

## 1 General

### 1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

### 1.2 Well Information

Well	PA 321-27	Wellbore No.	OH
Well Name	PA 321-27	Common Name	PA 321-27
Project	PA 27-06S-095W	Site	DOE 1-W-27 Pad
Vertical Section Azimuth	25.41 (°)	North Reference	
Origin N/S		Origin E/W	
Spud Date	8/8/2013	UWI	PA 321-27
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	8/8/2013	Ended	8/20/2013
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 (°)
8/8/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8/8/2013	NORMAL	71.0	0.79	3.34	71.00	0.49	0.03	0.45	1.11	1.11	0.00	3.34
	NORMAL	102.0	1.58	0.09	101.99	1.13	0.04	1.04	2.56	2.55	-10.48	353.51
	NORMAL	132.0	1.67	7.91	131.98	1.98	0.10	1.83	0.80	0.30	26.07	71.85
	NORMAL	162.0	1.58	22.76	161.97	2.79	0.32	2.66	1.43	-0.30	49.50	109.42
	NORMAL	193.0	2.11	28.30	192.95	3.69	0.76	3.66	1.80	1.71	17.87	21.38
	NORMAL	223.0	2.46	31.73	222.93	4.72	1.36	4.85	1.25	1.17	11.43	23.06
	NORMAL	251.0	3.52	29.88	250.89	5.98	2.10	6.30	3.80	3.79	-6.61	353.87
	NORMAL	283.0	3.96	29.36	282.82	7.79	3.13	8.38	1.38	1.38	-1.63	355.33
	NORMAL	313.0	4.93	29.79	312.73	9.81	4.28	10.70	3.24	3.23	1.43	2.18
	NORMAL	343.0	5.89	32.62	342.60	12.23	5.75	13.51	3.32	3.20	9.43	16.94
	NORMAL	388.0	8.22	27.21	387.25	17.04	8.47	19.02	5.38	5.18	-12.02	341.39
	NORMAL	419.0	9.49	26.51	417.88	21.29	10.62	23.79	4.11	4.10	-2.26	354.80
	NORMAL	449.0	10.86	27.03	447.41	26.02	13.01	29.09	4.58	4.57	1.73	4.09
	NORMAL	479.0	11.91	24.92	476.82	31.35	15.60	35.01	3.76	3.50	-7.03	337.33
	NORMAL	510.0	12.57	25.27	507.11	37.30	18.39	41.58	2.14	2.13	1.13	6.59
8/9/2013	NORMAL	540.0	13.06	25.89	536.37	43.30	21.26	48.24	1.70	1.63	2.07	15.98
	NORMAL	570.0	13.93	25.89	565.54	49.60	24.32	55.24	2.90	2.90	0.00	0.00
	NORMAL	601.0	14.51	26.07	595.59	56.45	27.65	62.85	1.88	1.87	0.58	4.45
	NORMAL	630.0	14.90	26.15	623.64	63.06	30.89	70.21	1.35	1.34	0.28	3.02
	NORMAL	691.0	16.22	24.57	682.40	77.84	37.89	86.57	2.27	2.16	-2.59	341.44

