

## APPENDIX C

Contains data from the cyanide source-effect experiment.

**Table C.0a Cycle/Date correlation for 10 day SRT experiment**

| Cycle | Date      |
|-------|-----------|
| 1-4   | 2/19/2003 |
| 5-8   | 2/20/2003 |
| 9-12  | 2/21/2003 |
| 13-16 | 2/22/2003 |
| 17-20 | 2/23/2003 |
| 21-24 | 2/24/2003 |
| 25-28 | 2/25/2003 |
| 29-32 | 2/26/2003 |
| 33-36 | 2/27/2003 |
| 37-40 | 2/28/2003 |
| 41-44 | 3/1/2003  |
| 45-48 | 3/2/2003  |
| 49-52 | 3/3/2003  |
| 53-56 | 3/4/2003  |

**Table C.0b Cycle/Date correlation for 2 day SRT experiment**

| <b>Cycle</b> | <b>Date</b> |
|--------------|-------------|
| 1-4          | 3/11/2003   |
| 5-8          | 3/12/2003   |
| 9-12         | 3/13/2003   |
| 13-16        | 3/14/2003   |
| 17-20        | 3/15/2003   |
| 21-24        | 3/16/2003   |
| 25           | 3/17/2003   |

**Table C.1a (corresponds to Figure 4.1: ICXX determination for 10-day SRT biomass exposed to cyanide. MLVSS= 3190 mg/L**

| CN- Concentration (mg/L) | OUR (mg O <sub>2</sub> /L.min) |         | R <sup>2</sup> |         | SOUR (mg O <sub>2</sub> .g VSS.h) |         | Average | % Inhibition |
|--------------------------|--------------------------------|---------|----------------|---------|-----------------------------------|---------|---------|--------------|
|                          | Trial 1                        | Trial 2 | Trial 1        | Trial 2 | Trial 1                           | Trial 2 |         |              |
| 0                        | 2.30                           |         | 1.00           |         | 44.14                             |         | 44.14   | 0.00         |
| 12.5                     | 0.91                           | 0.84    | 0.99           | 1.00    | 17.88                             | 16.45   | 17.16   | 61.12        |
| 5                        | 1.50                           | 1.36    | 1.00           | 1.00    | 29.13                             | 26.31   | 27.72   | 37.21        |
| 10                       | 1.38                           | 1.38    | 0.99           | 0.99    | 27.10                             | 27.12   | 27.11   | 38.58        |
| 25                       | 0.47                           | 0.52    | 0.99           | 1.00    | 9.55                              | 10.47   | 10.01   | 77.32        |
| 1                        | 2.25                           | 2.37    | 0.99           | 1.00    | 43.35                             | 45.62   | 44.48   | -0.77        |
| 2.5                      | 1.63                           | 1.82    | 0.96           | 0.98    | 31.54                             | 35.06   | 33.30   | 24.57        |

**Table C.1b (corresponds to Figure 4.2: ICXX determination for 2-day SRT biomass exposed to cyanide. MLVSS= 1000 mg/L**

| CN- Concentration (mg/L) | OUR (mg O <sub>2</sub> /L.min) |         | R <sup>2</sup> |         | SOUR (mg O <sub>2</sub> .g VSS.h) |         | Average | % Inhibition |
|--------------------------|--------------------------------|---------|----------------|---------|-----------------------------------|---------|---------|--------------|
|                          | Trial 1                        | Trial 2 | Trial 1        | Trial 2 | Trial 1                           | Trial 2 |         |              |
| 0                        | 1.09                           | 1.14    | 1.00           | 1.00    | 66.45                             | 69.72   | 68.08   | 0.00         |
| 1                        | 1.05                           | 1.12    | 1.00           | 1.00    | 64.31                             | 68.69   | 66.50   | 2.33         |
| 2.5                      | 0.72                           | 0.68    | 1.00           | 1.00    | 44.61                             | 41.55   | 43.08   | 36.73        |
| 5                        | 0.43                           | 0.43    | 0.99           | 0.99    | 26.80                             | 26.86   | 26.83   | 60.60        |
| 1.5                      | 1.00                           | 0.95    | 1.00           | 1.00    | 61.57                             | 58.59   | 60.08   | 11.75        |

**Table C.2a (corresponds to Table 4.3: Characteristics of wastewater used during cyanide source-effect experiment.)**

| Cycle | 10 day TSS/VSS  |               |                 |               | 2 day TSS/VSS   |               |                 |               | 10 day pH | 2 day pH |
|-------|-----------------|---------------|-----------------|---------------|-----------------|---------------|-----------------|---------------|-----------|----------|
|       | Avg TSS<br>mg/L | StDev<br>mg/L | Avg VSS<br>mg/L | StDev<br>mg/L | Avg TSS<br>mg/L | StDev<br>mg/L | Avg VSS<br>mg/L | StDev<br>mg/L | Avg       | Avg      |
| 1     | 203             | 4.16          | 90              | 5.29          | 303             | 3.06          | 115             | 1.15          | 7.6       | 7.3      |
| 5     | 146             | 8.00          | 69              | 5.03          | 212             | 39.95         | 73              | 17.01         |           |          |
| 9     | 168             | 5.29          | 90              | 12.49         | 209             | 23.18         | 69              | 3.06          | 7.6       | 7.4      |
| 13    | 169             | 1.15          | 92              | 4.00          | 189             | 9.02          | 49              | 4.16          |           |          |
| 17    | 115             | 1.15          | 23              | 3.06          | 385             | 11.72         | 123             | 6.43          | 7.7       | 7.4      |
| 21    | 181             | 1.15          | 65              | 6.43          | 235             | 4.16          | 108             | 5.29          |           |          |
| 25    | 174             | 7.57          | 98              | 3.79          |                 |               |                 |               | 7.3       |          |
| 29    | 115             | 9.24          | 61              | 3.06          |                 |               |                 |               |           |          |
| 33    | 126             | 6.00          | 65              | 2.31          |                 |               |                 |               | 7.3       |          |
| 45    | 159             | 8.08          | 79              | 4.16          |                 |               |                 |               | 7.5       |          |
| 53    | 99              | 6.11          | 59              | 6.43          |                 |               |                 |               |           |          |

**Table C.2b (corresponds to Table 4.3: Characteristics of wastewater used during cyanide source-effect experiment.)**

| Cycle | 10 day Inf COD  |               |                 |               | 2 day Inf COD   |               |                 |               |
|-------|-----------------|---------------|-----------------|---------------|-----------------|---------------|-----------------|---------------|
|       | Soluble         |               | Total           |               | Soluble         |               | Total           |               |
|       | Avg COD<br>mg/L | StDev<br>mg/L | Avg COD<br>mg/L | StDev<br>mg/L | Avg COD<br>mg/L | StDev<br>mg/L | Avg COD<br>mg/L | StDev<br>mg/L |
| 1     | 510             | 4             | 668             | 20            | 944             | 69            | 1154            | 68            |
| 4     | 572             | 48            | 612             | 15            | 884             | 9             | 942             | 5             |
| 9     | 636             | 27            | 878             | 11            | 880             | 15            | 986             | 5             |
| 13    | 626             | 0             | 828             | 23            | 926             | 16            | 1026            | 12            |
| 17    | 384             | 7             | 376             | 25            | 896             | 12            | 1228            | 22            |
| 21    | 358             | 10            | 464             | 31            | 720             | 21            | 818             | 15            |
| 25    | 510             | 2             | 722             | 22            |                 |               |                 |               |
| 29    | 482             | 2             | 566             | 13            |                 |               |                 |               |
| 33    | 514             | 7             | 688             | 17            |                 |               |                 |               |
| 45    | 580             | 3             | 802             | 36            |                 |               |                 |               |
| 53    | 458             | 10            | 1376            | 21            |                 |               |                 |               |

**Table C.2c (corresponds to Table 4.3: Characteristics of wastewater used during cyanide source-effect experiment.)**

| Cycle | 10 day Inf NH3  |               | 2 day Inf NH3   |               | 10 day Inf Alkalinity |               | 2 day Inf Alkalinity |               |
|-------|-----------------|---------------|-----------------|---------------|-----------------------|---------------|----------------------|---------------|
|       | Avg NH3<br>mg/L | StDev<br>mg/L | Avg NH3<br>mg/L | StDev<br>mg/L | Avg Alk<br>mg/L       | StDev<br>mg/L | Avg Alk<br>mg/L      | StDev<br>mg/L |
| 1     | 14.32           | 0.14          | 22.80           | 1.19          | 347.30                | 0.65          | 576.38               | 3.25          |
| 4     | 13.50           | 0.98          | 27.07           | 2.50          |                       |               |                      |               |
| 9     | 12.66           | 0.48          | 29.82           | 10.89         | 393.76                | 3.90          | 576.38               | 3.25          |
| 13    | 13.52           | 1.04          | 22.87           | 6.04          |                       |               |                      |               |
| 17    | 7.07            | 0.44          | 20.00           | 2.89          | 335.80                | 0.00          | 537.74               | 1.95          |
| 21    | 11.01           | 0.59          | 22.14           | 1.29          |                       |               |                      |               |
| 25    | 8.52            | 0.08          |                 |               | 360.18                | 3.25          |                      |               |
| 29    | 8.94            | 0.34          |                 |               |                       |               |                      |               |
| 33    | 8.48            | 0.32          |                 |               | 355.58                | 1.95          |                      |               |
| 45    | 10.12           | 1.19          |                 |               | 345.00                | 3.90          |                      |               |
| 53    | 13.36           | 0.68          |                 |               |                       |               |                      |               |

**Table C.3a (corresponds to Figure 4.3: Soluble effluent COD for 10 day SRT reactors exposed to cyanide.)**

| Cycle | Control         |                |               | IC15            |                |               | IC25            |                |               | IC50            |                |               |
|-------|-----------------|----------------|---------------|-----------------|----------------|---------------|-----------------|----------------|---------------|-----------------|----------------|---------------|
|       | Avg COD<br>mg/L | Rounded<br>Avg | StDev<br>mg/L | Avg COD<br>mg/L | Rounded<br>Avg | StDev<br>mg/L | Avg COD<br>mg/L | Rounded<br>Avg | StDev<br>mg/L | Avg COD<br>mg/L | Rounded<br>Avg | StDev<br>mg/L |
| 1     | 32.56           | 32             | 2.26          | 39.96           | 40             | 3.08          | 46.87           | 46             | 2.26          | 40.95           | 40             | 2.26          |
| 2     | 58.71           | 58             | 4.76          | 59.20           | 60             | 6.67          | 65.12           | 66             | 7.45          | 66.60           | 66             | 7.30          |
| 3     | 41.65           | 42             | 3.44          | 42.64           | 42             | 4.54          | 42.64           | 42             | 3.10          | 53.06           | 54             | 0.86          |
| 4     | 42.15           | 42             | 3.94          | 47.11           | 48             | 4.78          | 52.56           | 52             | 3.94          | 60.50           | 60             | 8.72          |
| 6     | 35.81           | 36             | 2.28          | 35.81           | 36             | 2.28          | 37.31           | 38             | 1.72          | 42.28           | 42             | 6.21          |
| 8     | 62.67           | 62             | 2.28          | 60.68           | 60             | 3.95          | 75.61           | 76             | 3.95          | 60.19           | 60             | 4.31          |
| 10    | 32.54           | 32             | 1.76          | 33.05           | 34             | 1.76          | 37.12           | 38             | 1.76          | 34.58           | 34             | 1.76          |
| 12    | 31.02           | 32             | 3.18          | 36.10           | 36             | 1.76          | 32.54           | 32             | 1.76          | 39.66           | 40             | 0.00          |
| 16    | 37.00           | 38             | 6.72          | 43.17           | 44             | 2.67          | 41.63           | 42             | 4.63          | 44.20           | 44             | 2.36          |
| 20    | 28.87           | 28             | 4.73          | 30.42           | 30             | 2.36          | 35.06           | 36             | 1.79          | 27.84           | 28             | 1.55          |
| 24    | 24.95           | 24             | 3.76          | 26.03           | 26             | 2.49          | 29.29           | 30             | 5.71          | 26.58           | 26             | 0.94          |
| 28    | 20.46           | 20             | 0.96          | 23.23           | 24             | 3.83          | 28.20           | 28             | 2.53          | 25.99           | 26             | 1.66          |
| 32    | 23.13           | 24             | 3.91          | 25.38           | 26             | 4.26          | 31.02           | 32             | 4.79          | 25.95           | 26             | 1.69          |
| 36    | 30.17           | 30             | 0.00          | 31.27           | 32             | 0.95          | 31.27           | 32             | 0.95          | 30.17           | 30             | 6.58          |
| 44    | 48.16           | 48             | 3.42          | 49.81           | 50             | 6.22          | 41.60           | 42             | 5.28          | 54.73           | 54             | 0.95          |
| 52    | 17.65           | 18             | 5.92          | 18.22           | 18             | 6.90          | 22.21           | 22             | 0.99          | 20.50           | 20             | 3.94          |

