

Deviation Summary

PICEANCE VLY

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well/Wellbore Information

Well	GM 311-21	Wellbore No.	
Wellbore Legal Name	GM 311-21	Common Wellbore Name	GM 311-21
Project	GV 20-06S-096W	Site	GM 442-20 Pad
Vertical Section Azimuth	56.44 (°)	North reference	
Origin N/S		Origin E/W	
Spud date	8/23/2014	UWI	GM 311-21
Active datum	KB @5,596.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	8/23/2014	Ended	
Tool Name	MWD	Engineer	

2.1.1 Tie On Point

MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)
		352.53			

2.1.2 Survey Stations

Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (°/100usft)	Buidl Rate (°/100usft)	Turn (°/100usft)	Tface (°)
8/23/2014	NORMAL	75.0	0.35	352.53	75.00	0.23	-0.03	0.10	0.47	0.47	0.00	352.53
	NORMAL	164.0	1.94	64.78	163.98	1.14	1.30	1.71	2.09	1.79	81.18	82.55
	NORMAL	255.0	4.40	59.33	254.84	3.58	5.69	6.72	2.72	2.70	-5.99	350.29
8/23/2014	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8/24/2014	NORMAL	346.0	7.48	57.22	345.34	8.56	13.68	16.13	3.39	3.38	-2.32	354.89
	NORMAL	436.0	10.65	58.10	434.20	16.13	25.67	30.31	3.53	3.52	0.98	2.94
	NORMAL	507.0	12.07	56.80	503.81	23.66	37.45	44.29	2.03	2.00	-1.83	349.14
	NORMAL	597.0	14.44	54.38	591.40	35.35	54.45	64.92	2.70	2.63	-2.69	345.64
	NORMAL	688.0	16.65	54.40	679.07	49.55	74.27	89.29	2.43	2.43	0.02	0.15
	NORMAL	779.0	19.21	56.93	765.64	65.31	97.42	117.29	2.94	2.81	2.78	18.13
	NORMAL	870.0	22.36	56.26	850.71	83.10	124.37	149.58	3.47	3.46	-0.74	355.37
	NORMAL	960.0	23.84	56.05	933.49	102.77	153.70	184.89	1.65	1.64	-0.23	356.72
8/25/2014	NORMAL	1,053.0	24.37	55.74	1,018.38	124.07	185.14	222.87	0.59	0.57	-0.33	346.42
	NORMAL	1,148.0	24.46	55.27	1,104.89	146.31	217.51	262.13	0.23	0.09	-0.49	294.64
	NORMAL	1,242.0	24.74	55.60	1,190.36	168.51	249.73	301.25	0.33	0.30	0.35	26.28
	NORMAL	1,336.0	24.76	54.81	1,275.72	190.96	282.05	340.60	0.35	0.02	-0.84	273.10
	NORMAL	1,430.0	23.45	56.14	1,361.52	212.73	313.67	378.98	1.51	-1.39	1.41	158.08
	NORMAL	1,525.0	23.19	55.60	1,448.76	233.83	344.80	416.58	0.35	-0.27	-0.57	219.18
	NORMAL	1,619.0	23.21	58.78	1,535.17	253.89	375.91	453.60	1.33	0.02	3.38	90.55
	NORMAL	1,713.0	22.98	59.06	1,621.63	272.92	407.49	490.44	0.27	-0.24	0.30	154.60
	NORMAL	1,807.0	22.57	58.64	1,708.30	291.74	438.63	526.79	0.47	-0.44	-0.45	201.44

