

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	KP 31-17	Wellbore No.	
Well Name	KP 31-17	Common Name	KP 31-17
Project	KP 08-06S-91W	Site	KP 24-8 Pad
Vertical Section Azimuth	106.79 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	12/29/2011	UWI	KP 31-17
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	12/29/2011	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 (°)
12/29/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12/29/2011	NORMAL	104.0	0.88	72.86	104.00	0.24	0.76	0.66	0.85	0.85	0.00	72.86
	NORMAL	135.0	1.76	88.95	134.99	0.31	1.47	1.31	3.05	2.84	51.90	31.02
	NORMAL	166.0	2.02	100.20	165.97	0.23	2.48	2.31	1.46	0.84	36.29	60.69
	NORMAL	196.0	2.73	104.41	195.94	-0.05	3.69	3.55	2.44	2.37	14.03	15.91
	NORMAL	227.0	3.43	109.69	226.90	-0.54	5.28	5.21	2.43	2.26	17.03	24.71
	NORMAL	257.0	5.19	112.59	256.81	-1.37	7.38	7.46	5.91	5.87	9.67	8.51
	NORMAL	287.0	6.33	113.12	286.66	-2.54	10.15	10.45	3.80	3.80	1.77	2.94
	NORMAL	318.0	7.04	116.63	317.45	-4.06	13.42	14.02	2.64	2.29	11.32	31.67
	NORMAL	348.0	7.30	112.32	347.22	-5.61	16.83	17.73	1.99	0.87	-14.37	293.65
	NORMAL	379.0	7.83	106.70	377.95	-6.96	20.67	21.80	2.93	1.71	-18.13	302.81
	NORMAL	410.0	8.80	105.56	408.62	-8.20	24.98	26.29	3.17	3.13	-3.68	349.79
	NORMAL	440.0	10.29	105.29	438.20	-9.53	29.78	31.26	4.97	4.97	-0.90	358.15
	NORMAL	471.0	11.26	107.49	468.66	-11.17	35.33	37.05	3.40	3.13	7.10	24.06
	NORMAL	501.0	11.96	106.61	498.04	-12.93	41.11	43.09	2.41	2.33	-2.93	345.37
	NORMAL	531.0	12.14	106.26	527.38	-14.71	47.11	49.35	0.65	0.60	-1.17	337.73
	NORMAL	562.0	13.11	102.90	557.63	-16.40	53.67	56.12	3.92	3.13	-10.84	321.22
12/30/2011	NORMAL	594.0	13.81	104.33	588.75	-18.16	60.91	63.56	2.42	2.19	4.47	26.13
	NORMAL	625.0	15.31	105.38	618.76	-20.16	68.44	71.35	4.91	4.84	3.39	10.49
	NORMAL	665.0	16.97	106.87	657.18	-23.26	79.12	82.46	4.28	4.15	3.73	14.73
	NORMAL	696.0	17.94	106.52	686.75	-25.93	88.02	91.76	3.15	3.13	-1.13	353.66

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 (°)
12/30/2011	NORMAL	727.0	18.73	107.31	716.18	-28.76	97.35	101.51	2.67	2.55	2.55	17.84
	NORMAL	757.0	19.17	106.08	744.55	-31.56	106.69	111.25	1.98	1.47	-4.10	317.18
	NORMAL	781.0	19.70	106.08	767.19	-33.77	114.36	119.24	2.21	2.21	0.00	0.00
	NORMAL	872.0	20.65	106.37	852.60	-42.55	144.49	150.62	1.05	1.04	0.32	6.15
	NORMAL	962.0	22.16	105.11	936.39	-51.44	176.11	183.46	1.75	1.68	-1.40	342.48
	NORMAL	1,058.0	21.28	108.55	1,025.58	-61.71	210.10	218.97	1.61	-0.92	3.58	126.24
	NORMAL	1,153.0	19.52	109.68	1,114.62	-72.54	241.39	252.06	1.90	-1.85	1.19	167.91
12/31/2011	NORMAL	1,249.0	20.22	108.16	1,204.90	-83.11	272.26	284.66	0.91	0.73	-1.58	322.85
	NORMAL	1,340.0	20.70	106.60	1,290.16	-92.60	302.62	316.47	0.80	0.53	-1.71	310.62
	NORMAL	1,436.0	20.00	107.00	1,380.17	-102.25	334.58	349.85	0.74	-0.73	0.42	168.95