↳ Rounded to the nearest even number

**Table C.4a (corresponds to Figure 4.4: Soluble effluent COD for 10 day SRT reactors exposed to cyanide.)**

| Cycle | Control         |                |               | IC15            |                |               | IC25            |                |               | IC50            |                |               |
|-------|-----------------|----------------|---------------|-----------------|----------------|---------------|-----------------|----------------|---------------|-----------------|----------------|---------------|
|       | Avg COD<br>mg/L | Rounded<br>Avg | StDev<br>mg/L | Avg COD<br>mg/L | Rounded<br>Avg | StDev<br>mg/L | Avg COD<br>mg/L | Rounded<br>Avg | StDev<br>mg/L | Avg COD<br>mg/L | Rounded<br>Avg | StDev<br>mg/L |
| 1     | 91.02           | 92             | 0.98          | 90.46           | 90             | 3.39          | 91.59           | 92             | 0.98          | 176.96          | 176            | 2.94          |
| 2     | 94.42           | 94             | 3.92          | 98.37           | 98             | 2.59          | 100.64          | 100            | 2.94          | 247.63          | 248            | 0.00          |
| 3     | 95.78           | 96             | 1.87          | 101.20          | 102            | 2.48          | 89.29           | 90             | 4.96          | 91.45           | 92             | 1.87          |
| 4     | 105.52          | 106            | 0.94          | 98.49           | 98             | 2.81          | 110.39          | 110            | 6.15          | 100.65          | 100            | 1.87          |
| 6     | 161.46          | 162            | 3.79          | 170.76          | 170            | 1.90          | 164.20          | 164            | 0.95          | 166.39          | 166            | 1.90          |
| 8     | 152.70          | 152            | 3.79          | 163.65          | 164            | 0.00          | 170.76          | 170            | 1.90          | 173.50          | 174            | 2.84          |
| 10    | 69.81           | 70             | 0.94          | 80.63           | 80             | 1.62          | 81.17           | 82             | 1.87          | 93.08           | 94             | 0.94          |
| 12    | 63.86           | 64             | 1.87          | 74.68           | 74             | 2.48          | 75.76           | 76             | 2.81          | 87.67           | 88             | 3.75          |
| 14    | 51.55           | 52             | 0.96          | 63.74           | 64             | 2.54          | 54.32           | 54             | 4.40          | 78.71           | 78             | 4.18          |
| 16    | 57.09           | 58             | 0.96          | 60.42           | 60             | 1.92          | 55.98           | 56             | 4.40          | 64.30           | 64             | 2.88          |
| 20    | 51.74           | 52             | 1.99          | 61.51           | 62             | 1.00          | 63.81           | 64             | 3.59          | 63.23           | 64             | 4.34          |
| 24    | 64.33           | 64             | 1.90          | 63.23           | 64             | 3.30          | 67.63           | 68             | 1.90          | 69.83           | 70             | 4.36          |

↳ Rounded to the nearest even number

**Table C.3b (corresponds to Figure 4.3: Soluble effluent COD for 10 day SRT reactors exposed to cyanide.**

| Cycle | Dunnett's method for multiple comparison with a control              |                |                |          | Dunnett's t value for $\alpha= 0.05$ : |               |               |
|-------|--|----------------|----------------|----------|--|---------------|---------------|
|       | Assumption: SD is the same for all series; a pooled SD is determined |                |                |          | 2.88, 3.62                             |               |               |
|       | IC15 - Control   | IC25 - Control | IC50 - Control | Sp*...*t | IC15                                   | IC25          | IC50          |
| 1     | 7.40   | 14.31          | 8.39           | 5.85795  | + SIGNIFICANT                          | + SIGNIFICANT | + SIGNIFICANT |
| 2     | 0.49   | 6.41           | 7.89           | 15.59604 | NORMAL                                 | NORMAL        | NORMAL        |
| 3     | 0.99   | 0.99           | 11.40          | 7.69055  | NORMAL                                 | NORMAL        | + SIGNIFICANT |
| 4     | 4.96   | 10.41          | 18.35          | 13.39676 | <b>NORMAL</b>                          | <b>NORMAL</b> | + SIGNIFICANT |
| 6     | 0.00   | 1.49           | 6.47           | 8.47501  | NORMAL                                 | NORMAL        | NORMAL        |
| 8     | -1.99  | 12.93          | -2.49          | 8.71379  | NORMAL                                 | + SIGNIFICANT | NORMAL        |
| 10    | 0.51   | 4.58           | 2.03           | 4.14197  | NORMAL                                 | + SIGNIFICANT | <b>NORMAL</b> |
| 12    | 5.08   | 1.53           | 8.64           | 4.74522  | + SIGNIFICANT                          | NORMAL        | + SIGNIFICANT |
| 16    | 6.17   | 4.63           | 7.19           | 10.46579 | NORMAL                                 | NORMAL        | NORMAL        |
| 20    | 1.55   | 6.19           | -1.03          | 6.80446  | NORMAL                                 | NORMAL        | NORMAL        |
| 24    | 1.08   | 4.34           | 1.63           | 8.62661  | NORMAL                                 | NORMAL        | NORMAL        |
| 28    | 2.76   | 7.74           | 5.53           | 5.85168  | NORMAL                                 | + SIGNIFICANT | NORMAL        |
| 32    | 2.26   | 7.90           | 2.82           | 9.04451  | NORMAL                                 | NORMAL        | NORMAL        |
| 36    | 1.10   | 1.10           | 0.00           | 7.89943  | NORMAL                                 | NORMAL        | NORMAL        |
| 44    | 1.64   | -6.57          | 6.57           | 10.45588 | NORMAL                                 | NORMAL        | NORMAL        |
| 52    | 0.57   | 4.56           | 2.85           | 11.71093 | NORMAL                                 | NORMAL        | NORMAL        |

**Boldface denotes statistical recovery**

**Table C.4b (corresponds to Figure 4.4: Soluble effluent COD for 10 day SRT reactors exposed to cyanide.**

| Cycle | Dunnett's method for multiple comparison with a control              |                |                |          | Dunnett's t value for $\alpha= 0.05$ : |               |               |
|-------|--|----------------|----------------|----------|--|---------------|---------------|
|       | Assumption: SD is the same for all series; a pooled SD is determined |                |                |          | 2.88, 3.62                             |               |               |
|       | IC15 - Control   | IC25 - Control | IC50 - Control | Sp*...*t | IC15                                   | IC25          | IC50          |
| 1     | -0.57  | 0.57           | 85.94          | 5.52     | <b>NORMAL</b>                          | <b>NORMAL</b> | + SIGNIFICANT |
| 2     | 3.96   | 6.22           | 153.22         | 6.51     | NORMAL                                 | NORMAL        | + SIGNIFICANT |
| 3     | 5.41   | -6.49          | -4.33          | 7.23     | NORMAL                                 | NORMAL        | NORMAL        |
| 4     | -7.03  | 4.87           | -4.87          | 8.32     | NORMAL                                 | NORMAL        | NORMAL        |
| 6     | 9.30   | 2.74           | 4.93           | 5.57     | + SIGNIFICANT                          | NORMAL        | <b>NORMAL</b> |
| 8     | 10.95  | 18.06          | 20.80          | 6.00     | + SIGNIFICANT                          | + SIGNIFICANT | + SIGNIFICANT |
| 10    | 10.82  | 11.36          | 23.27          | 3.31     | + SIGNIFICANT                          | + SIGNIFICANT | + SIGNIFICANT |
| 12    | 10.82  | 11.91          | 23.81          | 6.61     | + SIGNIFICANT                          | + SIGNIFICANT | + SIGNIFICANT |
| 14    | 12.19  | 2.77           | 27.16          | 7.82     | + SIGNIFICANT                          | NORMAL        | + SIGNIFICANT |
| 16    | 3.33   | -1.11          | 7.21           | 6.68     | NORMAL                                 | NORMAL        | + SIGNIFICANT |
| 20    | 9.77   | 12.07          | 11.50          | 7.12     | + SIGNIFICANT                          | + SIGNIFICANT | + SIGNIFICANT |
| 24    | -1.10  | 3.30           | 5.50           | 7.17     | NORMAL                                 | NORMAL        | NORMAL        |

**Boldface denotes statistical recovery**

**Table C.5a (corresponds to Figure 4.5 Effluent TSS for 10-day SRT reactors exposed to cyanide.)**

| Cycle | Control         |                   | IC15            |                   | IC25            |                   | IC50            |                   |
|-------|-----------------|-------------------|-----------------|-------------------|-----------------|-------------------|-----------------|-------------------|
|       | Avg TSS<br>mg/L | StDev TSS<br>mg/L | Avg TSS<br>mg/L | StDev TSS<br>mg/L | Avg TSS<br>mg/L | StDev TSS<br>mg/L | Avg TSS<br>mg/L | StDev TSS<br>mg/L |
| 1     | 54              | 6                 | 53              | 0                 | 61              | 1                 | 64              | 5                 |
| 2     | 67              | 7                 | 63              | 0                 | 85              | 5                 | 74              | 5                 |
| 3     | 67              | 11                | 42              | 3                 | 69              | 1                 | 57              | 2                 |
| 4     | 67              | 5                 | 41              | 8                 | 77              | 1                 | 57              | 10                |
| 6     | 57              | 2                 | 14              | 1                 | 55              | 3                 | 48              | 2                 |
| 8     | 48              | 9                 | 41              | 1                 | 51              | 2                 | 35              | 4                 |
| 10    | 41              | 3                 | 20              | 1                 | 50              | 2                 | 41              | 3                 |
| 12    | 30              | 2                 | 38              | 0                 | 37              | 5                 | 29              | 2                 |
| 16    | 41              | 2                 | 31              | 1                 | 30              | 6                 | 22              | 3                 |
| 20    | 42              | 3                 | 19              | 1                 | 42              | 3                 | 39              | 5                 |
| 24    | 40              | 2                 | 13              | 4                 | 40              | 3                 | 34              | 3                 |
| 28    | 29              | 8                 | 41              | 2                 | 41              | 4                 | 37              | 9                 |
| 32    | 27              | 3                 | 27              | 2                 | 33              | 3                 | 32              | 7                 |
| 36    | 24              | 1                 | 21              | 1                 | 22              | 1                 | 24              | 3                 |
| 44    | 34              | 2                 | 33              | 1                 | 33              | 4                 | 36              | 6                 |
| 52    | 30              | 6                 | 29              | 2                 | 29              | 4                 | 29              | 2                 |

**Table C.6a (corresponds to Figure 4.6 Effluent TSS for 2-day SRT reactors exposed to cyanide.)**

| Cycle | Control         |                   | IC15            |                   | IC25            |                   | IC50            |                   |
|-------|-----------------|-------------------|-----------------|-------------------|-----------------|-------------------|-----------------|-------------------|
|       | Avg TSS<br>mg/L | StDev TSS<br>mg/L | Avg TSS<br>mg/L | StDev TSS<br>mg/L | Avg TSS<br>mg/L | StDev TSS<br>mg/L | Avg TSS<br>mg/L | StDev TSS<br>mg/L |
| 1     | 178             | 11                | 155             | 1                 | 159             | 3                 | 173             | 5                 |
| 2     | 169             | 14                | 140             | 11                | 180             | 14                | 201             | 10                |
| 3     | 156             | 4                 | 158             | 3                 | 169             | 6                 | 153             | 6                 |
| 4     | 181             | 6                 | 130             | 8                 | 169             | 6                 | 168             | 17                |
| 6     | 135             | 5                 | 130             | 8                 | 160             | 7                 | 153             | 2                 |
| 8     | 100             | 8                 | 82              | 3                 | 101             | 10                | 89              | 10                |
| 10    | 76              | 0                 | 84              | 11                | 92              | 4                 | 95              | 5                 |
| 12    | 79              | 2                 | 80              | 6                 | 107             | 5                 | 128             | 7                 |
| 14    | 44              | 4                 | 45              | 10                | 55              | 3                 | 56              | 2                 |
| 16    | 34              | 4                 | 56              | 3                 | 59              | 3                 | 78              | 3                 |
| 20    | 59              | 6                 | 62              | 6                 | 59              | 1                 | 75              | 2                 |
| 24    | 37              | 3                 | 76              | 5                 | 61              | 6                 | 71              | 2                 |

**Table C.5b (corresponds to Figure 4.5 Effluent TSS for 10-day SRT reactors exposed to cyanide.)**

| Cycle | Dunnett's method for multiple comparison with a control<br>Assumption: SD is the same for all series; a pooled SD is determined |                |                |          | Dunnett's t value for $\alpha= 0.05$ :<br>2.88, 3.62 |               |               |
|-------|---|----------------|----------------|----------|--|---------------|---------------|
|       | IC15 - Control  | IC25 - Control | IC50 - Control | Sp*...*t | IC15   | IC25          | IC50          |
| 1     | -0.67   | 7.33           | 10.67          | 9.16     | NORMAL   | NORMAL        | + SIGNIFICANT |
| 2     | -3.67   | 18.00          | 7.00           | 11.28    | NORMAL   | + SIGNIFICANT | NORMAL        |
| 3     | -25.33  | 1.33           | -10.33         | 13.59    | - SIGNIFICANT  | NORMAL        | NORMAL        |
| 4     | -25.67  | 10.33          | -9.33          | 16.19    | - SIGNIFICANT  | NORMAL        | <b>NORMAL</b> |
| 6     | -43.17  | -1.33          | -9.00          | 3.99     | - SIGNIFICANT  | <b>NORMAL</b> | - SIGNIFICANT |
| 8     | -6.67   | 3.83           | -13.00         | 12.28    | NORMAL   | NORMAL        | - SIGNIFICANT |
| 10    | -20.67  | 9.00           | 0.67           | 4.85     | - SIGNIFICANT  | + SIGNIFICANT | NORMAL        |
| 12    | 8.33  | 7.00           | -0.33          | 6.75     | + SIGNIFICANT  | + SIGNIFICANT | NORMAL        |
| 16    | -9.50   | -11.33         | -19.33         | 7.63     | - SIGNIFICANT  | - SIGNIFICANT | - SIGNIFICANT |
| 20    | -23.00  | 0.33           | -3.33          | 7.41     | - SIGNIFICANT  | NORMAL        | NORMAL        |
| 24    | -26.50  | 0.00           | -6.33          | 6.74     | - SIGNIFICANT  | NORMAL        | NORMAL        |
| 28    | 12.83   | 12.33          | 8.33           | 14.77    | NORMAL   | NORMAL        | NORMAL        |
| 32    | 0.17  | 5.33           | 4.67           | 10.06    | NORMAL   | NORMAL        | NORMAL        |
| 36    | -2.83   | -2.33          | -0.33          | 3.49     | <b>NORMAL</b>  | NORMAL        | NORMAL        |
| 44    | -1.17   | -1.00          | 2.00           | 7.93     | NORMAL   | NORMAL        | NORMAL        |
| 52    | -0.50   | -1.33          | -0.67          | 8.73     | NORMAL   | NORMAL        | NORMAL        |