## 2.1.2 Survey Stations (Continued)

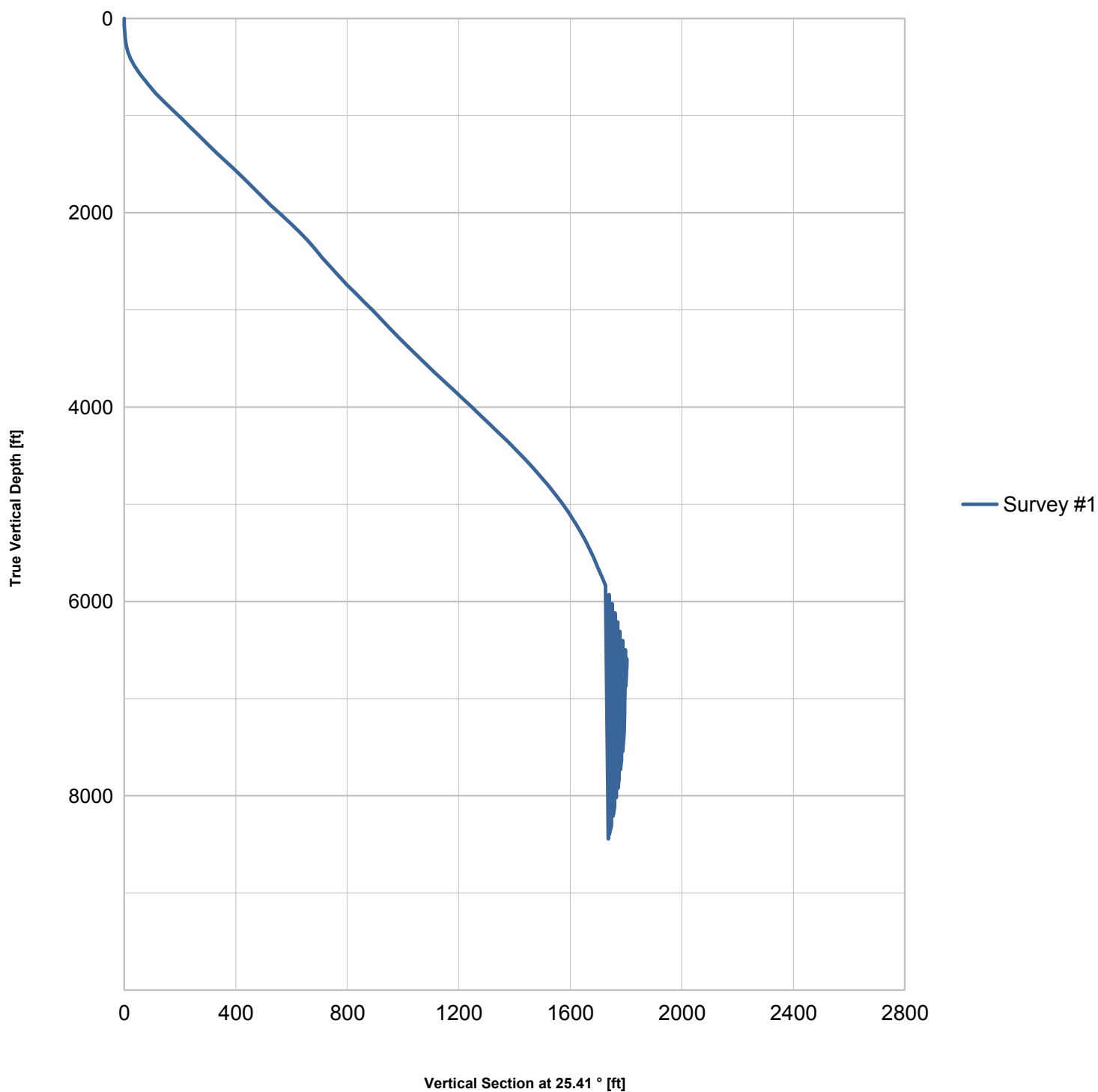
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
8/9/2013	NORMAL	782.0	17.67	26.07	769.45	101.81	49.25	113.09	1.66	1.59	1.65	17.50
	NORMAL	872.0	19.65	25.01	854.71	127.80	61.65	141.89	2.23	2.20	-1.18	349.78
	NORMAL	962.0	20.79	25.19	939.17	155.96	74.85	172.99	1.27	1.27	0.20	3.21
	NORMAL	1,057.0	19.69	23.17	1,028.30	185.93	88.32	205.84	1.37	-1.16	-2.13	211.48
	NORMAL	1,153.0	18.99	21.94	1,118.88	215.29	100.52	237.60	0.84	-0.73	-1.28	209.62
	NORMAL	1,248.0	19.65	20.18	1,208.53	244.62	111.80	268.93	0.93	0.69	-1.85	317.75
	NORMAL	1,343.0	19.16	26.24	1,298.15	273.60	124.21	300.43	2.18	-0.52	6.38	106.52
	NORMAL	1,440.0	20.53	26.07	1,389.38	303.16	138.72	333.36	1.41	1.41	-0.18	357.51
8/10/2013	NORMAL	1,535.0	21.14	31.08	1,478.18	332.80	154.89	367.06	1.98	0.64	5.27	73.46
	NORMAL	1,630.0	20.04	30.55	1,567.11	361.49	172.01	400.32	1.17	-1.16	-0.56	189.37
	NORMAL	1,726.0	19.39	28.62	1,657.48	389.64	188.00	432.62	0.96	-0.68	-2.01	224.14
	NORMAL	1,821.0	19.34	27.56	1,747.11	417.43	202.83	464.08	0.37	-0.05	-1.12	261.40
	NORMAL	1,916.0	19.12	27.12	1,836.81	445.22	217.20	495.35	0.28	-0.23	-0.46	213.17
	NORMAL	2,012.0	20.35	26.86	1,927.17	474.11	231.91	527.76	1.28	1.28	-0.27	355.79
	NORMAL	2,108.0	21.27	24.40	2,016.90	504.86	246.65	561.85	1.32	0.96	-2.56	315.32
	NORMAL	2,203.0	20.18	24.13	2,105.75	535.51	260.46	595.47	1.15	-1.15	-0.28	184.88
	NORMAL	2,298.0	19.43	23.87	2,195.13	564.91	273.56	627.64	0.79	-0.79	-0.27	186.58
	NORMAL	2,393.0	18.07	24.31	2,285.09	592.79	286.02	658.17	1.44	-1.43	0.46	174.27
