

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	GM 513-23	Wellbore No.	
Well Name	GM 513-23	Common Name	GM 513-23
Project	GV 23-06S-096W	Site	MV 10-23 Pad
Vertical Section Azimuth	157.34 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	8/15/2011	UWI	GM 513-23
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	8/15/2011	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 (°)
8/15/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8/15/2011	NORMAL	85.0	0.70	219.11	85.00	-0.40	-0.33	0.25	0.82	0.82	0.00	219.11
	NORMAL	177.0	2.20	151.08	176.97	-2.38	0.17	2.27	2.22	1.63	-73.95	273.46
	NORMAL	269.0	4.22	157.76	268.82	-7.06	2.31	7.41	2.23	2.20	7.26	13.84
	NORMAL	360.0	8.09	152.58	359.28	-15.85	6.52	17.14	4.29	4.25	-5.69	349.25
	NORMAL	451.0	9.77	159.79	449.18	-28.78	12.14	31.24	2.21	1.85	7.92	37.27
	NORMAL	523.0	10.27	161.32	520.08	-40.59	16.31	43.74	0.79	0.69	2.13	28.79
	NORMAL	614.0	10.11	160.58	609.64	-55.81	21.56	59.81	0.23	-0.18	-0.81	218.93
8/16/2011	NORMAL	706.0	10.02	151.43	700.23	-70.46	28.07	75.83	1.74	-0.10	-9.95	262.28
8/17/2011	NORMAL	799.0	9.28	146.94	791.92	-83.85	36.03	91.26	1.13	-0.80	-4.83	223.29
	NORMAL	890.0	8.52	147.92	881.82	-95.71	43.62	105.12	0.85	-0.84	1.08	169.20
	NORMAL	981.0	8.36	148.87	971.84	-107.08	50.62	118.32	0.23	-0.18	1.04	139.40
	NORMAL	1,077.0	8.58	155.56	1,066.79	-119.58	57.19	132.38	1.05	0.23	6.97	80.74
	NORMAL	1,172.0	8.12	167.79	1,160.79	-132.59	61.54	146.06	1.93	-0.48	12.87	110.52
	NORMAL	1,268.0	9.23	169.14	1,255.69	-146.78	64.42	160.27	1.18	1.16	1.41	11.06
	NORMAL	1,363.0	9.56	161.68	1,349.42	-161.75	68.34	175.59	1.33	0.35	-7.85	281.46
	NORMAL	1,459.0	9.33	156.60	1,444.12	-176.46	73.94	191.32	0.90	-0.24	-5.29	252.08
	NORMAL	1,554.0	9.21	161.66	1,537.88	-190.74	79.39	206.60	0.87	-0.13	5.33	100.87
	NORMAL	1,650.0	9.87	163.08	1,632.55	-205.91	84.20	222.45	0.73	0.69	1.48	20.33
	NORMAL	1,746.0	9.40	159.92	1,727.20	-221.14	89.28	238.47	0.74	-0.49	-3.29	226.82
	NORMAL	1,841.0	8.04	159.43	1,821.10	-234.65	94.28	252.86	1.43	-1.43	-0.52	182.88

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 (°)
8/17/2011	NORMAL	1,935.0	7.32	165.12	1,914.26	-246.59	98.13	265.36	1.11	-0.77	6.05	136.23
	NORMAL	2,030.0	7.52	164.01	2,008.46	-258.41	101.40	277.53	0.26	0.21	-1.17	323.82
	NORMAL	2,126.0	8.01	163.21	2,103.58	-270.86	105.06	290.42	0.52	0.51	-0.83	347.16
	NORMAL	2,222.0	7.82	155.47	2,198.67	-283.20	109.70	303.61	1.13	-0.20	-8.06	256.07