**Boldface denotes statistical recovery**

**Table C.6b (corresponds to Figure 4.6 Effluent TSS for 2-day SRT reactors exposed to cyanide.)**

| Cycle | Dunnett's method for multiple comparison with a control<br>Assumption: SD is the same for all series; a pooled SD is determined |                |                |          | Dunnett's t value for $\alpha= 0.05$ :<br>2.88, 3.62 |               |               |
|-------|---|----------------|----------------|----------|--|---------------|---------------|
|       | IC15 - Control  | IC25 - Control | IC50 - Control | Sp*...*t | IC15   | IC25          | IC50          |
| 1     | -23.00  | -18.67         | -5.33          | 14.90    | - SIGNIFICANT  | - SIGNIFICANT | NORMAL        |
| 2     | -28.67  | 11.33          | 32.67          | 29.34    | NORMAL   | NORMAL        | + SIGNIFICANT |
| 3     | 2.00  | 13.33          | -2.67          | 11.68    | NORMAL   | + SIGNIFICANT | NORMAL        |
| 4     | -51.33  | -12.00         | -13.33         | 26.21    | - SIGNIFICANT  | NORMAL        | NORMAL        |
| 6     | -4.67   | 25.33          | 18.67          | 14.24    | NORMAL   | + SIGNIFICANT | + SIGNIFICANT |
| 8     | -18.00  | 1.33           | -10.67         | 19.49    | NORMAL   | NORMAL        | NORMAL        |
| 10    | 8.00  | 16.00          | 18.67          | 15.12    | <b>NORMAL</b>  | + SIGNIFICANT | + SIGNIFICANT |
| 12    | 1.33  | 28.00          | 49.33          | 12.14    | NORMAL   | + SIGNIFICANT | + SIGNIFICANT |
| 14    | 1.00  | 11.33          | 12.00          | 13.27    | NORMAL   | NORMAL        | NORMAL        |
| 16    | 22.00   | 24.67          | 44.00          | 7.92     | + SIGNIFICANT  | + SIGNIFICANT | + SIGNIFICANT |
| 20    | 3.33  | 0.00           | 16.67          | 10.52    | NORMAL   | NORMAL        | + SIGNIFICANT |
| 24    | 39.58   | 24.00          | 34.44          | 10.15    | + SIGNIFICANT  | + SIGNIFICANT | + SIGNIFICANT |

**Boldface denotes statistical recovery**



**Table C.7a (corresponds to Figure 4.7: Effluent ammonia-N in the 10-day SRT reactors exposed to cyanide.)**

| Cycle | Control         |               | IC15            |               | IC25            |               | IC50            |               |
|-------|-----------------|---------------|-----------------|---------------|-----------------|---------------|-----------------|---------------|
|       | Avg NH3<br>mg/L | StDev<br>mg/L | Avg NH3<br>mg/L | StDev<br>mg/L | Avg NH3<br>mg/L | StDev<br>mg/L | Avg NH3<br>mg/L | StDev<br>mg/L |
| 1     | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 9.49            | 0.00          |
| 2     | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 13.10           | 1.43          |
| 3     | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 3.74            | 0.00          |
| 4     | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          |
| 6     | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          |
| 8     | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          |
| 10    | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          |
| 12    | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          |
| 16    | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          |
| 20    | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          |
| 24    | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          |
| 28    | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          |
| 32    | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          |
| 36    | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          |
| 44    | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          |
| 52    | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          |

**Table C.8a (corresponds to Figure 4.8: Effluent nitrite-N in the 10-day SRT reactors exposed to cyanide.)**

| Cycle | Control         |               | IC15            |               | IC25            |               | IC50            |               |
|-------|-----------------|---------------|-----------------|---------------|-----------------|---------------|-----------------|---------------|
|       | Avg NO2<br>mg/L | StDev<br>mg/L | Avg NO2<br>mg/L | StDev<br>mg/L | Avg NO2<br>mg/L | StDev<br>mg/L | Avg NO2<br>mg/L | StDev<br>mg/L |
| 1     | 0.00            | 0.00          | 8.56            | 0.69          | 8.97            | 1.18          | 0.00            | 0.00          |
| 2     | 0.00            | 0.00          | 0.00            | 0.00          | 6.53            | 0.04          | 3.11            | 0.18          |
| 3     | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 15.38           | 0.70          |
| 4     | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 4.79            | 0.72          |
| 6     | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          |
| 8     | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          |
| 10    | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          |
| 12    | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          |
| 16    | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          |
| 20    | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          |
| 24    | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          |
| 28    | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          |
| 32    | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          |
| 36    | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          |
| 44    | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          |
| 52    | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          | 0.00            | 0.00          |

**Table C.7b (corresponds to Figure 4.7: Effluent ammonia-N in the 10-day SRT reactors exposed to cyanide.)**

| Cycle | Dunnett's method for multiple comparison with a control              |                |                |          | Dunnett's t value for $\alpha= 0.05$ : |               |               |
|-------|--|----------------|----------------|----------|--|---------------|---------------|
|       | Assumption: SD is the same for all series; a pooled SD is determined |                |                |          | 2.88, 3.62                             |               |               |
|       | IC15 - Control   | IC25 - Control | IC50 - Control | Sp*...*t | IC15                                   | IC25          | IC50          |
| 1     | 0.00   | 0.00           | 9.49           | 0.00     | <b>NORMAL</b>                          | <b>NORMAL</b> | + SIGNIFICANT |
| 2     | 0.00   | 0.00           | 13.10          | 2.58     | NORMAL                                 | NORMAL        | + SIGNIFICANT |
| 3     | 0.00   | 0.00           | 3.74           | 0.00     | NORMAL                                 | NORMAL        | + SIGNIFICANT |
| 4     | 0.00   | 0.00           | 0.00           | 0.00     | NORMAL                                 | NORMAL        | NORMAL        |
| 6     | 0.00   | 0.00           | 0.00           | 0.00     | NORMAL                                 | NORMAL        | NORMAL        |
| 8     | 0.00   | 0.00           | 0.00           | 0.00     | NORMAL                                 | NORMAL        | <b>NORMAL</b> |
| 10    | 0.00   | 0.00           | 0.00           | 0.00     | NORMAL                                 | NORMAL        | NORMAL        |
| 12    | 0.00   | 0.00           | 0.00           | 0.00     | NORMAL                                 | NORMAL        | NORMAL        |
| 16    | 0.00   | 0.00           | 0.00           | 0.00     | NORMAL                                 | NORMAL        | NORMAL        |
| 20    | 0.00   | 0.00           | 0.00           | 0.00     | NORMAL                                 | NORMAL        | NORMAL        |
| 24    | 0.00   | 0.00           | 0.00           | 0.00     | NORMAL                                 | NORMAL        | NORMAL        |
| 28    | 0.00   | 0.00           | 0.00           | 0.00     | NORMAL                                 | NORMAL        | NORMAL        |
| 32    | 0.00   | 0.00           | 0.00           | 0.00     | NORMAL                                 | NORMAL        | NORMAL        |
| 36    | 0.00   | 0.00           | 0.00           | 0.00     | NORMAL                                 | NORMAL        | NORMAL        |
| 44    | 0.00   | 0.00           | 0.00           | 0.00     | NORMAL                                 | NORMAL        | NORMAL        |
| 52    | 0.00   | 0.00           | 0.00           | 0.00     | NORMAL                                 | NORMAL        | NORMAL        |

**Boldface denotes statistical recovery**

**Table C.8b (corresponds to Figure 4.8: Effluent nitrite-N in the 10-day SRT reactors exposed to cyanide.)**

| Cycle | Dunnett's method for multiple comparison with a control              |                |                |          | Dunnett's t value for $\alpha= 0.05$ : |               |               |
|-------|--|----------------|----------------|----------|--|---------------|---------------|
|       | Assumption: SD is the same for all series; a pooled SD is determined |                |                |          | 2.88, 3.62                             |               |               |
|       | IC15 - Control   | IC25 - Control | IC50 - Control | Sp*...*t | IC15                                   | IC25          | IC50          |
| 1     | 8.56   | 8.97           | 0.00           | 2.47     | + SIGNIFICANT                          | + SIGNIFICANT | NORMAL        |
| 2     | 0.00   | 6.53           | 3.11           | 0.33     | NORMAL                                 | + SIGNIFICANT | + SIGNIFICANT |
| 3     | 0.00   | 0.00           | 15.38          | 1.27     | NORMAL                                 | NORMAL        | + SIGNIFICANT |
| 4     | 0.00   | 0.00           | 4.79           | 1.31     | <b>NORMAL</b>                          | NORMAL        | + SIGNIFICANT |
| 6     | 0.00   | 0.00           | 0.00           | 0.00     | NORMAL                                 | <b>NORMAL</b> | NORMAL        |
| 8     | 0.00   | 0.00           | 0.00           | 0.00     | NORMAL                                 | NORMAL        | NORMAL        |
| 10    | 0.00   | 0.00           | 0.00           | 0.00     | NORMAL                                 | NORMAL        | <b>NORMAL</b> |
| 12    | 0.00   | 0.00           | 0.00           | 0.00     | NORMAL                                 | NORMAL        | NORMAL        |
| 16    | 0.00   | 0.00           | 0.00           | 0.00     | NORMAL                                 | NORMAL        | NORMAL        |
| 20    | 0.00   | 0.00           | 0.00           | 0.00     | NORMAL                                 | NORMAL        | NORMAL        |
| 24    | 0.00   | 0.00           | 0.00           | 0.00     | NORMAL                                 | NORMAL        | NORMAL        |
| 28    | 0.00   | 0.00           | 0.00           | 0.00     | NORMAL                                 | NORMAL        | NORMAL        |
| 32    | 0.00   | 0.00           | 0.00           | 0.00     | NORMAL                                 | NORMAL        | NORMAL        |
| 36    | 0.00   | 0.00           | 0.00           | 0.00     | NORMAL                                 | NORMAL        | NORMAL        |
| 44    | 0.00   | 0.00           | 0.00           | 0.00     | NORMAL                                 | NORMAL        | NORMAL        |
| 52    | 0.00   | 0.00           | 0.00           | 0.00     | NORMAL                                 | NORMAL        | NORMAL        |

**Boldface denotes statistical recovery**

**Table C.9a (corresponds to Figure 4.9: Effluent nitrate-N in the 10-day SRT reactors exposed to cyanide.)**

| Cycle | Control         |               | IC15            |               | IC25            |               | IC50            |               |
|-------|-----------------|---------------|-----------------|---------------|-----------------|---------------|-----------------|---------------|
|       | Avg NO3<br>mg/L | StDev<br>mg/L | Avg NO3<br>mg/L | StDev<br>mg/L | Avg NO3<br>mg/L | StDev<br>mg/L | Avg NO3<br>mg/L | StDev<br>mg/L |
| 1     | 13.25           | 0.00          | 2.24            | 0.18          | 0.76            | 0.10          | 0.00            | 0.00          |
| 2     | 17.59           | 0.30          | 12.15           | 0.22          | 2.02            | 0.04          | 0.49            | 0.01          |
| 3     | 21.29           | 0.92          | 16.59           | 0.14          | 9.08            |               | 1.49            | 0.07          |
| 4     | 19.31           |               | 16.51           | 1.43          | 10.52           | 1.24          | 9.07            | 2.16          |
| 6     | 20.49           | 0.41          | 19.80           | 3.75          | 13.00           | 3.49          | 11.11           | 2.61          |
| 8     | 25.28           | 3.65          | 20.03           | 6.93          | 15.34           | 5.76          | 17.44           | 1.76          |
| 10    | 25.38           | 0.02          | 28.85           | 0.20          | 19.36           | 0.00          | 20.20           | 0.06          |
| 12    | 15.58           | 2.66          | 26.04           | 0.83          | 15.71           | 2.30          | 20.63           | 8.74          |
| 16    | 5.65            | 0.72          | 13.07           | 0.75          | 6.62            | 0.22          | 6.40            | 0.72          |
| 20    | 12.93           | 1.91          | 19.14           | 3.02          | 15.22           | 3.02          | 16.09           | 0.71          |
| 24    | 16.28           | 3.56          | 24.21           | 3.12          | 17.79           | 0.69          | 19.60           | 3.38          |
| 28    | 17.09           | 4.08          | 28.68           | 2.02          | 16.33           | 0.53          | 20.47           |               |
| 32    | 12.12           | 2.43          | 16.21           | 0.01          | 16.70           | 0.86          | 17.48           | 3.11          |
| 36    | 15.87           | 3.92          | 8.67            | 1.82          | 12.71           | 2.06          | 13.40           | 2.68          |
| 44    | 6.91            | 0.91          | 13.80           | 1.40          | 9.83            | 1.05          | 10.05           | 0.57          |
| 52    | 16.67           | 0.67          | 22.26           | 0.36          | 18.32           | 1.69          | 19.36           | 0.30          |

