

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	PA 411-27	Wellbore No.	OH
Well Name	PA 411-27	Common Name	PA 411-27
Project	PA 27-06S-095W	Site	DOE 1-W-27 Pad
Vertical Section Azimuth	350.17 (°)	North Reference	
Origin N/S		Origin E/W	
Spud Date	7/15/2013	UWI	PA 411-27
Active Datum	KB @5,866.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	MOSTAR
Date Started	7/15/2013	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 (°)
7/15/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7/15/2013	NORMAL	102.0	0.18	27.95	102.00	0.14	0.08	0.13	0.18	0.18	0.00	27.95
	NORMAL	132.0	0.62	149.77	132.00	0.04	0.18	0.01	2.44	1.47	406.07	133.90
	NORMAL	163.0	0.62	250.40	163.00	-0.16	0.11	-0.17	3.08	0.00	324.61	140.31
	NORMAL	193.0	0.79	278.26	193.00	-0.18	-0.25	-0.14	1.26	0.57	92.87	78.00
	NORMAL	223.0	0.26	350.68	222.99	-0.09	-0.47	0.00	2.51	-1.77	241.40	160.79
	NORMAL	253.0	0.62	160.31	252.99	-0.17	-0.42	-0.10	2.92	1.20	565.43	172.69
	NORMAL	283.0	0.97	90.44	282.99	-0.33	-0.12	-0.30	3.18	1.17	-232.90	252.56
	NORMAL	314.0	1.50	71.02	313.98	-0.20	0.53	-0.28	2.16	1.71	-62.65	311.72
	NORMAL	344.0	1.58	33.57	343.97	0.28	1.13	0.08	3.31	0.27	-124.83	255.66
	NORMAL	374.0	2.11	47.11	373.96	1.00	1.76	0.68	2.28	1.77	45.13	46.34
	NORMAL	404.0	2.11	39.11	403.94	1.80	2.52	1.34	0.98	0.00	-26.67	266.00
	NORMAL	435.0	2.73	23.03	434.91	2.92	3.17	2.34	2.95	2.00	-51.87	304.18
	NORMAL	465.0	3.34	16.17	464.87	4.42	3.69	3.73	2.36	2.03	-22.87	325.77
	NORMAL	495.0	4.49	16.88	494.80	6.38	4.27	5.56	3.84	3.83	2.37	2.77
	NORMAL	526.0	4.75	11.16	525.70	8.80	4.87	7.84	1.71	0.84	-18.45	296.57
	NORMAL	556.0	5.72	0.44	555.57	11.52	5.13	10.47	4.58	3.23	-35.73	309.34
	NORMAL	586.0	6.33	359.74	585.41	14.67	5.13	13.57	2.05	2.03	-2.33	352.78
	NORMAL	617.0	7.57	3.69	616.18	18.41	5.25	17.25	4.28	4.00	12.74	23.05
	NORMAL	646.0	8.18	2.64	644.91	22.38	5.47	21.12	2.16	2.10	-3.62	346.21
