

## 1 General

### 1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

### 1.2 Well Information

Well	GM 443-22	Wellbore No.	
Well Name	GM 443-22	Common Name	GM 443-22
Project	GV 27-06S-096W	Site	MV 23-27 Pad
Vertical Section Azimuth	350.36 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	4/28/2011	UWI	GM 443-22
Active Datum	KB @5,794.0ft (above Mean Sea Level)		

## 2 Survey Name

### 2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	SCIENTIFIC
Started	4/28/2011	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 (°)
4/28/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4/28/2011	NORMAL	81.0	0.18	358.77	81.00	0.13	0.00	0.13	0.22	0.22	0.00	358.77
	NORMAL	109.0	1.23	15.21	109.00	0.46	0.08	0.44	3.78	3.75	58.71	19.20
	NORMAL	140.0	2.11	8.35	139.98	1.35	0.25	1.29	2.91	2.84	-22.13	343.76
	NORMAL	171.0	2.90	0.44	170.95	2.70	0.33	2.60	2.78	2.55	-25.52	332.38
	NORMAL	202.0	4.13	355.87	201.90	4.59	0.26	4.48	4.07	3.97	-14.74	344.88
	NORMAL	232.0	5.19	350.77	231.80	7.01	-0.04	6.92	3.79	3.53	-17.00	336.10
	NORMAL	262.0	6.25	348.57	261.65	9.95	-0.58	9.91	3.61	3.53	-7.33	347.22
	NORMAL	293.0	7.39	350.33	292.43	13.57	-1.25	13.59	3.74	3.68	5.68	11.26
	NORMAL	323.0	8.45	348.05	322.14	17.63	-2.03	17.72	3.68	3.53	-7.60	342.36
	NORMAL	354.0	9.50	347.17	352.76	22.35	-3.07	22.55	3.42	3.39	-2.84	352.12
	NORMAL	384.0	10.12	347.70	382.32	27.34	-4.18	27.65	2.09	2.07	1.77	8.55
	NORMAL	414.0	10.82	347.26	411.82	32.66	-5.36	33.10	2.35	2.33	-1.47	353.27
	NORMAL	445.0	11.00	347.87	442.26	38.39	-6.62	38.96	0.69	0.58	1.97	32.98
	NORMAL	475.0	11.44	346.90	471.69	44.09	-7.90	44.79	1.60	1.47	-3.23	336.31
	NORMAL	505.0	12.58	348.84	501.03	50.19	-9.21	51.02	4.03	3.80	6.47	20.45
	NORMAL	535.0	13.55	352.62	530.25	56.88	-10.29	57.80	4.31	3.23	12.60	43.23
	NORMAL	580.0	15.56	353.89	573.81	68.11	-11.61	69.09	4.52	4.47	2.82	9.64
	NORMAL	610.0	16.50	353.65	602.64	76.35	-12.51	77.36	3.14	3.13	-0.80	355.85
	NORMAL	640.0	17.67	352.13	631.32	85.09	-13.60	86.17	4.17	3.90	-5.07	338.38
	NORMAL	671.0	18.38	350.20	660.80	94.57	-15.08	95.76	2.99	2.29	-6.23	319.01

