

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	KP 421-17	Wellbore No.	
Well Name	KP 421-17	Common Name	KP 421-17
Project	KP 08-06S-91W	Site	KP 24-8 Pad
Vertical Section Azimuth	199.29 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	1/23/2012	UWI	KP 421-17
Active Datum	KB @6,552.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	1/23/2012	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 (°)
1/23/2012	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1/23/2012	NORMAL	104.0	0.18	258.13	104.00	-0.03	-0.16	0.08	0.17	0.17	0.00	258.13
	NORMAL	134.0	1.23	205.22	134.00	-0.33	-0.34	0.43	3.77	3.50	-176.37	299.79
	NORMAL	164.0	2.38	185.27	163.98	-1.25	-0.54	1.35	4.31	3.83	-66.50	321.13
	NORMAL	195.0	3.17	180.88	194.95	-2.74	-0.61	2.79	2.64	2.55	-14.16	342.74
	NORMAL	226.0	3.34	191.69	225.90	-4.49	-0.81	4.50	2.05	0.55	34.87	79.96
	NORMAL	256.0	3.61	197.75	255.84	-6.24	-1.27	6.31	1.52	0.90	20.20	56.73
	NORMAL	286.0	4.40	204.96	285.77	-8.18	-2.04	8.40	3.12	2.63	24.03	36.15
	NORMAL	316.0	5.01	206.28	315.67	-10.40	-3.11	10.85	2.06	2.03	4.40	10.72
	NORMAL	346.0	6.33	203.64	345.52	-13.09	-4.35	13.79	4.48	4.40	-8.80	347.51
	NORMAL	437.0	10.12	200.48	435.57	-25.18	-9.16	26.79	4.19	4.16	-3.47	351.63
	NORMAL	529.0	12.93	198.98	525.70	-42.49	-15.34	45.17	3.07	3.05	-1.63	353.18
	NORMAL	620.0	13.99	202.24	614.20	-62.30	-22.82	66.34	1.43	1.16	3.58	37.19
	NORMAL	691.0	15.73	197.08	682.83	-79.45	-28.89	84.53	3.08	2.45	-7.27	320.23
	NORMAL	781.0	16.68	195.74	769.25	-103.54	-35.98	109.61	1.13	1.06	-1.49	337.87
	NORMAL	873.0	17.65	195.96	857.15	-129.66	-43.40	136.71	1.06	1.05	0.24	3.93
	NORMAL	964.0	18.41	195.67	943.68	-156.76	-51.07	164.83	0.84	0.84	-0.32	353.13
	NORMAL	1,059.0	16.42	197.67	1,034.33	-184.00	-59.20	193.22	2.19	-2.09	2.11	164.21
1/24/2012	NORMAL	1,155.0	15.73	203.67	1,126.58	-208.85	-68.54	219.76	1.87	-0.72	6.25	115.42
	NORMAL	1,249.0	16.13	203.36	1,216.97	-232.50	-78.83	245.49	0.44	0.43	-0.33	347.84
1/25/2012	NORMAL	1,339.0	16.20	204.20	1,303.41	-255.43	-88.94	270.47	0.27	0.08	0.93	73.74

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 (°)
1/25/2012	NORMAL	1,434.0	17.50	199.80	1,394.33	-280.96	-99.21	297.96	1.92	1.37	-4.63	313.43
	NORMAL	1,529.0	17.70	197.50	1,484.89	-308.17	-108.39	326.68	0.76	0.21	-2.42	284.95
	NORMAL	1,624.0	18.30	198.00	1,575.24	-336.13	-117.34	356.02	0.65	0.63	0.53	14.68
	NORMAL	1,719.0	16.40	198.20	1,665.91	-363.06	-126.14	384.35	2.00	-2.00	0.21	178.30
	NORMAL	1,814.0	16.40	198.00	1,757.05	-388.55	-134.47	411.16	0.06	0.00	-0.21	269.90
	NORMAL	1,909.0	16.10	198.40	1,848.25	-413.81	-142.78	437.74	0.34	-0.32	0.42	159.73
