

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well/Wellbore Information

Well	NER 324-32	Wellbore No.	00
Wellbore Legal Name	NER 324-32	Common Wellbore Name	NER 324-32
Project	RU 05-07S-093W	Site	RU 23-5 Pad
Vertical Section Azimuth	335.13 (°)	North reference	True
Origin N/S		Origin E/W	
Spud date	7/21/2014	UWI	NER 324-32
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	7/21/2014	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)	Trace (°)
7/21/2014	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7/21/2014	NORMAL	92.0	0.26	356.13	92.00	0.21	-0.01	0.19	0.28	0.28	0.00	356.13
	NORMAL	177.0	2.55	336.53	176.97	2.14	-0.78	2.27	2.71	2.69	-23.06	338.23
	NORMAL	267.0	4.13	344.09	266.81	7.09	-2.47	7.47	1.82	1.76	8.40	19.37
	NORMAL	359.0	6.25	337.94	358.43	14.92	-5.26	15.74	2.38	2.30	-6.68	342.22
7/22/2014	NORMAL	433.0	8.29	336.11	431.83	23.53	-8.93	25.10	2.77	2.76	-2.47	352.61
	NORMAL	525.0	9.24	332.21	522.76	36.13	-15.06	39.11	1.22	1.03	-4.24	326.03
	NORMAL	617.0	10.70	334.49	613.37	50.37	-22.18	55.03	1.64	1.59	2.48	16.25
	NORMAL	709.0	10.82	333.64	703.75	65.82	-29.69	72.20	0.22	0.13	-0.92	306.68
	NORMAL	800.0	11.02	336.66	793.10	81.46	-36.93	89.43	0.67	0.22	3.32	72.22
	NORMAL	891.0	11.79	333.28	882.31	97.75	-44.56	107.42	1.12	0.85	-3.71	317.38
	NORMAL	982.0	12.50	331.01	971.27	114.66	-53.51	126.54	0.94	0.78	-2.49	324.96
	NORMAL	1,073.0	11.73	331.86	1,060.24	131.44	-62.65	145.59	0.87	-0.85	0.93	167.37
	NORMAL	1,088.0	11.78	331.72	1,074.93	134.13	-64.09	146.64	0.38	0.33	-0.93	330.23
7/23/2014	NORMAL	1,262.0	11.41	331.97	1,245.38	164.96	-80.59	183.56	0.21	-0.21	0.14	172.39
	NORMAL	1,357.0	12.40	336.64	1,338.33	182.62	-89.06	203.14	1.45	1.04	4.92	46.52
	NORMAL	1,452.0	12.11	339.05	1,431.17	201.29	-96.66	223.28	0.62	-0.31	2.54	120.72
	NORMAL	1,547.0	12.21	336.19	1,524.04	219.79	-104.28	243.26	0.64	0.11	-3.01	278.02
	NORMAL	1,642.0	11.50	336.45	1,617.01	237.66	-112.12	262.78	0.75	-0.75	0.27	175.82
	NORMAL	1,737.0	12.30	332.20	1,709.97	255.29	-120.62	282.35	1.25	0.84	-4.47	310.30
	NORMAL	1,832.0	12.75	330.80	1,802.71	273.40	-130.46	302.91	0.57	0.47	-1.47	325.31

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 (')
7/23/2014	NORMAL	1,928.0	12.67	338.03	1,896.36	292.41	-139.57	323.99	1.66	-0.08	7.53	96.40
	NORMAL	2,023.0	12.24	338.31	1,989.13	311.43	-147.19	344.45	0.46	-0.45	0.29	172.14
	NORMAL	2,119.0	12.74	337.87	2,082.86	330.69	-154.93	365.18	0.53	0.52	-0.46	349.01