## 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 (°)
4/28/2011	NORMAL	701.0	19.07	349.30	689.21	104.04	-16.79	105.39	2.49	2.30	-3.00	336.85
	NORMAL	732.0	20.31	349.84	718.39	114.32	-18.68	115.83	4.04	4.00	1.74	8.60
	NORMAL	762.0	21.54	350.55	746.42	124.87	-20.51	126.55	4.19	4.10	2.37	11.98
	NORMAL	792.0	23.04	350.81	774.17	136.10	-22.35	137.92	5.01	5.00	0.87	3.88
	NORMAL	822.0	24.89	350.99	801.59	148.13	-24.27	150.11	6.17	6.17	0.60	2.35
	NORMAL	852.0	25.85	351.25	828.69	160.83	-26.26	162.96	3.22	3.20	0.87	6.74
	NORMAL	882.0	25.97	351.16	855.68	173.79	-28.26	176.07	0.42	0.40	-0.30	341.81
	NORMAL	913.0	26.47	350.81	883.49	187.32	-30.41	189.76	1.69	1.61	-1.13	342.66
	NORMAL	944.0	27.44	350.37	911.12	201.18	-32.71	203.82	3.19	3.13	-1.42	348.18
	NORMAL	974.0	28.75	350.28	937.58	215.11	-35.08	217.94	4.37	4.37	-0.30	358.11
	NORMAL	1,006.0	30.34	349.93	965.42	230.65	-37.79	233.72	5.00	4.97	-1.09	353.65
	NORMAL	1,038.0	31.83	349.67	992.83	246.91	-40.72	250.24	4.68	4.66	-0.81	354.74
	NORMAL	1,068.0	32.88	349.71	1,018.17	262.71	-43.59	266.30	3.50	3.50	0.13	1.18
	NORMAL	1,100.0	33.41	350.11	1,044.96	279.93	-46.66	283.79	1.79	1.66	1.25	22.59
	NORMAL	1,132.0	34.38	349.67	1,071.52	297.50	-49.79	301.64	3.13	3.03	-1.38	345.62
4/29/2011	NORMAL	1,163.0	35.10	349.63	1,097.00	314.88	-52.97	319.30	2.32	2.32	-0.13	358.17
	NORMAL	1,254.0	35.61	349.67	1,171.21	366.68	-62.43	371.95	0.56	0.56	0.04	2.61
	NORMAL	1,349.0	36.18	349.59	1,248.17	421.46	-72.45	427.65	0.60	0.60	-0.08	355.26
	NORMAL	1,444.0	36.53	350.66	1,324.68	476.94	-82.11	483.96	0.76	0.37	1.13	61.54
	NORMAL	1,538.0	37.04	350.74	1,399.97	532.49	-91.20	540.25	0.54	0.54	0.09	5.40
	NORMAL	1,633.0	34.57	350.58	1,477.01	587.33	-100.22	595.82	2.60	-2.60	-0.17	182.11
	NORMAL	1,727.0	36.32	351.87	1,553.58	641.20	-108.52	650.32	2.02	1.86	1.37	23.67
	NORMAL	1,821.0	39.76	352.43	1,627.60	698.57	-116.42	708.21	3.68	3.66	0.60	5.95
	NORMAL	1,916.0	38.69	351.29	1,701.20	758.04	-124.92	768.26	1.36	-1.13	-1.20	213.53
	NORMAL	2,010.0	37.49	351.05	1,775.18	815.34	-133.82	826.24	1.29	-1.28	-0.26	186.94
	NORMAL	2,105.0	37.64	350.37	1,850.48	872.50	-143.17	884.15	0.46	0.16	-0.72	289.62
	NORMAL	2,199.0	36.58	349.40	1,925.44	928.33	-153.13	940.86	1.29	-1.13	-1.03	208.52
	NORMAL	2,294.0	36.93	349.67	2,001.56	984.23	-163.45	997.71	0.41	0.37	0.28	24.89
	NORMAL	2,388.0	37.81	350.90	2,076.26	1,040.47	-173.07	1,054.76	1.23	0.94	1.31	40.80
