

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	PA 533-20	Wellbore No.	OH
Well Name	PA 533-20	Common Name	PA 533-20
Project	PA 20-06S-095W	Site	DOE 1-W-20 Pad
Vertical Section Azimuth	315.81 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	9/15/2011	UWI	PA 533-20
Active Datum	KB @6,259.5ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Started	9/15/2011	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)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
9/15/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NORMAL	83.0	0.26	124.54	83.00	-0.11	0.16	-0.18	0.31	0.31	0.00	124.54
9/15/2011	NORMAL	113.0	0.62	275.71	113.00	-0.13	0.05	-0.13	2.86	1.20	503.90	159.58
	NORMAL	143.0	1.23	317.81	143.00	0.13	-0.33	0.32	2.92	2.03	140.33	70.46
	NORMAL	174.0	1.67	311.57	173.99	0.67	-0.89	1.10	1.51	1.42	-20.13	337.12
	NORMAL	204.0	2.46	310.43	203.97	1.38	-1.71	2.18	2.64	2.63	-3.80	356.45
	NORMAL	235.0	3.17	314.47	234.93	2.41	-2.82	3.70	2.38	2.29	13.03	17.64
	NORMAL	265.0	3.70	320.36	264.87	3.74	-4.03	5.49	2.12	1.77	19.63	36.62
	NORMAL	296.0	4.66	320.19	295.79	5.48	-5.48	7.74	3.10	3.10	-0.55	359.18
	NORMAL	326.0	5.89	316.05	325.66	7.52	-7.33	10.50	4.29	4.10	-13.80	340.74
	NORMAL	357.0	6.51	316.67	356.48	9.94	-9.64	13.85	2.01	2.00	2.00	6.47
	NORMAL	387.0	7.57	314.38	386.26	12.56	-12.22	17.52	3.65	3.53	-7.63	344.03
	NORMAL	418.0	8.53	317.02	416.95	15.67	-15.24	21.86	3.32	3.10	8.52	22.37
	NORMAL	448.0	9.77	316.14	446.57	19.14	-18.52	26.63	4.16	4.13	-2.93	353.13
	NORMAL	508.0	11.88	315.18	505.52	27.07	-26.33	37.76	4.40	4.40	-0.27	359.29
	NORMAL	539.0	12.67	314.91	535.81	31.73	-30.99	44.35	2.56	2.55	-0.87	355.71
	NORMAL	569.0	13.64	316.32	565.03	36.61	-35.76	51.18	3.41	3.23	4.70	18.99
	NORMAL	599.0	14.16	315.35	594.15	41.78	-40.79	58.39	1.90	1.73	-3.23	335.39
	NORMAL	630.0	15.13	316.05	624.14	47.39	-46.26	66.23	3.18	3.13	2.26	10.68
	NORMAL	642.0	15.41	316.66	635.72	49.68	-48.44	69.39	2.69	2.33	5.08	30.14
	NORMAL	672.0	16.04	316.47	664.59	55.58	-54.03	77.52	2.11	2.10	-0.63	355.24