	NORMAL	2,487.0	15.69	24.57	2,375.03	617.64	297.31	685.46	2.53	-2.53	0.28	178.31
	NORMAL	2,582.0	16.35	24.66	2,466.34	641.47	308.23	711.67	0.70	0.69	0.09	2.20
8/13/2013	NORMAL	2,668.0	18.99	26.33	2,738.83	719.77	345.67	798.47	0.94	0.92	0.58	11.67
	NORMAL	2,962.0	19.43	26.15	2,827.60	747.52	359.34	829.39	0.47	0.47	-0.19	352.25
	NORMAL	3,058.0	19.08	25.89	2,918.22	775.97	373.23	861.05	0.38	-0.36	-0.27	193.64
	NORMAL	3,153.0	19.03	23.08	3,008.02	804.18	386.08	892.05	0.97	-0.05	-2.96	265.55
	NORMAL	3,248.0	18.77	22.73	3,097.90	832.53	398.06	922.80	0.30	-0.27	-0.37	203.39
	NORMAL	3,343.0	18.15	21.67	3,188.01	860.38	409.43	952.83	0.74	-0.65	-1.12	207.93
	NORMAL	3,439.0	18.73	24.40	3,279.08	888.31	421.32	983.16	1.08	0.60	2.84	57.41
	NORMAL	3,535.0	19.78	24.75	3,369.71	917.10	434.49	1,014.81	1.10	1.09	0.36	6.44
	NORMAL	3,630.0	19.82	26.68	3,459.10	946.09	448.45	1,046.99	0.69	0.04	2.03	87.41
	NORMAL	3,725.0	19.34	25.63	3,548.60	974.66	462.48	1,078.82	0.63	-0.51	-1.11	215.75
	NORMAL	3,821.0	20.66	26.95	3,638.81	1,004.09	477.04	1,111.65	1.45	1.38	1.38	19.50
	NORMAL	3,916.0	20.75	24.66	3,727.68	1,034.33	491.65	1,145.23	0.86	0.09	-2.41	275.27
	NORMAL	4,011.0	20.48	24.13	3,816.59	1,064.79	505.47	1,178.67	0.35	-0.28	-0.56	214.40
	NORMAL	4,107.0	20.44	26.86	3,906.54	1,095.07	519.91	1,212.22	0.99	-0.04	2.84	93.68
	NORMAL	4,202.0	20.00	26.34	3,995.69	1,124.43	534.61	1,245.05	0.50	-0.46	-0.55	202.13
	NORMAL	4,298.0	20.00	25.01	4,085.90	1,154.02	548.83	1,277.88	0.47	0.00	-1.38	269.38
	NORMAL	4,393.0	19.96	25.27	4,175.18	1,183.40	562.63	1,310.34	0.10	-0.04	0.27	114.36
	NORMAL	4,489.0	20.22	24.13	4,265.34	1,213.36	576.40	1,343.31	0.49	0.27	-1.19	303.05
