27	143.17	6,021.34	1,399.42	986.36	1,230.80	0.66	-0.57	42.01	163.97
	NORMAL	6,406.0	0.09	5.09	6,117.34	1,399.31	986.51	1,230.67	0.36	-0.19	-143.83	190.12
	NORMAL	6,501.0	0.32	277.76	6,212.33	1,399.42	986.25	1,230.82	0.35	0.24	-91.93	256.78
	NORMAL	6,597.0	0.34	308.78	6,308.33	1,399.63	985.76	1,231.11	0.18	0.02	32.31	99.28
	NORMAL	6,692.0	0.38	177.72	6,403.33	1,399.50	985.55	1,231.00	0.69	0.04	-137.96	205.92
	NORMAL	6,786.0	0.62	301.68	6,497.33	1,399.45	985.13	1,231.02	0.95	0.26	131.87	144.70
	NORMAL	6,882.0	0.71	343.99	6,593.32	1,400.30	984.53	1,231.95	0.51	0.09	44.07	101.23
	NORMAL	6,977.0	0.18	20.99	6,688.32	1,401.00	984.42	1,232.66	0.61	-0.56	38.95	169.17
	NORMAL	7,072.0	0.70	66.96	6,783.32	1,401.37	985.01	1,232.94	0.62	0.55	48.39	58.66
	NORMAL	7,168.0	0.37	108.18	6,879.31	1,401.50	985.84	1,232.94	0.51	-0.34	42.94	149.96
	NORMAL	7,262.0	1.02	136.47	6,973.31	1,400.80	986.70	1,232.11	0.76	0.69	30.10	42.47

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 (°)
9/11/2011	NORMAL	7,358.0	0.97	186.05	7,069.29	1,399.37	987.21	1,230.62	0.87	-0.05	51.65	117.90
9/12/2011	NORMAL	7,452.0	1.41	217.69	7,163.28	1,397.67	986.42	1,229.06	0.82	0.47	33.66	72.69
	NORMAL	7,548.0	1.49	229.82	7,259.24	1,395.93	984.74	1,227.60	0.33	0.08	12.64	81.51
	NORMAL	7,643.0	2.33	242.47	7,354.19	1,394.24	982.08	1,226.34	0.98	0.88	13.32	33.07
	NORMAL	7,739.0	3.17	226.66	7,450.08	1,391.51	978.42	1,224.21	1.17	0.88	-16.47	309.84
	NORMAL	7,833.0	4.29	223.37	7,543.88	1,387.17	974.12	1,220.59	1.21	1.19	-3.50	347.54
	NORMAL	7,925.0	7.30	235.89	7,635.40	1,384.39	966.91	1,215.98	3.53	3.27	13.61	29.10
	NORMAL	7,981.0	9.13	243.51	7,690.83	1,377.41	959.99	1,213.12	3.80	3.27	13.61	34.56