

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	SP 323-13	Wellbore No.	
Well Name	SP 323-13	Common Name	SP 323-13
Project	PA 13-07S-095W	Site	SP 13-13 Pad
Vertical Section Azimuth	73.06 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	9/17/2011	UWI	SP 323-13
Active Datum	KB @8,010.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	Scientific
Date Started	9/17/2011	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 (°)
9/17/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/17/2011	NORMAL	73.0	0.62	118.65	73.00	-0.19	0.35	0.28	0.85	0.85	0.00	118.65
	NORMAL	165.0	3.70	89.82	164.92	-0.42	3.75	3.47	3.45	3.35	-31.34	325.77
	NORMAL	255.0	6.33	74.36	254.57	0.93	11.44	11.21	3.26	2.92	-17.18	324.96
9/18/2011	NORMAL	335.0	8.19	67.78	333.93	4.27	20.96	21.29	2.54	2.32	-8.22	332.62
	NORMAL	425.0	10.93	69.43	422.67	9.70	34.88	36.20	3.06	3.04	1.83	6.53
	NORMAL	516.0	13.16	73.71	511.67	15.63	52.91	55.17	2.64	2.45	4.70	23.93
	NORMAL	607.0	13.98	73.57	600.12	21.65	73.39	76.52	0.90	0.90	-0.15	357.64
	NORMAL	698.0	15.18	72.18	688.19	28.40	95.28	99.42	1.37	1.32	-1.53	343.07
	NORMAL	789.0	16.78	72.84	775.67	35.93	119.18	124.47	1.77	1.76	0.73	6.80
	NORMAL	879.0	17.56	72.74	861.66	43.79	144.56	151.04	0.87	0.87	-0.11	357.78
	NORMAL	970.0	16.25	73.79	948.73	51.41	169.89	177.50	1.48	-1.44	1.15	167.38
	NORMAL	1,061.0	16.66	73.67	1,036.00	58.64	194.64	203.28	0.45	0.45	-0.13	355.20
	NORMAL	1,155.0	16.98	73.50	1,125.98	66.32	220.73	230.48	0.34	0.34	-0.18	351.18
	NORMAL	1,250.0	17.80	73.04	1,216.64	74.50	247.92	258.87	0.88	0.86	-0.48	350.26
	NORMAL	1,344.0	16.71	72.78	1,306.40	82.69	274.57	286.75	1.16	-1.16	-0.28	183.92
	NORMAL	1,439.0	16.06	74.20	1,397.55	90.31	300.26	313.55	0.80	-0.68	1.49	149.04
	NORMAL	1,535.0	16.53	74.45	1,489.69	97.59	326.19	340.47	0.50	0.49	0.26	8.61
9/20/2011	NORMAL	1,630.0	16.80	75.15	1,580.70	104.73	352.48	367.71	0.35	0.28	0.74	36.97