	NORMAL	2,318.0	7.29	147.48	2,293.84	-294.28	115.69	316.13	1.22	-0.55	-8.32	239.31
	NORMAL	2,413.0	7.30	150.12	2,388.07	-304.60	121.94	328.06	0.35	0.01	2.78	89.60
	NORMAL	2,508.0	8.01	146.94	2,482.22	-315.38	128.55	340.56	0.87	0.75	-3.35	327.60
	NORMAL	2,601.0	8.40	140.10	2,574.27	-326.02	136.45	353.42	1.13	0.42	-7.35	288.37
	NORMAL	2,696.0	7.86	131.81	2,668.32	-335.67	145.74	365.91	1.36	-0.57	-8.73	241.20
	NORMAL	2,792.0	6.75	132.44	2,763.54	-343.86	154.80	376.95	1.16	-1.16	0.66	176.18
	NORMAL	2,887.0	6.00	143.65	2,857.96	-351.62	161.86	386.84	1.53	-0.79	11.80	126.56
8/18/2011	NORMAL	2,983.0	4.53	134.19	2,953.55	-358.31	167.55	395.20	1.77	-1.53	-9.85	205.91
	NORMAL	3,076.0	4.18	122.29	3,046.28	-362.68	173.05	401.35	1.04	-0.38	-12.80	242.96
	NORMAL	3,169.0	2.90	137.82	3,139.11	-366.23	177.50	406.34	1.71	-1.38	16.70	150.74
	NORMAL	3,264.0	2.06	157.05	3,234.02	-369.59	179.78	410.32	1.23	-0.88	20.24	144.61
	NORMAL	3,360.0	1.85	177.20	3,329.96	-372.72	180.52	413.50	0.74	-0.22	20.99	116.89
	NORMAL	3,455.0	1.85	206.24	3,424.92	-375.63	179.92	415.95	0.98	0.00	30.57	104.51
	NORMAL	3,551.0	1.77	241.51	3,520.87	-377.73	177.93	417.12	1.14	-0.08	36.74	111.60
	NORMAL	3,646.0	1.14	282.11	3,615.84	-378.23	175.72	416.73	1.23	-0.66	42.74	140.64
	NORMAL	3,742.0	1.49	304.45	3,711.82	-377.32	173.76	415.14	0.64	0.36	23.27	67.19
	NORMAL	3,837.0	0.84	338.78	3,806.80	-375.97	172.49	413.40	0.98	-0.68	36.14	149.25
	NORMAL	3,931.0	1.19	314.36	3,900.78	-374.65	171.54	411.82	0.58	0.37	-25.98	296.34
	NORMAL	4,027.0	1.16	289.22	3,996.76	-373.63	169.91	410.25	0.53	-0.03	-26.19	254.16
	NORMAL	4,122.0	0.40	262.78	4,091.76	-373.36	168.67	409.52	0.86	-0.80	-27.83	192.52
	NORMAL	4,217.0	0.17	173.57	4,186.75	-373.54	168.36	409.57	0.46	-0.24	-93.91	203.15
	NORMAL	4,312.0	0.50	231.65	4,281.75	-373.94	168.05	409.81	0.46	0.35	61.14	77.46
	NORMAL	4,501.0	0.20	180.99	4,470.75	-374.78	167.40	410.34	0.21	-0.16	-26.80	202.51
	NORMAL	4,596.0	0.26	192.35	4,565.75	-375.15	167.35	410.67	0.08	0.06	11.96	43.01
	NORMAL	4,691.0	0.34	194.76	4,660.75	-375.64	167.23	411.07	0.09	0.08	2.54	10.17
	NORMAL	4,787.0	0.21	223.11	4,756.75	-376.04	167.04	411.37	0.19	-0.14	29.53	147.28
8/19/2011	NORMAL	4,882.0	0.51	254.88	4,851.74	-376.28	166.51	411.38	0.37	0.32	33.44	50.22
	NORMAL	4,978.0	0.62	251.34	4,947.74	-376.56	165.60	411.29	0.12	0.11	-3.69	340.62
	NORMAL	5,074.0	0.64	233.50	5,043.73	-377.04	164.68	411.38	0.20	0.02	-18.58	266.86
