# APPENDIX 2

# HISTORICAL SOURCES
# GEORGIA-PACIFIC DATA

**TABLE A2-1. RIVER DO MEASURED BY GEORGIA-PACIFIC, JULY 1987**
**OUACHITA RIVER NEAR CROSSETT, ARKANSAS**

| ORM | 02-Jul-87 | | 09-Jul-87 | | 16-Jul-87 | | 23-Jul-87 | | 30-Jul-87 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | DO (mg/L) | TEMP (°C) | DO (mg/L) | TEMP (°C) | DO (mg/L) | TEMP (°C) | DO (mg/L) | TEMP (°C) | DO (mg/L) | TEMP (°C) |
| 227.9 | 4.5 | 29.5 | 5.1 | 30.0 | 5.5 | 30.0 | 5.4 | 30.0 | 5.8 | 31.0 |
| 224 | 4.6 | 29.0 | 5.1 | 30.0 | 5.2 | 30.0 | 5.1 | 30.0 | 5.3 | 31.0 |
| 218.7 | 4.3 | 29.0 | 4.1 | 29.0 | 5 | 30.0 | 4.9 | 30.0 | 4.9 | 31.0 |
| 213.5 | 4.0 | 29.5 | 4.2 | 29.0 | 4.9 | 30.0 | 4.7 | 30.0 | 5 | 31.0 |
| 208.8 | 3.9 | 29.0 | 4.1 | 29.0 | 4.4 | 30.0 | 4.6 | 30.0 | 4.6 | 31.0 |
| 203 | 3.5 | 29.0 | 4.4 | 29.0 | 4.2 | 30.0 | 4.6 | 30.0 | 5 | 31.0 |
| 198 | 3.7 | 29.0 | 4.2 | 29.0 | 4.2 | 30.0 | 3.8 | 30.0 | 4.5 | 31.0 |
| 194.6 | 3.8 | 29.5 | 4.3 | 29.0 | 4.5 | 30.0 | 4.5 | 30.0 | 5.1 | 31.0 |

**NOTE:**
1) ORM - Ouachita River Mile; DO - dissolved oxygen.

**TABLE A2-2. 1996 RIVER DO MEASURED BY GEORGIA-PACIFIC OUACHITA RIVER NEAR CROSSETT, ARKANSAS**

| ORM | 16-Jul-96 | | | 14-Aug-96 | | | 18-Sep-96 | | |
|---|---|---|---|---|---|---|---|---|---|
| | TIME | DO (mg/L) | TEMP (°C) | TIME | DO (mg/L) | TEMP (°C) | TIME | DO (mg/L) | TEMP (°C) |
| 239.1 | 09:00 | 6.1 | 29.5 | 08:25 | 4.3 | 28.0 | 09:15 | 6.0 | 27.0 |
| 234 | 09:10 | 6.3 | 29.8 | 08:35 | 4.1 | 28.0 | 09:25 | 5.7 | 27.0 |
| 229 | 09:25 | 6.5 | 30.0 | 08:50 | 3.7 | 28.0 | 09:40 | 5.7 | 27.0 |
| 224 | 09:40 | 6.7 | 29.8 | 09:05 | 4.5 | 28.0 | 09:55 | 6.5 | 27.0 |
| 218.7 | 10:00 | 6.5 | 29.8 | 09:25 | 4.4 | 28.0 | 10:15 | 6.3 | 27.0 |
| 213.5 | 10:15 | 6.5 | 30.0 | 09:40 | 4.3 | 28.0 | 10:30 | 6.3 | 27.0 |
| 208.8 | 10:35 | 5.8 | 30.0 | 10:00 | 4.1 | 28.0 | 10:50 | 6.0 | 27.0 |
| 203 | 10:55 | 5.8 | 29.0 | 10:20 | 3.9 | 28.0 | 11:10 | 5.9 | 27.0 |
| 198 | 11:10 | 6.1 | 29.8 | 10:35 | 3.8 | 28.0 | 11:25 | 5.9 | 27.0 |
| 194 | 11:25 | 6.1 | 29.5 | 10:50 | 3.4 | 27.5 | 11:40 | 5.6 | 28.0 |
| 190.2 | 11:45 | 5.7 | 30.0 | 11:10 | 3.8 | 28.0 | 12:00 | 5.8 | 28.0 |

**NOTE:**

1) ORM - Ouachita River Mile; DO - dissolved oxygen.
2) DO values measured at a depth of 5 feet.

## TABLE A2-3. 1997 RIVER DO MEASURED BY GEORGIA-PACIFIC

| ORM | 08-Jul-97 | | | 05-Aug-97 | | | 16-Sep-97 | | |
|---|---|---|---|---|---|---|---|---|---|
| | TIME | DO (mg/L) | TEMP (°C) | TIME | DO (mg/L) | TEMP (°C) | TIME | DO (mg/L) | TEMP (°C) |
| 239.1 | 09:30 | 5.5 | 28.0 | 10:20 | 6.7 | 30.5 | 08:30 | 6.4 | 28.0 |
| 234 | 09:40 | 5.3 | 28.5 | 10:30 | 5.9 | 30.0 | 08:40 | 7.0 | 28.2 |
| 229 | 09:55 | 5.0 | 28.5 | 10:45 | 6.5 | 30.5 | 08:55 | 6.6 | 28.8 |
| 224 | 10:10 | 6.0 | 28.0 | 11:00 | 6.9 | 30.6 | 09:10 | 7.6 | 28.4 |
| 218.7 | 10:30 | 5.2 | 28.0 | 11:20 | 6.0 | 31.0 | 09:30 | 6.7 | 28.4 |
| 213.5 | 10:45 | 4.5 | 28.0 | 11:35 | 6.4 | 31.0 | 09:45 | 6.6 | 28.5 |
| 208.8 | 11:05 | 4.1 | 27.5 | 11:55 | 6.9 | 31.0 | 10:05 | 6.3 | 29.0 |
| 203 | 11:25 | 4.3 | 27.5 | 12:15 | 5.9 | 30.6 | 10:25 | 5.9 | 28.9 |
| 198 | 11:40 | 4.1 | 28.0 | 12:30 | 6.7 | 31.3 | 10:40 | 6.8 | 29.0 |
| 194 | 11:55 | 3.5 | 28.0 | 12:45 | 7.1 | 31.0 | 10:55 | 6.7 | 28.8 |
| 190.2 | 12:15 | 4.5 | 27.5 | 13:05 | 7.4 | 31.2 | 11:15 | 7.2 | 30.0 |

**NOTE:**

1) ORM - Ouachita River Mile; DO - dissolved oxygen.
2) DO values measured at a depth of 5 feet.

**TABLE A2-4. 1998 RIVER DO MEASURED BY GEORGIA-PACIFIC**

| ORM | 25-Jun-98 | | | 21-Jul-98 | | | 27-Aug-98 | | | 18-Sep-98 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TIME | DO (mg/L) | TEMP (°C) | TIME | DO (mg/L) | TEMP (°C) | TIME | DO (mg/L) | TEMP (°C) | TIME | DO (mg/L) | TEMP (°C) |
| 239.1 | 10:30 | 6.2 | 31.0 | 10:00 | 5.6 | 33.0 | 10:00 | 5.8 | 31.5 | 10:12 | 5.9 | 27.0 |
| 234 | 10:40 | 6.0 | 32.0 | 10:14 | 5.9 | 32.5 | 10:05 | 5.7 | 31.5 | 10:23 | 5.4 | 26.8 |
| 229 | 10:55 | 5.3 | 32.0 | 10:25 | 5.5 | 32.5 | 10:17 | 5.2 | 31.5 | 10:38 | 5.8 | 27.1 |
| 224 | 11:10 | 5.0 | 31.5 | 11:00 | 5.4 | 32.0 | 10:50 | 5.8 | 31.5 | 11:05 | 5.9 | 27.5 |
| 218.7 | 11:30 | 5.7 | 31.0 | 11:15 | 5.7 | 32.5 | 11:10 | 5.4 | 31.5 | 11:35 | 5.9 | 27.7 |
| 213.5 | 11:45 | 5.6 | 32.0 | 11:25 | 5.8 | 32.5 | 11:25 | 5.5 | 32.0 | 11:45 | 5.9 | 27.5 |
| 208.8 | 12:05 | 6.2 | 32.0 | 11:35 | 5.2 | 32.5 | 11:35 | 5.5 | 31.0 | 11:57 | 5.9 | 27.5 |
| 203 | 12:20 | 6.0 | 31.0 | 11:50 | 5.8 | 32.5 | 11:50 | 5.4 | 31.5 | 12:11 | 6.0 | 27.5 |
| 198 | 12:35 | 6.3 | 32.0 | 12:05 | 5.0 | 33.0 | 12:05 | 5.4 | 31.0 | 12:23 | 6.0 | 28.0 |
| 194 | 12:50 | 6.4 | 32.0 | 12:15 | 5.2 | 32.5 | 12:15 | 6.5 | 32.0 | 12:33 | 5.9 | 27.6 |
| 190.2 | 13:10 | 6.0 | 33.0 | 12:30 | 5.5 | 33.0 | 12:25 | 5.8 | 32.5 | 12:45 | 6.0 | 28.0 |

**NOTE:**

1) ORM - Ouachita River Mile; DO - dissolved oxygen.
2) DO values measured at a depth of 5 feet.

**TABLE A2-5. 1998 DIURNAL DO MEASURED BY GEORGIA-PACIFIC OUACHITA RIVER NEAR CROSSETT, ARKANSAS**

| ORM | DATE | TIME | 1 FT | | 5 FT | |
|---|---|---|---|---|---|---|
| | | | DO (mg/L) | TEMP (°C) | DO (mg/L) | TEMP (°C) |
| 224 | 08/05/98 | 09:00 | 5.9 | 32.0 | 5.9 | 32.0 |
| 224 | 08/05/98 | 12:55 | 6.3 | 33.5 | 6.2 | 32.5 |
| 224 | 08/05/98 | 16:00 | 7.9 | 34.5 | 6.9 | 33.5 |
| 224 | 08/05/98 | 22:30 | 7.0 | 32.5 | 5.7 | 32.5 |
| 224 | 08/05/98 | 06:00 | 6.3 | 32.0 | 6.1 | 32.1 |
| 208.8 | 08/05/98 | 09:30 | 5.0 | 33.0 | 4.8 | 33.0 |
| 208.8 | 08/05/98 | 12:20 | 6.5 | 34.0 | 5.3 | 33.0 |
| 208.8 | 08/05/98 | 16:30 | 7.6 | 34.0 | 6.9 | 34.0 |
| 208.8 | 08/05/98 | 19:00 | 7.9 | 34.0 | 6.8 | 34.0 |
| 208.8 | 08/05/98 | 02:00 | 5.2 | 33.0 | 5.1 | 33.0 |
| 208.8 | 08/05/98 | 05:00 | 5.1 | 33.0 | 4.9 | 33.0 |
| 189.3 | 06/30/98 | 10:15 | 5.0 | 32.5 | 5.0 | 32.5 |
| 189.3 | 06/30/98 | 14:00 | 5.8 | 33.0 | 5.6 | 32.5 |
| 189.3 | 06/30/98 | 18:00 | 6.5 | 33.5 | 6.0 | 33.0 |
| 189.3 | 06/30/98 | 22:00 | 5.8 | 32.5 | 5.7 | 32.5 |
| 189.3 | 06/30/98 | 02:00 | 5.8 | 33.0 | 5.6 | 33.0 |
| 189.3 | 06/30/98 | 06:00 | 5.3 | 32.0 | 5.3 | 32.0 |
| 189.3 | 06/30/98 | 10:00 | 5.6 | 32.5 | 5.4 | 32.5 |

**NOTE:**

1) ORM - Ouachita River Mile; DO - dissolved oxygen.

Table 2-4 : July 1987 Coffee Creek temperature

: July 1987 River DO

TABLE B2
(Continued)

ROUTINE OUACHITA RIVER SURVEY DATA
1987 to 1989

| Date | Milepoint COE | Milepoint Louisiana | Temperature oC | | Dissolved Oxygen mg/L | Apparent Color pcu |
|---|---|---|---|---|---|---|
| 06/25/87 | 250. | 232.9 | 29.5 | | 4.7 | 50. |
| 06/25/87 | 245. | 227.9 | 29.5 | | 4.7 | |
| 06/25/87 | 240. | 224.0 | 29.5 | | 4.5 | 50. |
| 06/25/87 | -238. | -222.0 | 29.0 | | 2.8 | |
| 06/25/87 | 235. | 218.7 | 29.5 | | 4.3 | 80. |
| 06/25/87 | 230. | 213.5 | 29.5 | | 4.4 | |
| 06/25/87 | 225. | 208.8 | 30.0 | | 4.6 | 60. |
| 06/25/87 | 220. | 203.0 | 30.0 | | 4.6 | |
| 06/25/87 | 215. | 198.0 | 30.0 | | 4.6 | 60. |
| 06/25/87 | 210. | 194.6 | 30.0 | | 4.9 | |
| 06/25/87 | 205. | 190.2 | 30.0 | | 5.1 | 60. |
| 07/02/87 | 250. | 232.9 | 30.0 | | 4.8 | 50. |
| 07/02/87 | 245. | 227.9 | 29.5 | | 4.5 | |
| 07/02/87 | 240. | 224.0 | 29.0 | | 4.6 | 50. |
| 07/02/87 | -238. | -222.0 | 28.0 | | 2.5 | |
| 07/02/87 | 235. | 218.7 | 29.0 | | 4.3 | 70. |
| 07/02/87 | 230. | 213.5 | 29.5 | Avg 29.1 | 4.0 | |
| 07/02/87 | 225. | 208.8 | 29.0 | | 3.9 | 70. |
| 07/02/87 | 220. | 203.0 | 29.0 | | 3.5 | |
| 07/02/87 | 215. | 198.0 | 29.0 | | 3.7 | 70. |
| 07/02/87 | 210. | 194.6 | 29.5 | | 3.8 | |
| 07/02/87 | 205. | 190.2 | 30.0 | | 4.2 | 60. |
| 07/09/87 | 250. | 232.9 | 30.0 | | 5.4 | 40. |
| 07/09/87 | 245. | 227.9 | 30.0 | | 5.1 | |
| 07/09/87 | 240. | 224.0 | 30.0 | | 5.1 | 40. |
| 07/09/87 | -238. | -222.0 | 27.0 | | 3.3 | |
| 07/09/87 | 235. | 218.7 | 29.0 | Avg 29.1 | 4.1 | 140. |
| 07/09/87 | 230. | 213.5 | 29.0 | | 4.2 | |
| 07/09/87 | 225. | 208.8 | 29.0 | | 4.1 | 120. |
| 07/09/87 | 220. | 203.0 | 29.0 | | 4.4 | |
| 07/09/87 | 215. | 198.0 | 29.0 | | 4.2 | 80. |
| 07/09/87 | 210. | 194.6 | 29.0 | | 4.3 | |
| 07/09/87 | 205. | 190.2 | 29.0 | | 4.6 | 80. |
| 07/16/87 | 250. | 232.9 | 30.0 | | 5.3 | 30. |
| 07/16/87 | 245. | 227.9 | 30.0 | | 5.5 | |
| 07/16/87 | 240. | 224.0 | 30.0 | | 5.2 | 40. |
| 07/16/87 | -238. | -222.0 | 30.0 | | 2.6 | |
| 07/16/87 | 235. | 218.7 | 30.0 | | 5.0 | 35. |
| 07/16/87 | 230. | 213.5 | 30.0 | Avg 30 | 4.9 | |
| 07/16/87 | 225. | 208.8 | 30.0 | | 4.4 | 40. |
| 07/16/87 | 220. | 203.0 | 30.0 | | 4.2 | |
| 07/16/87 | 215. | 198.0 | 30.0 | | 4.2 | 45. |
| 07/16/87 | 210. | 194.6 | 30.0 | | 4.5 | |
| 07/16/87 | 205. | 190.2 | 30.5 | | 5.0 | 45. |

Table 2-4 : July 1987 Coffee Creek temperature
: July 1987 River DO

TABLE B2
(Continued)

ROUTINE OUACHITA RIVER SURVEY DATA
1987 to 1989

| Date | Milepoint COE | Milepoint Louisiana | Temperature oC | Dissolved Oxygen mg/L | Apparent Color pcu |
|---|---|---|---|---|---|
| 07/23/87 | 250. | 232.9 | 30.0 | 5.4 | 40. |
| 07/23/87 | 245. | 227.9 | 30.0 | 5.4 | |
| 07/23/87 | 240. | 224.0 | 30.0 | 5.1 | 35. |
| 07/23/87 | -238. | -222.0 | 28.0 | 1.2 | |
| 07/23/87 | 235. | 218.7 | 30.0 | 4.9 | 35. |
| 07/23/87 | 230. | 213.5 | 30.0 Avg 30 | 4.7 | |
| 07/23/87 | 225. | 208.8 | 30.0 | 4.6 | 65. |
| 07/23/87 | 220. | 203.0 | 30.0 | 4.6 | |
| 07/23/87 | 215. | 198.0 | 30.0 | 3.8 | 90. |
| 07/23/87 | 210. | 194.6 | 30.0 | 4.5 | 45. |
| 07/23/87 | 205. | 190.2 | 30.0 | 4.6 | 55. |
| 07/30/87 | 250. | 232.9 | 31.0 | 6.1 | 35. |
| 07/30/87 | 245. | 227.9 | 31.0 | 5.8 | |
| 07/30/87 | 240. | 224.0 | 31.0 | 5.3 | 35. |
| 07/30/87 | -238. | -222.0 | 30.0 | .9 | |
| 07/30/87 | 235. | 218.7 | 31.0 Avg 31 | 4.9 | 55. |
| 07/30/87 | 230. | 213.5 | 31.0 | 5.0 | 55. |
| 07/30/87 | 225. | 208.8 | 31.0 | 4.6 | 60. |
| 07/30/87 | 220. | 203.0 | 31.0 | 5.0 | 60. |
| 07/30/87 | 215. | 198.0 | 31.0 | 4.5 | 90. |
| 07/30/87 | 210. | 194.6 | 31.0 | 5.1 | 65. |
| 07/30/87 | 205. | 190.2 | 32.0 | 4.8 | 60. |
| 08/06/87 | 250. | 232.9 | 32.0 | 5.9 | 35. |
| 08/06/87 | 245. | 227.9 | 32.0 | 5.3 | |
| 08/06/87 | 240. | 224.0 | 32.0 | 5.2 | 35. |
| 08/06/87 | -238. | -222.0 | 30.0 | 1.5 | |
| 08/06/87 | 235. | 218.7 | 32.0 | 5.1 | 60. |
| 08/06/87 | 230. | 213.5 | 32.0 | 4.9 | |
| 08/06/87 | 225. | 208.8 | 32.0 | 4.7 | 55. |
| 08/06/87 | 220. | 203.0 | 32.0 | 4.6 | |
| 08/06/87 | 215. | 198.0 | 32.0 | 4.5 | 50. |
| 08/06/87 | 210. | 194.6 | 32.0 | 4.6 | |
| 08/06/87 | 205. | 190.2 | 32.0 | 4.9 | 45. |
| 08/13/87 | 250. | 232.9 | 32.0 | 5.7 | 25. |
| 08/13/87 | 245. | 227.9 | 32.0 | 5.4 | |
| 08/13/87 | 240. | 224.0 | 31.0 | 4.6 | 25. |
| 08/13/87 | -238. | -222.0 | 29.5 | 1.5 | |
| 08/13/87 | 235. | 218.7 | 31.0 | 3.9 | 110. |
| 08/13/87 | 230. | 213.5 | 31.0 | 3.9 | |
| 08/13/87 | 225. | 208.8 | 31.0 | 3.9 | 80. |
| 08/13/87 | 220. | 203.0 | 31.5 | 3.7 | |
| 08/13/87 | 215. | 198.0 | 31.5 | 3.6 | 70. |
| 08/13/87 | 210. | 194.6 | 31.5 | 4.6 | |
| 08/13/87 | 205. | 190.2 | 31.5 | 4.7 | 55. |

1996 + 1997 data
"Run of River"
7/16

from T. Gathright
GP Closset by
e-mail
5/98

Sheet1

| | Jul-96 | | | | Jul-97 | 7/8 |
|---|---|---|---|---|---|---|
| MP | Temp (C) | DO (mg/l) | | MP | Temp (C) | DO (mg/l) |
| 239.1 | 29.5 | 6.1 | | 239.1 | 28 | 5.5 |
| 234 | 29.8 | 6.3 | | 234 | 28.5 | 5.3 |
| 229 | 30 | 6.5 | | 229 | 28.5 | 5 |
| 9:40 224 | 29.8 | 6.7 | 10:10 | 224 | 28 | 6 |
| 218.7 | 29.8 | Avg 6.5 | | 218.7 | 28 | 5.2 |
| 213.5 | 30 | 29.7 6.5 | | 213.5 | 28 | Avg 4.5 |
| 208.8 | 30 | 5.8 | | 208.8 | 27.5 | 27.9 4.1 |
| 203 | 29 | 5.8 | | 203 | 27.5 | 4.3 |
| 198 | 29.8 | 6.1 | | 198 | 28 | 4.1 |
| 194 | 29.5 | 6.1 | | 194 | 28 | 3.5 |
| 190.2 | 30 | 5.7 | | 190.2 | 27.5 | 4.5 |
| | | | | | | |
| | Aug-96 | 8/14 | | | Aug-97 | 8/5 |
| MP | Temp (C) | DO (mg/l) | | MP | Temp (C) | DO (mg/l) |
| 239.1 | 28 | 4.3 | | 239.1 | 30.5 | 6.7 |
| 234 | 28 | 4.1 | | 234 | 30 | 5.9 |
| 229 | 28 | 3.7 | | 229 | 30.5 | 6.5 |
| 9:05 224 | 28 | 4.5 | 11:00 | 224 | 30.6 | 6.9 |
| 218.7 | 28 | 4.4 | | 218.7 | 31 | 6 |
| 213.5 | 28 | Avg 4.3 | | 213.5 | 31 | Avg 6.4 |
| 208.8 | 28 | 27.9 4.1 | | 208.8 | 31 | 30.9 6.9 |
| 203 | 28 | 3.9 | | 203 | 30.6 | 5.9 |
| 198 | 28 | 3.8 | | 198 | 31.3 | 6.7 |
| 194 | 27.5 | 3.4 | | 194 | 31 | 7.1 |
| 190.2 | 28 | 3.8 | | 190.2 | 31.2 | 7.4 |
| | | | | | | |
| | Sep-96 | 9/18 | | | Sep-97 | 9/16 |
| MP | Temp (C) | DO (mg/l) | | MP | Temp (C) | DO (mg/l) |
| 239.1 | 27 | 6 | | 239.1 | 28 | 6.4 |
| 234 | 27 | 5.7 | | 234 | 28.2 | 7 |
| 229 | 27 | 5.7 | | 229 | 28.8 | 6.6 |
| 9:55 224 | 27 | 6.5 | 9:10 | 224 | 28.4 | 7.6 |
| 218.7 | 27 | 6.3 | | 218.7 | 28.4 | 6.7 |
| 213.5 | 27 | Avg 6.3 | | 213.5 | 28.5 | Avg 6.6 |
| 208.8 | 27 | 27.1 6 | | 208.8 | 29 | 28.7 6.3 |
| 203 | 27 | 5.9 | | 203 | 28.9 | 5.9 |
| 198 | 27 | 5.9 | | 198 | 29 | 6.8 |
| 194 | 28 | 5.6 | | 194 | 28.8 | 6.7 |
| 190.2 | 28 | 5.8 | | 190.2 | 30 | 7.2 |

| Mile Point | Jul-96 | Aug-96 | Sep-96 | Jul-97 | Aug-97 | Sep-97 |
|---|---|---|---|---|---|---|
| | Time | Time | Time | Time | Time | Time |
| 239.1 | 900 | 825 | 915 | 930 | 1020 | 830 |
| 234.0 | 910 | 835 | 925 | 940 | 1030 | 840 |
| 229.0 | 925 | 850 | 940 | 955 | 1045 | 855 |
| 224.0 | 940 | 905 | 955 | 1010 | 1100 | 910 |
| 218.7 | 1000 | 925 | 1015 | 1030 | 1120 | 930 |
| 213.5 | 1015 | 940 | 1030 | 1045 | 1135 | 945 |
| 208.8 | 1035 | 1000 | 1050 | 1105 | 1155 | 1005 |
| 203.0 | 1055 | 1020 | 1110 | 1125 | 1215 | 1025 |
| 198.0 | 1110 | 1035 | 1125 | 1140 | 1230 | 1040 |
| 194.0 | 1125 | 1050 | 1140 | 1155 | 1245 | 1055 |
| 190.2 | 1145 | 1110 | 1200 | 1215 | 1305 | 1115 |

ORM "Run of River" June 25, 1998

| Mile Point | Temp (C) 5 Feet | Color | DO mg/L 5 Feet | pH | Temp (C) 1 Foot | DO mg/L 1 Foot | Secchi (ft) | Time |
|---|---|---|---|---|---|---|---|---|
| 239.1 | 31 | 12 | 6.2 | 7.05 | 31 | 6.4 | 2.9 | 1030 |
| 234.0 | 32 | 17 | 6.0 | 6.94 | 32 | 6.2 | 2.8 | 1040 |
| 229.0 | 32 | 21 | 5.3 | 6.85 | 32 | 5.5 | 2.4 | 1055 |
| 224.0 | 31.5 | 21 | 5.0 | 6.79 | 32.5 | 5.4 | 2.6 | 1110 |
| 218.7 | 31 | 45 | 5.7 | 7.10 | 31.5 | 6.3 | 2.0 | 1130 |
| 213.5 | 32 | 41 | 5.6 | 7.10 | 33 | 6.9 | 1.8 | 1145 |
| 208.8 | 32 | 41 | 6.2 | 7.21 | 33 | 7.4 | 1.8 | 1205 |
| 203.0 | 31 | 35 | 6.0 | 7.24 | 32.5 | 7.3 | 1.7 | 1220 |
| 198.0 | 32 | 42 | 6.3 | 6.99 | 33 | 6.9 | 1.8 | 1235 |
| 194.0 | 32 | 37 | 6.4 | 7.34 | 33.5 | 7.4 | 1.7 | 1250 |
| 190.2 | 33 | 35 | 6.0 | 7.05 | 34.5 | 7.0 | 1.7 | 1310 |
| CC | 29 | 742 | 2.8 | 7.28 | 30 | 3.0 | 0.4 | 1120 |
| | | | | | | | | |
| Maximum | 33 | 45 | 6.4 | 7.34 | 34.5 | 7.4 | 2.9 | |
| Minimum | 31 | 12 | 5 | 6.79 | 31 | 5.4 | 1.7 | |
| Average | 31.8 | 31.5 | 5.9 | 7.1 | 32.6 | 6.6 | 2.1 | |

Avg 31.76

Comments: Max, min, and avg do not include Coffee Creek
Lower Pool Level = 52.4 feet
River cfs = 1040
**Date 25 June 98**
**Mossy Flow = 32.6 MGD**
**Mossy BOD = 13.3 mg/L (3316 lbs/day)**

$\frac{3316}{32.6 \times 8.34} = 12.2$ mg/L BOD$_5$

"Rt. of River" 7/98 July 21, 1998

| MP | Color | Temp. 1 ft C | DO 1 ft mg/L | Temp. 5 ft C | DO 5 ft mg/L | pH | secci inches | Time | Water Conditions | Weather Conditions |
|---|---|---|---|---|---|---|---|---|---|---|
| 239.1 | 14 | 33 | 5.7 | 33 | 5.6 | 6.72 | 32.6 | 1000 | Mirky Green | Clear |
| 234 | 20 | 33 | 6.3 | 32.5 | 5.9 | 6.73 | 34 | 1014 | " | " |
| 229 | 20 | 32.5 | 5.9 | 32.5 | 5.5 | 6.41 | 36.5 | 1025 | " | " |
| 224 | 17 | 32.5 | 5.7 | 32 | 5.4 | 6.42 | 34 | 1100 | " | " |
| 218.7 | 35 | 32.5 | 5.9 | 32.5 | 5.7 | 6.70 | 27.2 | 1115 | " | " |
| 213.5 | 40 | 33 | 6.2 | 32.5 | 5.8 | 6.72 | 22.8 | 1125 | " | " |
| 208.8 | 43 | 33 | 6.0 | 32.5 | 5.2 | 6.74 | 22.8 | 1135 | " | " |
| 203 | 30 | 33 | 6.6 | 32.5 | 5.8 | 6.73 | 22.8 | 1150 | " | " |
| 198 | 58 | 33.5 | 6.1 | 33 | 5.0 | 6.79 | 22.5 | 1205 | " | Partly Cloudy |
| 194 | 44 | 33.5 | 7.0 | 32.5 | 5.2 | 6.88 | 22.2 | 1215 | " | " |
| 190.2 | 32 | 34 | 6.9 | 33 | 5.5 | 6.71 | 23.8 | 1230 | " | " |
| cc | 457 | 29 | 3.5 | | | 7.06 | 35 | 1105 | Dark | Clear |
| LPL | | 52.5 ft | | $T_{BB} = T_{194} - 2 = 32.5 - 2 = 30.5C$ | | | | | | |
| UPL | | 65 ft | | | | | $= 86.9F$ | | | |
| Ouachita Flow (cfs) | | 13 Jul (1170) | 14 Jul (1962) | 15 Jul (1550) | 16 Jul (1176) | 17 Jul (900) | 20 Jul (1150) | 21 Jul (1378) | Avg = 1353 cfs | |
| Mossy Flow | | ~~65.3 MGD~~ | 71.2 mgd = 110 cfs verbal per T. Gathright | | | | | | | |
| Mossy BOD | | 3147 lbs. (Latest BOD) = 5.3 mg/L | | | | | | | | |
| Trip date | | 21-Jul-98 | | | | | | | | |

$BOD_u = 3147 \text{ lbs/d} \times 4 = 12,588 \text{ lbs/day}$

Avg T = 32.5°C =

$mg/L = \frac{12,588}{(71.2)(8.34)} = \frac{21.2 \text{ mg/L BODu}}{4}$

$= 5.3 \text{ mg/L BOD}_5$

# Run-of-River 8/98

| MP | Color | Temp. 1 ft | DO 1 ft | Temp. 5 ft | DO 5 ft | pH | secci | Time | Water | Weather |
|---|---|---|---|---|---|---|---|---|---|---|
| | | C | mg/L | C | mg/L | | inches | | Conditions | Conditions |
| 239.1 | 10 | 31.5 | 5.8 | 31.5 | 5.8 | 7.20 | 32.6 | 1000 | Mirky Green | Clear |
| 234 | 13 | 32 | 5.6 | 31.5 | 5.7 | 6.70 | 34 | 1005 | " | " |
| 229 | 15 | 32 | 5.4 | 31.5 | 5.2 | 6.80 | 36.5 | 1017 | " | " |
| 224 | 20 | 31.5 | 6.2 | 31.5 | 5.8 | 6.40 | 34 | 1050 | " | " |
| 218.7 | 74 | 32 | 5.5 | 31.5 | 5.4 | ND | 27.2 | 1110 | Dark Brown | " |
| 213.5 | 75 | 32 | 5.4 | 32 | 5.5 | ND | 22.8 | 1125 | Brown | " |
| 208.8 | 30 | 32 | 5.7 | 31 | 5.5 | ND | 22.8 | 1135 | " | " |
| 203 | 30 | 32 | 6.1 | 31.5 | 5.4 | ND | 22.8 | 1150 | Grn/Brn | " |
| 198 | 30 | 32.5 | 7.2 | 31 | 5.4 | ND | 22.5 | 1205 | Green | Partly Cloudy |
| 194 | 28 | 32.5 | 7.4 | 32 | 6.5 | ND | 22.2 | 1215 | " | " |
| 190.2 | 19 | 34.5 | 7.4 | 32.5 | 5.8 | ND | 23.8 | 1225 | " | " |
| cc | 1116 | 30.5 | 3.5 | | | 7.70 | 35 | 1105 | Black | Clear |
| LPL | | 52 | | | | | | | | |
| UPL | | 65 ft | | | | | | | | |
| Ouachita Flow (cfs) | | 19 Aug (886) | 20 Aug (1083) | 21 Aug (1092) | 24 Aug (874 | 25 Aug (1008) | 26 Aug (942 | 27 Aug (881) | | |
| Mossy Flow | | 27.6 MGD | | | | | | | | |
| Mossy BOD | | 3083 lbs. (Latest BOD) | = 13.4 mg/L | | | | | | | |
| Trip date | | 27-Aug-98 | | | | | | | | |

Avg T = 31.5°C = 88.7°F

$T_{BB} = T_{IN} - 2 = 32 - 2 = 30\,C = 86\,F$

Avg $Q_{River}$ = 980 cfs

$Q_{MOSSY}$ = 42.7 cfs

$$BODu_{MOSSY} = \frac{(3083 \times 4)\,lb/d}{(27.6)(8.34)} = 53.6\ mg/L\ BODu$$

(27.6 = flow)

$T_{CC}$ = 30.5°C = 86.9

$DO_{CC}$ = 3.5 mg/L

September 1998
"Run of River"

| MP | Color | Temp. 1 ft C | DO 1 ft mg/L | Temp. 5 ft C | DO 5 ft mg/L | pH | secci inches | Time | Water Conditions | Weather Conditions |
|---|---|---|---|---|---|---|---|---|---|---|
| 239.1 | 27 | 27 | 5.9 | 27 | 5.9 | 6.88 | 17 | 1012 | Muddy Brown | Clear |
| 234 | 35 | 26.9 | 5.6 | 26.8 | 5.4 | 6.93 | 19 | 1023 | Brown/Green | " |
| 229 | 30 | 27.1 | 5.8 | 27.1 | 5.8 | 6.38 | 21 | 1038 | Murky Green | " |
| 224 | 32 | 27.5 | 5.8 | 27.5 | 5.9 | 6.56 | 19 | 1105 | " | " |
| 218.7 | 56 | 27.8 | 5.9 | 27.7 | 5.9 | ND | 18 | 1135 | " | " |
| 213.5 | 42 | 27.5 | 5.9 | 27.5 | 5.9 | ND | 18 | 1145 | " | " |
| 208.8 | 42 | 27.5 | 5.9 | 27.5 | 5.9 | ND | 18 | 1157 | " | " |
| 203 | 44 | 27.5 | 5.9 | 27.5 | 6.0 | ND | 18.3 | 1211 | " | " |
| 198 | 44 | 28 | 5.9 | 28 | 6.0 | ND | 19 | 1223 | " | " |
| 194 | 43 | 28 | 6.0 | 27.6 | 5.9 | ND | 19 | 1233 | " | " |
| 190.2 | 48 | 28 | 6.0 | 28 | 6.0 | ND | 19 | 1245 | " | " |
| cc | 830 | 27.8 | 3.5 | | | 7.70 | | 1123 | Black | Clear |
| LPL | | 57.3 | | | | | | | | |
| UPL | | 65 ft | | | | | | | | |
| Ouachita Flow (cfs) | | 10 Sep (676) | 11 Sep (603) | 14 Sep (2190) | 15 Sep (2305) | 16 Sep (2671) | 17 Sep (3536) | 18 Sep (5268) | | |
| Mossy Flow | | 56.1 MGD | | | | | | | | |
| Mossy BOD | | 2948 lbs. (Latest BOD) | | | | | | | | |
| Trip date | | 18-Sep-98 | | | | | | | | |

"Di nal"

June 30 - July 1 '98
Sterlington

Sterlington

| Time | Temp (C) | DO mg/L | Temp (C) | DO mg/L | Color | pH | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 5 Feet | 5 Feet | 1 Foot | 1 Foot | | | | | |
| 1015 | 32.5 | 5.0 | 32.5 | 5.0 | 46.0 | 7.4 | | | |
| 1400 | 32.5 | 5.6 | 33.0 | 5.8 | 44.0 | 7.3 | | | |
| 1800 | 33.0 | 6.0 | 33.5 | 6.5 | 46.0 | 7.8 | | | |
| 2200 | 32.5 | 5.7 | 32.5 | 5.8 | 45.0 | 7.8 | | | |
| 200 | 33.0 | 5.6 | 33.0 | 5.8 | 47.0 | 7.6 | | | |
| 600 | 32.0 | 5.3 | 32.0 | 5.3 | 48.0 | 7.4 | | | |
| 1000 | 32.5 | 5.4 | 32.5 | 5.6 | 41.0 | 8.0 | | | |
| | | | | | | | | | |
| Maximum | 33.0 | 6.0 | 33.5 | 6.5 | 48.0 | 8.0 | | | |
| Minimum | 32.0 | 5.0 | 32.0 | 5.0 | 41.0 | 7.3 | | | |
| Average | 32.6 | 5.5 | 32.7 | 5.7 | 45.3 | 7.6 | | | |
| | | | | | | | | | |
| Comments: All samples were collected at MP 189.3 near Sterlington LA. River flow on 1 July 98 was 1187 cfs. | | | | | | | | | |
| Comments: Sample collection began on 30 June 98 and were completed on 1 July 98. | | | | | | | | | |
| **Comments: Mossy Flow = 30.6 MGD; BOD = 10.7 mg/L (2731 lbs/day)** | | | | | | | | | |

"Diurnal"

August 5, 199

| MP | Color | Temp. 1 ft | DO 1 ft | Temp. 5 ft | DO 5 ft | pH | secci | Time | Water | Weather |
|---|---|---|---|---|---|---|---|---|---|---|
| | | C | mg/L | C | mg/L | | inches | | Conditions | Conditions |
| 224 | 9 | 32 | 5.9 | 32 | 5.9 | | | 900 | Murky Green | Overcast |
| 224 | 9 | 33.5 | 6.3 | 32.5 | 6.2 | | | 1255 | " | Sunny |
| 224 | 9 | 34.5 | 7.9 | 33.5 | 6.9 | | | 1600 | " | Sunny |
| 224 | 8 | 32.5 | 7:0 | 32.5 | 5.7 | | | 2230 | " | Rain |
| 224 | 11 | 32 | 6.3 | 32.1 | 6.1 | | | 600 | " | Overcast |
| | | | | | | | | | | |
| 208.8 | 31 | 33 | 5.0 | 33 | 4.8 | | | 930 | Murky Brown | Ptly Sunny |
| 208.8 | 31 | 34 | 6.5 | 33 | 5.3 | | | 1220 | " | Sunny |
| 208.8 | 30 | 34 | 7.6 | 34 | 6.9 | | | 1630 | " | Sunny |
| 208.8 | 34 | 34 | 7.9 | 34 | 6.8 | | | 1900 | " | Overcast |
| 208.8 | 38 | 33 | 5.2 | 33 | 5.1 | | | 200 | " | Overcast |
| 208.8 | 35 | 33 | 5.1 | 33 | 4.9 | | | 500 | " | Overcast |
| LPL | | 52 | | | | | | | | |
| UPL | | 65 | | | | | | | | |
| Ouachita Flow (cfs) | | 30 Jul (894) | 31 Jul (986) | 3 Aug (1730) | 4 Aug (760) | 5 Aug (737) | | | | |
| Mossy Flow | | 40.0 MGD | | | | | | | | |
| Mossy BOD | | 2072 (30 Jul 98) | | | | | | | | |
| **Trip date** | | **5-Aug-98** | | | | | | | | |

Return-Path: <aquaeterdmb@mindspring.com>
X-Sender: aquaeterdmb@pop.mindspring.com
Date: Fri, 04 Sep 1998 13:01:45 -0400
To: aquaeterdmb@mindspring.com
From: "Dana M. Bradford" <aquaeterdmb@mindspring.com>
Subject: RE: Ouachita River Qual2E Modeling

>Return-Path: <TWGATHRI@gapac.com>
>From: "Gathright, Thomas W." <TWGATHRI@gapac.com>
>To: "Dana M. Bradford" <aquaeterdmb@mindspring.com>
>Subject: RE: Ouachita River Qual2E Modeling
>Date: Thu, 3 Sep 1998 13:45:00 -0400
>
>Dana:
>
>This is the data:

| | Date | Flow(MGD) | BOD(lbs/d) | BOD(mg/L) |
|---|---|---|---|---|
| > | 16 Jul 96 | 52.8 | 3963 | 9.0 |
| > | 14 Aug 96 | None recorded due to flooded state | | |
| > | 18 Sep 96 | 33.2 | 1880 | 6.8 |
| > | 8 Jul 97 | None recorded due to flooded state | | |
| > | 5 Aug 97 | 34.2 | 4193 | 14.7 |
| > | 16 Sep 97 | 37.4 | 2870 | 9.2 |

>When the river LPL reaches 62.0 feet we cannot measure flow from Mossy Lake.
>This condition is a flooded state and we had one such occasion in each year.
>We did perform a river trip to accommodate our NPDES requirements.
>
>No problem getting the data, I should have sent it to you anyway.
>
>twg
>
> ----------
>From: Dana M. Bradford
>To: Gathright, Thomas W.
>Subject: Ouachita River Qual2E Modeling
>Date: Wednesday, September 02, 1998 5:31PM
>
>Tom,
>
> As I requested in my telephone message to you, we need the BOD5 data
>and
>flow from Mossy Lake on the days of the 1996 and 1997 run-of-the-river DO
>measurements. The dates of the measurements were July 16, 1996, August 14,
>1996, September 18, 1996, July 8, 1997, August 5, 1997, and September 16,
>1997. You previously sent us the DO measurements and temperatures in the
>river for those dates.
>
> Thank you for your assistance.
>
>Sincerely,
>
>Dana Bradford
>AquAeTer, Inc.
>

## Gathright, Thomas W.

**From:** Dana M. Bradford
**To:** Gathright, Thomas W.
**Subject:** Coffee Creek BOD5 and Flow
**Date:** Saturday, September 12, 1998 5:42PM

Tom,

I would like the actual Coffee Creek/Mossy Lake BOD5 and flow for the following dates. I believe that the data below is a combination of the Mossy Lake flow from the day of DO measurement in the River and the latest BOD5.

| Date | Mossy Lake BOD5 (lb/d) | Mossy Lake Flow (mgd) | ACTUAL BOD (#/d) |
|---|---|---|---|
| 6/25/98 | 3316 | 32.6 | 3614 |
| 7/21/98 | 3147 | ~~71.1~~ 65.0 | 4337 |
| 8/27/98 | 3083 | ~~27.6~~ 27.2 | 2768 |

Thanks for your help. I'll see you Wednesday.

Sincerly,

Dana Bradford
AquAeTer, Inc.

Return-Path: <TWGATHRI@gapac.com>
From: "Gathright, Thomas W." <TWGATHRI@gapac.com>
To: "Dana M. Bradford" <aquaeterdmb@mindspring.com>
Subject: August River Trip
Date: Fri, 28 Aug 1998 10:21:00 -0400
Importance: high

Dana:

Attached is the data collected from the 27 Aug 98 Ouachita River trip. We collected D.O. from Bayou Bartholomew and two other tributaries, but there was no flow from any of them into the Ouachita. I can send that info to you as well, but until we have rain and subsequent flow it may not be useful.

| Stream | Temp | D.O. | MP |
|---|---|---|---|
| B.B. | 30 | 5.4 | 196 |
| Unnamed | 32 | 3.9 | 200 |
| Unnamed | 31.5 | 6.0 | 204 |

Maynaw

We had problems with our pH meter and show no data for several points.

<<AQUATER5.XLS>>

197 PawPaw

twg

Attachment Converted: "C:\PIPEPLUS\DOWNLOAD\AQUATER5.XLS"

JOB 01650|4

SHEET NO. _____ OF _____

CALCULATED BY BMS DATE 9.04.98

CHECKED BY DMB DATE 9/12/98

SCALE Bayou Bartholomew Calcs

AquAeTer
215 Jamestown Park, Suite 204
Brentwood, TN 37027
(615) 373-8532 FAX (615) 373-8512

7/96 $T_{194} = 29.5$

8/96 $T_{94} = 27.5$

9/96 $T_{94} = 28$

7/97 $= 28$

8/97 $= 31$

9/97 $= 28.8$

7/96 $T_{BB} = 27.5 = 81.5F$
$DO_{sat}$ @ $27.5 = 7.898$
$DO_{BB} = 7.898(71\%) = 5.61$ mg/l

8/96 $T_{BB} = 25.5 = 77.9F$
$DO_{sat}$ @ $25.5 = 8.188$
$DO_{BB} = 8.188(71\%) = 5.81$ mg/l

9/96 $T_{BB} = 26 = 78.8F$
$DO_{sat}$ @ $26 = 8.113$
$DO_{BB} = 8.113(71\%) = 5.76$ mg/l

7/97 $DO_{BB} = 5.76$

8/97 $T_{BB} = 29 = 84.2F$
$DO_{sat}$ @ $29 = 7.691$
$DO_{BB} = 7.691(.71) = 5.46$

9/97 $T_{BB} = 26.8 = 80.2F$
$DO_{sat}$ @ $26.8 = 7.997$
$DO_{BB} = 7.997(.71) = 5.68$

| | | |
|---|---|---|
| 26 | 8.113 | $\frac{7.968-8.113}{7.968-X} = \frac{27-26}{27-26.8}$ |
| 26.8 | X | |
| 27 | 7.968 | |

JOB 0650/4

SHEET NO. _____ OF _____

CALCULATED BY SMS DATE 9.03.98

CHECKED BY _____ DATE _____

SCALE QUAL2E calib

AquAeTer
215 Jamestown Park, Suite 204
Brentwood, TN 37027
(615) 373-8532 FAX (615) 373-8512

Bayou Barthelemew Temp / DO Analysis

8.27 DO = 5.4 mg/L Temp = 30°C

DOsat @ 30°C = 7.559 mg/L

% Sat = $\frac{5.4}{7.559} \times 100 = 71\%$

Triver = 32°C @ ORM 194

ΔT = 32 - 30 = 2°C

7.21 Triver = 32.5°C @ ORM 194

$T_{BB}$ = 32.5 - 2 = 30.5°C

$DO_{sat}$ @ 30.5°C = 7.624 mg/L

$DO_{BB}$ = 7.624 (71%) = 5.4 mg/L

6.25 Triver = 32°C @ ORM 194

$T_{BB}$ = 32 - 2 = 30°C

$DO_{sat}$ @ 30°C = 7.559

7.559 x 71% = 5.4 mg/L

# APPENDIX 3

# HISTORICAL SOURCES

**Hydroqual Report**
**United States Army Corps of Engineers**
**United States Geological Survey**
**United States Environmental Protection Agency Storet Data**

# HYDROQUAL REPORT

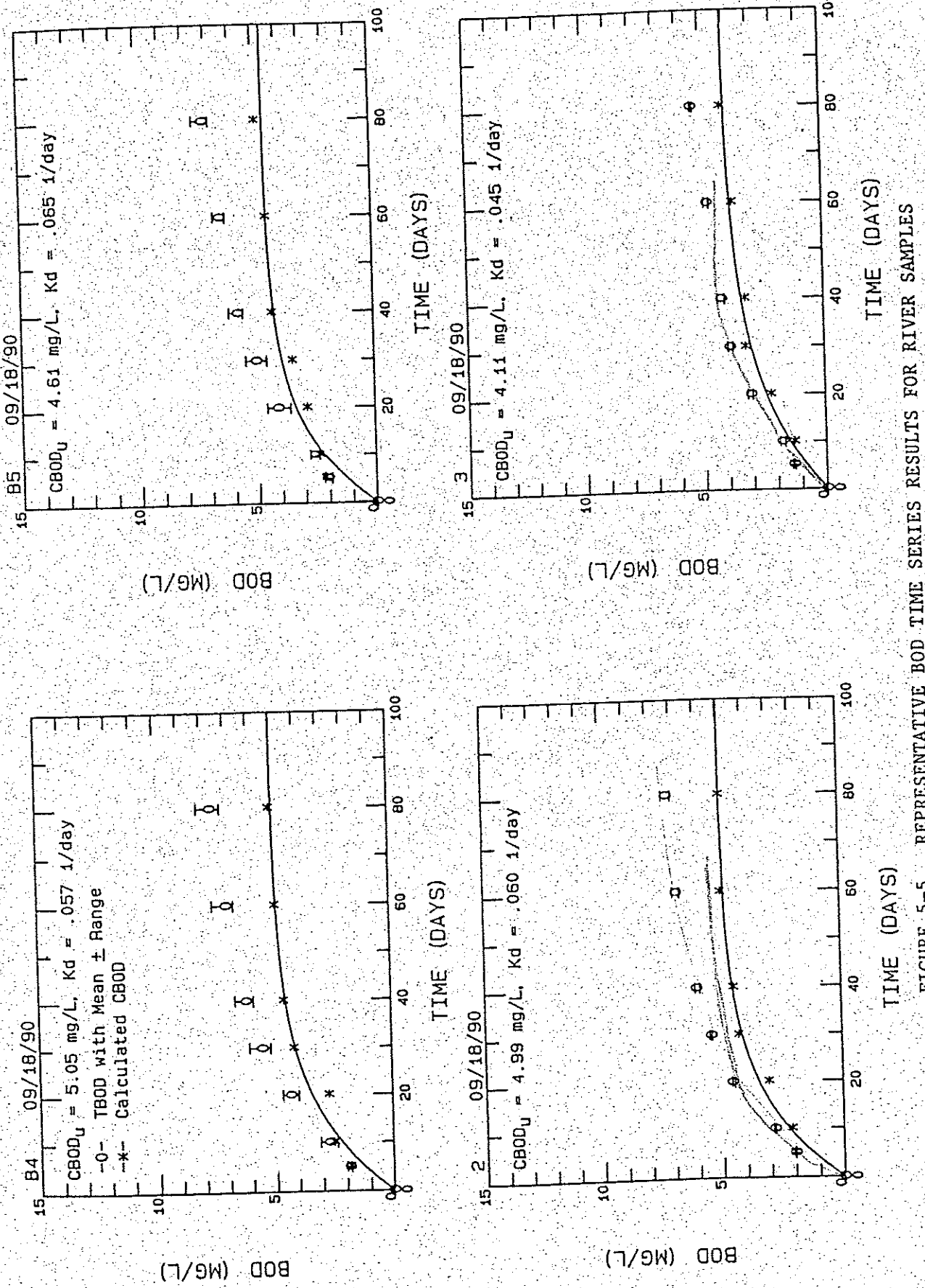


FIGURE 5-5. REPRESENTATIVE BOD TIME SERIES RESULTS FOR RIVER SAMPLES

CBODu for Possum Bayou, Boggy Bayou, Rawraw Bayou, Bayou Bartholomew, and Incremental Inflow
Table 2-1



TABLE 5-7. SUMMARY OF FLOW, TEMPERATURE AND UNIFORM $CBOD_u$ LOADS FOR MODEL CALIBRATION DATA SETS

| Survey Dates | Upstream Flow (cfs) | Temperature (°C) | Upstream $CBOD_u$ ($L_o$) (mg/L) | Uniform $CBOD_u$ Load[a] (lb/mi-d) | Equivalent Sediment Flux[b] (g $CBOD_u$ $m^2$/d) |
|---|---|---|---|---|---|
| 07/22/80-07/23/80 | 3,086 | 31.0 | 3.0 | 422 | 0.78-1.15 |
| 10/23/91-10/24/91 | 1,946 | 20.0 | 2.5/2.83[c] | 294 | 0.55-0.80 |
| 09/02/80-09/03/80 | 1,012 | 30.5 | 2.5 | 354 | 0.66-0.97 |
| 7/87 | 892 | 29.8 | 2.8[d] | 384[e] | 0.72-1.05[e] |
| 09/18/90-09/19/90 | 676 -2,320 | 29.5 | 4.9 | 812[f] | 1.51-2.21[f] |

[a] $W_{ul} = .3292\ A\ K_r L_o$; $K_r = 0.05 \times 1.047^{(T-20)}$
[b] higher value upstream (A varies spatially)
[c] boundary condition/average; used average for $W_{ul}$
[d] no $CBOD_u$ data, used average of 1980 surveys
[e] estimated at old A = 5,312 $ft^2$ (455 lb/mi/d at new A = 6,300 $ft^2$)
[c] [f] used K = 0.08 (≃ 0.077; roundoff)

5.2.2.1 July 22 and 23, 1980 Intensive Survey

(Q = 3086 cfs and T = 31°C)

This was the first low flow survey used to calibrate the BOD-DO model when analyses were first performed during 1980. Initial attempts at calibrating the model for carbonaceous BOD were based on a single BOD removal rate coefficient throughout the study area. Due to the relatively uniform spatial profile of CBOD upstream of Coffee Creek, it was not possible to obtain good agreement between model and data using a single deoxygenation rate coefficient. The uniform spatial distribution of CBOD shown on Figure 5-19, both in the upstream and far downstream regions, suggested that the CBOD removal rate was very low, and/or that a uniform load was present. Thus, a minimum

TABLE A7-4

OCTOBER 23-24, 1991 OUACHITA RIVER LOW STAGE SURVEY
WATER QUALITY DEPTH COMPOSITE SAMPLE DATA

| Sta. ID | L.A. MP. | Date | Time | TKN mg/L | NH3-N mg/L | NO2+ NO3-N mg/L | TOC mg/L | Total Phos. mg P/L | Ortho Phos. mg P/L |
|---|---|---|---|---|---|---|---|---|---|
| B2 | 237.8 | 10/23/91 | 12:55 | <.200 | <.05 | <.50 | 3.20 | <.050 | .0151 |
| B3 | 233.4 | 10/23/91 | 12:25 | .204 | <.05 | <.50 | 3.08 | | |
| B4 | 228.4 | 10/23/91 | 12:05 | .297 | <.05 | <.50 | 5.68 | | |
| 2 | 223.0 | 10/23/91 | 10:35 | .534 | <.05 | <.50 | 3.35 | <.050 | <.010 |
| TP3 | -222.0 | 10/23/91 | 10:20 | 4.220 | 1.49 | <.50 | 67. | .809 | .589 |
| 3 | 221.1 | 10/23/91 | 09:35 | .641 | <.05 | <.50 | 5.46 | <.050 | .0183 |
| 3A | 218.5 | 10/23/91 | 09:40 | .448 | <.05 | <.50 | 4.66 | | |
| 4 | 215.5 | 10/23/91 | 10:05 | <.200 | <.05 | <.50 | 4.64 | <.050 | .0173 |
| 4A | 211.5 | 10/23/91 | 10:30 | .308 | <.05 | <.50 | 5.16 | | |
| 5 | 208.2 | 10/23/91 | 10:45 | <.200 | <.05 | <.50 | 4.45 | <.050 | .0237 |
| 6 | 204.7 | 10/23/91 | 11:15 | .368 | <.05 | <.50 | 4.79 | | |
| 7 | 199.5 | 10/23/91 | 11:45 | .436 | <.05 | <.50 | 6.53 | <.050 | .0205 |
| 8 | 194.7 | 10/23/91 | 12:10 | .579 | <.05 | <.50 | 4.30 | | |
| 2 | 223.0 | 10/24/91 | 14:30 | 2.070 | <.05 | <.50 | 3.89 | .032 | .0151 |
| TP3 | -222.0 | 10/24/91 | 14:15 | 2.40 | 1.33 | <.50 | 111. | .654 | .506 |
| 3 | 221.1 | 10/24/91 | 14:05 | .613 | <.05 | <.50 | 5.40 | <.050 | <.010 |
| 3A | 218.5 | 10/24/91 | 09:15 | <.20 | .101 | .507 | 11.1 | | |
| 4 | 215.5 | 10/24/91 | 09:35 | .581 | <.05 | .542 | 5.14 | <.050 | .0216 |
| 5 | 208.2 | 10/24/91 | 10:25 | .514 | <.05 | .567 | 10.2 | <.050 | .0248 |
| 7 | 199.5 | 10/24/91 | 11:20 | .642 | <.050 | <.50 | 4.82 | <.050 | .0238 |

Table 2-1 : Org N-N & $NH_3$-N for headwater, Coffee Creek, Pierre Creek, Possum Bayou, Boggy Bayou, PawPaw Bayou, Bayou Bartholomew, Incremental Inflow

: $NO_3$ & $NO_2$ for headwater, all point sources, and Incremental Inflow

: Org P-P & Dis P-P for Coffee Creek

Table 2-1 Chlorophyll-a for all point sources

TABLE A7-3

OCTOBER 23-24, 1991 OUACHITA RIVER LOW STAGE SURVEY
MORNING PASS DEPTH COMPOSITE SAMPLE DATA

| Station ID | Louisiana Milepoint | Date | Time | Alka-linity mg/L | Chloro-phyll'a' ug/L | TSS mg/L | VSS mg/L | TDS mg/L |
|---|---|---|---|---|---|---|---|---|
| B2 | 237.8 | 10/23/91 | 12:55 | 16.1 | 0.93 | 7.40 | <2.00 | 101. |
| B3 | 233.4 | 10/23/91 | 12:25 | 25.3 | | 4.40 | <2.00 | 94. |
| B4 | 228.4 | 10/23/91 | 12:05 | 23.1 | | 6.00 | 2.40 | 105. |
| B5 | 226.9 | 10/23/91 | 11:45 | | | | | |
| B5A | 226.7 | 10/23/91 | 11:00 | | | | | |
| 2 | 223.0 | 10/23/91 | 10:35 | 15.4 | <1.36 | 8.00 | 3.00 | 130. |
| TP3 | -222.0 | 10/23/91 | 10:20 | 334.0 | | 18.20 | 7.00 | 1810. |
| 3 | 221.1 | 10/23/91 | 09:35 | 25.3 | <1.66 | 14.20 | 3.20 | 162. |
| 3A | 218.5 | 10/23/91 | 09:40 | 21.4 | | 7.80 | 2.00 | 123. |
| 4 | 215.5 | 10/23/91 | 10:05 | 13.8 | 1.07 | 6.40 | <2.00 | 112. |
| 4A | 211.5 | 10/23/91 | 10:30 | 18.2 | | 4.40 | <2.00 | 99. |
| 5 | 208.2 | 10/23/91 | 10:45 | 18.2 | 2.67 | 7.00 | <2.00 | 80. |
| 6 | 204.7 | 10/23/91 | 11:15 | 20.6 | | 7.00 | 2.00 | 110. |
| 7 | 199.5 | 10/23/91 | 11:45 | | <1.01 | 4.20 | 2.00 | 102. |
| 8 | 194.7 | 10/23/91 | 12:10 | 20.6 | | 4.80 | <2.00 | 156. |
| 2 | 223.0 | 10/24/91 | 14:30 | 23.1 | <0.91 | 8.40 | <2.00 | 88. |
| TP3 | -222.0 | 10/24/91 | 14:20 | 327.0 | | 22.2 | 5.20 | 1960. |
| 3 | 221.1 | 10/24/91 | 14:05 | 22.0 | <0.91 | 14.80 | 3.20 | 132. |
| 3A | 218.5 | 10/24/91 | 09:15 | 44.0 | | 11.20 | <4.00 | 258. |
| 4 | 215.5 | 10/24/91 | 09:35 | 24.2 | <0.96 | 10.80 | <2.00 | 146. |
| 4A | 211.5 | 10/24/91 | 10:05 | | | | | 172. |
| 5 | 208.2 | 10/24/91 | 10:25 | 24.2 | <0.80 | 9.00 | <2.00 | 146. |
| 6 | 204.7 | 10/24/91 | 10:50 | | | | | 134. |
| 7 | 199.5 | 10/24/91 | 11:20 | 24.2 | <1.07 | 12.60 | <2.00 | 154. |
| 8 | 194.7 | 10/24/91 | 11:50 | | | | | 142. |

TABLE 4-1. OUACHITA RIVER MODEL GEOMETRY
AREA, VELOCITY AND DEPTH COEFFICIENTS AND EXPONENTS

Pre 1984

| Time of Travel Reach | Upstream La. MP | Model Segments | | Area | | Velocity | | Depth | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1980 | 1978 | Coefficient | Exponent | Coefficient | Exponent | Coefficient | Exponent |
| A | 238.6 | 1-4 | | 4,673 | 0.018 | $2.14 \times 10^{-4}$ | .982 | 14.30 | .013 |
| B | 223.2 | 5-9 | 1-5 | 2,192 | 0.103 | $4.56 \times 10^{-4}$ | .897 | 7.17 | .050 |
| C | 204.1 | 10 | 6 | 3,636 | 0.054 | $2.75 \times 10^{-4}$ | .946 | 12.00 | .018 |
| D | 194.3 | 11-13 | 7-9 | 4,950 | 0.070 | $2.02 \times 10^{-4}$ | .930 | 15.03 | .011 |
| E | 187.6 | 14-16 | 10-12 | 5,682 | 0.032 | $1.76 \times 10^{-4}$ | .968 | 16.24 | .006 |
| F | 181.4 | 17 | 13 | 8,696 | 0.0 | $1.15 \times 10^{-4}$ | 1.0 | 6.90 | 0.0 |
| G | 177.1 | 18-20 | 14-16 | 8,696 | 0.0 | $1.15 \times 10^{-4}$ | 1.0 | 13.6 | 0.0 |
| H | 168.9 | 21-24 | 17-20 | 11,630 | 0.0 | $0.86 \times 10^{-4}$ | 1.0 | 23.9 | 0.0 |
| I | 161.2 | 25-27 | 21-23 | 11,900 | 0.0 | $0.84 \times 10^{-4}$ | 1.0 | 24.7 | 0.0 |
| ($I_1$) | 161.2 | 25-26 | 21,22 | 12,500 | 0.0 | $0.80 \times 10^{-4}$ | 1.0 | 24.7 | 0.0 |
| ($I_2$) | 153.2 | 27 | 23 | 11,110 | 0.0 | $0.90 \times 10^{-4}$ | 1.0 | 24.7 | 0.0 |
| J | 145.5 | 28 | 24 | 11,500 | 0.0 | $0.87 \times 10^{-4}$ | 1.0 | 22.2 | 0.0 |
| K | 138.2 | 29 | 25 | 10,000 | 0.0 | $1.00 \times 10^{-4}$ | 1.0 | 26.0 | 0.0 |
| L | 130.2 | 30 | 26 | 13,330 | 0.0 | $0.75 \times 10^{-4}$ | 1.0 | 27.7 | 0.0 |

Revised Upstream Geometry Post 1984

| Time of Travel Reach | Upstream La. MP | Model Segments | Area | | Velocity | | Depth | |
|---|---|---|---|---|---|---|---|---|
| | | 1990-1991 | Coefficient | Exponent | Coefficient | Exponent | Coefficient | Exponent |
| A | 238.6 | 1-3 | 5,520 | 0.018 | $1.81 \times 10^{-4}$ | .982 | 17.20 | .011 |
| B | 226.9 | 4-9 | 2,192 | 0.103 | $4.56 \times 10^{-4}$ | .897 | 7.17 | 0.050 |

Note: Area, velocity and depth relationships are consistent with HEC II model results at flows less than 5,460 cfs in Reaches A through C and at flows less than 13,000 cfs in Reaches D through L.
Old Felsenthal Lock and Dam 6 located at MP 223.2
New Felsenthal Lock and Dam 6 located at MP 226.9

Table 2-2 Depth and Velocity Coefficients and Exponents

Table 2-2 BOD Decay Rate



### 5.1.3.2 CBOD Oxidation Rate

An important motivation for conducting the experimental studies completed during 1991 was to obtain an improved definition of the magnitude of the background and point source CBOD oxidation rate coefficients used in the water quality model of the Ouachita River. Prior to 1991 the CBOD oxidation rate in the river had been estimated in two ways. First, the BOD bottle rate estimated from BOD time series analyses, typically 0.05/day at 20°C, was assigned to the uniform background load. Next, as part of the model calibration analysis, the oxidation rate of the effluent was set at 0.1/day at 20°C based on comparison of the model results with instream $CBOD_u$ data downstream of the discharge, as well as from consideration of the corresponding comparison of model and data for dissolved oxygen (i.e., from the agreement of model and data with regard to the overall dissolved oxygen balance in the river).

In addition to collection and analysis of an additional intensive survey data set, several other approaches were used during the 1991 studies to better define the CBOD oxidation rates. These approaches included measurement of total organic carbon (TOC) data in conjunction with CBOD time series data (at t = 0 and at t = 60 days to estimate the biodegradable TOC by difference), and Warburg respirometer studies. The results of these special studies are discussed below, prior to review of model calibration results, where comparisons of model results to instream CBOD spatial profiles will be reviewed as a further method of evaluation.

Several steps were taken during the October 23 and 24, 1991 intensive survey to obtain a better definition of the oxidation rate of effluent $CBOD_u$. First, TOC was measured at each sample station where samples for CBOD time series measurements were collected. It was intended that the test precision of TOC relative to BOD would be improved and hence the results more readily interpretable. Additional stations were also added in the reach immediately downstream of the discharge to provide a better statistical basis for evaluating the oxidation rate from the fit of the model to the instream data. These TOC data are shown on Figure 5-7. "Total" TOC, the initial TOC of the sample at

Table 2-2 Reaeration Rate



Each of these model components requires specification of one or more model inputs. This section summarizes the methods used to evaluate these model input parameters.

### 5.1.1 Reaeration

Reaeration is estimated using the O'Connor Equation (Section 3.4, Equation 3-9). This predictive equation provides results which are consistent with the limited field measurements reported for the Ouachita River, as summarized in Table 5-1 (after NCASI, 1982). A lower bound to the reaeration rate coefficient is set by a surface transfer coefficient of 2 ft/day, applicable under low wind conditions and typically assigned in deeper, low velocity reaches (Figure 5-2 and O'Connor, 1983).

TABLE 5-1. COMPARISON OF MEASURED AND PREDICTED REAERATION RATE COEFFICIENTS

| Flow (cfs) | River Milepoint[a] | Reaeration Rate (1/d) Measured[b] | Reaeration Rate (1/d) O'Connor Equation |
|---|---|---|---|
| 1,200 | 192 ( 2 mi) | 0.02 ± 1000% | 0.02 |
| 850 | 312 (18 mi) | 0.17 ± 18% | 0.16 |

[a]Length of river reach shown in parentheses.
[b]NCASI, 1982.

Reaeration at Lock and Dam 6 was significant during the 1980 surveys, with an average dam reaeration rate coefficient corresponding to 0.1/foot of free fall (range = 0.05 to 0.15/foot) for about a 12 foot elevation difference between the upper and lower pools. This reaeration generally resulted in an improvement in dissolved oxygen when river water flowed over the dam. Since 1984, when the new dam was placed in operation and the upper pool elevation was raised 3.4 feet, water has not been released over the top of the dam and this improvement in dissolved oxygen has not been realized. Recent structural modifications made during 1991 are expected to result in reaeration at the dam again, but the structural changes have not been approved as of this time and data

Table 2-2 SOD



TABLE 5-7. SUMMARY OF FLOW, TEMPERATURE AND UNIFORM $CBOD_u$ LOADS FOR MODEL CALIBRATION DATA SETS

| Survey Dates | Upstream Flow (cfs) | Temperature (°C) | Upstream $CBOD_u$ ($L_o$) (mg/L) | Uniform $CBOD_u$ Load[a] (lb/mi-d) | Equivalent Sediment Flux[b] (g $CBOD_u$ $m^2$/d) |
|---|---|---|---|---|---|
| 07/22/80-07/23/80 | 3,086 | 31.0 | 3.0 | 422 | 0.78-1.15 |
| 10/23/91-10/24/91 | 1,946 | 20.0 | 2.5/2.83[c] | 294 | 0.55-0.80 |
| 09/02/80-09/03/80 | 1,012 | 30.5 | 2.5 | 354 | 0.66-0.97 |
| 7/87 | 892 | 29.8 | 2.8[d] | 384[e] | 0.72-1.05[e] |
| 09/18/90-09/19/90 | 676 -2,320 | 29.5 | 4.9 | 812[f] | 1.51-2.21[f] |

[a] $W_{ul} = .3292\ A\ K_r L_o$; $K_r = 0.05 \times 1.047^{(T-20)}$
[b] higher value upstream (A varies spatially)
[c] boundary condition/average; used average for $W_{ul}$
[d] no $CBOD_u$ data, used average of 1980 surveys
[e] estimated at old A = 5,312 $ft^2$ (455 lb/mi/d at new A = 6,300 $ft^2$)
[c f] used K = 0.08 (≃ 0.077; roundoff)

5.2.2.1 July 22 and 23, 1980 Intensive Survey

(Q = 3086 cfs and T = 31°C)

This was the first low flow survey used to calibrate the BOD-DO model when analyses were first performed during 1980. Initial attempts at calibrating the model for carbonaceous BOD were based on a single BOD removal rate coefficient throughout the study area. Due to the relatively uniform spatial profile of CBOD upstream of Coffee Creek, it was not possible to obtain good agreement between model and data using a single deoxygenation rate coefficient. The uniform spatial distribution of CBOD shown on Figure 5-19, both in the upstream and far downstream regions, suggested that the CBOD removal rate was very low, and/or that a uniform load was present. Thus, a minimum

Table 2-4 : July 1987 River & Coffee Creek Flow
: July 1987 River temperature
: July 1987 $CBOD_u$ & $CBOD_5$ for Coffee Creek



again that the increase in dissolved oxygen upstream of the discharge is associated with reaeration at the old Lock and Dam 6. In the downstream reach, instream dissolved oxygen levels decrease to about 4 mg/L at this relatively low flow and high temperature survey condition. With the exception of the most downstream sample location, the model fits the data quite well.

### 5.2.2.4 July 1987 Routine Monitoring Data (Q = 892 cfs and T = 29.8°C)

This data set is based on five sets of routine weekly monitoring dissolved oxygen data reported by Georgia Pacific for the month of July 1987. The data were measured at the five foot depth in the water column during sample runs started at about 8:00 in the morning and usually finished by early in the afternoon. Conditions during 1987 during the low stage period are summarized on the temporal plot shown on Figure 5-22, with filled plot symbols during July corresponding to data from the period analyzed with the model. The upper left panel shows river flows on days that routine surveys were conducted (USGS provisional data). Based on these data the average river flow for the month of July was 892 cfs, close to the monthly 7Q10 for July of 894 cfs, and the temperature was 29.8°C. As shown on the upper right panel, the average effluent $BOD_5$ load for this survey was 3,405 lbs/day and using a ratio of $CBOD_u/BOD_5 = 4$, the $CBOD_u$ load was estimated at 13,620 lbs/day. Since instream BOD data were not available from the routine monitoring surveys, the upstream $CBOD_u$ concentration and the uniform load used with this data set was based on the average of the two intensive surveys completed prior to the time this analysis was performed. The flow and loading conditions during July 1987 were taken to be representative of pseudo-steady state conditions for modeling purposes.

The 4 lower panels of Figure 5-22 show temporal plots of dissolved oxygen (5 foot depth) for the spring and summer of 1987. The 2 middle panels present data from stations upstream of the discharge (MP 234 and MP 224) of Coffee Creek and indicate that the background dissolved oxygen was about 5 mg/L during the period simulated. The lower panels show that data in the downstream reach was often in the range of 4 to 5

Table 2-4: July 1987 River & Coffee Creek flow
: July 1987 River temperature
: July 1987 CBODu for Coffee Creek



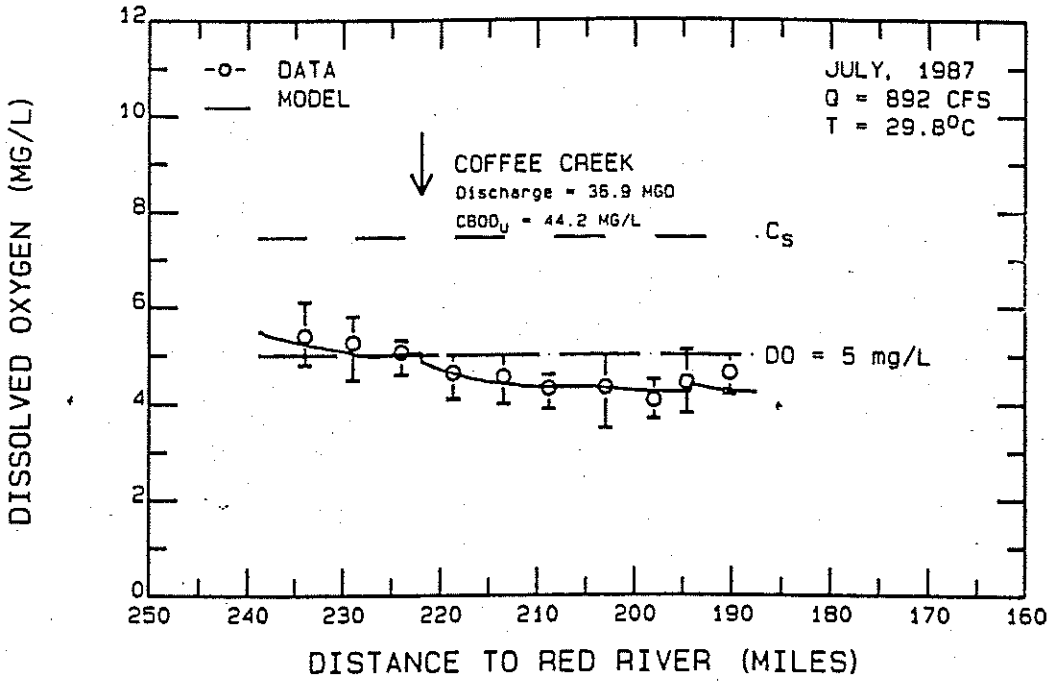


FIGURE 5-23. BOD-DO MODEL CALIBRATION RESULTS: JULY 1987

Table 2-4 : July 1987 Coffee Creek temperature
: July 1987 River DO

TABLE B2
(Continued)

ROUTINE OUACHITA RIVER SURVEY DATA
1987 to 1989

| Date | Milepoint COE | Milepoint Louisiana | Temperature oC | Dissolved oxygen mg/L | Apparent Color pcu |
|---|---|---|---|---|---|
| 06/25/87 | 250. | 232.9 | 29.5 | 4.7 | 50. |
| 06/25/87 | 245. | 227.9 | 29.5 | 4.7 | |
| 06/25/87 | 240. | 224.0 | 29.5 | 4.5 | 50. |
| 06/25/87 | -238. | -222.0 | 29.0 | 2.8 | |
| 06/25/87 | 235. | 218.7 | 29.5 | 4.3 | 80. |
| 06/25/87 | 230. | 213.5 | 29.5 | 4.4 | |
| 06/25/87 | 225. | 208.8 | 30.0 | 4.6 | 60. |
| 06/25/87 | 220. | 203.0 | 30.0 | 4.6 | |
| 06/25/87 | 215. | 198.0 | 30.0 | 4.6 | 60. |
| 06/25/87 | 210. | 194.6 | 30.0 | 4.9 | |
| 06/25/87 | 205. | 190.2 | 30.0 | 5.1 | 60. |
| 07/02/87 | 250. | 232.9 | 30.0 | 4.8 | 50. |
| 07/02/87 | 245. | 227.9 | 29.5 | 4.5 | |
| 07/02/87 | 240. | 224.0 | 29.0 | 4.6 | 50. |
| 07/02/87 | -238. | -222.0 | 28.0 | 2.5 | |
| 07/02/87 | 235. | 218.7 | 29.0 | 4.3 | 70. |
| 07/02/87 | 230. | 213.5 | 29.5 Avg 29.1 | 4.0 | |
| 07/02/87 | 225. | 208.8 | 29.0 | 3.9 | 70. |
| 07/02/87 | 220. | 203.0 | 29.0 | 3.5 | |
| 07/02/87 | 215. | 198.0 | 29.0 | 3.7 | 70. |
| 07/02/87 | 210. | 194.6 | 29.5 | 3.8 | |
| 07/02/87 | 205. | 190.2 | 30.0 | 4.2 | 60. |
| 07/09/87 | 250. | 232.9 | 30.0 | 5.4 | 40. |
| 07/09/87 | 245. | 227.9 | 30.0 | 5.1 | |
| 07/09/87 | 240. | 224.0 | 30.0 | 5.1 | 40. |
| 07/09/87 | -238. | -222.0 | 27.0 | 3.3 | |
| 07/09/87 | 235. | 218.7 | 29.0 Avg 29.1 | 4.1 | 140. |
| 07/09/87 | 230. | 213.5 | 29.0 | 4.2 | |
| 07/09/87 | 225. | 208.8 | 29.0 | 4.1 | 120. |
| 07/09/87 | 220. | 203.0 | 29.0 | 4.4 | |
| 07/09/87 | 215. | 198.0 | 29.0 | 4.2 | 80. |
| 07/09/87 | 210. | 194.6 | 29.0 | 4.3 | |
| 07/09/87 | 205. | 190.2 | 29.0 | 4.6 | 80. |
| 07/16/87 | 250. | 232.9 | 30.0 | 5.3 | 30. |
| 07/16/87 | 245. | 227.9 | 30.0 | 5.5 | |
| 07/16/87 | 240. | 224.0 | 30.0 | 5.2 | 40. |
| 07/16/87 | -238. | -222.0 | 30.0 | 2.6 | |
| 07/16/87 | 235. | 218.7 | 30.0 | 5.0 | 35. |
| 07/16/87 | 230. | 213.5 | 30.0 Avg 30 | 4.9 | |
| 07/16/87 | 225. | 208.8 | 30.0 | 4.4 | 40. |
| 07/16/87 | 220. | 203.0 | 30.0 | 4.2 | |
| 07/16/87 | 215. | 198.0 | 30.0 | 4.2 | 45. |
| 07/16/87 | 210. | 194.6 | 30.0 | 4.5 | |
| 07/16/87 | 205. | 190.2 | 30.5 | 5.0 | 45. |

Table 2-4 : July 1987 Coffee Creek temperature
: July 1987 River DO

TABLE B2
(Continued)

ROUTINE OUACHITA RIVER SURVEY DATA
1987 to 1989

| Date | Milepoint COE | Milepoint Louisiana | Temperature oC | Dissolved Oxygen mg/L | Apparent Color pcu |
|---|---|---|---|---|---|
| 07/23/87 | 250. | 232.9 | 30.0 | 5.4 | 40. |
| 07/23/87 | 245. | 227.9 | 30.0 | 5.4 | |
| 07/23/87 | 240. | 224.0 | 30.0 | 5.1 | 35. |
| 07/23/87 | -238. | -222.0 | 28.0 | 1.2 | |
| 07/23/87 | 235. | 218.7 | 30.0 | 4.9 | 35. |
| 07/23/87 | 230. | 213.5 | 30.0 Avg 30 | 4.7 | |
| 07/23/87 | 225. | 208.8 | 30.0 | 4.6 | 65. |
| 07/23/87 | 220. | 203.0 | 30.0 | 4.6 | |
| 07/23/87 | 215. | 198.0 | 30.0 | 3.8 | 90. |
| 07/23/87 | 210. | 194.6 | 30.0 | 4.5 | 45. |
| 07/23/87 | 205. | 190.2 | 30.0 | 4.6 | 55. |
| 07/30/87 | 250. | 232.9 | 31.0 | 6.1 | 35. |
| 07/30/87 | 245. | 227.9 | 31.0 | 5.8 | |
| 07/30/87 | 240. | 224.0 | 31.0 | 5.3 | 35. |
| 07/30/87 | -238. | -222.0 | 30.0 | .9 | |
| 07/30/87 | 235. | 218.7 | 31.0 Avg 31 | 4.9 | 55. |
| 07/30/87 | 230. | 213.5 | 31.0 | 5.0 | 55. |
| 07/30/87 | 225. | 208.8 | 31.0 | 4.6 | 60. |
| 07/30/87 | 220. | 203.0 | 31.0 | 5.0 | 60. |
| 07/30/87 | 215. | 198.0 | 31.0 | 4.5 | 90. |
| 07/30/87 | 210. | 194.6 | 31.0 | 5.1 | 65. |
| 07/30/87 | 205. | 190.2 | 32.0 | 4.8 | 60. |
| 08/06/87 | 250. | 232.9 | 32.0 | 5.9 | 35. |
| 08/06/87 | 245. | 227.9 | 32.0 | 5.3 | |
| 08/06/87 | 240. | 224.0 | 32.0 | 5.2 | 35. |
| 08/06/87 | -238. | -222.0 | 30.0 | 1.5 | |
| 08/06/87 | 235. | 218.7 | 32.0 | 5.1 | 60. |
| 08/06/87 | 230. | 213.5 | 32.0 | 4.9 | |
| 08/06/87 | 225. | 208.8 | 32.0 | 4.7 | 55. |
| 08/06/87 | 220. | 203.0 | 32.0 | 4.6 | |
| 08/06/87 | 215. | 198.0 | 32.0 | 4.5 | 50. |
| 08/06/87 | 210. | 194.6 | 32.0 | 4.6 | |
| 08/06/87 | 205. | 190.2 | 32.0 | 4.9 | 45. |
| 08/13/87 | 250. | 232.9 | 32.0 | 5.7 | 25. |
| 08/13/87 | 245. | 227.9 | 32.0 | 5.4 | |
| 08/13/87 | 240. | 224.0 | 31.0 | 4.6 | 25. |
| 08/13/87 | -238. | -222.0 | 29.5 | 1.5 | |
| 08/13/87 | 235. | 218.7 | 31.0 | 3.9 | 110. |
| 08/13/87 | 230. | 213.5 | 31.0 | 3.9 | |
| 08/13/87 | 225. | 208.8 | 31.0 | 3.9 | 80. |
| 08/13/87 | 220. | 203.0 | 31.5 | 3.7 | |
| 08/13/87 | 215. | 198.0 | 31.5 | 3.6 | 70. |
| 08/13/87 | 210. | 194.6 | 31.5 | 4.6 | |
| 08/13/87 | 205. | 190.2 | 31.5 | 4.7 | 55. |

# UNITED STATES ARMY CORPS OF ENGINEERS

DAILY STAGES FOR 1987

25611 OUACHITA RIVER AT FELSENTHAL LOCK AND DAM (UPPER),STATION NO. 89-H

LOCATION. FELSENTHAL LOCK AND DAM AT MILE 182.8 (1939), OR 243 MILES UPSTREAM FROM MOUTH OF BLACK RIVER. LAT. 33-01-56 LONG. 92-05-17. FELSENTHAL QUADRANGLE.

GAGE. VERTICAL AND INCLINED STAFFS, AT UPSTREAM END OF LOCK.

GENERAL INFORMATION. GAGE READ AND MAINTAINED BY VICKSBURG DISTRICT. DRAINAGE AREA, 10,787 SQUARE MILES. POOL STAGE IS 65.0 FEET. BANKFULL STAGE IS 65.0 FEET.

RECORDS AVAILABLE. STAGE, SEPT. 1984 TO DATE

EXTREMES NOT DETERMINED.

DAILY EIGHT A.M. STAGE IN FEET GAGE ZERO, IS AT N.G.V.D.

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 70.0 | 67.5 | 71.6 | 72.2 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.1 | 67.7 |
| 2 | 70.0 | 67.4 | 72.3 | 71.9 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.2 | 67.8 |
| 3 | 70.0 | 67.3 | 72.8 | 71.7 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.3 | 67.9 |
| 4 | 70.0 | 67.2 | 73.2 | 71.3 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.4 | 68.0 |
| 5 | 70.0 | 67.2 | 73.6 | 71.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.5 | 68.1 |
| 6 | 70.0 | 67.0 | 74.0 | 70.6 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.5 | 68.2 |
| 7 | 70.0 | 66.9 | 74.4 | 70.2 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.6 | 68.2 |
| 8 | 69.9 | 66.8 | 74.7 | 69.8 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.6 | 68.3 |
| 9 | 69.8 | 66.7 | 75.0 | 69.4 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.8 | 68.4 |
| 10 | 69.7 | 66.6 | 75.2 | 68.9 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.9 | 68.5 |
| 11 | 69.6 | 66.5 | 75.4 | 68.4 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 66.0 | 68.6 |
| 12 | 69.5 | 66.4 | 75.5 | 68.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 66.1 | 68.7 |
| 13 | 69.4 | 66.3 | 75.6 | 67.5 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 66.2 | 68.8 |
| 14 | 69.3 | 66.2 | 75.5 | 66.9 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 66.3 | 68.8 |
| 15 | 69.2 | 66.1 | 75.3 | 66.2 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 66.4 | 68.9 |
| 16 | 69.1 | 66.0 | 75.1 | 65.6 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 66.4 | 69.0 |
| 17 | 69.0 | 65.9 | 74.9 | 65.1 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 66.5 | 69.1 |
| 18 | 68.9 | 66.2 | 74.7 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 66.6 | 69.1 |
| 19 | 68.8 | 66.6 | 74.4 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 66.7 | 69.2 |
| 20 | 68.7 | 66.9 | 74.1 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 66.7 | 69.3 |
| 21 | 68.6 | 67.4 | 73.9 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 66.8 | 69.4 |
| 22 | 68.5 | 67.8 | 73.7 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 66.9 | 69.4 |
| 23 | 68.4 | 68.2 | 73.5 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 67.0 | 69.5 |
| 24 | 68.3 | 68.5 | 73.3 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 67.1 | 69.6 |
| 25 | 68.2 | 68.8 | 73.2 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 67.2 | 69.6 |
| 26 | 68.1 | 69.0 | 73.1 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 67.3 | 69.7 |
| 27 | 68.0 | 69.7 | 73.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 67.4 | 69.7 |
| 28 | 67.9 | 70.7 | 72.9 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 67.5 | 69.8 |
| 29 | 67.8 | --- | 72.7 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 67.6 | 69.8 |
| 30 | 67.7 | ---- | 72.6 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 67.7 | 69.9 |
| 31 | 67.6 | ---- | 72.5 | ---- | 65.0 | ---- | 65.0 | 65.0 | ---- | 65.0 | ---- | 70.4 |
| MEAN | 69.0 | 67.3 | 73.9 | 67.3 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 66.4 | 68.9 |
| MAX | 70.0 | 70.7 | 75.6 | 72.2 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 67.7 | 70.4 |
| MIN | 67.6 | 65.9 | 71.6 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.1 | 70.4 |

THE MEAN STAGE FOR THE YEAR 66.9
HIGHEST STAGE WAS 75.60 13 MAR 1987
LOWEST STAGE WAS 65.00 18 APR 1987

DAILY STAGES FOR 1987

25612 OUACHITA RIVER AT FELSENTHAL LOCK AND DAM (LOWER),STATION NO. 89-G

LOCATION. FELSENTHAL LOCK AND DAM AT MILE 182.8 (1939), OR 243 MILES UPSTREAM FROM MOUTH OF BLACK RIVER. LAT. 33-01-56 LONG. 92-05-17. FELSENTHAL QUADRANGLE.

GAGE. STAFF ON DOWNSTREAM END OF LOCK WALL.

GENERAL INFORMATION. GAGE READ AND MAINTAINED BY VICKSBURG DISTRICT. DRAINAGE AREA, 10,787 SQUARE MILES. POOL SAGE IS 65 FEET, BANKFULL SSTAGE IS 65 FEET. 9 TO 1923.

RECORDS AVAILABLE. STAGE, SEPT. 1984 TO DATE.

EXTREMES. HIGHEST 86.40 FEET 1991. LOWEST 51.6 FEET SEPT. 4, 1987.

DAILY EIGHT A.M. STAGE IN FEET GAGE ZERO, IS AT N.G.V.D.

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 68.9 | 63.5 | --- | --- | 53.5 | 56.2 | 53.1 | 52.6 | 51.8 | 52.3 | 52.2 | 65.8 |
| 2 | 67.9 | 63.3 | --- | --- | 53.5 | 55.1 | 52.8 | 52.7 | 52.0 | 53.0 | 52.1 | 66.1 |
| 3 | 67.1 | 63.2 | --- | --- | 53.5 | 54.3 | 53.1 | 52.7 | 51.7 | 52.3 | 52.2 | 66.1 |
| 4 | 66.9 | 64.2 | --- | --- | 55.1 | 54.2 | 53.0 | 52.5 | 51.6 | 52.6 | 52.0 | 66.3 |
| 5 | 66.6 | 64.9 | --- | --- | 57.9 | 54.2 | 52.8 | 52.5 | 51.6 | 52.3 | 52.2 | 66.3 |
| 6 | 66.5 | 65.5 | --- | --- | 57.8 | 54.5 | 52.2 | 52.6 | 51.6 | 52.3 | 52.3 | 66.0 |
| 7 | 66.7 | 65.9 | --- | --- | 56.9 | 54.1 | 52.9 | 52.2 | 51.6 | 52.1 | 52.0 | 66.1 |
| 8 | 66.7 | 65.9 | --- | --- | 57.1 | 53.2 | 52.6 | 52.4 | 51.6 | 52.1 | 52.0 | 65.7 |
| 9 | 66.8 | 65.9 | --- | --- | 58.3 | 52.9 | 52.7 | 52.1 | 52.2 | 52.1 | 52.1 | 65.2 |
| 10 | 66.6 | 65.8 | --- | --- | 59.2 | 52.9 | 52.0 | 52.2 | 52.0 | 52.0 | 52.4 | 65.0 |
| 11 | 66.3 | 65.5 | --- | --- | 59.6 | 52.6 | 52.6 | 52.5 | 52.6 | 52.0 | 54.2 | 64.9 |
| 12 | 66.2 | 64.9 | --- | --- | 57.4 | 52.6 | 52.6 | 52.2 | 52.2 | 52.0 | 55.6 | 64.8 |
| 13 | 66.0 | 64.7 | --- | --- | 54.8 | 54.0 | 52.6 | 52.4 | 52.6 | 52.1 | 58.6 | 64.4 |
| 14 | 65.9 | 64.1 | --- | --- | 53.7 | 52.6 | 52.6 | 52.4 | 52.2 | 52.2 | 58.7 | 64.4 |
| 15 | 65.8 | 63.5 | --- | --- | 53.6 | 53.9 | 52.8 | 52.5 | 52.2 | 52.0 | 58.3 | 63.5 |
| 16 | 65.4 | 64.3 | --- | --- | 53.7 | 53.5 | 52.5 | 52.3 | 52.3 | 52.0 | 59.5 | 62.6 |
| 17 | 65.0 | 65.3 | --- | --- | 53.7 | 53.6 | 52.5 | 52.1 | 52.6 | 52.4 | 59.8 | 62.9 |
| 18 | 64.9 | 66.3 | --- | 64.0 | 53.5 | 54.1 | 52.6 | 52.2 | 53.6 | 52.2 | 61.3 | 62.9 |
| 19 | 65.2 | --- | --- | 63.3 | 53.5 | 54.1 | 52.3 | 52.3 | 55.4 | 52.5 | 62.7 | 63.8 |
| 20 | 65.8 | --- | --- | 62.1 | 53.5 | 53.4 | 52.4 | 52.1 | 54.7 | 52.4 | 63.8 | 64.6 |
| 21 | 65.7 | --- | --- | 60.6 | 54.3 | 53.7 | 52.7 | 52.0 | 54.3 | 52.5 | 64.3 | 64.5 |
| 22 | 65.9 | --- | --- | 59.7 | 53.8 | 53.2 | 52.7 | 52.0 | 52.6 | 52.7 | 64.3 | 65.1 |
| 23 | 66.0 | --- | --- | 58.5 | 53.0 | 53.2 | 53.2 | 52.0 | 52.2 | 53.6 | 64.7 | 65.3 |
| 24 | 65.9 | --- | --- | 58.0 | 53.0 | 53.4 | 52.5 | 51.8 | 53.2 | 52.7 | 64.8 | 65.2 |
| 25 | 65.8 | --- | --- | 56.3 | 53.3 | 52.6 | 52.5 | 51.8 | 53.2 | 52.5 | 64.8 | 65.6 |
| 26 | 65.4 | --- | --- | 55.0 | 56.3 | 52.8 | 52.4 | 51.8 | 52.8 | 52.7 | 64.6 | 65.8 |
| 27 | 65.1 | --- | --- | 53.5 | 58.3 | 52.6 | 52.5 | 51.8 | 52.9 | 52.5 | 64.5 | 67.0 |
| 28 | 64.8 | --- | --- | 53.2 | 59.6 | 52.8 | 52.5 | 52.4 | 52.4 | 52.4 | 64.9 | 67.4 |
| 29 | 64.1 | --- | --- | 53.3 | 60.0 | 52.7 | 53.0 | 51.8 | 53.2 | 52.6 | 65.0 | 68.0 |
| 30 | 64.0 | ---- | --- | 53.5 | 59.7 | 52.6 | 52.5 | 51.7 | 52.4 | 52.5 | 65.4 | 68.5 |
| 31 | 63.8 | ---- | --- | ---- | 59.2 | ---- | 52.5 | 51.8 | ---- | 52.4 | ---- | 69.1 |
| MEAN | 65.9 | --- | --- | --- | 55.8 | 53.5 | 52.6 | 52.2 | 52.6 | 52.4 | 58.7 | 65.4 |
| MAX | 68.9 | --- | --- | --- | 60.0 | 56.2 | 53.2 | 52.7 | 55.4 | 53.6 | 65.4 | 69.1 |
| MIN | 63.8 | --- | --- | --- | 53.0 | 52.6 | 52.0 | 51.7 | 51.6 | 52.0 | 52.0 | 69.1 |

THE MEAN STAGE FOR THE YEAR ---
HIGHEST STAGE WAS 69.10 31 DEC 1987
LOWEST STAGE WAS 51.60 04 SEP 1987

DAILY STAGES FOR 1996

25611 OUACHITA RIVER AT FELSENTHAL LOCK AND DAM (UPPER),STATION NO. 89-N

LOCATION. FELSENTHAL LOCK AND DAM AT MILE 182.8 (1939), OR 243 MILES UPSTREAM FROM MOUTH OF BLACK RIVER. LAT. 33-01-56 LONG. 92-05-17. FELSENTHAL QUADRANGLE.

GAGE. SATELLITE.

GENERAL INFORMATION. GAGE READ AND MAINTAINED BY VICKSBURG DISTRICT. DRAINAGE AREA, 10,787 SQUARE MILES. POOL STAGE IS 65.0 FEET. BANKFULL STAGE IS 65.0 FEET.

RECORDS AVAILABLE. STAGE, SEPT. 1984 TO DATE

EXTREMES NOT DETERMINED.

DAILY EIGHT A.M. STAGE IN FEET GAGE ZERO, IS AT N.G.V.D.

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 67.9 | 69.2 | 68.0 | 68.0 | 68.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 67.6 |
| 2 | 68.1 | 69.1 | 68.0 | 68.1 | 67.9 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | [illegible] | [illegible] |
| 3 | 68.2 | 69.1 | 68.0 | 67.9 | 67.8 | 65.0 | 65.0 | 65.0 | 65.0 | 65.1 | [illegible] | [illegible] |
| 4 | 68.2 | 69.0 | 68.0 | 68.0 | 67.8 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | [illegible] | [illegible] |
| 5 | 68.4 | 68.9 | 68.1 | 68.0 | 67.6 | 65.1 | 65.0 | 65.0 | 65.0 | 65.0 | [illegible] | [illegible] |
| 6 | 68.7 | 69.0 | 68.0 | 68.0 | 67.5 | 65.0 | 64.9 | 65.0 | 64.9 | 65.0 | 65.0 | 68.2 |
| 7 | 68.9 | 69.0 | 67.9 | 68.0 | 67.2 | 65.1 | 64.9 | 64.9 | 65.0 | 65.0 | 64.9 | 68.2 |
| 8 | 69.0 | 68.7 | 68.0 | 68.1 | 67.1 | 65.0 | 65.0 | 65.0 | 64.9 | 65.0 | 65.0 | 68.4 |
| 9 | 69.0 | 68.7 | 68.0 | 68.0 | 67.1 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 68.6 |
| 10 | 69.0 | 68.7 | 68.0 | 68.1 | 66.9 | 65.0 | 65.0 | 64.9 | 65.0 | 65.0 | 64.9 | 68.6 |
| 11 | 69.0 | 68.7 | 68.0 | 68.0 | 66.8 | 65.1 | 64.9 | 65.0 | 65.0 | 65.0 | 64.9 | 68.8 |
| 12 | 69.0 | 68.6 | 68.0 | 68.0 | 66.7 | 65.0 | 64.9 | 65.0 | 65.0 | 64.9 | 65.2 | 69.0 |
| 13 | 69.0 | 68.6 | 68.0 | 68.1 | 66.6 | 65.1 | 65.0 | 65.0 | 64.9 | 65.1 | 65.0 | 69.1 |
| 14 | 69.2 | 68.5 | 68.0 | 68.0 | 66.4 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 69.3 |
| 15 | 69.3 | 68.5 | 68.1 | 68.0 | 66.4 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 64.9 | 69.4 |
| 16 | 69.2 | 68.5 | 68.0 | 68.0 | 66.3 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.2 | 69.6 |
| 17 | 69.2 | 68.4 | 68.0 | 68.0 | 66.2 | 65.0 | 65.0 | 65.1 | 65.0 | 65.1 | 65.4 | 69.8 |
| 18 | 69.3 | 68.4 | 68.0 | 68.0 | 66.1 | 64.9 | 65.0 | 65.0 | 65.0 | 65.1 | 65.6 | 69.8 |
| 19 | 69.2 | 68.3 | 68.0 | 68.0 | 66.0 | 64.9 | 65.0 | 65.0 | 65.0 | 65.1 | 65.8 | 69.9 |
| 20 | 69.2 | 68.3 | 68.0 | 68.0 | 65.8 | 65.0 | 64.9 | 64.9 | 65.0 | 65.2 | 66.0 | 69.9 |
| 21 | 69.3 | 68.3 | 68.0 | 68.0 | 65.7 | 64.9 | 65.0 | 65.0 | 65.0 | 65.2 | 66.2 | 69.9 |
| 22 | 69.2 | 68.2 | 68.0 | 68.0 | 65.7 | 65.0 | 65.0 | 65.0 | 65.0 | 64.9 | 66.4 | 69.8 |
| 23 | 69.2 | 68.2 | 68.0 | 68.0 | 65.6 | 65.1 | 65.1 | 65.0 | 65.0 | 65.0 | 66.6 | 69.8 |
| 24 | 69.3 | 68.2 | 68.0 | 68.0 | 65.4 | 65.0 | 65.0 | 64.9 | 64.9 | 65.1 | 66.8 | 69.8 |
| 25 | 69.2 | 68.1 | 68.0 | 68.0 | 65.4 | 65.0 | 65.1 | 65.0 | 65.0 | 64.9 | 67.0 | 69.7 |
| 26 | 69.3 | 68.2 | 68.0 | 68.1 | 65.3 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 67.1 | 69.6 |
| 27 | 69.2 | 68.1 | 68.0 | 68.0 | 65.1 | 65.1 | 64.9 | 65.0 | 65.0 | 65.0 | 67.1 | 70.0 |
| 28 | 69.3 | 68.0 | 68.0 | 68.0 | 65.0 | 65.0 | 65.1 | 65.0 | 65.1 | 64.9 | 67.3 | 69.9 |
| 29 | 69.2 | 68.0 | 68.0 | 67.9 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 67.4 | 70.1 |
| 30 | 69.2 | ---- | 68.1 | 67.9 | 64.9 | 65.0 | 65.0 | 65.0 | 64.9 | 65.0 | 67.5 | 70.1 |
| 31 | 69.3 | ---- | 68.0 | ---- | 65.0 | ---- | 65.0 | 65.0 | ---- | 64.9 | ---- | 70.1 |
| MEAN | 69.0 | 68.5 | 68.0 | 68.0 | 66.3 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.7 | 69.2 |
| MAX | 69.3 | 69.2 | 68.1 | 68.1 | 68.0 | 65.1 | 65.1 | 65.1 | 65.1 | 65.2 | 67.5 | 70.1 |
| MIN | 67.9 | 68.0 | 67.9 | 67.9 | 64.9 | 64.9 | 64.9 | 64.9 | 64.9 | 64.9 | 64.9 | 67.6 |

THE MEAN STAGE FOR THE YEAR 66.6
HIGHEST STAGE WAS 70.12 30 DEC 1996
LOWEST STAGE WAS 64.88 30 SEP 1996

DAILY STAGES FOR 1996

25612 OUACHITA RIVER AT FELSENTHAL LOCK AND DAM (LOWER), STATION NO. 89-G

LOCATION. FELSENTHAL LOCK AND DAM AT MILE 182.8 (1939), OR 243 MILES UPSTREAM FROM MOUTH OF BLACK RIVER. LAT. 33-01-56 LONG. 92-05-17. FELSENTHAL QUADRANGLE.

GAGE. SATELLITE.

GENERAL INFORMATION. GAGE READ AND MAINTAINED BY VICKSBURG DISTRICT. DRAINAGE AREA, 10,787 SQUARE MILES. POOL STAGE IS 65 FEET. BANKFULL STAGE IS 65 FEET.

RECORDS AVAILABLE. STAGE, SEPT. 1984 TO DATE.

EXTREMES. HIGHEST 86.40 FEET 1991. LOWEST 51.0 FEET SEPT. 22, 1993.

DAILY EIGHT A.M. STAGE IN FEET GAGE ZERO, IS AT N.G.V.D.

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 52.6 | 54.4 | 53.5 | 62.2 | 62.0 | 55.6 | 52.6 | 54.6 | 53.4 | 58.1 | 57.2 | 65.3 |
| 2 | [illegible] | 53.9 | 53.8 | 61.7 | 61.9 | 55.2 | 52.8 | 56.4 | 53.6 | 57.0 | 57.6 | 66.0 |
| 3 | [illegible] | 53.5 | 53.9 | 62.3 | 60.5 | 54.6 | 53.0 | 58.2 | 53.3 | 56.1 | 57.3 | 66.7 |
| 4 | 52.7 | 53.4 | 53.0 | 61.5 | 59.0 | 55.9 | 53.0 | 60.0 | 52.8 | 55.8 | 57.3 | 66.8 |
| 5 | 52.6 | 53.3 | 53.0 | 60.5 | 58.4 | 55.5 | 53.2 | 61.4 | 52.8 | 55.0 | 57.7 | 67.1 |
| 6 | 52.5 | 52.7 | 54.1 | 59.8 | 57.3 | 55.9 | 53.5 | 62.1 | 52.6 | 54.7 | 57.9 | 67.2 |
| 7 | 52.6 | 54.8 | 55.1 | 59.3 | 56.0 | 55.1 | 52.5 | 62.7 | 52.8 | 54.2 | 57.8 | 67.5 |
| 8 | 52.5 | 53.8 | 52.6 | 57.7 | 55.8 | 55.6 | 52.8 | 62.6 | 52.5 | 53.9 | 57.9 | 67.6 |
| 9 | 54.2 | 52.7 | 53.8 | 57.8 | 58.3 | 56.1 | 53.0 | 61.7 | 52.3 | 53.7 | 58.1 | 67.8 |
| 10 | 53.8 | 53.7 | 54.0 | 55.8 | 61.0 | 56.8 | 54.2 | 60.2 | 53.0 | 53.1 | 59.8 | 68.1 |
| 11 | 55.5 | 53.3 | 54.0 | 55.4 | 62.5 | 55.9 | 53.0 | 58.2 | 52.7 | 53.0 | 60.6 | 68.2 |
| 12 | 54.4 | 53.0 | 54.0 | 54.6 | 63.6 | 55.3 | 52.7 | 56.6 | 52.7 | 53.5 | 60.3 | 68.4 |
| 13 | 53.7 | 53.6 | 53.6 | 54.3 | 64.1 | 53.7 | 53.1 | 55.3 | 52.7 | 52.6 | 60.4 | 68.6 |
| 14 | 52.8 | 53.1 | 53.3 | 55.7 | 64.7 | 54.4 | 53.8 | 54.0 | 52.7 | 52.5 | 59.7 | 68.7 |
| 15 | 52.5 | 52.8 | 53.4 | 58.1 | 65.2 | 53.9 | 53.6 | 53.5 | 52.7 | 52.4 | 59.6 | 68.9 |
| 16 | 53.8 | 53.4 | 53.2 | 60.1 | 65.6 | 54.0 | 53.8 | 53.0 | 52.7 | 52.6 | 58.6 | 69.1 |
| 17 | 52.5 | 52.7 | 53.3 | 61.2 | 65.9 | 53.6 | 54.4 | 53.0 | 53.0 | 52.5 | 58.2 | 69.4 |
| 18 | 52.6 | 52.6 | 52.6 | 61.0 | 65.8 | 53.5 | 54.4 | 53.4 | 52.4 | 52.5 | 58.0 | 69.4 |
| 19 | 53.9 | 52.9 | 53.4 | 60.6 | 65.5 | 53.3 | 54.3 | 53.6 | 52.9 | 52.5 | 58.0 | 69.4 |
| 20 | 52.6 | 53.4 | 53.2 | 59.7 | 64.8 | 55.0 | 53.6 | 53.3 | 52.7 | 52.4 | 57.8 | 69.3 |
| 21 | 52.9 | 52.6 | 54.4 | 60.6 | 63.7 | 54.8 | 53.5 | 52.7 | 53.4 | 52.3 | 58.4 | 69.2 |
| 22 | 54.1 | 56.6 | 54.6 | 60.9 | 62.7 | 54.5 | 53.2 | 53.3 | 53.4 | 54.0 | 58.2 | 69.1 |
| 23 | 53.7 | 55.4 | 54.3 | 62.2 | 61.9 | 54.4 | 53.2 | 53.3 | 53.4 | 53.4 | 58.2 | 69.1 |
| 24 | 54.3 | 55.1 | 53.7 | 62.5 | 61.7 | 54.6 | 53.7 | 52.8 | 53.4 | 54.8 | 58.4 | 69.0 |
| 25 | 53.6 | 55.3 | 57.7 | 63.3 | 60.2 | 53.4 | 53.2 | 53.2 | 52.7 | 57.6 | 58.7 | 68.9 |
| 26 | 53.3 | 53.9 | 57.7 | 63.6 | 59.6 | 52.9 | 54.0 | 53.5 | 52.7 | 58.6 | 59.2 | 68.8 |
| 27 | 54.6 | 54.3 | 59.1 | 63.9 | 58.9 | 52.8 | 53.7 | 53.1 | 55.3 | 58.8 | 60.8 | 68.9 |
| 28 | 52.9 | 55.2 | 60.4 | 63.5 | 56.8 | 52.9 | 52.9 | 53.0 | 56.9 | 58.4 | 62.0 | 68.9 |
| 29 | 55.2 | 53.4 | 60.9 | 63.4 | 55.0 | 53.3 | 53.6 | 53.7 | 58.9 | 57.8 | 63.5 | 69.0 |
| 30 | 53.3 | ---- | 60.5 | 62.7 | 54.3 | 52.8 | 53.9 | 53.6 | 59.0 | 57.3 | 64.7 | 69.1 |
| 31 | 52.8 | ---- | 61.9 | ---- | 56.0 | ---- | 54.0 | 53.6 | ---- | 57.4 | ---- | 69.1 |
| MEAN | 53.3 | 53.8 | 55.0 | 60.2 | 60.9 | 54.3 | 53.4 | 55.8 | 53.5 | 54.8 | 59.1 | 68.3 |
| MAX | 55.5 | 56.6 | 61.9 | 63.9 | 65.9 | 56.8 | 54.4 | 62.7 | 59.0 | 58.8 | 64.7 | 69.4 |
| MIN | 52.5 | 52.6 | 52.6 | 54.3 | 54.3 | 52.8 | 52.5 | 52.7 | 52.4 | 52.4 | 57.2 | 65.3 |

THE MEAN STAGE FOR THE YEAR 56.9
HIGHEST STAGE WAS 69.40 17 DEC 1996
LOWEST STAGE WAS 52.40 18 SEP 1996

Avg 53.4 58.9 52.7

DAILY STAGES FOR 1997

25611 OUACHITA RIVER AT FELSENTHAL LOCK AND DAM (UPPER),STATION NO. 89-H

LOCATION. FELSENTHAL LOCK AND DAM AT MILE 182.8 (1939), OR 243 MILES UPSTREAM FROM MOUTH OF BLACK RIVER. LAT. 33-01-56 LONG. 92-05-17. FELSENTHAL QUADRANGLE.

GAGE. SATELLITE.

GENERAL INFORMATION. GAGE READ AND MAINTAINED BY VICKSBURG DISTRICT. DRAINAGE AREA, 10,787 SQUARE MILES. POOL STAGE IS 65.0 FEET. BANKFULL STAGE IS 65.0 FEET.

RECORDS AVAILABLE. STAGE, SEPT. 1984 TO DATE

EXTREMES NOT DETERMINED.

DAILY EIGHT A.M. STAGE IN FEET GAGE ZERO, IS AT N.G.V.D.

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 70.0 | 68.9 | 73.0 | 78.2 | 77.1 | 70.6 | 65.7 | 65.0 | 65.0 | 65.0 | 65.0 | 67.6 |
| 2 | 70.0 | 69.1 | 73.5 | 77.8 | 77.3 | 70.2 | 65.4 | 65.0 | 65.0 | 65.0 | 65.0 | 67.6 |
| 3 | 70.0 | 69.1 | 74.3 | 77.4 | 77.7 | 70.0 | 65.1 | 65.0 | 65.0 | 65.0 | 65.0 | 67.8 |
| 4 | 70.0 | 69.0 | 75.2 | 77.1 | 78.1 | 69.6 | 65.0 | 65.0 | 65.0 | 65.1 | 65.0 | 67.9 |
| 5 | 70.0 | 68.9 | 75.7 | 77.0 | 78.5 | 69.4 | 65.0 | 65.0 | 65.0 | 65.1 | 65.0 | 68.0 |
| 6 | 70.0 | 68.7 | 76.4 | 77.2 | 78.8 | 69.2 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 68.1 |
| 7 | 70.0 | 68.6 | 77.0 | 77.4 | 79.0 | 69.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 68.2 |
| 8 | 70.0 | 68.7 | 77.6 | 77.6 | 79.2 | 68.8 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 68.3 |
| 9 | 70.0 | 68.8 | 78.1 | 77.8 | 79.3 | 68.6 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 68.4 |
| 10 | 70.0 | 68.9 | 78.6 | 78.2 | 79.3 | 68.7 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 68.5 |
| 11 | 70.0 | 69.0 | 78.9 | 78.6 | 79.2 | 68.6 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 68.6 |
| 12 | 70.0 | 69.0 | 79.1 | 79.0 | 79.0 | 68.8 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 68.7 |
| 13 | 70.0 | 69.4 | 79.4 | 79.3 | 78.6 | 69.2 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 68.8 |
| 14 | 70.0 | 69.9 | 79.6 | 79.6 | 78.3 | 69.4 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 68.9 |
| 15 | 70.0 | 70.4 | 79.8 | 79.8 | 77.8 | 69.6 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 69.0 |
| 16 | 69.8 | 70.8 | 79.9 | 79.8 | 77.4 | 69.8 | 65.0 | 65.0 | 65.0 | 65.0 | 65.2 | 69.1 |
| 17 | 69.6 | 71.1 | 79.9 | 79.8 | 77.0 | 69.9 | 65.0 | 65.0 | 65.0 | 65.0 | 65.4 | 69.2 |
| 18 | 69.4 | 71.4 | 80.0 | 79.8 | 76.5 | 69.9 | 65.0 | 65.0 | 65.0 | 65.0 | 65.6 | 69.3 |
| 19 | 69.3 | 71.6 | 80.1 | 79.6 | 76.1 | 69.3 | 65.0 | 65.0 | 65.0 | 65.0 | 65.8 | 69.4 |
| 20 | 69.2 | 71.8 | 80.1 | 79.3 | 75.7 | 69.0 | 65.0 | 65.0 | 65.0 | 65.0 | 66.0 | 69.4 |
| 21 | 69.1 | 72.1 | 80.1 | 79.0 | 75.2 | 68.7 | 65.0 | 65.0 | 65.0 | 65.0 | 66.2 | 69.5 |
| 22 | 69.0 | 72.3 | 80.1 | 78.6 | 74.8 | 68.4 | 65.0 | 65.0 | 65.0 | 65.0 | 66.3 | 69.5 |
| 23 | 68.9 | 72.4 | 80.0 | 78.3 | 74.3 | 68.1 | 65.0 | 65.0 | 65.0 | 65.0 | 66.5 | 69.6 |
| 24 | 68.8 | 72.4 | 79.9 | 77.8 | 73.9 | 67.5 | 65.0 | 65.0 | 65.0 | 65.0 | 66.8 | 69.6 |
| 25 | 68.7 | 72.5 | 79.8 | 77.4 | 73.5 | 67.5 | 65.0 | 65.0 | 65.0 | 65.0 | 67.0 | 69.7 |
| 26 | 68.6 | 72.6 | 79.8 | 77.1 | 73.0 | 67.2 | 65.0 | 65.0 | 65.0 | 65.0 | 67.1 | 69.7 |
| 27 | 68.5 | 72.7 | 79.6 | 76.8 | 72.6 | 66.9 | 65.0 | 65.0 | 65.0 | 65.0 | 67.2 | 69.8 |
| 28 | 68.5 | 72.9 | 79.4 | 76.8 | 72.2 | 66.6 | 65.0 | 65.0 | 65.0 | 65.0 | 67.3 | 69.8 |
| 29 | 68.4 | ---- | 79.2 | 76.9 | 71.7 | 66.3 | 65.0 | 65.0 | 65.0 | 65.0 | 67.4 | 69.9 |
| 30 | 68.6 | ---- | 78.9 | 77.0 | 71.2 | 66.0 | 65.0 | 65.0 | 65.0 | 65.0 | 67.4 | 69.9 |
| 31 | 68.8 | ---- | 78.6 | ---- | 70.9 | ---- | 65.0 | 65.0 | ---- | 65.0 | ---- | 70.0 |
| MEAN | 69.5 | 70.5 | 78.4 | 78.2 | 76.2 | 68.7 | 65.0 | 65.0 | 65.0 | 65.0 | 65.7 | 69.0 |
| MAX | 70.0 | 72.9 | 80.1 | 79.8 | 79.3 | 70.6 | 65.7 | 65.0 | 65.0 | 65.1 | 67.4 | 70.0 |
| MIN | 68.4 | 68.6 | 73.0 | 76.8 | 70.9 | 66.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 67.6 |

THE MEAN STAGE FOR THE YEAR 69.7
HIGHEST STAGE WAS 80.10 19 MAR 1997
LOWEST STAGE WAS 65.00 4 JUL 1997

DAILY STAGES FOR 1997

25612 OUACHITA RIVER AT FELSENTHAL LOCK AND DAM (LOWER),STATION NO. 89-G

LOCATION. FELSENTHAL LOCK AND DAM AT MILE 182.8 (1939), OR 243 MILES UPSTREAM FROM MOUTH OF BLACK RIVER. LAT. 33-01-56 LONG. 92-05-17. FELSENTHAL QUADRANGLE.

GAGE. SATELLITE.

GENERAL INFORMATION. GAGE READ AND MAINTAINED BY VICKSBURG DISTRICT. DRAINAGE AREA, 10,787 SQUARE MILES. POOL STAGE IS 65 FEET. BANKFULL STAGE IS 65 FEET.

RECORDS AVAILABLE. STAGE, SEPT. 1984 TO DATE.

EXTREMES. HIGHEST 86.40 FEET 1991. LOWEST 51.0 FEET SEPT. 22, 1993.

DAILY EIGHT A.M. STAGE IN FEET GAGE ZERO, IS AT N.G.V.D.

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 69.1 | 68.6 | 72.8 | 78.2 | 77.1 | 70.5 | 64.5 | ---- | ---- | ---- | ---- | ---- |
| 2 | 69.1 | 68.8 | 73.2 | 77.8 | 77.3 | 70.1 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 3 | 69.1 | 68.8 | 74.1 | 77.4 | 77.7 | 69.9 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 4 | 68.8 | 68.7 | 74.9 | 77.0 | 78.1 | 69.0 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 5 | 68.6 | 68.7 | 75.6 | 77.0 | 78.4 | 68.2 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 6 | 68.2 | 68.5 | 76.2 | 77.1 | 78.7 | 67.4 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 7 | 67.9 | 68.4 | 76.9 | 77.3 | 79.0 | 66.6 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 8 | 67.7 | 68.4 | 77.5 | 77.6 | 79.1 | 65.9 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 9 | 67.7 | 68.5 | 78.0 | 77.8 | 79.2 | 65.2 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 10 | 67.6 | 68.6 | 78.5 | 78.2 | 79.2 | 64.3 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 11 | 67.6 | 68.7 | 78.8 | 78.3 | 79.1 | 63.8 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 12 | 67.6 | 68.7 | 79.0 | 78.9 | 78.9 | 62.8 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 13 | 67.6 | 69.1 | 79.3 | 79.2 | 78.6 | 61.9 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 14 | 67.6 | 69.6 | 79.5 | 79.5 | 78.2 | 61.2 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 15 | 67.6 | 70.0 | 79.7 | 79.7 | 77.7 | 60.4 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 16 | 67.7 | 70.4 | 79.8 | 79.8 | 77.4 | 59.7 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 17 | 67.5 | 70.8 | 79.8 | 79.8 | 77.0 | 59.2 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 18 | 67.3 | 71.0 | 79.9 | 79.7 | 76.5 | 58.6 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 19 | 67.0 | 71.3 | 80.0 | 79.5 | 76.1 | 63.7 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 20 | 66.8 | 71.5 | 80.0 | 79.3 | 75.7 | 64.2 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 21 | 66.5 | 71.8 | 80.0 | 79.0 | 75.2 | 65.8 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 22 | 66.2 | 72.0 | 80.0 | 78.6 | 74.7 | 61.4 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 23 | 65.7 | 72.1 | 79.9 | 78.2 | 74.3 | 61.4 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 24 | 66.4 | 72.2 | 79.9 | 77.7 | 73.8 | 66.6 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 25 | 66.6 | 72.3 | 79.8 | 77.4 | 73.4 | 66.8 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 26 | 67.1 | 72.3 | 79.7 | 77.1 | 73.0 | 66.4 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 27 | 67.5 | 72.5 | 79.5 | 76.8 | 72.5 | 65.9 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 28 | 67.7 | 72.7 | 79.4 | 76.8 | 72.1 | 65.3 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 29 | 68.0 | ---- | 79.1 | 76.9 | 71.6 | 64.9 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 30 | 68.2 | ---- | 78.9 | 77.0 | 71.1 | 64.8 | [illegible] | ---- | ---- | ---- | ---- | ---- |
| 31 | 68.4 | ---- | 78.6 | ---- | 70.8 | ---- | [illegible] | ---- | ---- | ---- | ---- | ---- |
| MEAN | 67.6 | 70.2 | 78.3 | 78.2 | 76.2 | 64.7 | ---- | ---- | ---- | ---- | ---- | ---- |
| MAX | 69.1 | 72.7 | 80.0 | 79.8 | 79.2 | 70.5 | ---- | ---- | ---- | ---- | ---- | ---- |
| MIN | 65.7 | 68.4 | 72.8 | 76.8 | 70.8 | 58.6 | ---- | ---- | ---- | ---- | ---- | ---- |

THE MEAN STAGE FOR THE YEAR ----
HIGHEST STAGE WAS 80.00 19 MAR 1997
LOWEST STAGE WAS 58.60 18 JUN 1997

SAL. \ D. OUACHITA B. COCODRIE BLACK ATC.