	NORMAL	1,724.0	17.15	72.25	1,670.61	112.44	378.81	395.14	0.97	0.37	-3.09	291.07
	NORMAL	1,819.0	17.61	72.43	1,761.27	121.05	405.85	423.51	0.49	0.48	0.19	6.75

2.1.2 Survey Stations (Continued)

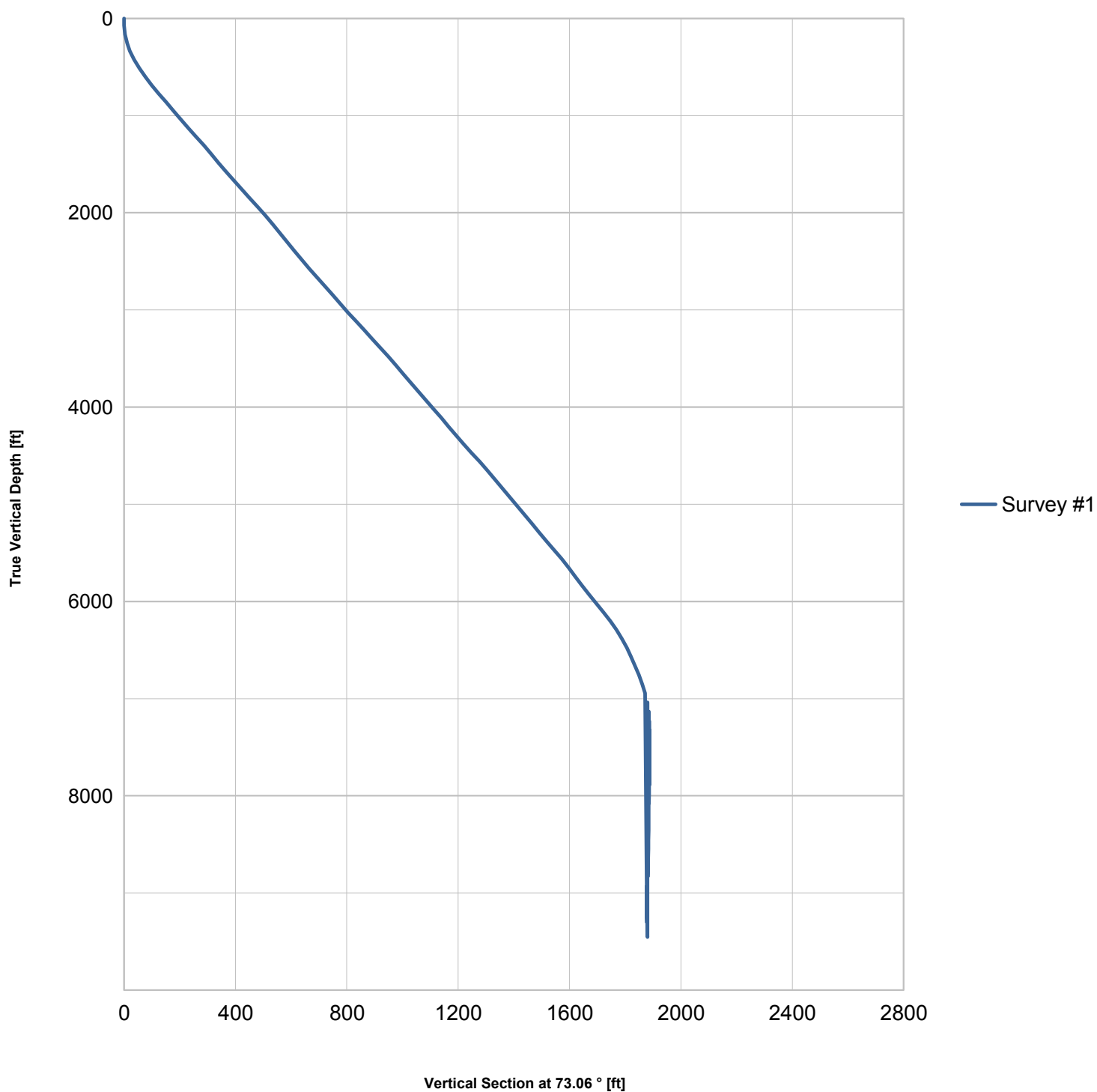
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
9/20/2011	NORMAL	1,913.0	18.14	71.97	1,850.73	129.87	433.33	452.36	0.58	0.56	-0.49	344.86
	NORMAL	2,008.0	16.82	72.42	1,941.34	138.60	460.49	480.89	1.40	-1.39	0.47	174.37
	NORMAL	2,102.0	17.23	71.73	2,031.22	147.07	486.68	508.41	0.49	0.44	-0.73	333.44
	NORMAL	2,197.0	15.81	72.63	2,122.30	155.34	512.39	535.42	1.52	-1.49	0.95	170.21
	NORMAL	2,291.0	15.83	72.78	2,212.74	162.96	536.86	561.05	0.05	0.02	0.16	64.01
	NORMAL	2,386.0	15.47	72.53	2,304.22	170.60	561.32	586.67	0.39	-0.38	-0.26	190.49
	NORMAL	2,481.0	16.45	72.38	2,395.55	178.48	586.23	612.79	1.03	1.03	-0.16	357.52
	NORMAL	2,575.0	15.92	72.26	2,485.83	186.43	611.19	638.99	0.56	-0.56	-0.13	183.55
	NORMAL	2,670.0	17.32	75.42	2,576.86	193.96	637.29	666.15	1.75	1.47	3.33	34.37
	NORMAL	2,764.0	17.50	75.42	2,666.55	201.04	664.51	694.25	0.19	0.19	0.00	0.00
	NORMAL	2,859.0	17.08	71.89	2,757.26	208.98	691.59	722.47	1.19	-0.44	-3.72	246.50
	NORMAL	2,953.0	16.62	73.48	2,847.23	217.09	717.60	749.72	0.69	-0.49	1.69	135.70
	NORMAL	3,048.0	17.01	72.58	2,938.16	225.11	743.88	777.20	0.49	0.41	-0.95	325.84
	NORMAL	3,142.0	17.53	71.34	3,027.93	233.76	770.41	805.10	0.68	0.55	-1.32	324.11
	NORMAL	3,237.0	18.25	70.08	3,118.33	243.41	797.96	834.25	0.86	0.76	-1.33	331.14
9/21/2011	NORMAL	3,331.0	17.65	73.78	3,207.76	252.40	825.48	863.20	1.37	-0.64	3.94	119.50
	NORMAL	3,426.0	17.18	75.61	3,298.41	259.91	852.90	891.62	0.76	-0.49	1.93	131.50
	NORMAL	3,520.0	18.02	74.32	3,388.00	267.29	880.34	920.03	0.99	0.89	-1.37	334.48
	NORMAL	3,615.0	17.41	75.59	3,478.50	274.80	908.26	948.92	0.76	-0.64	1.34	148.25