**Table C.10a (corresponds to Figure 4.10: Effluent ammonia-N in the 2-day SRT reactors exposed to cyanide.)**

| Cycle | Control         |               | IC15            |               | IC25            |               | IC50            |               |
|-------|-----------------|---------------|-----------------|---------------|-----------------|---------------|-----------------|---------------|
|       | Avg NH3<br>mg/L | StDev<br>mg/L | Avg NH3<br>mg/L | StDev<br>mg/L | Avg NH3<br>mg/L | StDev<br>mg/L | Avg NH3<br>mg/L | StDev<br>mg/L |
| 1     | 11.53           |               | 8.45            | 0.30          | 7.44            | 1.73          | 11.61           | 2.27          |
| 2     | 19.29           | 3.74          | 11.70           | 6.11          | 12.76           | 0.58          | 11.45           | 0.52          |
| 3     | 14.79           | 1.46          | 11.77           | 1.56          | 15.46           | 2.45          | 18.29           | 2.53          |
| 4     | 12.43           | 4.62          | 12.34           | 4.45          | 12.60           | 0.94          | 9.89            |               |
| 6     | 11.89           |               | 10.65           | 1.81          | 8.98            | 2.68          | 13.69           | 5.63          |
| 8     | 16.10           | 0.63          | 20.02           | 0.53          | 8.61            | 0.27          | 13.41           | 5.90          |
| 10    | 8.35            | 1.07          | 7.92            | 2.27          | 9.97            | 2.39          | 8.43            | 0.60          |
| 12    | 12.78           | 4.12          | 7.04            |               | 10.66           |               | 15.21           | 2.33          |
| 14    | 14.82           |               | 6.77            | 2.15          | 10.62           | 1.81          | 5.94            | 0.94          |
| 16    | 12.63           | 3.08          | 8.74            | 3.06          | 10.11           | 1.57          | 9.44            | 1.35          |
| 20    | 13.67           |               | 11.35           | 0.74          | 11.12           | 1.61          | 8.25            | 1.53          |
| 24    | 9.75            | 0.52          | 11.14           | 1.77          | 9.27            | 2.02          | 8.08            | 0.12          |

**Table C.9b (corresponds to Figure 4.9: Effluent nitrate-N in the 10-day SRT reactors exposed to cyanide.)**

| Cycle | Dunnett's method for multiple comparison with a control<br>Assumption: SD is the same for all series; a pooled SD is determined |                |                |          | Dunnett's t value for $\alpha= 0.05$ :<br>2.88, 3.62 |               |               |
|-------|---|----------------|----------------|----------|--|---------------|---------------|
|       | IC15 - Control  | IC25 - Control | IC50 - Control | Sp*...*t | IC15   | IC25          | IC50          |
| 1     | -11.02  | -13.07         | -12.49         | 0.38     | - SIGNIFICANT  | - SIGNIFICANT | - SIGNIFICANT |
| 2     | -5.44   | -17.37         | -15.56         | 0.67     | - SIGNIFICANT  | - SIGNIFICANT | - SIGNIFICANT |
| 3     | -4.70   | -21.15         | -12.21         | 1.68     | - SIGNIFICANT  | - SIGNIFICANT | - SIGNIFICANT |
| 4     | -2.80   | -17.88         | -8.79          | 5.20     | NORMAL   | - SIGNIFICANT | - SIGNIFICANT |
| 6     | -0.69   | -16.74         | -7.49          | 10.42    | NORMAL   | - SIGNIFICANT | NORMAL        |
| 8     | -5.25   | -18.35         | -9.95          | 17.88    | <b>NORMAL</b>  | - SIGNIFICANT | NORMAL        |
| 10    | 3.47  | -25.18         | -6.02          | 0.39     | + SIGNIFICANT  | - SIGNIFICANT | - SIGNIFICANT |
| 12    | 10.46   | -14.75         | 0.12           | 17.10    | NORMAL   | NORMAL        | NORMAL        |
| 16    | 7.42  | -4.91          | 0.97           | 2.32     | + SIGNIFICANT  | - SIGNIFICANT | NORMAL        |
| 20    | 6.21  | -9.91          | 2.29           | 8.56     | NORMAL   | - SIGNIFICANT | <b>NORMAL</b> |
| 24    | 7.93  | -13.16         | 1.51           | 10.59    | NORMAL   | - SIGNIFICANT | NORMAL        |
| 28    | 11.59   | -15.06         | -0.76          | 8.30     | + SIGNIFICANT  | - SIGNIFICANT | NORMAL        |
| 32    | 4.09  | -12.12         | 4.57           | 7.31     | NORMAL   | - SIGNIFICANT | NORMAL        |
| 36    | -7.20   | -14.05         | -3.16          | 9.92     | NORMAL   | - SIGNIFICANT | NORMAL        |
| 44    | 6.89  | -5.50          | 2.92           | 3.72     | + SIGNIFICANT  | - SIGNIFICANT | NORMAL        |
| 52    | 5.59  | -16.31         | 1.65           | 3.39     | + SIGNIFICANT  | - SIGNIFICANT | NORMAL        |

**Boldface denotes statistical recovery**

**Table C.10b (corresponds to Figure 4.10: Effluent ammonia-N in the 2-day SRT reactors exposed to cyanide.)**

| Cycle | Dunnett's method for multiple comparison with a control<br>Assumption: SD is the same for all series; a pooled SD is determined |                |                |          | Dunnett's t value for $\alpha= 0.05$ :<br>2.88, 3.62 |               |               |
|-------|---|----------------|----------------|----------|--|---------------|---------------|
|       | IC15 - Control  | IC25 - Control | IC50 - Control | Sp*...*t | IC15   | IC25          | IC50          |
| 1     | -3.08   | -4.09          | 0.07           | 5.20     | <b>NORMAL</b>  | <b>NORMAL</b> | <b>NORMAL</b> |
| 2     | -7.59   | -6.54          | -7.84          | 13.03    | NORMAL   | NORMAL        | NORMAL        |
| 3     | -3.02   | 0.67           | 3.49           | 7.45     | NORMAL   | NORMAL        | NORMAL        |
| 4     | -0.09   | 0.17           | -2.54          | 11.73    | NORMAL   | NORMAL        | NORMAL        |
| 6     | -1.24   | -2.90          | 1.80           | 11.74    | NORMAL   | NORMAL        | NORMAL        |
| 8     | 3.92  | -7.49          | -2.69          | 10.79    | NORMAL   | NORMAL        | NORMAL        |
| 10    | -0.43   | 1.62           | 0.08           | 6.36     | NORMAL   | NORMAL        | NORMAL        |
| 12    | -5.74   | -2.12          | 2.43           | 8.57     | NORMAL   | NORMAL        | NORMAL        |
| 14    | -8.04   | -4.19          | -8.88          | 5.36     | - SIGNIFICANT  | NORMAL        | - SIGNIFICANT |
| 16    | -3.88   | -2.51          | -3.19          | 8.69     | NORMAL   | NORMAL        | NORMAL        |
| 20    | -2.32   | -2.55          | -5.42          | 4.24     | NORMAL   | NORMAL        | - SIGNIFICANT |
| 24    | 1.39  | -0.48          | -1.67          | 4.95     | NORMAL   | NORMAL        | NORMAL        |

**Boldface denotes statistical recovery**

**Table C.11a (corresponds to Figure 4.11: Effluent nitrite-N in the 2-day SRT reactors exposed to cyanide.)**

| Cycle | Control         |               | IC15            |               | IC25            |               | IC50            |               |
|-------|-----------------|---------------|-----------------|---------------|-----------------|---------------|-----------------|---------------|
|       | Avg NO2<br>mg/L | StDev<br>mg/L | Avg NO2<br>mg/L | StDev<br>mg/L | Avg NO2<br>mg/L | StDev<br>mg/L | Avg NO2<br>mg/L | StDev<br>mg/L |
| 1     | 1.39            | 0.43          | 1.43            | 0.24          | 1.46            | 0.24          | 1.27            |               |
| 2     | 1.31            | 0.04          | 0.88            |               | 1.04            | 0.16          | 1.14            | 0.05          |
| 3     | 1.02            | 0.35          | 0.92            | 0.27          | 1.22            | 0.21          | 1.32            | 0.14          |
| 4     | 1.38            | 0.22          | 1.38            | 0.09          | 1.17            | 0.04          | 1.17            | 0.27          |
| 6     | 1.06            | 0.14          | 1.49            | 0.48          | 1.28            | 0.43          | 1.08            | 0.38          |
| 8     | 1.12            | 0.38          | 1.21            | 0.27          | 1.25            | 0.29          | 1.23            | 0.44          |
| 10    | 1.07            | 0.28          | 1.18            | 0.36          | 0.98            | 0.29          | 0.97            | 0.13          |
| 12    | 1.26            | 0.23          | 1.32            | 0.28          | 1.07            | 0.01          | 1.19            | 0.26          |
| 14    | 1.07            | 0.15          | 1.10            | 0.23          | 1.02            | 0.23          | 1.13            | 0.02          |
| 16    | 1.06            | 0.10          | 1.25            | 0.28          | 1.22            | 0.12          | 1.13            | 0.05          |
| 20    | 0.88            | 0.33          | 1.04            | 0.41          | 1.21            | 0.29          | 1.07            | 0.17          |
| 24    | 1.29            | 0.32          | 1.23            | 0.34          | 1.09            | 0.41          | 0.92            | 0.22          |

**Table C.12a (corresponds to Figure 4.12: Effluent nitrate-N in the 2-day SRT reactors exposed to cyanide.)**

| Cycle | Control         |               | IC15            |               | IC25            |               | IC50            |               |
|-------|-----------------|---------------|-----------------|---------------|-----------------|---------------|-----------------|---------------|
|       | Avg NO3<br>mg/L | StDev<br>mg/L | Avg NO3<br>mg/L | StDev<br>mg/L | Avg NO3<br>mg/L | StDev<br>mg/L | Avg NO3<br>mg/L | StDev<br>mg/L |
| 1     | 0.12            | 0.01          | 0.09            | 0.00          | 0.08            | 0.01          | 0.08            | 0.03          |
| 2     | 0.27            | 0.08          | 0.25            | 0.05          | 0.41            | 0.07          | 0.22            | 0.02          |
| 3     | 0.22            | 0.02          | 0.19            | 0.08          | 0.20            | 0.06          | 0.24            | 0.03          |
| 4     | 0.11            | 0.06          | 0.30            | 0.22          | 0.22            | 0.04          | 0.23            | 0.00          |
| 6     | 0.13            | 0.04          | 0.13            | 0.04          | 0.14            | 0.04          | 0.14            | 0.03          |
| 8     | 0.18            | 0.03          | 0.44            | 0.29          | 0.17            | 0.01          | 0.81            | 0.19          |
| 10    | 0.18            | 0.05          | 0.14            | 0.10          | 0.15            | 0.04          | 0.12            | 0.04          |
| 12    | 0.20            | 0.00          | 0.15            | 0.01          | 0.24            | 0.15          | 0.69            | 0.20          |
| 14    | 0.13            | 0.02          | 0.08            | 0.02          | 0.09            | 0.01          | 0.10            | 0.01          |
| 16    | 0.76            | 0.40          | 0.11            | 0.05          | 0.12            | 0.03          | 0.28            | 0.10          |
| 20    | 0.15            | 0.01          | 0.19            | 0.10          | 0.19            | 0.09          | 0.20            | 0.01          |
| 24    | 0.21            | 0.01          | 0.17            | 0.06          | 0.23            | 0.22          | 0.13            | 0.06          |

**Table C.11b (corresponds to Figure 4.11: Effluent nitrite-N in the 2-day SRT reactors exposed to cyanide.)**

| Cycle | Dunnett's method for multiple comparison with a control<br>Assumption: SD is the same for all series; a pooled SD is determined |                |                |          | Dunnett's t value for $\alpha= 0.05$ :<br>2.88, 3.62 |               |               |
|-------|---|----------------|----------------|----------|--|---------------|---------------|
|       | IC15 - Control  | IC25 - Control | IC50 - Control | Sp*...*t | IC15   | IC25          | IC50          |
| 1     | 0.04  | 0.07           | -0.12          | 1.00     | <b>NORMAL</b>  | <b>NORMAL</b> | <b>NORMAL</b> |
| 2     | -0.42   | -0.27          | -0.17          |          |  |               |               |
| 3     | -0.10   | 0.20           | 0.30           | 0.92     | NORMAL   | NORMAL        | NORMAL        |
| 4     | 0.00  | -0.21          | -0.21          | 0.66     | NORMAL   | NORMAL        | NORMAL        |
| 6     | 0.43  | 0.22           | 0.02           | 1.38     | NORMAL   | NORMAL        | NORMAL        |
| 8     | 0.09  | 0.13           | 0.11           | 1.28     | NORMAL   | NORMAL        | NORMAL        |
| 10    | 0.10  | -0.10          | -0.10          | 1.00     | NORMAL   | NORMAL        | NORMAL        |
| 12    | 0.06  | -0.19          | -0.07          | 0.80     | NORMAL   | NORMAL        | NORMAL        |
| 14    | 0.03  | -0.05          | 0.06           | 0.65     | NORMAL   | NORMAL        | NORMAL        |
| 16    | 0.19  | 0.16           | 0.06           | 0.59     | NORMAL   | NORMAL        | NORMAL        |
| 20    | 0.16  | 0.33           | 0.19           | 1.13     | NORMAL   | NORMAL        | NORMAL        |
| 24    | -0.06   | -0.20          | -0.37          | 1.19     | NORMAL   | NORMAL        | NORMAL        |

