

# Deviation Summary

PICEANCE VLY

## 1 General

### 1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

### 1.2 Well/Wellbore Information

Well	NER 423-32	Wellbore No.	00
Wellbore Legal Name	NER 423-32	Common Wellbore Name	NER 423-32
Project	RU 05-07S-093W	Site	RU 23-5 Pad
Vertical Section Azimuth	343.72 (°)	North reference	True
Origin N/S		Origin E/W	
Spud date	9/6/2014	UWI	NER 423-32
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	9/6/2014	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)	Bulld Rate (°/100usft)	Turn (°/100usft)	Tface (°)
9/6/2014	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/6/2014	NORMAL	86.0	0.44	11.78	86.00	0.32	0.07	0.29	0.51	0.51	0.00	11.78
	NORMAL	181.0	3.17	348.93	180.94	3.26	-0.36	3.23	2.92	2.87	-24.05	333.62
	NORMAL	267.0	4.93	351.83	266.73	9.25	-1.34	9.26	2.06	2.05	3.37	8.09
	NORMAL	359.0	8.01	342.16	358.13	19.27	-3.87	19.58	3.54	3.35	-10.51	335.67
	NORMAL	451.0	11.96	343.56	448.72	34.52	-8.53	35.53	4.30	4.29	1.52	4.21
	NORMAL	543.0	15.92	345.50	537.99	55.89	-14.39	57.68	4.33	4.30	2.11	7.67
	NORMAL	635.0	19.79	342.86	625.55	82.99	-22.15	85.88	4.30	4.21	-2.87	346.92
	NORMAL	727.0	20.50	341.63	711.92	113.17	-31.81	117.55	0.90	0.77	-1.34	328.60
	NORMAL	798.0	20.86	340.10	778.34	136.85	-40.03	142.59	0.91	0.51	-2.15	302.96
	NORMAL	890.0	21.35	339.91	864.17	167.98	-51.36	175.64	0.54	0.53	-0.21	351.96
	NORMAL	980.0	19.46	341.83	948.52	197.62	-61.66	206.98	2.23	-2.10	2.13	161.39
	NORMAL	1,071.0	19.08	343.86	1,034.42	226.31	-70.53	237.00	0.85	-0.42	2.23	120.52
	NORMAL	1,131.0	19.68	344.37	1,091.02	245.45	-75.97	256.91	1.04	1.00	0.85	15.99
9/7/2014	NORMAL	1,264.0	20.07	344.67	1,216.10	289.03	-88.04	302.12	0.30	0.29	0.23	14.80
	NORMAL	1,359.0	19.58	344.70	1,305.47	320.11	-96.55	334.34	0.52	-0.52	0.03	178.82
	NORMAL	1,454.0	20.98	345.32	1,394.58	351.91	-105.06	367.25	1.49	1.47	0.65	9.02
	NORMAL	1,549.0	20.37	345.46	1,483.46	384.37	-113.52	400.78	0.64	-0.64	0.15	175.43
	NORMAL	1,644.0	20.40	344.19	1,572.51	416.30	-122.19	433.86	0.47	0.03	-1.34	273.28
	NORMAL	1,739.0	19.58	343.27	1,661.79	447.48	-131.28	466.34	0.92	-0.86	-0.97	200.55
	NORMAL	1,834.0	20.31	344.36	1,751.09	478.60	-140.31	498.74	0.86	0.77	1.15	27.50