2.1.2 Survey Stations (Continued)

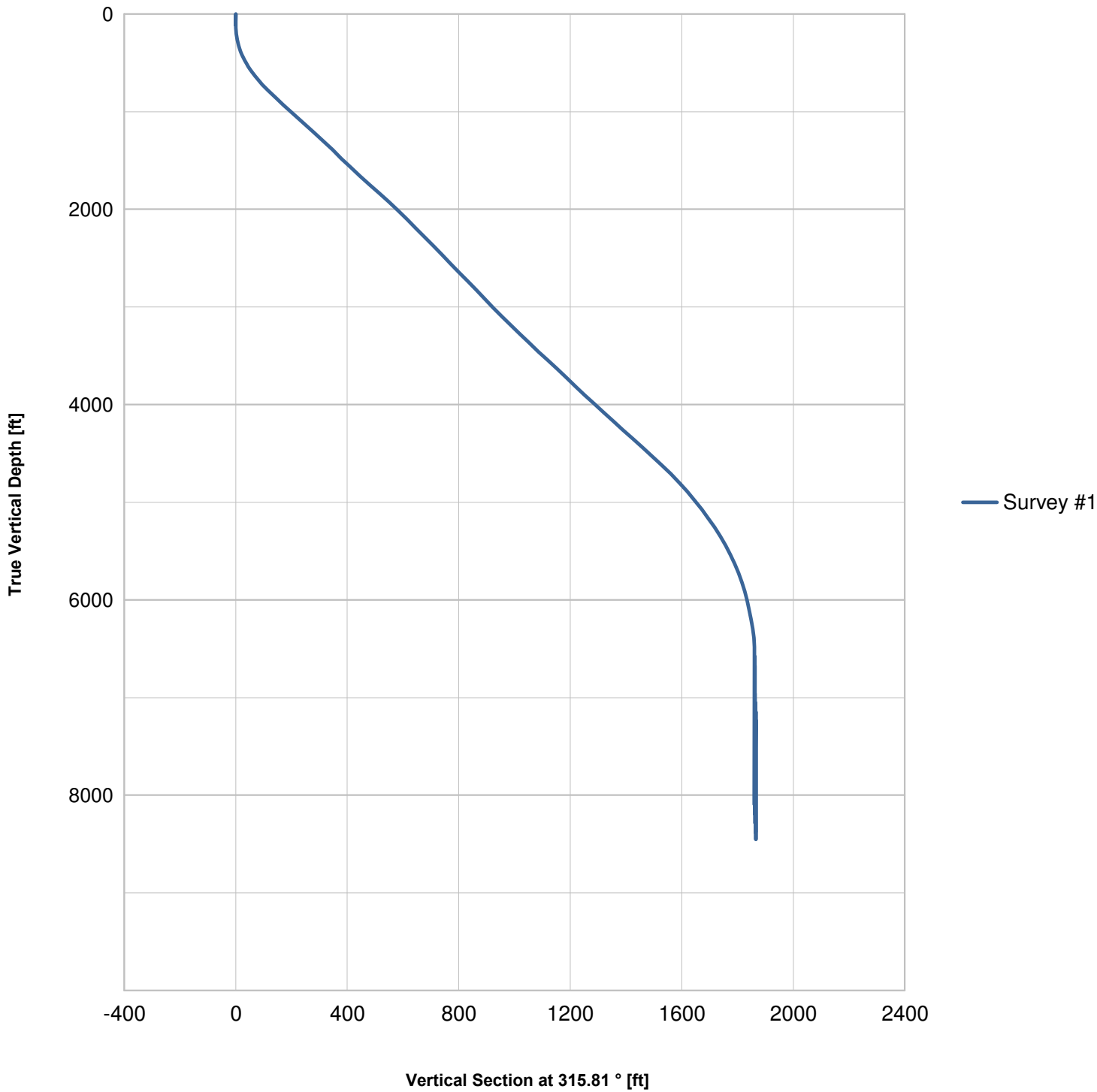
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
9/15/2011	NORMAL	733.0	17.71	313.94	722.98	68.00	-66.58	95.17	3.05	3.03	-1.03	354.08
	NORMAL	764.0	18.77	315.09	752.42	74.81	-73.50	104.87	3.61	3.42	3.71	19.30
	NORMAL	794.0	19.70	316.61	780.75	81.90	-80.38	114.75	3.52	3.10	5.07	29.02
	NORMAL	886.0	20.61	316.51	867.11	104.92	-102.18	146.45	0.99	0.99	-0.11	357.78
	NORMAL	953.0	21.64	316.71	929.61	122.47	-118.76	170.59	1.54	1.54	0.30	4.10
9/15/2011	NORMAL	478.0	10.56	315.26	476.10	22.92	-22.22	31.93	2.68	2.63	-2.93	348.44
9/15/2011	NORMAL	703.0	16.80	314.25	694.33	61.81	-60.19	86.28	3.18	2.45	-7.16	319.38
9/16/2011	NORMAL	1,069.0	20.99	315.29	1,037.67	152.80	-148.05	212.76	0.72	-0.56	-1.22	217.79
	NORMAL	1,164.0	21.18	314.67	1,126.31	176.96	-172.22	246.93	0.31	0.20	-0.65	310.14
	NORMAL	1,259.0	21.03	314.18	1,214.94	200.90	-196.65	281.13	0.24	-0.16	-0.52	229.40
	NORMAL	1,354.0	20.38	313.39	1,303.80	224.15	-220.89	314.69	0.74	-0.68	-0.83	202.88
	NORMAL	1,449.0	19.52	311.39	1,393.10	246.00	-244.82	347.04	1.16	-0.91	-2.11	217.49
	NORMAL	1,544.0	20.49	313.46	1,482.37	267.93	-268.80	379.48	1.26	1.02	2.18	37.11
	NORMAL	1,639.0	20.42	314.83	1,571.38	291.06	-292.62	412.67	0.51	-0.07	1.44	98.96
	NORMAL	1,735.0	20.71	316.89	1,661.27	315.26	-316.10	446.38	0.81	0.30	2.15	69.13
9/17/2011	NORMAL	1,830.0	21.18	320.32	1,749.99	340.73	-338.54	480.29	1.38	0.49	3.61	70.63
	NORMAL	1,924.0	21.40	316.67	1,837.58	366.27	-361.15	514.37	1.43	0.23	-3.88	277.72
	NORMAL	2,019.0	21.17	315.37	1,926.10	391.09	-385.09	548.85	0.55	-0.24	-1.37	243.41
	NORMAL	2,305.0	18.95	316.73	2,195.03	462.29	-451.38	646.11	0.67	-0.56	-1.15	213.58
	NORMAL	2,401.0	19.58	318.31	2,285.65	485.66	-472.76	677.77	0.85	0.66	1.65	40.35
	NORMAL	2,496.0	18.46	317.16	2,375.46	508.57	-493.58	708.71	1.24	-1.18	-1.21	197.96
	NORMAL	2,592.0	19.58	317.37	2,466.22	531.55	-514.81	739.98	1.17	1.17	0.22	3.60