	NORMAL	3,709.0	16.67	75.94	3,568.37	281.57	934.96	976.43	0.79	-0.79	0.37	172.28
	NORMAL	3,804.0	16.34	72.39	3,659.46	288.93	960.91	1,003.40	1.12	-0.35	-3.74	250.19
	NORMAL	3,898.0	16.71	71.88	3,749.58	297.13	986.36	1,030.13	0.42	0.39	-0.54	338.35
	NORMAL	3,993.0	16.79	71.67	3,840.55	305.69	1,012.36	1,057.51	0.11	0.08	-0.22	322.79
	NORMAL	4,087.0	17.17	70.20	3,930.45	314.66	1,038.31	1,084.94	0.61	0.40	-1.56	310.81
	NORMAL	4,182.0	16.52	74.06	4,021.38	323.12	1,064.49	1,112.45	1.36	-0.68	4.06	122.00
	NORMAL	4,276.0	16.71	73.31	4,111.45	330.67	1,090.28	1,139.32	0.30	0.20	-0.80	311.18
	NORMAL	4,371.0	16.67	72.96	4,202.45	338.59	1,116.39	1,166.61	0.11	-0.04	-0.37	248.13
	NORMAL	4,465.0	16.20	74.00	4,292.61	346.15	1,141.89	1,193.20	0.59	-0.50	1.11	148.45
9/22/2011	NORMAL	4,560.0	17.32	73.83	4,383.57	353.75	1,168.21	1,220.59	1.18	1.18	-0.18	357.41
	NORMAL	4,654.0	18.11	73.04	4,473.11	361.90	1,195.62	1,249.19	0.88	0.84	-0.84	342.70
	NORMAL	4,749.0	17.50	75.59	4,563.56	369.77	1,223.58	1,278.23	1.04	-0.64	2.68	129.25
	NORMAL	4,844.0	16.44	75.77	4,654.43	376.63	1,250.45	1,305.93	1.12	-1.12	0.19	177.25
	NORMAL	4,938.0	16.18	71.45	4,744.65	384.06	1,275.76	1,332.31	1.32	-0.28	-4.60	255.84
	NORMAL	5,033.0	16.27	70.76	4,835.86	392.66	1,300.87	1,358.83	0.22	0.09	-0.73	294.69
	NORMAL	5,127.0	16.25	71.15	4,926.10	401.25	1,325.75	1,385.14	0.12	-0.02	0.41	100.57
	NORMAL	5,222.0	16.44	71.29	5,017.26	409.85	1,351.06	1,411.86	0.20	0.20	0.15	11.78
	NORMAL	5,316.0	16.77	70.70	5,107.34	418.60	1,376.46	1,438.70	0.39	0.35	-0.63	332.65
	NORMAL	5,411.0	15.64	73.23	5,198.57	426.83	1,401.65	1,465.20	1.40	-1.19	2.66	149.21
	NORMAL	5,505.0	15.94	74.10	5,289.02	434.02	1,426.20	1,490.78	0.41	0.32	0.93	38.70
	NORMAL	5,600.0	16.36	73.57	5,380.27	441.38	1,451.58	1,517.20	0.47	0.44	-0.56	340.40
	NORMAL	5,694.0	16.76	72.54	5,470.37	449.19	1,477.21	1,543.99	0.53	0.43	-1.10	323.23
