

1 General

1.1 Customer Information

| | |
|----------------|--------------|
| Company | PICEANCE VLY |
| Representative | |
| Address | |

1.2 Well Information

| | | | |
|------------------|--------------------------------------|-----------------|--------------|
| Well | GM 434-22 | Wellbore No. | |
| Well Name | GM 434-22 | Common Name | GM 434-22 |
| Project | GV 27-06S-096W | Site | MV 23-27 Pad |
| Vertical Section | 312.90 (°) | North Reference | True |
| Azimuth | | Origin E/W | |
| Origin N/S | | UWI | GM 434-22 |
| Spud Date | 7/13/2011 | | |
| Active Datum | KB @5,794.0ft (above Mean Sea Level) | | |

2 Survey Name

2.1 Survey Name: Survey #1

| | | | |
|-------------|-----------|----------|------------|
| Survey Name | Survey #1 | Company | SCIENTIFIC |
| Started | 7/13/2011 | 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 (°) |
|-----------|--------|------------|------------|------------|-------------|-------------|-------------|----------------|-------------------|--------------------|-------------------|--------------|
| 7/13/2011 | Tie On | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7/13/2011 | NORMAL | 84.0 | 0.18 | 153.81 | 84.00 | -0.12 | 0.06 | -0.12 | 0.21 | 0.21 | 0.00 | 153.81 |
| | NORMAL | 130.0 | 1.06 | 342.95 | 130.00 | 0.22 | -0.03 | 0.18 | 2.69 | 1.91 | -371.43 | 187.82 |
| | NORMAL | 179.0 | 1.67 | 323.17 | 178.98 | 1.23 | -0.60 | 1.27 | 1.56 | 1.24 | -40.37 | 312.15 |
| | NORMAL | 220.0 | 2.64 | 328.10 | 219.95 | 2.51 | -1.45 | 2.77 | 2.41 | 2.37 | 12.02 | 13.29 |
| | NORMAL | 263.0 | 3.34 | 312.36 | 262.90 | 4.19 | -2.90 | 4.98 | 2.49 | 1.63 | -36.60 | 302.41 |
| | NORMAL | 310.0 | 4.57 | 316.93 | 309.78 | 6.48 | -5.19 | 8.22 | 2.70 | 2.62 | 9.72 | 16.66 |
| | NORMAL | 354.0 | 5.01 | 309.29 | 353.63 | 8.98 | -7.88 | 11.88 | 1.76 | 1.00 | -17.36 | 300.75 |
| | NORMAL | 402.0 | 5.98 | 306.21 | 401.41 | 11.79 | -11.52 | 16.46 | 2.11 | 2.02 | -6.42 | 341.55 |
| | NORMAL | 445.0 | 7.92 | 309.02 | 444.09 | 14.97 | -15.63 | 21.64 | 4.58 | 4.51 | 6.53 | 11.34 |
| | NORMAL | 492.0 | 8.71 | 308.41 | 490.60 | 19.22 | -20.93 | 28.42 | 1.69 | 1.68 | -1.30 | 353.33 |
| | NORMAL | 536.0 | 10.21 | 315.00 | 534.00 | 24.05 | -26.30 | 35.64 | 4.20 | 3.41 | 14.98 | 39.11 |