THATCHER FELSENTHAL COLUMBIA JONESVILLE TENSAS P.P.

| BENTON | BOUGHTON | ARKADELPHIA | CAMDEN | MONROE | THATCHER Upper | THATCHER Lower | FELSENTHAL Upper | FELSENTHAL Lower | COLUMBIA Upper | COLUMBIA Lower | JONESVILLE Upper | JONESVILLE Lower | TENSAS P.P. IN | TENSAS P.P. OUT | ACME | SIMMESPORT | DATE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.9 | 4.2 | 6.5 | 12.6 | M | 77.0 | 71.8 | 65.7 | 64.5 | 51.5 | 42.5 | 34.0 | 33.1 | 33.1 | 32.7 | 31.7 | 28.9 | 1 |
| 3.8 | 3.9 | 6.1 | 11.6 | M | 77.0 | 71.6 | 65.4 | 64.7 | 51.5 | 42.2 | 34.3 | 33.9 | 33.6 | 33.2 | 32.2 | 29.4 | 2 |
| 3.5 | 3.3 | 6.5 | 9.8 | 24.3 | 77.0 | 70.6 | 65.1 | 64.5 | 51.5 | 41.8 | 34.0 | 33.6 | 33.2 | 32.8 | 31.8 | 28.8 | 3 |
| | | | | | 77.0 | 69.2 | 65.0 | 63.4 | 51.5 | 41.4 | 34.0 | 32.4 | | | 30.6 | 27.7 | 4 |
| 3.6 | 3.0 | 5.5 | 9.2 | 24.0 | 77.0 | 68.0 | 65.0 | 62.1 | 51.5 | 41.2 | 34.0 | 31.7 | 31.4 | 31.1 | 30.0 | 27.3 | 5 |
| 3.5 | 2.8 | 4.3 | 7.8 | 23.6 | 77.0 | 67.8 | 65.0 | 61.2 | 51.5 | 40.6 | 34.0 | 30.8 | 30.5 | 30.1 | 29.6 | 26.1 | 6 |
| 3.4 | 2.7 | 0.2 | 6.7 | 23.2 | 77.0 | 66.4 | 65.0 | 57.9 | 51.5 | 40.0 | 34.0 | 30.4 | 30.2 | 29.8 | 28.8 | 26.5 | 7 |
| 3.4 | 2.6 | 3.5 | 6.7 | 22.8 | 77.0 | 66.0 | 65.0 | 56.3 | 51.5 | 39.1 | 34.0 | 30.3 | 30.1 | 29.7 | 28.7 | 26.3 | 8 |
| 3.4 | 2.5 | 4.6 | 6.3 | 22.3 | 77.0 | 66.0 | 65.0 | 57.3 | 51.5 | 38.0 | 34.0 | 29.8 | 29.7 | 29.3 | 28.4 | 25.8 | 9 |
| 3.4 | 3.5 | 4.7 | 6.3 | 21.8 | 77.0 | 65.4 | 65.0 | 55.0 | 51.5 | 37.2 | 34.0 | 28.5 | 28.5 | 28.1 | 27.1 | 24.8 | 10 |
| 3.6 | 2.7 | 5.6 | 6.2 | 21.3 | 77.0 | 65.5 | 65.0 | 54.6 | 51.5 | 36.1 | 34.0 | 26.7 | 27.7 | 26.2 | 25.4 | 23.4 | 11 |
| 2.1 | 3.5 | 3.7 | 6.5 | 21.0 | 77.0 | 65.8 | 65.0 | 52.9 | 51.5 | 35.5 | 34.0 | 25.7 | 27.5 | 25.2 | 24.5 | 22.3 | 12 |
| 2.1 | 3.6 | 7.5 | 6.3 | 21.0 | 77.0 | 65.5 | 65.0 | 53.9 | 51.5 | 34.6 | 34.0 | 24.8 | 27.3 | 24.4 | 23.7 | 21.8 | 13 |
| 2.1 | 3.9 | 5.4 | 6.7 | 21.0 | 77.0 | 65.5 | 65.0 | 52.8 | 51.5 | 34.9 | 34.0 | 24.0 | | 23.6 | 22.9 | 21.2 | 14 |
| 3.6 | 3.5 | 4.1 | M | 21.0 | 77.0 | 66.8 | 65.0 | 54.0 | 51.5 | 34.7 | 34.0 | 23.0 | 27.2 | 22.3 | 21.5 | 19.8 | 15 |
| 3.6 | 3.5 | 2.5 | M | 21.1 | 77.0 | 66.7 | 65.0 | 54.6 | 51.5 | 35.2 | 34.0 | 21.1 | 27.1 | 20.5 | 19.7 | 18.1 | 16 |
| 3.5 | 2.7 | 4.8 | 7.6 | 20.9 | 77.0 | 66.1 | 65.0 | 53.2 | 51.5 | 35.2 | 34.0 | 20.0 | 27.0 | 19.1 | 18.3 | 16.8 | 17 |
| 3.5 | 4.0 | 6.6 | 8.1 | 21.0 | 77.0 | 66.5 | 65.0 | 54.0 | 51.5 | 34.6 | 34.0 | 18.8 | 26.9 | 18.5 | 17.7 | 15.9 | 18 |
| [illegible] | [illegible] | 5.6 | 8.1 | 20.9 | 77.0 | 66.2 | 65.0 | 54.3 | 51.5 | 34.5 | 34.0 | 18.4 | 26.7 | 18.1 | 17.3 | 15.6 | 19 |
| [illegible] | [illegible] | 4.9 | 9.1 | 20.7 | 77.0 | 67.4 | 65.0 | 52.8 | 51.5 | 34.4 | 34.0 | 17.4 | 26.5 | 16.7 | 16.1 | 14.9 | 20 |
| 3.5 | 3.2 | M | 8.3 | 21.2 | 77.0 | 66.9 | 65.0 | 55.0 | 51.5 | 34.3 | 34.0 | 16.7 | 26.4 | 16.3 | 15.7 | 14.4 | 21 |
| 3.5 | 2.8 | 5.9 | 6.5 | 20.8 | 77.0 | 66.1 | 65.0 | 53.9 | 51.5 | 34.8 | 34.0 | 16.4 | 26.4 | 15.7 | 15.0 | 13.9 | 22 |
| 3.5 | 3.5 | 6.1 | 9.7 | 20.8 | 77.0 | 66.3 | 65.0 | 52.5 | 51.5 | 34.6 | 34.0 | 15.5 | 26.4 | 15.0 | 14.4 | 13.2 | 23 |
| 3.4 | 3.4 | 5.9 | 8.1 | 21.0 | 77.0 | 66.8 | 65.0 | 53.6 | 51.5 | 34.3 | 34.0 | 15.2 | 26.4 | 14.7 | 14.0 | 12.6 | 24 |
| 3.4 | 3.2 | 7.0 | 7.8 | 21.0 | 77.0 | 66.2 | 65.0 | 53.8 | 51.5 | 34.4 | 34.0 | 14.6 | 26.4 | 14.1 | 13.4 | 12.0 | 25 |
| 3.5 | 3.3 | 7.6 | 9.4 | 20.7 | 77.0 | 66.6 | 65.0 | 52.9 | 51.5 | 34.4 | 34.0 | 14.5 | 26.3 | 14.2 | 13.5 | 12.2 | 26 |
| 3.5 | 3.2 | 6.6 | 9.4 | 20.9 | 77.0 | 67.4 | 65.0 | 54.1 | 51.5 | 34.2 | 34.0 | 13.9 | 26.3 | 13.4 | 12.6 | 11.7 | 27 |
| 3.5 | 3.4 | 7.1 | 9.1 | 21.1 | 77.0 | 67.3 | 65.0 | 54.5 | 51.5 | 34.5 | 34.0 | 13.5 | 26.3 | 13.5 | 12.9 | 11.6 | 28 |
| 3.5 | 2.2 | 6.4 | 9.6 | 20.8 | 77.0 | 67.2 | 65.0 | 54.6 | 51.5 | 34.7 | 34.0 | 13.3 | 26.3 | 13.6 | 11.7 | 10.7 | 29 |
| 3.4 | 3.3 | 5.6 | 9.0 | 20.9 | 77.0 | 67.3 | 65.0 | 54.3 | 51.5 | 34.6 | 34.0 | 14.4 | 26.4 | 14.1 | 12.9 | 11.5 | 30 |
| 3.5 | 2.5 | 5.6 | 6.9 | 20.9 | 77.7 | 66.2 | 65.0 | 54.2 | 51.5 | 34.4 | 34.0 | 14.1 | 26.4 | 14.3 | 13.0 | 11.5 | 31 |

JUL 28 '98 12:21PM CELMK ED HC P.2

SAL. \L

OUACHITA

B. COCODRIE BLACK ATC.

THATCHER FELSENTHAL COLUMBIA JONESVILLE TENSAS P.P.

| BENTON | BOUGHTON | ARKADELPHIA | CAMDEN | MONROE | Upper | Lower | Upper | Lower | Upper | Lower | Upper | Lower | IN | OUT | ACME | SIMMESPORT | DATE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Flo 53.1 | | | | | | | | | | |
| 3.5 | 2.3 | 5.7 | 6.6 | 20.7 | 77.0 | 65.7 | 65.0 | 52.4 | 51.5 | 34.5 | 34.0 | 13.6 | 26.8 | 13.5 | 12.3 | 10.9 | 1 |
| 3.5 | 2.2 | 5.7 | 7.0 | 20.7 | 77.0 | 65.6 | 65.0 | 52.3 | 51.5 | 34.2 | 34.0 | 13.2 | 27.0 | 13.6 | 12.3 | 11.1 | 2 |
| 3.5 | 2.1 | 3.9 | 6.7 | 20.8 | 77.0 | 65.5 | 65.0 | 52.7 | 51.5 | 34.2 | 34.0 | 13.2 | 27.1 | 13.6 | 11.8 | 10.9 | 3 |
| 3.4 | 2.1 | 6.4 | 6.1 | 20.7 | 77.0 | 65.3 | 65.0 | 52.6 | 51.5 | 34.3 | 34.0 | 12.6 | 27.1 | 13.7 | 11.6 | 10.8 | 4 |
| 3.3 | 2.2 | 6.3 | 6.1 | 20.7 | 77.0 | 65.3 | 65.0 | 51.8 | 51.5 | 34.2 | 34.0 | 13.0 | 27.1 | 13.7 | 12.1 | 10.9 | 5 |
| 3.3 | 3.0 | 6.1 | 6.2 | 20.7 | 77.0 | 65.4 | 65.0 | 51.9 | 51.5 | 34.0 | 34.0 | 12.3 | 27.0 | 13.7 | 11.2 | 10.3 | 6 |
| 3.2 | 2.4 | 3.9 | 6.2 | 21.1 | 77.0 | 65.4 | 65.0 | 52.6 | 51.9 | 33.9 | 34.0 | 12.4 | 27.0 | 13.7 | 11.5 | 10.6 | 7 |
| 3.3 | 2.2 | 2.8 | 6.3 | 21.3 | 77.0 | 65.5 | 65.0 | 52.7 | 52.0 | 34.0 | 34.0 | 11.9 | 26.9 | 13.7 | 10.9 | 10.3 | 8 |
| 3.4 | 2.4 | 2.8 | 5.9 | 21.4 | 77.0 | 65.3 | 65.0 | 53.2 | 52.0 | 34.5 | 34.0 | 12.1 | 26.8 | 13.7 | 11.2 | 10.4 | 9 |
| 3.4 | 2.2 | 7.4 | 5.[illegible] | 21.2 | 77.0 | 65.2 | 65.0 | 52.6 | 52.0 | 34.6 | 34.0 | 14.1 | 26.9 | 13.8 | 12.8 | 11.0 | 10 |
| 3.4 | 2.3 | 7.7 | 6.[illegible] | 21.3 | 77.0 | 65.1 | 64.9 | 52.9 | 52.0 | 34.5 | 34.0 | 13.6 | 27.0 | 13.6 | 12.4 | 10.7 | 11 |
| 3.4 | 2.2 | 3.8 | 6.8 | 21.3 | 77.0 | 65.5 | 65.0 | 53.2 | 52.0 | 34.5 | 34.0 | 12.0 | 27.0 | 13.6 | 10.4 | 9.0 | 12 |
| 3.4 | 2.3 | 5.7 | 6.2 | 20.7 | 77.0 | 65.8 | 65.0 | 53.2 | 52.0 | 35.0 | 34.0 | 12.6 | 27.0 | 13.6 | 11.2 | 9.4 | 13 |
| 3.4 | 2.3 | 5.4 | 6.0 | 20.7 | 77.0 | 65.5 | 65.0 | 53.0 | 52.0 | 34.6 | 34.0 | 13.2 | 26.9 | 13.6 | 11.4 | 9.6 | 14 |
| 3.4 | 2.5 | 6.0 | 6.1 | 20.6 | 77.0 | 65.5 | 65.0 | 52.2 | 52.0 | 34.4 | 34.0 | 10.8 | 26.8 | 13.6 | 9.2 | 8.7 | 15 |
| 3.4 | 2.4 | | 6.1 | 20.8 | 77.0 | 65.7 | 65.0 | 52.6 | 52.0 | 34.3 | 34.0 | 10.4 | 26.7 | 13.6 | 9.5 | 8.7 | 16 |
| 3.3 | 3.1 | 5.6 | 6.8 | | 77.0 | 66.0 | 65.0 | 52.6 | 52.0 | 34.5 | 34.0 | 10.9 | 26.6 | 13.6 | 10.0 | 8.9 | 17 |
| 3.4 | 1.9 | 6.7 | 7.3 | 20.8 | 77.0 | 66.2 | 65.0 | 53.7 | 52.0 | 34.3 | 34.0 | 10.6 | 26.4 | 13.6 | 9.8 | 8.6 | 18 |
| 3.5 | 1.7 | 2.5 | 7.4 | 20.7 | 77.0 | 66.0 | 65.0 | 52.9 | 52.0 | 34.7 | 34.0 | 10.5 | 26.4 | 13.6 | 9.8 | 8.8 | 19 |
| 3.5 | 1.6 | 3.3 | 6.2 | 20.8 | 77.0 | 65.7 | 65.0 | 53.4 | 52.0 | 34.4 | 34.0 | 10.8 | 26.3 | 13.6 | 9.4 | 8.8 | 20 |
| 3.4 | 1.5 | 3.0 | 6.6 | 20.7 | 77.0 | 65.8 | 65.0 | 52.2 | 52.0 | 34.5 | 34.0 | 11.2 | 26.3 | 13.6 | 10.3 | 9.2 | 21 |
| 3.4 | 1.7 | 2.3 | 6.7 | 20.7 | 77.0 | 65.8 | 65.0 | 53.0 | 52.0 | 34.4 | 34.0 | 10.6 | 26.2 | 13.6 | 9.7 | 8.8 | 22 |
| 3.4 | 1.6 | 5.2 | 6.1 | 20.7 | 77.0 | 65.6 | 65.0 | 53.1 | 52.0 | 34.6 | 34.0 | 11.3 | 26.2 | 13.6 | 10.1 | 9.3 | 23 |
| 3.4 | 1.8 | 4.1 | 6.6 | 20.6 | 77.0 | 65.4 | 65.0 | 52.4 | 52.0 | 34.5 | 34.0 | 11.5 | 26.1 | 13.6 | 10.0 | 9.3 | 24 |
| 3.4 | 1.6 | 3.4 | 6.1 | 20.7 | 77.0 | 65.4 | 65.0 | 52.7 | 52.0 | 34.2 | 34.0 | 11.2 | 26.1 | 13.6 | 10.4 | 9.6 | 25 |
| 3.4 | 1.5 | 3.7 | 5.8 | 21.0 | 77.0 | 65.1 | 65.0 | 52.3 | 52.0 | 34.4 | 34.0 | 11.6 | 26.1 | 13.6 | 10.5 | 9.6 | 26 |
| 3.3 | 1.[illegible] | 4.2 | 5.8 | 21.1 | 77.0 | 65.0 | 65.0 | 52.2 | 52.0 | 33.8 | 34.0 | 11.9 | 26.0 | 13.6 | 11.0 | 10.4 | 27 |
| 3.3 | 2.[illegible] | 4.2 | 6.8 | 21.1 | 77.0 | 65.5 | 65.0 | 52.2 | 52.0 | 34.0 | 34.0 | 12.9 | 25.9 | 13.6 | 12.0 | 11.4 | 28 |
| 3.3 | 1.7 | 5.5 | 7.1 | 21.2 | 77.0 | 65.7 | 65.0 | 53.2 | 52.0 | 34.3 | 34.0 | 13.4 | 25.9 | 13.7 | 12.6 | 11.6 | 29 |
| 3.2 | 1.5 | | 7.2 | 21.0 | 77.0 | 65.8 | 65.0 | 52.6 | 52.0 | 34.1 | 34.0 | 13.5 | 25.9 | 13.5 | 12.8 | 11.7 | 30 |
| 3.1 | 1.6 | | 6.1 | 21.2 | 77.0 | 65.5 | 65.0 | 53.0 | 52.0 | [illegible] | 34.0 | 13.0 | 25.8 | 13.5 | 11.9 | 11.2 | 31 |

JUL 28 '98 12:22PM CELMK ED HC P.3

SAL. MO. OUACHITA September 1997

B. COCODRIE BLACK A.C.

THATCHER FELSENTHAL COLUMBIA JONESVILLE TENSAS P.P.

| Q | BENTON | BOUGHTON | ARKADELPHIA | CAMDEN | MONROE | Upper | Lower | Upper | Lower | Upper | Lower | Upper | Lower | IN | OUT | ACME | SIMMESPORT | DATE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3.1 | 1.5 | 5.2 | 5.8 | 21.0 | 77.0 | 65.0 | 65.0 | 52.0 | 52.0 | 34.3 | 34.0 | 13.4 | 25.8 | 13.6 | 12.1 | 11.1 | 1 |
| | 3.2 | 1.7 | 5.1 | 5.7 | 21.1 | 77.0 | 65.0 | 65.0 | 52.1 | 52.0 | 33.8 | 34.0 | 12.6 | 25.8 | 13.6 | 11.6 | 10.9 | 2 |
| | 3.3 | 1.5 | M | 6.0 | 21.1 | 77.0 | 65.0 | 65.0 | 52.2 | 52.0 | 33.8 | 34.0 | 11.3 | 25.8 | 13.7 | 10.4 | 9.9 | 3 |
| | 3.3 | 1.8 | M | 6.7 | 21.1 | 77.0 | 65.8 | 65.0 | 52.4 | 52.0 | 34.0 | 34.0 | 11.1 | 25.7 | 13.6 | 10.3 | 9.6 | 4 |
| | 3.3 | 2.3 | 5.0 | 6.4 | 21.2 | 77.0 | 65.7 | 65.0 | 53.2 | 52.0 | 34.4 | 34.0 | 11.4 | 25.7 | 13.6 | 10.2 | | 5 |
| | 3.3 | 2.3 | 4.8 | 6.8 | 21.0 | 77.0 | 65.5 | 65.0 | 52.[illegible] | 52.0 | 34.3 | 34.0 | 11.2 | 25.6 | 13.7 | 9.8 | 9.1 | 6 |
| | 3.2 | 2.2 | 3.3 | 6.2 | 21.2 | 77.0 | 65.5 | 65.0 | 52.7 | 52.0 | 34.0 | 34.0 | 10.6 | 25.6 | 13.6 | 9.3 | 9.0 | 7 |
| | 3.2 | 2.2 | 3.9 | 5.7 | 21.0 | 77.0 | 65.4 | 65.0 | [illegible] | 52.0 | 34.4 | 34.0 | 10.2 | 25.6 | 13.7 | 9.3 | 8.7 | 8 |
| | 3.2 | 2.2 | 3.9 | 5.7 | 21.1 | 77.0 | 65.1 | 65.0 | 52.5 | 52.0 | 34.1 | 34.0 | 10.5 | 25.5 | 13.6 | 9.5 | 8.7 | 9 |
| | 3.4 | 2.2 | 3.9 | 5.7 | 21.1 | 77.0 | 65.0 | 65.0 | 52.3 | 52.0 | 34.5 | 34.0 | 10.0 | 25.5 | 13.6 | 8.3 | 8.0 | 10 |
| | 3.4 | 2.9 | 3.9 | 5.7 | 21.1 | 77.0 | 65.0 | 65.0 | 52.2 | 52.0 | 33.9 | 34.0 | 9.7 | [illegible] | 13.6 | 8.5 | 8.0 | 11 |
| | 3.[illegible] | 2.2 | 3.9 | 5.7 | 21.1 | 77.0 | 65.0 | 65.0 | 52.2 | 52.0 | 34.0 | 34.0 | 9.1 | 25.4 | 13.6 | 7.9 | 7.6 | 12 |
| | 3.2 | 2.5 | 3.4 | 5.7 | 21.1 | 77.0 | 65.0 | 65.0 | 52.2 | 52.0 | 34.1 | 34.0 | 8.9 | 25.4 | 13.6 | 7.8 | 7.6 | 13 |
| | 3.1 | 2.3 | 3.5 | 5.7 | 21.1 | 77.0 | 65.0 | 65.0 | 52.2 | 52.0 | 34.1 | 34.0 | 9.2 | 25.3 | 13.6 | 7.8 | 7.6 | 14 |
| | 3.2 | 2.3 | 3.4 | 5.7 | 21.1 | 77.0 | 65.0 | 65.0 | 52.2 | 52.0 | 33.9 | 34.0 | 8.7 | 25.3 | 13.6 | 7.7 | 7.4 | 15 |
| | 3.1 | 2.3 | 3.4 | 5.7 | 21.1 | 77.0 | 65.0 | 65.0 | 52.2 | 52.0 | 34.0 | 34.0 | 8.0 | 25.3 | 13.6 | 7.1 | 6.9 | 16 |
| | 3.1 | 3.0 | 3.4 | 5.5 | 21.1 | 77.0 | 65.0 | 65.0 | 52.2 | 52.0 | 34.1 | 34.0 | 8.3 | 25.2 | 13.7 | 7.3 | 7.0 | 17 |
| | 3.1 | 3.3 | 3.4 | 5.6 | 21.1 | 77.0 | 65.0 | 65.0 | 52.2 | 52.0 | 34.2 | 34.0 | 8.1 | 25.2 | 13.6 | 7.3 | 6.9 | 18 |
| | 2.9 | 2.6 | 3.4 | 5.7 | 21.0 | 77.0 | 65.0 | 65.0 | 52.1 | 52.0 | 34.1 | 34.0 | 8.4 | 25.1 | 13.6 | 7.2 | 6.9 | 19 |
| | 2.9 | 2.2 | 3.4 | 5.7 | 21.1 | 77.0 | 65.0 | 65.0 | 52.2 | 52.0 | 34.1 | 34.0 | 7.5 | 25.1 | 13.6 | 6.5 | 6.6 | 20 |
| | 3.5 | 4.1 | 4.1 | 5.8 | 21.0 | 77.0 | 65.0 | 65.0 | 52.1 | 52.0 | 34.0 | 34.0 | 7.6 | 25.1 | 13.6 | 6.9 | 6.7 | 21 |
| | 3.3 | 2.8 | 3.9 | 5.6 | 21.1 | 77.0 | 65.0 | 65.0 | 52.1 | 52.0 | 34.1 | 34.0 | 8.0 | 25.0 | 13.6 | 7.1 | 6.9 | 22 |
| | 3.4 | 2.4 | 3.3 | 5.9 | 21.1 | 77.0 | 65.0 | 65.0 | 52.2 | 52.0 | 34.1 | 34.0 | 7.3 | 25.0 | 13.6 | 6.4 | 6.5 | 23 |
| | 4.4 | 2.4 | 3.8 | 5.9 | 21.2 | 77.0 | 65.0 | 65.0 | 52.3 | 52.0 | 34.2 | 34.0 | 7.7 | 25.0 | 13.6 | 7.0 | 6.6 | 24 |
| | 4.3 | 2.1 | 4.1 | 5.8 | 21.0 | 77.0 | 65.2 | 65.0 | 52.4 | 52.0 | 34.3 | 34.0 | 9.1 | 25.0 | 13.6 | 7.0 | 6.8 | 25 |
| | 4.0 | 2.3 | 3.3 | 6.1 | 21.0 | 77.0 | 65.0 | 65.0 | 52.1 | 52.0 | 34.0 | 34.0 | 7.8 | 24.9 | 13.6 | 6.3 | 5.8 | 26 |
| | 3.8 | 2.4 | 3.4 | 5.7 | 21.0 | 77.0 | 65.1 | 65.0 | 52.2 | 52.0 | 34.0 | 34.0 | 6.7 | 24.9 | 13.6 | 5.4 | 5.5 | 27 |
| | 3.5 | 2.3 | 3.4 | 5.7 | 21.1 | 77.0 | 65.0 | 65.0 | 52.1 | 52.0 | 34.2 | 34.0 | 7.5 | 24.8 | 13.6 | 6.5 | 6.1 | 28 |
| | 3.4 | 2.2 | 3.4 | 5.8 | 21.0 | 77.0 | 65.8 | 65.0 | 52.6 | 52.0 | 34.1 | 34.0 | 7.5 | 24.8 | 13.6 | 6.3 | 6.2 | 29 |
| | 3.4 | 2.1 | 3.4 | 5.8 | 21.1 | 77.0 | 65.0 | 65.0 | 52.3 | 52.0 | 33.9 | 34.0 | 8.0 | 24.8 | 13.6 | 7.2 | 7.0 | 30 |
| | | | | | | | | | | | | | | | | | | 31 |

JUL 28 '98 12:23PM CELMK ED HC P.4

DAILY STAGES FOR 1998

25611 OUACHITA RIVER AT FELSENTHAL LOCK AND DAM (UPPER),STATION NO. 89-H

LOCATION. FELSENTHAL LOCK AND DAM AT MILE 182.8 (1939), OR 243 MILES UPSTREAM FROM MOUTH OF BLACK RIVER. LAT. 33-01-56 LONG. 92-05-17. FELSENTHAL QUADRANGLE.

GAGE. SATELLITE.

GENERAL INFORMATION. GAGE READ AND MAINTAINED BY VICKSBURG DISTRICT. DRAINAGE AREA, 10,787 SQUARE MILES. POOL STAGE IS 65.0 FEET. BANKFULL STAGE IS 65.0 FEET.

RECORDS AVAILABLE. STAGE, SEPT. 1984 TO DATE

EXTREMES NOT DETERMINED.

DAILY EIGHT A.M. STAGE IN FEET GAGE ZERO, IS AT N.G.V.D.

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 70.1 | 73.5 | 72.8 | 73.5 | 67.3 | 65.1 | 65.1 | 65.0 | ---- | ---- | ---- | ---- |
| 2 | ---- | 73.5 | 72.9 | 73.2 | 67.2 | 65.0 | 65.4 | 65.0 | ---- | ---- | ---- | ---- |
| 3 | 70.1 | 73.4 | 72.9 | 73.0 | 67.1 | 65.0 | 65.0 | 65.0 | ---- | ---- | ---- | ---- |
| 4 | 70.0 | 73.2 | 72.9 | 72.6 | 67.0 | 65.0 | 65.1 | 65.0 | ---- | ---- | ---- | ---- |
| 5 | 70.1 | 73.0 | 72.8 | 72.3 | 66.9 | 64.9 | 65.0 | 65.0 | ---- | ---- | ---- | ---- |
| 6 | 70.1 | 72.8 | 72.7 | 71.9 | 66.8 | 65.0 | 65.1 | 65.1 | ---- | ---- | ---- | ---- |
| 7 | 70.2 | 72.5 | 72.5 | 71.5 | 66.7 | 65.0 | 65.1 | 65.0 | ---- | ---- | ---- | ---- |
| 8 | 70.0 | 72.1 | 72.8 | 71.1 | 66.6 | 65.0 | 65.9 | 65.0 | ---- | ---- | ---- | ---- |
| 9 | 70.2 | 71.7 | 72.9 | 70.5 | 66.5 | 65.0 | 65.1 | 65.0 | ---- | ---- | ---- | ---- |
| 10 | 70.1 | 71.3 | 73.0 | 70.1 | 66.4 | 65.0 | 65.1 | 65.0 | ---- | ---- | ---- | ---- |
| 11 | 70.1 | 71.0 | 73.1 | 69.8 | 66.3 | 65.0 | 65.0 | 65.0 | ---- | ---- | ---- | ---- |
| 12 | 70.0 | 70.7 | 73.1 | 69.5 | 66.2 | 65.0 | 65.0 | 65.0 | ---- | ---- | ---- | ---- |
| 13 | 70.1 | 70.4 | 73.2 | 69.5 | 66.1 | 65.0 | 65.0 | 65.0 | ---- | ---- | ---- | ---- |
| 14 | 70.0 | 70.2 | 73.3 | 68.2 | 66.0 | 65.0 | 65.1 | 65.0 | ---- | ---- | ---- | ---- |
| 15 | 70.0 | 70.1 | 73.3 | 69.3 | 65.9 | 65.1 | 65.1 | 65.0 | ---- | ---- | ---- | ---- |
| 16 | 70.1 | 70.1 | 73.3 | 69.1 | 65.8 | 65.0 | 65.0 | 65.0 | ---- | ---- | ---- | ---- |
| 17 | 70.5 | 70.2 | 73.5 | 68.9 | 65.7 | 65.0 | 65.1 | 65.0 | ---- | ---- | ---- | ---- |
| 18 | 70.9 | 70.3 | 73.6 | 68.8 | 65.6 | 65.0 | 65.1 | 65.0 | ---- | ---- | ---- | ---- |
| 19 | 71.3 | 70.5 | 73.7 | 68.8 | 65.5 | 65.0 | 65.0 | 65.0 | ---- | ---- | ---- | ---- |
| 20 | 71.7 | 70.7 | 73.8 | 68.6 | 65.4 | 65.0 | 65.1 | 65.0 | ---- | ---- | ---- | ---- |
| 21 | 72.1 | 70.9 | 73.8 | 68.5 | 65.3 | 65.0 | 65.0 | 65.0 | ---- | ---- | ---- | ---- |
| 22 | 72.6 | 71.1 | 74.1 | 69.1 | 65.3 | 65.0 | 65.1 | 65.0 | ---- | ---- | ---- | ---- |
| 23 | 73.0 | 71.5 | 74.1 | 68.4 | 65.1 | 65.1 | 65.1 | 65.0 | ---- | ---- | ---- | ---- |
| 24 | 73.3 | 71.7 | 74.1 | 68.2 | 65.1 | 65.1 | 65.0 | 65.0 | ---- | ---- | ---- | ---- |
| 25 | 73.5 | 72.1 | 74.1 | 68.2 | 65.0 | 65.1 | 65.1 | 65.0 | ---- | ---- | ---- | ---- |
| 26 | 73.7 | 72.3 | 74.2 | 68.2 | 65.0 | 65.1 | 65.0 | 65.0 | ---- | ---- | ---- | ---- |
| 27 | 73.8 | 72.6 | 74.2 | 67.8 | 65.0 | 65.1 | 65.1 | 65.0 | ---- | ---- | ---- | ---- |
| 28 | 73.8 | 72.8 | 74.1 | 67.6 | 65.0 | 65.1 | 65.1 | 65.0 | ---- | ---- | ---- | ---- |
| 29 | 73.8 | ---- | 74.0 | 67.5 | 65.0 | 65.1 | 65.1 | 65.0 | ---- | ---- | ---- | ---- |
| 30 | 73.7 | ---- | 73.8 | 67.4 | 65.1 | 65.1 | 65.1 | 65.0 | ---- | ---- | ---- | ---- |
| 31 | 73.6 | ---- | 73.7 | ---- | 65.1 | ---- | 65.1 | 65.0 | ---- | ---- | ---- | ---- |
| MEAN | 71.4 | 71.6 | 73.4 | 69.7 | 65.9 | 65.0 | 65.1 | 65.0 | ---- | ---- | ---- | ---- |
| MAX | 73.8 | 73.5 | 74.2 | 73.5 | 67.3 | 65.1 | 65.9 | 65.1 | ---- | ---- | ---- | ---- |
| MIN | 70.0 | 70.1 | 72.5 | 67.4 | 65.0 | 64.9 | 65.0 | 65.0 | ---- | ---- | ---- | ---- |

THE MEAN STAGE FOR THE YEAR ----
HIGHEST STAGE WAS 74.23 26 MAR 1998
LOWEST STAGE WAS 64.88 5 JUN 1998

[illegible] SUBJECT TO REVISION

DAILY STAGES FOR 1998

25612 OUACHITA RIVER AT FELSENTHAL LOCK AND DAM (LOWER),STATION NO. 89-G

LOCATION. FELSENTHAL LOCK AND DAM AT MILE 182.8 (1939), OR 243 MILES UPSTREAM FROM MOUTH OF BLACK RIVER. LAT. 33-01-56 LONG. 92-05-17. FELSENTHAL QUADRANGLE.

GAGE. SATELLITE.

GENERAL INFORMATION. GAGE READ AND MAINTAINED BY VICKSBURG DISTRICT. DRAINAGE AREA, 10,787 SQUARE MILES. POOL STAGE IS 65 FEET. BANKFULL STAGE IS 65 FEET.

RECORDS AVAILABLE. STAGE, SEPT. 1984 TO DATE.

EXTREMES. HIGHEST 86.40 FEET 1991. LOWEST 51.0 FEET SEPT. 22, 1993.

DAILY EIGHT A.M. STAGE IN FEET GAGE ZERO, IS AT N.G.V.D.

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 64.7 | 73.3 | 72.6 | 73.1 | 61.6 | 58.4 | 52.7 | 52.2 | ---- | ---- | ---- | ---- |
| 2 | 64.8 | 73.3 | 72.6 | 72.9 | 61.3 | 59.5 | 52.9 | 52.1 | ---- | ---- | ---- | ---- |
| 3 | 64.0 | 73.2 | 72.6 | 72.6 | 60.3 | 60.4 | 54.0 | 52.1 | ---- | ---- | ---- | ---- |
| 4 | 63.7 | 73.2 | 72.6 | 72.3 | 59.4 | 60.5 | 52.4 | 52.1 | ---- | ---- | ---- | ---- |
| 5 | 62.8 | 72.8 | 72.5 | 72.0 | 58.7 | 58.1 | 52.5 | 52.0 | ---- | ---- | ---- | ---- |
| 6 | 62.6 | 72.5 | 72.4 | 71.6 | 57.9 | 56.0 | 52.4 | 52.0 | ---- | ---- | ---- | ---- |
| 7 | 63.9 | 72.3 | 72.3 | 71.2 | 57.8 | 53.5 | 52.8 | 52.3 | ---- | ---- | ---- | ---- |
| 8 | 66.0 | 71.9 | 72.6 | 70.7 | 56.0 | 53.4 | 52.4 | 52.2 | ---- | ---- | ---- | ---- |
| 9 | 66.4 | 71.6 | 72.7 | 70.2 | 56.8 | 54.0 | 52.6 | 52.4 | ---- | ---- | ---- | ---- |
| 10 | 67.1 | 71.2 | 72.8 | 69.7 | 56.6 | 53.1 | 52.9 | 52.2 | ---- | ---- | ---- | ---- |
| 11 | 67.5 | 70.8 | 72.8 | 69.0 | 55.3 | 53.1 | 53.2 | 52.1 | ---- | ---- | ---- | ---- |
| 12 | 67.9 | 70.5 | 72.9 | 68.9 | 54.2 | 53.1 | 52.6 | 52.2 | ---- | ---- | ---- | ---- |
| 13 | 68.1 | 70.2 | 72.9 | 67.4 | 53.9 | 53.7 | 52.6 | 53.4 | ---- | ---- | ---- | ---- |
| 14 | 68.5 | 70.0 | 73.0 | 66.5 | 54.0 | 53.9 | 53.4 | 52.7 | ---- | ---- | ---- | ---- |
| 15 | 69.0 | 69.8 | 73.1 | 65.5 | 53.6 | 53.4 | 53.1 | 53.1 | ---- | ---- | ---- | ---- |
| 16 | 69.6 | 69.8 | 73.1 | 64.5 | 53.5 | 54.6 | 52.7 | 52.7 | ---- | ---- | ---- | ---- |
| 17 | 70.0 | 69.9 | 73.4 | 63.8 | 54.2 | 53.0 | 52.3 | 52.9 | ---- | ---- | ---- | ---- |
| 18 | 70.4 | 70.0 | 73.5 | 62.9 | 54.6 | 52.4 | 52.3 | 52.3 | ---- | ---- | ---- | ---- |
| 19 | 70.8 | 70.1 | 73.7 | 62.5 | 55.1 | 52.3 | 53.2 | 52.2 | ---- | ---- | ---- | ---- |
| 20 | 71.2 | 70.3 | 73.7 | 61.4 | 54.9 | 53.0 | 52.6 | 52.6 | ---- | ---- | ---- | ---- |
| 21 | 71.6 | 70.5 | 73.8 | 61.0 | 54.0 | 53.2 | 52.9 | 52.6 | ---- | ---- | ---- | ---- |
| 22 | 72.2 | 70.7 | 73.8 | 59.9 | 53.8 | 53.1 | 52.5 | 52.6 | ---- | ---- | ---- | ---- |
| 23 | 72.6 | 71.0 | 73.8 | 59.6 | 55.1 | 52.4 | 52.6 | 53.2 | ---- | ---- | ---- | ---- |
| 24 | 73.0 | 71.3 | 73.9 | 59.2 | 53.4 | 52.4 | 53.0 | 52.3 | ---- | ---- | ---- | ---- |
| 25 | 73.2 | 71.3 | 73.9 | 57.0 | 52.9 | 52.4 | 53.0 | 52.5 | ---- | ---- | ---- | ---- |
| 26 | 73.4 | 71.9 | 73.9 | 55.9 | 52.5 | 52.2 | 52.6 | 52.4 | ---- | ---- | ---- | ---- |
| 27 | 73.6 | 72.2 | 73.9 | 57.9 | 52.3 | 53.0 | 52.3 | 52.5 | ---- | ---- | ---- | ---- |
| 28 | 73.6 | 72.4 | 73.8 | 58.8 | 52.3 | 52.7 | 52.2 | 54.2 | ---- | ---- | ---- | ---- |
| 29 | 73.6 | ---- | 73.7 | 59.1 | 52.4 | 52.4 | 52.2 | 53.0 | ---- | ---- | ---- | ---- |
| 30 | 73.5 | ---- | 73.5 | 60.5 | 53.8 | 52.7 | 52.2 | 52.5 | ---- | ---- | ---- | ---- |
| 31 | 73.5 | ---- | 73.3 | ---- | 56.5 | ---- | 52.3 | 52.2 | ---- | ---- | ---- | ---- |
| MEAN | 69.1 | 71.4 | 73.2 | 65.3 | 55.4 | 54.2 | 52.7 | 52.5 | ---- | ---- | ---- | ---- |
| MAX | 73.6 | 73.3 | 73.9 | 73.1 | 61.6 | 60.5 | 54.0 | 54.2 | ---- | ---- | ---- | ---- |
| MIN | 62.6 | 69.8 | 72.3 | 55.9 | 52.3 | 52.2 | 52.2 | 52.0 | ---- | ---- | ---- | ---- |

THE MEAN STAGE FOR THE YEAR ----
HIGHEST STAGE WAS 73.90 24 MAR 1998
LOWEST STAGE WAS 52.00 5 AUG 1998

AVG AVG AVG
52.7 52.8 52.6

UNPUBLISHED RECORDS SUBJECT TO REVISION

DAILY RIVER STAGES

MONTH June '98

SAL.\L. MO. | OUACHITA | B. COCODRIE BLACK ATC.

| | BENTON | BOUGHTON | THATCHER ARKADELPHIA | CAMDEN | MONROE | FELSENTHAL Upper | FELSENTHAL Lower | COLUMBIA Upper | COLUMBIA Lower | JONESVILLE Upper | JONESVILLE Lower | TENSAS P.P. IN | TENSAS P.P. OUT | ACME | SIMMESPORT | DATE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | 4.6 | 6.7 | 18.7 | 21.7 | 77.0 | 74.3 | 65.0 | 58.4 | 52.0 | 35.2 | 34.0 | 30.4 | 30.1 | 30.1 | 28.9 | 26.6 | 1 |
| | M | 3.9 | 5.1 | 19.4 | 21.8 | 77.0 | 75.8 | 65.0 | 57.5 | 52.0 | 36.0 | 34.0 | 29.4 | 29.3 | 29.3 | 27.9 | 25.7 | 2 |
| | M | 2.7 | 5.6 | 12.9 | 22.0 | 77.0 | 75.0 | 65.0 | 60.4 | 52.0 | 36.6 | 34.0 | 29.0 | 28.9 | 28.9 | 27.5 | 25.3 | 3 |
| | M | 2.6 | 4.5 | 8.0 | 22.2 | 77.0 | 71.2 | 65.0 | 60.5 | 52.0 | 36.8 | 34.0 | 28.9 | 28.6 | 28.5 | 27.1 | 24.9 | 4 |
| | M | 2.5 | 4.0 | 7.4 | 22.2 | 77.0 | 67.8 | 65.0 | 58.1 | 52.0 | 36.8 | 34.0 | 28.0 | 27.8 | 27.7 | 26.4 | 24.4 | 5 |
| | - | 2.5 | 3.9 | 7.0 | 21.7 | 77.0 | 66.5 | 65.0 | 52.0 | 52.0 | 36.7 | 34.0 | 26.2 | | 26.4 | 25.3 | 23.3 | 6 |
| | - | 2.5 | 4.0 | 7.0 | 21.3 | 77.0 | 66.2 | 65.0 | 53.5 | 52.0 | 36.3 | 34.0 | 26.4 | 27.4 | 26.1 | 24.9 | 22.9 | 7 |
| | M | 2.5 | 3.8 | 7.3 | 21.2 | 77.0 | 66.3 | 65.0 | 53.7 | 52.0 | 34.5 | 34.0 | 24.4 | 27.3 | 24.3 | 23.2 | 21.7 | 8 |
| | M | 3.0 | 3.8 | 6.9 | 21.3 | 77.0 | 66.1 | 65.0 | 54.0 | 52.0 | 34.4 | 34.0 | 23.2 | 27.2 | 23.1 | 22.1 | 20.7 | 9 |
| | M | 2.8 | 4.4 | 6.6 | 21.2 | 77.0 | 65.8 | 65.0 | 53.1 | 52.0 | 34.5 | 34.0 | 22.1 | 27.1 | 22.0 | 20.8 | 19.4 | 10 |
| | 3.2 | 3.3 | 5.2 | 6.3 | 21.3 | 77.0 | 65.4 | 65.0 | 53.1 | 52.0 | 34.0 | 34.0 | 20.5 | 27.0 | 20.5 | 19.4 | 18.1 | 11 |
| | 3.2 | 2.8 | 6.2 | 7.5 | 21.3 | 77.0 | 65.8 | 65.0 | 53.1 | 52.0 | 34.2 | 34.0 | 19.9 | 26.7 | 19.9 | 19.8 | 17.6 | 12 |
| | 3.3 | 2.6 | 6.3 | 8.4 | 21.3 | 77.0 | 66.4 | 65.0 | 53.7 | 52.0 | 34.1 | 34.0 | 20.8 | 26.5 | 21.2 | 20.0 | 18.7 | 13 |
| | 3.3 | 2.5 | 6.7 | 8.2 | 21.3 | 77.0 | 66.5 | 65.0 | 53.9 | 52.0 | 34.2 | 34.0 | 21.2 | 26.3 | 21.3 | 20.3 | 19.0 | 14 |
| | 3.3 | 2.4 | 4.5 | 9.0 | 21.2 | 77.0 | 66.6 | 65.0 | 53.4 | 52.0 | 34.4 | 34.0 | 21.8 | 26.3 | 21.9 | 20.9 | 19.5 | 15 |
| | 3.3 | 2.3 | 4.6 | 7.2 | 21.2 | 77.0 | 66.7 | 65.0 | 54.6 | 52.0 | 34.3 | 34.0 | 21.8 | 26.3 | 21.8 | 20.9 | 19.6 | 16 |
| | 3.3 | 2.3 | 4.5 | 6.2 | 21.2 | 77.0 | 65.5 | 65.0 | 53.0 | 52.0 | 34.5 | 34.0 | 23.2 | 26.5 | 23.2 | 22.2 | 20.8 | 17 |
| | 3.3 | 2.2 | 4.9 | 6.1 | 21.2 | 77.0 | 65.2 | 65.0 | 52.4 | 52.0 | 34.1 | 34.0 | 23.3 | 26.3 | 23.3 | 22.4 | 21.0 | 18 |
| | 3.3 | 3.6 | 6.1 | 6.6 | 21.1 | 77.0 | 65.7 | 65.0 | 52.3 | 52.0 | 34.0 | 34.0 | 23.6 | 26.3 | 23.7 | 22.9 | 21.2 | 19 |
| | 3.4 | 3.3 | 5.1 | 7.9 | 21.4 | 77.1 | 66.0 | 65.0 | 53.0 | 52.0 | 34.0 | 34.0 | 24.2 | 26.4 | 24.2 | 23.3 | 21.9 | 20 |
| | 3.4 | 2.6 | 5.5 | 6.9 | 21.3 | 77.2 | 66.1 | 65.0 | 53.2 | 52.0 | 34.1 | 34.0 | 24.8 | 26.3 | 24.8 | 24.0 | 22.3 | 21 |
| | 3.3 | 2.4 | 4.0 | 6.7 | 21.3 | 77.4 | 65.5 | 65.0 | 53.1 | 52.0 | 34.1 | 34.0 | 24.9 | 26.3 | 24.9 | 24.0 | 22.5 | 22 |
| | 3.4 | 3.2 | 4.4 | 6.4 | 21.2 | 77.4 | 65.6 | 65.0 | 52.4 | 52.0 | 34.1 | 34.0 | 25.7 | 26.3 | 25.7 | 24.8 | 23.4 | 23 |
| | 3.4 | 3.0 | 3.6 | 6.4 | 21.1 | 77.4 | 65.3 | 65.0 | 52.4 | 52.0 | 34.0 | 34.0 | 26.2 | 26.3 | 26.3 | 25.4 | 23.9 | 24 |
| | 3.5 | 2.4 | 5.7 | 6.2 | 21.2 | 77.4 | 65.2 | 65.0 | 52.4 | 52.0 | 34.0 | 34.0 | 26.9 | 26.3 | 26.8 | 25.9 | 24.3 | 25 |
| | 3.5 | 3.2 | 5.1 | 7.1 | 21.1 | 77.4 | 65.2 | 65.0 | 52.3 | 52.0 | 34.0 | 34.0 | 28.0 | 27.6 | 28.3 | 27.2 | 25.7 | 26 |
| | 3.4 | 3.1 | 5.0 | 6.8 | 21.3 | 77.4 | 65.6 | 65.0 | 53.0 | 52.0 | 34.0 | 34.0 | 28.4 | 28.2 | 28.5 | 27.6 | 25.9 | 27 |
| | 3.5 | 3.4 | 4.8 | 6.3 | 21.3 | 77.4 | 65.3 | 65.0 | 52.7 | 52.0 | 34.0 | 34.0 | 28.8 | 28.7 | 28.9 | 27.9 | 26.3 | 28 |
| | 3.4 | 2.2 | 5.2 | 6.5 | 21.3 | 77.4 | 65.3 | 65.0 | 52.4 | 52.0 | 34.0 | 34.0 | 29.0 | 29.0 | 29.1 | 28.2 | 26.5 | 29 |
| | 3.4 | 2.0 | 5.4 | 6.4 | 21.3 | 77.4 | 65.4 | 65.0 | 52.7 | 52.0 | 34.0 | 34.0 | 29.0 | 29.0 | 29.0 | 27.9 | 26.3 | 30 |
| | | | | | | | | | | | | | | | | | | 31 |

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# DAILY RIVER STAGES

MONTH July 98

SAL.\L. MO. | OUACHITA | B. COCODRIE BLACK ATC.

| | BENTON | BOUGHTON | ARKADELPHIA | CAMDEN | MONROE | THATCHER Upper | THATCHER Lower | FELSENTHAL Upper | FELSENTHAL Lower | COLUMBIA Upper | COLUMBIA Lower | JONESVILLE Upper | JONESVILLE Lower | TENSAS P.P. IN | TENSAS P.P. OUT | ACME | SIMMESPORT | DATE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3.5 | 2.0 | 3.8 | 6.3 | 21.3 | 77.4 | 65.3 | 65.0 | 52.7 | 52.0 | 34.0 | 34.0 | 28.7 | 28.8 | 28.7 | 27.8 | 26.2 | 1 |
| | 3.5 | 1.9 | 3.6 | 6.2 | 21.3 | 77.4 | 65.3 | 65.0 | 52.9 | 52.0 | 34.0 | 34.2 | 29.1 | 29.3 | 29.2 | 28.2 | 26.6 | 2 |
| | 3.4 | 1.9 | 5.1 | 6.2 | 21.5 | 77.4 | 65.2 | 65.0 | 54.0 | 52.0 | 34.0 | 34.0 | 28.3 | 29.4 | 29.3 | 28.3 | 26.7 | 3 |
| | 3.2 | 2.0 | 3.9 | 6.1 | 21.1 | 77.4 | 65.2 | 65.0 | 52.4 | 52.0 | 34.2 | 34.0 | 28.6 | 29.7 | 29.6 | 28.6 | 26.7 | 4 |
| | 3.2 | 1.9 | 5.4 | 6.2 | 21.3 | 77.4 | 65.2 | 65.0 | 52.5 | 52.0 | 34.1 | 34.0 | 28.3 | 29.4 | 29.4 | 28.4 | 26.7 | 5 |
| | 3.3 | 1.9 | 4.5 | 6.3 | 21.3 | 77.4 | 65.2 | 65.0 | 52.4 | 52.0 | 34.0 | 34.0 | 29.0 | 29.3 | 29.2 | 28.3 | 26.6 | 6 |
| | 3.3 | 1.9 | 5.6 | 6.2 | 21.3 | 77.4 | 65.2 | 65.0 | 52.8 | 52.0 | 34.0 | 34.0 | 29.5 | 29.6 | 29.5 | 28.4 | 26.9 | 7 |
| | 3.4 | 3.2 | 6.1 | 6.5 | 21.3 | 77.4 | 65.2 | 65.0 | 53.4 | 52.0 | 34.0 | 34.0 | 29.5 | 29.6 | 29.6 | 28.6 | 26.9 | 8 |
| | 3.4 | 3.3 | 5.4 | 6.8 | 21.2 | 77.4 | 65.5 | 65.0 | 52.6 | 52.0 | 34.0 | 34.0 | 29.2 | 29.3 | 29.3 | 28.2 | 26.7 | 9 |
| | 3.0 | 2.4 | 5.7 | 6.8 | 21.3 | 77.4 | 65.5 | 65.0 | 52.9 | 52.0 | 34.0 | 34.0 | 28.5 | 28.6 | 28.6 | 27.6 | 26.0 | 10 |
| | | | | | | 77.4 | 65.4 | 65.0 | 53.2 | 52.0 | 34.0 | 34.0 | 28.7 | | | 27.8 | 26.2 | 11 |
| | | | | | | 77.4 | 65.4 | 65.0 | 52.6 | 52.0 | 34.0 | 34.0 | 28.2 | | | 27.6 | 25.8 | 12 |
| | | | | | | 77.4 | 65.6 | 65.0 | 52.6 | 52.0 | 34.0 | 34.0 | 28.6 | | | 27.6 | 26.0 | 13 |
| | 3.3 | 2.0 | 3.9 | 6.4 | 21.5 | 77.4 | 65.5 | 65.0 | 53.4 | 52.0 | 34.0 | 34.0 | 29.0 | 29.2 | 29.2 | 28.3 | 26.5 | 14 |
| | 3.3 | 1.9 | 3.5 | 6.4 | 21.2 | 77.4 | 65.4 | 65.0 | 53.1 | 52.0 | 34.1 | 34.0 | 29.5 | 29.6 | 29.5 | 28.5 | 26.7 | 15 |
| | 3.3 | 2.3 | 4.7 | 6.1 | 21.2 | 77.4 | 65.2 | 65.0 | 52.7 | 52.0 | 34.1 | 34.0 | 29.1 | 29.1 | 29.1 | 28.0 | 26.4 | 16 |
| | 3.3 | 2.0 | 5.6 | 6.1 | 21.1 | 77.4 | 65.2 | 65.0 | 52.3 | 52.6 | 34.1 | 34.0 | 28.9 | 29.0 | 28.9 | 27.9 | 26.1 | 17 |
| | 3.2 | 1.9 | 5.9 | 6.4 | 21.1 | 77.4 | 65.4 | 65.0 | 52.3 | 52.0 | 34.1 | 34.0 | 28.3 | | 28.3 | 27.3 | 25.7 | 18 |
| | 3.1 | 1.8 | 5.2 | 6.8 | 21.1 | 77.4 | 65.5 | 65.0 | 53.2 | 52.0 | 34.1 | 34.0 | 27.7 | 27.8 | 27.8 | 26.8 | 25.2 | 19 |
| | 3.1 | 1.8 | 3.8 | 6.4 | 21.2 | 77.4 | 65.6 | 65.0 | 52.6 | 52.0 | 34.1 | 34.0 | 27.3 | 27.5 | 27.5 | 26.5 | 24.9 | 20 |
| | 3.0 | 1.7 | 5.5 | 6.4 | 21.3 | 77.4 | 65.3 | 65.0 | 52.9 | 52.0 | 34.1 | 34.0 | 26.4 | 27.2 | 26.4 | 25.5 | 24.0 | 21 |
| | 3.0 | 1.7 | 5.7 | 6.5 | 21.3 | 77.4 | 65.4 | 65.0 | 52.5 | 52.0 | 33.5 | 33.5 | 25.9 | 26.8 | 25.9 | 24.9 | 23.3 | 22 |
| | 3.0 | m | 6.0 | 6.6 | 21.3 | 77.4 | 65.7 | 65.0 | 52.6 | 52.0 | 33.4 | 33.4 | 24.4 | 26.5 | 24.4 | 23.5 | 22.0 | 23 |
| | 3.0 | 2.0 | 3.6 | 7.3 | 21.5 | 77.4 | 65.9 | 65.0 | 53.0 | 52.0 | 33.4 | 33.4 | 24.1 | 26.3 | 24.1 | 23.1 | 21.6 | 24 |
| | 3.0 | 1.9 | 3.7 | 6.6 | 21.1 | 77.4 | 65.5 | 65.0 | 53.1 | 52.0 | 33.4 | 33.4 | 23.5 | 26.3 | 23.4 | 21.6 | 20.9 | 25 |
| | 3.2 | 1.8 | 3.6 | 6.2 | 21.1 | 77.4 | 65.2 | 65.0 | 52.8 | 52.0 | 33.4 | 33.4 | 23.0 | 26.3 | 22.9 | 21.2 | 20.5 | 26 |
| | 3.2 | 1.7 | 3.4 | 6.1 | 21.1 | 77.4 | 65.2 | 65.0 | 52.7 | 52.0 | 33.3 | 33.4 | 21.5 | 26.3 | 21.3 | 20.0 | 19.1 | 27 |
| | 3.2 | 1.7 | 4.6 | 6.1 | 21.0 | 77.4 | 65.1 | 65.0 | 52.5 | 52.0 | 33.3 | 33.8 | 20.4 | 26.3 | 20.2 | 19.2 | | 28 |
| | | | | | | | | | | | | | | | | | | 29 |
| | | | | | | | | | | | | | | | | | | 30 |
| | | | | | | | | | | | | | | | | | | 31 |

JUL 28 '98 12:26PM CELMK ED HC P.8

**U.S. Army Corps of Engineers**
**Vicksburg District**
**Hydraulics Branch**

4155 Clay Street
Vicksburg, MS 39183-3435
FAX: (601) 631-7231

# Fax

To: Sarah Sheppard From: Wayland Hill

Fax: 843-853-2790 Phone: 601-631-5672

Phone: Date: 14 Dec. 98

Re: Pages: 5

☐ Urgent ☐ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

• Comments

Wayland O. Hills

DAIL[illegible] MONTH [illegible]

| OUACHITA | | | | | | | | | | B. COCODRIE | BLACK | ATC. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | THATCHER | | FELSENTHAL | | COLUMBIA | | JONESVILLE | | TENSAS P.P. | | | | |
| CAMDEN | MONROE | Upper | Lower | Upper | Lower | Upper | Lower | Upper | Lower | IN | OUT | ACME | SIMMESPORT | DATE |
| 6.3 | 21.2 | 77.4 | 65.5 | 65.0 | 52.8 | 52.0 | 33.7 | 34.0 | 10.5 | 26.3 | 14.0 | 9.5 | 9.0 | 1 |
| 6.2 | 21.3 | 77.4 | 65.2 | 65.0 | 52.4 | 52.0 | 33.7 | 34.0 | 10.3 | 26.3 | 14.0 | 9.3 | 8.9 | 2 |
| 6.1 | 21.2 | 77.4 | 65.2 | 65.0 | 52.3 | 52.0 | 33.7 | 34.0 | 9.6 | 26.5 | 14.0 | 8.7 | 8.2 | 3 |
| 6.1 | 21.1 | 77.4 | 65.0 | 65.0 | 52.2 | 52.0 | 33.7 | 34.0 | 9.9 | 26.6 | 14.0 | 9.0 | 8.4 | 4 |
| 6.2 | 21.1 | 77.4 | 65.2 | 65.0 | 52.2 | 52.0 | 33.7 | 34.0 | 10.0 | 26.6 | 14.0 | 8.9 | 8.4 | 5 |
| 6.0 | 21.0 | 77.4 | 65.0 | 65.0 | 52.1 | 52.0 | 33.7 | 34.0 | 9.1 | 26.4 | 14.0 | 8.1 | 7.7 | 6 |
| 6.0 | 21.0 | 77.4 | 65.0 | 65.0 | 52.0 | 51.9 | 33.7 | 34.0 | 8.9 | 26.3 | 14.0 | 8.2 | 7.6 | 7 |
| 5.9 | 21.0 | 77.4 | 65.0 | 65.0 | 52.0 | 51.9 | 33.7 | 34.0 | 9.0 | 26.3 | 14.0 | 8.1 | 7.8 | 8 |
| 6.1 | 20.9 | 77.4 | 65.0 | 64.9 | 51.9 | 51.9 | 33.7 | 34.0 | 9.3 | 26.2 | 14.0 | 8.5 | 7.9 | 9 |
| 6.1 | 20.9 | 77.4 | 65.0 | 64.8 | 51.9 | 51.8 | 34.0 | 34.0 | 8.5 | 26.2 | 14.0 | 7.4 | 7.1 | 10 |
| 5.9 | 20.8 | 77.4 | 65.0 | 64.9 | 51.7 | 51.7 | 34.0 | 34.0 | 8.4 | 26.1 | 14.0 | 7.5 | 7.3 | 11 |
| 6.2 | 21.0 | 77.4 | 65.3 | 65.0 | 52.0 | 51.9 | 34.0 | 34.0 | 9.2 | 26.8 | 14.0 | 8.5 | 8.0 | 12 |
| 6.6 | 21.7 | 77.4 | 66.1 | 65.0 | 54.5 | 52.0 | 34.0 | 34.0 | 14.0 | 28.2 | 14.0 | 12.0 | 9.4 | 13 |
| 6.8 | 21.5 | 77.4 | 66.3 | 65.0 | 53.9 | 52.0 | 34.2 | 34.0 | 14.6 | 28.2 | 14.2 | 11.7 | 8.8 | 14 |
| 7.1 | 21.4 | 77.4 | 66.5 | 65.0 | 54.0 | 52.0 | 34.4 | 34.0 | 14.8 | 28.3 | 14.3 | 11.2 | 7.4 | 15 |
| 8 | 21.5 | 77.4 | 66.9 | 65.0 | 54.3 | 52.0 | 34.4 | 34.0 | 12.9 | 28.1 | 13.8 | 9.5 | [illegible] | 16 |
| 13.0 | 21.4 | 77.4 | 69.6 | 65.0 | 54.9 | 52.0 | 34.4 | 34.0 | 13.7 | 28.1 | 13.9 | 10.9 | 6.9 | 17 |
| 12.4 | 21.7 | 77.4 | 70.9 | 65.0 | 56.3 | 52.0 | 34.4 | 34.0 | 12.0 | 28.0 | 14.0 | 9.7 | 6.4 | 18 |
| 11.0 | 21.8 | 77.4 | 70.3 | 65.0 | 57.2 | 52.0 | 34.7 | 34.0 | 12.9 | 27.9 | 14.0 | 10.4 | 7.0 | 19 |
| 8.5 | 21.7 | 77.4 | 68.4 | 65.0 | 56.9 | 52.0 | 34.9 | 34.0 | 13.7 | 27.7 | 14.0 | 11.1 | 7.4 | 20 |
| 7.6 | 21.5 | 77.4 | 66.8 | 65.1 | 54.9 | 52.0 | 34.9 | 34.0 | 14.0 | 27.7 | 14.1 | 11.6 | 7.7 | 21 |
| 7.6 | 21.4 | 77.4 | 66.2 | 65.1 | 54.0 | 52.0 | 34.9 | 34.0 | 12.4 | 27.6 | 14.0 | 10.0 | 6.0 | 22 |
| 6.9 | 21.4 | 77.4 | 65.8 | 65.0 | 54.4 | 52.0 | 34.9 | 34.0 | 10.5 | 27.5 | 14.0 | 8.0 | 5.6 | 23 |
| 7.0 | 21.2 | 77.4 | 66.0 | 65.0 | 53.6 | 52.0 | 34.6 | 34.0 | 9.4 | 27.4 | 14.0 | 7.9 | 6.1 | 24 |
| 6.6 | 21.3 | 77.4 | 65.8 | 65.0 | 54.1 | 52.0 | 34.6 | 34.0 | 9.0 | 27.3 | 14.0 | 8.0 | 6.0 | 25 |
| 6.6 | 21.2 | 77.4 | 65.3 | 65.0 | 52.6 | 52.0 | 34.6 | 34.0 | 10.9 | 27.2 | 14.0 | 9.5 | 7.2 | 26 |
| 6.1 | 21.3 | 77.4 | 65.3 | 65.0 | 53.3 | 52.0 | 34.4 | 34.0 | 9.9 | 27.0 | 14.0 | 9.0 | 7.2 | 27 |
| 6.7 | 21.1 | 77.4 | 65.[illegible] | 65.0 | 52.1 | 52.0 | 34.4 | 34.0 | 10.0 | 26.8 | 14.0 | 8.6 | 6.9 | 28 |
| 6.8 | 21.2 | 77.4 | 65.5 | 65.0 | 53.1 | 52.0 | 34.2 | 34.0 | 9.6 | 26.7 | 14.0 | 8.7 | 7.4 | 29 |
| 6.3 | 21.1 | 77.4 | 65.4 | 65.0 | 52.6 | 52.0 | 34.2 | 34.0 | 9.0 | 26.5 | 14.0 | 8.0 | 7.1 | 30 |
| | | | | | | | | | | | | | | 31 |

DAILDEC 14 '98 08:42AM LELIA LD IN. MONTH

| OUACHITA | | | | | | | | | | B. COCODRIE | | BLACK | ATC. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | THATCHER | | FELSENTHAL | | COLUMBIA | | JONESVILLE | | TENSAS P.P. | | | | |
| CAMDEN | MONROE | Upper | Lower | Upper | Lower | Upper | Lower | Upper | Lower | IN | OUT | ACME | SIMMESPORT | DATE |
| 6.6 | 21.2 | 77.4 | 65.3 | 65.0 | 52.6 | 52.0 | 34.2 | 34.0 | 9.4 | 26.3 | 14.0 | 8.3 | 7.4 | 1 |
| 6.4 | 21.1 | 77.4 | 65.3 | 65.0 | 52.7 | 52.0 | 34.2 | 34.0 | 8.7 | 26.2 | 14.0 | 7.3 | 6.7 | 2 |
| 7.0 | 21.2 | 77.4 | 65.8 | 65.0 | 52.4 | 52.0 | 34.2 | 34.0 | 9.1 | 26.2 | 14.0 | 8.0 | 7.1 | 3 |
| 6.4 | 21.4 | 77.4 | 65.4 | 65.1 | 53.1 | 52.0 | 34.2 | 34.0 | 7.8 | 26.2 | 14.0 | 7.4 | 6.9 | 4 |
| 6.9 | 21.2 | 77.4 | 65.8 | 65.0 | 53.2 | 52.0 | 34.2 | 34.0 | 9.1 | 26.2 | 14.0 | 7.8 | 7.2 | 5 |
| 6.8 | 21.4 | 77.4 | 65.5 | 65.1 | 52.8 | 52.0 | 34.2 | 34.0 | 8.1 | 26.2 | 14.0 | 6.8 | 6.4 | 6 |
| 10.4 | 21.4 | 77.4 | 66.5 | 65.0 | 54.3 | 52.0 | 34.2 | 34.0 | 8.4 | 26.2 | 14.0 | 7.6 | 6.4 | 7 |
| 19.7 | 21.4 | 77.4 | 72.6 | 65.0 | 55.4 | 52.0 | 34.2 | 34.0 | 9.5 | 26.2 | 14.0 | 7.1 | 6.4 | 8 |
| 20.6 | 21.8 | 77.4 | 76.0 | 65.0 | 58.7 | 52.0 | 34.2 | 34.0 | 10.2 | 26.1 | 14.0 | 9.2 | 7.2 | 9 |
| 18.2 | 22.0 | 77.4 | 76.7 | 65.0 | 59.9 | 52.0 | 34.9 | 34.0 | 13.2 | 26.1 | 14.0 | 11.6 | 8.1 | 10 |
| 13.2 | 22.2 | 77.4 | 75.2 | 65.0 | 60.6 | 52.0 | 35.3 | 34.0 | 15.2 | 26.0 | 14.9 | 13.7 | 9.2 | 11 |
| 9.5 | 22.3 | 77.4 | 72.0 | 65.0 | 60.5 | 52.0 | 35.8 | 34.0 | 16.4 | 26.0 | 16.0 | 14.6 | 9.5 | 12 |
| 7.2 | 22.3 | 77.4 | 68.1 | 65.0 | 59.3 | 52.0 | 35.9 | 34.0 | 17.2 | 25.9 | 16.8 | 15.5 | 10.5 | 13 |
| 6.9 | 21.9 | 77.4 | 66.3 | 65.0 | 56.9 | 52.0 | 36.1 | 34.0 | 17.4 | 26.0 | 17.0 | 15.6 | 10.9 | 14 |
| 8.2 | 21.4 | 77.4 | 66.5 | 65.0 | 55.1 | 52.0 | 36.0 | 34.0 | 17.3 | 25.9 | 17.0 | 15.8 | 11.9 | 15 |
| 1 | 21.5 | 77.4 | 66.6 | 65.0 | 55.5 | 52.0 | 35.0 | 34.0 | 16.7 | 25.9 | 16.8 | 15.9 | 13.0 | 16 |
| | | 77.4 | 65.5 | 65.0 | 54.6 | 52.0 | 35.0 | 34.0 | 18.7 | | | 18.0 | 15.1 | 17 |
| | | 77.4 | 66.5 | 65.0 | 53.8 | 52.0 | 35.0 | 34.0 | 19.9 | | | 18.8 | 16.1 | 18 |
| 9.7 | 21.4 | 77.4 | 67.4 | 65.0 | 54.0 | 52.0 | 34.7 | 34.0 | 19.6 | 25.8 | 19.6 | 18.7 | 16.1 | 19 |
| 11.4 | 21.3 | 77.4 | 69.0 | 65.0 | 54.9 | 52.0 | 34.6 | 34.0 | 19.9 | 25.8 | 19.9 | 18.9 | 16.2 | 20 |
| 10.3 | 21.5 | 77.4 | 69.1 | 65.0 | 56.2 | 52.0 | 34.6 | 34.0 | 19.4 | 25.7 | M | 18.3 | 15.6 | 21 |
| 9.3 | 21.6 | 77.4 | 68.3 | 65.0 | 55.6 | 52.0 | 34.6 | 34.0 | 18.3 | 25.7 | 18.1 | 17.0 | 14.5 | 22 |
| 9.5 | 21.4 | 77.4 | 67.7 | 65.0 | 55.4 | 52.0 | 34.6 | 34.0 | 16.8 | 25.7 | 16.7 | 15.5 | 12.8 | 23 |
| 9.3 | 21.3 | 77.4 | 67.6 | 65.0 | 54.9 | 52.0 | 34.6 | 34.0 | 16.4 | 25.6 | 16.2 | 15.0 | 12.7 | 24 |
| 9.3 | 21.3 | 77.4 | 67.5 | 65.0 | 54.9 | 52.0 | 34.6 | 34.0 | 14.6 | 25.6 | 14.6 | 13.3 | 11.5 | 25 |
| 9.3 | 21.4 | 77.4 | 67.5 | 65.0 | 54.9 | 52.0 | 34.6 | 34.0 | 13.5 | 25.6 | 13.7 | 12.4 | 10.7 | 26 |
| 9.2 | 21.4 | 77.4 | 67.5 | 65.0 | 54.9 | 52.0 | 34.6 | 34.0 | 13.5 | 25.5 | 13.7 | 12.4 | 10.8 | 27 |
| 9.1 | 21.4 | 77.4 | 67.3 | 65.0 | 54.9 | 52.0 | 34.6 | 34.0 | 13.7 | 25.5 | 13.7 | 12.3 | 10.8 | 28 |
| 9.1 | 21.3 | 77.4 | 67.2 | 65.0 | 54.4 | 52.0 | 34.6 | 34.0 | 13.7 | 25.5 | 13.9 | 12.6 | 11.3 | 29 |
| 9.2 | 21.3 | 77.4 | 66.7 | 65.0 | 54.7 | 52.0 | 34.6 | 34.0 | 14.2 | 25.4 | 14.0 | 13.3 | 12.0 | 30 |
| 8.1 | 21.4 | 77.4 | 66.9 | 65.0 | 54.2 | 52.0 | 35.0 | 34.0 | 15.0 | 25.4 | 15.1 | 13.7 | 12.7 | 31 |

DAILY [illegible]

MONTH NOVEMBER 1998

| OUACHITA | | | | | | | | | | B. COCODRIE | BLACK | ATC. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | THATCHER | | FELSENTHAL | | COLUMBIA | | JONESVILLE | | TENSAS P.P. | | | | |
| CANDEN | MONROE | Upper | Lower | Upper | Lower | Upper | Lower | Upper | Lower | IN | OUT | ACME | SIMMESPORT | DATE |
| .8 | 21.4 | 77.4 | 67.0 | 65.0 | 54.2 | 52.0 | 34.6 | 34.0 | 15.0 | 25.4 | 15.0 | 14.0 | 12.8 | 1 |
| .9 | 21.3 | 77.4 | 66.7 | 65.0 | 54.2 | 52.0 | 34.6 | 34.0 | 14.7 | 25.4 | 14.7 | 13.9 | 12.5 | 2 |
| .5 | 21.3 | 77.4 | 65.1 | 65.1 | 53.5 | 52.1 | 35.0 | 34.0 | 13.5 | 25.4 | 13.7 | 12.3 | 11.2 | 3 |
| .0 | 21.1 | 77.4 | 66.9 | 65.0 | 53.8 | 52.0 | 34.6 | 34.0 | 12.2 | 25.4 | 13.8 | 11.3 | 10.3 | 4 |
| .1 | 21.3 | 77.4 | 67.3 | 65.0 | 54.2 | 52.0 | 34.3 | 34.0 | 11.9 | 25.3 | 14.0 | 10.2 | 9.6 | 5 |
| .9 | 21.3 | 77.4 | 67.1 | 65.1 | 54.3 | 52.2 | 34.7 | 34.3 | 10.6 | 25.3 | 14.0 | 9.5 | 8.9 | 6 |
| .6 | 21.3 | 77.4 | 66.8 | 65.0 | 53.4 | 52.0 | 34.3 | 34.0 | 11.4 | 25.3 | 14.0 | 10.3 | 9.3 | 7 |
| .7 | 21.4 | 77.4 | 68.0 | 65.0 | 55.2 | 52.0 | 34.3 | 34.0 | 11.8 | 25.3 | 14.0 | 10.9 | 9.7 | 8 |
| .8 | 21.4 | 77.4 | 67.3 | 65.0 | 54.1 | 52.0 | 34.5 | 34.0 | 13.0 | 25.2 | 14.0 | 11.7 | 10.3 | 9 |
| .2 | 21.4 | 77.4 | | 65.0 | 54.8 | 52.2 | 34.9 | 34.1 | 12.3 | 25.1 | 14.0 | 11.2 | 9.9 | 10 |
| .7 | | 77.4 | 67.4 | 65.1 | 54.2 | 52.0 | 35.0 | 34.3 | 13.0 | | 14.0 | 12.0 | 10.4 | 11 |
| .0 | 21.2 | 77.4 | 66.8 | 65.0 | 54.2 | 52.0 | 34.6 | 34.0 | 13.3 | 25.3 | 14.0 | 12.0 | 10.7 | 12 |
| .6 | 21.3 | 77.4 | 66.2 | 65.0 | 54.2 | 52.0 | 34.6 | 34.0 | 14.2 | 25.3 | 14.2 | 13.6 | 12.1 | 13 |
| .0 | 21.3 | 77.4 | 66.2 | 65.0 | 53.9 | 52.0 | 34.6 | 34.0 | 18.1 | 25.7 | 17.8 | 17.1 | 14.6 | 14 |
| .9 | 21.4 | 77.4 | 66.0 | 65.0 | 54.8 | 52.0 | 34.6 | 34.0 | 21.6 | 31.2 | 21.6 | 20.4 | 16.6 | 15 |
| .1 | 21.0 | 77.4 | 65.9 | 65.2 | 52.3 | 52.0 | 34.9 | 34.0 | 23.4 | 31.5 | 23.4 | 22.3 | 17.8 | 16 |
| .8 | 21.3 | 77.4 | 66.0 | 65.4 | 52.6 | 52.0 | 34.5 | 34.0 | 22.3 | 30.9 | 22.0 | 20.8 | 16.3 | 17 |
| .6 | 21.1 | 77.4 | 66.0 | 65.6 | 52.2 | 52.0 | 34.5 | 34.0 | 21.7 | 30.5 | 21.6 | 20.2 | 15.9 | 18 |
| .6 | 21.1 | 77.4 | 66.1 | 65.8 | 52.4 | 52.0 | 34.4 | 34.0 | 20.3 | 30.1 | 20.4 | 19.2 | 15.8 | 19 |
| .7 | 21.3 | 77.4 | 66.4 | 66.0 | 52.5 | 52.0 | 34.4 | 34.0 | 20.7 | 29.8 | 20.8 | 19.8 | 16.4 | 20 |
| .6 | 21.1 | 77.4 | 66.4 | 66.1 | 52.3 | 52.0 | 34.4 | 34.0 | 21.4 | 29.4 | 21.3 | 20.2 | 17.1 | 21 |
| .9 | 21.1 | 77.4 | 66.6 | 66.2 | 52.2 | 52.0 | 34.4 | 34.0 | 20.9 | 29.2 | 20.9 | 19.8 | 17.0 | 22 |
| .8 | 21.2 | 77.4 | 67.2 | 66.4 | 52.4 | 52.0 | 34.3 | 34.0 | 20.0 | 29.0 | 19.8 | 18.8 | 16.5 | 23 |
| .9 | 21.1 | 77.6 | 67.2 | 66.7 | 52.7 | 52.0 | 34.3 | 34.0 | 19.5 | 28.8 | 19.5 | 18.4 | 16.1 | 24 |
| .7 | 21.2 | 77.4 | 67.2 | 66.8 | 52.3 | 52.0 | 34.3 | 34.0 | 17.9 | 28.6 | 17.9 | 16.8 | 14.9 | 25 |
| .0 | 21.1 | 77.4 | 67.5 | 67.0 | 52.2 | 52.0 | 34.3 | 34.0 | 16.8 | 28.4 | 16.6 | 15.7 | 14.0 | 26 |
| .8 | 21.0 | 77.4 | 67.5 | 67.2 | 52.1 | 52.0 | 34.3 | 34.0 | 16.1 | 28.3 | 16.1 | 14.9 | 13.4 | 27 |
| .5 | 21.1 | 77.4 | 68.1 | 67.3 | 52.1 | 52.0 | 34.3 | 34.0 | 15.3 | 28.1 | 15.4 | 14.4 | 12.8 | 28 |
| .6 | | 77.4 | 67.6 | 67.4 | 52.6 | 52.0 | 34.3 | 34.0 | 14.7 | 28.0 | 14.7 | 13.6 | 12.5 | 29 |
| .5 | 21.1 | 77.4 | 67.5 | 67.5 | 52.4 | 52.0 | 34.3 | 34.0 | 14.6 | 27.9 | 14.5 | 13.5 | 12.1 | 30 |
| | | | | | | | | | | | | | | 31 |

DEC 14 '98 09:34AM CELINK LD INC

# DAILY RIVER STAGES

MONTH December 19 98

| | | OUACHITA | | | | | | B. COCODRIE | BLACK | ATC. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | THATCHER | | FELSENTHAL | | COLUMBIA | | JONESVILLE | TENSAS P.P. | | | |
| CAMDEN | MONROE | Upper | Lower | Upper | Lower | Upper | Lower | Upper | Lower | IN | OUT | ACME | SIMMESPORT | DATE |
| 6.5 | 21.2 | 77.4 | 67.8 | 67.6 | 52.3 | 52.0 | 34.3 | 34.0 | 13.1 | 27.8 | 13.7 | 12.1 | 10.9 | 1 |
| 6.6 | 21.1 | 77.4 | 67.9 | 67.7 | 52.3 | 52.0 | 34.3 | 34.0 | 12.6 | 27.7 | 14.0 | 11.5 | 10.4 | 2 |
| 7.4 | 21.1 | 77.4 | 67.8 | 67.8 | 52.3 | 52.0 | 34.3 | 34.0 | 12.4 | 27.6 | 14.0 | 11.3 | 10.2 | 3 |
| 7.4 | 21.2 | 77.4 | 68.5 | 67.9 | 52.3 | 52.0 | 34.3 | 34.0 | 12.4 | 27.6 | 14.0 | 11.5 | 10.1 | 4 |
| 7.9 | 21.3 | 77.4 | 69.0 | 68.0 | 52.9 | 52.0 | 34.3 | 34.0 | 12.5 | 27.5 | 14.0 | 11.6 | 10.6 | 5 |
| 8.2 | 21.2 | 77.4 | 68.8 | 68.1 | 53.0 | 52.0 | 34.3 | 34.0 | 13.1 | 27.4 | 14.0 | 11.9 | 10.6 | 6 |
| 10.9 | 21.2 | 77.4 | 69.2 | 68.2 | 52.8 | 52.0 | 34.3 | 34.0 | 13.0 | 27.3 | 14.0 | 12.0 | 10.8 | 7 |
| 11.2 | 21.5 | 77.4 | 70.6 | 68.3 | 55.6 | 52.0 | 34.3 | 34.0 | 15.0 | 27.4 | 14.3 | 12.9 | 10.8 | 8 |
| 14.9 | 21.3 | 77.4 | 72.4 | 68.4 | 54.6 | 52.0 | 34.6 | 34.0 | 15.1 | 27.4 | 14.6 | 13.1 | 10.1 | 9 |
| 16.3 | 21.6 | 77.4 | 74.2 | 68.5 | 57.0 | 52.0 | 34.9 | 34.0 | 15.7 | 27.3 | 15.4 | 14.4 | 10.4 | 10 |
| 17.1 | 22.0 | 77.4 | 75.4 | 68.6 | 58.6 | 52.0 | 36.0 | 34.0 | 18.7 | 27.9 | 18.3 | 17.1 | 10.9 | 11 |
| 19.7 | 22.2 | 77.4 | 76.8 | 68.7 | 60.8 | 52.0 | 40.5 | 34.0 | 26.8 | 29.5 | 25.7 | 23.9 | 13.0 | 12 |
| | | 77.8 | 78.1 | 69.8 | 61.9 | 52.2 | 41.7 | 34.0 | 32.4 | 31.1 | 30.7 | 27.7 | 14.9 | 13 |
| 22.2 | 23.5 | 78.9 | 78.9 | 68.9 | 62.8 | 52.0 | 41.9 | 34.0 | 32.8 | 31.3 | 30.9 | 27.8 | 14.3 | 14 |
| | | | | | | | | | | | | | | 15 |
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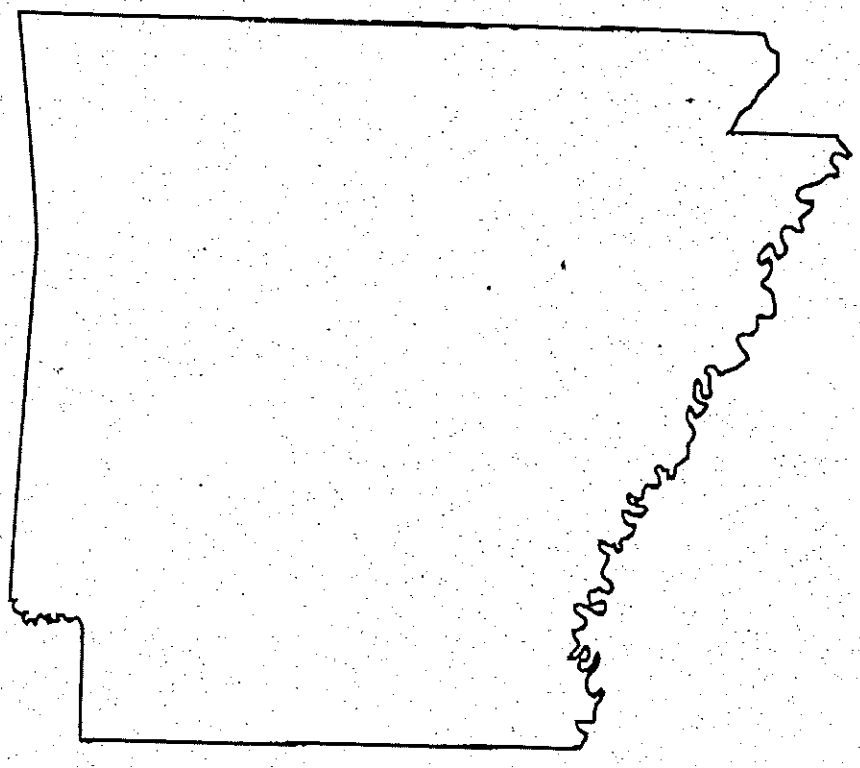
UNITED STATES GEOLOGICAL SURVEY

Table 2-1 : Org P-P for headwater, all point sources except Coffee Creek, and Incremental Inflow #16

: Dis-P-P for headwater, all point sources except Coffee Creek & Bayou de Butte, and Incremental Inflow

# Water Resources Data Arkansas Water Year 1992

by J.E. Porter, P.W. Westerfield, and E.E. Morris



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT AR-92-1
Prepared in cooperation with the Arkansas Department of Pollution Control and Ecology; Arkansas Game and Fish Commission; Arkansas Geological Commission; Arkansas Soil and Water Conservation Commission; Arkansas State Highway and Transportation Department; Independence County; City of Rogers; Little Rock Municipal Water Works; and with other State and Federal agencies

LIBRARY

#16



RED RIVER BASIN

07364050 OUACHITA RIVER NEAR CROSSETT

LOCATION.--Lat 33°09'00", long 92°06'30", in NE¼ NW¼ sec.14, T.18 S., R.10 W., Ashley County, Hydrologic Unit 08040202, at bridge on U.S. Highway 82, 9.0 mi west of Crossett.

PERIOD OF RECORD.--October 1990 to current year.

COOPERATION.--Records were furnished by Arkansas Department of Pollution Control and Ecology, Little Rock, Ark.

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

| DATE | TIME | AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027) | AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028) | PH (STANDARD UNITS) (00400) | TEMPERATURE WATER (DEG C) (00010) | TURBIDITY LAB NTU **EPA** (82079) | OXYGEN, DISSOLVED (MG/L) (00300) | OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L) (00310) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 01... | 1345 | 9827 | 9827 | 7.4 | 24.0 | 6.4 | 8.7 | 1.5 |
| 29... | 1245 | 9827 | 9827 | 7.2 | 16.0 | 22.0 | 7.6 | 1.4 |
| NOV | | | | | | | | |
| 25... | 1250 | 9827 | 9827 | 6.8 | 12.0 | 51.0 | 7.9 | 1.9 |
| FEB | | | | | | | | |
| 04... | 0915 | 9827 | 9827 | 7.0 | 10.0 | 15.0 | 9.9 | 4.6 |
| MAY | | | | | | | | |
| 05... | 0940 | 9827 | 9827 | 7.0 | 19.0 | 22.0 | 5.3 | -- |
| JUN | | | | | | | | |
| 02... | 0930 | 9827 | 9827 | 6.8 | 23.0 | 14.0 | 5.2 | 1.0 |
| JUL | | | | | | | | |
| 07... | 0930 | 9827 | 9827 | 6.7 | 28.0 | 19.0 | 4.3 | 0.9 |
| AUG | | | | | | | | |
| 04... | 0930 | 9827 | 9827 | 6.6 | 29.0 | 9.0 | 3.6 | 0.9 |
| SEP | | | | | | | | |
| 01... | 0930 | 9827 | 9827 | 7.1 | 27.0 | 8.0 | 4.5 | 0.8 |
| 29... | 0930 | 9827 | 9827 | 6.9 | 21.0 | 18.0 | -- | 0.3 |

| DATE | TIME | SULFATE DISSOLVED (MG/L AS SO4) (00945) | CHLORIDE, DISSOLVED (MG/L AS CL) (00940) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300) | RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630) | NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610) | PHOSPHORUS TOTAL (MG/L AS P) (00665) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 01... | 1345 | 14 | 25 | 101 | 7 | 0.410 | <0.050 | <0.030 |
| 29... | 1245 | 14 | 20 | 96 | 18 | 0.400 | 0.060 | 0.090 |
| NOV | | | | | | | | |
| 25... | 1250 | 8.8 | 4.5 | 71 | 60 | 0.090 | 0.070 | 0.120 |
| FEB | | | | | | | | |
| 04... | 0915 | 13 | 17 | 98 | 12 | 0.140 | <0.050 | 0.050 |
| MAY | | | | | | | | |
| 05... | 0940 | 12 | 12 | 82 | 18 | 0.250 | 0.060 | 0.077 |
| JUN | | | | | | | | |
| 02... | 0930 | 11 | 60 | 161 | 16 | 0.290 | 0.160 | <0.030 |
| JUL | | | | | | | | |
| 07... | 0930 | 12 | 8.5 | 77 | 8 | -- | 0.050 | 0.065 |
| AUG | | | | | | | | |
| 04... | 0930 | 11 | 4.0 | 78 | 10 | -- | <0.050 | 0.056 |
| SEP | | | | | | | | |
| 01... | 0930 | 13 | 11 | 75 | 12 | 0.130 | <0.050 | 0.034 |
| 29... | 0930 | 11 | 12 | 86 | 16 | 0.170 | <0.050 | 0.091 |

Range <0.03- 0.12

| DATE | TIME | PHOSPHORUS ORTHO TOTAL (MG/L AS P) (70507) | CARBON, ORGANIC TOTAL (MG/L AS C) (00680) | CADMIUM DISSOLVED (UG/L AS CD) (01025) | CHROMIUM, DISSOLVED (UG/L AS CR) (01030) | COPPER, DISSOLVED (UG/L AS CU) (01040) | LEAD, DISSOLVED (UG/L AS PB) (01049) | ZINC, DISSOLVED (UG/L AS ZN) (01090) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 01... | 1345 | 0.050 | 4.4 | <0.5 | <1 | <25 | <2 | 12 |
| 29... | 1245 | 0.030 | 4.9 | 0.6 | <1 | <25 | 5 | -- |
| NOV | | | | | | | | |
| 25... | 1250 | 0.060 | 8.9 | -- | <1 | <25 | <2 | <8 |
| FEB | | | | | | | | |
| 04... | 0915 | <0.030 | 9.0 | <0.5 | <1 | <25 | <2 | <8 |
| MAY | | | | | | | | |
| 05... | 0940 | 0.030 | 6.9 | <0.5 | <1 | <25 | <2 | -- |
| JUN | | | | | | | | |
| 02... | 0930 | <0.030 | 6.4 | <0.5 | -- | <25 | -- | 8 |
| JUL | | | | | | | | |
| 07... | 0930 | 0.060 | 9.0 | <0.5 | -- | <25 | <2 | <8 |
| AUG | | | | | | | | |
| 04... | 0930 | 0.057 | 8.7 | <0.5 | <1 | <25 | <2 | <8 |
| SEP | | | | | | | | |
| 01... | 0930 | <0.030 | 4.5 | <0.5 | <1 | <25 | <2 | <8 |
| 29... | 0930 | 0.072 | 5.9 | <0.5 | <1 | <25 | <2 | <8 |

Total - ortho = org P ⇒ use 0.07 as org P

Range <0.03 - 0.072 ⇒ use 0.04 mg/L org P = dissolved

#16



RED RIVER BASIN

07362065 OUACHITA RIVER BELOW CAMDEN--CONTINUED

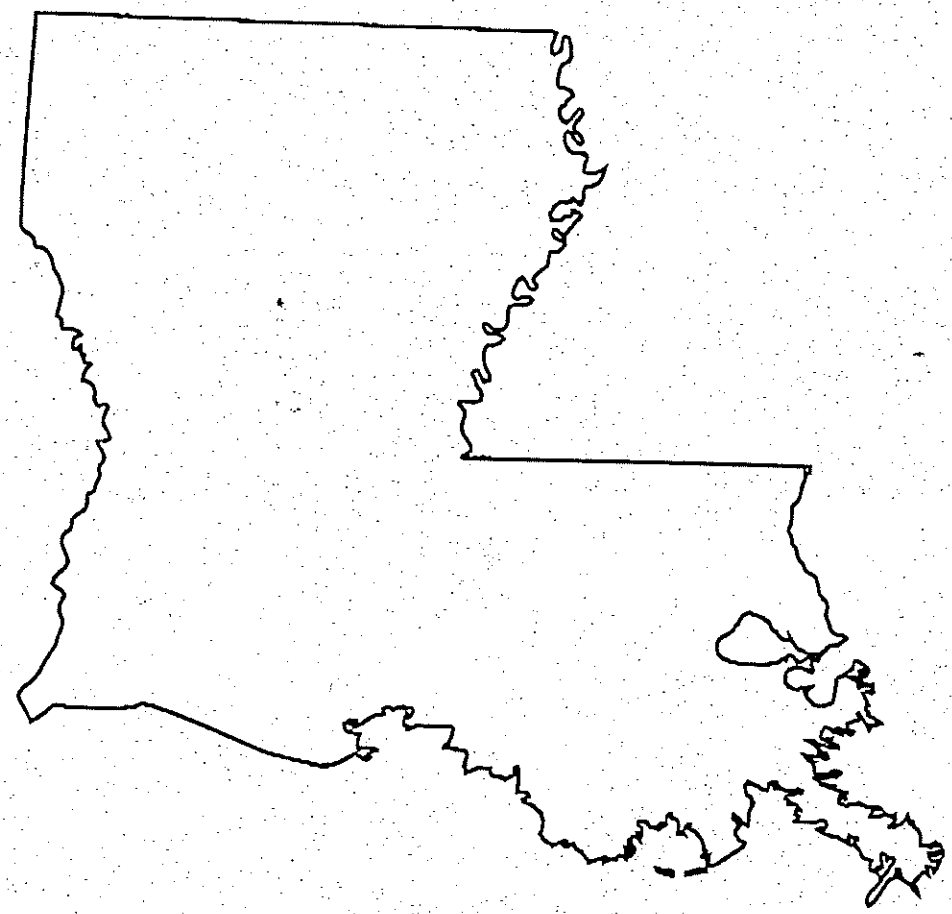
WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

| DATE | TIME | PHOS-PHORUS TOTAL (MG/L AS P) (00665) | PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507) | CARBON, ORGANIC TOTAL (MG/L AS C) (00680) | CADMIUM DIS-SOLVED (UG/L AS CD) (01025) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030) | COPPER, DIS-SOLVED (UG/L AS CU) (01040) | LEAD, DIS-SOLVED (UG/L AS PB) (01049) | ZINC, DIS-SOLVED (UG/L AS ZN) (01090) |
|---|---|---|---|---|---|---|---|---|---|
| OCT 15... | 1015 | 0.040 | <0.030 | 4.1 | <0.5 | <1 | <25 | 2 | -- |
| NOV 12... | 1015 | 0.040 | 0.030 | 5.0 | <0.5 | <1 | <25 | <2 | -- |
| DEC 10... | 1000 | 0.060 | <0.030 | 6.5 | <0.5 | <1 | <25 | <2 | <8 |
| JAN 07... | 1515 | 0.110 | <0.030 | 6.1 | <0.5 | <1 | <25 | <2 | <8 |
| FEB 04... | 1430 | 0.090 | <0.030 | 6.1 | <0.5 | <1 | <25 | <2 | <8 |
| MAR 03... | 1430 | 0.080 | <0.030 | 8.1 | <0.5 | -- | <25 | -- | -- |
| APR 07... | 1430 | 0.070 | <0.030 | 4.8 | <0.5 | <1 | <25 | <2 | -- |
| MAY 05... | 1515 | 0.097 | <0.030 | 8.1 | <0.5 | <1 | <25 | <2 | -- |
| JUN 02... | 1430 | 0.089 | <0.030 | 7.4 | <0.5 | -- | <25 | -- | 14 |
| JUL 07... | 1510 | 0.055 | 0.050 | 5.6 | <0.5 | -- | <25 | <2 | <8 |
| AUG 04... | 1445 | 0.056 | 0.087 | 4.8 | <0.5 | <1 | <25 | <2 | 10 |
| SEP 01... | 1500 | 0.045 | <0.030 | 4.4 | <0.5 | <1 | <25 | <2 | <8 |
| 29... | 1515 | 0.060 | 0.050 | 5.0 | <0.5 | <1 | <25 | <2 | <8 |

Table 2-1 : Org P-P for headwater, all point sources except Coffee Creek, and Incremental Inflow #16
: Dis P-P for headwater, all point sources except Coffee Creek & Bayou de Butte, and Incremental Inflow

# Water Resources Data Louisiana Water Year 1992

by G.J. Arcement, L.J. Dantin, C.R. Garrison, and W.M. Lovelace



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT LA-92-1
Prepared in cooperation with the Louisiana Department of Transportation and Development and with other State and Federal agencies

07367640 OUACHITA RIVER AT COLUMBIA, LA
(National stream-quality accounting network station)

LOCATION.--Lat 32°06'28", long 92°04'27", NE 1/4 SE 1/4 sec. 17, T. 13 N., R. 4 E., Caldwell Parish, Hydrologic Unit 08040207 on downstream side of bridge on U.S. Highway 165 at Columbia, 2.1 mi downstream from Bayou de Chene, and 4.2 mi downstream from Columbia Lock and Dam (station 07367630).

DRAINAGE AREA.--15,700 $mi^2$, approximately.

PERIOD OF RECORD.--Water years 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to September 1981.
WATER TEMPERATURES: October 1975 to September 1981.

INSTRUMENTATION.--Water-quality monitor October 1975 to April 1981.

REMARKS.--Water-quality monitor removed April 1981. Samples for daily temperature and specific conductance were collected by an observer May to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 618 micromhos Oct. 3, 1977; minimum daily, 69 micromhos Mar. 4, 1975.
WATER TEMPERATURES: Maximum daily, 34.0 °C on several days in July and August 1981; minimum, 2.5 °C Jan. 15, 1979.

EXTREMES OUTSIDE PERIOD OF DAILY RECORD.--
A specific conductance of 59 microsiemens was observed Mar. 9, 1989.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

| DATE | TIME | DISCHARGE, IN CUBIC FEET PER SECOND | SPECIFIC CONDUCTANCE (US/CM) | PH WATER WHOLE FIELD (STANDARD UNITS) | TEMPERATURE WATER (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (NTU) | OXYGEN, DISSOLVED (MG/L) | OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L) | COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 1991 | | | | | | | | | | | |
| 18... | 1010 | 3230 | 219 | 7.52 | -- | 30 | 7.4 | 8.2 | 1.1 | K2 | K18 |
| JAN 1992 | | | | | | | | | | | |
| 24... | 1300 | 36100 | 110 | 6.43 | 9.0 | 50 | 14 | 9.4 | 1.4 | K40 | K28 |
| MAR | | | | | | | | | | | |
| 20... | 1100 | 49400 | 70 | 5.95 | 17.0 | 50 | 18 | 6.6 | 0.8 | K30 | K15 |
| APR | | | | | | | | | | | |
| 23... | 1015 | 31400 | 94 | 7.03 | 23.0 | 60 | 22 | 5.8 | 0.0 | K60 | K70 |
| AUG | | | | | | | | | | | |
| 20... | 0930 | 5610 | 149 | 7.48 | 27.5 | 20 | 7.7 | -- | -- | K12 | K90 |

| DATE | HARDNESS TOTAL (MG/L AS CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 1991 | | | | | | | | | | | |
| 18... | 33 | 8.8 | 2.6 | 25 | 2.5 | 29 | 20 | 30 | <0.1 | 7.9 | 119 |
| JAN 1992 | | | | | | | | | | | |
| 24... | 21 | 5.9 | 1.6 | 11 | 1.7 | 15 | 9.0 | 17 | <0.1 | 7.4 | 70 |
| MAR | | | | | | | | | | | |
| 20... | 15 | 4.1 | 1.1 | 6.7 | 1.2 | 10 | 6.0 | 9.7 | <0.1 | 5.7 | 41 |
| APR | | | | | | | | | | | |
| 23... | 21 | 5.6 | 1.6 | 10 | 1.5 | 18 | 7.6 | 13 | 0.2 | 5.4 | -- |
| AUG | | | | | | | | | | | |
| 20... | 30 | 8.4 | 2.1 | 16 | 1.9 | 22 | 9.8 | 23 | <0.1 | 6.4 | 85 |

| DATE | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NITRITE DISSOLVED (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, AMMONIA DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | PHOSPHORUS TOTAL (MG/L AS P) | PHOSPHORUS DISSOLVED (MG/L AS P) | PHOSPHORUS ORTHO TOTAL (MG/L AS P) | PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT 1991 | | | | | | | | | | |
| 18... | 116 | 0.03 | 0.36 | 0.06 | 0.05 | 0.3 | 0.04 | 0.04 | 0.03 | 0.02 |
| JAN 1992 | | | | | | | | | | |
| 24... | 64 | <0.01 | 0.09 | 0.05 | 0.04 | 0.4 | 0.04 | 0.02 | 0.03 | 0.01 |
| MAR | | | | | | | | | | |
| 20... | 40 | <0.01 | 0.05 | 0.05 | 0.03 | 0.5 | 0.07 | 0.03 | 0.04 | 0.01 |
| APR | | | | | | | | | | |
| 23... | 58 | <0.01 | 0.16 | 0.11 | 0.09 | 0.6 | 0.07 | 0.02 | 0.05 | 0.02 |
| AUG | | | | | | | | | | |
| 20... | 81 | 0.01 | 0.23 | 0.05 | 0.05 | 0.2 | 0.04 | 0.03 | 0.03 | 0.02 |

< Actual value is known to be less than the value shown.
K Results based on colony count outside the acceptable range (non-ideal colony count).

## 07364200 BAYOU BARTHOLOMEW NEAR JONES, LA

LOCATION.--Lat 32°59'25", long 91°39'20", in SE 1/4 SW 1/4 sec.9, T.23 N., R.8 E., Morehouse Parish, Hydrologic Unit 08040205, on downstream side of right pier of bridge on State Highway 834, 1.0 mi downstream from Arkansas-Louisiana State line, and 1.6 mi northwest of Jones.

DRAINAGE AREA.--1,187 mi².

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is 79.21 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Water-stage recorder for Bayou Bartholomew northwest of Jones (station 07364203) used as auxiliary gage for this station since Oct. 1, 1959. See WSP 2120 for history of changes prior to Dec. 7, 1966.

REMARKS.--No estimated discharges. Records good. Small diversions above station for irrigation. In extreme floods, considerable flow bypasses station. Most of flow is into the Bayou Lafourche-Boeuf River basins by way of interconnecting system of bayous and drainage ditches and passes stations Bayou Lafourche near Crew Lake (station 07369000) and Boeuf River near Girard (station 07368000). Other flow bypasses station and reenters the basin 5 mi downstream by way of Overflow Creek. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--30 years, 1,274 ft³/s, 923,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,710 ft³/s Jan. 2, 1983; maximum gage height, 28.45 ft Jan. 5, 1983; minimum discharge, 1.6 ft³/s Aug. 22, 1986, gage height, -0.45 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,990 ft³/s Mar. 12; maximum gage height, 25.74 ft Mar. 9; minimum discharge, 21 ft³/s Aug. 1, 2, 4, gage height, 0.13 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 36 | 107 | 3520 | 4130 | 1480 | 4040 | 3870 | 189 | 437 | 356 | 22 | 103 |
| 2 | 35 | 100 | 3650 | 4010 | 1380 | 4530 | 3680 | 166 | 464 | (377) | 23 | 99 |
| 3 | 33 | 97 | 3690 | 3900 | 1280 | 4970 | 3480 | 153 | 451 | 389 | 24 | 97 |
| 4 | 34 | 98 | 3700 | 3820 | 1200 | 5310 | 3250 | 143 | 491 | 387 | 22 | 96 |
| 5 | 37 | 121 | 3680 | 3710 | 1150 | 5540 | 3030 | 134 | 443 | 386 | 34 | 96 |
| 6 | 36 | 118 | 3630 | 3580 | 1180 | 5660 | 2810 | 124 | 399 | 386 | 42 | 95 |
| 7 | 34 | 122 | 3540 | 3460 | 1280 | 5780 | 2650 | 114 | 369 | 383 | 49 | 94 |
| 8 | 32 | 366 | 3440 | 3360 | 1380 | 5880 | 2530 | 113 | 352 | 362 | 55 | 90 |
| 9 | 31 | 678 | 3400 | 3280 | 1470 | 5880 | 2370 | 116 | 343 | (319) | 58 | 86 |
| 10 | 31 | 830 | 3380 | 3180 | 1550 | 5960 | 2220 | 127 | 341 | 267 | 58 | 81 |
| 11 | 30 | 942 | 3320 | 3070 | 1650 | 5940 | 2070 | 156 | 345 | 219 | 56 | 82 |
| 12 | 36 | 1030 | 3270 | 2980 | 1750 | 5900 | 1910 | 209 | 354 | 179 | 63 | 78 |
| 13 | 41 | 1090 | 3250 | 2820 | 1830 | 5820 | 1770 | 262 | 383 | 150 | 73 | 72 |
| 14 | 44 | 1150 | 3260 | 2710 | 1900 | 5720 | 1660 | 306 | 391 | 124 | 100 | 66 |
| 15 | 47 | 1170 | 3290 | 2580 | 2000 | 5600 | 1510 | 328 | 396 | 109 | 92 | 61 |
| 16 | 50 | 1190 | 3340 | 2470 | 2160 | 5450 | 1370 | 354 | 407 | (89) | 80 | 59 |
| 17 | 51 | 1200 | 3410 | 2350 | 2220 | 5390 | 1230 | 389 | 416 | 69 | 68 | 59 |
| 18 | 48 | 1210 | 3500 | 2290 | 2240 | 5390 | 1090 | 439 | 426 | 62 | 59 | 59 |
| 19 | 44 | 1220 | 3570 | 2260 | 2300 | 5280 | 971 | 469 | 423 | 54 | 52 | 59 |
| 20 | 41 | 1260 | 3630 | 2210 | 2380 | 5190 | 863 | 490 | 413 | 46 | 50 | 57 |
| 21 | 38 | 1260 | 3690 | 2170 | 2520 | 5130 | 775 | 504 | 392 | 39 | 54 | 54 |
| 22 | 36 | 1330 | 3750 | 2150 | 2630 | 5080 | 681 | 513 | 370 | 41 | 65 | 51 |
| 23 | 36 | 1520 | 3870 | 2150 | 2720 | 5100 | 601 | 531 | 345 | (64) | 91 | 51 |
| 24 | 97 | 1780 | 3950 | 2140 | 2800 | 5080 | 526 | 553 | 319 | 87 | 104 | 54 |
| 25 | 150 | 2020 | 4010 | 2140 | 2870 | 4980 | 457 | 563 | 286 | 77 | 105 | 64 |
| 26 | 150 | 2300 | 4070 | 2100 | 3020 | 4840 | 402 | 565 | 258 | 62 | 110 | 79 |
| 27 | 168 | 2540 | 4140 | 2040 | 3330 | 4710 | 351 | 603 | 246 | 54 | 111 | 95 |
| 28 | 172 | 2830 | 4190 | 1960 | 3670 | 4600 | 316 | 630 | 251 | 45 | 109 | 109 |
| 29 | 156 | 3130 | 4200 | 1840 | --- | 4470 | 273 | 628 | 281 | 36 | 108 | 119 |
| 30 | 135 | 3360 | 4190 | 1730 | --- | 4350 | 224 | 534 | 314 | (32) | 106 | 123 |
| 31 | 117 | --- | 4190 | 1610 | --- | 4120 | --- | 481 | --- | 27 | 106 | --- |
| TOTAL | 2026 | 36169 | 113720 | 84200 | 57340 | 161690 | 48940 | 10886 | 11106 | 5277 | 2149 | 2388 |
| MEAN | 65.4 | 1206 | 3668 | 2716 | 2048 | 5216 | 1631 | 351 | 370 | 170 | 69.3 | 79.6 |
| MAX | 172 | 3360 | 4200 | 4130 | 3670 | 5960 | 3870 | 630 | 491 | 389 | 111 | 123 |
| MIN | 30 | 97 | 3250 | 1610 | 1150 | 4040 | 224 | 113 | 246 | 27 | 22 | 51 |
| AC-FT | 4020 | 71740 | 225600 | 167000 | 113700 | 320700 | 97070 | 21590 | 22030 | 10470 | 4260 | 4740 |

CAL YR 1986 TOTAL 283092.9 MEAN 776 MAX 4200 MIN 2.3 AC-FT 561500
WTR YR 1987 TOTAL 535891 MEAN 1468 MAX 5960 MIN 22 AC-FT 1063000

RED RIVER BASIN

07364200 BAYOU BARTHOLOMEW NEAR JONES, LA

LOCATION.--Lat 32°59'25", long 91°39'20", in SE 1/4 SW 1/4 sec.9, T.23 N., R.8 E., Morehouse Parish, Hydrologic Unit 08040205, on downstream side of right pier of bridge on State Highway 834, 1.0 mi downstream from Arkansas-Louisiana State line, and 1.6 mi northwest of Jones.

DRAINAGE AREA.--1,187 $mi^2$.

PERIOD OF RECORD.--October 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is 79.21 ft above sea level (levels by Corps of Engineers). Water-stage recorder for Bayou Bartholomew northwest of Jones (station 07364203) used as auxiliary gage for this station since Oct. 1, 1959. See WSP 2120 for history of changes prior to Dec. 7, 1966.

REMARKS.--No estimated daily discharges. Records good. Small diversions above station for irrigation. In extreme floods, considerable flow bypasses station. Most of flow is into the Bayou Lafourche-Boeuf River basins by way of interconnecting system of bayous and drainage ditches and passes stations Bayou Lafourche near Crew Lake (station 07369000) and Boeuf River near Girard (station 07368000). Other flow bypasses station and re-enters the basin 5 mi downstream by way of Overflow Creek. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--38 years, 1,359 $ft^3/s$, 984,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,530 $ft^3/s$, Apr. 28, 1991; maximum gage height, 29.16 ft, May 5, 1991; minimum discharge, 1.6 $ft^3/s$, Aug. 22, 1986, gage height, -0.45 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,570 $ft^3/s$, Mar. 24, gage height 23.15 ft; maximum gage height, 23.18 ft, Mar. 22; minimun discharge, 31 $ft^3/s$, Sep. 3,4,15; minimum gage height, .71 ft, Sep. 3, 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 171 | 886 | 607 | 1990 | 3220 | 1420 | 3960 | 2990 | 441 | 181 | 254 | 35 |
| 2 | 172 | 794 | 689 | 1910 | 3230 | 1300 | 3820 | 2940 | 408 | 174 | 269 | 32 |
| 3 | 169 | 690 | 720 | 1820 | 3260 | 1240 | 3670 | 2840 | 371 | 171 | 235 | 31 |
| 4 | 164 | 583 | 732 | 1730 | 3270 | 1230 | 3540 | 2750 | 336 | 170 | 209 | 32 |
| 5 | 157 | 510 | 730 | 1640 | 3270 | 1320 | 3380 | 2610 | 307 | 382 | 177 | 35 |
| 6 | 151 | 466 | 719 | 1600 | 3240 | 1410 | 3210 | 2500 | 297 | 652 | 162 | 34 |
| 7 | 143 | 424 | 697 | 1590 | 3190 | 1800 | 3010 | 2380 | 291 | 748 | 146 | 33 |
| 8 | 134 | 404 | 671 | 1530 | 3130 | 2190 | 2830 | 2260 | 279 | 847 | 123 | 35 |
| 9 | 126 | 408 | 632 | 1490 | 3030 | 2370 | 2650 | 2130 | 259 | 940 | 108 | 40 |
| 10 | 117 | 442 | 670 | 1460 | 2920 | 2680 | 2500 | 2020 | 242 | 1000 | 93 | 41 |
| 11 | 119 | 463 | 733 | 1440 | 2830 | 2950 | 2390 | 1910 | 230 | 1020 | 77 | 39 |
| 12 | 148 | 454 | 809 | 1430 | 2730 | 3230 | 2230 | 1800 | 225 | 1010 | 66 | 36 |
| 13 | 193 | 439 | 970 | 1410 | 2600 | 3440 | 2080 | 1690 | 225 | 977 | 62 | 34 |
| 14 | 198 | 421 | 1150 | 1380 | 2470 | 3670 | 1960 | 1590 | 230 | 899 | 59 | 32 |
| 15 | 186 | 402 | 1350 | 1340 | 2320 | 3940 | 1830 | 1500 | 246 | 806 | 50 | 32 |
| 16 | 194 | 380 | 1540 | 1280 | 2420 | 4060 | 1740 | 1400 | 280 | 709 | 59 | 34 |
| 17 | 243 | 354 | 1680 | 1190 | 2570 | 4140 | 1670 | 1300 | 305 | 625 | 68 | 34 |
| 18 | 271 | 320 | 1820 | 1470 | 2560 | 4190 | 1620 | 1200 | 316 | 560 | 73 | 34 |
| 19 | 263 | 288 | 1960 | 1740 | 2570 | 4260 | 1580 | 1090 | 314 | 520 | 68 | 35 |
| 20 | 269 | 265 | 2090 | 1690 | 2510 | 4370 | 1760 | 976 | 308 | 507 | 65 | 37 |
| 21 | 341 | 248 | 2180 | 1810 | 2440 | 4410 | 2060 | 857 | 307 | 513 | 58 | 39 |
| 22 | 320 | 235 | 2300 | 2000 | 2350 | 4430 | 2250 | 743 | 309 | 520 | 43 | 40 |
| 23 | 336 | 222 | 2380 | 2210 | 2220 | 4460 | 2470 | 640 | 303 | 525 | 40 | 38 |
| 24 | 502 | 210 | 2410 | 2410 | 2090 | 4510 | 2560 | 566 | 297 | 519 | 48 | 36 |
| 25 | 727 | 201 | 2410 | 2600 | 1930 | 4490 | 2640 | 511 | 284 | 507 | 54 | 35 |
| 26 | 898 | 196 | 2390 | 2750 | 1760 | 4430 | 2720 | 470 | 256 | 487 | 54 | 34 |
| 27 | 1010 | 195 | 2340 | 2890 | 1590 | 4390 | 2840 | 449 | 222 | 462 | 57 | 35 |
| 28 | 1060 | 248 | 2270 | 3010 | 1530 | 4360 | 2940 | 430 | 203 | 437 | 58 | 36 |
| 29 | 1050 | 347 | 2220 | 3120 | --- | 4280 | 2980 | 447 | 197 | 342 | 56 | 37 |
| 30 | 1010 | 479 | 2150 | 3160 | --- | 4160 | 3000 | 443 | 186 | 276 | 50 | 38 |
| 31 | 959 | --- | 2070 | 3190 | --- | 4080 | --- | 416 | --- | 238 | 39 | --- |
| TOTAL | 11801 | 11974 | 46089 | 60280 | 73250 | 103210 | 77890 | 45848 | 8474 | 17724 | 2980 | 1063 |
| MEAN | 381 | 399 | 1487 | 1945 | 2616 | 3329 | 2596 | 1479 | 282 | 572 | 96.1 | 35.4 |
| MAX | 1060 | 886 | 2410 | 3190 | 3270 | 4510 | 3960 | 2990 | 441 | 1020 | 269 | 41 |
| MIN | 117 | 195 | 607 | 1190 | 1530 | 1230 | 1580 | 416 | 186 | 170 | 39 | 31 |
| AC-FT | 23410 | 23750 | 91420 | 119600 | 145300 | 204700 | 154500 | 90940 | 16810 | 35160 | 5910 | 2110 |

CAL YR 1993 TOTAL 538694 MEAN 1476 MAX 6290 MIN 97 AC-FT 1068000
WTR YR 1994 TOTAL 460583 MEAN 1262 MAX 4510 MIN 31 AC-FT 913600

RED RIVER BASIN

07364200 BAYOU BARTHOLOMEW NEAR JONES, LA--Continued

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.94 | 9.12 | 6.69 | 14.40 | 19.07 | 13.59 | 21.65 | 19.33 | 5.52 | 3.07 | 4.34 | .83 |
| 2 | 2.95 | 8.55 | 7.28 | 14.05 | 19.13 | 12.91 | 21.34 | 19.01 | 5.36 | 2.98 | 4.01 | .74 |
| 3 | 2.90 | 7.86 | 7.59 | 13.68 | 19.15 | 12.44 | 20.97 | 18.63 | 5.02 | 2.94 | 3.66 | .72 |
| 4 | 2.83 | 7.02 | 7.72 | 13.29 | 19.13 | 12.24 | 20.57 | 18.24 | 4.62 | 2.92 | 3.39 | .73 |
| 5 | 2.73 | 6.34 | 7.74 | 12.89 | 19.09 | 12.74 | 20.11 | 17.72 | 4.37 | 4.96 | 3.02 | .83 |
| 6 | 2.63 | 5.95 | 7.69 | 12.72 | 19.00 | 13.25 | 19.63 | 17.20 | 4.28 | 7.76 | 2.80 | .80 |
| 7 | 2.51 | 5.56 | 7.56 | 12.80 | 18.87 | 15.01 | 19.09 | 16.80 | 4.22 | 8.41 | 2.57 | .76 |
| 8 | 2.37 | 5.34 | 7.36 | 12.63 | 18.69 | 16.93 | 18.54 | 16.23 | 4.10 | 8.94 | 2.24 | .81 |
| 9 | 2.23 | 5.33 | 7.05 | 12.51 | 18.46 | 18.06 | 17.94 | 15.69 | 3.91 | 9.47 | 2.04 | .93 |
| 10 | 2.09 | 5.62 | 7.27 | 12.46 | 18.18 | 19.10 | 17.34 | 15.15 | 3.73 | 9.83 | 1.82 | .95 |
| 11 | 2.11 | 5.87 | 7.78 | 12.41 | 17.87 | 19.91 | 16.88 | 14.63 | 3.61 | 9.95 | 1.57 | .91 |
| 12 | 2.58 | 5.88 | 8.14 | 12.34 | 17.52 | 20.50 | 16.30 | 14.13 | 3.56 | 9.94 | 1.39 | .84 |
| 13 | 3.21 | 5.77 | 9.02 | 12.21 | 17.12 | 20.88 | 15.70 | 13.64 | 3.56 | 9.81 | 1.33 | .78 |
| 14 | 3.27 | 5.60 | 10.14 | 12.03 | 16.71 | 21.25 | 15.13 | 13.16 | 3.61 | 9.42 | 1.28 | .74 |
| 15 | 3.13 | 5.39 | 11.37 | 11.80 | 16.27 | 21.86 | 14.62 | 12.68 | 3.78 | 8.86 | 1.14 | .73 |
| 16 | 3.22 | 5.13 | 12.44 | 11.46 | 16.59 | 22.18 | 14.18 | 12.17 | 4.11 | 8.24 | 1.29 | .78 |
| 17 | 3.75 | 4.82 | 13.29 | 11.16 | 17.20 | 22.38 | 13.81 | 11.64 | 4.35 | 7.63 | 1.44 | .78 |
| 18 | 4.03 | 4.49 | 13.95 | 12.02 | 17.80 | 22.58 | 13.49 | 11.07 | 4.44 | 7.08 | 1.51 | .79 |
| 19 | 3.95 | 4.19 | 14.53 | 13.51 | 18.37 | 22.80 | 13.22 | 10.43 | 4.43 | 6.65 | 1.43 | .82 |
| 20 | 4.00 | 3.97 | 15.05 | 14.08 | 18.50 | 22.99 | 13.94 | 9.68 | 4.38 | 6.41 | 1.39 | .87 |
| 21 | 4.91 | 3.80 | 15.47 | 14.75 | 18.29 | 23.11 | 15.66 | 8.87 | 4.37 | 6.51 | 1.26 | .90 |
| 22 | 4.87 | 3.67 | 15.79 | 15.53 | 17.84 | 23.17 | 16.86 | 8.09 | 4.38 | 6.58 | 1.00 | .93 |
| 23 | 4.87 | 3.52 | 15.98 | 16.29 | 17.27 | 23.17 | 18.53 | 7.35 | 4.33 | 6.54 | .94 | .89 |
| 24 | 6.03 | 3.40 | 16.05 | 16.92 | 16.60 | 23.13 | 19.07 | 6.74 | 4.27 | 6.42 | 1.10 | .85 |
| 25 | 7.60 | 3.30 | 16.03 | 17.43 | 15.86 | 23.04 | 19.34 | 6.28 | 4.15 | 6.20 | 1.20 | .82 |
| 26 | 8.73 | 3.24 | 15.92 | 17.84 | 15.02 | 22.93 | 19.52 | 5.89 | 3.88 | 5.96 | 1.20 | .80 |
| 27 | 9.45 | 3.24 | 15.75 | 18.24 | 14.15 | 22.80 | 19.66 | 5.66 | 3.53 | 5.71 | 1.24 | .80 |
| 28 | 9.85 | 3.80 | 15.52 | 18.58 | 14.07 | 22.63 | 19.72 | 5.46 | 3.32 | 5.48 | 1.26 | .83 |
| 29 | 9.96 | 4.71 | 15.29 | 18.76 | --- | 22.43 | 19.67 | 5.63 | 3.25 | 5.28 | 1.24 | .86 |
| 30 | 9.85 | 5.79 | 15.04 | 18.90 | --- | 22.20 | 19.54 | 5.88 | 3.12 | 5.04 | 1.12 | .89 |
| 31 | 9.57 | --- | 14.73 | 19.00 | --- | 21.95 | --- | 5.47 | --- | 4.73 | .92 | --- |
| MAX | 9.96 | 9.12 | 16.05 | 19.00 | 19.15 | 23.17 | 21.65 | 19.33 | 5.52 | 9.95 | 4.34 | .95 |
| MIN | 2.09 | 3.24 | 6.69 | 11.16 | 14.07 | 12.24 | 13.22 | 5.46 | 3.12 | 2.92 | .92 | .72 |

## RED RIVER BASIN

### 07364200 BAYOU BARTHOLOMEW NEAR JONES, LA

LOCATION.--Lat 32°59'25", long 91°39'20", in SE 1/4 SW 1/4 sec.9, T.23 N., R.8 E., Morehouse Parish, Hydrologic Unit 08040205, on downstream side of right pier of bridge on State Highway 834, 1.0 mi downstream from Arkansas-Louisiana State line, and 1.6 mi northwest of Jones.

