

Deviation Summary

PICEANCE VLY

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well/Wellbore Information

Well	GM 411-13	Wellbore No.	OH
Wellbore Legal Name	GM 411-13	Common Wellbore Name	GM 411-13
Project	GV 12-07S-096W	Site	GM 24-12 Pad
Vertical Section Azimuth	187.74 (°)	North reference	
Origin N/S		Origin E/W	
Spud date	6/13/2014	UWI	GM 411-13
Active datum	KB @5,165.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	MOSTAR
Date Started	6/13/2014	Ended	6/18/2014
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)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
6/13/2014	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6/13/2014	NORMAL	132.0	1.76	180.70	131.98	-2.03	-0.02	2.01	1.33	1.33	0.00	180.70
	NORMAL	163.0	2.38	182.81	162.96	-3.15	-0.06	3.13	2.01	2.00	6.81	8.06
	NORMAL	193.0	2.64	187.82	192.93	-4.45	-0.19	4.44	1.13	0.87	16.70	42.68
	NORMAL	223.0	2.73	190.99	222.90	-5.84	-0.42	5.84	0.58	0.30	10.57	60.37
	NORMAL	253.0	3.34	186.77	252.85	-7.41	-0.66	7.43	2.16	2.03	-14.07	337.77
	NORMAL	284.0	4.49	188.17	283.78	-9.51	-0.94	9.54	3.72	3.71	4.52	5.45
	NORMAL	314.0	4.57	188.00	313.69	-11.85	-1.27	11.91	0.27	0.27	-0.57	350.39
	NORMAL	345.0	5.28	187.61	344.57	-14.49	-1.63	14.58	2.29	2.29	-1.26	357.11
	NORMAL	375.0	5.72	188.61	374.44	-17.33	-2.04	17.45	1.50	1.47	3.33	12.79
	NORMAL	405.0	6.69	191.07	404.26	-20.53	-2.59	20.69	3.35	3.23	8.20	16.55
	NORMAL	435.0	7.39	190.11	434.03	-24.14	-3.27	24.36	2.37	2.33	-3.20	349.98
	NORMAL	466.0	8.36	193.54	464.74	-28.30	-4.15	28.60	3.48	3.13	11.06	27.56
	NORMAL	496.0	8.89	193.18	494.40	-32.67	-5.19	33.07	1.78	1.77	-1.20	354.01
	NORMAL	526.0	9.77	193.01	524.00	-37.41	-6.29	37.92	2.93	2.93	-0.57	358.12
	NORMAL	557.0	10.91	191.16	554.50	-42.85	-7.45	43.46	3.83	3.68	-5.97	342.85
	NORMAL	587.0	11.61	192.57	583.92	-48.58	-8.65	49.31	2.51	2.33	4.70	22.16
	NORMAL	617.0	12.49	190.72	613.26	-54.72	-9.91	55.55	3.20	2.93	-6.17	335.40
	NORMAL	648.0	13.11	192.13	643.49	-61.45	-11.28	62.41	2.24	2.00	4.55	27.43
	NORMAL	678.0	13.99	189.58	672.66	-68.35	-12.60	69.42	3.54	2.93	-8.50	324.58
	NORMAL	709.0	15.04	189.40	702.67	-76.01	-13.88	77.19	3.39	3.39	-0.58	357.45