**Boldface denotes statistical recovery**

**Table C.12a (corresponds to Figure 4.12: Effluent nitrate-N in the 2-day SRT reactors exposed to cyanide.)**

| Cycle | Dunnett's method for multiple comparison with a control<br>Assumption: SD is the same for all series; a pooled SD is determined |                |                |          | Dunnett's t value for $\alpha= 0.05$ :<br>2.88, 3.62 |               |               |
|-------|---|----------------|----------------|----------|--|---------------|---------------|
|       | IC15 - Control  | IC25 - Control | IC50 - Control | Sp*...*t | IC15   | IC25          | IC50          |
| 1     | -0.03   | -0.12          | -0.04          | 0.06     | <b>NORMAL</b>  | - SIGNIFICANT | <b>NORMAL</b> |
| 2     | -0.02   | -0.22          | 0.14           | 0.22     | NORMAL   | NORMAL        | NORMAL        |
| 3     | -0.02   | -0.13          | -0.02          | 0.20     | NORMAL   | NORMAL        | NORMAL        |
| 4     | 0.19  | 0.11           | 0.11           | 0.41     | NORMAL   | <b>NORMAL</b> | NORMAL        |
| 6     | 0.00  | -0.10          | 0.01           | 0.13     | NORMAL   | NORMAL        | NORMAL        |
| 8     | 0.26  | 0.11           | -0.01          | 0.62     | NORMAL   | NORMAL        | NORMAL        |
| 10    | -0.04   | -0.08          | -0.03          | 0.23     | NORMAL   | NORMAL        | NORMAL        |
| 12    | -0.05   | -0.18          | 0.04           | 0.46     | NORMAL   | NORMAL        | NORMAL        |
| 14    | -0.05   | -0.11          | -0.04          | 0.05     | NORMAL   | - SIGNIFICANT | NORMAL        |
| 16    | -0.65   | -0.71          | -0.64          | 0.75     | NORMAL   | NORMAL        | NORMAL        |
| 20    | 0.03  | -0.05          | 0.04           | 0.24     | NORMAL   | NORMAL        | NORMAL        |
| 24    | -0.04   | -0.15          | 0.02           | 0.42     | NORMAL   | NORMAL        | NORMAL        |

**Boldface denotes statistical recovery**

**Table C.13a (corresponds to Figure 4.13: Effluent alkalinity for the 10-day SRT reactors exposed to cyanide.)**

| Cycle | Control               |                     | IC15                  |                     | IC25                  |                     | IC50                  |                     |
|-------|-----------------------|---------------------|-----------------------|---------------------|-----------------------|---------------------|-----------------------|---------------------|
|       | Avg Alk<br>mg/L CaCO3 | StDev<br>mg/L CaCO3 | Avg Alk<br>mg/L CaCO3 | StDev<br>mg/L CaCO3 | Avg Alk<br>mg/L CaCO3 | StDev<br>mg/L CaCO3 | Avg Alk<br>mg/L CaCO3 | StDev<br>mg/L CaCO3 |
| 1     | 253.5                 | 0.65                | 267.7                 | 0.00                | 282.9                 | 3.25                | 344.5                 | 0.65                |
| 2     | 230.5                 | 0.65                | 252.1                 | 1.30                | 272.8                 | 0.65                | 338.6                 | 2.60                |
| 4     | 192.7                 | 1.95                | 194.6                 | 9.76                | 219.9                 | 6.51                | 230.0                 | 6.51                |
| 8     | 148.6                 | 1.95                | 172.5                 | 4.55                | 211.6                 | 6.51                | 204.2                 | 3.90                |
| 12    | 275.5                 | 1.95                | 240.6                 | 0.65                | 280.1                 | 0.65                | 274.2                 | 2.60                |
| 20    | 236.4                 | 2.60                | 216.2                 | 0.00                | 245.2                 | 0.65                | 240.1                 | 5.20                |
| 28    | 170.7                 | 0.65                | 160.1                 | 5.20                | 171.6                 | 4.55                | 187.7                 | 7.81                |
| 36    | 218.0                 | 1.30                | 252.5                 | 0.65                | 235.1                 | 0.65                | 237.4                 | 1.30                |
| 44    | 245.2                 | 3.25                | 212.5                 | 1.30                | 236.4                 | 3.90                | 233.7                 | 2.60                |

**Table C.14a (corresponds to Figure 4.14: Effluent alkalinity for the 2-day SRT reactors exposed to cyanide.)**

| Cycle | Control               |                     | IC15                  |                     | IC25                  |                     | IC50                  |                     |
|-------|-----------------------|---------------------|-----------------------|---------------------|-----------------------|---------------------|-----------------------|---------------------|
|       | Avg Alk<br>mg/L CaCO3 | StDev<br>mg/L CaCO3 | Avg Alk<br>mg/L CaCO3 | StDev<br>mg/L CaCO3 | Avg Alk<br>mg/L CaCO3 | StDev<br>mg/L CaCO3 | Avg Alk<br>mg/L CaCO3 | StDev<br>mg/L CaCO3 |
| 1     | 547.4                 | 1.30                | 540.5                 | 3.25                | 542.8                 | 3.90                | 542.8                 | 6.51                |
| 2     | 506.9                 | 13.01               | 507.2                 | 24.40               | 529.0                 | 0.00                | 476.1                 | 6.51                |
| 4     | 509.5                 | 4.88                | 557.8                 | 8.13                | 544.0                 | 11.38               | 554.3                 | 16.26               |
| 8     | 509.5                 | 11.38               | 499.1                 | 6.51                | 527.9                 | 1.63                | 481.9                 | 1.63                |
| 12    | 521.0                 | 8.13                | 493.4                 | 1.63                | 548.6                 | 4.88                | 476.1                 | 9.76                |
| 16    | 502.3                 | 2.60                | 510.1                 | 0.65                | 506.0                 | 1.30                | 511.1                 | 1.95                |
| 24    | 489.9                 | 0.65                | 499.6                 | 2.60                | 497.7                 | 1.30                | 498.2                 | 1.95                |

**Table C.13b (corresponds to Figure 4.13: Effluent alkalinity for the 10-day SRT reactors exposed to cyanide.)**

| Cycle | Dunnett's method for multiple comparison with a control              |                |                |          | Dunnett's t value for $\alpha= 0.05$ : |               |               |
|-------|--|----------------|----------------|----------|--|---------------|---------------|
|       | Assumption: SD is the same for all series; a pooled SD is determined |                |                |          | 2.88, 3.62                             |               |               |
|       | IC15 - Control   | IC25 - Control | IC50 - Control | Sp*...*t | IC15                                   | IC25          | IC50          |
| 1     | 14.26  | 29.44          | 91.08          | 6.11     | + SIGNIFICANT                          | + SIGNIFICANT | + SIGNIFICANT |
| 2     | 21.62  | 42.32          | 108.10         | 5.52     | + SIGNIFICANT                          | + SIGNIFICANT | + SIGNIFICANT |
| 4     | 1.84   | 27.14          | 37.26          | 24.51    | NORMAL                                 | + SIGNIFICANT | + SIGNIFICANT |
| 8     | 23.92  | 63.02          | 55.66          | 16.39    | + SIGNIFICANT                          | + SIGNIFICANT | + SIGNIFICANT |
| 12    | -34.96   | 4.60           | -1.38          | 6.11     | - SIGNIFICANT                          | NORMAL        | NORMAL        |
| 20    | -20.24   | 8.74           | 3.68           | 10.59    | - SIGNIFICANT                          | NORMAL        | NORMAL        |
| 28    | -10.58   | 0.92           | 17.02          | 18.90    | NORMAL                                 | <b>NORMAL</b> | <b>NORMAL</b> |
| 36    | 34.50  | 17.02          | 19.32          | 3.72     | + SIGNIFICANT                          | + SIGNIFICANT | + SIGNIFICANT |
| 44    | -32.66   | -8.74          | -11.50         | 10.59    | - SIGNIFICANT                          | NORMAL        | - SIGNIFICANT |

**Boldface denotes statistical recovery**

**Table C.14b (corresponds to Figure 4.14: Effluent alkalinity for the 2-day SRT reactors exposed to cyanide.)**

| Cycle | Dunnett's method for multiple comparison with a control              |                |                |          | Dunnett's t value for $\alpha= 0.05$ : |               |               |
|-------|--|----------------|----------------|----------|--|---------------|---------------|
|       | Assumption: SD is the same for all series; a pooled SD is determined |                |                |          | 2.88, 3.62                             |               |               |
|       | IC15 - Control   | IC25 - Control | IC50 - Control | Sp*...*t | IC15                                   | IC25          | IC50          |
| 1     | -6.90  | -4.60          | -4.60          | 15.12    | NORMAL                                 | <b>NORMAL</b> | NORMAL        |
| 2     | 0.23   | 22.08          | -30.82         | 51.38    | NORMAL                                 | NORMAL        | NORMAL        |
| 4     | 48.30  | 34.50          | 44.85          | 39.80    | + SIGNIFICANT                          | NORMAL        | + SIGNIFICANT |
| 8     | -10.35   | 18.40          | -27.60         | 24.08    | NORMAL                                 | NORMAL        | - SIGNIFICANT |
| 12    | -27.60   | 27.60          | -44.85         | 24.79    | - SIGNIFICANT                          | + SIGNIFICANT | - SIGNIFICANT |
| 16    | 7.82   | 3.68           | 8.74           | 6.44     | + SIGNIFICANT                          | NORMAL        | + SIGNIFICANT |
| 24    | 9.66   | 7.82           | 8.28           | 6.44     | + SIGNIFICANT                          | + SIGNIFICANT | + SIGNIFICANT |

**Boldface denotes statistical recovery**



**Table C.15a (corresponds to Figure 4.15: Effluent pH for the 10-day SRT reactors exposed to cyanide.)**

| Cycle | Control |       | IC15   |       | IC25   |       | IC50   |       |
|-------|---------|-------|--------|-------|--------|-------|--------|-------|
|       | Avg pH  | StDev | Avg pH | StDev | Avg pH | StDev | Avg pH | StDev |
| 1     | 8.0     | 0.01  | 8.0    | 0.00  | 8.0    | 0.02  | 8.1    | 0.04  |
| 2     | 7.9     | 0.01  | 7.9    | 0.04  | 8.0    | 0.01  | 8.0    | 0.01  |
| 3     | 7.9     |       | 8.0    |       | 7.9    |       | 7.7    |       |
| 4     | 8.2     | 0.00  | 8.3    | 0.04  | 8.3    | 0.04  | 8.2    | 0.06  |
| 6     | 7.8     |       | 7.9    |       | 7.9    |       | 7.9    |       |
| 8     | 8.0     | 0.01  | 8.1    | 0.01  | 8.1    | 0.02  | 8.0    | 0.03  |
| 10    | 8.0     |       | 8.0    |       | 8.0    |       | 8.1    |       |
| 12    | 8.2     | 0.01  | 8.1    | 0.01  | 8.1    | 0.01  | 8.1    | 0.05  |
| 16    | 8.2     |       | 8.3    |       | 8.4    |       | 8.2    |       |
| 20    | 8.0     | 0.02  | 8.1    | 0.03  | 8.1    | 0.06  | 8.1    | 0.01  |
| 24    | 7.9     |       | 7.9    |       | 7.9    |       | 7.8    |       |
| 28    | 8.2     | 0.02  | 8.1    | 0.00  | 8.2    | 0.01  | 8.2    | 0.03  |
| 32    | 7.9     |       | 8.0    |       | 8.0    |       | 8.0    |       |
| 36    | 8.1     | 0.01  | 8.2    | 0.00  | 8.1    | 0.04  | 8.1    | 0.07  |
| 44    | 8.1     | 0.00  | 8.1    | 0.05  | 8.2    | 0.00  | 8.2    | 0.01  |
| 52    | 7.5     |       | 8.0    |       | 8.2    |       | 8.1    |       |

**Table C.16a (corresponds to Figure 4.16: Effluent pH for the 2-day SRT reactors exposed to cyanide.)**

| Cycle | Control |       | IC15   |       | IC25   |       | IC50   |       |
|-------|---------|-------|--------|-------|--------|-------|--------|-------|
|       | Avg pH  | StDev | Avg pH | StDev | Avg pH | StDev | Avg pH | StDev |
| 1     | 8.1     | 0.04  | 8.2    | 0.01  | 8.1    | 0.01  | 8.2    | 0.01  |
| 2     | 8.3     | 0.04  | 8.4    | 0.04  | 8.3    | 0.01  | 8.4    |       |
| 3     | 7.9     |       | 8.1    |       | 8.1    |       | 8.0    |       |
| 4     | 8.4     | 0.06  | 8.7    | 0.06  | 8.5    | 0.01  | 8.5    | 0.04  |
| 6     | 8.1     |       | 8.2    |       | 8.1    |       | 8.0    |       |
| 8     | 8.4     | 0.01  | 8.4    | 0.00  | 8.4    | 0.01  | 8.4    | 0.01  |
| 10    | 8.1     |       | 8.3    |       | 8.1    |       | 8.2    |       |
| 12    | 8.2     | 0.02  | 8.4    | 0.01  | 8.4    | 0.00  | 8.4    | 0.01  |
| 14    | 8.1     |       | 8.3    |       | 8.2    |       | 8.2    |       |
| 16    | 8.2     | 0.04  | 8.3    | 0.03  | 8.3    | 0.00  | 8.3    | 0.00  |
| 20    | 8.1     |       | 8.3    |       | 8.1    |       | 8.3    |       |
| 24    | 8.3     | 0.00  | 8.3    | 0.01  | 8.3    | 0.03  | 8.3    | 0.01  |