DRAINAGE AREA.--1,187 $mi^2$.

PERIOD OF RECORD.--October 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is 79.21 ft above sea level (levels by Corps of Engineers). Water-stage recorder for Bayou Bartholomew northwest of Jones (station 07364203) used as auxiliary gage for this station since Oct. 1, 1959. See WSP 2120 for history of changes prior to Dec. 7, 1966.

REMARKS.--No estimated daily discharges. Records good. Small diversions above station for irrigation. In extreme floods, considerable flow bypasses station. Most of flow is into the Bayou Lafourche-Boeuf River basins by way of interconnecting system of bayous and drainage ditches and passes stations Bayou Lafourche near Crew Lake (station 07369000) and Boeuf River near Girard (station 07368000). Other flow bypasses station and re-enters the basin 5 mi downstream by way of Overflow Creek. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--38 years, 1,359 $ft^3/s$, 984,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,530 $ft^3/s$, Apr. 28, 1991; maximum gage height, 29.16 ft, May 5, 1991; minimum discharge, 1.6 $ft^3/s$, Aug. 22, 1986, gage height, -0.45 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,420 $ft^3/s$, May 4, gage height 15.84 ft; maximum gage height, 15.88 ft, May 5; minimum discharge, 16 $ft^3/s$, Nov. 12; minimum gage height, .57 ft, July 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 39 | 30 | 27 | 579 | 626 | 578 | 1250 | 2210 | 369 | 66 | e80 | e79 |
| 2 | 40 | 33 | 24 | 611 | 675 | 592 | 1290 | 2300 | 388 | 53 | e99 | e83 |
| 3 | 42 | 32 | 24 | 599 | 693 | 609 | 1320 | 2360 | 353 | 43 | e122 | e95 |
| 4 | 43 | 32 | 23 | 583 | 687 | 627 | 1340 | 2400 | 319 | 41 | e150 | e111 |
| 5 | 42 | 32 | 24 | 573 | 663 | 645 | 1360 | 2410 | 287 | 44 | e180 | e130 |
| 6 | 41 | 31 | 24 | 560 | 626 | 662 | 1380 | 2390 | 250 | 50 | e210 | e140 |
| 7 | 39 | 30 | 24 | 586 | 589 | 678 | 1390 | 2370 | 219 | 61 | e240 | e148 |
| 8 | 38 | 29 | 34 | 587 | 556 | 687 | 1380 | 2330 | 196 | 73 | e270 | e144 |
| 9 | 37 | 26 | 49 | 593 | 523 | 689 | 1380 | 2260 | 179 | 84 | e310 | e137 |
| 10 | 37 | 24 | 49 | 609 | 495 | 690 | 1360 | 2190 | 164 | 91 | e345 | e120 |
| 11 | 37 | 18 | 54 | 631 | 477 | 692 | 1330 | 2180 | 150 | 90 | e395 | e107 |
| 12 | 37 | 18 | 57 | 646 | 464 | 690 | 1280 | 2070 | 133 | 84 | e430 | e100 |
| 13 | 37 | 32 | 51 | 651 | 456 | 677 | 1310 | 1950 | 119 | 78 | e458 | e95 |
| 14 | 36 | 45 | 38 | 651 | 449 | 663 | 1270 | 1830 | 108 | 78 | e465 | e89 |
| 15 | 36 | 46 | 36 | 645 | 453 | 654 | 1280 | 1710 | 104 | 66 | e470 | e86 |
| 16 | 36 | 50 | 80 | 633 | 466 | 643 | 1240 | 1580 | 106 | 55 | e465 | e85 |
| 17 | 35 | 46 | 129 | 614 | 488 | 631 | 1190 | 1450 | 108 | e52 | e461 | e87 |
| 18 | 35 | 40 | 216 | 597 | 519 | 635 | 1130 | 1320 | 104 | e50 | e459 | e91 |
| 19 | 34 | 34 | 358 | 573 | 552 | 635 | 1080 | 1190 | 97 | e49 | e450 | e94 |
| 20 | 34 | 29 | 430 | 542 | 572 | 617 | 1170 | 1060 | 91 | e51 | e420 | e95 |
| 21 | 33 | 25 | 464 | 507 | 578 | 601 | 1810 | 946 | 87 | e54 | e382 | e92 |
| 22 | 32 | 24 | 501 | 472 | 576 | 583 | 1570 | 841 | 92 | e64 | e340 | e89 |
| 23 | 32 | 24 | 529 | 443 | 579 | 561 | 1660 | 744 | 97 | e71 | e300 | e86 |
| 24 | 32 | 22 | 540 | 463 | 588 | 540 | 1660 | 661 | 101 | e77 | e247 | e85 |
| 25 | 32 | 22 | 541 | 448 | 587 | 704 | 1640 | 589 | 100 | e79 | e200 | e86 |
| 26 | 31 | 26 | 547 | 434 | 578 | 799 | 1690 | 533 | 96 | e75 | e142 | e87 |
| 27 | 32 | 27 | 551 | 442 | 570 | 786 | 1770 | 484 | 91 | e67 | e110 | e95 |
| 28 | 33 | 28 | 558 | 457 | 575 | 789 | 1870 | 445 | 86 | e60 | e95 | e120 |
| 29 | 31 | 30 | 562 | 483 | 572 | 841 | 2000 | 433 | 82 | e58 | e85 | e170 |
| 30 | 30 | 29 | 566 | 527 | --- | 935 | 2130 | 450 | 74 | e62 | e77 | e230 |
| 31 | 29 | --- | 569 | 577 | --- | 1160 | --- | 406 | --- | e68 | e78 | --- |
| TOTAL | 1102 | 914 | 7679 | 17336 | 16232 | 21293 | 43530 | 46092 | 4750 | 1994 | 8535 | 3256 |
| MEAN | 35.5 | 30.5 | 248 | 559 | 560 | 687 | 1451 | 1487 | 158 | 64.3 | 275 | 109 |
| MAX | 43 | 50 | 569 | 651 | 693 | 1160 | 2130 | 2410 | 388 | 91 | 470 | 230 |
| MIN | 29 | 18 | 23 | 434 | 449 | 540 | 1080 | 406 | 74 | 41 | 77 | 79 |
| AC-FT | 2190 | 1810 | 15230 | 34390 | 32200 | 42230 | 86340 | 91420 | 9420 | 3960 | 16930 | 6460 |

CAL YR 1995 TOTAL 400414 MEAN 1097 MAX 4510 MIN 18 AC-FT 794200
WTR YR 1996 TOTAL 172713 MEAN 472 MAX 2410 MIN 18 AC-FT 342600

e Estimated

RED RIVER BASIN

07364200 BAYOU BARTHOLOMEW NEAR JONES, LA--Continued

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .91 | .83 | 1.06 | 7.00 | 6.99 | 6.50 | 11.50 | 15.34 | 4.93 | 1.12 | --- | --- |
| 2 | .93 | .92 | 1.02 | 7.31 | 7.30 | 6.60 | 11.68 | 15.56 | 5.08 | .86 | --- | --- |
| 3 | .99 | .94 | 1.01 | 7.21 | 7.47 | 6.72 | 11.83 | 15.73 | 4.88 | .62 | --- | --- |
| 4 | .99 | .95 | .99 | 7.09 | 7.50 | 6.85 | 11.92 | 15.84 | 4.57 | .58 | --- | --- |
| 5 | .97 | .97 | 1.01 | 6.99 | 7.41 | 7.01 | 11.97 | 15.87 | 4.19 | .67 | --- | --- |
| 6 | .95 | .97 | 1.02 | 7.00 | 7.21 | 7.14 | 12.00 | 15.81 | 3.82 | .79 | --- | --- |
| 7 | .92 | .97 | 1.02 | 7.04 | 6.96 | 7.21 | 11.95 | 15.67 | 3.50 | 1.03 | --- | --- |
| 8 | .89 | .96 | 1.16 | 7.04 | 6.71 | 7.26 | 11.85 | 15.49 | 3.24 | 1.26 | --- | --- |
| 9 | .87 | .93 | 1.39 | 7.07 | 6.45 | 7.29 | 11.72 | 15.27 | 3.04 | 1.48 | --- | --- |
| 10 | .86 | .88 | 1.40 | 7.15 | 6.21 | 7.32 | 11.54 | 15.00 | 2.83 | 1.62 | --- | --- |
| 11 | .86 | .75 | 1.47 | 7.27 | 6.00 | 7.35 | 11.34 | 14.86 | 2.62 | 1.61 | --- | --- |
| 12 | .86 | .78 | 1.50 | 7.37 | 5.83 | 7.35 | 11.12 | 14.63 | 2.35 | 1.48 | --- | --- |
| 13 | .86 | 1.10 | 1.42 | 7.43 | 5.69 | 7.30 | 11.23 | 14.25 | 2.12 | 1.37 | --- | --- |
| 14 | .85 | 1.31 | 1.23 | 7.43 | 5.61 | 7.22 | 11.23 | 13.81 | 1.93 | 1.36 | --- | --- |
| 15 | .84 | 1.34 | 1.20 | 7.38 | 5.60 | 7.17 | 11.55 | 13.33 | 1.86 | 1.12 | --- | --- |
| 16 | .84 | 1.40 | 1.79 | 7.29 | 5.70 | 7.08 | 11.33 | 12.79 | 1.89 | .90 | --- | --- |
| 17 | .83 | 1.36 | 2.37 | 7.16 | 5.87 | 6.99 | 11.01 | 12.20 | 1.93 | --- | --- | --- |
| 18 | .81 | 1.26 | 3.46 | 7.02 | 6.10 | 6.96 | 10.68 | 11.56 | 1.86 | --- | --- | --- |
| 19 | .79 | 1.17 | 5.13 | 6.81 | 6.33 | 6.99 | 10.34 | 10.85 | 1.73 | --- | --- | --- |
| 20 | .78 | 1.09 | 5.92 | 6.56 | 6.50 | 6.91 | 10.94 | 10.11 | 1.62 | --- | --- | --- |
| 21 | .77 | 1.03 | 6.31 | 6.29 | 6.60 | 6.78 | 13.75 | 9.40 | 1.55 | --- | --- | --- |
| 22 | .75 | 1.01 | 6.67 | 5.99 | 6.62 | 6.64 | 13.98 | 8.71 | 1.63 | --- | --- | --- |
| 23 | .74 | 1.01 | 6.92 | 5.72 | 6.65 | 6.48 | 14.39 | 8.06 | 1.73 | --- | --- | --- |
| 24 | .73 | .98 | 7.05 | 6.00 | 6.69 | 6.32 | 14.45 | 7.46 | 1.80 | --- | --- | --- |
| 25 | .73 | .97 | 7.08 | 5.93 | 6.65 | 7.92 | 14.42 | 6.91 | 1.78 | --- | --- | --- |
| 26 | .74 | 1.04 | 7.08 | 5.79 | 6.58 | 8.73 | 14.41 | 6.42 | 1.71 | --- | --- | --- |
| 27 | .79 | 1.07 | 7.07 | 5.79 | 6.51 | 8.72 | 14.45 | 5.98 | 1.61 | --- | --- | --- |
| 28 | .82 | 1.08 | 7.04 | 5.87 | 6.49 | 8.69 | 14.57 | 5.59 | 1.52 | --- | --- | --- |
| 29 | .80 | 1.11 | 6.98 | 6.05 | 6.46 | 8.85 | 14.82 | 5.44 | 1.45 | --- | --- | --- |
| 30 | .79 | 1.09 | 6.92 | 6.33 | --- | 9.35 | 15.11 | 5.58 | 1.30 | --- | --- | --- |
| 31 | .80 | --- | 6.95 | 6.67 | --- | 11.05 | --- | 5.29 | --- | --- | --- | --- |
| MAX | .99 | 1.40 | 7.08 | 7.43 | 7.50 | 11.05 | 15.11 | 15.87 | 5.08 | --- | --- | --- |
| MIN | .73 | .75 | .99 | 5.72 | 5.60 | 6.32 | 10.34 | 5.29 | 1.30 | --- | --- | --- |

## RED RIVER BASIN

### 07364200 BAYOU BARTHOLOMEW NEAR JONES, LA

LOCATION.--Lat 32°59'25", long 91°39'20", in SE 1/4 SW 1/4 sec. 9, T. 23 N., R. 8 E., Morehouse Parish, Hydrologic Unit 08040205, on downstream side of right pier of bridge on State Highway 834, 1.0 mi downstream from Arkansas-Louisiana State line, and 1.6 mi northwest of Jones.

DRAINAGE AREA.--1,187 $mi^2$.

PERIOD OF RECORD.--October 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is 79.21 ft above sea level (levels by Corps of Engineers). Water-stage recorder for Bayou Bartholomew northwest of Jones (station 07364203) used as auxiliary gage for this station since Oct. 1, 1959. See WSP 2120 for history of changes prior to Dec. 7, 1966.

REMARKS.--Records good except for estimated discharge, which is poor. Small diversions above station for irrigation. In extreme floods, considerable flow bypasses station. Most of flow is into the Bayou Lafourche-Boeuf River basins by way of interconnecting system of bayous and drainage ditches and passes stations Bayou Lafourche near Crew Lake (station 07369000) and Boeuf River near Girard (station 07368000). Other flow bypasses station and re-enters the basin 5 mi downstream by way of Overflow Creek. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--40 years, 1,356 $ft^3/s$, 982,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,530 $ft^3/s$, Apr. 28, 1991; maximum gage height, 29.16 ft, May 5, 1991; minimum discharge, 1.6 $ft^3/s$, Aug. 22, 1986, gage height, -0.45 ft.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, e6,450 $ft^3/s$, Mar. 21, gage height not determined; maximum gage height, 26.08 ft, Mar. 22; minimum daily discharge, 56 $ft^3/s$, Sep. 26, 28, 29, 30; minimum gage height, 1.10 ft, Sep. 26, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | e400 | 352 | 844 | 1990 | 3520 | 4050 | e5500 | e4080 | e2370 | e1320 | 111 | 204 |
| 2 | e1000 | 345 | 1000 | 2090 | 3490 | 4290 | e5300 | e4150 | e2250 | e1340 | 99 | 188 |
| 3 | e1200 | 338 | 1230 | 2160 | 3480 | 4610 | e5100 | e4250 | e2180 | e1350 | 92 | 171 |
| 4 | 1210 | 350 | 1420 | 2190 | 3470 | 4750 | e4900 | e4330 | e2080 | e1360 | 82 | 159 |
| 5 | 1130 | 387 | 1560 | 2230 | 3480 | 5030 | e4700 | e4400 | e1950 | e1370 | 77 | 152 |
| 6 | 1040 | 453 | 1680 | 2200 | 3470 | 5360 | e4550 | e4450 | e1900 | e1360 | 87 | 144 |
| 7 | 914 | 545 | 1780 | 2220 | 3520 | 5570 | e4300 | e4500 | e1820 | e1350 | 94 | 134 |
| 8 | 773 | 645 | 1840 | 2200 | 3630 | 5710 | e4200 | e4550 | e1750 | e1320 | 108 | 127 |
| 9 | 622 | 716 | 1850 | 2230 | 3650 | 5830 | e4000 | e4600 | e1700 | e1280 | 131 | 127 |
| 10 | 487 | 781 | 1810 | 2230 | 3700 | 5960 | e3920 | e4620 | e1650 | e1230 | 157 | 134 |
| 11 | 390 | 840 | 1750 | 2260 | 3720 | e6050 | e3850 | e4640 | e1620 | e1180 | 182 | 130 |
| 12 | 325 | 888 | 1690 | 2310 | 3800 | e6100 | e3800 | e4620 | e1600 | e1100 | 192 | 117 |
| 13 | 278 | 917 | 1630 | 2400 | 4080 | e6150 | e3750 | e4600 | e1580 | e1040 | 194 | 102 |
| 14 | 239 | 935 | 1530 | 2480 | 4190 | e6200 | e3700 | e4550 | e1540 | e970 | 215 | 89 |
| 15 | 219 | 931 | 1460 | 2570 | 4190 | e6250 | e3720 | e4500 | e1500 | e890 | 206 | 79 |
| 16 | 209 | 909 | 1460 | 2660 | 4230 | e6270 | e3770 | e4400 | e1430 | e810 | 203 | 75 |
| 17 | 200 | 887 | 1490 | 2710 | 4270 | e6300 | e3780 | e4250 | e1400 | e730 | 201 | 72 |
| 18 | 189 | 863 | 1470 | 2700 | 4270 | e6320 | e3790 | e4200 | e1350 | e660 | 194 | 69 |
| 19 | 176 | 824 | 1460 | 2690 | 4250 | e6370 | e3800 | e4150 | e1280 | e580 | 181 | 65 |
| 20 | 165 | 782 | 1490 | 2650 | 4180 | e6400 | e3810 | e4190 | e1220 | e510 | 171 | 61 |
| 21 | 156 | 738 | 1520 | 2620 | 4250 | e6450 | e3840 | e4100 | e1160 | e460 | 168 | 60 |
| 22 | 151 | 694 | 1560 | 2620 | 4190 | e6400 | e3880 | e3950 | e1100 | e360 | 169 | 59 |
| 23 | 146 | 646 | 1590 | 2630 | 4110 | e6380 | e3870 | e3750 | e1040 | e300 | 169 | 59 |
| 24 | 141 | 600 | 1630 | 2800 | 4000 | e6300 | e3790 | e3550 | e1020 | e265 | 175 | 62 |
| 25 | 136 | 564 | 1630 | 2890 | 3960 | e6280 | e3780 | e3340 | e1060 | e235 | 185 | 62 |
| 26 | 239 | 526 | 1630 | 2920 | 3950 | e6240 | e3750 | e3100 | e1100 | 201 | 198 | 58 |
| 27 | 299 | 496 | 1690 | 2980 | 4050 | e6180 | e3800 | e3000 | e1150 | 182 | 209 | 57 |
| 28 | 311 | 475 | 1690 | 3250 | 4060 | e6050 | e3900 | e2900 | e1190 | 164 | 212 | 57 |
| 29 | 341 | 459 | 1730 | 3460 | --- | e6000 | e4000 | e2800 | e1240 | 143 | 214 | 56 |
| 30 | 358 | 613 | 1820 | 3500 | --- | e5920 | e4000 | e2650 | e1280 | 133 | 214 | 56 |
| 31 | 360 | --- | 1900 | 3520 | --- | e5700 | --- | e2470 | --- | 124 | 213 | --- |
| TOTAL | 13804 | 19499 | 48834 | 80360 | 109160 | 181470 | 122850 | 123640 | 45510 | 24317 | 5103 | 2985 |
| MEAN | 445 | 650 | 1575 | 2592 | 3899 | 5854 | 4095 | 3988 | 1517 | 784 | 165 | 99.5 |
| MAX | 1210 | 935 | 1900 | 3520 | 4270 | 6450 | 5500 | 4640 | 2370 | 1370 | 215 | 204 |
| MIN | 136 | 338 | 844 | 1990 | 3470 | 4050 | 3700 | 2470 | 1020 | 124 | 77 | 56 |
| AC-FT | 27380 | 38680 | 96860 | 159400 | 216500 | 359900 | 243700 | 245200 | 90270 | 48230 | 10120 | 5920 |

CAL YR 1996 TOTAL 245155 MEAN 670 MAX 2410 MIN 41 AC-FT 486300
WTR YR 1997 TOTAL 777532 MEAN 2130 MAX 6450 MIN 56 AC-FT 1542000

e Estimated

RED RIVER BASIN

07364200 BAYOU BARTHOLOMEW NEAR JONES, LA--Continued

GAGE HEIGHT, IN FEET ABOVE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | 4.77 | 8.38 | 14.85 | 20.21 | 21.47 | --- | --- | --- | --- | 1.97 | 3.33 |
| 2 | --- | 4.70 | 9.30 | 15.27 | 20.13 | 22.03 | --- | --- | --- | --- | 1.77 | 3.15 |
| 3 | | 4.64 | 10.42 | 15.58 | 20.03 | 22.81 | --- | --- | --- | 11.33 | 1.63 | 2.94 |
| 4 | 11.32 | 4.75 | 11.48 | 15.72 | 19.94 | 23.45 | --- | --- | --- | 11.42 | 1.45 | 2.75 |
| 5 | 11.16 | 5.06 | 12.33 | 15.81 | 19.81 | 24.12 | --- | --- | --- | 11.45 | 1.35 | 2.65 |
| 6 | 10.69 | 5.60 | 12.95 | 15.72 | 19.67 | 24.56 | --- | --- | --- | 11.44 | 1.53 | 2.53 |
| 7 | 9.95 | 6.27 | 13.39 | 15.68 | 19.67 | 24.81 | --- | --- | --- | 11.39 | 1.67 | 2.38 |
| 8 | 8.99 | 6.97 | 13.66 | 15.63 | 19.93 | 25.02 | --- | --- | --- | 11.28 | 1.92 | 2.27 |
| 9 | 7.87 | 7.45 | 13.75 | 15.70 | 19.98 | 25.17 | --- | --- | --- | 11.12 | 2.32 | 2.28 |
| 10 | 6.71 | 7.88 | 13.69 | 15.72 | 20.03 | --- | --- | --- | --- | 10.88 | 2.73 | 2.39 |
| 11 | 5.62 | 8.26 | 13.51 | 15.77 | 20.10 | --- | --- | --- | --- | 10.61 | 3.09 | 2.33 |
| 12 | 4.73 | 8.57 | 13.24 | 15.91 | 20.26 | --- | --- | --- | --- | 10.32 | 3.20 | 2.13 |
| 13 | 4.10 | 8.80 | 12.89 | 16.10 | 21.04 | --- | --- | --- | --- | 9.93 | 3.22 | 1.89 |
| 14 | 3.71 | 8.93 | 12.64 | 16.31 | 21.43 | --- | --- | --- | --- | 9.50 | 3.45 | 1.68 |
| 15 | 3.50 | 8.95 | 12.36 | 16.54 | 21.65 | --- | --- | --- | --- | 9.03 | 3.36 | 1.52 |
| 16 | 3.38 | 8.88 | 12.33 | 16.80 | 21.86 | --- | --- | --- | --- | 8.52 | 3.32 | 1.45 |
| 17 | 3.28 | 8.76 | 12.55 | 16.91 | 22.01 | --- | --- | --- | --- | 7.99 | 3.30 | 1.40 |
| 18 | 3.16 | 8.62 | 12.27 | 16.93 | 22.07 | --- | --- | --- | --- | 7.44 | 3.22 | 1.34 |
| 19 | 3.01 | 8.41 | 12.10 | 16.90 | 22.03 | --- | --- | --- | --- | 6.83 | 3.07 | 1.26 |
| 20 | 2.85 | 8.16 | 12.16 | 16.84 | 21.89 | --- | --- | --- | --- | 6.20 | 2.94 | 1.20 |
| 21 | 2.71 | 7.87 | 12.34 | 16.74 | 21.98 | --- | --- | --- | --- | 5.56 | 2.90 | 1.17 |
| 22 | 2.63 | 7.55 | 12.53 | 16.74 | 21.87 | --- | --- | --- | --- | 4.89 | 2.90 | 1.15 |
| 23 | 2.57 | 7.23 | 12.69 | 16.77 | 21.65 | --- | --- | --- | --- | 4.30 | 2.90 | 1.16 |
| 24 | 2.48 | 6.89 | 12.82 | 17.75 | 21.45 | --- | --- | --- | --- | 3.95 | 3.00 | 1.21 |
| 25 | 2.39 | 6.58 | 12.84 | 18.20 | 21.33 | --- | --- | --- | --- | 3.64 | 3.12 | 1.21 |
| 26 | 3.69 | 6.27 | 12.84 | 18.45 | 21.28 | --- | --- | --- | --- | 3.30 | 3.27 | 1.15 |
| 27 | 4.36 | 6.01 | 13.21 | 18.81 | 21.42 | --- | --- | --- | --- | 3.07 | 3.38 | 1.13 |
| 28 | 4.47 | 5.79 | 13.31 | 19.55 | 21.46 | --- | --- | --- | --- | 2.84 | 3.42 | 1.12 |
| 29 | 4.67 | 5.65 | 13.54 | 20.01 | --- | --- | --- | --- | --- | 2.51 | 3.44 | 1.11 |
| 30 | 4.81 | 6.79 | 14.01 | 20.19 | --- | --- | --- | --- | --- | 2.36 | 3.44 | 1.10 |
| 31 | 4.84 | --- | 14.42 | 20.24 | --- | --- | --- | --- | --- | 2.19 | 3.43 | --- |
| MAX | --- | 8.95 | 14.42 | 20.24 | 22.07 | --- | --- | --- | --- | --- | 3.45 | 3.33 |
| MIN | --- | 4.64 | 8.38 | 14.85 | 19.67 | --- | --- | --- | --- | --- | 1.35 | 1.10 |

8 10:40AM FROM US GEOLOGICAL SURVEY 318 251 0372

UNITED STATES DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY - LOUISIANA WATER RESOURCES DATABASE09/02/98

STATION NUMBER 07364200 BYU BARTHOLOMEW NR JONES, LA STREAM SOURCE AGENCY USGS
LATITUDE 325925 LONGITUDE 0913920 DRAINAGE AREA 1187.00 DATUM 79.21 STATE 22 COUNTY 067
PROVISIONAL DATA SUBJECT TO REVISION

DISCHARGE, CUBIC FEET PER SECOND, YEAR JUNE 1998 TO MAY 1999
DAILY MEAN VALUES

| DAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 56 | 42 | 175 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | 109 | 72 | 161 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3 | 260 | 78 | 139 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4 | 400 | 79 | 106 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5 | 513 | 80 | 90 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6 | 595 | 97 | 86 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7 | 634 | 118 | 97 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 652 | 122 | 95 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9 | 653 | 115 | 95 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10 | 645 | 103 | 100 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11 | 618 | 96 | 106 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12 | 584 | 92 | 111 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13 | 540 | 164 | 1[illegible] | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14 | 495 | 231 | 12[illegible] | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15 | 447 | [illegible] | 141 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16 | [illegible] | 244 | 162 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17 | 367 | 252 | [illegible] | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18 | 331 | 251 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 19 | 300 | 240 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20 | 271 | 215 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 21 | 240 | 187 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 22 | 210 | 159 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 23 | 174 | 139 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 24 | 153 | 126 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 25 | 132 | 142 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 26 | 113 | 171 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 27 | 93 | 172 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 28 | 76 | 172 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 29 | 61 | 178 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 30 | 45 | 183 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 31 | --- | 183 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| TOTAL | 10171 | 4732 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| MEAN | 339 | 153 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| MAX | 653 | 252 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| MIN | 45 | 42 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| AC-FT | 20170 | 9390 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

PROVISIONAL DATA

8-27 field trips after October 1

12 05 1988 3:48PM FROM US GEOLOGICAL SURVEY



## 07364100 OUACHITA RIVER NEAR ARKANSAS-LOUISIANA STATE LINE

LOCATION.--Lat 33°01'52", long 92°05'16", in SE 1/4 NE 1/4 sec.25, T.19 S., R.10 W., Union County, Hydrologic Unit 08040202, on right bank 500 ft below lock and dam No. 6, 1.6 mi north of Arkansas-Louisiana State line, 3.5 mi downstream from Missouri Pacific Railroad Co. bridge, and 4.5 mi southeast of Felsenthal, Ark.

DRAINAGE AREA.--10,787 mi$^2$.

PERIOD OF RECORD.--April 1958 to current year (daily gage heights and daily discharges below 19.0 ft stage only). Gage-height record for some periods collected at same site since 1912 are contained in reports of Corps of Engineers, Vicksburg district.

REVISED RECORDS.--WDR LA-75-1: 1974.

GAGE.--Water-stage recorder. Datum of gage is 44.09 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Aug. 26, 1958, nonrecording gage at same site and datum. Water-stage recorder for Ouachita River at Sterlington (station 07364535) used as auxiliary gage for this station. Prior to Oct. 1, 1980, water-stage recorder for Ouachita River at Alabama Landing near Halle (station 07364103) was used as auxiliary gage for this station.

REMARKS.--Estimated daily discharge: Oct. 7, 8. Records fair. Discharge computed for stages below bankfull, about 19 ft. Considerable regulation by 5 reservoirs in Arkansas, combined capacity, 3,107,880 acre-ft and a series of navigation locks and dams. Several measurements of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 43.04 ft May 14, 15, 1958 (discharge not determined); minimum daily discharge, 190 ft$^3$/s Sept. 13, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum gage height since 1912, 44.2 ft Apr. 11, 12, 1945; minimum, -0.3 ft Nov. 11, 1916; minimum since 1928, 5.8 ft Aug. 25, 1951.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 32.14 ft Nov. 6; minimum daily discharge, 439 ft$^3$/s Sept. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2020 | | | | | | | | 4510 | 1950 | 2150 | 573 |
| 2 | 2070 | | | | | | | | 4210 | 1410 | 2440 | 439 |
| 3 | 1860 | | | | | | | | 3290 | 1680 | 3130 | 1260 |
| 4 | 2340 | | | | | | | | 2090 | 1960 | 3280 | 1830 |
| 5 | 2090 | | | | | | | | 2100 | 2800 | 3080 | 2020 |
| 6 | 2730 | | | | | | | | 2350 | 3790 | 3160 | 3300 |
| 7 | 3300 | | | | | | | | 3160 | 3020 | 2930 | 3590 |
| 8 | 4600 | | | | | | | | 1630 | 2680 | 3000 | 2100 |
| 9 | 5730 | | | | | | | | 1710 | 1910 | 2920 | 1820 |
| 10 | 14000 | | | | | | | | 1620 | 2030 | 3200 | 2110 |
| 11 | | | | | | | | | 1570 | 3080 | 3120 | 2150 |
| 12 | | | | | | | | | 1980 | 3390 | 3740 | 2080 |
| 13 | | | | | | | | | 993 | 3700 | 3980 | 1580 |
| 14 | | | | | | | | | 1820 | 2690 | 3860 | 1280 |
| 15 | | | | | | | | | 1470 | 2510 | 3240 | 1280 |
| 16 | | | | | | | | | 1850 | 2400 | 3180 | 1330 |
| 17 | | | | | | | | | 1740 | 2620 | 3610 | 1390 |
| 18 | | | | | | | | | 1720 | 2250 | 2820 | 1080 |
| 19 | | | | | | | | | 2420 | 2060 | 2250 | 1210 |
| 20 | | | | | | | | | 4120 | 2000 | 3190 | 1200 |
| 21 | | | | | | | | | 4830 | 2160 | 3080 | 1500 |
| 22 | | | | | | | | | 4480 | 3020 | 2620 | 1960 |
| 23 | | | | | | | | | 4060 | 3970 | 1820 | 1580 |
| 24 | | | | | | | | | 2510 | 4420 | 1710 | 1050 |
| 25 | | | | | | | | | 2510 | 4770 | 1640 | 1400 |
| 26 | | | | | | | | | 3150 | 4790 | 807 | 1160 |
| 27 | | | | | | | | | 3000 | 4830 | 962 | 763 |
| 28 | | | | | | | | 10800 | 2970 | 4800 | 865 | 594 |
| 29 | | | | | | | | 8710 | 2460 | 4110 | 855 | 811 |
| 30 | | | | | | | | 5880 | 2820 | 3450 | 631 | 1070 |
| 31 | | | | | | | | 5140 | --- | 2060 | 944 | --- |
| TOTAL | --- | --- | --- | --- | --- | --- | --- | --- | 79143 | 92310 | 78214 | 45510 |
| MEAN | --- | --- | --- | --- | --- | --- | --- | --- | 2638 | 2978 | 2523 | 1517 |
| MAX | --- | --- | --- | --- | --- | --- | --- | --- | 4830 | 4830 | 3980 | 3590 |
| MIN | --- | --- | --- | --- | --- | --- | --- | --- | 993 | 1410 | 631 | 439 |

12-03-1998 3:47PM FROM US GEOLOGICAL SURVEY 318 251 0572 P.6



07364100 OUACHITA RIVER NEAR ARKANSAS-LOUISIANA STATE LINE

LOCATION.--Lat 33°01'52", long 92°05'16", in SE 1/4 NE 1/4 sec.25, T.19 S., R.10 W., Union County, Hydrologic Unit 08040202, on right bank 500 ft below lock and dam No. 6, 1.6 mi north of Arkansas-Louisiana State line, 3.5 mi downstream from Missouri Pacific Railroad Co. bridge, and 4.5 mi southeast of Felsenthal, Ark.

DRAINAGE AREA.--10,787 mi².

PERIOD OF RECORD.--April 1958 to current year (daily gage heights and daily discharges below 19.0 ft stage only). Gage-height record for some periods collected at same site since 1912 are contained in reports of Corps of Engineers, Vicksburg district.

REVISED RECORDS.--WDR LA-75-1: 1974.

GAGE.--Water-stage recorder. Datum of gage is 44.09 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Aug. 26, 1958, nonrecording gage at same site and datum. Water-stage recorder for Ouachita River at Sterlington (station 07364535) used as auxiliary gage for this station. Prior to Oct. 1, 1980, water-stage recorder for Ouachita River at Alabama Landing near Halle (station 07364103) was used as auxiliary gage for this station.

REMARKS.--No estimated daily discharge. Records poor. Discharge computed for stages below bankfull, about 19 ft. Considerable regulation by 5 reservoirs in Arkansas, combined capacity, 3,107,880 acre-ft and a series of navigation locks and dams. Several measurements of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 43.04 ft May 14, 15, 1958 (discharge not determined); minimum daily discharge, 190 ft³/s Sept. 13, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum gage height since 1912, 44.2 ft Apr. 11, 12, 1945; minimum, -0.3 ft Nov. 11, 1916; minimum since 1928, 5.8 ft Aug. 25, 1951.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, not determined; minimum daily discharge, 691 ft³/s Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 691 | 11100 | 12100 | | 1950 | 6770 | 3600 | | 3370 | | 3380 | 2080 |
| 2 | 751 | 12600 | 12500 | | 2040 | 5980 | 3120 | | 3790 | | 3800 | 1360 |
| 3 | 696 | 13000 | 13400 | | 2070 | 5490 | 2940 | | 4680 | | 3620 | 1440 |
| 4 | 750 | 13200 | 14200 | 10400 | 6210 | 5210 | 2440 | | 4160 | | 2750 | 1790 |
| 5 | 864 | 13000 | | 9690 | 10200 | 4200 | 3120 | | 7580 | | 2910 | 2190 |
| 6 | 786 | 12100 | | 9150 | 14700 | 3320 | 4370 | | 10600 | | 2110 | 2840 |
| 7 | 779 | 10500 | | 9770 | | 2810 | 7070 | | 12200 | | 2220 | 2800 |
| 8 | 784 | 8650 | | 9250 | | 2770 | 8960 | | 13400 | | 2390 | 2640 |
| 9 | 773 | 7240 | 13100 | 10200 | | 2490 | 10800 | | 14700 | | 2360 | 2290 |
| 10 | 733 | 6090 | 12400 | 9350 | | 2450 | | | | | 2530 | 2320 |
| 11 | 791 | 4870 | 12900 | 8710 | | 2370 | | | | | 2330 | 1470 |
| 12 | 771 | 4180 | | 8280 | | 3730 | | 8420 | | | 2070 | 1800 |
| 13 | 771 | 3790 | | 6820 | | 5600 | | 6920 | | | 2450 | 1900 |
| 14 | 905 | 4840 | | 5710 | | 7430 | | 5800 | | | 2280 | 2500 |
| 15 | 1000 | 4430 | | 4900 | | 9380 | | 5390 | | 4420 | 2580 | 1570 |
| 16 | 749 | 3790 | | 3730 | | 10800 | | 4420 | | 2260 | 1810 | 1020 |
| 17 | 995 | 1410 | | 3310 | | | | 4160 | | 2980 | 1910 | 876 |
| 18 | 976 | 1280 | | 3160 | | | | 3830 | | 3760 | 1740 | 1490 |
| 19 | 1660 | 1520 | --- | 3020 | | | | 3430 | | 4290 | 2770 | 2120 |
| 20 | 3530 | 2960 | --- | 2960 | | | | 6180 | | 3720 | 2130 | 2160 |
| 21 | 8140 | 7130 | --- | 2820 | | | | 7800 | | 3600 | 3360 | 2560 |
| 22 | 11500 | 6370 | --- | 2580 | | | | 8050 | | 3030 | 3300 | 2680 |
| 23 | 11900 | 5470 | --- | 2660 | | | | 7760 | | 2110 | 3080 | 1740 |
| 24 | 12000 | 9640 | --- | 2680 | | 9870 | | 6410 | | 2080 | 3040 | 1520 |
| 25 | 10400 | 9510 | --- | 2860 | 8460 | 9090 | --- | 6480 | | 2360 | 2920 | 2030 |
| 26 | 8360 | 10700 | --- | 2980 | 8060 | 8540 | --- | 7730 | 9870 | 1920 | 2600 | 2240 |
| 27 | 5280 | 11700 | --- | 3690 | 7630 | 7850 | --- | 7310 | 8590 | 1910 | 2580 | 2090 |
| 28 | 3640 | 11800 | --- | 2880 | 7270 | 7160 | --- | 6400 | | 2210 | 3650 | 2090 |
| 29 | 3250 | 11400 | --- | 1510 | --- | 5890 | --- | 4930 | | 2150 | 2860 | 1680 |
| 30 | 4770 | 11700 | | 2260 | --- | 4970 | --- | 4100 | | 1720 | 3260 | 1540 |
| 31 | 8650 | --- | | 2240 | --- | 4060 | --- | 3920 | --- | 2970 | 2880 | --- |
| TOTAL | 107645 | 235970 | --- | --- | --- | --- | --- | --- | --- | --- | 83670 | 58826 |
| MEAN | 3472 | 7866 | --- | --- | --- | --- | --- | --- | --- | --- | 2699 | 1961 |
| MAX | 12000 | 13200 | --- | --- | --- | --- | --- | --- | --- | --- | 3800 | 2840 |
| MIN | 691 | 1280 | 12100 | 2580 | 1950 | 2370 | 2440 | 3430 | 3370 | 1970 | 1740 | 876 |

17

12-03-1998 3:47PM FROM US GEOLOGICAL SURVEY



## 07364100 OUACHITA RIVER NEAR ARKANSAS-LOUISIANA STATE LINE

LOCATION.--Lat 33°01'52", long 92°05'16", in SE 1/4 NE 1/4 sec.25, T.19 S., R.10 W., Union County, Hydrologic Unit 08040202, on right bank 500 ft below lock and dam No. 6, 1.6 mi north of Arkansas-Louisiana State line, 3.5 mi downstream from Missouri Pacific Railroad Co. bridge, and 4.5 mi southeast of Felsenthal, Ark.

DRAINAGE AREA.--10,787 mi².

PERIOD OF RECORD.--April 1958 to current year (daily gage heights and daily discharges below 19.0 ft stage only). Gage-height record for some periods collected at same site since 1912 are contained in reports of Corps of Engineers, Vicksburg district.

REVISED RECORDS.--WDR LA-75-1: 1974.

GAGE.--Water-stage recorder. Datum of gage is 44.09 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Aug. 26, 1958, nonrecording gage at same site and datum. Water-stage recorder for Ouachita River at Sterlington (station 07364535) used as auxiliary gage for this station. Prior to Oct. 1, 1980, water-stage recorder for Ouachita River at Alabama Landing near Halle (station 07364103) was used as auxiliary gage for this station.

REMARKS.--Estimated daily discharge: Oct. 1-11. Records poor. Discharge computed for stages below bankfull, about 19 ft. Considerable regulation by 5 reservoirs in Arkansas, combined capacity, 3,107,880 acre-ft and a series of navigation locks and dams. Several measurements of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 43.04 ft May 14, 15, 1958 (discharge not determined); minimum daily discharge, 190 ft³/s Sept. 13, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum gage height since 1912, 44.2 ft Apr. 11, 12, 1945; minimum, -0.3 ft Nov. 11, 1916; minimum since 1928, 5.8 ft Aug. 25, 1951.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 31.21 ft Mar. 13; minimum daily discharge, 747 ft³/s June 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 1400 | 3290 | 1060 | 1420 | 925 |
| 1 | 1350 | 4060 | | | 12300 | | | 1460 | 2210 | 982 | 1880 | 1050 |
| 2 | 1200 | 2970 | | | 12700 | | | 1460 | 2000 | 1190 | 1650 | 891 |
| 3 | 1300 | 1880 | | | | | | 3250 | 2000 | 1340 | 1570 | 885 |
| 4 | 1100 | 2220 | | | | | | 4390 | 2160 | 1090 | 1360 | 878 |
| 5 | 1500 | 4110 | | | | | | | | | | |
| | | | | | | | | 4630 | 1570 | 1460 | 1520 | 983 |
| 6 | 1000 | 4270 | | | | | | 4230 | 1810 | 1070 | 1270 | 1020 |
| 7 | 1200 | 6930 | | | | | | 4210 | 1010 | 884 | 1430 | 1090 |
| 8 | 1500 | 10800 | | | | | | 5340 | 966 | 1170 | 1220 | 1200 |
| 9 | 1900 | 14400 | | | | | | 5870 | 961 | 1010 | 1270 | 1170 |
| 10 | 2000 | | | | | | | | | | | |
| | | | | | | | | 6070 | 809 | 1040 | 1530 | 1440 |
| 11 | 2500 | | | | | | | 3650 | 874 | 1040 | 1380 | 1240 |
| 12 | 4790 | | | | | | | 2060 | 1400 | 965 | 1390 | 1510 |
| 13 | 4120 | | | | | | | 1500 | 986 | 961 | 1400 | 1110 |
| 14 | 4170 | | | | | | | 1270 | 1660 | 1100 | 1460 | 1200 |
| 15 | 4040 | | | | | | | | | | | |
| | | | | | | | | 1270 | 1370 | 921 | 1290 | 1440 |
| 16 | 3850 | | | | | | | 1380 | 1560 | 1160 | 1170 | 1570 |
| 17 | 2200 | | | | | | | 1380 | 1940 | 1020 | 1290 | 3070 |
| 18 | 2370 | | | | | | 7270 | 1370 | 1810 | 821 | 1330 | 3890 |
| 19 | 1360 | | | | | | 6360 | 1650 | 1350 | 1140 | 1170 | 2990 |
| 20 | 1900 | | | | | | | | | | | |
| | | | | | | | 5370 | 1910 | 1570 | 1170 | 1110 | 2410 |
| 21 | 770 | | | | | | 4700 | 1360 | 1040 | 1400 | 1110 | 1250 |
| 22 | 922 | | | | | | 4150 | 1330 | 1240 | 1390 | 995 | 1320 |
| 23 | 2770 | | | | | | 4300 | 1070 | 1020 | 1130 | 976 | 1660 |
| 24 | 6080 | | | | | | 3230 | 2000 | 828 | 1100 | 1110 | 1820 |
| 25 | 6760 | | | | | | | | | | | |
| | | | | | | | 2170 | 3830 | 990 | 1060 | 1070 | 1740 |
| 26 | 7530 | | | | | | 1530 | 5010 | 747 | 1120 | 1120 | 1450 |
| 27 | 8120 | | | | | | 850 | 6040 | 830 | 1200 | 1490 | 1580 |
| 28 | 6830 | | | | | | 1300 | 6220 | 806 | 1360 | 1080 | 1910 |
| 29 | 5400 | | | | | | 1280 | 5850 | 839 | 1270 | 1190 | 1360 |
| 30 | 5360 | | | | | | — | 5070 | — | 1410 | 977 | — |
| 31 | 5100 | | | | | | | | | | | |
| TOTAL | 100992 | --- | | | --- | | --- | 97530 | 41646 | 35034 | 40228 | 46052 |
| MEAN | 3258 | — | | | --- | | --- | 3146 | 1388 | 1130 | 1298 | 1535 |
| MAX | 8120 | — | | | — | | --- | 6220 | 3290 | 1460 | 1880 | 3890 |
| MIN | 770 | 1880 | | | 12300 | | 850 | 1070 | 747 | 821 | 976 | 878 |

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07364100 OUACHITA RIVER NEAR ARKANSAS-LOUISIANA STATE LINE

LOCATION.--Lat 33°01'52", long 92°05'16", in SE 1/4 NE 1/4 sec.25, T.19 S., R.10 W., Union County, Hydrologic Unit 08040202, on right bank 500 ft below lock and dam No. 6, 1.6 mi north of Arkansas-Louisiana State line, 3.5 mi downstream from Missouri Pacific Railroad Co. bridge, and 4.5 mi southeast of Felsenthal, Ark.

DRAINAGE AREA.--10,787 mi².

PERIOD OF RECORD.--April 1958 to current year (daily gage heights and daily discharges below 19.0 ft stage only). Gage-height record for some periods collected at same site since 1912 are contained in reports of Corps of Engineers, Vicksburg district.

REVISED RECORDS.--WDR LA-75-1: 1974.

GAGE.--Water-stage recorder. Datum of gage is 44.09 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Aug. 26, 1958, nonrecording gage at same site and datum. Water-stage recorder for Ouachita River at Sterlington (station 07364535) used as auxiliary gage for this station. Prior to Oct. 1, 1980, water-stage recorder for Ouachita River at Alabama Landing near Haile (station 07364103) was used as auxiliary gage for this station.

REMARKS.--No estimated daily discharges. Records poor. Discharge computed for stages below bankfull, about 19 ft. Considerable regulation by 5 reservoirs in Arkansas, combined capacity, 3,107,880 acre-ft and a series of navigation locks and dams. Several measurements of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 43.04 ft May 14, 15, 1958 (discharge not determined); minimum daily discharge, 190 ft³/s Sept. 13, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum gage height since 1912, 44.2 ft Apr. 11, 12, 1945; minimum, -0.3 ft Nov. 11, 1916; minimum since 1928, 5.8 ft Aug. 25, 1951.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 36.54 ft Jan. 9; minimum daily discharge, 772 ft³/s July 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1330 | 882 | | | | | | 11800 | 1050 | 856 | 1010 | 950 |
| 2 | 1360 | 924 | | | | | | 11300 | 1350 | 772 | 1020 | 1190 |
| 3 | 990 | 902 | | | | | | 10500 | 2670 | 916 | 1100 | 1110 |
| 4 | 1100 | 884 | | | | | | 7990 | 2800 | 837 | 1060 | 1010 |
| 5 | 1030 | 909 | | | | | | 6270 | 2900 | 919 | 1290 | 968 |
| 6 | 944 | 918 | | | | | | 5750 | 2870 | 942 | 1580 | 983 |
| 7 | 912 | 878 | | | | | | 5010 | 1780 | 917 | 1890 | 964 |
| 8 | 942 | 877 | | | | | | 3480 | 1060 | 961 | 1140 | 987 |
| 9 | 1000 | 896 | | | | | | 3420 | 1080 | 954 | 1110 | 937 |
| 10 | 962 | 1270 | | | | | | 2850 | 1160 | 950 | 1080 | 993 |
| 11 | 876 | 2820 | | | | | | 2140 | 1380 | 1060 | 1370 | 1270 |
| 12 | 917 | 4860 | | | | | | 1990 | 1090 | 955 | 1080 | 1160 |
| 13 | 917 | 6650 | | | | | | 3750 | 1010 | 1030 | 1080 | 1050 |
| 14 | 995 | 7460 | | | | | | 3270 | 1000 | 1030 | 1070 | 1180 |
| 15 | 919 | 7020 | 11300 | | | | | 3270 | 990 | 1680 | 925 | 1620 |
| 16 | 974 | 8450 | 10800 | | | | | 2080 | 968 | 1780 | 947 | 1750 |
| 17 | 1130 | 8530 | 11800 | | | | | 1430 | 1020 | 1590 | 974 | 1750 |
| 18 | 1180 | 10100 | 12300 | | | | | 1130 | 963 | 1130 | 1350 | 1480 |
| 19 | 1090 | 11600 | | | | | | 1690 | 1010 | 1300 | 1500 | 1930 |
| 20 | 1010 | | | | | | | 1540 | 956 | 1570 | 1550 | 2260 |
| 21 | 948 | | | | | | | 1580 | 958 | 1530 | 1230 | 1240 |
| 22 | 1290 | | | | | | | 1730 | 937 | 1200 | 1200 | 1120 |
| 23 | 1630 | | | | | | | 1490 | 1080 | 1210 | 1210 | 1030 |
| 24 | 1370 | | | | | | | 1720 | 962 | 1060 | 1470 | 1030 |
| 25 | 1170 | | | | | | | 1330 | 1080 | 1130 | 1310 | 1030 |
| 26 | 1170 | | | | | | | 1220 | 929 | 1250 | 1180 | 1020 |
| 27 | 1040 | | | | | | | 1350 | 970 | 1700 | 1150 | 1010 |
| 28 | 1040 | | | | | | | 1130 | 907 | 1070 | 1180 | 1030 |
| 29 | 1170 | | | | | | | 1390 | 896 | 1040 | 968 | 1080 |
| 30 | 1100 | | | | | | | 1370 | 891 | 1050 | 962 | 1130 |
| 31 | 1060 | | | | | | | 1190 | --- | 1190 | 953 | --- |
| TOTAL | 33566 | --- | --- | | | | | 106160 | 38717 | 35579 | 36939 | 36262 |
| MEAN | 1083 | --- | --- | | | | | 3425 | 1291 | 1148 | 1192 | 1209 |
| MAX | 1630 | --- | --- | | | | | 11800 | 2900 | 1780 | 1890 | 2260 |
| MIN | 876 | 877 | 10800 | | | | | 1130 | 891 | 772 | 925 | 937 |

07364100 OUACHITA RIVER NEAR ARKANSAS-LOUISIANA STATE LINE

LOCATION.--Lat 33°01'52", long 92°05'16", in SE 1/4 NE 1/4 sec.25, T.19 S., R.10 W., Union County, Hydrologic Unit 08040202, on right bank 500 ft below lock and dam No. 6, 1.6 mi north of Arkansas-Louisiana State line, 3.5 mi downstream from Missouri Pacific Railroad Co. bridge, and 4.5 mi southeast of Felsenthal, Ark.

DRAINAGE AREA.--10.787 mi².

PERIOD OF RECORD.--April 1958 to current year (daily gage heights and daily discharges below 19.0 ft stage only). Gage-height record for some periods collected at same site since 1912 are contained in reports of Corps of Engineers, Vicksburg District.

REVISED RECORDS.--WDR LA-75-1: 1974.

GAGE.--Water-stage recorder. Datum of gage is 44.09 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Aug. 26, 1958, nonrecording gage at same site and datum. Water-stage recorder for Ouachita River at Sterlington (station 07364535) used as auxiliary gage for this station. Prior to Oct. 1, 1980, water-stage recorder for Ouachita River at Alabama Landing near Haile (station 07364103) was used as auxiliary gage for this station.

REMARKS.--Estimated daily discharges: Sept. 23, 24, 1989, and Sept. 7-8, 1990. Records poor. Discharge computed for stages below bankfull, about 19 ft. Considerable regulation by 5 reservoirs in Arkansas, combined capacity, 3,107,880 acre-ft and a series of navigation locks and dams. Several measurements of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 43.04 ft, May 14, 15, 1958 (discharge not determined); minimum daily discharge, 190 ft³/s Sept. 13, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum gage height since 1912, 44.2 ft, Apr. 11, 12, 1945; minimum, -0.3 ft, Nov. 11, 1916; minimum since 1928, 5.8 ft, Aug. 25, 1951.

EXTREMES FOR CURRENT YEAR.--Water year 1989: maximum gage height, 35.09 ft, Mar. 9; minimum daily discharge 960 ft³/s, Oct. 7.

Water year 1990: maximum gage height, 36.91 ft, Apr. 15; minimum daily discharge, 638 ft³/s, Sept. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1640 | 2010 | | | | | | | | | | 5080 |
| 2 | 1550 | 1320 | | | | | | | | | | 4650 |
| 3 | 2110 | 1320 | | | | | | | | --- | | 4660 |
| | 1250 | 2020 | | | | | | | | --- | | 4830 |
| | 1220 | 1960 | | | | | | | | --- | | 4410 |
| 6 | 1090 | 2210 | | | | | | | | --- | | 2930 |
| 7 | 960 | 2010 | | | | | | | | --- | | 2140 |
| 8 | 969 | 1120 | | | | | | | | --- | | 3480 |
| 9 | 1180 | 1140 | | | | | | | | --- | | 4430 |
| 10 | 1050 | 1780 | | | | | | | | --- | | 4640 |
| 11 | 1090 | 1370 | | | | | | | | | | 4650 |
| 12 | 1130 | 1670 | | | | | | | | | | 4790 |
| 13 | 1530 | 3860 | | | | | | | | | | 3030 |
| 14 | 1680 | 2490 | | | | | | | | | | 4150 |
| 15 | 1780 | 3100 | | | | | | | | | | 3780 |
| 16 | 1850 | 3670 | | | | | | | | | | 3610 |
| 17 | 1890 | 3230 | | | | | | | | | | 2110 |
| 18 | 1890 | 1960 | | | | | | | | | | 1790 |
| 19 | 1830 | 2510 | | | | | | | | | 9390 | 1080 |
| 20 | 2470 | 4830 | | | | | | | | | 7900 | 2480 |
| 21 | 2480 | 5360 | | | | | | | | | 6250 | 3480 |
| 22 | 2660 | 5640 | | | | | | | | | 3970 | 2700 |
| 23 | 2790 | 6780 | | | | | | | | | 4090 | e2500 |
| 24 | 2430 | 9710 | | | | | | | | | 4180 | e2000 |
| 25 | 1280 | 12500 | 12400 | | | | | | | | 4390 | 2480 |
| 26 | 1640 | | 10900 | | | | | | | | 4450 | 2730 |
| 27 | 2030 | | 9060 | | | | | | | | 4380 | 1660 |
| 28 | 2380 | | 10400 | | | | | | | | 4510 | 2680 |
| 29 | 2380 | | 10800 | | --- | | | | | | 4400 | 3180 |
| 30 | 2990 | | | | --- | | | | | | 2720 | 3270 |
| 31 | 4130 | --- | | | --- | | --- | | --- | | 3270 | --- |
| TOTAL | 57349 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 99400 |
| MEAN | 1850 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 3313 |
| MAX | 4130 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 5080 |
| MIN | 960 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1080 |

e Estimated.

07364100 OUACHITA RIVER NEAR ARKANSAS-LOUISIANA STATE LINE--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2980 | 2270 | 2730 | 5920 | | | | | | | 2490 | 3440 |
| 2 | 3070 | 2790 | 2010 | 5890 | | | | | | | 4340 | 3380 |
| 3 | 3000 | 3030 | 1970 | 6550 | | | | | | --- | 3230 | 2590 |
| 4 | 3420 | 4260 | 1750 | 7670 | | | | | | --- | 2570 | 1660 |
| 5 | 3430 | 4130 | 2080 | 5200 | | | | | | --- | 3060 | 2200 |
| 6 | 3360 | 4570 | 1780 | 3320 | | | | | | --- | 2900 | 888 |
| 7 | 3630 | 3110 | 1920 | 2280 | | | | | | --- | 2700 | e1000 |
| 8 | 3680 | 4080 | 1910 | 1560 | | | | | | --- | 2350 | e1500 |
| 9 | 3420 | 4230 | 1900 | 8360 | | | | | | --- | 2270 | e1800 |
| 10 | 2850 | 4510 | 2080 | 11300 | | | | | | --- | 2420 | 2150 |
| 11 | 1370 | 4670 | 1740 | 9240 | | | | | | --- | 2750 | 723 |
| 12 | 2110 | 4160 | 1840 | 7020 | | | | | | 5000 | 2730 | 817 |
| 13 | 2620 | 3180 | 2050 | 6110 | | | | | | 4000 | 2700 | 1290 |
| 14 | 3250 | 2560 | 1860 | 4550 | | | | | | 2500 | 3350 | 1020 |
| 15 | 3050 | 2130 | 1890 | 3680 | | | | | | 1700 | 1930 | 676 |
| 16 | 1700 | 3220 | 1730 | 3080 | | | | | | 1200 | 2290 | 742 |
| 17 | 646 | 3070 | 1700 | 3130 | | | | | | 800 | 2330 | 2320 |
| 18 | 3850 | 3490 | 1920 | 8120 | | | | | | 590 | 2370 | 1890 |
| 19 | 3610 | 3400 | 1850 | 13500 | | | | | | 550 | 2750 | 2040 |
| 20 | 2690 | 3870 | 2110 | | | | | | | 600 | 3410 | 3720 |
| 21 | 2790 | 2180 | 1640 | | | | | | | 1200 | 2400 | 3380 |
| 22 | 1940 | 2440 | 1580 | | | | | | | 2780 | 2440 | 4210 |
| 23 | 1310 | 2460 | 1660 | | | | | | | 3040 | 3100 | 3690 |
| 24 | 1880 | 2670 | 1670 | | | | | | | 3350 | 3290 | 2740 |
| 25 | 1790 | 2920 | 2070 | | | | | | | 2070 | 2510 | 1050 |
| 26 | 2400 | 2200 | 2620 | | | | | | | 2050 | 2310 | 836 |
| 27 | 2840 | 2240 | 1830 | | | | | | | 2560 | 2970 | 638 |
| 28 | 1880 | 2400 | 2140 | | | | | | | 3150 | 2560 | 935 |
| 29 | 1900 | 1870 | 2180 | | --- | | | | | 3500 | 2930 | 991 |
| 30 | 1900 | 2340 | 2800 | | --- | | | | | 4090 | 4050 | 2640 |
| 31 | 1890 | --- | 6350 | | --- | | --- | | --- | 3700 | 3470 | --- |
| TOTAL | 80256 | 94450 | 65360 | --- | --- | --- | --- | --- | --- | --- | 86970 | 56956 |
| MEAN | 2589 | 3148 | 2108 | --- | --- | --- | --- | --- | --- | --- | 2805 | 1899 |
| MAX | 3850 | 4670 | 6350 | --- | --- | --- | --- | --- | --- | --- | 4340 | 4210 |
| MIN | 646 | 1870 | 1580 | --- | --- | --- | --- | --- | --- | --- | 1930 | 638 |

e Estimated.

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## 07364100 OUACHITA RIVER NEAR ARKANSAS-LOUISIANA STATE LINE

LOCATION.--Lat 33°01'52", long 92°05'16", in SE 1/4 NE 1/4 sec.25, T.19 S., R.10 W., Union County, Hydrologic Unit 08040202, on right bank 500 ft below lock and dam No. 6, 1.6 mi north of Arkansas-Louisiana State line, 3.5 mi downstream from Missouri Pacific Railroad Co. bridge, and 4.5 mi southeast of Felsenthal, Ark.

DRAINAGE AREA.--10,787 mi².

PERIOD OF RECORD.--April 1958 to current year (daily gage heights and daily discharges below 19.0 ft stage only). Gage-height record for some periods collected at same site since 1912 are contained in reports of Corps of Engineers, Vicksburg District.

REVISED RECORDS.--WDR LA-75-1: 1974.

GAGE.--Water-stage recorder. Datum of gage is 44.09 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Aug. 26, 1958, nonrecording gage at same site and datum. Water-stage recorder for Ouachita River at Sterlington (station 07364535) used as auxiliary gage for this station. Prior to Oct. 1, 1980, water-stage recorder for Ouachita River at Alabama Landing near Haile (station 07364103) was used as auxiliary gage for this station.

REMARKS.--Estimated daily discharges. Indefinite stage-discharge relationship: July 11-19. Records poor. Discharge computed for stages below bankfull, about 19 ft. Considerable regulation by 5 reservoirs in Arkansas, combined capacity, 3,107,880 acre-ft and a series of navigation locks and dams. Several measurements of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 43.04 ft, May 14, 15, 1958 (discharge not determined); minimum daily discharge, 190 ft³/s Sept. 13, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum gage height since 1912, 44.2 ft, Apr. 11, 12, 1945; minimum, -0.3 ft, Nov. 11, 1916; minimum since 1928, 5.8 ft, Aug. 25, 1951.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 42.35 ft, May 11; minimum daily discharge 819 ft³/s, Oct. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1030 | 3530 | 10100 | | | | | | | | 5410 | 3290 |
| 2 | 2140 | 3500 | 10500 | | | | | | | | 4550 | 3720 |
| 3 | 819 | 4460 | 10200 | | | | | | | | 4900 | 2510 |
| 4 | 3260 | 5450 | 8840 | | | | | | | | 4730 | 2810 |
| 5 | 2690 | 6110 | 7390 | | | | | | | | 4830 | 4660 |
| 6 | 3090 | 4350 | 9590 | | | | | | | | 3800 | 6250 |
| 7 | 2900 | 4430 | 11000 | | | | | | | | 3790 | 7320 |
| 8 | 3340 | 5900 | 11400 | | | | | | | | 5630 | 6210 |
| 9 | 2060 | 7550 | 11200 | | | | | | | | 6300 | 5300 |
| 10 | 5910 | 9290 | 10700 | | | | | | | | 6590 | 4770 |
| 11 | 10700 | 10700 | 9710 | | | | | | | e2000 | 5150 | 5400 |
| 12 | 13500 | 11200 | 8180 | | | | | | | e1850 | 3460 | 5360 |
| 13 | 15700 | 11000 | 7250 | | | | | | | e1500 | e3000 | 5470 |
| 14 | 17300 | 9440 | 6510 | | | | | | | e1300 | e2700 | 5110 |
| 15 | 18700 | 8570 | 5600 | | | | | | | e1150 | 2880 | 4810 |
| 16 | | 8130 | 5610 | | | | | | | e1100 | 2530 | 5000 |
| 17 | 18000 | 7230 | 5310 | | | | | | | e1050 | 2290 | 4670 |
| 18 | 15800 | 7010 | 9490 | | | | | | | e1000 | 4650 | 4820 |
| 19 | 13800 | 6580 | 13000 | | | | | | | e1500 | 4690 | 4120 |
| 20 | 13200 | 5890 | 16800 | | | | | | | 2680 | 2900 | 3130 |
| 21 | e11000 | 5470 | | | | | | | | 2350 | 3560 | 3690 |
| 22 | e10000 | 5690 | | | | | | | | 2190 | 4410 | 2510 |
| 23 | e9000 | 5410 | | | | | | | | 2190 | 3750 | 2150 |
| 24 | e8000 | 4430 | | | | | | | | 1720 | 3470 | 2570 |
| 25 | e7000 | 4280 | | | | | | | | 2580 | 2740 | 2530 |
| 26 | e6500 | 3760 | | | | | | | | 2630 | 3140 | 1710 |
| 27 | e6000 | 3180 | | | | | | | | 2870 | 2910 | 1990 |
| 28 | e5500 | 4690 | | | | | | | | 3010 | 2820 | 1750 |
| 29 | e5000 | 6460 | | | --- | | | | | 2350 | 2700 | 1670 |
| 30 | 4370 | 8740 | | | --- | | | | | 2970 | 2930 | 1910 |
| 31 | 3720 | --- | | | --- | | --- | | --- | 4790 | 3670 | --- |
| TOTAL | --- | 192430 | --- | --- | --- | --- | --- | --- | --- | --- | 120880 | 117210 |
| MEAN | --- | 6414 | --- | --- | --- | --- | --- | --- | --- | --- | 3899 | 3907 |
| MAX | --- | 11200 | --- | --- | --- | --- | --- | --- | --- | --- | 6590 | 7320 |
| MIN | --- | 3180 | --- | --- | --- | --- | --- | --- | --- | --- | 2290 | 1670 |

e Estimated.

12-03-1998 3:44PM FROM US GEOLOGICAL SURVEY



## 07364100 OUACHITA RIVER NEAR ARKANSAS-LOUISIANA STATE LINE

LOCATION.--Lat 33°01'52", long 92°05'16", in SE 1/4 NE 1/4 sec.25, T.19 S., R.10 W., Union County, Hydrologic Unit 08040202, on right bank 500 ft below lock and dam No. 6, 1.6 mi north of Arkansas-Louisiana State line, 3.5 mi downstream from Missouri Pacific Railroad Co. bridge, and 4.5 mi southeast of Felsenthal, Ark.

DRAINAGE AREA.--10,787 $mi^2$.

PERIOD OF RECORD.--April 1958 to current year (daily gage heights and daily discharges below 19.0 ft stage only). Gage-height record for some periods collected at same site since 1912 are contained in reports of Corps of Engineers, Vicksburg District.

REVISED RECORDS.--WDR LA-75-1: 1974.

GAGE.--Water-stage recorder. Datum of gage is 44.09 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Aug. 26, 1958, nonrecording gage at same site and datum. Water-stage recorder for Ouachita River at Sterlington (station 07364535) used as auxiliary gage for this station. Prior to Oct. 1, 1980, water-stage recorder for Ouachita River at Alabama Landing near Haile (station 07364103) was used as auxiliary gage for this station.

REMARKS.--Estimated daily discharges. Indefinite stage-discharge relationship: Apr. 25 to May 7. Records poor. Discharge computed for stages below bankfull, about 19 ft. Considerable regulation by 5 reservoirs in Arkansas, combined capacity, 3,107,880 acre-ft and a series of navigation locks and dams. Several measurements of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 43.04 ft, May 14, 15, 1958 (discharge not determined); minimum daily discharge, 190 $ft^3/s$, Sept. 13, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum gage height since 1912, 44.2 ft, Apr. 11, 12, 1945; minimum, -0.3 ft, Nov. 11, 1916; minimum since 1928, 5.8 ft, Aug. 25, 1951.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 30.22 ft, Mar. 26; minimum daily discharge 1,420 $ft^3/s$, Sept. 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1640 | 18000 | | | | | | e7000 | 4120 | 7230 | 8360 | 1600 |
| 2 | 1680 | | | | | | | e7900 | 4180 | 9750 | 8160 | 1930 |
| 3 | 1860 | | | | | | | e8000 | 8110 | 12300 | 8730 | 2790 |
| 4 | 2210 | | | | | | | e7400 | 13200 | 12900 | 7890 | 2990 |
| 5 | 2870 | | | | | | | e6200 | 17800 | 11800 | 6110 | 2530 |
| 6 | 3590 | | | | | | | e5200 | | 10700 | 6060 | 2790 |
| 7 | 3610 | | | | | | | e4000 | | 7560 | 6710 | 2950 |
| 8 | 2470 | | | | | | | 3350 | | 5170 | 8910 | 2450 |
| 9 | 1970 | | | | | | | 3200 | | 4650 | 9020 | 1620 |
| 10 | 2500 | | | | | | | 1940 | | 4750 | 7950 | 2480 |
| 11 | 2940 | | | | | | | 2100 | | 4360 | 8480 | 3780 |
| 12 | 2940 | | | | 18800 | | | 2460 | | 4110 | 8760 | 3860 |
| 13 | 2870 | 19200 | | | | | | 2280 | | 4870 | 8940 | 2850 |
| 14 | 1640 | 17500 | | | | | | 2350 | 17300 | 4340 | 8720 | 2620 |
| 15 | 1600 | 16000 | | | | | | 3110 | 17000 | 4270 | 7640 | 1500 |
| 16 | 1610 | 14300 | | | | | | 2930 | 16000 | 4060 | 6000 | 1420 |
| 17 | 1800 | 12700 | | | | | | 3020 | 16500 | 4120 | 4250 | 2570 |
| 18 | 1980 | 11200 | | | | | | 2640 | 17400 | 4360 | 2600 | 2770 |
| 19 | 2370 | 9660 | | | | | | 2510 | 17700 | 6130 | 3420 | 2890 |
| 20 | 2470 | 13100 | | | | | | 2000 | 16600 | 8590 | 2150 | 2510 |
| 21 | 2330 | 15500 | | | | | | 2380 | 15000 | 10600 | 2730 | 2850 |
| 22 | 2160 | 17400 | | | | | | 3620 | 14200 | 10700 | 2880 | 4120 |
| 23 | 1510 | 19100 | | | | | | 4110 | 13300 | 9530 | 2240 | 4070 |
| 24 | 2440 | | | | | | | 3320 | 11400 | 8500 | 2760 | 6850 |
| 25 | 1870 | | | | | | e8000 | 3210 | 9190 | 7550 | 2360 | 9150 |
| 26 | 2200 | | | | | | e6400 | 3630 | 8510 | 6010 | 2500 | 9710 |
| 27 | 3090 | | | | | | e5000 | 3710 | 7240 | 4480 | 3440 | 9110 |
| 28 | 3260 | | | | | | e5100 | 4040 | 7300 | 4590 | 3260 | 6290 |
| 29 | 3320 | | | | --- | | e5400 | 3920 | 6480 | 4990 | 3120 | 4930 |
| 30 | 8490 | | | | --- | | e6500 | 3930 | 6530 | 5690 | 2400 | 5250 |
| 31 | 13200 | --- | | | --- | | --- | 4110 | --- | 7670 | 1570 | --- |
| TOTAL | 90490 | --- | --- | --- | --- | --- | --- | 119570 | --- | 216330 | 168120 | 113230 |
| MEAN | 2919 | --- | --- | --- | --- | --- | --- | 3857 | --- | 6978 | 5423 | 3774 |
| MAX | 13200 | --- | --- | --- | --- | --- | --- | 8000 | --- | 12900 | 9020 | 9710 |
| MIN | 1510 | --- | --- | --- | --- | --- | --- | 1940 | --- | 4060 | 1570 | 1420 |

e Estimated.

12-03-1998 3:44PM FROM US GEOLOGICAL SURVEY



## RED RIVER BASIN

### 07364100 OUACHITA RIVER NEAR ARKANSAS-LOUISIANA STATE LINE

LOCATION.--Lat 33°01'52", long 92°05'16", in SE 1/4 NE 1/4 sec.25, T.19 S., R.10 W., Union County, Hydrologic Unit 08040202, on right bank 500 ft below lock and dam No. 6, 1.6 mi north of Arkansas-Louisiana State line, 3.5 mi downstream from Missouri Pacific Railroad Co. bridge, and 4.5 mi southeast of Felsenthal, Ark.

DRAINAGE AREA.--10,787 $mi^2$.

PERIOD OF RECORD.--April 1958 to current year (daily gage heights and daily discharges below 19.0 ft stage only). Gage-height record for some periods collected at same site since 1912 are contained in reports of Corps of Engineers, Vicksburg District.

REVISED RECORDS.--WDR LA-75-1: 1974.

GAGE.--Water-stage recorder. Datum of gage is 44.09 ft above sea level (levels by Corps of Engineers). Prior to Aug. 26, 1958, nonrecording gage at same site and datum. Water-stage recorder for Ouachita River at Sterlington (station 07364535) used as auxiliary gage for this station. Prior to Oct. 1, 1980, water-stage recorder for Ouachita River at Alabama Landing near Haile (station 07364103) was used as auxiliary gage for this station.

REMARKS.--Estimated daily discharges. Indefinite stage-discharge relationship: Feb. 10-18, 26-27, May 30 to June 5, June 24 to July 10. Records poor. Discharge computed for stages below bankfull, about 19 ft. Considerable regulation by 5 reservoirs in Arkansas, combined capacity, 3,107,880 acre-ft and a series of navigation locks and dams. Several measurements of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 43.04 ft, May 14, 15, 1958 (discharge not determined); minimum daily discharge, 190 $ft^3/s$, Sept. 13, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum gage height since 1912, 44.2 ft, Apr. 11, 12, 1945; minimum, -0.3 ft, Nov. 11, 1916; minimum since 1928, 5.8 ft, Aug. 25, 1951.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 25.02 ft, Apr. 23; minimum daily discharge, 878 $ft^3/s$, Sept. 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5610 | 2060 | 5350 | --- | --- | --- | --- | --- | e5800 | e5000 | 2810 | 1450 |
| 2 | 5460 | 2530 | 3930 | --- | --- | --- | --- | --- | e5500 | e4700 | 2850 | 1500 |
| 3 | 2940 | 2280 | 3560 | --- | --- | --- | --- | --- | e5000 | e4300 | 4110 | 1340 |
| 4 | 1960 | 2200 | 3250 | --- | --- | --- | --- | --- | e4500 | e4000 | 4010 | 1430 |
| 5 | 2160 | 2170 | 3260 | --- | --- | --- | --- | --- | e4000 | e3800 | 3990 | 1280 |
| 6 | 3190 | 2200 | 2800 | --- | --- | --- | --- | --- | 3630 | e3700 | 2930 | 1280 |
| 7 | 2430 | 2220 | 2760 | --- | --- | --- | --- | --- | 3330 | e3300 | 2440 | 1090 |
| 8 | 2630 | 2230 | 2280 | --- | --- | --- | --- | --- | 2480 | e2900 | 6060 | 1060 |
| 9 | 1820 | 2100 | 3320 | --- | --- | --- | --- | --- | 3060 | e3000 | 7510 | 1190 |
| 10 | 2910 | 1780 | 4410 | --- | e9000 | --- | --- | --- | 4180 | e4300 | 5110 | 1040 |
| 11 | 3130 | 1730 | 5800 | --- | e8500 | --- | --- | --- | 4550 | 3820 | 3450 | 993 |
| 12 | 3040 | 2290 | 8530 | --- | e8000 | --- | --- | --- | 4090 | 3140 | 2880 | 1020 |
| 13 | 1730 | 2230 | 10000 | --- | e7800 | --- | --- | --- | 4210 | 1860 | 3500 | 1090 |
| 14 | 1720 | 2100 | 9860 | --- | e7400 | --- | --- | --- | 4930 | 2370 | 2710 | 1160 |
| 15 | 2160 | 2800 | 9160 | --- | e7000 | --- | --- | --- | 4010 | 2230 | 3190 | 1010 |
| 16 | 2280 | 2260 | 9700 | --- | e7500 | --- | --- | --- | 4220 | 2780 | 2580 | 1090 |
| 17 | 2340 | 2140 | 13700 | --- | e8000 | --- | --- | --- | 6220 | 2970 | 2370 | 958 |
| 18 | 3030 | 2640 | 16800 | --- | e10000 | --- | --- | --- | 8120 | 2950 | 2740 | 916 |
| 19 | 1890 | 2380 | 18600 | --- | --- | --- | --- | --- | 8510 | 2900 | 2600 | 916 |
| 20 | 1520 | 2830 | --- | --- | --- | --- | --- | --- | 8080 | 3160 | 2610 | 878 |
| 21 | 1710 | 3640 | --- | --- | --- | --- | --- | --- | 8330 | 2470 | 1880 | 1140 |
| 22 | 1510 | 6300 | --- | --- | --- | --- | --- | --- | 11200 | 3710 | 1720 | 1030 |
| 23 | 1400 | 10100 | --- | --- | --- | --- | --- | --- | 15900 | 3170 | 1970 | 1140 |
| 24 | 1410 | 12100 | --- | --- | --- | --- | --- | --- | e17000 | 2450 | 1810 | 1180 |
| 25 | 1370 | 12800 | --- | --- | --- | --- | --- | --- | e17000 | 2300 | 1710 | 1400 |
| 26 | 1390 | 11800 | --- | --- | e15000 | --- | --- | --- | e15000 | 2200 | 3210 | 3050 |
| 27 | 3070 | 11000 | --- | --- | e14000 | --- | --- | --- | e12000 | 2180 | 2560 | 2470 |
| 28 | 1740 | 9250 | --- | --- | --- | --- | --- | --- | e10000 | 2070 | 1560 | 1900 |
| 29 | 1700 | 7290 | --- | --- | --- | --- | --- | --- | e8000 | 2610 | 1620 | 1380 |
| 30 | 2100 | 5720 | --- | --- | --- | --- | --- | --- | e8000 | 2610 | 1620 | 1380 |
| 31 | 1780 | --- | --- | --- | --- | --- | --- | e7500 | --- | 2070 | 1420 | --- |
| TOTAL | 73130 | 135170 | --- | --- | --- | --- | --- | --- | 219350 | 94540 | 91540 | 38791 |
| MEAN | 2359 | 4506 | --- | --- | --- | --- | --- | --- | 7312 | 3050 | 2953 | 1293 |
| MAX | 5610 | 12800 | --- | --- | --- | --- | --- | --- | 17000 | 5000 | 7510 | 3050 |
| MIN | 1370 | 1730 | --- | --- | --- | --- | --- | --- | 2480 | 1860 | 1420 | 878 |

e Estimated

RED RIVER BASIN

07364100 OUACHITA RIVER NEAR ARKANSAS-LOUISIANA STATE LINE

LOCATION.—Lat 33°01'52", long 92°05'16", in SE 1/4 NE 1/4 sec.25, T.19 S., R.10 W., Union County, Hydrologic Unit 08040202, on right bank 500 ft below lock and dam No. 6, 1.6 mi north of Arkansas-Louisiana State line, 3.5 mi downstream from Missouri Pacific Railroad Co. bridge, and 4.5 mi southeast of Felsenthal, Ark.

DRAINAGE AREA.—10,787 $mi^2$.

PERIOD OF RECORD.—April 1958 to current year (daily gage heights and daily discharges below 19.0 ft stage only). Gage-height record for some periods collected at same site since 1912 are contained in reports of Corps of Engineers, Vicksburg District.

REVISED RECORDS.—WDR LA-75-1: 1974.

GAGE.—Water-stage recorder. Datum of gage is 44.09 ft above sea level (levels by Corps of Engineers). Prior to Aug. 26, 1958, nonrecording gage at same site and datum. Water-stage recorder for Ouachita River at Sterlington (station 07364535) used as auxiliary gage for this station. Prior to Oct. 1, 1980, water-stage recorder for Ouachita River at Alabama Landing near Hailc (station 07364103) was used as auxiliary gage for this station.

REMARKS.—Estimated daily discharges. Indefinite stage-discharge relationship: Oct. 28, Apr. 29 to May 5, June 18-23. Records fair. Discharge computed for stages below bankfull, about 19 ft. Considerable regulation by 5 reservoirs in Arkansas, combined capacity, 3,107,880 acre-ft and a series of navigation locks and dams. Several measurements of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.—Maximum gage height, 43.04 ft, May 14, 15, 1958 (discharge not determined); minimum daily discharge, 190 $ft^3/s$, Sept. 13, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.—Maximum gage height since 1912, 44.2 ft, Apr. 11, 12, 1945; minimum, -0.3 ft, Nov. 11, 1916; minimum since 1928, 5.8 ft, Aug. 25, 1951.

EXTREMES FOR CURRENT YEAR.—Maximum gage height, 30.94 ft, Mar. 14; minimum daily discharge, 1,360 $ft^3/s$, July 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1500 | 4670 | 18900 | | | | | e6000 | 4200 | 3200 | 14100 | 3070 |
| 2 | 1610 | 6330 | 18300 | | | | | e5200 | 4510 | 2510 | 11700 | 3070 |
| 3 | 1890 | 7090 | 17800 | | | | | e6000 | 3610 | 2350 | 9480 | 6140 |
| 4 | 1430 | 6830 | 18500 | | | | | e8000 | 3230 | 3190 | 7220 | 7220 |
| 5 | 1980 | 4880 | | | | | | e9700 | 2950 | 2190 | 6670 | 4580 |
| 6 | 1790 | 3530 | | | | | | 12400 | 2640 | 1690 | 5950 | 3500 |
| 7 | 1600 | 2260 | | | | | | 13100 | 2040 | 1950 | 5730 | 3660 |
| 8 | 1520 | 2100 | | | | | | 12600 | 2120 | 2930 | 5520 | 2910 |
| 9 | 1490 | 3560 | | | | | | 12000 | 2740 | 3000 | 4240 | 3470 |
| 10 | 1440 | 3320 | | | | | | 11400 | 2540 | 2800 | 4970 | 3390 |
| 11 | 1460 | 3760 | | | | | | 10800 | 2380 | 1360 | 5370 | 3990 |
| 12 | 1520 | 4020 | | | | | | 9740 | 2500 | 1730 | 4300 | 4170 |
| 13 | 1980 | 3360 | | | | | | 8120 | 3020 | 1610 | 3070 | 3110 |
| 14 | 1760 | 4440 | | | | | | 7800 | 3760 | 2610 | 4220 | 3470 |
| 15 | 1490 | 5400 | | | | | | 9950 | 3840 | 2990 | 3720 | 3710 |
| 16 | 1560 | 7270 | | | | | | 12900 | 3810 | 5390 | 3830 | 3890 |
| 17 | 1650 | 11500 | | | | | | 14900 | 4300 | 9350 | 2040 | 4010 |
| 18 | 1580 | 14400 | | | | | | 15900 | e4000 | 11500 | 2630 | 5380 |
| 19 | 1870 | 16200 | | | | | | 16000 | e3800 | 12700 | 2820 | 4550 |
| 20 | 2720 | 17900 | | | | | | 15000 | e3400 | 13500 | 4030 | 3510 |
| 21 | 4010 | 19000 | | | | | | 13200 | e3150 | 14000 | 5600 | 1810 |
| 22 | 4740 | | | | | | | 11700 | e2600 | 14500 | 5120 | 1940 |
| 23 | 4630 | | | | | | | 9800 | e2300 | 14400 | 4080 | 1820 |
| 24 | 5260 | | | | | | | 8150 | 2120 | 14500 | 2060 | 1940 |
| 25 | e6800 | | | | | | | 6250 | 2110 | 15200 | 2320 | 1890 |
| 26 | e9000 | | | | | | | 4880 | 2040 | 15800 | 3260 | 1740 |
| 27 | e9800 | | | | | | | 4500 | 1850 | 16000 | 4520 | 1370 |
| 28 | e10300 | | | | | | | 4610 | 1690 | 16000 | 4490 | 1370 |
| 29 | 8390 | | | | — | | e11000 | 5880 | 1950 | 16000 | 3930 | 1830 |
| 30 | 5120 | | | | — | | e8000 | 4250 | 2090 | 16100 | 2560 | 2640 |
| 31 | 3650 | — | | | — | | — | 3260 | — | 15600 | 2640 | — |
| TOTAL | 105540 | — | — | — | — | — | — | 293990 | 87290 | 256650 | 152190 | 99150 |
| MEAN | 3405 | — | — | — | — | — | — | 9484 | 2910 | 8279 | 4909 | 3305 |
| MAX | 10300 | — | — | — | — | — | — | 16000 | 4510 | 16100 | 14100 | 7220 |
| MIN | 1430 | — | — | — | — | — | — | 3260 | 1690 | 1360 | 2040 | 1370 |

e Estimated

## RED RIVER BASIN

### 07364100 OUACHITA RIVER NEAR ARKANSAS-LOUISIANA STATE LINE

LOCATION.--Lat 33°01'52", long 92°05'16", in SE 1/4 NE 1/4 sec.25, T.19 S., R.10 W., Union County, Hydrologic Unit 08040202, on right bank 500 ft below lock and dam No. 6, 1.6 mi north of Arkansas-Louisiana State line, 3.5 mi downstream from Missouri Pacific Railroad Co. bridge, and 4.5 mi southeast of Felsenthal, Ark.

DRAINAGE AREA.--10,787 $mi^2$.

PERIOD OF RECORD.--April 1958 to current year (daily gage heights and daily discharges below 19.0 ft stage only). Gage-height record for some periods collected at same site since 1912 are contained in reports of Corps of Engineers, Vicksburg District.

REVISED RECORDS.--WDR LA-75-1: 1974.

GAGE.--Water-stage recorder. Datum of gage is 44.09 ft above sea level (levels by Corps of Engineers). Prior to Aug. 26, 1958, nonrecording gage at same site and datum. Water-stage recorder for Ouachita River at Sterlington (station 07364535) used as auxiliary gage for this station. Prior to Oct. 1, 1980, water-stage recorder for Ouachita River at Alabama Landing near Haile (station 07364103) was used as auxiliary gage for this station.

REMARKS.--Estimated daily discharges. Indefinite stage-discharge relationship: May 27 to June 5. Records fair. Discharge computed for stages below bankfull, about 19 ft. Considerable regulation by 5 reservoirs in Arkansas, combined capacity, 3,107,880 acre-ft and a series of navigation locks and dams. Several measurements of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 43.04 ft, May 14, 15, 1958 (discharge not determined); minimum daily discharge, 190 $ft^3/s$, Sept. 13, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum gage height since 1912, 44.2 ft, Apr. 11, 12, 1945; minimum, -0.3 ft, Nov. 11, 1916; minimum since 1928, 5.8 ft, Aug. 25, 1951.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 27.68 ft, Feb. 3; minimum daily discharge, 877 $ft^3/s$, Sep. 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2990 | 2590 | 13600 | | | | | | e4000 | 2620 | 1980 | 1880 |
| 2 | 2880 | 2070 | 13100 | | | | | | e3900 | 2140 | 2040 | 1730 |
| 3 | 2700 | 2080 | 12000 | | | | | | e4500 | 2100 | 2220 | 2020 |
| 4 | 1400 | 2280 | 11500 | | | | | | e6000 | 2580 | 1970 | 1730 |
| 5 | 1460 | 3430 | 10700 | | | | | | e9400 | 3680 | 2760 | 1680 |
| 6 | 2610 | 4470 | 9530 | | | | | | 9450 | 4230 | 3510 | 1340 |
| 7 | 2600 | 9430 | 8050 | | | | | | 8340 | 5640 | 2970 | 1310 |
| 8 | 1660 | 13000 | 7500 | | | | | | 7260 | 8800 | 1840 | 1320 |
| 9 | 1450 | 15200 | 5400 | | | | | | 5290 | 10500 | 1920 | 991 |
| 10 | 2180 | 16900 | 6710 | | | | | | 4670 | 9880 | 2720 | 877 |
| 11 | 2340 | | 11800 | | | | | | 4560 | 6940 | 3120 | 2020 |
| 12 | 3070 | | 15500 | | | | | | 5310 | 5330 | 3060 | 1830 |
| 13 | 1920 | | | | | | | | 7910 | 6160 | 3180 | 1290 |
| 14 | 2250 | | | | | | | | 8010 | 6270 | 3120 | 1260 |
| 15 | 2340 | | | | | | | | 6760 | 6000 | 3000 | 1400 |
| 16 | 3280 | | | | | | | | 4110 | 4610 | 2290 | 1890 |
| 17 | 4580 | | | | | | | | 3790 | 3460 | 2610 | 1840 |
| 18 | 4880 | | | | | | | | 5110 | 3130 | 2870 | 1430 |
| 19 | 5300 | | | | | | | | 4470 | 2920 | 3690 | 1490 |
| 20 | 6620 | | | | | | | | 4230 | 3080 | 2740 | 1470 |
| 21 | 9160 | | | | | | | | 2580 | 2590 | 1820 | 1540 |
| 22 | 10900 | | | | | | | | 2350 | 3010 | 2000 | 1460 |
| 23 | 12000 | | | | | | | | 2210 | 2990 | 2040 | 1380 |
| 24 | 12700 | | | | | | | | 3240 | 3300 | 2110 | 1340 |
| 25 | 12800 | | | | | | | | 2960 | 3190 | 1470 | 1270 |
| 26 | 11500 | 17200 | | | | | | | 2820 | 3350 | 1820 | 1190 |
| 27 | 9230 | 15800 | | | | | | e10000 | 1950 | 3140 | 2010 | 1370 |
| 28 | 7190 | 15600 | | | | | | e8000 | 1970 | 2390 | 2640 | 1260 |
| 29 | e5600 | 14600 | | | --- | | | e6000 | 2010 | 3200 | 2430 | 1180 |
| 30 | e4000 | 14000 | | | --- | | | e4700 | 2520 | 3610 | 1540 | 1360 |
| 31 | e3000 | --- | | | --- | | --- | e4400 | --- | 3510 | 1940 | --- |
| TOTAL | 156590 | --- | --- | --- | --- | --- | --- | --- | 141680 | 134350 | 75430 | 44148 |
| MEAN | 5051 | --- | --- | --- | --- | --- | --- | --- | 4723 | 4334 | 2433 | 1472 |
| MAX | 12800 | --- | --- | --- | --- | --- | --- | --- | 9450 | 10500 | 3690 | 2020 |
| MIN | 1400 | --- | --- | --- | --- | --- | --- | --- | 1950 | 2100 | 1470 | 877 |

e Estimated

## RED RIVER BASIN

### 07364100 OUACHITA RIVER NEAR ARKANSAS-LOUISIANA STATE LINE

LOCATION.--Lat 33°01'52", long 92°05'16", in SE 1/4 NE 1/4 sec.25, T.19 S., R.10 W., Union County, Hydrologic Unit 08040202, on right bank 500 ft below lock and dam No. 6, 1.6 mi north of Arkansas-Louisiana State line, 3.5 mi downstream from Missouri Pacific Railroad Co. bridge, and 4.5 mi southeast of Felsenthal, Ark.

DRAINAGE AREA.--10,787 $mi^2$.

PERIOD OF RECORD.--April 1958 to current year (daily gage heights and daily discharges below 19.0 ft stage only). Gage-height record for some periods collected at same site since 1912 are contained in reports of Corps of Engineers, Vicksburg District.

REVISED RECORDS.--WDR LA-75-1: 1974.

GAGE.--Water-stage recorder. Datum of gage is 44.09 ft above sea level (levels by Corps of Engineers). Prior to Aug. 26, 1958, nonrecording gage at same site and datum. Water-stage recorder for Ouachita River at Sterlington (station 07364535) used as auxiliary gage for this station. Prior to Oct. 1, 1980, water-stage recorder for Ouachita River at Alabama Landing near Haile (station 07364103) was used as auxiliary gage for this station.

REMARKS.--Estimated daily discharges. Indefinite stage-discharge relationship: May 27 to June 5. Records fair. Discharge computed for stages below bankfull, about 19 ft. Considerable regulation by 5 reservoirs in Arkansas, combined capacity, 3,107,880 acre-ft and a series of navigation locks and dams. Several measurements of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 43.04 ft, May 14, 15, 1958 (discharge not determined); minimum daily discharge, 190 $ft^3/s$, Sept. 13, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum gage height since 1912, 44.2 ft, Apr. 11, 12, 1945; minimum, -0.3 ft, Nov. 11, 1916; minimum since 1928, 5.8 ft, Aug. 25, 1951.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 21.11 ft, May. 17; minimum daily discharge, 847 $ft^3/s$, Oct. 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1120 | 1140 | 1590 | 1580 | e1610 | 2610 | 16400 | 16200 | 5490 | 1750 | 4670 | 2570 |
| 2 | 1600 | 1080 | 1650 | 1700 | e1650 | 3310 | 16500 | 15500 | 5190 | 1900 | 8380 | 2480 |
| 3 | 1620 | 966 | 1610 | 1730 | e1690 | 3390 | 15800 | 12700 | 4700 | 2140 | 10700 | 1930 |
| 4 | 1620 | 1910 | 1480 | 1790 | e1690 | 2240 | 15300 | 10900 | 6240 | 2370 | 13300 | 1850 |
| 5 | 1640 | 1760 | 1500 | 1670 | e1730 | 2740 | 13200 | 9640 | 6070 | 2770 | 15700 | 1990 |
| 6 | 1350 | 2440 | 1400 | 1630 | e1750 | 3870 | 12400 | 7760 | 6240 | 2500 | 16900 | 1730 |
| 7 | 1440 | 2710 | 1390 | 1600 | e1550 | 3580 | 10800 | 5480 | 5460 | 1660 | 17600 | 2020 |
| 8 | 1170 | 2560 | 1490 | 2740 | e1640 | 1910 | 9400 | 6330 | 5830 | 2000 | 17200 | 1740 |
| 9 | 1360 | 2470 | 1420 | 3370 | e1760 | 3240 | 7840 | 11800 | 6890 | 2160 | 15400 | 1980 |
| 10 | 1190 | 2360 | 1500 | e3540 | e1650 | 3430 | 5920 | 15300 | 7730 | 3240 | 12500 | 1950 |
| 11 | 1040 | 2610 | 1550 | e5470 | e1720 | 3490 | 5150 | 18000 | 6140 | 2040 | 9280 | 1790 |
| 12 | 1150 | 2440 | 1550 | e3380 | e1460 | 3430 | 4090 | --- | 4860 | 1770 | 6660 | 1810 |
| 13 | 1060 | 2340 | 1620 | e2680 | e2650 | 2660 | 5470 | --- | 4180 | 2470 | 4800 | 1780 |
| 14 | 1060 | 1660 | 1560 | e1470 | e1340 | 2620 | 6060 | --- | 3730 | 3050 | 3250 | 1830 |
| 15 | 1010 | 1560 | 1490 | e1910 | e1480 | 2630 | 10200 | --- | 3530 | 2900 | 2600 | 1870 |
| 16 | 1060 | 1930 | 1430 | e2030 | e1880 | 2540 | 13700 | --- | 3310 | 3210 | 2220 | 1930 |
| 17 | 1050 | 1790 | 1510 | e1170 | e1320 | 2470 | 15200 | --- | 2950 | 4180 | 2720 | 1730 |
| 18 | 1010 | 2040 | 1730 | e1630 | e1310 | 3380 | 14500 | --- | 2840 | 4060 | 2810 | 1640 |
| 19 | 1250 | 2140 | 1800 | e1760 | e3250 | 2450 | 13300 | --- | 2580 | 3610 | 2940 | 2050 |
| 20 | 963 | 2120 | 1750 | e1780 | e2130 | 2840 | 12700 | --- | 4810 | 2910 | 2250 | 2120 |
| 21 | 1190 | 1590 | 1770 | e1800 | e3550 | 4620 | 13500 | --- | 3920 | 2800 | 1960 | 2620 |
| 22 | 1230 | 1680 | 1710 | e2750 | e7020 | 4240 | 14600 | 17500 | 4040 | 2480 | 2610 | 2660 |
| 23 | 1190 | 1670 | 1690 | e1840 | e5480 | 3790 | 16800 | 16500 | 4730 | 2620 | 2430 | 2620 |
| 24 | 1120 | 1850 | 1660 | e3180 | 5010 | 3060 | 17500 | 15100 | 3810 | 2940 | 2030 | 2260 |
| 25 | 1190 | 1570 | 1640 | e1660 | 4990 | 8490 | --- | 13200 | 2330 | 2840 | 2850 | 1820 |
| 26 | 1350 | 1680 | 1630 | e1490 | 3710 | 9310 | --- | 12200 | 1910 | 3410 | 2930 | 1920 |
| 27 | 1260 | 1670 | 1580 | e1670 | 3650 | 11700 | --- | 9850 | 2380 | 2560 | 2080 | 5760 |
| 28 | 1170 | 1730 | 1550 | e1990 | 4210 | 13900 | --- | 6740 | 2030 | 2820 | 2310 | 8570 |
| 29 | 1140 | 1560 | 1610 | e2890 | 3250 | 14600 | --- | 4670 | 2310 | 3200 | 3110 | 10900 |
| 30 | 1140 | 1630 | 1620 | e1690 | --- | 14500 | 16900 | 4680 | 1900 | 3220 | 2710 | 10500 |
| 31 | 1060 | --- | 1640 | e1760 | --- | 16500 | --- | 6190 | --- | 3580 | 2580 | --- |
| TOTAL | 37803 | 56656 | 49120 | 67350 | 76130 | 163540 | --- | --- | 128130 | 85160 | 199480 | 88420 |
| MEAN | 1219 | 1889 | 1585 | 2173 | 2625 | 5275 | --- | --- | 4271 | 2747 | 6435 | 2947 |
| MAX | 1640 | 2710 | 1800 | 5470 | 7020 | 16500 | --- | --- | 7730 | 4180 | 17600 | 10900 |
| MIN | 963 | 966 | 1390 | 1170 | 1310 | 1910 | --- | --- | 1900 | 1660 | 1960 | 1640 |

e Estimated

## RED RIVER BASIN

### 07364100 OUACHITA RIVER NEAR ARKANSAS-LOUISIANA STATE LINE

LOCATION.--Lat 33°01'52", long 92°05'16", in SE 1/4 NE 1/4 sec. 25, T. 19 S., R. 10 W., Union County, Hydrologic Unit 08040202, on right bank 500 ft below lock and dam No. 6, 1.6 mi north of Arkansas-Louisiana State line, 3.5 mi downstream from Missouri Pacific Railroad Co. bridge, and 4.5 mi southeast of Felsenthal, Ark.

DRAINAGE AREA.--10,787 $mi^2$.

PERIOD OF RECORD.--April 1958 to current year (daily gage heights and daily discharges below 19.0 ft stage only). Gage-height record for some periods collected at same site since 1912 are contained in reports of Corps of Engineers, Vicksburg District.

REVISED RECORDS.--WDR LA-75-1: 1974.

GAGE.--Water-stage recorder. Datum of gage is 44.09 ft above sea level (levels by Corps of Engineers). Prior to Aug. 26, 1958, nonrecording gage at same site and datum. Water-stage recorder with telemetry for Ouachita River at Sterlington (station 07364535) used as auxiliary gage for this station. Prior to Oct. 1, 1980, water-stage recorder for Ouachita River at Alabama Landing near Haile (station 07364103) was used as auxiliary gage for this station.

REMARKS.--Estimated daily discharges. Records fair except for periods of indefinite stage-discharge relationship, June 13-19, and a period of no base gage-height record Aug. 11-22, which are poor. Discharge computed for stages below bankfull, about 19 ft. Considerable regulation by 5 reservoirs in Arkansas, combined capacity, 3,107,880 acre-ft and a series of navigation locks and dams. Several measurements of water temperature were made during the year. Satellite telemetry at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 43.04 ft, May 14, 15, 1958 (discharge not determined); minimum daily discharge, 190 $ft^3/s$, Sept. 13, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum gage height since 1912, 44.2 ft, Apr. 11, 12, 1945; minimum, -0.3 ft, Nov. 11, 1916; minimum since 1928, 5.8 ft, Aug. 25, 1951.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 35.88 ft, Mar. 21; minimum daily discharge, 979 $ft^3/s$, Aug. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8960 | 8350 | | | | | | | | | 1800 | 1320 |
| 2 | 6820 | 8750 | | | | | | | | | 1780 | 1360 |
| 3 | 5850 | 8420 | | | | | | | | | 2210 | 1360 |
| 4 | 4940 | 8490 | | | | | | | | | 1760 | 1850 |
| 5 | 4210 | 9250 | | | | | | | | 16400 | 1170 | 2360 |
| 6 | 3680 | 9340 | | | | | | | | 14800 | 1460 | 1520 |
| 7 | 3300 | 9370 | | | | | | | | 12200 | 1890 | 2120 |
| 8 | 3270 | 9410 | | | | | | | | 9660 | 2070 | 1540 |
| 9 | 2620 | 10400 | | | | | | | | 8110 | 2450 | 2180 |
| 10 | 2110 | 12800 | | | | | | | | 4690 | 2330 | 1460 |
| 11 | 1900 | 14100 | | | | | | | | 4140 | e2150 | 1390 |
| 12 | 1480 | 13600 | | | | | | | 14000 | 2770 | e2350 | 1390 |
| 13 | 1640 | 13200 | | | | | | | e11500 | 3180 | e2090 | 1380 |
| 14 | 1530 | 12400 | | | | | | | e9350 | 2500 | e1890 | 1380 |
| 15 | 1560 | 11800 | | | | | | | e7750 | 4030 | e1630 | 1370 |
| 16 | 1610 | 10500 | | | | | | | e5900 | 4230 | e2100 | 1380 |
| 17 | 1580 | 9790 | | | | | | | e4350 | 3050 | e1800 | 1410 |
| 18 | 1420 | 9570 | | | | | | | e6300 | 3500 | e2120 | 1390 |
| 19 | 1530 | 9340 | | | | | | | e10000 | 3200 | e1700 | 1380 |
| 20 | 1550 | 9640 | | | | | | | | 3770 | e2210 | 1420 |
| 21 | 2130 | 10600 | | | | | | | | 4100 | e2000 | 1330 |
| 22 | 2930 | 10400 | | | | | | | | 3190 | e2700 | 1350 |
| 23 | 3080 | 10200 | | | | | | | | 2450 | 2160 | 1450 |
| 24 | 5740 | 10500 | | | | | | | | 3890 | 1800 | 1530 |
| 25 | 9040 | 11000 | | | | | | | | 3270 | 1920 | 1530 |
| 26 | 10600 | 12200 | | | | | | | | 2810 | 1490 | 1340 |
| 27 | 10500 | 14500 | | | | | | | | 4230 | 1420 | 1640 |
| 28 | 10100 | 17200 | | | | | | | | 3940 | 2070 | 1390 |
| 29 | 9240 | | | | | | | | | 4250 | 2480 | 1320 |
| 30 | 7990 | | | | | | | | | 4170 | 2260 | 1420 |
| 31 | 8500 | | | | | | | | | 3430 | 2350 | |
| TOTAL | 141410 | | | | | | | | | | 61610 | 45260 |
| MEAN | 4562 | | | | | | | | | | 1987 | 1509 |
| MAX | 10600 | | | | | | | | | | 2700 | 2360 |
| MIN | 1420 | | | | | | | | | | 1170 | 1320 |

e Estimated

Ouachita River Flow Data
Obtained by Georgia-Pacific
from USGS, Ruston, LA

| Jun 98 Date | Jun 98 Flow | Jul 98 Date | Jul 98 Flow | Aug 98 Date | Aug 98 Flow | Sep 98 Date | Sep 98 Flow |
|---|---|---|---|---|---|---|---|
| 1 | 7675 | 1 | 1187 | 3 | 1730 | | |
| 2 | 8995 | 2 | 1838 | 4 | 760 | | |
| 3 | 9886 | 6 | 998 | 5 | 737 | | |
| 4 | 9809 | 7 | 1322 | 6 | 730 | | |
| 5 | 6658 | 8 | 1029 | 7 | 880 | | |
| 8 | 1832 | 9 | 1176 | 10 | 795 | | |
| 9 | 2338 | 10 | 1582 | 11 | 813 | | |
| 10 | 1598 | 13 | 1170 | 12 | 813. | | |
| 11 | 1542 | 14 | 1962 | 17 | 953 | | |
| 12 | 1577 | 15 | 1550 | 18 | 882 | | |
| 15 | 1943 | 16 | 1176 | 19 | 886 | | |
| 16 | 3610 | 17 | 900 | 20 | 1088 | | |
| 17 | 1600 | 20 | 1150 | 21 | 1092 | | |
| 18 | 1024 | 21 | 1378 | 24 | 874 | | |
| 19 | 982 | 22 | 1062 | 25 | 1008 | | |
| **22** | **1544** | 24 | 1374 | 26 | 942 | | |
| **23** | **990** | 27 | 909 | 27 | 881 | | |
| **24** | **1189** | 28 | 894 | | | | |
| **25** | **1040** | 29 | 888 | | | | |
| 26 | 893 | 30 | 894 | | | | |
| 29 | 1025 | 31 | 986 | | | | |
| 30 | 1210 | | | | | | |
| | | | | | | | |

Avg
6/18-6/25
1128 cfs

Avg
7/14-7/21
1353

Avg
8/20-8/27
980 cfs

# USGS FORM 9207
# DISCHARGE MEASUREMENTS

UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
SUMMARY OF DISCHARGE MEASUREMENT DATA

07364100
OUACHITA RIVER NR ARK-LA STATE LINE

DATE PROCESSED: 3-Dec-98 13:54

| NO. | DATE / TIME | MADE BY | WIDTH | AREA | MEAN VEL. | GAGE HEIGHT | DISCHARGE CFS | SHIFT ADJ. | PCT. DIFF. | NO. SECT. | GHT. CHG. | TIME | RATED | CONTROL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | RATING NO. 11.0 | | | | | | | |
| 223 | 1984/07/13 | RCS/MRP | 454 | 3990. | 0.76 | 9.26 | 44410 | +0.69 | +0.2 | 31 | -0.01 | 2.9 | G | |
| 224 | 1984/07/24 | DJB/LES | 450 | 3640. | 0.46 | 8.37 | 2610 | +0.27 | +4.4 | 31 | -0.02 | 2.2 | G | CLEAR |
| 225 | 1984/10/05 | DJB/LES | 447 | 3600. | 0.49 | 8.23 | 2730 | +0.41 | 0.0 | 31 | +0.09 | 2.2 | F | CLEAR |
| 226 | 1985/06/03 | DJB/LES | 448 | 4240. | 0.75 | 9.60 | 4640 | +0.52 | +0.2 | 34 | +0.05 | 2.8 | F | CLEAR |
| 227 | 1985/07/18 | LES/RCS | 435 | 3820. | 0.52 | 8.70 | 3170 | +0.30 | 0.0 | 34 | -0.09 | 1.8 | G | CLEAR |
| | | REMARKS: REMOVING CEMENT FROM OLD LOCK & DAM 1000 FT UPSTREAM M WHILE MAKING MEASUREMENT | | | | | | | | | | | | |
| 228 | 1985/10/03 | DJB/RCS | 445 | 4460. | 0.16 | 7.97 | 1180 | -0.64 | 0.0 | 29 | -0.02 | 1.8 | G | CLEAR |
| | | REMARKS: DREDGING AND REMOVAL OF OLD DAM OCCURRING 400 FT UPSTREAM | | | | | | | | | | | | |
| 229 | 1985/11/12 | DJB/LES | 480 | 6430. | 0.66 | 12.36 | 6370 | -1.01 | 0.0 | 33 | -0.09 | 4.0 | G | CLEAR |
| 230 | 1985/11/26 | DJB/DJW | 495 | 7880. | 1.36 | 15.32 | 14200 | +0.88 | 0.0 | 33 | -0.20 | 2.0 | G | CLEAR |
| 231 | 1986/01/13 | DJB/LES | 489 | 7180. | 0.95 | 14.08 | 9530 | -0.63 | 0.0 | 30 | -0.01 | 1.9 | G | CLEAR |
| 232 | 1986/02/25 | DJB/LES | 398 | 7520. | 1.13 | 18.80 | 13800 | -2.84 | 0.0 | 26 | -0.03 | 1.8 | G | CLEAR |
| 233 | 1986/03/03 | RCS/LES | 379 | 5790. | 0.93 | 14.20 | 7790 | -1.89 | +0.1 | 28 | -0.13 | 2.3 | G | CLEAR |
| 234 | 1986/03/07 | LES/RCS | 360 | 4080. | 0.74 | 9.91 | 4400 | | -4.6 | 27 | -0.16 | 1.5 | G | CLEAR |
| 235 | 1986/05/27 | DJB/LES | 380 | 5620. | 1.42 | 13.51 | 10400 | | +8.0 | 32 | +0.10 | 2.0 | G | CLEAR |
| 236 | 1986/07/15 | LES/RCS | 393 | 7470. | 0.60 | 17.98 | 6980 | -6.21 | 0.0 | 24 | -0.21 | 2.2 | G | CLEAR |
| 237 | 1986/07/16 | LES/RCS | 385 | 6650. | 0.33 | 15.99 | 3570 | -6.68 | +0.3 | 24 | -0.18 | 1.8 | G | CLEAR |
| 238 | 1986/07/18 | DJB/LES | 378 | 5680. | 0.65 | 13.46 | 5410 | -2.78 | +0.2 | 31 | -0.07 | 1.7 | F | CLEAR |
| 239 | 1986/07/22 | LES/RCS | 346 | 3910. | 0.71 | 9.28 | 4190 | +0.51 | 0.0 | 35 | -0.05 | 2.1 | F | CLEAR |

12-03-1998 3:34PM FROM US GEOLOGICAL SURVEY 318 251 0372

12-03-1998 3:35PM FROM US GEOLOGICAL SURVEY 318 251 0372

UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
SUMMARY OF DISCHARGE MEASUREMENT DATA

07364100 DATE PROCESSED: 3-Dec-98 13:54
OUACHITA RIVER NR ARK-LA STATE LINE

| NO. | DATE / TIME | MADE BY | WIDTH | AREA | MEAN VEL. | GAGE HEIGHT | DISCHARGE CFS | SHIFT ADJ. | PCT. DIFF. | NO. SECT. | GHT. CHG. | TIME | RATED | CONTROL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 240 | 1986/08/15 | LES/RCS | 348 | 3920. | 0.65 | 8.70 | 3780 | +0.78 | 0.0 | 35 | -0.01 | 2.0 | G | CLEAR |
| 241 | 1986/09/17 | DJB/LES | 345 | 3710. | 0.17 | 8.12 | 1090 | -0.87 | 0.0 | 27 | -0.02 | 1.8 | F | CLEAR |
| 242 | 1986/10/14 | DJB/LES | 359 | 4160. | 0.96 | 9.77 | 5610 | +1.05 | 0.0 | 32 | +0.10 | 2.1 | F | CLEAR |
| 243 | 1987/04/20 | DJB/RCS | 391 | 7300. | 0.90 | 17.80 | 10400 | -3.81 | 0.0 | 39 | -0.05 | 2.5 | F | CLEAR |
| 244 | 1987/05/12 1210 | DJB/RCS | 370 | 5070. | 0.68 | 11.94 | 4860 | -1.66 | 0.0 | 27 | -0.59 | 1.6 | G | CLEAR |
| 245 | 1987/06/30 1225 | DJB/RCS | 348 | 3800. | 0.21 | 8.57 | 1250 | -1.17 | -0.8 | 35 | +0.02 | 2.0 | F | CLEAR |
| 246 | 1987/08/04 1020 | DJB/RCS | 355 | 3950. | 0.56 | 8.67 | 3230 | | | 38 | -0.10 | 2.1 | G | CLEAR |
| 247 | 1987/09/01 1010 | JHC/RCS REMARKS: | 333 | 3530. | 0.25 | 7.54 Qm = 884 | 1410 | | -0.7 | 32 | -0.07 | 2.2 | F | CLEAR |
| 248 | 1987/10/08 1140 | JHC/RCS REMARKS: | 323 | 3540. | 0.27 | 8.02 Qm = 967 | 1560 | -0.36 | 0.0 | 27 | +0.02 | 1.8 | F | CLEAR |
| 249 | 1988/05/02 1120 | DCS/LES REMARKS: | 400 | 7720. | 1.49 | 18.58 Qm = 11500 | 16200 | -1.30 | 0.0 | 32 | -0.06 | 1.5 | G | CLEAR |
| 250 | 1988/05/18 0945 | LES/RCS REMARKS: | 335 | 3840. | 0.29 | 8.40 Qm = 1100 | 1860 | -0.49 | 0.0 | 25 | -0.03 | 1.4 | G | CLEAR |
| 251 | 1988/07/01 0825 | LES/RCS REMARKS: | 340 | 3580. | 0.25 | 7.54 Qm = 888 | 1390 | | -2.1 | 29 | 0.00 | 1.6 | F | CLEAR |
| 252 | 1988/09/08 1130 | BDM/RCS REMARKS: | 335 | 3680. | 0.27 | 7.88 Qm = 987 | 1600 | -0.18 | 0.0 | 27 | -0.15 | 1.5 | G | CLEAR |
| 253 | 1989/08/22 0940 | BDM/RCS REMARKS: | 370 | 6140. | 0.66 | 15.74 Qm = 4030 | 6900 | -4.02 | -0.1 | 25 | 0.00 | 1.5 | G | CLEAR |
| 254 | 1989/09/05 1050 | BDM/LES REMARKS: | 345 | 4080. | 1.11 | 10.18 Qm = 4520 | 6450 | +1.23 | -0.2 | 37 | -0.01 | 2.3 | G | CLEAR |
| 255 | 1989/09/21 1015 | ROW/LES REMARKS: | 340 | 3870. | 0.93 | 9.48 Qm = 3580 | 4130 | | +9.3 | 30 | +0.02 | 1.8 | G | CLEAR |
| 256 | 1989/10/26 1035 | BDM/RCS REMARKS: | 330 | 3590. | 0.60 | 8.74 Qm = 2160 | 2700 | | -5.3 | 34 | +0.06 | 1.8 | G | CLEAR |

UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
SUMMARY OF DISCHARGE MEASUREMENT DATA

07364100
OUACHITA RIVER NR ARK-LA STATE LINE

DATE PROCESSED: 3-Dec-98 13:54

| NO. | DATE / TIME | MADE BY | WIDTH | AREA | MEAN VEL. | GAGE HEIGHT | DISCHARGE CFS | SHIFT ADJ. | PCT. DIFF. | NO. SECT. | GHT. CHG. | TIME | RATED | CONTROL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 257 | 1990/07/13 1045 | DCS/LES | 380 | 6940. | 0.57 | 17.45 | 4360 | | | 30 | -0.12 | 2.1 | F | SUBMERGED |
| | | REMARKS: Indefinite | | | | | Qm = 3950 | | | | | | | |
| 258 | 1990/07/18 0930 | DCS/LES | 335 | 3790. | 0.16 | 9.00 | 795 | | | 27 | -0.39 | 2.1 | F | SUBMERGED |
| | | REMARKS: Indefinite | | | | | Qm = 591 | | | | | | | |
| 259 | 1990/07/24 1100 | BDM/BBG | 340 | 4050. | 0.92 | 9.73 | 4340 | | +5.6 | 33 | -0.02 | 2.2 | F | SUBMERGED |
| | | REMARKS: | | | | | Qm = 3720 | | | | | | | |
| 260 | 1990/07/30 1130 | BDM/BBG | 320 | 3930. | 0.97 | 9.96 | 4380 | | -0.9 | 31 | -0.07 | 2.0 | F | SUBMERGED |
| | | REMARKS: | | | | | Qm = 3810 | | | | | | | |
| 261 | 1990/08/06 1000 | BDM/LES | 330 | 3870. | 0.77 | 9.24 | 3640 | | +4.6 | 32 | +0.03 | 1.7 | F | SUBMERGED |
| | | REMARKS: | | | | | Qm = 2980 | | | | | | | |
| 262 | 1990/09/05 1120 | BDM/JAB | 325 | 3740. | 0.65 | 8.84 | 3110 | | +4.7 | 25 | 0.00 | 1.5 | G | CLEAR |
| | | REMARKS: | | | | | Qm = 2440 | | | | | | | |
| 263 | 1990/09/12 1020 | BDM/JAB | 330 | 3560. | 0.20 | 8.34 | 1040 | -1.13 | 0.0 | 26 | -0.01 | 1.4 | F | SUBMERGED |
| | | REMARKS: | | | | | Qm = 730 | | | | | | | |
| 264 | 1990/10/30 0945 | DCS/CWS | 345 | 4260. | 1.01 | 10.56 | 4840 | | -7.8 | 32 | -0.04 | 1.8 | G | SUBMERGED |
| | | REMARKS: | | | | | Qm = 4320 | | | | | | | |
| 265 | 1990/12/06 1120 | RCS/JAB | 370 | 5440. | 1.64 | 13.59 | 9030 | | -7.5 | 24 | +0.10 | 1.2 | G | SUBMERGED |
| | | REMARKS: | | | | | Qm = 8940 | | | | | | | |
| 266 | 1991/07/12 0955 | DCS/CWS | 390 | 7010. | 0.26 | 17.10 | 2020 | | | 27 | -0.14 | 1.6 | F | SUBMERGED |
| | | REMARKS: | | | | | Qm = 1810 | Indefinite | | | | | | |
| 267 | 1991/07/15 0910 | DCS/JAB | 360 | 5040. | 0.23 | 12.52 | 1340 | | | 28 | -0.22 | 1.5 | F | SUBMERGED |
| | | REMARKS: | | | | | Qm = 1150 | Indefinite | | | | | | |
| 268 | 1991/07/23 0920 | DCS/BBG | 347 | 3860. | 0.52 | 8.86 | 2630 | | -12 | 24 | +0.08 | 1.3 | P | SUBMERGED |
| | | REMARKS: | | | | | Qm = 1990 | | | | | | | |
| 269 | 1991/08/29 0930 | DCS/JAB | 340 | 3370. | 0.90 | 9.25 | 3660 | | +4.9 | 26 | +0.20 | 1.4 | G | SUBMERGED |
| | | REMARKS: | | | | | Qm = 3040 | | | | | | | |
| 270 | 1991/10/04 0930 | DCS/BBG | 330 | 3740. | 0.48 | 8.58 | 2410 | | -9.4 | 28 | +0.29 | 1.4 | F | SUBMERGED |
| | | REMARKS: | | | | | Qm = 1810 | | | | | | | |
| 271 | 1992/04/27 0950 | DCS/JAB | 390 | 7190. | 0.68 | 17.24 | 5260 | | | 25 | -0.08 | 1.2 | G | SUBMERGED |
| | | REMARKS: Indefinite stage-discharge relationship. | | | | | | | | | | | | |
| 272 | 1992/05/01 0932 | DCS/LLM | 388 | 6230. | 1.14 | 14.71 | 7380 | | | 25 | -0.01 | 1.2 | G | SUBMERGED |
| | | REMARKS: Indefinite stage-discharge relationship. | | | | | | | | | | | | |
| 273 | 1992/05/13 0945 | DCS/JAB | 345 | 3930. | 0.48 | 8.61 | 2560 | | -4.8 | 27 | +0.17 | 1.3 | G | |

