

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well/Wellbore Information

Well	RU 531-7	Wellbore No.	00
Wellbore Legal Name	RU 531-7	Common Wellbore Name	RU 531-7
Project	RU 07-07S-093W	Site	RU 42-7 Pad
Vertical Section Azimuth	304.27 (°)	North reference	True
Origin N/S		Origin E/W	
Spud date	11/22/2014	UWI	RU 531-7
Active datum	KB @7,763.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	11/22/2014	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 (°)
11/22/2014	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11/22/2014	NORMAL	70.0	0.53	288.46	70.00	0.10	-0.31	0.31	0.76	0.76	0.00	288.46
	NORMAL	100.0	0.88	295.05	100.00	0.24	-0.65	0.67	1.20	1.17	21.97	16.35
	NORMAL	131.0	1.14	284.06	130.99	0.42	-1.16	1.20	1.04	0.84	-35.45	317.73
	NORMAL	161.0	1.76	298.83	160.98	0.71	-1.86	1.94	2.40	2.07	49.23	38.61
	NORMAL	206.0	1.94	323.35	205.96	1.66	-2.92	3.34	1.79	0.40	54.49	89.63
	NORMAL	252.0	2.99	324.58	251.92	3.26	-4.08	5.20	2.29	2.28	2.67	3.50
	NORMAL	300.0	3.34	321.86	299.84	5.38	-5.66	7.71	0.79	0.73	-5.67	335.42
	NORMAL	343.0	4.66	325.02	342.74	7.80	-7.44	10.54	3.11	3.07	7.35	11.06
	NORMAL	373.0	5.72	321.24	372.61	9.96	-9.07	13.11	3.71	3.53	-12.60	340.23
	NORMAL	402.0	6.07	318.69	401.46	12.24	-10.99	15.98	1.51	1.21	-8.79	321.92
	NORMAL	432.0	7.21	322.12	431.26	14.92	-13.19	19.30	4.02	3.80	11.43	20.89
	NORMAL	463.0	9.15	325.55	461.94	18.49	-15.78	23.45	6.45	6.26	11.06	15.82
	NORMAL	493.0	10.29	324.76	491.51	22.64	-18.68	28.19	3.83	3.80	-2.63	352.94
	NORMAL	523.0	10.91	323.17	521.00	27.10	-21.93	33.38	2.28	2.07	-5.30	333.96
	NORMAL	594.0	13.71	318.09	590.36	38.74	-31.58	47.91	4.22	3.94	-7.15	336.36
	NORMAL	654.0	15.39	311.90	648.44	49.35	-42.25	62.71	3.81	2.80	-10.32	314.19
	NORMAL	685.0	15.68	308.92	678.31	54.73	-48.57	70.96	2.74	0.94	-9.61	288.53
	NORMAL	775.0	16.33	303.03	764.83	69.27	-68.65	95.74	1.94	0.72	-6.54	288.97
11/23/2014	NORMAL	866.0	17.17	302.31	851.96	83.43	-90.72	121.95	0.95	0.92	-0.79	345.78
	NORMAL	957.0	16.80	296.87	939.00	96.55	-113.81	148.42	1.79	-0.41	-5.98	254.30

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)	Buile Rate (°/100usft)	Turn (°/100usft)	Tface (°)
11/23/2014	NORMAL	1,053.0	17.02	296.57	1,030.85	109.10	-138.75	176.10	0.25	0.23	-0.31	338.22
	NORMAL	1,129.0	16.53	296.81	1,103.62	118.96	-158.35	197.84	0.65	-0.64	0.32	172.07
11/24/2014	NORMAL	1,244.0	16.60	295.77	1,213.84	133.48	-187.74	230.31	0.26	0.06	-0.90	282.78
	NORMAL	1,339.0	15.19	297.70	1,305.21	145.16	-210.99	256.10	1.58	-1.48	2.03	160.38
	NORMAL	1,434.0	14.36	301.63	1,397.07	157.13	-232.04	280.23	1.37	-0.87	4.14	131.52
	NORMAL	1,530.0	15.55	305.33	1,489.82	170.81	-252.67	304.99	1.59	1.24	3.85	40.54
