

Deviation Summary

PICEANCE HL

1 General

1.1 Customer Information

Company	PICEANCE HL
Representative	
Address	

1.2 Well/Wellbore Information

Well	AP 324-17-695	Wellbore No.	00
Wellbore Legal Name	AP 324-17-695	Common Wellbore Name	AP 324-17-695
Project	AP 20-06S-095W	Site	AP 21-20-695 Pad
Vertical Section Azimuth	348.72 (°)	North reference	
Origin N/S		Origin E/W	
Spud date	8/24/2014	UWI	AP 324-17-695
Active datum	KB @6,935.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	8/24/2014	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 (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
8/24/2014	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8/24/2014	NORMAL	100.0	1.06	311.13	99.99	0.61	-0.70	0.73	1.06	1.06	0.00	311.13
	NORMAL	130.0	1.06	322.82	129.99	1.01	-1.07	1.20	0.72	0.00	38.97	95.84
	NORMAL	161.0	1.50	342.69	160.98	1.63	-1.37	1.86	2.00	1.42	64.10	55.47
	NORMAL	191.0	2.02	351.04	190.97	2.53	-1.57	2.78	1.93	1.73	27.83	30.47
	NORMAL	221.0	2.11	2.90	220.95	3.60	-1.62	3.85	1.45	0.30	39.53	84.07
	NORMAL	252.0	2.55	352.79	251.92	4.85	-1.68	5.09	1.94	1.42	-32.61	311.82
	NORMAL	282.0	3.08	352.62	281.89	6.31	-1.87	6.56	1.77	1.77	-0.57	359.01
	NORMAL	312.0	3.87	354.37	311.83	8.12	-2.07	8.37	2.66	2.63	5.83	8.52
	NORMAL	342.0	4.49	358.86	341.75	10.30	-2.19	10.53	2.34	2.07	14.97	30.08
	NORMAL	373.0	5.45	354.11	372.63	12.98	-2.37	13.19	3.37	3.10	-15.32	334.42
8/25/2014	NORMAL	402.0	5.89	351.04	401.49	15.82	-2.74	16.05	1.84	1.52	-10.59	323.89
	NORMAL	433.0	6.25	350.24	432.32	19.05	-3.27	19.33	1.19	1.16	-2.58	346.38
	NORMAL	462.0	6.95	349.28	461.13	22.33	-3.87	22.66	2.44	2.41	-3.31	350.57
	NORMAL	493.0	7.65	348.13	491.88	26.20	-4.64	26.60	2.31	2.26	-3.71	347.64
	NORMAL	523.0	8.27	346.64	521.59	30.25	-5.55	30.75	2.18	2.07	-4.97	340.85
	NORMAL	554.0	8.71	346.82	552.25	34.70	-6.60	35.32	1.42	1.42	0.58	3.55
	NORMAL	584.0	9.50	344.71	581.87	39.30	-7.77	40.06	2.86	2.63	-7.03	336.04
	NORMAL	614.0	9.68	344.27	611.45	44.12	-9.11	45.05	0.65	0.60	-1.47	337.63
	NORMAL	632.0	10.07	348.24	629.18	47.12	-9.84	48.13	4.36	2.17	22.06	62.16
	NORMAL	662.0	10.55	350.79	658.70	52.40	-10.81	53.50	2.21	1.60	8.50	44.81