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 (")
6/14/2014	NORMAL	780.0	17.16	187.48	770.88	-95.49	-16.74	96.87	3.08	2.99	-2.70	344.98
	NORMAL	870.0	20.30	185.66	856.10	-124.20	-20.01	125.76	3.55	3.49	-2.02	348.59
	NORMAL	961.0	23.46	186.06	940.54	-157.93	-23.46	159.65	3.48	3.47	0.44	2.89
	NORMAL	1,056.0	26.05	185.86	1,026.80	-197.49	-27.61	199.41	2.73	2.73	-0.21	358.06
	NORMAL	1,244.0	28.15	188.68	1,193.73	-283.40	-37.10	285.81	1.76	0.52	3.59	74.23
6/14/2014	NORMAL	1,150.0	27.66	185.31	1,110.66	-239.75	-31.74	241.84	1.73	1.71	-0.59	350.98
6/15/2014	NORMAL	1,355.0	29.23	189.73	1,291.11	-335.99	-45.63	339.08	1.07	0.97	0.95	25.48
	NORMAL	1,450.0	28.92	185.33	1,374.14	-381.73	-51.69	385.22	2.27	-0.33	-4.63	259.83
	NORMAL	1,544.0	29.27	184.63	1,456.28	-427.27	-55.66	430.87	0.52	0.37	-0.74	315.49
	NORMAL	1,638.0	26.68	184.45	1,539.29	-471.22	-59.15	474.89	2.76	-2.76	-0.19	181.79
	NORMAL	1,733.0	26.59	183.05	1,624.21	-513.71	-61.93	517.37	0.67	-0.09	-1.47	261.21
	NORMAL	1,827.0	24.84	185.24	1,708.90	-554.39	-64.86	558.07	2.12	-1.86	2.33	152.48
	NORMAL	1,921.0	25.89	186.47	1,793.84	-594.44	-68.97	598.31	1.25	1.12	1.31	27.21
	NORMAL	2,016.0	25.71	185.86	1,879.37	-635.55	-73.41	639.65	0.34	-0.19	-0.64	235.59
	NORMAL	2,110.0	25.67	189.11	1,964.08	-675.94	-78.72	680.38	1.50	-0.04	3.46	93.09
	NORMAL	2,204.0	26.11	188.32	2,048.65	-716.51	-84.94	721.42	0.59	0.47	-0.84	321.55
	NORMAL	2,298.0	24.97	188.67	2,133.46	-756.59	-90.92	761.94	1.22	-1.21	0.37	172.62
	NORMAL	2,392.0	23.52	187.88	2,219.17	-794.78	-96.48	800.54	1.58	-1.54	-0.84	192.25
	NORMAL	2,486.0	22.20	186.91	2,305.78	-830.99	-101.19	837.05	1.46	-1.40	-1.03	195.49
	NORMAL	2,581.0	20.61	187.44	2,394.23	-865.39	-105.52	871.72	1.69	-1.67	0.56	173.31
	NORMAL	2,675.0	19.25	188.06	2,482.60	-897.14	-109.83	903.76	1.46	-1.45	0.66	171.46
	NORMAL	2,769.0	18.86	188.23	2,571.44	-927.52	-114.18	934.45	0.42	-0.41	0.18	171.98
	NORMAL	2,864.0	17.85	188.94	2,661.61	-957.10	-118.64	964.36	1.09	-1.06	0.75	167.85
	NORMAL	2,958.0	16.26	186.83	2,751.47	-984.40	-122.44	991.92	1.81	-1.69	-2.24	200.26
	NORMAL	3,052.0	14.81	185.60	2,842.04	-1,009.43	-125.18	1,017.09	1.58	-1.54	-1.31	192.21
	NORMAL	3,146.0	13.49	186.65	2,933.18	-1,032.27	-127.62	1,040.06	1.43	-1.40	1.12	169.50
	NORMAL	3,240.0	12.40	185.16	3,024.79	-1,053.22	-129.80	1,061.10	1.21	-1.16	-1.59	196.30
	NORMAL	3,334.0	10.86	184.80	3,116.86	-1,072.09	-131.45	1,080.03	1.64	-1.64	-0.38	182.52
	NORMAL	3,429.0	9.32	186.91	3,210.39	-1,088.65	-133.12	1,096.66	1.67	-1.62	2.22	167.54
	NORMAL	3,523.0	7.65	190.34	3,303.36	-1,102.36	-135.16	1,110.52	1.86	-1.78	3.65	164.83
6/16/2014	NORMAL	3,617.0	7.21	189.90	3,396.57	-1,114.33	-137.30	1,122.67	0.47	-0.47	-0.47	187.15
