

Deviation Summary

PICEANCE VLY

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well/Wellbore Information

Well	PA 43-21	Wellbore No.	00
Wellbore Legal Name	PA 43-21	Common Wellbore Name	PA 43-21
Project	PA 21-06S-095W	Site	PA 22-21 Pad
Vertical Section Azimuth	94.79 (°)	North reference	True
Origin N/S		Origin E/W	
Spud date	1/14/2014	UWI	PA 43-21
Active datum	KB @6,056.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	MOSTAR
Date Started	1/14/2014	Ended	1/25/2014
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 (°)
1/14/2014	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1/14/2014	NORMAL	103.0	0.26	193.62	103.00	-0.23	-0.06	-0.04	0.25	0.25	0.00	193.62
	NORMAL	132.0	1.32	161.89	132.00	-0.61	0.03	0.08	3.82	3.66	-109.41	321.18
	NORMAL	163.0	2.55	149.77	162.98	-1.54	0.49	0.62	4.16	3.97	-39.10	335.48
	NORMAL	193.0	3.17	135.09	192.94	-2.71	1.41	1.63	3.18	2.07	-48.93	302.76
	NORMAL	223.0	3.52	133.95	222.89	-3.93	2.66	2.98	1.19	1.17	-3.80	348.67
	NORMAL	254.0	3.61	117.07	253.83	-5.04	4.22	4.62	3.39	0.29	-54.45	266.44
	NORMAL	284.0	3.87	119.09	283.77	-5.96	5.94	6.42	0.97	0.87	6.73	27.89
	NORMAL	314.0	3.78	124.72	313.70	-7.02	7.64	8.20	1.29	-0.30	18.77	106.27
	NORMAL	344.0	4.31	130.52	343.63	-8.31	9.31	9.97	2.23	1.77	19.33	40.58
	NORMAL	375.0	5.54	128.67	374.51	-10.00	11.36	12.16	4.00	3.97	-5.97	351.72
	NORMAL	405.0	6.77	135.62	404.34	-12.17	13.73	14.70	4.79	4.10	23.17	34.70
	NORMAL	436.0	7.74	138.43	435.09	-15.04	16.39	17.59	3.33	3.13	9.06	21.49
	NORMAL	466.0	8.09	137.81	464.80	-18.12	19.15	20.60	1.20	1.17	-2.07	345.98
	NORMAL	496.0	8.80	135.35	494.48	-21.31	22.18	23.88	2.65	2.37	-8.20	331.81
	NORMAL	527.0	9.77	131.66	525.07	-24.75	25.81	27.79	3.67	3.13	-11.90	326.63
1/15/2014	NORMAL	597.0	11.78	122.88	593.84	-32.58	36.25	38.85	3.70	2.87	-12.54	316.39
	NORMAL	688.0	13.36	114.36	682.66	-41.96	53.63	56.95	2.67	1.74	-9.36	306.22
	NORMAL	778.0	15.65	107.24	769.79	-49.85	74.71	78.61	3.22	2.54	-7.91	318.61
	NORMAL	870.0	17.14	102.40	858.06	-56.44	99.80	104.16	2.20	1.62	-5.26	315.14
	NORMAL	960.0	19.12	102.93	943.58	-62.58	127.12	131.90	2.21	2.20	0.59	5.01

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 (°)
1/15/2014	NORMAL	1,055.0	21.45	103.46	1,032.69	-70.11	159.18	164.48	2.46	2.45	0.56	4.76
	NORMAL	1,151.0	24.04	101.70	1,121.21	-78.16	195.41	201.25	2.79	2.70	-1.83	344.47
	NORMAL	1,246.0	24.88	100.56	1,207.69	-85.75	234.00	240.35	1.01	0.88	-1.20	330.15
	NORMAL	1,341.0	26.99	96.69	1,293.12	-91.92	275.07	281.78	2.85	2.22	-4.07	319.51
	NORMAL	1,436.0	30.24	95.99	1,376.51	-96.93	320.28	327.26	3.44	3.42	-0.74	353.80