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (")	Azl. (")	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS ("/100usft)	Build Rate ("/100usft)	Turn ("/100usft)	Tface (")
8/25/2014	NORMAL	692.0	10.95	353.16	688.17	57.94	-11.59	59.08	1.99	1.33	7.90	49.03
	NORMAL	784.0	10.95	350.35	778.50	75.23	-14.10	78.53	0.58	0.00	-3.05	268.62
	NORMAL	875.0	11.25	347.36	867.80	92.41	-17.49	94.04	0.71	0.33	-3.29	296.05
	NORMAL	965.0	11.47	344.90	956.03	109.61	-21.74	111.75	0.59	0.24	-2.73	293.21
	NORMAL	1,060.0	9.85	344.81	1,049.39	126.58	-26.33	129.28	1.71	-1.71	-0.09	180.54
	NORMAL	1,155.0	9.80	344.99	1,143.00	142.23	-30.55	145.46	0.06	-0.05	0.19	148.53
	NORMAL	1,250.0	10.42	352.11	1,236.53	158.55	-33.83	162.10	1.47	0.65	7.49	67.15
	NORMAL	1,346.0	10.90	354.04	1,330.87	176.17	-35.96	179.81	0.62	0.50	2.01	37.59
	NORMAL	1,441.0	11.43	354.48	1,424.07	194.48	-37.80	198.11	0.57	0.56	0.46	9.35
	NORMAL	1,537.0	12.35	355.18	1,518.01	214.18	-39.58	217.78	0.97	0.96	0.73	9.25
	NORMAL	1,632.0	12.40	351.32	1,610.81	234.38	-41.97	238.06	0.87	0.05	-4.06	271.57
	NORMAL	1,727.0	11.91	349.82	1,703.68	254.11	-45.24	258.06	0.61	-0.52	-1.58	212.07
8/26/2014	NORMAL	1,823.0	11.47	343.50	1,797.69	273.02	-49.70	277.47	1.41	-0.46	-6.58	247.96
	NORMAL	1,917.0	12.00	343.76	1,889.72	291.36	-55.09	298.51	0.57	0.56	0.28	5.83
	NORMAL	2,013.0	11.12	344.37	1,983.78	309.86	-60.38	315.68	0.93	-0.92	0.64	172.39
	NORMAL	2,108.0	11.69	341.82	2,076.90	327.82	-65.85	334.37	0.80	0.60	-2.68	317.25
	NORMAL	2,203.0	11.56	345.60	2,169.95	346.19	-71.22	353.43	0.81	-0.14	3.98	101.53
	NORMAL	2,298.0	11.87	346.04	2,262.98	364.89	-75.94	372.70	0.34	0.33	0.46	16.29
	NORMAL	2,393.0	11.03	344.55	2,356.08	383.13	-80.72	391.52	0.94	-0.88	-1.57	198.67
	NORMAL	2,488.0	10.46	346.66	2,449.42	400.28	-85.13	409.20	0.73	-0.60	2.22	146.42
	NORMAL	2,506.0	10.20	346.31	2,467.13	403.42	-85.89	412.43	1.49	-1.44	-1.94	193.40
8/28/2014	NORMAL	2,584.0	10.15	348.33	2,543.90	416.86	-88.91	426.20	0.46	-0.06	2.59	98.97
	NORMAL	2,680.0	10.11	345.08	2,638.40	433.29	-92.79	443.07	0.60	-0.04	-3.39	264.40
	NORMAL	2,775.0	10.73	346.57	2,731.84	449.95	-96.99	460.23	0.71	0.65	1.57	24.23
	NORMAL	2,871.0	10.51	343.85	2,826.19	467.05	-101.50	477.88	0.57	-0.23	-2.83	244.97
	NORMAL	2,966.0	10.20	351.14	2,919.65	483.68	-105.21	494.92	1.42	-0.33	7.67	106.88
	NORMAL	3,062.0	10.73	351.93	3,014.05	500.93	-107.77	512.33	0.57	0.55	0.82	15.54