	NORMAL	2,687.0	18.54	316.64	2,556.01	554.25	-535.96	771.00	1.12	-1.09	-0.77	192.57
	NORMAL	2,783.0	18.53	315.74	2,647.03	576.27	-557.08	801.51	0.30	-0.01	-0.94	267.57
	NORMAL	2,878.0	19.00	316.92	2,736.98	598.37	-578.18	832.07	0.64	0.49	1.24	39.49
	NORMAL	2,974.0	18.51	316.57	2,827.88	620.86	-599.33	862.93	0.52	-0.51	-0.36	192.77
	NORMAL	3,070.0	18.17	314.85	2,919.01	642.48	-620.42	893.14	0.67	-0.35	-1.79	237.05
	NORMAL	3,165.0	18.88	315.41	3,009.09	663.87	-641.71	923.32	0.77	0.75	0.59	14.33
	NORMAL	3,261.0	20.47	314.90	3,099.48	686.78	-664.51	955.63	1.67	1.66	-0.53	353.60
	NORMAL	3,356.0	19.43	312.98	3,188.78	709.28	-687.84	988.03	1.29	-1.09	-2.02	211.31
	NORMAL	3,451.0	19.53	313.21	3,278.34	730.93	-710.97	1,019.67	0.13	0.11	0.24	37.60
	NORMAL	3,547.0	20.02	314.16	3,368.68	753.36	-734.45	1,052.13	0.61	0.51	0.99	33.71
	NORMAL	3,642.0	20.38	315.94	3,457.84	776.58	-757.62	1,084.93	0.75	0.38	1.87	60.48
	NORMAL	3,738.0	21.45	318.16	3,547.51	801.67	-780.96	1,119.18	1.39	1.11	2.31	37.57
	NORMAL	3,833.0	20.61	317.09	3,636.18	826.86	-803.93	1,153.25	0.97	-0.88	-1.13	204.07
	NORMAL	3,928.0	19.86	317.74	3,725.32	851.05	-826.17	1,186.10	0.82	-0.79	0.68	163.62
	NORMAL	4,023.0	20.20	315.50	3,814.57	874.69	-848.51	1,218.63	0.88	0.36	-2.36	292.85
	NORMAL	4,118.0	20.60	313.15	3,903.62	897.82	-872.20	1,251.72	0.96	0.42	-2.47	294.92
	NORMAL	4,214.0	20.91	312.68	3,993.39	920.98	-897.12	1,285.70	0.37	0.32	-0.49	331.53
	NORMAL	4,309.0	21.23	312.57	4,082.03	944.11	-922.25	1,319.80	0.34	0.34	-0.12	352.90
	NORMAL	4,405.0	21.37	315.54	4,171.48	968.35	-947.30	1,354.65	1.13	0.15	3.09	83.99
	NORMAL	4,500.0	21.45	314.82	4,259.92	992.95	-971.75	1,389.32	0.29	0.08	-0.76	286.59
	NORMAL	4,596.0	21.26	317.58	4,349.34	1,018.17	-995.94	1,424.27	1.07	-0.20	2.88	101.99
	NORMAL	4,691.0	20.81	317.43	4,438.00	1,043.31	-1,018.97	1,458.35	0.48	-0.47	-0.16	186.75
	NORMAL	4,787.0	20.97	317.33	4,527.69	1,068.50	-1,042.15	1,492.57	0.17	0.17	-0.10	347.39
	NORMAL	4,882.0	20.94	317.40	4,616.41	1,093.50	-1,065.16	1,526.53	0.04	-0.03	0.07	140.19