| 7/14/2011 | NORMAL | 565.0 | 10.86 | 313.50 | 562.51 | 27.75 | -30.10 | 40.94 | 2.43 | 2.24 | -5.17 | 336.39 |
| | NORMAL | 610.0 | 12.13 | 314.04 | 606.61 | 33.95 | -36.57 | 49.90 | 2.83 | 2.82 | 1.20 | 5.11 |
| | NORMAL | 656.0 | 13.10 | 312.90 | 651.50 | 40.86 | -43.86 | 59.95 | 2.18 | 2.11 | -2.48 | 345.05 |
| | NORMAL | 702.0 | 14.42 | 314.13 | 696.17 | 48.40 | -51.79 | 70.89 | 2.94 | 2.87 | 2.67 | 13.10 |
| | NORMAL | 750.0 | 15.94 | 315.11 | 742.50 | 57.23 | -60.74 | 83.45 | 3.21 | 3.17 | 2.04 | 10.06 |
| | NORMAL | 792.0 | 16.66 | 312.54 | 782.81 | 65.39 | -69.24 | 95.23 | 2.43 | 1.71 | -6.12 | 313.71 |
| | NORMAL | 836.0 | 18.04 | 312.46 | 824.81 | 74.25 | -78.92 | 108.35 | 3.14 | 3.14 | -0.18 | 358.97 |
| | NORMAL | 882.0 | 19.61 | 310.53 | 868.35 | 84.08 | -90.04 | 123.19 | 3.67 | 3.41 | -4.20 | 337.45 |
| | NORMAL | 928.0 | 20.47 | 311.34 | 911.56 | 94.41 | -101.95 | 138.94 | 1.96 | 1.87 | 1.76 | 18.27 |

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 (°) |
|-----------|--------|------------|------------|------------|-------------|-------------|-------------|----------------|-------------------|--------------------|-------------------|--------------|
| 7/14/2011 | NORMAL | 975.0 | 21.75 | 312.00 | 955.41 | 105.66 | -114.59 | 155.87 | 2.77 | 2.72 | 1.40 | 10.83 |
| | NORMAL | 1,019.0 | 22.51 | 311.93 | 996.16 | 116.75 | -126.91 | 172.44 | 1.73 | 1.73 | -0.16 | 357.99 |
| | NORMAL | 1,067.0 | 23.13 | 312.28 | 1,040.41 | 129.23 | -140.72 | 191.06 | 1.32 | 1.29 | 0.73 | 12.55 |
| | NORMAL | 1,111.0 | 23.92 | 312.02 | 1,080.75 | 141.01 | -153.75 | 208.62 | 1.81 | 1.80 | -0.59 | 352.40 |
| | NORMAL | 1,161.0 | 24.97 | 313.16 | 1,126.27 | 155.02 | -168.98 | 229.31 | 2.30 | 2.10 | 2.28 | 24.71 |
| | NORMAL | 1,207.0 | 25.50 | 312.72 | 1,167.88 | 168.38 | -183.33 | 248.92 | 1.22 | 1.15 | -0.96 | 340.31 |
| | NORMAL | 1,256.0 | 26.47 | 313.34 | 1,211.92 | 183.03 | -199.02 | 270.39 | 2.06 | 1.98 | 1.27 | 15.92 |
| | NORMAL | 1,287.0 | 27.35 | 314.48 | 1,239.57 | 192.76 | -209.13 | 284.41 | 3.29 | 2.84 | 3.68 | 30.89 |
| | NORMAL | 1,318.0 | 28.23 | 313.43 | 1,266.99 | 202.79 | -219.54 | 298.86 | 3.25 | 2.84 | -3.39 | 330.45 |
| | NORMAL | 1,351.0 | 29.19 | 313.87 | 1,295.93 | 213.73 | -231.00 | 314.71 | 2.98 | 2.91 | 1.33 | 12.61 |