12-03-1998 3:35PM FROM US GEOLOGICAL SURVEY 318 251 0372

UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
SUMMARY OF DISCHARGE MEASUREMENT DATA

07364100
OUACHITA RIVER NR ARK-LA STATE LINE

DATE PROCESSED: 3-Dec-98 13:54

| NO. | DATE / TIME | MADE BY | WIDTH | AREA | MEAN VEL. | GAGE HEIGHT | DISCHARGE CFS | SHIFT ADJ. | PCT. DIFF. | NO. SECT. | GHT. CHG. | TIME | RATED | CONTROL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 274 | 1992/07/16 0930 | RWT/DR | 360 | 4470. | 0.90 | 10.11 | 4620 | | 0.0 | 23 | -0.01 | 1.5 | G | SUBMERGED |
| 275 | 1992/11/04 1030 | BBG/DH | 323 | 3980. | 0.51 | 8.80 | 2690 | | -7.9 | 29 | +0.01 | 2.0 | G | SUBMERGED |
| 276 | 1993/02/12 0940 | BBG/TAD | 395 | 7360. | 1.09 | 17.66 | 8530 | | | 24 | -0.03 | 1.3 | G | |
| | | REMARKS: Indefinite stage-discharge relationship | | | | | | | | | | | | |
| 277 | 1993/06/01 1020 | BBG/TAD | 380 | 6630. | 0.87 | 16.47 | 6160 | | | 27 | -0.06 | 1.2 | F | SUBMERGED |
| | | REMARKS: Indefinite stage-discharge relationship. | | | | | | | | | | | | |
| 278 | 1993/06/07 1010 | TAD/DCS | 360 | 4280. | 0.73 | 9.66 | 3760 | | -6.5 | 26 | +0.01 | 1.2 | G | SUBMERGED |
| 279 | 1993/06/16 0925 | JAB/DCS | 365 | 4260. | 0.93 | 9.99 | 4510 | | +1.1 | 26 | -0.02 | 1.2 | G | LGT DEBRIS |
| | | REMARKS: VERY HOT DAY. | | | | | | | | | | | | |
| 280 | 1993/06/29 0905 | TAD/BBG | 395 | 7500. | 1.08 | 17.30 | 9260 | | | 30 | -0.07 | 1.4 | G | SUBMERGED |
| | | REMARKS: Indefinite stage-discharge relationship | | | | | | | | | | | | |
| 281 | 1993/07/02 0910 | BBG/TAD | 385 | 6150. | 0.77 | 14.90 | 5520 | | | 31 | -0.06 | 1.5 | G | SUBMERGED |
| | | REMARKS: Indefinite stage-discharge relationship. | | | | | | | | | | | | |
| 282 | 1993/08/27 1020 | TAD/BBG | 350 | 4010. | 0.56 | 9.08 | 2930 | | -10 | 27 | -0.04 | 1.3 | G | |
| 283 | 1993/10/28 1135 | BBG/TWS | 395 | 6620. | | 15.68 | 10400 | | -22 | 30 | -0.19 | 1.9 | F | |
| | | | | | | | | RATING NO. 12.0 | | | | | | |
| 284 | 1994/05/02 1000 | TWS/TAD | 390 | 6550. | 0.82 | 15.22 | 5800 | | -48 | 29 | -0.06 | 1.2 | G | |
| | | REMARKS: Indefinite stage-discharge relationship | | | | | | | | | | | | |
| 285 | 1994/05/05 0955 | TAD/TWS | 390 | 6260. | 1.31 | 14.84 | 9660 | | -9.7 | 31 | +0.23 | 1.5 | G | |
| | | REMARKS: Indefinite stage-discharge relationship | | | | | | | | | | | | |
| 286 | 1994/05/18 1015 | TAD/RWT | 400 | 9840. | 1.64 | 18.12 | 16100 | | 0.0 | 31 | -0.07 | 1.6 | G | |
| 287 | 1994/05/26 0935 | BBG/TAD | 375 | 5020. | 0.97 | 11.26 | 5360 | | -1.5 | 29 | -0.05 | 2.0 | G | |
| 288 | 1994/06/21 1000 | TAD/TWS | 355 | 4200. | 0.74 | 8.94 | 4050 | | | 33 | +0.08 | 1.5 | G | |
| | | REMARKS: Indefinite stage-discharge relationship | | | | | | | | | | | | |
| 289 | 1994/07/26 1030 | BBG/RWR | 407 | 7760. | 2.09 | 18.03 | 16200 | | +1.9 | 31 | +0.04 | 2.0 | G | |
| 290 | 1994/08/24 0940 | TAD/RLB | 350 | 3949. | 0.53 | 9.06 | 2710 | | +0.7 | 31 | -0.05 | 1.6 | G | CLEAR |

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UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
SUMMARY OF DISCHARGE MEASUREMENT DATA

07364100 DATE PROCESSED: 3-Dec-98 13:54
OUACHITA RIVER NR ARK-LA STATE LINE

| NO. | DATE / TIME | MADE BY | WIDTH | AREA | MEAN VEL. | GAGE HEIGHT | DISCHARGE CFS | SHIFT ADJ. | PCT. DIFF. | NO. SECT. | GHT. CHG. | TIME | RATED | CONTROL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 291 | 1994/09/28 1040 | TAD/TWS | 335 | 3770. | 0.34 | 8.38 | 1900 | -2.1 | | 33 | +0.01 | 1.7 | F | |
| 292 | 1995/06/01 1005 | TAD/RGR | 360 | 4960. | 0.81 | 13.08 | 4340 | | | 30 | -0.14 | 1.4 | G | |
| | | REMARKS: Indef. stage-disch relationship Qm=4010 | | | | | | | | | | | | |
| 293 | 1995/06/14 1225 | BBG/RGR | 395 | 5610. | 1.45 | 13.14 | 8270 | +2.4 | | 24 | +0.01 | 1.6 | G | |
| | | REMARKS: | | | | Qm=8130 | | | | | | | | |
| | | | | | | | | RATING NO. 11.0 | | | | | | |
| 294 | 1995/06/27 0950 | BBG/TAD | 343 | 3880. | 0.55 | 8.52 | 2860 | +11 | | 25 | +0.28 | 1.2 | G | |
| | | REMARKS: | | | | Qm=2130 | | | | | | | | |
| 295 | 1995/07/27 1000 | TSD/BBG | 345 | 4230. | 0.74 | 9.48 | 3830 | +1.3 | | 26 | -0.10 | 1.3 | G | |
| | | REMARKS: | | | | Qm=3830 | | | | | | | | |
| 296 | 1995/09/07 0950 | TAD/BBG | 335 | 3610. | 0.11 | 7.82 | 599 | | | 24 | -0.02 | 1.9 | P | |
| | | REMARKS: Indefinite stage-discharge relationship | | | | | | | | | | | | |
| 297 | 1995/09/29 1000 | TAD/BWS | 320 | 3480. | 0.06 | 7.74 | 317 | | | 22 | 0.00 | 1.3 | P | |
| | | REMARKS: Indefinite stage-discharge relationship | | | | | | | | | | | | |
| 298 | 1996/01/26 1115 | TAD/BWS | 349 | 4110. | 0.36 | 9.00 | 1490 | | | 31 | 0.00 | 2.3 | | CLEAR |
| | | REMARKS: Indefinite stage-discharge relationship | | | | | | | | | | | | |
| 299 | 1996/07/12 1130 | BBG | 345 | 3881. | 0.42 | 8.48 | 2330 | -9.0 | | 31 | 0.00 | 1.3 | G | |
| 300 | 1997/06/17 1010 | BBG/DJJ | 395 | 6240. | 0.69 | 14.99 | 4990 | -59 | | 23 | +0.07 | 2.0 | F | |
| | | REMARKS: Gates closed at lock and dam. Measurement indefinite | | | | | | | | | | | | |
| 301 | 1997/08/22 1205 | BBG/WHK | 347 | 3860. | 0.70 | 8.92 | 3310 | +7.8 | | 27 | +0.06 | 1.8 | F | |
| 302 | 1998/04/22 1135 | BBG/DCS | 397 | 6410. | 1.00 | 15.38 | 6440 | -5.4 | | 24 | -0.06 | 2.8 | G | |
| | | REMARKS: N2 = 7001bs | | | | | | | | | | | | |
| 303 | 1998/06/19 0905 | DCS/BBG | 345 | 3880. | 0.69 | 8.52 | 2690 | +40 | | 24 | +0.57 | 2.9 | G | SUBMERGED |

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12-03-1998 3:36PM FROM US GEOLOGICAL SURVEY 318 251 0372

1 UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
SUMMARY OF DISCHARGE MEASUREMENT DATA

07364100 DATE PROCESSED: 4-Dec-98 09:42

OUACHITA RIVER NR ARK-LA STATE LINE

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MEAS # / DATE / PARTY / WIDTH / AREA / VELOC / IN GH / OS GH / DISCH 1/ QCODE 1 / DISCH 2/ QCODE 2 / RAT / %DIFF / SHIFT
TIME # SEC / CHG (FT) / CHG (HR) / RTD / AIR TEMP / WTR TEMP / BF /

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223 1984/07/13 RCS/MRP 454 3990. 0.76 9.26 3030 MEASURED 44410 ADJ BCKWTR 11.0 +0.2 +0.69
31 -0.01 2.8 G 35.0 28.5 CONTROL: MEAS TYPE: BOAT

224 1984/07/24 DJB/LES 450 3640. 0.46 8.37 8.38 1660 MEASURED 2610 ADJ BCKWTR 11.0 +4.4 +0.27
31 -0.02 2.2 G 30.5 29.5 NO CONTROL: CLEAR MEAS TYPE: BOAT

225 1984/10/05 DJB/LES 447 3600. 0.49 8.23 8.24 1750 MEASURED 2730 ADJ BCKWTR 11.0 0.0 +0.41
31 +0.09 2.2 F 26.0 21.0 NO CONTROL: CLEAR MEAS TYPE: BOAT

226 1985/06/03 DJB/LES 448 4240. 0.75 9.60 9.79 3200 MEASURED 4640 ADJ BCKWTR 11.0 +0.2 +0.52
34 +0.05 2.8 F 34.0 27.5 NO CONTROL: CLEAR MEAS TYPE: BOAT

227 1985/07/18 LES/RCS 435 3820. 0.52 8.70 8.69 1970 MEASURED 3170 ADJ BCKWTR 11.0 0.0 +0.30
34 -0.09 1.8 G 33.0 31.0 NO CONTROL: CLEAR MEAS TYPE: BOAT
REMARKS: REMOVING CEMENT FROM OLD LOCK & DAM 1000 FT UPSTREAM M WHILE MAKING MEASUREMENT

228 1985/10/03 DJB/RCS 445 4460. 0.16 7.97 7.96 701 MEASURED 1180 ADJ BCKWTR 11.0 0.0 -0.64
29 -0.02 1.8 G 22.5 22.0 CONTROL: CLEAR MEAS TYPE: BOAT
REMARKS: DREDGING AND REMOVAL OF OLD DAM OCCURRING 400 FT UPSTREAM

229 1985/11/12 DJB/LES 480 6430. 0.66 12.36 12.35 4230 MEASURED 6370 ADJ BCKWTR 11.0 0.0 -1.01
33 -0.09 4.0 G 26.5 17.0 CONTROL: CLEAR MEAS TYPE: BOAT

230 1985/11/26 DJB/DJW 495 7880. 1.36 15.32 15.34 10700 MEASURED 14200 ADJ BCKWTR 11.0 0.0 +0.88
33 -0.20 2.0 G 24.0 13.0 CONTROL: CLEAR MEAS TYPE: BOAT

231 1986/01/13 DJB/LES 489 7180. 0.95 14.08 14.10 6850 MEASURED 9530 ADJ BCKWTR 11.0 0.0 -0.63
30 -0.01 1.9 G 10.0 6.0 CONTROL: CLEAR MEAS TYPE: BOAT

232 1986/02/25 DJB/LES 398 7520. 1.13 18.80 18.80 8470 MEASURED 13800 ADJ BCKWTR 11.0 0.0 -2.84
26 -0.03 1.8 G 15.0 14.0 CONTROL: CLEAR MEAS TYPE: BOAT

233 1986/03/03 RCS/LES 379 5790. 0.93 14.20 14.20 5360 MEASURED 7790 ADJ BCKWTR 11.0 +0.1 -1.89
28 -0.13 2.3 G 19.5 13.0 CONTROL: CLEAR MEAS TYPE: BOAT

234 1986/03/07 LES/RCS 360 4080. 0.74 9.91 9.88 2790 MEASURED 4400 ADJ BCKWTR 11.0 -4.6
27 -0.16 1.5 G 20.0 14.0 CONTROL: CLEAR MEAS TYPE: BOAT

235 1986/05/27 DJB/LES 380 5620. 1.42 13.51 13.48 7980 MEASURED 10400 ADJ BCKWTR 11.0 +8.0
32 +0.10 2.0 G 24.0 24.0 CONTROL: CLEAR MEAS TYPE: BOAT

236 1986/07/15 LES/RCS 393 7470. 0.60 17.98 17.98 4510 MEASURED 6980 ADJ BCKWTR 11.0 0.0 -6.21
24 -0.21 2.2 G 31.0 29.5 CONTROL: CLEAR MEAS TYPE: BOAT

237 1986/07/16 LES/RCS 385 6650. 0.33 15.99 15.99 2230 MEASURED 3570 ADJ BCKWTR 11.0 +0.3 -6.68
24 -0.18 1.8 G 30.0 30.5 CONTROL: CLEAR MEAS TYPE: BOAT

238 1986/07/18 DJB/LES 378 5680. 0.65 13.46 13.43 3680 MEASURED 5410 ADJ BCKWTR 11.0 +0.2 -2.78
31 -0.07 1.7 F 30.5 31.0 CONTROL: CLEAR MEAS TYPE: BOAT



UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
SUMMARY OF DISCHARGE MEASUREMENT DATA

07364100 DATE PROCESSED: 4-Dec-98 09:42
OUACHITA RIVER NR ARK-LA STATE LINE

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MEAS # / DATE / PARTY / WIDTH / AREA / VELOC / IN GH / OS GH / DISCH 1/ QCODE 1 / DISCH 2/ QCODE 2 / RAT / %DIFF / SHIFT
TIME # SEC / CHG (FT) / CHG (HR) / RTD / AIR TEMP / WTR TEMP / BF /

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239 1986/07/22 LES/RCS 346 3910. 0.71 9.28 9.26 2790 MEASURED 4190 ADJ BCKWTR 11.0 0.0 +0.51
35 -0.05 2.1 F 29.0 30.5 CONTROL: CLEAR MEAS TYPE: BOAT

240 1986/08/15 LES/RCS 348 3920. 0.65 8.70 8.72 2540 MEASURED 3780 ADJ BCKWTR 11.0 0.0 +0.78
35 -0.01 2.0 G 29.0 29.0 CONTROL: CLEAR MEAS TYPE: BOAT

241 1986/09/17 DJB/LES 345 3710. 0.17 8.12 8.06 648 MEASURED 1090 ADJ BCKWTR 11.0 0.0 -0.87
27 -0.02 1.8 F 29.5 27.5 CONTROL: CLEAR MEAS TYPE: BOAT

242 1986/10/14 DJB/LES 359 4160. 0.96 9.77 9.73 4020 MEASURED 5610 ADJ BCKWTR 11.0 0.0 +1.05
32 +0.10 2.1 F 24.0 23.5 CONTROL: CLEAR MEAS TYPE: BOAT

243 1987/04/20 DJB/RCS 391 7300. 0.90 17.80 6530 MEASURED 10400 ADJ BCKWTR 11.0 0.0 -3.81
39 -0.05 2.5 F 20.5 CONTROL: CLEAR MEAS TYPE: BOAT

244 1987/05/12 DJB/RCS 370 5070. 0.68 11.94 11.87 3430 MEASURED 4860 ADJ BCKWTR 11.0 0.0 -1.66
1210 27 -0.59 1.6 G 30.5 CONTROL: CLEAR MEAS TYPE: BOAT

245 1987/06/30 DJB/RCS 348 3800. 0.21 8.57 8.40 781 MEASURED 1250 ADJ BCKWTR 11.0 -0.8 -1.17
1225 35 +0.02 2.0 F 32.0 31.0 CONTROL: CLEAR MEAS TYPE: BOAT

246 1987/08/04 DJB/RCS 355 3950. 0.56 8.67 8.58 2070 MEASURED 3230 ADJ BCKWTR 11.0
1020 38 -0.10 2.1 G CONTROL: CLEAR MEAS TYPE: BOAT

247 1987/09/01 JHC/RCS 333 3530. 0.25 7.54 7.46 884 MEASURED 1410 ADJ BCKWTR 11.0 -0.7
1010 32 -0.07 2.2 F 28.0 29.0 CONTROL: CLEAR MEAS TYPE: BOAT
REMARKS: Qm = 884

248 1987/10/08 JHC/RCS 323 3540. 0.27 8.02 7.95 967 MEASURED 1560 ADJ BCKWTR 11.0 0.0 -0.36
1140 27 +0.02 1.8 F CONTROL: CLEAR MEAS TYPE: BOAT
REMARKS: Qm = 967

249 1988/05/02 DCS/LES 400 7720. 1.49 18.58 18.56 11500 MEASURED 16200 ADJ BCKWTR 11.0 0.0 -1.30
1120 32 -0.06 1.5 G 26.5 19.5 CONTROL: CLEAR MEAS TYPE: BOAT
REMARKS: Qm = 11500

250 1988/05/18 LES/RCS 335 3840. 0.29 8.40 8.38 1100 MEASURED 1860 ADJ BCKWTR 11.0 0.0 -0.49
0945 25 -0.03 1.4 G 26.5 25.5 CONTROL: CLEAR MEAS TYPE: BOAT
REMARKS: Qm = 1100

251 1988/07/01 LES/RCS 340 3580. 0.25 7.54 7.52 888 MEASURED 1390 ADJ BCKWTR 11.0 -2.1
0825 29 0.00 1.6 F CONTROL: CLEAR MEAS TYPE: BOAT
REMARKS: Qm = 888

252 1988/09/08 BDM/RCS 335 3680. 0.27 7.88 7.88 987 MEASURED 1600 ADJ BCKWTR 11.0 0.0 -0.18
1130 27 -0.15 1.5 G NO CONTROL: CLEAR MEAS TYPE: BOAT
REMARKS: Qm = 987

253 1989/08/22 BDM/RCS 370 6140. 0.66 15.74 15.69 4030 MEASURED 6900 ADJ BCKWTR 11.0 -0.1 -4.02
0940 25 0.00 1.5 G 39.0 29.0 CONTROL: CLEAR MEAS TYPE: BOAT
REMARKS: Qm = 4030



UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
SUMMARY OF DISCHARGE MEASUREMENT DATA

07364100 DATE PROCESSED: 4-Dec-98 09:42
OUACHITA RIVER NR ARK-LA STATE LINE

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MEAS # / DATE / PARTY / WIDTH / AREA / VELOC / IN GH / OS GH / DISCH 1/ QCODE 1 / DISCH 2/ QCODE 2 / RAT / %DIFF / SHIFT
TIME # SEC / CHG (FT) / CHG (HR) / RTD / AIR TEMP / WTR TEMP / BF /

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254 1989/09/05 BDM/LES 345 4080. 1.11 10.18 10.24 4520 MEASURED 6450 ADJ BCKWTR 11.0 -0.2 +1.23
1050 37 -0.01 2.3 G 33.0 31.5 CONTROL: CLEAR MEAS TYPE: BOAT
REMARKS: Qm = 4520

255 1989/09/21 ROW/LES 340 3870. 0.93 9.48 9.40 3580 MEASURED 4130 ADJ BCKWTR 11.0 +9.3
1015 30 +0.02 1.8 G 33.0 26.0 CONTROL: CLEAR MEAS TYPE: BOAT
REMARKS: Qm = 3580

256 1989/10/26 BDM/RCS 330 3590. 0.60 8.74 8.54 2160 MEASURED 2700 ADJ BCKWTR 11.0 -5.3
1035 34 +0.06 1.8 G 27.0 19.0 CONTROL: CLEAR MEAS TYPE: BOAT
REMARKS: Qm = 2160

257 1990/07/13 DCS/LES 380 6940. 0.57 17.45 17.46 3950 MEASURED 4360 ADJ BCKWTR 11.0

1045 30 -0.12 2.1 F 26.0 29.0 NO CONTROL: SUBMERGED MEAS TYPE: BOAT
REMARKS: Indefinite Qm = 3950

258 1990/07/18 DCS/LES 335 3790. 0.16 9.00 8.98 591 MEASURED 795 ADJ BCKWTR 11.0
0930 27 -0.39 2.1 F 34.0 27.5 YES CONTROL: SUBMERGED MEAS TYPE: BOAT
REMARKS: Indefinite Qm = 591

259 1990/07/24 BDM/BBG 340 4050. 0.92 9.73 9.69 3720 MEASURED 4340 ADJ BCKWTR 11.0 +5.6
1100 33 -0.02 2.2 F NO CONTROL: SUBMERGED MEAS TYPE: BOAT
REMARKS: Qm = 3720

260 1990/07/30 BDM/BBG 320 3930. 0.97 9.96 9.94 3810 MEASURED 4380 ADJ BCKWTR 11.0 -0.9
1130 31 -0.07 2.0 F 35.0 31.0 NO CONTROL: SUBMERGED MEAS TYPE: BOAT
REMARKS: Qm = 3810

261 1990/08/06 BDM/LES 330 3870. 0.77 9.24 9.14 2980 MEASURED 3640 ADJ BCKWTR 11.0 +4.6
1000 32 +0.03 1.7 F 24.0 29.0 NO CONTROL: SUBMERGED MEAS TYPE: BOAT
REMARKS: Qm = 2980

262 1990/09/05 BDM/JAB 325 3740. 0.65 8.84 8.77 2440 MEASURED 3110 ADJ BCKWTR 11.0 +4.7
1120 25 0.00 1.5 G CONTROL: CLEAR MEAS TYPE: BOAT
REMARKS: Qm = 2440

263 1990/09/12 BDM/JAB 330 3560. 0.20 8.34 8.25 730 MEASURED 1040 11.0 0.0 -1.13
1020 26 -0.01 1.4 F 29.0 29.5 CONTROL: SUBMERGED MEAS TYPE: BOAT
REMARKS: Qm = 730

264 1990/10/30 DCS/CWS 345 4260. 1.01 10.56 10.56 4320 MEASURED 4840 ADJ BCKWTR 11.0 -7.8
0945 32 -0.04 1.8 G CONTROL: SUBMERGED MEAS TYPE: BOAT
REMARKS: Qm = 4320

265 1990/12/06 RCS/JAB 370 5440. 1.64 13.59 13.54 8940 MEASURED 9030 ADJ BCKWTR 11.0 -7.5
1120 24 +0.10 1.2 G CONTROL: SUBMERGED MEAS TYPE: BOAT
REMARKS: Qm = 8940

266 1991/07/12 DCS/CWS 390 7010. 0.26 17.10 17.06 1810 MEASURED 2020 ADJ BCKWTR 11.0
0955 27 -0.14 1.6 F 33.5 29.0 CONTROL: SUBMERGED MEAS TYPE: BOAT
REMARKS: Qm = 1810 Indefinite

1 UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
SUMMARY OF DISCHARGE MEASUREMENT DATA

07364100 DATE PROCESSED: 4-Dec-98 09:42

OUACHITA RIVER NR ARK-LA STATE LINE

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MEAS # / DATE / PARTY / WIDTH / AREA / VELOC / IN GH / OS GH / DISCH 1/ QCODE 1 / DISCH 2/ QCODE 2 / RAT / %DIFF / SHIFT
TIME # SEC / CHG (FT) / CHG (HR) / RTD / AIR TEMP / WTR TEMP / BF /

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267 1991/07/15 DCS/JAB 360 5040. 0.23 12.52 12.46 1150 MEASURED 1340 ADJ BCKWTR 11.0
0910 28 -0.22 1.5 F 32.0 31.0 CONTROL: SUBMERGED MEAS TYPE: BOAT
REMARKS: Qm = 1150 Indefinite

268 1991/07/23 DCS/BBG 347 3860. 0.52 8.86 8.84 1990 MEASURED 2630 ADJ BCKWTR 11.0 -12
0920 24 +0.08 1.3 P 32.5 30.0 CONTROL: SUBMERGED MEAS TYPE: BOAT
REMARKS: Qm = 1990

269 1991/08/29 DCS/JAB 340 3370. 0.90 9.25 9.22 3040 MEASURED 3660 ADJ BCKWTR 11.0 +4.9
0930 26 +0.20 1.4 G 33.5 29.0 CONTROL: SUBMERGED MEAS TYPE: BOAT
REMARKS: Qm = 3040

270 1991/10/04 DCS/BBG 330 3740. 0.48 8.58 8.58 1810 MEASURED 2410 ADJ BCKWTR 11.0 -9.4
0930 28 +0.29 1.4 F 28.0 24.0 CONTROL: SUBMERGED MEAS TYPE: BOAT
REMARKS: Qm = 1810

271 1992/04/27 DCS/JAB 390 7190. 0.68 17.24 17.28 4920 MEASURED 5260 ADJ BCKWTR 11.0
0950 25 -0.08 1.2 G 22.5 21.5 CONTROL: SUBMERGED MEAS TYPE: BOAT
REMARKS: Indefinite stage-discharge relationship.

272 1992/05/01 DCS/LLM 388 6230. 1.14 14.71 14.75 7100 MEASURED 7380 ADJ BCKWTR 11.0
0932 25 -0.01 1.2 G 25.5 20.5 CONTROL: SUBMERGED MEAS TYPE: BOAT
REMARKS: Indefinite stage-discharge relationship.

273 1992/05/13 DCS/JAB 345 3930. 0.48 8.61 8.60 1900 MEASURED 2560 ADJ BCKWTR 11.0 -4.8

0945 27 +0.17 1.3 G 31.5 22.0 CONTROL: MEAS TYPE: BOAT

274 1992/07/16 RWT/DR 360 4470. 0.90 10.11 1012.00 4030 MEASURED 4620 ADJ BCKWTR 11.0 0.0
0930 23 -0.01 1.5 G 31.0 30.0 CONTROL: SUBMERGED MEAS TYPE: BOAT

275 1992/11/04 BBG/DH 323 3980. 0.51 8.80 8.74 2020 MEASURED 2690 ADJ BCKWTR 11.0 -7.9
1030 29 +0.01 2.0 G 15.5 19.0 CONTROL: SUBMERGED MEAS TYPE: BOAT

276 1993/02/12 BBG/TAD 395 7360. 1.09 17.66 17.64 8030 MEASURED 8530 ADJ BCKWTR 11.0
0940 24 -0.03 1.3 G 8.0 9.5 CONTROL: MEAS TYPE: BOAT
REMARKS: Indefinite stage-discharge relationship

277 1993/06/01 BBG/TAD 380 6630. 0.87 16.47 16.47 5770 MEASURED 6160 ADJ BCKWTR 11.0
1020 27 -0.06 1.2 F CONTROL: SUBMERGED MEAS TYPE: BOAT
REMARKS: Indefinite stage-discharge relationship.

278 1993/06/07 TAD/DCS 360 4280. 0.73 9.66 9.64 3150 MEASURED 3760 ADJ BCKWTR 11.0 -6.5
1010 26 +0.01 1.2 G 32.5 26.5 CONTROL: SUBMERGED MEAS TYPE: BOAT

279 1993/06/16 JAB/DCS 365 4260. 0.93 9.99 9.99 3980 MEASURED 4510 ADJ BCKWTR 11.0 +1.1
0925 26 -0.02 1.2 G 37.0 28.5 NO CONTROL: LGT DEBRIS MEAS TYPE: BOAT
REMARKS: VERY HOT DAY.

280 1993/06/29 TAD/BBG 395 7500. 1.08 17.30 17.28 8110 MEASURED 9260 ADJ BCKWTR 11.0
0905 30 -0.07 1.4 G 30.0 19.5 CONTROL: SUBMERGED MEAS TYPE: BOAT
REMARKS: Indefinite stage-discharge relationship



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MEAS # / DATE / PARTY / WIDTH / AREA / VELOC / IN GH / OS GH / DISCH 1/ QCODE 1 / DISCH 2/ QCODE 2 / RAT / %DIFF / SHIFT
TIME # SEC / CHG (FT) / CHG (HR) / RTD / AIR TEMP / WTR TEMP / BF /

**********

****

281 1993/07/02 BBG/TAD 385 6150. 0.77 14.90 14.94 4710 MEASURED 5520 ADJ BCKWTR 11.0
0910 31 -0.06 1.5 G CONTROL: SUBMERGED MEAS TYPE: BOAT
REMARKS: Indefinite stage-discharge relationship.

282 1993/08/27 TAD/BBG 350 4010. 0.56 9.08 9.06 2250 MEASURED 2930 ADJ BCKWTR 11.0 -10
1020 27 -0.04 1.3 G 32.5 28.5 CONTROL: MEAS TYPE: BOAT

283 1993/10/28 BBG/TWS 395 6620. 15.68 15.72 10300 MEASURED 10400 ADJ BCKWTR 11.0 -22
1135 30 -0.19 1.9 F 19.0 24.0 CONTROL: MEAS TYPE: BOAT

284 1994/05/02 TWS/TAD 390 6550. 0.82 15.22 15.26 5390 MEASURED 5800 ADJ BCKWTR 12.0 -48
1000 29 -0.06 1.2 G 18.0 23.0 CONTROL: MEAS TYPE: BOAT
REMARKS: Indefinite stage-discharge relationship

285 1994/05/05 TAD/TWS 390 6260. 1.51 14.84 14.85 9430 MEASURED 9660 ADJ BCKWTR 12.0 -9.7
0955 31 +0.23 1.5 G 27.0 22.0 CONTROL: MEAS TYPE: BOAT
REMARKS: Indefinite stage-discharge relationship

286 1994/05/18 TAD/RWT 400 9840. 1.64 18.12 18.12 16100 MEASURED 12.0 0.0
1015 31 -0.07 1.6 G 24.0 24.0 CONTROL: MEAS TYPE: BOAT

287 1994/05/26 BBG/TAD 375 5020. 0.97 11.26 11.24 4870 MEASURED 5360 ADJ BCKWTR 12.0 -1.5
0935 29 -0.05 2.0 G CONTROL: MEAS TYPE: BOAT

288 1994/06/21 TAD/TWS 355 4200. 0.74 8.94 8.94 3130 MEASURED 4050 ADJ BCKWTR 12.0
1000 33 +0.08 1.5 G 25.0 21.0 CONTROL: MEAS TYPE: BOAT
REMARKS: Indefinite stage-discharge relationship

289 1994/07/26 BBG/RWR 407 7760. 2.09 18.03 18.03 16200 MEASURED 12.0 +1.9
1030 31 +0.04 2.0 G 30.5 27.0 CONTROL: MEAS TYPE: BOAT

290 1994/08/24 TAD/RLB 350 3949. 0.53 9.06 9.08 2100 MEASURED 2710 ADJ BCKWTR 12.0 +0.7
0940 31 -0.05 1.6 G 32.0 29.0 CONTROL: CLEAR MEAS TYPE: HANDLINE

291 1994/09/28 TAD/TWS 335 3770. 0.34 8.38 8.38 1280 MEASURED 1900 ADJ BCKWTR 12.0 -2.1
1040 33 +0.01 1.7 F 28.0 25.0 CONTROL: MEAS TYPE: BOAT

292 1995/06/01 TAD/RGR 360 4960. 0.81 13.08 13.01 4010 MEASURED 4340 ADJ BCKWTR 12.0
1005 30 -0.14 1.4 G 26.0 24.0 CONTROL: MEAS TYPE: BOAT
REMARKS: Indef. stage-disch relationship Qm=4010

293 1995/06/14 BBG/RGR 395 5610. 1.45 13.14 13.06 8130 MEASURED 8270 ADJ BCKWTR 12.0 +2.4
1225 24 +0.01 1.6 G 33.5 CONTROL: MEAS TYPE: BOAT
REMARKS: Qm=8130

294 1995/06/27 BBG/TAD 343 3880. 0.55 8.52 8.55 2130 MEASURED 2860 11.0 +11
0950 25 +0.28 1.2 G 39.0 29.0 CONTROL: MEAS TYPE: BOAT
REMARKS: Qm=2130

295 1995/07/27 TSD/BBG 345 4230. 0.74 9.48 9.38 3140 MEASURED 3830 ADJ BCKWTR 11.0 +1.3
1000 26 -0.10 1.3 G CONTROL: MEAS TYPE: BOAT
REMARKS: Qm=3830

1 UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
SUMMARY OF DISCHARGE MEASUREMENT DATA
07364100 DATE PROCESSED: 4-Dec-98 09:42
OUACHITA RIVER NR ARK-LA STATE LINE

**********
****
MEAS # / DATE / PARTY / WIDTH / AREA / VELOC / IN GH / OS GH / DISCH 1/ QCODE 1 / DISCH 2/ QCODE 2 / RAT / %DIFF / SHIFT
TIME # SEC / CHG (FT) / CHG (HR) / RTD / AIR TEMP / WTR TEMP / BF /

**********
****

296 1995/09/07 TAD/BBG 335 3610. 0.11 7.82 7.76 393 MEASURED 599 ADJ BCKWTR 11.0
0950 24 -0.02 1.9 P CONTROL: MEAS TYPE: BOAT
REMARKS: Indefinite stage-discharge relationship

297 1995/09/29 TAD/BWS 320 3480. 0.06 7.74 7.68 210 MEASURED 317 ADJ BCKWTR 11.0
1000 22 0.00 1.3 P 28.0 24.5 CONTROL: MEAS TYPE: BOAT
REMARKS: Indefinite stage-discharge relationship

298 1996/01/26 TAD/BWS 349 4110. 0.36 9.00 8.98 1490 MEASURED

1115 31 0.00 2.3 13.5 8.0 CONTROL: CLEAR MEAS TYPE: BOAT
REMARKS: Indefinite stage-discharge relationship

299 1996/07/12 BBG 345 3881. 0.42 8.48 8.42 1610 MEASURED 2330 ADJ BCKWTR 11.0 -9.0
1130 31 0.00 1.3 G NO CONTROL: MEAS TYPE: BOAT

300 1997/06/17 BBG/DJJ 395 6240. 0.69 14.99 15.00 4310 MEASURED 4990 ADJ BCKWTR 11.0 -59
1010 23 +0.07 2.0 F 27.0 26.5 NO CONTROL: MEAS TYPE: BOAT
REMARKS: Gates closed at lock and dam. Measurement indefinite

301 1997/08/22 BBG/WHK 347 3860. 0.70 8.92 8.80 2690 MEASURED 3310 ADJ BCKWTR 11.0 +7.8
1205 27 +0.06 1.8 F 28.0 27.0 NO CONTROL: MEAS TYPE: BOAT

302 1998/04/22 BBG/DCS 397 6410. 1.00 15.38 15.46 6440 MEASURED 11.0 -5.4
1135 24 -0.06 2.8 G CONTROL: MEAS TYPE: BOAT
REMARKS: N2 = 700lbs

303 1998/06/19 DCS/BBG 345 3880. 0.69 8.52 8.40 2690 MEASURED 11.0 +40
0905 24 +0.57 2.9 G CONTROL: SUBMERGED MEAS TYPE: BOAT

# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY STORET DATA

FACSIMILE TRANSMISSION COVER

EPA

STORET
TECHNICAL
SUPPORT
CENTER

(800)424-9067

| DELIVER TO | |
|---|---|
| Name: Shaleen McCormick | |
| Office: AquaTer, Inc. | |
| Office Phone: 615-373-8532 | |
| Fax: 615-373-8512 | Date: 4/17/98 |
| Note: Requested STORET data. | |

| FROM | |
|---|---|
| Name: Louis Hoelman | |
| Office: STORET | |
| Phone: 202-260-7050 | |
| Fax: (202) 260-1977 | |

PAGE 1 of 2

Table 2-1 : Chlor-a for headwater

STORET RETRIEVAL DATE 98/04/16 PGM=ALLPARM



| AGENCY | STATION NUMBERS | LATITUDE LONGITUDE | BASIN | ST-CNTY |
|---|---|---|---|---|
| * LOCATION NAME * | MAJOR BASIN NAME * | MINOR BASIN NAME * | | STATE NAME * |
| 112WRD \| 07364080 | | 33 01 55.0 092 05 15.0 | 10179 | 05139 |
| *OUACHITA RIVER NEAR FELSENTHAL, * | | * | | * |
| 70953 CHLRPHYL A-PHYTO CHFLUG/L | 81/09/15 0700 | WATER | | ARKANSAS 2.8 |
| 112WRD \| 07364050 | | 33 09 00.0 092 06 30.0 | 10179 | 05003 |
| *OUACHITA RIVER NR CROSSETT ARK * | | * | | * |
| 70953 CHLRPHYL A-PHYTO CHFLUG/L | 81/09/15 2400 | WATER | | ARKANSAS 2.4 |
| 112WRD \| 073622016 | | 33 14 37.0 092 41 06.0 | | 05139 |
| *MILL CR DS FROM EL DORADO, ARK W* | | * | | * |
| 70953 CHLRPHYL A-PHYTO CHFLUG/L | 81/09/18 0845 | WATER | | ARKANSAS 8.9 |
| 112WRD \| 073622011 | | 33 14 52.0 092 38 30.0 | | 05139 |
| *FLAT CR TRIB AT HWY 7 AT EL DORA* | | * | | * |
| 70953 CHLRPHYL A-PHYTO CHFLUG/L | 81/09/15 1730 | WATER | | ARKANSAS 25.5 |
| 112WRD \| 073622021 | | 33 15 52.0 092 39 04.0 | | 05139 |
| *MILL CR AT HWY 7 NO OF EL DORADO* | | * | | * |
| 70953 CHLRPHYL A-PHYTO CHFLUG/L | 81/09/17 1430 | WATER | | ARKANSAS 51.7 |
| 112WRD \| 073622023 | | 33 17 36.0 092 38 59.0 | | 05139 |
| *MILL CR AT CO RD 1 MI SO OF NORP* | | * | | * |
| 70953 CHLRPHYL A-PHYTO CHFLUG/L | 81/09/17 1330 | WATER | | ARKANSAS 31.7 |
| 112WRD \| 073622013 | | 33 17 40.0 092 38 18.0 | | 05139 |
| *FLAT CR W OF SYCAMORE GROVE CH N* | | * | | * |
| 70953 CHLRPHYL A-PHYTO CHFLUG/L | 81/09/15 0545 | WATER | | ARKANSAS 6.9 |
| 112WRD \| 07362430 | | 33 17 52.0 092 21 35.0 | | 05139 |
| *OUACHITA R 0.8 MI US OF MORO BAY* | | * | | * |
| 70953 CHLRPHYL A-PHYTO CHFLUG/L | 81/09/14 1510 | WATER | | ARKANSAS 6.9 |
| 112WRD \| 073622029 | | 33 18 18.0 092 37 25.0 | | 05139 |
| *SALT CR NW OF QUINN, ARK * | | * | | * |
| 70953 CHLRPHYL A-PHYTO CHFLUG/L | 81/09/15 1630 | WATER | | ARKANSAS 1.5 |
| 112WRD \| 073622026 | | 33 18 42.0 092 38 06.0 | | 05139 |
| *FLAT CR 1 MI DS FR MILL CR NR EL* | | * | | * |
| 70953 CHLRPHYL A-PHYTO CHFLUG/L | 81/09/15 1300 | WATER | | ARKANSAS 13.6 |
| 112WRD \| 07362390 | | 33 20 15.0 092 31 43.0 | 10179 | 05139 |
| *OUACHITA RIVER AT CALION, ARK * | | * | | * |
| 70953 CHLRPHYL A-PHYTO CHFLUG/L | 81/09/15 1315 | WATER | | ARKANSAS 4.9 |
| 112WRD \| 07362380 | | 33 20 44.0 092 31 55.0 | | 05103 |
| *OUACHITA R AT HWY 167 AT CALION,* | | * | | * |
| 70953 CHLRPHYL A-PHYTO CHFLUG/L | 81/09/15 1315 | WATER | | ARKANSAS 4.9 |
| 112WRD \| 073620714 | | 33 24 05.0 092 38 46.0 | | 05103 |
| *OUACHITA R 1 MI NE OF SNOW HILL,* | | * | | * |
| 70953 CHLRPHYL A-PHYTO CHFLUG/L | 81/09/14 1435 | WATER | | ARKANSAS 1.7 |
| 112WRD \| 07362067 | | 33 29 03.0 092 45 12.0 | | 05103 |
| *OUACHITA R AT FRENCHPORT LDG NR * | | * | | * |
| 70953 CHLRPHYL A-PHYTO CHFLUG/L | 81/09/14 1600 | WATER | | ARKANSAS .5 |

ID:
APR-17-98 07:32 FROM:

| AGENCY | STATION | LONGITUDE | LATITUDE | CAT UNIT | LOCATION DESCRIPTION | DATE | TM | DEPTH | 32209 | 32211 | 32217 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Fluorometric | Spectrophotometric | Fluorometric |
| | | | | | | | | | Corrected | Acid. Meth. | Uncorrected |
| | | | | | | | | | ug/L | ug/L | ug/L |
| 11EPALES | 130103 | -84.703893 | 34.113059 | 3150104 | ALLATOONA RESERVOIR | 730630 | 1530 | 0 | | | 6.1 |
| 11EPALES | 130103 | -84.703893 | 34.113059 | 3150104 | ALLATOONA RESERVOIR | 730917 | 1140 | 0 | | | 10.1 |
| 11EPALES | 130103 | -84.703893 | 34.113059 | 3150104 | ALLATOONA RESERVOIR | 731112 | 1520 | 0 | | | 6.4 |
| 11EPALES | 130102 | -84.716115 | 34.113059 | 3150104 | ALLATOONA RESERVOIR | 730630 | 1440 | 0 | | | 11.2 |
| 11EPALES | 130102 | -84.716115 | 34.113059 | 3150104 | ALLATOONA RESERVOIR | 730917 | 1100 | 0 | | | 6.3 |
| 11EPALES | 130102 | -84.716115 | 34.113059 | 3150104 | ALLATOONA RESERVOIR | 731112 | 1535 | 0 | | | 6.5 |
| 22GALAKE | 14307701 | -84.709448 | 34.119448 | 3150104 | LAKE ALLATOONA - 0.5 MI N. OF ALLATOONA LANDING | 930511 | | 0 | | 5.8 | |
| 22GALAKE | 14307701 | -84.709448 | 34.119448 | 3150104 | LAKE ALLATOONA - 0.5 MI N. OF ALLATOONA LANDING | 930608 | | 0 | | 6.1 | |
| 22GALAKE | 14307701 | -84.709448 | 34.119448 | 3150104 | LAKE ALLATOONA - 0.5 MI N. OF ALLATOONA LANDING | 930629 | | 0 | | 7.7 | |
| 22GALAKE | 14307701 | -84.709448 | 34.119448 | 3150104 | LAKE ALLATOONA - 0.5 MI N. OF ALLATOONA LANDING | 930706 | | 0 | | 10.3 | |
| 22GALAKE | 14307701 | -84.709448 | 34.119448 | 3150104 | LAKE ALLATOONA - 0.5 MI N. OF ALLATOONA LANDING | 930728 | | 0 | | 11.8 | |
| 22GALAKE | 14307701 | -84.709448 | 34.119448 | 3150104 | LAKE ALLATOONA - 0.5 MI N. OF ALLATOONA LANDING | 930810 | | 0 | | 9.6 | |
| 22GALAKE | 14307701 | -84.709448 | 34.119448 | 3150104 | LAKE ALLATOONA - 0.5 MI N. OF ALLATOONA LANDING | 930824 | | 0 | | 9.6 | |
| 22GALAKE | 14307701 | -84.709448 | 34.119448 | 3150104 | LAKE ALLATOONA - 0.5 MI N. OF ALLATOONA LANDING | 930901 | | 0 | | 10.7 | |
| 22GALAKE | 14307701 | -84.709448 | 34.119448 | 3150104 | LAKE ALLATOONA - 0.5 MI N. OF ALLATOONA LANDING | 930923 | | 0 | | 7.7 | |
| 22GALAKE | 14307701 | -84.709448 | 34.119448 | 3150104 | LAKE ALLATOONA - 0.5 MI N. OF ALLATOONA LANDING | 931007 | | 0 | | 10.6 | |
| 22GALAKE | 14307701 | -84.709448 | 34.119448 | 3150104 | LAKE ALLATOONA - 0.5 MI N. OF ALLATOONA LANDING | 931021 | | 0 | | 7.4 | |
| 22GALAKE | 14308701 | -84.721948 | 34.126948 | 3150104 | LAKE ALLATOONA - BETWEEN MARKERS 8A AND 10A | 930511 | | 0 | | 3.5 | |
| 22GALAKE | 14308701 | -84.721948 | 34.126948 | 3150104 | LAKE ALLATOONA - BETWEEN MARKERS 8A AND 10A | 930525 | | 0 | | 5.8 | |
| 22GALAKE | 14308701 | -84.721948 | 34.126948 | 3150104 | LAKE ALLATOONA - BETWEEN MARKERS 8A AND 10A | 930608 | | 0 | | 4.8 | |
| 22GALAKE | 14308701 | -84.721948 | 34.126948 | 3150104 | LAKE ALLATOONA - BETWEEN MARKERS 8A AND 10A | 930629 | | 0 | | 7.1 | |
| 22GALAKE | 14308701 | -84.721948 | 34.126948 | 3150104 | LAKE ALLATOONA - BETWEEN MARKERS 8A AND 10A | 930706 | | 0 | | 9.6 | |
| 22GALAKE | 14308701 | -84.721948 | 34.126948 | 3150104 | LAKE ALLATOONA - BETWEEN MARKERS 8A AND 10A | 930810 | | 0 | | 8 | |
| 22GALAKE | 14308701 | -84.721948 | 34.126948 | 3150104 | LAKE ALLATOONA - BETWEEN MARKERS 8A AND 10A | 930824 | | 0 | | 9.6 | |
| 22GALAKE | 14308701 | -84.721948 | 34.126948 | 3150104 | LAKE ALLATOONA - BETWEEN MARKERS 8A AND 10A | 930901 | | 0 | | 7.5 | |
| 22GALAKE | 14308701 | -84.721948 | 34.126948 | 3150104 | LAKE ALLATOONA - BETWEEN MARKERS 8A AND 10A | 930923 | | 0 | | 5.1 | |
| 22GALAKE | 14308701 | -84.721948 | 34.126948 | 3150104 | LAKE ALLATOONA - BETWEEN MARKERS 8A AND 10A | 931007 | | 0 | | 2.9 | |
| 22GALAKE | 14308701 | -84.721948 | 34.126948 | 3150104 | LAKE ALLATOONA - BETWEEN MARKERS 8A AND 10A | 931021 | | 0 | | 4.5 | |
| 11EPALES | 130104 | -84.628337 | 34.130003 | 3150104 | ALLATOONA RESERVOIR | 730701 | 1130 | 0 | | | 9.9 |
| 11EPALES | 130104 | -84.628337 | 34.130003 | 3150104 | ALLATOONA RESERVOIR | 730917 | 1350 | 0 | | | 6.7 |
| 11EPALES | 130104 | -84.628337 | 34.130003 | 3150104 | ALLATOONA RESERVOIR | 731114 | 900 | 0 | | | 20.8 |
| 22GALAKE | 14305601 | -84.611671 | 34.130282 | 3150104 | LAKE ALLATOONA - KELLOGG/OWL EMBAYMENT | 930511 | | 0 | | 6.1 | |
| 22GALAKE | 14305601 | -84.611671 | 34.130282 | 3150104 | LAKE ALLATOONA - KELLOGG/OWL EMBAYMENT | 930525 | | 0 | | 7.1 | |
| 22GALAKE | 14305601 | -84.611671 | 34.130282 | 3150104 | LAKE ALLATOONA - KELLOGG/OWL EMBAYMENT | 930629 | | 0 | | 8 | |
| 22GALAKE | 14305601 | -84.611671 | 34.130282 | 3150104 | LAKE ALLATOONA - KELLOGG/OWL EMBAYMENT | 930706 | | 0 | | 8.3 | |
| 22GALAKE | 14305601 | -84.611671 | 34.130282 | 3150104 | LAKE ALLATOONA - KELLOGG/OWL EMBAYMENT | 930728 | | 0 | | 9.6 | |
| 22GALAKE | 14305601 | -84.611671 | 34.130282 | 3150104 | LAKE ALLATOONA - KELLOGG/OWL EMBAYMENT | 930810 | | 0 | | 4.8 | |
| 22GALAKE | 14305601 | -84.611671 | 34.130282 | 3150104 | LAKE ALLATOONA - KELLOGG/OWL EMBAYMENT | 930824 | | 0 | | 4.8 | |
| 22GALAKE | 14305601 | -84.611671 | 34.130282 | 3150104 | LAKE ALLATOONA - KELLOGG/OWL EMBAYMENT | 930901 | | 0 | | 5.5 | |
| 22GALAKE | 14305601 | -84.611671 | 34.130282 | 3150104 | LAKE ALLATOONA - KELLOGG/OWL EMBAYMENT | 930923 | | 0 | | 7.7 | |
| 22GALAKE | 14305601 | -84.611671 | 34.130282 | 3150104 | LAKE ALLATOONA - KELLOGG/OWL EMBAYMENT | 931007 | | 0 | | 5.1 | |
| 22GALAKE | 14305601 | -84.611671 | 34.130282 | 3150104 | LAKE ALLATOONA - KELLOGG/OWL EMBAYMENT | 931021 | | 0 | | 7.1 | |
| 22GALAKE | 14305801 | -84.639171 | 34.138615 | 3150104 | LAKE ALLLTOONA - WORTH OF GALTS FERRY LANDING | 930511 | | 0 | | 5.8 | |
| 22GALAKE | 14305801 | -84.639171 | 34.138615 | 3150104 | LAKE ALLLTOONA - WORTH OF GALTS FERRY LANDING | 930525 | | 0 | | 7.7 | |
| 22GALAKE | 14305801 | -84.639171 | 34.138615 | 3150104 | LAKE ALLLTOONA - WORTH OF GALTS FERRY LANDING | 930608 | | 0 | | 7.7 | |
| 22GALAKE | 14305801 | -84.639171 | 34.138615 | 3150104 | LAKE ALLLTOONA - WORTH OF GALTS FERRY LANDING | 930629 | | 0 | | 8.3 | |
| 22GALAKE | 14305801 | -84.639171 | 34.138615 | 3150104 | LAKE ALLLTOONA - WORTH OF GALTS FERRY LANDING | 930706 | | 0 | | 11.2 | |
| 22GALAKE | 14305801 | -84.639171 | 34.138615 | 3150104 | LAKE ALLLTOONA - WORTH OF GALTS FERRY LANDING | 930728 | | 0 | | 10.9 | |
| 22GALAKE | 14305801 | -84.639171 | 34.138615 | 3150104 | LAKE ALLLTOONA - WORTH OF GALTS FERRY LANDING | 930810 | | 0 | | 5.8 | |
| 22GALAKE | 14305801 | -84.639171 | 34.138615 | 3150104 | LAKE ALLLTOONA - WORTH OF GALTS FERRY LANDING | 930824 | | 0 | | 4.8 | |
| 22GALAKE | 14305801 | -84.639171 | 34.138615 | 3150104 | LAKE ALLLTOONA - WORTH OF GALTS FERRY LANDING | 930901 | | 0 | | 5.1 | |
| 22GALAKE | 14305801 | -84.639171 | 34.138615 | 3150104 | LAKE ALLLTOONA - WORTH OF GALTS FERRY LANDING | 930923 | | 0 | | 8 | |
| 22GALAKE | 14305801 | -84.639171 | 34.138615 | 3150104 | LAKE ALLLTOONA - WORTH OF GALTS FERRY LANDING | 931007 | | 0 | | 3.2 | |
| 22GALAKE | 14305801 | -84.639171 | 34.138615 | 3150104 | LAKE ALLLTOONA - WORTH OF GALTS FERRY LANDING | 931021 | | 0 | | 7.1 | |
| 22GALAKE | 14306201 | -84.687505 | 34.153338 | 3150104 | LAKE ALLATOONA - MARKER 9E ALLATOONA YACHT CL | 930511 | | 0 | | 4.8 | |
| 22GALAKE | 14306201 | -84.687505 | 34.153338 | 3150104 | LAKE ALLATOONA - MARKER 9E ALLATOONA YACHT CL | 930525 | | 0 | | 9.6 | |
| 22GALAKE | 14306201 | -84.687505 | 34.153338 | 3150104 | LAKE ALLATOONA - MARKER 9E ALLATOONA YACHT CL | 930608 | | 0 | | 6.1 | |

| AGENCY | STATION | LONGITUDE | LATITUDE | CAT UNIT | LOCATION DESCRIPTION | DATE | TM | DEPTH | 32209 | 32211 | 32217 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Fluorometric | Spectrophotometric | Fluorometric |
| | | | | | | | | | Corrected | Acid. Meth. | Uncorrected |
| | | | | | | | | | ug/L | ug/L | ug/L |
| 22GALAKE | 14306201 | -84.687505 | 34.153338 | 3150104 | LAKE ALLATOONA - MARKER 9E ALLATOONA YACHT CL | 930706 | | 0 | | 8.7 | |
| 22GALAKE | 14306201 | -84.687505 | 34.153338 | 3150104 | LAKE ALLATOONA - MARKER 9E ALLATOONA YACHT CL | 930728 | | 0 | | 10.9 | |
| 22GALAKE | 14306201 | -84.687505 | 34.153338 | 3150104 | LAKE ALLATOONA - MARKER 9E ALLATOONA YACHT CL | 930810 | | 0 | | 6.1 | |
| 22GALAKE | 14306201 | -84.687505 | 34.153338 | 3150104 | LAKE ALLATOONA - MARKER 9E ALLATOONA YACHT CL | 930824 | | 0 | | 9.2 | |
| 22GALAKE | 14306201 | -84.687505 | 34.153338 | 3150104 | LAKE ALLATOONA - MARKER 9E ALLATOONA YACHT CL | 930901 | | 0 | | 7.7 | |
| 22GALAKE | 14306201 | -84.687505 | 34.153338 | 3150104 | LAKE ALLATOONA - MARKER 9E ALLATOONA YACHT CL | 930923 | | 0 | | 5.1 | |
| 22GALAKE | 14306201 | -84.687505 | 34.153338 | 3150104 | LAKE ALLATOONA - MARKER 9E ALLATOONA YACHT CL | 931007 | | 0 | | 1.3 | |
| 22GALAKE | 14306201 | -84.687505 | 34.153338 | 3150104 | LAKE ALLATOONA - MARKER 9E ALLATOONA YACHT CL | 931021 | | 0 | | 5.1 | |
| 11EPALES | 130105 | -84.580282 | 34.160837 | 3150104 | ALLATOONA RESERVOIR | 730701 | 1320 | 0 | | | 4 |
| 11EPALES | 130105 | -84.580282 | 34.160837 | 3150104 | ALLATOONA RESERVOIR | 730917 | 1425 | 0 | | | 13.5 |
| 11EPALES | 130105 | -84.580282 | 34.160837 | 3150104 | ALLATOONA RESERVOIR | 731114 | 940 | 0 | | | 3.4 |
| 21GAEPD | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 800729 | 1216 | 1 | 8.1 | | |
| 21GAEPD | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 810716 | 1730 | 1 | 9.5 | | |
| 21GAEPD | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 840606 | 1420 | 1 | 6.9 | | |
| 21GAEPD | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 850606 | 905 | 1 | 3.6 | | |
| 21GAEPD | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 860611 | 1041 | 1 | 8.3 | | |
| 21GAEPD | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 870602 | 1239 | 1 | 4.9 | | |
| 21GAEPD | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 880526 | 1410 | 1 | 4.6 | | |
| 21GAEPD | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 890601 | 1150 | 0 | 3.5 | | |
| 21GAEPD | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 890717 | 1130 | 0 | 13 | | |
| 21GAEPD | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 900709 | 1125 | 1 | 4.8 | | |
| 21GAEPD | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 900821 | 1635 | 1 | 2.7 | | |
| 21GAEPD | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 910625 | 1030 | 1 | 12.4 | | |
| 21GAEPD | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 910625 | 1035 | 0 | 12.4 | | |
| 21GAEPD | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 930615 | 1210 | 0 | | 6.8 | |
| 22GALAKE | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 800729 | 1216 | 1 | 8.1 | | |
| 22GALAKE | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 810716 | 1730 | 1 | 9.5 | | |
| 22GALAKE | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 840606 | 1420 | 1 | 6.9 | | |
| 22GALAKE | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 850606 | 905 | 1 | 3.6 | | |
| 22GALAKE | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 860611 | 1041 | 1 | 8.3 | | |
| 22GALAKE | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 870602 | 1239 | 1 | 4.9 | | |
| 22GALAKE | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 880526 | 1410 | 1 | 4.6 | | |
| 22GALAKE | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 900709 | 1125 | 1 | 4.8 | | |
| 22GALAKE | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 900821 | 1635 | 1 | 2.7 | | |
| 22GALAKE | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 910625 | 1030 | 1 | 12.4 | | |
| 22GALAKE | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 910625 | 1035 | 0 | 12.4 | | |
| 22GALAKE | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 930511 | | 0 | | 3.8 | |
| 22GALAKE | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 930525 | | 0 | | 7.4 | |
| 22GALAKE | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 930608 | | 0 | | 8 | |
| 22GALAKE | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 930629 | | 0 | | 8 | |
| 22GALAKE | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 930728 | | 0 | | 5.1 | |
| 22GALAKE | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 930810 | | 0 | | 6.4 | |
| 22GALAKE | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 930824 | | 0 | | 6.4 | |
| 22GALAKE | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 930901 | | 0 | | 4.8 | |
| 22GALAKE | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 930923 | | 0 | | 2.9 | |
| 22GALAKE | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 931007 | | 0 | | 1.6 | |
| 22GALAKE | 14309001 | -84.725004 | 34.160837 | 3150104 | LAKE ALLATOONA 300 METERS UPSTREAM DAM | 931021 | | 0 | | 7.4 | |
| 11EPALES | 130101 | -84.725837 | 34.165003 | 3150104 | ALLATOONA RESERVOIR | 730701 | 1015 | 0 | | | 4.6 |
| 11EPALES | 130101 | -84.725837 | 34.165003 | 3150104 | ALLATOONA RESERVOIR | 730917 | 950 | 0 | | | 4.6 |
| 11EPALES | 130101 | -84.725837 | 34.165003 | 3150104 | ALLATOONA RESERVOIR | 731112 | 1557 | 0 | | | 3.8 |
| 22GALAKE | 14305011 | -84.613893 | 34.17917 | 3150104 | LAKE ALLATOONA - MARKER 39E | 930511 | | 0 | | 6.7 | |
| 22GALAKE | 14305011 | -84.613893 | 34.17917 | 3150104 | LAKE ALLATOONA - MARKER 39E | 930608 | | 0 | | 6.7 | |
| 22GALAKE | 14305011 | -84.613893 | 34.17917 | 3150104 | LAKE ALLATOONA - MARKER 39E | 930629 | | 0 | | 9.3 | |
| 22GALAKE | 14305011 | -84.613893 | 34.17917 | 3150104 | LAKE ALLATOONA - MARKER 39E | 930706 | | 0 | | 6.7 | |
| 22GALAKE | 14305011 | -84.613893 | 34.17917 | 3150104 | LAKE ALLATOONA - MARKER 39E | 930728 | | 0 | | 9.6 | |
| 22GALAKE | 14305011 | -84.613893 | 34.17917 | 3150104 | LAKE ALLATOONA - MARKER 39E | 930810 | | 0 | | 11.2 | |
| 22GALAKE | 14305011 | -84.613893 | 34.17917 | 3150104 | LAKE ALLATOONA - MARKER 39E | 930824 | | 0 | | 7.7 | |

| AGENCY | STATION | LONGITUDE | LATITUDE | CAT UNIT | LOCATION DESCRIPTION | DATE | TM | DEPTH | 32209 | 32211 | 32217 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Fluorometric | Spectrophotometric | Fluorometric |
| | | | | | | | | | Corrected | Acid. Meth. | Uncorrected |
| | | | | | | | | | ug/L | ug/L | ug/L |
| 22GALAKE | 14305011 | -84.613893 | 34.17917 | 3150104 | LAKE ALLATOONA - MARKER 39E | 930901 | | 0 | | 11.2 | |
| 22GALAKE | 14305011 | -84.613893 | 34.17917 | 3150104 | LAKE ALLATOONA - MARKER 39E | 930923 | | 0 | | 13.8 | |
| 22GALAKE | 14305011 | -84.613893 | 34.17917 | 3150104 | LAKE ALLATOONA - MARKER 39E | 931007 | | 0 | | 12.5 | |
| 22GALAKE | 14305011 | -84.613893 | 34.17917 | 3150104 | LAKE ALLATOONA - MARKER 39E | 931021 | | 0 | | 7.7 | |
| 11EPALES | 130106 | -84.587504 | 34.181115 | 3150104 | ALLATOONA RESERVOIR | 730701 | 1350 | 0 | | | 4.7 |
| 11EPALES | 130106 | -84.587504 | 34.181115 | 3150104 | ALLATOONA RESERVOIR | 730917 | 1500 | 0 | | | 9.3 |
| 11EPALES | 130106 | -84.587504 | 34.181115 | 3150104 | ALLATOONA RESERVOIR | 731114 | 830 | 0 | | | 2.9 |
| 22GALAKE | 14306601 | -84.692226 | 34.183337 | 3150104 | LAKE ALLATOONA - STAMP CREEK EMBAYMENT | 930511 | | 0 | | 5.5 | |
| 22GALAKE | 14306601 | -84.692226 | 34.183337 | 3150104 | LAKE ALLATOONA - STAMP CREEK EMBAYMENT | 930525 | | 0 | | 9 | |
| 22GALAKE | 14306601 | -84.692226 | 34.183337 | 3150104 | LAKE ALLATOONA - STAMP CREEK EMBAYMENT | 930629 | | 0 | | 6.4 | |
| 22GALAKE | 14306601 | -84.692226 | 34.183337 | 3150104 | LAKE ALLATOONA - STAMP CREEK EMBAYMENT | 930706 | | 0 | | 6.4 | |
| 22GALAKE | 14306601 | -84.692226 | 34.183337 | 3150104 | LAKE ALLATOONA - STAMP CREEK EMBAYMENT | 930728 | | 0 | | 12.8 | |
| 22GALAKE | 14306601 | -84.692226 | 34.183337 | 3150104 | LAKE ALLATOONA - STAMP CREEK EMBAYMENT | 930810 | | 0 | | 9.6 | |
| 22GALAKE | 14306601 | -84.692226 | 34.183337 | 3150104 | LAKE ALLATOONA - STAMP CREEK EMBAYMENT | 930824 | | 0 | | 8.8 | |
| 22GALAKE | 14306601 | -84.692226 | 34.183337 | 3150104 | LAKE ALLATOONA - STAMP CREEK EMBAYMENT | 930901 | | 0 | | 8 | |
| 22GALAKE | 14306601 | -84.692226 | 34.183337 | 3150104 | LAKE ALLATOONA - STAMP CREEK EMBAYMENT | 930923 | | 0 | | 7.7 | |
| 22GALAKE | 14306601 | -84.692226 | 34.183337 | 3150104 | LAKE ALLATOONA - STAMP CREEK EMBAYMENT | 931007 | | 0 | | 3.5 | |
| 22GALAKE | 14306601 | -84.692226 | 34.183337 | 3150104 | LAKE ALLATOONA - STAMP CREEK EMBAYMENT | 931021 | | 0 | | 0.6 | |
| 22GALAKE | 14302001 | -84.577781 | 34.190003 | 3150104 | LAKE ALLATOONA - OFF FIELDS LANDING - 44E-45E | 930511 | | 0 | | 9.9 | |
| 22GALAKE | 14302001 | -84.577781 | 34.190003 | 3150104 | LAKE ALLATOONA - OFF FIELDS LANDING - 44E-45E | 930608 | | 0 | | 8.7 | |
| 22GALAKE | 14302001 | -84.577781 | 34.190003 | 3150104 | LAKE ALLATOONA - OFF FIELDS LANDING - 44E-45E | 930629 | | 0 | | 10.9 | |
| 22GALAKE | 14302001 | -84.577781 | 34.190003 | 3150104 | LAKE ALLATOONA - OFF FIELDS LANDING - 44E-45E | 930728 | | 0 | | 7.4 | |
| 22GALAKE | 14302001 | -84.577781 | 34.190003 | 3150104 | LAKE ALLATOONA - OFF FIELDS LANDING - 44E-45E | 930810 | | 0 | | 13.8 | |
| 22GALAKE | 14302001 | -84.577781 | 34.190003 | 3150104 | LAKE ALLATOONA - OFF FIELDS LANDING - 44E-45E | 930824 | | 0 | | 12.2 | |
| 22GALAKE | 14302001 | -84.577781 | 34.190003 | 3150104 | LAKE ALLATOONA - OFF FIELDS LANDING - 44E-45E | 930901 | | 0 | | 11.2 | |
| 22GALAKE | 14302001 | -84.577781 | 34.190003 | 3150104 | LAKE ALLATOONA - OFF FIELDS LANDING - 44E-45E | 930923 | | 0 | | 14.4 | |
| 22GALAKE | 14302001 | -84.577781 | 34.190003 | 3150104 | LAKE ALLATOONA - OFF FIELDS LANDING - 44E-45E | 931007 | | 0 | | 16.7 | |
| 22GALAKE | 14302001 | -84.577781 | 34.190003 | 3150104 | LAKE ALLATOONA - OFF FIELDS LANDING - 44E-45E | 931021 | | 0 | | 13.2 | |

| AGENCY | STATION | LONGITUDE | LATITUDE | CAT UNIT | LOCATION DESCRIPTION | SF | COF | DATE | TM | DEPTH | 32217 Fluorometric Uncorrected ug/L |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11EPALES | 10705 | -85.931948 | 32.720837 | 3150109 | MARTIN LAKE | 1 | 51 | 730319 | 1415 | 0 | 1.7 |
| 11EPALES | 10705 | -85.931948 | 32.720837 | 3150109 | MARTIN LAKE | 1 | 51 | 730618 | 1425 | 0 | 9.2 |
| 11EPALES | 10705 | -85.931948 | 32.720837 | 3150109 | MARTIN LAKE | 1 | 51 | 730825 | 1415 | 0 | 4.8 |
| 11EPALES | 10705 | -85.931948 | 32.720837 | 3150109 | MARTIN LAKE | 1 | 51 | 731101 | 930 | 0 | 2.3 |
| 11EPALES | 10706 | -86.019448 | 32.737504 | 3150109 | MARTIN LAKE | 1 | 51 | 730319 | 1450 | 0 | 2.1 |
| 11EPALES | 10706 | -86.019448 | 32.737504 | 3150109 | MARTIN LAKE | 1 | 51 | 730618 | 1620 | 0 | 16.4 |
| 11EPALES | 10706 | -86.019448 | 32.737504 | 3150109 | MARTIN LAKE | 1 | 51 | 730825 | 1610 | 0 | 4.8 |
| 11EPALES | 10706 | -86.019448 | 32.737504 | 3150109 | MARTIN LAKE | 1 | 51 | 731101 | 910 | 0 | 2.9 |
| 11EPALES | 10703 | -85.84306 | 32.744448 | 3150109 | MARTIN LAKE | 1 | 123 | 730319 | 1115 | 0 | 1.6 |
| 11EPALES | 10703 | -85.84306 | 32.744448 | 3150109 | MARTIN LAKE | 1 | 123 | 730618 | 1010 | 0 | 13.8 |
| 11EPALES | 10703 | -85.84306 | 32.744448 | 3150109 | MARTIN LAKE | 1 | 123 | 730825 | 1240 | 0 | 6.3 |
| 11EPALES | 10703 | -85.84306 | 32.744448 | 3150109 | MARTIN LAKE | 1 | 123 | 731101 | 1150 | 0 | 2.9 |
| 11EPALES | 10704 | -85.84306 | 32.744448 | 3150109 | MARTIN LAKE | 1 | 123 | 730319 | 1340 | 0 | 1.5 |
| 11EPALES | 10704 | -85.84306 | 32.744448 | 3150109 | MARTIN LAKE | 1 | 123 | 730618 | 1330 | 0 | 12.7 |
| 11EPALES | 10704 | -85.84306 | 32.744448 | 3150109 | MARTIN LAKE | 1 | 123 | 730825 | 1340 | 0 | 5 |
| 11EPALES | 10704 | -85.84306 | 32.744448 | 3150109 | MARTIN LAKE | 1 | 123 | 731101 | 1120 | 0 | 1.9 |
| 11EPALES | 10707 | -85.995837 | 32.79167 | 3150109 | MARTIN LAKE | 1 | 123 | 730319 | 1535 | 0 | 2.3 |
| 11EPALES | 10707 | -85.995837 | 32.79167 | 3150109 | MARTIN LAKE | 1 | 123 | 730618 | 1700 | 0 | 27.3 |
| 11EPALES | 10707 | -85.995837 | 32.79167 | 3150109 | MARTIN LAKE | 1 | 123 | 730825 | 1640 | 0 | 4.7 |
| 11EPALES | 10707 | -85.995837 | 32.79167 | 3150109 | MARTIN LAKE | 1 | 123 | 731101 | 935 | 0 | 4.8 |
| 11EPALES | 10702 | -85.895838 | 32.81667 | 3150109 | MARTIN LAKE | 1 | 123 | 730616 | 1035 | 0 | 11.2 |
| 11EPALES | 10702 | -85.895838 | 32.81667 | 3150109 | MARTIN LAKE | 1 | 123 | 730825 | 1025 | 0 | 7.2 |
| 11EPALES | 10702 | -85.895838 | 32.81667 | 3150109 | MARTIN LAKE | 1 | 123 | 731101 | 1210 | 0 | 2.9 |
| 11EPALES | 10701 | -85.908338 | 32.86667 | 3150109 | MARTIN LAKE | 1 | 123 | 730319 | 920 | 0 | 1.4 |
| 11EPALES | 10701 | -85.908338 | 32.86667 | 3150109 | MARTIN LAKE | 1 | 123 | 730616 | 950 | 0 | 7.7 |
| 11EPALES | 10701 | -85.908338 | 32.86667 | 3150109 | MARTIN LAKE | 1 | 123 | 730825 | 950 | 0 | 7.7 |
| 11EPALES | 10701 | -85.908338 | 32.86667 | 3150109 | MARTIN LAKE | 1 | 123 | 731101 | 1230 | 0 | 5.9 |

| CAT UNIT | LOCATION DESCRIPTION | SF | COF | DATE | TM | DEPTH | 32217 |
|---|---|---|---|---|---|---|---|
| | | | | | | | Fluorometric |
| | | | | | | | Uncorrected |
| | | | | | | | ug/L |
| 3180002 | ROSS BARNETT RESERVOIR | 28 | 121 | 730614 | 1630 | 0 | 6.6 |
| 3180002 | ROSS BARNETT RESERVOIR | 28 | 121 | 730827 | 1505 | 0 | 14.9 |
| 3180002 | ROSS BARNETT RESERVOIR | 28 | 121 | 731102 | 1010 | 0 | 11.8 |
| 3180002 | ROSS BARNETT RESERVOIR | 28 | 121 | 730614 | 1700 | 0 | 3.4 |
| 3180002 | ROSS BARNETT RESERVOIR | 28 | 121 | 730827 | 1300 | 0 | 12.1 |
| 3180002 | ROSS BARNETT RESERVOIR | 28 | 121 | 731102 | 951 | 0 | 9.1 |
| 3180002 | ROSS BARNETT RESERVOIR | 28 | 121 | 730615 | 1050 | 0 | 4.5 |
| 3180002 | ROSS BARNETT RESERVOIR | 28 | 121 | 730827 | 1215 | 0 | 13.9 |
| 3180002 | ROSS BARNETT RESERVOIR | 28 | 121 | 731102 | 937 | 0 | 12.4 |
| 3180002 | ROSS BARNETT RESERVOIR | 28 | 121 | 730615 | 1130 | 0 | 9.1 |
| 3180002 | ROSS BARNETT RESERVOIR | 28 | 121 | 730827 | 1145 | 0 | 11.9 |
| 3180002 | ROSS BARNETT RESERVOIR | 28 | 121 | 731102 | 922 | 0 | 10.2 |

| AGENCY | STATION | LONGITUDE | LATITUDE | CAT UNIT | LOCATION DESCRIPTION | SF | COF | DATE | TM | DEPTH | 32209 Fluorometric Corrected ug/L | 32217 Fluorometric Uncorrected ug/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11EPALES | 450703 | -81.312505 | 34.051392 | 3050109 | LAKE MURRAY | 45 | 63 | 730328 | 820 | 0 | | 5.9 |
| 11EPALES | 450703 | -81.312505 | 34.051392 | 3050109 | LAKE MURRAY | 45 | 63 | 730709 | 1250 | 0 | | 7.4 |
| 11EPALES | 450703 | -81.312505 | 34.051392 | 3050109 | LAKE MURRAY | 45 | 63 | 730922 | 1330 | 0 | | 5.4 |
| 21SC60WQ | LMU-18B | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 870420 | 1400 | | 4 | |
| 21SC60WQ | LMU-18B | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 870518 | 1315 | | 14.4 | |
| 21SC60WQ | LMU-18B | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 870615 | 1215 | | 12.2 | |
| 21SC60WQ | LMU-18B | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 870720 | 1315 | | 7 | |
| 21SC60WQ | LMU-18B | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 870817 | 1350 | | 7.1 | |
| 21SC60WQ | LMU-18B | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 870921 | 1235 | | 0.9 | |
| 21SC60WQ | LMU-18B | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 871020 | 1300 | | 7.2 | |
| 21SC60WQ | LMU-18B | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 871117 | 1200 | | 2.8 | |
| 21SC60WQ | LMU-18B | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 871214 | 1130 | | 5.4 | |
| 21SC60WQ | LMU-18B | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 880118 | 1320 | | 4.6 | |
| 21SC60WQ | LMU-18B | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 880222 | 1430 | | 5.9 | |
| 21SC60WQ | LMU-18B | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 880314 | 1050 | | 5.2 | |
| 21SC60WQ | LMU-18B | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 880411 | 1020 | | 2.7 | |
| 21SC60WQ | LMU-18M | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 870420 | 1400 | | 4 | |
| 21SC60WQ | LMU-18M | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 870519 | 1315 | | 14.4 | |
| 21SC60WQ | LMU-18M | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 870616 | 1215 | | 12.2 | |
| 21SC60WQ | LMU-18M | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 870720 | 1315 | | 7 | |
| 21SC60WQ | LMU-18M | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 870818 | 1350 | | 7.1 | |
| 21SC60WQ | LMU-18M | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 870922 | 1235 | | 0.9 | |
| 21SC60WQ | LMU-18M | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 871020 | 1300 | | 7.2 | |
| 21SC60WQ | LMU-18M | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 871117 | 1200 | | 2.8 | |
| 21SC60WQ | LMU-18M | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 871216 | 1240 | | 5.4 | |
| 21SC60WQ | LMU-18M | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 880118 | 1320 | | 4.6 | |
| 21SC60WQ | LMU-18M | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 880222 | 1430 | | 5.9 | |
| 21SC60WQ | LMU-18M | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 880314 | 1050 | | 5.2 | |
| 21SC60WQ | LMU-18M | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 880411 | 1020 | | 2.7 | |
| 21SC60WQ | LMU-18S | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 870420 | 1400 | | 4 | |
| 21SC60WQ | LMU-18S | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 870519 | 1315 | | 14.4 | |
| 21SC60WQ | LMU-18S | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 870616 | 1215 | | 12.2 | |
| 21SC60WQ | LMU-18S | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 870720 | 1315 | | 7 | |
| 21SC60WQ | LMU-18S | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 870818 | 1350 | | 7.1 | |
| 21SC60WQ | LMU-18S | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 870922 | 1235 | | 0.9 | |
| 21SC60WQ | LMU-18S | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 871020 | 1300 | | 7.2 | |
| 21SC60WQ | LMU-18S | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 871117 | 1200 | | 2.8 | |
| 21SC60WQ | LMU-18S | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 871216 | 1240 | | 5.4 | |
| 21SC60WQ | LMU-18S | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 880118 | 1320 | | 4.6 | |
| 21SC60WQ | LMU-18S | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 880222 | 1430 | | 5.9 | |
| 21SC60WQ | LMU-18S | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 880314 | 1050 | | 5.2 | |
| 21SC60WQ | LMU-18S | -81.287171 | 34.060892 | 3050109 | SPENCE ISLANDS-LAKE MURRAY | 45 | 63 | 880411 | 1020 | | 2.7 | |
| 11EPALES | 450702 | -81.277781 | 34.06667 | 3050109 | LAKE MURRAY | 45 | 63 | 730326 | 1210 | 0 | | 4.9 |
| 11EPALES | 450702 | -81.277781 | 34.06667 | 3050109 | LAKE MURRAY | 45 | 63 | 730709 | 1000 | 0 | | 6.7 |
| 11EPALES | 450702 | -81.277781 | 34.06667 | 3050109 | LAKE MURRAY | 45 | 63 | 730922 | 1125 | 0 | | 4.8 |
| 11EPALES | 450704 | -81.376392 | 34.06667 | 3050109 | LAKE MURRAY | 45 | 63 | 730328 | 910 | 0 | | 4.9 |
| 11EPALES | 450704 | -81.376392 | 34.06667 | 3050109 | LAKE MURRAY | 45 | 63 | 730709 | 1415 | 0 | | 9.7 |
| 11EPALES | 450704 | -81.376392 | 34.06667 | 3050109 | LAKE MURRAY | 45 | 63 | 730922 | 1420 | 0 | | 5.9 |
| 21SC60WQ | S-280 | -81.394448 | 34.069448 | 3050109 | LAKE MURRAY AT MARKER 102 | 45 | 71 | 950518 | 1120 | | 11.9 | |
| 21SC60WQ | S-280 | -81.394448 | 34.069448 | 3050109 | LAKE MURRAY AT MARKER 102 | 45 | 71 | 950615 | 1050 | | 4.4 | |
| 21SC60WQ | S-280 | -81.394448 | 34.069448 | 3050109 | LAKE MURRAY AT MARKER 102 | 45 | 71 | 950705 | 1110 | | 2.4 | |
| 21SC60WQ | S-280 | -81.394448 | 34.069448 | 3050109 | LAKE MURRAY AT MARKER 102 | 45 | 71 | 950824 | 1015 | | 6.9 | |
| 21SC60WQ | S-280 | -81.394448 | 34.069448 | 3050109 | LAKE MURRAY AT MARKER 102 | 45 | 71 | 951019 | 925 | | 8.2 | |
| 21SC60WQ | S-280 | -81.394448 | 34.069448 | 3050109 | LAKE MURRAY AT MARKER 102 | 45 | 71 | 960509 | 1005 | | 7.2 | |
| 21SC60WQ | S-280 | -81.394448 | 34.069448 | 3050109 | LAKE MURRAY AT MARKER 102 | 45 | 71 | 960613 | 955 | | 6.3 | |
| 21SC60WQ | S-280 | -81.394448 | 34.069448 | 3050109 | LAKE MURRAY AT MARKER 102 | 45 | 71 | 960702 | 900 | | 5 | |
| 21SC60WQ | S-280 | -81.394448 | 34.069448 | 3050109 | LAKE MURRAY AT MARKER 102 | 45 | 71 | 960808 | 1015 | | 6.6 | |
| 21SC60WQ | S-280 | -81.394448 | 34.069448 | 3050109 | LAKE MURRAY AT MARKER 102 | 45 | 71 | 960904 | 1025 | | 3.6 | |
| 21SC60WQ | S-280 | -81.394448 | 34.069448 | 3050109 | LAKE MURRAY AT MARKER 102 | 45 | 71 | 961010 | 1110 | | 4.9 | |
| 21SC60WQ | S-280 | -81.394448 | 34.069448 | 3050109 | LAKE MURRAY AT MARKER 102 | 45 | 71 | 970508 | 1040 | | 7.9 | |

| AGENCY | STATION | LONGITUDE | LATITUDE | CAT UNIT | LOCATION DESCRIPTION | SF | COF | DATE | TM | DEPTH | 32209 Fluorometric Corrected ug/L | 32217 Fluorometric Uncorrected ug/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21SC60WQ | S-280 | -81.394448 | 34.069448 | 3050109 | LAKE MURRAY AT MARKER 102 | 45 | 71 | 970716 | 1030 | | 7.6 | |
| 21SC60WQ | S-280 | -81.394448 | 34.069448 | 3050109 | LAKE MURRAY AT MARKER 102 | 45 | 71 | 970806 | 1105 | | 6.4 | |
| 21SC60WQ | S-280 | -81.394448 | 34.069448 | 3050109 | LAKE MURRAY AT MARKER 102 | 45 | 71 | 970903 | 1000 | | 4.7 | |
| 21SC60WQ | S-280 | -81.394448 | 34.069448 | 3050109 | LAKE MURRAY AT MARKER 102 | 45 | 71 | 971023 | 1045 | | 2.3 | |
| 21SC60WQ | LMU-16B | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 870420 | 1540 | | 5.8 | |
| 21SC60WQ | LMU-16B | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 870519 | 1500 | | 9.1 | |
| 21SC60WQ | LMU-16B | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 870616 | 1420 | | 9.7 | |
| 21SC60WQ | LMU-16B | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 870721 | 1450 | | 7 | |
| 21SC60WQ | LMU-16B | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 870818 | 1440 | | 7.8 | |
| 21SC60WQ | LMU-16B | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 870922 | 1335 | | 6.1 | |
| 21SC60WQ | LMU-16B | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 871020 | 1345 | | 5.1 | |
| 21SC60WQ | LMU-16B | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 871117 | 1300 | | 5.8 | |
| 21SC60WQ | LMU-16B | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 871216 | 1130 | | 3.5 | |
| 21SC60WQ | LMU-16B | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 880118 | 1430 | | 4.9 | |
| 21SC60WQ | LMU-16B | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 880222 | 1030 | | 5.7 | |
| 21SC60WQ | LMU-16B | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 880314 | 1205 | | 8.2 | |
| 21SC60WQ | LMU-16B | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 880411 | 1050 | | 1.6 | |
| 21SC60WQ | LMU-16M | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 870420 | 1540 | | 5.8 | |
| 21SC60WQ | LMU-16M | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 870519 | 1500 | | 9.1 | |
| 21SC60WQ | LMU-16M | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 870616 | 1420 | | 9.7 | |
| 21SC60WQ | LMU-16M | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 870721 | 1450 | | 7 | |
| 21SC60WQ | LMU-16M | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 870818 | 1440 | | 7.8 | |
| 21SC60WQ | LMU-16M | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 870922 | 1335 | | 6.1 | |
| 21SC60WQ | LMU-16M | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 871020 | 1345 | | 5.1 | |
| 21SC60WQ | LMU-16M | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 871117 | 1300 | | 5.8 | |
| 21SC60WQ | LMU-16M | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 871216 | 1130 | | 3.5 | |
| 21SC60WQ | LMU-16M | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 880118 | 1430 | | 4.9 | |
| 21SC60WQ | LMU-16M | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 880222 | 1030 | | 5.7 | |
| 21SC60WQ | LMU-16M | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 880314 | 1205 | | 8.2 | |
| 21SC60WQ | LMU-16M | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 880411 | 1050 | | 1.6 | |
| 21SC60WQ | LMU-16S | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 870420 | 1540 | | 5.8 | |
| 21SC60WQ | LMU-16S | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 870519 | 1500 | | 9.1 | |
| 21SC60WQ | LMU-16S | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 870616 | 1420 | | 9.7 | |
| 21SC60WQ | LMU-16S | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 870721 | 1450 | | 7 | |
| 21SC60WQ | LMU-16S | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 870818 | 1440 | | 7.8 | |
| 21SC60WQ | LMU-16S | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 870922 | 1335 | | 6.1 | |
| 21SC60WQ | LMU-16S | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 871020 | 1345 | | 5.1 | |
| 21SC60WQ | LMU-16S | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 871117 | 1300 | | 5.8 | |
| 21SC60WQ | LMU-16S | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 871216 | 1130 | | 3.5 | |
| 21SC60WQ | LMU-16S | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 880119 | 1430 | | 4.9 | |
| 21SC60WQ | LMU-16S | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 880222 | 1030 | | 5.7 | |
| 21SC60WQ | LMU-16S | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 880314 | 1205 | | 8.2 | |
| 21SC60WQ | LMU-16S | -81.328642 | 34.072059 | 3050109 | COUNTS ISLAND-LAKE MURRAY | 45 | 63 | 880411 | 1050 | | 1.6 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 790418 | 1200 | | 2.2 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 790614 | 1030 | | 4.4 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 790628 | 1130 | | 7.2 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 791016 | 1200 | | 1.6 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 800410 | 1145 | | 0.8 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 800716 | 1300 | | 4.2 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 801010 | 1204 | | 3.5 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 810429 | 1200 | | 2.1 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 810713 | 1200 | | 4.3 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 810727 | 1200 | | 3.8 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 811013 | 1200 | | 1.7 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 820415 | 1200 | | 4.3 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 820707 | 1200 | | 6.3 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 820729 | 1200 | | 3 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 821005 | 1225 | | 2.3 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 830428 | 1200 | | 14.1 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 830621 | 1445 | | 12.4 | |

| AGENCY | STATION | LONGITUDE | LATITUDE | CAT UNIT | LOCATION DESCRIPTION | SF | COF | DATE | TM | DEPTH | 32209 Fluorometric Corrected ug/L | 32217 Fluorometric Uncorrected ug/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 830725 | 945 | | 3.7 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 950518 | 1010 | | 10.4 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 950615 | 930 | | 6.1 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 950705 | 945 | | 2.6 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 950824 | 900 | | 4.7 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 951019 | 825 | | 2.3 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 960509 | 910 | | 4.6 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 960613 | 845 | | 6.4 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 960702 | 810 | | 6 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 960808 | 905 | | 6.6 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 960904 | 940 | | 4.1 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 961010 | 1040 | | 3.4 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 970508 | 935 | | 5.3 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 970612 | 830 | | 6 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 970716 | 930 | | 8.2 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 970806 | 950 | | 6.2 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 970903 | 910 | | 4.3 | |
| 21SC60WQ | S-273 | -81.294448 | 34.072226 | 3050106 | LAKE MURRAY AT MARKER 166 | 45 | 63 | 971023 | 950 | | 1.4 | |
| 21SC60WQ | LMU-10B | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 870421 | 1320 | | 4.2 | |
| 21SC60WQ | LMU-10B | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 870519 | 1130 | | 12.4 | |
| 21SC60WQ | LMU-10B | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 870615 | 1220 | | 11.6 | |
| 21SC60WQ | LMU-10B | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 870720 | 1345 | | 10.6 | |
| 21SC60WQ | LMU-10B | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 870817 | 1022 | | 11.6 | |
| 21SC60WQ | LMU-10B | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 870921 | 1610 | | 9.9 | |
| 21SC60WQ | LMU-10B | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 871019 | 1320 | | 6.8 | |
| 21SC60WQ | LMU-10B | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 871116 | 1130 | | 5.3 | |
| 21SC60WQ | LMU-10B | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 871214 | 1430 | | 4.5 | |
| 21SC60WQ | LMU-10B | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 880118 | 1410 | | 4 | |
| 21SC60WQ | LMU-10B | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 880222 | 1030 | | 12.2 | |
| 21SC60WQ | LMU-10B | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 880315 | 900 | | 20.2 | |
| 21SC60WQ | LMU-10B | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 880413 | 1330 | | 7 | |
| 21SC60WQ | LMU-10M | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 870421 | 1320 | | 4.2 | |
| 21SC60WQ | LMU-10M | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 870519 | 1130 | | 12.4 | |
| 21SC60WQ | LMU-10M | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 870615 | 1220 | | 11.6 | |
| 21SC60WQ | LMU-10M | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 870720 | 1345 | | 10.6 | |
| 21SC60WQ | LMU-10M | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 870817 | 1022 | | 11.6 | |
| 21SC60WQ | LMU-10M | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 870921 | 1610 | | 9.9 | |
| 21SC60WQ | LMU-10M | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 871019 | 1320 | | 6.8 | |
| 21SC60WQ | LMU-10M | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 871116 | 1130 | | 5.3 | |
| 21SC60WQ | LMU-10M | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 871214 | 1430 | | 4.5 | |
| 21SC60WQ | LMU-10M | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 880118 | 1410 | | 4 | |
| 21SC60WQ | LMU-10M | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 880222 | 1030 | | 12.2 | |
| 21SC60WQ | LMU-10M | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 880315 | 900 | | 20.2 | |
| 21SC60WQ | LMU-10M | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 880413 | 1330 | | 7 | |
| 21SC60WQ | LMU-10S | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 870421 | 1320 | | 4.2 | |
| 21SC60WQ | LMU-10S | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 870519 | 1130 | | 12.4 | |
| 21SC60WQ | LMU-10S | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 870615 | 1220 | | 11.6 | |
| 21SC60WQ | LMU-10S | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 870720 | 1345 | | 10.6 | |
| 21SC60WQ | LMU-10S | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 870817 | 1022 | | 11.6 | |
| 21SC60WQ | LMU-10S | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 870921 | 1610 | | 9.9 | |
| 21SC60WQ | LMU-10S | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 871019 | 1320 | | 6.8 | |
| 21SC60WQ | LMU-10S | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 871116 | 1130 | | 5.3 | |
| 21SC60WQ | LMU-10S | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 871214 | 1430 | | 4.5 | |
| 21SC60WQ | LMU-10S | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 880118 | 1410 | | 4 | |
| 21SC60WQ | LMU-10S | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 880222 | 1030 | | 12.2 | |
| 21SC60WQ | LMU-10S | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 880315 | 900 | | 20.2 | |
| 21SC60WQ | LMU-10S | -81.421642 | 34.082781 | 3050109 | BILLY DREHER ISLAND-LAKE MURRAY | 45 | 71 | 880413 | 1330 | | 7 | |
| 11EPALES | 450706 | -81.537503 | 34.083338 | 3050106 | LAKE MURRAY | 45 | 81 | 730326 | 1545 | 0 | | 8.4 |
| 11EPALES | 450706 | -81.537503 | 34.083338 | 3050106 | LAKE MURRAY | 45 | 81 | 730709 | 1510 | 0 | | 4.4 |
| 11EPALES | 450706 | -81.537503 | 34.083338 | 3050106 | LAKE MURRAY | 45 | 81 | 730922 | 1535 | 0 | | 9.3 |

| AGENCY | STATION | LONGITUDE | LATITUDE | CAT UNIT | LOCATION DESCRIPTION | SF | COF | DATE | TM | DEPTH | 32209 Fluorometric Corrected ug/L | 32217 Fluorometric Uncorrected ug/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11EPALES | 450705 | -81.461116 | 34.094448 | 3050109 | LAKE MURRAY | 45 | 71 | 730328 | 1000 | 0 | | 6.2 |
| 11EPALES | 450705 | -81.461116 | 34.094448 | 3050109 | LAKE MURRAY | 45 | 71 | 730709 | 1445 | 0 | | 7.5 |
| 11EPALES | 450705 | -81.461116 | 34.094448 | 3050109 | LAKE MURRAY | 45 | 71 | 730922 | 1500 | 0 | | 10.1 |
| 21SC60WQ | LMU-19B | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 870420 | 1500 | | 1.8 | |
| 21SC60WQ | LMU-19B | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 870518 | 1400 | | 13.9 | |
| 21SC60WQ | LMU-19B | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 870615 | 1300 | | 9.6 | |
| 21SC60WQ | LMU-19B | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 870720 | 1545 | | 7.1 | |
| 21SC60WQ | LMU-19B | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 870817 | 1545 | | 5.8 | |
| 21SC60WQ | LMU-19B | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 870921 | 1440 | | 7.1 | |
| 21SC60WQ | LMU-19B | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 871019 | 1440 | | 6.4 | |
| 21SC60WQ | LMU-19B | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 871116 | 1400 | | 4.9 | |
| 21SC60WQ | LMU-19B | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 871214 | 1340 | | 6.6 | |
| 21SC60WQ | LMU-19B | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 880118 | 1045 | | 5.2 | |
| 21SC60WQ | LMU-19B | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 880222 | 935 | | 3.9 | |
| 21SC60WQ | LMU-19B | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 880314 | 1010 | | 2.4 | |
| 21SC60WQ | LMU-19B | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 880411 | 1540 | | 2.2 | |
| 21SC60WQ | LMU-19M | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 870420 | 1500 | | 1.8 | |
| 21SC60WQ | LMU-19M | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 870518 | 1400 | | 13.9 | |
| 21SC60WQ | LMU-19M | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 870615 | 1300 | | 9.6 | |
| 21SC60WQ | LMU-19M | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 870721 | 1545 | | 7.1 | |
| 21SC60WQ | LMU-19M | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 870817 | 1545 | | 5.8 | |
| 21SC60WQ | LMU-19M | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 870921 | 1440 | | 7.1 | |
| 21SC60WQ | LMU-19M | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 871019 | 1440 | | 6.4 | |
| 21SC60WQ | LMU-19M | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 871116 | 1400 | | 4.9 | |
| 21SC60WQ | LMU-19M | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 871214 | 1340 | | 6.6 | |
| 21SC60WQ | LMU-19M | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 880118 | 1045 | | 5.2 | |
| 21SC60WQ | LMU-19M | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 880222 | 935 | | 3.9 | |
| 21SC60WQ | LMU-19M | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 880314 | 1010 | | 2.4 | |
| 21SC60WQ | LMU-19M | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 880411 | 1540 | | 2.2 | |
| 21SC60WQ | LMU-19S | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 870420 | 1500 | | 1.8 | |
| 21SC60WQ | LMU-19S | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 870518 | 1400 | | 13.9 | |
| 21SC60WQ | LMU-19S | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 870615 | 1300 | | 9.6 | |
| 21SC60WQ | LMU-19S | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 870721 | 1545 | | 7.1 | |
| 21SC60WQ | LMU-19S | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 870817 | 1545 | | 5.8 | |
| 21SC60WQ | LMU-19S | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 870921 | 1440 | | 7.1 | |
| 21SC60WQ | LMU-19S | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 871019 | 1440 | | 6.4 | |
| 21SC60WQ | LMU-19S | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 871116 | 1400 | | 4.9 | |
| 21SC60WQ | LMU-19S | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 871214 | 1340 | | 6.6 | |
| 21SC60WQ | LMU-19S | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 880118 | 1045 | | 5.2 | |
| 21SC60WQ | LMU-19S | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 880222 | 935 | | 3.9 | |
| 21SC60WQ | LMU-19S | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 880314 | 1010 | | 2.4 | |
| 21SC60WQ | LMU-19S | -81.266698 | 34.097003 | 3050109 | SUSIE EBERT IS.-LAKE MURRAY | 45 | 63 | 880411 | 1540 | | 2.2 | |
| 11EPALES | 450707 | -81.256948 | 34.100003 | 3050109 | LAKE MURRAY | 45 | 63 | 730327 | 1515 | 0 | | 5 |
| 11EPALES | 450707 | -81.256948 | 34.100003 | 3050109 | LAKE MURRAY | 45 | 63 | 730709 | 1335 | 0 | | 8.1 |
| 11EPALES | 450707 | -81.256948 | 34.100003 | 3050109 | LAKE MURRAY | 45 | 63 | 730922 | 1610 | 0 | | 5 |
| 21SC60WQ | S-274 | -81.269448 | 34.100003 | 3050109 | LAKE MURRAY AT MARKER 143 | 45 | 79 | 950518 | 1120 | | 10.7 | |
| 21SC60WQ | S-274 | -81.269448 | 34.100003 | 3050109 | LAKE MURRAY AT MARKER 143 | 45 | 79 | 950615 | 1000 | | 6 | |
| 21SC60WQ | S-274 | -81.269448 | 34.100003 | 3050109 | LAKE MURRAY AT MARKER 143 | 45 | 79 | 950705 | 1020 | | 1.5 | |
| 21SC60WQ | S-274 | -81.269448 | 34.100003 | 3050109 | LAKE MURRAY AT MARKER 143 | 45 | 79 | 950824 | 900 | | 3.6 | |
| 21SC60WQ | S-274 | -81.269448 | 34.100003 | 3050109 | LAKE MURRAY AT MARKER 143 | 45 | 79 | 951019 | 845 | | 2.7 | |
| 21SC60WQ | S-274 | -81.269448 | 34.100003 | 3050109 | LAKE MURRAY AT MARKER 143 | 45 | 79 | 960509 | 935 | | 5.1 | |
| 21SC60WQ | S-274 | -81.269448 | 34.100003 | 3050109 | LAKE MURRAY AT MARKER 143 | 45 | 79 | 960613 | 915 | | 3.9 | |
| 21SC60WQ | S-274 | -81.269448 | 34.100003 | 3050109 | LAKE MURRAY AT MARKER 143 | 45 | 79 | 960702 | 830 | | 4.5 | |
| 21SC60WQ | S-274 | -81.269448 | 34.100003 | 3050109 | LAKE MURRAY AT MARKER 143 | 45 | 79 | 960808 | 935 | | 6.6 | |
| 21SC60WQ | S-274 | -81.269448 | 34.100003 | 3050109 | LAKE MURRAY AT MARKER 143 | 45 | 79 | 960904 | 1000 | | 3.2 | |
| 21SC60WQ | S-274 | -81.269448 | 34.100003 | 3050109 | LAKE MURRAY AT MARKER 143 | 45 | 79 | 961010 | 930 | | 3.2 | |
| 21SC60WQ | S-274 | -81.269448 | 34.100003 | 3050109 | LAKE MURRAY AT MARKER 143 | 45 | 79 | 970508 | 955 | | 3 | |
| 21SC60WQ | S-274 | -81.269448 | 34.100003 | 3050109 | LAKE MURRAY AT MARKER 143 | 45 | 79 | 970612 | 900 | | 17.1 | |
| 21SC60WQ | S-274 | -81.269448 | 34.100003 | 3050109 | LAKE MURRAY AT MARKER 143 | 45 | 79 | 970716 | 1000 | | 7 | |
| 21SC60WQ | S-274 | -81.269448 | 34.100003 | 3050109 | LAKE MURRAY AT MARKER 143 | 45 | 79 | 970806 | 1030 | | 6.2 | |

| AGENCY | STATION | LONGITUDE | LATITUDE | CAT UNIT | LOCATION DESCRIPTION | SF | COF | DATE | TM | DEPTH | 32209 Fluorometric Corrected ug/L | 32217 Fluorometric Uncorrected ug/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21SC60WQ | S-274 | -81.269448 | 34.100003 | 3050109 | LAKE MURRAY AT MARKER 143 | 45 | 79 | 971023 | 1015 | | 2.8 | |
| 21SC60WQ | S-279 | -81.483337 | 34.100003 | 3050109 | LK MURRAY AT MARKER 63 | 45 | 71 | 950518 | 1200 | | 13.8 | |
| 21SC60WQ | S-279 | -81.483337 | 34.100003 | 3050109 | LK MURRAY AT MARKER 63 | 45 | 71 | 950615 | 1115 | | 15.5 | |
| 21SC60WQ | S-279 | -81.483337 | 34.100003 | 3050109 | LK MURRAY AT MARKER 63 | 45 | 71 | 950705 | 1140 | | 9 | |
| 21SC60WQ | S-279 | -81.483337 | 34.100003 | 3050109 | LK MURRAY AT MARKER 63 | 45 | 71 | 950824 | 1055 | | 11 | |
| 21SC60WQ | S-279 | -81.483337 | 34.100003 | 3050109 | LK MURRAY AT MARKER 63 | 45 | 71 | 951019 | 945 | | 4.9 | |
| 21SC60WQ | S-279 | -81.483337 | 34.100003 | 3050109 | LK MURRAY AT MARKER 63 | 45 | 71 | 960509 | 1020 | | 11.3 | |
| 21SC60WQ | S-279 | -81.483337 | 34.100003 | 3050109 | LK MURRAY AT MARKER 63 | 45 | 71 | 960613 | 1020 | | 11.3 | |
| 21SC60WQ | S-279 | -81.483337 | 34.100003 | 3050109 | LK MURRAY AT MARKER 63 | 45 | 71 | 960702 | 920 | | 7 | |
| 21SC60WQ | S-279 | -81.483337 | 34.100003 | 3050109 | LK MURRAY AT MARKER 63 | 45 | 71 | 960808 | 1040 | | 7.4 | |
| 21SC60WQ | S-279 | -81.483337 | 34.100003 | 3050109 | LK MURRAY AT MARKER 63 | 45 | 71 | 960904 | 1045 | | 12.2 | |
| 21SC60WQ | S-279 | -81.483337 | 34.100003 | 3050109 | LK MURRAY AT MARKER 63 | 45 | 71 | 961010 | 1135 | | 26 | |
| 21SC60WQ | S-279 | -81.483337 | 34.100003 | 3050109 | LK MURRAY AT MARKER 63 | 45 | 71 | 970508 | 1115 | | 27.6 | |
| 21SC60WQ | S-279 | -81.483337 | 34.100003 | 3050109 | LK MURRAY AT MARKER 63 | 45 | 71 | 970612 | 1000 | | 6.8 | |
| 21SC60WQ | S-279 | -81.483337 | 34.100003 | 3050109 | LK MURRAY AT MARKER 63 | 45 | 71 | 970716 | 1115 | | 10.8 | |
| 21SC60WQ | S-279 | -81.483337 | 34.100003 | 3050109 | LK MURRAY AT MARKER 63 | 45 | 71 | 970806 | 1140 | | 10.3 | |
| 21SC60WQ | S-279 | -81.483337 | 34.100003 | 3050109 | LK MURRAY AT MARKER 63 | 45 | 71 | 970903 | 1020 | | 8.5 | |
| 21SC60WQ | S-279 | -81.483337 | 34.100003 | 3050109 | LK MURRAY AT MARKER 63 | 45 | 71 | 971023 | 1120 | | 9.6 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 790410 | 1200 | | 4.4 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 790619 | 1600 | | 14.3 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 790706 | 1145 | | 22.4 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 791016 | 1200 | | 14.6 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 800410 | 1200 | | 0.9 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 800716 | 1130 | | 13 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 800730 | 1200 | | 9.2 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 801010 | 1355 | | 19 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 810420 | 1200 | | 8.8 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 810713 | 1200 | | 6.2 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 810727 | 1200 | | 13.5 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 811013 | 1200 | | 8.7 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 820415 | 1200 | | 9.2 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 820715 | 1200 | | 17.1 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 820729 | 1200 | | 12.6 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 821005 | 1045 | | 174.9 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 830428 | 1200 | | 23.7 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 830621 | 1315 | | 17 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 830728 | 1000 | | 11.2 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 830823 | 1200 | | 8.8 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 840620 | 1130 | | 12.3 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 840723 | 1430 | | 19.5 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 950518 | 1245 | | 12.2 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 950615 | 1145 | | 16.7 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 950705 | 1220 | | 8 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 950824 | 1105 | | 23 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 951019 | 1010 | | 9.6 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 960509 | 1040 | | 15.5 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 960613 | 1100 | | 12.2 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 960702 | 940 | | 7.3 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 960808 | 1105 | | 15.9 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 960904 | 1110 | | 18.8 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 961010 | 1115 | | 3.3 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 961010 | 1155 | | 8.7 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 970508 | 1210 | | 25.3 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 970612 | 1100 | | 15.6 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 970716 | 1210 | | 7.1 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 970806 | 1230 | | 12.9 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 970903 | 1105 | | 12 | |
| 21SC60WQ | S-223 | -81.569448 | 34.102782 | 3050109 | LK MURRAY AT SC 391 BLACKS BRIDGE | 45 | 71 | 971023 | 1210 | | 35.1 | |

# APPENDIX 4

# LITERATURE SOURCES

APR 03 '98 04:36PM AQUATER INC. 615 373 8512 P.9/11

A-3

# OPEN-CHANNEL HYDRAULICS

VEN TE CHOW, Ph.D.

*Professor of Hydraulic Engineering*
*University of Illinois*

McGRAW-HILL BOOK COMPANY

New York Toronto London

1959

APR 03 '98 04:36PM AQUETER INC. 615 373 8512 P.10/11

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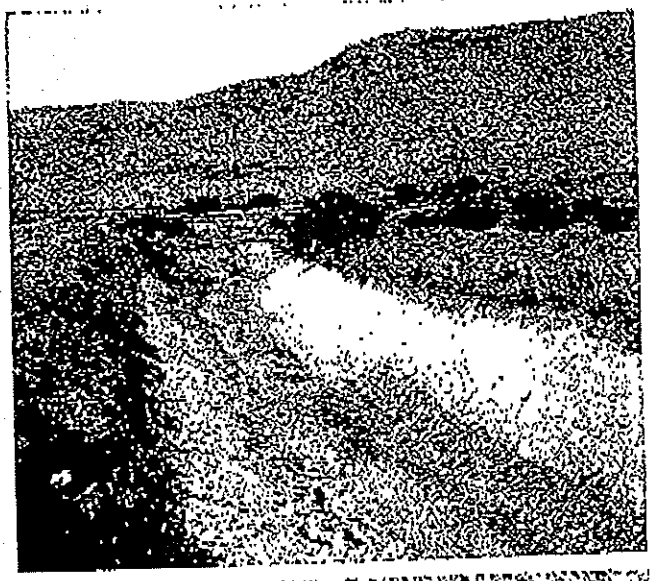
TABLE 5-6. VALUES OF THE ROUGHNESS COEFFICIENT $n$ *(continued)*

| Type of channel and description | Minimum | Normal | Maximum |
|---|---|---|---|
| *b.* Mountain streams, no vegetation in channel, banks usually steep, trees and brush along banks submerged at high stages | | | |
| 1. Bottom: gravels, cobbles, and few boulders | 0.030 | 0.040 | 0.050 |
| 2. Bottom: cobbles with large boulders | 0.040 | 0.050 | 0.070 |
| D-2. Flood plains | | | |
| *a.* Pasture, no brush | | | |
| 1. Short grass | 0.025 | 0.030 | 0.035 |
| 2. High grass | 0.030 | 0.035 | 0.050 |
| *b.* Cultivated areas | | | |
| 1. No crop | 0.020 | 0.030 | 0.040 |
| 2. Mature row crops | 0.025 | 0.035 | 0.045 |
| 3. Mature field crops | 0.030 | 0.040 | 0.050 |
| *c.* Brush | | | |
| 1. Scattered brush, heavy weeds | 0.035 | 0.050 | 0.070 |
| 2. Light brush and trees, in winter | 0.035 | 0.050 | 0.060 |
| 3. Light brush and trees, in summer | 0.040 | 0.060 | 0.080 |
| 4. Medium to dense brush, in winter | 0.045 | 0.070 | 0.110 |
| 5. Medium to dense brush, in summer | 0.070 | 0.100 | 0.160 |
| *d.* Trees | | | |
| 1. Dense willows, summer, straight | 0.110 | 0.150 | 0.200 |
| 2. Cleared land with tree stumps, no sprouts | 0.030 | 0.040 | 0.050 |
| 3. Same as above, but with heavy growth of sprouts | 0.050 | 0.060 | 0.080 |
| 4. Heavy stand of timber, a few down trees, little undergrowth, flood stage below branches | 0.080 | 0.100 | 0.120 |
| 5. Same as above, but with flood stage reaching branches | 0.100 | 0.120 | 0.160 |
| D-3. Major streams (top width at flood stage >100 ft). The $n$ value is less than that for minor streams of similar description, because banks offer less effective resistance. | | | |
| *a.* Regular section with no boulders or brush | 0.025 | ..... | 0.060 |
| *b.* Irregular and rough section | 0.035 | ..... | 0.100 |

A3

(13)

(14)



(15)

FIG. 5-5 (13–15)

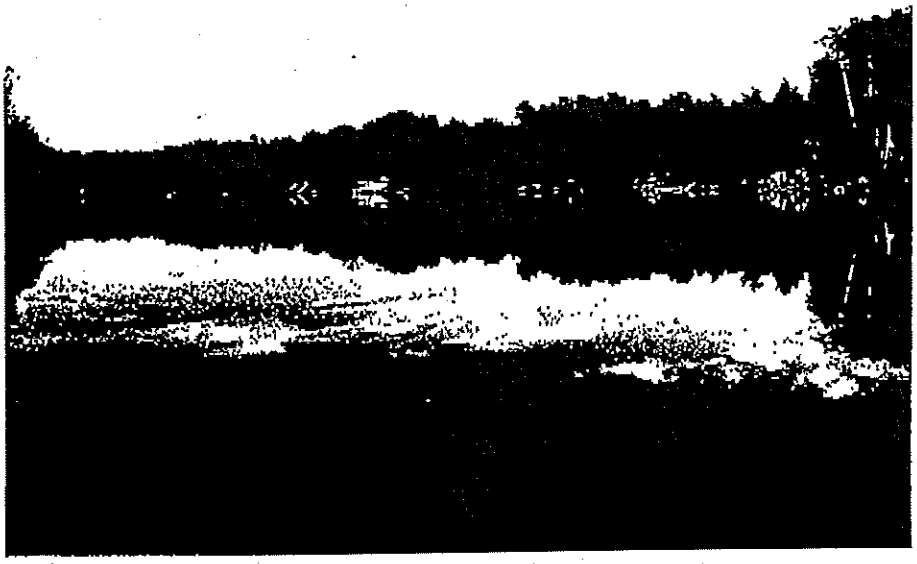
13. $n = 0.020$. Earth canal excavated in alluvial silt soil, with deposits of sand on bottom and growth of grass.

14. $n = 0.030$. Canal with large-cobblestone bed.

15. $n = 0.035$. Natural channel, somewhat irregular side slopes; fairly even, clean and regular bottom; in light gray silty clay to light tan silt loam; very little variation in cross section.

#7

# ASSIMILATIVE CAPACITY OF THE OUACHITA RIVER NEAR CAMDEN, ARKANSAS



**INTERNATIONAL PAPER**

CAMDEN, ARKANSAS

THE ADVENT GROUP, INC.

Brentwood, Tennessee

Innovative solutions to environmental challenges

#7

1 * * * QUAL-2E STREAM QUALITY ROUTING MODEL * * *
* * * EPA/NCASI VERSION * * *

0 $$$ (PROBLEM TITLES) $$$

| CARD TYPE | | QUAL-2E PROGRAM TITLES |
|---|---|---|
| TITLE01 | | INTERNATIONAL PAPER - OUACHITA RIVER |
| TITLE02 | | JANUARY SIMULATION |
| TITLE03 | NO | CONSERVATIVE MINERAL I |
| TITLE04 | NO | CONSERVATIVE MINERAL II |
| TITLE05 | NO | CONSERVATIVE MINERAL III |
| TITLE06 | NO | TEMPERATURE |
| TITLE07 | YES | BIOCHEMICAL OXYGEN DEMAND IN MG/L |
| TITLE08 | YES | ALGAE AS CHL-A IN UG/L |
| TITLE09 | YES | PHOSPHORUS CYCLE AS P IN MG/L |
| TITLE10 | | (ORGANIC-P; DISSOLVED-P) |
| TITLE11 | YES | NITROGEN CYCLE AS N IN MG/L |
| TITLE12 | | (ORGANIC-N; AMMONIA-N; NITRITE-N; NITRATE-N) |
| TITLE13 | YES | DISSOLVED OXYGEN IN MG/L |
| TITLE14 | NO | FECAL COLIFORMS IN NO./100 ML |
| TITLE15 | NO | ARBITRARY NON-CONSERVATIVE BOD MG/L |
| ENDTITLE | | |

0 $$$ DATA TYPE 1 (CONTROL DATA) $$$

| CARD TYPE | | CARD TYPE | |
|---|---|---|---|
| LIST DATA INPUT | 0.00000 | | 0.00000 |
| NO WRITE OPTIONAL SUMMARY | 0.00000 | | 0.00000 |
| FLOW AUGMENTATION | 0.00000 | | 0.00000 |
| STEADY STATE | 0.00000 | | 0.00000 |
| NO TRAPEZOIDAL X-SECTIONS | 0.00000 | | 0.00000 |
| NO PRINT LCD/SOLAR DATA | 0.00000 | | 0.00000 |
| NO PLOT DO AND BOD | 0.00000 | | 0.00000 |
| FIXED DNSTM CONC (YES=1)= | 0.00000 | ULT BOD CONV RATE COEF | 1.00000 |
| INPUT METRIC (YES=1) = | 0.00000 | OUTPUT METRIC (YES=1) = | 0.00000 |
| NUMBER OF REACHES = | 10.00000 | NUMBER OF JUNCTIONS = | 0.00000 |
| NUM OF HEADWATERS = | 1.00000 | NUMBER OF POINT LOADS = | 3.00000 |
| TIME STEP (HOURS) = | 0.00000 | LNTH COMP ELEMENT (DX)= | 0.25000 |
| MAXIMUM ROUTE TIME (HRS)= | 800.00000 | TIME INC. FOR RPT2 (HRS)= | 0.00000 |
| LATITUDE OF BASIN (DEG) = | 33.40000 | LONGITUDE OF BASIN (DEG)= | 92.70000 |
| STANDARD MERIDIAN (DEG) = | 90.00000 | DAY OF YEAR START TIME = | 240.00000 |
| EVAP. COEFF. (AE) = | 0.00001 | EVAP. COEF. (BE) = | 0.00001 |
| ELEV OF BASIN (ELEV) = | 75.00000 | DUST ATTENUATION COEF. = | 0.13000 |
| ENDATA1 | 0.00000 | | 0.00000 |

0 $$$ DATA TYPE 1A (ALGAE PRODUCTION AND NITROGEN OXIDATION CONSTANTS) $$$

| CARD TYPE | | CARD TYPE | |
|---|---|---|---|
| O UPTAKE BY NH3 OXID(MG O/MG N)= | 3.5000 | O UPTAKE BY NO2 OXID(MG O/MG N)= | 1.2000 |
| O PROD BY ALGAE (MG O/MG A) = | 1.8000 | O UPTAKE BY ALGAE (MG O/MG A) = | 2.0000 |
| N CONTENT OF ALGAE (MG N/MG A) = | 0.0850 | P CONTENT OF ALGAE (MG P/MG A) = | 0.0150 |
| ALG MAX SPEC GROWTH RATE(1/DAY)= | 2.5000 | ALGAE RESPIRATION RATE (1/DAY) = | 0.0500 |
| N HALF SATURATION CONST (MG/L)= | 0.2000 | P HALF SATURATION CONST (MG/L)= | 0.0200 |
| LIN ALG SHADE CO (1/FT-UGCHA/L=) | 0.0026 | NLIN SHADE(1/FT-(UGCHA/L)**2/3)= | 0.0165 |
| LIGHT FUNCTION OPTION (LFNOPT) = | 1.0000 | LIGHT SAT'N COEF (BTU/FT2-MIN) = | 0.0040 |
| DAILY AVERAGING OPTION (LAVOPT)= | 2.0000 | LIGHT AVERAGING FACTOR (AFACT) = | 0.9200 |
| NUMBER OF DAYLIGHT HOURS (DLH) = | 14.0000 | TOTAL DAILY SOLR RAD (BTU/FT-2)= | 516.0000 |
| ALGY GROWTH CALC OPTION(LGROPT)= | 1.0000 | ALGAL PREF FOR NH3-N (PREFN) = | 0.5000 |
| ALG/TEMP SOLR RAD FACTOR(TFACT)= | 0.4500 | NITRIFICATION INHIBITION COEF = | 0.8000 |
| ENDATA1A | 0.0000 | | 0.0000 |

0 $$$ DATA TYPE 1B (TEMPERATURE CORRECTION CONSTANTS FOR RATE COEFFICIENTS) $$$

#7

FLAG FIELD 9. 20. 2.2.2.6.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.
FLAG FIELD 10. 12. 2.2.2.2.2.2.2.2.2.2.5.0.0.0.0.0.0.0.0.
ENDATA4 0. 0. 0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.

