

# Deviation Summary

PICEANCE VLY

## 1 General

### 1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

### 1.2 Well/Wellbore Information

Well	NER 414-32	Wellbore No.	00
Wellbore Legal Name	NER 414-32	Common Wellbore Name	NER 414-32
Project	RU 05-07S-093W	Site	RU 23-5 Pad
Vertical Section Azimuth	288.90 (°)	North reference	True
Origin N/S		Origin E/W	
Spud date	3/21/2014	UWI	NER 414-32
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	3/21/2014	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 (°)
3/21/2014	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3/21/2014	NORMAL	88.0	0.70	245.48	88.00	-0.22	-0.49	0.39	0.80	0.80	0.00	245.48
	NORMAL	182.0	2.82	290.48	181.95	0.35	-3.18	3.12	2.53	2.26	47.87	57.01
	NORMAL	270.0	4.75	297.25	269.76	2.77	-8.45	8.89	2.25	2.19	7.69	16.43
	NORMAL	362.0	5.98	279.76	361.36	5.33	-16.56	17.39	2.21	1.34	-19.01	298.03
	NORMAL	453.0	7.92	288.54	451.69	8.13	-27.17	28.34	2.42	2.13	9.65	33.11
	NORMAL	545.0	11.44	290.30	542.36	13.31	-41.74	43.80	3.84	3.83	1.91	5.67
	NORMAL	637.0	13.64	290.21	632.16	20.22	-60.48	63.77	2.39	2.39	-0.10	359.45
	NORMAL	729.0	14.96	288.63	721.31	27.77	-81.92	86.49	1.50	1.43	-1.72	342.76
	NORMAL	800.0	15.73	289.00	789.78	33.83	-99.70	105.28	1.09	1.08	0.52	7.43
	NORMAL	892.0	16.60	289.30	878.14	42.23	-123.90	130.89	0.95	0.95	0.33	5.63
	NORMAL	982.0	17.40	290.85	964.21	51.27	-148.61	157.20	1.02	0.89	1.72	30.27
	NORMAL	1,118.0	18.91	290.89	1,093.43	66.37	-188.20	199.55	1.11	1.11	0.03	0.49
3/22/2014	NORMAL	1,264.0	19.94	291.67	1,231.12	83.99	-233.44	248.06	0.73	0.71	0.53	14.50
	NORMAL	1,359.0	18.13	290.02	1,320.92	95.04	-262.38	279.02	1.99	-1.91	-1.74	195.78
	NORMAL	1,454.0	17.62	289.69	1,411.34	104.94	-289.81	308.18	0.55	-0.54	-0.35	191.08
	NORMAL	1,549.0	18.16	286.92	1,501.74	114.10	-317.51	337.35	1.06	0.57	-2.92	301.08
	NORMAL	1,644.0	17.85	284.66	1,592.09	122.09	-345.76	366.67	0.80	-0.33	-2.38	245.00
	NORMAL	1,739.0	18.93	285.36	1,682.24	129.86	-374.71	396.57	1.16	1.14	0.74	11.89
	NORMAL	1,834.0	19.01	285.53	1,772.08	138.08	-404.47	427.39	0.10	0.08	0.18	34.72
	NORMAL	1,930.0	18.86	285.53	1,862.89	146.42	-434.49	458.49	0.16	-0.16	0.00	180.00