	NORMAL	3,157.0	11.43	351.93	3,107.28	519.01	-110.33	530.56	0.74	0.74	0.00	0.00
	NORMAL	3,252.0	10.90	350.79	3,200.49	537.19	-113.09	548.94	0.60	-0.56	-1.20	202.05
	NORMAL	3,346.0	11.69	352.11	3,292.66	555.40	-115.82	567.33	0.88	0.84	1.40	18.77
	NORMAL	3,441.0	11.08	351.40	3,385.79	573.96	-118.51	586.05	0.66	-0.64	-0.75	192.59
	NORMAL	3,537.0	11.78	353.51	3,479.89	592.82	-121.00	605.03	0.85	0.73	2.20	31.89
	NORMAL	3,632.0	11.52	354.57	3,572.93	611.89	-122.99	624.13	0.35	-0.27	1.12	141.05
	NORMAL	3,727.0	10.86	354.39	3,666.13	630.25	-124.76	642.48	0.70	-0.69	-0.19	182.94
	NORMAL	3,822.0	11.08	352.72	3,759.39	648.21	-126.80	660.49	0.41	0.23	-1.76	303.87
	NORMAL	3,918.0	10.64	351.40	3,853.67	666.12	-129.29	678.54	0.53	-0.46	-1.38	208.83
	NORMAL	4,013.0	11.21	350.44	3,946.95	683.90	-132.13	696.53	0.63	0.60	-1.01	341.83
	NORMAL	4,108.0	10.77	349.30	4,040.21	701.73	-135.32	714.64	0.52	-0.46	-1.20	205.73
	NORMAL	4,203.0	10.29	347.19	4,133.61	718.72	-138.85	732.00	0.65	-0.51	-2.22	217.74
	NORMAL	4,299.0	10.46	351.32	4,228.04	735.70	-142.06	749.27	0.79	0.18	4.30	79.16
	NORMAL	4,393.0	11.39	352.37	4,320.34	753.33	-144.58	767.06	1.01	0.99	1.12	12.59
	NORMAL	4,487.0	10.68	351.58	4,412.60	771.15	-147.09	785.02	0.77	-0.76	-0.84	191.64
	NORMAL	4,582.0	10.29	351.49	4,506.01	788.25	-149.63	802.29	0.41	-0.41	-0.09	182.36
	NORMAL	4,677.0	11.34	348.33	4,599.32	805.79	-152.78	820.11	1.27	1.11	-3.33	328.99
	NORMAL	4,772.0	11.03	349.12	4,692.52	823.86	-156.38	838.53	0.36	-0.33	0.83	154.08
	NORMAL	4,867.0	10.64	347.36	4,785.83	841.34	-160.02	856.39	0.54	-0.41	-1.85	219.45
	NORMAL	4,963.0	10.29	345.87	4,880.23	858.30	-164.05	873.81	0.46	-0.36	-1.55	216.98
	NORMAL	5,058.0	11.43	347.63	4,973.53	875.73	-168.14	891.70	1.25	1.20	1.85	17.08
8/29/2014	NORMAL	5,153.0	11.30	348.07	5,066.66	894.03	-172.08	910.42	0.16	-0.14	0.46	146.51
	NORMAL	5,249.0	11.03	346.66	5,160.85	912.17	-176.14	929.00	0.40	-0.28	-1.47	224.63
	NORMAL	5,344.0	12.00	350.18	5,253.94	930.74	-179.92	947.96	1.26	1.02	3.71	37.65
	NORMAL	5,439.0	11.69	349.30	5,346.91	949.93	-183.40	967.45	0.38	-0.33	-0.93	209.80
	NORMAL	5,535.0	11.25	348.59	5,441.00	968.67	-187.05	986.54	0.48	-0.46	-0.74	197.44
	NORMAL	5,630.0	10.73	348.77	5,534.25	986.42	-190.61	1,004.65	0.55	-0.55	0.19	176.31
	NORMAL	5,725.0	10.33	348.07	5,627.65	1,003.43	-194.09	1,022.01	0.44	-0.42	-0.74	197.39
	NORMAL	5,820.0	10.73	346.04	5,721.05	1,020.35	-197.99	1,039.36	0.57	0.42	-2.14	316.15