| | NORMAL | 1,383.0 | 30.69 | 313.87 | 1,323.66 | 224.80 | -242.52 | 330.68 | 4.69 | 4.69 | 0.00 | 0.00 |
| | NORMAL | 1,415.0 | 32.36 | 315.27 | 1,350.94 | 236.55 | -254.43 | 347.40 | 5.70 | 5.22 | 4.38 | 24.27 |
| | NORMAL | 1,445.0 | 33.59 | 313.83 | 1,376.10 | 248.00 | -266.07 | 363.72 | 4.86 | 4.10 | -4.80 | 326.89 |
| | NORMAL | 1,494.0 | 35.80 | 312.83 | 1,416.39 | 267.13 | -286.36 | 391.61 | 4.66 | 4.51 | -2.04 | 345.14 |
| | NORMAL | 1,540.0 | 36.59 | 312.76 | 1,453.51 | 285.58 | -306.30 | 418.78 | 1.72 | 1.72 | -0.15 | 356.98 |
| 7/16/2011 | NORMAL | 1,587.0 | 37.75 | 312.55 | 1,490.96 | 304.82 | -327.18 | 447.17 | 2.48 | 2.47 | -0.45 | 353.67 |
| | NORMAL | 1,634.0 | 38.60 | 312.18 | 1,527.91 | 324.40 | -348.64 | 476.22 | 1.87 | 1.81 | -0.79 | 344.80 |
| | NORMAL | 1,729.0 | 40.27 | 312.55 | 1,601.28 | 365.06 | -393.23 | 536.56 | 1.78 | 1.76 | 0.39 | 8.15 |
| | NORMAL | 1,747.0 | 40.53 | 312.45 | 1,614.99 | 372.94 | -401.83 | 548.23 | 1.49 | 1.44 | -0.56 | 345.96 |
| | NORMAL | 1,819.0 | 39.93 | 312.43 | 1,669.96 | 404.32 | -436.14 | 594.73 | 0.83 | -0.83 | -0.03 | 181.23 |
| | NORMAL | 1,914.0 | 39.82 | 311.14 | 1,742.87 | 444.91 | -481.56 | 655.62 | 0.88 | -0.12 | -1.36 | 261.93 |
| | NORMAL | 2,008.0 | 39.31 | 312.52 | 1,815.33 | 484.83 | -526.17 | 715.48 | 1.08 | -0.54 | 1.47 | 120.65 |
| | NORMAL | 2,102.0 | 38.95 | 312.64 | 1,888.25 | 524.97 | -569.85 | 774.80 | 0.39 | -0.38 | 0.13 | 168.17 |
| | NORMAL | 2,197.0 | 39.31 | 314.48 | 1,961.95 | 566.28 | -613.29 | 834.74 | 1.28 | 0.38 | 1.94 | 73.49 |
| | NORMAL | 2,291.0 | 40.63 | 314.92 | 2,033.98 | 608.76 | -656.21 | 895.09 | 1.44 | 1.40 | 0.47 | 12.26 |
| | NORMAL | 2,386.0 | 41.25 | 314.21 | 2,105.75 | 652.44 | -700.56 | 957.32 | 0.82 | 0.65 | -0.75 | 322.85 |
| | NORMAL | 2,480.0 | 41.47 | 312.80 | 2,176.30 | 695.19 | -745.61 | 1,019.42 | 1.02 | 0.23 | -1.50 | 282.76 |
| | NORMAL | 2,575.0 | 40.73 | 311.42 | 2,247.89 | 737.07 | -791.93 | 1,081.86 | 1.23 | -0.78 | -1.45 | 230.28 |
| | NORMAL | 2,669.0 | 41.15 | 312.28 | 2,318.90 | 778.17 | -837.81 | 1,143.45 | 0.75 | 0.45 | 0.91 | 53.63 |
| | NORMAL | 2,764.0 | 41.06 | 313.69 | 2,390.48 | 820.75 | -883.50 | 1,205.90 | 0.98 | -0.09 | 1.48 | 96.08 |
| | NORMAL | 2,858.0 | 40.73 | 313.91 | 2,461.54 | 863.34 | -927.92 | 1,267.43 | 0.38 | -0.35 | 0.23 | 156.50 |