	NORMAL	1,532.0	19.40	106.10	1,470.55	-111.47	365.59	382.21	0.70	-0.63	-0.94	206.40
	NORMAL	1,627.0	20.90	107.90	1,559.73	-121.06	396.88	414.93	1.71	1.58	1.89	23.31
	NORMAL	1,722.0	20.70	107.30	1,648.54	-131.26	429.04	448.66	0.31	-0.21	-0.63	226.53
	NORMAL	1,818.0	20.30	108.00	1,738.46	-141.45	461.07	482.28	0.49	-0.42	0.73	148.82
	NORMAL	1,914.0	19.80	108.00	1,828.64	-151.62	492.37	515.18	0.52	-0.52	0.00	180.00
	NORMAL	2,009.0	20.40	106.10	1,917.86	-161.18	523.59	547.83	0.93	0.63	-2.00	311.69
	NORMAL	2,105.0	20.50	105.10	2,007.81	-170.20	555.89	581.36	0.36	0.10	-1.04	285.50
	NORMAL	2,200.0	21.50	105.40	2,096.50	-179.16	588.74	615.39	1.06	1.05	0.32	6.28
	NORMAL	2,296.0	21.30	104.70	2,185.88	-188.26	622.56	650.40	0.34	-0.21	-0.73	231.61
	NORMAL	2,392.0	20.80	104.70	2,275.47	-197.01	655.91	684.86	0.52	-0.52	0.00	180.00
	NORMAL	2,487.0	20.60	103.80	2,364.34	-205.27	688.46	718.41	0.40	-0.21	-0.95	237.42
	NORMAL	2,582.0	21.70	104.90	2,452.94	-213.77	721.66	752.65	1.23	1.16	1.16	20.35
1/1/2012	NORMAL	2,678.0	22.30	107.70	2,541.95	-223.88	756.17	788.60	1.26	0.63	2.92	61.53
	NORMAL	2,773.0	21.90	106.10	2,629.97	-234.27	790.36	824.34	0.76	-0.42	-1.68	235.66
	NORMAL	2,867.0	21.70	106.10	2,717.25	-243.95	823.90	859.25	0.21	-0.21	0.00	180.00
	NORMAL	2,963.0	22.30	108.60	2,806.26	-254.68	858.22	895.20	1.16	0.63	2.60	58.52
	NORMAL	3,058.0	20.70	110.70	2,894.65	-266.37	891.01	929.97	1.87	-1.68	2.21	155.28
	NORMAL	3,154.0	18.60	111.30	2,985.05	-277.93	921.15	962.16	2.20	-2.19	0.63	174.79
	NORMAL	3,250.0	15.90	112.10	3,076.73	-288.44	947.60	990.52	2.82	-2.81	0.83	175.36
	NORMAL	3,346.0	13.70	111.10	3,169.54	-297.48	970.39	1,014.96	2.31	-2.29	-1.04	186.14
	NORMAL	3,441.0	13.90	109.10	3,261.80	-305.26	991.67	1,037.58	0.54	0.21	-2.11	291.77
	NORMAL	3,536.0	12.10	107.70	3,354.36	-312.02	1,011.94	1,058.93	1.92	-1.89	-1.47	189.24
	NORMAL	3,631.0	10.10	109.50	3,447.58	-317.83	1,029.28	1,077.21	2.14	-2.11	1.89	171.05
	NORMAL	3,726.0	9.60	109.10	3,541.17	-323.20	1,044.62	1,093.45	0.53	-0.53	-0.42	187.60
	NORMAL	3,821.0	8.30	112.80	3,635.02	-328.45	1,058.43	1,108.18	1.50	-1.37	3.89	157.94
	NORMAL	3,917.0	5.90	114.00	3,730.27	-333.15	1,069.32	1,119.97	2.50	-2.50	1.25	177.06
	NORMAL	4,012.0	3.30	109.50	3,824.96	-336.05	1,076.36	1,127.55	2.76	-2.74	-4.74	185.66
	NORMAL	4,107.0	1.40	100.10	3,919.88	-337.16	1,080.08	1,131.43	2.03	-2.00	-9.89	186.80
	NORMAL	4,202.0	1.60	74.50	4,014.84	-337.01	1,082.50	1,133.71	0.73	0.21	-26.95	273.56
	NORMAL	4,297.0	1.20	137.60	4,109.82	-337.39	1,084.45	1,135.68	1.58	-0.42	66.42	134.64
	NORMAL	4,393.0	0.20	277.90	4,205.81	-338.11	1,084.96	1,136.38	1.42	-1.04	146.15	174.61
	NORMAL	4,488.0	0.70	24.40	4,300.81	-337.56	1,085.04	1,136.29	0.82	0.53	112.11	120.72
	NORMAL	4,583.0	1.10	8.60	4,395.80	-336.13	1,085.41	1,136.24	0.49	0.42	-16.63	320.12
