

Deviation Summary

PICEANCE VLY

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well/Wellbore Information

Well	RU 322-5	Wellbore No.	00
Wellbore Legal Name	RU 322-5	Common Wellbore Name	RU 322-5
Project	RU 05-07S-093W	Site	RU 23-5 Pad
Vertical Section Azimuth	214.81 (°)	North reference	True
Origin N/S		Origin EW	
Spud date	8/22/2013	UWI	RU 322-5
Active datum	KB @7,627.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	8/22/2013	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 (°)
8/22/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8/22/2013	NORMAL	88.0	0.62	205.14	88.00	-0.43	-0.20	0.47	0.70	0.70	0.00	205.14
8/23/2013	NORMAL	178.0	3.26	205.93	177.94	-3.17	-1.53	3.48	2.93	2.93	0.88	0.98
	NORMAL	270.0	5.98	216.21	269.63	-9.39	-5.50	10.86	3.08	2.96	11.17	22.10
	NORMAL	340.0	7.42	219.62	339.15	-15.82	-10.54	19.00	2.13	2.06	4.87	17.14
	NORMAL	432.0	9.57	220.13	430.14	-26.24	-19.26	32.54	2.34	2.34	0.55	2.26
	NORMAL	524.0	9.96	212.84	520.81	-38.78	-28.50	48.11	1.41	0.42	-7.92	283.89
	NORMAL	615.0	11.48	211.76	610.22	-53.09	-37.54	65.02	1.68	1.67	-1.19	351.94
	NORMAL	707.0	9.53	212.26	700.67	-67.31	-46.42	81.77	2.12	-2.12	0.54	177.57
	NORMAL	800.0	9.48	209.22	792.40	-80.51	-54.27	97.08	0.54	-0.05	-3.27	262.81
	NORMAL	892.0	10.89	211.38	882.95	-94.54	-62.50	113.30	1.59	1.53	2.35	16.22
	NORMAL	984.0	11.78	204.04	973.16	-110.54	-70.85	131.20	1.84	0.97	-7.98	298.04
	NORMAL	1,069.0	10.29	208.79	1,056.58	-125.12	-78.04	147.28	2.05	-1.75	5.59	150.92
8/24/2013	NORMAL	1,172.0	9.79	212.95	1,158.01	-140.53	-87.23	165.18	0.85	-0.49	4.04	126.62
	NORMAL	1,267.0	10.84	216.45	1,251.47	-154.49	-96.93	182.18	1.29	1.11	3.68	32.56
	NORMAL	1,362.0	10.90	216.00	1,344.77	-168.94	-107.52	200.09	0.11	0.06	-0.47	305.04
	NORMAL	1,457.0	10.38	214.59	1,438.13	-183.26	-117.66	217.63	0.61	-0.55	-1.48	205.90
	NORMAL	1,552.0	10.02	214.15	1,531.63	-197.14	-127.16	234.45	0.39	-0.38	-0.46	192.00
8/25/2013	NORMAL	1,647.0	10.91	219.47	1,625.05	-210.92	-137.51	251.68	1.38	0.94	5.60	49.99
	NORMAL	1,742.0	10.82	219.69	1,718.35	-224.72	-148.92	269.52	0.10	-0.09	0.23	155.37
	NORMAL	1,837.0	10.66	219.07	1,811.69	-238.41	-160.15	287.17	0.21	-0.17	-0.65	215.53

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
8/25/2013	NORMAL	1,933.0	10.56	217.54	1,906.05	-252.28	-171.11	304.81	0.31	-0.10	-1.59	249.71
	NORMAL	2,028.0	10.06	218.99	1,999.51	-265.63	-181.63	321.78	0.59	-0.53	1.53	153.28
	NORMAL	2,124.0	12.11	216.97	2,093.72	-280.19	-192.97	340.21	2.17	2.14	-2.10	348.28