| | NORMAL | 2,953.0 | 41.19 | 313.60 | 2,533.28 | 906.41 | -972.90 | 1,329.70 | 0.53 | 0.48 | -0.33 | 336.05 |
| | NORMAL | 3,047.0 | 40.58 | 313.66 | 2,604.35 | 948.86 | -1,017.43 | 1,391.22 | 0.65 | -0.65 | 0.06 | 176.34 |
| | NORMAL | 3,142.0 | 40.54 | 313.08 | 2,676.52 | 991.28 | -1,062.34 | 1,452.99 | 0.40 | -0.04 | -0.61 | 263.73 |
| | NORMAL | 3,236.0 | 39.57 | 311.58 | 2,748.47 | 1,032.02 | -1,107.05 | 1,513.48 | 1.46 | -1.03 | -1.60 | 224.29 |
| | NORMAL | 3,331.0 | 39.66 | 312.99 | 2,821.66 | 1,072.78 | -1,151.86 | 1,574.05 | 0.95 | 0.09 | 1.48 | 84.83 |
| | NORMAL | 3,425.0 | 39.27 | 313.29 | 2,894.22 | 1,113.63 | -1,195.45 | 1,633.79 | 0.46 | -0.41 | 0.32 | 154.06 |
| | NORMAL | 3,519.0 | 39.92 | 314.13 | 2,966.66 | 1,155.03 | -1,238.76 | 1,693.70 | 0.90 | 0.69 | 0.89 | 39.80 |
| | NORMAL | 3,614.0 | 39.10 | 313.56 | 3,039.95 | 1,196.90 | -1,282.35 | 1,754.13 | 0.94 | -0.86 | -0.60 | 203.64 |
| | NORMAL | 3,708.0 | 40.24 | 313.87 | 3,112.31 | 1,238.37 | -1,325.72 | 1,814.13 | 1.23 | 1.21 | 0.33 | 9.97 |
| | NORMAL | 3,803.0 | 40.40 | 314.11 | 3,184.74 | 1,281.06 | -1,369.94 | 1,875.58 | 0.23 | 0.17 | 0.25 | 44.24 |
| 7/17/2011 | NORMAL | 3,897.0 | 39.13 | 312.81 | 3,256.99 | 1,322.42 | -1,413.57 | 1,935.70 | 1.61 | -1.35 | -1.38 | 212.72 |
| | NORMAL | 3,992.0 | 39.13 | 312.81 | 3,330.69 | 1,363.16 | -1,457.56 | 1,995.66 | 0.00 | 0.00 | 0.00 | 0.00 |
| | NORMAL | 4,086.0 | 36.36 | 312.55 | 3,405.01 | 1,402.17 | -1,499.85 | 2,053.19 | 2.95 | -2.95 | -0.28 | 183.19 |
| | NORMAL | 4,181.0 | 34.14 | 313.36 | 3,482.58 | 1,439.52 | -1,539.98 | 2,108.02 | 2.39 | -2.34 | 0.85 | 168.44 |
| | NORMAL | 4,275.0 | 32.30 | 313.65 | 3,561.22 | 1,474.97 | -1,577.34 | 2,159.51 | 1.96 | -1.96 | 0.31 | 175.19 |
| | NORMAL | 4,370.0 | 32.45 | 312.99 | 3,641.45 | 1,509.87 | -1,614.35 | 2,210.38 | 0.40 | 0.16 | -0.69 | 292.72 |
| | NORMAL | 4,464.0 | 31.39 | 313.08 | 3,721.24 | 1,543.79 | -1,650.67 | 2,260.08 | 1.13 | -1.13 | 0.10 | 177.47 |
| | NORMAL | 4,559.0 | 29.87 | 312.88 | 3,802.98 | 1,576.78 | -1,686.08 | 2,308.48 | 1.60 | -1.60 | -0.21 | 183.75 |
| | NORMAL | 4,653.0 | 27.35 | 311.84 | 3,885.50 | 1,607.12 | -1,719.33 | 2,353.48 | 2.73 | -2.68 | -1.11 | 190.72 |