	NORMAL	1,625.0	15.13	306.08	1,581.43	185.48	-273.08	330.11	0.49	-0.44	0.79	155.08
	NORMAL	1,720.0	14.57	304.35	1,673.26	199.52	-292.97	354.45	0.75	-0.59	-1.82	217.54
	NORMAL	1,816.0	14.11	302.49	1,766.27	212.62	-312.81	378.23	0.68	-0.48	-1.94	224.14
	NORMAL	1,911.0	15.15	305.19	1,858.19	225.99	-332.72	402.21	1.31	1.09	2.84	34.57
	NORMAL	2,007.0	14.42	305.34	1,951.01	240.14	-352.72	426.71	0.76	-0.76	0.16	177.07
	NORMAL	2,102.0	13.53	305.72	2,043.20	253.47	-371.39	449.64	0.94	-0.94	0.40	174.30
	NORMAL	2,198.0	15.04	307.22	2,136.23	267.56	-390.43	473.31	1.62	1.57	1.66	14.50
	NORMAL	2,292.0	14.55	308.77	2,227.11	282.33	-409.35	497.26	0.67	-0.52	1.65	141.82
	NORMAL	2,387.0	16.46	308.13	2,318.65	298.12	-429.24	522.59	2.02	2.01	-0.67	354.57
	NORMAL	2,482.0	16.85	304.26	2,409.67	314.18	-451.21	549.79	1.24	0.41	-4.07	287.51
	NORMAL	2,577.0	16.69	304.15	2,500.63	329.59	-473.88	577.20	0.17	-0.17	-0.12	191.17
	NORMAL	2,672.0	16.77	303.00	2,591.61	344.71	-496.66	604.54	0.36	0.08	-1.21	283.03
11/25/2014	NORMAL	2,672.0	16.77	303.00	2,591.61	344.71	-496.66	604.54	0.00	0.00	0.00	0.00
	NORMAL	2,767.0	16.31	302.54	2,682.68	359.35	-519.40	631.58	0.50	-0.48	-0.48	195.67
	NORMAL	2,862.0	15.93	304.72	2,773.94	373.95	-541.36	657.95	0.75	-0.40	2.29	123.17
	NORMAL	2,957.0	15.52	304.41	2,865.39	388.56	-562.57	683.69	0.44	-0.43	-0.33	191.43
	NORMAL	3,052.0	15.12	303.43	2,957.01	402.57	-583.39	708.79	0.50	-0.42	-1.03	212.44
	NORMAL	3,148.0	14.58	303.72	3,049.80	416.17	-603.89	733.40	0.57	-0.56	0.30	172.30
	NORMAL	3,243.0	14.28	303.09	3,141.81	429.21	-623.65	757.07	0.36	-0.32	-0.66	207.32
	NORMAL	3,338.0	13.74	304.41	3,233.98	441.88	-642.78	780.06	0.66	-0.57	1.39	150.02
	NORMAL	3,433.0	14.80	305.68	3,326.05	455.43	-661.94	803.47	1.16	1.12	1.34	17.07
	NORMAL	3,528.0	14.46	307.28	3,417.97	469.69	-681.24	827.45	0.56	-0.36	1.68	130.85
	NORMAL	3,623.0	14.23	307.18	3,510.01	483.93	-699.98	850.96	0.24	-0.24	-0.11	186.10
	NORMAL	3,719.0	14.19	306.90	3,603.07	498.13	-718.79	874.49	0.08	-0.04	-0.29	239.67
	NORMAL	3,814.0	14.75	304.28	3,695.06	511.93	-738.09	898.22	0.91	0.59	-2.76	309.27
	NORMAL	3,909.0	14.22	303.05	3,787.04	525.11	-757.87	921.98	0.65	-0.56	-1.29	209.54
	NORMAL	4,004.0	13.69	302.63	3,879.23	537.53	-777.11	944.88	0.57	-0.56	-0.44	190.62
	NORMAL	4,099.0	15.14	304.10	3,971.24	550.55	-796.85	968.53	1.57	1.53	1.55	14.88
	NORMAL	4,195.0	14.80	304.26	4,063.98	564.48	-817.37	993.32	0.36	-0.35	0.17	173.15
	NORMAL	4,291.0	14.55	304.52	4,156.85	578.22	-837.44	1,017.64	0.27	-0.26	0.27	165.37
	NORMAL	4,386.0	15.03	304.66	4,248.70	591.99	-857.40	1,041.90	0.51	0.51	0.15	4.33
	NORMAL	4,480.0	15.00	304.36	4,339.50	605.78	-877.47	1,066.25	0.09	-0.03	-0.32	248.75
