

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	PA 412-29	Wellbore No.	OH
Well Name	PA 412-29	Common Name	PA 412-29
Project	PA 29-06S-095W	Site	DOE 3-W-29 Pad
Vertical Section Azimuth	327.93 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	5/14/2012	UWI	PA 412-29
Active Datum	KB @5,702.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	MOSTAR
Date Started	5/14/2012	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 (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
5/14/2012	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5/14/2012	NORMAL	78.0	0.79	130.08	78.00	-0.35	0.41	-0.51	1.01	1.01	0.00	130.08
	NORMAL	164.0	0.97	334.16	163.99	-0.07	0.55	-0.35	2.00	0.21	-181.30	193.29
	NORMAL	255.0	3.61	325.28	254.91	2.98	-1.42	3.28	2.92	2.90	-9.76	347.89
	NORMAL	344.0	7.57	322.29	343.47	9.92	-6.60	11.91	4.46	4.45	-3.36	354.30
	NORMAL	435.0	11.61	330.56	433.19	22.64	-14.77	27.03	4.68	4.44	9.09	22.94
	NORMAL	526.0	16.89	328.18	521.36	41.86	-26.25	49.41	5.84	5.80	-2.62	352.51
	NORMAL	617.0	20.94	328.62	607.42	66.99	-41.70	78.91	4.45	4.45	0.48	2.23
	NORMAL	708.0	25.16	327.13	691.14	97.13	-60.67	114.52	4.68	4.64	-1.64	351.44
	NORMAL	783.0	26.73	327.36	758.58	124.73	-78.42	147.33	2.10	2.09	0.31	3.77
	NORMAL	875.0	30.16	327.71	839.46	161.70	-101.94	191.15	3.73	3.73	0.38	2.94
5/15/2012	NORMAL	966.0	34.29	328.94	916.43	203.00	-127.38	239.66	4.60	4.54	1.35	9.55
	NORMAL	1,061.0	37.72	328.94	993.27	250.83	-156.19	295.49	3.61	3.61	0.00	0.00
	NORMAL	1,157.0	42.12	328.41	1,066.88	303.44	-186.22	357.07	4.60	4.58	-0.55	355.38
	NORMAL	1,252.0	45.46	327.71	1,135.45	359.21	-223.01	422.80	3.55	3.52	-0.74	351.49
	NORMAL	1,345.0	47.22	328.06	1,199.65	416.20	-258.77	490.08	1.91	1.89	0.38	8.31
	NORMAL	1,442.0	49.59	328.77	1,264.04	477.99	-296.76	562.61	2.50	2.44	0.73	12.86
	NORMAL	1,538.0	48.63	328.94	1,326.88	540.10	-334.29	635.18	1.01	-1.00	0.18	172.43
	NORMAL	1,634.0	47.57	327.36	1,390.99	600.80	-371.99	706.62	1.65	-1.10	-1.65	227.44
	NORMAL	1,730.0	48.28	328.24	1,455.32	661.10	-409.96	777.88	1.00	0.74	0.92	42.91
	NORMAL	1,826.0	47.92	327.18	1,519.44	721.50	-448.13	849.33	0.90	-0.38	-1.10	245.12

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (%/100ft)	Build Rate (%/100ft)	Turn (%/100ft)	TFace (°)
5/15/2012	NORMAL	1,920.0	48.80	327.89	1,581.89	780.77	-485.83	919.58	1.09	0.94	0.76	31.32