| | NORMAL | 4,748.0 | 24.64 | 314.10 | 3,970.88 | 1,635.47 | -1,749.81 | 2,395.11 | 3.04 | -2.85 | 2.38 | 160.93 |
| | NORMAL | 4,842.0 | 21.37 | 315.27 | 4,057.39 | 1,661.28 | -1,775.94 | 2,431.82 | 3.51 | -3.48 | 1.24 | 172.58 |
| | NORMAL | 4,937.0 | 21.00 | 315.25 | 4,145.97 | 1,685.66 | -1,800.11 | 2,466.12 | 0.39 | -0.39 | -0.02 | 181.11 |
| | NORMAL | 5,031.0 | 18.74 | 313.39 | 4,234.37 | 1,708.00 | -1,822.94 | 2,498.06 | 2.50 | -2.40 | -1.98 | 194.76 |
| | NORMAL | 5,126.0 | 18.38 | 312.46 | 4,324.43 | 1,728.59 | -1,845.08 | 2,528.29 | 0.49 | -0.38 | -0.98 | 218.99 |
| 7/18/2011 | NORMAL | 5,220.0 | 17.20 | 312.00 | 4,413.93 | 1,747.90 | -1,866.35 | 2,557.01 | 1.26 | -1.26 | -0.49 | 186.57 |
| | NORMAL | 5,315.0 | 15.12 | 313.08 | 4,505.18 | 1,765.76 | -1,885.84 | 2,583.45 | 2.21 | -2.19 | 1.14 | 172.30 |

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 (°) |
|-----------|--------|------------|------------|------------|-------------|-------------|-------------|----------------|-------------------|--------------------|-------------------|--------------|
| 7/18/2011 | NORMAL | 5,409.0 | 14.39 | 313.13 | 4,596.08 | 1,782.12 | -1,903.32 | 2,607.39 | 0.78 | -0.78 | 0.05 | 179.02 |
| | NORMAL | 5,504.0 | 12.11 | 311.90 | 4,688.54 | 1,796.85 | -1,919.35 | 2,629.16 | 2.42 | -2.40 | -1.29 | 186.45 |
| | NORMAL | 5,599.0 | 10.64 | 315.80 | 4,781.67 | 1,809.79 | -1,932.88 | 2,647.88 | 1.75 | -1.55 | 4.11 | 154.28 |
| 7/19/2011 | NORMAL | 5,693.0 | 10.10 | 314.67 | 4,874.14 | 1,821.81 | -1,944.79 | 2,664.79 | 0.61 | -0.57 | -1.20 | 200.09 |
| | NORMAL | 5,788.0 | 8.88 | 319.49 | 4,967.84 | 1,833.24 | -1,955.48 | 2,680.40 | 1.53 | -1.28 | 5.07 | 149.28 |
| | NORMAL | 5,882.0 | 6.77 | 322.66 | 5,060.96 | 1,843.16 | -1,963.56 | 2,693.07 | 2.29 | -2.24 | 3.37 | 170.01 |
| | NORMAL | 5,976.0 | 5.01 | 319.23 | 5,154.46 | 1,850.68 | -1,969.60 | 2,702.61 | 1.91 | -1.87 | -3.65 | 189.61 |
| | NORMAL | 6,071.0 | 3.19 | 320.40 | 5,249.21 | 1,855.85 | -1,973.99 | 2,709.35 | 1.92 | -1.92 | 1.23 | 177.95 |
| | NORMAL | 6,166.0 | 1.07 | 322.26 | 5,344.14 | 1,858.59 | -1,976.22 | 2,712.85 | 2.23 | -2.23 | 1.96 | 179.06 |
| | NORMAL | 6,260.0 | 0.26 | 231.25 | 5,438.13 | 1,859.15 | -1,976.92 | 2,713.75 | 1.18 | -0.86 | -96.82 | 193.60 |
| | NORMAL | 6,355.0 | 0.62 | 180.62 | 5,533.13 | 1,858.50 | -1,977.10 | 2,713.43 | 0.52 | 0.38 | -53.29 | 285.54 |