	NORMAL	4,584.0	19.52	27.12	4,354.68	1,242.47	590.35	1,375.59	1.30	-0.74	3.15	125.96
8/14/2013	NORMAL	4,679.0	18.90	27.91	4,444.39	1,270.20	604.79	1,406.83	0.71	-0.65	0.83	157.63
	NORMAL	4,775.0	18.15	28.26	4,535.42	1,297.11	619.14	1,437.29	0.79	-0.78	0.36	171.73
	NORMAL	4,870.0	17.80	26.42	4,625.78	1,323.14	632.61	1,466.59	0.70	-0.37	-1.94	237.48
	NORMAL	4,965.0	16.61	26.77	4,716.53	1,348.27	645.19	1,494.68	1.26	-1.25	0.37	175.20
	NORMAL	5,060.0	16.26	26.95	4,807.65	1,372.25	657.33	1,521.55	0.37	-0.37	0.19	171.81
	NORMAL	5,155.0	15.12	25.27	4,899.11	1,395.31	668.65	1,547.24	1.29	-1.20	-1.77	200.92
	NORMAL	5,251.0	14.29	25.45	4,991.96	1,417.33	679.08	1,571.61	0.87	-0.86	0.19	176.94
	NORMAL	5,346.0	13.19	23.08	5,084.24	1,437.89	688.37	1,594.16	1.30	-1.16	-2.49	205.95
	NORMAL	5,441.0	12.04	22.73	5,176.95	1,457.00	696.45	1,614.89	1.21	-1.21	-0.37	183.63
	NORMAL	5,536.0	11.34	20.53	5,269.98	1,474.88	703.55	1,634.10	0.87	-0.74	-2.32	211.41
	NORMAL	5,632.0	10.33	19.05	5,364.27	1,491.86	709.67	1,652.05	1.09	-1.05	-1.54	194.67
	NORMAL	5,727.0	9.93	25.19	5,457.79	1,507.32	715.94	1,668.71	1.21	-0.42	6.46	113.33
	NORMAL	5,822.0	8.53	23.96	5,551.55	1,521.18	722.29	1,683.95	1.49	-1.47	-1.29	187.41
	NORMAL	5,917.0	8.88	22.55	5,645.46	1,534.39	727.96	1,698.31	0.43	0.37	-1.48	327.93
	NORMAL	6,012.0	8.62	28.26	5,739.36	1,547.43	734.14	1,712.75	0.95	-0.27	6.01	109.47
8/15/2013	NORMAL	6,108.0	8.13	30.37	5,834.33	1,559.62	740.98	1,726.69	0.60	-0.51	2.20	148.95
	NORMAL	6,203.0	6.77	30.90	5,928.53	1,570.22	747.25	1,738.96	1.43	-1.43	0.56	177.37
	NORMAL	6,297.0	7.21	39.69	6,021.83	1,579.52	753.87	1,750.19	1.23	0.47	9.35	72.04