0 $$$ DATA TYPE 5 (HYDRAULIC DATA FOR DETERMINING VELOCITY AND DEPTH) $$$

| CARD TYPE | REACH | COEF-DSPN | COEFQV | EXPOQV | COEFQH | EXPOQH | CMANN |
|---|---|---|---|---|---|---|---|
| HYDRAULICS | 1. | 6.00 | 0.010 | 0.369 | 16.000 | 0.000 | 0.060 |
| HYDRAULICS | 2. | 6.00 | 0.044 | 0.369 | 16.000 | 0.000 | 0.060 |
| HYDRAULICS | 3. | 6.00 | 0.027 | 0.369 | 16.000 | 0.000 | 0.060 |
| HYDRAULICS | 4. | 6.00 | 0.023 | 0.369 | 16.000 | 0.000 | 0.060 |
| HYDRAULICS | 5. | 6.00 | 0.016 | 0.369 | 16.000 | 0.000 | 0.060 |
| HYDRAULICS | 6. | 6.00 | 0.016 | 0.369 | 16.000 | 0.000 | 0.060 |
| HYDRAULICS | 7. | 6.00 | 0.001 | 0.841 | 16.000 | 0.000 | 0.060 |
| HYDRAULICS | 8. | 6.00 | 0.001 | 0.841 | 16.000 | 0.000 | 0.060 |
| HYDRAULICS | 9. | 6.00 | 0.001 | 0.841 | 16.000 | 0.000 | 0.060 |
| HYDRAULICS | 10. | 6.00 | 0.001 | 0.841 | 16.000 | 0.000 | 0.060 |
| ENDATA5 | 0. | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

0 $$$ DATA TYPE 6 (REACTION COEFFICIENTS FOR DEOXYGENATION AND REAERATION) $$$

| CARD TYPE | REACH | K1 | K3 | SOD RATE | KZOPT | K2 | COEQK2 TSIV COEF FOR OPT 8 | OR OR | EXPQK2 SLOPE FOR OPT 8 | DELTAH FOR OPT 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| REACT COEF | 1. | 0.05 | 0.00 | 0.019 | 3. | 0.16 | 0.000 | | 0.00000 | 0.01 |
| REACT COEF | 2. | 0.05 | 0.00 | 0.019 | 3. | 0.16 | 0.000 | | 0.00000 | 0.15 |
| REACT COEF | 3. | 0.05 | 0.00 | 0.054 | 3. | 0.16 | 0.000 | | 0.00000 | 0.15 |
| REACT COEF | 4. | 0.05 | 0.00 | 0.054 | 3. | 0.16 | 0.000 | | 0.00000 | 0.15 |
| REACT COEF | 5. | 0.05 | 0.00 | 0.054 | 3. | 0.16 | 0.000 | | 0.00000 | 0.15 |
| REACT COEF | 6. | 0.03 | 0.00 | 0.042 | 3. | 0.16 | 0.000 | | 0.00000 | 0.15 |
| REACT COEF | 7. | 0.03 | 0.00 | 0.042 | 3. | 0.16 | 0.000 | | 0.00000 | 0.15 |
| REACT COEF | 8. | 0.03 | 0.00 | 0.039 | 3. | 0.16 | 0.000 | | 0.00000 | 0.15 |
| REACT COEF | 9. | 0.03 | 0.00 | 0.039 | 3. | 0.16 | 0.000 | | 0.00000 | 0.15 |
| REACT COEF | 10. | 0.03 | 0.00 | 0.039 | 3. | 0.16 | 0.000 | | 0.00000 | 0.15 |
| ENDATA6 | 0. | 0.00 | 0.00 | 0.000 | 0. | 0.00 | 0.000 | | 0.00000 | 0.00 |

0 $$$ DATA TYPE 6A (NITROGEN AND PHOSPHORUS CONSTANTS) $$$

| CARD TYPE | REACH | CKNH2 | SETNH2 | CKNH3 | SNH3 | CKNO2 | CKPORG | SETPORG | SPO4 |
|---|---|---|---|---|---|---|---|---|---|
| N AND P COEF | 1. | 0.13 | 0.00 | 0.18 | 0.00 | 1.50 | 0.00 | 0.00 | 0.00 |
| N AND P COEF | 2. | 0.13 | 0.00 | 0.18 | 0.00 | 1.50 | 0.00 | 0.00 | 0.00 |
| N AND P COEF | 3. | 0.13 | 0.00 | 0.18 | 0.00 | 1.50 | 0.00 | 0.00 | 0.00 |
| N AND P COEF | 4. | 0.13 | 0.00 | 0.18 | 0.00 | 1.50 | 0.00 | 0.00 | 0.00 |
| N AND P COEF | 5. | 0.13 | 0.00 | 0.18 | 0.00 | 1.50 | 0.00 | 0.00 | 0.00 |
| N AND P COEF | 6. | 0.13 | 0.00 | 0.18 | 0.00 | 1.50 | 0.00 | 0.00 | 0.00 |
| N AND P COEF | 7. | 0.13 | 0.00 | 0.18 | 0.00 | 1.50 | 0.00 | 0.00 | 0.00 |
| N AND P COEF | 8. | 0.13 | 0.00 | 0.18 | 0.00 | 1.50 | 0.00 | 0.00 | 0.00 |
| N AND P COEF | 9. | 0.13 | 0.00 | 0.18 | 0.00 | 1.50 | 0.00 | 0.00 | 0.00 |
| N AND P COEF | 10. | 0.13 | 0.00 | 0.18 | 0.00 | 1.50 | 0.00 | 0.00 | 0.00 |
| ENDATA6A | 0. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

0 $$$ DATA TYPE 6B (ALGAE/OTHER COEFFICIENTS) $$$

| CARD TYPE | REACH | ALPHAO | ALGSET | EXCOEF | CK5 CKCOLI | CKANC | SETANC | SRCANC |
|---|---|---|---|---|---|---|---|---|
| ALG/OTHER COEF | 1. | 50.00 | 6.15 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 2. | 50.00 | 6.15 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 3. | 50.00 | 6.15 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 4. | 50.00 | 6.15 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 5. | 50.00 | 6.15 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 6. | 50.00 | 6.15 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 7. | 50.00 | 6.15 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 8. | 50.00 | 6.15 | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 9. | 50.00 | 6.15 | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 |

# National Solar Radiation Data Base User's Manual (1961-1990)

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JOB 0650/6

SHEET NO. 1 OF 1

CALCULATED BY DMB DATE 12/7/98

CHECKED BY SMS DATE 12/7/98

SCALE

AquAeTer
215 Jamestown Park, Suite 204
Brentwood, TN 37027
(615) 373-8532 FAX (615) 373-8512

Ouachita River near Crossett, AR
Total Daily Solar Radiation

## Total Daily Solar Radiation

Used average annual value for "AVDIR" - average diffused horizontal element which is the amount of solar radiation in $Wh/m^2$ received from the sky excluding the solar disk on a horizontal surface during the 60 minutes preceeding the hour indicated. According to the National Solar Radiation Database, this is the correct value to represent the whole day.

Average annual value (1961-1990) =

$$\frac{1893 \text{ watt-hour}}{m^2} \times \frac{3.4122 \text{ Btu}}{\text{watt hr}} \times \frac{(0.3048m)^2}{ft^2} = 600 \text{ Btu}/ft^2$$

Also may use monthly values
August value (1961-1990) =

$$\frac{2379 \text{ watt-hour}}{m^2} \times \frac{3.4122 \text{ Btu/hr}}{\text{watt}} \times \frac{(0.3048m)^2}{ft^2} = 754 \text{ Btu}/ft^2$$

13963 LITTLE ROCK AR -6 N34 44 W 92 14 81 1008

61-90

| MO | AVGLO | FL | SDGLO | AVDIR | FL | SDDIR | AVDIF | FL | SDDIF | AVETR | AETRN | TOT | OPQ | H2O | TAU |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN 1 | 2524 | H4 | 192 | 3256 | H4 | 707 | 1149 | H5 | 117 | 5246 | 14075 | 6.1 | 5.3 | 1.12 | 0.07 |
| FEB 2 | 3300 | H4 | 232 | 3723 | H4 | 680 | 1436 | H5 | 124 | 6613 | 15090 | 6.1 | 5.2 | 1.16 | 0.08 |
| MAR 3 | 4330 | H4 | 367 | 4164 | H4 | 878 | 1847 | H5 | 168 | 8437 | 16326 | 6.2 | 5.2 | 1.45 | 0.10 |
| APR 4 | 5340 | H4 | 401 | 4663 | H4 | 804 | 2229 | H5 | 161 | 10104 | 17514 | 5.9 | 5.0 | 1.92 | 0.12 |
| MAY 5 | 6059 | H4 | 386 | 4872 | H4 | 748 | 2592 | H5 | 155 | 11169 | 18465 | 5.9 | 4.8 | 2.56 | 0.15 |
| JUN 6 | 6526 | H4 | 353 | 5327 | H4 | 707 | 2682 | H5 | 156 | 11597 | 18917 | 5.4 | 4.3 | 3.33 | 0.16 |
| JUL 7 | 6431 | H4 | 407 | 5308 | H4 | 806 | 2612 | H5 | 194 | 11380 | 18627 | 5.2 | 4.2 | 3.87 | 0.17 |
| AUG 8 | 5923 | H4 | 360 | 5127 | H4 | 740 | 2379 | H5 | 166 | 10497 | 17738 | 5.0 | 4.1 | 3.79 | 0.16 |
| SEP 9 | 4797 | H4 | 338 | 4368 | H4 | 684 | 2038 | H5 | 128 | 9041 | 16604 | 5.4 | 4.6 | 3.24 | 0.14 |
| OCT 10 | 3926 | H4 | 351 | 4487 | H4 | 905 | 1479 | H5 | 138 | 7276 | 15403 | 4.8 | 4.0 | 2.15 | 0.11 |
| NOV 11 | 2715 | H4 | 240 | 3334 | H4 | 770 | 1208 | H5 | 109 | 5632 | 14298 | 5.8 | 5.1 | 1.60 | 0.09 |
| DEC 12 | 2228 | H4 | 202 | 2973 | H4 | 717 | 1040 | H5 | 91 | 4818 | 13726 | 6.2 | 5.4 | 1.31 | 0.07 |
| 13 | 4514 | H4 | 132 | 4303 | H4 | 303 | 1893 | H5 | 68 | 8492 | 16404 | 5.7 | 4.8 | 2.30 | 0.12 |
| 1961 | | | | | | | | | | | | | | | |
| 1 | 2594 | G4 | 845 | 3571 | G4 | 2819 | 1089 | G5 | 410 | 5246 | 14075 | 5.6 | 4.8 | 0.87 | 0.07 |
| 2 | 2888 | G4 | 1205 | 2702 | G4 | 3177 | 1511 | G5 | 483 | 6605 | 15085 | 7.2 | 6.5 | 1.50 | 0.08 |
| 3 | 4080 | G4 | 1619 | 3965 | G4 | 3658 | 1786 | G5 | 651 | 8423 | 16316 | 6.0 | 5.5 | 1.67 | 0.10 |
| 4 | 5336 | G4 | 1692 | 4648 | G4 | 3441 | 2233 | G5 | 733 | 10093 | 17505 | 5.5 | 5.1 | 1.69 | 0.11 |
| 5 | 5925 | G4 | 1806 | 4868 | G4 | 3546 | 2495 | G5 | 755 | 11163 | 18460 | 5.8 | 4.9 | 2.51 | 0.14 |
| 6 | 6003 | G4 | 1479 | 4343 | G4 | 2677 | 2822 | G5 | 624 | 11596 | 18916 | 6.3 | 5.6 | 3.19 | 0.17 |
| 7 | 5977 | G4 | 1373 | 4608 | G4 | 2676 | 2696 | G5 | 619 | 11384 | 18632 | 5.9 | 5.1 | 3.72 | 0.17 |
| 8 | 5524 | G4 | 1436 | 4380 | G4 | 2666 | 2505 | G5 | 522 | 10506 | 17746 | 5.5 | 4.9 | 3.60 | 0.16 |
| 9 | 4836 | G4 | 1199 | 4242 | G4 | 2483 | 2127 | G5 | 509 | 9054 | 16613 | 5.4 | 4.8 | 3.31 | 0.14 |
| 10 | 3988 | G4 | 1210 | 4683 | G4 | 2887 | 1418 | G5 | 471 | 7290 | 15412 | 4.2 | 3.7 | 2.04 | 0.12 |
| 11 | 2585 | G4 | 955 | 2931 | G4 | 2667 | 1220 | G5 | 395 | 5643 | 14305 | 6.4 | 5.7 | 1.63 | 0.09 |
| 12 | 1951 | G4 | 797 | 2301 | G4 | 2729 | 1062 | G5 | 323 | 4819 | 13727 | 7.1 | 6.7 | 1.35 | 0.06 |
| 13 | 4315 | G4 | 1952 | 3946 | G4 | 3045 | 1915 | G5 | 828 | 8494 | 16405 | 5.9 | 5.3 | 2.26 | 0.12 |
| 1962 | | | | | | | | | | | | | | | |
| 1 | 2432 | G4 | 984 | 3076 | G4 | 3127 | 1139 | G5 | 430 | 5246 | 14075 | 6.4 | 5.8 | 1.25 | 0.06 |
| 2 | 3207 | G4 | 1125 | 3876 | G4 | 3371 | 1316 | G5 | 576 | 6605 | 15085 | 5.6 | 5.0 | 1.43 | 0.08 |
| 3 | 4531 | G4 | 1526 | 4791 | G4 | 3597 | 1680 | G5 | 656 | 8423 | 16316 | 5.4 | 4.7 | 1.18 | 0.09 |
| 4 | 5124 | G4 | 1812 | 4586 | G4 | 3589 | 2169 | G5 | 684 | 10093 | 17505 | 5.8 | 5.2 | 1.89 | 0.10 |
| 5 | 6766 | G4 | 1278 | 6423 | G4 | 2810 | 2269 | G5 | 734 | 11163 | 18460 | 4.6 | 3.3 | 2.56 | 0.12 |
| 6 | 5862 | G4 | 1339 | 4280 | G4 | 2314 | 2790 | G5 | 487 | 11596 | 18916 | 6.6 | 5.6 | 3.45 | 0.14 |
| 7 | 6645 | G4 | 1521 | 5881 | G4 | 2877 | 2359 | G5 | 651 | 11384 | 18632 | 4.9 | 3.9 | 3.80 | 0.15 |
| 8 | 6220 | G4 | 1405 | 5996 | G4 | 2787 | 2088 | G5 | 641 | 10506 | 17746 | 3.7 | 3.3 | 3.55 | 0.14 |
| 9 | 4225 | G4 | 1237 | 3336 | G4 | 2466 | 2141 | G5 | 436 | 9054 | 16613 | 6.6 | 6.1 | 3.61 | 0.12 |
| 10 | 3532 | G4 | 1086 | 3588 | G4 | 2595 | 1583 | G5 | 462 | 7290 | 15412 | 5.6 | 5.3 | 2.58 | 0.11 |
| 11 | 2587 | G4 | 1017 | 3016 | G4 | 3136 | 1222 | G5 | 446 | 5643 | 14305 | 6.3 | 6.0 | 1.47 | 0.09 |
| 12 | 2310 | G4 | 816 | 3288 | G4 | 2669 | 979 | G5 | 331 | 4819 | 13727 | 5.6 | 5.1 | 1.16 | 0.07 |
| 13 | 4464 | G4 | 2041 | 4355 | G4 | 3147 | 1812 | G5 | 776 | 8494 | 16405 | 5.6 | 4.9 | 2.33 | 0.11 |
| 1963 | | | | | | | | | | | | | | | |
| 1 | 2529 | G4 | 876 | 3359 | G4 | 2884 | 1105 | G5 | 435 | 5246 | 14075 | 5.8 | 5.2 | 0.91 | 0.06 |
| 2 | 3456 | G4 | 1285 | 4283 | G4 | 3409 | 1311 | G5 | 528 | 6605 | 15085 | 5.5 | 4.8 | 0.94 | 0.07 |
| 3 | 4850 | G4 | 1342 | 5595 | G4 | 2750 | 1543 | G5 | 509 | 8423 | 16316 | 5.0 | 3.9 | 1.44 | 0.07 |
| 4 | 4819 | G4 | 1652 | 3692 | G4 | 3052 | 2340 | G5 | 586 | 10093 | 17505 | 6.9 | 6.0 | 2.17 | 0.13 |
| 5 | 6003 | G4 | 1421 | 4733 | G4 | 2529 | 2575 | G5 | 503 | 11163 | 18460 | 6.5 | 5.0 | 2.74 | 0.15 |
| 6 | 6669 | G4 | 1284 | 5757 | G4 | 2566 | 2547 | G5 | 618 | 11596 | 18916 | 4.5 | 4.0 | 3.44 | 0.15 |
| 7 | 5658 | G4 | 1659 | 4199 | G4 | 2648 | 2672 | G5 | 440 | 11384 | 18632 | 6.1 | 5.6 | 4.04 | 0.16 |
| 8 | 5891 | G4 | 1389 | 5159 | G4 | 2752 | 2359 | G5 | 616 | 10506 | 17746 | 4.9 | 4.0 | 3.69 | 0.17 |
| 9 | 4810 | G4 | 1246 | 4375 | G4 | 2802 | 2056 | G5 | 586 | 9054 | 16613 | 5.1 | 4.4 | 3.22 | 0.15 |
| 10 | 4571 | G4 | 817 | 5919 | G4 | 1878 | 1307 | G5 | 358 | 7290 | 15412 | 2.5 | 1.8 | 2.19 | 0.14 |
| 11 | 2969 | G4 | 1029 | 4186 | G4 | 2895 | 1063 | G5 | 374 | 5643 | 14305 | 4.3 | 4.0 | 1.51 | 0.10 |
| 12 | 2474 | G4 | 820 | 3720 | G4 | 2795 | 968 | G5 | 328 | 4819 | 13727 | 4.8 | 4.2 | 0.85 | 0.08 |
| 13 | 4564 | G4 | 1842 | 4585 | G4 | 2841 | 1823 | G5 | 805 | 8494 | 16405 | 5.2 | 4.4 | 2.27 | 0.12 |
| 1964 | | | | | | | | | | | | | | | |
| 1 | 2787 | G4 | 854 | 4267 | G4 | 2737 | 978 | G5 | 382 | 5246 | 14075 | 4.5 | 3.8 | 0.86 | 0.08 |
| 2 | 3455 | G4 | 1057 | 4281 | G4 | 2899 | 1338 | G5 | 491 | 6636 | 15106 | 5.0 | 4.5 | 0.86 | 0.09 |
| 3 | 4413 | G4 | 1555 | 4493 | G4 | 3341 | 1743 | G5 | 596 | 8483 | 16357 | 5.3 | 4.8 | 1.37 | 0.12 |
| 4 | 4946 | G4 | 2049 | 4069 | G4 | 3957 | 2209 | G5 | 706 | 10140 | 17541 | 6.1 | 5.6 | 2.13 | 0.13 |
| 5 | 5921 | G4 | 1659 | 4581 | G4 | 3245 | 2689 | G5 | 675 | 11187 | 18485 | 6.0 | 5.0 | 2.75 | 0.17 |
| 6 | 6469 | G4 | 1505 | 5235 | G4 | 2762 | 2720 | G5 | 625 | 11599 | 18919 | 4.6 | 3.9 | 3.34 | 0.20 |
| 7 | 6487 | G4 | 1259 | 5339 | G4 | 2294 | 2579 | G5 | 572 | 11366 | 18610 | 4.1 | 3.6 | 3.89 | 0.21 |
| 8 | 5252 | G4 | 1523 | 3939 | G4 | 2679 | 2484 | G5 | 501 | 10468 | 17712 | 6.2 | 5.3 | 3.97 | 0.19 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | 4698 G4 | 1584 | 4126 G4 | 2930 | 2042 G5 | 486 | 8998 | 16574 | 5.0 | 4.4 | 3.22 | 0.18 |
| 10 | 4248 G4 | 1076 | 5285 G4 | 2614 | 1365 G5 | 455 | 7232 | 15373 | 3.0 | 2.6 | 1.76 | 0.14 |
| 11 | 2718 G4 | 947 | 3393 G4 | 2778 | 1169 G5 | 366 | 5598 | 14275 | 5.4 | 4.9 | 1.84 | 0.11 |
| 12 | 1930 G4 | 787 | 2051 G4 | 2567 | 1110 G5 | 311 | 4813 | 13723 | 7.2 | 6.8 | 1.37 | 0.09 |
| 13 | 4446 G4 | 1969 | 4255 G4 | 3014 | 1870 G5 | 822 | 8484 | 16398 | 5.2 | 4.6 | 2.28 | 0.14 |
| 1965 | | | | | | | | | | | | |
| 1 | 2597 H4 | 891 | 3463 H4 | 2776 | 1094 H5 | 340 | 5246 | 14075 | 5.4 | 4.8 | 1.25 | 0.09 |
| 2 | 3526 H4 | 1163 | 4119 H4 | 2989 | 1428 H5 | 434 | 6605 | 15085 | 5.1 | 4.4 | 1.13 | 0.10 |
| 3 | 3951 H4 | 1415 | 3050 H4 | 3341 | 2115 H5 | 664 | 8423 | 16316 | 7.2 | 6.7 | 1.33 | 0.10 |
| 4 | 5708 H4 | 1674 | 5271 H4 | 3348 | 2159 H5 | 660 | 10093 | 17505 | 4.7 | 4.0 | 2.13 | 0.14 |
| 5 | 5695 H4 | 1536 | 4185 H4 | 2948 | 2769 H5 | 628 | 11163 | 18460 | 6.3 | 5.6 | 2.88 | 0.15 |
| 6 | 6547 H4 | 1265 | 5142 H4 | 2559 | 2827 H5 | 642 | 11596 | 18916 | 5.4 | 4.5 | 3.35 | 0.18 |
| 7 | 6473 H4 | 1082 | 5190 H4 | 2236 | 2704 H5 | 581 | 11384 | 18632 | 5.6 | 4.3 | 3.78 | 0.18 |
| 8 | 6230 H4 | 756 | 5467 H4 | 1795 | 2400 H5 | 544 | 10506 | 17746 | 4.0 | 3.5 | 3.54 | 0.18 |
| 9 | 4951 H4 | 1344 | 4676 H4 | 2794 | 2025 H5 | 546 | 9054 | 16613 | 4.5 | 4.0 | 3.30 | 0.15 |
| 10 | 4181 H4 | 929 | 5022 H4 | 2700 | 1462 H5 | 573 | 7290 | 15412 | 3.9 | 3.2 | 1.82 | 0.13 |
| 11 | 2523 H4 | 790 | 2619 H4 | 2580 | 1366 H5 | 407 | 5643 | 14305 | 7.1 | 5.9 | 1.92 | 0.10 |
| 12 | 2327 H4 | 714 | 3213 H4 | 2533 | 1036 H5 | 335 | 4819 | 13727 | 6.1 | 4.8 | 1.46 | 0.09 |
| 13 | 4564 H4 | 1911 | 4285 H4 | 2866 | 1952 H5 | 825 | 8494 | 16405 | 5.5 | 4.7 | 2.33 | 0.13 |
| 1966 | | | | | | | | | | | | |
| 1 | 2469 H4 | 894 | 2780 H4 | 2939 | 1294 H5 | 493 | 5246 | 14075 | 6.6 | 5.9 | 1.06 | 0.07 |
| 2 | 3142 H4 | 1171 | 3056 H4 | 3238 | 1618 H5 | 627 | 6605 | 15085 | 6.5 | 6.0 | 1.21 | 0.09 |
| 3 | 5063 H4 | 1259 | 5752 H4 | 2937 | 1619 H5 | 618 | 8423 | 16316 | 4.8 | 3.4 | 1.30 | 0.10 |
| 4 | 4957 H4 | 1728 | 4008 H4 | 3914 | 2345 H5 | 863 | 10093 | 17505 | 6.6 | 5.9 | 2.10 | 0.13 |
| 5 | 6412 H4 | 1526 | 5381 H4 | 2866 | 2553 H5 | 645 | 11163 | 18460 | 5.5 | 4.0 | 2.30 | 0.16 |
| 6 | 6843 H4 | 1202 | 5940 H4 | 2619 | 2573 H5 | 734 | 11596 | 18916 | 5.0 | 3.7 | 2.81 | 0.16 |
| 7 | 6463 H4 | 1265 | 5181 H4 | 2415 | 2698 H5 | 561 | 11384 | 18632 | 4.8 | 4.0 | 4.15 | 0.19 |
| 8 | 5435 H4 | 1382 | 3916 H4 | 2684 | 2676 H5 | 605 | 10506 | 17746 | 6.0 | 5.4 | 3.76 | 0.20 |
| 9 | 4811 H4 | 1266 | 4428 H4 | 2813 | 2038 H5 | 638 | 9054 | 16613 | 5.2 | 4.7 | 3.00 | 0.13 |
| 10 | 4213 H4 | 1188 | 5272 H4 | 3083 | 1373 H5 | 556 | 7290 | 15412 | 3.6 | 3.1 | 2.03 | 0.11 |
| 11 | 2659 H4 | 895 | 3110 H4 | 2893 | 1264 H5 | 457 | 5643 | 14305 | 6.2 | 5.4 | 1.83 | 0.10 |
| 12 | 2074 H4 | 709 | 2215 H4 | 2627 | 1176 H5 | 379 | 4819 | 13727 | 7.2 | 6.6 | 1.43 | 0.09 |
| 13 | 4554 H4 | 1994 | 4262 H4 | 3137 | 1937 H5 | 837 | 8494 | 16405 | 5.7 | 4.8 | 2.25 | 0.13 |
| 1967 | | | | | | | | | | | | |
| 1 | 2527 H4 | 791 | 3353 H4 | 2715 | 1135 H5 | 402 | 5246 | 14075 | 5.8 | 4.9 | 1.17 | 0.08 |
| 2 | 3391 H4 | 1171 | 3872 H4 | 3403 | 1458 H5 | 580 | 6605 | 15085 | 5.5 | 4.9 | 1.03 | 0.09 |
| 3 | 4557 H4 | 1206 | 4491 H4 | 2844 | 1862 H5 | 608 | 8423 | 16316 | 6.2 | 4.6 | 1.83 | 0.10 |
| 4 | 5110 H4 | 1273 | 3853 H4 | 2644 | 2493 H5 | 581 | 10093 | 17505 | 7.0 | 5.9 | 2.52 | 0.13 |
| 5 | 6114 H4 | 1801 | 4827 H4 | 3375 | 2612 H5 | 698 | 11163 | 18460 | 5.4 | 4.7 | 2.43 | 0.16 |
| 6 | 6496 H4 | 1266 | 5094 H4 | 2416 | 2833 H5 | 571 | 11596 | 18916 | 6.0 | 4.6 | 3.59 | 0.17 |
| 7 | 6161 H4 | 1229 | 4655 H4 | 2473 | 2816 H5 | 614 | 11384 | 18632 | 6.5 | 5.2 | 3.58 | 0.16 |
| 8 | 5915 H4 | 1187 | 4774 H4 | 2429 | 2553 H5 | 607 | 10506 | 17746 | 5.4 | 4.4 | 3.25 | 0.18 |
| 9 | 4295 H4 | 1156 | 3232 H4 | 2761 | 2280 H5 | 618 | 9054 | 16613 | 6.5 | 6.0 | 3.03 | 0.16 |
| 10 | 3996 H4 | 1125 | 4367 H4 | 2598 | 1579 H5 | 419 | 7290 | 15412 | 4.8 | 3.7 | 1.98 | 0.14 |
| 11 | 2866 H4 | 903 | 3698 H4 | 2695 | 1198 H5 | 389 | 5643 | 14305 | 5.5 | 4.6 | 1.44 | 0.09 |
| 12 | 2126 H4 | 719 | 2480 H4 | 2622 | 1130 H5 | 350 | 4819 | 13727 | 6.6 | 6.1 | 1.62 | 0.08 |
| 13 | 4469 H4 | 1869 | 4061 H4 | 2821 | 1998 H5 | 842 | 8494 | 16405 | 5.9 | 5.0 | 2.30 | 0.13 |
| 1968 | | | | | | | | | | | | |
| 1 | 2177 H4 | 751 | 1924 H4 | 2443 | 1347 H5 | 359 | 5246 | 14075 | 7.8 | 7.2 | 1.54 | 0.07 |
| 2 | 3362 H4 | 946 | 3859 H4 | 2873 | 1472 H5 | 580 | 6636 | 15106 | 5.9 | 4.9 | 0.84 | 0.08 |
| 3 | 4202 H4 | 1340 | 3669 H4 | 3194 | 1974 H5 | 625 | 8483 | 16357 | 7.0 | 5.9 | 1.45 | 0.10 |
| 4 | 5227 H4 | 1891 | 4441 H4 | 3940 | 2260 H5 | 803 | 10140 | 17541 | 6.0 | 5.4 | 1.99 | 0.12 |
| 5 | 5844 H4 | 1685 | 4399 H4 | 3234 | 2661 H5 | 672 | 11187 | 18485 | 6.5 | 5.7 | 2.45 | 0.14 |
| 6 | 6250 H4 | 1517 | 4674 H4 | 2740 | 2853 H5 | 560 | 11599 | 18919 | 6.3 | 4.9 | 3.41 | 0.17 |
| 7 | 6034 H4 | 1131 | 4252 H4 | 2080 | 2986 H5 | 487 | 11366 | 18610 | 6.7 | 5.2 | 3.81 | 0.18 |
| 8 | 5679 H4 | 1203 | 4701 H4 | 2624 | 2473 H5 | 628 | 10468 | 17712 | 5.9 | 4.9 | 4.15 | 0.13 |
| 9 | 4983 H4 | 1408 | 4864 H4 | 3176 | 1958 H5 | 727 | 8998 | 16574 | 4.3 | 3.7 | 2.62 | 0.15 |
| 10 | 4055 H4 | 943 | 4972 H4 | 2508 | 1392 H5 | 482 | 7232 | 15373 | 4.0 | 3.4 | 1.99 | 0.11 |
| 11 | 2381 H4 | 755 | 2252 H4 | 2547 | 1408 H5 | 430 | 5598 | 14275 | 7.1 | 6.5 | 1.57 | 0.09 |
| 12 | 2405 H4 | 794 | 3580 H4 | 2909 | 979 H5 | 385 | 4813 | 13723 | 5.8 | 4.6 | 1.26 | 0.06 |
| 13 | 4385 H4 | 1901 | 3965 H4 | 3000 | 1982 H5 | 856 | 8484 | 16398 | 6.1 | 5.2 | 2.26 | 0.12 |
| 1969 | | | | | | | | | | | | |
| 1 | 2292 H4 | 688 | 2423 H4 | 2377 | 1268 H5 | 366 | 5246 | 14075 | 8.0 | 6.3 | 1.51 | 0.07 |
| 2 | 3250 H4 | 1070 | 3589 H4 | 3114 | 1491 H5 | 531 | 6605 | 15085 | 6.0 | 5.2 | 1.08 | 0.08 |
| 3 | 4573 H4 | 1514 | 4909 H4 | 3638 | 1709 H5 | 673 | 8423 | 16316 | 5.2 | 4.6 | 0.99 | 0.09 |
| 4 | 5495 H4 | 1646 | 4747 H4 | 3204 | 2289 H5 | 592 | 10093 | 17505 | 5.3 | 4.7 | 1.89 | 0.14 |
| 5 | 6135 H4 | 1495 | 4964 H4 | 2931 | 2622 H5 | 684 | 11163 | 18460 | 5.8 | 4.6 | 2.54 | 0.16 |
| 6 | 6716 H4 | 1414 | 5963 H4 | 2877 | 2509 H5 | 730 | 11596 | 18916 | 4.4 | 3.8 | 2.98 | 0.15 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 6681 H4 | 1289 | 5785 H4 | 2551 | 2543 H5 | 608 | 11384 | 18632 | 4.2 | 3.5 | 3.72 | 0.18 |
| 8 | 6127 H4 | 1376 | 5720 H4 | 2826 | 2188 H5 | 638 | 10506 | 17746 | 4.2 | 3.5 | 3.16 | 0.15 |
| 9 | 4834 H4 | 1153 | 4358 H4 | 2824 | 2115 H5 | 661 | 9054 | 16613 | 5.3 | 4.6 | 3.04 | 0.13 |
| 10 | 3856 H4 | 1180 | 4151 H4 | 2888 | 1552 H5 | 504 | 7290 | 15412 | 5.3 | 4.6 | 2.33 | 0.11 |
| 11 | 2985 H4 | 882 | 4191 H4 | 2799 | 1116 H5 | 414 | 5643 | 14305 | 4.5 | 4.0 | 1.39 | 0.08 |
| 12 | 2312 H4 | 754 | 3151 H4 | 2865 | 1060 H5 | 405 | 4819 | 13727 | 6.4 | 5.3 | 1.35 | 0.07 |
| 13 | 4611 H4 | 2001 | 4500 H4 | 3060 | 1873 H5 | 793 | 8494 | 16405 | 5.4 | 4.6 | 2.17 | 0.12 |
| 1970 | | | | | | | | | | | | |
| 1 | 2676 H4 | 851 | 3661 H4 | 2995 | 1141 H5 | 476 | 5246 | 14075 | 5.8 | 4.8 | 0.96 | 0.07 |
| 2 | 3377 H4 | 1355 | 4139 H4 | 3764 | 1339 H5 | 570 | 6605 | 15085 | 5.6 | 5.0 | 1.26 | 0.07 |
| 3 | 3876 H4 | 1455 | 2973 H4 | 3529 | 2091 H5 | 712 | 8423 | 16316 | 7.4 | 6.9 | 1.45 | 0.08 |
| 4 | 5165 H4 | 1400 | 4078 H4 | 3167 | 2407 H5 | 742 | 10093 | 17505 | 6.7 | 5.8 | 2.12 | 0.12 |
| 5 | 6510 H4 | 1335 | 5671 H4 | 3010 | 2486 H5 | 794 | 11163 | 18460 | 5.3 | 4.0 | 2.39 | 0.15 |
| 6 | 6834 H4 | 1221 | 5741 H4 | 2476 | 2630 H5 | 638 | 11596 | 18916 | 5.0 | 3.8 | 3.09 | 0.16 |
| 7 | 6260 H4 | 1447 | 5197 H4 | 3047 | 2582 H5 | 785 | 11384 | 18632 | 5.3 | 4.5 | 3.58 | 0.16 |
| 8 | 5433 H4 | 1203 | 4023 H4 | 2451 | 2636 H5 | 556 | 10506 | 17746 | 6.0 | 5.3 | 4.11 | 0.16 |
| 9 | 4935 H4 | 1013 | 4579 H4 | 2235 | 2050 H5 | 469 | 9054 | 16613 | 5.4 | 4.5 | 3.76 | 0.13 |
| 10 | 3483 H4 | 1189 | 3225 H4 | 2885 | 1689 H5 | 482 | 7290 | 15412 | 6.4 | 5.8 | 2.26 | 0.10 |
| 11 | 2695 H4 | 915 | 3189 H4 | 2934 | 1271 H5 | 450 | 5643 | 14305 | 6.0 | 5.5 | 1.50 | 0.08 |
| 12 | 2230 H4 | 732 | 2834 H4 | 2740 | 1098 H5 | 391 | 4819 | 13727 | 6.5 | 5.6 | 1.59 | 0.06 |
| 13 | 4460 H4 | 1945 | 4106 H4 | 3074 | 1955 H5 | 837 | 8494 | 16405 | 6.0 | 5.1 | 2.35 | 0.11 |
| 1971 | | | | | | | | | | | | |
| 1 | 2511 H4 | 769 | 3191 H4 | 2577 | 1164 H5 | 369 | 5246 | 14075 | 6.1 | 5.4 | 1.34 | 0.07 |
| 2 | 3451 H4 | 1039 | 4000 H4 | 3012 | 1423 H5 | 540 | 6605 | 15085 | 5.7 | 5.1 | 1.32 | 0.07 |
| 3 | 4646 H4 | 1491 | 4894 H4 | 3421 | 1718 H5 | 627 | 8423 | 16316 | 5.2 | 4.6 | 1.24 | 0.09 |
| 4 | 5382 H4 | 1700 | 4890 H4 | 3589 | 2189 H5 | 740 | 10093 | 17505 | 6.0 | 4.7 | 1.64 | 0.11 |
| 5 | 6281 H4 | 1767 | 5554 H4 | 3580 | 2419 H5 | 825 | 11163 | 18460 | 4.9 | 4.1 | 2.10 | 0.15 |
| 6 | 6810 H4 | 991 | 5763 H4 | 2120 | 2601 H5 | 587 | 11596 | 18916 | 5.1 | 4.0 | 3.53 | 0.16 |
| 7 | 6130 H4 | 1452 | 4807 H4 | 2764 | 2713 H5 | 609 | 11384 | 18632 | 5.9 | 4.9 | 3.78 | 0.17 |
| 8 | 5487 H4 | 1105 | 4208 H4 | 2374 | 2604 H5 | 550 | 10506 | 17746 | 6.3 | 5.3 | 3.57 | 0.15 |
| 9 | 4826 H4 | 1221 | 4389 H4 | 2615 | 2069 H5 | 499 | 9054 | 16613 | 5.4 | 4.7 | 3.37 | 0.13 |
| 10 | 3927 H4 | 1076 | 4438 H4 | 2693 | 1523 H5 | 476 | 7290 | 15412 | 4.7 | 4.2 | 2.51 | 0.10 |
| 11 | 2836 H4 | 1017 | 3736 H4 | 2831 | 1154 H5 | 367 | 5643 | 14305 | 5.0 | 4.7 | 1.39 | 0.09 |
| 12 | 2045 H4 | 673 | 2147 H4 | 2412 | 1172 H5 | 331 | 4819 | 13727 | 7.4 | 6.7 | 1.67 | 0.07 |
| 13 | 4532 H4 | 1941 | 4334 H4 | 2984 | 1898 H5 | 804 | 8494 | 16405 | 5.6 | 4.9 | 2.30 | 0.11 |
| 1972 | | | | | | | | | | | | |
| 1 | 2587 H4 | 794 | 3419 H4 | 2763 | 1140 H5 | 432 | 5246 | 14075 | 6.0 | 5.1 | 1.25 | 0.06 |
| 2 | 3502 H4 | 1030 | 4064 H4 | 3049 | 1467 H5 | 557 | 6636 | 15106 | 5.6 | 4.8 | 1.09 | 0.08 |
| 3 | 4489 H4 | 1234 | 4489 H4 | 2907 | 1841 H5 | 550 | 8483 | 16357 | 5.8 | 4.9 | 1.36 | 0.09 |
| 4 | 5233 H4 | 1719 | 4490 H4 | 3836 | 2270 H5 | 845 | 10140 | 17541 | 6.1 | 5.4 | 1.97 | 0.11 |
| 5 | 6576 H4 | 1438 | 5748 H4 | 2830 | 2456 H5 | 654 | 11187 | 18485 | 5.0 | 3.9 | 2.05 | 0.17 |
| 6 | 6815 H4 | 1280 | 6021 H4 | 2472 | 2483 H5 | 604 | 11599 | 18919 | 4.6 | 3.7 | 3.13 | 0.15 |
| 7 | 6357 H4 | 1244 | 5095 H4 | 2433 | 2740 H5 | 588 | 11366 | 18610 | 5.1 | 4.2 | 3.44 | 0.18 |
| 8 | 6058 H4 | 1180 | 5564 H4 | 2529 | 2221 H5 | 620 | 10468 | 17712 | 4.6 | 3.8 | 3.64 | 0.15 |
| 9 | 4251 H4 | 1238 | 3147 H4 | 2465 | 2241 H5 | 433 | 8998 | 16574 | 6.8 | 6.1 | 3.97 | 0.14 |
| 10 | 3610 H4 | 1336 | 3499 H4 | 3066 | 1664 H5 | 453 | 7232 | 15373 | 6.5 | 5.4 | 2.55 | 0.10 |
| 11 | 2481 H4 | 921 | 2427 H4 | 2830 | 1375 H5 | 434 | 5598 | 14275 | 6.9 | 6.6 | 1.26 | 0.07 |
| 12 | 2125 H4 | 746 | 2424 H4 | 2684 | 1148 H5 | 366 | 4813 | 13723 | 6.6 | 6.4 | 1.50 | 0.07 |
| 13 | 4511 H4 | 2011 | 4201 H4 | 3045 | 1921 H5 | 765 | 8484 | 16398 | 5.8 | 5.0 | 2.27 | 0.12 |
| 1973 | | | | | | | | | | | | |
| 1 | 2347 G4 | 848 | 2557 G4 | 2738 | 1252 G5 | 426 | 5246 | 14075 | 7.1 | 6.5 | 1.20 | 0.06 |
| 2 | 3232 G4 | 1076 | 3717 G4 | 2997 | 1407 G5 | 506 | 6605 | 15085 | 6.2 | 5.1 | 1.02 | 0.08 |
| 3 | 3807 G4 | 1540 | 3267 G4 | 3309 | 1891 G5 | 627 | 8423 | 16316 | 6.9 | 6.2 | 1.81 | 0.09 |
| 4 | 4475 G4 | 1679 | 3096 G4 | 3271 | 2409 G5 | 662 | 10093 | 17505 | 7.0 | 6.7 | 2.09 | 0.13 |
| 5 | 6347 G4 | 1629 | 5599 G4 | 3219 | 2375 G5 | 720 | 11163 | 18460 | 4.7 | 4.1 | 2.23 | 0.15 |
| 6 | 6041 G4 | 1343 | 4453 G4 | 2431 | 2826 G5 | 573 | 11596 | 18916 | 6.4 | 5.3 | 3.48 | 0.16 |
| 7 | 5877 G4 | 1566 | 4479 G4 | 2757 | 2706 G5 | 562 | 11384 | 18632 | 6.3 | 5.2 | 4.49 | 0.16 |
| 8 | 6392 G4 | 910 | 6332 G4 | 2005 | 2063 G5 | 515 | 10506 | 17746 | 3.3 | 2.9 | 3.68 | 0.14 |
| 9 | 4238 G4 | 1249 | 3511 G4 | 2664 | 2105 G5 | 515 | 9054 | 16613 | 6.2 | 5.7 | 3.90 | 0.13 |
| 10 | 3773 G4 | 1208 | 4374 G4 | 3074 | 1469 G5 | 532 | 7290 | 15412 | 4.6 | 4.3 | 2.64 | 0.10 |
| 11 | 2595 G4 | 948 | 3119 G4 | 2815 | 1214 G5 | 452 | 5643 | 14305 | 5.7 | 5.4 | 2.01 | 0.09 |
| 12 | 2229 G4 | 810 | 3141 G4 | 2624 | 982 G5 | 301 | 4819 | 13727 | 5.5 | 5.1 | 1.16 | 0.07 |
| 13 | 4287 G4 | 1955 | 3977 G4 | 3006 | 1893 G5 | 800 | 8494 | 16405 | 5.8 | 5.2 | 2.49 | 0.11 |
| 1974 | | | | | | | | | | | | |
| 1 | 2112 G4 | 877 | 2087 G4 | 2554 | 1213 G5 | 325 | 5246 | 14075 | 7.5 | 7.1 | 1.64 | 0.06 |
| 2 | 3453 G4 | 1179 | 4435 G4 | 3268 | 1291 G5 | 532 | 6605 | 15085 | 5.1 | 4.7 | 1.19 | 0.06 |
| 3 | 4011 G4 | 1291 | 3328 G4 | 2709 | 1979 G5 | 491 | 8423 | 16316 | 7.2 | 6.3 | 2.01 | 0.09 |
| 4 | 5588 G4 | 1706 | 5453 G4 | 3282 | 1987 G5 | 609 | 10093 | 17505 | 5.5 | 4.2 | 1.77 | 0.11 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 5352 | G4 | 1670 | 3730 | G4 | 2905 | 2727 | G5 | 525 | 11163 | 18460 | 7.0 | 6.2 | 3.08 | 0.13 |
| 6 | 6427 | G4 | 1566 | 5337 | G4 | 2724 | 2607 | G5 | 563 | 11596 | 18916 | 5.0 | 4.2 | 3.00 | 0.16 |
| 7 | 6450 | G4 | 1330 | 5283 | G4 | 2405 | 2620 | G5 | 548 | 11384 | 18632 | 4.9 | 4.1 | 3.88 | 0.19 |
| 8 | 5384 | G4 | 1561 | 4250 | G4 | 2855 | 2414 | G5 | 549 | 10506 | 17746 | 5.9 | 5.3 | 3.92 | 0.17 |
| 9 | 4115 | G4 | 1286 | 2895 | G4 | 2556 | 2269 | G5 | 503 | 9054 | 16613 | 7.2 | 6.7 | 3.18 | 0.14 |
| 10 | 3953 | G4 | 1290 | 4538 | G4 | 2834 | 1457 | G5 | 441 | 7290 | 15412 | 4.9 | 4.1 | 2.19 | 0.11 |
| 11 | 2553 | G4 | 997 | 3020 | G4 | 2899 | 1194 | G5 | 407 | 5643 | 14305 | 6.1 | 5.7 | 1.62 | 0.08 |
| 12 | 2075 | G4 | 842 | 2572 | G4 | 2861 | 1056 | G5 | 350 | 4819 | 13727 | 6.5 | 6.1 | 1.44 | 0.08 |
| 13 | 4292 | G4 | 1992 | 3903 | G4 | 2993 | 1905 | G5 | 776 | 8494 | 16405 | 6.1 | 5.4 | 2.42 | 0.12 |
| 1975 | | | | | | | | | | | | | | | |
| 1 | 2513 | G4 | 871 | 3412 | G4 | 2572 | 1059 | G5 | 317 | 5246 | 14075 | 6.0 | 5.1 | 1.28 | 0.08 |
| 2 | 3066 | G4 | 1127 | 3012 | G4 | 2730 | 1502 | G5 | 409 | 6605 | 15085 | 6.8 | 6.1 | 1.31 | 0.08 |
| 3 | 3766 | G4 | 1574 | 3143 | G4 | 3448 | 1909 | G5 | 547 | 8423 | 16316 | 7.0 | 6.5 | 1.46 | 0.09 |
| 4 | 5154 | G4 | 1624 | 4272 | G4 | 3526 | 2308 | G5 | 776 | 10093 | 17505 | 6.3 | 5.5 | 1.87 | 0.13 |
| 5 | 5807 | G4 | 1494 | 4306 | G4 | 2776 | 2672 | G5 | 618 | 11163 | 18460 | 6.4 | 5.5 | 2.79 | 0.15 |
| 6 | 6412 | G4 | 1515 | 5075 | G4 | 2716 | 2704 | G5 | 602 | 11596 | 18916 | 5.0 | 4.5 | 3.57 | 0.19 |
| 7 | 6208 | G4 | 1543 | 4983 | G4 | 2825 | 2584 | G5 | 599 | 11384 | 18632 | 5.4 | 4.6 | 3.85 | 0.17 |
| 8 | 5607 | G4 | 1345 | 4730 | G4 | 2684 | 2390 | G5 | 605 | 10506 | 17746 | 5.3 | 4.9 | 4.08 | 0.15 |
| 9 | 4642 | G4 | 1481 | 4161 | G4 | 3053 | 1998 | G5 | 560 | 9054 | 16613 | 5.2 | 4.8 | 2.80 | 0.15 |
| 10 | 4058 | G4 | 1245 | 4890 | G4 | 2948 | 1407 | G5 | 462 | 7290 | 15412 | 3.6 | 3.5 | 1.97 | 0.12 |
| 11 | 2880 | G4 | 941 | 3964 | G4 | 2858 | 1118 | G5 | 401 | 5643 | 14305 | 4.7 | 4.3 | 1.46 | 0.09 |
| 12 | 2154 | G4 | 778 | 2591 | G4 | 2573 | 1096 | G5 | 336 | 4819 | 13727 | 6.6 | 5.8 | 1.26 | 0.08 |
| 13 | 4362 | G4 | 1940 | 4050 | G4 | 2973 | 1897 | G5 | 810 | 8494 | 16405 | 5.7 | 5.1 | 2.32 | 0.12 |
| 1976 | | | | | | | | | | | | | | | |
| 1 | 2811 | G4 | 879 | 4441 | G4 | 2876 | 934 | G5 | 379 | 5246 | 14075 | 4.5 | 4.0 | 0.94 | 0.06 |
| 2 | 3464 | G4 | 1052 | 4063 | G4 | 2838 | 1407 | G5 | 478 | 6636 | 15106 | 6.2 | 4.8 | 1.27 | 0.08 |
| 3 | 4257 | G4 | 1377 | 3786 | G4 | 2955 | 1948 | G5 | 555 | 8483 | 16357 | 7.0 | 5.8 | 1.47 | 0.10 |
| 4 | 5469 | G4 | 1449 | 4753 | G4 | 2993 | 2274 | G5 | 649 | 10140 | 17541 | 6.4 | 4.9 | 1.73 | 0.11 |
| 5 | 6064 | G4 | 1752 | 4890 | G4 | 3071 | 2533 | G5 | 600 | 11187 | 18485 | 5.9 | 4.7 | 2.10 | 0.16 |
| 6 | 6401 | G4 | 1542 | 5162 | G4 | 2699 | 2688 | G5 | 548 | 11599 | 18919 | 5.8 | 4.7 | 2.85 | 0.15 |
| 7 | 6778 | G4 | 885 | 5746 | G4 | 2018 | 2650 | G5 | 657 | 11366 | 18610 | 4.2 | 3.2 | 3.55 | 0.20 |
| 8 | 6387 | G4 | 909 | 5996 | G4 | 1836 | 2236 | G5 | 503 | 10468 | 17712 | 4.0 | 2.9 | 2.97 | 0.16 |
| 9 | 4703 | G4 | 1374 | 4317 | G4 | 2995 | 1987 | G5 | 603 | 8998 | 16574 | 6.1 | 5.0 | 3.04 | 0.11 |
| 10 | 3674 | G4 | 1440 | 3939 | G4 | 2998 | 1510 | G5 | 348 | 7232 | 15373 | 5.5 | 4.6 | 1.54 | 0.12 |
| 11 | 3032 | G4 | 1000 | 4373 | G4 | 3006 | 1060 | G5 | 420 | 5598 | 14275 | 4.3 | 3.8 | 1.10 | 0.09 |
| 12 | 2635 | G4 | 820 | 4697 | G4 | 2767 | 784 | G5 | 320 | 4813 | 13723 | 3.9 | 3.3 | 0.92 | 0.06 |
| 13 | 4643 | G4 | 1916 | 4684 | G4 | 2815 | 1835 | G5 | 828 | 8484 | 16398 | 5.3 | 4.3 | 1.96 | 0.12 |
| 1977 | | | | | | | | | | | | | | | |
| 1 | 2677 | G4 | 1014 | 3927 | G4 | 3062 | 999 | G5 | 357 | 5246 | 14075 | 5.6 | 4.6 | 0.82 | 0.06 |
| 2 | 3754 | G4 | 1044 | 5339 | G4 | 2866 | 1115 | G5 | 453 | 6605 | 15085 | 4.3 | 3.5 | 0.99 | 0.06 |
| 3 | 4512 | G4 | 1571 | 4784 | G4 | 3501 | 1676 | G5 | 617 | 8423 | 16316 | 5.4 | 4.5 | 1.32 | 0.10 |
| 4 | 5773 | G4 | 1567 | 5552 | G4 | 3048 | 2044 | G5 | 626 | 10093 | 17505 | 5.1 | 4.0 | 1.88 | 0.11 |
| 5 | 6517 | G4 | 1197 | 5733 | G4 | 2292 | 2466 | G5 | 538 | 11163 | 18460 | 5.6 | 4.1 | 2.56 | 0.13 |
| 6 | 6553 | G4 | 1649 | 5607 | G4 | 3020 | 2534 | G5 | 683 | 11596 | 18916 | 5.3 | 4.0 | 3.39 | 0.16 |
| 7 | 6358 | G4 | 1438 | 5086 | G4 | 2552 | 2604 | G5 | 544 | 11384 | 18632 | 5.7 | 4.4 | 4.17 | 0.17 |
| 8 | 5901 | G4 | 981 | 4981 | G4 | 1870 | 2461 | G5 | 412 | 10506 | 17746 | 5.9 | 4.3 | 4.05 | 0.15 |
| 9 | 4768 | G4 | 1150 | 4229 | G4 | 2181 | 2063 | G5 | 448 | 9054 | 16613 | 6.4 | 4.8 | 3.55 | 0.14 |
| 10 | 4020 | G4 | 1101 | 4680 | G4 | 2704 | 1448 | G5 | 495 | 7290 | 15412 | 4.8 | 3.9 | 1.92 | 0.11 |
| 11 | 2322 | G4 | 893 | 2206 | G4 | 2438 | 1318 | G5 | 343 | 5643 | 14305 | 7.5 | 6.7 | 1.76 | 0.09 |
| 12 | 2258 | G4 | 744 | 3058 | G4 | 2551 | 1025 | G5 | 344 | 4819 | 13727 | 6.2 | 5.3 | 1.03 | 0.07 |
| 13 | 4622 | G4 | 1977 | 4595 | G4 | 2860 | 1817 | G5 | 775 | 8494 | 16405 | 5.7 | 4.5 | 2.29 | 0.11 |
| 1978 | | | | | | | | | | | | | | | |
| 1 | 2502 | H4 | 724 | 2625 | H4 | 2578 | 1390 | H5 | 469 | 5246 | 14075 | 7.0 | 6.1 | 0.95 | 0.06 |
| 2 | 3181 | H4 | 1197 | 3297 | H4 | 3316 | 1545 | H5 | 571 | 6605 | 15085 | 6.5 | 5.9 | 0.86 | 0.07 |
| 3 | 4348 | H4 | 1588 | 4124 | H4 | 3606 | 1867 | H5 | 647 | 8423 | 16316 | 6.3 | 5.5 | 1.24 | 0.09 |
| 4 | 5926 | H4 | 1289 | 5777 | H4 | 2834 | 2052 | H5 | 621 | 10093 | 17505 | 5.4 | 4.1 | 1.68 | 0.10 |
| 5 | 5847 | H4 | 1651 | 4434 | H4 | 3125 | 2733 | H5 | 634 | 11163 | 18460 | 6.1 | 5.0 | 2.56 | 0.15 |
| 6 | 6662 | H4 | 1246 | 5417 | H4 | 2570 | 2689 | H5 | 659 | 11596 | 18916 | 5.7 | 4.1 | 3.17 | 0.16 |
| 7 | 6854 | H4 | 802 | 6227 | H4 | 1991 | 2422 | H5 | 565 | 11384 | 18632 | 4.3 | 3.3 | 3.66 | 0.15 |
| 8 | 6043 | H4 | 1202 | 5419 | H4 | 2593 | 2309 | H5 | 653 | 10506 | 17746 | 4.8 | 3.8 | 3.51 | 0.16 |
| 9 | 4897 | H4 | 910 | 4434 | H4 | 2091 | 2095 | H5 | 496 | 9054 | 16613 | 6.2 | 4.8 | 3.29 | 0.12 |
| 10 | 4476 | H4 | 1010 | 6097 | H4 | 2706 | 1221 | H5 | 541 | 7290 | 15412 | 3.0 | 2.4 | 1.74 | 0.09 |
| 11 | 2747 | H4 | 988 | 3315 | H4 | 2751 | 1234 | H5 | 361 | 5643 | 14305 | 6.1 | 5.2 | 1.86 | 0.08 |
| 12 | 2329 | H4 | 767 | 3210 | H4 | 2879 | 1055 | H5 | 385 | 4819 | 13727 | 6.1 | 5.3 | 1.33 | 0.05 |
| 13 | 4659 | H4 | 1946 | 4539 | H4 | 2992 | 1886 | H5 | 790 | 8494 | 16405 | 5.6 | 4.6 | 2.16 | 0.11 |
| 1979 | | | | | | | | | | | | | | | |
| 1 | 2281 | H4 | 830 | 2282 | H4 | 2911 | 1331 | H5 | 437 | 5246 | 14075 | 7.4 | 6.8 | 1.04 | 0.06 |
| 2 | 2975 | H4 | 1038 | 2368 | H4 | 2652 | 1766 | H5 | 457 | 6605 | 15085 | 8.0 | 7.1 | 1.22 | 0.07 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 4171 | H4 | 1303 | 3795 | H4 | 3326 | 1941 | H5 | 719 | 8423 | 16316 | 6.5 | 5.8 | 1.54 | 0.08 |
| 4 | 5331 | H4 | 1660 | 4415 | H4 | 3291 | 2311 | H5 | 639 | 10093 | 17505 | 6.1 | 5.2 | 1.85 | 0.12 |
| 5 | 5760 | H4 | 1684 | 4332 | H4 | 3270 | 2716 | H5 | 712 | 11163 | 18460 | 6.2 | 5.4 | 2.52 | 0.15 |
| 6 | 6483 | H4 | 1482 | 5287 | H4 | 2737 | 2693 | H5 | 592 | 11596 | 18916 | 5.6 | 4.4 | 3.04 | 0.14 |
| 7 | 5962 | H4 | 1183 | 4144 | H4 | 2238 | 2935 | H5 | 481 | 11384 | 18632 | 7.1 | 5.7 | 4.00 | 0.15 |
| 8 | 5905 | H4 | 1063 | 5028 | H4 | 2148 | 2474 | H5 | 495 | 10506 | 17746 | 5.3 | 4.3 | 3.67 | 0.15 |
| 9 | 5370 | H4 | 1223 | 5624 | H4 | 2870 | 1848 | H5 | 691 | 9054 | 16613 | 3.8 | 3.2 | 2.61 | 0.14 |
| 10 | 4176 | H4 | 1068 | 5030 | H4 | 2585 | 1427 | H5 | 459 | 7290 | 15412 | 4.7 | 3.5 | 2.04 | 0.10 |
| 11 | 3108 | H4 | 876 | 4531 | H4 | 2686 | 1060 | H5 | 386 | 5643 | 14305 | 4.7 | 3.7 | 1.19 | 0.09 |
| 12 | 2489 | H4 | 805 | 3890 | H4 | 3001 | 942 | H5 | 411 | 4819 | 13727 | 4.7 | 4.2 | 1.26 | 0.06 |
| 13 | 4507 | H4 | 1868 | 4234 | H4 | 2963 | 1955 | H5 | 849 | 8494 | 16405 | 5.8 | 4.9 | 2.17 | 0.11 |
| 1980 | | | | | | | | | | | | | | | |
| 1 | 2371 | H4 | 716 | 2699 | H4 | 2678 | 1259 | H5 | 473 | 5246 | 14075 | 6.9 | 6.0 | 1.22 | 0.06 |
| 2 | 3504 | H4 | 1075 | 4096 | H4 | 2875 | 1416 | H5 | 481 | 6636 | 15106 | 6.0 | 5.1 | 1.00 | 0.07 |
| 3 | 4149 | H4 | 1349 | 3695 | H4 | 3234 | 1993 | H5 | 650 | 8483 | 16357 | 6.5 | 5.7 | 1.30 | 0.10 |
| 4 | 5796 | H4 | 1562 | 5432 | H4 | 3310 | 2154 | H5 | 711 | 10140 | 17541 | 4.7 | 4.0 | 1.53 | 0.14 |
| 5 | 5796 | H4 | 1478 | 4179 | H4 | 2787 | 2764 | H5 | 577 | 11187 | 18485 | 6.8 | 5.8 | 2.70 | 0.14 |
| 6 | 6782 | H4 | 1192 | 5587 | H4 | 2376 | 2729 | H5 | 624 | 11599 | 18919 | 5.4 | 4.1 | 3.26 | 0.16 |
| 7 | 7366 | H4 | 850 | 7393 | H4 | 2183 | 2106 | H5 | 683 | 11366 | 18610 | 2.3 | 2.0 | 3.41 | 0.16 |
| 8 | 6547 | H4 | 587 | 6342 | H4 | 1638 | 2157 | H5 | 549 | 10468 | 17712 | 3.6 | 2.5 | 3.72 | 0.16 |
| 9 | 4718 | H4 | 1295 | 4228 | H4 | 2649 | 2051 | H5 | 499 | 8998 | 16574 | 5.6 | 4.7 | 3.59 | 0.13 |
| 10 | 4338 | H4 | 999 | 5518 | H4 | 2474 | 1336 | H5 | 463 | 7232 | 15373 | 3.8 | 2.8 | 1.68 | 0.10 |
| 11 | 2960 | H4 | 946 | 4027 | H4 | 2884 | 1146 | H5 | 427 | 5598 | 14275 | 4.8 | 4.2 | 1.34 | 0.08 |
| 12 | 2350 | H4 | 664 | 3177 | H4 | 2522 | 1080 | H5 | 375 | 4813 | 13723 | 6.0 | 5.0 | 1.30 | 0.07 |
| 13 | 4726 | H4 | 1989 | 4700 | H4 | 2939 | 1850 | H5 | 784 | 8484 | 16398 | 5.2 | 4.3 | 2.17 | 0.11 |
| 1981 | | | | | | | | | | | | | | | |
| 1 | 2773 | G4 | 784 | 4360 | G4 | 2983 | 990 | G5 | 477 | 5246 | 14075 | 4.7 | 3.9 | 0.92 | 0.07 |
| 2 | 3507 | G4 | 1220 | 4456 | G4 | 3388 | 1273 | G5 | 530 | 6605 | 15085 | 5.3 | 4.6 | 1.17 | 0.07 |
| 3 | 4537 | G4 | 1589 | 4813 | G4 | 3231 | 1677 | G5 | 503 | 8423 | 16316 | 5.7 | 4.5 | 1.21 | 0.08 |
| 4 | 5363 | G4 | 1373 | 4611 | G4 | 2986 | 2266 | G5 | 649 | 10093 | 17505 | 6.5 | 5.3 | 2.27 | 0.11 |
| 5 | 5551 | H4 | 1584 | 3828 | H4 | 2993 | 2804 | H5 | 658 | 11163 | 18460 | 7.1 | 6.0 | 2.52 | 0.14 |
| 6 | 6517 | H4 | 1151 | 5192 | H4 | 2353 | 2739 | H5 | 580 | 11596 | 18916 | 5.8 | 4.5 | 3.70 | 0.14 |
| 7 | 6619 | G4 | 1038 | 5749 | G4 | 2236 | 2512 | G5 | 599 | 11384 | 18632 | 4.8 | 3.8 | 4.34 | 0.16 |
| 8 | 5835 | G4 | 1184 | 4956 | G4 | 2396 | 2405 | G5 | 536 | 10506 | 17746 | 5.8 | 4.5 | 4.07 | 0.15 |
| 9 | 5346 | G4 | 990 | 5693 | G4 | 2423 | 1775 | G5 | 555 | 9054 | 16613 | 4.8 | 3.3 | 2.95 | 0.11 |
| 10 | 3338 | G4 | 1241 | 3054 | G4 | 2972 | 1686 | G5 | 569 | 7290 | 15412 | 7.1 | 6.0 | 2.44 | 0.10 |
| 11 | 2839 | G4 | 860 | 3629 | G4 | 2283 | 1175 | G5 | 296 | 5643 | 14305 | 6.0 | 4.7 | 1.51 | 0.08 |
| 12 | 2417 | G4 | 729 | 3657 | G4 | 2495 | 958 | G5 | 311 | 4819 | 13727 | 5.6 | 4.6 | 1.05 | 0.06 |
| 13 | 4557 | G4 | 1862 | 4497 | G4 | 2829 | 1858 | G5 | 834 | 8494 | 16405 | 5.8 | 4.6 | 2.35 | 0.11 |
| 1982 | | | | | | | | | | | | | | | |
| 1 | 2467 | G4 | 953 | 3267 | G4 | 3061 | 1109 | G5 | 456 | 5246 | 14075 | 6.2 | 5.4 | 1.17 | 0.06 |
| 2 | 2986 | G4 | 1116 | 2847 | G4 | 2921 | 1557 | G5 | 479 | 6605 | 15085 | 7.2 | 6.2 | 1.18 | 0.07 |
| 3 | 4270 | G4 | 1182 | 3762 | G4 | 2611 | 1992 | G5 | 516 | 8423 | 16316 | 7.1 | 5.5 | 1.68 | 0.09 |
| 4 | 4806 | G4 | 1407 | 3495 | G4 | 2528 | 2528 | G5 | 546 | 10093 | 17505 | 7.6 | 6.1 | 1.86 | 0.12 |
| 5 | 6068 | G4 | 1247 | 4860 | G4 | 2391 | 2631 | G5 | 576 | 11163 | 18460 | 6.0 | 4.8 | 2.91 | 0.15 |
| 6 | 6029 | G4 | 1177 | 4141 | G4 | 2045 | 3038 | G5 | 514 | 11596 | 18916 | 6.9 | 5.2 | 3.12 | 0.20 |
| 7 | 6500 | G4 | 879 | 5284 | G4 | 1641 | 2724 | G5 | 464 | 11384 | 18632 | 5.2 | 3.9 | 4.03 | 0.19 |
| 8 | 5501 | G4 | 1134 | 4102 | G4 | 2157 | 2656 | G5 | 459 | 10506 | 17746 | 5.8 | 4.6 | 4.15 | 0.21 |
| 9 | 4976 | G4 | 1041 | 4206 | G4 | 2196 | 2260 | G5 | 469 | 9054 | 16613 | 5.0 | 3.9 | 2.98 | 0.23 |
| 10 | 3851 | G4 | 1098 | 3878 | G4 | 2466 | 1693 | G5 | 436 | 7290 | 15412 | 4.8 | 3.7 | 2.08 | 0.21 |
| 11 | 2462 | G4 | 926 | 2286 | G4 | 2041 | 1371 | G5 | 265 | 5643 | 14305 | 7.0 | 5.9 | 1.77 | 0.16 |
| 12 | 1886 | G4 | 806 | 2075 | G4 | 2179 | 1048 | G5 | 233 | 4819 | 13727 | 6.6 | 5.9 | 1.65 | 0.14 |
| 13 | 4325 | G4 | 1863 | 3692 | G4 | 2518 | 2052 | G5 | 798 | 8494 | 16405 | 6.3 | 5.1 | 2.39 | 0.15 |
| 1983 | | | | | | | | | | | | | | | |
| 1 | 2330 | G4 | 762 | 2526 | G4 | 2283 | 1248 | G5 | 326 | 5246 | 14075 | 6.1 | 5.3 | 0.97 | 0.15 |
| 2 | 3116 | G4 | 1198 | 3166 | G4 | 2818 | 1499 | G5 | 399 | 6605 | 15085 | 6.4 | 5.4 | 1.11 | 0.15 |
| 3 | 4231 | G4 | 1232 | 3677 | G4 | 2729 | 1992 | G5 | 524 | 8423 | 16316 | 6.7 | 5.3 | 1.35 | 0.16 |
| 4 | 4623 | G4 | 1979 | 3387 | G4 | 3680 | 2388 | G5 | 635 | 10093 | 17505 | 6.4 | 6.0 | 1.68 | 0.16 |
| 5 | 5785 | G4 | 1743 | 4087 | G4 | 3041 | 2854 | G5 | 659 | 11163 | 18460 | 6.2 | 5.2 | 2.33 | 0.23 |
| 6 | 6371 | G4 | 1184 | 4683 | G4 | 2143 | 2899 | G5 | 530 | 11596 | 18916 | 6.3 | 4.7 | 3.37 | 0.20 |
| 7 | 6572 | G4 | 1110 | 5253 | G4 | 2292 | 2768 | G5 | 627 | 11384 | 18632 | 5.0 | 3.9 | 4.03 | 0.21 |
| 8 | 6415 | G4 | 664 | 5746 | G4 | 1687 | 2412 | G5 | 600 | 10506 | 17746 | 3.5 | 2.5 | 4.09 | 0.23 |
| 9 | 5511 | G4 | 967 | 5524 | G4 | 2055 | 1942 | G5 | 471 | 9054 | 16613 | 3.3 | 2.5 | 2.95 | 0.21 |
| 10 | 3656 | G4 | 1283 | 3722 | G4 | 2868 | 1604 | G5 | 463 | 7290 | 15412 | 5.7 | 4.6 | 2.16 | 0.15 |
| 11 | 2512 | G4 | 871 | 2715 | G4 | 2331 | 1283 | G5 | 313 | 5643 | 14305 | 5.9 | 5.3 | 1.73 | 0.13 |
| 12 | 1987 | G4 | 763 | 2096 | G4 | 2409 | 1147 | G5 | 306 | 4819 | 13727 | 7.3 | 6.5 | 1.15 | 0.09 |
| 13 | 4433 | G4 | 2019 | 3886 | G4 | 2788 | 2006 | G5 | 799 | 8494 | 16405 | 5.7 | 4.8 | 2.25 | 0.17 |
| 1984 | | | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2764 G4 | 774 | 3947 G4 | 2558 | 1079 G5 | 379 | 5246 | 14075 | 5.1 | 4.0 | 0.88 | 0.10 |
| 2 | 3617 G4 | 984 | 4421 G4 | 2687 | 1395 G5 | 503 | 6636 | 15106 | 4.9 | 3.9 | 1.00 | 0.11 |
| 3 | 4054 G4 | 1333 | 3448 G4 | 2961 | 1988 G5 | 560 | 8483 | 16357 | 6.8 | 5.9 | 1.51 | 0.12 |
| 4 | 5391 G4 | 1653 | 4620 G4 | 3105 | 2267 G5 | 589 | 10140 | 17541 | 5.7 | 4.9 | 1.75 | 0.14 |
| 5 | 6250 G4 | 1600 | 5122 G4 | 2780 | 2544 G5 | 537 | 11187 | 18485 | 5.9 | 4.4 | 2.50 | 0.16 |
| 6 | 6798 G4 | 1123 | 5843 G4 | 2187 | 2608 G5 | 526 | 11599 | 18919 | 4.8 | 3.5 | 3.54 | 0.17 |
| 7 | 6678 G4 | 1114 | 5750 G4 | 2241 | 2547 G5 | 576 | 11366 | 18610 | 4.6 | 3.4 | 3.68 | 0.19 |
| 8 | 5554 G4 | 1003 | 4266 G4 | 1911 | 2553 G5 | 497 | 10468 | 17712 | 6.4 | 5.0 | 3.88 | 0.18 |
| 9 | 5063 G4 | 1414 | 5033 G4 | 3002 | 1855 G5 | 571 | 8998 | 16574 | 4.6 | 3.8 | 3.09 | 0.14 |
| 10 | 3109 G4 | 1263 | 2586 G4 | 2571 | 1666 G5 | 366 | 7232 | 15373 | 7.5 | 6.5 | 2.93 | 0.13 |
| 11 | 2876 G4 | 922 | 3860 G4 | 2673 | 1126 G5 | 371 | 5598 | 14275 | 5.2 | 4.2 | 1.40 | 0.10 |
| 12 | 1996 G4 | 741 | 2145 G4 | 2431 | 1128 G5 | 280 | 4813 | 13723 | 7.6 | 6.5 | 2.03 | 0.08 |
| 13 | 4512 G4 | 1979 | 4246 G4 | 2799 | 1898 G5 | 758 | 8484 | 16398 | 5.8 | 4.7 | 2.35 | 0.13 |
| 1985 | | | | | | | | | | | | |
| 1 | 2565 G4 | 832 | 3360 G4 | 2646 | 1134 G5 | 379 | 5246 | 14075 | 6.1 | 5.0 | 0.90 | 0.07 |
| 2 | 3227 G4 | 1084 | 3396 G4 | 2961 | 1528 G5 | 482 | 6605 | 15085 | 6.8 | 5.7 | 1.18 | 0.08 |
| 3 | 4217 G4 | 1440 | 3842 G4 | 3056 | 1885 G5 | 529 | 8423 | 16316 | 6.8 | 5.6 | 1.82 | 0.11 |
| 4 | 5504 G4 | 1451 | 5082 G4 | 2956 | 2149 G5 | 624 | 10093 | 17505 | 5.4 | 4.4 | 2.11 | 0.13 |
| 5 | 6250 G4 | 1468 | 5231 G4 | 2700 | 2555 G5 | 578 | 11163 | 18460 | 5.3 | 4.1 | 2.55 | 0.17 |
| 6 | 6914 G4 | 1138 | 6073 G4 | 2297 | 2558 G5 | 612 | 11596 | 18916 | 5.0 | 3.5 | 3.22 | 0.15 |
| 7 | 6952 G4 | 1086 | 6547 G4 | 2198 | 2239 G5 | 538 | 11384 | 18632 | 4.3 | 3.0 | 3.70 | 0.15 |
| 8 | 6058 G4 | 894 | 5376 G4 | 1960 | 2335 G5 | 492 | 10506 | 17746 | 5.2 | 3.9 | 3.95 | 0.15 |
| 9 | 4840 G4 | 1188 | 4527 G4 | 2575 | 1979 G5 | 531 | 9054 | 16613 | 5.6 | 4.6 | 3.30 | 0.14 |
| 10 | 3441 G4 | 1393 | 3157 G4 | 2784 | 1647 G5 | 358 | 7290 | 15412 | 7.3 | 5.9 | 2.71 | 0.11 |
| 11 | 2389 G4 | 1002 | 2296 G4 | 2757 | 1313 G5 | 414 | 5643 | 14305 | 7.4 | 6.7 | 2.25 | 0.09 |
| 12 | 2535 G4 | 748 | 4084 G4 | 2652 | 911 G5 | 355 | 4819 | 13727 | 4.6 | 3.8 | 0.97 | 0.07 |
| 13 | 4582 G4 | 2028 | 4422 G4 | 2878 | 1854 G5 | 722 | 8494 | 16405 | 5.8 | 4.7 | 2.39 | 0.12 |
| 1986 | | | | | | | | | | | | |
| 1 | 2966 G4 | 680 | 4819 G4 | 2283 | 957 G5 | 342 | 5246 | 14075 | 4.5 | 3.0 | 0.88 | 0.06 |
| 2 | 3189 G4 | 1174 | 3249 G4 | 2755 | 1510 G5 | 374 | 6605 | 15085 | 7.0 | 5.8 | 1.39 | 0.09 |
| 3 | 5196 G4 | 1148 | 6158 G4 | 2509 | 1512 G5 | 457 | 8423 | 16316 | 4.0 | 2.7 | 1.19 | 0.10 |
| 4 | 5515 G4 | 1388 | 4857 G4 | 2752 | 2259 G5 | 564 | 10093 | 17505 | 6.0 | 4.5 | 2.10 | 0.13 |
| 5 | 5872 G4 | 1369 | 4449 G4 | 2482 | 2713 G5 | 567 | 11163 | 18460 | 6.8 | 5.1 | 2.87 | 0.17 |
| 6 | 6257 G4 | 1636 | 4902 G4 | 3015 | 2687 G5 | 672 | 11596 | 18916 | 6.0 | 4.7 | 3.91 | 0.17 |
| 7 | 7253 G4 | 561 | 6992 G4 | 1524 | 2249 G5 | 543 | 11384 | 18632 | 3.4 | 2.2 | 4.03 | 0.16 |
| 8 | 6085 G4 | 1045 | 5479 G4 | 2131 | 2306 G5 | 521 | 10506 | 17746 | 5.1 | 3.6 | 3.59 | 0.16 |
| 9 | 4827 G4 | 899 | 4311 G4 | 1847 | 2082 G5 | 436 | 9054 | 16613 | 6.1 | 4.6 | 3.91 | 0.13 |
| 10 | 3563 G4 | 1189 | 3714 G4 | 2956 | 1576 G5 | 516 | 7290 | 15412 | 5.5 | 4.9 | 2.41 | 0.10 |
| 11 | 2204 G4 | 805 | 1726 G4 | 2251 | 1408 G5 | 364 | 5643 | 14305 | 8.3 | 7.6 | 1.74 | 0.07 |
| 12 | 2062 G4 | 702 | 2371 G4 | 2328 | 1113 G5 | 330 | 4819 | 13727 | 7.2 | 6.2 | 1.27 | 0.06 |
| 13 | 4593 G4 | 1977 | 4434 G4 | 2797 | 1865 G5 | 744 | 8494 | 16405 | 5.8 | 4.6 | 2.44 | 0.12 |
| 1987 | | | | | | | | | | | | |
| 1 | 2585 G4 | 850 | 3463 G4 | 2667 | 1111 G5 | 384 | 5246 | 14075 | 6.1 | 5.0 | 1.05 | 0.06 |
| 2 | 2919 G4 | 1027 | 2834 G4 | 2872 | 1533 G5 | 525 | 6605 | 15085 | 7.3 | 6.1 | 1.41 | 0.07 |
| 3 | 4698 G4 | 1358 | 5190 G4 | 2979 | 1658 G5 | 576 | 8423 | 16316 | 5.3 | 4.0 | 1.23 | 0.09 |
| 4 | 6228 G4 | 1608 | 6738 G4 | 3044 | 1769 G5 | 561 | 10093 | 17505 | 3.9 | 2.7 | 1.52 | 0.11 |
| 5 | 6299 G4 | 946 | 5097 G4 | 2024 | 2593 G5 | 467 | 11163 | 18460 | 6.4 | 4.9 | 3.33 | 0.14 |
| 6 | 6801 G4 | 1168 | 5955 G4 | 2448 | 2537 G5 | 679 | 11596 | 18916 | 4.9 | 3.6 | 3.64 | 0.17 |
| 7 | 6568 G4 | 1035 | 5543 G4 | 2197 | 2577 G5 | 622 | 11384 | 18632 | 5.3 | 4.1 | 4.18 | 0.15 |
| 8 | 6295 G4 | 840 | 5836 G4 | 1931 | 2257 G5 | 556 | 10506 | 17746 | 4.6 | 3.4 | 4.35 | 0.15 |
| 9 | 5248 G4 | 1142 | 5234 G4 | 2414 | 1903 G5 | 495 | 9054 | 16613 | 4.4 | 3.4 | 2.86 | 0.15 |
| 10 | 4251 G4 | 1252 | 5366 G4 | 2808 | 1326 G5 | 452 | 7290 | 15412 | 3.9 | 3.0 | 1.71 | 0.10 |
| 11 | 2855 G4 | 1107 | 3830 G4 | 3102 | 1117 G5 | 382 | 5643 | 14305 | 5.2 | 4.6 | 1.53 | 0.08 |
| 12 | 2111 G4 | 844 | 2753 G4 | 2597 | 1020 G5 | 290 | 4819 | 13727 | 6.3 | 5.6 | 1.49 | 0.07 |
| 13 | 4747 G4 | 2005 | 4829 G4 | 2851 | 1785 G5 | 760 | 8494 | 16405 | 5.3 | 4.2 | 2.37 | 0.11 |
| 1988 | | | | | | | | | | | | |
| 1 | 2598 G4 | 893 | 3298 G4 | 2906 | 1213 G5 | 454 | 5246 | 14075 | 6.1 | 5.2 | 0.92 | 0.06 |
| 2 | 3601 G4 | 1239 | 4514 G4 | 3119 | 1290 G5 | 474 | 6636 | 15106 | 5.4 | 4.6 | 1.10 | 0.06 |
| 3 | 4643 G4 | 1541 | 4830 G4 | 3465 | 1737 G5 | 638 | 8483 | 16357 | 5.0 | 4.3 | 1.31 | 0.11 |
| 4 | 5965 G4 | 1558 | 6026 G4 | 3280 | 1923 G5 | 695 | 10140 | 17541 | 5.0 | 3.8 | 1.54 | 0.10 |
| 5 | 6947 G4 | 1404 | 6771 G4 | 2881 | 2175 G5 | 674 | 11187 | 18485 | 3.7 | 2.8 | 1.99 | 0.14 |
| 6 | 7271 G4 | 1056 | 7016 G4 | 2379 | 2285 G5 | 700 | 11599 | 18919 | 3.7 | 2.7 | 2.96 | 0.14 |
| 7 | 6245 G4 | 1294 | 4835 G4 | 2196 | 2696 G5 | 458 | 11366 | 18610 | 6.1 | 4.7 | 4.19 | 0.16 |
| 8 | 6124 G4 | 1070 | 5570 G4 | 2359 | 2298 G5 | 566 | 10468 | 17712 | 4.7 | 3.5 | 4.29 | 0.16 |
| 9 | 4848 G4 | 1385 | 4608 G4 | 2853 | 1923 G5 | 546 | 8998 | 16574 | 5.5 | 4.6 | 3.31 | 0.13 |
| 10 | 3955 G4 | 1124 | 4643 G4 | 2683 | 1416 G5 | 440 | 7232 | 15373 | 4.8 | 3.9 | 1.95 | 0.11 |
| 11 | 2840 G4 | 982 | 3966 G4 | 2993 | 1074 G5 | 420 | 5598 | 14275 | 4.9 | 4.4 | 1.51 | 0.08 |
| 12 | 2443 G4 | 823 | 3878 G4 | 2890 | 904 G5 | 337 | 4813 | 13723 | 4.9 | 4.3 | 1.20 | 0.07 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 4792 | G4 | 2037 | 4994 | G4 | 3018 | 1746 | G5 | 764 | 8484 | 16398 | 5.0 | 4.1 | 2.19 | 0.11 |
| 1989 | | | | | | | | | | | | | | | |
| 1 | 2381 | G4 | 870 | 2754 | G4 | 2894 | 1215 | G5 | 421 | 5246 | 14075 | 6.6 | 6.0 | 1.42 | 0.06 |
| 2 | 2900 | G4 | 1267 | 2757 | G4 | 3268 | 1496 | G5 | 502 | 6605 | 15085 | 7.2 | 6.5 | 1.10 | 0.07 |
| 3 | 4104 | G4 | 1367 | 3602 | G4 | 3013 | 1938 | G5 | 578 | 8423 | 16316 | 7.0 | 5.8 | 1.64 | 0.09 |
| 4 | 5645 | G4 | 1366 | 5058 | G4 | 2414 | 2195 | G5 | 423 | 10093 | 17505 | 6.0 | 4.6 | 1.99 | 0.12 |
| 5 | 5688 | G4 | 1547 | 4298 | G4 | 2750 | 2637 | G5 | 542 | 11163 | 18460 | 6.6 | 5.4 | 2.85 | 0.14 |
| 6 | 5736 | G4 | 1437 | 3866 | G4 | 2155 | 2896 | G5 | 346 | 11596 | 18916 | 7.0 | 5.8 | 3.56 | 0.19 |
| 7 | 5665 | G4 | 1310 | 3959 | G4 | 1890 | 2801 | G5 | 414 | 11384 | 18631 | 6.6 | 5.6 | 4.06 | 0.19 |
| 8 | 6215 | G4 | 875 | 5685 | G4 | 1799 | 2286 | G5 | 502 | 10506 | 17746 | 4.8 | 3.7 | 3.88 | 0.14 |
| 9 | 4536 | G4 | 1515 | 3996 | G4 | 2948 | 2034 | G5 | 518 | 9054 | 16613 | 5.9 | 5.1 | 3.09 | 0.13 |
| 10 | 4195 | G4 | 1188 | 5284 | G4 | 2938 | 1325 | G5 | 513 | 7290 | 15412 | 3.8 | 3.1 | 2.25 | 0.10 |
| 11 | 3082 | G4 | 826 | 4445 | G4 | 2503 | 1068 | G5 | 381 | 5643 | 14305 | 4.5 | 3.6 | 1.65 | 0.08 |
| 12 | 2494 | G4 | 766 | 3951 | G4 | 2884 | 935 | G5 | 388 | 4819 | 13727 | 4.9 | 4.2 | 0.88 | 0.06 |
| 13 | 4395 | G4 | 1808 | 4147 | G4 | 2753 | 1904 | G5 | 804 | 8494 | 16405 | 5.9 | 4.9 | 2.37 | 0.11 |
| 1990 | | | | | | | | | | | | | | | |
| 1 | 2497 | G4 | 930 | 3358 | G4 | 3066 | 1092 | G5 | 430 | 5246 | 14075 | 6.4 | 5.4 | 1.32 | 0.05 |
| 2 | 3261 | G4 | 1156 | 3780 | G4 | 3091 | 1373 | G5 | 455 | 6605 | 15085 | 6.3 | 5.3 | 1.53 | 0.06 |
| 3 | 3688 | G4 | 1243 | 2618 | G4 | 2859 | 2151 | G5 | 582 | 8423 | 16316 | 7.7 | 6.7 | 1.82 | 0.09 |
| 4 | 5150 | G4 | 1283 | 4481 | G4 | 2920 | 2233 | G5 | 686 | 10093 | 17505 | 6.5 | 5.3 | 2.14 | 0.10 |
| 5 | 5384 | G4 | 1798 | 3888 | G4 | 3151 | 2664 | G5 | 628 | 11163 | 18460 | 6.7 | 5.8 | 2.74 | 0.14 |
| 6 | 7000 | G4 | 1057 | 6252 | G4 | 2156 | 2542 | G5 | 606 | 11596 | 18916 | 4.6 | 3.1 | 3.74 | 0.16 |
| 7 | 6703 | G4 | 1009 | 5808 | G4 | 2257 | 2523 | G5 | 637 | 11384 | 18631 | 4.8 | 3.6 | 3.68 | 0.17 |
| 8 | 6196 | G4 | 982 | 5860 | G4 | 2217 | 2162 | G5 | 612 | 10506 | 17746 | 4.6 | 3.4 | 3.80 | 0.14 |
| 9 | 4798 | G4 | 1498 | 4753 | G4 | 3114 | 1834 | G5 | 582 | 9054 | 16613 | 5.4 | 4.3 | 3.42 | 0.12 |
| 10 | 4298 | G4 | 1076 | 5712 | G4 | 2680 | 1237 | G5 | 521 | 7290 | 15412 | 3.3 | 2.6 | 2.09 | 0.09 |
| 11 | 2913 | G4 | 889 | 3951 | G4 | 2844 | 1132 | G5 | 450 | 5643 | 14305 | 5.0 | 4.1 | 1.81 | 0.08 |
| 12 | 2088 | G4 | 805 | 2447 | G4 | 2835 | 1099 | G5 | 386 | 4819 | 13727 | 6.8 | 6.2 | 1.32 | 0.08 |
| 13 | 4503 | G4 | 1960 | 4410 | G4 | 3011 | 1840 | G5 | 807 | 8494 | 16405 | 5.7 | 4.6 | 2.46 | 0.11 |

# APPENDIX 5

# NOVEMBER 1998
# FIELD STUDY AND LABORATORY NOTES

**Instrument Calibrations**
**Water Quality Measurement**
**Light and Dark Bottle Measurement**
**General Log**
**Chlorophyll a Measurement**
**Algal Identification and Counts**

# INSTRUMENT CALIBRATIONS

FIELD CREW ID: MRC DMB
BOAT OR LAB ID: Boat 2

# DO CALIBRATION RECORD

CLIENT: GR
JOB NUMBER: 980660/5

| DATE | TIME | INITIALS | DO METER ID (#) | FIRST | | | | SECOND | | | | *SEE NOTE BELOW BEFORE PROCEEDING THIRD | | | | AVG DO CONC. (mg/L) | INITIAL READING OF DO AND TEMP (mg/L, °C) | CALIBRATE TO WINKLER OR AIR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | BOD BOTTLE I.D. | INITIAL BURET READING (IBR) | FINAL BURET READING (FBR) | DO CONC. (IBR - FBR) (mg/L) | BOD BOTTLE I.D. | INITIAL BURET READING (IBR) | FINAL BURET READING (FBR) | DO CONC. (IBR - FBR) (mg/L) | BOD BOTTLE I.D. | INITIAL BURET READING (IBR) | FINAL BURET READING (FBR) | DO CONC. (IBR - FBR) (mg/L) | | | |
| 11/11/98 | 0637 | DMB | DO3 | calibrate 3 times to air - 3rd time holding @ 99.8% sat. → used w/ BOD probe to use L+D bottles | | | | | | | | | | | | | 6.0 | AIR |
| 11/11/98 | 0912 | MRC | DO4 | air calibrate - holding @ unit reading 104.0% | | | | 100.0 - 100.1% sat cal - calibrate | | | | to | 100.0% | | | | 12.2 | AIR |
| 11/12/98 | | | DO3 | | | | | | | | | | | | | | 12.9 | |
| | | | | | | | | | | | | | | | | | 9.5 | |
| DMB 11/12/98 | | | DO5 | unit reading 92.4% cal, calibrated | | | | | | | | to | 100% sat | | | | 9.5 | |

NOTE: *If the FIRST DO concentration and the SECOND DO concentration are within 0.5 mg/L, average the two values and skip the THIRD Winkler titration.

FIELD CREW ID: _____

BOAT OR LAB ID: _____

# DO CALIBRATION RECORD

CLIENT: _____

JOB NUMBER: _____

| DATE | TIME | INITIALS | DO METER ID (#) | FIRST | | | | SECOND | | | | *SEE NOTE BELOW BEFORE PROCEEDING THIRD | | | | AVG DO CONC. (mg/L) | INITIAL READING OF DO AND TEMP (mg/L, °C) | CALIBRATE TO WINKLER OR AIR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | BOD BOTTLE I.D. | INITIAL BURET READING (IBR) | FINAL BURET READING (FBR) | DO CONC. (IBR - FBR) (mg/L) | BOD BOTTLE I.D. | INITIAL BURET READING (IBR) | FINAL BURET READING (FBR) | DO CONC. (IBR - FBR) (mg/L) | BOD BOTTLE I.D. | INITIAL BURET READING (IBR) | FINAL BURET READING (FBR) | DO CONC. (IBR - FBR) (mg/L) | | | |
| ORM 224 11-[illegible]-98 | 0716 | STM | DO5 | | | | 12.5°C | | | | | | | | | | 118.0% | 100.0 |
| | 0747 | STM | | Ø | 0.0 | 10.9 | 10.9 | | | | | | | | | | | |
| | | | | 17 | 11.0 | 22.0 | 11.0 | | | | | | | | | | | |
| | | | | 14 | 0.0 | 11.0 | 11.0 | | | | | | | | | | | |
| 14.0°C | 0830 | STM | | Ø | 0.0 | 10.7 | 10.7 | 14 | 10.7 | 21.5 | 10.8 | 17 | 0.0 | 10.75 | 10.75 | | | |
| 16.0°C | 0917 | STM | | Ø | 10.8 | 21.7 | 10.90 | 14 | 0.0 | 10.95 | 10.95 | 17 | 11.0 | 22.0 | 11.0 | | | |
| 13.8°C | 1203 | STM | DO5 | | | | | | | | | | | | | | 143.5 | 99.2 |
| | | | | | | | | | | | | | | | | | 99.2 | 99.0 |
| ORM 208.8 11-[illegible]-98 | | ~~STM~~ | | | | | | | | | | | | | | | 99.0 | 99.5 |
| 11-[illegible]-98 | | STM | | 17 | 0.0 | 10.25 | 10.25 | 14 | 10.3 | 20.55 | 10.25 | Ø | 0.0 | 10.25 | 10.25 | | | |

NOTE: *If the FIRST DO concentration and the SECOND DO concentration are within 0.5 mg/L, average the two values and skip the THIRD Winkler titration.

FIELD CREW ID: _____

BOAT OR LAB ID: _____

# CALIBRATION RECORD
(CONDUCTIVITY AND pH)

CLIENT: _____

JOB NUMBER: _____

| DATE | TIME | INITIALS | CONDUCTIVITY METER ID (YSI OR HYDROLAB DATASONDE) | INITIAL CONDUCTIVITY READING OF 447 UHMOS/CM STANDARD (umhos/cm) | CALIBRATE TO 447 (umhos/cm) | INITIAL CONDUCTIVITY READING OF 1413 UHMOS/CM STANDARD (umhos/cm) | CALIBRATE TO 1413 (umhos/cm) | *SEE NOTE BELOW BEFORE PROCEEDING | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | pH METER I.D. (ORION OR HYDROLAB DATASONDE) | INITIAL pH READING OF 4 S.U. STANDARD | CALIBRATE TO 4 S.U. STANDARD | INITIAL pH READING OF 7 S.U. STANDARD | CALIBRATE TO 7 S.U. STANDARD | INITIAL pH READING OF 10 S.U. STANDARD | CALIBRATE TO 10 S.U. STANDARD |
| 11-11-98 | 1150 | STM | COND1 | 467.2 | 447.2 | 1372 | 1412 | | | | 7.21 | 7.00 | 10.11 | 10.00 |

NOTE: If ambient pH is <7, use 4 S.U. and 7 S.U. pH standards.
If ambient pH is >7, use 7 S.U. and 10 S.U. pH standards.

# WATER QUALITY MEASUREMENT

FIELD CREW ID: TG SM

BOAT OR LAB ID: 1

# WATER QUALITY MEASUREMENTS

208.8

CLIENT:

JOB NUMBER:

| DATE | TIME (military) | SAMPLE I.D. | LOCATION IN CROSS SECTION | DEPTH (ft) | CHLOROPHYL-a (ug/L) | SECCHI DISK | | LIGHT INTENSITY (ft candles) | IN-SITU WATER QUALITY MEASUREMENTS | | | | COMMENTS AND OBSERVATIONS (including instrument used) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VANISHING DEPTH (ft) | REAPPEARANCE DEPTH (ft) | | DO (mg/L) | TEMPERATURE (°C) | CONDUCTIVITY (umhos/cm) | pH (s.u.) | |
| 11 Nov | 1358 | 208.8 | C | 1 | | | | | 7.87 | 16.8 | 123.5 | 7.71 | |
| | | | | 3 | | | | | 7.83 | 16.7 | 123.4 | 7.76 | |

FIELD CREW ID: NM DK TG

BOAT OR LAB ID: 1

# WATER QUALITY MEASUREMENTS

ORM 224

CLIENT:

JOB NUMBER:

| DATE | TIME (military) | SAMPLE I.D. | LOCATION IN CROSS SECTION | DEPTH (ft) | CHLOROPHYL-a (ug/L) | SECCHI DISK | | LIGHT INTENSITY (ft candles) | IN-SITU WATER QUALITY MEASUREMENTS | | | | COMMENTS AND OBSERVATIONS (including instrument used) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VANISHING DEPTH (ft) | REAPPEARANCE DEPTH (ft) | | DO (mg/L) | TEMPERATURE (°C) | CONDUCTIVITY (umhos/cm) | pH (s.u.) | |
| 10 NOV | 1126 | 224 | C | 1 | | 2.7 | 2.6 | 2750 | 7.48 | 17.03 | .099 | 7.38 | |
| | 28 | | C | 3 | | 2.8 | 2.6 | | 7.33 | 17.03 | .099 | 7.33 | |
| | 30 | | C | 5 | | 2.8 | 2.6 | | 7.21 | 17.03 | .099 | 7.27 | |
| | 31 | | C | 8 | | | | | 7.20 | 17.03 | .099 | 7.24 | |
| | 32 | | C | 11 | | | | | 7.21 | 17.03 | .099 | 7.22 | |
| | 33 | | C | 14 | | | | | 7.19 | 17.03 | .099 | 7.21 | |
| | 34 | | C | 17 | | | | | 7.19 | 17.03 | .099 | 7.20 | |
| | 34 | | C | 19 | | | | | 7.19 | 17.03 | .099 | 7.19 | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | ms | | |
| 11 NOV | 1215 | | C | 1 | | | | | 8.16 | 26.8 | 93.5 | 8.12 | |
| | | | | 3 | | | | | 8.23 | 16.7 | 93.5 | 8.06 | |
| | 1800 | | C | 1 | | | | | 8.09 | 16.7 | 96.9 | 8.02 | |
| | | | | 3 | | | | | 8.18 | 16.7 | 96.9 | 8.04 | |

FIELD CREW ID: MRC/DMB/STM
BOAT OR LAB ID: Boat 2

# WATER QUALITY MEASUREMENTS

ORM ~~2088~~ 224

CLIENT: GP
JOB NUMBER: 065015

| DATE | TIME (military) | SAMPLE I.D. | LOCATION IN CROSS SECTION | DEPTH (ft) | CHLOROPHYL-a (ug/L) | SECCHI DISK | | LIGHT INTENSITY (ft candles) | IN-SITU WATER QUALITY MEASUREMENTS | | | | COMMENTS AND OBSERVATIONS (including instrument used) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VANISHING DEPTH (ft) | REAPPEARANCE DEPTH (ft) | | DO (mg/L) | TEMPERATURE (°C) | CONDUCTIVITY (umhos/cm) | pH (s.u.) | |
| 11/12/98 | 0900 | | Right of Center | 1' | | 2.2 | 2.0 | 199-200 | 8.70 | 16.2 | | | 100% Overcast & raining T = 8.8°C |
| | | | | 3' | | 2.2 | 2.1 | | 8.62 | 16.2 | | | |
| | | | | 5' | | | | | 8.75 | 16.3 | | | |
| | | | | 8' | | | | | 8.8 | 16.3 | | | |
| | | | | ~~11'~~ DMB | | | | | | | | | |

FIELD CREW ID: MRC/STM/DMG
BOAT OR LAB ID: Boat 2

# WATER QUALITY MEASUREMENTS

ORM 224

CLIENT: GV
JOB NUMBER: 980650

| DATE | TIME (military) | SAMPLE I.D. | LOCATION IN CROSS SECTION | DEPTH (ft) | CHLOROPHYL-a (ug/L) | SECCHI DISK VANISHING DEPTH (ft) | SECCHI DISK REAPPEARANCE DEPTH (ft) | LIGHT INTENSITY (ft candles) | IN-SITU WATER QUALITY MEASUREMENTS DO (mg/L) | TEMPERATURE (°C) | CONDUCTIVITY (umhos/cm) | pH (s.u.) | COMMENTS AND OBSERVATIONS (including instrument used) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/10/98 | 1250 | 0.2 | 17'/34' | | | | | | | | | | BOD @ 224 |
| | | 0.6 | 17/10.2 | | | | | | | | | | BOD |
| | 1303 | 0.8 | 17/13.6 | | | | | | | | | | BOD |
| | 1304 | 0.8 | 17/13.6 | | | | | | | | | | BOD BKgd for Coffee |
| | | 0.6 | 17/10.2 | | | | | | | | | | " " " |
| | 13:08 | 0.2 | 17/3.4 | | | | | | | | | | " BKgd for CC |
| | 13:10 | 1' | 17' | 1' | 36.7 | 3 | 1-L | , 1L for AAT Lab, 1-L for algae ID | | | | | Chlorophyll a |
| | 13:15 | 3' | | 3' | 36.8 | ✓ | | 1L for AAT Lab | | | | | " |
| | 13:16 | 5' | | 5' | 36.9 | 3 | 1-L | , 1-L for AAT Lab, 1-L for algae I.D | | | | | " |
| | 13:23 | 8 | | 8' | 36.4 | | | | | | | | |
| | 13:24 | 11 | | 11' | 36.3 | | | | | | | | |
| | 13:24.5 | 14 | | 14' | 36.5 | | | | | | | | |
| | 13:25 | 16 | | 16' | 36.2 | | | | | | | | |

FIELD CREW ID: DMB STM MRC
BOAT OR LAB ID: Boat 2 AAT

# WATER QUALITY MEASUREMENTS

ORM 2088

CLIENT: G. Crossett
JOB NUMBER: 0650

| DATE | TIME (military) | SAMPLE I.D. | LOCATION IN CROSS SECTION | DEPTH (ft) | CHLOROPHYL-a (ug/L) | SECCHI DISK VANISHING DEPTH (ft) | SECCHI DISK REAPPEARANCE DEPTH (ft) | LIGHT INTENSITY (ft candles) | IN-SITU WATER QUALITY MEASUREMENTS DO (mg/L) H Y | TEMPERATURE (°C) | CONDUCTIVITY ~~(umhos/cm)~~ mS/cm | pH (s.u.) | COMMENTS AND OBSERVATIONS (including instrument used) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/12/98 | 1315 | 208.8 | 17' | 1 | 43.3-42.8 | 2.1 | 2.0 | 1430 | H 8.65 | 15.97 | .1323 | 7.6 | rainey temp dropping |
| | | | | 3 | 43.0 | | | | 9.66/8.49 | 16 | .1323 | 7.48 | @ AL Landing Ck |
| | | | | 5 | 42.6-43 | | | | 9.62/8.51 | 15.99 | .1323 | 7.42 | Blind Dup @ 5' labeled |
| | | | | 8 | 42.9 | | | | 9.61/8.66 | 15.99 | .1323 | 7.40 | Day 1 |
| | | | | 11 | 42.3 | | | | 9.59/8.67 | 15.99 | .1322 | 7.39 | |
| | | | | 14 | 43.1 | | | | 9.59/8.73 | 15.97 | .1324 | 7.37 | |
| | | | | 16 | 43.0 | | | | 9.58/8.70 | 15.99 | .1324 | 7.35 | |

FIELD CREW ID: TG SM

BOAT OR LAB ID: 1

# WATER QUALITY MEASUREMENTS

208.8

CLIENT:

JOB NUMBER:

| DATE | TIME (military) | SAMPLE I.D. | LOCATION IN CROSS SECTION | DEPTH (ft) | CHLOROPHYL-a (ug/L) | SECCHI DISK | | LIGHT INTENSITY (ft candles) | IN-SITU WATER QUALITY MEASUREMENTS | | | | COMMENTS AND OBSERVATIONS (including instrument used) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VANISHING DEPTH (ft) | REAPPEARANCE DEPTH (ft) | | DO (mg/L) | TEMPERATURE (°C) | CONDUCTIVITY (umhos/cm) | pH (s.u.) | |
| 11 Nov | 1358 | 208.8 | C | 1 | | | | | 7.87 | 16.8 | 123.5 | 7.71 | |
| | | | | 3 | | | | | 7.83 | 16.7 | 123.4 | 7.76 | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | |

FIELD CREW ID: NM, TG, D

BOAT OR LAB ID: _____

# WATER QUALITY MEASUREMENTS

CLIENT: GP

JOB NUMBER: 01650/5

COFFEE CREEK

| DATE | TIME (military) | SAMPLE I.D. | LOCATION IN CROSS SECTION | DEPTH (ft) | CHLOROPHYL-a (ug/L) | SECCHI DISK | | LIGHT INTENSITY (ft candles) | IN-SITU WATER QUALITY MEASUREMENTS | | | | COMMENTS AND OBSERVATIONS (including instrument used) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VANISHING DEPTH (ft) | REAPPEARANCE DEPTH (ft) | | DO (mg/L) | TEMPERATURE (°C) | CONDUCTIVITY (umhos/cm) | pH (s.u.) | |
| 11 10 | 1410 | — | NORTH SIDE | | | .3' | .2' | | | 17.27 | 2010 | 7.72 | |
| | 1417 | | LEW DS | | | | | | 6.40 | 17.27 | 2010 | | |

FIELD CREW ID: Mk DMB
BOAT OR LAB ID: Boat 2

# WATER QUALITY MEASUREMENTS

## ORM 192

CLIENT: GR
JOB NUMBER: 980650/5

| DATE | TIME (military) | SAMPLE I.D. | LOCATION IN CROSS SECTION | DEPTH (ft) | CHLOROPHYL-a (ug/L) | SECCHI DISK: VANISHING DEPTH (ft) | SECCHI DISK: REAPPEARANCE DEPTH (ft) | LIGHT INTENSITY (ft candles) | IN-SITU WATER QUALITY MEASUREMENTS: DO (mg/L) | TEMPERATURE (°C) | CONDUCTIVITY (umhos/cm) | pH (s.u.) | COMMENTS AND OBSERVATIONS (including instrument used) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ~~11/10/98~~ 11/11/98 DMB | 0916 | ORM192 | mid | 1' | | (A) 2.17 | 2.04 | | DMB 8.26 | 18.1 | 126 | 7.0 | DO meter 4 |
| 11/10/98 | 0917 | | | 3' | | (B) 2.2 | 2.05 | | 8.67 | 17.9 | 124 | 6.67 | pH meter 1 |
| 11/10/98 | 0922 | | | 5' | | | | | 8.58 | 17.8 | 126 | (1) | cond meter 2 |
| 11/10/98 | 0929 | | | 8' | AVG = | | | 8.67 → ~~8.69~~ DMB | | 17.7 | 126 | | |
| 11/10/98 | 0933 | | | 11' | | | | | 8.66 | 17.5 | 126 | | @ 6" depth |
| 11/10/98 | 0944 | | | 14' | | | | 8.52 → ~~8.72~~ DMB | | 17.3 | 126 | | measure 17.1°C |
| 11/10/98 | 0954 | | | 17' | | | | | 8.54 | 17.5 | 126 | | w/thermometer |
| 11/10/98 | 1004 | | | 20' | | | | | 8.40 | 17.3 | NA - probe went into mud | | (1) pH cond will not extend beyond 5' |
| | | total depth = 17-18.5' - on edge of channel - 20" DO reading may be okay | | | | | | | | | | | |
| 11/11/98 | 1046 | ORM192 | mid | 5' | | | | | 8.36 | 17.9 | | | |
| 11/11/98 | 1057 | | | 3' | | | | | 8.53 | 17.9 | | | |
| 11/11/98 | 1103 | | | 1 | | | | | 8.42 | 17.9 | | | |
| 11/11/98 | 1537 | ORM192 | mid | 1' | | | | | | | | | DO + pH meters have broken |
| ↓ | ↓ | ↓ | ↓ | 3' | | | | | | | | | |
| 11/12/98 | 0630 | ORM192 | mid | 1' | — | | | | 8.35 | 16.8 | | | DO reading stable |
| | | | | 3' | — | | | | 8.55 | 16.8 | | | |
| | | | | 5' | — | | | | 8.74 | 16.8 | | | |
| | | | | 8' | — | | | | 8.61 | 16.8 | | | |
| | | | | 11' | | | | | 8.43-8.60 | 16.9 | | | DO reading not steady (layers?) |
| | | | | 14' | | | | 8.43 → ~~8.45~~ DMB | | 16.9 | | | |
| | | | | 17' | | | | | 8.45 | 16.9 | | | |

FIELD CREW ID: DMB MRC
BOAT OR LAB ID: Boat 2

~~DO CALIBRATION RECORD~~
Winkler DO Readings
ORM 192

CLIENT: GP
JOB NUMBER: 980600/5

| DATE | TIME | INITIALS | DO METER ID (#) | FIRST | | | | SECOND | | | | *SEE NOTE BELOW BEFORE PROCEEDING THIRD | | | | AVG DO CONC. (mg/L) | INITIAL READING OF DO AND TEMP (mg/L, °C) | CALIBRATE TO WINKLER OR AIR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | BOD BOTTLE I.D. | INITIAL BURET READING (IBR) | FINAL BURET READING (FBR) | DO CONC. (IBR - FBR) (mg/L) | BOD BOTTLE I.D. | INITIAL BURET READING (IBR) | FINAL BURET READING (FBR) | DO CONC. (IBR - FBR) (mg/L) | BOD BOTTLE I.D. | INITIAL BURET READING (IBR) | FINAL BURET READING (FBR) | DO CONC. (IBR - FBR) (mg/L) | | | |
| 11/11/98 | 0945 | MRC | ~~DO~~ NA | 16 | 0.0 | 9.55 | 9.55 | | 9.55 | 19.15 | 9.60 | | | | | | | |
| | sample above | | | used @ | | ORM 192 @ | | depth = 5' | | | | | | | | | | |
| | Winkler readings are too close to saturation - believe there is a problem | | | | | | | | | | | | | | | | | |
| | w/the addition of the sulfate | | | | | | | | | | | | | | | | | |

NOTE: *If the FIRST DO concentration and the SECOND DO concentration are within 0.5 mg/L, average the two values and skip the THIRD Winkler titration.

FIELD CREW ID: MRC SIMNEM
BOAT OR LAB ID: AAT Boat 2

# WATER QUALITY MEASUREMENTS
## ORM 192

CLIENT: GV Cross H
JOB NUMBER: 980650

| DATE | TIME (military) | SAMPLE I.D. | LOCATION IN CROSS SECTION | DEPTH (ft) | CHLOROPHYL-a (ug/L) | SECCHI DISK VANISHING DEPTH (ft) | SECCHI DISK REAPPEARANCE DEPTH (ft) | LIGHT INTENSITY (ft candles) | IN-SITU WATER QUALITY MEASUREMENTS DO (mg/L) | TEMPERATURE (°C) | CONDUCTIVITY (umhos/cm) | pH (s.u.) | COMMENTS AND OBSERVATIONS (including instrument used) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/12 | 1654 | 192 | 19' | 1 | 44.8-46.9 | — | — | 4 | 8.29 | 16.29 | .1285 | 7.44 | @ Sterlington BRDS |
| | | | | 3 | 45.0 | | | | 8.30 16.29 | 16.4 | .1285 | 7.38 | in mainflow |
| | | | | 5 | 45.0 | | | | 8.27 | 16.27 | .1285 | 7.34 | thru center |
| | | | | 8 | 45.5 | | | | 8.21 | 16.26 | .1285 | 7.32 | spans of bridge |
| | | | | 11 | 44.5 | | | | 8.25 | 16.26 | .1285 | 7.30 | |
| | | | | 14 | 44.6 | | | | 8.37 | 16.27 | .1286 | 7.30 | |
| | 1720 | | | 17 | 44.5 | | | | 8.40 | 16.26 | .1287 | 7.27 | |
| | | | | | | | | | | | | | Tape down @ 1722 |

algae ID
algae Chlorophyl a Lab } samples taken @ 17' @ this Sta + normal depths

FIELD CREW ID: N.M DK TG

BOAT OR LAB ID: 1

# WATER QUALITY MEASUREMENTS

239.1

CLIENT:

JOB NUMBER:

| DATE | TIME (military) | SAMPLE I.D. | LOCATION IN CROSS SECTION | DEPTH (ft) | CHLOROPHYL-a (ug/L) | SECCHI DISK | | LIGHT INTENSITY (ft candles) | IN-SITU WATER QUALITY MEASUREMENTS | | | | COMMENTS AND OBSERVATIONS (including instrument used) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VANISHING DEPTH (ft) | REAPPEARANCE DEPTH (ft) | | DO (mg/L) | TEMPERATURE (°C) | CONDUCTIVITY (umhos/cm) | pH (s.u.) | |
| 10 NOV | 0940 | 239.1 | C | 1 | | 3 | 2.8 | 2500 | 7.69 | 16.71 | .106 | 7.4 | |
| | 0950 | 239.1 | C | 3 | | 3 | 3 | | 7.73 | 16.71 | .106 | 7.3 | |
| | 0952 | | C | 5 | | 3 | 2.8 | | 7.53 | 16.71 | .106 | 7.28 | |
| | 53 | | C | 8 | | | | | 7.45 | 16.71 | .107 | 7.26 | |
| | 54 | | C | 11 | | | | | 7.43 | 16.71 | .107 | 7.25 | |
| | 55 | | C | 14 | | | | | 7.40 | 16.71 | .106 | 7.25 | |
| | 57 | | C | 17 | | | | | 7.39 | 16.71 | .106 | 7.25 | |
| | 58 | | C | 20 | | | | | 7.39 | 16.71 | .106 | 7.23 | |
| | 59 | | C | 23 | | | | | 7.39 | 16.71 | .106 | 7.23 | |
| | 1000 | | C | 26 | | | | | 7.37 | 16.71 | .106 | 7.23 | |
| | 1001 | | C | 29 | | | | | 7.37 | 16.71 | .106 | 7.22 | |
| | 02 | | C | 3 | | | | | | | | | |

FIELD CREW ID: N.M. DK TG

BOAT OR LAB ID: 1

# WATER QUALITY MEASUREMENTS

ORM 234

CLIENT: _____

JOB NUMBER: _____

| DATE | TIME (military) | SAMPLE I.D. | LOCATION IN CROSS SECTION | DEPTH (ft) | CHLOROPHYL-a (ug/L) | SECCHI DISK | | LIGHT INTENSITY (ft candles) | IN-SITU WATER QUALITY MEASUREMENTS | | | | COMMENTS AND OBSERVATIONS (including instrument used) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VANISHING DEPTH (ft) | REAPPEARANCE DEPTH (ft) | | DO (mg/L) | TEMPERATURE (°C) | CONDUCTIVITY (umhos/cm) | pH (s.u.) | |
| 10 NOV | 1050 | 234 | C | 1 | | 3 | 2.9 | 5300 | 7.8 | 16.88 | .100 | 7.31 | |
| | 1054 | | C | 3 | | 2.8 | 2.7 | | 7.7 | 16.90 | .106 | 7.28 | |
| | 1055 | | C | 5 | | 2.8 | 2.7 | | 7.62 | 16.88 | .100 | 7.27 | |
| | 1056 | | C | 8 | | | | | 7.58 | 16.88 | .100 | 7.25 | |
| | 1057 | | C | 11 | | | | | 7.55 | 16.86 | .100 | 7.25 | |
| | 1058 | | C | 14 | | | | | 7.5 | 16.88 | .100 | 7.24 | |
| | 1059 | | C | 17 | | | | | 7.48 | 16.85 | .100 | 7.23 | |
| | 1100 | | C | 20 | | | | | 7.45 | 16.85 | .100 | 7.22 | |
| | 1101 | | C | 23 | | | | | 7.43 | 16.85 | .100 | 7.21 | |
| | 1102 | | C | 26 | | | | | 7.43 | 16.86 | .100 | 7.21 | |
| | 1102 | | C | 29 | | | | | 7.41 | 16.85 | .100 | 7.20 | |
| | 1103 | | C | 32 | | | | | 7.40 | 16.85 | .100 | 7.2 | |
| | | | C | 35 | | | | | | | | | |

FIELD CREW ID: NM. DKTG.