**Table C.15b (corresponds to Figure 4.15: Effluent pH for the 10-day SRT reactors exposed to cyanide.)**

| Cycle | Dunnett's method for multiple comparison with a control<br>Assumption: SD is the same for all series; a pooled SD is determined |                |                |          | Dunnett's t value for $\alpha= 0.05$ :<br>2.88, 3.62 |               |               |
|-------|---|----------------|----------------|----------|--|---------------|---------------|
|       | IC15 - Control  | IC25 - Control | IC50 - Control | Sp*...*t | IC15   | IC25          | IC50          |
| 1     | 0.07  | 0.01           | 0.14           | 0.08953  | <b>NORMAL</b>  | NORMAL        | + SIGNIFICANT |
| 2     | 0.05  | 0.11           | 0.09           | 0.07458  | NORMAL   | + SIGNIFICANT | + SIGNIFICANT |
| 3     |   |                |                |          |  |               |               |
| 4     | 0.05  | 0.04           | 0.01           | 0.13656  | NORMAL   | NORMAL        | NORMAL        |
| 6     |   |                |                |          |  |               |               |
| 8     | 0.13  | 0.04           | 0.02           | 0.07006  | + SIGNIFICANT  | NORMAL        | NORMAL        |
| 10    |   |                |                |          |  |               |               |
| 12    | -0.02   | -0.04          | -0.02          | 0.09741  | NORMAL   | <b>NORMAL</b> | <b>NORMAL</b> |
| 16    |   |                |                |          |  |               |               |
| 20    | 0.04  | 0.07           | 0.04           | 0.12134  | NORMAL   | NORMAL        | NORMAL        |
| 24    |   |                |                |          |  |               |               |
| 28    | -0.09   | -0.01          | -0.06          | 0.06522  | - SIGNIFICANT  | NORMAL        | NORMAL        |
| 32    |   |                |                |          |  |               |               |
| 36    | 0.07  | 0.00           | 0.01           | 0.14527  | NORMAL   | NORMAL        | NORMAL        |
| 44    | 0.05  | 0.14           | 0.06           | 0.09311  | NORMAL   | + SIGNIFICANT | NORMAL        |
| 52    |   |                |                |          |  |               |               |

**Boldface denotes statistical recovery**

**Table C.16b (corresponds to Figure 4.16: Effluent pH for the 2-day SRT reactors exposed to cyanide.)**

| Cycle | Dunnett's method for multiple comparison with a control<br>Assumption: SD is the same for all series; a pooled SD is determined |                |                |          | Dunnett's t value for $\alpha= 0.05$ :<br>2.88, 3.62 |               |               |
|-------|---|----------------|----------------|----------|--|---------------|---------------|
|       | IC15 - Control  | IC25 - Control | IC50 - Control | Sp*...*t | IC15   | IC25          | IC50          |
| 1     | 0.07  | -0.02          | 0.06           | 0.08     | NORMAL   | <b>NORMAL</b> | <b>NORMAL</b> |
| 2     | 0.07  | -0.02          | 0.04           | 0.11     | NORMAL   | NORMAL        | NORMAL        |
| 3     |   |                |                |          |  |               |               |
| 4     | 0.27  | 0.08           | 0.09           | 0.17     | + SIGNIFICANT  | NORMAL        | NORMAL        |
| 6     |   |                |                |          |  |               |               |
| 8     | 0.03  | -0.02          | 0.04           | 0.03     | NORMAL   | NORMAL        | + SIGNIFICANT |
| 10    |   |                |                |          |  |               |               |
| 12    | 0.17  | 0.17           | 0.23           | 0.05     | + SIGNIFICANT  | + SIGNIFICANT | + SIGNIFICANT |
| 14    |   |                |                |          |  |               |               |
| 16    | 0.18  | 0.11           | 0.13           | 0.09     | + SIGNIFICANT  | + SIGNIFICANT | + SIGNIFICANT |
| 20    |   |                |                |          |  |               |               |
| 24    | 0.09  | 0.03           | 0.09           | 0.05     | + SIGNIFICANT  | NORMAL        | + SIGNIFICANT |

**Boldface denotes statistical recovery**

**Table C.17a (corresponds to Figure 4.17: Effluent soluble K+ levels for the 10-day SRT reactors exposed to cyanide measured using AA.)**

| Cycle | Control       |               | IC15          |               | IC25          |               | IC50          |               |
|-------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
|       | Avg K<br>mg/L | StDev<br>mg/L | Avg K<br>mg/L | StDev<br>mg/L | Avg K<br>mg/L | StDev<br>mg/L | Avg K<br>mg/L | StDev<br>mg/L |
| 1     | 13.25         | 0.00          | 2.24          | 0.18          | 0.76          | 0.10          | 0.00          | 0.00          |
| 2     | 17.59         | 0.30          | 12.15         | 0.22          | 2.02          | 0.04          | 0.49          | 0.01          |
| 3     | 21.29         | 0.92          | 16.59         | 0.14          | 9.08          |               | 1.49          | 0.07          |
| 4     | 19.31         |               | 16.51         | 1.43          | 10.52         | 1.24          | 9.07          | 2.16          |
| 6     | 20.49         | 0.41          | 19.80         | 3.75          | 13.00         | 3.49          | 11.11         | 2.61          |
| 8     | 25.28         | 3.65          | 20.03         | 6.93          | 15.34         | 5.76          | 17.44         | 1.76          |
| 10    | 25.38         | 0.02          | 28.85         | 0.20          | 19.36         | 0.00          | 20.20         | 0.06          |
| 12    | 15.58         | 2.66          | 26.04         | 0.83          | 15.71         | 2.30          | 20.63         | 8.74          |
| 16    | 5.65          | 0.72          | 13.07         | 0.75          | 6.62          | 0.22          | 6.40          | 0.72          |
| 20    | 12.93         | 1.91          | 19.14         | 3.02          | 15.22         | 3.02          | 16.09         | 0.71          |
| 24    | 16.28         | 3.56          | 24.21         | 3.12          | 17.79         | 0.69          | 19.60         | 3.38          |
| 28    | 17.09         | 4.08          | 28.68         | 2.02          | 16.33         | 0.53          | 20.47         |               |
| 32    | 12.12         | 2.43          | 16.21         | 0.01          | 16.70         | 0.86          | 17.48         | 3.11          |
| 36    | 15.87         | 3.92          | 8.67          | 1.82          | 12.71         | 2.06          | 13.40         | 2.68          |
| 44    | 6.91          | 0.91          | 13.80         | 1.40          | 9.83          | 1.05          | 10.05         | 0.57          |
| 52    | 16.67         | 0.67          | 22.26         | 0.36          | 18.32         | 1.69          | 19.36         | 0.30          |

**Table C.18a (corresponds to Figure 4.18: Effluent soluble K+ levels for the 2-day SRT reactors exposed to cyanide measured using AA.)**

| Cycle | Control       |               | IC15          |               | IC25          |               | IC50          |               |
|-------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
|       | Avg K<br>mg/L | StDev<br>mg/L | Avg K<br>mg/L | StDev<br>mg/L | Avg K<br>mg/L | StDev<br>mg/L | Avg K<br>mg/L | StDev<br>mg/L |
| 1     | 24.90         | 0.71          | 20.25         | 0.01          | 19.85         | 0.04          | 23.57         | 0.04          |
| 2     | 18.37         | 0.04          | 21.81         | 0.04          | 24.00         | 0.06          | 23.12         | 0.08          |
| 3     | 22.27         | 0.04          | 22.34         | 0.08          | 17.02         | 0.00          | 21.98         | 0.03          |
| 4     | 19.73         | 0.01          | 24.33         | 0.01          | 22.77         | 0.24          | 21.32         | 0.08          |
| 6     | 21.11         | 0.01          | 22.74         | 0.00          | 20.58         | 0.03          | 23.61         | 0.04          |
| 8     | 23.31         | 0.01          | 20.13         | 0.04          | 23.18         | 0.00          | 20.80         | 0.11          |
| 10    | 21.67         | 0.01          | 21.39         | 0.97          | 24.52         | 0.17          | 24.78         | 0.00          |
| 12    | 26.27         | 0.18          | 29.10         | 0.06          | 25.08         | 0.08          | 26.03         | 0.04          |
| 14    | 22.50         | 0.17          | 23.25         | 0.24          | 23.64         | 0.11          | 23.11         | 0.04          |
| 16    | 22.58         | 0.00          | 23.18         | 0.14          | 21.37         | 0.97          | 23.36         | 0.06          |
| 20    | 22.14         | 0.03          | 23.89         | 0.04          | 19.26         | 0.14          | 21.97         | 0.01          |
| 24    | 24.45         | 0.04          | 25.13         | 0.10          | 25.68         | 0.17          | 23.60         | 0.17          |

**Table C.17b (corresponds to Figure 4.17: Effluent soluble K+ levels for the 10-day SRT reactors exposed to cyanide.)**

| Cycle | Dunnett's method for multiple comparison with a control              |                |                |          | Dunnett's t value for $\alpha= 0.05$ : |               |               |
|-------|--|----------------|----------------|----------|--|---------------|---------------|
|       | Assumption: SD is the same for all series; a pooled SD is determined |                |                |          | 2.88, 3.62                             |               |               |
|       | IC15 - Control   | IC25 - Control | IC50 - Control | Sp*...*t | IC15                                   | IC25          | IC50          |
| 1     | -1.75  | -0.89          | 0.25           | 1.54     | - SIGNIFICANT                          | - SIGNIFICANT | + SIGNIFICANT |
| 2     | -1.24  | -0.23          | -3.62          | 0.44     | NORMAL                                 | NORMAL        | - SIGNIFICANT |
| 3     | 1.42   | 0.68           | 0.16           | 0.55     | + SIGNIFICANT                          | + SIGNIFICANT | + SIGNIFICANT |
| 4     | -0.21  | 0.87           | 0.09           | 1.16     | - SIGNIFICANT                          | + SIGNIFICANT | + SIGNIFICANT |
| 6     | 0.74   | -0.58          | 1.95           | 0.72     | + SIGNIFICANT                          | - SIGNIFICANT | + SIGNIFICANT |
| 8     | -0.56  | -0.40          | -1.31          | 0.37     | - SIGNIFICANT                          | - SIGNIFICANT | - SIGNIFICANT |
| 10    | 0.80   | 1.19           | -0.69          | 0.71     | + SIGNIFICANT                          | + SIGNIFICANT | - SIGNIFICANT |
| 12    | 0.80   | 1.17           | 1.19           | 0.20     | + SIGNIFICANT                          | + SIGNIFICANT | + SIGNIFICANT |
| 16    | 0.45   | 0.97           | 0.55           | 0.45     | + SIGNIFICANT                          | + SIGNIFICANT | + SIGNIFICANT |
| 20    | 0.53   | 0.88           | 1.45           | 1.60     | + SIGNIFICANT                          | + SIGNIFICANT | + SIGNIFICANT |
| 24    | 0.90   | 2.82           | 0.88           | 0.37     | + SIGNIFICANT                          | + SIGNIFICANT | + SIGNIFICANT |
| 28    | 0.22   | 1.98           | 2.10           | 0.22     | + SIGNIFICANT                          | + SIGNIFICANT | + SIGNIFICANT |
| 32    | 1.05   | 0.64           | 0.49           | 0.32     | + SIGNIFICANT                          | + SIGNIFICANT | + SIGNIFICANT |
| 36    | -0.41  | -0.43          | -0.61          | 0.19     | - SIGNIFICANT                          | - SIGNIFICANT | - SIGNIFICANT |
| 44    | -0.76  | -0.88          | -0.36          | 0.16     | - SIGNIFICANT                          | - SIGNIFICANT | - SIGNIFICANT |
| 52    | -1.47  | -2.11          | -1.47          | 1.03     | - SIGNIFICANT                          | - SIGNIFICANT | - SIGNIFICANT |

**Boldface denotes statistical recovery**

**Table C.18a (corresponds to Figure 4.18: Effluent soluble K+ levels for the 2-day SRT reactors exposed to cyanide.)**

| Cycle | Dunnett's method for multiple comparison with a control              |                |                |          | Dunnett's t value for $\alpha= 0.05$ : |               |               |
|-------|--|----------------|----------------|----------|--|---------------|---------------|
|       | Assumption: SD is the same for all series; a pooled SD is determined |                |                |          | 2.88, 3.62                             |               |               |
|       | IC15 - Control   | IC25 - Control | IC50 - Control | Sp*...*t | IC15                                   | IC25          | IC50          |
| 1     | -4.65  | -5.05          | -1.33          | 1.28     | - SIGNIFICANT                          | - SIGNIFICANT | - SIGNIFICANT |
| 2     | 3.44   | 5.63           | 4.75           | 0.21     | + SIGNIFICANT                          | + SIGNIFICANT | + SIGNIFICANT |
| 3     | 0.07   | -5.25          | -0.29          | 0.18     | NORMAL                                 | - SIGNIFICANT | - SIGNIFICANT |
| 4     | 4.60   | 3.04           | 1.59           | 0.46     | + SIGNIFICANT                          | + SIGNIFICANT | + SIGNIFICANT |
| 6     | 1.63   | -0.53          | 2.50           | 0.10     | + SIGNIFICANT                          | - SIGNIFICANT | + SIGNIFICANT |
| 8     | -3.18  | -0.13          | -2.52          | 0.21     | - SIGNIFICANT                          | NORMAL        | - SIGNIFICANT |
| 10    | -0.28  | 2.85           | 3.11           | 1.79     | NORMAL                                 | + SIGNIFICANT | + SIGNIFICANT |
| 12    | 2.83   | -1.19          | -0.24          | 0.39     | + SIGNIFICANT                          | - SIGNIFICANT | NORMAL        |
| 14    | 0.75   | 1.14           | 0.61           | 0.58     | + SIGNIFICANT                          | + SIGNIFICANT | + SIGNIFICANT |
| 16    | 0.60   | -1.21          | 0.78           | 1.78     | NORMAL                                 | NORMAL        | NORMAL        |
| 20    | 1.75   | -2.88          | -0.17          | 0.27     | + SIGNIFICANT                          | - SIGNIFICANT | NORMAL        |
| 24    | 0.68   | 1.23           | -0.85          | 0.48     | + SIGNIFICANT                          | + SIGNIFICANT | - SIGNIFICANT |