	NORMAL	2,214.0	12.80	334.87	2,175.51	349.92	-163.35	386.17	0.70	0.06	-3.16	273.71
	NORMAL	2,309.0	12.18	336.94	2,268.26	368.67	-171.74	406.71	0.80	-0.65	2.18	145.18
	NORMAL	2,404.0	12.45	337.31	2,361.07	387.34	-179.62	426.96	0.30	0.28	0.39	16.47
	NORMAL	2,500.0	12.22	335.91	2,454.86	406.16	-187.76	447.46	0.39	-0.24	-1.46	231.76
	NORMAL	2,595.0	12.14	335.52	2,547.72	424.43	-196.00	467.50	0.12	-0.08	-0.41	225.62
	NORMAL	2,690.0	11.88	333.36	2,640.64	442.26	-204.53	487.26	0.55	-0.27	-2.27	238.90
	NORMAL	2,786.0	11.31	335.17	2,734.68	459.64	-212.91	506.55	0.70	-0.59	1.89	148.34
	NORMAL	2,881.0	11.36	331.86	2,827.83	476.34	-221.23	525.21	0.69	0.05	-3.48	272.77
	NORMAL	2,977.0	10.92	334.08	2,922.02	492.86	-229.67	543.74	0.64	-0.46	2.31	136.82
	NORMAL	3,073.0	10.89	333.57	3,016.29	509.16	-237.68	561.90	0.11	-0.03	-0.53	252.48
	NORMAL	3,168.0	9.90	330.09	3,109.73	524.27	-245.75	579.01	1.23	-1.04	-3.66	210.68
	NORMAL	3,263.0	11.38	330.76	3,203.09	539.53	-254.40	596.49	1.56	1.56	0.71	5.11
	NORMAL	3,358.0	13.03	338.29	3,295.95	557.66	-262.94	616.53	2.41	1.74	7.93	47.70
	NORMAL	3,454.0	12.33	339.45	3,389.60	577.31	-270.54	637.55	0.78	-0.73	1.21	160.58
7/24/2014	NORMAL	3,549.0	12.32	339.17	3,482.41	596.28	-277.70	657.78	0.06	-0.01	-0.29	260.36
	NORMAL	3,644.0	12.42	336.68	3,575.21	615.14	-285.35	678.10	0.57	0.11	-2.62	279.40
	NORMAL	3,737.0	11.28	335.70	3,666.23	632.61	-293.05	697.19	1.24	-1.23	-1.05	189.53
	NORMAL	3,833.0	11.08	333.39	3,760.41	649.42	-301.05	715.80	0.51	-0.21	-2.41	244.81
	NORMAL	3,927.0	11.94	334.58	3,852.51	666.28	-309.27	734.56	0.95	0.91	1.27	16.02
	NORMAL	4,022.0	11.47	335.31	3,945.54	683.73	-317.43	753.83	0.52	-0.49	0.77	162.87
	NORMAL	4,117.0	11.02	334.86	4,038.71	700.54	-325.24	772.35	0.48	-0.47	-0.47	180.81
	NORMAL	4,212.0	10.83	334.39	4,131.99	716.80	-332.95	790.36	0.22	-0.20	-0.49	204.89
	NORMAL	4,307.0	10.91	335.80	4,225.29	733.05	-340.49	808.27	0.29	0.08	1.48	73.95
	NORMAL	4,402.0	10.06	334.79	4,318.70	748.76	-347.71	825.56	0.92	-0.89	-1.06	191.71
	NORMAL	4,497.0	11.65	334.68	4,412.00	764.94	-355.35	843.45	1.67	1.67	-0.12	359.20
	NORMAL	4,592.0	11.50	332.20	4,505.07	781.99	-363.87	862.50	0.55	-0.16	-2.61	252.01
	NORMAL	4,687.0	11.91	334.93	4,598.09	799.24	-372.44	881.76	0.73	0.43	2.87	54.83
	NORMAL	4,783.0	12.40	338.16	4,691.94	817.78	-380.47	901.96	0.87	0.51	3.36	55.81
	NORMAL	4,878.0	12.06	338.15	4,784.78	836.46	-387.96	922.05	0.36	-0.36	-0.01	180.35
	NORMAL	4,973.0	11.89	338.48	4,877.72	854.78	-395.24	941.73	0.19	-0.18	0.35	158.22