	NORMAL	1,532.0	33.54	96.34	1,458.01	-102.38	370.70	377.95	3.44	3.44	0.36	3.36
	NORMAL	1,626.0	35.96	95.64	1,535.23	-107.96	423.98	431.51	2.61	2.57	-0.74	350.35
	NORMAL	1,721.0	37.67	94.41	1,611.29	-112.94	480.68	488.44	1.96	1.80	-1.29	336.19
	NORMAL	1,817.0	38.64	92.21	1,686.78	-116.35	539.88	547.71	1.74	1.01	-2.29	304.65
1/17/2014	NORMAL	1,930.0	39.78	91.94	1,774.33	-118.93	611.27	619.07	1.02	1.01	-0.24	351.38
	NORMAL	2,026.0	39.60	91.06	1,848.21	-120.54	672.56	680.27	0.61	-0.19	-0.92	251.90
	NORMAL	2,121.0	38.51	89.92	1,921.98	-121.06	732.41	739.96	1.37	-1.15	-1.20	212.94
	NORMAL	2,216.0	38.24	90.27	1,996.46	-121.16	791.38	798.74	0.36	-0.28	0.37	141.31
	NORMAL	2,311.0	37.76	91.42	2,071.32	-122.01	849.86	857.08	0.90	-0.51	1.21	124.59
	NORMAL	2,407.0	37.85	93.17	2,147.17	-124.37	908.66	915.87	1.12	0.09	1.82	85.90
	NORMAL	2,502.0	38.24	90.89	2,221.99	-126.44	967.16	974.34	1.53	0.41	-2.40	284.61
	NORMAL	2,597.0	37.63	93.97	2,296.92	-128.91	1,025.49	1,032.68	2.09	-0.64	3.24	109.07
	NORMAL	2,693.0	36.97	95.46	2,373.29	-133.68	1,083.47	1,090.85	1.16	-0.69	1.55	126.76
	NORMAL	2,788.0	36.97	95.37	2,449.19	-139.07	1,140.35	1,147.98	0.06	0.00	-0.09	269.96
	NORMAL	2,883.0	36.79	94.14	2,525.18	-143.80	1,197.16	1,204.99	0.80	-0.19	-1.29	255.80
	NORMAL	2,979.0	36.97	93.70	2,601.97	-147.74	1,254.64	1,262.59	0.33	0.19	-0.46	304.10
	NORMAL	3,074.0	36.22	92.91	2,678.24	-151.01	1,311.18	1,319.21	0.93	-0.79	-0.83	211.81
	NORMAL	3,169.0	36.66	92.38	2,754.67	-153.61	1,367.54	1,375.60	0.57	0.46	-0.56	324.20
	NORMAL	3,264.0	37.27	91.06	2,830.57	-155.32	1,424.64	1,432.64	1.05	0.64	-1.39	307.01
	NORMAL	3,360.0	38.29	91.06	2,906.45	-156.41	1,483.44	1,491.32	1.06	1.06	0.00	0.00
	NORMAL	3,455.0	38.20	91.68	2,981.06	-157.81	1,542.23	1,550.03	0.41	-0.09	0.65	103.44
	NORMAL	3,550.0	37.67	90.89	3,055.99	-159.13	1,600.62	1,608.32	0.76	-0.56	-0.83	222.19
	NORMAL	3,645.0	36.88	91.50	3,131.58	-160.32	1,658.14	1,665.74	0.92	-0.83	0.64	155.18
	NORMAL	3,740.0	36.92	92.91	3,207.55	-162.52	1,715.14	1,722.72	0.89	0.04	1.48	87.86
	NORMAL	3,836.0	36.62	94.76	3,284.45	-166.36	1,772.47	1,780.17	1.20	-0.31	1.93	105.90
1/18/2014	NORMAL	3,931.0	35.69	95.02	3,361.16	-171.13	1,828.31	1,836.22	0.99	-0.98	0.27	170.74
	NORMAL	4,027.0	37.36	94.49	3,438.30	-175.86	1,885.25	1,893.35	1.77	1.74	-0.55	349.09
	NORMAL	4,122.0	37.98	94.14	3,513.50	-180.23	1,943.14	1,951.40	0.69	0.65	-0.37	340.83
	NORMAL	4,217.0	39.65	93.53	3,587.52	-184.21	2,002.55	2,010.94	1.80	1.76	-0.64	346.87
	NORMAL	4,312.0	38.86	93.79	3,661.08	-188.04	2,062.54	2,071.04	0.85	-0.83	0.27	168.34
