

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	KP 424-9	Wellbore No.	
Well Name	KP 424-9	Common Name	KP 424-9
Project	KP 16-06S-091W	Site	KP 11-16 Pad
Vertical Section Azimuth	49.10 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	10/10/2012	UWI	KP 424-9
Active Datum	KB @6,658.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	10/10/2012	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 (°)
10/10/2012	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10/10/2012	NORMAL	106.0	1.06	278.79	105.99	0.15	-0.97	-0.63	1.00	1.00	0.00	278.79
	NORMAL	137.0	0.53	292.85	136.99	0.25	-1.38	-0.88	1.81	-1.71	45.35	166.73
	NORMAL	168.0	0.70	357.89	167.99	0.49	-1.52	-0.83	2.18	0.55	209.81	110.29
	NORMAL	198.0	1.50	27.69	197.98	1.03	-1.35	-0.35	3.19	2.67	99.33	51.09
	NORMAL	229.0	2.90	42.80	228.96	1.96	-0.63	0.81	4.85	4.52	48.74	30.17
	NORMAL	259.0	4.40	51.68	258.90	3.23	0.79	2.71	5.33	5.00	29.60	25.12
	NORMAL	289.0	5.37	50.98	288.79	4.83	2.79	5.27	3.24	3.23	-2.33	356.13
	NORMAL	320.0	6.33	53.44	319.63	6.76	5.29	8.42	3.20	3.10	7.94	15.86
	NORMAL	350.0	7.21	56.69	349.42	8.78	8.19	11.94	3.20	2.93	10.83	25.15
	NORMAL	380.0	7.74	53.17	379.16	11.02	11.38	15.82	2.33	1.77	-11.73	317.42
	NORMAL	411.0	8.45	55.37	409.85	13.57	14.92	20.16	2.50	2.29	7.10	24.66
	NORMAL	441.0	9.33	54.76	439.49	16.22	18.72	24.77	2.95	2.93	-2.03	353.58
	NORMAL	471.0	9.68	52.03	469.08	19.18	22.70	29.71	1.90	1.17	-9.10	306.47
	NORMAL	502.0	10.65	49.39	499.60	22.65	26.93	35.18	3.47	3.13	-8.52	333.04
	NORMAL	532.0	11.52	50.19	529.04	26.37	31.33	40.95	2.94	2.90	2.67	10.42
	NORMAL	563.0	12.23	49.13	559.37	30.50	36.19	47.33	2.40	2.29	-3.42	342.40
	NORMAL	593.0	12.58	48.34	588.67	34.75	41.04	53.77	1.30	1.17	-2.63	333.75
	NORMAL	624.0	13.46	46.93	618.87	39.46	46.19	60.75	3.02	2.84	-4.55	339.46
10/11/2012	NORMAL	664.0	14.50	49.15	657.69	45.91	53.38	70.41	2.92	2.60	5.55	28.36
	NORMAL	785.0	17.18	47.69	774.08	67.86	78.06	103.43	2.24	2.21	-1.21	350.84

2.1.2 Survey Stations (Continued)

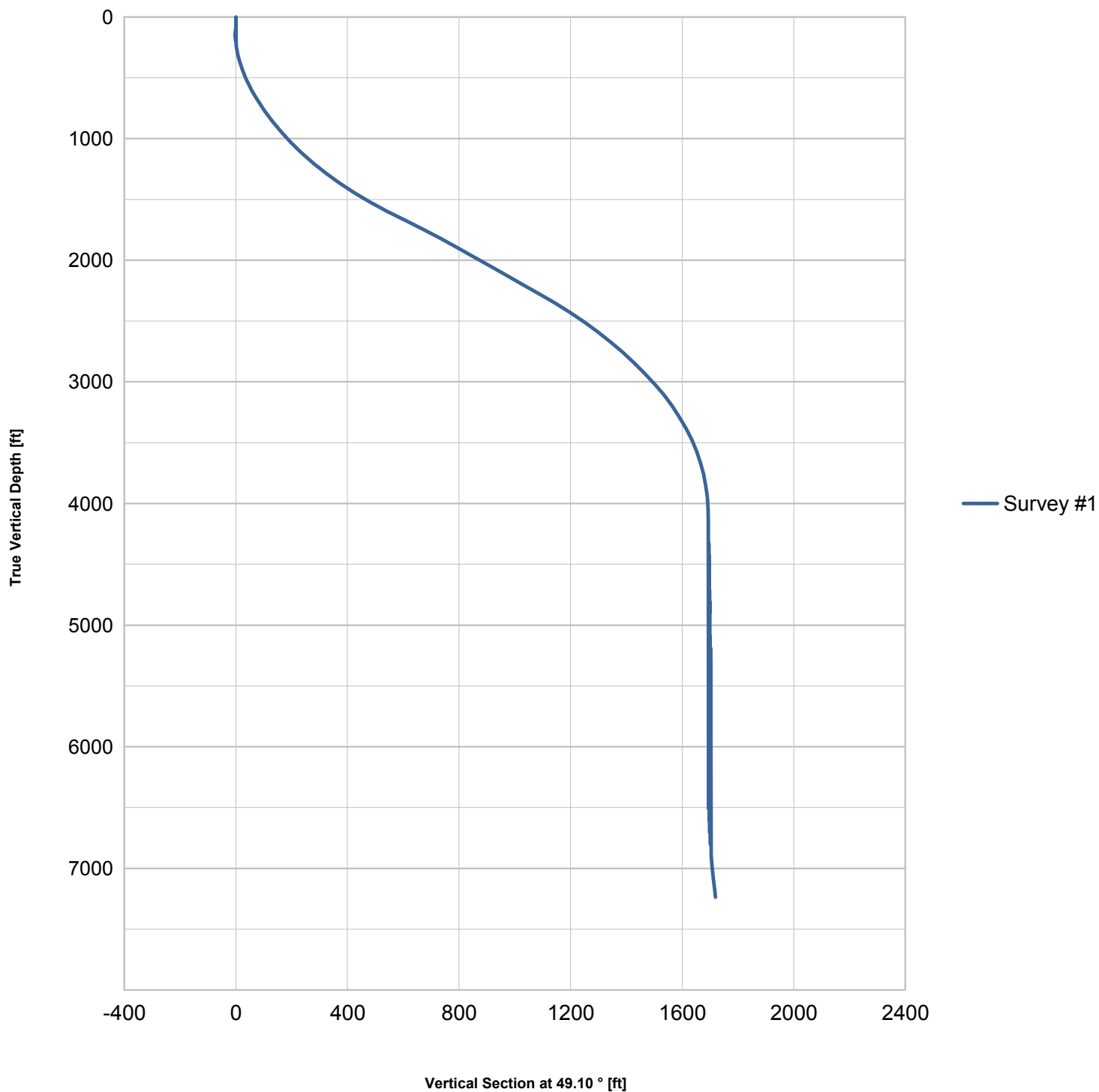
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
10/11/2012	NORMAL	876.0	18.99	49.09	860.59	86.60	99.19	131.67	2.05	1.99	1.54	14.17