	NORMAL	2,013.0	46.52	327.36	1,644.53	838.83	-522.63	988.31	2.49	-2.45	-0.57	189.57
	NORMAL	2,109.0	47.48	328.41	1,710.00	898.29	-559.95	1,058.52	1.28	1.00	1.09	39.02
	NORMAL	2,202.0	47.13	328.06	1,773.06	956.41	-595.93	1,126.87	0.47	-0.38	-0.38	216.20
	NORMAL	2,298.0	47.66	329.47	1,838.05	1,016.82	-632.57	1,197.52	1.21	0.55	1.47	63.43
	NORMAL	2,394.0	47.48	327.01	1,902.83	1,077.06	-669.86	1,268.37	1.90	-0.19	-2.56	263.51
	NORMAL	2,489.0	47.75	325.95	1,966.87	1,135.56	-708.61	1,338.51	0.87	0.28	-1.12	288.67
	NORMAL	2,585.0	48.19	326.48	2,031.14	1,194.83	-748.26	1,409.79	0.62	0.46	0.55	42.00
5/16/2012	NORMAL	2,680.0	48.54	327.71	2,094.26	1,254.44	-786.83	1,480.78	1.04	0.37	1.29	69.57
	NORMAL	2,776.0	47.75	328.06	2,158.32	1,315.00	-824.84	1,552.28	0.87	-0.82	0.36	161.85
	NORMAL	2,815.0	47.57	327.89	2,184.58	1,339.44	-840.13	1,581.11	0.56	-0.46	-0.44	214.86
5/17/2012	NORMAL	2,863.0	47.03	328.33	2,217.14	1,369.39	-858.76	1,616.39	1.32	-1.14	0.92	149.47
	NORMAL	2,958.0	46.89	327.62	2,281.98	1,428.25	-895.58	1,685.82	0.56	-0.14	-0.75	255.17
	NORMAL	3,054.0	47.59	326.74	2,347.16	1,487.48	-933.79	1,756.29	0.99	0.73	-0.92	316.99
	NORMAL	3,149.0	48.12	327.18	2,410.90	1,546.53	-972.19	1,826.72	0.66	0.56	0.46	31.76
	NORMAL	3,245.0	48.95	327.45	2,474.47	1,607.08	-1,011.04	1,898.65	0.89	0.86	0.28	13.79
	NORMAL	3,340.0	48.69	327.89	2,537.02	1,667.49	-1,049.27	1,970.15	0.44	-0.27	0.46	128.28
	NORMAL	3,436.0	48.38	329.64	2,600.59	1,729.00	-1,086.58	2,042.08	1.40	-0.32	1.82	103.88
	NORMAL	3,531.0	48.34	329.03	2,663.71	1,790.07	-1,122.79	2,113.05	0.48	-0.04	-0.64	264.78
	NORMAL	3,627.0	48.38	327.80	2,727.50	1,851.18	-1,160.36	2,184.79	0.96	0.04	-1.28	272.08
	NORMAL	3,722.0	48.52	327.10	2,790.51	1,911.11	-1,198.61	2,255.88	0.57	0.15	-0.74	284.73
5/18/2012	NORMAL	3,817.0	48.03	326.92	2,853.74	1,970.58	-1,237.22	2,326.78	0.53	-0.52	-0.19	195.27
	NORMAL	3,913.0	48.47	326.50	2,917.66	2,030.45	-1,276.53	2,398.38	0.56	0.46	-0.44	324.40
	NORMAL	4,008.0	47.24	326.13	2,981.41	2,089.06	-1,315.60	2,468.79	1.33	-1.29	-0.39	192.45
	NORMAL	4,103.0	46.32	326.92	3,046.47	2,146.80	-1,353.78	2,538.00	1.14	-0.97	0.83	148.23
	NORMAL	4,199.0	45.62	327.18	3,113.19	2,204.72	-1,391.33	2,607.01	0.75	-0.73	0.27	165.14
