

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	KP 411-27	Wellbore No.	
Well Name	KP 411-27	Common Name	KP 411-27
Project	KP 28-06S-091W	Site	KP 41-28 Pad
Vertical Section	112.05 (°)	North Reference	True
Azimuth		Origin E/W	
Origin N/S		UWI	KP 411-27
Spud Date	1/4/2012		
Active Datum	KB @7,079.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Started	1/4/2012	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)	DLeg (°/100ft)	Buidl (°/100ft)	Turn (°/100ft)	TFace (°)
1/4/2012	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1/4/2012	NORMAL	72.0	0.09	353.06	72.00	0.06	-0.01	-0.03	0.12	0.12	0.00	353.06
	NORMAL	162.0	2.11	98.09	161.98	-0.11	1.63	1.55	2.37	2.24	116.70	107.36
	NORMAL	254.0	2.46	115.58	253.91	-1.20	5.08	5.16	0.84	0.38	19.01	72.26
	NORMAL	346.0	3.26	119.09	345.79	-3.32	9.15	9.73	0.89	0.87	3.82	14.10
	NORMAL	437.0	4.93	116.98	436.56	-6.35	14.90	16.19	1.84	1.84	-2.32	353.79
	NORMAL	528.0	7.74	112.85	526.99	-10.51	24.03	26.22	3.13	3.09	-4.54	348.73
	NORMAL	603.0	10.82	113.48	601.00	-15.28	35.14	38.31	4.11	4.11	0.84	2.20
1/5/2012	NORMAL	695.0	15.21	112.08	690.62	-23.26	54.26	59.02	4.78	4.77	-1.52	355.21
	NORMAL	785.0	17.50	111.64	776.97	-32.69	77.78	84.36	2.55	2.54	-0.49	356.69
	NORMAL	875.0	17.25	110.87	862.86	-42.43	102.82	111.23	0.38	-0.28	-0.86	222.24
	NORMAL	966.0	17.79	110.18	949.64	-52.03	128.48	138.62	0.64	0.59	-0.76	338.63
	NORMAL	1,061.0	16.59	110.12	1,040.40	-61.70	154.84	166.68	1.26	-1.26	-0.06	180.82
	NORMAL	1,155.0	16.44	112.69	1,130.52	-71.45	179.71	193.39	0.79	-0.16	2.73	102.83
	NORMAL	1,250.0	17.06	112.78	1,221.49	-82.03	204.96	220.77	0.65	0.65	0.09	2.44
	NORMAL	1,305.0	17.50	112.51	1,274.01	-88.32	220.04	237.10	0.81	0.80	-0.49	349.54
1/6/2012	NORMAL	1,410.0	17.90	111.92	1,374.03	-100.39	249.59	269.03	0.42	0.38	-0.56	335.56
	NORMAL	1,442.0	18.21	112.15	1,404.46	-104.11	258.79	278.94	0.99	0.97	0.72	13.06
	NORMAL	1,537.0	16.73	112.63	1,495.07	-114.97	285.16	307.46	1.57	-1.56	0.51	174.67
	NORMAL	1,633.0	16.28	111.58	1,587.12	-125.24	310.42	334.73	0.56	-0.47	-1.09	213.04
	NORMAL	1,728.0	16.47	114.96	1,678.27	-135.82	335.02	361.50	1.02	0.20	3.56	80.35

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
1/6/2012	NORMAL	1,823.0	17.28	115.99	1,769.18	-147.68	359.91	389.03	0.91	0.85	1.08	20.75
	NORMAL	1,919.0	17.46	113.64	1,860.80	-159.71	385.92	417.65	0.75	0.19	-2.45	283.27
	NORMAL	2,014.0	17.25	110.24	1,951.48	-170.29	412.19	445.97	1.09	-0.22	-3.58	256.68
	NORMAL	2,109.0	16.99	109.11	2,042.27	-179.71	438.52	473.91	0.44	-0.27	-1.19	231.45
	NORMAL	2,204.0	17.03	109.95	2,133.11	-189.00	464.71	501.68	0.26	0.04	0.88	81.16
	NORMAL	2,299.0	17.31	109.02	2,223.88	-198.35	491.15	529.69	0.41	0.29	-0.98	315.12
	NORMAL	2,395.0	16.46	112.59	2,315.74	-208.23	517.21	557.56	1.40	-0.89	3.72	131.04
	NORMAL	2,490.0	16.80	112.43	2,406.77	-218.64	542.33	584.74	0.36	0.36	-0.17	352.25