	NORMAL	4,978.0	19.84	318.61	4,706.39	1,118.35	-1,087.55	1,559.96	1.23	-1.15	1.26	159.60
	NORMAL	5,074.0	17.61	318.86	4,797.31	1,141.51	-1,107.87	1,590.73	2.32	-2.32	0.26	178.06
	NORMAL	5,169.0	16.74	318.13	4,888.07	1,162.52	-1,126.46	1,618.75	0.94	-0.92	-0.77	193.57
	NORMAL	5,265.0	16.11	315.74	4,980.15	1,182.35	-1,144.98	1,645.89	0.96	-0.66	-2.49	225.87
	NORMAL	5,360.0	14.83	318.42	5,071.71	1,200.89	-1,162.25	1,671.21	1.54	-1.35	2.82	152.10
	NORMAL	5,455.0	14.22	317.05	5,163.67	1,218.52	-1,178.27	1,695.02	0.74	-0.64	-1.44	208.73
	NORMAL	5,550.0	12.49	315.43	5,256.10	1,234.38	-1,193.43	1,716.96	1.86	-1.82	-1.71	191.42
	NORMAL	5,646.0	11.97	317.73	5,349.92	1,249.15	-1,207.41	1,737.29	0.74	-0.54	2.40	137.98
9/17/2011	NORMAL	2,114.0	20.13	317.33	2,015.00	415.32	-408.23	582.34	1.31	-1.09	2.06	147.31
9/17/2011	NORMAL	2,210.0	19.48	317.82	2,105.32	439.32	-430.17	614.86	0.70	-0.68	0.51	165.90
9/18/2011	NORMAL	5,741.0	11.32	315.98	5,442.97	1,263.14	-1,220.52	1,756.46	0.78	-0.68	-1.84	207.67

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
9/18/2011	NORMAL	5,837.0	9.94	316.45	5,537.32	1,275.92	-1,232.78	1,774.17	1.44	-1.44	0.49	176.64
	NORMAL	5,932.0	9.13	319.30	5,631.01	1,287.58	-1,243.34	1,789.89	0.99	-0.85	3.00	151.16
	NORMAL	6,027.0	7.91	325.87	5,724.96	1,298.71	-1,251.92	1,803.85	1.64	-1.28	6.92	144.63
	NORMAL	6,123.0	6.79	327.65	5,820.17	1,308.97	-1,258.67	1,815.91	1.19	-1.17	1.85	169.39
	NORMAL	6,218.0	5.54	329.92	5,914.62	1,317.68	-1,263.97	1,825.86	1.34	-1.32	2.39	170.09
	NORMAL	6,313.0	4.94	328.64	6,009.22	1,325.14	-1,268.40	1,834.29	0.64	-0.63	-1.35	190.39
	NORMAL	6,408.0	4.27	321.79	6,103.91	1,331.41	-1,272.71	1,841.80	0.91	-0.71	-7.21	216.00
	NORMAL	6,504.0	4.07	330.37	6,199.66	1,337.18	-1,276.61	1,848.65	0.68	-0.21	8.94	112.02
	NORMAL	6,599.0	3.09	316.62	6,294.47	1,341.97	-1,280.03	1,854.47	1.36	-1.03	-14.47	214.50
9/19/2011	NORMAL	6,694.0	1.67	314.36	6,389.39	1,344.80	-1,282.78	1,858.42	1.50	-1.49	-2.38	182.65