	NORMAL	2,219.0	11.86	216.19	2,186.65	-296.03	-204.72	359.92	0.31	-0.26	-0.82	212.56
	NORMAL	2,314.0	11.69	214.81	2,279.65	-311.81	-215.98	379.31	0.35	-0.18	-1.45	238.21
	NORMAL	2,409.0	11.94	214.05	2,372.63	-327.86	-226.98	398.76	0.31	0.26	-0.80	327.73
	NORMAL	2,505.0	11.70	213.71	2,466.60	-344.18	-237.94	418.42	0.26	-0.25	-0.35	196.02
	NORMAL	2,600.0	11.56	213.61	2,559.65	-360.12	-248.56	437.57	0.15	-0.15	-0.11	188.14
	NORMAL	2,695.0	11.02	212.62	2,652.81	-375.70	-258.72	456.16	0.60	-0.57	-1.04	199.26
	NORMAL	2,791.0	11.76	215.81	2,746.92	-391.36	-269.39	475.11	1.01	0.77	3.32	41.98
8/26/2013	NORMAL	2,886.0	11.87	215.99	2,839.91	-407.12	-280.80	494.56	0.12	0.12	0.19	18.61
	NORMAL	2,982.0	11.78	215.03	2,933.87	-423.13	-292.22	514.23	0.23	-0.09	-1.00	244.95
	NORMAL	3,078.0	11.61	214.68	3,027.88	-439.10	-303.34	533.69	0.19	-0.18	-0.36	202.48
	NORMAL	3,173.0	11.43	214.68	3,120.86	-454.70	-314.14	552.66	0.19	-0.19	0.00	180.00
	NORMAL	3,268.0	11.29	213.58	3,214.10	-470.19	-324.64	571.37	0.27	-0.15	-1.16	236.59
	NORMAL	3,363.0	11.22	212.76	3,307.28	-485.71	-334.78	589.90	0.18	-0.07	-0.86	245.97
	NORMAL	3,459.0	11.88	217.43	3,401.33	-501.41	-345.84	609.11	1.19	0.69	4.86	57.09
	NORMAL	3,554.0	11.60	217.92	3,494.35	-516.71	-357.66	628.41	0.31	-0.29	0.52	160.64
	NORMAL	3,649.0	11.73	218.16	3,587.39	-531.84	-369.49	647.59	0.15	0.14	0.25	20.59
	NORMAL	3,742.0	10.96	216.34	3,678.57	-546.39	-380.57	665.87	0.91	-0.83	-1.96	204.05
	NORMAL	3,742.0	10.96	216.34	3,678.57	-546.39	-380.57	665.87	0.91	-0.83	-1.96	204.05
	NORMAL	3,838.0	11.15	215.14	3,772.79	-561.33	-391.32	684.27	0.31	0.20	-1.25	308.96
	NORMAL	3,932.0	10.24	214.84	3,865.15	-575.62	-401.33	701.72	0.97	-0.97	-0.32	183.35
	NORMAL	4,027.0	10.21	214.03	3,958.64	-589.53	-410.86	718.58	0.15	-0.03	-0.85	257.82
	NORMAL	4,122.0	10.11	212.66	4,052.16	-603.53	-420.08	735.33	0.28	-0.11	-1.44	246.85
	NORMAL	4,217.0	10.48	216.90	4,145.63	-617.46	-429.76	752.30	0.89	0.39	4.46	66.07
	NORMAL	4,312.0	10.20	216.87	4,239.08	-631.10	-440.00	769.34	0.29	-0.29	-0.03	181.09
	NORMAL	4,407.0	10.15	215.24	4,332.59	-644.66	-449.87	786.11	0.31	-0.05	-1.72	259.35
	NORMAL	4,502.0	9.94	213.45	4,426.14	-658.34	-459.22	802.68	0.40	-0.22	-1.88	235.20
	NORMAL	4,597.0	9.67	214.94	4,519.75	-671.72	-468.31	818.86	0.39	-0.28	1.57	137.51
8/27/2013	NORMAL	4,692.0	10.56	217.09	4,613.27	-685.21	-478.13	835.53	1.02	0.94	2.26	24.05
	NORMAL	4,788.0	10.60	217.02	4,707.64	-699.27	-488.75	853.15	0.04	0.04	-0.07	342.15