	NORMAL	4,576.0	14.77	304.37	4,432.27	619.70	-897.83	1,090.91	0.24	-0.24	0.01	179.36
11/26/2014	NORMAL	4,671.0	14.99	305.01	4,524.09	633.59	-917.89	1,115.30	0.29	0.23	0.67	37.07
	NORMAL	4,767.0	15.38	304.75	4,616.74	647.97	-938.51	1,140.45	0.41	0.41	-0.27	349.97
	NORMAL	4,862.0	15.10	304.41	4,708.40	662.14	-959.07	1,165.42	0.31	-0.29	-0.36	197.54
	NORMAL	4,956.0	15.08	303.22	4,799.16	675.76	-979.40	1,189.89	0.33	-0.02	-1.27	265.73
	NORMAL	5,051.0	14.99	303.40	4,890.90	689.29	-1,000.00	1,214.53	0.11	-0.09	0.19	152.67
	NORMAL	5,147.0	14.49	303.01	4,983.74	702.67	-1,020.44	1,238.95	0.53	-0.52	-0.41	191.04
	NORMAL	5,242.0	14.17	303.42	5,075.79	715.55	-1,040.11	1,262.46	0.35	-0.34	0.43	162.60
	NORMAL	5,336.0	13.79	303.44	5,167.00	728.06	-1,059.06	1,285.17	0.40	-0.40	0.02	179.28
11/27/2014	NORMAL	5,431.0	14.65	302.44	5,259.09	740.74	-1,078.65	1,308.49	0.94	0.91	-1.05	343.57
	NORMAL	5,526.0	14.15	301.88	5,351.11	753.32	-1,098.65	1,332.10	0.55	-0.53	-0.59	195.29
	NORMAL	5,622.0	13.89	300.98	5,444.25	765.45	-1,118.49	1,355.33	0.35	-0.27	-0.94	219.55
	NORMAL	5,717.0	13.70	301.76	5,536.51	777.24	-1,137.83	1,377.95	0.28	-0.20	0.82	135.99
	NORMAL	5,813.0	13.37	304.12	5,629.84	789.45	-1,156.69	1,400.41	0.67	-0.34	2.46	122.00
	NORMAL	5,909.0	12.44	308.86	5,723.42	802.16	-1,173.93	1,421.82	1.47	-0.97	4.94	133.59
	NORMAL	6,004.0	12.69	309.84	5,816.14	815.27	-1,189.91	1,442.40	0.35	0.26	1.03	40.94
	NORMAL	6,099.0	11.80	306.85	5,908.98	827.78	-1,205.69	1,462.49	1.15	-0.94	-3.15	214.02
	NORMAL	6,195.0	10.49	302.91	6,003.17	838.41	-1,220.89	1,481.04	1.58	-1.36	-4.10	208.25

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)	Bulld Rate (%/100usft)	Turn (%/100usft)	Tface (°)
11/27/2014	NORMAL	6,290.0	9.71	301.64	6,096.70	847.32	-1,234.97	1,497.69	0.85	-0.82	-1.34	195.31
	NORMAL	6,385.0	9.44	301.35	6,190.38	855.57	-1,248.44	1,513.47	0.29	-0.28	-0.31	189.99
11/28/2014	NORMAL	6,480.0	9.17	304.22	6,284.13	863.88	-1,261.35	1,528.82	0.57	-0.28	3.02	121.60
	NORMAL	6,575.0	7.52	305.47	6,378.12	871.75	-1,272.68	1,542.61	1.75	-1.74	1.32	174.34
	NORMAL	6,670.0	7.03	304.01	6,472.35	878.61	-1,282.56	1,554.63	0.55	-0.52	-1.54	199.95
	NORMAL	6,764.0	5.75	308.19	6,565.77	884.74	-1,291.03	1,565.09	1.45	-1.36	4.45	162.09
11/29/2014	NORMAL	6,860.0	5.66	307.28	6,661.29	890.58	-1,298.57	1,574.61	0.13	-0.09	-0.95	224.69
	NORMAL	6,956.0	4.57	304.30	6,756.91	895.60	-1,305.50	1,583.16	1.17	-1.14	-3.10	192.22
	NORMAL	7,050.0	4.64	304.35	6,850.61	899.85	-1,311.73	1,590.71	0.07	0.07	0.05	3.31
	NORMAL	7,145.0	3.86	298.89	6,945.35	903.57	-1,317.71	1,597.74	0.92	-0.82	-5.75	204.71
	NORMAL	7,240.0	3.41	295.67	7,040.15	906.34	-1,323.05	1,603.71	0.52	-0.47	-3.39	202.80