	NORMAL	677.0	9.77	357.71	675.53	27.21	5.47	25.88	5.69	5.13	-15.90	331.74

2.1.2 Survey Stations (Continued)

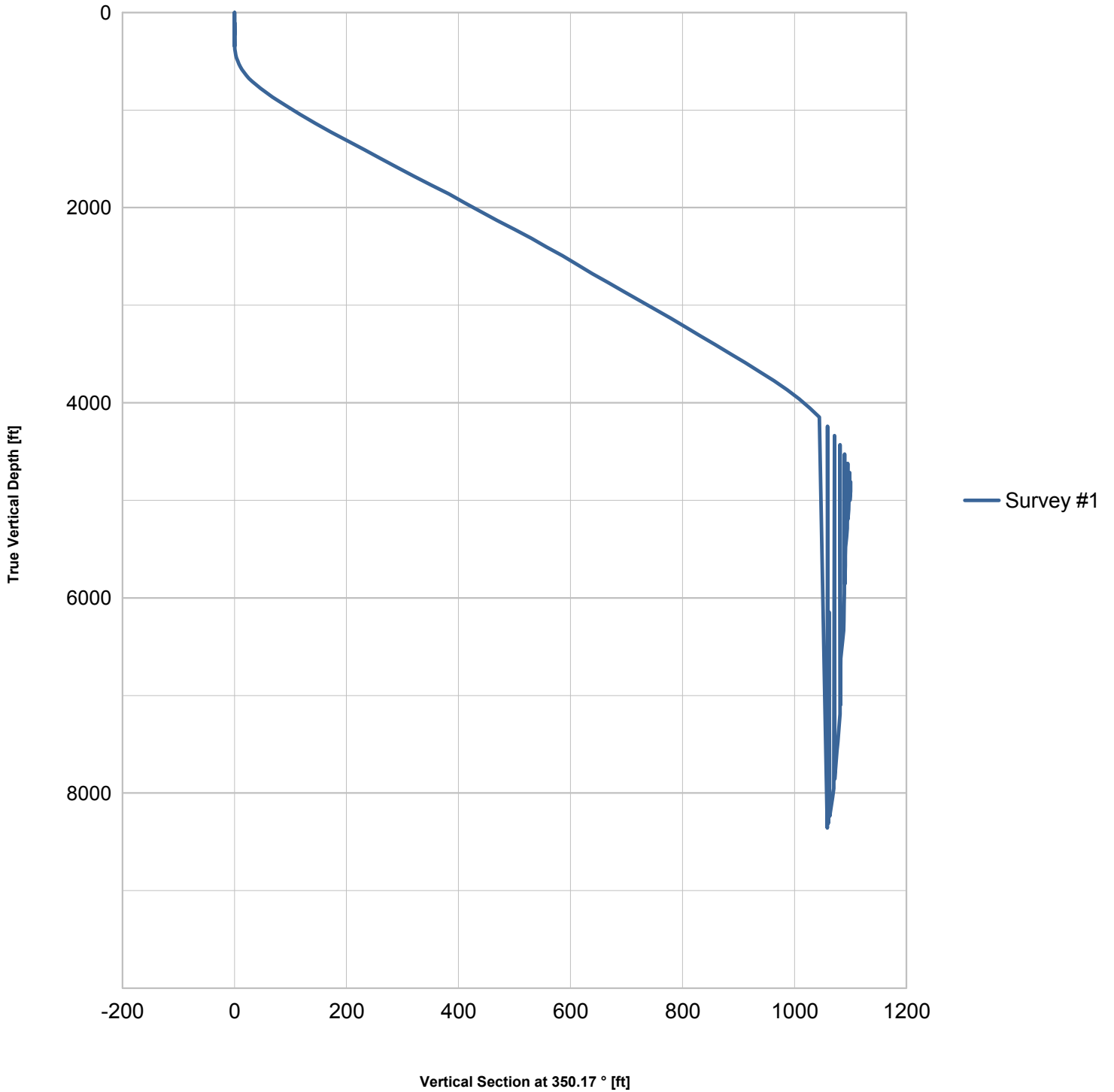
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
7/15/2013	NORMAL	707.0	11.44	357.10	705.01	32.73	5.22	31.36	5.58	5.57	-2.03	355.85
7/16/2013	NORMAL	782.0	12.35	355.93	778.40	48.16	4.27	46.72	1.26	1.21	-1.56	344.58
	NORMAL	872.0	14.46	350.92	865.95	68.85	1.81	67.53	2.67	2.34	-5.57	328.71
	NORMAL	901.0	15.03	351.10	893.99	76.15	0.66	74.91	1.97	1.97	0.62	4.68
	NORMAL	962.0	15.91	351.10	952.78	92.22	-1.86	91.18	1.44	1.44	0.00	0.00
	NORMAL	1,057.0	15.96	352.06	1,044.13	118.02	-5.68	117.26	0.28	0.05	1.01	79.72
	NORMAL	1,153.0	16.84	351.80	1,136.22	144.86	-9.48	144.35	0.92	0.92	-0.27	355.11
	NORMAL	1,248.0	18.24	350.22	1,226.81	173.13	-13.97	172.97	1.56	1.47	-1.66	340.46
	NORMAL	1,343.0	18.24	347.05	1,317.03	202.27	-19.83	202.69	1.04	0.00	-3.34	268.49
	NORMAL	1,438.0	17.71	347.58	1,407.40	230.87	-26.27	231.97	0.58	-0.56	0.56	163.10
	NORMAL	1,534.0	17.89	348.99	1,498.80	259.60	-32.22	261.29	0.49	0.19	1.47	68.01
	NORMAL	1,629.0	18.42	350.83	1,589.07	288.75	-37.40	290.89	0.82	0.56	1.94	48.13
	NORMAL	1,724.0	18.33	353.56	1,679.23	318.41	-41.47	320.81	0.91	-0.09	2.87	97.26
	NORMAL	1,820.0	19.52	354.44	1,770.04	349.37	-44.72	351.88	1.27	1.24	0.92	13.90
	NORMAL	1,915.0	18.29	354.44	1,859.91	380.01	-47.70	382.57	1.29	-1.29	0.00	180.00
	NORMAL	2,011.0	16.84	352.50	1,951.44	408.79	-50.97	411.49	1.63	-1.51	-2.02	201.07
	NORMAL	2,106.0	17.89	352.41	2,042.11	436.89	-54.70	439.82	1.11	1.11	-0.09	358.49
	NORMAL	2,201.0	18.07	350.04	2,132.47	465.87	-59.17	469.13	0.79	0.19	-2.49	282.69
	NORMAL	2,297.0	19.16	349.78	2,223.44	496.04	-64.54	499.78	1.14	1.14	-0.27	355.52
	NORMAL	2,392.0	17.76	348.55	2,313.55	525.58	-70.19	529.85	1.53	-1.47	-1.29	194.96
7/17/2013	NORMAL	2,486.0	16.70	349.34	2,403.33	552.91	-75.53	557.69	1.15	-1.13	0.84	167.93