	NORMAL	5,069.0	11.60	336.22	4,971.71	872.81	-402.76	961.26	0.57	-0.30	-2.35	236.67
	NORMAL	5,165.0	11.16	335.76	5,065.82	890.11	-410.47	980.20	0.47	-0.46	-0.48	191.43
	NORMAL	5,260.0	10.79	335.46	5,159.08	906.59	-417.94	998.28	0.39	-0.39	-0.32	186.63
	NORMAL	5,356.0	10.97	337.03	5,253.36	923.17	-425.23	1,016.40	0.36	0.19	1.64	59.50
	NORMAL	5,451.0	10.81	336.36	5,346.65	939.65	-432.33	1,034.34	0.21	-0.17	-0.71	218.02
7/25/2014	NORMAL	5,547.0	10.06	335.92	5,441.06	955.56	-439.36	1,051.72	0.79	-0.78	-0.46	185.85
	NORMAL	5,641.0	11.70	334.09	5,533.37	971.63	-446.88	1,069.46	1.78	1.74	-1.95	347.21
	NORMAL	5,737.0	12.29	335.43	5,627.27	989.67	-455.38	1,089.41	0.68	0.61	1.40	25.92
	NORMAL	5,833.0	12.29	334.92	5,721.07	1,008.22	-463.96	1,109.85	0.11	0.00	-0.53	269.75
	NORMAL	5,929.0	12.07	331.99	5,814.91	1,026.34	-473.01	1,130.09	0.68	-0.23	-3.05	248.98
	NORMAL	6,024.0	12.66	333.56	5,907.70	1,044.43	-482.31	1,150.41	0.71	0.62	1.65	30.44
	NORMAL	6,119.0	12.66	339.19	6,000.40	1,063.48	-490.64	1,171.20	1.30	0.00	5.93	92.75
	NORMAL	6,215.0	11.61	338.57	6,094.25	1,082.31	-497.91	1,191.34	1.10	-1.09	-0.65	186.77
	NORMAL	6,310.0	10.69	335.42	6,187.46	1,099.22	-505.06	1,209.69	1.16	-0.97	-3.32	211.97
	NORMAL	6,406.0	9.59	335.67	6,281.96	1,114.60	-512.06	1,226.59	1.15	-1.15	0.26	177.83
	NORMAL	6,502.0	9.79	337.04	6,376.59	1,129.40	-518.54	1,242.75	0.32	0.21	1.43	49.74
	NORMAL	6,598.0	9.31	341.34	6,471.26	1,144.28	-524.21	1,258.62	0.90	-0.50	4.48	126.04
7/26/2014	NORMAL	6,693.0	7.59	346.60	6,565.23	1,157.66	-528.12	1,272.41	1.98	-1.81	5.54	158.39
	NORMAL	6,789.0	5.49	349.29	6,660.60	1,168.34	-530.45	1,283.08	2.21	-2.19	2.80	173.03
	NORMAL	6,884.0	4.74	348.15	6,755.22	1,176.65	-532.10	1,291.31	0.80	-0.79	-1.20	187.15
	NORMAL	6,979.0	3.71	344.75	6,849.96	1,183.45	-533.71	1,298.16	1.12	-1.08	-3.58	191.98
	NORMAL	7,075.0	3.47	336.82	6,945.77	1,189.12	-535.67	1,304.13	0.57	-0.25	-8.26	240.28
	NORMAL	7,171.0	3.05	334.26	7,041.61	1,194.09	-537.92	1,309.59	0.46	-0.44	-2.67	197.84

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 (")
7/27/2014	NORMAL	7,265.0	3.31	341.82	7,135.47	1,198.92	-539.86	1,314.78	0.52	0.28	8.04	62.01
	NORMAL	7,361.0	2.64	357.47	7,231.34	1,203.77	-540.82	1,319.58	1.09	-0.70	16.30	137.16
	NORMAL	7,456.0	2.08	22.96	7,326.26	1,207.54	-540.24	1,322.76	1.24	-0.59	26.83	130.42
	NORMAL	7,551.0	1.62	30.97	7,421.21	1,210.28	-538.88	1,324.67	0.55	-0.48	8.43	154.62
	NORMAL	7,647.0	1.41	27.26	7,517.18	1,212.49	-537.64	1,326.16	0.24	-0.22	-3.86	203.19
