

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well/Wellbore Information

Well	PA 414-12	Wellbore No.	00
Wellbore Legal Name	PA 414-12	Common Wellbore Name	PA 414-12
Project	PA 12-07S-095W	Site	PA 23-12 Pad
Vertical Section Azimuth	215.01 (°)	North reference	
Origin N/S		Origin E/W	
Spud date	10/28/2013	UWI	PA 414-12
Active datum	KB @6,533.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	MOSTAR
Date Started	10/28/2013	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 (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
10/28/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10/28/2013	NORMAL	74.0	0.62	204.70	74.00	-0.36	-0.17	0.39	0.84	0.84	0.00	204.70
	NORMAL	165.0	3.96	227.99	164.91	-2.91	-2.71	3.94	3.74	3.67	25.59	27.42
	NORMAL	255.0	5.19	225.88	254.63	-7.83	-7.94	10.97	1.38	1.37	-2.34	351.16
	NORMAL	346.0	7.83	215.95	345.03	-15.71	-14.54	21.21	3.14	2.90	-10.91	331.92
	NORMAL	437.0	11.79	219.20	434.69	-27.94	-24.05	36.69	4.39	4.35	3.57	9.57
	NORMAL	526.0	16.19	214.37	521.03	-45.24	-36.81	58.17	5.11	4.94	-5.43	342.78
10/29/2013	NORMAL	618.0	18.65	214.45	608.80	-67.96	-52.38	85.71	2.67	2.67	0.09	0.60
	NORMAL	709.0	20.32	217.09	694.59	-92.56	-70.14	116.05	2.07	1.84	2.90	29.05
	NORMAL	785.0	21.46	215.07	765.59	-114.47	-86.08	143.14	1.77	1.50	-2.66	326.77
	NORMAL	877.0	23.36	211.16	850.65	-143.85	-105.19	178.18	2.62	2.07	-4.25	320.06
	NORMAL	967.0	24.75	217.62	932.84	-174.05	-125.93	214.81	3.31	1.54	7.18	65.15
	NORMAL	1,004.0	25.21	217.57	966.38	-186.43	-135.46	230.42	1.24	1.24	-0.14	357.35
10/30/2013	NORMAL	1,074.0	25.93	217.18	1,029.53	-210.44	-153.80	260.60	1.06	1.03	-0.56	346.67
	NORMAL	1,170.0	26.59	216.48	1,115.62	-244.44	-179.26	303.06	0.76	0.69	-0.73	334.55
	NORMAL	1,265.0	27.08	215.86	1,200.39	-279.06	-204.57	345.93	0.59	0.52	-0.65	329.99
	NORMAL	1,360.0	26.81	215.42	1,285.08	-314.05	-229.65	388.98	0.35	-0.28	-0.46	216.25
	NORMAL	1,456.0	28.04	214.63	1,370.29	-350.26	-255.03	433.19	1.34	1.28	-0.82	343.17
10/31/2013	NORMAL	1,552.0	28.97	215.25	1,454.65	-387.81	-281.27	479.01	1.02	0.97	0.65	17.92
	NORMAL	1,647.0	28.18	215.25	1,538.07	-424.92	-307.49	524.44	0.83	-0.83	0.00	180.00
	NORMAL	1,743.0	27.69	215.07	1,622.89	-461.69	-333.39	569.42	0.52	-0.51	-0.19	189.68

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	EW (ft)	V. sec. (ft)	DLS (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
10/31/2013	NORMAL	1,839.0	27.21	214.89	1,708.08	-497.94	-358.76	613.67	0.51	-0.50	-0.19	189.73
	NORMAL	1,934.0	28.13	215.16	1,792.22	-534.07	-384.08	657.79	0.98	0.97	0.28	7.88
	NORMAL	2,029.0	27.39	214.98	1,876.28	-570.28	-409.51	702.03	0.78	-0.78	-0.19	186.38
	NORMAL	2,125.0	26.86	214.37	1,961.72	-606.28	-434.41	745.80	0.62	-0.55	-0.64	207.42
	NORMAL	2,220.0	27.47	216.12	2,046.24	-641.69	-459.44	789.17	1.08	0.64	1.84	53.42
	NORMAL	2,316.0	26.99	216.21	2,131.61	-677.16	-485.36	833.09	0.50	-0.50	0.09	175.14
	NORMAL	2,411.0	26.20	215.68	2,216.55	-711.58	-510.33	875.61	0.87	-0.83	-0.56	196.48