**Boldface denotes statistical recovery**

**Table C.19 (corresponds to Figure 4.19: SVI values for the 10-day SRT reactors exposed to cyanide.)**

| Cycle | Control | IC15 | IC25 | IC50  |
|-------|---------|------|------|-------|
|       | SVI     | SVI  | SVI  | SVI   |
| 2     | 64.0    | 70.0 | 67.8 | 106.1 |
| 5     | 65.3    | 72.9 | 67.0 | 71.7  |
| 9     | 60.9    | 60.7 | 65.4 | 72.8  |
| 13    | 64.2    | 65.3 | 66.7 | 72.3  |
| 17    | 73.5    | 70.2 | 71.9 | 67.4  |
| 21    | 65.4    | 62.7 | 61.5 | 66.9  |
| 25    | 62.9    | 66.9 | 62.4 | 71.5  |
| 29    | 71.5    | 73.1 | 66.5 | 69.3  |
| 33    | 69.2    | 76.6 | 72.0 | 71.5  |
| 37    | 68.0    | 65.4 | 63.6 | 67.4  |
| 45    | 67.2    | 66.2 | 62.1 | 66.5  |
| 53    | 70.4    | 70.6 | 65.5 | 67.0  |

**Table C.20 (corresponds to Figure 4.20: SVI values for the 2-day SRT reactors exposed to cyanide.)**

| Cycle | Control | IC15  | IC25  | IC50  |
|-------|---------|-------|-------|-------|
|       | SVI     | SVI   | SVI   | SVI   |
| 2     | 43.1    | 43.5  | 44.1  | 40.1  |
| 5     | 55.7    | 48.6  | 48.6  | 44.9  |
| 9     | 63.8    | 63.0  | 63.0  | 60.5  |
| 13    | 67.8    | 65.5  | 56.9  | 69.1  |
| 17    | 93.3    | 98.9  | 93.3  | 105.3 |
| 21    | 86.5    | 105.2 | 90.6  | 118.2 |
| 25    | 105.2   | 151.9 | 130.8 | 167.5 |

**Table C.21a (corresponds to Figure 4.21: MLSS concentration in the 10-day SRT reactors exposed to cyanide.)**

| Cycle | Control          |               | IC15             |               | IC25             |               | IC50             |               |
|-------|------------------|---------------|------------------|---------------|------------------|---------------|------------------|---------------|
|       | Avg MLSS<br>mg/L | StDev<br>mg/L | Avg MLSS<br>mg/L | StDev<br>mg/L | Avg MLSS<br>mg/L | StDev<br>mg/L | Avg MLSS<br>mg/L | StDev<br>mg/L |
| 2     | 5127             | 175           | 5260             | 17            | 5307             | 74            | 5505             | 247           |
| 5     | 5147             | 438           | 5487             | 45            | 5493             | 64            | 5800             | 42            |
| 9     | 4467             | 84            | 4610             | 193           | 4650             | 26            | 4615             | 35            |
| 13    | 4363             | 93            | 4413             | 47            | 4557             | 6             | 4535             | 49            |
| 17    | 4027             | 111           | 4100             | 62            | 4230             | 44            | 4270             | 28            |
| 21    | 3790             | 66            | 3953             | 25            | 4033             | 35            | 4185             | 49            |
| 25    | 3687             | 90            | 3470             | 165           | 3590             | 10            | 3690             | 42            |
| 29    | 3470             | 40            | 3283             | 42            | 3487             | 51            | 3580             | 42            |
| 33    | 3583             | 312           | 3237             | 50            | 3333             | 35            | 3470             | 85            |
| 37    | 3413             | 35            | 3547             | 15            | 3647             | 35            | 3560             | 42            |
| 45    | 3333             | 86            | 3263             | 38            | 3350             | 70            | 3370             | 57            |
| 53    | 3183             | 35            | 2947             | 70            | 3173             | 100           | 3105             | 21            |

**Table C.21b (corresponds to Figure 4.21: MLSS concentration in the 10-day SRT reactors exposed to cyanide.)**

| Cycle | Dunnett's method for multiple comparison with a control              |                |                |          | Dunnett's t value for $\alpha= 0.05$ : |               |               |
|-------|--|----------------|----------------|----------|--|---------------|---------------|
|       | Assumption: SD is the same for all series; a pooled SD is determined |                |                |          | 2.88, 3.62                             |               |               |
|       | IC15 - Control   | IC25 - Control | IC50 - Control | Sp*...*t | IC15                                   | IC25          | IC50          |
| 2     | 133.33   | 180.00         | 378.33         | 351.28   | <b>NORMAL</b>                          | <b>NORMAL</b> | + SIGNIFICANT |
| 5     | 340.00   | 346.67         | 653.33         | 503.06   | NORMAL                                 | NORMAL        | + SIGNIFICANT |
| 9     | 143.33   | 183.33         | 148.33         | 241.88   | NORMAL                                 | NORMAL        | NORMAL        |
| 13    | 50.00  | 193.33         | 171.67         | 129.91   | NORMAL                                 | + SIGNIFICANT | + SIGNIFICANT |
| 17    | 73.33  | 203.33         | 243.33         | 154.30   | NORMAL                                 | + SIGNIFICANT | + SIGNIFICANT |
| 21    | 163.33   | 243.33         | 395.00         | 104.37   | + SIGNIFICANT                          | + SIGNIFICANT | + SIGNIFICANT |
| 25    | -216.67  | -96.67         | 3.33           | 216.95   | NORMAL                                 | NORMAL        | NORMAL        |
| 29    | -186.67  | 16.67          | 110.00         | 99.08    | - SIGNIFICANT                          | NORMAL        | + SIGNIFICANT |
| 33    | -346.67  | -250.00        | -113.33        | 370.17   | NORMAL                                 | NORMAL        | NORMAL        |
| 37    | 133.33   | 233.33         | 146.67         | 75.42    | + SIGNIFICANT                          | + SIGNIFICANT | + SIGNIFICANT |
| 45    | -70.00   | 16.67          | 36.67          | 146.45   | NORMAL                                 | NORMAL        | NORMAL        |
| 53    | -236.67  | -10.00         | -78.33         | 145.08   | - SIGNIFICANT                          | NORMAL        | NORMAL        |

**Boldface denotes statistical recovery**

**Table C.22a (corresponds to Figure 4.22: MLSS concentration in the 2-day SRT reactors exposed to cyanide.)**

| Cycle | Control          |               | IC15             |               | IC25             |               | IC50             |               |
|-------|------------------|---------------|------------------|---------------|------------------|---------------|------------------|---------------|
|       | Avg MLSS<br>mg/L | StDev<br>mg/L | Avg MLSS<br>mg/L | StDev<br>mg/L | Avg MLSS<br>mg/L | StDev<br>mg/L | Avg MLSS<br>mg/L | StDev<br>mg/L |
| 2     | 1483             | 29            | 1470             | 10            | 1450             | 20            | 1595             | 191           |
| 5     | 1150             | 10            | 1153             | 23            | 1153             | 55            | 1070             | 14            |
| 9     | 1003             | 21            | 1017             | 25            | 1017             | 57            | 925              | 7             |
| 13    | 943              | 12            | 977              | 6             | 983              | 32            | 810              | 14            |
| 17    | 943              | 23            | 890              | 36            | 900              | 26            | 760              | 42            |
| 21    | 1157             | 38            | 1027             | 12            | 1060             | 20            | 880              | 42            |
| 25    | 1217             | 15            | 1053             | 35            | 1040             | 0             | 955              | 7             |

**Table C.23a (corresponds to Figure 4.23: MLVSS concentration in the 10-day SRT reactors exposed to cyanide.)**

| Cycle | Control           |               | IC15              |               | IC25              |               | IC50              |               |
|-------|-------------------|---------------|-------------------|---------------|-------------------|---------------|-------------------|---------------|
|       | Avg MLVSS<br>mg/L | StDev<br>mg/L | Avg MLVSS<br>mg/L | StDev<br>mg/L | Avg MLVSS<br>mg/L | StDev<br>mg/L | Avg MLVSS<br>mg/L | StDev<br>mg/L |
| 2     | 3370              | 145           | 3457              | 35            | 3477              | 40            | 3615              | 179           |
| 5     | 3327              | 264           | 3517              | 51            | 3493              | 40            | 3700              | 20            |
| 9     | 2863              | 64            | 3010              | 209           | 2990              | 44            | 2970              | 23            |
| 13    | 2900              | 56            | 2953              | 107           | 2987              | 15            | 2990              | 38            |
| 17    | 2707              | 68            | 2697              | 42            | 2780              | 26            | 2765              | 40            |
| 21    | 2473              | 42            | 2567              | 15            | 2627              | 49            | 2750              | 21            |
| 25    | 2353              | 15            | 2227              | 162           | 2337              | 25            | 2400              | 31            |
| 29    | 2327              | 47            | 2190              | 20            | 2313              | 31            | 2375              | 17            |
| 33    | 2400              | 289           | 2120              | 56            | 2207              | 15            | 2265              | 50            |
| 37    | 2267              | 23            | 2337              | 12            | 2390              | 10            | 2335              | 46            |
| 45    | 2230              | 66            | 2203              | 25            | 2267              | 40            | 2260              | 26            |
| 53    | 2127              | 86            | 2007              | 32            | 2120              | 75            | 2075              | 72            |

**Table C.24a (corresponds to Figure 4.24: MLVSS concentration in the 2-day SRT reactors exposed to cyanide.)**

| Cycle | Control          |               | IC15             |               | IC25             |               | IC50             |               |
|-------|------------------|---------------|------------------|---------------|------------------|---------------|------------------|---------------|
|       | Avg MLSS<br>mg/L | StDev<br>mg/L | Avg MLSS<br>mg/L | StDev<br>mg/L | Avg MLSS<br>mg/L | StDev<br>mg/L | Avg MLSS<br>mg/L | StDev<br>mg/L |
| 2     | 960              | 10            | 957              | 6             | 943              | 25            | 1095             | 159           |
| 5     | 800              | 26            | 813              | 12            | 823              | 51            | 755              | 25            |
| 9     | 763              | 15            | 723              | 25            | 760              | 53            | 685              | 40            |
| 13    | 660              | 26            | 703              | 25            | 690              | 30            | 565              | 10            |
| 17    | 747              | 6             | 720              | 30            | 723              | 25            | 600              | 32            |
| 21    | 767              | 12            | 690              | 0             | 727              | 12            | 570              | 21            |
| 25    | 850              | 17            | 747              | 25            | 737              | 6             | 670              | 12            |

**Table C.22b (corresponds to Figure 4.22: MLSS concentration in the 2-day SRT reactors exposed to cyanide.)**

| Cycle | Dunnett's method for multiple comparison with a control              |                |                |          | Dunnett's t value for $\alpha= 0.05$ |               |               |
|-------|--|----------------|----------------|----------|--------------------------------------|---------------|---------------|
|       | Assumption: SD is the same for all series; a pooled SD is determined |                |                |          | 2.754                                | 2.938         |               |
|       | IC15 - Control   | IC25 - Control | IC50 - Control | Sp*...*t | IC15                                 | IC25          | IC50          |
| 2     | -13.33   | -33.33         | 111.67         | 218.54   | <b>NORMAL</b>                        | <b>NORMAL</b> | NORMAL        |
| 5     | 3.33   | 3.33           | -80.00         | 69.91    | NORMAL                               | NORMAL        | - SIGNIFICANT |
| 9     | 13.33  | 13.33          | -78.33         | 74.15    | NORMAL                               | NORMAL        | - SIGNIFICANT |
| 13    | 33.33  | 40.00          | -133.33        | 42.07    | NORMAL                               | NORMAL        | - SIGNIFICANT |
| 17    | -53.33   | -43.33         | -183.33        | 74.01    | NORMAL                               | NORMAL        | - SIGNIFICANT |
| 21    | -130.00  | -96.67         | -276.67        | 69.00    | - SIGNIFICANT                        | - SIGNIFICANT | - SIGNIFICANT |
| 25    | -163.33  | -176.67        | -261.67        | 43.79    | - SIGNIFICANT                        | - SIGNIFICANT | - SIGNIFICANT |