	NORMAL	4,883.0	10.19	215.88	4,801.08	-713.06	-498.94	870.28	0.48	-0.43	-1.20	206.08
	NORMAL	4,978.0	10.15	215.14	4,894.59	-726.71	-508.68	887.05	0.14	-0.04	-0.78	252.61
	NORMAL	5,074.0	10.46	215.03	4,989.04	-740.77	-518.55	904.23	0.32	0.32	-0.11	356.31
	NORMAL	5,170.0	10.02	214.68	5,083.51	-754.77	-528.31	921.29	0.46	-0.46	-0.36	187.88
	NORMAL	5,265.0	9.67	213.59	5,177.11	-768.21	-537.43	937.53	0.42	-0.37	-1.15	207.50
	NORMAL	5,361.0	11.23	215.04	5,271.52	-782.58	-547.25	954.94	1.65	1.63	1.51	10.28
	NORMAL	5,456.0	10.97	213.73	5,364.74	-797.67	-557.58	973.23	0.38	-0.27	-1.38	223.49
	NORMAL	5,552.0	10.94	212.66	5,458.99	-812.94	-567.57	991.47	0.21	-0.03	-1.11	261.08
8/28/2013	NORMAL	5,646.0	10.90	216.86	5,551.29	-827.56	-577.72	1,009.26	0.85	-0.04	4.47	94.94
	NORMAL	5,648.0			5,554.41	-820.63	-572.50	1,000.60	11.40	-11.40	0.00	180.00
	NORMAL	5,742.0	10.72	217.75	5,645.59	-841.88	-588.63	1,027.25	0.26	-0.19	0.93	137.60
	NORMAL	5,838.0	10.87	218.26	5,739.89	-856.05	-599.70	1,045.20	0.19	0.16	0.53	32.74
	NORMAL	5,934.0	9.69	218.03	5,834.35	-869.52	-610.28	1,062.30	1.23	-1.23	-0.24	181.88
	NORMAL	6,029.0	7.95	214.58	5,928.22	-881.23	-618.94	1,076.86	1.91	-1.83	-3.63	195.21
	NORMAL	6,124.0	7.49	213.98	6,022.36	-891.77	-626.13	1,089.62	0.49	-0.48	-0.63	189.64
	NORMAL	6,220.0	7.19	214.97	6,117.57	-901.88	-633.07	1,101.88	0.34	-0.31	1.03	157.63
	NORMAL	6,315.0	6.07	211.07	6,211.94	-911.06	-639.07	1,112.84	1.27	-1.18	-4.11	199.97
	NORMAL	6,411.0	4.04	217.67	6,307.56	-918.08	-643.75	1,121.28	2.20	-2.11	6.88	167.28
	NORMAL	6,507.0	2.84	219.38	6,403.38	-922.60	-647.33	1,127.03	1.25	-1.25	1.78	175.97
	NORMAL	6,603.0	2.92	211.62	6,499.26	-926.52	-650.12	1,131.84	0.41	0.08	-8.08	277.70
	NORMAL	6,698.0	1.87	220.36	6,594.18	-929.76	-652.39	1,135.80	1.17	-1.11	9.20	165.15
	NORMAL	6,794.0	1.18	228.19	6,690.14	-931.61	-654.14	1,138.32	0.75	-0.72	8.16	167.08
	NORMAL	6,889.0	1.06	224.52	6,785.13	-932.89	-655.49	1,140.14	0.15	-0.13	-3.86	209.04
	NORMAL	6,983.0	0.97	239.29	6,879.11	-933.92	-656.78	1,141.72	0.29	-0.10	15.71	116.27
	NORMAL	7,079.0	1.32	221.44	6,975.09	-935.16	-658.21	1,143.56	0.52	0.36	-18.59	305.30

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 (°)
8/29/2013	NORMAL	7,175.0	0.55	349.70	7,071.09	-935.54	-659.03	1,144.33	1.79	-0.80	133.60	165.42
	NORMAL	7,269.0	1.53	2.30	7,165.07	-933.84	-659.06	1,142.96	1.06	1.04	13.40	19.49
	NORMAL	7,365.0	1.72	34.69	7,261.03	-931.38	-658.19	1,140.44	0.96	0.20	33.74	94.81