	NORMAL	2,507.0	26.73	216.48	2,302.49	-746.16	-535.53	918.38	0.67	0.55	0.83	34.29
	NORMAL	2,602.0	27.43	217.71	2,387.08	-780.65	-561.61	961.60	0.94	0.74	1.29	39.21
	NORMAL	2,698.0	26.42	217.35	2,472.67	-815.12	-588.10	1,005.03	1.07	-1.05	-0.38	189.01
	NORMAL	2,793.0	28.09	218.32	2,557.12	-849.47	-614.79	1,048.48	1.82	1.76	1.02	15.33
	NORMAL	2,889.0	28.26	216.39	2,641.75	-885.50	-642.29	1,093.76	0.97	0.18	-2.01	279.72
	NORMAL	2,984.0	29.01	214.28	2,725.13	-922.64	-668.60	1,139.28	1.33	0.79	-2.22	305.64
	NORMAL	3,079.0	28.75	212.96	2,808.32	-960.85	-694.01	1,185.15	0.72	-0.27	-1.39	247.24
	NORMAL	3,175.0	28.48	212.52	2,892.59	-999.52	-718.88	1,231.09	0.36	-0.28	-0.46	217.78
	NORMAL	3,271.0	28.35	211.99	2,977.03	-1,038.15	-743.26	1,276.72	0.30	-0.14	-0.55	242.50
	NORMAL	3,366.0	28.26	211.03	3,060.67	-1,076.55	-766.80	1,321.68	0.49	-0.09	-1.01	258.39
	NORMAL	3,462.0	27.87	210.15	3,145.38	-1,115.43	-789.78	1,366.71	0.59	-0.41	-0.92	226.32
	NORMAL	3,557.0	27.74	213.14	3,229.42	-1,153.14	-813.02	1,410.93	1.47	-0.14	3.15	96.65
	NORMAL	3,653.0	26.64	214.28	3,314.81	-1,189.64	-837.36	1,454.79	1.27	-1.15	1.19	155.17
	NORMAL	3,748.0	27.47	216.21	3,399.41	-1,224.92	-862.30	1,497.99	1.27	0.87	2.03	47.47
	NORMAL	3,835.0	28.70	217.79	3,476.17	-1,257.62	-886.96	1,538.92	1.65	1.41	1.82	31.86
	NORMAL	3,930.0	28.48	217.09	3,559.58	-1,293.71	-914.60	1,584.34	0.42	-0.23	-0.74	236.40
	NORMAL	4,026.0	28.35	216.21	3,644.02	-1,330.36	-941.86	1,630.00	0.46	-0.14	-0.92	252.37
	NORMAL	4,121.0	28.04	215.25	3,727.75	-1,366.80	-968.08	1,674.88	0.58	-0.33	-1.01	235.23
	NORMAL	4,217.0	29.10	214.63	3,812.06	-1,404.43	-994.37	1,720.79	1.15	1.10	-0.65	344.10
	NORMAL	4,312.0	29.06	213.66	3,895.08	-1,442.64	-1,020.28	1,766.96	0.50	-0.04	-1.02	264.73
	NORMAL	4,408.0	28.66	212.43	3,979.16	-1,481.48	-1,045.55	1,813.26	0.75	-0.42	-1.28	235.49
	NORMAL	4,504.0	28.70	211.73	4,063.38	-1,520.52	-1,070.02	1,859.27	0.35	0.04	-0.73	276.48
11/1/2013	NORMAL	4,599.0	28.75	214.45	4,146.70	-1,558.76	-1,094.94	1,904.90	1.38	0.05	2.86	89.00
	NORMAL	4,695.0	28.66	214.72	4,230.90	-1,596.72	-1,121.11	1,951.00	0.16	-0.09	0.28	124.88
	NORMAL	4,790.0	27.74	216.21	4,314.62	-1,633.29	-1,147.15	1,995.89	1.22	-0.97	1.57	143.23
	NORMAL	4,886.0	28.31	214.81	4,399.37	-1,670.01	-1,173.35	2,040.99	0.91	0.59	-1.46	310.29
	NORMAL	4,981.0	28.44	214.28	4,482.95	-1,707.19	-1,198.95	2,086.14	0.30	0.14	-0.56	297.07
	NORMAL	5,076.0	28.18	214.54	4,566.59	-1,744.36	-1,224.41	2,131.19	0.30	-0.27	0.27	154.74
	NORMAL	5,172.0	25.89	214.98	4,652.09	-1,780.21	-1,249.28	2,174.82	2.39	-2.39	0.46	175.20
	NORMAL	5,267.0	25.98	215.42	4,737.53	-1,814.16	-1,273.23	2,216.37	0.22	0.09	0.46	65.13
11/5/2013	NORMAL	5,363.0	24.53	214.72	4,824.35	-1,847.68	-1,296.76	2,257.32	1.54	-1.51	-0.73	191.32
11/6/2013	NORMAL	5,459.0	24.53	214.01	4,911.89	-1,880.58	-1,319.26	2,297.18	0.31	0.00	-0.74	269.68
	NORMAL	5,554.0	21.98	214.37	4,998.96	-1,911.61	-1,340.33	2,334.68	2.69	-2.68	0.38	176.97
11/7/2013	NORMAL	5,649.0	19.16	212.96	5,087.90	-1,939.37	-1,358.85	2,368.04	3.01	-2.97	-1.48	189.31