	NORMAL	2,005.0	15.80	198.60	1,940.56	-438.83	-151.15	464.12	0.32	-0.31	0.21	169.71
	NORMAL	2,100.0	15.80	197.90	2,031.97	-463.39	-159.25	489.98	0.20	0.00	-0.74	269.66
	NORMAL	2,195.0	15.40	197.00	2,123.47	-487.76	-166.91	515.52	0.49	-0.42	-0.95	210.74
	NORMAL	2,290.0	15.90	202.40	2,214.95	-511.86	-175.56	541.11	1.62	0.53	5.68	73.67
	NORMAL	2,385.0	17.10	201.20	2,306.04	-536.91	-185.57	568.07	1.31	1.26	-1.26	343.57
	NORMAL	2,480.0	16.60	200.50	2,396.96	-562.64	-195.37	595.60	0.57	-0.53	-0.74	201.75
	NORMAL	2,575.0	15.80	199.30	2,488.18	-587.56	-204.40	622.10	0.91	-0.84	-1.26	202.13
	NORMAL	2,669.0	15.50	199.10	2,578.70	-611.51	-212.74	647.45	0.32	-0.32	-0.21	190.10
	NORMAL	2,764.0	14.90	198.60	2,670.38	-635.08	-220.79	672.36	0.65	-0.63	-0.53	192.08
	NORMAL	2,858.0	15.40	198.60	2,761.11	-658.36	-228.62	696.93	0.53	0.53	0.00	0.00
	NORMAL	2,954.0	16.40	198.60	2,853.43	-683.29	-237.01	723.22	1.04	1.04	0.00	0.00
	NORMAL	3,050.0	16.90	197.90	2,945.41	-709.41	-245.62	750.72	0.56	0.52	-0.73	337.81
	NORMAL	3,145.0	17.10	197.90	3,036.26	-735.84	-254.16	778.49	0.21	0.21	0.00	0.00
	NORMAL	3,241.0	17.10	196.30	3,128.01	-762.82	-262.46	806.70	0.49	0.00	-1.67	269.24
	NORMAL	3,337.0	15.40	201.90	3,220.18	-788.20	-271.18	833.53	2.41	-1.77	5.83	140.00
	NORMAL	3,432.0	15.20	202.30	3,311.81	-811.42	-280.61	858.57	0.24	-0.21	0.42	152.37
	NORMAL	3,527.0	14.50	202.10	3,403.64	-833.96	-289.81	882.88	0.74	-0.74	-0.21	184.09
	NORMAL	3,622.0	14.30	202.30	3,495.66	-855.84	-298.73	906.48	0.22	-0.21	0.21	166.13
1/26/2012	NORMAL	3,717.0	14.00	200.70	3,587.77	-877.44	-307.25	929.68	0.52	-0.32	-1.68	231.74
	NORMAL	3,812.0	12.00	200.00	3,680.33	-897.47	-314.69	951.05	2.11	-2.11	-0.74	184.16
	NORMAL	3,908.0	9.70	199.80	3,774.61	-914.46	-320.84	969.11	2.40	-2.40	-0.21	180.84
	NORMAL	4,003.0	7.80	204.40	3,868.50	-927.87	-326.22	983.54	2.13	-2.00	4.84	162.04
	NORMAL	4,098.0	7.30	205.60	3,962.68	-939.18	-331.49	995.96	0.55	-0.53	1.26	163.09
	NORMAL	4,194.0	6.60	207.00	4,057.97	-949.60	-336.63	1,007.49	0.75	-0.73	1.46	167.09
	NORMAL	4,289.0	5.50	200.90	4,152.44	-958.71	-340.73	1,017.45	1.34	-1.16	-6.42	207.30
	NORMAL	4,384.0	2.90	207.90	4,247.18	-965.09	-343.48	1,024.38	2.78	-2.74	7.37	172.32
	NORMAL	4,479.0	2.40	208.90	4,342.08	-968.96	-345.56	1,028.72	0.53	-0.53	1.05	175.22
	NORMAL	4,574.0	1.20	177.70	4,437.03	-971.69	-346.49	1,031.60	1.59	-1.26	-32.84	204.35
	NORMAL	4,670.0	0.80	166.60	4,533.02	-973.35	-346.29	1,033.10	0.46	-0.42	-11.56	200.36
	NORMAL	4,765.0	0.80	111.70	4,628.01	-974.24	-345.52	1,033.69	0.78	0.00	-57.79	242.55