BOAT OR LAB ID: 1

# WATER QUALITY MEASUREMENTS

## ORM 229

CLIENT: _____

JOB NUMBER: _____

| DATE | TIME (military) | SAMPLE I.D. | LOCATION IN CROSS SECTION | DEPTH (ft) | CHLOROPHYL-a (ug/L) | SECCHI DISK | | LIGHT INTENSITY (ft candles) | IN-SITU WATER QUALITY MEASUREMENTS | | | | COMMENTS AND OBSERVATIONS (including instrument used) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VANISHING DEPTH (ft) | REAPPEARANCE DEPTH (ft) | | DO (mg/L) | TEMPERATURE (°C) | CONDUCTIVITY (mmhos/cm) mS | pH (s.u.) | |
| 10 NOV | 1120 | 229 | C | 1 | | 3 | 2.9 | 6000 | 7.37 | 17.07 | .106 | 7.34 | |
| | 21 | | C | 3 | | 2.9 | 2.8 | | 7.25 | 17.07 | .106 | 7.30 | |
| | 22 | | C | 5 | | 2.9 | 2.8 | | 7.21 | 17.05 | .105 | 7.28 | |
| | 23 | | C | 8 | | | | | 7.19 | 17.03 | .106 | 7.26 | |
| | 24 | | C | 11 | | | | | 7.17 | 17.03 | .106 | 7.24 | |
| | 25 | | C | 14 | | | | | 7.16 | 17.03 | .105 | 7.23 | |
| | 26 | | C | 16 | | | | | 7.15 | 17.03 | .105 | 7.22 | |

FIELD CREW ID: NM DK TG

BOAT OR LAB ID: 1

# WATER QUALITY MEASUREMENTS

ORM 218.7

CLIENT: _____

JOB NUMBER: _____

| DATE | TIME (military) | SAMPLE I.D. | LOCATION IN CROSS SECTION | DEPTH (ft) | CHLOROPHYL-a (ug/L) | SECCHI DISK | | LIGHT INTENSITY (ft candles) | IN-SITU WATER QUALITY MEASUREMENTS | | | | COMMENTS AND OBSERVATIONS (including instrument used) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VANISHING DEPTH (ft) | REAPPEARANCE DEPTH (ft) | | DO (mg/L) | TEMPERATURE (°C) | CONDUCTIVITY (mhos/cm) | pH (s.u.) | |
| JONW | 1535 | 2187 | C | 1 | | 2.0 | 1.9 | 956 | 7.74 | 17.15 | .131 | 7.30 | |
| | 36 | | C | 3 | | 2.0 | 1.8 | | 7.70 | 17.13 | .131 | 7.29 | |
| | 37 | | C | 5 | | 1.9 | 1.8 | | 7.62 | 17.15 | .131 | 7.28 | |
| | 38 | | C | 8 | | | | | 7.60 | 17.15 | .131 | 7.29 | |
| | 39 | | C | 11 | | | | | 7.58 | 17.15 | .131 | 7.29 | |
| | 39 | | C | 14 | | | | | 7.52 | 17.15 | .131 | 7.29 | |
| | 40 | | C | 15 | | | | | 7.48 | 17.15 | .131 | 7.28 | |
| | | | | | | | | | | | | | |

FIELD CREW ID: NM DK TG

BOAT OR LAB ID: 1

# WATER QUALITY MEASUREMENTS

## ORM 213.5

CLIENT: _____

JOB NUMBER: _____

| DATE | TIME (military) | SAMPLE I.D. | LOCATION IN CROSS SECTION | DEPTH (ft) | CHLOROPHYL-a (ug/L) | SECCHI DISK | | LIGHT INTENSITY (ft candles) | IN-SITU WATER QUALITY MEASUREMENTS | | | | COMMENTS AND OBSERVATIONS (including instrument used) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VANISHING DEPTH (ft) | REAPPEARANCE DEPTH (ft) | | DO (mg/L) | TEMPERATURE (°C) | CONDUCTIVITY (umhos/cm) | pH (s.u.) | |
| 10 NOV | 1647 | 219.5 | C | 1 | | | | | 7.37 | 17.18 | .126 | 7.18 | |
| | 1648 | | C | 3 | | | | | 7.30 | 17.18 | .126 | 7.19 | |
| | 49 | | C | 5 | | | | | 7.26 | 17.20 | .126 | 7.20 | |
| | 50 | | C | 8 | | | | | 7.32 | 17.22 | .125 | 7.20 | |
| | | | C | 11 | | | | | | | | | |
| | | | C | 14 | | | | | | | | | |
| | | | C | 17 | | | | | | | | | |
| | | | C | 20 | | | | | | | | | |

FIELD CREW ID: MRC/STM/DMB
BOAT OR LAB ID: Boat 2

# WATER QUALITY MEASUREMENTS
## ORM 239.1

CLIENT: GI
JOB NUMBER: 0650/5

| DATE | TIME (military) | SAMPLE I.D. | LOCATION IN CROSS SECTION | DEPTH (ft) | CHLOROPHYL-a (ug/L) | SECCHI DISK | | LIGHT INTENSITY (ft candles) | IN-SITU WATER QUALITY MEASUREMENTS | | | | COMMENTS AND OBSERVATIONS (including instrument used) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VANISHING DEPTH (ft) | REAPPEARANCE DEPTH (ft) | | DO (mg/L) | TEMPERATURE (°C) | CONDUCTIVITY (umhos/cm) | pH (s.u.) | |
| 11/10/98 | 0939 | | RCWLD | | | 2.6 | 2.75 | | | | | | Cloudy, 65-70°F |
| | | | | | | | | | | | | | River mile location is just downstream from a bend |
| | | | | | | | | | | | | | Depth = 16' at center of channel |
| | | | | | | | | | | | | | water color - green |

FIELD CREW ID: DMB/MKA/SAM
BOAT OR LAB ID: Boat 2

# WATER QUALITY MEASUREMENTS
ORM 229

CLIENT: GP
JOB NUMBER: 01652.15

| DATE | TIME (military) | SAMPLE I.D. | LOCATION IN CROSS SECTION | DEPTH (ft) | CHLOROPHYL-a (ug/L) | SECCHI DISK | | LIGHT INTENSITY (ft candles) | IN-SITU WATER QUALITY MEASUREMENTS | | | | COMMENTS AND OBSERVATIONS (including instrument used) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VANISHING DEPTH (ft) | REAPPEARANCE DEPTH (ft) | | DO (mg/L) | TEMPERATURE (°C) | CONDUCTIVITY (umhos/cm) | pH (s.u.) | |
| 11/10/98 | 1128 | ORM 229 | Center | 1ft | 34.3 | | | | | | | | |
| 11/10/98 | 1132 | | | 3ft | ~~34.2~~ 35.0 | | | | | | | | |
| 11/10/98 | 1136 | | 34' | 5ft | 34.8 | | | | | | | | |
| 11/10/98 | 1138 | | | 0' | ~~35.9~~ | | | | | | | | |
| | 1140 | | | 11' | 34.1 | | | | | | | | |
| | 1141 | | | 14' | 33.9 | | | | | | | | |
| | 1142 | | | 17' | 33.6 | | | | | | | | |
| | 1142.5 | | | 20' | 33.8 | | | | | | | | |
| | 1143 | | | 23' | 33.9 | | | | | | | | |
| | 1144 | | | 26' | 33.6 | | | | | 17.0 | | | |
| | 1145 | | | 29' | bot | | | | | | | | |

FIELD CREW ID: MRC DMB STM
BOAT OR LAB ID: BOAT 2

# WATER QUALITY MEASUREMENTS
## ORM 218.7

CLIENT: GP
JOB NUMBER: 06505

| DATE | TIME (military) | SAMPLE I.D. | LOCATION IN CROSS SECTION | DEPTH (ft) | CHLOROPHYL-a (ug/L) | SECCHI DISK | | LIGHT INTENSITY (ft candles) | IN-SITU WATER QUALITY MEASUREMENTS | | | | COMMENTS AND OBSERVATIONS (including instrument used) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VANISHING DEPTH (ft) | REAPPEARANCE DEPTH (ft) | | DO (mg/L) | TEMPERATURE (°C) | CONDUCTIVITY (umhos/cm) | pH (s.u.) | |
| 11.10.98 | 1526 | 1ft | center | 1ft | 42.8 | | | | | | | | |
| | | | | 11ft | 42.2 | | | | | | | | |
| | | | | 3m | 43.2 | | | | | | | | |
| | | | | 5ft | 43.1 | | | | | | | | |
| | | | | 8ft | 43.2 | | | | | | | | |

FIELD CREW ID: MRC OMBSTM
BOAT OR LAB ID: AAT Boat 2

# WATER QUALITY MEASUREMENTS
## ORM 213.5

CLIENT: Cr
JOB NUMBER: 0650

| DATE | TIME (military) | SAMPLE I.D. | LOCATION IN CROSS SECTION | DEPTH (ft) | CHLOROPHYL-a (ug/L) | SECCHI DISK VANISHING DEPTH (ft) | SECCHI DISK REAPPEARANCE DEPTH (ft) | LIGHT INTENSITY (ft candles) | IN-SITU WATER QUALITY MEASUREMENTS DO (mg/L) | TEMPERATURE (°C) | CONDUCTIVITY (umhos/cm) | pH (s.u.) | COMMENTS AND OBSERVATIONS (including instrument used) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/12/98 | 1045 | 213.5 | 13' | 12' | 41.8 | | | | | 16.0 | | | raining, cool, [illegible] |
| | | | | 9 | 42.1 | | | | 8.73-8 | 16.1 | | | |
| | | | | 5 | 41.7 | | | | 8.70 | 16.1 | | | |
| | | | | 3 | 41.7-42.1 | | | | 8.69 | 16.1 | | | |
| | 1100 | | | 1 | 41.7-42.1 | 2.6 | 2.4 | 610-690 | 8.65 | 16.0 | | | Dup AAT Tech Chl-a |

FIELD CREW ID: _____

BOAT OR LAB ID: _____

# WATER QUALITY MEASUREMENTS

## ORM 203

CLIENT: _____

JOB NUMBER: _____

| DATE | TIME (military) | SAMPLE I.D. | LOCATION IN CROSS SECTION | DEPTH (ft) | CHLOROPHYL-a (ug/L) | SECCHI DISK | | LIGHT INTENSITY (ft candles) | IN-SITU WATER QUALITY MEASUREMENTS | | | | COMMENTS AND OBSERVATIONS (including instrument used) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VANISHING DEPTH (ft) | REAPPEARANCE DEPTH (ft) | | DO (mg/L) | TEMPERATURE (°C) | CONDUCTIVITY (umhos/cm) | pH (s.u.) | |
| 11.12.98 | 1419 | 203 | 13' | 1' | 43.1-43.5 | 2 | 2 | 675 | 8.51 | 15.96 | .1296 | 7.36 | RIGHT OF BAYOU |
| 11.12.98 | 1424 | | | 3' | 43.4 | | | | 8.44 | 15.96 | .1296 | 7.31 | VIEW OUT OF ANY |
| 11.12.98 | 1427 | | | 5' | 43.4 | | | | 8.60 | 15.97 | .1297 | 7.29 | INFLUENCE |
| | 1430 | | | 8' | 43.3-46 | | | | 8.66 | 15.96 | .1297 | 7.27 | |
| | 1432 | | | 11' | 43.6 | | | | 8.68 | 15.96 | .1298 | 7.26 | BUO 1435-1442 |
| | | | | 12' | | | | | | | | | |

FIELD CREW ID: _____

BOAT OR LAB ID: _____

# WATER QUALITY MEASUREMENTS

## ORM 198

CLIENT: _____

JOB NUMBER: _____

| DATE | TIME (military) | SAMPLE I.D. | LOCATION IN CROSS SECTION | DEPTH (ft) | CHLOROPHYL-a (ug/L) | SECCHI DISK | | LIGHT INTENSITY (ft candles) | IN-SITU WATER QUALITY MEASUREMENTS | | | | COMMENTS AND OBSERVATIONS (including instrument used) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VANISHING DEPTH (ft) | REAPPEARANCE DEPTH (ft) | | DO (mg/L) | TEMPERATURE (°C) | CONDUCTIVITY (umhos/cm) | pH (s.u.) | |
| 11/11/98 | 1316 | | Center | 1' | — | 2.1 | 1.9 | | 8.4 | 17.1 | 126 | | |
| | 1318 | | ↓ | 3' | — | 2.2 | 2.3 | | — | 17.2 | 127 | | |
| | 1330 | | ↓ | 5' | — | | | | 8.6 | 17.1 | 126 | | |
| | 1320 | | | 8' | | | | | — | — | 125 | | |
| | | | | | | | | | | | mS/cm | | |
| 11-12-98 | 1503 | | | 1' | 45-45 | 2.25 | 2.2 | 510-520 | 8.52 | 15.97 | .1328 | 7.31 | |
| | 1506 | | | 3' | 45.5-46.1 | | | | 8.30 | 15.96 | .1328 | 7.30 | |
| | 1508 | | | 5' | 45.8-45.6 | | | | 8.46 | 15.97 | .1328 | 7.28 | |
| | 1511 | | | 8' | 44.4 | | | | 8.42 | 15.97 | .1327 | 7.27 | |
| | 1514 | | | 11' | 44.4 | | | | 8.57 | 15.97 | .1328 | 7.26 | |
| | 1517 | | | 14' | 44.2 | | | | 8.55 | 15.97 | .1326 | 7.25 | |

FIELD CREW ID: MRC DMB
BOAT OR LAB ID: Boat 2

# WATER QUALITY MEASUREMENTS
## ORM 197

CLIENT: Gr
JOB NUMBER: 0650/5

| DATE | TIME (military) | SAMPLE I.D. | LOCATION IN CROSS SECTION | DEPTH (ft) | CHLOROPHYL-a (ug/L) | SECCHI DISK | | LIGHT INTENSITY (ft candles) | IN-SITU WATER QUALITY MEASUREMENTS | | | | COMMENTS AND OBSERVATIONS (including instrument used) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VANISHING DEPTH (ft) | REAPPEARANCE DEPTH (ft) | | DO (mg/L) | TEMPERATURE (°C) | CONDUCTIVITY (umhos/cm) | pH (s.u.) | |
| 11/11/98 | 1340 | | | 5' | | 2.3 | 2.2< | | 8.45 | 17.1 | 127 | | Clear + sunny |
| | | | | | | 2.4 | 2.3 | | | | | | 265. light breeze |
| | | | | | AVG | | | | | | | | |
| 11-12-98 | 1533 | | C | 1 | 44.2-44.6 | | | | 8.41 | | | | overcast |
| | | | | 5 | 44.6 | | | | 8.37 | | | | raining |

FIELD CREW ID: _____

BOAT OR LAB ID: _____

# WATER QUALITY MEASUREMENTS

## ORM 196

CLIENT: _____

JOB NUMBER: _____

| DATE | TIME (military) | SAMPLE I.D. | LOCATION IN CROSS SECTION | DEPTH (ft) | CHLOROPHYL-a (ug/L) | SECCHI DISK VANISHING DEPTH (ft) | SECCHI DISK REAPPEARANCE DEPTH (ft) | LIGHT INTENSITY (ft candles) | IN-SITU WATER QUALITY MEASUREMENTS DO (mg/L) | TEMPERATURE (°C) | CONDUCTIVITY (umhos/cm) | pH (s.u.) | COMMENTS AND OBSERVATIONS (including instrument used) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/11/98 | 1347 | | center | 11' | | 2.4 | 2.25 | | 8.45 | 17.1 | 127 | | |
| | | | | | | 2.3 | 2.2 | | | | | | |
| 11.12.98 | 1550 | | | 1' | 44.4-45.1 ~~44.6~~ NM | | | | 8.17 | | | | |
| | | | | 5' | 44.6 | | | | 8.17 | | | | |

FIELD CREW ID: _____

BOAT OR LAB ID: _____

# WATER QUALITY MEASUREMENTS

## ORM 195

CLIENT: _____

JOB NUMBER: _____

| DATE | TIME (military) | SAMPLE I.D. | LOCATION IN CROSS SECTION | DEPTH (ft) | CHLOROPHYL-a (ug/L) | SECCHI DISK | | LIGHT INTENSITY (ft candles) | IN-SITU WATER QUALITY MEASUREMENTS | | | | COMMENTS AND OBSERVATIONS (including instrument used) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VANISHING DEPTH (ft) | REAPPEARANCE DEPTH (ft) | | DO (mg/L) | TEMPERATURE (°C) | CONDUCTIVITY (umhos/cm) | pH (s.u.) | |
| P 11/11/98 | 1355 | | Center | 23' | - | 2.3 | 2.1 | - | 8.45 | 17.1 | 126 | - | |
| | | | | | | 2.4 | 2.2 | | | | | | |
| | | | | | AVG | | | | | | | | |
| 11.12.98 | 1557 | | C | 1 | 44.8-45.1 | | | | 8.15 | | | | |
| | | | | 5 | 44.6-44.8 | | | | 8.15 | | | | |

FIELD CREW ID: MRC DMB
BOAT OR LAB ID: Boat 2

# WATER QUALITY MEASUREMENTS
## ORM 194

CLIENT: GP
JOB NUMBER: 980650/5

| DATE | TIME (military) | SAMPLE I.D. | LOCATION IN CROSS SECTION | DEPTH (ft) | CHLOROPHYL-a (ug/L) | SECCHI DISK VANISHING DEPTH (ft) | SECCHI DISK REAPPEARANCE DEPTH (ft) | LIGHT INTENSITY (ft candles) | IN-SITU WATER QUALITY MEASUREMENTS DO (mg/L) | TEMPERATURE (°C) | CONDUCTIVITY (umhos/cm) | pH (s.u.) | COMMENTS AND OBSERVATIONS (including instrument used) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/11/98 | 1402 | | centr | ~~20.~~ DMB | — | 2.3 | 2.15 | — | 8.39 | 17.1 | 126 | | *just ~~downs~~ up DMB stream from Bayou Bart |
| | | | | 24 | | 2.4 | 2.3 | | | | | | |
| | | | | | AVG= | | | | | | | | |
| 11.12.98 | 1615 ~~1415~~ | | 1' | | 44.6 | 2.1 | 2.0 | 141 | 8.19 | 16.08 | .1300 | 7.35 | |
| | 1617 ~~1417~~ | | 3' | | 44.7 | | | | 8.22 | 16.07 | .1300 | 7.31 | |
| | 1417 ~~1620~~ | | 5' | | 44.8 | | | | 8.20 | 16.07 | .1300 | 7.29 | |
| | 1622 | | 8' | | 44.8-45.1 | | | | 8.26 | 16.07 | .1300 | 7.28 | |
| | 1622 | | 11' | | 45.0 | | | | 8.31 | 16.07 | .1301 | 7.27 | |
| | | | 14' | | 44.8-45.1 | | | | 8.33 | 16.07 | .1301 | 7.26 | |
| | | | 17' | | 44.5 | | | | 8.37 | 16.07 | .1300 | 7.26 | |

FIELD CREW ID: MKC DMB
BOAT OR LAB ID: Boat 2

# WATER QUALITY MEASUREMENTS
ORM 193

CLIENT: GK
JOB NUMBER: 980650/5

| DATE | TIME (military) | SAMPLE I.D. | LOCATION IN CROSS SECTION | DEPTH (ft) | CHLOROPHYL-a (ug/L) | SECCHI DISK | | LIGHT INTENSITY (ft candles) | IN-SITU WATER QUALITY MEASUREMENTS | | | | COMMENTS AND OBSERVATIONS (including instrument used) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VANISHING DEPTH (ft) | REAPPEARANCE DEPTH (ft) | | DO (mg/L) | TEMPERATURE (°C) | CONDUCTIVITY (umhos/cm) | pH (s.u.) | |
| 11/11/98 | 1410 | | Center | 18.5 | — | 2.3 | 2.2 | — | 8.44 | 17.1 | 129 | — | Downstream Bayou Bdet |
| | | | | | | 2.3 | 2.15 | | | | | | |
| | | | | | AVG | | | | | | | | |
| | | | | | | | | | | | | | |
| 11.12.98 | 1635 | | ORM 193 | 1' | 45 | | | | 8.30 | | | | 21' TOTAL DEPTH |
| | 1637 | | | 5' | 45.4 | | | | 8.23 | | | | |

# LIGHT AND DARK BOTTLE MEASUREMENT

FIELD CREW ID: STM, DMB, MRC

BOAT OR LAB ID: GP #1, AA+#2

# DO CALIBRATION RECORD

CLIENT:

JOB NUMBER:

Lt + Dark Bottles from STM 224 + 208

11/12/98 2020 11/13/98 0026

| DATE | TIME | INITIALS | DO METER ID (#) | FIRST BOD BOTTLE I.D. | FIRST INITIAL BURET READING (IBR) | FIRST FINAL BURET READING (FBR) | FIRST DO CONC. (IBR - FBR) (mg/L) | SECOND BOD BOTTLE I.D. | SECOND INITIAL BURET READING (IBR) | SECOND FINAL BURET READING (FBR) | SECOND DO CONC. (IBR - FBR) (mg/L) | *SEE NOTE BELOW BEFORE PROCEEDING THIRD BOD BOTTLE I.D. | THIRD INITIAL BURET READING (IBR) | THIRD FINAL BURET READING (FBR) | THIRD DO CONC. (IBR - FBR) (mg/L) | AVG DO CONC. (mg/L) | INITIAL READING OF DO AND TEMP (mg/L, °C) | CALIBRATE TO WINKLER OR AIR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/11/98 | 1900 | MRC | L | 224-3' | 0.05 | 10.8 | 10.75 | 224-3' | 10.3 | 21.7 | 10.9 | | | | | 10.8 | | |
| 11/12/98 | 0840 | MRC | D | 208.8-3' | 0.00 | 10.25 | 10.25 | 208.8-3' | 10.25 | 20.6 | 10.25 | | | | | 10.25 | | |
| 11/11/98 | 1902 | MRC | L | 224-5' | 0.00 | 11.1 | 11.1 | | | | | | | | | | | |
| 11/12/98 | 1213 | MRC | L | 208.8-3 | 11.1 | 21.65 | 10.55 | | | | | | | | | | | |
| 11/11/98 | 1900 | MRC | D | 224-3' | 0.00 | 10.8 | 10.8 | 224-3' | 0.00 | 10.75 | 10.75 | | | | | 10.75 | 2nd Bottle 2100 f | |
| 11/12/98 | 1212 | MRC | D | 224-1' | 10.8 | 21.9 | 11.1 | | | | | | | | | | | |
| 11/11/98 | 1902 | MRC | D | 224-5' | 10.7 | 21.95 | 11.25 | | | | | | | | | | | |
| 11/12/98 | 1212 | MRC | D | 224-3' | 0.0 | 10.85 | 10.85 | | | | | | | | | | | |
| 11-12-98 | 0833 | MRC | L | 208.8-5' | 10.85 | 21.4 | 10.55 | | | | | | | | | | | |
| 11-12-98 | 1212 | MRC | L | 224-1' | 0.05 | 11.1 | 11.05 | | | | | | | | | | | |
| 11-11-98 | 1902 | MRC | L | 224.5' | 11.1 | 22.4 | 11.3 | | | | | | | | | | | |
| 11-12-98 | 1212 | MRC | L | 224.5' | 0.0 | 11.1 | 11.1 | | | | | | | | | | | |
| 11-12-98 | 0833 | MRC | D | 208.8-5' | 11.1 | 21.55 | 10.45 | | | | | | | | | | | |
| 11-11-98 | 1902 | MRC | D | 224-5' | 0.0 | 11.05 | 11.05 | | | | | | | | | | | |
| 11-12-98 | 0840 | MRC | L | 208.8-3' | 11.05 | 21.4 | 10.35 | | | | | | | | | | | |
| 11-11-98 | 1737 | MRC | D | 208.8-5' | 0.05 | 10.55 | 10.5 | | | | | | | | | | | |
| 11-12-98 | 1212 | MRC | L | 224-3' | 10.55 | 21.55 | 11.0 | | | | | | | | | | | |
| 11-11-98 | 1737 | MRC | L | 208.8-5' | 0.0 | 10.55 | 10.55 | | | | | | | | | | | |
| 11-12-98 | 1212 | MRC | L | 224 ? | 10.55 | 21.65 | 11.1 | | | | | | | | | | | |
| 11-11-98 | 1737 | MRC | D | 208.8-5' | 0.1 | 10.6 | 10.5 | | | | | | | | | | | |
| 11-11-98 | 1737 | MRC | L | 208.8-5 | 10.6 | 21.15 | 10.55 | | | | | | | | | | | |
| 11-12-98 | 1212 | MRC | L | 224-5' | 0.0 | 11.2 | 11.2 | | | | | | | | | | | |
| 11-12-98 | 1212 | MRC | D | 224-5' | 11.2 | 22.4 | 11.2 | | | | | | | | | | | |
| 11-12-98 | 1212 | MRC | D | 224-3' | 0.0 | 10.8 | 10.8 | | | | | | | | | | | |
| 11-12-98 | 0833 | MRC | D | 208.8-5 | 10.8 | 21.4 | 10.6 | | | | | | | | | | | |
| 11-12-98 | 1212 | MRC | D | 224-1' | 0.0 | 10.9 | 10.9 | | | | | | | | | | | |
| 11-12-98 | 1212 | MRC | D | 224-5' | 10.9 | 22.1 | 11.2 | | | | | | | | | | | |

NOTE: *If the FIRST DO concentration and the SECOND DO concentration are within 0.5 mg/L, average the two values and skip the THIRD Winkler titration.

FIELD CREW ID: _____

BOAT OR LAB ID: _____

# LIGHT AND DARK BOTTLE MEASUREMENTS

CLIENT: _____

JOB NUMBER: _____

| STATION ORM | DATE | TIME | DEPTH (ft) | DO METER I.D. (YSI OR DATASONDE) OR BOD PROBE I.D. | LIGHT BOTTLES | | | DARK BOTTLES | | | COMMENTS AND OBSERVATIONS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1ST BOD BOTTLE I.D. | 2ND BOD BOTTLE I.D. | 3RD BOD BOTTLE I.D. | 1ST BOD BOTTLE I.D. | 2ND BOD BOTTLE I.D. | 3RD BOD BOTTLE I.D. | |
| 224 | 11.11.98 | 0637 | 1 | | | | | | | | composited sample from 1-5ft 10:29 |
| | | 0649 | 3 | | | | | | | | 10:57 |
| | | 0654 | 5 | | | | | | | | 11:46 |
| | 11.11.98 | | 1 | | | | | | | | pulled 15:09 fixed 16:05 |
| | | | 3 | | | | | | | | 15:16 |
| | | | 5 | | | | | | | | 15:19 |
| | 11.11.98 | | 1 | | | | | | | | pulled 1827 & correct CK bottles |
| | | | 3 | | | | | | | | pulled 1837 |
| | | | 5 | | | | | | | | pulled 1832 |
| | | | 1 | | | | | | | | |
| | | | 3 | | | | | | | | |
| | | | 5 | | | | | | | | |
| | | | 1 | | | | | | | | |
| | | | 3 | | | | | | | | |
| | | | 5 | | | | | | | | |

FIELD CREW ID: _____

BOAT OR LAB ID: _____

# LIGHT AND DARK BOTTLE MEASUREMENTS

CLIENT: _____

JOB NUMBER: _____

| STATION ORM | DATE | TIME | DEPTH (ft) | DO METER I.D. (YSI OR DATASONDE) OR BOD PROBE I.D. | LIGHT BOTTLES | | | DARK BOTTLES | | | COMMENTS AND OBSERVATIONS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1ST BOD BOTTLE I.D. | 2ND BOD BOTTLE I.D. | 3RD BOD BOTTLE I.D. | 1ST BOD BOTTLE I.D. | 2ND BOD BOTTLE I.D. | 3RD BOD BOTTLE I.D. | |
| 208.8 | | | 1 | | | | | | | | arrive and composite 12:55 |
| | 11-11-98 | | 3 | | | | | | | | set up 1540 |
| | 11-11-98 | 13:49 | 5 | | | | | | | | deployed 1706 13 1:49 |
| | 11-11-98 | | 1 | | | | | | | | |
| | | | 3 | | | | | | | | |
| | | | 5 | | | | | | | | pulled 1709 fixed |
| | | | 1 | | | | | | | | |
| | | | 3 | | | | | | | | |
| | | | 5 | | | | | | | | |
| | | | 1 | | | | | | | | |
| | | | 3 | | | | | | | | |
| | | | 5 | | | | | | | | |
| | | | 1 | | | | | | | | |
| | | | 3 | | | | | | | | |
| | | | 5 | | | | | | | | |

FIELD CREW ID: MRC DMB
BOAT OR LAB ID: Boat 2

# LIGHT AND DARK BOTTLE MEASUREMENTS

CLIENT: ~~EPA~~ GP
JOB NUMBER: 0650/5

| STATION ORM | DATE | TIME | DEPTH (ft) | DO METER I.D. (YSI OR DATASONDE) OR BOD PROBE I.D. | LIGHT BOTTLES 1ST BOD BOTTLE I.D. | LIGHT BOTTLES 2ND BOD BOTTLE I.D. | LIGHT BOTTLES 3RD BOD BOTTLE I.D. | DARK BOTTLES 1ST BOD BOTTLE I.D. | DARK BOTTLES 2ND BOD BOTTLE I.D. | DARK BOTTLES 3RD BOD BOTTLE I.D. | COMMENTS AND OBSERVATIONS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 192 | 11/11/98 | 0645 DMB | 1 | D03 | T=13.2 DO=8.73 | T=13.7 DO=8.74 | T=12.5 DO=8.77 | | | | suspended @ 0730 aerated |
| | 11/11/98 | 0717 | 3 | D03 | T=12.4 DO=8.68 | T=12.5 DO=8.59 | T=12.8 DO=8.68 | | | | suspended @ 0815 not aerated |
| | 11/11/98 | 0800 | 5 | D03 | T=13.6 DO=8.65 | T=14.0 DO=8.65 | T=14.4 DO=8.65 | | | | suspended @ 0856 not aerated |
| | 11/11/98 | 1134 | 1 | D03 | T=17.8 DO=8.96 | T=18.2 DO=8.94 | | T=18.7 DO=8.82 | T=18.5 DO=8.69 | | recalibrated DO% cal mist = 102.4 calibrate to 100% sat - recalibrated between 1st + 2nd Dark Bottles. |
| | ↓ | 1151 | 3 | D03 | T=17.8 DO=8.66 | T=17.4 DO=8.68 | | T=17.8 DO=8.65 | T=18.0 DO=8.64 | | |
| | ↓ | 1206 | 5 | D03 | T=17.5 DO=8.77 | T=17.5 DO=8.78 | | T=17.4 DO=8.84 | T=16.9 DO=9.28 | | → no stopper in bottle Bad sample. |
| | 11/11/98 | 1444 | 1 | D03 | T=17.5 DO=8.92 | T=16.9 DO=8.97 | | T=17.3 DO=8.73 | T=17.3 DO=8.71 | | |
| | 11/11/98 | 1456 | 3 | D03 | T=17.0 DO=8.72 | T=16.8 DO=8.76 | | T=17.1 DO=8.61 | T=17.0 DO=8.62 | | |
| | 11/11/98 | 1508 | 5 | D03 | T=17.2 DO=8.80 | T=16.9 DO=8.77 | | T=17.1 DO=8.76 | T=17.1 DO=8.74 | | |
| | 11/11/98 | 1826 | 1 | D03 | T=16.4 DO=8.94 | T=15.8 DO=8.94 | | T=16.0 DO=8.69 | T=15.4 DO=8.67 | | |
| | | 1841 | 3 | D03 | T=15.4 DO=8.73 | T=15.5 DO=8.70 | | T=15.6 DO=8.60 | T=15.5 DO=8.62 | | |
| | ↓ | 1855 | 5 | D03 | T=15.6 DO=8.75 | T=15.2 DO=8.77 | | T=15.1 DO=8.73 | T=14.8 DO=8.74 | | |
| | 11/12/98 | 0630 | 1 | D03 | T=15.0 DO=8.75 | T=15.0 DO=8.75 | | T=15.2 DO=8.55 | T=15.2 DO=8.54 | | |
| | | 0640 | 3 | D03 | T=15.0 DO=8.53 | T=14.9 DO=8.54 | | T=15.0 DO=8.45 | T=15.0 DO=8.42 | | |
| | | 0652 | 5 | D03 | T=14.2 DO=8.57 | T=14.6 DO=8.62 | | T=14.5 DO=8.59 | T=14.4 DO=8.58 | | |

# GENERAL LOG

2 980650/5
11/10/98

NEM
DMB, MRC, STM

0645 Arrive at GP mill to meet T Gaffright.
0800 Arrive at Crossett boat ramp. Load boat and place in river.
0900 Prepare to motor upstream (boat ramp is at ~ORM 238)
0920 Motor upstream
0930 Arrive at ORM 239.1.
0943 Rathcon depth below surface is 10".
~~1045 Sun came out~~
1025 Sun came out. Light meter reading is 817 ft-cA.
1030 Motor to ORM234. Sun is out skies are partly cloudy. T~ 65°F.
1040 Tape down measurement at Bridge (ORM 238?) Measure 4.33 ft from top of 70 line to water surface.
1052 Arrive at ORM 234. Depth = 32' - 34'. Just right of center channel looking downstream. Partly cloudy

7006545
11/10/98

DM
ML, STM

1052 (cont.) 10-15 mph wind. Water looks green.
1106 complete ORM 234. Move to ORM 229.
1120 Arrive at ORM 229. Mostly cloudy. Depth = 21' Right of center looking downstream
1158 Leaving ORM 229. Still Mostly cloudy.
1210 Locking thrue the Dam @ ~ ORM 227. Cloudy. Completely overcast
1230 Arrive @ ORM 224. Take Bath profile 4' from LEW LD 10' from REW LD
1231 STM width 102 ft
DMB width 106 ft
MRC width 104 ft
1340 Leave ORM 224. Weather is clear. Light breeze ~ 5 mph
1359 Arrive @ Coffee Creek

1359 Collect 4.5 gal dilution water @ ORM 224.

$4.5 / 0.9 = 5.0$ gal

$5.0$ gal $- 4.5$ gal $= 0.5$ gal

$0.5$ gal $\times 3.78$ L/gal

10% CC ⇒ $= 1.89$ L

1459 Sample Vol for Chem samples

| | | |
|---|---|---|
| 500 | 500 | 1250 |
| 500 | 500 | 1500 |
| 250 | 500 | 2750 |
| 1250 | 1500 | |

1438 Profile @ ORM 222
(end) about 10' from REWLDS
(start) about 5' from LEWLDS

1442 Profil @ ORM 222
(start) about 20' from REWLDS
about 5' from LEWLDS
width = 113m

1450 Break for lunch

1515 Resume work. Motn to ORM 218.7. Skies are clear.
T = 19.8°C



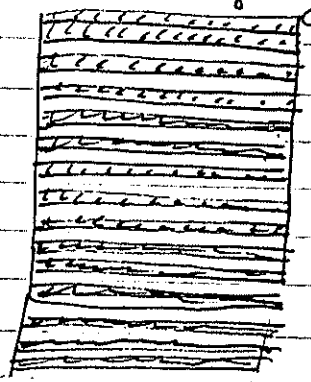
1529 Arrive @ 218.7.
Begin Collecting chl-a samples.
Collecting Duplicate BOD N+P series samples

0650/5
11/11/98 DMB MRC

0450 Leave for Sterlington.
0600 Arrive in St. Unload boat.
0624 Begin collection of 1 ft sample for light & dark bottles.
0828 Skies are clear, a few lighty scattered clouds. Light breeze (<5 mph)
T = 16.9°C
1' & 3' L+D bottles have been set out just downstream from ORM 192 - just downstream of bridge.
1033 Noticed pipe discharge against LEWCOS just upstream of Sterlington bridge. Weather is still clear. T = 18.6°C and sunny.
1230 Run up Bayou Bartholomew
Note discharge up Bayou Bart
~ 0.25 - 0.5 miles
DO = 9.26 - 10.00 mg/L
T = 15.4°C

11/11
0.5 mi US in Bayou
DO in Bartholomew [23]
@1' T = 15.4°C DO = 8.78
upstream of discharge

11/11/98
1250 Note: the discharge in Bayou Bart. was a man-made structure/discharge channel
est. 30-40 cfs of flow - turbulent. high velocity
1304 Observed Pow Pow Bayou.
Small creek @ ~ 196.
Running upstream marking 1 mile intervals from ORM 192 - ORM 198.
1419 Observed power plant discharge in middle of river @ ~ ORM 192.5.
1436 Return to ORM 192.
Begin checking L+D bottles
1808 Tape down @ ORM 192 (Hwy 143 bridge)
Ladder bridge light supports



water is @ 15th Beam from top

1806 ~~Tap~~
RP = ~~Top of~~ no. 12 from top - (beam w/ "slow no wake" sign) - (top of large horizontal beam) from RP to water surface = 6.15' ~~including length of tape weight~~ + 0.79' =

1815 Begin pulling light & dark bottles for reading.

1902 Complete ~~net~~ OMB reading L+D bottles.

1925 Pack up equipment & leave Sterlington.

11/12/98 MC/DMB/STM 0650/5

0620
Arrive @ Sterlington. Get ready to check L+D bottles.

0649 tape down measurement 6.14 + 0.78

0700 Complete L+D to — bottle measurement
Head to boat ramp to load remaining equip.



11/12/98 RC DMB STM

0701 Weather is chilly ~12.5°C and overcast. Light breeze ~5-10 mph.

@ 208.8 US @ green bouy ~ 209.2 - 209.5

@ 0817 pulled hydrolab

had previously pulled 5 ft @ boat landing @ Alabama Landing

~ 0810

pulled 3' sample @ bouy @ 0820 most bottles had air bubbles

fixed 5' samples @ 0833
3' samples @ 0840

Secchi disc, light meter drizzling rain

~ 210 ran out of gas refilled

11/12/98

onto 224 to pic up
Hz docks

0950 Collect Hydrolab 2 @ ORM 224 - also collect L&D bottles @ 3', 1', 5'. Going to return to 208.8 to meet NEM.

1024 Run out of gas @ 215 refill

1033 Arrive @ 213.5. Prepare to collect BOD Sample.

1045 Collect water Samples for BODs 213.5
213.5 Dup
composite @ 0.2, 0.6, 0.8 depth.

1153 in process of fixing ORM 224 lt/dk bottles
3 ft depth will have only 1 lt bottle due to air bubbles

fixation times: ORM 224
1 foot: 1158
3 foot: 1201
5 foot:



Hydrolab 3 calibration

1159 Conductivity
initial 1.374 mS/cm
final 1.413 mS/cm
temp 9.86 °C
initial 0.472 mS/cm
final 0.447 mS/cm
temp. 9.86 °C

1203 pH
initial 7.37 SU
final 7.00 SU
temp. 11.49 °C
initial 10.07 SU
final 10.02 SU
temp 11.8 °C
recalibrate to 10.01 SU

1205 DO
initial 10.20 mg/L
temp 11.19 °C
final 11.35 mg/L
temp 11.01 °C

1208 recalibrate DO 11.31 mg/L
temp 10.99 °C

1247 Begin bathymetric profile at
ORM 208.8
Island located in river - marked

15 ft from LEW
20.0 ft from REW
Measure width w/ range finder
STM width = 17 bm
DMB width = 175 m 170m
MRC width = 1784 m
→ Second profile @ 208.8
1307
1314 Collect BOD samples @ 208.8

Finish @ 208.8 1345 11/12/98

Dam to Lab, Nancy to boat

1730 tape down
6.11 + 0.77

11-10-98 0650/5 GP-River Study

945 ARRIVE ORM 234. USE HYDROLAB FOR D.O., pH, TEMP, COND. FOR MEASUREMENTS. TOM DOES SECCHI DISK NEM DOES LIGHT METER.

WINDY, COOL, CLOUDY.

HYDROLAB SET 11/10/98 1330 AT ORM 224

1640 DROP 5' 218.7

1745 SET HYDROLAB ~ ORM 213 BETWEEN 213 & 208.8

1745 CALIBRATE D.O. ON HYDROLAB / % SAT 102%. D.O. 10.00

0800 HYDROLAB SET 8:00 AT ORM 192 STERLINGTON

11/10/98

0500 Laboratory T = 19°C
0531 Calibrate Hydrolab #1
pH = 7.00
pH = 10.01
0535 Calibrate conductivity #1
Cond = 446.9 µS (calibrate to 447 µS)
Check against 1413 µS
reading = 1375 µS
0537 calibrate again to 447 µS
T = 18.5 Cond = 447.1
reading 1375 µS for 1413 µS solution
0535 Calibrate cond 1 again to 447 µS + 1413 µS
read 446.9 @ T = 18.1
read 1444 for 1413
0548 Calibrate pH 2
Calibrate to 7.00 and 10.01
read 7.06 for 7.00
0611 calibrate pH 1
read 6.91 @ start
calibrate 7.00 + 10.01
check against 7.06
reads 7.01
0616 Calibrate cond 2 to 447 µS
reads 392.3 µS.
Check against 1413 µS
reading 1193 µS.
2140 Return to lab from Sterlington, LA. Unload van.
2149 DO Meter 3
T = 24.0°C
~~DO init - %~~ mg
% ~~sat~~ cal init = 92.8%
Calibrate – ~~holding @~~
100.4 % saturation – not steady
2156 Calibrate DO Meter 3 again
T = 22.3°C
% cal init = 102.0%
calibrates to 100.0% sat + holding.
Temp in lab read from therm. equalled 20°C when we returned at lab @ 2140.
2245 Calibrate DO meter 4
T = 17.3
% CAL = 104.2
calibrate to 100% sat
holds @ 100.0% sat.

11/11/98
#0344 T=19°C in LAB
0502 CALIBRATE DO METER TO 100.0%.
9.32 MG/L
0504 BEGIN READING BOD BOTTLES
1850 BEGIN TIRATING ORM 224 1' CLEAR
SODIUM THIOSULFATE BEGINS 11
1509 PULLED END 21.8
1605 FIXED DO 10.8
BLACK START 0.0
END 10.6 NM
DO 10.6 NM 8
ORM 224 1' CLEAR START 10.8
1509 PULLED END 21.8
1605 FIXED DO 11.0
BLACK START 0.0
END 9.8 NM 6
~~ORM~~ NM DO 9.6
ORM 224 3' CLEAR START 0.0
1516 PULL END 10.8
1600 FIXED DO 10.8
BLACK START 11.0
END 21.0
DO 10.9

YST JOB # D.O USED AT 192 STATION FOR LIGHT & DARK BOTTLES. ON 11-11-98. CALIBRATE AT END OF DAY: INITIAL 13.7°C 95.9%.
9.95 MG/L
CALIBRATE 100%.
10.34 MG/L
13.9°C

11-12-98
ORM 224 5' CLEAR START 0.0
1519 PULLED END 10.9
1537 FIXED DO 10.9
BLACK START 10.9
END 22.3
DO
ORM 224 5' CLEAR START 0.0
END 11.1
DO 11.1
BLACK START 11.1
END 22.3
DO
ORM 224 3' CLEAR START
1516 PULLED END SPILLED
1600 FIXED DO
BLACK START 0.0
END 11.3
DO. 11.3

ORM 208.8 5' CLEAR START 11.3
1540 PULLED INITIAL END 21.6
~~FIXED~~ DO 10.3

208.8 5' CLEAR START 0.0
MIDDLE END 10.4
DO 10.4
CLEAR START 10.4
END END 20.8
DO 10.4

208.8 5' CLEAR START 0.0
1935 PULLED END 10.4
2013 FIXED DO 10.4
BLACK START 10.4
END 20.8
DO 10.4

208.8 5' CLEAR START 0.0
1935 PULLED END 10.5
2013 FIXED DO 10.5
BLACK START 10.5
END 20.8
DO 10.3

208.8 3' CLEAR START ~~10.3~~ 0.0
1938 PULLED END 10.5
2012 FIXED DO 10.5
BLACK START 10.5
END 21.2
DO 10.7

ORM 208.8 3' CLEAR START 0.0
PULLED 1938 END 10.4
FIXED 2012 DO 10.4
BLACK START 10.4
END 20.9
DO 10.5

ORM 224 1' CLEAR START 0.0
2037 PULLED END 10.8
2106 FIXED DO 10.8
BLACK START 10.8
END 21.8
DO 11.0

ORM 224 1' CLEAR START 0.0
2037 PULLED END 11.0
2106 FIXED DO 11.0
BLACK START 11.0
END 22.1
DO 11.1

ORM 224 3' CLEAR START ~~10~~ 0.0
2034 PULLED END 10.9
2109 FIXED DO 10.9
BLACK START 10.9
END 21.8
DO

ORM 224 3' CLEAR START 0.0
END 10.9
DO 10.9

ORM 224 BLACK START 10.9
END 21.8
DO

ORM 224 5' CLEAR START 0.0
2025 PULLED END 11.0
2111 FIXED DO 11.0
BLACK START 11.0
END 22.2
DO 11.2

ORM 224 5' CLEAR START 0.0
2025 PULLED END 11.0
2111 FIXED DO. 11.0
BLACK START 11.0
END 22.3
DO 11.3

ORM 224 1' CLEAR START 0.0
1627 PULLED END 11.0
1859 FIXED DO 11.1
BLACK START 11.1
END 22.3
DO 11.2

ORM 224 1' CLEAR START 0.0
1627 PULLED END 11.1
1859 FIXED DO 11.1
BLACK START 11.1
END 22.1
DO 11.0

DMB
11/12/98 980650/5

1728 DMB arrives at lab.
T = 19°C per thermometer.
1738 Aerate ORM 213.5 Dup LTBOD sample. Allow to sit for ~ 5 min prior to siphoning.
1744 Calibrate "LAB" DO meter.
1758 Begin ORM 213.5 Dup BOD setup
1828 Aerate ORM 208.8 BOD sample.
1852 Setup ORM 208.8 BOD sample
2039 Aerate ORM 213.5 BOD sample.
2100 Setup ORM 213.5 BOD sample
2224 Calibrate Hydrolab 1 after pulling from ORM 192

- pH
  - initial 7.01 SU
  - final 7.00 SU
  - initial 10.12 SU
  - final 10.01 SU
- conductivity
  - initial 0.455 SU mS/cm
  - final 0.447 mS/cm
  - temp 19.63 °C
  - initial 1.394
  - final 1.413
  - temp 19.72 °C

- DO mg/L
  - initial 8.86 mg/L 97.7% sat 19.75°C
  - final 9.27 mg/L 102.5% sat 19.87°C
  - ~~temp~~
- DO % sat
  - initial 97.7%
  - final 102.5%
  - temp 19.98°C
  - final 101.2%
  - temp 19.94°C

2:58 calibrate Hydrolab 2

- pH
  - initial 7.07
  - final 7.00
  - temp 18.12
  - initial 10.05
  - final 10.01
  - temp 18.77
- conductivity
  - initial 0.493
  - final 0,447
  - temp 19.17
  - initial 1.260
  - final 1.413
  - temp 19.47

- DO mg/L
  - initial 9.56 mg/L 104.9% sat 19.47°C
  - 19.45°C
  - 19.0°C = 9.28 mg/L
  - 20.0°C = 9.09 mg/L
  - ∴ 19.45°C = 9.1945 mg/L
  - final 9.42 mg/L 103.5% 19.52°C
- DO % sat
  - initial 104.9%
  - final 102.5% 19.36°C

980650/6B 12.4.98 STM NEM DNS

1615 Begin to filter samples for live/dead counts and algal ID
ORM 192 1 ft
ORM 192 3 ft
ORM 192 5 ft

1632 ADD FUCHSIN SOLUTION, LET STAND FOR 20 MIN.

1654 FILTER WHILE WASHING WITH DISTILLED WATER; 50%, 90%, 100% PROPANOL

980650/6B 12.10.98 STM DNS

1410 Begin to filter samples for live/dead counts and algal ID
ORM 192 1' → A
ORM 192 3' → B

1420 Add Fuchsin Solution, Let stand for 20 min.

1442 Filter while washing with distilled water, 50% Proponal, 90% Proponal, 100% Proponal

1445 Let soak in 100% Proponal for 2 min.

1447 Filter, add Xylene, Filter

1451 add Xylene, let stand for 10 minutes

1503 Filter Xylene, prepare slide



1520 Begin to filter samples for live/dead counts and algal ID
ORM
208.8 1' → A
208.8 5' → B

1525 Add Fuchsin Solution stand for 10 mins.

1546 Filter while washing with distilled water, 50%, 90%, 100% Proponal.

1548 Let stand in 100% Proponal for 2 mins.

1551 Filter, add Xylene, Filter

1552 add Xylene, let stand for 10 mins.

1602 Filter Xylene, prepare slide

980650/GB 12.11.98 DNS STM

1020 Begin to filter 10ml of sample for algal ID and counts

~~1022~~ ORM 208.8 5'

1022 Add Fuchsin Solution, let stand for 20 mins.

1042 Filter while washing with distilled water 50%, 90%, 100% Proponal.

1046 Let stand in 100% Proponal for 2 mins.

1048 Filter, add Xylene, Filter

1049 Add Xylene, let stand for 10 mins.

~~10~~
1101 Filter, prepare slide



980650/GB 12.11.98 DNS STM

1325 Begin to filter samples ORM 229 1' → A 5' → B

1337 Add Fuchsin Solution, let stand for 20 mins

1458 Filter while washing with distilled water, 50%, 90%, 100% Proponal.

1501 Let stand in 100% Proponal for 2 mins

1503 Filter, add Xylene, Filter

1505 Add Xylene, let stand for 10 mins.

1516 Filter, prepare slide.

12.11.98

M

1425 Begin to filter samples
ORM 224 1' → A
5' → B

1432 Add Fuchsin solution
Let stand for 20 mins

1453 Filter while washing with
Distilled water, 50%, 90%, 100%
Proponal.

1456 Let stand in 100% Proponal
for 2 min.

1459 Filter, add Xylene, Filter

~~14~~ Add Xylene
1500 Let stand for 10 mins

1512 Filter, prepare slide

# CHLOROPHYLL *a* MEASUREMENT

Transcribed by: JC
Ck'd by: STM

0650/6

| | | Ca | Vol | Read | Cent. | Dt. |
|---|---|---|---|---|---|---|
| ORM 229 | 1' | 43.3 | 4mL | 1724 | 1010-1025 | 11/18/98 |
| ORM 192 | 3' | 53.7 | 4mL | 1810 | 1010-1025 | 11/18/98 |
| ORM 213.5 | 1' | 43.3 | 4mL | 1748 | 1010-1025 | 11/18/98 |
| ORM 229 | 3' | 32.1 | 4mL | 1650 | 1010-1025 | 11/18/98 |
| ORM 208.8 | 3' | 32.9 | 4mL | 1653 | 1010-1025 | 11/18/98 |

→ Above samples set at room temperature 1040-1620. Due to difficulty with the fluorometer samples were centrifuged for additional 5 mins. at 1620

| | | | | | | |
|---|---|---|---|---|---|---|
| ORM 203 | 3' | 39.7 | 4mL | 1800 | 1650-1710 | 11/18/98 |
| ORM 213.5 | 1' Dup | 29.2 | 2mL | | 1036-1043 | 11/19/98 |
| ORM 198 | 1' | exploded in centrifuge | | | | 11/19/98 |
| ORM 208.8 | 1' | 43.4 | 2mL | 1205 | 1036-1043 | 11/19/98 |
| ORM 198 | 5' | exploded in centrifuge | | | | 11/19/98 |
| ORM 192 | 5' | 60.4 | 2mL | 1205 | 1036-1043 | 11/19/98 |
| ORM 194 | 1' | exploded in centrifuge | | | | 11/19/98 |

11/19/98
1034 Calibrate fluorometer

| | | | | | | |
|---|---|---|---|---|---|---|
| ORM 192 | 17' | 65.3 | 3mL | 1340 | 1224-1244 | 11/19/98 |
| ORM 192 | 1' | 51.0 | 2.5mL | 1327 | 1224-1244 | 11/19/98 |
| ORM 229 | 5' | 8.64 | 1.3mL | 1340 | 1224-1244 | 11/19/98 |

| | | Ca | Vol | Read | Cent. | Date |
|---|---|---|---|---|---|---|
| ORM 208.8 | 14' | 50.5 | 2.4mL | 1340 | 1224-1244 | 11/19/98 |
| ORM 203 | 1' | 53.8 | 2.4mL | | 1344-1458 | 11/19/98 |
| ORM 213.5 | 5' Dup | 48.4 | 3.0mL | | 1344-1458 | 11/19/98 |

| | | | | | | |
|---|---|---|---|---|---|---|
| ORM 194 | 3' | 60.8 w/o | 47.2 w/HCl | 2mL | 1435 1400-1420 | 11/20/98 |
| ORM 218.7 | 3' | 56.5 | 39.9 | 2mL | 1435 | 11/20/98 |
| ORM 218.7 | 1' | 62.4 | 43.6 | 3mL | 1428 | 11/20/98 |
| ORM 203 | 5' | 55.4 | 48.6 | 3mL | 1428 | 11/20/98 |
| ORM 198 | 3' | 54.6 | 39.3 | 3mL | 1720 1437-1457 | 11/20/98 |
| ORM 194 | 5' | 54.8 | 42.2 | 2mL | 1720 1437-1457 | 11/20/98 |
| ORM 213.5 | 3' | 41.0 | 38.3 | 2mL | 1720 1437-1457 | 11/20/98 |
| ORM 224 | 3' | 42.9 | 33.3 | 2mL | 1720 1437-1457 | 11/20/98 |
| ORM 224 | 5' | 52.0 | 39.6 | 3mL | 1720 1437-1457 | 11/20/98 |
| ORM 224 | 1' | 50 | 39.5 | 4mL | 1720 1437-1457 | 11/20/98 |
| ORM 218.7 | 5' Dup | 70.5 | 39.3 | 3mL | 1733 1645-1705 | 11/20/98 |
| ORM 208.8 | 5' | 54.9 | 44.2 | 3mL | 1733 | |

NEM

0650/5

Transfered to Centrifuge Tubes

| | | | |
|---|---|---|---|
| ORM 194 3' | | 1456 | 11/19/98 |
| ORM 213.5 3' | | 1509 | 11/19/98 |
| ORM 208.8 5' | | 1520 | 11/19/98 |
| ORM 294 5' | | 1536 | 11/19/98 |
| ORM 224 3' | | 1552 | 11/19/98 |
| ORM 224 5' | | 1604 | 11/19/98 |
| ORM 218.7 5' | DUP. | 1613 | 11/19/98 |
| ORM 218.7 1' | | 1623 | 11/19/98 |
| ORM 203 5' | | 1637 | 11/19/98 |
| ORM 198 3' | | 1646 | 11/19/98 |
| ORM 224 1' | dropped on boat | 1656 | 11/19/98 |
| ORM 218.7 3' | | 1504 | 11/19/98 |

11/20/98 1403 Calibrate Fluorometer to

blank = -0.2

Standard 15.3 mg/L = 15.1 mg/L

Transfer to Centrifuge tubes

| | | |
|---|---|---|
| ORM 218.7 Dup 3' ⇒ dropped | 1000 | 11/17/98 |
| ORM 229 1' | 1029 | 11/17/98 |
| ORM 192 3' | 1049 | 11/17/98 |
| ORM 213.5 1' | 1145 | 11/17/98 |
| ORM 229 3' | 1159 | 11/17/98 |
| ORM 208.8 3' | 1214 | 11/17/98 |
| ORM 208.8 14' | 1225 | 11/17/98 |
| ORM 198 5' | 1237 | 11/17/98 |
| ORM 203 3' | 1304 | 11/17/98 |
| ORM 229 5' | 1321 | 11/17/98 |
| ORM 194 1' | 1356 | 11/17/98 |
| ORM 213.5 Dup 1' | 1409 | 11/17/98 |
| ORM 192 17' | 1416 | 11/17/98 |
| ORM 203 1' | 1428 | 11/17/98 |
| ORM 213.5 Dup 5' | 1436 | 11/17/98 |
| ORM 192 1' | 1446 | 11/17/98 |
| ORM 192 5' | 1520 | 11/17/98 |
| ORM 198 1' | 1528 | 11/17/98 |
| ORM 208.8 1' | 1539 | 11/17/98 |

# APPENDIX 6

# NOVEMBER 1998
# HYDROLAB DATA SONDE MEASUREMENTS

**TABLE A6-1. INSITU DO MEASURMENTS USED TO COMPARE TO HYDROLAB DO**

| ORM | DEPTH (ft) | DATE | TIME | DO (mg/L) | TEMP (°C) |
|---|---|---|---|---|---|
| 224 | 5 | 10-Nov-98 | 11:30 | 7.21 | 17.03 |
| | 3 | 11-Nov-98 | 12:15 | 8.23 | 16.70 |
| | 3 | 11-Nov-98 | 18:00 | 8.18 | 16.70 |
| | 5 | 12-Nov-98 | 09:00 | 8.75 | 16.30 |
| 213.5 | 5 | 10-Nov-98 | 16:49 | 7.26 | 17.20 |
| | 5 | 12-Nov-98 | 10:45 | 8.70 | 16.10 |
| 208.8 | 3 | 11-Nov-98 | 13:58 | 7.83 | 16.70 |
| | 5 | 12-Nov-98 | 13:15 | 8.51 | 15.99 |
| 192 | 5 | 11-Nov-98 | 09:22 | 8.58 | 17.80 |
| 192 | 5 | 11-Nov-98 | 10:46 | 8.36 | 17.90 |
| 192 | 5 | 12-Nov-98 | 06:30 | 8.74 | 16.80 |
| 192 | 5 | 12-Nov-98 | 16:54 | 8.27 | 16.27 |

**NOTES:**

1) Due to limited data at ORM 208.8, ORM 213.5 data is used to adjust the hydrolab DO at the ORM 208.8 location. In addition, 3 ft measuresments are also used to adjust the hydrolab data (hydrolabs were set at 5 ft) due to limited measurements at 5 ft and the uniformity of the DO depth profiles.
2) ORM - Ouachita River Mile; DO - dissolved oxygen

JOB 980650B/6

SHEET NO. 1 OF 1

CALCULATED BY DMB DATE 12/3/98

CHECKED BY SMS DATE 12/18/98

SCALE

AquAeTer
215 Jamestown Park, Suite 204
Brentwood, TN 37027
(615) 373-8532 FAX (615) 373-8512

Hydrolab Adjustment
Ouachita River near Crossett, AR
Nov. 1998

ORM 192

| Date | Time | Hydrolab DO (mg/L) | Date | Time | YSI DO (mg/L) | Δ DO (mg/L) |
|---|---|---|---|---|---|---|
| 11/11/98 | 0915 | 11.99 | 11/11/98 | 0922 | 8.58 | 3.41 |
| 11/11/98 | 1045 | 12.10 | 11/11/98 | 1046 | 8.36 | 3.74 |
| 11/12/98 | 0630 | 12.19 | 11/12/98 | 0630 | 8.74 | 3.45 |
| 11/12/98 | 1700 | 12.36 | 11/12/98 | 1654 | 8.27 | 4.09 |

Avg Δ DO = 3.67

ORM 208.8

| | | | | | | |
|---|---|---|---|---|---|---|
| 11/10/98 | 1745 | 11.64 | 11/10/98 | 1649 | 7.26 | 4.38 |
| 11/11/98 | 1400 | 11.82 | 11/10/98 | 1358 | 7.83 | 3.99 |
| 11/12/98 | 0815 | 12.14 | 11/12/98 | 1045 | 8.70 | 3.44 |
| 11/12/98 | 0815 | 12.14 | 11/12/98 | 1315 | 8.51 | 3.63 |
| | | | | | Avg Δ DO = | 3.86 |

ORM 224

| | | | | | | |
|---|---|---|---|---|---|---|
| 11/10/98 | 1345 | 12.4 | 11/10/98 | 1130 | 7.21 | 5.19 |
| 11/11/98 | 1215 | 12.91 | 11/11/98 | 1215 | 8.23 | 4.68 |
| 11/11/98 | 1800 | 13.06 | 11/11/98 | 1800 | 8.18 | 4.88 |
| 11/12/98 | 0900 | 13.3 | 11/12/98 | 0900 | 8.75 | 4.55 |
| | | | | | Avg Δ DO = | 4.83 |

Log File Name : orm192
Setup Date (MMDDYY) : 111098
Setup Time (HHMMSS) : 193702
Starting Date (MMDDYY) : 111098
Starting Time (HHMMSS) : 200000
Stopping Date (MMDDYY) : 111298
Stopping Time (HHMMSS) : 200000
Interval (HHMMSS) : 001500
Warmup : Enable

==> Current Variables and Calibration <==

| Date MMDDYY | Time HHMMSS | | Temp degC | pH units | SpCond mS/cm | Salin ppt | DO %Sat | DO mg/l | Redox mV | Depth meters | Batt volts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 111098 | 200000 | $ | 11.3 | 5.25 | 0.001 | 0 | 175 | 19.11 | 525 | 3.3 | 14.5 |
| 111098 | 201500 | $ | 18.4 | 6.54 | 0.128 | 0.1 | 132.5 | 12.4 | 467 | 17.6 | 14.5 |
| 111098 | 203000 | $ | 18.35 | 6.91 | 0.128 | 0.1 | 129.7 | 12.16 | 448 | 17.6 | 14.5 |
| 111098 | 204500 | $ | 18.29 | 7 | 0.129 | 0.1 | 129.1 | 12.11 | 440 | 17.7 | 14.5 |
| 111098 | 210000 | $ | 18.23 | 7.04 | 0.129 | 0.1 | 128.8 | 12.1 | 437 | 17.7 | 14.5 |
| 111098 | 211500 | $ | 18.02 | 7.05 | 0.13 | 0.1 | 128.6 | 12.13 | 434 | 17.7 | 14.5 |
| 111098 | 213000 | $ | 17.68 | 7.06 | 0.131 | 0.1 | 128.6 | 12.22 | 433 | 17.7 | 14.5 |
| 111098 | 214500 | $ | 17.95 | 7.07 | 0.131 | 0.1 | 127.8 | 12.07 | 431 | 17.7 | 14.5 |
| 111098 | 220000 | $ | 17.95 | 7.07 | 0.131 | 0.1 | 127.8 | 12.07 | 431 | 17.7 | 14.5 |
| 111098 | 221500 | $ | 18.06 | 7.08 | 0.132 | 0.1 | 127.8 | 12.05 | 430 | 17.7 | 14.5 |
| 111098 | 223000 | $ | 17.64 | 7.08 | 0.133 | 0.1 | 127.9 | 12.16 | 431 | 17.8 | 14.5 |
| 111098 | 224500 | $ | 17.63 | 7.08 | 0.133 | 0.1 | 127.3 | 12.11 | 430 | 17.8 | 14.5 |
| 111098 | 230000 | $ | 17.68 | 7.08 | 0.134 | 0.1 | 127.2 | 12.09 | 430 | 17.8 | 14.5 |
| 111098 | 231500 | $ | 17.67 | 7.09 | 0.134 | 0.1 | 127.1 | 12.08 | 430 | 17.8 | 14.5 |
| 111098 | 233000 | $ | 17.58 | 7.09 | 0.135 | 0.1 | 127 | 12.09 | 431 | 17.8 | 14.5 |
| 111098 | 234500 | $ | 17.56 | 7.09 | 0.135 | 0.1 | 127.1 | 12.1 | 431 | 17.8 | 14.4 |
| 111198 | 0 | $ | 17.55 | 7.09 | 0.136 | 0.1 | 126.9 | 12.09 | 431 | 17.8 | 14.5 |
| 111198 | 1500 | $ | 17.53 | 7.09 | 0.136 | 0.1 | 126.8 | 12.08 | 431 | 17.8 | 14.5 |
| 111198 | 3000 | $ | 17.5 | 7.09 | 0.136 | 0.1 | 126.8 | 12.09 | 432 | 17.8 | 14.4 |
| 111198 | 4500 | $ | 17.48 | 7.08 | 0.137 | 0.1 | 126.9 | 12.11 | 432 | 17.8 | 14.5 |
| 111198 | 10000 | $ | 17.46 | 7.08 | 0.137 | 0.1 | 126.7 | 12.1 | 433 | 17.7 | 14.4 |
| 111198 | 11500 | $ | 17.46 | 7.08 | 0.137 | 0.1 | 126.6 | 12.08 | 433 | 17.8 | 14.5 |
| 111198 | 13000 | $ | 17.45 | 7.09 | 0.138 | 0.1 | 126.7 | 12.1 | 433 | 17.8 | 14.4 |
| 111198 | 14500 | $ | 17.43 | 7.09 | 0.138 | 0.1 | 126.6 | 12.09 | 434 | 17.8 | 14.4 |
| 111198 | 20000 | $ | 17.43 | 7.08 | 0.138 | 0.1 | 126.4 | 12.08 | 434 | 17.8 | 14.4 |
| 111198 | 21500 | $ | 17.41 | 7.08 | 0.138 | 0.1 | 126.4 | 12.08 | 434 | 17.8 | 14.5 |
| 111198 | 23000 | $ | 17.41 | 7.09 | 0.138 | 0.1 | 126.2 | 12.05 | 434 | 17.8 | 14.4 |
| 111198 | 24500 | $ | 17.38 | 7.08 | 0.139 | 0.1 | 126.3 | 12.08 | 435 | 17.8 | 14.4 |
| 111198 | 30000 | $ | 17.36 | 7.08 | 0.139 | 0.1 | 126.3 | 12.08 | 435 | 17.8 | 14.4 |
| 111198 | 31500 | $ | 17.36 | 7.09 | 0.139 | 0.1 | 126.3 | 12.08 | 435 | 17.8 | 14.4 |
| 111198 | 33000 | $ | 17.36 | 7.09 | 0.139 | 0.1 | 126.2 | 12.07 | 436 | 17.8 | 14.3 |
| 111198 | 34500 | $ | 17.33 | 7.08 | 0.139 | 0.1 | 126.2 | 12.08 | 437 | 17.8 | 14.3 |
| 111198 | 40000 | $ | 17.31 | 7.08 | 0.139 | 0.1 | 126.3 | 12.09 | 437 | 17.8 | 14.3 |
| 111198 | 41500 | $ | 17.31 | 7.08 | 0.138 | 0.1 | 126.2 | 12.08 | 437 | 17.8 | 14.3 |
| 111198 | 43000 | $ | 17.28 | 7.09 | 0.138 | 0.1 | 126.3 | 12.1 | 437 | 17.8 | 14.3 |
| 111198 | 44500 | $ | 17.28 | 7.09 | 0.138 | 0.1 | 126.3 | 12.1 | 437 | 17.8 | 14.3 |
| 111198 | 50000 | $ | 17.28 | 7.08 | 0.137 | 0.1 | 126.2 | 12.09 | 438 | 17.8 | 14.3 |
| 111198 | 51500 | $ | 17.28 | 7.09 | 0.137 | 0.1 | 126.3 | 12.1 | 438 | 17.8 | 14.3 |
| 111198 | 53000 | $ | 17.26 | 7.08 | 0.136 | 0.1 | 126.4 | 12.11 | 439 | 17.7 | 14.3 |
| 111198 | 54500 | $ | 17.26 | 7.08 | 0.136 | 0.1 | 126.4 | 12.11 | 440 | 17.7 | 14.3 |
| 111198 | 60000 | $ | 17.24 | 7.09 | 0.135 | 0.1 | 126.5 | 12.13 | 440 | 17.8 | 14.3 |
| 111198 | 61500 | $ | 17.24 | 7.09 | 0.135 | 0.1 | 126.6 | 12.14 | 440 | 17.8 | 14.3 |
| 111198 | 63000 | $ | 17.24 | 7.08 | 0.134 | 0.1 | 126.6 | 12.14 | 440 | 17.8 | 14.3 |
| 111198 | 64500 | $ | 17.28 | 7.08 | 0.134 | 0.1 | 126.6 | 12.12 | 441 | 17.8 | 14.2 |
| 111198 | 70000 | $ | 17.79 | 7.08 | 0.133 | 0.1 | 126.7 | 12.01 | 440 | 17.7 | 14.2 |
| 111198 | 71500 | $ | 17.9 | 7.08 | 0.133 | 0.1 | 126.8 | 11.99 | 440 | 17.8 | 14.2 |
| 111198 | 73000 | $ | 17.75 | 7.08 | 0.132 | 0.1 | 127.4 | 12.08 | 440 | 17.8 | 14.2 |
| 111198 | 74500 | $ | 17.79 | 7.08 | 0.131 | 0.1 | 127.2 | 12.06 | 440 | 17.8 | 14.2 |
| 111198 | 80000 | $ | 17.8 | 7.08 | 0.131 | 0.1 | 127.3 | 12.06 | 439 | 17.8 | 14.2 |
| 111198 | 81500 | $ | 17.95 | 7.08 | 0.131 | 0.1 | 127.4 | 12.03 | 438 | 17.9 | 14.2 |
| 111198 | 83000 | $ | 17.84 | 7.08 | 0.13 | 0.1 | 127.1 | 12.04 | 437 | 17.9 | 14.2 |
| 111198 | 84500 | $ | 17.9 | 7.09 | 0.13 | 0.1 | 126.9 | 12 | 437 | 17.9 | 14.2 |

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|---|---|---|---|---|---|---|---|---|---|---|
| 111198 | 90000 $ | 17.92 | 7.08 | 0.129 | 0.1 | 127.2 | 12.02 | 436 | 18 | 14.2 |
| 111198 | 91500 $ | 18.07 | 7.08 | 0.129 | 0.1 | 127.3 | 11.99 | 435 | 18 | 14.2 |
| 111198 | 93000 $ | 18.02 | 7.08 | 0.128 | 0.1 | 127.4 | 12.02 | 435 | 18 | 14.2 |
| 111198 | 94500 $ | 17.9 | 7.08 | 0.128 | 0.1 | 127.4 | 12.04 | 434 | 18 | 14.2 |
| 111198 | 100000 $ | 17.85 | 7.08 | 0.128 | 0.1 | 127.6 | 12.08 | 434 | 18 | 14.2 |
| 111198 | 101500 $ | 17.97 | 7.08 | 0.128 | 0.1 | 127.6 | 12.05 | 433 | 18.1 | 14.2 |
| 111198 | 103000 $ | 17.82 | 7.08 | 0.127 | 0.1 | 128 | 12.12 | 433 | 18 | 14.1 |
| 111198 | 104500 $ | 17.87 | 7.08 | 0.127 | 0.1 | 127.9 | 12.1 | 432 | 18 | 14.1 |
| 111198 | 110000 $ | 17.85 | 7.08 | 0.127 | 0.1 | 128.2 | 12.13 | 431 | 18 | 14.1 |
| 111198 | 111500 $ | 17.73 | 7.09 | 0.127 | 0.1 | 128.5 | 12.19 | 431 | 18 | 14.1 |
| 111198 | 113000 $ | 17.8 | 7.09 | 0.127 | 0.1 | 128.6 | 12.19 | 430 | 18 | 14.2 |
| 111198 | 114500 $ | 17.82 | 7.1 | 0.127 | 0.1 | 128.6 | 12.19 | 429 | 18 | 14.1 |
| 111198 | 120000 $ | 18.04 | 7.1 | 0.126 | 0.1 | 128.3 | 12.1 | 428 | 18 | 14.1 |
| 111198 | 121500 $ | 17.82 | 7.1 | 0.126 | 0.1 | 128.9 | 12.21 | 428 | 18 | 14.1 |
| 111198 | 123000 $ | 17.77 | 7.1 | 0.126 | 0.1 | 128.8 | 12.21 | 428 | 18 | 14.1 |
| 111198 | 124500 $ | 17.67 | 7.09 | 0.126 | 0.1 | 128.8 | 12.24 | 427 | 17.9 | 14.1 |
| 111198 | 130000 $ | 17.51 | 7.1 | 0.126 | 0.1 | 128.7 | 12.27 | 428 | 17.9 | 14.1 |
| 111198 | 131500 $ | 17.43 | 7.1 | 0.126 | 0.1 | 128.5 | 12.27 | 429 | 17.9 | 14.1 |
| 111198 | 133000 $ | 17.46 | 7.1 | 0.126 | 0.1 | 128.3 | 12.25 | 430 | 17.9 | 14.1 |
| 111198 | 134500 $ | 17.43 | 7.1 | 0.126 | 0.1 | 128.5 | 12.27 | 431 | 17.8 | 14 |
| 111198 | 140000 $ | 17.51 | 7.1 | 0.126 | 0.1 | 128.3 | 12.24 | 432 | 17.8 | 14.1 |
| 111198 | 141500 $ | 17.51 | 7.1 | 0.126 | 0.1 | 128.5 | 12.25 | 432 | 17.8 | 14.1 |
| 111198 | 143000 $ | 17.5 | 7.11 | 0.126 | 0.1 | 128.3 | 12.24 | 433 | 17.8 | 14 |
| 111198 | 144500 $ | 17.55 | 7.1 | 0.125 | 0.1 | 128.3 | 12.22 | 434 | 17.8 | 14 |
| 111198 | 150000 $ | 17.51 | 7.1 | 0.126 | 0.1 | 128.3 | 12.24 | 434 | 17.8 | 14 |
| 111198 | 151500 $ | 17.53 | 7.1 | 0.126 | 0.1 | 128 | 12.2 | 435 | 17.8 | 14 |
| 111198 | 153000 $ | 17.5 | 7.1 | 0.126 | 0.1 | 128.1 | 12.22 | 436 | 17.8 | 14 |
| 111198 | 154500 $ | 17.5 | 7.1 | 0.126 | 0.1 | 128.1 | 12.22 | 436 | 17.8 | 14 |
| 111198 | 160000 $ | 17.48 | 7.1 | 0.126 | 0.1 | 128 | 12.22 | 437 | 17.7 | 14 |
| 111198 | 161500 $ | 17.51 | 7.1 | 0.126 | 0.1 | 128 | 12.2 | 438 | 17.8 | 14 |
| 111198 | 163000 $ | 17.48 | 7.1 | 0.126 | 0.1 | 127.8 | 12.19 | 439 | 17.8 | 14.1 |
| 111198 | 164500 $ | 17.5 | 7.1 | 0.127 | 0.1 | 127.9 | 12.19 | 439 | 17.8 | 14 |
| 111198 | 170000 $ | 17.48 | 7.11 | 0.127 | 0.1 | 127.8 | 12.19 | 440 | 17.8 | 14 |
| 111198 | 171500 $ | 17.45 | 7.1 | 0.127 | 0.1 | 127.7 | 12.2 | 441 | 17.8 | 14 |
| 111198 | 173000 $ | 17.42 | 7.09 | 0.127 | 0.1 | 127.6 | 12.19 | 444 | 17.8 | 14 |
| 111198 | 174500 $ | 17.43 | 7.11 | 0.127 | 0.1 | 127.5 | 12.17 | 443 | 17.8 | 14 |
| 111198 | 180000 $ | 17.48 | 7.1 | 0.127 | 0.1 | 127.6 | 12.17 | 444 | 17.8 | 14 |
| 111198 | 181500 $ | 17.6 | 7.09 | 0.127 | 0.1 | 127.5 | 12.13 | 445 | 17.8 | 14 |
| 111198 | 183000 $ | 17.75 | 7.1 | 0.128 | 0.1 | 127.5 | 12.09 | 444 | 17.8 | 13.9 |
| 111198 | 184500 $ | 17.8 | 7.1 | 0.128 | 0.1 | 127.4 | 12.07 | 445 | 17.8 | 14 |
| 111198 | 190000 $ | 17.97 | 7.11 | 0.128 | 0.1 | 127.1 | 12 | 445 | 17.8 | 14 |
| 111198 | 191500 $ | 17.9 | 7.09 | 0.128 | 0.1 | 127 | 12.01 | 447 | 17.8 | 13.9 |
| 111198 | 193000 $ | 17.99 | 7.09 | 0.128 | 0.1 | 126.6 | 11.96 | 447 | 17.9 | 13.9 |
| 111198 | 194500 $ | 17.85 | 7.09 | 0.128 | 0.1 | 126.8 | 12 | 448 | 17.9 | 13.9 |
| 111198 | 200000 $ | 17.9 | 7.09 | 0.129 | 0.1 | 126.9 | 12 | 448 | 17.8 | 13.9 |
| 111198 | 201500 $ | 17.87 | 7.09 | 0.129 | 0.1 | 126.7 | 11.99 | 449 | 17.8 | 13.9 |
| 111198 | 203000 $ | 17.79 | 7.09 | 0.129 | 0.1 | 127 | 12.04 | 449 | 17.8 | 13.9 |
| 111198 | 204500 $ | 17.8 | 7.08 | 0.129 | 0.1 | 126.9 | 12.03 | 450 | 17.8 | 13.9 |
| 111198 | 210000 $ | 17.75 | 7.1 | 0.129 | 0.1 | 126.9 | 12.04 | 450 | 17.8 | 13.9 |
| 111198 | 211500 $ | 17.65 | 7.09 | 0.129 | 0.1 | 126.9 | 12.07 | 451 | 17.7 | 13.9 |
| 111198 | 213000 $ | 17.56 | 7.09 | 0.129 | 0.1 | 127 | 12.09 | 452 | 17.8 | 13.9 |
| 111198 | 214500 $ | 17.51 | 7.09 | 0.129 | 0.1 | 126.9 | 12.09 | 452 | 17.8 | 14 |
| 111198 | 220000 $ | 17.67 | 7.09 | 0.129 | 0.1 | 126.6 | 12.03 | 453 | 17.8 | 13.9 |
| 111198 | 221500 $ | 17.58 | 7.09 | 0.129 | 0.1 | 126.5 | 12.05 | 453 | 17.8 | 14 |
| 111198 | 223000 $ | 17.41 | 7.09 | 0.13 | 0.1 | 126.6 | 12.1 | 453 | 17.8 | 13.9 |
| 111198 | 224500 $ | 17.4 | 7.09 | 0.129 | 0.1 | 126.5 | 12.09 | 454 | 17.8 | 13.9 |
| 111198 | 230000 $ | 17.24 | 7.09 | 0.13 | 0.1 | 126.5 | 12.13 | 454 | 17.8 | 13.9 |
| 111198 | 231500 $ | 17.29 | 7.09 | 0.13 | 0.1 | 126.6 | 12.12 | 455 | 17.8 | 13.9 |
| 111198 | 233000 $ | 17.19 | 7.08 | 0.13 | 0.1 | 126.3 | 12.12 | 456 | 17.8 | 13.9 |
| 111198 | 234500 $ | 17.13 | 7.09 | 0.13 | 0.1 | 126.3 | 12.14 | 456 | 17.8 | 13.9 |
| 111298 | 0 $ | 17.13 | 7.09 | 0.13 | 0.1 | 126.1 | 12.12 | 456 | 17.8 | 13.9 |
| 111298 | 1500 $ | 17.08 | 7.09 | 0.13 | 0.1 | 126.1 | 12.13 | 457 | 17.7 | 13.9 |
| 111298 | 3000 $ | 17.04 | 7.08 | 0.13 | 0.1 | 126.3 | 12.16 | 457 | 17.7 | 13.9 |
| 111298 | 4500 $ | 17.04 | 7.08 | 0.13 | 0.1 | 126 | 12.13 | 458 | 17.7 | 13.9 |
| 111298 | 10000 $ | 17.01 | 7.08 | 0.13 | 0.1 | 126.2 | 12.16 | 458 | 17.7 | 13.9 |
| 111298 | 11500 $ | 16.97 | 7.08 | 0.13 | 0.1 | 126.2 | 12.17 | 459 | 17.7 | 13.9 |
| 111298 | 13000 $ | 16.97 | 7.08 | 0.13 | 0.1 | 126.3 | 12.18 | 460 | 17.9 | 13.8 |

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|---|---|---|---|---|---|---|---|---|---|---|
| 111298 | 14500 $ | 16.96 | 7.08 | 0.13 | 0.1 | 126.3 | 12.18 | 460 | 17.6 | 13.8 |
| 111298 | 20000 $ | 16.94 | 7.08 | 0.13 | 0.1 | 126.2 | 12.18 | 460 | 17.5 | 13.9 |
| 111298 | 21500 $ | 16.94 | 7.08 | 0.13 | 0.1 | 126.1 | 12.17 | 460 | 17.7 | 13.8 |
| 111298 | 23000 $ | 16.94 | 7.08 | 0.13 | 0.1 | 126.2 | 12.18 | 461 | 17.7 | 13.8 |
| 111298 | 24500 $ | 16.92 | 7.08 | 0.13 | 0.1 | 126.2 | 12.18 | 462 | 17.7 | 13.9 |
| 111298 | 30000 $ | 16.89 | 7.08 | 0.13 | 0.1 | 126.1 | 12.18 | 462 | 17.7 | 13.8 |
| 111298 | 31500 $ | 16.94 | 7.08 | 0.129 | 0.1 | 126.2 | 12.18 | 462 | 17.7 | 13.8 |
| 111298 | 33000 $ | 16.94 | 7.08 | 0.129 | 0.1 | 126.1 | 12.17 | 463 | 17.7 | 13.8 |
| 111298 | 34500 $ | 16.91 | 7.08 | 0.129 | 0.1 | 126.2 | 12.18 | 463 | 17.7 | 13.8 |
| 111298 | 40000 $ | 16.89 | 7.08 | 0.129 | 0.1 | 126.2 | 12.19 | 463 | 17.7 | 13.8 |
| 111298 | 41500 $ | 16.91 | 7.08 | 0.129 | 0.1 | 126.1 | 12.17 | 464 | 17.7 | 13.8 |
| 111298 | 43000 $ | 16.87 | 7.09 | 0.129 | 0.1 | 126.2 | 12.19 | 464 | 17.7 | 13.8 |
| 111298 | 44500 $ | 16.89 | 7.07 | 0.129 | 0.1 | 126.1 | 12.18 | 465 | 17.7 | 13.8 |
| 111298 | 50000 $ | 16.87 | 7.08 | 0.129 | 0.1 | 126.2 | 12.19 | 465 | 17.7 | 13.8 |
| 111298 | 51500 $ | 16.87 | 7.09 | 0.129 | 0.1 | 126.2 | 12.19 | 465 | 17.7 | 13.8 |
| 111298 | 53000 $ | 16.87 | 7.08 | 0.13 | 0.1 | 126.2 | 12.19 | 466 | 17.7 | 13.8 |
| 111298 | 54500 $ | 16.86 | 7.09 | 0.13 | 0.1 | 126.3 | 12.21 | 466 | 17.7 | 13.8 |
| 111298 | 60000 $ | 16.84 | 7.08 | 0.13 | 0.1 | 126.2 | 12.21 | 466 | 17.7 | 13.8 |
| 111298 | 61500 $ | 16.86 | 7.08 | 0.13 | 0.1 | 126.2 | 12.19 | 466 | 17.8 | 13.8 |
| 111298 | 63000 $ | 16.84 | 7.08 | 0.13 | 0.1 | 126.1 | 12.19 | 467 | 17.8 | 13.8 |
| 111298 | 64500 $ | 16.86 | 7.07 | 0.13 | 0.1 | 126.3 | 12.21 | 467 | 17.8 | 13.8 |
| 111298 | 70000 $ | 16.86 | 7.08 | 0.13 | 0.1 | 126.3 | 12.21 | 467 | 17.8 | 13.8 |
| 111298 | 71500 $ | 16.89 | 7.09 | 0.13 | 0.1 | 125.9 | 12.16 | 467 | 17.8 | 13.8 |
| 111298 | 73000 $ | 16.87 | 7.07 | 0.13 | 0.1 | 125.9 | 12.16 | 468 | 17.9 | 13.7 |
| 111298 | 74500 $ | 16.96 | 7.08 | 0.13 | 0.1 | 125.7 | 12.12 | 468 | 17.9 | 13.7 |
| 111298 | 80000 $ | 17.29 | 7.08 | 0.131 | 0.1 | 125.9 | 12.06 | 468 | 17.9 | 13.8 |
| 111298 | 81500 $ | 17.19 | 7.08 | 0.131 | 0.1 | 126.3 | 12.12 | 466 | 17.9 | 13.7 |
| 111298 | 83000 $ | 17.51 | 7.08 | 0.131 | 0.1 | 125.8 | 12 | 466 | 17.8 | 13.7 |
| 111298 | 84500 $ | 17.35 | 7.09 | 0.131 | 0.1 | 125.7 | 12.02 | 466 | 17.9 | 13.7 |
| 111298 | 90000 $ | 17.42 | 7.08 | 0.132 | 0.1 | 125.5 | 11.99 | 467 | 18 | 13.7 |
| 111298 | 91500 $ | 17.23 | 7.08 | 0.132 | 0.1 | 126.1 | 12.09 | 467 | 18 | 13.8 |
| 111298 | 93000 $ | 17.26 | 7.08 | 0.132 | 0.1 | 126.3 | 12.1 | 467 | 18 | 13.7 |
| 111298 | 94500 $ | 17.18 | 7.09 | 0.133 | 0.1 | 126.2 | 12.12 | 468 | 18 | 13.7 |
| 111298 | 100000 $ | 17.26 | 7.09 | 0.133 | 0.1 | 126.1 | 12.08 | 468 | 18.2 | 13.7 |
| 111298 | 101500 $ | 17.33 | 7.09 | 0.133 | 0.1 | 126.1 | 12.07 | 469 | 18.2 | 13.7 |
| 111298 | 103000 $ | 17.33 | 7.09 | 0.133 | 0.1 | 126 | 12.06 | 469 | 18.2 | 13.7 |
| 111298 | 104500 $ | 17.23 | 7.1 | 0.133 | 0.1 | 126.4 | 12.13 | 469 | 18.1 | 13.7 |
| 111298 | 110000 $ | 17.18 | 7.08 | 0.134 | 0.1 | 126.6 | 12.15 | 470 | 18.2 | 13.6 |
| 111298 | 111500 $ | 17.18 | 7.09 | 0.134 | 0.1 | 126.6 | 12.15 | 470 | 18.1 | 13.7 |
| 111298 | 113000 $ | 16.96 | 7.09 | 0.134 | 0.1 | 127 | 12.25 | 471 | 18.1 | 13.7 |
| 111298 | 114500 $ | 16.92 | 7.1 | 0.134 | 0.1 | 126.9 | 12.25 | 471 | 18.1 | 13.7 |
| 111298 | 120000 $ | 16.82 | 7.1 | 0.135 | 0.1 | 126.8 | 12.26 | 471 | 18 | 13.7 |
| 111298 | 121500 $ | 16.81 | 7.1 | 0.135 | 0.1 | 127 | 12.29 | 471 | 17.9 | 13.7 |
| 111298 | 123000 $ | 16.67 | 7.1 | 0.135 | 0.1 | 126.4 | 12.27 | 471 | 18 | 13.7 |
| 111298 | 124500 $ | 16.64 | 7.09 | 0.136 | 0.1 | 126.4 | 12.27 | 472 | 18 | 13.7 |
| 111298 | 130000 $ | 16.66 | 7.1 | 0.136 | 0.1 | 126.4 | 12.27 | 472 | 18 | 13.7 |
| 111298 | 131500 $ | 16.6 | 7.09 | 0.136 | 0.1 | 126.2 | 12.26 | 473 | 17.9 | 13.7 |
| 111298 | 133000 $ | 16.62 | 7.09 | 0.136 | 0.1 | 126.6 | 12.29 | 472 | 17.9 | 13.6 |
| 111298 | 134500 $ | 16.59 | 7.1 | 0.136 | 0.1 | 126.6 | 12.3 | 472 | 17.9 | 13.6 |
| 111298 | 140000 $ | 16.59 | 7.1 | 0.137 | 0.1 | 126.7 | 12.32 | 472 | 17.9 | 13.6 |
| 111298 | 141500 $ | 16.64 | 7.1 | 0.136 | 0.1 | 126.6 | 12.29 | 472 | 17.9 | 13.6 |
| 111298 | 143000 $ | 16.62 | 7.09 | 0.136 | 0.1 | 126.4 | 12.28 | 473 | 17.8 | 13.7 |
| 111298 | 144500 $ | 16.57 | 7.09 | 0.137 | 0.1 | 127 | 12.35 | 473 | 17.8 | 13.7 |
| 111298 | 150000 $ | 16.55 | 7.09 | 0.137 | 0.1 | 126.6 | 12.32 | 473 | 17.8 | 13.6 |
| 111298 | 151500 $ | 16.71 | 7.09 | 0.136 | 0.1 | 126.6 | 12.28 | 473 | 17.8 | 13.6 |
| 111298 | 153000 $ | 16.59 | 7.09 | 0.137 | 0.1 | 127.1 | 12.35 | 474 | 17.8 | 13.6 |
| 111298 | 154500 $ | 16.69 | 7.09 | 0.137 | 0.1 | 126.8 | 12.3 | 474 | 17.8 | 13.6 |
| 111298 | 160000 $ | 16.55 | 7.1 | 0.137 | 0.1 | 126.9 | 12.34 | 474 | 17.9 | 13.6 |
| 111298 | 161500 $ | 16.5 | 7.09 | 0.137 | 0.1 | 126.6 | 12.33 | 475 | 17.8 | 13.6 |
| 111298 | 163000 $ | 16.49 | 7.08 | 0.137 | 0.1 | 126.5 | 12.32 | 476 | 17.7 | 13.6 |
| 111298 | 164500 $ | 16.47 | 7.09 | 0.137 | 0.1 | 126.4 | 12.32 | 476 | 17.7 | 13.6 |
| 111298 | 170000 $ | 16.45 | 7.1 | 0.137 | 0.1 | 126.9 | 12.36 | 476 | 17.7 | 13.6 |
| 111298 | 171500 $ | 16.42 | 7.08 | 0.137 | 0.1 | 126.8 | 12.37 | 478 | 17.7 | 13.6 |
| 111298 | 173000 $ | 16.42 | 7.09 | 0.137 | 0.1 | 126.9 | 12.38 | 479 | 17.7 | 13.6 |
| 111298 | 174500 $ | 16.44 | 7.09 | 0.137 | 0.1 | 126.8 | 12.37 | 479 | 17.7 | 13.6 |
| 111298 | 180000 $ | 12.49 | 7.66 | 0.137 | 0.1 | 151.9 | 16.14 | 454 | 4.6 | 13.6 |
| 111298 | 181500 $ | 12.37 | 7.7 | 0.137 | 0.1 | 153.4 | 16.34 | 450 | 4.3 | 13.6 |

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|---|---|---|---|---|---|---|---|---|---|---|
| 111298 | 183000 $ | 11.89 | 7.28 | 0.001 | 0 | 151.3 | 16.3 | 481 | 4 | 13.5 |
| 111298 | 184500 $ | 11.47 | 6.92 | 0.001 | 0 | 157.1 | 17.09 | 493 | 3.9 | 13.5 |
| 111298 | 190000 $ | 11.27 | 6.86 | 0.001 | 0 | 159.6 | 17.45 | 493 | 4 | 13.5 |
| 111298 | 191500 $ | 11.74 | 6.66 | 0.001 | 0 | 157.6 | 17.04 | 492 | 3.9 | 13.5 |
| 111298 | 193000 $ | 12.4 | 6.69 | 0.001 | 0 | 155.3 | 16.54 | 491 | 3.9 | 13.5 |
| 111298 | 194500 $ | 12.81 | 6.64 | 0.001 | 0 | 154.4 | 16.3 | 496 | 3.9 | 13.5 |
| 111298 | 200000 $ | 14.55 | 6.83 | 0.001 | 0 | 143.5 | 14.58 | 659 | 3.6 | 13.5 |

Log File Name : orm208.8
Setup Date (MMDDYY) : 111098
Setup Time (HHMMSS) : 172746
Starting Date (MMDDYY) : 111098
Starting Time (HHMMSS) : 174500
Stopping Date (MMDDYY) : 111298
Stopping Time (HHMMSS) : 174500
Interval (HHMMSS) : 001500
Warmup : Enable

==> Current Variables and Calibration <==

Variable or Calibration changed at 111098 172811 => changes ignored!
Time changed from 111098 172841 to 111098 172839

| Date MMDDYY | Time HHMMSS | Temp degC | pH units | SpCond mS/cm | Salin ppt | DO %Sat | DO mg/l | Batt volts |
|---|---|---|---|---|---|---|---|---|
| 111098 | 174500 $ | 17.25 | 7.25 | 0.1213 | 0 | 121.4 | 11.64 | 15.2 |
| 111098 | 180000 | 17.23 | 7.27 | 0.1213 | 0 | 121.9 | 11.69 | 15.1 |
| 111098 | 181500 $ | 17.22 | 7.29 | 0.1212 | 0 | 122.5 | 11.75 | 15.2 |
| 111098 | 183000 $ | 17.2 | 7.29 | 0.1212 | 0 | 122.1 | 11.72 | 15.2 |
| 111098 | 184500 $ | 17.2 | 7.3 | 0.1214 | 0 | 122.3 | 11.74 | 15.1 |
| 111098 | 190000 | 17.18 | 7.3 | 0.1213 | 0 | 122.2 | 11.73 | 15.1 |
| 111098 | 191500 $ | 17.17 | 7.3 | 0.1213 | 0 | 122.2 | 11.74 | 15.1 |
| 111098 | 193000 $ | 17.17 | 7.31 | 0.1213 | 0 | 122 | 11.72 | 15.2 |
| 111098 | 194500 $ | 17.13 | 7.32 | 0.1215 | 0 | 122.2 | 11.74 | 15.1 |
| 111098 | 200000 | 17.13 | 7.32 | 0.1219 | 0 | 121.9 | 11.72 | 15 |
| 111098 | 201500 $ | 17.1 | 7.32 | 0.1219 | 0 | 121.6 | 11.69 | 15 |
| 111098 | 203000 $ | 17.1 | 7.33 | 0.123 | 0.1 | 121.8 | 11.71 | 15 |
| 111098 | 204500 $ | 17.08 | 7.34 | 0.1236 | 0.1 | 121.9 | 11.73 | 15 |
| 111098 | 210000 | 17.07 | 7.34 | 0.1241 | 0.1 | 121.7 | 11.71 | 15 |
| 111098 | 211500 $ | 17.05 | 7.35 | 0.1249 | 0.1 | 121.6 | 11.7 | 15 |
| 111098 | 213000 $ | 17.03 | 7.35 | 0.1253 | 0.1 | 121.4 | 11.69 | 14.9 |
| 111098 | 214500 $ | 17.02 | 7.35 | 0.1259 | 0.1 | 121.5 | 11.7 | 15 |
| 111098 | 220000 | 17.02 | 7.36 | 0.1266 | 0.1 | 121.5 | 11.7 | 14.9 |
| 111098 | 221500 $ | 17 | 7.37 | 0.1272 | 0.1 | 121.1 | 11.67 | 14.9 |
| 111098 | 223000 $ | 16.98 | 7.37 | 0.1276 | 0.1 | 121.4 | 11.7 | 14.9 |
| 111098 | 224500 $ | 16.98 | 7.37 | 0.128 | 0.1 | 121.1 | 11.68 | 14.8 |
| 111098 | 230000 | 16.96 | 7.38 | 0.1283 | 0.1 | 121.2 | 11.69 | 14.9 |
| 111098 | 231500 $ | 16.95 | 7.38 | 0.1286 | 0.1 | 121 | 11.68 | 14.9 |
| 111098 | 233000 $ | 16.93 | 7.38 | 0.1286 | 0.1 | 121.1 | 11.69 | 14.9 |
| 111098 | 234500 $ | 16.91 | 7.39 | 0.1289 | 0.1 | 121.2 | 11.7 | 14.8 |
| 111198 | 0 | 16.9 | 7.39 | 0.129 | 0.1 | 121 | 11.69 | 14.8 |
| 111198 | 1500 $ | 16.86 | 7.39 | 0.1291 | 0.1 | 121.2 | 11.71 | 14.8 |
| 111198 | 3000 $ | 16.86 | 7.4 | 0.1293 | 0.1 | 121.2 | 11.71 | 14.8 |
| 111198 | 4500 $ | 16.85 | 7.4 | 0.1295 | 0.1 | 120.8 | 11.67 | 14.9 |
| 111198 | 10000 | 16.83 | 7.4 | 0.1296 | 0.1 | 120.8 | 11.69 | 14.8 |
| 111198 | 11500 $ | 16.81 | 7.4 | 0.1297 | 0.1 | 120.7 | 11.67 | 14.7 |
| 111198 | 13000 $ | 16.81 | 7.41 | 0.1298 | 0.1 | 120.9 | 11.7 | 14.8 |
| 111198 | 14500 $ | 16.78 | 7.41 | 0.1298 | 0.1 | 120.6 | 11.67 | 14.8 |
| 111198 | 20000 | 16.78 | 7.41 | 0.1299 | 0.1 | 120.6 | 11.67 | 14.7 |
| 111198 | 21500 $ | 16.76 | 7.41 | 0.13 | 0.1 | 120.6 | 11.68 | 14.8 |
| 111198 | 23000 $ | 16.75 | 7.42 | 0.1301 | 0.1 | 121 | 11.72 | 14.7 |

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|---|---|---|---|---|---|---|---|---|
| 111198 | 24500 $ | 16.73 | 7.41 | 0.1301 | 0.1 | 120.6 | 11.68 | 14.7 |
| 111198 | 30000 | 16.71 | 7.42 | 0.1302 | 0.1 | 120.9 | 11.72 | 14.7 |
| 111198 | 31500 $ | 16.71 | 7.42 | 0.1302 | 0.1 | 120.6 | 11.69 | 14.7 |
| 111198 | 33000 $ | 16.69 | 7.42 | 0.1303 | 0.1 | 120.9 | 11.73 | 14.7 |
| 111198 | 34500 $ | 16.68 | 7.42 | 0.1302 | 0.1 | 121 | 11.74 | 14.7 |
| 111198 | 40000 | 16.66 | 7.42 | 0.1302 | 0.1 | 120.8 | 11.73 | 14.7 |
| 111198 | 41500 $ | 16.64 | 7.43 | 0.1302 | 0.1 | 120.7 | 11.72 | 14.6 |
| 111198 | 43000 $ | 16.63 | 7.43 | 0.1303 | 0.1 | 120.8 | 11.73 | 14.7 |
| 111198 | 44500 $ | 16.61 | 7.42 | 0.1304 | 0.1 | 120.8 | 11.74 | 14.7 |
| 111198 | 50000 | 16.59 | 7.43 | 0.1306 | 0.1 | 121.1 | 11.77 | 14.6 |
| 111198 | 51500 $ | 16.58 | 7.43 | 0.1307 | 0.1 | 120.7 | 11.74 | 14.6 |
| 111198 | 53000 $ | 16.56 | 7.43 | 0.1308 | 0.1 | 120.6 | 11.72 | 14.6 |
| 111198 | 54500 $ | 16.54 | 7.43 | 0.131 | 0.1 | 120.6 | 11.74 | 14.6 |
| 111198 | 60000 | 16.53 | 7.43 | 0.1312 | 0.1 | 120.5 | 11.72 | 14.6 |
| 111198 | 61500 $ | 16.51 | 7.43 | 0.1313 | 0.1 | 120.5 | 11.73 | 14.6 |
| 111198 | 63000 $ | 16.51 | 7.44 | 0.1316 | 0.1 | 120.5 | 11.73 | 14.6 |
| 111198 | 64500 $ | 16.49 | 7.44 | 0.1317 | 0.1 | 120.6 | 11.75 | 14.6 |
| 111198 | 70000 | 16.49 | 7.44 | 0.132 | 0.1 | 120.6 | 11.75 | 14.6 |
| 111198 | 71500 $ | 16.46 | 7.44 | 0.1322 | 0.1 | 120.5 | 11.75 | 14.6 |
| 111198 | 73000 $ | 16.46 | 7.44 | 0.1324 | 0.1 | 120.5 | 11.75 | 14.6 |
| 111198 | 74500 $ | 16.46 | 7.44 | 0.1326 | 0.1 | 120.8 | 11.77 | 14.6 |
| 111198 | 80000 | 16.46 | 7.45 | 0.1327 | 0.1 | 121 | 11.79 | 14.5 |
| 111198 | 81500 $ | 16.44 | 7.45 | 0.1329 | 0.1 | 120.8 | 11.78 | 14.5 |
| 111198 | 83000 $ | 16.44 | 7.45 | 0.1331 | 0.1 | 120.8 | 11.78 | 14.6 |
| 111198 | 84500 $ | 16.44 | 7.45 | 0.1333 | 0.1 | 120.8 | 11.78 | 14.6 |
| 111198 | 90000 | 16.44 | 7.46 | 0.1334 | 0.1 | 121.1 | 11.8 | 14.5 |
| 111198 | 91500 $ | 16.44 | 7.46 | 0.1336 | 0.1 | 121.1 | 11.8 | 14.5 |
| 111198 | 93000 $ | 16.46 | 7.46 | 0.1337 | 0.1 | 121.3 | 11.82 | 14.5 |
| 111198 | 94500 $ | 16.46 | 7.46 | 0.1338 | 0.1 | 121 | 11.79 | 14.5 |
| 111198 | 100000 | 16.46 | 7.46 | 0.134 | 0.1 | 121.3 | 11.82 | 14.5 |
| 111198 | 101500 $ | 16.48 | 7.46 | 0.1341 | 0.1 | 121.4 | 11.83 | 14.5 |
| 111198 | 103000 $ | 16.49 | 7.46 | 0.1343 | 0.1 | 121.1 | 11.79 | 14.5 |
| 111198 | 104500 $ | 16.49 | 7.47 | 0.1344 | 0.1 | 121.1 | 11.79 | 14.5 |
| 111198 | 110000 | 16.51 | 7.47 | 0.1347 | 0.1 | 121.3 | 11.81 | 14.4 |
| 111198 | 111500 $ | 16.51 | 7.47 | 0.1348 | 0.1 | 121.3 | 11.81 | 14.4 |
| 111198 | 113000 $ | 16.53 | 7.47 | 0.135 | 0.1 | 121.2 | 11.8 | 14.4 |
| 111198 | 114500 $ | 16.54 | 7.48 | 0.1353 | 0.1 | 121.4 | 11.81 | 14.4 |
| 111198 | 120000 | 16.54 | 7.47 | 0.1355 | 0.1 | 121.4 | 11.81 | 14.5 |
| 111198 | 121500 $ | 16.56 | 7.47 | 0.1358 | 0.1 | 121.3 | 11.8 | 14.3 |
| 111198 | 123000 $ | 16.58 | 7.47 | 0.1359 | 0.1 | 121.5 | 11.81 | 14.4 |
| 111198 | 124500 $ | 16.58 | 7.48 | 0.1362 | 0.1 | 121.5 | 11.81 | 14.4 |
| 111198 | 130000 | 16.59 | 7.48 | 0.1363 | 0.1 | 121.6 | 11.82 | 14.4 |
| 111198 | 131500 $ | 16.61 | 7.48 | 0.1363 | 0.1 | 121.6 | 11.81 | 14.4 |
| 111198 | 133000 $ | 16.61 | 7.49 | 0.1363 | 0.1 | 121.8 | 11.83 | 14.5 |
| 111198 | 134500 $ | 16.64 | 7.49 | 0.1364 | 0.1 | 121.7 | 11.81 | 14.4 |
| 111198 | 140000 | 16.63 | 7.49 | 0.1363 | 0.1 | 121.7 | 11.82 | 14.4 |
| 111198 | 141500 $ | 16.64 | 7.49 | 0.1364 | 0.1 | 121.9 | 11.83 | 14.4 |
| 111198 | 143000 $ | 16.64 | 7.49 | 0.1365 | 0.1 | 121.9 | 11.83 | 14.4 |
| 111198 | 144500 $ | 16.66 | 7.49 | 0.1366 | 0.1 | 121.8 | 11.82 | 14.4 |
| 111198 | 150000 | 16.66 | 7.49 | 0.1366 | 0.1 | 122.1 | 11.85 | 14.3 |
| 111198 | 151500 $ | 16.66 | 7.49 | 0.1367 | 0.1 | 121.8 | 11.82 | 14.4 |
| 111198 | 153000 $ | 16.66 | 7.49 | 0.1367 | 0.1 | 122.1 | 11.85 | 14.3 |
| 111198 | 154500 $ | 16.66 | 7.49 | 0.1367 | 0.1 | 121.8 | 11.82 | 14.3 |

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|---|---|---|---|---|---|---|---|---|
| 111198 | 160000 | 16.66 | 7.5 | 0.1367 | 0.1 | 122.1 | 11.85 | 14.3 |
| 111198 | 161500 $ | 16.64 | 7.49 | 0.1367 | 0.1 | 122.1 | 11.86 | 14.3 |
| 111198 | 163000 $ | 16.64 | 7.5 | 0.1367 | 0.1 | 122.1 | 11.86 | 14.3 |
| 111198 | 164500 $ | 16.64 | 7.49 | 0.1367 | 0.1 | 122.1 | 11.86 | 14.3 |
| 111198 | 170000 | 16.61 | 7.49 | 0.1367 | 0.1 | 122.3 | 11.88 | 14.2 |
| 111198 | 171500 $ | 16.63 | 7.49 | 0.1366 | 0.1 | 122.2 | 11.87 | 14.3 |
| 111198 | 173000 $ | 16.63 | 7.49 | 0.1365 | 0.1 | 122.2 | 11.87 | 14.3 |
| 111198 | 174500 $ | 16.61 | 7.49 | 0.1364 | 0.1 | 122.3 | 11.88 | 14.3 |
| 111198 | 180000 | 16.59 | 7.49 | 0.1364 | 0.1 | 122.4 | 11.89 | 14.2 |
| 111198 | 181500 $ | 16.59 | 7.49 | 0.1363 | 0.1 | 122.4 | 11.89 | 14.3 |
| 111198 | 183000 $ | 16.58 | 7.49 | 0.1363 | 0.1 | 122.2 | 11.88 | 14.2 |
| 111198 | 184500 $ | 16.58 | 7.49 | 0.1363 | 0.1 | 122.2 | 11.88 | 14.4 |
| 111198 | 190000 | 16.58 | 7.49 | 0.1362 | 0.1 | 122 | 11.86 | 14.2 |
| 111198 | 191500 $ | 16.56 | 7.49 | 0.1361 | 0.1 | 122 | 11.87 | 14.2 |
| 111198 | 193000 $ | 16.56 | 7.49 | 0.1359 | 0.1 | 122.3 | 11.89 | 14.2 |
| 111198 | 194500 $ | 16.54 | 7.49 | 0.1358 | 0.1 | 122.1 | 11.88 | 14.3 |
| 111198 | 200000 | 16.53 | 7.49 | 0.1356 | 0.1 | 122.2 | 11.89 | 14.2 |
| 111198 | 201500 $ | 16.53 | 7.48 | 0.1355 | 0.1 | 121.9 | 11.87 | 14.2 |
| 111198 | 203000 $ | 16.51 | 7.49 | 0.1354 | 0.1 | 122.5 | 11.93 | 14.2 |
| 111198 | 204500 $ | 16.49 | 7.49 | 0.1353 | 0.1 | 122.3 | 11.91 | 14.2 |
| 111198 | 210000 | 16.49 | 7.49 | 0.1351 | 0.1 | 122.3 | 11.91 | 14.2 |
| 111198 | 211500 $ | 16.48 | 7.49 | 0.1349 | 0.1 | 122.2 | 11.9 | 14.2 |
| 111198 | 213000 $ | 16.48 | 7.49 | 0.1347 | 0.1 | 122.4 | 11.93 | 14.2 |
| 111198 | 214500 $ | 16.46 | 7.49 | 0.1346 | 0.1 | 122.2 | 11.91 | 14.2 |
| 111198 | 220000 | 16.44 | 7.49 | 0.1343 | 0.1 | 122.6 | 11.95 | 14.1 |
| 111198 | 221500 $ | 16.44 | 7.49 | 0.134 | 0.1 | 122.6 | 11.95 | 14.2 |
| 111198 | 223000 $ | 16.44 | 7.49 | 0.1339 | 0.1 | 122.6 | 11.95 | 14.1 |
| 111198 | 224500 $ | 16.43 | 7.5 | 0.1337 | 0.1 | 122.6 | 11.96 | 14.2 |
| 111198 | 230000 | 16.43 | 7.5 | 0.1335 | 0.1 | 122.4 | 11.94 | 14.1 |
| 111198 | 231500 $ | 16.41 | 7.49 | 0.1333 | 0.1 | 122.7 | 11.97 | 14.1 |
| 111198 | 233000 $ | 16.41 | 7.5 | 0.1333 | 0.1 | 122.5 | 11.95 | 14.1 |
| 111198 | 234500 $ | 16.39 | 7.5 | 0.1332 | 0.1 | 122.5 | 11.96 | 14.1 |
| 111298 | 0 | 16.39 | 7.5 | 0.1333 | 0.1 | 122.8 | 11.98 | 14.1 |
| 111298 | 1500 $ | 16.38 | 7.5 | 0.1333 | 0.1 | 122.9 | 12 | 14.1 |
| 111298 | 3000 $ | 16.38 | 7.5 | 0.1333 | 0.1 | 122.9 | 12 | 14.1 |
| 111298 | 4500 $ | 16.38 | 7.5 | 0.1332 | 0.1 | 122.9 | 12 | 14.1 |
| 111298 | 10000 | 16.36 | 7.5 | 0.1332 | 0.1 | 122.9 | 12.01 | 14.1 |
| 111298 | 11500 $ | 16.36 | 7.51 | 0.1332 | 0.1 | 122.9 | 12.01 | 14.1 |
| 111298 | 13000 $ | 16.34 | 7.5 | 0.1331 | 0.1 | 123 | 12.02 | 14.1 |
| 111298 | 14500 $ | 16.32 | 7.51 | 0.133 | 0.1 | 123.1 | 12.03 | 14.1 |
| 111298 | 20000 | 16.32 | 7.51 | 0.1329 | 0.1 | 123.1 | 12.03 | 14.1 |
| 111298 | 21500 $ | 16.32 | 7.51 | 0.1328 | 0.1 | 123.1 | 12.03 | 14.1 |
| 111298 | 23000 $ | 16.32 | 7.51 | 0.1327 | 0.1 | 123.3 | 12.06 | 14.1 |
| 111298 | 24500 $ | 16.31 | 7.51 | 0.1326 | 0.1 | 123.4 | 12.07 | 14.1 |
| 111298 | 30000 | 16.31 | 7.51 | 0.1325 | 0.1 | 123.4 | 12.07 | 14.1 |
| 111298 | 31500 $ | 16.29 | 7.51 | 0.1324 | 0.1 | 123.5 | 12.08 | 14.1 |
| 111298 | 33000 $ | 16.29 | 7.52 | 0.1324 | 0.1 | 123.5 | 12.08 | 14.1 |
| 111298 | 34500 $ | 16.29 | 7.52 | 0.1324 | 0.1 | 123.3 | 12.05 | 14.1 |
| 111298 | 40000 | 16.27 | 7.52 | 0.1324 | 0.1 | 123.6 | 12.09 | 14 |
| 111298 | 41500 $ | 16.27 | 7.52 | 0.1325 | 0.1 | 123.3 | 12.07 | 14.1 |
| 111298 | 43000 $ | 16.26 | 7.52 | 0.1326 | 0.1 | 123.7 | 12.1 | 14.1 |
| 111298 | 44500 $ | 16.26 | 7.52 | 0.1327 | 0.1 | 123.7 | 12.1 | 14.1 |
| 111298 | 50000 | 16.24 | 7.53 | 0.1328 | 0.1 | 123.5 | 12.09 | 14 |

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|---|---|---|---|---|---|---|---|---|
| 111298 | 51500 $ | 16.22 | 7.53 | 0.1329 | 0.1 | 123.6 | 12.1 | 14.1 |
| 111298 | 53000 $ | 16.22 | 7.53 | 0.133 | 0.1 | 123.6 | 12.1 | 14.1 |
| 111298 | 54500 $ | 16.24 | 7.53 | 0.1331 | 0.1 | 123.2 | 12.07 | 14.1 |
| 111298 | 60000 | 16.22 | 7.54 | 0.1332 | 0.1 | 123.6 | 12.1 | 14 |
| 111298 | 61500 $ | 16.22 | 7.53 | 0.1334 | 0.1 | 123.6 | 12.1 | 14 |
| 111298 | 63000 $ | 16.22 | 7.54 | 0.1335 | 0.1 | 123.6 | 12.1 | 14 |
| 111298 | 64500 $ | 16.22 | 7.54 | 0.1337 | 0.1 | 123.6 | 12.1 | 14 |
| 111298 | 70000 | 16.21 | 7.54 | 0.1337 | 0.1 | 123.6 | 12.11 | 14 |
| 111298 | 71500 $ | 16.21 | 7.54 | 0.1339 | 0.1 | 123.6 | 12.11 | 14 |
| 111298 | 73000 $ | 16.21 | 7.53 | 0.1341 | 0.1 | 123.6 | 12.11 | 14 |
| 111298 | 74500 $ | 16.19 | 7.55 | 0.1342 | 0.1 | 123.7 | 12.13 | 14 |
| 111298 | 80000 | 16.19 | 7.55 | 0.1344 | 0.1 | 123.5 | 12.1 | 14 |
| 111298 | 81500 $ | 16.17 | 7.54 | 0.1345 | 0.1 | 123.8 | 12.14 | 14 |
| 111298 | 83000 $ | 16.16 | 7.54 | 0.1346 | 0.1 | 123.6 | 12.12 | 14 |
| 111298 | 84500 $ | 9.39 | 7.34 | 0.0006 | 0 | 158.1 | 18.06 | 14 |
| 111298 | 90000 | 7.47 | 7.48 | 0.0006 | 0 | 169.8 | 20.31 | 13.9 |
| 111298 | 91500 $ | 15.55 | 7.61 | 0.0382 | 0 | 125.4 | 12.46 | 13.9 |
| 111298 | 93000 $ | 14.72 | 7.59 | 0.0956 | 0 | 125.5 | 12.69 | 13.9 |
| 111298 | 94500 $ | 13.89 | 7.61 | 0.0658 | 0 | 127.4 | 13.12 | 13.9 |
| 111298 | 100000 | 13.13 | 7.64 | 0.0454 | 0 | 129.3 | 13.55 | 13.8 |
| 111298 | 101500 $ | 12.72 | 7.67 | 0.103 | 0 | 130.6 | 13.8 | 13.8 |
| 111298 | 103000 $ | 12.03 | 7.69 | 0.0765 | 0 | 131.6 | 14.13 | 13.8 |
| 111298 | 104500 $ | 11.64 | 7.68 | 0.123 | 0.1 | 133.4 | 14.45 | 13.8 |
| 111298 | 110000 | 11.34 | 7.7 | 0.1217 | 0 | 134.1 | 14.63 | 13.7 |
| 111298 | 111500 $ | 11.22 | 7.71 | 0.1271 | 0.1 | 135.7 | 14.84 | 13.8 |
| 111298 | 113000 $ | 11.01 | 7.72 | 0.1266 | 0.1 | 137.2 | 15.07 | 13.8 |
| 111298 | 114500 $ | 8.64 | 7.01 | 0.0007 | 0 | 160.9 | 18.71 | 13.8 |
| 111298 | 120000 | 9.31 | 7.12 | 0.0007 | 0 | 155.7 | 17.82 | 13.6 |

Log File Name : orm224
Setup Date (MMDDYY) : 111098
Setup Time (HHMMSS) : 131906
Starting Date (MMDDYY) : 111098
Starting Time (HHMMSS) : 133000
Stopping Date (MMDDYY) : 111298
Stopping Time (HHMMSS) : 133000
Interval (HHMMSS) : 001500
Warmup : Enable

==> Current Variables and Calibration <==

Time changed from 111098 131922 to 111098 131920

| Date MMDDYY | Time HHMMSS | Temp degC | pH units | SpCond mS/cm | Salin ppt | DO %Sat | DO mg/l | Batt volts |
|---|---|---|---|---|---|---|---|---|
| 111098 | 133000 | 16.15 | 7.81 | 0.002 | 0 | 137 | 13.44 | 15.1 |
| 111098 | 134500 | 16.97 | 7.05 | 0.101 | 0 | 128.6 | 12.4 | 15.1 |
| 111098 | 140000 | 16.99 | 6.96 | 0.101 | 0 | 129 | 12.44 | 15.1 |
| 111098 | 141500 | 17.02 | 6.91 | 0.101 | 0 | 128.6 | 12.39 | 15 |
| 111098 | 143000 | 17.02 | 6.89 | 0.101 | 0 | 128.9 | 12.41 | 15.1 |
| 111098 | 144500 | 17.04 | 6.88 | 0.102 | 0 | 129.2 | 12.45 | 15.1 |
| 111098 | 150000 | 17.06 | 6.87 | 0.102 | 0 | 130.1 | 12.52 | 15 |
| 111098 | 151500 | 17.06 | 6.87 | 0.102 | 0 | 129.2 | 12.43 | 15 |
| 111098 | 153000 | 17.06 | 6.86 | 0.102 | 0 | 129.2 | 12.43 | 15 |
| 111098 | 154500 | 17.06 | 6.86 | 0.102 | 0 | 129.4 | 12.46 | 15 |
| 111098 | 160000 | 17.06 | 6.87 | 0.103 | 0 | 129.6 | 12.48 | 15 |
| 111098 | 161500 | 17.04 | 6.87 | 0.103 | 0 | 129.7 | 12.49 | 15 |
| 111098 | 163000 | 17.02 | 6.87 | 0.103 | 0 | 129.8 | 12.5 | 15 |
| 111098 | 164500 | 17.02 | 6.87 | 0.103 | 0 | 130 | 12.53 | 14.9 |
| 111098 | 170000 | 17.01 | 6.86 | 0.103 | 0 | 129.2 | 12.45 | 15 |
| 111098 | 171500 | 16.99 | 6.87 | 0.103 | 0 | 129.3 | 12.46 | 14.9 |
| 111098 | 173000 | 16.97 | 6.86 | 0.103 | 0 | 129.3 | 12.47 | 15 |
| 111098 | 174500 | 16.95 | 6.87 | 0.103 | 0 | 129.9 | 12.53 | 14.9 |
| 111098 | 180000 | 16.94 | 6.87 | 0.103 | 0 | 129.5 | 12.5 | 14.9 |
| 111098 | 181500 | 16.94 | 6.87 | 0.104 | 0 | 128.8 | 12.43 | 14.9 |
| 111098 | 183000 | 16.92 | 6.86 | 0.104 | 0 | 129.1 | 12.46 | 14.9 |
| 111098 | 184500 | 16.9 | 6.86 | 0.105 | 0 | 128.9 | 12.45 | 14.9 |
| 111098 | 190000 | 16.89 | 6.87 | 0.105 | 0 | 129.5 | 12.51 | 14.9 |
| 111098 | 191500 | 16.87 | 6.87 | 0.105 | 0 | 129.1 | 12.48 | 14.9 |
| 111098 | 193000 | 16.87 | 6.87 | 0.105 | 0 | 130.3 | 12.59 | 14.8 |
| 111098 | 194500 | 16.85 | 6.87 | 0.105 | 0 | 129.7 | 12.53 | 14.8 |
| 111098 | 200000 | 16.85 | 6.87 | 0.105 | 0 | 130.1 | 12.58 | 14.8 |
| 111098 | 201500 | 16.84 | 6.87 | 0.105 | 0 | 130.2 | 12.59 | 14.8 |
| 111098 | 203000 | 16.84 | 6.87 | 0.105 | 0 | 129.7 | 12.55 | 14.8 |
| 111098 | 204500 | 16.82 | 6.87 | 0.106 | 0 | 129.6 | 12.53 | 14.8 |
| 111098 | 210000 | 16.8 | 6.87 | 0.106 | 0 | 129.2 | 12.5 | 14.8 |
| 111098 | 211500 | 16.79 | 6.87 | 0.106 | 0 | 129.7 | 12.56 | 14.7 |
| 111098 | 213000 | 16.79 | 6.87 | 0.106 | 0 | 130 | 12.58 | 14.8 |
| 111098 | 214500 | 16.77 | 6.86 | 0.106 | 0 | 129.6 | 12.55 | 14.8 |
| 111098 | 220000 | 16.77 | 6.86 | 0.106 | 0 | 129.8 | 12.57 | 14.8 |
| 111098 | 221500 | 16.75 | 6.86 | 0.106 | 0 | 129.9 | 12.58 | 14.7 |
| 111098 | 223000 | 16.75 | 6.86 | 0.106 | 0 | 129.9 | 12.58 | 14.8 |

