

## 1 General

### 1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

### 1.2 Well Information

Well	PA 414-29	Wellbore No.	
Well Name	PA 414-29	Common Name	PA 414-29
Project	PA 29-06S-095W	Site	DOE 3-W-29 Pad
Vertical Section	272.88 (")	North Reference	True
Azimuth		Origin E/W	
Origin N/S		UWI	PA 414-29
Spud Date	2/24/2012		
Active Datum	KB @5,702.0ft (above Mean Sea Level)		

## 2 Survey Name

### 2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	SCIENTIFIC
Date Started	2/24/2012	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 (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
2/24/2012	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2/24/2012	NORMAL	83.0	0.62	101.95	83.00	-0.09	0.44	-0.44	0.75	0.75	0.00	101.95
	NORMAL	174.0	0.53	128.50	173.99	-0.46	1.25	-1.27	0.31	-0.10	29.18	121.63
	NORMAL	265.0	1.50	286.70	264.99	-0.38	0.44	-0.46	2.20	1.07	173.85	163.84
	NORMAL	357.0	4.13	256.11	356.87	-0.83	-3.93	3.88	3.20	2.86	-33.25	314.38
	NORMAL	430.0	6.84	251.73	429.53	-2.82	-10.61	10.46	3.75	3.71	-6.00	349.03
	NORMAL	521.0	9.27	251.60	519.63	-6.83	-22.71	22.34	2.67	2.67	-0.14	359.51
	NORMAL	612.0	10.43	254.16	609.28	-11.40	-37.59	36.97	1.36	1.27	2.81	21.95
	NORMAL	702.0	11.85	262.89	697.59	-14.76	-54.60	53.79	2.45	1.58	9.70	54.25
	NORMAL	793.0	13.43	267.99	786.39	-16.29	-74.44	73.53	2.12	1.74	5.60	37.74
	NORMAL	884.0	15.89	270.11	874.42	-16.64	-97.46	96.50	2.77	2.70	2.33	13.33
	NORMAL	976.0	16.25	271.32	962.82	-16.32	-122.92	121.95	0.53	0.39	1.32	43.52
	NORMAL	1,071.0	16.31	273.12	1,054.01	-15.28	-149.53	148.58	0.53	0.06	1.89	84.08
	NORMAL	1,167.0	16.91	274.81	1,146.01	-13.38	-176.91	176.01	0.80	0.63	1.76	39.65
2/25/2012	NORMAL	1,262.0	17.73	274.10	1,236.70	-11.19	-205.10	204.28	0.89	0.86	-0.75	345.21
	NORMAL	1,357.0	17.14	273.08	1,327.33	-9.40	-233.51	232.74	0.70	-0.62	-1.07	206.90
	NORMAL	1,452.0	16.05	272.12	1,418.38	-8.16	-260.61	259.87	1.18	-1.15	-1.01	193.66
	NORMAL	1,547.0	16.74	274.78	1,509.51	-6.54	-287.37	286.68	1.07	0.73	2.80	48.70
	NORMAL	1,642.0	17.36	275.68	1,600.34	-3.99	-315.11	314.51	0.71	0.65	0.95	23.49
	NORMAL	1,738.0	16.84	275.24	1,692.09	-1.31	-343.21	342.71	0.56	-0.54	-0.46	193.76
	NORMAL	1,833.0	18.27	276.23	1,782.67	1.57	-371.71	371.32	1.54	1.51	1.04	12.27