| | NORMAL | 6,449.0 | 0.88 | 204.88 | 5,627.12 | 1,857.34 | -1,977.41 | 2,712.87 | 0.43 | 0.28 | 25.81 | 63.24 |
| | NORMAL | 6,543.0 | 0.27 | 254.34 | 5,721.12 | 1,856.63 | -1,977.92 | 2,712.76 | 0.78 | -0.65 | 52.62 | 163.76 |
| | NORMAL | 6,638.0 | 0.35 | 42.72 | 5,816.12 | 1,856.78 | -1,977.94 | 2,712.88 | 0.63 | 0.08 | 156.19 | 162.10 |
| | NORMAL | 6,732.0 | 0.11 | 19.64 | 5,910.12 | 1,857.08 | -1,977.72 | 2,712.91 | 0.27 | -0.26 | -24.55 | 189.83 |
| | NORMAL | 6,827.0 | 0.18 | 320.63 | 6,005.12 | 1,857.28 | -1,977.78 | 2,713.10 | 0.16 | 0.07 | -62.12 | 263.60 |
| | NORMAL | 6,921.0 | 0.53 | 355.17 | 6,099.11 | 1,857.82 | -1,977.91 | 2,713.56 | 0.42 | 0.37 | 36.74 | 49.51 |
| | NORMAL | 7,015.0 | 0.55 | 12.13 | 6,193.11 | 1,858.70 | -1,977.85 | 2,714.12 | 0.17 | 0.02 | 18.04 | 91.40 |
| 7/20/2011 | NORMAL | 8,123.0 | 2.04 | 222.64 | 7,300.80 | 1,844.31 | -1,994.84 | 2,716.77 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7/20/2011 | NORMAL | 7,110.0 | 0.26 | 26.38 | 6,288.11 | 1,859.34 | -1,977.66 | 2,714.41 | 0.32 | -0.31 | 15.00 | 167.88 |
| | NORMAL | 7,204.0 | 0.41 | 214.37 | 6,382.11 | 1,859.25 | -1,977.76 | 2,714.42 | 0.71 | 0.16 | -182.99 | 184.89 |
| | NORMAL | 7,299.0 | 0.62 | 237.98 | 6,477.10 | 1,858.70 | -1,978.38 | 2,714.50 | 0.31 | 0.22 | 24.85 | 57.51 |
| | NORMAL | 7,393.0 | 1.28 | 223.23 | 6,571.09 | 1,857.66 | -1,979.53 | 2,714.64 | 0.74 | 0.70 | -15.69 | 332.19 |
| | NORMAL | 7,488.0 | 1.65 | 237.65 | 6,666.06 | 1,856.16 | -1,981.42 | 2,715.00 | 0.55 | 0.39 | 15.18 | 52.26 |
| | NORMAL | 7,582.0 | 1.32 | 235.47 | 6,760.03 | 1,854.82 | -1,983.45 | 2,715.58 | 0.36 | -0.35 | -2.32 | 188.63 |
| | NORMAL | 7,677.0 | 1.41 | 227.38 | 6,855.00 | 1,853.41 | -1,985.21 | 2,715.91 | 0.22 | 0.09 | -8.52 | 290.95 |
| | NORMAL | 7,771.0 | 1.44 | 229.22 | 6,948.97 | 1,851.85 | -1,986.96 | 2,716.13 | 0.06 | 0.03 | 1.96 | 57.67 |
| | NORMAL | 7,866.0 | 1.74 | 225.79 | 7,043.94 | 1,850.07 | -1,988.90 | 2,716.33 | 0.33 | 0.32 | -3.61 | 340.68 |
| | NORMAL | 7,960.0 | 1.67 | 230.85 | 7,137.89 | 1,848.21 | -1,990.98 | 2,716.59 | 0.18 | -0.07 | 5.38 | 117.45 |
| | NORMAL | 8,055.0 | 2.04 | 222.64 | 7,232.84 | 1,846.09 | -1,993.20 | 2,716.78 | 0.48 | 0.39 | -8.64 | 320.16 |