	NORMAL	2,581.0	17.50	348.63	2,494.13	580.33	-80.87	585.61	0.87	0.84	-0.75	345.03
	NORMAL	2,676.0	15.87	347.32	2,585.13	607.00	-86.54	612.87	1.76	-1.72	-1.38	192.37
	NORMAL	2,771.0	16.35	346.96	2,676.40	632.70	-92.41	639.19	0.52	0.51	-0.38	348.07
	NORMAL	2,868.0	17.36	347.32	2,769.23	660.12	-98.67	667.28	1.05	1.04	0.37	6.07
	NORMAL	2,962.0	16.70	345.91	2,859.11	686.90	-105.03	694.75	0.83	-0.70	-1.50	211.36
	NORMAL	3,058.0	17.27	343.98	2,950.92	713.98	-112.32	722.67	0.84	0.59	-2.01	314.39
	NORMAL	3,153.0	17.41	345.21	3,041.61	741.28	-119.84	750.85	0.41	0.15	1.29	69.69
	NORMAL	3,248.0	16.48	347.84	3,132.48	768.19	-126.31	778.48	1.27	-0.98	2.77	141.76
	NORMAL	3,343.0	16.35	350.31	3,223.61	794.54	-131.40	805.31	0.75	-0.14	2.60	101.73
7/20/2013	NORMAL	3,439.0	16.44	354.08	3,315.71	821.38	-135.07	832.38	1.11	0.09	3.93	86.98
	NORMAL	3,535.0	16.13	352.77	3,407.86	848.12	-138.15	859.25	0.50	-0.32	-1.36	229.21
	NORMAL	3,630.0	16.18	354.00	3,499.11	874.37	-141.20	885.64	0.36	0.05	1.29	82.28
	NORMAL	3,725.0	16.04	353.20	3,590.38	900.57	-144.13	911.95	0.28	-0.15	-0.84	237.38
	NORMAL	3,821.0	15.52	355.05	3,682.76	926.53	-146.81	938.00	0.75	-0.54	1.93	136.83
	NORMAL	3,916.0	15.30	358.21	3,774.35	951.73	-148.30	963.07	0.91	-0.23	3.33	106.20
	NORMAL	4,011.0	13.93	359.27	3,866.27	975.69	-148.84	986.77	1.47	-1.44	1.12	169.47
7/21/2013	NORMAL	4,107.0	12.40	0.59	3,959.74	997.55	-148.88	1,008.32	1.62	-1.59	1.38	169.53
	NORMAL	4,202.0	11.25	1.29	4,052.73	1,017.02	-148.57	1,027.45	1.22	-1.21	0.74	173.23
	NORMAL	4,298.0	9.80	3.31	4,147.11	1,034.53	-147.88	1,044.59	1.56	-1.51	2.10	166.71
	NORMAL	4,393.0	8.09	4.98	4,240.95	1,049.27	-146.84	1,058.93	1.82	-1.80	1.76	172.19
	NORMAL	4,489.0	7.30	7.53	4,336.09	1,062.04	-145.45	1,071.28	0.90	-0.82	2.66	157.89
	NORMAL	4,584.0	5.71	10.70	4,430.47	1,072.67	-143.78	1,081.47	1.72	-1.67	3.34	168.84