	NORMAL	3,711.0	5.89	185.77	3,489.95	-1,124.94	-138.80	1,133.38	1.49	-1.40	-4.39	197.60
	NORMAL	3,806.0	3.74	180.76	3,584.61	-1,132.89	-139.33	1,141.33	2.30	-2.26	-5.27	188.58
	NORMAL	3,900.0	1.98	175.93	3,678.49	-1,137.57	-139.26	1,145.96	1.89	-1.87	-5.14	185.39
	NORMAL	3,994.0	2.11	176.37	3,772.43	-1,140.92	-139.03	1,149.25	0.14	0.14	0.47	7.11
	NORMAL	4,089.0	1.93	182.61	3,867.37	-1,144.26	-138.99	1,152.56	0.30	-0.19	6.57	132.39
	NORMAL	4,183.0	2.29	186.04	3,961.31	-1,147.71	-139.26	1,156.01	0.41	0.38	3.65	21.05
	NORMAL	4,277.0	2.59	199.22	4,055.22	-1,151.58	-140.16	1,159.97	0.67	0.32	14.02	68.56
	NORMAL	4,371.0	0.75	202.65	4,149.18	-1,154.16	-141.10	1,162.65	1.96	-1.96	3.65	178.60
	NORMAL	4,464.0	0.53	215.83	4,242.18	-1,155.07	-141.58	1,163.61	0.28	-0.24	14.17	152.68
	NORMAL	4,559.0	0.79	202.88	4,337.17	-1,156.03	-142.09	1,164.63	0.31	0.27	-13.63	323.58
	NORMAL	4,653.0	1.27	225.06	4,431.15	-1,157.36	-143.08	1,166.09	0.65	0.51	23.60	51.16
	NORMAL	4,747.0	0.22	278.50	4,525.15	-1,158.07	-144.00	1,166.91	1.23	-1.12	56.85	171.18
	NORMAL	4,841.0	0.44	306.97	4,619.14	-1,157.83	-144.47	1,166.73	0.29	0.23	30.29	51.51
	NORMAL	4,935.0	0.75	259.95	4,713.14	-1,157.72	-145.36	1,166.75	0.59	0.33	-50.02	277.41
	NORMAL	5,029.0	1.32	249.23	4,807.12	-1,158.21	-146.98	1,167.45	0.64	0.61	-11.40	335.83
	NORMAL	5,123.0	1.93	247.65	4,901.08	-1,159.19	-149.45	1,168.76	0.65	0.65	-1.68	355.01
	NORMAL	5,218.0	2.37	242.72	4,996.02	-1,160.70	-152.68	1,170.69	0.50	0.46	-5.19	334.72
	NORMAL	5,312.0	1.36	234.46	5,089.97	-1,162.24	-155.31	1,172.57	1.11	-1.07	-8.79	190.80
6/17/2014	NORMAL	5,406.0	0.75	152.29	5,183.95	-1,163.44	-155.94	1,173.84	1.55	-0.65	-87.42	210.57
	NORMAL	5,500.0	1.23	154.57	5,277.94	-1,164.89	-155.22	1,175.18	0.51	0.51	2.43	5.83
	NORMAL	5,594.0	1.50	193.59	5,371.92	-1,167.00	-155.07	1,177.25	1.01	0.29	41.51	93.91
	NORMAL	5,688.0	1.93	214.07	5,465.87	-1,169.51	-156.25	1,179.89	0.79	0.46	21.79	65.47
	NORMAL	5,783.0	2.29	226.20	5,560.81	-1,172.14	-158.52	1,182.81	0.60	0.38	12.77	57.29
	NORMAL	5,877.0	2.46	222.77	5,654.73	-1,174.92	-161.24	1,185.94	0.24	0.18	-3.65	318.38
	NORMAL	5,971.0	2.68	225.32	5,748.63	-1,177.95	-164.17	1,189.33	0.26	0.23	2.71	28.74

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (')	Azl. (')	TVD (ft)	N/S (ft)	EW (ft)	V. sec. (ft)	DLS (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (')
6/17/2014	NORMAL	6,066.0	1.93	212.93	5,843.56	-1,180.86	-166.62	1,192.54	0.94	-0.79	-13.04	207.51
	NORMAL	6,115.0	1.89	219.17	5,892.53	-1,182.17	-167.58	1,193.97	0.43	-0.08	12.73	103.99
	NORMAL	6,170.0	1.89	219.17	5,947.50	-1,183.58	-168.73	1,195.52	0.00	0.00	0.00	0.00