

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well/Wellbore Information

Well	PA 313-12	Wellbore No.	OH
Wellbore Legal Name	PA 313-12	Common Wellbore Name	PA 313-12
Project	PA 12-07S-095W	Site	PA 23-12 Pad
Vertical Section Azimuth	251.08 (°)	North reference	
Origin N/S		Origin E/W	
Spud date	10/19/2013	UWI	PA 313-12
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	10/19/2013	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 (°)
10/19/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10/19/2013	NORMAL	119.0	1.06	250.40	118.99	-0.37	-1.04	1.10	0.89	0.89	0.00	250.40
	NORMAL	165.0	1.85	257.78	164.98	-0.67	-2.16	2.26	1.76	1.72	16.04	17.05
	NORMAL	256.0	3.96	256.46	255.86	-1.72	-6.65	6.85	2.32	2.32	-1.45	357.52
	NORMAL	346.0	6.51	252.69	345.47	-3.96	-14.55	15.05	2.86	2.83	-4.19	350.44
	NORMAL	436.0	9.24	255.59	434.62	-7.28	-26.42	27.35	3.06	3.03	3.22	9.72
	NORMAL	507.0	11.78	254.18	504.42	-10.67	-38.92	40.27	3.60	3.58	-1.99	353.52
	NORMAL	597.0	13.98	252.45	592.15	-16.46	-58.12	60.32	2.48	2.44	-1.92	349.21
	NORMAL	688.0	14.73	248.39	680.31	-24.03	-79.36	82.86	1.38	0.82	-4.46	304.71
10/20/2013	NORMAL	779.0	14.95	248.73	768.28	-32.55	-101.05	106.15	0.26	0.24	0.37	21.76
	NORMAL	820.0	15.25	250.04	807.86	-36.31	-111.05	116.82	1.11	0.73	3.20	49.32
10/21/2013	NORMAL	889.0	15.52	248.82	874.39	-42.74	-128.19	135.12	0.61	0.39	-1.77	309.25
	NORMAL	980.0	15.65	248.47	962.04	-51.65	-150.96	159.55	0.18	0.14	-0.38	323.95
	NORMAL	1,075.0	15.87	249.00	1,053.47	-61.00	-175.00	185.33	0.28	0.23	0.56	33.45
	NORMAL	1,171.0	15.60	250.40	1,145.88	-70.04	-199.42	211.35	0.49	-0.28	1.46	126.09
	NORMAL	1,267.0	15.25	250.05	1,238.42	-78.68	-223.45	236.88	0.38	-0.36	-0.36	194.73
	NORMAL	1,362.0	14.90	250.31	1,330.15	-87.05	-246.69	261.59	0.38	-0.37	0.27	169.19
	NORMAL	1,457.0	14.11	251.02	1,422.12	-94.84	-269.14	285.38	0.85	-0.83	0.75	167.66
	NORMAL	1,553.0	13.89	251.10	1,515.27	-102.47	-291.11	308.61	0.23	-0.23	0.08	175.01
	NORMAL	1,649.0	13.80	251.63	1,608.48	-109.81	-312.88	331.58	0.16	-0.09	0.55	125.62
	NORMAL	1,744.0	13.49	251.63	1,700.80	-116.88	-334.14	353.99	0.33	-0.33	0.00	180.00

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (°)	AzL (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (°/100usft)	Buuld Rate (°/100usft)	Turn (°/100usft)	Tface (°)
10/21/2013	NORMAL	1,840.0	12.88	252.86	1,794.27	-123.56	-355.00	375.88	0.70	-0.64	1.28	155.90
	NORMAL	1,936.0	14.02	253.04	1,887.63	-130.11	-376.34	398.20	1.19	1.19	0.19	2.19
	NORMAL	2,031.0	14.02	252.77	1,979.80	-136.87	-398.34	421.20	0.07	0.00	-0.28	269.87
	NORMAL	2,126.0	14.20	253.83	2,071.94	-143.52	-420.52	444.34	0.33	0.19	1.12	55.66
	NORMAL	2,222.0	14.64	251.37	2,164.91	-150.68	-443.33	468.23	0.79	0.46	-2.56	304.49