	NORMAL	5,745.0	12.62	216.83	5,180.18	-1,981.00	-1,373.73	2,394.30	6.90	-6.81	4.03	172.65
	NORMAL	5,840.0	8.62	222.01	5,273.54	-1,974.61	-1,384.72	2,411.74	4.32	-4.21	5.45	169.11
	NORMAL	5,936.0	8.70	224.12	5,368.44	-1,985.16	-1,394.59	2,426.05	0.34	0.08	2.20	76.91
11/8/2013	NORMAL	6,031.0	7.60	226.23	5,462.48	-1,994.67	-1,404.13	2,439.31	1.20	-1.16	2.22	165.83
	NORMAL	6,127.0	6.11	225.70	5,557.79	-2,002.63	-1,412.37	2,450.56	1.55	-1.55	-0.55	182.17
	NORMAL	6,223.0	4.88	232.74	5,653.35	-2,008.67	-1,419.27	2,459.47	1.46	-1.28	7.33	154.75
	NORMAL	6,318.0	2.86	220.17	5,748.13	-2,012.93	-1,424.02	2,465.68	2.29	-2.13	-13.23	196.59
11/9/2013	NORMAL	6,414.0	1.27	168.05	5,844.07	-2,015.80	-1,425.35	2,468.79	2.41	-1.66	-54.29	205.74
	NORMAL	6,510.0	2.20	110.04	5,940.03	-2,017.47	-1,423.39	2,469.04	1.95	0.97	-60.43	266.81
	NORMAL	6,605.0	2.90	80.24	6,034.94	-2,017.69	-1,419.31	2,466.88	1.55	0.74	-31.37	282.41
11/10/2013	NORMAL	6,700.0	3.43	75.32	6,129.80	-2,016.56	-1,414.19	2,463.02	0.63	0.56	-5.18	330.39
	NORMAL	6,796.0	2.68	82.71	6,225.66	-2,015.55	-1,409.19	2,459.32	0.88	-0.78	7.70	155.95
	NORMAL	6,892.0	2.55	76.64	6,321.56	-2,014.77	-1,404.89	2,456.21	0.32	-0.14	-6.32	241.84
11/11/2013	NORMAL	6,987.0	2.50	84.29	6,416.47	-2,014.08	-1,400.77	2,453.28	0.36	-0.05	8.05	102.25
	NORMAL	7,082.0	2.11	86.57	6,511.39	-2,013.76	-1,396.96	2,450.84	0.42	-0.41	2.40	167.91

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 (")
11/11/2013	NORMAL	7,178.0	1.98	91.58	6,607.33	-2,013.70	-1,393.54	2,448.83	0.23	-0.14	5.22	128.51
	NORMAL	7,274.0	1.45	86.84	6,703.29	-2,013.68	-1,390.67	2,447.16	0.57	-0.55	-4.94	192.62
11/12/2013	NORMAL	7,369.0	1.19	78.66	6,798.27	-2,013.42	-1,388.50	2,445.71	0.34	-0.27	-8.61	211.89
	NORMAL	7,465.0	0.92	78.66	6,894.25	-2,013.08	-1,386.77	2,444.43	0.28	-0.28	0.00	180.00
	NORMAL	7,561.0	0.88	84.20	6,990.24	-2,012.85	-1,385.28	2,443.39	0.10	-0.04	5.77	117.44
11/13/2013	NORMAL	7,656.0	0.83	75.41	7,085.23	-2,012.60	-1,383.89	2,442.39	0.15	-0.05	-9.25	244.78
	NORMAL	7,751.0	0.53	103.80	7,180.22	-2,012.53	-1,382.79	2,441.71	0.47	-0.32	29.88	145.29
11/14/2013	NORMAL	7,847.0	0.26	95.27	7,276.22	-2,012.66	-1,382.15	2,441.44	0.29	-0.28	-8.89	188.04
	NORMAL	7,945.0	0.57	215.33	7,374.22	-2,013.08	-1,382.21	2,441.81	0.75	0.32	122.51	137.87
	NORMAL	8,038.0	0.92	349.37	7,467.21	-2,012.72	-1,382.61	2,441.75	1.48	0.38	144.13	151.33
	NORMAL	8,134.0	1.05	246.27	7,563.21	-2,012.32	-1,383.56	2,441.97	1.61	0.14	-107.40	221.45
	NORMAL	8,228.0	0.92	243.72	7,657.19	-2,013.00	-1,385.02	2,443.37	0.15	-0.14	-2.71	197.36
	NORMAL	8,324.0	1.32	252.77	7,753.17	-2,013.67	-1,386.77	2,444.92	0.45	0.42	9.43	28.43
	NORMAL	8,420.0	1.67	243.19	7,849.14	-2,014.63	-1,389.08	2,447.02	0.45	0.36	-9.98	319.62
	NORMAL	8,515.0	1.58	250.93	7,944.10	-2,015.68	-1,391.55	2,449.30	0.25	-0.09	8.15	116.13
	NORMAL	8,611.0	1.76	247.50	8,040.06	-2,016.67	-1,394.16	2,451.62	0.21	0.19	-3.57	329.23
	NORMAL	8,680.0	1.76	247.50	8,109.03	-2,017.49	-1,396.12	2,453.41	0.00	0.00	0.00	0.00