9/23/2011	NORMAL	5,789.0	16.57	74.42	5,561.38	456.94	1,503.32	1,571.23	0.60	-0.20	1.98	110.31
	NORMAL	5,883.0	14.68	76.21	5,651.91	463.38	1,527.80	1,596.53	2.07	-2.01	1.90	166.55
	NORMAL	5,978.0	14.61	74.98	5,743.82	469.35	1,551.06	1,620.52	0.34	-0.07	-1.29	256.72
	NORMAL	6,072.0	15.17	72.25	5,834.66	476.17	1,574.23	1,644.67	0.95	0.60	-2.90	307.27
	NORMAL	6,167.0	15.77	69.87	5,926.22	484.40	1,598.19	1,669.98	0.92	0.63	-2.51	312.23
	NORMAL	6,261.0	15.66	69.54	6,016.71	493.24	1,622.07	1,695.40	0.15	-0.12	-0.35	218.94
	NORMAL	6,356.0	15.74	69.44	6,108.17	502.24	1,646.15	1,721.06	0.09	0.08	-0.11	341.26
	NORMAL	6,450.0	14.77	73.04	6,198.85	510.22	1,669.55	1,745.77	1.44	-1.03	3.83	137.41
	NORMAL	6,545.0	12.82	75.70	6,291.11	516.35	1,691.34	1,768.41	2.16	-2.05	2.80	163.27
9/24/2011	NORMAL	6,639.0	11.76	76.78	6,382.96	521.12	1,710.78	1,788.38	1.15	-1.13	1.15	168.29
	NORMAL	6,734.0	9.48	79.08	6,476.32	524.82	1,727.88	1,805.83	2.44	-2.40	2.42	170.60
9/28/2011	NORMAL	6,828.0	8.93	80.79	6,569.11	527.45	1,742.69	1,820.75	0.65	-0.59	1.82	154.40
	NORMAL	6,923.0	8.58	79.27	6,663.00	529.95	1,756.93	1,835.11	0.44	-0.37	-1.60	212.72
	NORMAL	7,017.0	8.11	75.79	6,756.01	532.88	1,770.24	1,848.70	0.73	-0.50	-3.70	225.35
	NORMAL	7,112.0	6.86	72.08	6,850.20	536.27	1,782.14	1,861.07	1.41	-1.32	-3.91	199.31
	NORMAL	7,207.0	6.06	66.08	6,944.60	540.05	1,792.12	1,871.72	1.10	-0.84	-6.32	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 (°)
9/28/2011	NORMAL	7,301.0	4.12	66.52	7,038.22	543.41	1,799.76	1,880.00	2.06	-2.06	0.47	179.07
	NORMAL	7,396.0	1.77	65.37	7,133.09	545.38	1,804.22	1,884.84	2.47	-2.47	-1.21	180.87
	NORMAL	7,490.0	0.51	355.52	7,227.07	546.40	1,805.51	1,886.37	1.77	-1.34	-74.31	196.72
	NORMAL	7,585.0	0.50	2.65	7,322.07	547.24	1,805.49	1,886.60	0.07	-0.01	7.51	102.59
	NORMAL	7,679.0	0.45	358.26	7,416.06	548.02	1,805.50	1,886.84	0.07	-0.05	-4.67	213.87