**Boldface denotes statistical recovery**

**Table C.23b (corresponds to Figure 4.23: MLVSS concentration in the 10-day SRT reactors exposed to cyanide.)**

| Cycle | Dunnett's method for multiple comparison with a control              |                |                |          | Dunnett's t value for $\alpha= 0.05$ |               |               |
|-------|--|----------------|----------------|----------|--------------------------------------|---------------|---------------|
|       | Assumption: SD is the same for all series; a pooled SD is determined |                |                |          | 2.754                                | 2.938         |               |
|       | IC15 - Control   | IC25 - Control | IC50 - Control | Sp*...*t | IC15                                 | IC25          | IC50          |
| 2     | 86.67  | 106.67         | 245.00         | 266.06   | <b>NORMAL</b>                        | <b>NORMAL</b> | NORMAL        |
| 5     | 190.00   | 166.67         | 373.33         | 306.67   | NORMAL                               | NORMAL        | + SIGNIFICANT |
| 9     | 146.67   | 126.67         | 106.67         | 251.57   | NORMAL                               | NORMAL        | NORMAL        |
| 13    | 53.33  | 86.67          | 90.00          | 143.10   | NORMAL                               | NORMAL        | NORMAL        |
| 17    | -10.00   | 73.33          | 58.33          | 104.87   | NORMAL                               | NORMAL        | <b>NORMAL</b> |
| 21    | 93.33  | 153.33         | 276.67         | 78.16    | + SIGNIFICANT                        | + SIGNIFICANT | + SIGNIFICANT |
| 25    | -126.67  | -16.67         | 46.67          | 187.91   | NORMAL                               | NORMAL        | NORMAL        |
| 29    | -136.67  | -13.33         | 48.33          | 69.91    | - SIGNIFICANT                        | NORMAL        | NORMAL        |
| 33    | -280.00  | -193.33        | -135.00        | 336.42   | NORMAL                               | NORMAL        | NORMAL        |
| 37    | 70.00  | 123.33         | 68.33          | 60.20    | + SIGNIFICANT                        | + SIGNIFICANT | + SIGNIFICANT |
| 45    | -26.67   | 36.67          | 30.00          | 95.84    | NORMAL                               | NORMAL        | NORMAL        |
| 53    | -120.00  | -6.67          | -51.67         | 156.60   | NORMAL                               | NORMAL        | NORMAL        |

**Boldface denotes statistical recovery**

**Table C.24b (corresponds to Figure 4.24: MLVSS concentration in the 2-day SRT reactors exposed to cyanide.)**

| Cycle | Dunnett's method for multiple comparison with a control              |                |                |          | Dunnett's t value for $\alpha= 0.05$ |               |               |
|-------|--|----------------|----------------|----------|--------------------------------------|---------------|---------------|
|       | Assumption: SD is the same for all series; a pooled SD is determined |                |                |          | 2.754                                | 2.938         |               |
|       | IC15 - Control   | IC25 - Control | IC50 - Control | Sp*...*t | IC15                                 | IC25          | IC50          |
| 2     | -3.33  | -16.67         | 135.00         | 181.29   | <b>NORMAL</b>                        | <b>NORMAL</b> | <b>NORMAL</b> |
| 5     | 13.33  | 23.33          | -45.00         | 71.99    | NORMAL                               | NORMAL        | NORMAL        |
| 9     | -40.00   | -3.33          | -78.33         | 81.85    | NORMAL                               | NORMAL        | NORMAL        |
| 13    | 43.33  | 30.00          | -95.00         | 54.31    | NORMAL                               | NORMAL        | - SIGNIFICANT |
| 17    | -26.67   | -23.33         | -146.67        | 57.33    | NORMAL                               | NORMAL        | - SIGNIFICANT |
| 21    | -76.67   | -40.00         | -196.67        | 29.75    | - SIGNIFICANT                        | - SIGNIFICANT | - SIGNIFICANT |
| 25    | -103.33  | -113.33        | -180.00        | 37.29    | - SIGNIFICANT                        | - SIGNIFICANT | - SIGNIFICANT |

**Boldface denotes statistical recovery**



**Table C.25a (corresponds to Figure 4.25: SOUR in the 10 day SRT reactors exposed to cyanide.)**

| Cycle | Control                                   |       | IC15                                      |       | IC25                                      |       | IC50                                      |       |
|-------|---|-------|---|-------|---|-------|---|-------|
|       | Avg SOUR<br>mg O <sub>2</sub> /g-MLVSS-hr | StDev | Avg SOUR<br>mg O <sub>2</sub> /g-MLVSS-hr | StDev | Avg SOUR<br>mg O <sub>2</sub> /g-MLVSS-hr | StDev | Avg SOUR<br>mg O <sub>2</sub> /g-MLVSS-hr | StDev |
| 2     | 19.50                                     | 7.65  | 13.03                                     | 0.43  | 6.65                                      | 0.50  | 14.93                                     | 1.05  |
| 5     | 28.55                                     | 2.90  | 26.15                                     | 4.00  | 20.01                                     | 0.54  | 12.60                                     | 6.25  |
| 9     | 30.32                                     | 4.32  | 34.34                                     | 2.36  | 29.66                                     | 2.93  | 21.82                                     | 10.15 |
| 13    | 48.11                                     | 6.07  | 46.60                                     | 4.09  | 43.36                                     | 3.41  | 37.74                                     | 2.36  |
| 21    | 58.20                                     | 10.30 | 49.57                                     | 8.92  | 44.09                                     | 9.28  | 39.05                                     | 4.48  |
| 29    | 51.86                                     | 1.44  | 57.00                                     | 5.91  | 54.92                                     | 5.01  | 48.85                                     | 3.99  |
| 37    | 53.09                                     | 14.31 | 67.74                                     | 2.79  | 69.16                                     | 8.98  | 55.22                                     | 9.19  |
| 53    | 57.34                                     | 2.09  | 72.62                                     | 0.04  | 66.91                                     | 1.71  | 67.78                                     | 1.16  |

Associated average MLVSS measurements found in Table C.23b

**Table C.26a (corresponds to Figure 4.26: SOUR in the 2 day SRT reactors exposed to cyanide.)**

| Cycle | Control                                   |       | IC15                                      |       | IC25                                      |       | IC50                                      |       |
|-------|---|-------|---|-------|---|-------|---|-------|
|       | Avg SOUR<br>mg O <sub>2</sub> /g-MLVSS-hr | StDev | Avg SOUR<br>mg O <sub>2</sub> /g-MLVSS-hr | StDev | Avg SOUR<br>mg O <sub>2</sub> /g-MLVSS-hr | StDev | Avg SOUR<br>mg O <sub>2</sub> /g-MLVSS-hr | StDev |
| 2     | 51.87                                     | 0.12  | 60.46                                     | 1.62  | 55.27                                     | 2.31  | 9.18                                      | 1.44  |
| 5     | 69.02                                     | 4.83  | 74.41                                     | 8.02  | 72.27                                     | 7.92  | 43.26                                     | 2.38  |
| 9     | 94.78                                     | 9.29  | 88.72                                     | 20.12 | 100.04                                    | 7.85  | 83.28                                     | 8.16  |
| 13    | 110.88                                    | 3.30  | 97.23                                     | 0.23  | 103.75                                    | 4.58  | 95.44                                     | 7.45  |
| 17    | 101.56                                    | 5.43  | 27.11                                     | 6.10  | 22.83                                     | 6.14  | 21.86                                     | 8.02  |
| 25    | 106.16                                    | 5.92  | 88.93                                     | 8.22  | 118.50                                    | 11.35 | 108.44                                    | 8.82  |

Associated average MLVSS measurements found in Table C.24b

**Table C.27 (corresponds to Figure 4.27: Nitrate generation rate for the 10-day SRT reactors exposed to cyanide.)**

| Cycle | Control                                    | IC15                                     | IC25                                       | IC50                                       |
|-------|--|--|--|--|
|       | NGR 1<br>(mg N-NO <sub>3</sub> -/g VSS.hr) | NGR<br>(mg N-NO <sub>3</sub> -/g VSS.hr) | NGR 1<br>(mg N-NO <sub>3</sub> -/g VSS.hr) | NGR 1<br>(mg N-NO <sub>3</sub> -/g VSS.hr) |
| 2     | 4.10                                       | 0.96                                     | 0.08                                       | -0.07                                      |
| 5     | 0.49                                       | -0.49                                    | 0.05                                       | -0.29                                      |
| 9     | 2.73                                       | 2.20                                     | 1.90                                       | 1.56                                       |
| 13    | 2.65                                       | 2.73                                     | 2.25                                       | 0.27                                       |
| 21    | 2.19                                       | 1.29                                     | 1.65                                       | 0.76                                       |
| 29    | 1.27                                       | 0.97                                     | 0.78                                       | 1.59                                       |
| 37    | 1.52                                       | 1.98                                     | 1.56                                       | 1.24                                       |
| 53    | 1.16                                       | 2.04                                     | 1.50                                       | 1.80                                       |

Associated average MLVSS measurements found in Table C.23b

**Table C.25b (corresponds to Figure 4.25: SOUR in the 10 day SRT reactors exposed to cyanide.)**

| Cycle | Dunnett's method for multiple comparison with a control              |                |                |          | Dunnett's t value for $\alpha= 0.05$ |               |               |
|-------|--|----------------|----------------|----------|--------------------------------------|---------------|---------------|
|       | Assumption: SD is the same for all series; a pooled SD is determined |                |                |          | 3.61765                              |               |               |
|       | IC15 - Control   | IC25 - Control | IC50 - Control | Sp*...*t | IC15                                 | IC25          | IC50          |
| 2     | -6.47  | -12.85         | -4.57          | 14.01    | <b>NORMAL</b>                        | <b>NORMAL</b> | NORMAL        |
| 5     | -2.40  | -8.54          | -15.95         | 14.45    | NORMAL                               | NORMAL        | - SIGNIFICANT |
| 9     | 4.03   | -0.66          | -8.50          | 21.07    | NORMAL                               | NORMAL        | NORMAL        |
| 13    | -1.52  | -4.76          | -10.37         | 15.22    | NORMAL                               | NORMAL        | NORMAL        |
| 21    | -8.62  | -14.11         | -19.14         | 30.91    | NORMAL                               | NORMAL        | <b>NORMAL</b> |
| 29    | 5.13   | 3.06           | -3.02          | 15.98    | NORMAL                               | NORMAL        | NORMAL        |
| 37    | 14.66  | 16.07          | 2.13           | 35.14    | NORMAL                               | NORMAL        | NORMAL        |
| 53    | 15.27  | 9.57           | 10.44          | 5.32     | + SIGNIFICANT                        | + SIGNIFICANT | + SIGNIFICANT |

**Boldface denotes statistical recovery**

**Table C.26b (corresponds to Figure 4.26: SOUR in the 2 day SRT reactors exposed to cyanide.)**

| Cycle | Dunnett's method for multiple comparison with a control              |                |                |          | Dunnett's t value for $\alpha= 0.05$ |               |               |
|-------|--|----------------|----------------|----------|--------------------------------------|---------------|---------------|
|       | Assumption: SD is the same for all series; a pooled SD is determined |                |                |          | 3.61765                              |               |               |
|       | IC15 - Control   | IC25 - Control | IC50 - Control | Sp*...*t | IC15                                 | IC25          | IC50          |
| 2     | 8.59   | 3.40           | -42.69         | 5.74     | + SIGNIFICANT                        | <b>NORMAL</b> | - SIGNIFICANT |
| 5     | 5.39   | 3.25           | -25.75         | 22.59    | NORMAL                               | NORMAL        | - SIGNIFICANT |
| 9     | -6.06  | 5.26           | -11.50         | 45.01    | NORMAL                               | NORMAL        | NORMAL        |
| 13    | -13.65   | -7.13          | -15.44         | 16.91    | <b>NORMAL</b>                        | NORMAL        | NORMAL        |
| 17    | -74.45   | -78.73         | -79.70         | 23.50    | - SIGNIFICANT                        | - SIGNIFICANT | - SIGNIFICANT |
| 25    | -17.23   | 12.34          | 2.28           | 31.80    | NORMAL                               | NORMAL        | NORMAL        |

**Boldface denotes statistical recovery**

**Table C.28 K+/MLVSS ratio for 10-day Control reactor**

| Cycle   | Control<br>K+/MLVSS | IC15<br>K+/MLVSS | IC25<br>K+/MLVSS | IC50<br>K+/MLVSS |
|---------|---------------------|------------------|------------------|------------------|
| 1       | 0.0129              | 0.0121           | 0.0122           | 0.0121           |
| 2       | 0.0126              | 0.0115           | 0.0119           | 0.0104           |
| 3       | 0.0120              | 0.0117           | 0.0116           | 0.0108           |
| 4       | 0.0119              | 0.0112           | 0.0116           | 0.0107           |
| 6       | 0.0134              | 0.0130           | 0.0127           | 0.0136           |
| 8       | 0.0133              | 0.0125           | 0.0126           | 0.0124           |
| 10      | 0.0128              | 0.0128           | 0.0128           | 0.0122           |
| 12      | 0.0126              | 0.0127           | 0.0126           | 0.0126           |
| 16      | 0.0133              | 0.0135           | 0.0133           | 0.0132           |
| 20      | 0.0139              | 0.0137           | 0.0134           | 0.0131           |
| 24      | 0.0136              | 0.0148           | 0.0149           | 0.0137           |
| 28      | 0.0141              | 0.0151           | 0.0151           | 0.0147           |
| 32      | 0.0131              | 0.0153           | 0.0146           | 0.0142           |
| 36      | 0.0144              | 0.0138           | 0.0134           | 0.0137           |
| 44      | 0.0146              | 0.0145           | 0.0140           | 0.0143           |
| 52      | 0.0174              | 0.0177           | 0.0165           | 0.0171           |
| average | 0.0135              | 0.0135           | 0.0133           | 0.0130           |
| stdev   | 0.0013              | 0.0017           | 0.0014           | 0.0017           |

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