	NORMAL	2,483.0	36.71	350.61	2,151.87	1,097.24	-182.31	1,112.27	1.17	-1.16	-0.31	188.95
4/30/2011	NORMAL	2,577.0	37.37	350.63	2,226.90	1,153.10	-191.54	1,168.89	0.70	0.70	0.02	1.05
	NORMAL	2,672.0	39.04	350.23	2,301.55	1,211.04	-201.31	1,227.65	1.78	1.76	-0.42	351.42
	NORMAL	2,766.0	37.96	350.02	2,375.12	1,268.68	-211.34	1,286.16	1.16	-1.15	-0.22	186.82
	NORMAL	2,861.0	37.18	349.84	2,450.41	1,325.72	-221.47	1,344.08	0.83	-0.82	-0.19	187.94
	NORMAL	2,955.0	36.42	350.23	2,525.68	1,381.18	-231.22	1,400.39	0.84	-0.80	0.41	162.99
	NORMAL	3,050.0	35.09	349.58	2,602.77	1,435.83	-240.94	1,455.90	1.46	-1.40	-0.68	195.64
	NORMAL	3,144.0	34.81	349.38	2,679.82	1,488.77	-250.77	1,509.74	0.32	-0.30	-0.21	202.17
	NORMAL	3,239.0	34.25	349.66	2,758.08	1,541.72	-260.57	1,563.59	0.61	-0.59	0.29	164.29
	NORMAL	3,333.0	35.26	350.37	2,835.31	1,594.50	-269.86	1,617.17	1.16	1.07	0.76	22.13
	NORMAL	3,427.0	34.28	351.09	2,912.53	1,647.40	-278.50	1,670.78	1.13	-1.04	0.77	157.56
	NORMAL	3,522.0	33.70	350.43	2,991.30	1,699.82	-287.02	1,723.88	0.72	-0.61	-0.69	212.19
	NORMAL	3,616.0	32.73	350.06	3,069.94	1,750.57	-295.74	1,775.37	1.05	-1.03	-0.39	191.65
	NORMAL	3,711.0	31.92	349.67	3,150.22	1,800.57	-304.68	1,826.17	0.88	-0.85	-0.41	194.27
	NORMAL	3,805.0	31.50	349.58	3,230.18	1,849.17	-313.58	1,875.57	0.45	-0.45	-0.10	186.39
	NORMAL	3,900.0	29.81	348.70	3,311.90	1,896.74	-322.69	1,924.00	1.84	-1.78	-0.93	194.49
5/1/2011	NORMAL	3,994.0	29.11	348.82	3,393.75	1,942.09	-331.71	1,970.21	0.75	-0.74	0.13	175.23
	NORMAL	4,089.0	27.44	350.37	3,477.41	1,986.34	-339.85	2,015.20	1.92	-1.76	1.63	156.95
	NORMAL	4,183.0	26.82	349.93	3,561.07	2,028.57	-347.18	2,058.07	0.69	-0.66	-0.47	197.74
	NORMAL	4,278.0	25.13	351.36	3,646.47	2,069.62	-353.96	2,099.67	1.90	-1.78	1.51	160.31
	NORMAL	4,372.0	24.53	350.82	3,731.78	2,108.62	-360.07	2,139.14	0.68	-0.64	-0.57	200.46
	NORMAL	4,467.0	21.90	353.01	3,819.08	2,145.68	-365.37	2,176.56	2.91	-2.77	2.31	162.83
	NORMAL	4,561.0	21.18	352.26	3,906.52	2,179.90	-369.79	2,211.05	0.82	-0.77	-0.80	200.58
	NORMAL	4,656.0	19.08	352.83	3,995.71	2,212.32	-374.04	2,243.72	2.22	-2.21	0.60	174.93
	NORMAL	4,750.0	18.14	352.14	4,084.79	2,242.06	-377.96	2,273.69	1.03	-1.00	-0.73	192.86
	NORMAL	4,845.0	17.53	352.67	4,175.23	2,270.90	-381.81	2,302.77	0.66	-0.64	0.56	165.35
	NORMAL	4,939.0	15.70	352.93	4,265.30	2,297.56	-385.18	2,329.62	1.95	-1.95	0.28	177.80
	NORMAL	5,034.0	14.90	353.38	4,356.93	2,322.45	-388.17	2,354.66	0.85	-0.84	0.47	171.77