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|---|---|---|---|---|---|---|---|---|
| 111098 | 224500 | 16.73 | 6.87 | 0.106 | 0 | 129.5 | 12.55 | 14.9 |
| 111098 | 230000 | 16.72 | 6.86 | 0.105 | 0 | 129.8 | 12.58 | 14.7 |
| 111098 | 231500 | 16.7 | 6.86 | 0.105 | 0 | 130.1 | 12.62 | 14.7 |
| 111098 | 233000 | 16.68 | 6.86 | 0.105 | 0 | 130.2 | 12.63 | 14.7 |
| 111098 | 234500 | 16.68 | 6.86 | 0.105 | 0 | 130.2 | 12.63 | 14.7 |
| 111198 | 0 | 16.67 | 6.86 | 0.105 | 0 | 130.3 | 12.64 | 14.7 |
| 111198 | 1500 | 16.65 | 6.85 | 0.105 | 0 | 130.1 | 12.63 | 14.7 |
| 111198 | 3000 | 16.65 | 6.85 | 0.105 | 0 | 129.9 | 12.61 | 14.7 |
| 111198 | 4500 | 16.63 | 6.85 | 0.105 | 0 | 130.2 | 12.65 | 14.7 |
| 111198 | 10000 | 16.62 | 6.85 | 0.105 | 0 | 130.8 | 12.7 | 14.6 |
| 111198 | 11500 | 16.6 | 6.85 | 0.105 | 0 | 130.6 | 12.69 | 14.6 |
| 111198 | 13000 | 16.59 | 6.85 | 0.104 | 0 | 129.8 | 12.61 | 14.6 |
| 111198 | 14500 | 16.58 | 6.85 | 0.104 | 0 | 130 | 12.64 | 14.6 |
| 111198 | 20000 | 16.58 | 6.85 | 0.104 | 0 | 130 | 12.64 | 14.6 |
| 111198 | 21500 | 16.57 | 6.85 | 0.104 | 0 | 130.1 | 12.65 | 14.7 |
| 111198 | 23000 | 16.53 | 6.85 | 0.104 | 0 | 130.2 | 12.67 | 14.6 |
| 111198 | 24500 | 16.53 | 6.84 | 0.104 | 0 | 130.2 | 12.67 | 14.6 |
| 111198 | 30000 | 16.53 | 6.84 | 0.104 | 0 | 130.2 | 12.67 | 14.6 |
| 111198 | 31500 | 16.5 | 6.85 | 0.104 | 0 | 130.6 | 12.72 | 14.6 |
| 111198 | 33000 | 16.52 | 6.84 | 0.104 | 0 | 130.3 | 12.69 | 14.6 |
| 111198 | 34500 | 16.5 | 6.84 | 0.103 | 0 | 130.4 | 12.7 | 14.6 |
| 111198 | 40000 | 16.47 | 6.85 | 0.103 | 0 | 130.8 | 12.75 | 14.5 |
| 111198 | 41500 | 16.47 | 6.85 | 0.103 | 0 | 130.6 | 12.72 | 14.5 |
| 111198 | 43000 | 16.45 | 6.85 | 0.103 | 0 | 130.9 | 12.76 | 14.5 |
| 111198 | 44500 | 16.45 | 6.85 | 0.103 | 0 | 131.1 | 12.78 | 14.5 |
| 111198 | 50000 | 16.43 | 6.84 | 0.103 | 0 | 131 | 12.77 | 14.5 |
| 111198 | 51500 | 16.41 | 6.85 | 0.102 | 0 | 130.8 | 12.76 | 14.5 |
| 111198 | 53000 | 16.41 | 6.85 | 0.102 | 0 | 130.8 | 12.76 | 14.5 |
| 111198 | 54500 | 16.41 | 6.85 | 0.102 | 0 | 131 | 12.78 | 14.5 |
| 111198 | 60000 | 16.4 | 6.85 | 0.102 | 0 | 131.1 | 12.8 | 14.5 |
| 111198 | 61500 | 16.38 | 6.85 | 0.102 | 0 | 131.4 | 12.83 | 14.5 |
| 111198 | 63000 | 16.36 | 6.85 | 0.102 | 0 | 131 | 12.8 | 14.5 |
| 111198 | 64500 | 16.35 | 6.85 | 0.102 | 0 | 131.1 | 12.81 | 14.5 |
| 111198 | 70000 | 16.35 | 6.86 | 0.102 | 0 | 131.4 | 12.83 | 14.5 |
| 111198 | 71500 | 16.35 | 6.85 | 0.102 | 0 | 131.4 | 12.83 | 14.5 |
| 111198 | 73000 | 16.32 | 6.86 | 0.102 | 0 | 131.8 | 12.88 | 14.5 |
| 111198 | 74500 | 16.33 | 6.86 | 0.102 | 0 | 131.7 | 12.87 | 14.4 |
| 111198 | 80000 | 16.31 | 6.86 | 0.102 | 0 | 131 | 12.81 | 14.4 |
| 111198 | 81500 | 16.31 | 6.86 | 0.102 | 0 | 131.5 | 12.86 | 14.4 |
| 111198 | 83000 | 16.3 | 6.86 | 0.102 | 0 | 132.1 | 12.92 | 14.4 |
| 111198 | 84500 | 16.31 | 6.86 | 0.102 | 0 | 132.5 | 12.95 | 14.4 |
| 111198 | 90000 | 16.3 | 6.87 | 0.102 | 0 | 132.6 | 12.97 | 14.4 |
| 111198 | 91500 | 16.33 | 6.87 | 0.102 | 0 | 132.2 | 12.92 | 14.4 |
| 111198 | 93000 | 16.33 | 6.87 | 0.102 | 0 | 131.7 | 12.87 | 14.4 |
| 111198 | 94500 | 16.33 | 6.87 | 0.102 | 0 | 131.9 | 12.89 | 14.4 |
| 111198 | 100000 | 16.35 | 6.87 | 0.102 | 0 | 132.6 | 12.95 | 14.4 |
| 111198 | 101500 | 16.36 | 6.87 | 0.102 | 0 | 132 | 12.89 | 14.4 |
| 111198 | 103000 | 16.38 | 6.88 | 0.102 | 0 | 131.9 | 12.88 | 14.4 |
| 111198 | 104500 | 16.39 | 6.88 | 0.103 | 0 | 131.7 | 12.86 | 14.4 |
| 111198 | 110000 | 16.42 | 6.88 | 0.103 | 0 | 131.5 | 12.83 | 14.4 |
| 111198 | 111500 | 16.45 | 6.88 | 0.103 | 0 | 132.1 | 12.88 | 14.3 |
| 111198 | 113000 | 16.47 | 6.88 | 0.103 | 0 | 132.5 | 12.91 | 14.3 |
| 111198 | 114500 | 16.48 | 6.89 | 0.103 | 0 | 133.8 | 13.04 | 14.3 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 111198 | 120000 | 16.5 | 6.88 | 0.103 | 0 | 133.3 | 12.98 | 14.3 |
| 111198 | 121500 | 16.53 | 6.88 | 0.103 | 0 | 132.6 | 12.91 | 14.4 |
| 111198 | 123000 | 16.55 | 6.89 | 0.103 | 0 | 132.3 | 12.87 | 14.4 |
| 111198 | 124500 | 16.58 | 6.89 | 0.104 | 0 | 132.6 | 12.89 | 14.3 |
| 111198 | 130000 | 16.6 | 6.89 | 0.104 | 0 | 132.8 | 12.9 | 14.3 |
| 111198 | 131500 | 16.62 | 6.89 | 0.104 | 0 | 133.2 | 12.94 | 14.3 |
| 111198 | 133000 | 16.65 | 6.9 | 0.104 | 0 | 133 | 12.91 | 14.3 |
| 111198 | 134500 | 16.67 | 6.9 | 0.104 | 0 | 132.4 | 12.85 | 14.3 |
| 111198 | 140000 | 16.67 | 6.9 | 0.105 | 0 | 133.2 | 12.92 | 14.3 |
| 111198 | 141500 | 16.68 | 6.9 | 0.105 | 0 | 133.1 | 12.91 | 14.3 |
| 111198 | 143000 | 16.7 | 6.9 | 0.105 | 0 | 133.5 | 12.94 | 14.3 |
| 111198 | 144500 | 16.7 | 6.91 | 0.105 | 0 | 133.2 | 12.92 | 14.3 |
| 111198 | 150000 | 16.7 | 6.9 | 0.105 | 0 | 133.5 | 12.94 | 14.3 |
| 111198 | 151500 | 16.68 | 6.9 | 0.105 | 0 | 133.3 | 12.93 | 14.3 |
| 111198 | 153000 | 16.68 | 6.91 | 0.105 | 0 | 133.1 | 12.91 | 14.3 |
| 111198 | 154500 | 16.68 | 6.9 | 0.106 | 0 | 132.8 | 12.89 | 14.3 |
| 111198 | 160000 | 16.67 | 6.91 | 0.106 | 0 | 133.2 | 12.92 | 14.2 |
| 111198 | 161500 | 16.67 | 6.91 | 0.106 | 0 | 133.6 | 12.97 | 14.2 |
| 111198 | 163000 | 16.63 | 6.91 | 0.106 | 0 | 133.6 | 12.97 | 14.2 |
| 111198 | 164500 | 16.63 | 6.91 | 0.106 | 0 | 134 | 13.02 | 14.2 |
| 111198 | 170000 | 16.6 | 6.91 | 0.107 | 0 | 134.2 | 13.04 | 14.2 |
| 111198 | 171500 | 16.58 | 6.91 | 0.107 | 0 | 134 | 13.03 | 14.2 |
| 111198 | 173000 | 16.58 | 6.91 | 0.107 | 0 | 134 | 13.03 | 14.2 |
| 111198 | 174500 | 16.57 | 6.91 | 0.107 | 0 | 134.1 | 13.04 | 14.2 |
| 111198 | 180000 | 16.55 | 6.91 | 0.107 | 0 | 134.2 | 13.06 | 14.1 |
| 111198 | 181500 | 16.53 | 6.91 | 0.107 | 0 | 134.3 | 13.07 | 14.2 |
| 111198 | 183000 | 16.53 | 6.92 | 0.107 | 0 | 134.1 | 13.05 | 14.2 |
| 111198 | 184500 | 16.5 | 6.91 | 0.107 | 0 | 134.7 | 13.12 | 14.2 |
| 111198 | 190000 | 16.5 | 6.92 | 0.107 | 0 | 134.5 | 13.09 | 14.2 |
| 111198 | 191500 | 16.47 | 6.92 | 0.107 | 0 | 134.1 | 13.07 | 14.2 |
| 111198 | 193000 | 16.45 | 6.92 | 0.107 | 0 | 134 | 13.06 | 14.1 |
| 111198 | 194500 | 16.45 | 6.92 | 0.107 | 0 | 134 | 13.06 | 14.2 |
| 111198 | 200000 | 16.4 | 6.93 | 0.107 | 0 | 134.2 | 13.1 | 14.2 |
| 111198 | 201500 | 16.41 | 6.92 | 0.107 | 0 | 133.9 | 13.06 | 14.2 |
| 111198 | 203000 | 16.41 | 6.92 | 0.107 | 0 | 133.9 | 13.06 | 14.2 |
| 111198 | 204500 | 16.38 | 6.92 | 0.107 | 0 | 133.8 | 13.07 | 14.2 |
| 111198 | 210000 | 16.38 | 6.93 | 0.107 | 0 | 134.1 | 13.09 | 14.2 |
| 111198 | 211500 | 16.36 | 6.92 | 0.107 | 0 | 133.9 | 13.08 | 14.2 |
| 111198 | 213000 | 16.35 | 6.93 | 0.107 | 0 | 133.5 | 13.05 | 14.2 |
| 111198 | 214500 | 16.35 | 6.92 | 0.107 | 0 | 133.5 | 13.05 | 14.2 |
| 111198 | 220000 | 16.35 | 6.92 | 0.107 | 0 | 134.5 | 13.14 | 14.1 |
| 111198 | 221500 | 16.33 | 6.92 | 0.107 | 0 | 134.6 | 13.15 | 14.1 |
| 111198 | 223000 | 16.31 | 6.92 | 0.106 | 0 | 134.4 | 13.14 | 14.1 |
| 111198 | 224500 | 16.31 | 6.92 | 0.106 | 0 | 134.2 | 13.12 | 14.1 |
| 111198 | 230000 | 16.3 | 6.92 | 0.106 | 0 | 134 | 13.11 | 14.1 |
| 111198 | 231500 | 16.3 | 6.93 | 0.106 | 0 | 133.8 | 13.08 | 14.1 |
| 111198 | 233000 | 16.28 | 6.93 | 0.106 | 0 | 134.3 | 13.14 | 14.1 |
| 111198 | 234500 | 16.26 | 6.92 | 0.105 | 0 | 134.7 | 13.18 | 14.1 |
| 111298 | 0 | 16.25 | 6.92 | 0.105 | 0 | 134.5 | 13.17 | 14.1 |
| 111298 | 1500 | 16.25 | 6.93 | 0.105 | 0 | 134.5 | 13.17 | 14.1 |
| 111298 | 3000 | 16.22 | 6.93 | 0.105 | 0 | 134.4 | 13.17 | 14.2 |
| 111298 | 4500 | 16.21 | 6.93 | 0.104 | 0 | 134.4 | 13.17 | 14.1 |
| 111298 | 10000 | 16.2 | 6.94 | 0.104 | 0 | 134.8 | 13.21 | 14.1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 111298 | 11500 | 16.16 | 6.93 | 0.104 | 0 | 134.7 | 13.21 | 14.1 |
| 111298 | 13000 | 16.18 | 6.93 | 0.104 | 0 | 134.8 | 13.22 | 14.1 |
| 111298 | 14500 | 16.16 | 6.92 | 0.103 | 0 | 134.7 | 13.21 | 14.1 |
| 111298 | 20000 | 16.15 | 6.93 | 0.103 | 0 | 134.5 | 13.2 | 14.1 |
| 111298 | 21500 | 16.13 | 6.92 | 0.103 | 0 | 134.6 | 13.21 | 14 |
| 111298 | 23000 | 16.13 | 6.92 | 0.103 | 0 | 134.6 | 13.21 | 14.1 |
| 111298 | 24500 | 16.13 | 6.93 | 0.103 | 0 | 134.6 | 13.21 | 14.1 |
| 111298 | 30000 | 16.09 | 6.93 | 0.102 | 0 | 134.8 | 13.24 | 14.1 |
| 111298 | 31500 | 16.08 | 6.93 | 0.102 | 0 | 134.6 | 13.23 | 14.1 |
| 111298 | 33000 | 16.06 | 6.92 | 0.102 | 0 | 134.5 | 13.22 | 14.1 |
| 111298 | 34500 | 16.04 | 6.93 | 0.101 | 0 | 134.8 | 13.25 | 14.1 |
| 111298 | 40000 | 16.03 | 6.92 | 0.101 | 0 | 134.6 | 13.24 | 14 |
| 111298 | 41500 | 16.01 | 6.92 | 0.1 | 0 | 134.7 | 13.26 | 14.1 |
| 111298 | 43000 | 16.01 | 6.93 | 0.1 | 0 | 134.5 | 13.23 | 14.1 |
| 111298 | 44500 | 15.99 | 6.93 | 0.1 | 0 | 135 | 13.29 | 14.1 |
| 111298 | 50000 | 15.99 | 6.92 | 0.1 | 0 | 134.8 | 13.27 | 14 |
| 111298 | 51500 | 15.98 | 6.92 | 0.099 | 0 | 134.6 | 13.26 | 14 |
| 111298 | 53000 | 15.96 | 6.92 | 0.099 | 0 | 135 | 13.3 | 14 |
| 111298 | 54500 | 15.94 | 6.93 | 0.099 | 0 | 135.5 | 13.36 | 14 |
| 111298 | 60000 | 15.94 | 6.92 | 0.098 | 0 | 134.6 | 13.26 | 14 |
| 111298 | 61500 | 15.94 | 6.92 | 0.098 | 0 | 134.8 | 13.28 | 14 |
| 111298 | 63000 | 15.92 | 6.92 | 0.098 | 0 | 135 | 13.31 | 14 |
| 111298 | 64500 | 15.91 | 6.92 | 0.098 | 0 | 134.7 | 13.29 | 14 |
| 111298 | 70000 | 15.91 | 6.92 | 0.097 | 0 | 134.2 | 13.24 | 14 |
| 111298 | 71500 | 15.89 | 6.92 | 0.097 | 0 | 134.6 | 13.28 | 14 |
| 111298 | 73000 | 15.88 | 6.93 | 0.097 | 0 | 134.9 | 13.31 | 14 |
| 111298 | 74500 | 15.88 | 6.92 | 0.097 | 0 | 134.9 | 13.31 | 14 |
| 111298 | 80000 | 15.88 | 6.92 | 0.097 | 0 | 134.7 | 13.29 | 14 |
| 111298 | 81500 | 15.86 | 6.92 | 0.096 | 0 | 134.5 | 13.28 | 14 |
| 111298 | 83000 | 15.85 | 6.92 | 0.096 | 0 | 134.6 | 13.29 | 13.9 |
| 111298 | 84500 | 15.83 | 6.92 | 0.096 | 0 | 134.7 | 13.3 | 14 |
| 111298 | 90000 | 15.83 | 6.92 | 0.096 | 0 | 134.7 | 13.3 | 14 |
| 111298 | 91500 | 15.83 | 6.91 | 0.095 | 0 | 134.9 | 13.33 | 14 |
| 111298 | 93000 | 15.81 | 6.92 | 0.095 | 0 | 135 | 13.34 | 14 |
| 111298 | 94500 | 15.79 | 6.92 | 0.095 | 0 | 135.1 | 13.35 | 14 |
| 111298 | 100000 | 15.78 | 6.93 | 0.095 | 0 | 135.2 | 13.37 | 14 |
| 111298 | 101500 | 12.59 | 7.14 | 0.128 | 0.1 | 142.4 | 15.09 | 13.9 |
| 111298 | 103000 | 11.93 | 7.17 | 0.122 | 0 | 141.6 | 15.24 | 13.9 |
| 111298 | 104500 | 11.54 | 7.19 | 0.117 | 0 | 143.3 | 15.56 | 13.9 |
| 111298 | 110000 | 11.26 | 7.21 | 0.128 | 0.1 | 144.1 | 15.75 | 13.9 |
| 111298 | 111500 | 11.16 | 7.2 | 0.125 | 0.1 | 145 | 15.88 | 13.9 |
| 111298 | 113000 | 10.98 | 7.2 | 0.126 | 0.1 | 146.3 | 16.1 | 13.8 |
| 111298 | 114500 | 8.57 | 7.19 | 0.001 | 0 | 170.7 | 19.89 | 13.8 |

# APPENDIX 7

# WATER CHEMISTRY ANALYSES

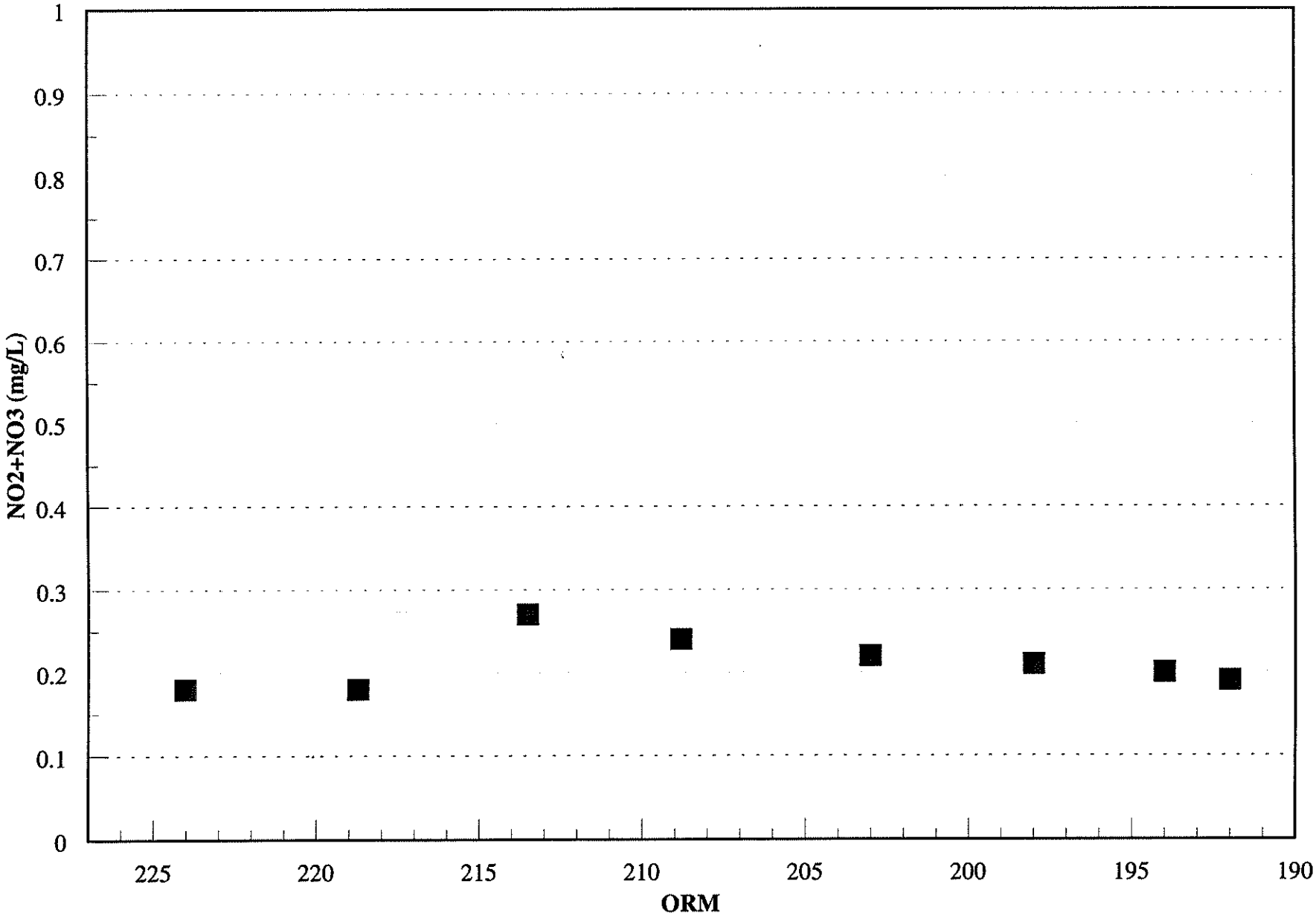
## (Nitrogen, Phosphorous, Chloride, Sulfate, and TDS)

## AND

## BOD ANALYSES

# NITRITE PLUS NITRATE (UNFILTERED)

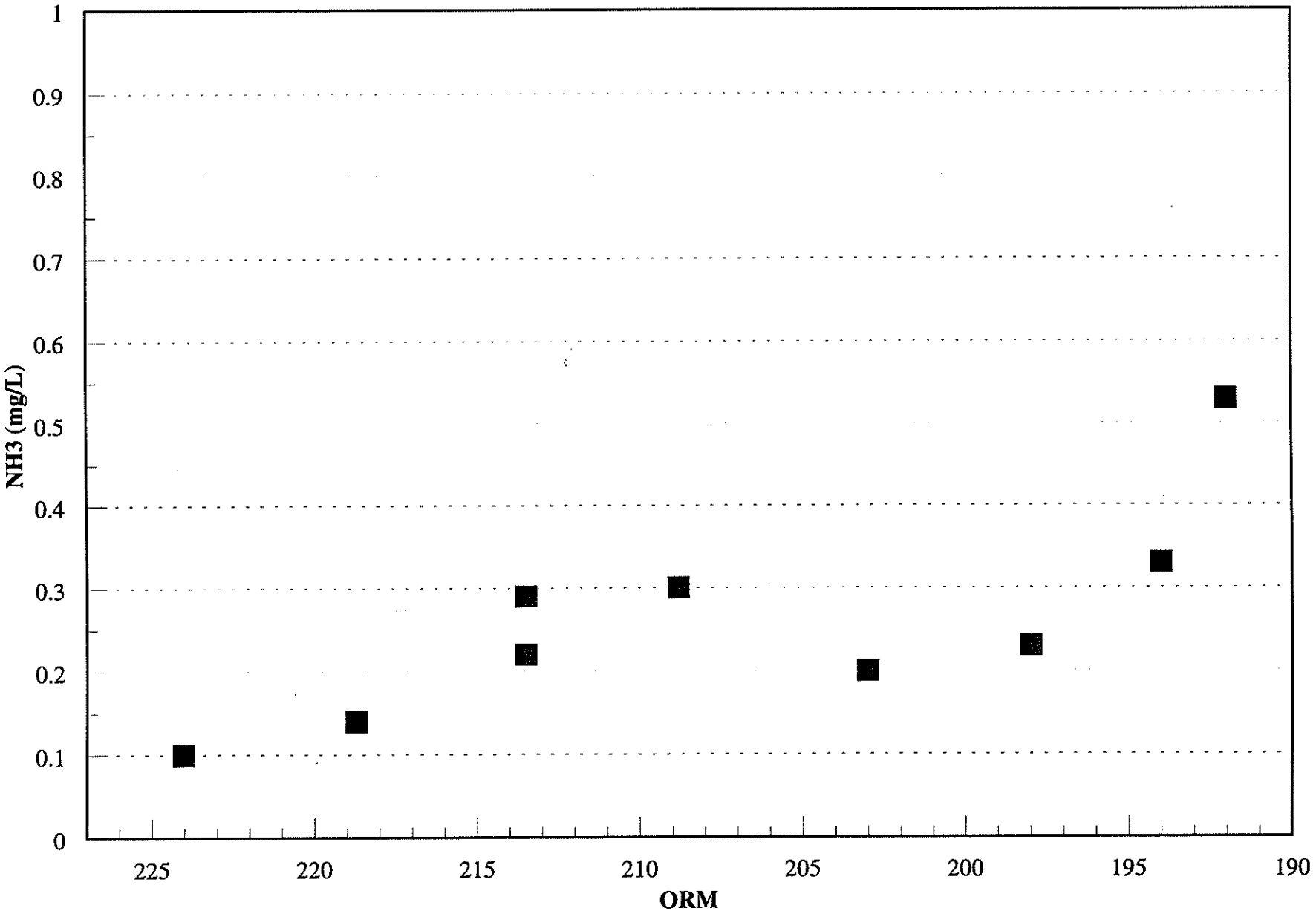
OUACHITA RIVER NEAR CROSSETT, ARKANSAS




Data collected on November 10-12, 1998.

# AMMONIA NITROGEN (UNFILTERED)

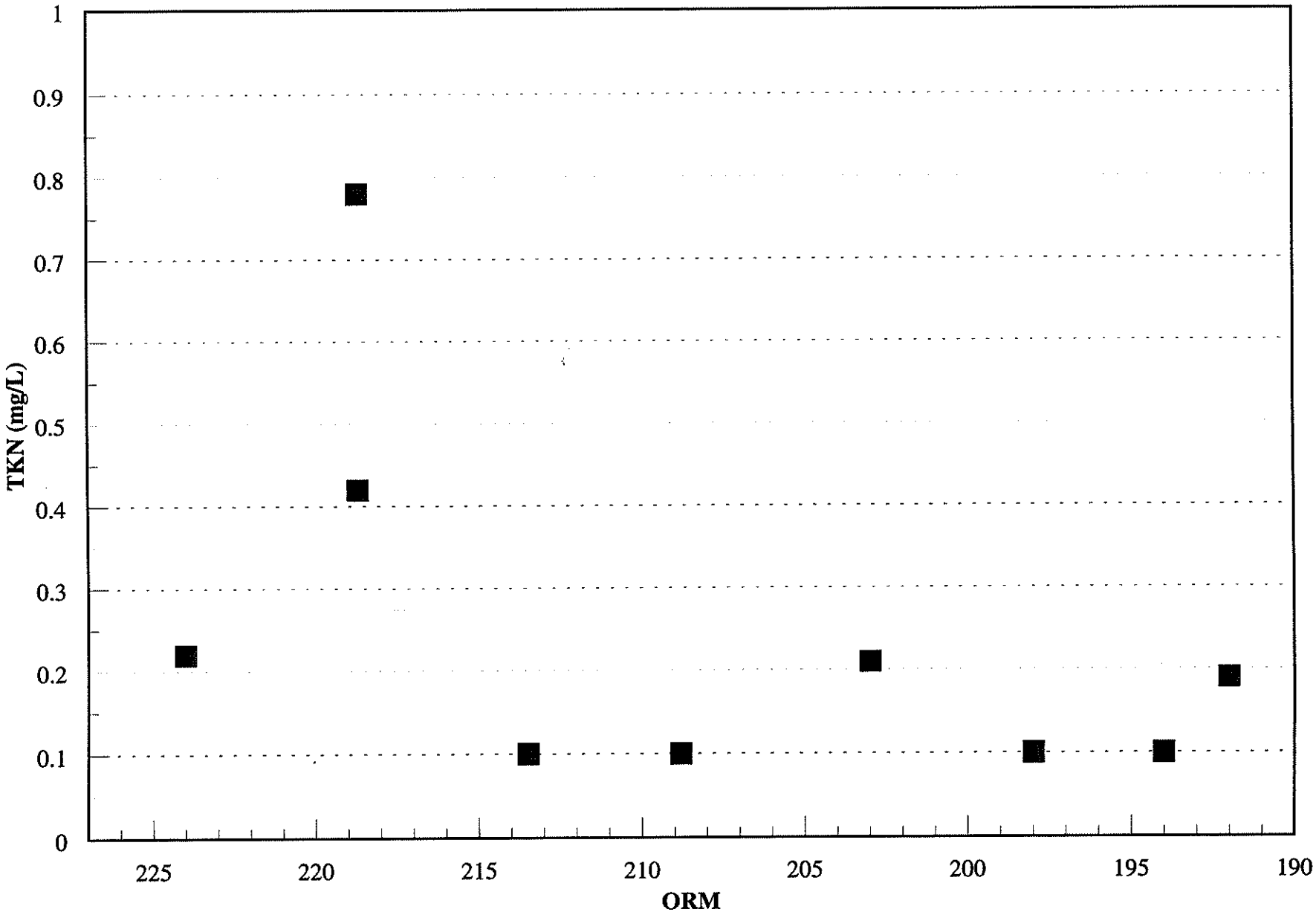
OUACHITA RIVER NEAR CROSSETT, ARKANSAS




Data collected on November 10-12, 1998.

# TOTAL KJELDAHL NITROGEN (FILTERED)

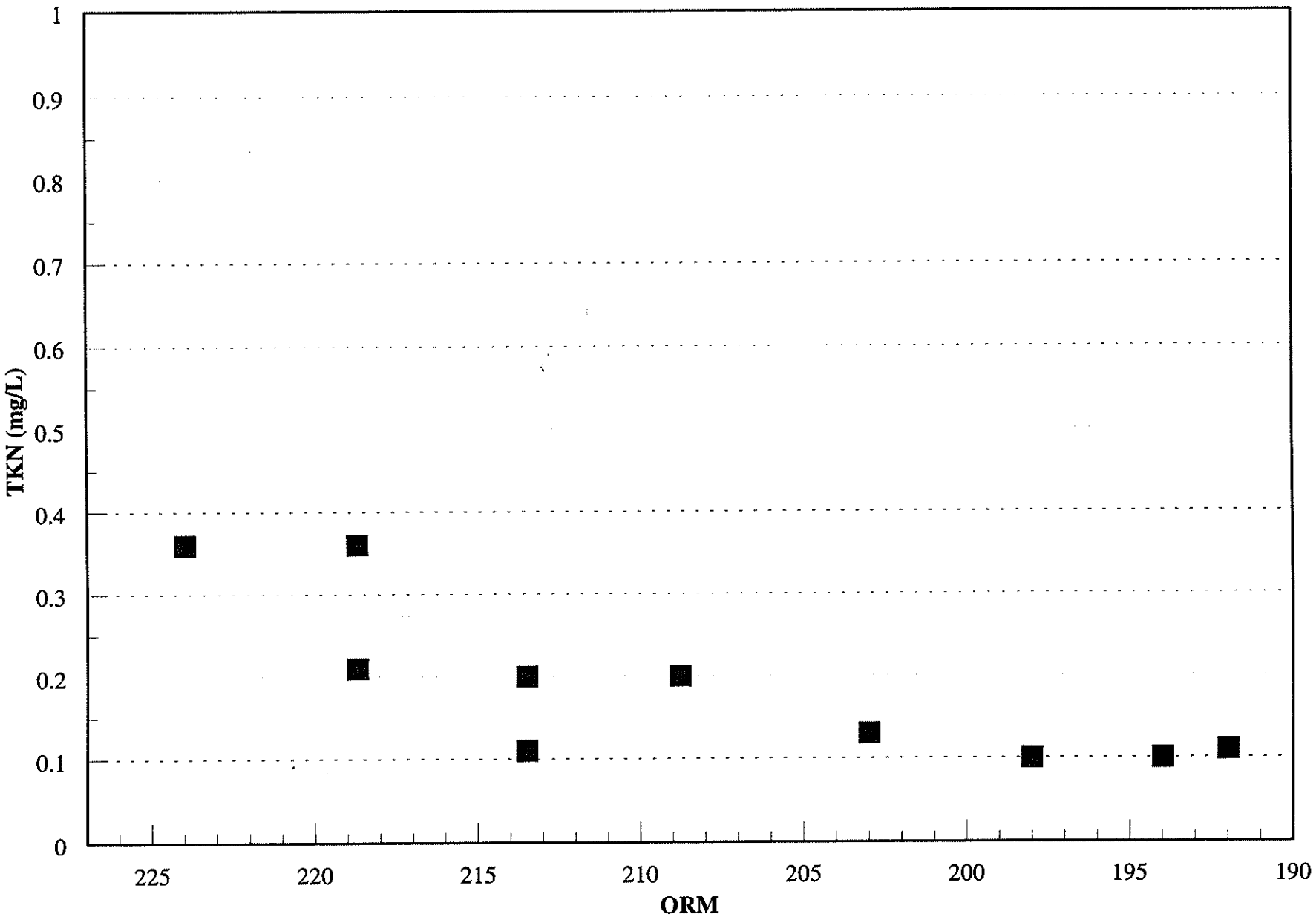
OUACHITA RIVER NEAR CROSSETT, ARKANSAS




Data collected on November 10-12, 1998.

# TOTAL KJELDAHL NITROGEN (UNFILTERED)

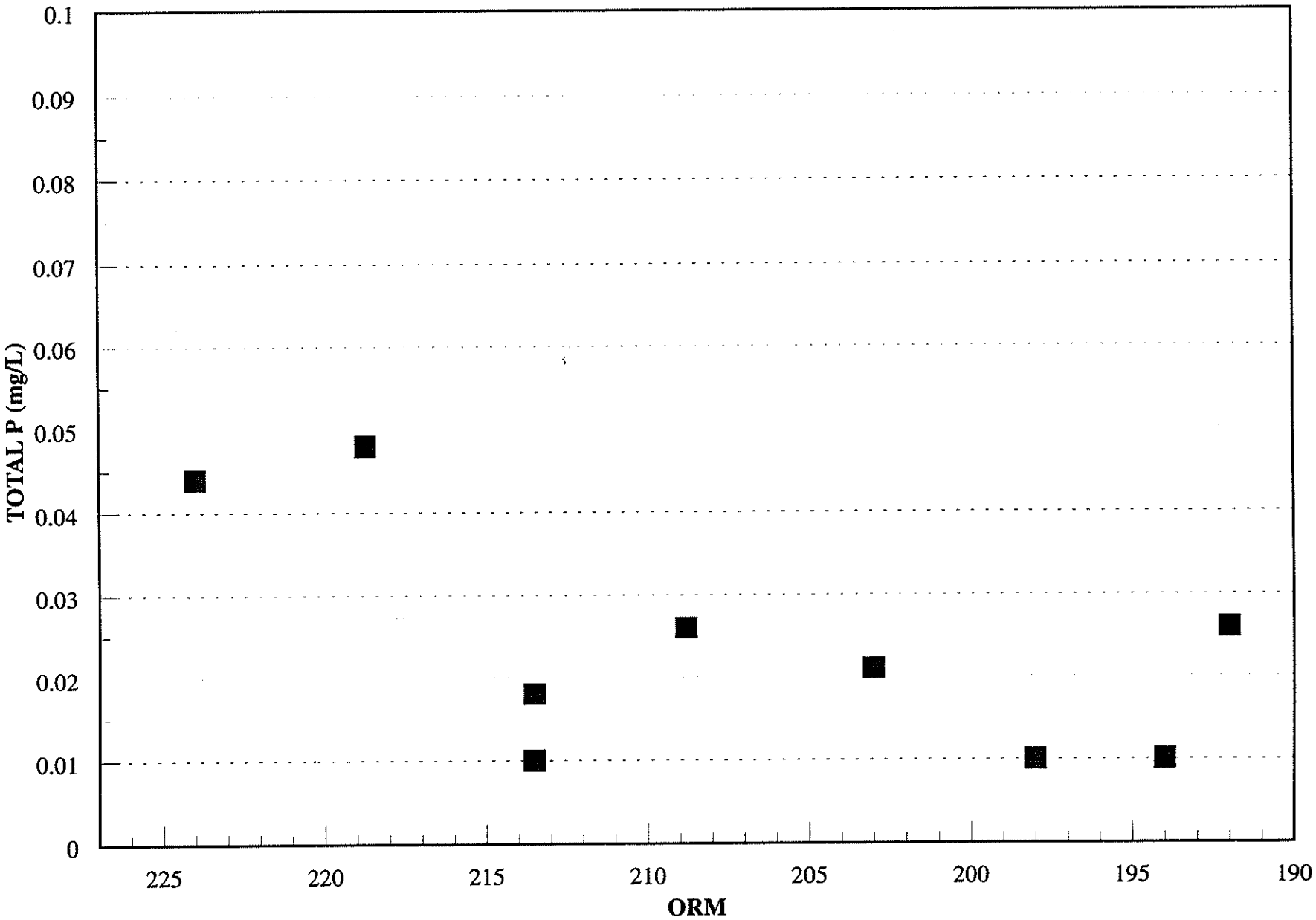
OUACHITA RIVER NEAR CROSSETT, ARKANSAS




Data collected November 10-12, 1998.

# TOTAL PHOSPHOROUS (FILTERED)

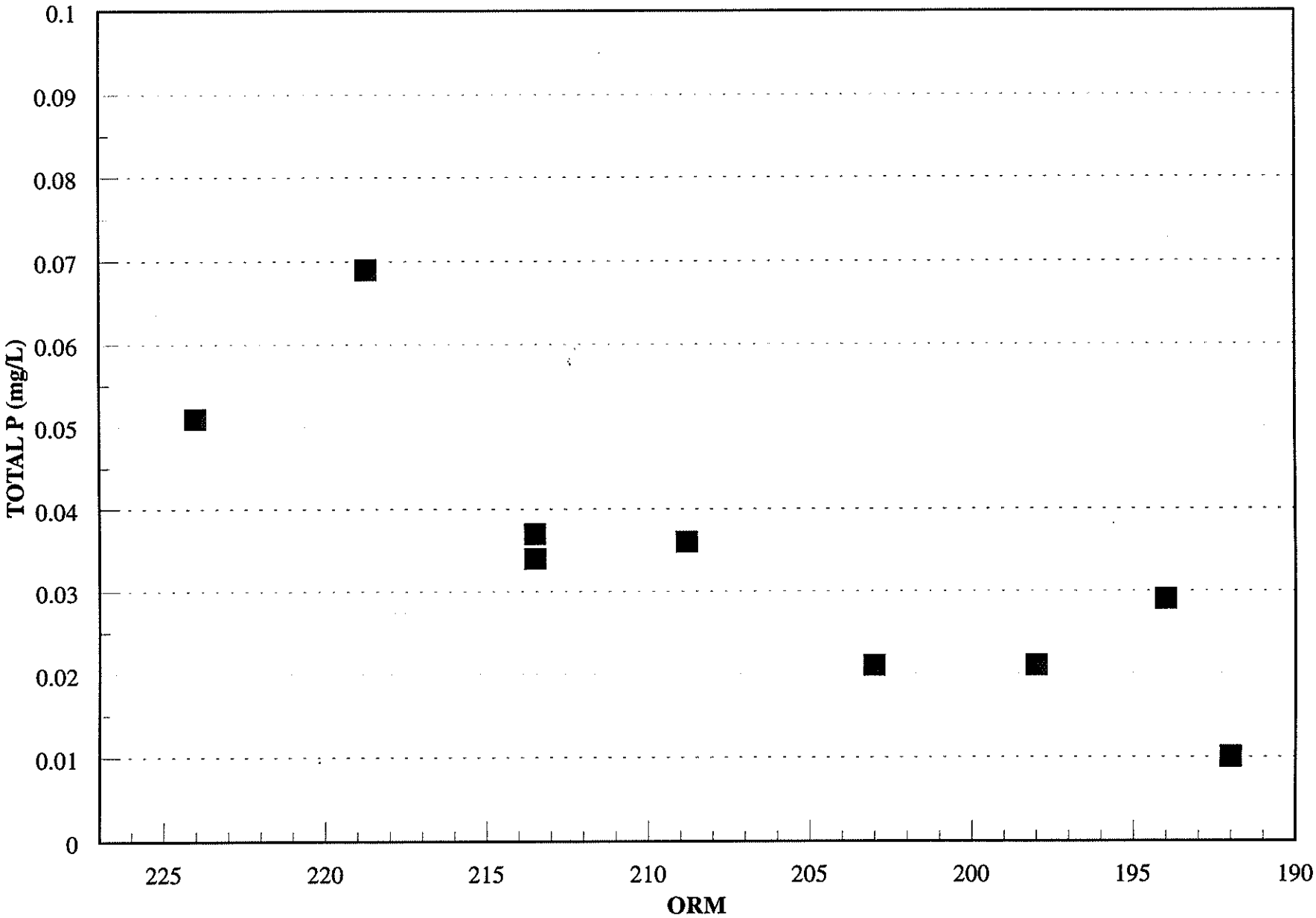
OUACHITA RIVER NEAR CROSSETT, ARKANSAS




Data collected on November 10-12, 1998.

# TOTAL PHOSPHOROUS (UNFILTERED)

OUACHITA RIVER NEAR CROSSETT, ARKANSAS




Data collected on November 10-12, 1998.

# SPECIALIZED ASSAYS ENVIRONMENTAL

7A-054492

2960 Foster Creighton Drive
Nashville, TN 37204
615-726-0177, 800-765-0980
FAX 615/726-3404

Specialized Assays: (800) 765-0980

## REFERRING CLIENT

Account: 5924
Aquaeter
Allison Parker
215 Jamestown Park Suite 204
Brentwood, TN 37027
Ph: 615-373-8532 Fax: 615-373-8512

LING CONTROL NUMBER (FOR LAB USE ONLY) 120196

PROJECT # 980650/5

P.O. #

MPLERS (Signature-Please Print) STM, DMB, NEM

PROJECT NAME Ouachita River

| FOR LAB USE ONLY ACC# | SAMPLE DESCRIPTION | DATE | TIME | COMP | GRAB | # OF CONT | ANALYSIS REQUESTED |
|---|---|---|---|---|---|---|---|
| 40287/140290 | ORM 224 Day 1 | 11/10/98 | 1310 | | ✓ | 3 | TKN (unfiltered), TKN (filt.) - 351.4 Met<br>Total P (unfilt.), Tot. P (filt) - 365.3<br>Orthophosphate (filt.) - 365.3 |
| | | | | | ↑ | | $NH_3$ - 350.1<br>$NO_2+NO_3$ - 353.2 |
| 40288/140291 | CC - Day 1 | 11/10/98 | 1535 | | ✓ | 3 | TKN (unfilt.), TKN (filt.) 351.4 Method<br>Total P (unfilt), Tot P (filt) 365.3<br>Orthophosphate (filt.) 365.3 |
| | | | | | ↑ | | $NH_3$ - 350.1<br>$NO_2+NO_3$ - 353.2 |
| 40289/140292 | ORM 218.7 Day 1 | 11/10/98 | 1607 | | ✓ | 3 | TKN (unfilt.), TKN (filt.) - 351.4 Method<br>Total P (unfilt.), Tot. P (filt.) - 365.3<br>Orthophosphate (filt.) - 365.3 |
| | | | | | ↑ | | $NH_3$ - 350.1<br>$NO_2+NO_3$ - 353.2 |

| | Date / Time | Received by: (Signature) |
|---|---|---|
| Relinquished by: (Signature) | 11/10/98 0725 | |
| Relinquished by: (Signature) | | |
| Relinquished by: (Signature) | | |
| Relinquished by: (Signature) | | |

Received for Laboratory by: — Date / Time: 11/11/98 1640

Remarks: 6°C

SAI Project #:

For further assistance in completing the chain of custody form please refer to the instructions found on the opposite side

# SPECIALIZED ASSAYS
# ENVIRONMENTAL

7A-054482

2960 Foster Creighton Drive
Nashville, TN 37204
615-726-0177, 800-765-0980
FAX 615/726-3404

REFERRING CLIENT

ACCOUNT: 5988
ATTN: DANA BRADFORD
AQUATER
215 JAMESTOWN PARK SUITE 204
BRENTWOOD, TN 37027
(615) 373-8532, (615) 373-8572

BILLING CONTROL NUMBER (FOR LAB USE ONLY) 120224

PROJECT # 98010505

P.O. #

SAMPLERS (Signature-Please Print) STM, DMB, NEM

PROJECT NAME OCMULGEE RIVER

| FOR LAB USE ONLY ACC# | SAMPLE DESCRIPTION | DATE | TIME | COMP | GRAB | # OF CONT | ANALYSIS REQUESTED |
|---|---|---|---|---|---|---|---|
| 98-A140388 | ORM 218.7 DAY 1 - Dup | 11/10/98 | 1607 | | X | 3 | $TKN (UNFILT), TKN (FILT.)-351.4 TOTAL P (UNFILT), TOT P (FILT.)-365 ORTHOPHOSPHATE (FILT.)-365.3 $NH_3$ - 350.1 $NO_2 + NO_3$ - 353.2 |
| 98-A140389 | | | | | | | |

| Relinquished by: (Signature) | Date / Time | Received by: (Signature) |
|---|---|---|
| Relinquished by: (Signature) | Date / Time | Received by: (Signature) |
| Relinquished by: (Signature) | Date / Time | Received by: (Signature) |
| Relinquished by: (Signature) | Date / Time | Received by: (Signature) |

Received for Laboratory by: Date / Time 11/12/98 9100

Remarks

SAI Project #:

**For further assistance in completing the chain of custody form please refer to the instructions found on the opposite side**

615-726-3404 SPECIALIZED ASSAYS 689 P01/01 DEC 02 '98 16:59

# SPECIALIZED ASSAYS
# ENVIRONMENTAL

7A-054486

2960 Foster Creighton Drive
Nashville, TN 37204
615-726-0177, 800-765-0980
FAX 615/726-3404

Specialized Assays: (800) 765-098(

REFERRING CLIENT

Account: 5924
Aquaeter
Allison Parker
215 Jamestown Park Suite 204
Brentwood, TN 37027
Ph: 615-373-8532 Fax: 615-373-8512

BILLING CONTROL NUMBER (FOR LAB USE ONLY) 120486

PROJECT # 0650/5

P.O. #

SAMPLERS (Signature-Please Print) DMB/NSM/STM/MKC

PROJECT NAME Ouachita River

| FOR LAB USE ONLY ACC# | SAMPLE DESCRIPTION | DATE | TIME | COMP | GRAB | # OF CONT | ANALYSIS REQUESTED | Method |
|---|---|---|---|---|---|---|---|---|
| 141384 / 141391 | ORM 203 Day 1 | 11/12/98 | 1435 | ✓ | | | TKN (filt.), TKN (unfilt) | (351.4 |
| | | | | | | | Tot. P (filt.) Tot P (unfilt) | (365.3 |
| | | | | | | | Ortho Phosphate (filt.) | (365.3 |
| | | | | | | | $NH_3$ | (350.1 |
| | | | | | | | $NO_2+NO_3$ | (353.2 |
| 141385 / 141392 | ORM 192 Day 1 | 11/12/98 | 1640 | ✓ | | | same as above | |
| 141386 / 141393 | ORM 213.5 Day 1 | 11/12/98 | 1045 | ✓ | | | Same as above | |
| 141387 / 141394 | ORM 208.8 Day 1 | 11/12/98 | 1314 | ✓ | | | Same as above | |
| 141388 / 141395 | ORM 194 Day 1 | 11/~~12~~/98 DMB | 1608 | ✓ | | | Same as above | |
| 141389 / 141396 | ORM 198 Day 1 | 11/~~12~~/98 DMB | 1510 | ✓ | | | Same as above | |
| 141390 / 141397 | ORM 213.5 Dup Day 1 | 11/12/98 | 1048 | ✓ | | | same as above | |

| | Date / Time | | | |
|---|---|---|---|---|
| Relinquished by: (Signature) Vera M Bradford | 0132 11/13/98 | Received by: (Signature) Darren Brewer | Received for Laboratory by: MM Mitchell | Date / Time 11/13/98 3:20 |
| Relinquished by: (Signature) Darren Brewer | 11/17/98 3:20 | Received by: (Signature) | Remarks | |
| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | | |
| ished by: (Signature) | Date / Time | Received by: (Signature) | SAI Project #: | |

For further assistance in completing the chain of custody form please refer to the instructions found on the opposite si

**SPECIALIZED ASSAYS, INC.**

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 980650/5
Project Name: OUACHETA RIVER
Sampler: S.M.

Lab Number: 98-A140287
Sample ID: ORM 224 DAY 1
Sample Type: Water
Site ID: NOT GIVEN

Date Collected: 11/10/98
Time Collected: 13:10
Date Received: 11/11/98
Time Received: 16:40

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| *MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Nitrate/Nitrite-N as N | 0.18 | mg/l | 0.01 | 0.01 | 1 | 11/11/98 | 21:58 | A.Damarni | 353.2 | 8504 |
| Phosphorus | 0.051 | mg/l | 0.010 | 0.010 | 1 | 11/13/98 | 7:00 | J.Temple | 365.4 | 8732 |
| Ammonia Nitrogen as N | 0.10 | mg/l | 0.01 | 0.01 | 1 | 11/13/98 | 12:30 | J.Temple | 350.1 | 8958 |
| Ortho Phosphate as P | ND | mg/l | 0.01 | 0.01 | 1 | 11/12/98 | 10:24 | McFarland | 365.2 | 7901 |
| Kjeldahl Nitrogen as N | 0.36 | mg/l | 0.10 | 0.10 | 1 | 11/13/98 | 7:00 | J.Temple | 351.2 | 8730 |

ND = Not detected at the report limit.

Report Approved By: _____ Report Date: 11/24/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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**SPECIALIZED ASSAYS, INC.**

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Nashville, TN 37204-0566
Phone 1-615-726-0177

# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

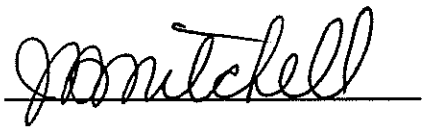
Project: 980650/5
Project Name: OUACHETA RIVER
Sampler: S.M.

Lab Number: 98-A140290
Sample ID: ORM 224 DAY 1 - FILTERED
Sample Type: Water
Site ID: NOT GIVEN

Date Collected: 11/10/98
Time Collected: 13:10
Date Received: 11/11/98
Time Received: 16:40

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| *MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Phosphorus, dissolved | 0.044 | mg/l | 0.010 | 0.010 | 1 | 11/13/98 | 7:00 | J.Temple | 365.4 | 8732 |
| Kjeldahl Nitrogen as N | 0.22 | mg/l | 0.10 | 0.10 | 1 | 11/13/98 | 7:00 | J.Temple | 351.2 | 8730 |

ND = Not detected at the report limit.

Report Approved By:  Report Date: 11/24/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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Nashville, TN 37204-0566
Phone 1-615-726-0177

# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 980650/5
Project Name: OUACHETA RIVER
Sampler: S.M.

Lab Number: 98-A140288
Sample ID: CC-DAY 1
Sample Type: Water
Site ID: NOT GIVEN

Date Collected: 11/10/98
Time Collected: 15:35
Date Received: 11/11/98
Time Received: 16:40

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| *MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Nitrate/Nitrite-N as N | 0.21 | mg/l | 0.01 | 0.01 | 1 | 11/11/98 | 21:58 | A.Banarni | 353.2 | 8504 |
| Phosphorus | 0.794 | mg/l | 0.010 | 0.010 | 1 | 11/13/98 | 7:00 | J.Temple | 365.4 | 8732 |
| Ammonia Nitrogen as N | 3.56 | mg/l | 0.01 | 0.01 | 1 | 11/13/98 | 12:30 | J.Temple | 350.1 | 8958 |
| Ortho Phosphate as P | 0.45 | mg/l | 0.01 | 0.01 | 1 | 11/12/98 | 10:24 | McFarland | 365.2 | 7901 |
| "jeldahl Nitrogen as N | 6.34 | mg/l | 0.10 | 0.10 | 1 | 11/13/98 | 7:00 | J.Temple | 351.2 | 8730 |

ND = Not detected at the report limit.

Report Approved By: J.M. Mitchell Report Date: 11/24/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 980650/5
Project Name: OUACHETA RIVER
Sampler: S.M.

Lab Number: 98-A140291
Sample ID: CC-DAY 1 - FILTERED
Sample Type: Water
Site ID: NOT GIVEN

Date Collected: 11/10/98
Time Collected: 15:35
Date Received: 11/11/98
Time Received: 16:40

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| *MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Phosphorus, dissolved | 0.624 | mg/l | 0.010 | 0.010 | 1 | 11/12/98 | 7:00 | J.Temple | 365.4 | 4333 |
| Kjeldahl Nitrogen as N | 5.40 | mg/l | 0.10 | 0.10 | 1 | 11/13/98 | 7:00 | J.Temple | 351.2 | 8730 |

ND = Not detected at the report limit.

Report Approved By: JM Mitchell Report Date: 11/24/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 980650/5
Project Name: OUACHETA RIVER
Sampler: S.M.

Lab Number: 98-A140289
Sample ID: ORM 218.7 DAY 1
Sample Type: Water
Site ID: NOT GIVEN

Date Collected: 11/10/98
Time Collected: 16:07
Date Received: 11/11/98
Time Received: 16:40

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| *MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Nitrate/Nitrite-N as N | 0.18 | mg/l | 0.01 | 0.01 | 1 | 11/11/98 | 21:59 | A.Banarni | 353.2 | 8504 |
| Phosphorus | 0.069 | mg/l | 0.010 | 0.010 | 1 | 11/13/98 | 7:00 | J.Temple | 365.4 | 8732 |
| Ammonia Nitrogen as N | 0.14 | mg/l | 0.01 | 0.01 | 1 | 11/13/98 | 12:30 | J.Temple | 350.1 | 8958 |
| Ortho Phosphate as P | ND | mg/l | 0.01 | 0.01 | 1 | 11/12/98 | 10:24 | McFarland | 365.2 | 7901 |
| Kjeldahl Nitrogen as N | 0.36 | mg/l | 0.10 | 0.10 | 1 | 11/13/98 | 7:00 | J.Temple | 351.2 | 8730 |

ND = Not detected at the report limit.

Report Approved By: JA Mitchell Report Date: 11/24/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 980650/5
Project Name: OUACHETA RIVER
Sampler: S.M.

Lab Number: 98-A140292
Sample ID: ORM 218.7 DAY 1 - FILTERED
Sample Type: Water
Site ID: NOT GIVEN

Date Collected: 11/10/98
Time Collected: 16:07
Date Received: 11/11/98
Time Received: 16:40

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| *MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Phosphorus, dissolved | 0.048 | mg/l | 0.010 | 0.010 | 1 | 11/13/98 | 7:00 | J.Temple | 365.4 | 8732 |
| Kjeldahl Nitrogen as N | 0.42 | mg/l | 0.10 | 0.10 | 1 | 11/13/98 | 7:00 | J.Temple | 351.2 | 8730 |

ND = Not detected at the report limit.

Report Approved By: JAMitchell Report Date: 11/24/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 98065015
Project Name: OUACLUTA RIVER
Sampler: S. T. M.

Lab Number: 98-A140388
Sample ID: ORM 218.7 DAY 1 - Dup
Sample Type: Water
Site ID:

Date Collected: 11/10/98
Time Collected: 16:07
Date Received: 11/12/98
Time Received: 9:00

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| *MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Nitrate/Nitrite-N as N | 0.18 | mg/l | 0.01 | 0.01 | 1 | 11/14/98 | 17:53 | A.Banarai | 353.2 | 8674 |
| Phosphorus | 0.064 | mg/l | 0.010 | 0.010 | 1 | 11/13/98 | 7:00 | J.Temple | 365.4 | 8732 |
| Ammonia Nitrogen as N | 0.14 | mg/l | 0.01 | 0.01 | 1 | 11/13/98 | 12:30 | J.Temple | 350.1 | 8958 |
| Kjeldahl Nitrogen as N | 0.21 | mg/l | 0.10 | 0.10 | 1 | 11/13/98 | 7:00 | J.Temple | 351.2 | 8398 |

J = Not detected at the report limit.

Report Approved By: JMitchell Report Date: 11/23/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 98065015
Project Name: OUACLUTA RIVER
Sampler: S. T. M.

Lab Number: 98-A140389
Sample ID: ORM 218.7 DAY 1-FILTERED
Sample Type: Water Dup
Site ID:

Date Collected: 11/10/98
Time Collected: 16:07
Date Received: 11/12/98
Time Received: 9:00

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| *MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Phosphorus | 0.058 | mg/l | 0.010 | 0.010 | 1 | 11/13/98 | 7:00 | J.Temple | 365.4 | 8732 |
| Ortho Phosphate as P | ND | mg/l | 0.01 | 0.01 | 1 | 11/12/98 | 14:38 | McFarland | 365.2 | 8254 |
| Kjeldahl Nitrogen as N | 0.78 | mg/l | 0.10 | 0.10 | 1 | 11/13/98 | 7:00 | J.Temple | 351.2 | 8398 |

ND = Not detected at the report limit.

*1 analysis were performed on filtered bottles.

Report Approved By: Michael A. Dunn Report Date: 11/23/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny E. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 0650/5
Project Name: OUACLUTA RIVER
Sampler: D. M. B.

Lab Number: 98-A141386
Sample ID: ORM 213.5 DAY 1
Sample Type: Water
Site ID:

Date Collected: 11/12/98
Time Collected: 10:45
Date Received: 11/13/98
Time Received: 15:20

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| *MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Nitrate/Nitrite-N as N | 0.27 | mg/l | 0.01 | 0.01 | 1 | 11/14/98 | 17:03 | A.Banarni | 353.2 | 9672 |
| Phosphorus | 0.037 | mg/l | 0.010 | 0.010 | 1 | 11/17/98 | 6:45 | CHollingsw | 365.4 | 9634 |
| Ammonia Nitrogen as N | 0.29 | mg/l | 0.01 | 0.01 | 1 | 11/16/98 | 9:30 | J.Temple | 350.1 | 9638 |
| Kjeldahl Nitrogen as N | 0.20 | mg/l | 0.10 | 0.10 | 1 | 11/17/98 | 6:45 | J.Temple | 351.2 | 463 |

/ = Not detected at the report limit.

Report Approved By: JMitchell Report Date: 11/20/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Nitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 0650/5
Project Name: OUCAHITA RIVER
Sampler: D. M. B.

Lab Number: 98-A141393
Sample ID: ORM 213.5 DAY 1
Sample Type: Water
Site ID:

Date Collected: 11/12/98
Time Collected: 10:45
Date Received: 11/13/98
Time Received: 15:20

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| *MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Phosphorus | 0.018 | mg/l | 0.010 | 0.010 | 1 | 11/17/98 | 6:45 | CHollingsw | 365.4 | 9634 |
| Ortho Phosphate as P | ND | mg/l | 0.01 | 0.01 | 1 | 11/13/98 | 16:57 | McFarland | 365.2 | 9389 |
| Kjeldahl Nitrogen as N | 0.10 | mg/l | 0.10 | 0.10 | 1 | 11/17/98 | 6:45 | J.Temple | 351.2 | 463 |

' = Not detected at the report limit.

All analysis performed on filtered sample.

Report Approved By: Report Date: 11/20/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 0650/5
Project Name: OUACLUTA RIVER
Sampler: D. M. B.

Lab Number: 98-A141390
Sample ID: ORM 213.5 DUP DAY 1
Sample Type: Water
Site ID:

Date Collected: 11/12/98
Time Collected: 10:48
Date Received: 11/13/98
Time Received: 15:20

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| *MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Nitrate/Nitrite-N as N | 0.27 | mg/l | 0.01 | 0.01 | 1 | 11/14/98 | 17:05 | A.Ramarni | 353.2 | 9672 |
| Phosphorus | 0.034 | mg/l | 0.010 | 0.010 | 1 | 11/17/98 | 6:45 | CHollingsw | 365.4 | 9634 |
| Ammonia Nitrogen as N | 0.22 | mg/l | 0.01 | 0.01 | 1 | 11/16/98 | 9:30 | J.Temple | 350.1 | 9630 |
| Kjeldahl Nitrogen as N | 0.11 | mg/l | 0.10 | 0.10 | 1 | 11/17/98 | 6:45 | J.Temple | 351.2 | 463 |

U = Not detected at the report limit.

Report Approved By: JMitchell Report Date: 11/20/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 0650/5
Project Name: OUCAHITA RIVER
Sampler: D. M. B.

Lab Number: 98-A141397
Sample ID: CRM 213.5 DUP DAY 1
Sample Type: Water
Site ID:

Date Collected: 11/12/98
Time Collected: 10:48
Date Received: 11/13/98
Time Received: 15:20

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| *MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Phosphorus | ND | mg/l | 0.010 | 0.010 | 1 | 11/17/98 | 6:45 | CHollingsw | 365.4 | 9634 |
| Ortho Phosphate as P | ND | mg/l | 0.01 | 0.01 | 1 | 11/13/98 | 16:57 | McFarland | 365.2 | 9389 |
| Kjeldahl Nitrogen as N | ND | mg/l | 0.10 | 0.10 | 1 | 11/17/98 | 6:45 | J.Temple | 351.2 | 463 |

ND = Not detected at the report limit.

All analysis performed on filtered sample.

Report Approved By: Michael D. Dunn Report Date: 11/20/98

Theodore J. Duello, Ph.D., D.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02005

**SPECIALIZED ASSAYS, INC.**

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# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 0650/5
Project Name: OUACLUTA RIVER
Sampler: D. M. B.

Lab Number: 98-A141387
Sample ID: ORM 208.8 DAY 1
Sample Type: Water
Site ID:

Date Collected: 11/12/98
Time Collected: 13:14
Date Received: 11/13/98
Time Received: 15:20

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| *MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Nitrate/Nitrite-N as N | 0.24 | mg/l | 0.01 | 0.01 | 1 | 11/14/98 | 17:04 | A.Banarni | 353.2 | 9672 |
| Phosphorus | 0.036 | mg/l | 0.010 | 0.010 | 1 | 11/17/98 | 6:45 | CHollingsw | 365.4 | 9634 |
| Ammonia Nitrogen as N | 0.30 | mg/l | 0.01 | 0.01 | 1 | 11/16/98 | 9:30 | J.Temple | 350.1 | 9638 |
| Kjeldahl Nitrogen as N | 0.20 | mg/l | 0.10 | 0.10 | 1 | 11/17/98 | 6:45 | J.Temple | 351.2 | 463 |

.0 = Not detected at the report limit.

Report Approved By: JA Mitchell Report Date: 11/20/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 0650/5
Project Name: OUCAHITA RIVER
Sampler: D. M. B.

Lab Number: 98-A141394
Sample ID: ORM 208.8 DAY 1
Sample Type: Water
Site ID:

Date Collected: 11/12/98
Time Collected: 13:14
Date Received: 11/13/98
Time Received: 15:20

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| *MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Phosphorus | 0.026 | mg/l | 0.010 | 0.010 | 1 | 11/17/98 | 6:45 | CHollingsw | 365.4 | 9634 |
| Ortho Phosphate as P | ND | mg/l | 0.01 | 0.01 | 1 | 11/13/98 | 16:57 | McFarland | 365.2 | 9389 |
| Kjeldahl Nitrogen as N | 0.10 | mg/l | 0.10 | 0.10 | 1 | 11/17/98 | 6:45 | J.Temple | 351.2 | 463 |

ND = Not detected at the report limit.

All analysis performed on filtered sample.

Report Approved By: _____ Report Date: 11/20/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 0650/5
Project Name: OUACLUTA RIVER
Sampler: D. M. B.

Lab Number: 98-A141384
Sample ID: ORM 203 DAY 1
Sample Type: Water
Site ID:

Date Collected: 11/12/98
Time Collected: 14:35
Date Received: 11/13/98
Time Received: 15:20

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| *MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Nitrate/Nitrite-N as N | 0.22 | mg/l | 0.01 | 0.01 | 1 | 11/14/98 | 17:02 | A.Banarni | 353.2 | 9672 |
| Phosphorus | 0.021 | mg/l | 0.010 | 0.010 | 1 | 11/17/98 | 6:45 | CHollingsw | 365.4 | 9634 |
| Ammonia Nitrogen as N | 0.20 | mg/l | 0.01 | 0.01 | 1 | 11/16/98 | 9:30 | J.Temple | 350.1 | 9638 |
| Kjeldahl Nitrogen as N | 0.13 | mg/l | 0.10 | 0.10 | 1 | 11/17/98 | 6:45 | J.Temple | 351.2 | 463 |

.U = Not detected at the report limit.

Report Approved By: JAMitchell Report Date: 11/20/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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**SPECIALIZED ASSAYS, INC.**

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 0650/5
Project Name: OUCAHITA RIVER
Sampler: D. M. B.

Lab Number: 98-A141391
Sample ID: ORM 203 DAY 1
Sample Type: Water
Site ID:

Date Collected: 11/12/98
Time Collected: 14:35
Date Received: 11/13/98
Time Received: 15:20

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| *MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Phosphorus | 0.021 | mg/l | 0.010 | 0.010 | 1 | 11/17/98 | 6:45 | CHollingsw | 365.4 | 9634 |
| Ortho Phosphate as P | ND | mg/l | 0.01 | 0.01 | 1 | 11/13/98 | 16:57 | McFarland | 365.2 | 9389 |
| Kjeldahl Nitrogen as N | 0.21 | mg/l | 0.10 | 0.10 | 1 | 11/17/98 | 6:45 | J.Temple | 351.2 | 463 |

"0 = Not detected at the report limit.

All analysis performed on filtered sample.

Report Approved By: _____ Report Date: 11/20/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

**SPECIALIZED ASSAYS, INC.**

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 0650/5
Project Name: OUACLUTA RIVER
Sampler: D. M. B.

Lab Number: 98-A141389
Sample ID: ORM 198 DAY 1
Sample Type: Water
Site ID:

Date Collected: 11/12/98
Time Collected: 15:10
Date Received: 11/13/98
Time Received: 15:20

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| *MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Nitrate/Nitrite-N as N | 0.21 | mg/l | 0.01 | 0.01 | 1 | 11/14/98 | 17:05 | A.Banarni | 353.2 | 9672 |
| Phosphorus | 0.021 | mg/l | 0.010 | 0.010 | 1 | 11/17/98 | 6:45 | CHollingsw | 365.4 | 9634 |
| Ammonia Nitrogen as N | 0.23 | mg/l | 0.01 | 0.01 | 1 | 11/16/98 | 9:30 | J.Temple | 350.1 | 9638 |
| Kjeldahl Nitrogen as N | ND | mg/l | 0.10 | 0.10 | 1 | 11/17/98 | 6:45 | J.Temple | 351.2 | 463 |

.D = Not detected at the report limit.

Report Approved By: JMMitchell Report Date: 11/20/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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Phone 1-615-726-0177

# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Lab Number: 98-A141396
Sample ID: ORM 198 DAY 1
Sample Type: Water
Site ID:

Date Collected: 11/12/98
Time Collected: 15:10
Date Received: 11/13/98
Time Received: 15:20

Project: 0650/5
Project Name: OUCAHITA RIVER
Sampler: D. M. B.

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| *MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Phosphorus | ND | mg/l | 0.010 | 0.010 | 1 | 11/17/98 | 6:45 | CHollingsw | 365.4 | 9634 |
| Ortho Phosphate as P | ND | mg/l | 0.01 | 0.01 | 1 | 11/13/98 | 16:57 | McFarland | 365.2 | 9389 |
| Kjeldahl Nitrogen as N | 0.10 | mg/l | 0.10 | 0.10 | 1 | 11/17/98 | 6:45 | J.Temple | 351.2 | 463 |

"ND" = Not detected at the report limit.

All analysis performed on filtered sample.

Report Approved By: _____ Report Date: 11/20/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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Nashville, TN 37204-0566
Phone 1-615-726-0177

# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 0650/5
Project Name: OUACLUTA RIVER
Sampler: D. M. B.

Lab Number: 98-A141388
Sample ID: ORM 194 DAY 1
Sample Type: Water
Site ID:

Date Collected: 11/12/98
Time Collected: 16:08
Date Received: 11/13/98
Time Received: 15:20

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| *MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Nitrate/Nitrite-N as N | 0.20 | mg/l | 0.01 | 0.01 | 1 | 11/14/98 | 17:04 | A.Banarni | 353.2 | 9672 |
| Phosphorus | 0.029 | mg/l | 0.010 | 0.010 | 1 | 11/17/98 | 6:45 | CHollingsw | 365.4 | 9634 |
| Ammonia Nitrogen as N | 0.33 | mg/l | 0.01 | 0.01 | 1 | 11/16/98 | 9:30 | J.Temple | 350.1 | 9638 |
| Kjeldahl Nitrogen as N | ND | mg/l | 0.10 | 0.10 | 1 | 11/17/98 | 6:45 | J.Temple | 351.2 | 463 |

ND = Not detected at the report limit.

Report Approved By: JBMitchell Report Date: 11/20/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 0650/5
Project Name: OUCAHITA RIVER
Sampler: D. M. B.

Lab Number: 98-A141395
Sample ID: ORM 194 DAY 1
Sample Type: Water
Site ID:

Date Collected: 11/12/98
Time Collected: 16:08
Date Received: 11/13/98
Time Received: 15:20

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| *MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Phosphorus | ND | mg/l | 0.010 | 0.010 | 1 | 11/17/98 | 6:45 | CHollingsw | 365.4 | 9634 |
| Ortho Phosphate as P | ND | mg/l | 0.01 | 0.01 | 1 | 11/13/98 | 16:57 | McFarland | 365.2 | 9389 |
| Kjeldahl Nitrogen as N | ND | mg/l | 0.10 | 0.10 | 1 | 11/17/98 | 6:45 | J.Temple | 351.2 | 463 |

ND = Not detected at the report limit.

All analysis performed on filtered sample.

Report Approved By: J.A. Mitchell Report Date: 11/20/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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**SPECIALIZED ASSAYS, INC.**

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P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 0650/5
Project Name: OUACLUTA RIVER
Sampler: D. M. B.

Lab Number: 98-A141385
Sample ID: ORM 192 DAY 1
Sample Type: Water
Site ID:

Date Collected: 11/12/98
Time Collected: 16:40
Date Received: 11/13/98
Time Received: 15:20

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| *MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Nitrate/Nitrite-N as N | 0.19 | mg/l | 0.01 | 0.01 | 1 | 11/14/98 | 17:02 | A.Banarni | 353.2 | 9672 |
| Phosphorus | ND | mg/l | 0.010 | 0.010 | 1 | 11/17/98 | 6:45 | CHollingsw | 365.4 | 9634 |
| Ammonia Nitrogen as N | 0.53 | mg/l | 0.01 | 0.01 | 1 | 11/16/98 | 9:30 | J.Temple | 350.1 | 9638 |
| Kjeldahl Nitrogen as N | 0.11 | mg/l | 0.10 | 0.10 | 1 | 11/17/98 | 6:45 | J.Temple | 351.2 | 463 |

"U" = Not detected at the report limit.

Report Approved By: JPMitchell Report Date: 11/20/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

**SPECIALIZED ASSAYS, INC.**

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 0650/5
Project Name: OUCAHITA RIVER
Sampler: D. M. B.

Lab Number: 98-A141392
Sample ID: ORM 192 DAY 1
Sample Type: Water
Site ID:

Date Collected: 11/12/98
Time Collected: 16:40
Date Received: 11/13/98
Time Received: 15:20

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| *MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Phosphorus | 0.026 | mg/l | 0.010 | 0.010 | 1 | 11/17/98 | 6:45 | CHollingsw | 365.4 | 9634 |
| Ortho Phosphate as P | ND | mg/l | 0.01 | 0.01 | 1 | 11/13/98 | 16:57 | McFarland | 365.2 | 9389 |
| Kjeldahl Nitrogen as N | 0.19 | mg/l | 0.10 | 0.10 | 1 | 11/17/98 | 6:45 | J.Temple | 351.2 | 463 |

"ND" = Not detected at the report limit.

All analysis performed on filtered sample.

Report Approved By: _____ Report Date: 11/20/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

# SPECIALIZED ASSAYS
# ENVIRONMENTAL

7A-054485


2960 Foster Creighton Drive
Nashville, TN 37204
615-726-0177, 800-765-0980
FAX 615/726-3404

Specialized Assays: (800) 765-098(


REFERRING CLIENT

Account: 5924
Aquaeter
~~Allison Parker~~ DANA BRADFORD
215 Jamestown Park Suite 204
Brentwood, TN 37027
Ph: 615-373-8532 Fax: 615-373-851?

BILLING CONTROL NUMBER (FOR LAB USE ONLY) 120486

PROJECT # 0605015

P.O. #

SAMPLERS (Signature-Please Print)
NEM, DMB, STM, MRC

PROJECT NAME
Ouachita River

| FOR LAB USE ONLY ACC# | SAMPLE DESCRIPTION | DATE | TIME | COMP | GRAB | # OF CONT | ANALYSIS REQUESTED |
|---|---|---|---|---|---|---|---|
| 98-A141380 | DAY 1 | 11.12.98 | | | X | 2 | CHLOROPHYLL-a |
| 98-A141381 | ORM 192-DAY 1-S | 11.12.98 | 1654 | | X | 3 | CHLOROPHYLL-a |
| 98-A141382 | ORM 224-DAY 1 | 11.12.98 | 1620 | | X | 3 | TDS (375.4), Cl (325.1), SO4 (375.4) |
| 98-A141383 | CC | 11.12.98 | 1613 | | X | 3 | TDS (375.4), Cl (325.1), SO4 (325.4) |

| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | Received for Laboratory by: | Date / Time |
|---|---|---|---|---|
| Dana M Bradford | 0132 11/13/98 | Darren Stanton | JM Mitchell | 11/13/98 3:20 |
| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | Remarks | |
| Darren Stanton | 11/13/98 3:20 | | | |
| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | | |
| ...ished by: (Signature) | Date / Time | Received by: (Signature) | SAI Project #: | |

For further assistance in completing the chain of custody form please refer to the instructions found on the opposite si

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2960 Foster Creighton Dr.
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Phone 1-615-726-0177

# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 0650/5
Project Name: OUACLUTA RIVER
Sampler: D. M. B.

Lab Number: 98-A141382
Sample ID: ORM 224-DAY 1
Sample Type: Water
Site ID:

Date Collected: 11/12/98
Time Collected: 11:20
Date Received: 11/13/98
Time Received: 15:20

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| *MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Sulfate | 15.9 | mg/l | 5.00 | 5.00 | 1 | 11/18/98 | 7:35 | G. Baun | 375.4 | 889 |
| Solids, Total Dissolved | 68.0 | mg/l | 20.0 | 20.0 | 1 | 11/16/98 | 10:30 | D. Hoover | 160.1 | 637 |
| Chloride | 8.56 | mg/l | 1.00 | 1.00 | 1 | 11/17/98 | 21:45 | G. Baun | 325.3 | 1175 |

ND = Not detected at the report limit.

Report Approved By: _____ Report Date: 11/20/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 0650/5
Project Name: OUACLUTA RIVER
Sampler: D. M. B.

Lab Number: 98-A141383
Sample ID: CC
Sample Type: Water
Site ID:

Date Collected: 11/12/98
Time Collected: 16:13
Date Received: 11/13/98
Time Received: 15:20

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Sulfate | 209. | mg/l | 50.0 | 5.00 | 10 | 11/18/98 | 7:35 | G. Baun | 375.4 | 889 |
| Solids, Total Dissolved | 1320 | mg/l | 20.0 | 20.0 | 1 | 11/16/98 | 10:30 | D. Hoover | 160.1 | 637 |
| Chloride | 312. | mg/l | 50.0 | 1.00 | 50 | 11/18/98 | 9:19 | G. Baun | 325.3 | 1175 |

ND = Not detected at the report limit.

Report Approved By: T. J. Ouello Report Date: 11/20/98

Theodore J. Ouello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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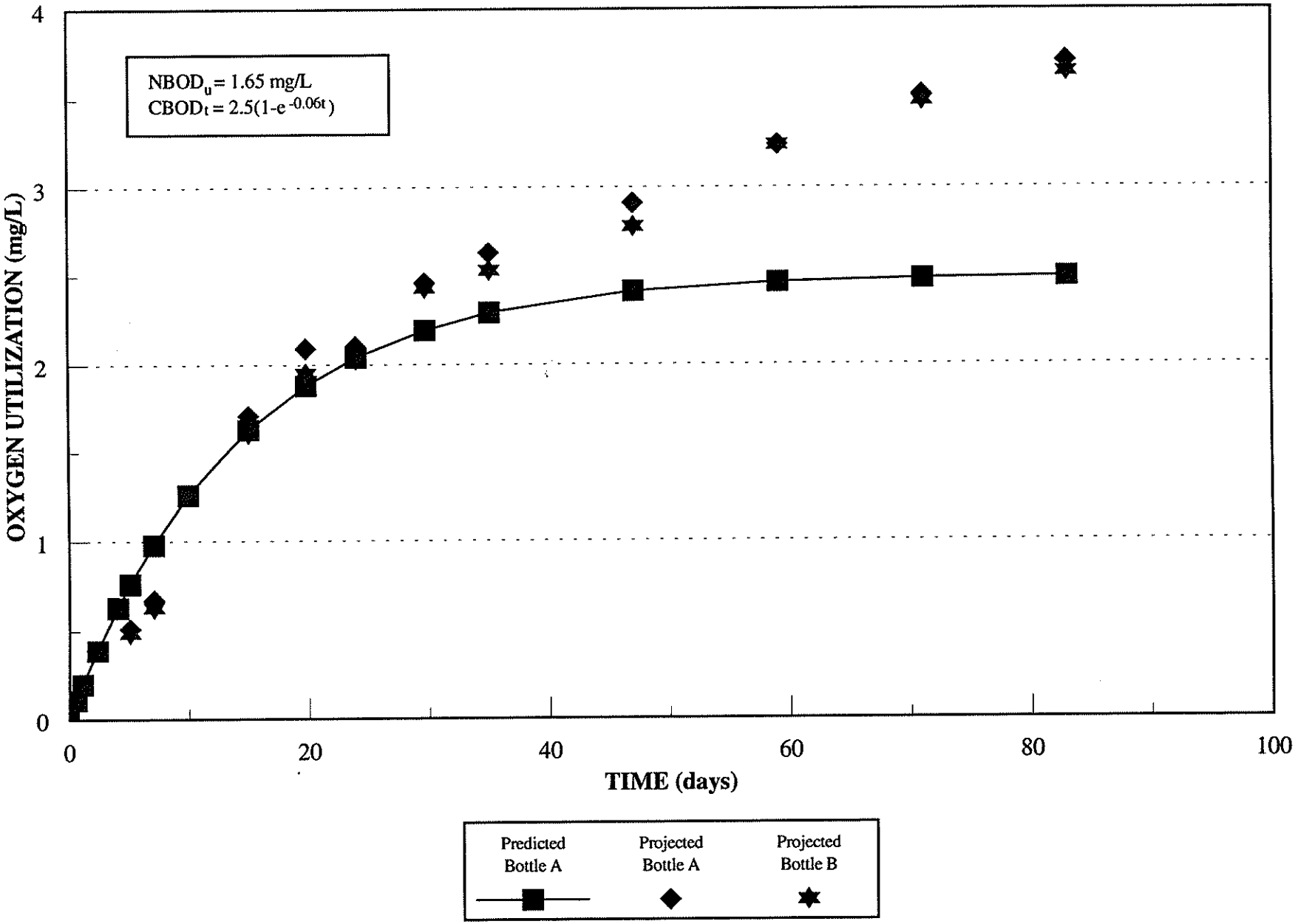
# TIME-SERIES BOD

## OUACHITA RIVER MILE 224




Data recorded November 10, 1998

STATION ORM 224

| | | | | | | | | | | | | 2.5<br>0.07 | 2.5<br>0.07 | 2.5<br>0.07 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COLLECTION DATE | SETUP TIME | READ DATE | READ TIME | READ TIME (hrs) | TOTAL TIME (hrs) | TOTAL TIME (days) | BOTTLE A O2 (mg/L) | BOTTLE B O2 (mg/L) | BOTTLE A O2 UPTAKE (mg/L) | BOTTLE B O2 UPTAKE (mg/L) | PREDICTED O2 UPTAKE (mg/L) | PROJECTED BOTTLE A O2 UPTAKE (mg/L) | PROJECTED BOTTLE B O2 UPTAKE (mg/L) |
| 10-Nov-98 | 13:10 | 10-Nov-98 | 13:10 | 13.1667 | 0.0000 | 0.0000 | 8.63 | 8.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | 11-Nov-98 | 05:07 | 29.1167 | 15.9500 | 0.6646 | 9.00 | 8.95 | -0.37 | -0.18 | 0.11 | 0.11 | 0.11 |
| | | 11-Nov-98 | 17:21 | 41.5833 | 28.4167 | 1.1840 | 9.06 | 9.06 | -0.43 | -0.29 | 0.20 | 0.20 | 0.20 |
| | | 12-Nov-98 | 22:46 | 71.0000 | 57.8333 | 2.4097 | 9.12 | 9.09 | -0.49 | -0.32 | 0.39 | 0.39 | 0.39 |
| | | 14-Nov-98 | 15:53 | 112.1167 | 98.9500 | 4.1229 | 9.03 | 9.13 | -0.40 | -0.36 | 0.63 | 0.63 | 0.63 |
| | | 15-Nov-98 | 16:35 | 136.8167 | 123.6500 | 5.1521 | 8.56 | 8.62 | 0.07 | 0.15 | 0.76 | 0.51 | 0.49 |
| | | 17-Nov-98 | 16:26 | 184.6667 | 171.5000 | 7.1458 | 8.16 | 8.28 | 0.47 | 0.49 | 0.98 | 0.67 | 0.63 |
| | | 20-Nov-98 | 13:31 | 253.7500 | 240.5834 | 10.0243 | 8.04 | 8.14 | 0.59 | 0.63 | 1.26 | 1.26 | 1.26 |
| | | 25-Nov-98 | 14:41 | 374.9167 | 361.7500 | 15.0729 | 7.59 | 7.79 | 1.04 | 0.98 | 1.63 | 1.71 | 1.61 |
| | | 30-Nov-98 | 09:44 | 489.9667 | 476.8000 | 19.8667 | 7.21 | 7.45 | 1.42 | 1.32 | 1.88 | 2.09 | 1.95 |
| | | 04-Dec-98 | 13:55 | 590.1500 | 576.9834 | 24.0410 | 7.20 | 7.37 | 1.43 | 1.40 | 2.04 | 2.10 | 2.03 |
| | | 10-Dec-98 | 07:45 | 727.9834 | 714.8167 | 29.7840 | 6.84 | 6.97 | 1.79 | 1.80 | 2.19 | 2.46 | 2.43 |
| | | 15-Dec-98 | 15:57 | 856.1834 | 843.0167 | 35.1257 | 6.67 | 6.87 | 1.96 | 1.90 | 2.29 | 2.63 | 2.53 |
| | | 28-Dec-98 | 15:49 | 1168.0500 | 1154.8834 | 48.1201 | 6.39 | 6.62 | 2.24 | 2.15 | 2.41 | 2.91 | 2.78 |
| | | 11-Jan-99 | 10:01 | 1498.2500 | 1485.0834 | 61.8785 | 6.06 | 6.16 | 2.57 | 2.61 | 2.47 | 3.24 | 3.24 |
| | | 26-Jan-99 | 07:46 | 1856.0000 | 1842.8334 | 76.7847 | 5.78 | 5.91 | 2.85 | 2.86 | 2.49 | 3.52 | 3.49 |
| | | 08-Feb-99 | 10:35 | 2170.8167 | 2157.6500 | 89.9021 | 5.59 | 5.75 | 3.04 | 3.02 | 2.50 | 3.71 | 3.65 |

$+\ 1.65$
$4.15$

$2.5$
$+\ 1.01$
$3.61$

$NBOD = 0.36 * 4.57 = 1.65$
$0.22 = 1.01$

$CBOD_t = 2.50(1 - e^{-0.07t})$

most likely ORM 224 TKN

## TABLE X. ORM 224 A MODEL CALIBRATION

| MODEL INPUT | | | | |
|---|---|---|---|---|
| **CBODu** | **k1** | **NBODU** | **A** | **kn** |
| 2.2 | 0.07 | 0.97794 | 4.67303 | 0.06536 |

| LABORATORY DATA | | | | BOD FROM DATA (mg/L) | MODEL BOD (mg/L) |
|---|---|---|---|---|---|
| **DATE** | **TIME** | **DAYS** | **DISSOLVED OXYGEN (mg/L)** | | |
| 10-Nov-98 | 13:10 | 0 | 8.63 | 0 | 0.0090532 |
| 11-Nov-98 | 05:07 | 0.66458333 | 9.00 | -0.37 | 0.10945294 |
| 11-Nov-98 | 17:21 | 1.17430556 | 9.06 | -0.43 | 0.18337802 |
| 12-Nov-98 | 22:46 | 2.4 | 9.12 | -0.49 | 0.3507957 |
| 14-Nov-98 | 15:53 | 4.11319444 | 9.03 | -0.4 | 0.56221036 |
| 15-Nov-98 | 16:35 | 5.14236111 | 8.56 | 0.07 | 0.67768192 |
| 17-Nov-98 | 16:26 | 7.13611111 | 8.16 | 0.47 | 0.87935656 |
| 20-Nov-98 | 13:31 | 10.0145833 | 8.04 | 0.59 | 1.12590012 |
| 25-Nov-98 | 14:41 | 15.0631944 | 7.59 | 1.04 | 1.45739604 |
| 30-Nov-98 | 09:44 | 19.8569444 | 7.21 | 1.42 | 1.68437719 |
| 04-Dec-98 | 13:55 | 24.03125 | 7.20 | 1.43 | 1.83293491 |
| 10-Dec-98 | 07:45 | 29.7743056 | 6.84 | 1.79 | 1.98635126 |
| 15-Dec-98 | 15:57 | 35.1159722 | 6.67 | 1.96 | 2.09469407 |
| 28-Dec-98 | 15:49 | 48.1104167 | 6.39 | 2.24 | 2.29844793 |
| 11-Jan-99 | 10:01 | 61.86875 | 6.06 | 2.57 | 2.51105717 |
| 26-Jan-99 | 07:46 | 76.775 | 5.78 | 2.85 | 2.76229108 |
| 08-Feb-99 | 10:35 | 89.8923611 | 5.59 | 3.04 | 2.94790662 |

## TABLE X. ORM 224 B MODEL CALIBRATION

| MODEL INPUT | | | | |
|---|---|---|---|---|
| **CBODu** | **k1** | **NBODU** | **A** | **kn** |
| 2 | 0.07 | 1.2 | 5.458 | 0.0804 |

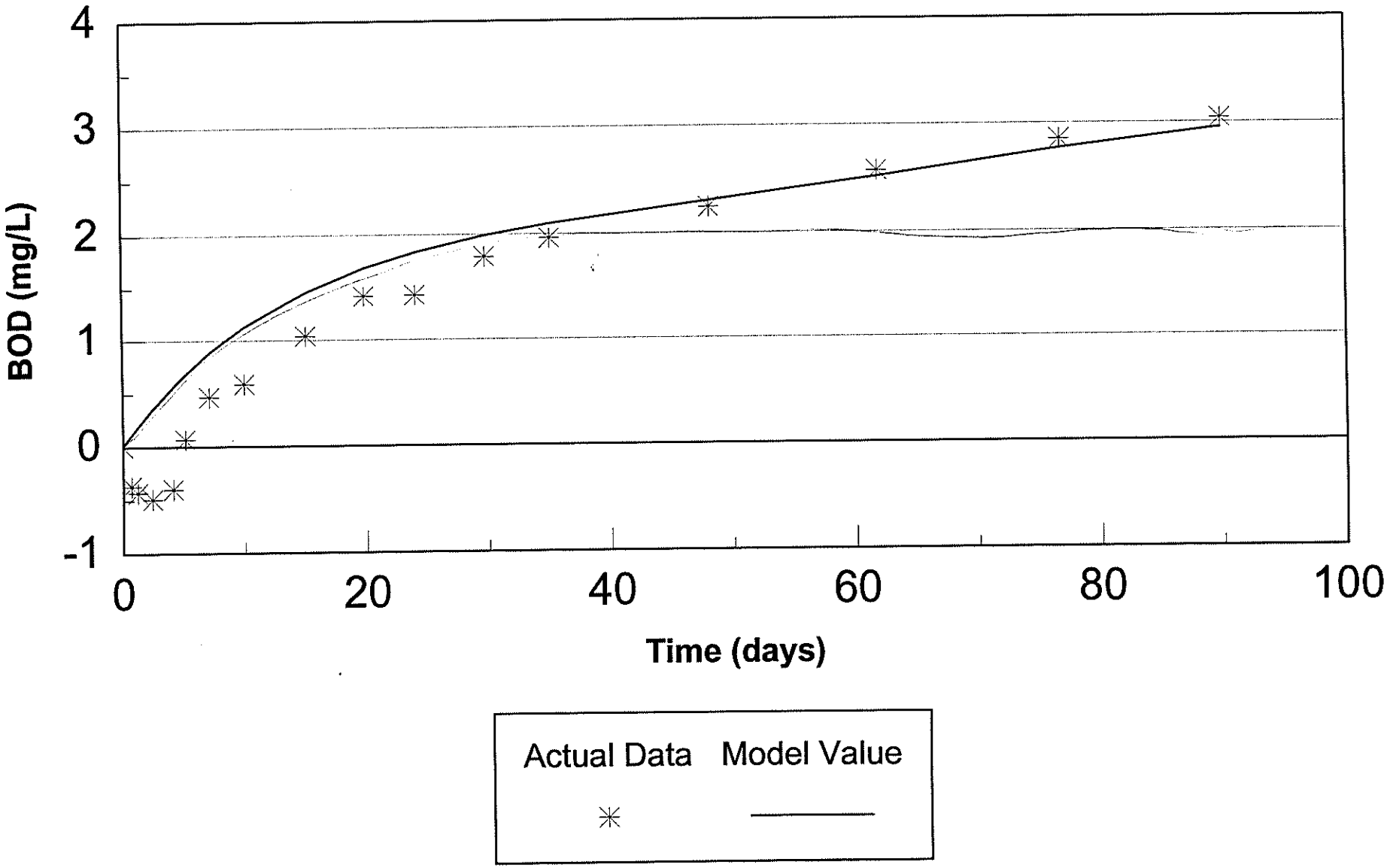
| LABORATORY DATA | | | | BOD FROM DATA (mg/L) | MODEL BOD (mg/L) |
|---|---|---|---|---|---|
| **DATE** | **TIME** | **DAYS** | **DISSOLVED OXYGEN (mg/L)** | | |
| 10-Nov-98 | 13:10 | 0 | 8.77 | 0 | 0.00509278 |
| 11-Nov-98 | 05:07 | 0.66458333 | 8.95 | -0.18 | 0.0962817 |
| 11-Nov-98 | 17:21 | 1.17430556 | 9.06 | -0.29 | 0.1634218 |
| 12-Nov-98 | 22:46 | 2.4 | 9.09 | -0.32 | 0.31546345 |
| 14-Nov-98 | 15:53 | 4.11319444 | 9.13 | -0.36 | 0.50743935 |
| 15-Nov-98 | 16:35 | 5.14236111 | 8.62 | 0.15 | 0.61228258 |
| 17-Nov-98 | 16:26 | 7.13611111 | 8.28 | 0.49 | 0.79537525 |
| 20-Nov-98 | 13:31 | 10.0145833 | 8.14 | 0.63 | 1.0191762 |
| 25-Nov-98 | 14:41 | 15.0631944 | 7.79 | 0.98 | 1.32014133 |
| 30-Nov-98 | 09:44 | 19.8569444 | 7.45 | 1.32 | 1.52656604 |
| 04-Dec-98 | 13:55 | 24.03125 | 7.37 | 1.4 | 1.66236802 |
| 10-Dec-98 | 07:45 | 29.7743056 | 6.97 | 1.8 | 1.80471994 |
| 15-Dec-98 | 15:57 | 35.1159722 | 6.87 | 1.9 | 1.909136 |
| 28-Dec-98 | 15:49 | 48.1104167 | 6.62 | 2.15 | 2.13433813 |
| 11-Jan-99 | 10:01 | 61.86875 | 6.16 | 2.61 | 2.431326 |
| 26-Jan-99 | 07:46 | 76.775 | 5.91 | 2.86 | 2.79646048 |
| 08-Feb-99 | 10:35 | 89.8923611 | 5.75 | 3.02 | 3.02155117 |

cBOD = 2.7
$K_1$ = .07
N = 0.97794
$\Delta$ = 4.673
$K_n$ = 0.06536

# TIME-SERIES BOD

## OUACHITA RIVER MILE 224

## SAMPLE A

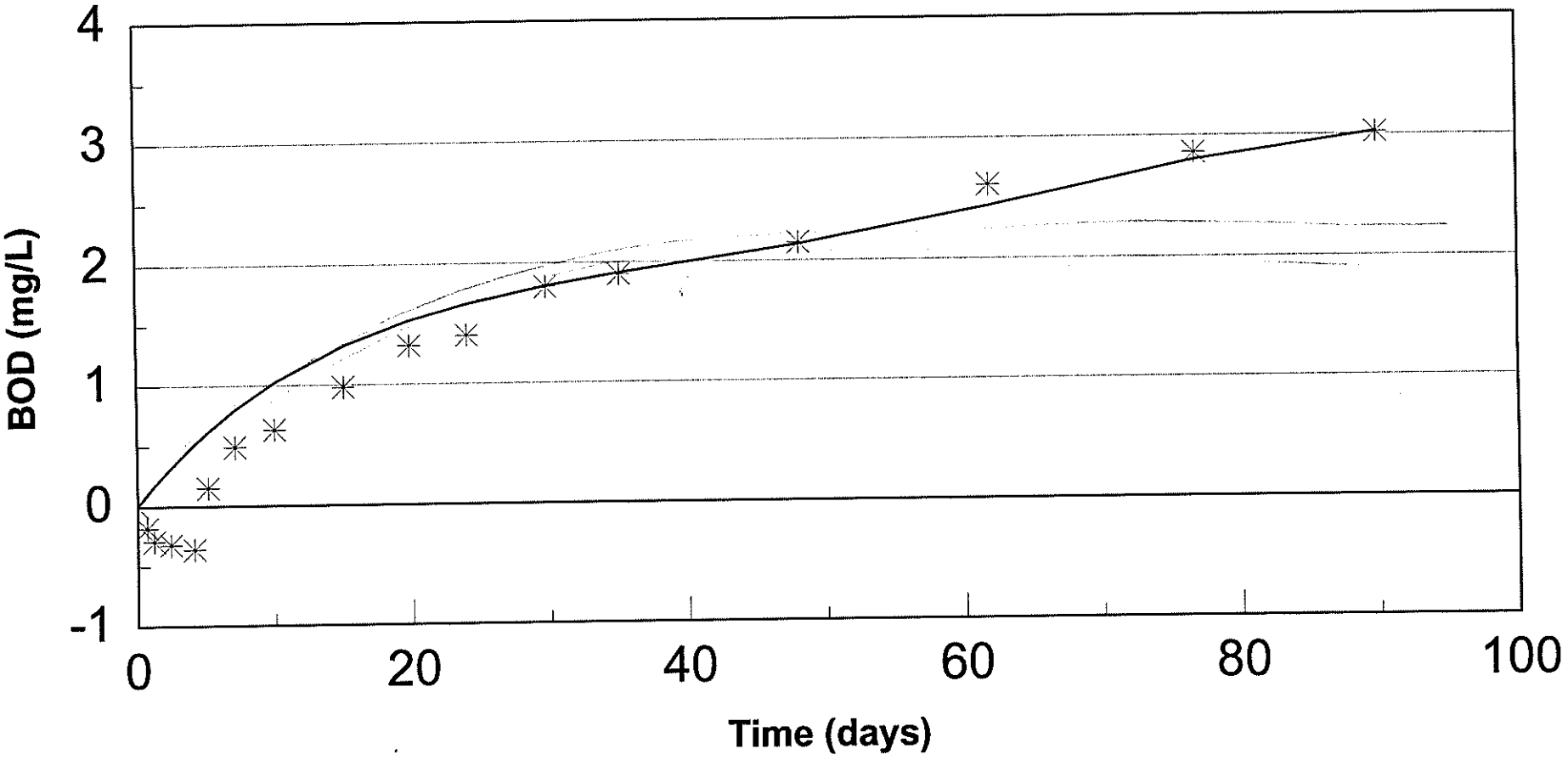


cBOD = 2.0
$K_1$ = .07
N = 1.2
A = 5.458
$K_n$ = 0.0809

# TIME-SERIES BOD

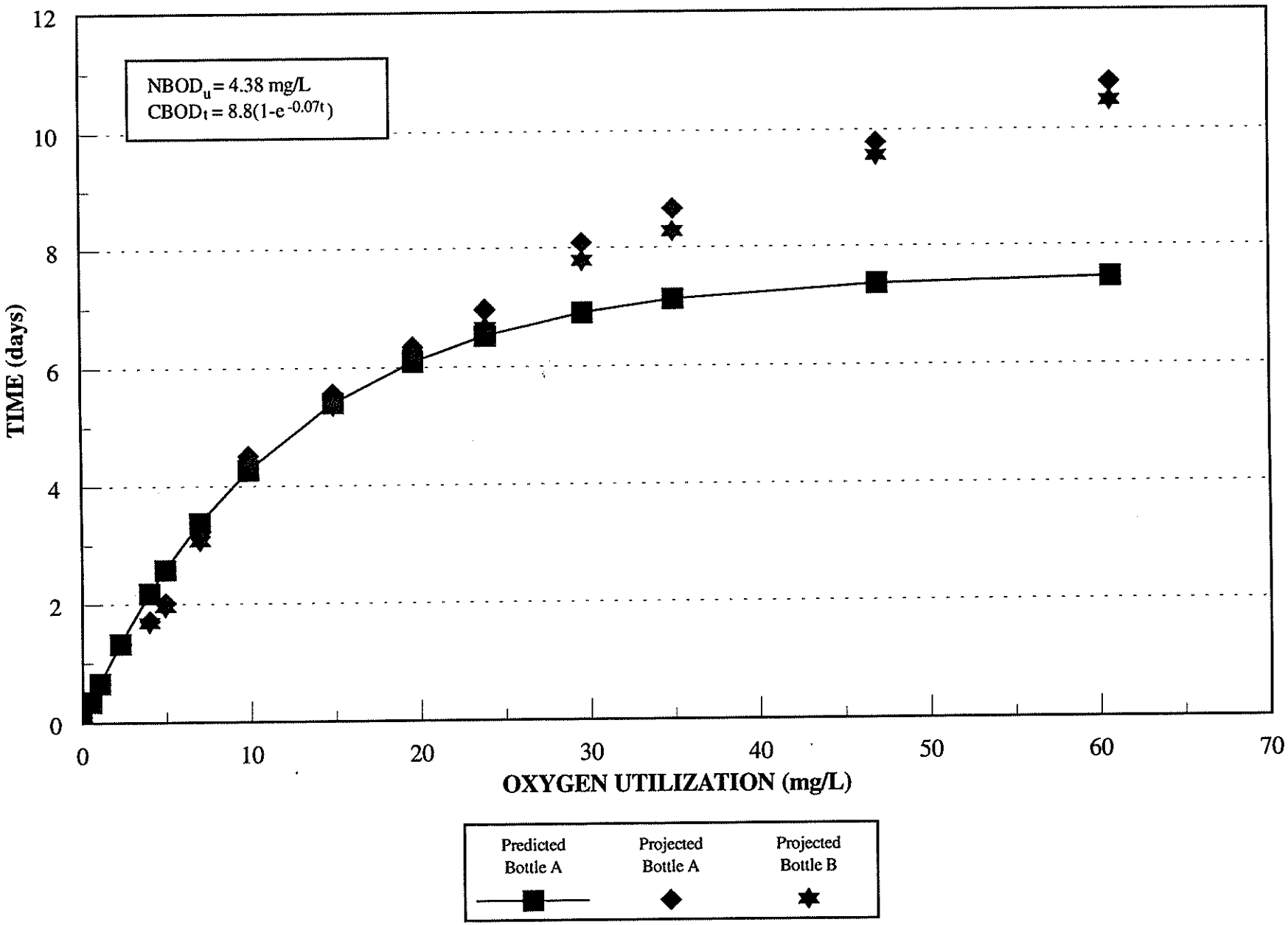
## OUACHITA RIVER MILE 224

## SAMPLE B



# TIME-SERIES BOD

10% COFFEE CREEK, 90% ORM 224




Data recorded November 10, 1998

TABLE _. OUACHITA RIVER TIME-SERIES BODS - 10 % COFFEE CREEK:90 % ORM 224

STATION 10 % COFFEE CREEK:90 % ORM 224

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | 8.8<br>0.07 | 8.8<br>0.07 | 8.8<br>0.07 |
| COLLECTION DATE | SETUP TIME | READ DATE | READ TIME | READ TIME (hrs) | TOTAL TIME (hrs) | TOTAL TIME (days) | BOTTLE A O2 (mg/L) | BOTTLE B O2 (mg/L) | BOTTLE A O2 UPTAKE (mg/L) | BOTTLE B O2 UPTAKE (mg/L) | PREDICTED O2 UPTAKE (mg/L) | PROJECTED BOTTLE A O2 UPTAKE (mg/L) | PROJECTED BOTTLE B O2 UPTAKE (mg/L) |
| 10-Nov-98 | 15:36 | 10-Nov-98 | 15:36 | 15.6000 | 0.0000 | 0.0000 | 8.82 | 8.86 | 0 | 0 | 0.00 | 0.00 | 0.00 |
| | | 11-Nov-98 | 05:17 | 29.2833 | 13.6833 | 0.5701 | 8.49 | 8.69 | 0.33 | 0.17 | 0.34 | 0.34 | 0.34 |
| | | 11-Nov-98 | 17:32 | 41.5333 | 25.9333 | 1.0806 | 8.53 | 8.58 | 0.29 | 0.28 | 0.64 | 0.64 | 0.64 |
| | | 12-Nov-98 | 22:55 | 70.9167 | 55.3167 | 2.3049 | 8.31 | 8.34 | 0.51 | 0.52 | 1.31 | 1.31 | 1.31 |
| | | 14-Nov-98 | 16:20 | 112.3333 | 96.7333 | 4.0306 | 7.93 | 7.99 | 0.89 | 0.87 | 2.16 | 1.69 | 1.66 |
| | | 15-Nov-98 | 14:43 | 134.7167 | 119.1167 | 4.9632 | 7.63 | 7.72 | 1.19 | 1.14 | 2.58 | 1.99 | 1.93 |
| | | 17-Nov-98 | 16:31 | 184.5167 | 168.9167 | 7.0382 | 6.49 | 6.60 | 2.33 | 2.26 | 3.42 | 3.13 | 3.05 |
| | | 20-Nov-98 | 13:47 | 253.7833 | 238.1833 | 9.9243 | 5.13 | 5.25 | 3.69 | 3.61 | 4.41 | 4.49 | 4.40 |
| | | 25-Nov-98 | 14:32 | 374.5333 | 358.9333 | 14.9556 | 4.08 | 4.32 | 4.74 | 4.54 | 5.71 | 5.54 | 5.33 |
| | | 30-Nov-98 | 07:35 | 487.5833 | 471.9833 | 19.6660 | 3.30 | 3.46 | 5.52 | 5.4 | 6.58 | 6.32 | 6.19 |
| | | 04-Dec-98 | 13:40 | 589.6667 | 574.0667 | 23.9194 | 2.68 * | 3.01 * | 6.14 | 5.85 | 7.15 | 6.94 | 6.64 |
| | | 04-Dec-98 | 14:30 | 590.5000 | 574.9000 | 23.9542 | 8.25 * | 8.23 * | 6.14 | 5.85 | 7.15 | 6.94 | 6.64 |
| | | 10-Dec-98 | 07:52 | 727.8667 | 712.2667 | 29.6778 | 7.13 | 7.11 | 7.26 | 6.97 | 7.70 | 8.06 | 7.76 |
| | | 15-Dec-98 | 16:03 | 856.0500 | 840.4500 | 35.0188 | 6.55 | 6.62 | 7.84 | 7.46 | 8.04 | 8.64 | 8.25 |
| | | 28-Dec-98 | 15:43 | 1,167.7167 | 1,152.1167 | 48.0049 | 5.43 | 5.33 | 8.96 | 8.75 | 8.49 | 9.76 | 9.54 |
| | | 11-Jan-99 | 10:12 | 1,498.2000 | 1,482.6000 | 61.7750 | 4.43 | 4.42 | 9.96 | 9.66 | 8.68 | 10.76 | 10.45 |
| | | 26-Jan-99 | 07:56 | 1,852.6833 | 1,837.0833 | 76.5451 | 3.92 | 3.25 | 10.47 | 10.83 | 8.76 | 11.27 | 11.62 |
| | | 27-Jan-99 | 14:52 | 1,883.6167 | 1,868.0167 | 77.8340 | 3.82 * | 3.15 * | 10.57 | 10.93 | 8.76 | 11.37 | 11.72 |
| | | 27-Jan-99 | 15:25 | 1,885.9000 | 1,870.3000 | 77.9292 | 8.49 * | 8.32 * | 10.57 | 10.93 | 8.76 | ~~11.37~~ | ~~11.72~~ |
| | | 08-Feb-99 | 11:02 | 2,169.5167 | 2,153.9167 | 89.7465 | 6.69 | 6.94 | 12.37 | 12.31 | 8.78 | 13.17 | 13.10 |

* Values recorded before and after re-aeration of the sample- DNS

4.38
13.18

$NBOD = 0.96 * 4.57 = 4.38\ mg/L$

$CBOD_t = 8.8\left(1 - e^{-0.07t}\right)$

$(CBOD_u)(1.0) = (CBOD_{u,ORM\ 224})(0.9) + (CBOD_{u,CP})(0.1)$

$(8.8 mg/L) = (2.5)(0.9) + (0.1)(CBOD_{u,CC})$

$CBOD_{u,CC} = \frac{8.8 - 2.25}{0.1} = 65.5\ mg/L$

$CBOD_{5,CC} = 65.5\left(1 - e^{-0.070 * 5}\right) = 19.34$

$\frac{CBOD_u}{CBOD_5} = 3.39$

TABLE _. OUACHITA RIVER TIME-SERIES BODS - 10 % COFFEE CREEK:90 % ORM 224

STATION 10 % COFFEE CREEK:90 % ORM 224

| | | |
|---|---|---|
| 8.8 | 8.8 | 8.8 |
| 0.07 | 0.07 | 0.07 |

| COLLECTION DATE | SETUP TIME | READ DATE | READ TIME | READ TIME (hrs) | TOTAL TIME (hrs) | TOTAL TIME (days) | BOTTLE A O2 (mg/L) | BOTTLE B O2 (mg/L) | BOTTLE A O2 UPTAKE (mg/L) | BOTTLE B O2 UPTAKE (mg/L) | PREDICTED O2 UPTAKE (mg/L) | PROJECTED BOTTLE A O2 UPTAKE (mg/L) | PROJECTED BOTTLE B O2 UPTAKE (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10-Nov-98 | 15:36 | 10-Nov-98 | 15:36 | 15.6000 | 0.0000 | 0.0000 | 8.82 | 8.86 | 0 | 0 | 0.00 | 0.00 | 0.00 |
| | | 11-Nov-98 | 05:17 | 29.2833 | 13.6833 | 0.5701 | 8.49 | 8.69 | 0.33 | 0.17 | 0.34 | 0.34 | 0.34 |
| | | 11-Nov-98 | 17:32 | 41.5333 | 25.9333 | 1.0806 | 8.53 | 8.58 | 0.29 | 0.28 | 0.64 | 0.64 | 0.64 |
| | | 12-Nov-98 | 22:55 | 70.9167 | 55.3167 | 2.3049 | 8.31 | 8.34 | 0.51 | 0.52 | 1.31 | 1.31 | 1.31 |
| | | 14-Nov-98 | 16:20 | 112.3333 | 96.7333 | 4.0306 | 7.93 | 7.99 | 0.89 | 0.87 | 2.16 | 1.69 | 1.66 |
| | | 15-Nov-98 | 14:43 | 134.7167 | 119.1167 | 4.9632 | 7.63 | 7.72 | 1.19 | 1.14 | 2.58 | 1.99 | 1.93 |
| | | 17-Nov-98 | 16:31 | 184.5167 | 168.9167 | 7.0382 | 6.49 | 6.60 | 2.33 | 2.26 | 3.42 | 3.13 | 3.05 |
| | | 20-Nov-98 | 13:47 | 253.7833 | 238.1833 | 9.9243 | 5.13 | 5.25 | 3.69 | 3.61 | 4.41 | 4.49 | 4.40 |
| | | 25-Nov-98 | 14:32 | 374.5333 | 358.9333 | 14.9556 | 4.08 | 4.32 | 4.74 | 4.54 | 5.71 | 5.54 | 5.33 |
| | | 30-Nov-98 | 07:35 | 487.5833 | 471.9833 | 19.6660 | 3.30 | 3.46 | 5.52 | 5.4 | 6.58 | 6.32 | 6.19 |
| | | 04-Dec-98 | 13:40 | 589.6667 | 574.0667 | 23.9194 | 2.68 * | 3.01 * | 6.14 | 5.85 | 7.15 | 6.94 | 6.64 |
| | | 04-Dec-98 | 14:30 | 590.5000 | 574.9000 | 23.9542 | 8.25 * | 8.23 * | 6.14 | 5.85 | 7.15 | 6.94 | 6.64 |
| | | 10-Dec-98 | 07:52 | 727.8667 | 712.2667 | 29.6778 | 7.13 | 7.11 | 7.26 | 6.97 | 7.70 | 8.06 | 7.76 |
| | | 15-Dec-98 | 16:03 | 856.0500 | 840.4500 | 35.0188 | 6.55 | 6.62 | 7.84 | 7.46 | 8.04 | 8.64 | 8.25 |
| | | 28-Dec-98 | 15:43 | 1,167.7167 | 1,152.1167 | 48.0049 | 5.43 | 5.33 | 8.96 | 8.75 | 8.49 | 9.76 | 9.54 |
| | | 11-Jan-99 | 10:12 | 1,498.2000 | 1,482.6000 | 61.7750 | 4.43 | 4.42 | 9.96 | 9.66 | 8.68 | 10.76 | 10.45 |
| | | 26-Jan-99 | 07:56 | 1,852.6833 | 1,837.0833 | 76.5451 | 3.92 | 3.25 | 10.47 | 10.83 | 8.76 | 11.27 | 11.62 |
| | | 27-Jan-99 | 14:52 | 1,883.6167 | 1,868.0167 | 77.8340 | 3.82 * | 3.15 * | 10.57 | 10.93 | 8.76 | 11.37 | 11.72 |
| | | 27-Jan-99 | 15:25 | 1,885.9000 | 1,870.3000 | 77.9292 | 8.49 * | 8.32 * | 10.57 | 10.93 | 8.76 | 11.37 | 11.72 |
| | | 08-Feb-99 | 11:02 | 2,169.5167 | 2,153.9167 | 89.7465 | 6.69 | 6.94 | 12.37 | 12.31 | 8.78 | 13.17 | 13.10 |

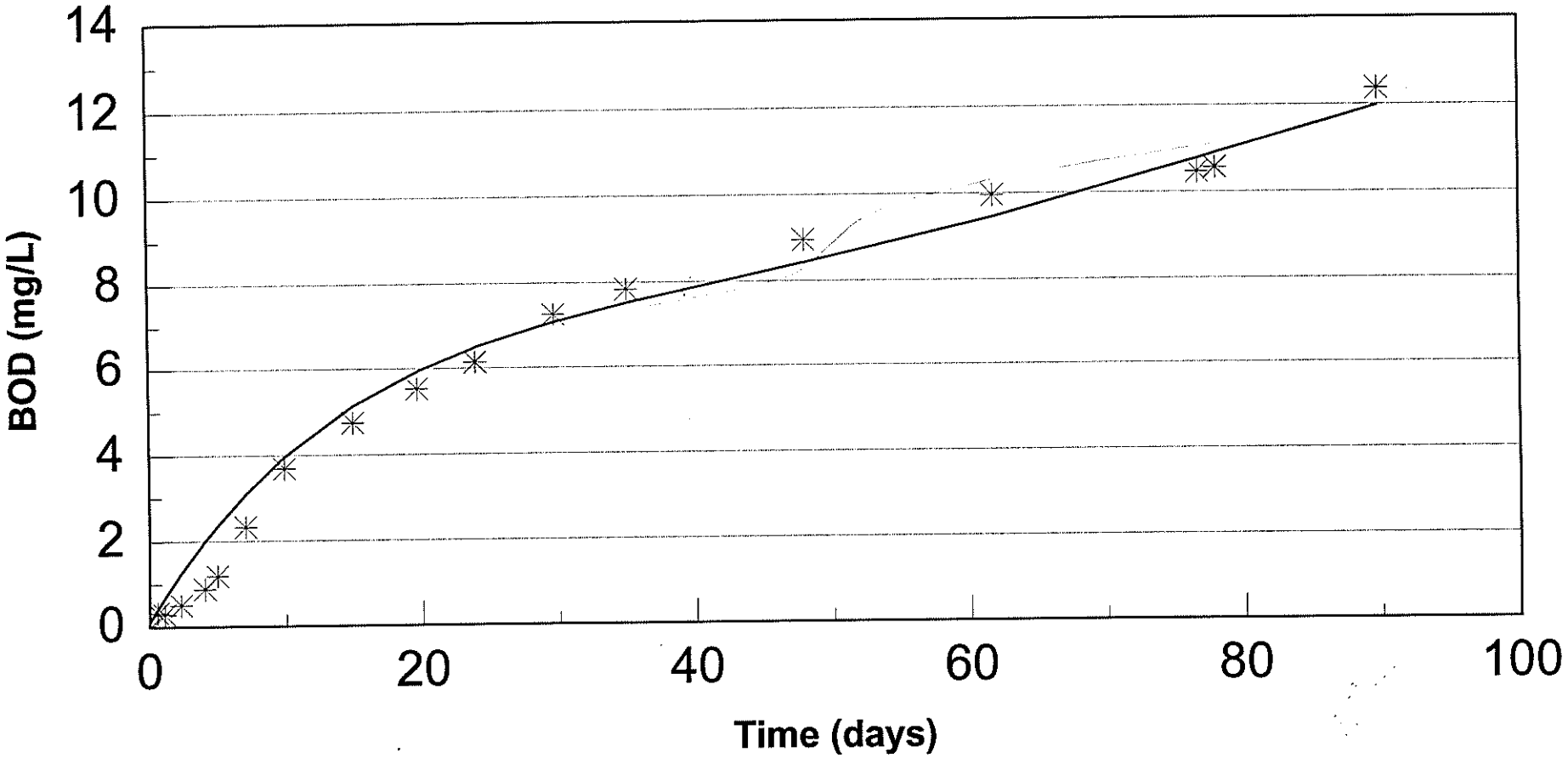
* Values recorded before and after re-aeration of the sample- DNS

# TIME-SERIES BOD

## 10% COFFEE CREEK

## SAMPLE A

$CBOD$ 7.5
$K_1 = 0.07$
$N = 7.055$
$A = 4.081$
$K_n = 0.0516$

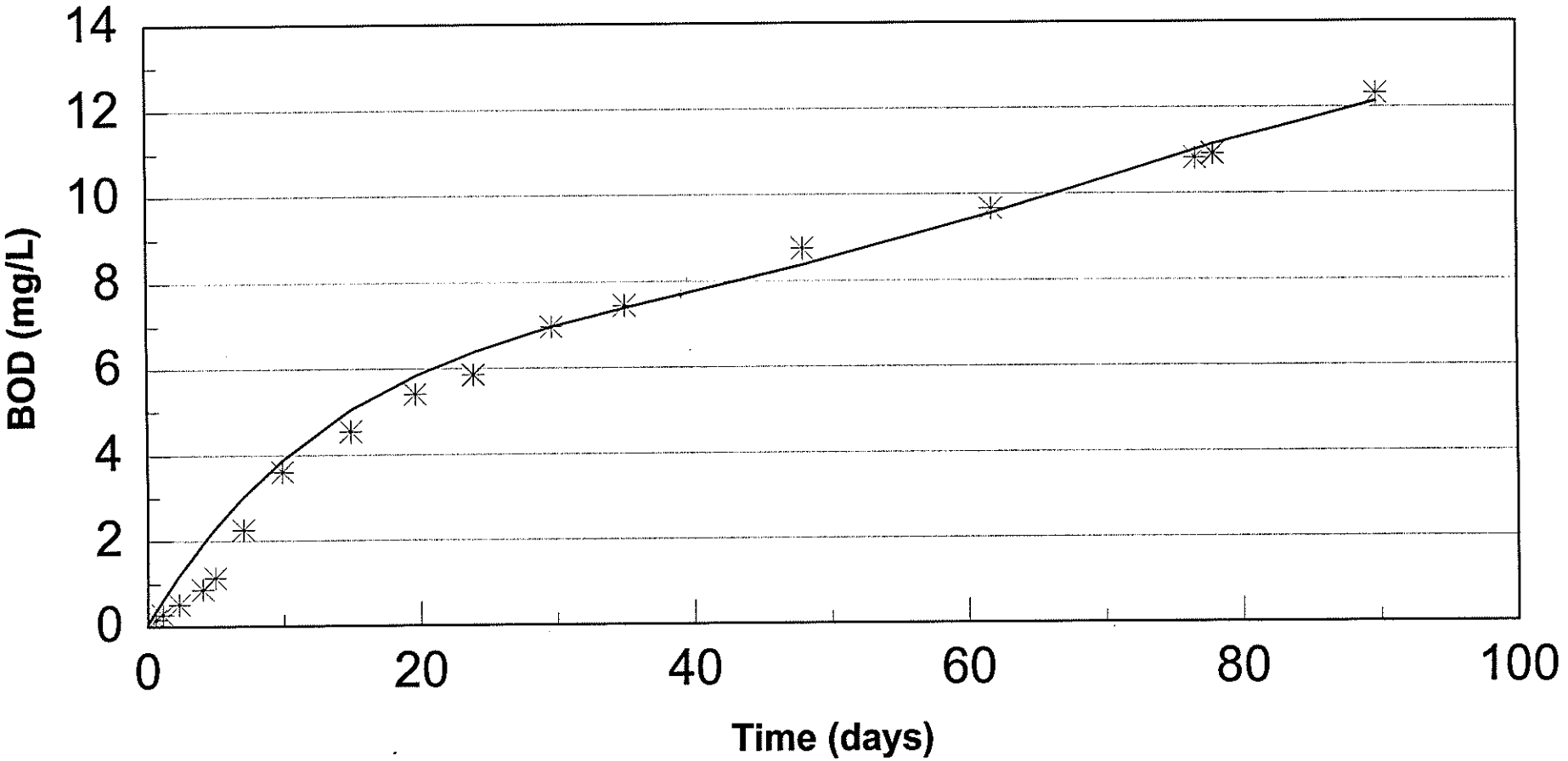


# TIME-SERIES BOD

## 10% COFFEE CREEK

## SAMPLE B

CBOD 7.5
$K_1$ 0.07
N 6.0456
A = 4.5545
$K_1$ = 0.06397



## TABLE X. 10% COFFEE CREEK MODEL CALIBRATION SAMPLE A

| MODEL INPUT | | | | |
|---|---|---|---|---|
| **CBODu** | **k1** | **NBODU** | **A** | **kn** |
| 7.5 | 0.07 | 7.055 | 4.081 | 0.0516 |

| LABORATORY DATA | | | | BOD FROM DATA (mg/L) | MODEL BOD (mg/L) |
|---|---|---|---|---|---|
| **DATE** | **TIME** | **DAYS** | **DISSOLVED OXYGEN (mg/L)** | | |
| 10-Nov-98 | 15:36 | 0.00 | 8.82 | 0 | 0.12 |
| 11-Nov-98 | 05:17 | 0.57 | 8.49 | 0.33 | 0.41 |
| 11-Nov-98 | 17:32 | 1.08 | 8.53 | 0.29 | 0.67 |
| 12-Nov-98 | 22:55 | 2.30 | 8.31 | 0.51 | 1.25 |
| 14-Nov-98 | 16:20 | 4.03 | 7.93 | 0.89 | 1.99 |
| 15-Nov-98 | 14:43 | 4.96 | 7.63 | 1.19 | 2.35 |
| 17-Nov-98 | 16:31 | 7.04 | 6.49 | 2.33 | 3.08 |
| 20-Nov-98 | 13:47 | 9.92 | 5.13 | 3.69 | 3.95 |
| 25-Nov-98 | 14:32 | 14.96 | 4.08 | 4.74 | 5.12 |
| 30-Nov-98 | 07:35 | 19.67 | 3.3 | 5.52 | 5.92 |
| 04-Dec-98 | 13:40 | 23.92 | 2.68 | 6.14 | 6.48 |
| 04-Dec-98 | 14:30 | 23.95 | 8.25 | 6.14 | 6.49 |
| 10-Dec-98 | 07:52 | 29.68 | 7.13 | 7.26 | 7.07 |
| 15-Dec-98 | 16:03 | 35.02 | 6.55 | 7.84 | 7.51 |
| 28-Dec-98 | 15:43 | 48.00 | 5.43 | 8.96 | 8.42 |
| 11-Jan-99 | 10:12 | 61.78 | 4.43 | 9.96 | 9.45 |
| 26-Jan-99 | 07:56 | 76.68 | 3.92 | 10.47 | 10.77 |
| 27-Jan-99 | 14:52 | 77.97 | 3.82 | 10.57 | 10.89 |
| 27-Jan-99 | 15:25 | 77.99 | 8.49 | 10.57 | 10.90 |
| 08-Feb-99 | 11:02 | 89.81 | 6.69 | 12.37 | 11.97 |