	NORMAL	7,460.0	1.44	56.36	7,356.00	-929.54	-656.38	1,137.90	0.69	-0.29	22.81	125.68
8/30/2013	NORMAL	7,556.0	1.14	42.44	7,451.97	-928.17	-654.73	1,135.83	0.45	-0.31	-14.50	219.43
	NORMAL	7,651.0	0.98	44.08	7,546.96	-926.89	-653.53	1,134.09	0.17	-0.17	1.73	170.08
	NORMAL	7,747.0	1.09	47.39	7,642.94	-925.68	-652.29	1,132.39	0.13	0.11	3.45	30.19
	NORMAL	7,842.0	1.06	80.12	7,737.93	-924.92	-650.76	1,130.89	0.64	-0.03	34.45	109.08
	NORMAL	7,936.0	0.59	73.14	7,831.92	-924.63	-649.44	1,129.90	0.51	-0.50	-7.43	188.59
	NORMAL	8,032.0	1.04	83.29	7,927.91	-924.38	-648.10	1,128.93	0.49	0.47	10.57	22.91
	NORMAL	8,127.0	0.74	183.88	8,022.90	-924.89	-647.28	1,128.89	1.46	-0.32	105.88	148.26
	NORMAL	8,222.0	1.20	187.06	8,117.89	-926.49	-647.45	1,130.30	0.49	0.48	3.35	8.27
	NORMAL	8,318.0	1.20	207.90	8,213.87	-928.38	-648.04	1,132.18	0.45	0.00	21.71	100.42
	NORMAL	8,414.0	1.49	199.65	8,309.84	-930.44	-648.93	1,134.39	0.36	0.30	-8.59	322.10
	NORMAL	8,510.0	2.32	204.12	8,405.79	-933.39	-650.14	1,137.50	0.88	0.86	4.66	12.39
	NORMAL	8,605.0	1.83	192.97	8,500.72	-936.63	-651.27	1,140.80	0.67	-0.52	-11.74	214.00
	NORMAL	8,700.0	0.60	298.70	8,595.71	-937.86	-652.05	1,142.26	2.18	-1.29	111.29	163.83
	NORMAL	8,795.0	0.52	310.55	8,690.70	-937.35	-652.81	1,142.27	0.15	-0.08	12.47	130.46
8/31/2013	NORMAL	8,890.0	0.36	329.73	8,785.70	-936.81	-653.29	1,142.10	0.23	-0.17	20.19	146.69
	NORMAL	8,985.0	0.78	263.63	8,880.70	-936.62	-654.08	1,142.40	0.75	0.44	-69.58	266.47
	NORMAL	9,080.0	1.04	215.60	8,975.69	-937.39	-655.23	1,143.69	0.82	0.27	-50.56	263.77
	NORMAL	9,174.0	1.44	212.48	9,069.66	-939.08	-656.36	1,145.72	0.43	0.43	-3.32	348.86
	NORMAL	9,269.0	1.94	206.05	9,164.62	-941.54	-657.70	1,148.50	0.56	0.53	-6.77	336.00
	NORMAL	9,364.0	2.11	202.46	9,259.56	-944.60	-659.08	1,151.80	0.22	0.18	-3.78	321.47
	NORMAL	9,460.0	3.17	204.57	9,355.46	-948.64	-660.86	1,156.14	1.11	1.10	2.20	6.29
	NORMAL	9,555.0	3.94	210.61	9,450.28	-953.84	-663.61	1,161.98	0.90	0.81	6.36	28.97
	NORMAL	9,650.0	4.61	213.00	9,545.01	-959.85	-667.35	1,169.05	0.73	0.71	2.52	16.08
	NORMAL	9,744.0	4.91	215.66	9,638.69	-966.29	-671.76	1,176.85	0.40	0.32	2.83	37.68
	NORMAL	9,839.0	4.79	217.36	9,733.35	-972.75	-676.53	1,184.88	0.20	-0.13	1.79	130.70
9/1/2013	NORMAL	9,934.0	4.34	211.86	9,828.05	-978.95	-680.84	1,192.43	0.66	-0.47	-5.79	221.49
	NORMAL	9,994.0	4.44	214.64	9,887.87	-982.79	-683.36	1,197.02	0.39	0.17	4.63	66.22
	NORMAL	10,051.0	4.44	214.64	9,944.70	-986.42	-685.86	1,201.43	0.00	0.00	0.00	0.00