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (")	Azi. (")	TVD (ft)	N/S (ft)	EW (ft)	V. sec. (ft)	DLS ("/100usft)	Build Rate ("/100usft)	Turn ("/100usft )	Tface (")
3/22/2014	NORMAL	2,025.0	19.52	289.92	1,952.61	155.94	-464.21	489.69	1.67	0.69	4.62	67.51
	NORMAL	2,121.0	18.98	287.86	2,043.25	166.19	-494.15	521.34	0.90	-0.56	-2.15	230.54
	NORMAL	2,216.0	19.02	288.35	2,133.07	175.80	-523.54	552.26	0.17	0.04	0.52	76.16
	NORMAL	2,310.0	18.90	286.05	2,221.97	184.84	-552.71	582.78	0.81	-0.13	-2.45	259.79
	NORMAL	2,406.0	19.55	290.38	2,312.62	194.73	-582.71	614.37	1.63	0.68	4.51	67.55
3/23/2014	NORMAL	2,502.0	19.35	289.37	2,403.14	205.60	-612.77	646.33	0.41	-0.21	-1.05	238.79
	NORMAL	2,598.0	19.35	288.43	2,491.83	215.69	-642.24	677.48	0.33	0.00	-1.00	269.56
	NORMAL	2,692.0	19.41	289.09	2,582.39	225.93	-672.40	709.33	0.24	0.06	0.69	74.99
	NORMAL	2,788.0	18.94	288.08	2,673.07	235.98	-702.29	740.86	0.60	-0.49	-1.05	214.74
	NORMAL	2,883.0	18.97	288.88	2,762.92	245.76	-731.55	771.72	0.28	0.03	0.84	83.79
	NORMAL	2,978.0	18.34	288.93	2,852.92	255.61	-760.30	802.11	0.66	-0.66	0.05	178.57
	NORMAL	3,075.0	19.12	291.64	2,944.79	266.42	-789.50	833.24	1.20	0.80	2.79	49.42
	NORMAL	3,170.0	18.89	291.68	3,034.61	277.84	-818.26	864.14	0.24	-0.24	0.04	176.78
	NORMAL	3,265.0	18.26	291.67	3,124.66	289.01	-846.38	894.36	0.66	-0.66	-0.01	180.28
	NORMAL	3,360.0	18.25	291.85	3,214.88	300.05	-874.02	924.09	0.06	-0.01	0.19	100.14
	NORMAL	3,456.0	19.63	291.93	3,305.68	311.66	-902.93	955.20	1.44	1.44	0.08	1.12
	NORMAL	3,551.0	19.38	291.90	3,395.23	323.50	-932.36	986.88	0.26	-0.26	-0.03	182.28
	NORMAL	3,646.0	19.17	292.20	3,484.90	335.28	-961.42	1,018.19	0.24	-0.22	0.32	154.89
	NORMAL	3,739.0	18.88	291.70	3,572.82	346.61	-989.54	1,048.46	0.36	-0.31	-0.54	209.10
	NORMAL	3,835.0	18.60	291.62	3,663.73	357.99	-1,018.20	1,079.27	0.29	-0.29	-0.08	185.21
	NORMAL	3,929.0	19.04	288.74	3,752.71	368.44	-1,046.66	1,109.58	1.09	0.47	-3.06	293.97
	NORMAL	4,024.0	19.23	288.56	3,842.46	378.40	-1,076.17	1,140.72	0.21	0.20	-0.19	342.66
	NORMAL	4,119.0	18.73	287.49	3,932.30	387.96	-1,105.55	1,171.61	0.64	-0.53	-1.13	214.33
	NORMAL	4,214.0	18.30	287.42	4,022.38	397.01	-1,134.32	1,201.77	0.45	-0.45	-0.07	182.93
	NORMAL	4,309.0	17.61	287.43	4,112.75	405.78	-1,162.27	1,231.04	0.73	-0.73	0.01	179.75
	NORMAL	4,404.0	18.09	287.89	4,203.18	414.62	-1,190.01	1,260.16	0.53	0.51	0.48	16.59
	NORMAL	4,499.0	17.98	286.65	4,293.51	423.35	-1,218.10	1,289.55	0.42	-0.12	-1.31	253.42
3/24/2014	NORMAL	4,594.0	18.59	290.23	4,383.72	432.79	-1,246.35	1,319.35	1.35	0.64	3.77	63.20