	NORMAL	6,788.0	0.62	309.35	6,483.37	1,346.08	-1,284.16	1,860.29	1.12	-1.12	-5.33	182.95
	NORMAL	6,882.0	0.65	280.07	6,577.36	1,346.50	-1,285.07	1,861.23	0.34	0.03	-31.15	260.53
	NORMAL	7,071.0	0.27	174.44	6,766.35	1,345.72	-1,286.69	1,861.80	0.76	-0.54	-69.39	200.19
	NORMAL	7,166.0	0.27	234.16	6,861.35	1,345.37	-1,286.85	1,861.66	0.28	0.00	62.86	119.86
	NORMAL	7,260.0	0.81	328.00	6,955.35	1,345.80	-1,287.38	1,862.34	0.93	0.57	99.83	111.86
	NORMAL	7,355.0	1.11	337.52	7,050.34	1,347.22	-1,288.09	1,863.85	0.36	0.32	10.02	32.81
	NORMAL	7,450.0	0.88	333.28	7,145.32	1,348.73	-1,288.77	1,865.41	0.25	-0.24	-4.46	195.64
	NORMAL	7,545.0	0.86	49.16	7,240.31	1,349.84	-1,288.56	1,866.06	1.13	-0.02	79.87	128.78
	NORMAL	7,640.0	0.62	65.05	7,335.31	1,350.53	-1,287.56	1,865.85	0.33	-0.25	16.73	147.23
	NORMAL	7,735.0	0.20	177.02	7,430.30	1,350.58	-1,287.08	1,865.55	0.76	-0.44	117.86	165.05
	NORMAL	7,830.0	1.01	178.24	7,525.30	1,349.57	-1,287.05	1,864.81	0.85	0.85	1.28	1.52
	NORMAL	7,925.0	0.95	195.27	7,620.28	1,347.98	-1,287.23	1,863.79	0.31	-0.06	17.93	110.07
9/19/2011	NORMAL	6,977.0	0.78	239.67	6,672.36	1,346.27	-1,286.16	1,861.82	0.54	0.14	-42.53	263.68
9/20/2011	NORMAL	8,020.0	0.88	204.14	7,715.27	1,346.55	-1,287.73	1,863.12	0.17	-0.07	9.34	120.69
	NORMAL	8,115.0	1.05	214.56	7,810.26	1,345.17	-1,288.53	1,862.68	0.26	0.18	10.97	51.20
	NORMAL	8,210.0	1.53	197.42	7,905.23	1,343.24	-1,289.40	1,861.91	0.64	0.51	-18.04	312.43
	NORMAL	8,305.0	0.92	91.05	8,000.22	1,342.02	-1,289.02	1,860.77	2.10	-0.64	-111.97	206.26
	NORMAL	8,401.0	0.45	0.99	8,096.22	1,342.38	-1,288.24	1,860.49	1.07	-0.49	-93.81	206.05
	NORMAL	8,496.0	0.98	292.11	8,191.21	1,343.06	-1,288.99	1,861.49	0.97	0.56	-72.51	263.95
	NORMAL	8,592.0	1.23	274.07	8,287.19	1,343.44	-1,290.77	1,863.01	0.44	0.26	-18.79	296.46
	NORMAL	8,685.0	1.66	263.15	8,380.16	1,343.35	-1,293.11	1,864.57	0.55	0.46	-11.74	321.83
	NORMAL	8,755.0	1.66	263.15	8,450.13	1,343.11	-1,295.12	1,865.80	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

