

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	KP 311-27	Wellbore No.	1
Well Name	KP 311-27	Common Name	KP 311-27
Project	KP 28-06S-091W	Site	KP 41-28 Pad
Vertical Section Azimuth	98.30 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	2/15/2012	UWI	KP 311-27
Active Datum	KB @7,079.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	Scientific Drilling
Date Started	2/15/2012	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 (°)
2/15/2012	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2/15/2012	NORMAL	70.0	0.18	313.86	70.00	0.08	-0.08	-0.09	0.26	0.26	0.00	313.86
	NORMAL	162.0	3.61	91.67	161.94	0.09	2.71	2.67	4.07	3.73	149.79	139.66
	NORMAL	254.0	5.01	98.26	253.68	-0.57	9.58	9.57	1.61	1.52	7.16	22.79
	NORMAL	335.0	6.07	102.01	334.30	-1.97	17.27	17.38	1.38	1.31	4.63	20.73
	NORMAL	426.0	8.19	95.96	424.59	-3.64	28.43	28.66	2.47	2.33	-6.65	337.48
	NORMAL	517.0	11.58	99.34	514.23	-5.80	43.89	44.27	3.78	3.73	3.71	11.38
	NORMAL	607.0	14.33	100.41	601.93	-9.28	63.76	64.43	3.07	3.06	1.19	5.51
	NORMAL	699.0	16.36	99.44	690.65	-13.46	87.74	88.77	2.22	2.21	-1.05	352.32
	NORMAL	789.0	15.83	97.69	777.12	-17.18	112.41	113.72	0.80	-0.59	-1.94	221.63
2/16/2012	NORMAL	879.0	16.58	97.54	863.54	-20.51	137.31	138.83	0.83	0.83	-0.17	356.73
	NORMAL	970.0	15.96	98.16	950.90	-23.99	162.56	164.32	0.71	-0.68	0.68	164.65
	NORMAL	1,065.0	16.25	97.47	1,042.17	-27.57	188.67	190.68	0.37	0.31	-0.73	326.24
	NORMAL	1,159.0	15.41	94.71	1,132.60	-30.31	214.16	216.29	1.20	-0.89	-2.94	220.55
	NORMAL	1,254.0	15.80	99.09	1,224.11	-33.39	239.51	241.82	1.31	0.41	4.61	73.80
	NORMAL	1,334.0	17.41	100.24	1,300.77	-37.24	262.04	264.68	2.05	2.01	1.44	12.09
2/17/2012	NORMAL	1,437.0	18.76	99.71	1,398.68	-42.77	293.54	296.63	1.32	1.31	-0.51	352.80
	NORMAL	1,532.0	15.94	97.11	1,489.35	-46.96	321.54	324.95	3.08	-2.97	-2.74	194.14
	NORMAL	1,628.0	15.91	97.56	1,581.66	-50.32	347.67	351.29	0.13	-0.03	0.47	103.87
	NORMAL	1,723.0	14.33	96.09	1,673.37	-53.28	372.27	376.06	1.71	-1.66	-1.55	192.93
	NORMAL	1,818.0	14.56	95.73	1,765.37	-55.72	395.84	399.74	0.26	0.24	-0.38	338.50

