

Deviation Summary

PICEANCE VLY

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well/Wellbore Information

Well	NER 514-32	Wellbore No.	00
Wellbore Legal Name	NER 514-32	Common Wellbore Name	NER 514-32
Project	RU 05-07S-093W	Site	RU 23-5 Pad
Vertical Section Azimuth	279.96 (°)	North reference	True
Origin N/S		Origin E/W	
Spud date	2/7/2014	UWI	NER 514-32
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	2/7/2014	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 (°)
2/7/2014	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2/7/2014	NORMAL	88.0	1.50	314.38	87.99	0.81	-0.82	0.95	1.70	1.70	0.00	314.38
2/8/2014	NORMAL	183.0	2.99	277.38	182.92	1.99	-4.17	4.45	2.11	1.57	-38.95	296.28
	NORMAL	269.0	4.75	277.73	268.72	2.76	-9.92	10.25	2.05	2.05	0.41	0.94
	NORMAL	361.0	5.63	271.05	360.34	3.36	-18.21	18.52	1.16	0.96	-7.26	322.17
	NORMAL	452.0	8.09	276.77	450.68	4.19	-29.03	29.32	2.80	2.70	6.29	18.38
	NORMAL	544.0	11.17	276.86	541.38	6.02	-44.31	44.69	3.35	3.35	0.10	0.32
	NORMAL	616.0	12.99	279.79	611.78	8.23	-59.21	59.74	2.67	2.53	4.07	20.06
	NORMAL	708.0	15.27	273.35	701.00	10.70	-81.50	82.12	3.01	2.48	-7.00	322.26
	NORMAL	799.0	17.05	278.25	788.40	13.31	-106.67	107.36	2.46	1.96	5.38	39.83
	NORMAL	891.0	18.15	278.96	876.09	17.48	-134.17	135.17	1.22	1.20	0.77	11.38
	NORMAL	981.0	18.49	284.26	961.54	23.18	-161.85	163.42	1.89	0.38	5.89	80.99
	NORMAL	1,072.0	19.82	283.87	1,047.50	30.43	-190.82	193.20	1.47	1.46	-0.43	354.32
2/9/2014	NORMAL	1,175.0	20.76	282.16	1,144.11	38.46	-225.61	228.87	1.08	0.91	-1.66	326.95
	NORMAL	1,263.0	21.42	281.23	1,226.21	44.88	-256.62	260.52	0.84	0.75	-1.06	332.68
	NORMAL	1,358.0	20.78	278.98	1,314.84	50.89	-290.28	294.71	1.09	-0.67	-2.37	230.64
	NORMAL	1,453.0	21.63	277.20	1,403.41	55.71	-324.30	329.05	1.12	0.89	-1.87	322.03
	NORMAL	1,548.0	20.66	278.87	1,492.02	60.49	-358.23	363.30	1.20	-1.02	1.76	148.93
	NORMAL	1,643.0	21.49	279.66	1,580.66	65.99	-391.95	397.45	0.92	0.87	0.83	19.26
	NORMAL	1,738.0	19.87	280.42	1,669.54	71.83	-424.98	431.00	1.73	-1.71	0.80	170.95
	NORMAL	1,834.0	18.55	279.74	1,760.19	77.37	-456.08	462.59	1.39	-1.38	-0.71	189.30

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)	Buld Rate (°/100usft)	Turn (°/100usft)	Tface (°)
2/9/2014	NORMAL	1,929.0	17.67	279.04	1,850.48	82.19	-485.21	492.11	0.95	-0.93	-0.74	193.56
	NORMAL	2,025.0	17.32	278.43	1,942.04	86.57	-513.74	520.97	0.41	-0.36	-0.64	207.36
	NORMAL	2,120.0	17.41	278.78	2,032.71	90.82	-541.77	549.31	0.15	0.09	0.37	49.42