## 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 (°)
9/7/2014	NORMAL	1,929.0	19.71	342.33	1,840.36	509.74	-149.61	531.25	0.97	-0.63	-2.14	228.23
	NORMAL	2,025.0	20.67	343.57	1,930.46	541.42	-159.32	564.37	1.09	1.00	1.29	24.61
	NORMAL	2,120.0	21.26	344.42	2,019.17	574.09	-168.69	598.36	0.70	0.62	0.89	27.67
	NORMAL	2,215.0	20.66	343.73	2,107.88	606.77	-178.01	632.35	0.68	-0.63	-0.73	202.04
	NORMAL	2,310.0	20.52	342.45	2,196.81	638.74	-187.73	665.75	0.50	-0.15	-1.35	252.13
	NORMAL	2,406.0	20.62	346.37	2,286.70	671.21	-196.78	699.46	1.44	0.10	4.08	87.68
	NORMAL	2,502.0	19.93	345.51	2,376.75	703.48	-204.86	732.70	0.78	-0.72	-0.90	202.96
	NORMAL	2,596.0	19.39	345.15	2,465.27	734.07	-212.87	764.31	0.59	-0.57	-0.38	192.47
	NORMAL	2,692.0	21.01	346.20	2,555.36	766.19	-221.06	797.44	1.73	1.69	1.09	13.11
	NORMAL	2,788.0	20.51	345.69	2,645.13	799.20	-229.32	831.44	0.55	-0.52	-0.53	199.64
9/8/2014	NORMAL	2,883.0	19.88	345.72	2,734.29	830.98	-237.42	864.22	0.66	-0.66	0.03	179.07
	NORMAL	2,978.0	19.03	345.61	2,823.86	861.64	-245.25	895.84	0.90	-0.89	-0.12	182.42
	NORMAL	3,074.0	20.08	344.99	2,914.32	892.71	-253.41	927.96	1.11	1.09	-0.65	348.53
	NORMAL	3,170.0	19.26	344.97	3,004.72	923.92	-261.78	960.26	0.85	-0.85	-0.02	180.46
	NORMAL	3,265.0	21.02	344.57	3,093.91	955.48	-270.38	992.97	1.86	1.85	-0.42	355.34
	NORMAL	3,360.0	20.49	344.53	3,182.74	987.93	-279.35	1,026.63	0.56	-0.56	-0.04	181.51
	NORMAL	3,455.0	20.05	343.91	3,271.86	1,019.60	-288.30	1,059.54	0.52	-0.46	-0.65	205.73
	NORMAL	3,551.0	19.37	343.44	3,362.24	1,050.68	-297.40	1,091.92	0.73	-0.71	-0.49	192.90
	NORMAL	3,646.0	21.28	343.47	3,451.32	1,082.31	-306.79	1,124.91	2.01	2.01	0.03	0.33
	NORMAL	3,739.0	21.02	343.56	3,538.05	1,114.48	-316.31	1,158.47	0.28	-0.28	0.10	172.92
	NORMAL	3,834.0	20.58	343.21	3,626.86	1,146.81	-325.96	1,192.20	0.48	-0.46	-0.37	195.61
	NORMAL	3,929.0	20.18	342.12	3,715.91	1,178.39	-335.81	1,225.28	0.58	-0.42	-1.15	222.99
	NORMAL	4,024.0	19.47	342.10	3,805.28	1,209.05	-345.71	1,257.48	0.75	-0.75	-0.02	180.54
	NORMAL	4,119.0	21.20	342.96	3,894.36	1,240.54	-355.61	1,290.49	1.85	1.82	0.91	10.20
	NORMAL	4,214.0	20.67	343.26	3,983.09	1,273.02	-365.47	1,324.43	0.57	-0.56	0.32	168.71
	NORMAL	4,309.0	19.88	342.63	4,072.20	1,304.49	-375.13	1,357.35	0.86	-0.83	-0.66	195.15
	NORMAL	4,404.0	18.94	342.44	4,161.80	1,334.61	-384.60	1,388.91	0.99	-0.99	-0.20	183.75
	NORMAL	4,499.0	19.71	344.39	4,251.45	1,364.74	-393.56	1,420.34	1.06	0.81	2.05	40.89