	NORMAL	4,408.0	38.02	93.17	3,736.27	-191.67	2,122.11	2,130.71	0.96	-0.88	-0.65	204.41
	NORMAL	4,503.0	39.74	92.82	3,810.22	-194.78	2,181.66	2,190.31	1.83	1.81	-0.37	352.58
	NORMAL	4,598.0	40.04	92.65	3,883.11	-197.69	2,242.52	2,251.19	0.34	0.32	-0.18	339.66
	NORMAL	4,694.0	39.74	92.91	3,956.77	-200.67	2,304.01	2,312.72	0.36	-0.31	0.27	151.03
	NORMAL	4,789.0	39.21	93.09	4,030.10	-203.83	2,364.32	2,373.09	0.57	-0.56	0.19	167.89
	NORMAL	4,883.0	38.81	92.73	4,103.14	-206.84	2,423.41	2,432.22	0.49	-0.43	-0.38	209.39
	NORMAL	4,979.0	38.20	93.17	4,178.27	-209.91	2,483.10	2,491.96	0.70	-0.64	0.46	155.99
	NORMAL	5,074.0	37.93	93.35	4,253.06	-213.24	2,541.58	2,550.51	0.31	-0.28	0.19	157.73
	NORMAL	5,169.0	37.71	93.00	4,328.11	-216.47	2,599.74	2,608.74	0.32	-0.23	-0.37	224.15
1/19/2014	NORMAL	5,169.0	37.71	93.00	4,328.11	-216.47	2,599.74	2,608.74	0.00	0.00	0.00	0.00
	NORMAL	5,265.0	37.27	93.09	4,404.28	-219.57	2,658.09	2,667.14	0.46	-0.46	0.09	172.94
	NORMAL	5,360.0	35.60	94.23	4,480.71	-223.16	2,714.39	2,723.55	1.90	-1.76	1.20	158.39
	NORMAL	5,456.0	35.25	94.05	4,558.94	-227.18	2,769.89	2,779.19	0.38	-0.36	-0.19	196.53
	NORMAL	5,552.0	33.49	95.11	4,638.17	-231.50	2,823.91	2,833.38	1.94	-1.83	1.10	161.66
	NORMAL	5,647.0	33.54	95.28	4,717.38	-236.25	2,876.15	2,885.83	0.11	0.05	0.18	62.03
	NORMAL	5,743.0	31.87	94.14	4,798.16	-240.52	2,927.84	2,937.70	1.85	-1.74	-1.19	199.77
	NORMAL	5,837.0	29.19	95.20	4,879.12	-244.39	2,975.43	2,985.44	2.91	-2.85	1.13	169.09
	NORMAL	5,933.0	28.22	94.76	4,963.32	-248.39	3,021.36	3,031.55	1.03	-1.01	-0.46	192.10
	NORMAL	6,028.0	24.97	95.64	5,048.26	-252.23	3,063.71	3,074.07	3.45	-3.42	0.93	173.48
	NORMAL	6,123.0	23.82	95.20	5,134.77	-255.94	3,102.77	3,113.31	1.23	-1.21	-0.46	188.78
	NORMAL	6,219.0	23.21	96.34	5,222.80	-259.78	3,140.88	3,151.60	0.79	-0.64	1.19	143.81

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 (°)
1/19/2014	NORMAL	6,315.0	22.99	92.47	5,311.11	-262.68	3,178.41	3,189.25	1.60	-0.23	-4.03	259.98
1/20/2014	NORMAL	6,410.0	22.02	92.82	5,398.87	-264.36	3,214.74	3,225.58	1.03	-1.02	0.37	172.30
	NORMAL	6,505.0	21.14	93.53	5,487.21	-266.29	3,249.62	3,260.51	0.97	-0.93	0.75	163.80
	NORMAL	6,601.0	20.04	94.14	5,577.08	-268.54	3,283.31	3,294.26	1.17	-1.15	0.64	169.25
	NORMAL	6,697.0	18.68	95.11	5,667.65	-271.10	3,315.03	3,326.09	1.46	-1.42	1.01	167.15
	NORMAL	6,792.0	17.27	91.68	5,758.01	-272.87	3,344.28	3,355.38	1.86	-1.48	-3.61	215.27
	NORMAL	6,888.0	15.96	93.53	5,850.00	-274.10	3,371.70	3,382.81	1.47	-1.36	1.93	158.90
	NORMAL	6,984.0	14.20	92.03	5,942.70	-275.33	3,396.64	3,407.77	1.88	-1.83	-1.56	191.78