	NORMAL	2,215.0	17.58	278.10	2,123.32	95.01	-570.02	577.86	0.28	0.18	-0.72	309.42
	NORMAL	2,310.0	17.76	279.39	2,213.84	99.39	-598.52	606.69	0.45	0.19	1.36	65.93
	NORMAL	2,405.0	18.10	279.43	2,304.22	104.17	-627.37	635.93	0.36	0.36	0.04	2.09
	NORMAL	2,501.0	17.41	281.59	2,395.65	109.50	-656.15	665.20	0.99	-0.72	2.25	137.36
	NORMAL	2,596.0	17.94	281.68	2,486.16	115.32	-684.40	694.03	0.56	0.56	0.09	2.99
2/10/2014	NORMAL	2,692.0	16.97	281.59	2,577.74	121.13	-712.61	722.82	1.01	-1.01	-0.09	181.55
	NORMAL	2,787.0	16.97	280.27	2,668.61	126.39	-739.83	750.54	0.41	0.00	-1.39	269.37
	NORMAL	2,883.0	17.59	281.41	2,760.27	131.75	-767.83	779.05	0.74	0.65	1.19	29.19
	NORMAL	2,978.0	17.98	280.82	2,850.73	137.35	-796.31	808.06	0.45	0.41	-0.62	334.92
	NORMAL	3,074.0	17.41	282.03	2,942.19	143.12	-824.91	837.23	0.71	-0.59	1.26	147.74
	NORMAL	3,170.0	17.76	281.59	3,033.70	149.06	-853.30	866.22	0.39	0.36	-0.46	338.99
	NORMAL	3,265.0	18.29	281.24	3,124.04	154.87	-882.11	895.60	0.57	0.56	-0.37	348.28
	NORMAL	3,360.0	18.38	278.78	3,214.22	160.06	-911.53	925.48	0.82	0.09	-2.59	275.47
	NORMAL	3,455.0	19.17	278.34	3,304.17	164.61	-941.77	956.05	0.84	0.83	-0.46	349.63
	NORMAL	3,550.0	17.67	279.96	3,394.30	169.37	-971.40	986.06	1.67	-1.58	1.71	161.92
	NORMAL	3,645.0	15.83	275.96	3,485.26	173.21	-998.50	1,013.41	2.28	-1.94	-4.21	210.16
	NORMAL	3,738.0	15.99	275.78	3,574.70	175.82	-1,023.86	1,038.83	0.18	0.17	-0.19	342.77
	NORMAL	3,834.0	16.18	277.20	3,666.94	178.82	-1,050.28	1,065.38	0.46	0.20	1.48	64.91
	NORMAL	3,928.0	16.44	275.44	3,757.16	181.73	-1,076.52	1,091.72	0.59	0.28	-1.87	296.90
	NORMAL	4,023.0	16.73	279.44	3,848.21	185.24	-1,103.39	1,118.80	1.24	0.31	4.21	77.67
	NORMAL	4,118.0	16.97	278.16	3,939.13	189.45	-1,130.60	1,146.33	0.47	0.25	-1.35	302.28
	NORMAL	4,214.0	17.38	277.72	4,030.85	193.37	-1,158.68	1,174.66	0.45	0.43	-0.46	342.21
	NORMAL	4,308.0	17.84	281.93	4,120.45	198.23	-1,186.68	1,203.08	1.44	0.49	4.48	72.16
	NORMAL	4,403.0	17.67	281.94	4,210.93	204.22	-1,215.02	1,232.03	0.18	-0.18	0.01	178.98
	NORMAL	4,498.0	17.17	282.08	4,301.57	210.14	-1,242.84	1,260.45	0.53	-0.53	0.15	175.28
	NORMAL	4,593.0	17.69	282.19	4,392.21	216.12	-1,270.66	1,288.89	0.55	0.55	0.12	3.68
	NORMAL	4,688.0	17.94	282.56	4,482.65	222.35	-1,299.05	1,317.93	0.29	0.26	0.39	24.54
	NORMAL	4,784.0	18.03	284.05	4,573.96	229.17	-1,327.89	1,347.52	0.49	0.09	1.55	79.64
2/11/2014	NORMAL	4,879.0	17.52	282.68	4,664.43	235.88	-1,356.11	1,376.47	0.69	-0.54	-1.44	218.70
	NORMAL	4,975.0	17.23	284.31	4,756.05	242.57	-1,383.98	1,405.08	0.59	-0.30	1.70	121.56