	NORMAL	2,585.0	17.27	109.74	2,497.60	-228.64	568.29	612.56	0.97	0.49	-2.83	299.52
	NORMAL	2,680.0	17.13	112.70	2,588.35	-238.81	594.47	640.64	0.93	-0.15	3.12	100.50
1/7/2012	NORMAL	2,776.0	17.11	113.29	2,680.10	-249.85	620.49	668.90	0.18	-0.02	0.61	96.85
	NORMAL	2,869.0	16.87	113.77	2,769.04	-260.69	645.40	696.06	0.30	-0.26	0.52	149.93
	NORMAL	2,964.0	16.80	114.45	2,859.97	-271.93	670.52	723.56	0.22	-0.07	0.72	109.89
	NORMAL	3,060.0	16.87	114.75	2,951.86	-283.51	695.79	751.33	0.12	0.07	0.31	51.29
	NORMAL	3,155.0	16.66	115.90	3,042.82	-295.23	720.56	778.69	0.41	-0.22	1.21	122.89
	NORMAL	3,251.0	16.73	113.74	3,134.77	-306.80	745.59	806.23	0.65	0.07	-2.25	275.40
	NORMAL	3,345.0	16.51	114.06	3,224.85	-317.69	770.17	833.10	0.25	-0.23	0.34	157.56
	NORMAL	3,441.0	16.09	111.46	3,316.99	-328.12	795.01	860.04	0.88	-0.44	-2.71	238.83
	NORMAL	3,536.0	15.21	113.92	3,408.47	-337.99	818.65	885.66	1.16	-0.93	2.59	144.16
	NORMAL	3,631.0	15.35	111.50	3,500.11	-347.65	841.74	910.69	0.69	0.15	-2.55	281.21
	NORMAL	3,725.0	15.83	110.53	3,590.65	-356.71	865.33	935.95	0.58	0.51	-1.03	331.03
	NORMAL	3,820.0	16.04	111.23	3,682.00	-366.00	889.69	962.02	0.30	0.22	0.74	42.80
	NORMAL	3,915.0	15.90	110.82	3,773.33	-375.38	914.09	988.16	0.19	-0.15	-0.43	218.66
	NORMAL	4,010.0	15.85	110.22	3,864.71	-384.49	938.43	1,014.13	0.18	-0.05	-0.63	252.77
	NORMAL	4,105.0	14.60	110.30	3,956.37	-393.13	961.83	1,039.07	1.32	-1.32	0.08	179.08
	NORMAL	4,201.0	13.72	111.33	4,049.46	-401.47	983.79	1,062.55	0.95	-0.92	1.07	164.52
	NORMAL	4,296.0	12.66	111.68	4,141.95	-409.41	1,003.95	1,084.22	1.12	-1.12	0.37	175.86
	NORMAL	4,391.0	11.75	112.75	4,234.80	-417.00	1,022.55	1,104.30	0.99	-0.96	1.13	166.56
	NORMAL	4,486.0	10.93	114.31	4,327.95	-424.45	1,039.68	1,122.98	0.92	-0.86	1.64	160.25
	NORMAL	4,582.0	9.23	118.58	4,422.46	-431.88	1,054.73	1,139.72	1.93	-1.77	4.45	158.36
1/8/2012	NORMAL	4,677.0	8.73	116.90	4,516.30	-438.78	1,067.85	1,154.47	0.59	-0.53	-1.77	206.85
	NORMAL	4,771.0	7.66	113.58	4,609.34	-444.52	1,079.96	1,167.85	1.24	-1.14	-3.53	202.22
	NORMAL	4,866.0	6.24	111.99	4,703.64	-448.98	1,090.55	1,179.34	1.51	-1.49	-1.67	186.93
	NORMAL	4,962.0	6.07	114.71	4,799.08	-453.06	1,100.00	1,189.63	0.35	-0.18	2.83	121.59
	NORMAL	5,056.0	4.52	113.25	4,892.68	-456.60	1,107.92	1,198.29	1.66	-1.65	-1.55	184.24
	NORMAL	5,151.0	3.34	103.46	4,987.45	-458.72	1,114.05	1,204.77	1.42	-1.24	-10.31	204.80
	NORMAL	5,245.0	2.65	105.51	5,081.33	-459.94	1,118.80	1,209.64	0.74	-0.73	2.18	172.20
	NORMAL	5,341.0	2.11	100.03	5,177.24	-460.84	1,122.68	1,213.57	0.61	-0.56	-5.71	200.13
	NORMAL	5,437.0	1.77	109.90	5,273.19	-461.65	1,125.82	1,216.78	0.50	-0.35	10.28	140.36
	NORMAL	5,532.0	1.99	120.58	5,368.14	-462.99	1,128.62	1,219.88	0.43	0.23	11.24	63.29
1/9/2012	NORMAL	5,627.0	1.57	113.98	5,463.09	-464.36	1,131.23	1,222.81	0.49	-0.44	-6.95	202.74