9/29/2011	NORMAL	7,774.0	0.33	52.05	7,511.06	548.56	1,805.71	1,887.19	0.39	-0.13	56.62	133.77
	NORMAL	7,868.0	0.26	323.09	7,605.06	548.90	1,805.79	1,887.37	0.44	-0.07	-94.64	218.63
	NORMAL	7,963.0	0.12	337.29	7,700.06	549.16	1,805.62	1,887.29	0.15	-0.15	14.95	168.42
	NORMAL	8,057.0	0.44	285.83	7,794.06	549.35	1,805.24	1,886.97	0.40	0.34	-54.74	294.13
	NORMAL	8,152.0	0.17	284.79	7,889.06	549.48	1,804.75	1,886.55	0.28	-0.28	-1.09	180.65
	NORMAL	8,246.0	0.53	202.59	7,983.06	549.12	1,804.45	1,886.15	0.57	0.38	-87.45	259.42
	NORMAL	8,341.0	0.62	217.54	8,078.05	548.31	1,803.97	1,885.45	0.18	0.09	15.74	66.66
	NORMAL	8,435.0	1.06	201.45	8,172.04	547.09	1,803.34	1,884.50	0.53	0.47	-17.12	323.60
	NORMAL	8,530.0	0.35	332.15	8,267.04	546.53	1,802.88	1,883.90	1.38	-0.75	137.58	168.36
	NORMAL	8,624.0	0.35	350.78	8,361.04	547.07	1,802.70	1,883.88	0.12	0.00	19.82	99.31
	NORMAL	8,719.0	0.27	223.82	8,456.03	547.19	1,802.50	1,883.73	0.59	-0.08	-133.64	202.84
	NORMAL	8,813.0	0.88	198.64	8,550.03	546.35	1,802.12	1,883.11	0.69	0.65	-26.79	324.58
	NORMAL	8,908.0	0.21	245.67	8,645.02	545.59	1,801.72	1,882.52	0.79	-0.71	49.51	168.22
9/30/2011	NORMAL	9,002.0	0.44	221.23	8,739.02	545.24	1,801.33	1,882.04	0.28	0.24	-26.00	316.31
	NORMAL	9,097.0	1.11	235.49	8,834.01	544.45	1,800.33	1,880.85	0.73	0.71	15.01	23.27
	NORMAL	9,191.0	1.76	236.52	8,927.98	543.14	1,798.38	1,878.60	0.69	0.69	1.10	2.79
	NORMAL	9,286.0	0.21	144.51	9,022.97	542.19	1,797.26	1,877.26	1.87	-1.63	-96.85	186.77
	NORMAL	9,380.0	0.85	147.42	9,116.96	541.46	1,797.74	1,877.50	0.68	0.68	3.10	3.86
	NORMAL	9,475.0	1.20	156.19	9,211.95	539.96	1,798.52	1,877.81	0.40	0.37	9.23	28.57
	NORMAL	9,570.0	1.74	143.05	9,306.92	537.90	1,799.79	1,878.42	0.67	0.57	-13.83	321.34
	NORMAL	9,663.0	1.93	152.23	9,399.87	535.38	1,801.36	1,879.20	0.38	0.20	9.87	61.77
	NORMAL	9,718.0	1.93	152.23	9,454.84	533.74	1,802.23	1,879.55	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

