

Deviation Summary

PICEANCE VLY

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well/Wellbore Information

Well	GM 312-21	Wellbore No.	
Wellbore Legal Name	GM 312-21	Common Wellbore Name	GM 312-21
Project	GV 20-06S-096W	Site	GM 442-20 Pad
Vertical Section Azimuth	92.66 (°)	North reference	
Origin N/S		Origin E/W	
Spud date	9/13/2014	UWI	GM 312-21
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	9/13/2014	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)	DLS (°/100usft)	Buld Rate (°/100usft)	Turn (°/100usft)	Tface (°)
9/13/2014	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NORMAL	74.0	0.18	242.58	74.00	-0.05	-0.10	-0.10	0.24	0.24	0.00	242.58
	NORMAL	165.0	1.76	108.78	164.99	-0.57	1.09	1.12	2.08	1.74	-147.03	222.26
	NORMAL	256.0	4.05	92.90	255.86	-1.18	5.63	5.67	2.64	2.52	-17.45	332.59
	NORMAL	346.0	6.60	93.52	345.47	-1.66	13.96	14.03	2.83	2.83	0.69	1.60
	NORMAL	437.0	9.41	92.55	435.57	-2.31	26.62	26.70	3.09	3.09	-1.07	356.77
	NORMAL	527.0	12.05	92.72	523.99	-3.09	43.36	43.45	2.93	2.93	0.19	0.77
	NORMAL	618.0	15.57	92.81	612.35	-4.14	65.05	65.17	3.87	3.87	0.10	0.39
	NORMAL	689.0	18.36	91.32	680.25	-4.86	85.75	85.88	3.98	3.93	-2.10	350.43
	NORMAL	780.0	20.62	90.84	766.03	-5.43	116.10	116.23	2.49	2.48	-0.53	355.72
	NORMAL	870.0	22.86	91.73	849.62	-6.19	149.43	149.55	2.52	2.49	0.99	8.79
	NORMAL	961.0	24.18	93.22	933.06	-7.77	185.70	185.86	1.59	1.45	1.64	24.93
	NORMAL	1,040.0	24.88	94.68	1,004.93	-10.03	218.42	218.65	1.17	0.89	1.85	41.56
	NORMAL	1,116.0	25.99	93.87	1,073.57	-12.46	250.97	251.28	1.53	1.46	-1.07	342.23
	NORMAL	1,147.0	26.08	93.53	1,101.42	-13.34	264.55	264.88	0.56	0.29	-1.10	300.94
	NORMAL	1,241.0	27.00	93.37	1,185.51	-15.86	306.47	306.88	0.98	0.98	-0.17	355.48
	NORMAL	1,335.0	27.60	92.87	1,269.04	-18.21	349.52	349.99	0.68	0.64	-0.53	338.86
	NORMAL	1,430.0	27.71	92.08	1,353.19	-20.11	393.57	394.08	0.40	0.12	-0.83	286.35
	NORMAL	1,524.0	28.46	91.64	1,436.12	-21.55	437.80	438.33	0.83	0.80	-0.47	344.37
	NORMAL	1,618.0	27.48	92.98	1,519.14	-23.31	481.85	482.42	1.24	-1.04	1.43	147.92
	NORMAL	1,713.0	26.36	92.97	1,603.85	-25.55	524.80	525.42	1.18	-1.18	-0.01	180.23