	NORMAL	4,293.0	44.56	327.54	3,179.55	2,260.78	-1,427.23	2,673.58	1.16	-1.13	0.38	166.60
	NORMAL	4,389.0	42.67	328.59	3,249.05	2,316.97	-1,462.27	2,739.79	2.11	-1.97	1.09	159.41
	NORMAL	4,483.0	41.13	329.38	3,319.02	2,370.76	-1,494.62	2,802.56	1.73	-1.64	0.84	161.38
	NORMAL	4,579.0	39.95	328.85	3,391.97	2,424.31	-1,526.64	2,864.94	1.28	-1.23	-0.55	196.07
	NORMAL	4,674.0	38.76	328.33	3,465.43	2,475.73	-1,558.04	2,925.18	1.30	-1.25	-0.55	195.29
	NORMAL	4,770.0	36.96	328.41	3,541.22	2,525.89	-1,588.93	2,984.09	1.88	-1.88	0.08	178.47
	NORMAL	4,866.0	35.77	327.98	3,618.52	2,574.26	-1,618.93	3,041.01	1.27	-1.24	-0.45	191.92
	NORMAL	4,961.0	33.40	328.77	3,696.73	2,620.17	-1,647.21	3,094.93	2.54	-2.49	0.83	169.61
	NORMAL	5,057.0	30.50	329.38	3,778.17	2,663.74	-1,673.33	3,145.71	3.04	-3.02	0.64	173.91
	NORMAL	5,152.0	28.52	329.64	3,860.85	2,704.06	-1,697.07	3,192.49	2.09	-2.08	0.27	176.41
	NORMAL	5,247.0	26.98	329.29	3,944.92	2,742.16	-1,719.54	3,236.70	1.63	-1.62	-0.37	185.89
	NORMAL	5,342.0	25.05	327.54	4,030.29	2,777.66	-1,741.34	3,278.36	2.19	-2.03	-1.84	200.90
	NORMAL	5,437.0	22.94	327.54	4,117.07	2,810.25	-1,762.08	3,316.99	2.22	-2.22	0.00	180.00
5/19/2012	NORMAL	5,533.0	22.76	329.38	4,205.54	2,842.02	-1,781.58	3,354.27	0.77	-0.19	1.92	104.99
	NORMAL	5,628.0	21.40	328.85	4,293.57	2,872.67	-1,799.90	3,389.97	1.45	-1.43	-0.56	188.09
	NORMAL	5,723.0	20.17	327.54	4,382.39	2,901.32	-1,817.66	3,423.68	1.38	-1.29	-1.38	200.09
	NORMAL	5,819.0	18.59	327.27	4,472.95	2,928.16	-1,834.82	3,455.53	1.65	-1.65	-0.28	183.12
	NORMAL	5,914.0	16.22	326.74	4,563.59	2,952.00	-1,850.28	3,483.94	2.50	-2.49	-0.56	183.57
	NORMAL	6,009.0	14.02	324.37	4,655.30	2,972.45	-1,864.26	3,508.69	2.41	-2.32	-2.49	194.55
	NORMAL	6,104.0	12.30	325.78	4,747.80	2,990.17	-1,876.66	3,530.29	1.84	-1.81	1.48	170.11
	NORMAL	6,200.0	11.03	324.90	4,841.81	3,006.14	-1,887.69	3,549.68	1.34	-1.32	-0.92	187.54
	NORMAL	6,295.0	9.45	328.94	4,935.30	3,020.26	-1,896.94	3,566.56	1.83	-1.66	4.25	157.53
	NORMAL	6,391.0	8.00	329.29	5,030.19	3,032.75	-1,904.42	3,581.12	1.51	-1.51	0.36	178.08
5/20/2012	NORMAL	6,486.0	7.47	331.58	5,124.32	3,043.87	-1,910.73	3,593.89	0.65	-0.56	2.41	150.95
	NORMAL	6,582.0	4.83	350.04	5,219.77	3,053.34	-1,914.40	3,603.86	3.40	-2.75	19.23	152.10
	NORMAL	6,677.0	3.12	1.20	5,314.54	3,059.86	-1,915.04	3,609.73	1.97	-1.80	11.75	161.16