2.1.2 Survey Stations (Continued)

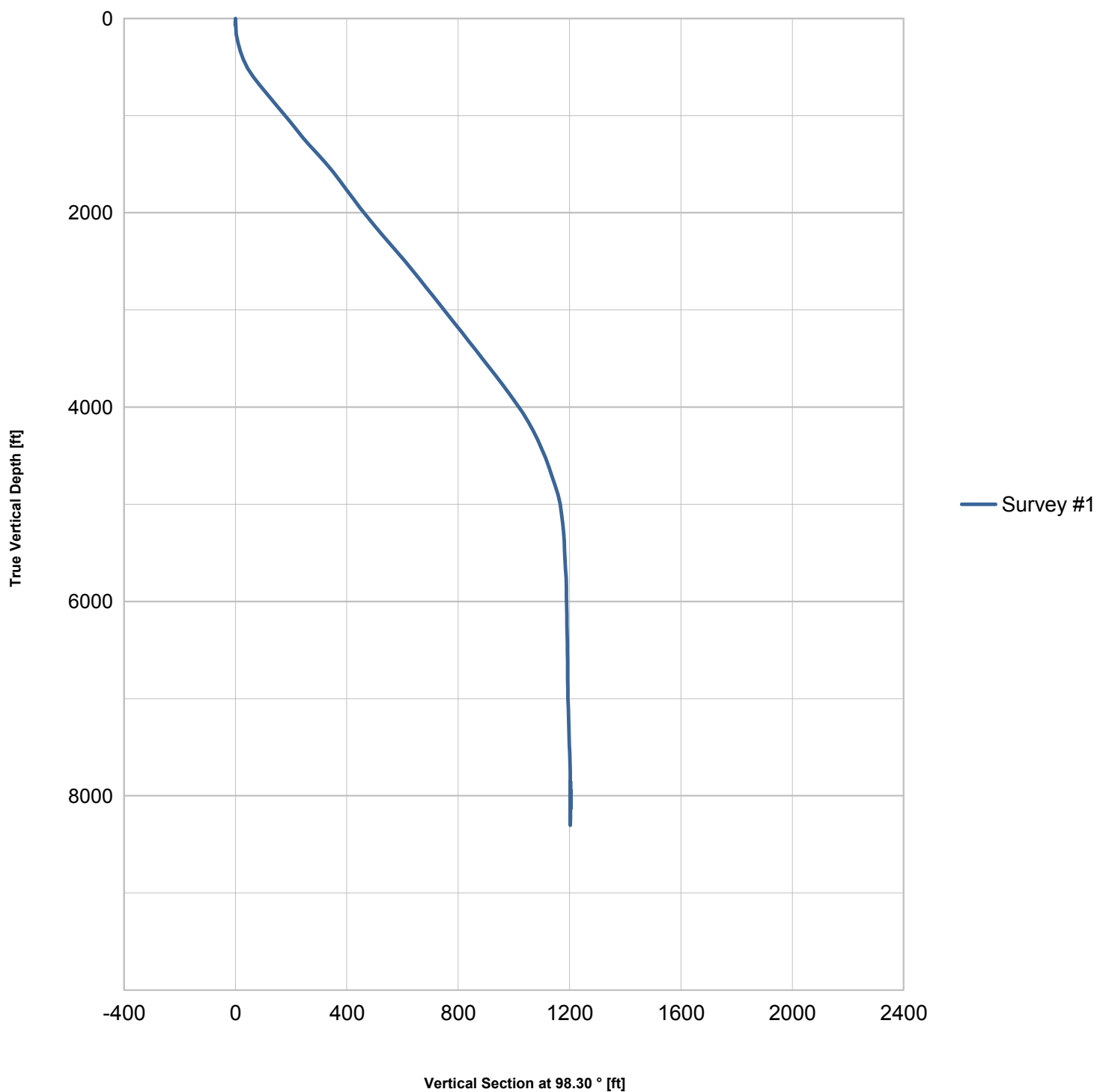
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
2/17/2012	NORMAL	1,913.0	14.68	100.36	1,857.29	-59.08	419.56	423.70	1.24	0.13	4.87	86.38
	NORMAL	2,009.0	14.85	100.63	1,950.12	-63.54	443.62	448.15	0.19	0.18	0.28	22.17
	NORMAL	2,104.0	16.14	99.72	2,041.67	-68.01	468.60	473.51	1.38	1.36	-0.96	348.89
	NORMAL	2,199.0	16.35	98.94	2,132.88	-72.32	494.82	500.08	0.32	0.22	-0.82	313.53
	NORMAL	2,294.0	16.59	98.98	2,223.98	-76.51	521.43	527.01	0.25	0.25	0.04	2.72
	NORMAL	2,390.0	16.70	98.61	2,315.96	-80.72	548.60	554.51	0.16	0.11	-0.39	315.89
	NORMAL	2,485.0	17.18	98.91	2,406.83	-84.94	575.96	582.19	0.51	0.51	0.32	10.46
	NORMAL	2,580.0	15.88	97.04	2,497.91	-88.70	602.72	609.21	1.48	-1.37	-1.97	201.36
	NORMAL	2,675.0	15.72	96.43	2,589.32	-91.74	628.41	635.07	0.24	-0.17	-0.64	225.78
	NORMAL	2,770.0	15.68	97.60	2,680.77	-94.87	653.92	660.77	0.34	-0.04	1.23	97.76
	NORMAL	2,864.0	15.29	97.58	2,771.36	-98.19	678.80	685.87	0.41	-0.41	-0.02	180.77
	NORMAL	2,959.0	15.51	98.45	2,862.95	-101.71	703.78	711.09	0.34	0.23	0.92	46.82
	NORMAL	3,055.0	15.58	99.17	2,955.44	-105.65	729.20	736.82	0.21	0.07	0.75	70.41
	NORMAL	3,150.0	15.56	99.62	3,046.95	-109.81	754.36	762.31	0.13	-0.02	0.47	99.62
	NORMAL	3,246.0	15.68	100.24	3,139.41	-114.27	779.82	788.15	0.21	0.12	0.65	54.59
	NORMAL	3,340.0	15.43	101.33	3,229.96	-118.98	804.58	813.33	0.41	-0.27	1.16	131.06
	NORMAL	3,436.0	15.44	97.48	3,322.50	-123.16	829.78	838.86	1.07	0.01	-4.01	268.70
	NORMAL	3,530.0	14.84	95.99	3,413.24	-126.04	854.16	863.40	0.76	-0.64	-1.59	212.25
	NORMAL	3,626.0	15.42	98.76	3,505.91	-129.27	879.00	888.45	0.97	0.60	2.89	52.61
	NORMAL	3,720.0	15.43	99.49	3,596.53	-133.23	903.68	913.45	0.21	0.01	0.78	87.40
2/18/2012	NORMAL	3,815.0	14.90	99.37	3,688.22	-137.31	928.20	938.30	0.56	-0.56	-0.13	183.33
	NORMAL	3,909.0	14.42	100.32	3,779.16	-141.37	951.64	962.08	0.57	-0.51	1.01	153.85
	NORMAL	4,005.0	14.23	99.12	3,872.18	-145.38	975.05	985.82	0.37	-0.20	-1.25	236.80