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)	Buuld Rate ("/100usft)	Turn ("/100usft)	Tface (")
9/13/2014	NORMAL	1,806.0	26.32	92.97	1,687.19	-27.69	566.01	566.69	0.04	-0.04	0.00	180.00
	NORMAL	1,901.0	25.74	92.77	1,772.55	-29.77	607.65	608.38	0.62	-0.61	-0.21	188.52
	NORMAL	1,996.0	26.07	92.78	1,858.01	-31.78	649.11	649.88	0.35	0.35	0.01	0.76
	NORMAL	2,090.0	25.32	91.29	1,942.71	-33.24	689.83	690.63	1.05	-0.80	-1.59	220.07
	NORMAL	2,184.0	25.22	92.10	2,027.72	-34.42	729.94	730.75	0.38	-0.11	0.86	106.50
	NORMAL	2,278.0	25.76	91.20	2,112.57	-35.59	770.38	771.20	0.71	0.57	-0.96	323.94
	NORMAL	2,373.0	24.72	90.32	2,198.50	-36.13	810.88	811.68	1.16	-1.09	-0.93	199.44
	NORMAL	2,468.0	24.78	90.82	2,284.77	-36.52	850.65	851.43	0.23	0.06	0.53	74.23
	NORMAL	2,561.0	25.33	91.44	2,369.02	-37.30	890.03	890.80	0.66	0.59	0.67	25.80
	NORMAL	2,654.0	26.01	91.71	2,452.84	-38.41	930.30	931.08	0.74	0.73	0.29	9.88
	NORMAL	2,748.0	24.29	90.69	2,537.93	-39.26	970.23	971.01	1.89	-1.83	-1.09	193.68
	NORMAL	2,843.0	24.08	93.03	2,624.59	-40.52	1,009.13	1,009.92	1.03	-0.22	2.46	103.42
	NORMAL	2,937.0	23.65	93.76	2,710.55	-42.77	1,047.09	1,047.95	0.55	-0.46	0.78	145.85
	NORMAL	3,030.0	23.57	92.87	2,795.77	-44.92	1,084.27	1,085.19	0.39	-0.09	-0.96	256.94
	NORMAL	3,125.0	24.11	92.42	2,882.66	-46.69	1,122.63	1,123.59	0.60	0.57	-0.47	341.18
	NORMAL	3,220.0	24.08	95.02	2,969.39	-49.21	1,161.32	1,162.36	1.12	-0.03	2.74	92.81
	NORMAL	3,313.0	23.64	96.42	3,054.44	-52.95	1,198.75	1,199.92	0.77	-0.47	1.51	128.48
	NORMAL	3,406.0	22.89	95.37	3,139.88	-56.73	1,235.29	1,236.59	0.92	-0.81	-1.13	208.46
	NORMAL	3,500.0	22.76	94.38	3,226.52	-59.83	1,271.62	1,273.03	0.43	-0.14	-1.05	250.84
	NORMAL	3,595.0	21.30	94.96	3,314.58	-62.73	1,307.14	1,308.64	1.55	-1.54	0.61	171.79
	NORMAL	3,688.0	21.28	95.51	3,401.23	-65.81	1,340.76	1,342.37	0.22	-0.02	0.59	95.98
	NORMAL	3,781.0	19.48	96.04	3,488.41	-69.06	1,372.98	1,374.71	1.95	-1.94	0.57	174.39
	NORMAL	3,877.0	18.93	94.13	3,579.07	-71.87	1,404.43	1,406.26	0.87	-0.57	-1.99	227.90
	NORMAL	3,972.0	17.71	91.66	3,669.25	-73.39	1,434.25	1,436.11	1.52	-1.28	-2.60	211.30
	NORMAL	4,066.0	16.62	93.75	3,759.06	-74.69	1,461.95	1,463.85	1.33	-1.16	2.22	151.49
	NORMAL	4,160.0	15.97	92.72	3,849.29	-76.18	1,488.29	1,490.22	0.76	-0.69	-1.10	203.48
	NORMAL	4,254.0	15.56	90.98	3,939.75	-77.01	1,513.81	1,515.75	0.67	-0.44	-1.85	228.23
	NORMAL	4,347.0	14.53	91.84	4,029.56	-77.60	1,537.94	1,539.89	1.13	-1.11	0.92	168.19
	NORMAL	4,440.0	13.12	92.63	4,119.87	-78.46	1,560.15	1,562.11	1.53	-1.52	0.85	172.76
	NORMAL	4,533.0	11.14	89.01	4,210.79	-78.79	1,579.68	1,581.63	2.28	-2.13	-3.89	199.25
	NORMAL	4,627.0	11.33	88.67	4,302.99	-78.41	1,597.99	1,599.90	0.21	0.20	-0.36	340.61