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
8/25/2014	NORMAL	1,901.0	22.59	57.86	1,795.10	310.73	469.32	562.87	0.32	0.02	-0.83	273.46
	NORMAL	1,997.0	23.04	56.67	1,883.59	330.87	500.63	600.09	0.67	0.47	-1.24	313.73
	NORMAL	2,091.0	22.95	56.67	1,970.12	351.04	531.31	636.81	0.10	-0.10	0.00	180.00
	NORMAL	2,185.0	24.44	56.92	2,056.19	371.73	562.92	674.58	1.59	1.59	0.27	3.97
8/26/2014	NORMAL	2,279.0	23.83	56.02	2,141.97	392.95	594.96	713.02	0.76	-0.65	-0.96	210.69
	NORMAL	2,374.0	24.14	56.40	2,228.77	414.43	627.06	751.63	0.36	0.33	0.40	26.66
	NORMAL	2,468.0	24.75	57.29	2,314.34	435.70	659.62	790.53	0.76	0.65	0.95	31.53
	NORMAL	2,562.0	24.86	56.11	2,399.67	457.35	692.58	829.96	0.54	0.12	-1.26	281.99
	NORMAL	2,654.0	23.65	54.15	2,483.55	478.94	723.59	867.74	1.58	-1.32	-2.13	212.75
	NORMAL	2,749.0	22.35	55.72	2,571.00	500.28	753.96	904.84	1.51	-1.37	1.65	155.46
	NORMAL	2,844.0	23.31	57.72	2,658.56	520.49	784.78	941.70	1.30	1.01	2.11	39.87
	NORMAL	2,937.0	24.26	57.85	2,743.66	540.48	816.52	979.19	1.02	1.02	0.14	3.22
	NORMAL	3,031.0	24.09	57.00	2,829.41	561.21	848.95	1,017.68	0.41	-0.18	-0.90	243.58
	NORMAL	3,125.0	23.54	56.76	2,915.41	581.95	880.74	1,055.64	0.59	-0.59	-0.26	189.88
	NORMAL	3,220.0	22.89	56.68	3,002.72	602.50	912.05	1,093.08	0.69	-0.68	-0.08	182.74
	NORMAL	3,313.0	21.86	57.15	3,088.71	621.82	941.71	1,128.48	1.12	-1.11	0.51	170.36
	NORMAL	3,407.0	21.25	56.89	3,176.14	640.62	970.68	1,163.02	0.66	-0.65	-0.28	188.78
	NORMAL	3,501.0	20.56	56.40	3,263.95	659.06	998.70	1,196.56	0.76	-0.73	-0.52	193.99
	NORMAL	3,595.0	19.60	55.65	3,352.24	677.09	1,025.46	1,228.83	1.06	-1.02	-0.80	194.66
	NORMAL	3,689.0	19.29	55.46	3,440.87	694.79	1,051.27	1,260.12	0.34	-0.33	-0.20	191.44
	NORMAL	3,782.0	18.43	54.59	3,528.88	712.02	1,075.90	1,290.17	0.97	-0.92	-0.94	197.70
	NORMAL	3,877.0	17.36	53.90	3,619.28	729.07	1,099.60	1,319.34	1.15	-1.13	-0.73	190.88
	NORMAL	3,972.0	17.37	55.84	3,709.95	745.38	1,122.78	1,347.68	0.61	0.01	2.04	89.94
	NORMAL	4,066.0	17.02	54.76	3,799.75	761.20	1,145.63	1,375.46	0.50	-0.37	-1.15	221.86
	NORMAL	4,160.0	16.02	53.76	3,889.87	776.81	1,167.33	1,402.17	1.11	-1.06	-1.06	195.39
	NORMAL	4,254.0	15.39	57.40	3,980.36	791.20	1,188.30	1,427.60	1.24	-0.67	3.87	124.34
	NORMAL	4,347.0	14.23	56.63	4,070.27	804.13	1,208.24	1,451.37	1.27	-1.25	-0.83	189.26
	NORMAL	4,440.0	13.72	56.67	4,160.52	816.48	1,227.00	1,473.83	0.55	-0.55	0.04	178.93
	NORMAL	4,533.0	12.47	57.12	4,251.10	827.99	1,244.65	1,494.90	1.35	-1.34	0.48	175.56
	NORMAL	4,627.0	10.99	57.20	4,343.13	838.35	1,260.70	1,514.00	1.57	-1.57	0.09	179.41