	NORMAL	4,679.0	4.53	11.05	4,525.09	1,081.00	-142.19	1,089.40	1.24	-1.24	0.37	178.66
	NORMAL	4,775.0	2.86	16.67	4,620.89	1,087.01	-140.77	1,095.09	1.78	-1.74	5.85	170.56
	NORMAL	4,870.0	2.11	30.82	4,715.80	1,090.78	-139.20	1,098.54	1.01	-0.79	14.89	147.64
	NORMAL	4,965.0	0.70	33.55	4,810.77	1,092.77	-137.98	1,100.28	1.49	-1.48	2.87	178.65
	NORMAL	5,060.0	0.79	206.69	4,905.77	1,092.67	-137.95	1,100.18	1.57	0.09	182.25	176.36
	NORMAL	5,155.0	1.19	207.22	5,000.75	1,091.21	-138.70	1,098.87	0.42	0.42	0.56	1.58
	NORMAL	5,251.0	1.45	198.43	5,096.73	1,089.17	-139.54	1,097.00	0.34	0.27	-9.16	317.64
	NORMAL	5,346.0	0.83	199.66	5,191.71	1,087.38	-140.15	1,095.34	0.65	-0.65	1.29	178.35
	NORMAL	5,441.0	1.05	206.25	5,286.69	1,085.95	-140.77	1,094.04	0.26	0.23	6.94	29.39
7/22/2013	NORMAL	5,536.0	0.88	212.84	5,381.68	1,084.56	-141.55	1,092.80	0.21	-0.18	6.94	150.27
	NORMAL	5,632.0	1.50	218.12	5,477.66	1,082.95	-142.72	1,091.42	0.66	0.65	5.50	12.68
	NORMAL	5,727.0	0.44	266.37	5,572.64	1,081.95	-143.85	1,090.62	1.32	-1.12	50.79	164.78
	NORMAL	5,822.0	0.48	251.25	5,667.64	1,081.80	-144.60	1,090.60	0.13	0.04	-15.92	280.58
	NORMAL	5,917.0	0.83	244.05	5,762.64	1,081.37	-145.59	1,090.35	0.38	0.37	-7.58	343.15

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 (°)
7/22/2013	NORMAL	6,012.0	0.83	239.39	5,857.63	1,080.72	-146.80	1,089.91	0.07	0.00	-4.91	267.67
	NORMAL	6,108.0	1.10	228.49	5,953.61	1,079.75	-148.09	1,089.18	0.34	0.28	-11.35	320.26
	NORMAL	6,204.0	1.60	250.00	6,055.04	1,052.25	-145.11	1,088.46	0.73	0.52	22.41	56.48
	NORMAL	6,297.0	1.58	265.93	6,142.56	1,078.36	-152.05	1,061.47	0.51	0.25	19.81	80.86
	NORMAL	6,393.0	0.31	145.61	6,238.55	1,078.05	-153.22	1,088.39	1.83	-1.32	-125.33	188.76
	NORMAL	6,488.0	0.75	145.78	6,333.55	1,077.33	-152.73	1,087.59	0.46	0.46	0.18	0.29
	NORMAL	6,584.0	0.97	166.70	6,429.54	1,076.02	-152.19	1,086.20	0.40	0.23	21.79	65.74