	NORMAL	5,169.0	0.81	225.30	5,138.73	-377.83	163.78	411.76	0.21	0.18	-8.63	324.46
	NORMAL	5,265.0	1.18	207.14	5,234.71	-379.19	162.84	412.65	0.50	0.39	-18.92	310.24
	NORMAL	5,360.0	1.76	214.28	5,329.68	-381.26	161.58	414.08	0.64	0.61	7.52	21.12
8/20/2011	NORMAL	5,455.0	1.43	222.46	5,424.64	-383.34	159.95	415.37	0.42	-0.35	8.61	149.44
	NORMAL	5,551.0	0.11	254.47	5,520.63	-384.25	159.06	415.87	1.39	-1.38	33.34	177.50
	NORMAL	5,647.0	0.58	51.17	5,616.63	-383.97	159.35	415.72	0.71	0.49	163.23	160.36
	NORMAL	5,742.0	0.55	72.29	5,711.63	-383.53	160.16	415.63	0.22	-0.03	22.23	108.66
	NORMAL	5,838.0	0.50	92.23	5,807.62	-383.41	161.01	415.84	0.20	-0.05	20.77	115.13
	NORMAL	5,933.0	0.34	98.70	5,902.62	-383.46	161.71	416.16	0.18	-0.17	6.81	166.71
	NORMAL	6,029.0	0.31	167.91	5,998.62	-383.76	162.04	416.57	0.39	-0.03	72.09	128.43
	NORMAL	6,124.0	0.44	190.54	6,093.62	-384.37	162.03	417.12	0.20	0.14	23.82	60.41
	NORMAL	6,220.0	0.15	331.35	6,189.62	-384.62	161.90	417.31	0.59	-0.30	146.68	170.33
	NORMAL	6,315.0	0.31	306.52	6,284.62	-384.36	161.64	416.96	0.19	0.17	-26.14	315.26
8/21/2011	NORMAL	6,411.0	0.62	310.70	6,380.61	-383.87	161.03	416.28	0.32	0.32	4.35	8.34
	NORMAL	6,507.0	0.81	249.43	6,476.61	-383.77	160.00	415.79	0.78	0.20	-63.82	252.01
	NORMAL	6,602.0	0.90	228.19	6,571.60	-384.50	158.82	416.01	0.34	0.09	-22.36	275.06
	NORMAL	6,697.0	0.80	148.02	6,666.59	-385.56	158.61	416.91	1.16	-0.11	-84.39	225.92
	NORMAL	6,792.0	1.08	161.73	6,761.58	-386.97	159.25	418.45	0.38	0.29	14.43	45.76
	NORMAL	6,887.0	0.93	142.26	6,856.56	-388.43	160.00	420.09	0.39	-0.16	-20.49	236.76
	NORMAL	6,982.0	0.98	121.12	6,951.55	-389.46	161.17	421.49	0.37	0.05	-22.25	267.42
	NORMAL	7,078.0	1.25	139.86	7,047.53	-390.69	162.54	423.15	0.47	0.28	19.52	63.10
	NORMAL	7,173.0	0.96	180.00	7,142.51	-392.28	163.21	424.87	0.85	-0.31	42.25	129.82
8/22/2011	NORMAL	7,267.0	1.31	228.37	7,236.50	-393.78	162.41	425.95	1.05	0.37	51.46	95.23
	NORMAL	7,363.0	2.13	244.87	7,332.45	-395.26	159.97	426.38	0.99	0.85	17.19	39.55

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 (°)
8/22/2011	NORMAL	7,458.0	2.45	248.30	7,427.38	-396.76	156.49	426.43	0.37	0.34	3.61	24.90
	NORMAL	7,553.0	3.00	250.05	7,522.27	-398.36	152.26	426.27	0.59	0.58	1.84	9.48
	NORMAL	7,580.0	3.19	252.72	7,549.23	-398.83	150.88	426.17	0.88	0.70	9.89	38.53
	NORMAL	7,632.0	3.19	252.72	7,601.15	-399.69	148.12	425.90	0.00	0.00	0.00	0.00