## 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 (°)
5/1/2011	NORMAL	5,128.0	13.75	350.75	4,448.01	2,345.48	-391.36	2,377.90	1.41	-1.22	-2.80	208.23
	NORMAL	5,223.0	12.63	351.00	4,540.50	2,366.89	-394.80	2,399.58	1.18	-1.18	0.26	177.21
	NORMAL	5,317.0	11.85	350.03	4,632.36	2,386.54	-398.08	2,419.50	0.86	-0.83	-1.03	194.30
5/2/2011	NORMAL	5,412.0	10.20	349.49	4,725.61	2,404.42	-401.30	2,437.67	1.74	-1.74	-0.57	183.32
	NORMAL	5,506.0	9.23	348.53	4,818.26	2,419.99	-404.32	2,453.53	1.05	-1.03	-1.02	189.01
	NORMAL	5,601.0	8.79	347.38	4,912.09	2,434.54	-407.42	2,468.39	0.50	-0.46	-1.21	201.69
	NORMAL	5,695.0	7.57	349.69	5,005.13	2,447.64	-410.10	2,481.76	1.34	-1.30	2.46	166.06
	NORMAL	5,790.0	6.86	345.54	5,099.38	2,459.29	-412.64	2,493.67	0.93	-0.75	-4.37	214.24
	NORMAL	5,885.0	6.12	344.34	5,193.77	2,469.66	-415.42	2,504.36	0.79	-0.78	-1.26	189.79
	NORMAL	5,979.0	4.81	347.08	5,287.34	2,478.33	-417.65	2,513.27	1.42	-1.39	2.91	170.10
	NORMAL	6,074.0	3.87	356.34	5,382.06	2,485.41	-418.75	2,520.44	1.23	-0.99	9.75	147.85
	NORMAL	6,168.0	3.41	352.62	5,475.88	2,491.35	-419.31	2,526.39	0.55	-0.49	-3.96	205.33
	NORMAL	6,263.0	2.89	8.19	5,570.73	2,496.52	-419.33	2,531.49	1.05	-0.55	16.39	128.91
	NORMAL	6,357.0	1.90	359.86	5,664.65	2,500.43	-419.00	2,535.28	1.11	-1.05	-8.86	195.24
	NORMAL	6,451.0	0.95	359.67	5,758.62	2,502.77	-419.01	2,537.59	1.01	-1.01	-0.20	180.19
	NORMAL	6,546.0	1.16	347.27	5,853.60	2,504.49	-419.22	2,539.33	0.33	0.22	-13.05	306.30
	NORMAL	6,640.0	0.77	339.49	5,947.59	2,506.01	-419.65	2,540.90	0.44	-0.41	-8.28	194.71
	NORMAL	6,735.0	0.24	104.02	6,042.59	2,506.56	-419.68	2,541.44	0.98	-0.56	131.08	167.69
5/3/2011	NORMAL	6,829.0	0.36	145.08	6,136.59	2,506.27	-419.32	2,541.10	0.25	0.13	43.68	82.42
	NORMAL	6,924.0	0.24	156.33	6,231.59	2,505.84	-419.07	2,540.64	0.14	-0.13	11.84	159.41
	NORMAL	7,018.0	0.44	170.55	6,325.58	2,505.31	-418.93	2,540.08	0.23	0.21	15.13	30.09
	NORMAL	7,112.0	0.62	174.68	6,419.58	2,504.44	-418.83	2,539.22	0.20	0.19	4.39	14.05
	NORMAL	7,207.0	0.62	188.83	6,514.57	2,503.42	-418.86	2,538.22	0.16	0.00	14.89	97.07
	NORMAL	7,301.0	0.51	191.95	6,608.57	2,502.51	-419.02	2,537.34	0.12	-0.12	3.32	165.93
	NORMAL	7,396.0	0.44	186.28	6,703.57	2,501.74	-419.15	2,536.60	0.09	-0.07	-5.97	211.07
	NORMAL	7,490.0	0.77	219.92	6,797.56	2,500.89	-419.60	2,535.84	0.50	0.35	35.79	64.76
	NORMAL	7,585.0	0.95	219.70	6,892.55	2,499.80	-420.51	2,534.92	0.19	0.19	-0.23	358.84
	NORMAL	7,679.0	1.12	227.63	6,986.54	2,498.58	-421.69	2,533.91	0.24	0.18	8.44	44.13
	NORMAL	7,774.0	1.48	239.47	7,081.51	2,497.33	-423.43	2,532.97	0.47	0.38	12.46	42.75
	NORMAL	7,868.0	1.78	240.80	7,175.47	2,496.00	-425.75	2,532.05	0.32	0.32	1.41	7.85
	NORMAL	7,963.0	1.67	243.67	7,270.43	2,494.67	-428.28	2,531.16	0.15	-0.12	3.02	143.28
	NORMAL	8,021.0	1.76	241.91	7,328.40	2,493.87	-429.82	2,530.64	0.18	0.16	-3.03	328.78
	NORMAL	8,080.0	1.76	241.91	7,387.38	2,493.02	-431.42	2,530.06	0.00	0.00	0.00	0.00