	NORMAL	7,079.0	12.92	92.30	6,035.05	-276.17	3,418.90	3,430.02	1.35	-1.35	0.28	177.30
1/21/2014	NORMAL	7,173.0	11.03	90.10	6,127.00	-276.60	3,438.39	3,449.48	2.07	-2.01	-2.34	192.50
	NORMAL	7,268.0	10.29	91.33	6,220.36	-276.82	3,455.96	3,467.01	0.81	-0.78	1.29	163.51
	NORMAL	7,364.0	8.79	86.85	6,315.03	-276.61	3,471.86	3,482.83	1.74	-1.56	-4.67	204.14
	NORMAL	7,460.0	7.82	91.50	6,410.02	-276.38	3,485.71	3,496.62	1.23	-1.01	4.84	147.59
	NORMAL	7,555.0	6.77	89.57	6,504.25	-276.51	3,497.77	3,508.65	1.13	-1.11	-2.03	192.18
	NORMAL	7,651.0	6.24	95.51	6,599.63	-276.97	3,508.62	3,519.50	0.89	-0.55	6.19	131.15
	NORMAL	7,747.0			6,695.44	-277.47	3,513.82	3,524.72	6.50	-6.50	0.00	180.00
1/22/2014	NORMAL	7,841.0	3.82	92.12	6,789.37	-277.58	3,516.95	3,527.85	4.06	4.06	0.00	92.12
	NORMAL	7,937.0	3.03	85.79	6,885.20	-277.52	3,522.68	3,533.55	0.91	-0.82	-6.59	202.44
1/23/2014	NORMAL	8,032.0	2.68	88.78	6,980.08	-277.28	3,527.40	3,538.24	0.40	-0.37	3.15	158.44
	NORMAL	8,128.0	2.37	92.82	7,075.99	-277.33	3,531.63	3,542.45	0.37	-0.32	4.21	152.15
	NORMAL	8,224.0	1.76	92.21	7,171.93	-277.49	3,535.08	3,545.91	0.64	-0.64	-0.64	181.76
	NORMAL	8,320.0	1.67	89.66	7,267.88	-277.54	3,537.96	3,548.78	0.12	-0.09	-2.66	219.03
	NORMAL	8,415.0	1.71	72.26	7,362.84	-277.10	3,540.69	3,551.46	0.54	0.04	-18.32	265.73
	NORMAL	8,511.0	1.80	74.89	7,458.80	-276.27	3,543.51	3,554.20	0.13	0.09	2.74	43.15
	NORMAL	8,606.0	1.76	79.73	7,553.75	-275.62	3,546.39	3,557.02	0.16	-0.04	5.09	107.31
	NORMAL	8,702.0	1.23	91.33	7,649.72	-275.38	3,548.87	3,559.47	0.63	-0.55	12.08	155.99
1/24/2014	NORMAL	8,797.0	0.88	67.51	7,744.70	-275.12	3,550.56	3,561.13	0.58	-0.37	-25.07	219.91
	NORMAL	8,893.0	0.35	72.34	7,840.70	-274.75	3,551.52	3,562.06	0.55	-0.55	5.03	176.82
	NORMAL	8,988.0	0.40	177.37	7,935.70	-275.00	3,551.81	3,562.37	0.63	0.05	110.56	139.59
	NORMAL	9,084.0	0.61	195.57	8,031.69	-275.82	3,551.69	3,562.32	0.27	0.22	18.96	46.71
	NORMAL	9,180.0	1.23	206.99	8,127.68	-277.23	3,551.09	3,561.83	0.67	0.65	11.90	22.24
	NORMAL	9,275.0	1.76	207.96	8,222.65	-279.43	3,549.94	3,560.88	0.56	0.56	1.02	3.22
	NORMAL	9,370.0	2.29	212.27	8,317.59	-282.32	3,548.24	3,559.43	0.58	0.56	4.54	18.19
	NORMAL	9,466.0	2.50	210.25	8,413.51	-285.75	3,546.16	3,557.64	0.24	0.22	-2.10	337.09
	NORMAL	9,562.0	3.03	212.88	8,509.39	-289.69	3,543.73	3,555.55	0.57	0.55	2.74	14.78
	NORMAL	9,657.0	3.38	214.46	8,604.24	-294.11	3,540.78	3,552.98	0.38	0.37	1.66	14.95
	NORMAL	9,753.0	3.60	216.49	8,700.07	-298.87	3,537.39	3,549.99	0.26	0.23	2.11	30.34
	NORMAL	9,830.0	3.60	216.49	8,776.91	-302.76	3,534.52	3,547.45	0.00	0.00	0.00	0.00