	NORMAL	7,336.0	2.93	289.47	7,136.01	908.39	-1,327.94	1,608.91	0.61	-0.50	-6.46	212.47
	NORMAL	7,431.0	2.03	269.41	7,230.92	909.18	-1,331.91	1,612.64	1.30	-0.95	-21.12	214.24
	NORMAL	7,526.0	1.52	263.29	7,325.87	909.02	-1,334.84	1,614.97	0.57	-0.54	-6.44	197.35
11/30/2014	NORMAL	7,622.0	1.23	258.54	7,421.85	908.66	-1,337.12	1,616.65	0.32	-0.30	-4.95	199.09
	NORMAL	7,717.0	1.21	246.70	7,516.83	908.07	-1,339.04	1,617.90	0.27	-0.02	-12.46	259.56
	NORMAL	7,812.0	1.30	28.44	7,611.82	908.62	-1,339.45	1,618.55	2.50	0.09	149.20	160.15
	NORMAL	7,907.0	0.99	267.13	7,706.81	909.52	-1,339.75	1,619.31	2.11	-0.33	-127.69	205.00
	NORMAL	8,002.0	0.37	212.25	7,801.80	909.22	-1,340.74	1,619.95	0.88	-0.65	-57.77	201.28
	NORMAL	8,097.0	0.42	217.46	7,896.80	908.69	-1,341.11	1,619.96	0.06	0.05	5.48	38.32
	NORMAL	8,192.0	0.59	122.71	7,991.80	908.15	-1,340.91	1,619.49	0.79	0.18	-99.74	231.43
	NORMAL	8,287.0	1.05	98.69	8,086.79	907.75	-1,339.64	1,618.22	0.59	0.48	-25.28	310.81
	NORMAL	8,382.0	1.05	71.48	8,181.77	907.90	-1,337.95	1,616.91	0.52	0.00	-28.64	256.40
12/1/2014	NORMAL	8,476.0	0.77	65.06	8,275.76	908.44	-1,336.57	1,616.06	0.32	-0.30	-6.83	196.82
	NORMAL	8,570.0	0.74	72.30	8,369.75	908.89	-1,335.41	1,615.37	0.11	-0.03	7.70	111.05
	NORMAL	8,666.0	0.62	70.11	8,465.75	909.25	-1,334.34	1,614.68	0.13	-0.12	-2.28	191.13
12/2/2014	NORMAL	8,761.0	0.62	71.64	8,560.74	909.59	-1,333.36	1,614.07	0.02	0.00	1.61	90.76
	NORMAL	8,855.0	0.63	346.66	8,654.74	910.25	-1,333.00	1,614.14	0.90	0.01	-90.40	228.01
	NORMAL	8,950.0	0.30	43.72	8,749.73	910.94	-1,332.95	1,614.48	0.56	-0.35	60.06	151.66
	NORMAL	9,045.0	0.17	342.69	8,844.73	911.25	-1,332.82	1,614.55	0.28	-0.14	-64.24	214.35
	NORMAL	9,139.0	0.26	281.32	8,938.73	911.43	-1,333.07	1,614.86	0.25	0.10	-65.29	258.74
	NORMAL	9,234.0	0.21	310.25	9,033.73	911.58	-1,333.41	1,615.23	0.13	-0.05	30.45	126.88
	NORMAL	9,329.0	0.12	12.10	9,128.73	911.79	-1,333.53	1,615.44	0.20	-0.09	65.11	145.40
	NORMAL	9,424.0	0.11	23.00	9,223.73	911.97	-1,333.47	1,615.50	0.03	-0.01	11.47	119.95
	NORMAL	9,520.0	0.34	118.15	9,319.73	911.92	-1,333.18	1,615.23	0.38	0.24	99.11	112.54
	NORMAL	9,614.0	0.27	155.94	9,413.73	911.59	-1,332.85	1,614.77	0.22	-0.07	40.20	127.43
12/3/2014	NORMAL	9,708.0	0.20	167.56	9,507.73	911.23	-1,332.72	1,614.46	0.09	-0.07	12.36	151.47
	NORMAL	9,804.0	0.07	4.06	9,603.73	911.12	-1,332.68	1,614.37	0.28	-0.14	-170.31	184.26
	NORMAL	9,899.0	0.35	66.16	9,698.73	911.30	-1,332.41	1,614.24	0.34	0.29	65.37	73.13
	NORMAL	9,994.0	0.35	88.57	9,793.73	911.42	-1,331.86	1,613.85	0.14	0.00	23.59	101.20
	NORMAL	10,020.0	0.31	99.82	9,819.73	911.41	-1,331.71	1,613.72	0.29	-0.15	43.27	127.23
	NORMAL	10,065.0	0.31	99.82	9,864.73	911.37	-1,331.47	1,613.50	0.00	0.00	0.00	0.00