	NORMAL	4,689.0	18.57	290.45	4,473.77	443.31	-1,274.74	1,349.61	0.08	-0.02	0.23	106.03
	NORMAL	4,784.0	18.15	290.49	4,563.93	453.77	-1,302.77	1,379.52	0.44	-0.44	0.04	178.30
	NORMAL	4,880.0	18.52	288.29	4,655.06	463.79	-1,331.25	1,409.71	0.82	0.39	-2.29	297.08
	NORMAL	4,975.0	18.71	288.01	4,745.09	473.24	-1,360.07	1,440.03	0.22	0.20	-0.29	334.67
	NORMAL	5,071.0	18.53	287.77	4,836.06	482.65	-1,389.24	1,470.68	0.20	-0.19	-0.25	202.95
	NORMAL	5,167.0	17.98	287.26	4,927.23	491.71	-1,417.92	1,500.74	0.60	-0.57	-0.53	195.95
	NORMAL	5,262.0	17.55	287.04	5,017.70	500.25	-1,445.61	1,529.71	0.46	-0.45	-0.23	188.77
	NORMAL	5,358.0	18.68	286.50	5,108.94	508.86	-1,474.19	1,559.54	1.19	1.18	-0.56	351.29
	NORMAL	5,453.0	18.67	287.76	5,198.94	517.82	-1,503.26	1,589.94	0.42	-0.01	1.33	92.02
	NORMAL	5,549.0	18.57	287.95	5,289.91	527.22	-1,532.44	1,620.59	0.12	-0.10	0.20	148.85
	NORMAL	5,643.0	19.12	291.23	5,378.88	537.41	-1,561.03	1,650.94	1.27	0.59	3.49	64.12
3/25/2014	NORMAL	5,739.0	19.11	291.06	5,469.58	548.75	-1,590.35	1,682.35	0.06	-0.01	-0.18	259.74
	NORMAL	5,835.0	19.01	291.40	5,560.32	560.10	-1,619.57	1,713.68	0.16	-0.10	0.35	132.17
	NORMAL	5,931.0	18.99	290.62	5,651.09	571.31	-1,648.74	1,744.91	0.27	-0.02	-0.81	265.13
	NORMAL	6,026.0	19.37	290.24	5,740.82	582.20	-1,677.99	1,776.11	0.42	0.40	-0.40	341.63
	NORMAL	6,121.0	18.76	295.09	5,830.61	594.13	-1,706.61	1,807.05	1.79	-0.64	5.11	113.34
	NORMAL	6,216.0	17.19	294.17	5,920.97	606.35	-1,733.25	1,836.22	1.68	-1.65	-0.97	189.81
	NORMAL	6,312.0	15.10	292.14	6,013.18	616.88	-1,757.78	1,862.83	2.25	-2.18	-2.11	194.14
	NORMAL	6,408.0	14.88	290.58	6,105.92	625.92	-1,780.90	1,887.63	0.48	-0.23	-1.63	240.65
	NORMAL	6,504.0	13.65	292.53	6,198.95	634.59	-1,802.91	1,911.26	1.38	-1.28	2.03	159.60
	NORMAL	6,599.0	12.53	295.10	6,291.49	643.26	-1,822.59	1,932.69	1.33	-1.18	2.71	153.79
	NORMAL	6,695.0	11.35	294.55	6,385.41	651.60	-1,840.62	1,952.45	1.23	-1.23	-0.57	185.24
	NORMAL	6,791.0	9.50	291.91	6,479.82	658.49	-1,856.56	1,969.76	1.99	-1.93	-2.75	193.18
3/26/2014	NORMAL	6,886.0	9.16	288.67	6,573.56	663.83	-1,871.00	1,985.15	0.66	-0.36	-3.41	235.49
	NORMAL	6,981.0	8.36	289.56	6,667.45	668.57	-1,884.67	1,999.62	0.85	-0.84	0.94	170.82
3/27/2014	NORMAL	7,077.0	7.45	287.49	6,762.54	672.77	-1,897.18	2,012.82	0.99	-0.95	-2.16	196.35
	NORMAL	7,172.0	6.25	286.79	6,856.86	676.12	-1,908.01	2,024.14	1.27	-1.26	-0.74	183.63
	NORMAL	7,267.0	5.23	287.46	6,951.38	678.91	-1,917.09	2,033.64	1.08	-1.07	0.71	176.57