	NORMAL	4,722.0	9.88	85.87	4,396.36	-77.61	1,615.45	1,617.31	1.62	-1.53	-2.95	198.19
	NORMAL	4,817.0	9.56	86.57	4,490.00	-76.55	1,631.45	1,633.24	0.36	-0.34	0.74	160.07
	NORMAL	4,911.0	7.68	82.57	4,582.93	-75.27	1,645.47	1,647.19	2.10	-2.00	-4.26	195.72
	NORMAL	5,005.0	7.34	86.05	4,676.13	-74.05	1,657.69	1,659.34	0.60	-0.36	3.70	128.50
	NORMAL	5,099.0	6.87	84.28	4,769.40	-73.07	1,669.27	1,670.87	0.55	-0.50	-1.88	204.10
	NORMAL	5,194.0	5.29	81.25	4,863.87	-71.84	1,679.26	1,680.78	1.70	-1.66	-3.19	189.98
	NORMAL	5,289.0	5.87	82.86	4,958.42	-70.57	1,688.41	1,689.86	0.63	0.61	1.69	15.91
	NORMAL	5,382.0	4.50	87.37	5,051.03	-69.81	1,696.77	1,698.18	1.54	-1.47	4.85	165.67
	NORMAL	5,477.0	4.23	87.12	5,145.76	-69.46	1,703.99	1,705.38	0.28	-0.28	-0.26	183.91
	NORMAL	5,571.0	4.22	73.80	5,239.51	-68.33	1,710.78	1,712.10	1.04	-0.01	-14.17	262.78
	NORMAL	5,665.0	4.87	73.95	5,333.21	-66.26	1,717.93	1,719.15	0.69	0.69	0.16	1.12
	NORMAL	5,758.0	4.53	71.37	5,425.90	-63.99	1,725.20	1,726.32	0.43	-0.37	-2.77	210.59
	NORMAL	5,852.0	4.09	78.22	5,519.63	-62.12	1,732.00	1,733.02	0.72	-0.47	7.29	133.90
	NORMAL	5,947.0	3.33	99.54	5,614.44	-61.89	1,738.04	1,739.04	1.64	-0.80	22.44	129.21
	NORMAL	6,041.0	1.79	123.29	5,708.34	-63.15	1,741.96	1,743.02	1.96	-1.64	25.27	156.92
	NORMAL	6,134.0	0.53	158.94	5,801.32	-64.35	1,743.33	1,744.44	1.50	-1.35	38.33	167.20
	NORMAL	6,228.0	0.64	224.97	5,895.32	-65.12	1,743.12	1,744.26	0.69	0.12	70.24	114.78
	NORMAL	6,322.0	1.25	216.70	5,989.30	-66.32	1,742.13	1,743.33	0.66	0.65	-8.80	343.24
	NORMAL	6,416.0	1.23	239.30	6,083.28	-67.65	1,740.65	1,741.92	0.52	-0.02	24.04	103.61
	NORMAL	6,510.0	1.43	220.57	6,177.26	-69.06	1,739.02	1,740.35	0.51	0.21	-19.93	285.15
	NORMAL	6,603.0	1.81	246.90	6,270.22	-70.52	1,736.92	1,738.32	0.89	0.41	28.31	76.53
	NORMAL	6,698.0	1.71	248.58	6,365.18	-71.62	1,734.22	1,735.67	0.12	-0.11	1.77	153.55
	NORMAL	6,792.0	2.20	251.25	6,459.12	-72.72	1,731.20	1,732.71	0.53	0.52	2.84	11.87
	NORMAL	6,886.0	2.05	245.02	6,553.06	-74.01	1,727.97	1,729.54	0.29	-0.16	-6.63	233.92
	NORMAL	6,981.0	3.19	241.59	6,647.96	-75.98	1,724.10	1,725.77	1.21	1.20	-3.61	350.45

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (')	Azl. (')	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (*/100usft)	Build Rate (*/100usft)	Turn (*/100usft)	Tface (')
9/13/2014	NORMAL	7,075.0	2.75	244.18	6,741.83	-78.21	1,719.77	1,721.55	0.49	-0.47	2.76	164.33
	NORMAL	7,169.0	2.76	260.55	6,835.72	-79.56	1,715.51	1,717.36	0.83	0.01	17.41	97.45
	NORMAL	7,264.0	3.06	245.96	6,930.60	-80.97	1,710.94	1,712.85	0.84	0.32	-15.36	284.66
	NORMAL	7,295.0	2.99	248.26	6,961.56	-81.61	1,709.43	1,711.38	0.45	-0.23	7.42	121.12
	NORMAL	7,360.0	2.99	248.26	7,026.47	-82.86	1,706.28	1,708.29	0.00	0.00	0.00	0.00