	NORMAL	4,594.0	21.31	344.24	4,340.42	1,396.78	-402.56	1,453.63	1.69	1.68	-0.16	358.05
	NORMAL	4,689.0	20.41	344.27	4,429.19	1,429.34	-411.74	1,487.45	0.95	-0.95	0.03	179.33
	NORMAL	4,784.0	19.31	344.19	4,518.54	1,460.40	-420.51	1,519.72	1.16	-1.16	-0.08	181.38
	NORMAL	4,880.0	20.66	343.63	4,608.76	1,491.92	-429.61	1,552.53	1.42	1.41	-0.58	351.67
	NORMAL	4,975.0	19.91	343.27	4,697.87	1,523.49	-438.99	1,585.47	0.80	-0.79	-0.38	189.28
	NORMAL	5,071.0	21.03	343.65	4,787.80	1,555.68	-448.54	1,619.04	1.17	1.17	0.40	6.94
	NORMAL	5,166.0	22.40	344.17	4,876.06	1,589.45	-458.28	1,654.19	1.46	1.44	0.55	8.24
9/9/2014	NORMAL	5,262.0	21.49	343.67	4,965.10	1,623.92	-468.21	1,690.06	0.97	-0.95	-0.52	191.37
	NORMAL	5,357.0	20.71	343.46	5,053.73	1,656.72	-477.89	1,724.26	0.82	-0.82	-0.22	185.44
	NORMAL	5,453.0	19.62	343.63	5,143.85	1,688.46	-487.26	1,757.36	1.14	-1.14	0.18	177.00
	NORMAL	5,549.0	21.68	345.54	5,233.68	1,721.10	-496.24	1,791.20	2.26	2.15	1.99	19.00
	NORMAL	5,643.0	20.92	345.72	5,321.26	1,754.18	-504.71	1,825.33	0.81	-0.81	0.19	175.17
	NORMAL	5,739.0	19.87	346.33	5,411.24	1,786.64	-512.79	1,858.75	1.12	-1.09	0.64	168.84
	NORMAL	5,834.0	19.16	347.14	5,500.78	1,817.53	-520.08	1,890.44	0.80	-0.75	0.85	159.52
	NORMAL	5,930.0	18.72	345.98	5,591.58	1,847.83	-527.32	1,921.56	0.60	-0.46	-1.21	220.01
	NORMAL	6,025.0	17.93	346.02	5,681.76	1,876.81	-534.54	1,951.41	0.83	-0.83	0.04	179.11
	NORMAL	6,121.0	16.97	344.18	5,773.34	1,904.63	-541.93	1,980.18	1.15	-1.00	-1.92	209.01
	NORMAL	6,216.0	15.43	345.32	5,864.57	1,930.20	-548.92	2,006.68	1.66	-1.62	1.20	168.88
	NORMAL	6,312.0	14.87	344.10	5,957.23	1,954.40	-555.53	2,031.77	0.67	-0.58	-1.27	209.07
	NORMAL	6,408.0	13.10	346.51	6,050.38	1,976.83	-561.44	2,054.95	1.94	-1.84	2.51	162.95
	NORMAL	6,503.0	12.10	345.01	6,143.10	1,996.91	-566.53	2,075.66	1.11	-1.05	-1.58	197.39
	NORMAL	6,599.0	10.80	345.20	6,237.18	2,015.33	-571.43	2,094.71	1.35	-1.35	0.20	178.43
9/10/2014	NORMAL	6,695.0	10.59	343.97	6,331.52	2,032.50	-576.16	2,112.52	0.32	-0.22	-1.28	226.78
	NORMAL	6,791.0	9.97	350.15	6,425.98	2,049.17	-580.02	2,129.60	1.32	-0.65	6.44	122.36
	NORMAL	6,886.0	9.24	348.98	6,519.64	2,064.76	-582.88	2,145.37	0.80	-0.77	-1.23	194.40
	NORMAL	6,981.0	8.04	348.42	6,613.56	2,078.76	-585.68	2,159.59	1.27	-1.26	-0.59	183.73
	NORMAL	7,076.0	6.93	348.12	6,707.75	2,090.87	-588.19	2,171.92	1.17	-1.17	-0.32	181.87
	NORMAL	7,172.0	6.42	344.88	6,803.10	2,101.72	-590.78	2,183.06	0.66	-0.53	-3.38	214.84