	NORMAL	4,861.0	1.10	80.30	4,724.00	-974.33	-343.99	1,033.27	0.61	0.31	-32.71	283.63
	NORMAL	4,955.0	0.30	142.50	4,817.99	-974.38	-342.95	1,032.97	1.06	-0.85	66.17	164.55
	NORMAL	5,050.0	0.60	125.10	4,912.99	-974.86	-342.39	1,033.24	0.34	0.32	-18.32	326.64
	NORMAL	5,145.0	1.00	88.40	5,007.98	-975.12	-341.16	1,033.08	0.66	0.42	-38.63	288.66
	NORMAL	5,240.0	0.80	160.90	5,102.97	-975.73	-340.11	1,033.30	1.13	-0.21	76.32	134.86
	NORMAL	5,335.0	1.20	230.70	5,197.96	-976.98	-340.66	1,034.67	1.25	0.42	73.47	108.90
	NORMAL	5,430.0	0.90	224.90	5,292.94	-978.14	-341.96	1,036.19	0.33	-0.32	-6.11	196.62
	NORMAL	5,525.0	0.30	216.30	5,387.94	-978.87	-342.63	1,037.10	0.64	-0.63	-9.05	184.25
	NORMAL	5,620.0	0.40	170.80	5,482.93	-979.40	-342.73	1,037.63	0.30	0.11	-47.89	266.06
1/27/2012	NORMAL	5,716.0	0.90	104.00	5,578.93	-979.91	-341.94	1,037.86	0.86	0.52	-69.58	266.86
	NORMAL	5,811.0	1.10	282.60	5,673.92	-979.89	-342.11	1,037.90	2.11	0.21	188.00	179.23
	NORMAL	5,906.0	1.10	311.40	5,768.91	-979.09	-343.68	1,037.66	0.58	0.00	30.32	104.40
	NORMAL	6,001.0	1.30	344.50	5,863.89	-977.45	-344.65	1,036.43	0.75	0.21	34.84	90.88
	NORMAL	6,097.0	1.80	352.00	5,959.85	-974.91	-345.16	1,034.20	0.56	0.52	7.81	25.86
	NORMAL	6,191.0	0.60	309.00	6,053.83	-973.13	-345.74	1,032.72	1.51	-1.28	-45.74	196.73
	NORMAL	6,286.0	1.60	215.10	6,148.82	-973.91	-346.89	1,033.83	1.84	1.05	-98.84	246.06
	NORMAL	6,382.0	1.30	234.30	6,244.79	-975.64	-348.55	1,036.01	0.59	-0.31	20.00	131.05
	NORMAL	6,479.0	1.00	241.50	6,341.77	-976.68	-350.19	1,037.54	0.34	-0.31	7.42	157.85
	NORMAL	6,577.0	0.80	271.20	6,439.76	-977.08	-351.62	1,038.38	0.51	-0.20	30.31	127.59
1/28/2012	NORMAL	6,672.0	0.60	306.70	6,534.75	-976.77	-352.68	1,038.44	0.49	-0.21	37.37	131.80
	NORMAL	6,768.0	0.90	332.20	6,630.74	-975.80	-353.44	1,037.78	0.46	0.31	26.56	61.28

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 (°)
1/28/2012	NORMAL	6,863.0	0.40	114.70	6,725.74	-975.28	-353.48	1,037.30	1.31	-0.53	150.00	168.69
	NORMAL	6,958.0	0.60	113.70	6,820.73	-975.62	-352.73	1,037.37	0.21	0.21	-1.05	357.00
	NORMAL	7,054.0	0.80	63.20	6,916.73	-975.52	-351.67	1,036.92	0.65	0.21	-52.60	261.60
	NORMAL	7,149.0	1.90	38.40	7,011.70	-973.98	-350.10	1,034.96	1.29	1.16	-26.11	319.25
	NORMAL	7,242.0	2.20	32.60	7,104.64	-971.27	-348.18	1,031.76	0.39	0.32	-6.24	322.41
	NORMAL	7,338.0	2.20	38.40	7,200.57	-968.28	-346.04	1,028.23	0.23	0.00	6.04	92.90
	NORMAL	7,434.0	2.60	42.00	7,296.49	-965.21	-343.44	1,024.48	0.45	0.42	3.75	22.46
	NORMAL	7,504.0	3.10	42.50	7,366.40	-962.64	-341.10	1,021.28	0.72	0.71	0.71	3.10
	NORMAL	7,549.0	3.10	42.50	7,411.33	-960.84	-339.46	1,019.04	0.00	0.00	0.00	0.00