	NORMAL	4,679.0	1.30	114.00	4,491.79	-335.66	1,086.55	1,137.19	1.99	0.21	109.79	139.06
	NORMAL	4,774.0	0.70	122.80	4,586.77	-336.41	1,088.02	1,138.82	0.65	-0.63	9.26	170.01
1/2/2012	NORMAL	4,869.0	1.00	81.50	4,681.76	-336.61	1,089.33	1,140.12	0.70	0.32	-43.47	274.44
	NORMAL	4,964.0	0.30	343.10	4,776.76	-336.25	1,090.07	1,140.73	1.14	-0.74	-103.58	195.87
	NORMAL	5,059.0	0.80	264.80	4,871.75	-336.07	1,089.34	1,139.98	0.84	0.53	-82.42	260.03
	NORMAL	5,154.0	0.70	255.70	4,966.75	-336.27	1,088.12	1,138.87	0.16	-0.11	-9.58	225.50
	NORMAL	5,249.0	0.40	298.60	5,061.74	-336.26	1,087.27	1,138.05	0.52	-0.32	45.16	146.22
	NORMAL	5,344.0	1.00	133.20	5,156.74	-336.66	1,087.58	1,138.47	1.46	0.63	-174.11	190.44
	NORMAL	5,439.0	1.00	137.60	5,251.72	-337.84	1,088.74	1,139.92	0.08	0.00	4.63	92.20
	NORMAL	5,534.0	0.80	113.10	5,346.71	-338.72	1,089.91	1,141.29	0.45	-0.21	-25.79	230.65
	NORMAL	5,627.0	0.70	112.80	5,439.70	-339.19	1,091.03	1,142.50	0.11	-0.11	-0.32	182.10
	NORMAL	5,722.0	0.70	104.30	5,534.70	-339.56	1,092.13	1,143.66	0.11	0.00	-8.95	265.75
1/3/2012	NORMAL	5,818.0	0.60	96.60	5,630.69	-339.76	1,093.20	1,144.74	0.14	-0.10	-8.02	217.33
	NORMAL	5,913.0	1.10	215.40	5,725.69	-340.56	1,093.16	1,144.94	1.56	0.53	125.05	139.53

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 (°)
1/3/2012	NORMAL	6,008.0	1.10	227.60	5,820.67	-341.92	1,091.96	1,144.18	0.25	0.00	12.84	96.10
	NORMAL	6,104.0	0.60	236.40	5,916.66	-342.82	1,090.86	1,143.39	0.54	-0.52	9.17	169.74
	NORMAL	6,197.0	0.30	245.70	6,009.65	-343.19	1,090.23	1,142.89	0.33	-0.32	10.00	170.94
	NORMAL	6,293.0	0.20	43.20	6,105.65	-343.17	1,090.12	1,142.78	0.51	-0.10	164.06	171.03
	NORMAL	6,387.0	0.80	43.50	6,199.65	-342.58	1,090.68	1,143.15	0.64	0.64	0.32	0.40
	NORMAL	6,482.0	0.40	357.50	6,294.64	-341.76	1,091.13	1,143.33	0.63	-0.42	-48.42	208.86
	NORMAL	6,577.0	0.70	14.70	6,389.64	-340.87	1,091.26	1,143.20	0.36	0.32	18.11	37.61
	NORMAL	6,673.0	1.10	8.00	6,485.63	-339.39	1,091.54	1,143.04	0.43	0.42	-6.98	341.89
	NORMAL	6,769.0	1.50	23.50	6,581.60	-337.33	1,092.17	1,143.05	0.55	0.42	16.15	49.24
	NORMAL	6,864.0	1.90	25.10	6,676.56	-334.76	1,093.33	1,143.42	0.42	0.42	1.68	7.57
1/4/2012	NORMAL	6,960.0	1.50	29.60	6,772.52	-332.23	1,094.63	1,143.93	0.44	-0.42	4.69	163.78
	NORMAL	7,055.0	1.90	28.40	6,867.48	-329.76	1,095.99	1,144.52	0.42	0.42	-1.26	354.31
	NORMAL	7,150.0	2.20	13.50	6,962.42	-326.60	1,097.16	1,144.73	0.64	0.32	-15.68	291.79
	NORMAL	7,246.0	2.50	21.00	7,058.34	-322.85	1,098.34	1,144.78	0.45	0.31	7.81	49.50
	NORMAL	7,342.0	2.80	26.10	7,154.23	-318.79	1,100.13	1,145.32	0.40	0.31	5.31	40.73
	NORMAL	7,438.0	3.40	25.30	7,250.09	-314.12	1,102.37	1,146.12	0.63	0.63	-0.83	355.48
	NORMAL	7,483.0	3.60	26.10	7,295.01	-311.64	1,103.57	1,146.54	0.46	0.44	1.78	14.12
	NORMAL	7,528.0	3.60	26.10	7,339.92	-309.10	1,104.81	1,147.00	0.00	0.00	0.00	0.00