## 2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
2/25/2012	NORMAL	1,929.0	17.40	275.37	1,874.05	4.54	-400.96	400.69	0.95	-0.91	-0.90	196.44
	NORMAL	2,024.0	16.39	273.04	1,964.95	6.58	-428.49	428.28	1.28	-1.06	-2.45	212.73
	NORMAL	2,120.0	16.68	272.73	2,056.98	7.96	-455.78	455.60	0.32	0.30	-0.32	342.93
	NORMAL	2,204.0	16.55	272.92	2,137.48	9.14	-479.77	479.62	0.17	-0.15	0.23	157.41
2/27/2012	NORMAL	2,301.0	16.68	270.72	2,230.43	10.02	-507.49	507.35	0.66	0.13	-2.27	280.62
	NORMAL	2,397.0	17.32	272.82	2,322.23	10.90	-535.54	535.41	0.92	0.67	2.19	44.82
	NORMAL	2,492.0	17.70	273.82	2,412.83	12.55	-564.07	563.99	0.51	0.40	1.05	38.85
	NORMAL	2,587.0	18.01	273.61	2,503.26	14.44	-593.14	593.11	0.33	0.33	-0.22	348.17
	NORMAL	2,683.0	17.19	271.12	2,594.76	15.65	-622.13	622.13	1.16	-0.85	-2.59	221.38
	NORMAL	2,779.0	16.24	272.53	2,686.71	16.52	-649.73	649.74	1.08	-0.99	1.47	157.56
	NORMAL	2,874.0	15.69	274.37	2,778.04	18.09	-675.81	675.86	0.79	-0.58	1.94	138.26
	NORMAL	2,970.0	16.11	275.68	2,870.37	20.40	-702.00	702.14	0.58	0.44	1.36	41.14
	NORMAL	3,065.0	15.95	276.07	2,961.67	23.08	-728.10	728.34	0.20	-0.17	0.41	146.24
	NORMAL	3,161.0	16.29	276.37	3,053.90	25.97	-754.60	754.95	0.36	0.35	0.31	13.91
	NORMAL	3,256.0	16.59	276.17	3,145.02	28.90	-781.32	781.79	0.32	0.32	-0.21	349.22
	NORMAL	3,351.0	16.26	275.41	3,236.14	31.62	-808.04	808.61	0.41	-0.35	-0.80	212.71
	NORMAL	3,447.0	15.57	277.47	3,328.46	34.56	-834.20	834.88	0.93	-0.72	2.15	141.68
	NORMAL	3,543.0	16.21	277.78	3,420.79	38.05	-860.25	861.08	0.67	0.67	0.32	7.70
	NORMAL	3,638.0	16.64	276.89	3,511.91	41.47	-886.89	887.86	0.52	0.45	-0.94	329.23
	NORMAL	3,734.0	16.73	274.65	3,603.87	44.24	-914.31	915.38	0.68	0.09	-2.33	276.89
	NORMAL	3,829.0	16.34	271.75	3,694.95	45.76	-941.30	942.41	0.96	-0.41	-3.05	243.32
	NORMAL	3,924.0	15.67	274.42	3,786.26	47.16	-967.45	968.59	1.05	-0.71	2.81	133.58
	NORMAL	4,019.0	15.40	273.15	3,877.79	48.84	-992.83	994.03	0.46	-0.28	-1.34	230.95
	NORMAL	4,114.0	15.04	274.15	3,969.46	50.42	-1,017.72	1,018.97	0.47	-0.38	1.05	144.38
	NORMAL	4,210.0	14.30	274.73	4,062.33	52.30	-1,041.96	1,043.27	0.79	-0.77	0.60	169.05
	NORMAL	4,305.0	13.33	275.98	4,154.58	54.41	-1,064.55	1,065.93	1.07	-1.02	1.32	163.50
	NORMAL	4,401.0	12.51	278.18	4,248.15	57.04	-1,085.84	1,087.34	1.00	-0.85	2.29	150.11
	NORMAL	4,496.0	11.77	277.64	4,341.03	59.80	-1,105.63	1,107.24	0.79	-0.78	-0.57	188.46
2/28/2012	NORMAL	4,592.0	10.19	276.86	4,435.27	62.11	-1,123.77	1,125.47	1.65	-1.65	-0.81	184.99
	NORMAL	4,688.0	8.07	275.12	4,530.05	63.73	-1,138.91	1,140.68	2.23	-2.21	-1.81	186.56