## 2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (")	Azi. (")	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (%/100usft)	Build Rate (%/100usft)	Turn (%/100usft)	Tface (")
9/10/2014	NORMAL	7,267.0	5.46	341.49	6,897.59	2,111.14	-593.60	2,192.89	1.08	-1.01	-3.57	198.39
	NORMAL	7,363.0	5.52	347.48	6,993.15	2,119.97	-596.05	2,202.06	0.60	0.06	6.24	87.01
	NORMAL	7,458.0	5.01	345.14	7,087.75	2,128.44	-598.11	2,210.77	0.58	-0.54	-2.46	201.67
	NORMAL	7,553.0	4.15	343.09	7,182.45	2,135.74	-600.17	2,218.35	0.92	-0.91	-2.16	189.76
9/11/2014	NORMAL	7,649.0	4.36	353.16	7,278.18	2,142.69	-601.62	2,225.43	0.81	0.22	10.49	79.36
	NORMAL	7,744.0	4.28	354.65	7,372.91	2,149.80	-602.38	2,232.47	0.15	-0.08	1.57	128.22
	NORMAL	7,839.0	3.69	353.23	7,467.68	2,156.37	-603.07	2,238.97	0.63	-0.62	-1.49	188.79
	NORMAL	7,934.0	3.25	352.26	7,562.51	2,162.07	-603.79	2,244.64	0.47	-0.46	-1.02	187.12
	NORMAL	8,029.0	2.81	341.98	7,657.38	2,166.96	-604.87	2,249.63	0.73	-0.46	-10.82	225.94
	NORMAL	8,125.0	2.60	340.27	7,753.27	2,171.24	-606.34	2,254.16	0.23	-0.22	-1.78	200.17
	NORMAL	8,220.0	2.27	332.36	7,848.18	2,174.94	-607.94	2,258.15	0.50	-0.35	-8.33	221.62
	NORMAL	8,316.0	1.34	345.69	7,944.14	2,177.71	-609.10	2,261.14	1.06	-0.97	13.89	162.27
	NORMAL	8,411.0	1.41	14.59	8,039.11	2,179.92	-609.08	2,263.25	0.73	0.07	30.42	98.80
	NORMAL	8,507.0	1.08	10.32	8,135.09	2,181.95	-608.62	2,265.08	0.36	-0.34	-4.45	193.58
	NORMAL	8,602.0	0.61	357.62	8,230.08	2,183.34	-608.48	2,266.37	0.53	-0.49	-13.37	195.46
	NORMAL	8,695.0	0.40	344.04	8,323.07	2,184.14	-608.59	2,267.17	0.26	-0.23	-14.60	203.01
	NORMAL	8,789.0	0.28	356.39	8,417.07	2,184.69	-608.69	2,267.73	0.15	-0.13	13.14	154.66
	NORMAL	8,883.0	0.50	253.23	8,511.07	2,184.80	-609.10	2,267.95	0.67	0.23	-109.74	231.03
	NORMAL	8,978.0	0.86	239.85	8,606.06	2,184.32	-610.11	2,267.77	0.41	0.38	-14.08	329.41
	NORMAL	9,073.0	0.65	216.97	8,701.06	2,183.53	-611.05	2,267.28	0.38	-0.22	-24.08	224.06
	NORMAL	9,168.0	0.67	212.56	8,796.05	2,182.64	-611.68	2,266.59	0.06	0.02	-4.64	289.28
	NORMAL	9,263.0	0.83	199.23	8,891.04	2,181.52	-612.20	2,265.66	0.25	0.17	-14.03	305.73
	NORMAL	9,358.0	1.05	190.84	8,986.03	2,180.01	-612.59	2,264.33	0.27	0.23	-8.83	323.73
9/13/2014	NORMAL	9,453.0	1.40	194.78	9,081.01	2,178.04	-613.05	2,262.56	0.38	0.37	4.15	15.51
	NORMAL	9,548.0	2.04	187.38	9,175.96	2,175.24	-613.56	2,260.02	0.71	0.67	-7.79	337.14
	NORMAL	9,643.0	2.26	194.82	9,270.90	2,171.75	-614.26	2,256.87	0.37	0.23	7.83	55.51
	NORMAL	9,738.0	2.26	198.16	9,365.82	2,168.16	-615.32	2,253.72	0.14	0.00	3.52	91.67
	NORMAL	9,832.0	2.45	196.74	9,459.74	2,164.47	-616.48	2,250.50	0.21	0.20	-1.51	342.22
	NORMAL	9,927.0	2.16	194.57	9,554.67	2,160.80	-617.52	2,247.26	0.32	-0.31	-2.28	195.67
	NORMAL	10,022.0	2.67	193.01	9,649.58	2,156.91	-618.46	2,243.80	0.54	0.54	-1.64	351.88
	NORMAL	10,118.0	2.42	197.30	9,745.49	2,152.79	-619.57	2,240.16	0.33	-0.26	4.47	144.82
	NORMAL	10,212.0	2.52	195.15	9,839.40	2,148.90	-620.70	2,236.74	0.15	0.11	-2.29	316.11
	NORMAL	10,308.0	2.68	195.11	9,935.30	2,144.70	-621.84	2,233.03	0.17	0.17	-0.04	359.33
	NORMAL	10,388.0	2.71	193.95	10,015.21	2,141.06	-622.78	2,229.79	0.08	0.04	-1.45	298.23
	NORMAL	10,445.0	2.71	193.95	10,072.15	2,138.44	-623.43	2,227.47	0.00	0.00	0.00	0.00