	NORMAL	968.0	21.00	49.76	947.04	107.05	123.09	163.13	2.20	2.18	0.73	6.82
	NORMAL	1,058.0	23.14	49.74	1,030.44	128.90	148.90	196.94	2.38	2.38	-0.02	359.79
	NORMAL	1,154.0	24.81	49.31	1,118.15	154.23	178.57	235.95	1.75	1.74	-0.45	353.83
	NORMAL	1,250.0	27.54	49.74	1,204.30	181.70	210.78	278.29	2.85	2.84	0.45	4.17
	NORMAL	1,345.0	30.30	49.85	1,287.44	211.36	245.87	324.22	2.91	2.91	0.12	1.15
	NORMAL	1,440.0	32.54	49.91	1,368.51	243.27	283.74	373.74	2.36	2.36	0.06	0.83
	NORMAL	1,535.0	35.15	49.35	1,447.40	277.54	324.04	426.64	2.77	2.75	-0.59	352.95
	NORMAL	1,630.0	37.71	48.63	1,523.83	314.56	366.60	483.05	2.73	2.69	-0.76	350.23
	NORMAL	1,726.0	40.35	48.56	1,598.40	354.54	411.94	543.50	2.75	2.75	-0.07	359.02
	NORMAL	1,755.0	40.93	48.73	1,620.41	367.02	426.11	562.38	2.04	2.00	0.59	10.87
10/12/2012	NORMAL	1,826.0	41.77	47.26	1,673.71	398.42	460.96	609.28	1.81	1.18	-2.07	310.30
	NORMAL	1,922.0	39.83	49.37	1,746.38	440.14	507.79	671.99	2.48	-2.02	2.20	145.39
	NORMAL	2,017.0	39.31	48.66	1,819.61	479.83	553.47	732.51	0.73	-0.55	-0.75	220.74
	NORMAL	2,113.0	37.90	49.19	1,894.63	519.19	598.62	792.40	1.51	-1.47	0.55	167.01
	NORMAL	2,209.0	38.52	48.49	1,970.06	558.27	643.32	851.78	0.79	0.65	-0.73	324.80
	NORMAL	2,304.0	36.93	48.49	2,045.20	596.79	686.85	909.90	1.67	-1.67	0.00	180.00
	NORMAL	2,399.0	37.37	46.90	2,120.92	635.41	729.28	967.25	1.11	0.46	-1.67	293.98
	NORMAL	2,495.0	37.81	47.96	2,196.99	675.02	772.40	1,025.79	0.81	0.46	1.10	56.19
	NORMAL	2,591.0	37.72	49.89	2,272.88	713.65	816.72	1,084.57	1.23	-0.09	2.01	95.12
	NORMAL	2,686.0	35.97	50.77	2,348.91	750.02	860.56	1,141.52	1.92	-1.84	0.93	163.57
	NORMAL	2,782.0	34.38	49.54	2,427.37	785.44	903.02	1,196.81	1.81	-1.66	-1.28	203.52
	NORMAL	2,877.0	31.66	48.66	2,507.02	819.32	942.16	1,248.58	2.91	-2.86	-0.93	189.63
	NORMAL	2,972.0	29.55	50.07	2,588.79	850.83	978.85	1,296.94	2.35	-2.22	1.48	161.82
10/13/2012	NORMAL	3,068.0	28.40	49.54	2,672.77	880.84	1,014.37	1,343.44	1.23	-1.20	-0.55	192.35
	NORMAL	3,162.0	26.38	47.26	2,756.23	909.52	1,046.72	1,386.67	2.42	-2.15	-2.43	206.43
	NORMAL	3,258.0	24.53	50.42	2,842.91	936.70	1,077.75	1,427.91	2.39	-1.93	3.29	145.13