	NORMAL	6,772.0	2.86	34.07	5,409.42	3,064.41	-1,913.66	3,612.85	1.80	-0.27	34.60	114.80
	NORMAL	6,868.0	2.64	38.08	5,505.31	3,068.14	-1,910.95	3,614.57	0.30	-0.23	4.18	140.82
	NORMAL	6,963.0	1.49	29.50	5,600.24	3,070.93	-1,909.00	3,615.90	1.25	-1.21	-9.03	190.79
	NORMAL	7,059.0	0.97	354.52	5,696.22	3,072.83	-1,908.46	3,617.22	0.93	-0.54	-36.44	218.66
5/21/2012	NORMAL	7,154.0	0.75	340.28	5,791.21	3,074.21	-1,908.75	3,618.55	0.32	-0.23	-14.99	217.20

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
5/21/2012	NORMAL	7,250.0	0.66	311.19	5,887.20	3,075.17	-1,909.37	3,619.69	0.38	-0.09	-30.30	241.63
	NORMAL	7,345.0	0.53	242.28	5,982.20	3,075.33	-1,910.18	3,620.25	0.72	-0.14	-72.54	226.50
	NORMAL	7,440.0	0.35	236.74	6,077.20	3,074.96	-1,910.81	3,620.28	0.19	-0.19	-5.83	190.54
	NORMAL	7,535.0	0.44	202.91	6,172.19	3,074.47	-1,911.19	3,620.06	0.26	0.09	-35.61	273.62
	NORMAL	7,631.0	0.79	203.17	6,268.19	3,073.52	-1,911.60	3,619.47	0.36	0.36	0.27	0.59
	NORMAL	7,726.0	0.75	150.79	6,363.18	3,072.37	-1,911.55	3,618.48	0.72	-0.04	-55.14	240.79
	NORMAL	7,822.0	0.48	79.51	6,459.18	3,071.90	-1,910.85	3,617.70	0.78	-0.28	-74.25	217.34
	NORMAL	7,918.0	0.53	166.08	6,555.17	3,071.54	-1,910.35	3,617.13	0.72	0.05	90.18	130.28
	NORMAL	8,013.0	1.05	356.45	6,650.17	3,071.98	-1,910.29	3,617.48	1.66	0.55	-178.56	186.90
	NORMAL	8,109.0	0.62	287.02	6,746.16	3,073.01	-1,910.84	3,618.64	1.06	-0.45	-72.32	214.90
	NORMAL	8,204.0	0.79	292.55	6,841.16	3,073.42	-1,911.94	3,619.57	0.19	0.18	5.82	24.59
	NORMAL	8,300.0	0.88	299.85	6,937.14	3,074.04	-1,913.19	3,620.76	0.14	0.09	7.60	53.46
	NORMAL	8,396.0	1.27	280.25	7,033.13	3,074.59	-1,914.88	3,622.12	0.55	0.41	-20.42	306.60
	NORMAL	8,491.0	0.70	176.28	7,128.12	3,074.20	-1,915.88	3,622.32	1.67	-0.60	-109.44	205.27
	NORMAL	8,587.0	0.92	190.60	7,224.11	3,072.86	-1,915.98	3,621.24	0.31	0.23	14.92	49.93
	NORMAL	8,683.0	1.41	216.53	7,320.09	3,071.15	-1,916.82	3,620.24	0.74	0.51	27.01	60.55
5/22/2012	NORMAL	8,778.0	1.67	216.09	7,415.06	3,069.09	-1,918.34	3,619.30	0.27	0.27	-0.46	357.18
	NORMAL	8,874.0	2.02	214.68	7,511.01	3,066.57	-1,920.12	3,618.11	0.37	0.36	-1.47	351.90
	NORMAL	8,923.0	2.07	218.55	7,559.97	3,065.17	-1,921.17	3,617.48	0.30	0.10	7.90	72.04
	NORMAL	8,970.0	2.07	218.55	7,606.94	3,063.84	-1,922.22	3,616.91	0.00	0.00	0.00	0.00