	NORMAL	2,318.0	14.64	251.10	2,257.80	-158.48	-466.30	492.50	0.07	0.00	-0.28	269.87
	NORMAL	2,413.0	14.73	251.28	2,349.69	-166.25	-489.10	516.58	0.11	0.09	0.19	26.97
	NORMAL	2,509.0	14.55	250.49	2,442.58	-174.19	-512.03	540.84	0.28	-0.19	-0.82	227.58
	NORMAL	2,604.0	14.24	249.08	2,534.60	-182.35	-534.19	564.45	0.49	-0.33	-1.48	227.83
	NORMAL	2,699.0	13.71	248.03	2,626.78	-190.74	-555.54	587.37	0.62	-0.56	-1.11	205.06
	NORMAL	2,795.0	13.54	253.65	2,720.09	-198.16	-576.88	609.96	1.39	-0.18	5.85	100.04
	NORMAL	2,890.0	12.79	252.69	2,812.59	-204.41	-597.59	631.58	0.82	-0.79	-1.01	195.79
	NORMAL	2,986.0	14.29	254.18	2,905.92	-210.81	-619.13	654.04	1.60	1.56	1.55	13.82
	NORMAL	3,081.0	14.37	254.71	2,997.96	-217.11	-641.78	677.51	0.16	0.08	0.56	58.88
	NORMAL	3,177.0	13.98	254.80	3,091.04	-223.29	-664.47	700.97	0.41	-0.41	0.09	176.81
10/22/2013	NORMAL	3,273.0	14.73	251.19	3,184.04	-230.27	-687.21	724.75	1.22	0.78	-3.76	308.20
	NORMAL	3,368.0	14.37	251.28	3,276.00	-237.95	-709.81	748.61	0.38	-0.38	0.09	176.45
	NORMAL	3,464.0	13.93	250.84	3,369.08	-245.56	-732.01	772.08	0.47	-0.46	-0.46	193.52
	NORMAL	3,559.0	13.49	250.84	3,461.38	-252.95	-753.27	794.60	0.46	-0.46	0.00	180.00
	NORMAL	3,654.0	13.58	251.98	3,553.74	-260.04	-774.35	816.83	0.30	0.09	1.20	71.91
	NORMAL	3,750.0	13.23	252.33	3,647.12	-266.86	-795.53	839.08	0.37	-0.36	0.36	167.12
	NORMAL	3,846.0	14.02	252.16	3,740.42	-273.76	-817.07	861.69	0.82	0.82	-0.18	357.02
	NORMAL	3,941.0	14.42	249.35	3,832.51	-281.45	-839.09	885.02	0.84	0.42	-2.96	298.72
	NORMAL	4,037.0	13.89	249.52	3,925.60	-289.70	-861.07	908.49	0.55	-0.55	0.18	175.60
	NORMAL	4,132.0	13.54	249.00	4,017.89	-297.68	-882.14	931.00	0.39	-0.37	-0.55	199.15
	NORMAL	4,227.0	12.88	250.05	4,110.38	-305.28	-902.47	952.70	0.74	-0.69	1.11	160.53
	NORMAL	4,323.0	14.07	249.79	4,203.73	-312.96	-923.48	975.06	1.24	1.24	-0.27	356.96
	NORMAL	4,418.0	13.71	249.08	4,295.95	-320.97	-944.83	997.86	0.42	-0.38	-0.75	204.99
	NORMAL	4,513.0	13.71	249.70	4,388.25	-328.89	-965.91	1,020.36	0.15	0.00	0.65	90.30
	NORMAL	4,608.0	13.28	250.31	4,480.62	-336.47	-986.74	1,042.53	0.48	-0.45	0.64	161.98
	NORMAL	4,704.0	12.84	251.28	4,574.14	-343.61	-1,007.22	1,064.22	0.51	-0.46	1.01	153.99
	NORMAL	4,799.0	12.97	250.05	4,668.74	-350.64	-1,027.24	1,085.44	0.32	0.14	-1.29	294.73
	NORMAL	4,895.0	12.40	251.37	4,760.40	-357.61	-1,047.14	1,106.52	0.67	-0.59	1.38	153.69
	NORMAL	4,990.0	12.22	250.05	4,853.21	-364.30	-1,066.25	1,126.77	0.35	-0.19	-1.39	236.75
	NORMAL	5,085.0	11.96	249.87	4,946.11	-371.11	-1,084.95	1,146.66	0.28	-0.27	-0.19	188.16
	NORMAL	5,179.0	11.60	249.61	5,038.13	-377.76	-1,102.95	1,165.85	0.39	-0.38	-0.28	188.26
10/23/2013	NORMAL	5,274.0	11.25	249.43	5,131.25	-384.34	-1,120.58	1,184.66	0.37	-0.37	-0.19	185.73