	NORMAL	4,100.0	14.23	97.94	3,964.26	-148.85	998.14	1,009.17	0.31	0.00	-1.24	269.43
	NORMAL	4,196.0	13.09	96.22	4,057.54	-151.65	1,020.63	1,031.84	1.26	-1.19	-1.79	198.78
	NORMAL	4,290.0	11.43	100.59	4,149.40	-154.52	1,040.37	1,051.78	2.02	-1.77	4.65	152.92
	NORMAL	4,386.0	9.98	99.32	4,243.73	-157.61	1,057.93	1,069.60	1.53	-1.51	-1.32	188.62
	NORMAL	4,481.0	9.67	99.62	4,337.33	-160.28	1,073.92	1,085.81	0.33	-0.33	0.32	170.77
	NORMAL	4,576.0	8.35	98.74	4,431.16	-162.66	1,088.61	1,100.69	1.40	-1.39	-0.93	185.53
	NORMAL	4,670.0	7.65	101.64	4,524.24	-164.96	1,101.48	1,113.76	0.86	-0.74	3.09	151.46
	NORMAL	4,766.0	7.30	100.67	4,619.43	-167.38	1,113.73	1,126.23	0.39	-0.36	-1.01	199.35
	NORMAL	4,861.0	6.70	103.43	4,713.72	-169.79	1,125.06	1,137.78	0.72	-0.63	2.91	152.09
	NORMAL	4,957.0	6.58	106.03	4,809.08	-172.60	1,135.79	1,148.81	0.34	-0.12	2.71	113.05
	NORMAL	5,051.0	5.54	103.63	4,902.55	-175.16	1,145.38	1,158.66	1.14	-1.11	-2.55	192.50
	NORMAL	5,146.0	3.56	103.06	4,997.24	-176.91	1,152.71	1,166.17	2.08	-2.08	-0.60	181.02
2/19/2012	NORMAL	5,241.0	2.42	108.66	5,092.11	-178.22	1,157.48	1,171.08	1.24	-1.20	5.89	168.41
	NORMAL	5,336.0	2.79	104.79	5,187.02	-179.45	1,161.62	1,175.35	0.43	0.39	-4.07	332.63
	NORMAL	5,431.0	1.60	111.91	5,281.94	-180.53	1,165.08	1,178.94	1.28	-1.25	7.49	170.63
	NORMAL	5,527.0	0.95	109.38	5,377.92	-181.30	1,167.08	1,181.02	0.68	-0.68	-2.64	183.69
	NORMAL	5,622.0	0.54	135.00	5,472.91	-181.88	1,168.14	1,182.15	0.55	-0.43	26.97	153.24
	NORMAL	5,717.0	1.31	83.45	5,567.90	-182.07	1,169.53	1,183.56	1.12	0.81	-54.26	284.99
	NORMAL	5,813.0	1.48	90.38	5,663.87	-181.95	1,171.86	1,185.85	0.25	0.18	7.22	48.28
	NORMAL	5,908.0	0.89	69.75	5,758.85	-181.70	1,173.78	1,187.72	0.76	-0.62	-21.72	205.86
	NORMAL	6,004.0	0.63	29.61	5,854.84	-180.99	1,174.74	1,188.56	0.60	-0.27	-41.81	224.84
	NORMAL	6,099.0	0.62	66.75	5,949.84	-180.33	1,175.47	1,189.19	0.42	-0.01	39.09	109.93
	NORMAL	6,194.0	0.45	116.48	6,044.83	-180.29	1,176.28	1,189.98	0.50	-0.18	52.35	133.79
	NORMAL	6,289.0	0.09	97.60	6,139.83	-180.47	1,176.68	1,190.41	0.39	-0.38	-19.87	184.56