	NORMAL	5,070.0	18.12	283.15	4,846.56	249.41	-1,412.00	1,433.86	1.01	0.94	-1.22	337.86
	NORMAL	5,166.0	18.38	283.52	4,937.73	256.34	-1,441.25	1,463.87	0.30	0.27	0.39	24.20
	NORMAL	5,261.0	18.90	284.37	5,027.75	263.66	-1,470.72	1,494.16	0.62	0.55	0.89	27.99
	NORMAL	5,357.0	19.35	284.05	5,118.45	271.38	-1,501.21	1,525.52	0.48	0.47	-0.33	346.73
	NORMAL	5,453.0	19.79	282.38	5,208.90	278.73	-1,532.51	1,557.62	0.74	0.46	-1.74	307.40
	NORMAL	5,548.0	20.49	283.79	5,298.10	286.14	-1,564.37	1,590.28	0.90	0.74	1.48	35.41
	NORMAL	5,643.0	21.35	282.91	5,386.83	293.96	-1,597.37	1,624.14	0.96	0.91	-0.93	339.52
2/17/2014	NORMAL	5,745.0	20.89	284.75	5,481.98	302.74	-1,633.06	1,660.81	0.79	-0.45	1.80	125.61
	NORMAL	5,840.0	19.54	279.54	5,571.14	309.69	-1,665.11	1,693.58	2.37	-1.42	-5.48	230.71
	NORMAL	5,935.0	16.19	283.11	5,661.54	315.33	-1,693.68	1,722.70	3.71	-3.53	3.76	163.59
2/18/2014	NORMAL	6,031.0	15.60	281.84	5,753.87	321.01	-1,719.35	1,748.96	0.71	-0.61	-1.32	209.91
	NORMAL	6,127.0	13.22	286.08	5,846.85	326.70	-1,742.54	1,772.78	2.71	-2.48	4.42	158.13
	NORMAL	6,223.0	12.54	285.23	5,940.43	332.48	-1,763.14	1,794.07	0.74	-0.71	-0.89	195.16
	NORMAL	6,318.0	11.97	284.73	6,033.27	337.69	-1,782.62	1,814.16	0.61	-0.60	-0.53	190.30
	NORMAL	6,414.0	11.72	284.17	6,127.22	342.61	-1,801.70	1,833.81	0.29	-0.26	-0.58	204.42
	NORMAL	6,510.0	9.36	285.51	6,221.60	347.09	-1,818.68	1,851.30	2.47	-2.46	1.40	174.73
	NORMAL	6,606.0	9.07	285.58	6,316.36	351.21	-1,833.49	1,866.60	0.30	-0.30	0.07	177.82
	NORMAL	6,700.0	8.62	277.29	6,409.24	354.09	-1,847.62	1,881.01	1.44	-0.48	-8.82	246.49
	NORMAL	6,795.0	6.68	281.49	6,503.40	356.10	-1,860.09	1,893.65	2.12	-2.04	4.42	166.00
	NORMAL	6,891.0	5.95	282.26	6,598.81	358.26	-1,870.43	1,904.20	0.77	-0.76	0.80	173.76
	NORMAL	6,987.0	3.30	290.09	6,694.49	360.27	-1,877.89	1,911.90	2.83	-2.76	8.16	170.48
	NORMAL	7,082.0	2.96	283.72	6,789.35	361.79	-1,882.84	1,917.04	0.51	-0.36	-6.71	222.50
	NORMAL	7,177.0	2.74	275.16	6,884.23	362.58	-1,887.48	1,921.75	0.50	-0.23	-9.01	238.43

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 (')
2/19/2014	NORMAL	7,273.0	1.50	293.02	6,980.17	363.28	-1,890.92	1,925.26	1.45	-1.29	18.60	160.68
	NORMAL	7,363.0	1.20	283.79	7,070.14	363.96	-1,892.92	1,927.35	0.41	-0.33	-10.26	211.38
2/20/2014	NORMAL	7,458.0	1.22	280.89	7,165.12	364.39	-1,894.88	1,929.35	0.07	0.02	-3.05	286.63
	NORMAL	7,554.0	1.10	270.33	7,261.10	364.59	-1,896.81	1,931.28	0.25	-0.13	-11.00	235.48