	NORMAL	4,783.0	7.22	273.85	4,624.20	64.72	-1,151.51	1,153.31	0.91	-0.89	-1.34	190.61
	NORMAL	4,878.0	7.31	273.72	4,718.44	65.52	-1,163.50	1,165.32	0.10	0.09	-0.14	349.58
	NORMAL	4,973.0	6.51	274.66	4,812.75	66.35	-1,174.90	1,176.75	0.85	-0.84	0.99	172.42
	NORMAL	5,068.0	6.35	273.91	4,907.15	67.14	-1,185.51	1,187.38	0.19	-0.17	-0.79	207.32
	NORMAL	5,164.0	5.87	274.30	5,002.60	67.87	-1,195.70	1,197.60	0.50	-0.50	0.41	175.25
	NORMAL	5,259.0	4.63	285.23	5,097.21	69.24	-1,204.24	1,206.20	1.67	-1.31	11.51	146.47
2/29/2012	NORMAL	5,354.0	2.69	285.67	5,192.01	70.85	-1,210.09	1,212.12	2.04	-2.04	0.46	179.39
	NORMAL	5,449.0	1.23	323.52	5,286.95	72.28	-1,212.84	1,214.94	1.98	-1.54	39.84	156.29
	NORMAL	5,545.0	1.18	29.45	5,382.93	73.96	-1,212.97	1,215.15	1.37	-0.05	68.68	124.79
	NORMAL	5,641.0	1.65	55.63	5,478.91	75.61	-1,211.34	1,213.61	0.82	0.49	27.27	67.55
	NORMAL	5,736.0	1.45	72.88	5,573.87	76.73	-1,209.06	1,211.39	0.53	-0.21	18.16	121.67
	NORMAL	5,831.0	1.21	102.69	5,668.85	76.86	-1,206.94	1,209.27	0.76	-0.25	31.38	123.63
	NORMAL	5,926.0	1.31	145.53	5,763.83	75.75	-1,205.34	1,207.63	0.97	0.11	45.09	105.64
	NORMAL	6,022.0	1.31	175.35	5,859.80	73.75	-1,204.63	1,206.82	0.70	0.00	31.06	104.91
	NORMAL	6,117.0	1.16	220.42	5,954.78	71.94	-1,205.17	1,207.26	1.01	-0.16	47.44	120.86
	NORMAL	6,213.0	1.13	246.14	6,050.76	70.81	-1,206.66	1,208.70	0.53	-0.03	26.79	106.14
	NORMAL	6,308.0	1.00	243.61	6,145.75	70.07	-1,208.26	1,210.26	0.15	-0.14	-2.66	198.62
	NORMAL	6,403.0	0.05	256.62	6,240.74	69.69	-1,209.05	1,211.02	1.00	-1.00	13.69	179.32
3/1/2012	NORMAL	6,499.0	0.83	210.54	6,336.74	69.08	-1,209.44	1,211.38	0.83	0.81	-48.00	311.33
	NORMAL	6,594.0	2.35	206.82	6,431.70	66.75	-1,210.67	1,212.49	1.60	1.60	-3.92	354.25
	NORMAL	6,690.0	2.54	198.59	6,527.61	62.98	-1,212.24	1,213.87	0.42	0.20	-8.57	294.27
	NORMAL	6,785.0	2.00	190.29	6,622.54	59.35	-1,213.20	1,214.65	0.66	-0.57	-8.74	207.23
	NORMAL	6,880.0	1.76	203.90	6,717.49	56.38	-1,214.09	1,215.39	0.53	-0.25	14.33	124.95
	NORMAL	6,976.0	2.48	235.14	6,813.42	53.85	-1,216.39	1,217.56	1.39	0.75	32.54	74.33
	NORMAL	7,072.0	3.06	251.26	6,909.31	51.84	-1,220.52	1,221.59	1.01	0.60	16.79	61.56
	NORMAL	7,167.0	4.48	245.84	7,004.11	49.51	-1,226.31	1,227.25	1.54	1.49	-5.71	343.20
3/2/2012	NORMAL	7,262.0	4.12	246.72	7,098.84	46.64	-1,232.83	1,233.62	0.39	-0.38	0.93	170.05

## 2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
3/2/2012	NORMAL	7,358.0	5.20	240.04	7,194.52	43.10	-1,239.77	1,240.37	1.26	1.13	-6.96	329.96
	NORMAL	7,419.0	5.97	238.26	7,255.23	40.05	-1,244.86	1,245.30	1.29	1.26	-2.92	346.43
	NORMAL	7,477.0	5.97	238.26	7,312.92	36.88	-1,249.99	1,250.26	0.00	0.00	0.00	0.00