2/20/2012	NORMAL	6,385.0	0.32	94.83	6,235.83	-180.50	1,177.03	1,190.75	0.24	0.24	-2.89	356.15
	NORMAL	6,480.0	0.59	62.89	6,330.83	-180.30	1,177.73	1,191.42	0.38	0.28	-33.62	300.07
	NORMAL	6,573.0	0.45	116.80	6,423.83	-180.25	1,178.48	1,192.15	0.52	-0.15	57.97	131.78
	NORMAL	6,669.0	0.26	147.34	6,519.82	-180.60	1,178.93	1,192.65	0.27	-0.20	31.81	149.70
	NORMAL	6,762.0	0.44	152.79	6,612.82	-181.10	1,179.21	1,193.00	0.20	0.19	5.86	13.21
	NORMAL	6,858.0	0.43	27.89	6,708.82	-181.11	1,179.55	1,193.34	0.80	-0.01	-130.10	207.21
	NORMAL	6,953.0	0.92	9.66	6,803.82	-180.04	1,179.84	1,193.47	0.56	0.52	-19.19	327.04
	NORMAL	7,048.0	0.34	46.36	6,898.81	-179.09	1,180.17	1,193.66	0.71	-0.61	38.63	162.57
	NORMAL	7,143.0	0.68	97.05	6,993.81	-178.97	1,180.94	1,194.40	0.56	0.36	53.36	80.21
	NORMAL	7,238.0	0.70	134.48	7,088.80	-179.44	1,181.91	1,195.43	0.47	0.02	39.40	106.26

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 (°)
2/21/2012	NORMAL	7,333.0	0.55	138.58	7,183.79	-180.19	1,182.63	1,196.25	0.16	-0.16	4.32	165.44
	NORMAL	7,429.0	0.64	101.93	7,279.79	-180.65	1,183.45	1,197.14	0.40	0.09	-38.18	264.54
	NORMAL	7,524.0	0.66	95.35	7,374.78	-180.81	1,184.52	1,198.21	0.08	0.02	-6.93	281.69
	NORMAL	7,619.0	0.88	92.59	7,469.77	-180.89	1,185.79	1,199.49	0.23	0.23	-2.91	349.05
	NORMAL	7,714.0	0.53	89.37	7,564.77	-180.92	1,186.96	1,200.65	0.37	-0.37	-3.39	184.85
	NORMAL	7,809.0	0.53	98.21	7,659.76	-180.98	1,187.83	1,201.52	0.09	0.00	9.31	94.42
2/22/2012	NORMAL	7,905.0	0.59	93.92	7,755.76	-181.08	1,188.77	1,202.46	0.08	0.06	-4.47	322.90
	NORMAL	8,000.0	0.51	92.80	7,850.75	-181.13	1,189.68	1,203.36	0.08	-0.08	-1.18	187.09
	NORMAL	8,095.0	0.65	39.57	7,945.75	-180.74	1,190.44	1,204.06	0.56	0.15	-56.03	256.93
	NORMAL	8,190.0	0.34	348.72	8,040.75	-180.04	1,190.73	1,204.25	0.54	-0.33	-53.53	211.20
	NORMAL	8,286.0	0.62	343.56	8,136.74	-179.27	1,190.53	1,203.94	0.29	0.29	-5.37	348.64
	NORMAL	8,381.0	1.15	337.76	8,231.73	-177.89	1,190.02	1,203.24	0.57	0.56	-6.11	347.50
	NORMAL	8,452.0	1.15	337.76	8,302.72	-176.57	1,189.48	1,202.51	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