	NORMAL	7,649.0	1.29	260.49	7,356.08	364.42	-1,898.77	1,933.19	0.29	0.20	-10.36	307.81
	NORMAL	7,744.0	1.43	260.54	7,451.05	364.04	-1,901.00	1,935.31	0.15	0.15	0.05	0.51
	NORMAL	7,839.0	0.80	288.62	7,546.04	364.06	-1,902.80	1,937.09	0.86	-0.66	29.56	152.53
	NORMAL	7,934.0	0.36	295.87	7,641.03	364.40	-1,903.69	1,938.03	0.47	-0.46	7.63	174.14
	NORMAL	8,030.0	0.42	271.52	7,737.03	364.54	-1,904.32	1,938.67	0.18	0.06	-25.36	277.45
	NORMAL	8,125.0	0.58	265.21	7,832.02	364.51	-1,905.14	1,939.48	0.18	0.17	-6.64	337.84
	NORMAL	8,221.0	0.77	234.12	7,928.02	364.09	-1,906.15	1,940.40	0.42	0.20	-32.39	281.29
2/21/2014	NORMAL	8,317.0	0.88	224.46	8,024.01	363.19	-1,907.19	1,941.26	0.18	0.11	-10.06	303.44
	NORMAL	8,413.0	0.88	18.80	8,120.00	363.36	-1,907.47	1,941.57	1.79	0.00	160.77	167.17
	NORMAL	8,507.0	1.06	22.66	8,213.99	364.85	-1,906.90	1,941.26	0.20	0.19	4.11	21.89
	NORMAL	8,602.0	0.90	11.36	8,308.98	366.39	-1,906.41	1,941.05	0.26	-0.17	-11.89	224.82
	NORMAL	8,698.0	0.37	340.17	8,404.97	367.42	-1,906.37	1,941.19	0.64	-0.55	-32.49	198.18
	NORMAL	8,792.0	0.67	315.75	8,498.97	368.10	-1,906.86	1,941.79	0.39	0.32	-25.98	310.92
	NORMAL	8,888.0	0.88	273.68	8,594.96	368.55	-1,907.98	1,942.97	0.61	0.22	-43.82	268.37
	NORMAL	8,982.0	1.43	252.47	8,688.94	368.24	-1,909.82	1,944.73	0.73	0.59	-22.56	311.22
2/22/2014	NORMAL	9,077.0	1.34	254.94	8,783.91	367.60	-1,912.03	1,946.79	0.11	-0.09	2.60	147.67
	NORMAL	9,172.0	1.06	242.57	8,878.89	366.90	-1,913.88	1,948.49	0.40	-0.29	-13.02	216.70
	NORMAL	9,267.0	1.42	228.97	8,973.87	365.73	-1,915.55	1,949.93	0.49	0.38	-14.32	313.80
	NORMAL	9,362.0	1.83	224.04	9,068.83	363.86	-1,917.49	1,951.52	0.46	0.43	-5.19	338.70
	NORMAL	9,457.0	1.06	219.54	9,163.80	362.09	-1,919.10	1,952.81	0.82	-0.81	-4.74	186.14
	NORMAL	9,553.0	2.22	218.55	9,259.76	359.96	-1,920.83	1,954.14	1.21	1.21	-1.03	358.11
2/23/2014	NORMAL	9,647.0	2.46	200.99	9,353.68	356.65	-1,922.68	1,955.39	0.80	0.26	-18.68	279.60
	NORMAL	9,741.0	2.99	205.48	9,447.58	352.55	-1,924.46	1,956.44	0.61	0.56	4.78	24.19
	NORMAL	9,837.0	3.42	213.51	9,543.43	347.90	-1,927.12	1,958.25	0.65	0.45	8.36	50.29
	NORMAL	9,931.0	3.87	206.09	9,637.24	342.72	-1,930.06	1,960.25	0.69	0.48	-7.89	309.91
	NORMAL	10,027.0	4.04	213.56	9,733.01	336.99	-1,933.36	1,962.51	0.56	0.18	7.78	75.49
	NORMAL	10,121.0	3.96	219.54	9,826.78	331.73	-1,937.25	1,965.43	0.45	-0.09	6.36	103.83
	NORMAL	10,221.0	4.04	214.79	9,926.54	326.17	-1,941.46	1,968.62	0.34	0.08	-4.75	281.20
	NORMAL	10,278.0	4.04	214.79	9,983.39	322.87	-1,943.75	1,970.30	0.00	0.00	0.00	0.00