	NORMAL	3,353.0	22.42	50.07	2,930.04	960.89	1,106.84	1,465.75	2.23	-2.22	-0.37	183.62
	NORMAL	3,449.0	21.19	50.24	3,019.17	983.74	1,134.22	1,501.40	1.28	-1.28	0.18	177.14
	NORMAL	3,544.0	19.61	49.37	3,108.21	1,005.10	1,159.52	1,534.51	1.69	-1.66	-0.92	190.46
	NORMAL	3,639.0	16.88	50.59	3,198.43	1,024.24	1,182.28	1,564.24	2.90	-2.87	1.28	172.61
	NORMAL	3,734.0	14.95	49.89	3,289.78	1,040.90	1,202.31	1,590.29	2.04	-2.03	-0.74	185.34
	NORMAL	3,829.0	13.81	51.83	3,381.80	1,055.80	1,220.59	1,613.87	1.30	-1.20	2.04	158.03
	NORMAL	3,925.0	11.52	51.83	3,475.46	1,068.81	1,237.14	1,634.89	2.39	-2.39	0.00	180.00
	NORMAL	4,020.0	9.23	51.47	3,568.90	1,079.42	1,250.56	1,651.98	2.41	-2.41	-0.38	181.44
	NORMAL	4,115.0	7.30	49.89	3,662.91	1,088.05	1,261.14	1,665.63	2.05	-2.03	-1.66	185.93
	NORMAL	4,210.0	5.72	52.18	3,757.30	1,094.84	1,269.49	1,676.39	1.69	-1.66	2.41	171.80
	NORMAL	4,305.0	4.13	49.54	3,851.94	1,099.97	1,275.84	1,684.54	1.69	-1.67	-2.78	186.80
	NORMAL	4,401.0	2.55	41.98	3,947.78	1,103.80	1,279.90	1,690.12	1.71	-1.65	-7.88	191.82
	NORMAL	4,497.0	0.79	94.36	4,043.74	1,105.33	1,281.98	1,692.70	2.25	-1.83	54.56	163.16
	NORMAL	4,592.0	0.53	92.43	4,138.73	1,105.27	1,283.08	1,693.48	0.27	-0.27	-2.03	183.92
	NORMAL	4,687.0	0.44	40.75	4,233.73	1,105.52	1,283.75	1,694.16	0.45	-0.09	-54.40	233.31
	NORMAL	4,782.0	0.88	12.45	4,328.72	1,106.51	1,284.15	1,695.11	0.56	0.46	-29.79	308.75
	NORMAL	4,878.0	0.53	53.58	4,424.71	1,107.50	1,284.67	1,696.14	0.62	-0.36	42.84	144.05
10/14/2012	NORMAL	4,973.0	0.09	26.87	4,519.71	1,107.82	1,285.05	1,696.65	0.48	-0.46	-28.12	185.14
	NORMAL	5,068.0	0.53	6.30	4,614.71	1,108.33	1,285.13	1,697.04	0.47	0.46	-21.65	335.37
	NORMAL	5,163.0	1.05	16.84	4,709.70	1,109.60	1,285.44	1,698.10	0.57	0.55	11.09	20.93
	NORMAL	5,258.0	0.70	158.17	4,804.70	1,109.89	1,285.90	1,698.65	1.74	-0.37	148.77	164.68
	NORMAL	5,353.0	0.44	138.84	4,899.69	1,109.08	1,286.36	1,698.46	0.34	-0.27	-20.35	207.08
	NORMAL	5,449.0	0.35	48.14	4,995.69	1,109.00	1,286.82	1,698.75	0.59	-0.09	-94.48	218.23
	NORMAL	5,544.0	0.79	30.73	5,090.68	1,109.75	1,287.37	1,699.66	0.49	0.46	-18.33	329.66