	NORMAL	4,722.0	11.35	58.04	4,436.33	848.21	1,276.25	1,532.40	0.42	0.38	0.88	24.74
	NORMAL	4,817.0	10.19	61.26	4,529.66	857.20	1,291.55	1,550.12	1.38	-1.22	3.39	154.16
	NORMAL	4,911.0	9.05	56.61	4,622.34	865.26	1,305.01	1,565.80	1.47	-1.21	-4.95	212.00
	NORMAL	5,005.0	7.75	58.08	4,715.33	872.68	1,316.56	1,579.53	1.40	-1.38	1.56	171.35
	NORMAL	5,099.0	7.20	55.34	4,808.53	879.39	1,326.79	1,591.76	0.70	-0.59	-2.91	211.59
	NORMAL	5,194.0	6.68	46.50	4,902.84	886.57	1,335.69	1,603.15	1.25	-0.55	-9.31	239.70
	NORMAL	5,289.0	6.00	49.59	4,997.25	893.60	1,343.48	1,613.52	0.80	-0.72	3.25	154.88
	NORMAL	5,382.0	6.10	45.18	5,089.74	900.23	1,350.69	1,623.19	0.51	0.11	-4.74	279.94
	NORMAL	5,477.0	4.41	51.83	5,184.33	906.05	1,357.14	1,631.79	1.89	-1.78	7.00	163.47
	NORMAL	5,571.0	4.31	45.28	5,278.06	910.77	1,362.49	1,638.85	0.54	-0.11	-6.97	255.39
8/28/2014	NORMAL	5,665.0	3.25	53.68	5,371.86	914.83	1,367.15	1,644.98	1.27	-1.13	8.94	156.56
	NORMAL	5,759.0	2.55	52.10	5,465.74	917.69	1,370.94	1,649.73	0.75	-0.74	-1.68	185.73
	NORMAL	5,853.0	1.44	65.52	5,559.68	919.47	1,373.67	1,652.98	1.27	-1.18	14.28	163.79
	NORMAL	5,947.0	1.06	69.24	5,653.66	920.26	1,375.56	1,654.99	0.41	-0.40	3.96	169.80
	NORMAL	6,041.0	0.79	36.37	5,747.65	921.09	1,376.76	1,656.45	0.62	-0.29	-34.97	227.24
	NORMAL	6,134.0	0.70	65.99	5,840.64	921.84	1,377.65	1,657.61	0.42	-0.10	31.85	117.68
	NORMAL	6,228.0	0.41	353.41	5,934.63	922.41	1,378.14	1,658.33	0.74	-0.31	-77.21	214.13
	NORMAL	6,322.0	0.51	345.30	6,028.63	923.15	1,378.00	1,658.62	0.13	0.11	-8.63	322.83
	NORMAL	6,416.0	0.55	259.50	6,122.63	923.47	1,377.45	1,658.34	0.77	0.04	-91.28	229.43
	NORMAL	6,510.0	0.39	301.18	6,216.63	923.55	1,376.73	1,657.79	0.39	-0.17	44.34	134.93
	NORMAL	6,604.0	0.88	288.35	6,310.62	923.95	1,375.77	1,657.21	0.54	0.52	-13.65	337.34
	NORMAL	6,698.0	0.99	296.35	6,404.61	924.53	1,374.36	1,656.35	0.18	0.12	8.51	53.93
	NORMAL	6,793.0	1.49	286.94	6,499.58	925.26	1,372.44	1,655.16	0.57	0.53	-9.91	333.09
	NORMAL	6,887.0	1.80	236.22	6,593.55	924.79	1,370.04	1,652.90	1.53	0.33	-53.96	255.89
	NORMAL	6,981.0	1.85	247.39	6,687.50	923.39	1,367.42	1,649.94	0.38	0.05	11.88	87.61
	NORMAL	7,076.0	2.21	253.60	6,782.44	922.28	1,364.24	1,646.68	0.44	0.38	6.54	34.55

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
8/28/2014	NORMAL	7,170.0	1.73	263.53	6,876.39	921.61	1,361.09	1,643.69	0.62	-0.51	10.56	149.48
	NORMAL	7,249.0	1.76	264.97	6,955.35	921.37	1,358.70	1,641.56	0.07	0.04	1.82	56.34
	NORMAL	7,314.0	1.76	264.97	7,020.32	921.19	1,356.71	1,639.80	0.00	0.00	0.00	0.00