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
8/29/2014	NORMAL	5,915.0	11.74	351.40	5,814.24	1,038.49	-201.57	1,057.85	1.53	1.06	5.64	48.61
	NORMAL	6,010.0	11.43	352.20	5,907.30	1,057.37	-204.29	1,076.90	0.37	-0.33	0.84	153.00
	NORMAL	6,106.0	10.59	350.88	6,001.53	1,075.50	-206.98	1,095.21	0.91	-0.88	-1.38	196.06
	NORMAL	6,201.0	11.47	351.49	6,094.78	1,093.47	-209.76	1,113.37	0.93	0.93	0.64	7.85
	NORMAL	6,296.0	10.90	350.97	6,187.97	1,111.68	-212.57	1,131.78	0.61	-0.60	-0.55	189.78
	NORMAL	6,392.0	9.98	347.45	6,282.38	1,128.76	-215.80	1,149.17	1.17	-0.96	-3.67	213.01
	NORMAL	6,487.0	9.49	346.92	6,376.02	1,144.43	-219.36	1,165.23	0.52	-0.52	-0.56	190.10
	NORMAL	6,583.0	9.23	346.48	6,470.74	1,159.62	-222.95	1,180.83	0.28	-0.27	-0.46	195.17
	NORMAL	6,678.0	8.40	344.99	6,564.61	1,173.73	-226.53	1,195.37	0.91	-0.87	-1.57	194.65
	NORMAL	6,773.0	7.56	341.74	6,658.69	1,186.37	-230.28	1,208.50	1.00	-0.88	-3.42	206.64
	NORMAL	6,868.0	6.64	346.39	6,752.97	1,197.64	-233.54	1,220.19	1.14	-0.97	4.89	150.30
	NORMAL	6,964.0	6.07	345.96	6,848.38	1,207.96	-236.07	1,230.80	0.60	-0.59	-0.45	184.56
	NORMAL	7,059.0	5.98	350.00	6,942.85	1,217.71	-238.15	1,240.77	0.46	-0.09	4.25	103.99
8/30/2014	NORMAL	7,154.0	5.23	353.87	7,037.40	1,226.88	-239.47	1,250.03	0.88	-0.79	4.07	155.17
8/31/2014	NORMAL	7,250.0	4.88	353.78	7,133.02	1,235.29	-240.38	1,258.45	0.36	-0.36	-0.09	181.25
	NORMAL	7,344.0	4.48	354.39	7,226.71	1,242.92	-241.17	1,266.09	0.43	-0.43	0.65	173.21
	NORMAL	7,440.0	4.31	1.43	7,322.43	1,250.26	-241.45	1,273.34	0.59	-0.18	7.33	110.98
	NORMAL	7,535.0	4.22	15.40	7,417.17	1,257.20	-240.43	1,279.94	1.09	-0.09	14.71	101.89
	NORMAL	7,630.0	2.59	23.48	7,512.00	1,262.54	-238.65	1,284.83	1.78	-1.72	8.51	167.60
	NORMAL	7,725.0	1.98	28.76	7,606.92	1,265.95	-237.00	1,287.85	0.68	-0.64	5.56	163.59
	NORMAL	7,820.0	1.63	29.29	7,701.88	1,268.56	-235.55	1,290.13	0.37	-0.37	0.56	177.53
	NORMAL	7,915.0	0.83	23.48	7,796.85	1,270.37	-234.62	1,291.73	0.85	-0.84	-6.12	185.96
	NORMAL	8,010.0	0.22	352.37	7,891.85	1,271.18	-234.37	1,292.47	0.69	-0.64	-32.75	190.05
	NORMAL	8,106.0	0.35	248.48	7,987.85	1,271.26	-234.67	1,292.60	0.47	0.14	-108.22	228.18
	NORMAL	8,201.0	0.66	236.09	8,082.85	1,270.85	-235.39	1,292.34	0.34	0.33	-13.04	334.33
	NORMAL	8,297.0	1.01	231.52	8,178.84	1,270.01	-236.51	1,291.74	0.37	0.36	-4.76	346.94
	NORMAL	8,392.0	0.57	155.23	8,273.83	1,269.06	-236.97	1,290.90	1.09	-0.46	-80.31	212.33
	NORMAL	8,487.0	1.10	185.47	8,368.82	1,267.73	-236.86	1,289.57	0.71	0.56	31.83	55.53
9/1/2014	NORMAL	8,583.0	1.45	210.25	8,464.80	1,265.76	-237.56	1,287.78	0.67	0.36	25.81	70.39
	NORMAL	8,678.0	2.33	205.07	8,559.74	1,262.97	-238.98	1,285.32	0.94	0.93	-5.45	346.42
	NORMAL	8,774.0	2.02	204.54	8,655.67	1,259.67	-240.51	1,282.38	0.32	-0.32	-0.55	183.45
	NORMAL	8,869.0	2.11	207.00	8,750.61	1,256.58	-242.00	1,279.65	0.13	0.09	2.59	45.80
	NORMAL	8,965.0	2.59	211.31	8,846.53	1,253.16	-243.93	1,276.66	0.53	0.50	4.49	22.37
	NORMAL	9,059.0	2.99	221.68	8,940.42	1,249.51	-246.66	1,273.62	0.68	0.43	11.03	56.86
	NORMAL	9,155.0	3.47	225.11	9,036.27	1,245.59	-250.39	1,270.51	0.54	0.50	3.57	23.65
	NORMAL	9,250.0	3.82	227.13	9,131.08	1,241.41	-254.74	1,267.26	0.39	0.37	2.13	21.16
	NORMAL	9,346.0	4.09	227.22	9,226.85	1,236.91	-259.60	1,263.79	0.28	0.28	0.09	1.36
	NORMAL	9,442.0	4.44	227.74	9,322.58	1,232.08	-264.86	1,260.09	0.37	0.36	0.54	6.56
	NORMAL	9,537.0	4.75	227.04	9,417.28	1,226.93	-270.46	1,256.13	0.33	0.33	-0.74	349.40
9/2/2014	NORMAL	9,632.0	4.57	226.86	9,511.96	1,221.66	-276.10	1,252.07	0.19	-0.19	-0.19	184.55
	NORMAL	9,700.0	4.57	226.86	9,579.75	1,217.96	-280.06	1,249.21	0.00	0.00	0.00	0.00