## 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 (°)
8/15/2013	NORMAL	6,393.0	6.11	41.27	6,117.18	1,587.99	761.08	1,760.95	1.16	-1.15	1.65	171.33
	NORMAL	6,488.0	5.71	51.99	6,211.68	1,594.70	768.14	1,770.04	1.23	-0.42	11.28	115.20
	NORMAL	6,584.0	5.50	57.35	6,307.22	1,600.13	775.78	1,778.21	0.59	-0.22	5.58	114.51
8/16/2013	NORMAL	6,679.0	7.43	47.34	6,401.62	1,606.75	784.13	1,787.77	2.35	2.03	-10.54	324.68
	NORMAL	6,774.0	4.88	29.76	6,496.07	1,614.42	790.66	1,797.50	3.31	-2.68	-18.51	207.95
	NORMAL	6,869.0	2.20	321.03	6,590.91	1,619.35	791.51	1,802.32	4.81	-2.82	-72.35	206.70
	NORMAL	6,964.0	2.50	282.09	6,685.84	1,621.20	788.34	1,802.63	1.68	0.32	-40.99	260.78
	NORMAL	7,059.0	3.03	270.05	6,780.73	1,621.63	783.80	1,801.08	0.82	0.56	-12.67	306.26
8/17/2013	NORMAL	7,154.0	2.73	259.77	6,875.61	1,621.23	779.07	1,798.69	0.63	-0.32	-10.82	234.78
	NORMAL	7,250.0	2.11	256.78	6,971.52	1,620.42	775.10	1,796.25	0.66	-0.65	-3.11	190.02
	NORMAL	7,344.0	2.37	299.05	7,065.46	1,620.97	771.71	1,795.30	1.74	0.28	44.97	102.58
	NORMAL	7,439.0	2.77	278.49	7,160.36	1,622.26	767.73	1,794.75	1.05	0.42	-21.64	282.96
	NORMAL	7,534.0	2.68	289.39	7,255.26	1,623.34	763.36	1,793.85	0.55	-0.09	11.47	105.27
	NORMAL	7,630.0	2.24	278.75	7,351.17	1,624.37	759.39	1,793.08	0.66	-0.46	-11.08	220.83
	NORMAL	7,725.0	2.37	247.99	7,446.10	1,623.92	755.73	1,791.10	1.29	0.14	-32.38	260.49
	NORMAL	7,820.0	2.59	235.25	7,541.01	1,621.96	752.15	1,787.79	0.62	0.23	-13.41	285.31
	NORMAL	7,916.0	3.03	224.88	7,636.89	1,618.92	748.58	1,783.52	0.70	0.46	-10.80	305.62
	NORMAL	8,011.0	2.33	219.78	7,731.79	1,615.66	745.57	1,779.28	0.78	-0.74	-5.37	196.28
	NORMAL	8,106.0	2.64	223.56	7,826.70	1,612.59	742.82	1,775.33	0.37	0.33	3.98	29.76
	NORMAL	8,201.0	3.12	218.28	7,921.58	1,608.98	739.72	1,770.73	0.58	0.51	-5.56	328.42
	NORMAL	8,297.0	3.69	224.44	8,017.41	1,604.72	735.93	1,765.26	0.70	0.59	6.42	35.79
8/18/2013	NORMAL	8,392.0	3.87	225.23	8,112.20	1,600.28	731.52	1,759.36	0.20	0.19	0.83	16.53
	NORMAL	8,487.0	3.65	224.17	8,207.00	1,595.85	727.13	1,753.48	0.24	-0.23	-1.12	197.01
	NORMAL	8,583.0	4.09	226.63	8,302.78	1,591.31	722.52	1,747.39	0.49	0.46	2.56	21.90
	NORMAL	8,680.0	4.92	227.95	8,399.48	1,586.15	716.91	1,740.33	0.86	0.86	1.36	7.78
	NORMAL	8,725.0	4.92	227.95	8,444.31	1,583.56	714.05	1,736.76	0.00	0.00	0.00	0.00

### 3 Charts

#### 3.1 Vertical Section View



### 3.2 Plan View