	NORMAL	6,679.0	1.80	202.56	6,524.51	1,073.86	-152.57	1,084.14	1.22	0.87	37.75	65.12
7/23/2013	NORMAL	6,774.0	1.10	230.51	6,619.48	1,071.90	-153.85	1,082.43	1.03	-0.74	29.42	148.10
	NORMAL	6,869.0	0.66	275.69	6,714.47	1,071.37	-155.10	1,082.12	0.83	-0.46	47.56	143.59
	NORMAL	6,964.0	0.88	265.49	6,809.46	1,071.37	-156.37	1,082.34	0.27	0.23	-10.74	322.91
	NORMAL	7,059.0	1.10	248.62	6,904.45	1,070.98	-157.95	1,082.22	0.38	0.23	-17.76	298.41
	NORMAL	7,154.0	0.18	29.94	6,999.44	1,070.78	-158.72	1,082.16	1.31	-0.97	148.76	174.82
	NORMAL	7,250.0	0.31	152.38	7,095.44	1,070.68	-158.53	1,082.02	0.45	0.14	127.54	142.93
	NORMAL	7,344.0	0.66	199.48	7,189.44	1,069.94	-158.59	1,081.31	0.54	0.37	50.11	73.93
	NORMAL	7,439.0	1.36	216.01	7,284.42	1,068.52	-159.43	1,080.05	0.79	0.74	17.40	31.01
	NORMAL	7,534.0	1.67	236.93	7,379.39	1,066.85	-161.26	1,078.72	0.66	0.33	22.02	71.46
	NORMAL	7,630.0	2.07	228.58	7,475.34	1,064.94	-163.73	1,077.26	0.50	0.42	-8.70	321.52
	NORMAL	7,725.0	1.05	209.42	7,570.30	1,063.04	-165.44	1,075.68	1.19	-1.07	-20.17	197.73
	7/24/2013	NORMAL	7,820.0	1.23	215.04	7,665.28	1,061.45	-166.46	1,074.29	0.22	0.19	5.92
NORMAL		7,916.0	0.88	220.23	7,761.27	1,060.04	-167.52	1,073.08	0.38	-0.36	5.41	167.31
NORMAL		8,011.0	0.92	194.83	7,856.26	1,058.75	-168.19	1,071.92	0.42	0.04	-26.74	262.93
NORMAL		8,106.0	1.93	221.98	7,951.23	1,056.82	-169.46	1,070.24	1.25	1.06	28.58	47.84
NORMAL		8,201.0	2.42	223.92	8,046.16	1,054.19	-171.92	1,068.06	0.52	0.52	2.04	9.52
NORMAL		8,297.0	2.64	223.39	8,142.06	1,051.12	-174.84	1,065.54	0.23	0.23	-0.55	353.67
NORMAL		8,392.0	3.08	223.57	8,236.95	1,047.68	-178.10	1,062.71	0.46	0.46	0.19	1.26
NORMAL		8,467.0	3.60	225.24	8,311.82	1,044.57	-181.16	1,060.16	0.71	0.69	2.23	11.43
NORMAL		8,512.0	3.60	225.24	8,356.73	1,042.58	-183.17	1,058.54	0.00	0.00	0.00	0.00

### 3 Charts

#### 3.1 Vertical Section View



3.2 Plan View