	NORMAL	5,370.0	10.68	250.58	5,225.49	-390.59	-1,137.74	1,202.91	0.64	-0.59	1.20	159.57
	NORMAL	5,466.0	10.68	249.52	5,319.83	-396.66	-1,154.46	1,220.70	0.20	0.00	-1.10	269.48
	NORMAL	5,562.0	9.14	252.16	5,414.40	-402.11	-1,170.05	1,237.22	1.67	-1.60	2.75	164.86
	NORMAL	5,657.0	7.52	253.04	5,508.39	-406.23	-1,183.18	1,250.98	1.71	-1.71	0.93	175.94
	NORMAL	5,752.0	5.45	253.39	5,602.78	-409.34	-1,193.45	1,261.70	2.18	-2.18	0.37	179.08
	NORMAL	5,848.0	4.09	248.20	5,698.44	-411.91	-1,201.00	1,269.67	1.48	-1.42	-5.41	195.03
10/24/2013	NORMAL	5,944.0	2.02	250.23	5,794.30	-413.76	-1,205.77	1,274.78	2.16	-2.16	2.11	178.02
	NORMAL	6,040.0	1.27	174.29	5,890.27	-415.39	-1,207.26	1,276.72	2.20	-0.78	-79.10	215.76
	NORMAL	6,135.0	2.29	138.08	5,985.23	-417.85	-1,205.88	1,276.22	1.55	1.07	-38.12	293.14
	NORMAL	6,231.0	2.77	128.23	6,081.13	-420.71	-1,202.78	1,274.21	0.67	0.50	-10.26	312.84
	NORMAL	6,327.0	2.64	124.98	6,177.03	-423.41	-1,199.15	1,271.65	0.21	-0.14	-3.39	228.10
	NORMAL	6,422.0	2.94	130.52	6,271.91	-426.25	-1,195.50	1,269.12	0.42	0.32	5.83	44.74
	NORMAL	6,518.0	2.37	118.65	6,367.81	-428.80	-1,191.89	1,266.53	0.82	-0.59	-12.36	218.14
	NORMAL	6,613.0	2.55	108.81	6,462.73	-430.42	-1,188.16	1,263.53	0.48	0.19	-10.36	288.12
10/25/2013	NORMAL	6,708.0	1.93	92.64	6,557.65	-431.18	-1,184.57	1,260.37	0.93	-0.65	-17.02	217.66
	NORMAL	6,804.0	1.50	85.69	6,653.61	-431.16	-1,181.70	1,257.66	0.50	-0.45	-7.24	202.37
	NORMAL	6,899.0	1.14	97.12	6,748.59	-431.18	-1,179.52	1,255.60	0.47	-0.38	12.03	149.44
	NORMAL	6,995.0	0.79	84.73	6,844.57	-431.24	-1,177.91	1,254.10	0.42	-0.36	-12.91	204.71
	NORMAL	7,090.0	0.53	141.77	6,939.57	-431.53	-1,176.99	1,253.32	0.71	-0.27	60.04	138.44

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
10/25/2013	NORMAL	7,186.0	0.40	155.13	7,035.56	-432.18	-1,176.57	1,253.14	0.18	-0.14	13.92	146.72
	NORMAL	7,281.0	0.40	215.68	7,130.56	-432.75	-1,176.63	1,253.37	0.42	0.00	63.74	120.27
	NORMAL	7,376.0	0.53	213.84	7,225.56	-433.38	-1,177.07	1,253.99	0.14	0.14	-1.94	352.53
10/26/2013	NORMAL	7,472.0	1.05	228.17	7,321.55	-434.34	-1,177.97	1,255.16	0.58	0.54	14.93	28.07
	NORMAL	7,566.0	1.27	249.52	7,415.53	-435.28	-1,179.59	1,256.99	0.51	0.23	22.71	73.97
	NORMAL	7,661.0	1.45	249.96	7,510.50	-436.06	-1,181.70	1,259.25	0.19	0.19	0.46	3.54
	NORMAL	7,755.0	1.89	245.66	7,604.46	-437.10	-1,184.23	1,261.98	0.49	0.47	-4.57	341.95
	NORMAL	7,851.0	2.37	252.95	7,700.40	-438.34	-1,187.57	1,265.54	0.57	0.50	7.59	33.12
	NORMAL	7,946.0	2.59	244.60	7,795.31	-439.84	-1,191.39	1,269.64	0.44	0.23	-8.79	297.12
	NORMAL	8,041.0	2.81	239.42	7,890.20	-441.94	-1,195.33	1,274.05	0.35	0.23	-5.45	309.43
	NORMAL	8,136.0	3.08	239.42	7,985.08	-444.42	-1,199.53	1,278.83	0.28	0.28	0.00	0.00
	NORMAL	8,242.0	2.94	243.37	8,090.93	-447.09	-1,204.42	1,284.31	0.24	-0.13	3.73	125.98