	NORMAL	7,742.0	1.06	29.37	7,612.16	1,214.30	-536.67	1,327.39	0.37	-0.37	2.22	173.65
	NORMAL	7,837.0	0.51	19.29	7,707.15	1,215.46	-536.10	1,328.21	0.59	-0.58	-10.61	189.09
	NORMAL	7,932.0	0.21	271.60	7,802.15	1,215.87	-536.14	1,328.59	0.64	-0.32	-113.36	199.22
	NORMAL	8,027.0	0.09	240.18	7,897.15	1,215.83	-536.38	1,328.66	0.15	-0.13	-33.07	199.40
	NORMAL	8,123.0	0.53	230.14	7,993.15	1,215.51	-536.78	1,328.54	0.46	0.46	-10.46	347.92
7/28/2014	NORMAL	8,218.0	0.70	240.84	8,088.14	1,214.95	-537.63	1,328.38	0.22	0.18	11.26	39.47
	NORMAL	8,314.0	0.88	219.63	8,184.13	1,214.09	-538.61	1,328.02	0.35	0.19	-22.09	290.72
	NORMAL	8,410.0	1.24	213.92	8,280.11	1,212.66	-539.66	1,327.17	0.39	0.38	-5.95	340.78
	NORMAL	8,505.0	0.60	237.52	8,375.10	1,211.54	-540.65	1,326.57	0.77	-0.67	24.84	160.81
	NORMAL	8,600.0	0.71	40.52	8,470.10	1,211.72	-540.69	1,326.75	1.36	0.12	171.58	170.78
	NORMAL	8,693.0	0.77	43.62	8,563.09	1,212.61	-539.88	1,327.22	0.08	0.06	3.33	35.27
	NORMAL	8,787.0	0.11	53.26	8,657.09	1,213.13	-539.38	1,327.47	0.70	-0.70	10.26	178.41
	NORMAL	8,881.0	0.26	194.52	8,751.09	1,212.97	-539.36	1,327.32	0.38	0.16	150.28	152.52
	NORMAL	8,977.0	0.70	204.27	8,847.08	1,212.23	-539.65	1,326.77	0.46	0.46	10.16	15.42
	NORMAL	9,071.0	1.14	204.89	8,941.07	1,210.86	-540.28	1,325.79	0.47	0.47	0.66	1.61
7/29/2014	NORMAL	9,166.0	1.41	201.02	9,036.05	1,208.91	-541.10	1,324.36	0.30	0.28	-4.07	340.37
	NORMAL	9,261.0	1.86	198.04	9,131.01	1,206.35	-542.00	1,322.42	0.48	0.47	-3.14	347.81
	NORMAL	9,356.0	2.03	197.23	9,225.96	1,203.28	-542.97	1,320.04	0.18	0.18	-0.85	350.41
	NORMAL	9,451.0	2.07	199.72	9,320.89	1,200.06	-544.05	1,317.57	0.10	0.04	2.62	67.06
	NORMAL	9,546.0	1.96	196.96	9,415.84	1,198.89	-545.10	1,315.14	0.15	-0.12	-2.91	220.05
	NORMAL	9,642.0	2.59	202.04	9,511.76	1,193.31	-546.39	1,312.44	0.69	0.66	5.29	20.30
	NORMAL	9,736.0	2.81	211.13	9,605.66	1,189.36	-548.38	1,309.70	0.51	0.23	9.67	67.40
	NORMAL	9,830.0	2.55	205.94	9,699.55	1,185.51	-550.49	1,307.09	0.38	-0.28	-5.52	220.45
	NORMAL	9,925.0	3.14	208.55	9,794.44	1,181.33	-552.66	1,304.20	0.64	0.62	2.75	13.69
	NORMAL	10,020.0	2.46	212.45	9,889.32	1,177.32	-554.99	1,301.55	0.74	-0.72	4.11	166.29
	NORMAL	10,116.0	2.29	209.02	9,985.24	1,173.90	-557.03	1,299.31	0.23	-0.18	-3.57	218.19
	NORMAL	10,158.0	2.20	203.31	10,027.21	1,172.43	-557.76	1,298.27	0.57	-0.21	-13.60	245.25
	NORMAL	10,213.0	2.20	203.31	10,082.17	1,170.49	-558.59	1,296.87	0.00	0.00	0.00	0.00