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 (")	
3/27/2014	NORMAL	7,363.0	3.62	281.16	7,047.09	680.81	-1,924.24	2,041.02	1.75	-1.68	-6.56	193.68	
	NORMAL	7,458.0	2.40	274.31	7,141.96	681.54	-1,929.16	2,045.92	1.34	-1.28	-7.21	193.03	
	NORMAL	7,553.0	2.30	279.00	7,236.88	681.99	-1,933.03	2,049.72	0.23	-0.11	4.94	119.80	
	NORMAL	7,649.0	0.81	274.33	7,332.84	682.34	-1,935.61	2,052.27	1.56	-1.55	-4.86	182.53	
	NORMAL	7,744.0	0.62	17.11	7,427.84	682.88	-1,936.13	2,052.94	1.18	-0.20	108.19	147.44	
	NORMAL	7,839.0	0.85	39.17	7,522.83	683.92	-1,935.53	2,052.71	0.38	0.24	23.22	62.27	
	NORMAL	7,934.0	0.48	68.27	7,617.83	684.61	-1,934.72	2,052.16	0.52	-0.39	30.63	151.54	
	NORMAL	8,029.0	0.70	108.95	7,712.82	684.57	-1,933.80	2,051.28	0.48	0.23	42.82	83.64	
	NORMAL	8,125.0	1.06	68.70	7,808.81	684.70	-1,932.42	2,050.02	0.72	0.38	-41.93	279.05	
	NORMAL	8,220.0	0.88	82.77	7,903.80	685.11	-1,930.87	2,048.69	0.31	-0.19	14.81	133.97	
3/28/2014	NORMAL	8,316.0	0.71	56.69	7,999.79	685.53	-1,929.65	2,047.67	0.41	-0.18	-27.17	232.18	
	NORMAL	8,412.0	1.05	66.36	8,095.78	686.21	-1,928.34	2,046.65	0.39	0.35	10.07	28.48	
	NORMAL	8,509.0	0.54	73.10	8,192.77	686.70	-1,927.09	2,045.63	0.53	-0.53	6.95	172.97	
	NORMAL	8,602.0	0.45	60.99	8,285.76	687.01	-1,926.35	2,045.03	0.15	-0.10	-13.38	223.95	
	NORMAL	8,695.0	0.44	64.64	8,378.76	687.34	-1,925.71	2,044.53	0.03	-0.01	4.28	109.91	
	NORMAL	8,789.0	0.51	89.66	8,472.76	687.50	-1,924.97	2,043.88	0.23	0.07	26.62	84.14	
3/29/2014	NORMAL	8,883.0	0.29	86.89	8,566.75	687.51	-1,924.31	2,043.26	0.23	-0.23	-2.95	183.64	
	NORMAL	8,979.0	0.32	187.18	8,662.75	687.26	-1,924.10	2,042.98	0.49	0.03	104.47	137.79	
	NORMAL	9,074.0	0.50	206.15	8,757.75	686.63	-1,924.32	2,042.98	0.23	0.19	19.97	46.76	
	NORMAL	9,168.0	0.64	197.48	8,851.75	685.76	-1,924.66	2,043.02	0.17	0.15	-9.22	323.98	
	NORMAL	9,263.0	1.11	204.23	8,946.74	684.41	-1,925.19	2,043.09	0.51	0.49	7.11	15.76	
	NORMAL	9,358.0	1.47	190.99	9,041.71	682.38	-1,925.80	2,043.01	0.49	0.38	-13.94	313.63	
	NORMAL	9,453.0	2.29	210.05	9,136.66	679.54	-1,926.99	2,043.21	1.07	0.86	20.06	47.11	
	NORMAL	9,548.0	2.20	217.32	9,231.59	676.44	-1,929.04	2,044.15	0.31	-0.09	7.65	111.15	
	NORMAL	9,644.0	2.48	215.03	9,327.51	673.28	-1,931.35	2,045.31	0.31	0.29	-2.39	340.39	
	NORMAL	9,738.0	2.11	215.66	9,421.43	670.21	-1,933.53	2,046.37	0.39	-0.39	0.67	176.41	
	NORMAL	9,832.0	1.83	212.73	9,515.38	667.54	-1,935.35	2,047.23	0.32	-0.30	-3.12	198.32	
	NORMAL	9,928.0	1.65	215.52	9,611.33	665.12	-1,936.98	2,047.99	0.21	-0.19	2.91	156.19	
	3/30/2014	NORMAL	10,022.0	1.63	223.72	9,705.29	663.06	-1,938.69	2,048.94	0.25	-0.02	8.72	98.96
		NORMAL	10,118.0	1.66	203.55	9,801.25	660.79	-1,940.19	2,049.63	0.60	0.03	-21.01	262.85
NORMAL		10,212.0	2.15	200.85	9,895.20	657.90	-1,941.36	2,049.80	0.53	0.52	-2.87	348.27	
NORMAL		10,271.0	1.76	197.55	9,954.17	656.00	-1,942.03	2,049.81	0.69	-0.66	-5.59	194.46	