	NORMAL	5,723.0	1.52	113.42	5,559.06	-465.40	1,133.60	1,225.40	0.05	-0.05	-0.58	196.52
	NORMAL	5,818.0	1.35	104.21	5,654.03	-466.18	1,135.84	1,227.77	0.30	-0.18	-9.69	229.06
	NORMAL	5,913.0	1.39	96.61	5,749.00	-466.58	1,138.07	1,229.99	0.20	0.04	-8.00	278.60
	NORMAL	6,009.0	1.41	98.87	5,844.97	-466.90	1,140.39	1,232.26	0.06	0.02	2.35	71.22
	NORMAL	6,105.0	0.88	98.10	5,940.95	-467.19	1,142.29	1,234.13	0.55	-0.55	-0.80	181.28
	NORMAL	6,199.0	1.22	117.06	6,034.94	-467.74	1,143.89	1,235.82	0.51	0.36	20.17	55.36
1/10/2012	NORMAL	6,295.0	0.99	144.23	6,130.92	-468.88	1,145.29	1,237.54	0.59	-0.24	28.30	126.88
	NORMAL	6,390.0	0.73	137.76	6,225.91	-469.99	1,146.17	1,238.78	0.29	-0.27	-6.81	197.27
	NORMAL	6,485.0	0.48	168.57	6,320.90	-470.83	1,146.66	1,239.55	0.42	-0.26	32.43	142.27
	NORMAL	6,578.0	0.12	66.70	6,413.90	-471.18	1,146.83	1,239.83	0.56	-0.39	-109.54	193.10
	NORMAL	6,674.0	0.20	37.13	6,509.90	-471.00	1,147.02	1,239.94	0.12	0.08	-30.80	298.66
	NORMAL	6,767.0	0.17	9.50	6,602.90	-470.74	1,147.14	1,239.96	0.10	-0.03	-29.71	237.94
	NORMAL	6,863.0	0.18	102.14	6,698.90	-470.63	1,147.31	1,240.07	0.26	0.01	96.50	134.76
	NORMAL	6,958.0	0.48	49.73	6,793.90	-470.40	1,147.76	1,240.41	0.42	0.32	-55.17	286.52
	NORMAL	7,053.0	0.39	124.64	6,888.90	-470.33	1,148.33	1,240.91	0.56	-0.09	78.85	135.14
	NORMAL	7,148.0	0.38	190.75	6,983.89	-470.82	1,148.54	1,241.28	0.44	-0.01	69.59	124.20

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Bulld (°/100ft)	Turn (°/100ft)	TFace (°)
1/10/2012	NORMAL	7,243.0	0.34	121.01	7,078.89	-471.28	1,148.72	1,241.62	0.43	-0.04	-73.41	230.57
	NORMAL	7,338.0	0.36	107.00	7,173.89	-471.51	1,149.25	1,242.20	0.09	0.02	-14.75	276.09
1/11/2012	NORMAL	7,434.0	0.46	77.19	7,269.89	-471.51	1,149.91	1,242.82	0.24	0.10	-31.05	279.71
	NORMAL	7,529.0	0.38	75.96	7,364.89	-471.35	1,150.59	1,243.38	0.08	-0.08	-1.29	185.82
	NORMAL	7,624.0	0.44	80.85	7,459.88	-471.22	1,151.26	1,243.95	0.07	0.06	5.15	32.71
	NORMAL	7,719.0	0.55	57.33	7,554.88	-470.91	1,152.00	1,244.53	0.24	0.12	-24.76	286.33
	NORMAL	7,814.0	0.70	54.95	7,649.88	-470.33	1,152.86	1,245.10	0.16	0.16	-2.51	348.99
	NORMAL	7,910.0	0.81	70.79	7,745.87	-469.77	1,153.98	1,245.93	0.24	0.11	16.50	70.28
	NORMAL	8,005.0	0.37	112.16	7,840.86	-469.67	1,154.90	1,246.74	0.62	-0.46	43.55	155.33
	NORMAL	8,100.0	0.24	193.24	7,935.86	-469.98	1,155.14	1,247.08	0.43	-0.14	85.35	144.53
1/12/2012	NORMAL	8,195.0	0.72	263.86	8,030.86	-470.23	1,154.50	1,246.59	0.71	0.51	74.34	90.09
	NORMAL	8,291.0	1.14	273.18	8,126.85	-470.25	1,152.94	1,245.15	0.46	0.44	9.71	24.51
	NORMAL	8,386.0	1.38	288.27	8,221.82	-469.83	1,150.91	1,243.12	0.43	0.25	15.88	61.82
	NORMAL	8,475.0	1.89	294.83	8,310.79	-468.88	1,148.56	1,240.58	0.61	0.57	7.37	23.45
	NORMAL	8,535.0	2.23	299.25	8,370.75	-467.90	1,146.65	1,238.43	0.63	0.57	7.37	27.27