	NORMAL	5,639.0	1.32	17.37	5,185.67	1,111.36	1,288.03	1,701.22	0.61	0.56	-14.06	328.32
10/15/2012	NORMAL	5,731.0	0.53	347.31	5,277.66	1,112.79	1,288.26	1,702.32	0.98	-0.86	-32.67	197.13
	NORMAL	5,826.0	1.41	174.35	5,372.65	1,112.05	1,288.27	1,701.85	2.04	0.93	-182.06	185.12
	NORMAL	5,921.0	1.23	173.63	5,467.62	1,109.88	1,288.50	1,700.60	0.19	-0.19	-0.76	184.90
	NORMAL	6,016.0	0.88	162.57	5,562.61	1,108.17	1,288.83	1,699.73	0.42	-0.37	-11.64	204.74
	NORMAL	6,112.0	1.23	176.10	5,658.59	1,106.43	1,289.12	1,698.82	0.45	0.36	14.09	42.33

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 (°)
10/15/2012	NORMAL	6,207.0	1.14	197.20	5,753.57	1,104.51	1,288.91	1,697.40	0.47	-0.09	22.21	112.07
10/16/2012	NORMAL	6,302.0	0.62	197.90	5,848.56	1,103.12	1,288.48	1,696.16	0.55	-0.55	0.74	179.17
	NORMAL	6,396.0	0.53	166.08	5,942.55	1,102.22	1,288.43	1,695.53	0.35	-0.10	-33.85	238.74
	NORMAL	6,491.0	0.53	176.81	6,037.55	1,101.35	1,288.56	1,695.06	0.10	0.00	11.29	95.36
	NORMAL	6,587.0	0.26	162.57	6,133.55	1,100.70	1,288.65	1,694.70	0.30	-0.28	-14.83	192.96
	NORMAL	6,682.0	0.09	55.87	6,228.55	1,100.54	1,288.77	1,694.69	0.31	-0.18	-112.32	196.78
	NORMAL	6,778.0	0.26	332.37	6,324.55	1,100.77	1,288.73	1,694.81	0.28	0.18	-86.98	256.81
	NORMAL	6,873.0	0.70	335.89	6,419.54	1,101.49	1,288.40	1,695.03	0.46	0.46	3.71	5.60
10/17/2012	NORMAL	6,968.0	1.05	351.36	6,514.53	1,102.88	1,288.03	1,695.66	0.44	0.37	16.28	41.92
	NORMAL	7,063.0	1.50	1.55	6,609.51	1,104.99	1,287.93	1,696.97	0.53	0.47	10.73	31.90
	NORMAL	7,159.0	1.67	16.32	6,705.47	1,107.58	1,288.36	1,698.99	0.46	0.18	15.39	74.90
	NORMAL	7,254.0	1.85	24.23	6,800.43	1,110.31	1,289.38	1,701.55	0.32	0.19	8.33	57.46
	NORMAL	7,350.0	2.11	24.40	6,896.37	1,113.33	1,290.74	1,704.56	0.27	0.27	0.18	1.38
	NORMAL	7,444.0	2.46	22.12	6,990.30	1,116.78	1,292.22	1,707.93	0.38	0.37	-2.43	344.30
	NORMAL	7,539.0	2.99	21.59	7,085.19	1,120.97	1,293.90	1,711.94	0.56	0.56	-0.56	357.01
	NORMAL	7,635.0	3.43	22.47	7,181.04	1,125.95	1,295.92	1,716.73	0.46	0.46	0.92	6.83
	NORMAL	7,690.0	3.43	22.47	7,235.94	1,128.99	1,297.17	1,719.67	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