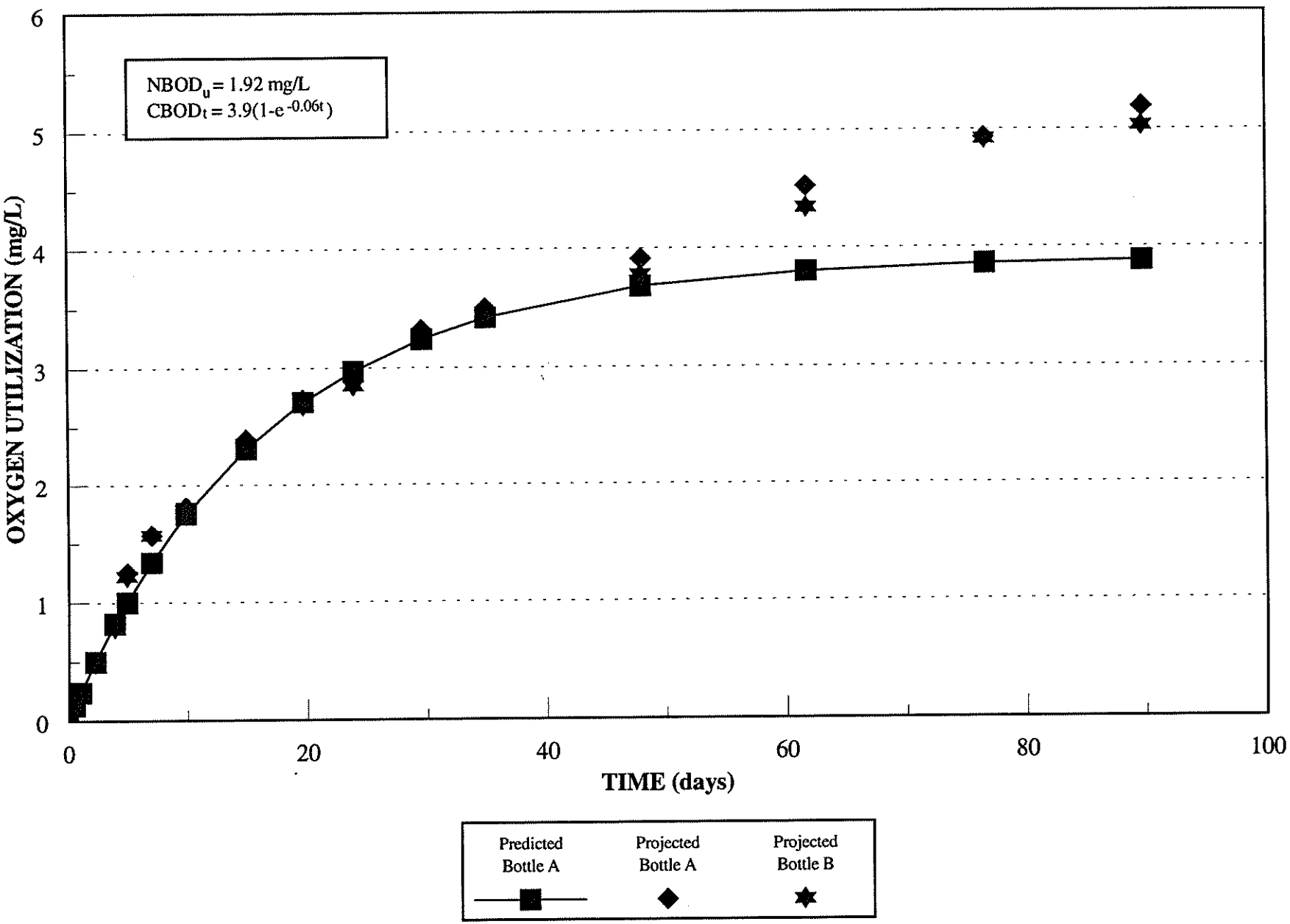
## TABLE X. 10% COFFEE CREEK MODEL CALIBRATION SAMPLE B

| MODEL INPUT | | | | |
|---|---|---|---|---|
| **CBODu** | **k1** | **NBODU** | **A** | **kn** |
| 7.5 | 0.07 | 6.04563 | 4.5545 | 0.06397 |

| LABORATORY DATA | | | | BOD FROM DATA (mg/L) | MODEL BOD (mg/L) | Model Carbonaceous BOD (mg/L) |
|---|---|---|---|---|---|---|
| **DATE** | **TIME** | **DAYS** | **DISSOLVED OXYGEN (mg/L)** | | | |
| 10-Nov-98 | 15:36 | 0.00 | 8.86 | 0 | 0.06 | 0.00 |
| 11-Nov-98 | 05:17 | 0.57 | 8.69 | 0.17 | 0.36 | 0.29 |
| 11-Nov-98 | 17:32 | 1.08 | 8.58 | 0.28 | 0.61 | 0.55 |
| 12-Nov-98 | 22:55 | 2.30 | 8.34 | 0.52 | 1.19 | 1.12 |
| 14-Nov-98 | 16:20 | 4.03 | 7.99 | 0.87 | 1.92 | 1.84 |
| 15-Nov-98 | 14:43 | 4.96 | 7.72 | 1.14 | 2.29 | 2.20 |
| 17-Nov-98 | 16:31 | 7.04 | 6.60 | 2.26 | 3.02 | 2.92 |
| 20-Nov-98 | 13:47 | 9.92 | 5.25 | 3.61 | 3.87 | 3.76 |
| 25-Nov-98 | 14:32 | 14.96 | 4.32 | 4.54 | 5.03 | 4.87 |
| 30-Nov-98 | 07:35 | 19.67 | 3.46 | 5.4 | 5.82 | 5.61 |
| 04-Dec-98 | 13:40 | 23.92 | 3.01 | 5.85 | 6.37 | 6.09 |
| 04-Dec-98 | 14:30 | 23.95 | 8.23 | 5.85 | 6.38 | 6.10 |
| 10-Dec-98 | 07:52 | 29.68 | 7.11 | 6.97 | 6.96 | 6.56 |
| 15-Dec-98 | 16:03 | 35.02 | 6.62 | 7.46 | 7.40 | 6.85 |
| 28-Dec-98 | 15:43 | 48.00 | 5.33 | 8.75 | 8.36 | 7.24 |
| 11-Jan-99 | 10:12 | 61.78 | 4.42 | 9.66 | 9.54 | 7.40 |
| 26-Jan-99 | 07:56 | 76.68 | 3.25 | 10.83 | 11.01 | 7.47 |
| 27-Jan-99 | 14:52 | 77.97 | 3.15 | 10.93 | 11.14 | 7.47 |
| 27-Jan-99 | 15:25 | 77.99 | 8.32 | 10.93 | 11.14 | 7.47 |
| 08-Feb-99 | 11:02 | 89.81 | 6.94 | 12.31 | 12.12 | 7.49 |

# TIME-SERIES BOD

## OUACHITA RIVER MILE 218.7




Data recorded November 10, 1998

TABLE _. OUACHITA RIVER TIME-SERIES BODS - ORM 218.7

STATION ORM 218.7

| | | | | | | | | | | | | 0.06<br>3.9 | 0.06<br>3.8 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COLLECTION DATE | SETUP TIME | READ DATE | | READ TIME | READ TIME (hrs) | TOTAL TIME (hrs) | TOTAL TIME (days) | BOTTLE A O2 (mg/L) | BOTTLE B O2 (mg/L) | BOTTLE A O2 UPTAKE (mg/L) | BOTTLE B O2 UPTAKE (mg/L) | PREDICTED BOTTLE A O2 UPTAKE (mg/L) | PREDICTED BOTTLE B O2 UPTAKE (mg/L) | BOTTLE A O2 UPTAKE ADJUSTED (mg/L) | BOTTLE B O2 UPTAKE ADJUSTED (mg/L) |
| 10-Nov-98 | 15:55 | 36109.00 | | 15:55 | 15.9167 | 0.0000 | 0.0000 | 8.67 | 8.67 | 0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | 36110.00 | 1.00 | 05:28 | 29.4667 | 13.5500 | 0.5646 | 9.08 | 9.02 | -0.41 | -0.35 | 0.13 | 0.13 | 0.13 | 0.13 |
| | | 36110.00 | 1.00 | 17:43 | 41.7167 | 25.8000 | 1.0750 | 9.02 | 8.93 | -0.35 | -0.26 | 0.24 | 0.24 | 0.24 | 0.24 |
| | | 36111.00 | 2.00 | 23:13 | 71.2167 | 55.3000 | 2.3042 | 9.03 | 8.99 | -0.36 | -0.32 | 0.50 | 0.49 | 0.50 | 0.49 |
| | | 36113.00 | 4.00 | 13:48 | 109.8000 | 93.8833 | 3.9118 | 8.95 | 8.89 | -0.28 | -0.22 | 0.82 | 0.79 | 0.82 | 0.79 |
| | | 36114.00 | 5.00 | 14:54 | 134.9000 | 118.9833 | 4.9576 | 8.91 | 8.60 | -0.24 | 0.07 | 1.00 | 0.98 | 1.25 | 1.22 |
| | | 36116.00 | 7.00 | 16:35 | 184.5833 | 168.6667 | 7.0278 | 8.35 | 8.32 | 0.32 | 0.35 | 1.34 | 1.31 | 1.57 | 1.57 |
| | | 36119.00 | 10.00 | 13:52 | 253.8667 | 237.9500 | 9.9146 | 8.11 | 8.08 | 0.56 | 0.59 | 1.75 | 1.70 | 1.81 | 1.81 |
| | | 36124.00 | 15.00 | 14:45 | 374.7500 | 358.8333 | 14.9514 | 7.53 | 7.55 | 1.14 | 1.12 | 2.31 | 2.25 | 2.39 | 2.34 |
| | | 36129.00 | 20.00 | 09:53 | 489.8833 | 473.9667 | 19.7486 | 7.19 | 7.21 | 1.48 | 1.46 | 2.71 | 2.64 | 2.73 | 2.68 |
| | | 36133.00 | 24.00 | 14:52 | 590.8667 | 574.9500 | 23.9562 | 7.01 | 7.04 | 1.66 | 1.63 | 2.97 | 2.90 | 2.91 | 2.85 |
| | | 36139.00 | 30.00 | 08:10 | 728.1667 | 712.2500 | 29.6771 | 6.60 | 6.65 | 2.07 | 2.02 | 3.24 | 3.16 | 3.32 | 3.24 |
| | | 36144.00 | 35.00 | 16:10 | 856.1667 | 840.2500 | 35.0104 | 6.42 | 6.43 | 2.25 | 2.24 | 3.42 | 3.33 | 3.5 | 3.46 |
| | | 36157.00 | 48.00 | 15:31 | 1167.5167 | 1151.6000 | 47.9833 | 6.01 | 6.11 | 2.66 | 2.58 | 3.68 | 3.59 | 3.91 | 3.78 |
| | | 36171.00 | 62.00 | 10:20 | 1498.3333 | 1482.4167 | 61.7674 | 5.40 | 5.55 | 3.27 | 3.12 | 3.80 | 3.71 | 4.52 | 4.34 |
| | | 36186.00 | 77.00 | 07:56 | 1855.9333 | 1840.0167 | 76.6674 | 4.99 | 4.97 | 3.68 | 3.7 | 3.86 | 3.76 | 4.93 | 4.92 |
| | | 36199.00 | 90.00 | 11:01 | 2171.0167 | 2155.1000 | 89.7958 | 4.73 | 4.86 | 3.94 | 3.81 | 3.88 | 3.78 | 5.19 | 5.03 |
| | | 89.80 | | | | | | | | | | | | | |

$NBOD_u \approx 1.92$ mg/L

$CBOD_t = 3.9\left(1 - e^{-0.06t}\right)$

TABLE _. OUACHITA RIVER TIME-SERIES BODS - ORM 218.7

STATION ORM 218.7

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | 0.06 | 0.06 | | |
| | | | | | | | | | | | | 3.9 | 3.8 | | |
| COLLECTION DATE | SETUP TIME | READ DATE | | READ TIME | READ TIME (hrs) | TOTAL TIME (hrs) | TOTAL TIME (days) | BOTTLE A O2 (mg/L) | BOTTLE B O2 (mg/L) | BOTTLE A O2 UPTAKE (mg/L) | BOTTLE B O2 UPTAKE (mg/L) | PREDICTED BOTTLE A O2 UPTAKE (mg/L) | PREDICTED BOTTLE B O2 UPTAKE (mg/L) | BOTTLE A O2 UPTAKE ADJUSTED (mg/L) | BOTTLE B O2 UPTAKE ADJUSTED (mg/L) |
| 10-Nov-98 | 15:55 | 36109.00 | | 15:55 | 15.9167 | 0.0000 | 0.0000 | 8.67 | 8.67 | 0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | 36110.00 | 1.00 | 05:28 | 29.4667 | 13.5500 | 0.5646 | 9.08 | 9.02 | -0.41 | -0.35 | 0.13 | 0.13 | 0.13 | 0.13 |
| | | 36110.00 | 1.00 | 17:43 | 41.7167 | 25.8000 | 1.0750 | 9.02 | 8.93 | -0.35 | -0.26 | 0.24 | 0.24 | 0.24 | 0.24 |
| | | 36111.00 | 2.00 | 23:13 | 71.2167 | 55.3000 | 2.3042 | 9.03 | 8.99 | -0.36 | -0.32 | 0.50 | 0.49 | 0.50 | 0.49 |
| | | 36113.00 | 4.00 | 13:48 | 109.8000 | 93.8833 | 3.9118 | 8.95 | 8.89 | -0.28 | -0.22 | 0.82 | 0.79 | 0.82 | 0.79 |
| | | 36114.00 | 5.00 | 14:54 | 134.9000 | 118.9833 | 4.9576 | 8.91 | 8.60 | -0.24 | 0.07 | 1.00 | 0.98 | 1.25 | 1.22 |
| | | 36116.00 | 7.00 | 16:35 | 184.5833 | 168.6667 | 7.0278 | 8.35 | 8.32 | 0.32 | 0.35 | 1.34 | 1.31 | 1.57 | 1.57 |
| | | 36119.00 | 10.00 | 13:52 | 253.8667 | 237.9500 | 9.9146 | 8.11 | 8.08 | 0.56 | 0.59 | 1.75 | 1.70 | 1.81 | 1.81 |
| | | 36124.00 | 15.00 | 14:45 | 374.7500 | 358.8333 | 14.9514 | 7.53 | 7.55 | 1.14 | 1.12 | 2.31 | 2.25 | 2.39 | 2.34 |
| | | 36129.00 | 20.00 | 09:53 | 489.8833 | 473.9667 | 19.7486 | 7.19 | 7.21 | 1.48 | 1.46 | 2.71 | 2.64 | 2.73 | 2.68 |
| | | 36133.00 | 24.00 | 14:52 | 590.8667 | 574.9500 | 23.9562 | 7.01 | 7.04 | 1.66 | 1.63 | 2.97 | 2.90 | 2.91 | 2.85 |
| | | 36139.00 | 30.00 | 08:10 | 728.1667 | 712.2500 | 29.6771 | 6.60 | 6.65 | 2.07 | 2.02 | 3.24 | 3.16 | 3.32 | 3.24 |
| | | 36144.00 | 35.00 | 16:10 | 856.1667 | 840.2500 | 35.0104 | 6.42 | 6.43 | 2.25 | 2.24 | 3.42 | 3.33 | 3.5 | 3.46 |
| | | 36157.00 | 48.00 | 15:31 | 1167.5167 | 1151.6000 | 47.9833 | 6.01 | 6.11 | 2.66 | 2.56 | 3.68 | 3.59 | 3.91 | 3.78 |
| | | 36171.00 | 62.00 | 10:20 | 1498.3333 | 1482.4167 | 61.7674 | 5.40 | 5.55 | 3.27 | 3.12 | 3.80 | 3.71 | 4.52 | 4.34 |
| | | 36186.00 | 77.00 | 07:56 | 1855.9333 | 1840.0167 | 76.6674 | 4.99 | 4.97 | 3.68 | 3.7 | 3.86 | 3.76 | 4.93 | 4.92 |
| | | 36199.00 | 90.00 | 11:01 | 2171.0167 | 2155.1000 | 89.7958 | 4.73 | 4.86 | 3.94 | 3.81 | 3.88 | 3.78 | 5.19 | 5.03 |
| | | 89.80 | | | | | | | | | | | | 1.92 | 1.92 |
| | | | | | | | | | | | | | | 3.27 | 3.11 |

## TABLE X. ORM 218.7 A MODEL CALIBRATION

| MODEL INPUT | | | | |
|---|---|---|---|---|
| **CBODu** | **k1** | **NBODU** | **A** | **kn** |
| 2.5 | 0.06 | 1.7 | 5.5342 | 0.0795 |

| LABORATORY DATA | | | | BOD FROM DATA (mg/L) | MODEL BOD (mg/L) |
|---|---|---|---|---|---|
| **DATE** | **TIME** | **DAYS** | **DISSOLVED OXYGEN (mg/L)** | | |
| 10-Nov-98 | 15:55 | 0 | 8.67 | 0 | 0.00668751 |
| 11-Nov-98 | 05:28 | 0.56458333 | 9.08 | -0.41 | 0.09026242 |
| 11-Nov-98 | 17:43 | 1.075 | 9.02 | -0.35 | 0.16344134 |
| 12-Nov-98 | 23:13 | 2.30416667 | 9.03 | -0.36 | 0.33082321 |
| 14-Nov-98 | 13:48 | 3.91180556 | 8.95 | -0.28 | 0.5321102 |
| 15-Nov-98 | 14:54 | 4.95763889 | 8.91 | -0.24 | 0.65314059 |
| 17-Nov-98 | 16:35 | 7.02777778 | 8.35 | 0.32 | 0.87177657 |
| 20-Nov-98 | 13:52 | 9.91458333 | 8.11 | 0.56 | 1.13556101 |
| 25-Nov-98 | 14:45 | 14.9513889 | 7.53 | 1.14 | 1.50236401 |
| 30-Nov-98 | 09:53 | 19.7486111 | 7.19 | 1.48 | 1.76724157 |
| 04-Dec-98 | 14:52 | 23.95625 | 7.01 | 1.66 | 1.9500506 |
| 10-Dec-98 | 08:10 | 29.6770833 | 6.60 | 2.07 | 2.14687607 |
| 15-Dec-98 | 16:10 | 35.0104167 | 6.42 | 2.25 | 2.29611384 |
| 28-Dec-98 | 15:31 | 47.9833333 | 6.01 | 2.66 | 2.6178077 |
| 11-Jan-99 | 10:20 | 61.7673611 | 5.40 | 3.27 | 3.0317642 |
| 26-Jan-99 | 07:56 | 76.6673611 | 4.99 | 3.68 | 3.55717713 |
| 08-Feb-99 | 11:01 | 89.7958333 | 4.73 | 3.94 | 3.90408451 |

## TABLE X. ORM 218.7 B MODEL CALIBRATION

| MODEL INPUT | | | | |
|---|---|---|---|---|
| **CBODu** | **k1** | **NBODU** | **A** | **kn** |
| 2.4 | 0.07 | 1.3 | 12.9886 | 0.2032 |

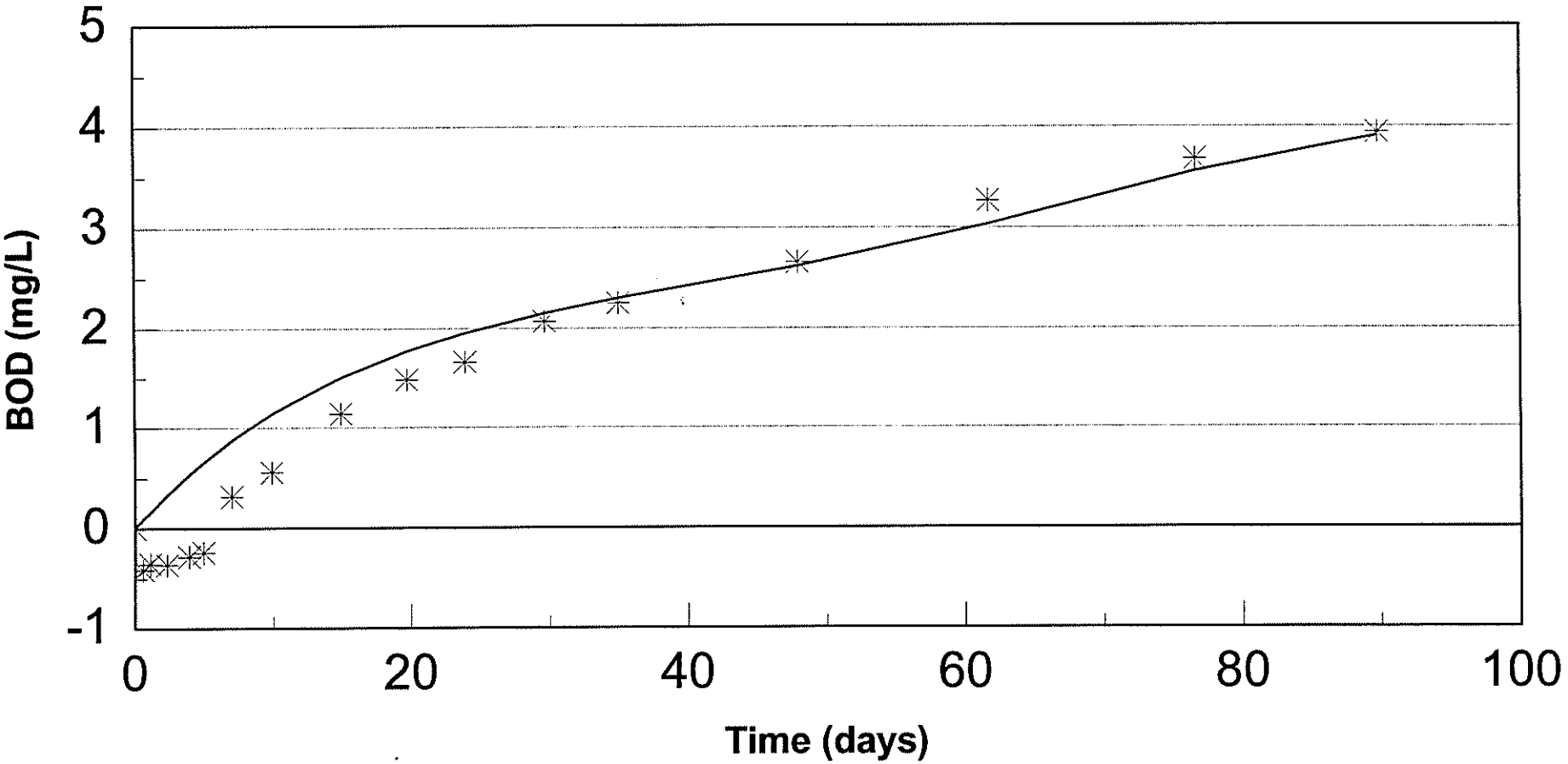
| LABORATORY DATA | | | | BOD FROM DATA (mg/L) | MODEL BOD (mg/L) |
|---|---|---|---|---|---|
| **DATE** | **TIME** | **DAYS** | **DISSOLVED OXYGEN (mg/L)** | | |
| 10-Nov-98 | 15:55 | 0 | 8.67 | 0 | 2.972E-06 |
| 11-Nov-98 | 05:28 | 0.56458333 | 9.02 | -0.35 | 0.09300351 |
| 11-Nov-98 | 17:43 | 1.075 | 8.93 | -0.26 | 0.17397591 |
| 12-Nov-98 | 23:13 | 2.30416667 | 8.99 | -0.32 | 0.35749959 |
| 14-Nov-98 | 13:48 | 3.91180556 | 8.89 | -0.22 | 0.57489277 |
| 15-Nov-98 | 14:54 | 4.95763889 | 8.60 | 0.07 | 0.70373425 |
| 17-Nov-98 | 16:35 | 7.02777778 | 8.32 | 0.35 | 0.93256519 |
| 20-Nov-98 | 13:52 | 9.91458333 | 8.08 | 0.59 | 1.20107021 |
| 25-Nov-98 | 14:45 | 14.9513889 | 7.55 | 1.12 | 1.55734872 |
| 30-Nov-98 | 09:53 | 19.7486111 | 7.21 | 1.46 | 1.79782486 |
| 04-Dec-98 | 14:52 | 23.95625 | 7.04 | 1.63 | 1.95171691 |
| 10-Dec-98 | 08:10 | 29.6770833 | 6.65 | 2.02 | 2.10062051 |
| 15-Dec-98 | 16:10 | 35.0104167 | 6.43 | 2.24 | 2.19668943 |
| 28-Dec-98 | 15:31 | 47.9833333 | 6.11 | 2.56 | 2.36560844 |
| 11-Jan-99 | 10:20 | 61.7673611 | 5.55 | 3.12 | 2.87824514 |
| 26-Jan-99 | 07:56 | 76.6673611 | 4.97 | 3.7 | 3.59809065 |
| 08-Feb-99 | 11:01 | 89.7958333 | 4.86 | 3.81 | 3.68879648 |

cBOD = 2.5
$K_1$ = .06
N = 1.7
A = 5.5342
$K_n$ = .0795

# TIME-SERIES BOD

## OUACHITA RIVER MILE 218.7

## SAMPLE A

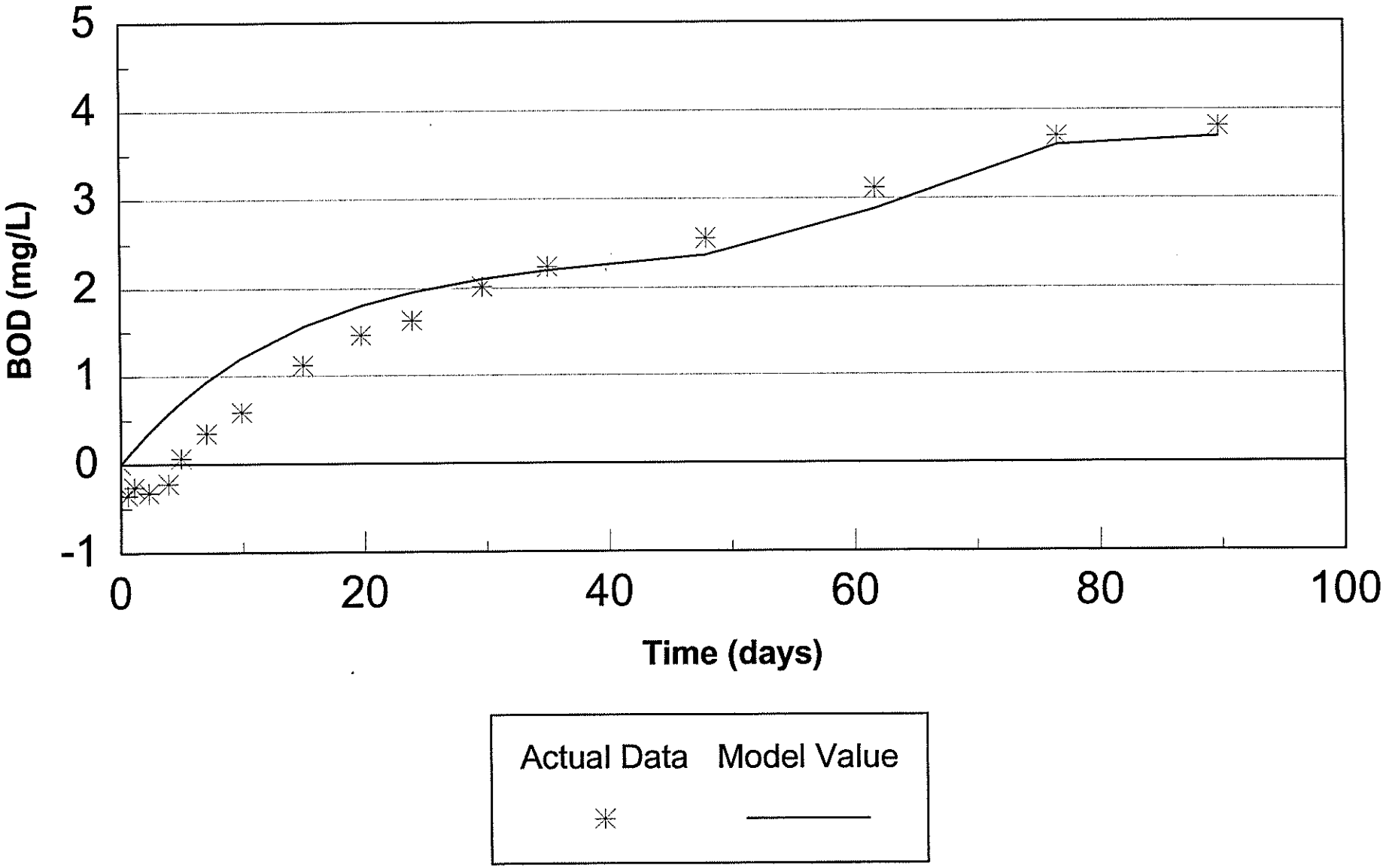


# TIME-SERIES BOD

## OUACHITA RIVER MILE 218.7

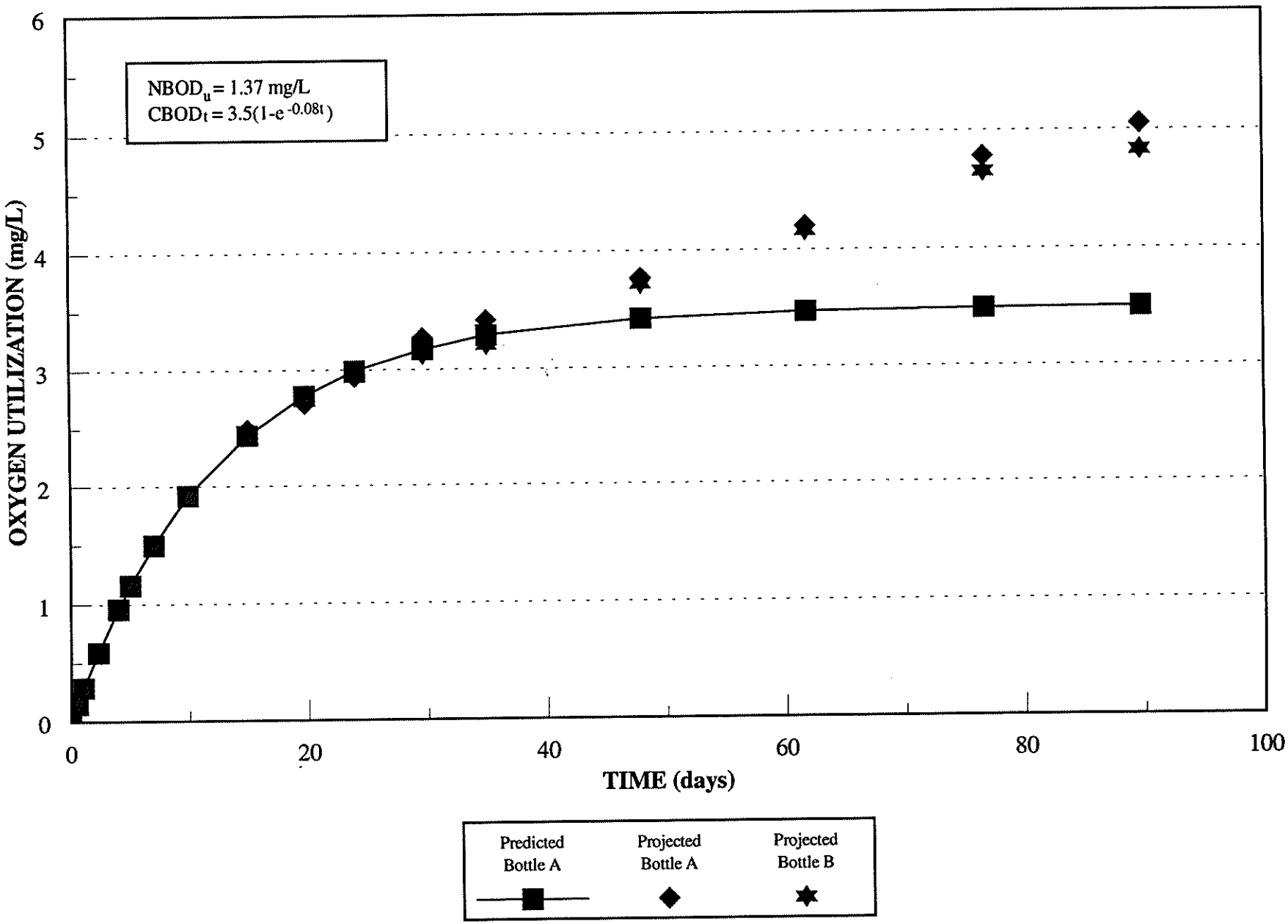
## SAMPLE B

cBOD = 2.4
$K_1$ = .07
N = 1.3
A = 12.9886
$K_n$ = 0.2032



# TIME-SERIES BOD

## OUACHITA RIVER MILE 218.7D




Data recorded November 10, 1998

TABLE _. OUACHITA RIVER TIME-SERIES BODS - ORM 218.7 DUP

| STATION | ORM 218.7 DUP |
|---|---|

| | | | | | | | | | | | | 3.5<br>0.08 | 3.5<br>0.08 | 3.5<br>0.08 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COLLECTION DATE | SETUP TIME | READ DATE | READ TIME | READ TIME (hrs) | TOTAL TIME (hrs) | TOTAL TIME (days) | BOTTLE A O2 (mg/L) | BOTTLE B O2 (mg/L) | BOTTLE A O2 UPTAKE (mg/L) | BOTTLE B O2 UPTAKE (mg/L) | PREDICTED O2 UPTAKE (mg/L) | ADJUSTED BOTTLE A O2 UPTAKE (mg/L) | ADJUSTED BOTTLE B O2 UPTAKE (mg/L) |
| 10-Nov-98 | 16:07 | 10-Nov-98 | 16:07 | 16.1167 | 0.0000 | 0.0000 | 8.50 | 8.48 | 0 | 0 | 0.00 | 0.00 | 0.00 |
| | | 11-Nov-98 | 05:38 | 29.6333 | 13.5167 | 0.5632 | 8.79 | 8.81 | -0.29 | -0.33 | 0.15 | 0.15 | 0.15 |
| | | 11-Nov-98 | 17:38 | 41.6333 | 25.5167 | 1.0632 | 8.80 | 8.73 | -0.3 | -0.25 | 0.29 | 0.29 | 0.29 |
| | | 12-Nov-98 | 23:27 | 71.4500 | 55.3333 | 2.3056 | 8.84 | 8.86 | -0.34 | -0.38 | 0.59 | 0.59 | 0.59 |
| | | 14-Nov-98 | 16:35 | 112.5833 | 96.4667 | 4.0194 | 8.84 | 8.81 | -0.34 | -0.33 | 0.96 | 0.96 | 0.96 |
| | | 15-Nov-98 | 17:00 | 137.0000 | 120.8833 | 5.0368 | 8.68 | 8.77 | -0.18 | -0.29 | 1.16 | 1.16 | 1.16 |
| | | 17-Nov-98 | 16:40 | 184.6667 | 168.5500 | 7.0229 | 8.28 | 8.25 | 0.22 | 0.23 | 1.50 | 1.50 | 1.50 |
| | | 20-Nov-98 | 13:57 | 253.9500 | 237.8333 | 9.9097 | 8.05 | 8.06 | 0.45 | 0.42 | 1.92 | 1.92 | 1.92 |
| | | 25-Nov-98 | 14:49 | 374.8167 | 358.7000 | 14.9458 | 7.48 | 7.54 | 1.02 | 0.94 | 2.44 | 2.49 | 2.44 |
| | | 30-Nov-98 | 10:02 | 490.0333 | 473.9167 | 19.7465 | 7.26 | 7.23 | 1.24 | 1.25 | 2.78 | 2.71 | 2.75 |
| | | 04-Dec-98 | 15:02 | 591.0333 | 574.9167 | 23.9549 | 7.03 | 7.04 | 1.47 | 1.44 | 2.99 | 2.94 | 2.94 |
| | | 10-Dec-98 | 08:13 | 728.2167 | 712.1000 | 29.6708 | 6.70 | 6.85 | 1.8 | 1.63 | 3.17 | 3.27 | 3.13 |
| | | 15-Dec-98 | 16:19 | 856.3167 | 840.2000 | 35.0083 | 6.55 | 6.77 | 1.95 | 1.71 | 3.29 | 3.42 | 3.21 |
| | | 28-Dec-98 | 15:31 | 1167.5167 | 1151.4000 | 47.9750 | 6.20 | 6.26 | 2.3 | 2.22 | 3.42 | 3.77 | 3.72 |
| | | 11-Jan-99 | 10:28 | 1498.4667 | 1482.3500 | 61.7646 | 5.77 | 5.82 | 2.73 | 2.66 | 3.47 | 4.20 | 4.16 |
| | | 26-Jan-99 | 08:12 | 1856.2000 | 1840.0833 | 76.6701 | 5.19 | 5.33 | 3.31 | 3.15 | 3.49 | 4.78 | 4.65 |
| | | 08-Feb-99 | 11:20 | 2171.3333 | 2155.2167 | 89.8007 | 4.92 | 5.15 | 3.58 | 3.33 | 3.50 | 5.05 | 4.83 |

$NBOD = 0.42\ mg/L * 4.57 = 1.92$

$CBOD_t = 3.5\left(1 - e^{-0.08t}\right)$

## TABLE X. ORM 218.7 DUPLICATE A MODEL CALIBRATION

| MODEL INPUT | | | | |
|---|---|---|---|---|
| **CBODu** | **k1** | **NBODU** | **A** | **kn** |
| 2.1 | 0.07 | 1.646 | 6.075 | 0.092 |

| LABORATORY DATA | | | | BOD FROM DATA (mg/L) | MODEL BOD (mg/L) |
|---|---|---|---|---|---|
| **DATE** | **TIME** | **DAYS** | **DISSOLVED OXYGEN (mg/L)** | | |
| 10-Nov-98 | 16:07 | 0 | 8.50 | 0 | 0.00377653 |
| 11-Nov-98 | 05:38 | 0.56319444 | 8.79 | -0.29 | 0.08515577 |
| 11-Nov-98 | 17:38 | 1.06319444 | 8.80 | -0.3 | 0.15477902 |
| 12-Nov-98 | 23:27 | 2.30555556 | 8.84 | -0.34 | 0.31764808 |
| 14-Nov-98 | 16:35 | 4.01944444 | 8.84 | -0.34 | 0.52047361 |
| 15-Nov-98 | 17:00 | 5.03680556 | 8.68 | -0.18 | 0.62995725 |
| 17-Nov-98 | 16:40 | 7.02291667 | 8.28 | 0.22 | 0.82273773 |
| 20-Nov-98 | 13:57 | 9.90972222 | 8.05 | 0.45 | 1.05992594 |
| 25-Nov-98 | 14:49 | 14.9458333 | 7.48 | 1.02 | 1.37717519 |
| 30-Nov-98 | 10:02 | 19.7465278 | 7.26 | 1.24 | 1.59583569 |
| 04-Dec-98 | 15:02 | 23.9548611 | 7.03 | 1.47 | 1.74096945 |
| 10-Dec-98 | 08:13 | 29.6708333 | 6.70 | 1.8 | 1.89289358 |
| 15-Dec-98 | 16:19 | 35.0083333 | 6.55 | 1.95 | 2.00853509 |
| 28-Dec-98 | 15:31 | 47.975 | 6.20 | 2.3 | 2.28960933 |
| 11-Jan-99 | 10:28 | 61.7645833 | 5.77 | 2.73 | 2.73563402 |
| 26-Jan-99 | 08:12 | 76.6701389 | 5.19 | 3.31 | 3.28657605 |
| 08-Feb-99 | 11:20 | 89.8006944 | 4.92 | 3.58 | 3.5759185 |

## TABLE X. ORM 218.7 DUPLICATE B MODEL CALIBRATION

| MODEL INPUT | | | | |
|---|---|---|---|---|
| **CBODu** | **k1** | **NBODU** | **A** | **kn** |
| 1.9 | 0.07 | 1.535 | 5.5 | 0.085 |

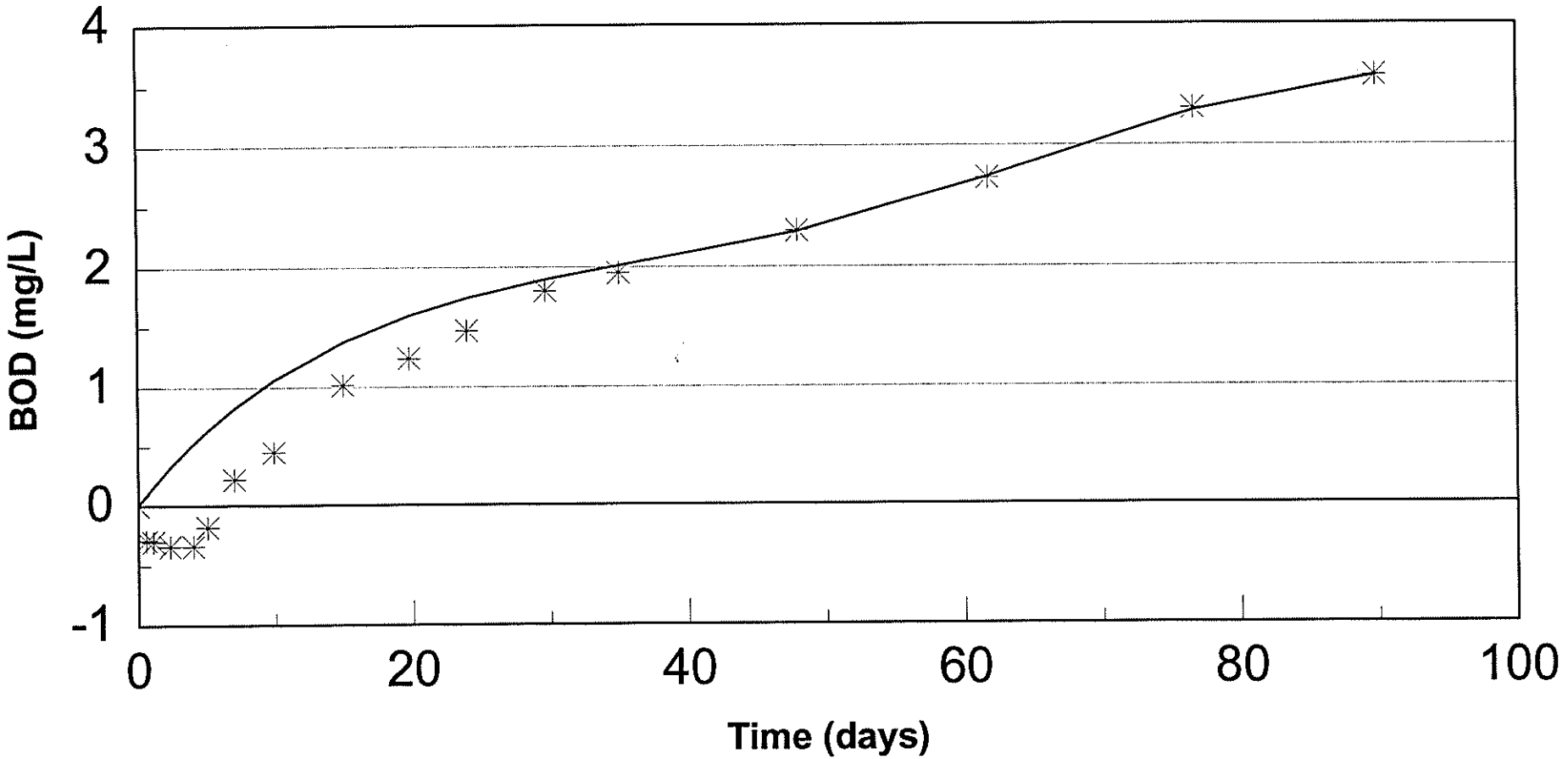
| LABORATORY DATA | | | | BOD FROM DATA (mg/L) | MODEL BOD (mg/L) |
|---|---|---|---|---|---|
| **DATE** | **TIME** | **DAYS** | **DISSOLVED OXYGEN (mg/L)** | | |
| 10-Nov-98 | 16:07 | 0 | 8.48 | 0 | 0.00624766 |
| 11-Nov-98 | 05:38 | 0.56319444 | 8.81 | -0.33 | 0.08000028 |
| 11-Nov-98 | 17:38 | 1.06319444 | 8.73 | -0.25 | 0.14310701 |
| 12-Nov-98 | 23:27 | 2.30555556 | 8.86 | -0.38 | 0.2907675 |
| 14-Nov-98 | 16:35 | 4.01944444 | 8.81 | -0.33 | 0.47474171 |
| 15-Nov-98 | 17:00 | 5.03680556 | 8.77 | -0.29 | 0.57410324 |
| 17-Nov-98 | 16:40 | 7.02291667 | 8.25 | 0.23 | 0.74918728 |
| 20-Nov-98 | 13:57 | 9.90972222 | 8.06 | 0.42 | 0.96493454 |
| 25-Nov-98 | 14:49 | 14.9458333 | 7.54 | 0.94 | 1.25461859 |
| 30-Nov-98 | 10:02 | 19.7465278 | 7.23 | 1.25 | 1.45596553 |
| 04-Dec-98 | 15:02 | 23.9548611 | 7.04 | 1.44 | 1.59136967 |
| 10-Dec-98 | 08:13 | 29.6708333 | 6.85 | 1.63 | 1.73625059 |
| 15-Dec-98 | 16:19 | 35.0083333 | 6.77 | 1.71 | 1.84999289 |
| 28-Dec-98 | 15:31 | 47.975 | 6.26 | 2.22 | 2.13218192 |
| 11-Jan-99 | 10:28 | 61.7645833 | 5.82 | 2.66 | 2.54687417 |
| 26-Jan-99 | 08:12 | 76.6701389 | 5.33 | 3.15 | 3.01840365 |
| 08-Feb-99 | 11:20 | 89.8006944 | 5.15 | 3.33 | 3.26886722 |

# TIME-SERIES BOD

## OUACHITA RIVER MILE 218.7 DUPLICATE

## SAMPLE A

$CBOD = 2.1$
$K_1 = 0.07$
$N = 1.646$
$A = 6.075$
$K_n = 0.092$

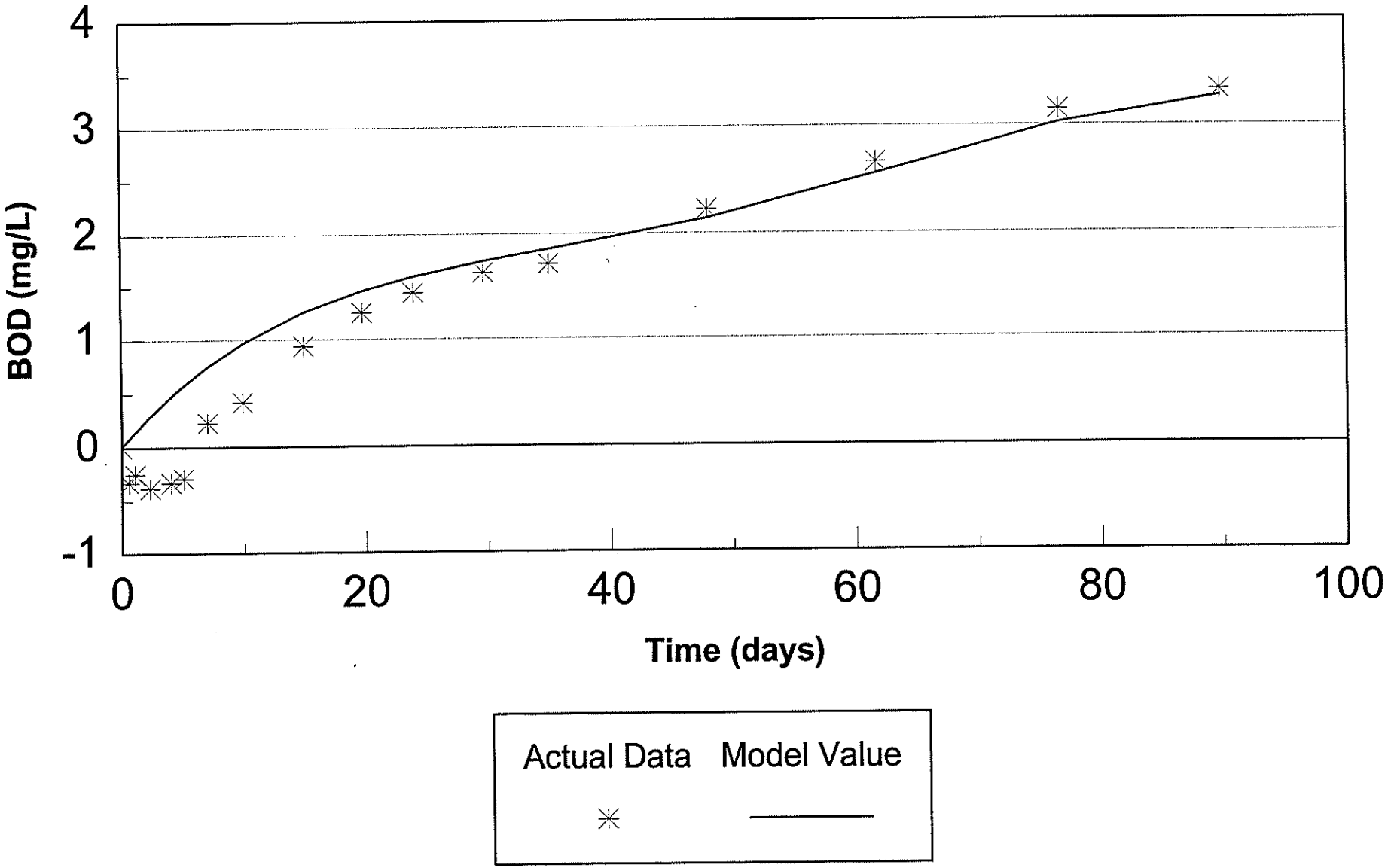


# TIME-SERIES BOD

## OUACHITA RIVER MILE 218.7 DUPLICATE

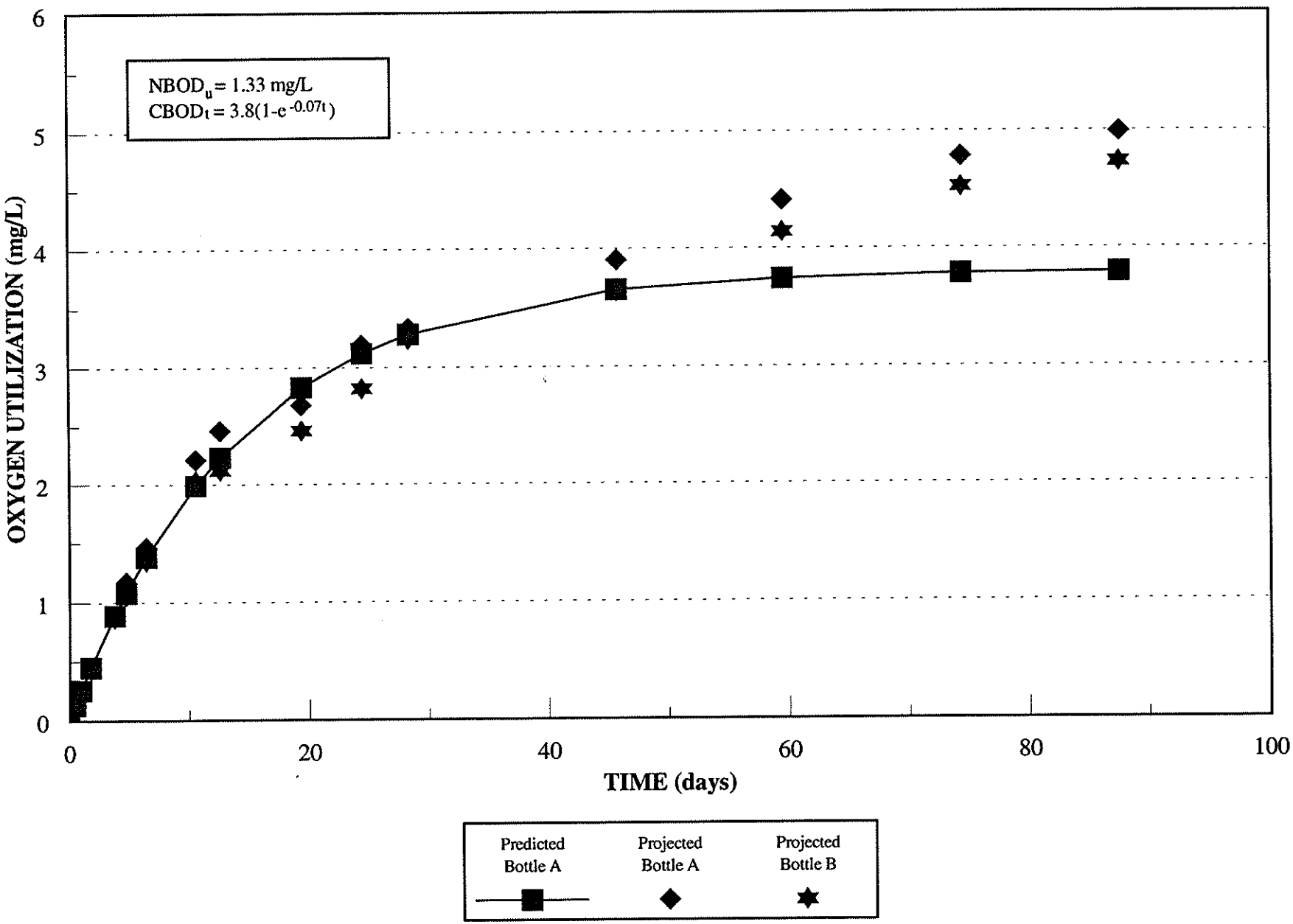
## SAMPLE B

cBOD= .9
$k_1$ = .07
N = 1.535
A = 5.5
$k_n$ = .085



# TIME-SERIES BOD

## OUACHITA RIVER MILE 213.5




Data recorded November 12, 1998

TABLE _. OUACHITA RIVER TIME-SERIES BODS - ORM 213.5

| STATION | ORM 213.5 |
|---|---|

TKN = 0.29 mg/L * 4.57 mg/L O2/mg/L TKN = 1.33 mg/L O2

| | | | | | | | | | | | 3.8<br>0.07 | 3.8<br>0.07 | 3.7<br>0.07 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COLLECTION DATE | SETUP TIME | READ DATE | READ TIME | READ TIME (hrs) | TOTAL TIME (hrs) | TOTAL TIME (days) | BOTTLE A O2 (mg/L) | BOTTLE B O2 (mg/L) | BOTTLE A O2 UPTAKE (mg/L) | BOTTLE B O2 UPTAKE (mg/L) | PREDICTED O2 UPTAKE (mg/L) | ADJUSTED BOTTLE A O2 UPTAKE (mg/L) | ADJUSTED BOTTLE B O2 UPTAKE (mg/L) |
| 12-Nov-98 | 21:17 | 12-Nov-98 | 21:17 | 21.2833 | 0.0000 | 0.0000 | 9.80 | 9.81 | 0 | 0 | 0.00 | 0.00 | 0.00 |
| | | 13-Nov-98 | 09:32 | 33.5333 | 12.2500 | 0.5104 | 9.56 | 9.66 | 0.24 | 0.15 | 0.13 | 0.13 | 0.13 |
| | | 13-Nov-98 | 21:16 | 45.2667 | 23.9833 | 0.9993 | 9.75 | 9.91 | 0.05 | -0.1 | 0.26 | 0.26 | 0.25 |
| | | 14-Nov-98 | 16:44 | 64.7333 | 43.4500 | 1.8104 | 9.47 | 9.56 | 0.33 | 0.25 | 0.45 | 0.45 | 0.44 |
| | | 16-Nov-98 | 16:50 | 112.8333 | 91.5500 | 3.8146 | 8.98 | 9.28 | 0.82 | 0.53 | 0.89 | 0.89 | 0.87 |
| | | 17-Nov-98 | 15:47 | 135.7833 | 114.5000 | 4.7708 | 8.70 | 9.09 | 1.1 | 0.72 | 1.08 | 1.17 | 1.06 |
| | | 19-Nov-98 | 08:00 | 176.0000 | 154.7167 | 6.4465 | 8.41 | 8.80 | 1.39 | 1.01 | 1.38 | 1.46 | 1.35 |
| | | 23-Nov-98 | 12:00 | 276.0000 | 254.7167 | 10.6132 | 7.66 | 8.12 | 2.14 | 1.69 | 1.99 | 2.21 | 2.03 |
| | | 25-Nov-98 | 13:15 | 325.2500 | 303.9667 | 12.6653 | 7.41 | 8.03 | 2.39 | 1.78 | 2.23 | 2.46 | 2.12 |
| | | 02-Dec-98 | 08:46 | 488.7667 | 467.4833 | 19.4785 | 7.19 | 7.69 | 2.61 | 2.12 | 2.83 | 2.68 | 2.46 |
| | | 07-Dec-98 | 10:10 | 610.1667 | 588.8833 | 24.5368 | 6.68 | 7.33 | 3.12 | 2.48 | 3.12 | 3.19 | 2.82 |
| | | 11-Dec-98 | 07:16 | 703.2667 | 681.9833 | 28.4160 | 6.54 | 6.91 | 3.26 | 2.9 | 3.28 | 3.33 | 3.24 |
| | | 28-Dec-98 | 15:05 | 1119.0833 | 1097.8000 | 45.7417 | 5.97 | 6.51 | 3.83 | 3.3 | 3.65 | 3.90 | 3.64 |
| | | 11-Jan-99 | 10:40 | 1450.6667 | 1429.3833 | 59.5576 | 5.46 | 6.01 | 4.34 | 3.8 | 3.74 | 4.41 | 4.14 |
| | | 26-Jan-99 | 08:12 | 1808.2000 | 1786.9167 | 74.4549 | 5.09 | 5.63 | 4.71 | 4.18 | 3.78 | 4.78 | 4.52 |
| | | 08-Feb-99 | 11:20 | 2123.3333 | 2102.0500 | 87.5854 | 4.88 | 5.42 | 4.92 | 4.39 | 3.79 | 4.99 | 4.73 |

$NBOD_u = 1.33$

$CBOD_t = 3.8(1 - e^{-0.07t})$

5.13

## TABLE X. ORM 213.5 A MODEL CALIBRATION

| MODEL INPUT | | | | |
|---|---|---|---|---|
| **CBODu** | **k1** | **NBODU** | **A** | **kn** |
| 3.8 | 0.07 | 1.2575 | 4.44136 | 0.0748 |

| LABORATORY DATA | | | | BOD FROM DATA (mg/L) | MODEL BOD (mg/L) |
|---|---|---|---|---|---|
| **DATE** | **TIME** | **DAYS** | **DISSOLVED OXYGEN (mg/L)** | | |
| 12-Nov-98 | 21:17 | 0 | 9.80 | 0 | 0.01 |
| 13-Nov-98 | 09:32 | 0.51041667 | 9.56 | 0.24 | 0.15 |
| 13-Nov-98 | 21:16 | 0.99930556 | 9.75 | 0.05 | 0.27 |
| 14-Nov-98 | 16:44 | 1.81041667 | 9.47 | 0.33 | 0.47 |
| 16-Nov-98 | 16:50 | 3.81458333 | 8.98 | 0.82 | 0.91 |
| 17-Nov-98 | 15:47 | 4.77083333 | 8.70 | 1.1 | 1.10 |
| 19-Nov-98 | 08:00 | 6.44652778 | 8.41 | 1.39 | 1.40 |
| 23-Nov-98 | 12:00 | 10.6131944 | 7.66 | 2.14 | 2.02 |
| 25-Nov-98 | 13:15 | 12.6652778 | 7.41 | 2.39 | 2.27 |
| 02-Dec-98 | 08:46 | 19.4784722 | 7.19 | 2.61 | 2.89 |
| 07-Dec-98 | 10:10 | 24.5368056 | 6.68 | 3.12 | 3.20 |
| 11-Dec-98 | 07:16 | 28.4159722 | 6.54 | 3.26 | 3.39 |
| 28-Dec-98 | 15:05 | 45.7416667 | 5.97 | 3.83 | 3.98 |
| 11-Jan-99 | 10:40 | 59.5576389 | 5.46 | 4.34 | 4.37 |
| 26-Jan-99 | 08:12 | 74.4548611 | 5.09 | 4.71 | 4.73 |
| 08-Feb-99 | 11:20 | 87.5854167 | 4.88 | 4.92 | 4.91 |

## TABLE X. ORM 213.5 B MODEL CALIBRATION

| MODEL INPUT | | | | |
|---|---|---|---|---|
| **CBODu** | **k1** | **NBODU** | **A** | **kn** |
| 2.7 | 0.07 | 1.832 | 3.31 | 0.0649 |

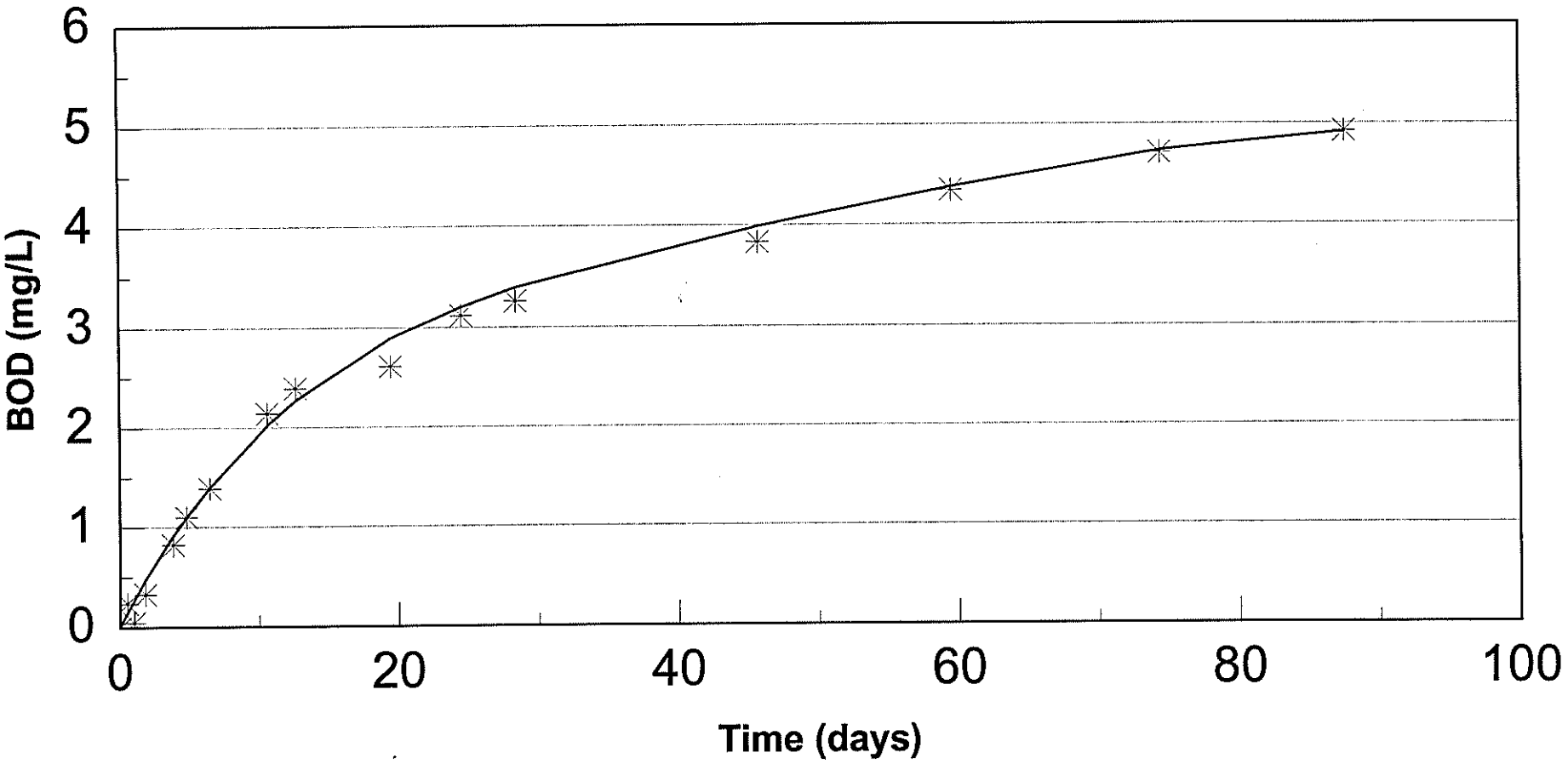
| LABORATORY DATA | | | | BOD FROM DATA (mg/L) | MODEL BOD (mg/L) |
|---|---|---|---|---|---|
| **DATE** | **TIME** | **DAYS** | **DISSOLVED OXYGEN (mg/L)** | | |
| 12-Nov-98 | 21:17 | 0 | 9.81 | 0 | 0.06454085 |
| 13-Nov-98 | 09:32 | 0.51041667 | 9.66 | 0.15 | 0.16140129 |
| 13-Nov-98 | 21:16 | 0.99930556 | 9.91 | -0.1 | 0.25111749 |
| 14-Nov-98 | 16:44 | 1.81041667 | 9.56 | 0.25 | 0.39364514 |
| 16-Nov-98 | 16:50 | 3.81458333 | 9.28 | 0.53 | 0.71458633 |
| 17-Nov-98 | 15:47 | 4.77083333 | 9.09 | 0.72 | 0.85342757 |
| 19-Nov-98 | 08:00 | 6.44652778 | 8.80 | 1.01 | 1.07687365 |
| 23-Nov-98 | 12:00 | 10.6131944 | 8.12 | 1.69 | 1.53973745 |
| 25-Nov-98 | 13:15 | 12.6652778 | 8.03 | 1.78 | 1.72793741 |
| 02-Dec-98 | 08:46 | 19.4784722 | 7.69 | 2.12 | 2.21914626 |
| 07-Dec-98 | 10:10 | 24.5368056 | 7.33 | 2.48 | 2.49415214 |
| 11-Dec-98 | 07:16 | 28.4159722 | 6.91 | 2.9 | 2.67424567 |
| 28-Dec-98 | 15:05 | 45.7416667 | 6.51 | 3.3 | 3.35130801 |
| 11-Jan-99 | 10:40 | 59.5576389 | 6.01 | 3.8 | 3.82222218 |
| 26-Jan-99 | 08:12 | 74.4548611 | 5.63 | 4.18 | 4.18907874 |
| 08-Feb-99 | 11:20 | 87.5854167 | 5.42 | 4.39 | 4.37012673 |

cBOD = 3
$K_1$ = .07
N = 1.2575
A = 4.44136
$K_a$ = .0748

# TIME-SERIES BOD

## OUACHITA RIVER MILE 213.5

## SAMPLE A

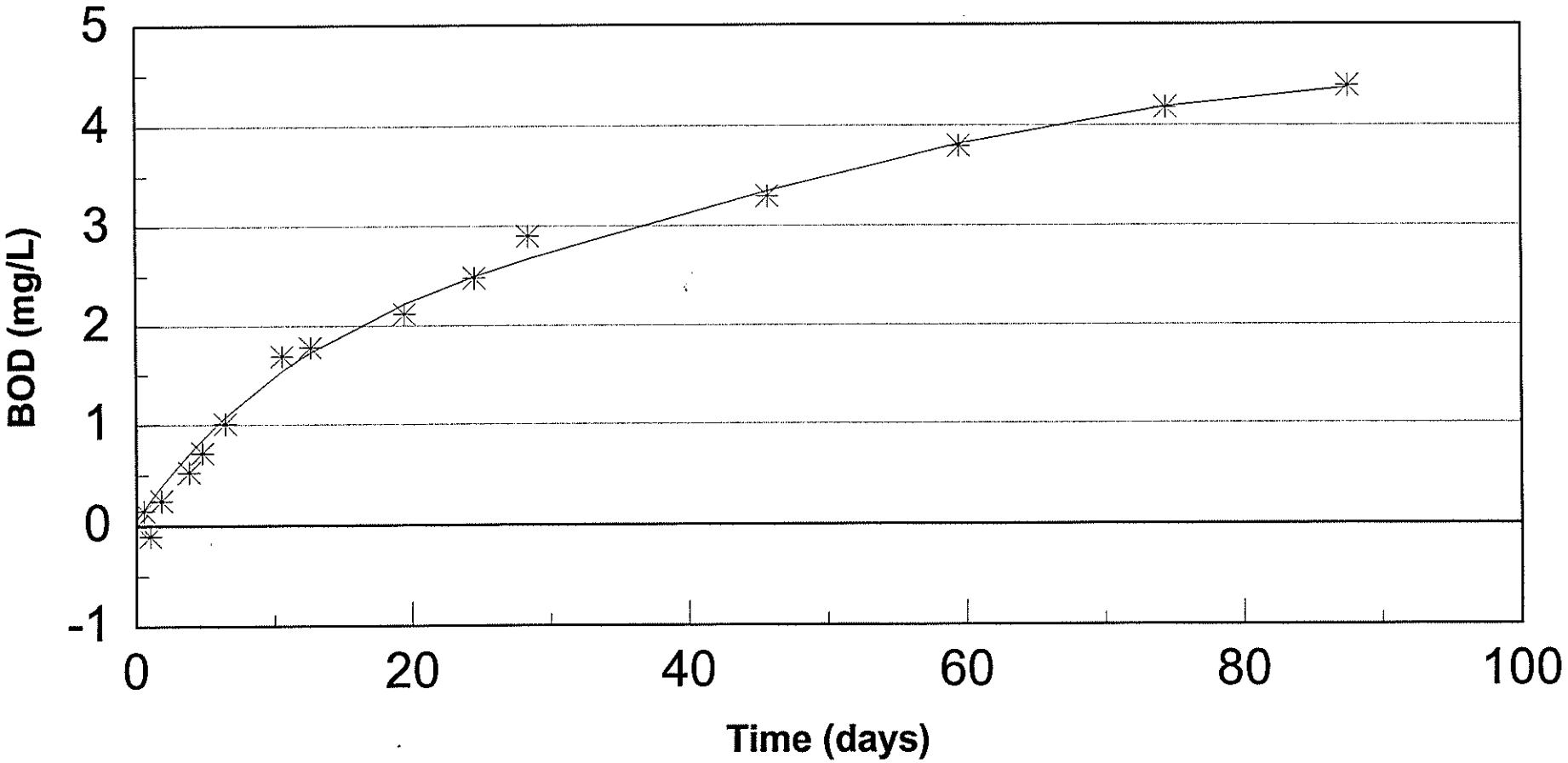


cBOD = 2.
$K_1$ = ,07
N = 1.832
A = 3.31
$K_1$ = 0.0649

# TIME-SERIES BOD

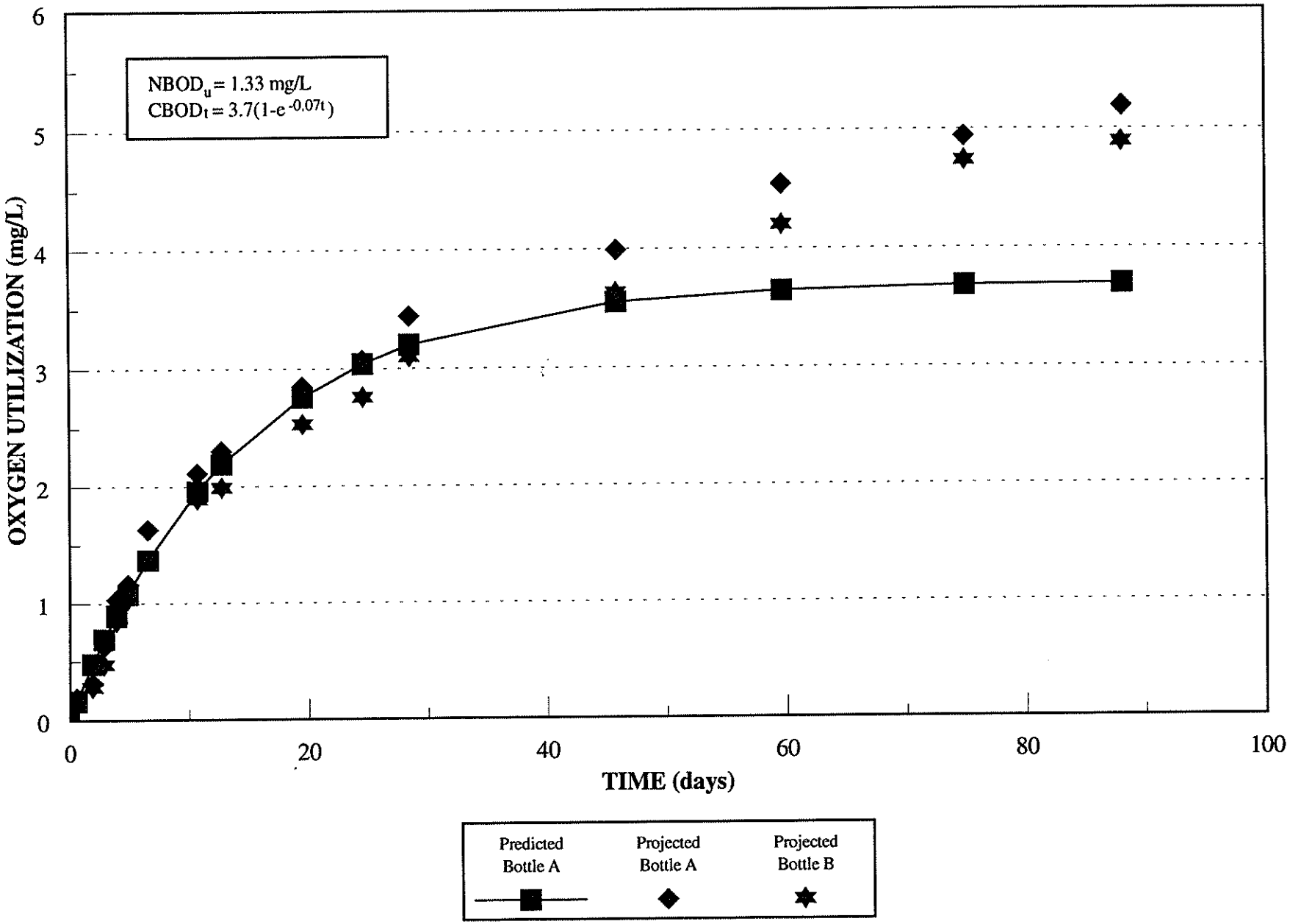
## OUACHITA RIVER MILE 213.5

## SAMPLE B



# TIME-SERIES BOD

## OUACHITA RIVER MILE 213.5D




Data recorded November 12, 1998

STATION ORM 213.5 DUPLICATE

3.7
0.07

| COLLECTION DATE | SETUP TIME | READ DATE | READ TIME | READ TIME (hrs) | TOTAL TIME (hrs) | TOTAL TIME (days) | BOTTLE A O2 (mg/L) | BOTTLE B O2 (mg/L) | BOTTLE A O2 UPTAKE (mg/L) | BOTTLE B O2 UPTAKE (mg/L) | PREDICTED O2 UPTAKE (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 12-Nov-98 | 18:07 | 12-Nov-98 | 18:07 | 18.1167 | 0.0000 | 0.0000 | 10.29 | 10.33 | 0 | 0 | 0.00 |
| | | 13-Nov-98 | 09:22 | 33.3667 | 15.2500 | 0.6354 | 10.10 | 10.14 | 0.19 | 0.19 | 0.16 |
| | | 14-Nov-98 | 16:53 | 65.6167 | 47.5000 | 1.9792 | 9.98 | 10.05 | 0.31 | 0.28 | 0.48 |
| | | 15-Nov-98 | 15:41 | 88.4167 | 70.3000 | 2.9292 | 9.66 | 9.86 | 0.63 | 0.47 | 0.69 |
| | | 16-Nov-98 | 17:00 | 113.7333 | 95.6167 | 3.9840 | 9.26 | 9.49 | 1.03 | 0.84 | 0.90 |
| | | 17-Nov-98 | 15:52 | 136.6000 | 118.4833 | 4.9368 | 9.13 | 9.30 | 1.16 | 1.03 | 1.08 |
| | | 19-Nov-98 | 08:12 | 176.9333 | 158.8167 | 6.6174 | 8.66 | 8.96 | 1.63 | 1.37 | 1.37 |
| | | 23-Nov-98 | 12:30 | 277.2333 | 259.1167 | 10.7965 | 8.18 | 8.44 | 2.11 | 1.89 | 1.96 |
| | | 25-Nov-98 | 13:25 | 326.1500 | 308.0333 | 12.8347 | 7.99 | 8.34 | 2.3 | 1.99 | 2.19 |
| | | 02-Dec-98 | 08:55 | 489.6500 | 471.5333 | 19.6472 | 7.44 | 7.80 | 2.85 | 2.53 | 2.76 |
| | | 07-Dec-98 | 10:16 | 611.0000 | 592.8833 | 24.7035 | 7.22 | 7.57 | 3.07 | 2.76 | 3.04 |
| | | 11-Dec-98 | 07:51 | 704.5833 | 686.4667 | 28.6028 | 6.85 | 7.23 | 3.44 | 3.1 | 3.20 |
| | | 28-Dec-98 | 15:00 | 1119.7333 | 1101.6167 | 45.9007 | 6.30 | 6.70 | 3.99 | 3.63 | 3.55 |
| | | 11-Jan-99 | 10:55 | 1451.6500 | 1433.5333 | 59.7306 | 5.75 | 6.13 | 4.54 | 4.2 | 3.64 |
| | | 26-Jan-99 | 08:25 | 1818.8000 | 1800.6833 | 75.0285 | 5.35 | 5.59 | 4.94 | 4.74 | 3.68 |
| | | 08-Feb-99 | 11:47 | 2134.1667 | 2116.0500 | 88.1688 | 5.10 | 5.44 | 5.19 | 4.89 | 3.69 |

Total for CBOD

$$NBOD_u = 1.33$$

$$CBOD_t = \frac{3.7\left(1 - e^{-0.07t}\right)}{5.03}$$

## TABLE X. ORM 213.5 DUPLICATE B MODEL CALIBRATION

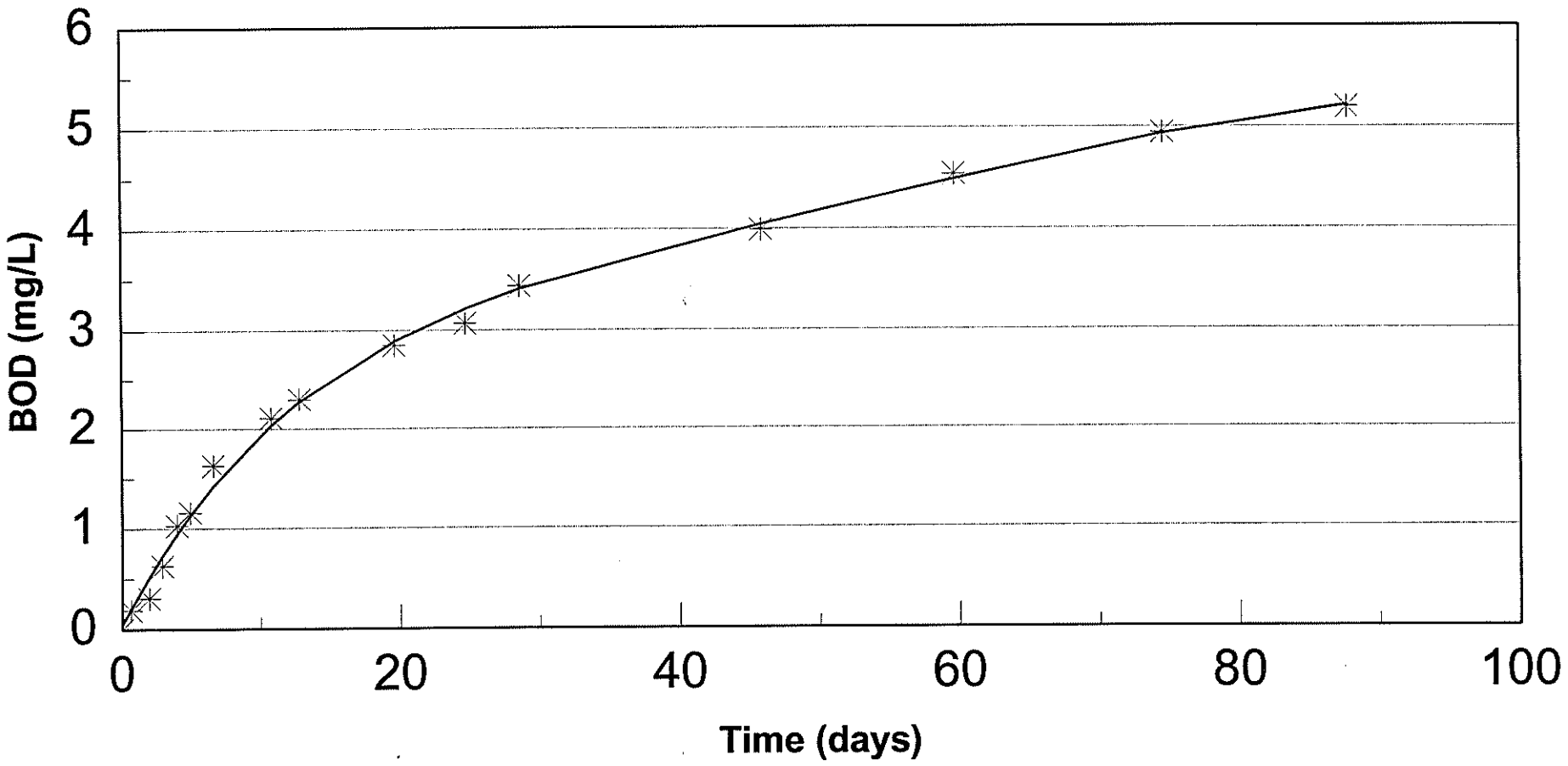
| MODEL INPUT | | | | |
|---|---|---|---|---|
| **CBODu** | **k1** | **NBODU** | **A** | **kn** |
| 3.4 | 0.07 | 1.62 | 4.94 | 0.0867 |

| LABORATORY DATA | | | | BOD FROM DATA (mg/L) | MODEL BOD (mg/L) |
|---|---|---|---|---|---|
| **DATE** | **TIME** | **DAYS** | **DISSOLVED OXYGEN (mg/L)** | | |
| 12-Nov-98 | 18:07 | 0 | 10.33 | 0 | 0.01150811 |
| 13-Nov-98 | 09:22 | 0.63541667 | 10.14 | 0.19 | 0.16007021 |
| 14-Nov-98 | 16:53 | 1.94861111 | 10.05 | 0.28 | 0.44713856 |
| 15-Nov-98 | 15:41 | 2.89861111 | 9.86 | 0.47 | 0.63915025 |
| 16-Nov-98 | 17:00 | 3.95347222 | 9.49 | 0.84 | 0.83811851 |
| 17-Nov-98 | 15:52 | 4.90625 | 9.30 | 1.03 | 1.00582861 |
| 19-Nov-98 | 08:12 | 6.58680556 | 8.96 | 1.37 | 1.27620516 |
| 23-Nov-98 | 12:30 | 10.7659722 | 8.44 | 1.89 | 1.82870368 |
| 25-Nov-98 | 13:25 | 12.8041667 | 8.34 | 1.99 | 2.04695384 |
| 02-Dec-98 | 08:55 | 19.6166667 | 7.80 | 2.53 | 2.59986724 |
| 07-Dec-98 | 10:16 | 24.6729167 | 7.57 | 2.76 | 2.88827504 |
| 11-Dec-98 | 07:51 | 28.5722222 | 7.23 | 3.1 | 3.06706918 |
| 28-Dec-98 | 15:00 | 45.8701389 | 6.70 | 3.63 | 3.71046346 |
| 11-Jan-99 | 10:55 | 59.7 | 6.13 | 4.2 | 4.25306788 |
| 26-Jan-99 | 08:25 | 74.5958333 | 5.59 | 4.74 | 4.71269385 |
| 08-Feb-99 | 11:47 | 87.7361111 | 5.44 | 4.89 | 4.90743972 |

CBOD = 3
$K_1$ = .07
NBOD = 1.83
A = 3.8056
$K_n$ = ~~0.66~~ 0.06116

# TIME-SERIES BOD

## OUACHITA RIVER MILE 213.5 DUPLICATE SAMPLE A

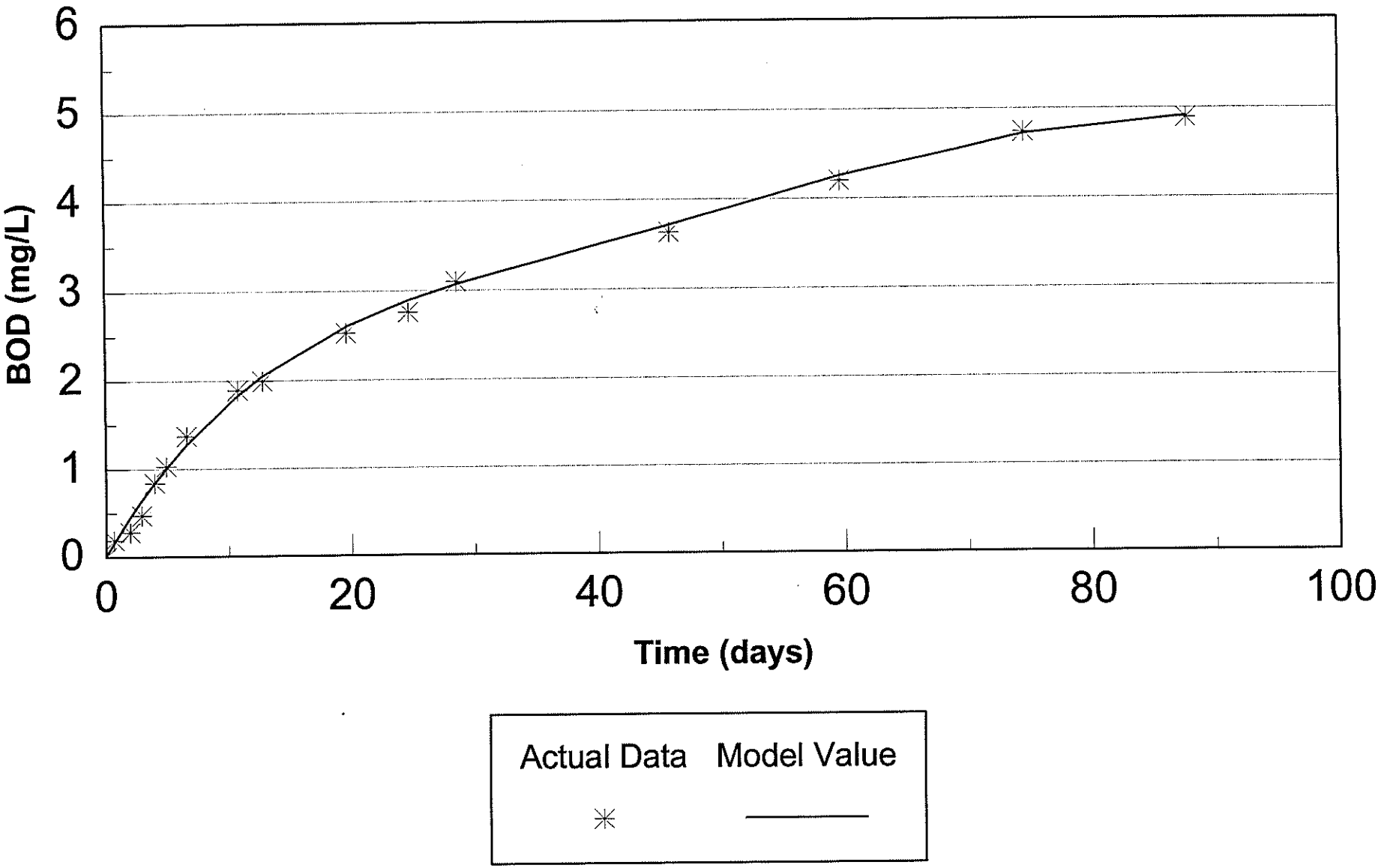


# TIME-SERIES BOD

## OUACHITA RIVER MILE 213.5 DUPLICATE

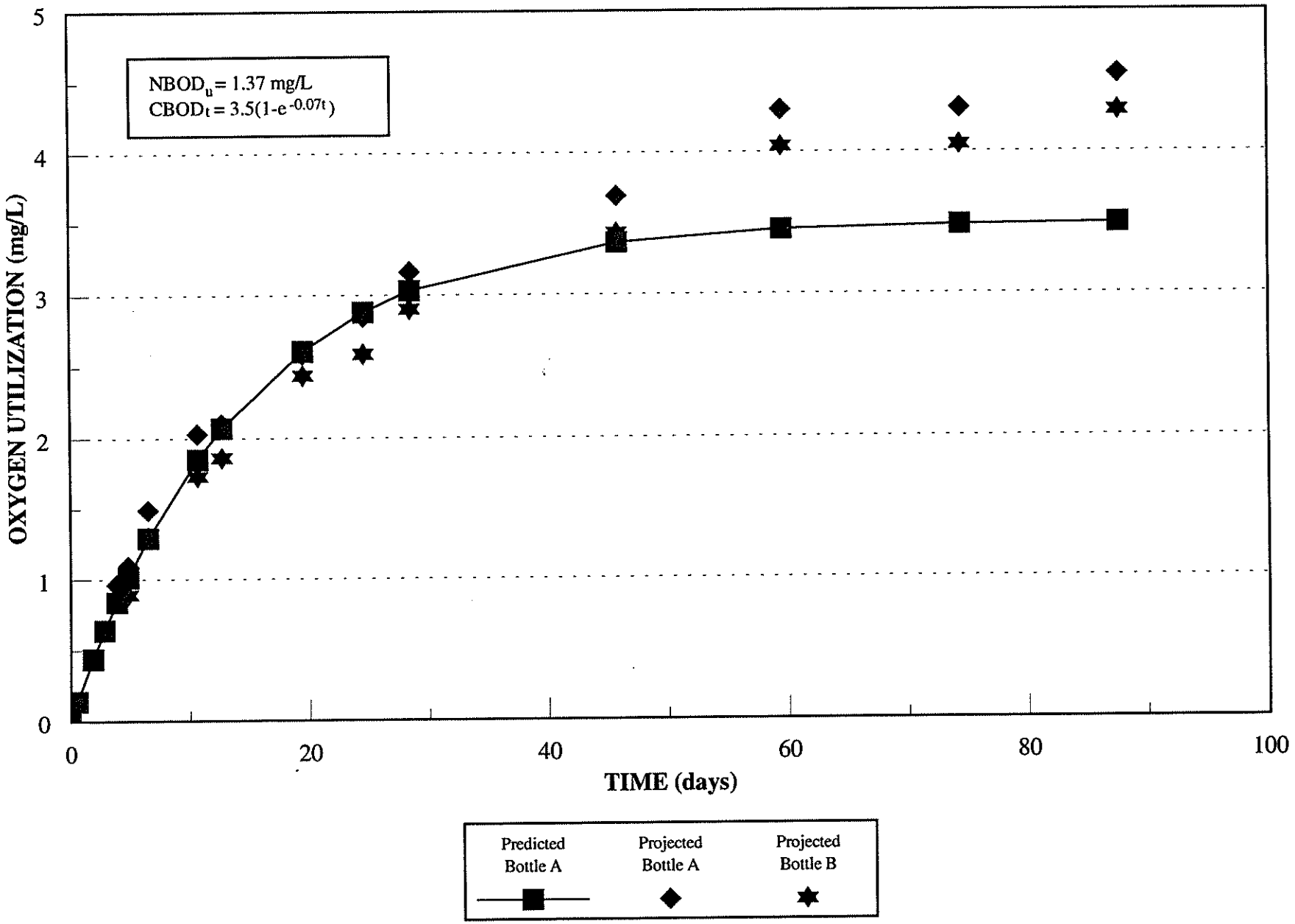
## SAMPLE B

CBOD = 4
$K_1 = .07$
$N = 1.62$
$A = 4.94$
$K_n = 0.0867$



# TIME-SERIES BOD

## OUACHITA RIVER MILE 208.8




Data recorded November 12, 1998

TABLE _. OUACHITA RIVER TIME-SERIES BODS - ORM 208.8

| STATION | ORM 208.8 |
|---|---|

| | | | | | | | | | | | 3.5<br>0.07 | 3.5<br>0.07 | 3.5<br>0.07 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COLLECTION DATE | SETUP TIME | READ DATE | READ TIME | READ TIME (hrs) | TOTAL TIME (hrs) | TOTAL TIME (days) | BOTTLE A O2 (mg/L) | BOTTLE B O2 (mg/L) | BOTTLE A O2 UPTAKE (mg/L) | BOTTLE B O2 UPTAKE (mg/L) | PREDICTED O2 UPTAKE (mg/L) | BOTTLE A O2 UPTAKE (mg/L) | BOTTLE B O2 UPTAKE (mg/L) |
| 12-Nov-98 | 13:14 | 12-Nov-98 | 19:08 | 19.1333 | 0.0000 | 0.0000 | 9.76 | 9.71 | 0 | 0 | 0.00 | 0.00 | 0.00 |
| | | 13-Nov-98 | 09:29 | 33.4833 | 14.3500 | 0.5979 | 9.75 | 9.78 | 0.01 | -0.07 | 0.14 | 0.14 | 0.14 |
| | | 14-Nov-98 | 17:00 | 65.0000 | 45.8667 | 1.9111 | 9.63 | 9.69 | 0.13 | 0.02 | 0.44 | 0.44 | 0.44 |
| | | 15-Nov-98 | 15:55 | 87.9167 | 68.7833 | 2.8660 | 9.36 | 9.49 | 0.4 | 0.22 | 0.64 | 0.64 | 0.64 |
| | | 16-Nov-98 | 17:04 | 113.0667 | 93.9333 | 3.9139 | 9.04 | 9.10 | 0.72 | 0.61 | 0.84 | 0.96 | 0.84 |
| | | 17-Nov-98 | 15:57 | 135.9500 | 116.8167 | 4.8674 | 8.91 | 9.05 | 0.85 | 0.66 | 1.01 | 1.09 | 0.89 |
| | | 19-Nov-98 | 08:20 | 176.3333 | 157.2000 | 6.5500 | 8.51 | 8.64 | 1.25 | 1.07 | 1.29 | 1.49 | 1.3 |
| | | 23-Nov-98 | 12:35 | 276.5833 | 257.4500 | 10.7271 | 7.97 | 8.21 | 1.79 | 1.5 | 1.85 | 2.03 | 1.73 |
| | | 25-Nov-98 | 13:30 | 325.5000 | 306.3667 | 12.7653 | 7.90 | 8.08 | 1.86 | 1.63 | 2.07 | 2.10 | 1.86 |
| | | 02-Dec-98 | 09:02 | 489.0333 | 469.9000 | 19.5792 | 7.41 | 7.50 | 2.35 | 2.21 | 2.61 | 2.59 | 2.44 |
| | | 07-Dec-98 | 10:30 | 610.5000 | 591.3667 | 24.6403 | 7.15 | 7.35 | 2.61 | 2.36 | 2.88 | 2.85 | 2.59 |
| | | 11-Dec-98 | 07:55 | 703.9167 | 684.7833 | 28.5326 | 6.84 | 7.04 | 2.92 | 2.67 | 3.03 | 3.16 | 2.9 |
| | | 28-Dec-98 | 14:57 | 1118.9500 | 1099.8167 | 45.8257 | 6.31 | 6.92 | 3.45 | 2.79 | 3.36 | 3.69 | 3.43 |
| | | 11-Jan-99 | 11:02 | 1448.6667 | 1429.5333 | 59.5639 | 5.70 | 6.42 | 4.06 | 3.29 | 3.45 | 4.30 | 4.04 |
| | | 26-Jan-99 | 08:40 | 1806.3000 | 1787.1667 | 74.4653 | 5.69 | 6.92 | 4.07 | 2.79 | 3.48 | 4.31 | 4.05 |
| | | 08-Feb-99 | 12:52 | 2122.5000 | 2103.3667 | 87.6403 | 5.45 | 6.65 | 4.31 | 3.06 | 3.49 | 4.55 | 4.29 |

$NBOD_u \approx 1.37$

$CBOD_t = 3.5\left(1 - e^{-0.07t}\right)$

9.87

## TABLE X. ORM 208.8A MODEL CALIBRATION

| MODEL INPUT | | | | |
|---|---|---|---|---|
| **CBODu** | **k1** | **NBODU** | **A** | **kn** |
| 3.2 | 0.07 | 1.10715 | 5.36783 | 0.11 |

| LABORATORY DATA | | | | BOD FROM DATA (mg/L) | MODEL BOD (mg/L) |
|---|---|---|---|---|---|
| **DATE** | **TIME** | **DAYS** | **DISSOLVED OXYGEN (mg/L)** | | |
| 12-Nov-98 | 19:08 | 0.00 | 9.76 | 0 | 0.01 |
| 13-Nov-98 | 09:29 | 0.60 | 9.75 | 0.01 | 0.14 |
| 14-Nov-98 | 17:00 | 1.91 | 9.63 | 0.13 | 0.41 |
| 15-Nov-98 | 15:55 | 2.87 | 9.36 | 0.4 | 0.59 |
| 16-Nov-98 | 17:04 | 3.91 | 9.04 | 0.72 | 0.77 |
| 17-Nov-98 | 15:57 | 4.87 | 8.91 | 0.85 | 0.93 |
| 19-Nov-98 | 08:20 | 6.55 | 8.51 | 1.25 | 1.19 |
| 23-Nov-98 | 12:35 | 10.73 | 7.97 | 1.79 | 1.71 |
| 25-Nov-98 | 13:30 | 12.77 | 7.90 | 1.86 | 1.91 |
| 02-Dec-98 | 09:02 | 19.58 | 7.41 | 2.35 | 2.43 |
| 07-Dec-98 | 10:30 | 24.64 | 7.15 | 2.61 | 2.70 |
| 11-Dec-98 | 07:55 | 28.53 | 6.84 | 2.92 | 2.87 |
| 28-Dec-98 | 14:57 | 45.83 | 6.31 | 3.45 | 3.53 |
| 11-Jan-99 | 11:02 | 59.66 | 5.70 | 4.06 | 4.00 |
| 26-Jan-99 | 08:40 | 74.56 | 5.69 | 4.07 | 4.23 |
| 08-Feb-99 | 12:52 | 87.74 | 5.45 | 4.31 | 4.29 |
| | | | | | |

## TABLE X. ORM 208.8B MODEL CALIBRATION

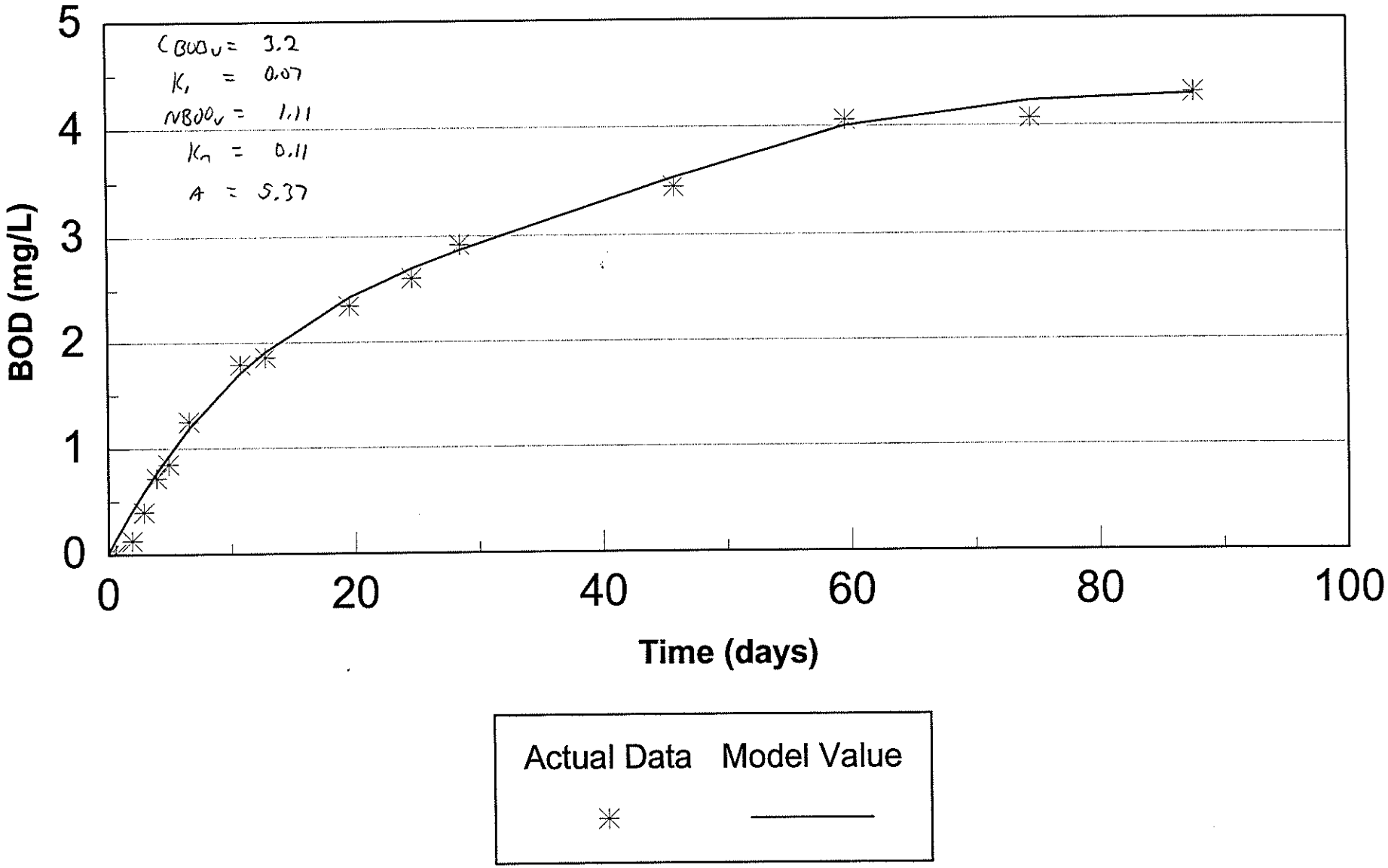
| MODEL INPUT | | | | |
|---|---|---|---|---|
| **CBODu** | **k1** | **NBODU** | **A** | **kn** |
| 2.5 | 0.07 | 0.52614 | 2.99799 | 0.159 |

| LABORATORY DATA | | | | BOD FROM DATA (mg/L) | MODEL BOD (mg/L) |
|---|---|---|---|---|---|
| **DATE** | **TIME** | **DAYS** | **DISSOLVED OXYGEN (mg/L)** | | |
| 12-Nov-98 | 19:08 | 0.00 | 9.71 | 0 | 0.03 |
| 13-Nov-98 | 09:29 | 0.60 | 9.78 | -0.07 | 0.13 |
| 14-Nov-98 | 17:00 | 1.91 | 9.69 | 0.02 | 0.35 |
| 15-Nov-98 | 15:55 | 2.87 | 9.49 | 0.22 | 0.49 |
| 16-Nov-98 | 17:04 | 3.91 | 9.10 | 0.61 | 0.64 |
| 17-Nov-98 | 15:57 | 4.87 | 9.05 | 0.66 | 0.77 |
| 19-Nov-98 | 08:20 | 6.55 | 8.64 | 1.07 | 0.98 |
| 23-Nov-98 | 12:35 | 10.73 | 8.21 | 1.5 | 1.43 |
| 25-Nov-98 | 13:30 | 12.77 | 8.08 | 1.63 | 1.62 |
| 02-Dec-98 | 09:02 | 19.58 | 7.50 | 2.21 | 2.14 |
| 07-Dec-98 | 10:30 | 24.64 | 7.35 | 2.36 | 2.43 |
| 11-Dec-98 | 07:55 | 28.53 | 7.04 | 2.67 | 2.59 |
| 28-Dec-98 | 14:57 | 45.83 | 6.92 | 2.79 | 2.92 |
| 11-Jan-99 | 11:02 | 59.66 | 6.42 | 3.29 | 2.99 |
| 26-Jan-99 | 08:40 | 74.56 | 6.92 | 2.79 | 3.01 |
| 08-Feb-99 | 12:52 | 87.74 | 6.65 | 3.06 | 3.02 |
| | | | | | |

# TIME-SERIES BOD

## OUACHITA RIVER MILE 208.8

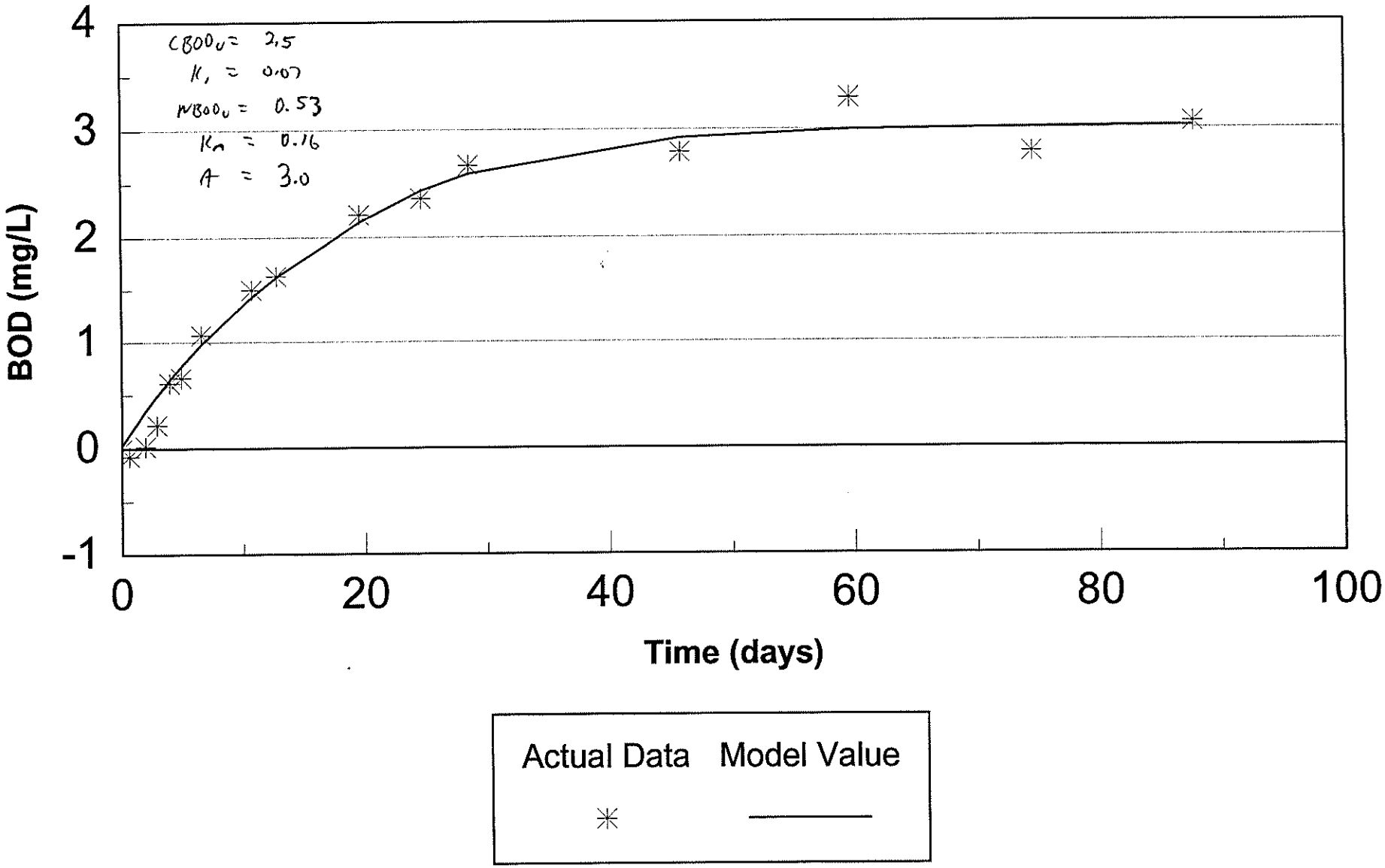
## SAMPLE A



# TIME-SERIES BOD

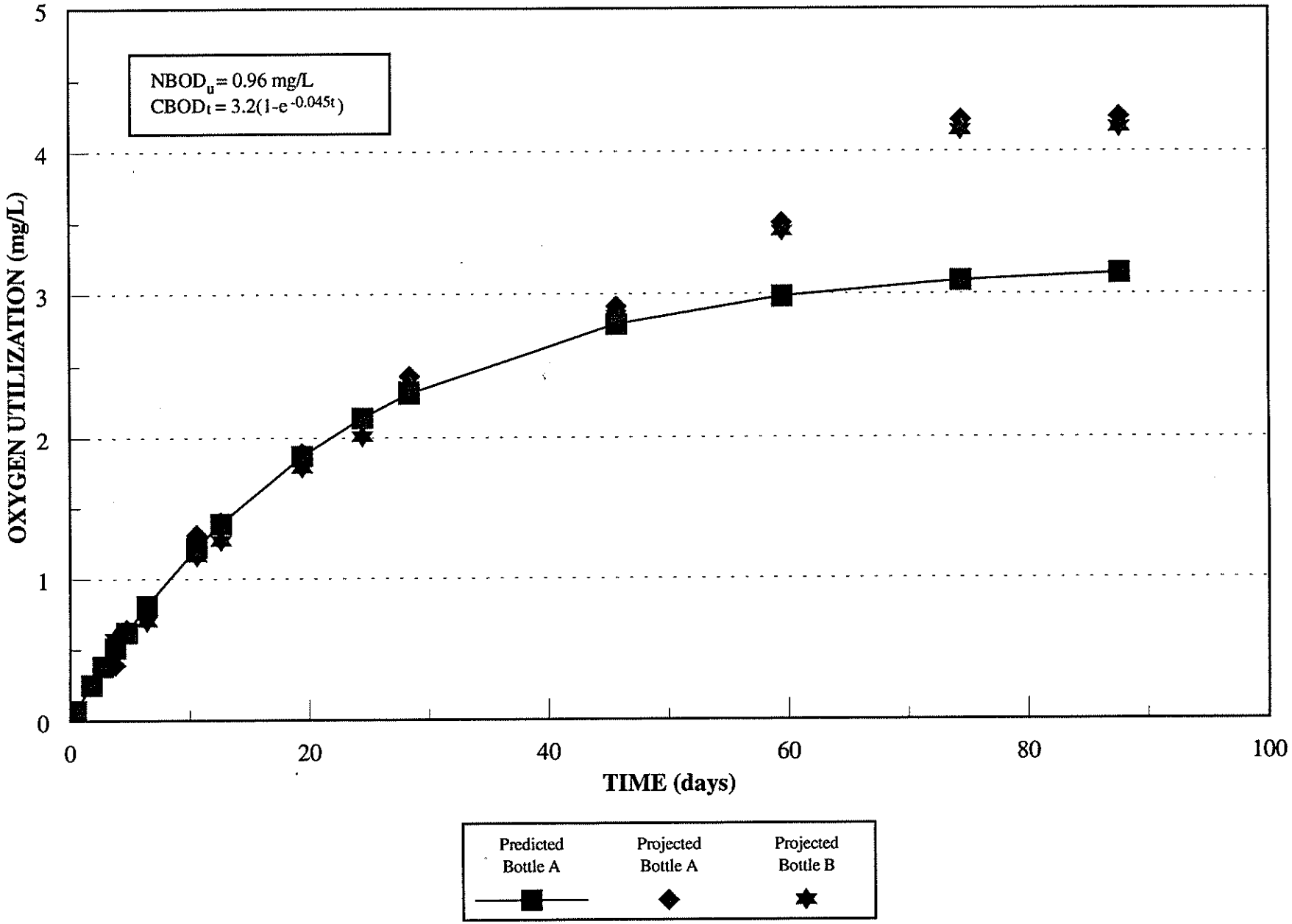
## OUACHITA RIVER MILE 208.8

## SAMPLE B



# TIME-SERIES BOD

## OUACHITA RIVER MILE 203




Data recorded November 12, 1998

TABLE _. OUACHITA RIVER TIME-SERIES BODS - ORM 203

| STATION | ORM 203 |
|---|---|

| | | | | | | | | | | | 3.2<br>0.045 | 3.2<br>0.045 | 3.2<br>0.045 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COLLECTION DATE | SETUP TIME | READ DATE | READ TIME | READ TIME (hrs) | TOTAL TIME (hrs) | TOTAL TIME (days) | BOTTLE A O2 (mg/L) | BOTTLE B O2 (mg/L) | BOTTLE A O2 UPTAKE (mg/L) | BOTTLE B O2 UPTAKE (mg/L) | PREDICTED O2 UPTAKE (mg/L) | PROJECTED BOTTLE A O2 UPTAKE (mg/L) | PROJECTED BOTTLE B O2 UPTAKE (mg/L) |
| 12-Nov-98 | 14:35 | 12-Nov-98 | 21:30 | 21.5000 | 0.0000 | 0.0000 | 9.88 | 9.89 | 0 | 0 | 0.00 | 0.00 | 0.00 |
| | | 13-Nov-98 | 09:41 | 33.6833 | 12.1833 | 0.5076 | 9.71 | 9.72 | 0.17 | 0.17 | 0.07 | 0.07 | 0.07 |
| | | 14-Nov-98 | 17:13 | 65.2167 | 43.7167 | 1.8215 | 9.74 * | 9.76 * | 0.14 | 0.13 | 0.25 | 0.25 | 0.25 |
| | | 15-Nov-98 | 16:03 | 88.0500 | 66.5500 | 2.7729 | 9.62 | 9.68 | 0.26 | 0.21 | 0.38 | 0.38 | 0.38 |
| | | 16-Nov-98 | 17:08 | 113.1333 | 91.6333 | 3.8181 | 9.28 | 9.10 | 0.6 | 0.79 | 0.51 | 0.39 | 0.58 |
| | | 17-Nov-98 | 16:06 | 136.1000 | 114.6000 | 4.7750 | 9.03 | 9.06 | 0.85 | 0.83 | 0.62 | 0.64 | 0.62 |
| | | 19-Nov-98 | 08:30 | 176.5000 | 155.0000 | 6.4583 | 8.93 | 8.98 | 0.95 | 0.91 | 0.81 | 0.74 | 0.70 |
| | | 23-Nov-98 | 12:42 | 276.7000 | 255.2000 | 10.6333 | 8.36 | 8.52 | 1.52 | 1.37 | 1.22 | 1.31 | 1.16 |
| | | 25-Nov-98 | 13:37 | 325.6167 | 304.1167 | 12.6715 | 8.27 | 8.41 | 1.61 | 1.48 | 1.39 | 1.40 | 1.27 |
| | | 02-Dec-98 | 09:08 | 489.1333 | 467.6333 | 19.4847 | 7.78 | 7.89 | 2.1 | 2 | 1.87 | 1.89 | 1.79 |
| | | 07-Dec-98 | 10:39 | 610.6500 | 589.1500 | 24.5479 | 7.55 | 7.67 | 2.33 | 2.22 | 2.14 | 2.12 | 2.01 |
| | | 11-Dec-98 | 08:07 | 704.1167 | 682.6167 | 28.4424 | 7.24 | 7.32 | 2.64 | 2.57 | 2.31 | 2.43 | 2.36 |
| | | 28-Dec-98 | 14:52 | 1118.8667 | 1097.3667 | 45.7236 | 6.76 | 6.83 | 3.12 | 3.06 | 2.79 | 2.91 | 2.85 |
| | | 11-Jan-99 | 11:10 | 1451.1667 | 1429.6667 | 59.5694 | 6.17 | 6.24 | 3.71 | 3.65 | 2.98 | 3.50 | 3.44 |
| | | 26-Jan-99 | 08:55 | 1808.9167 | 1787.4167 | 74.4757 | 5.45 | 5.53 | 4.43 | 4.36 | 3.09 | 4.22 | 4.15 |
| | | 08-Feb-99 | 13:04 | 2125.0667 | 2103.5667 | 87.6486 | 5.43 | 5.51 | 4.45 | 4.38 | 3.14 | 4.24 | 4.17 |

**Notes:**

* These bottles had large numbers of air bubbles. VW

$NBOD_u = 0.96$

$CBOD_t = 3.2(1 - e^{-0.045t})$

4.16

## TABLE X. ORM 203A MODEL CALIBRATION

| MODEL INPUT | | | | |
|---|---|---|---|---|
| **CBODu** | **k1** | **NBODU** | **A** | **kn** |
| 3 | 0.07 | 1.52626 | 7.46414 | 0.12535 |

| LABORATORY DATA | | | | BOD FROM DATA (mg/L) | MODEL BOD (mg/L) |
|---|---|---|---|---|---|
| **DATE** | **TIME** | **DAYS** | **DISSOLVED OXYGEN (mg/L)** | | |
| 12-Nov-98 | 21:30 | 0.00 | 9.88 | 0 | 0.00 |
| 13-Nov-98 | 09:41 | 0.51 | 9.71 | 0.17 | 0.11 |
| 14-Nov-98 | 17:13 | 1.82 | 9.74 | 0.14 | 0.36 |
| 15-Nov-98 | 16:03 | 2.77 | 9.62 | 0.26 | 0.53 |
| 16-Nov-98 | 17:08 | 3.82 | 9.28 | 0.6 | 0.70 |
| 17-Nov-98 | 16:06 | 4.78 | 9.03 | 0.85 | 0.85 |
| 19-Nov-98 | 08:30 | 6.46 | 8.93 | 0.95 | 1.09 |
| 23-Nov-98 | 12:42 | 10.63 | 8.36 | 1.52 | 1.58 |
| 25-Nov-98 | 13:37 | 12.67 | 8.27 | 1.61 | 1.77 |
| 02-Dec-98 | 09:08 | 19.48 | 7.78 | 2.1 | 2.24 |
| 07-Dec-98 | 10:39 | 24.55 | 7.55 | 2.33 | 2.48 |
| 11-Dec-98 | 08:07 | 28.44 | 7.24 | 2.64 | 2.62 |
| 28-Dec-98 | 14:52 | 45.72 | 6.76 | 3.12 | 3.11 |
| 11-Jan-99 | 11:10 | 59.57 | 6.17 | 3.71 | 3.72 |
| 26-Jan-99 | 08:55 | 74.48 | 5.45 | 4.43 | 4.31 |
| 08-Feb-99 | 13:04 | 87.65 | 5.43 | 4.45 | 4.48 |
| | | | | | |

## TABLE X. ORM 203B MODEL CALIBRATION

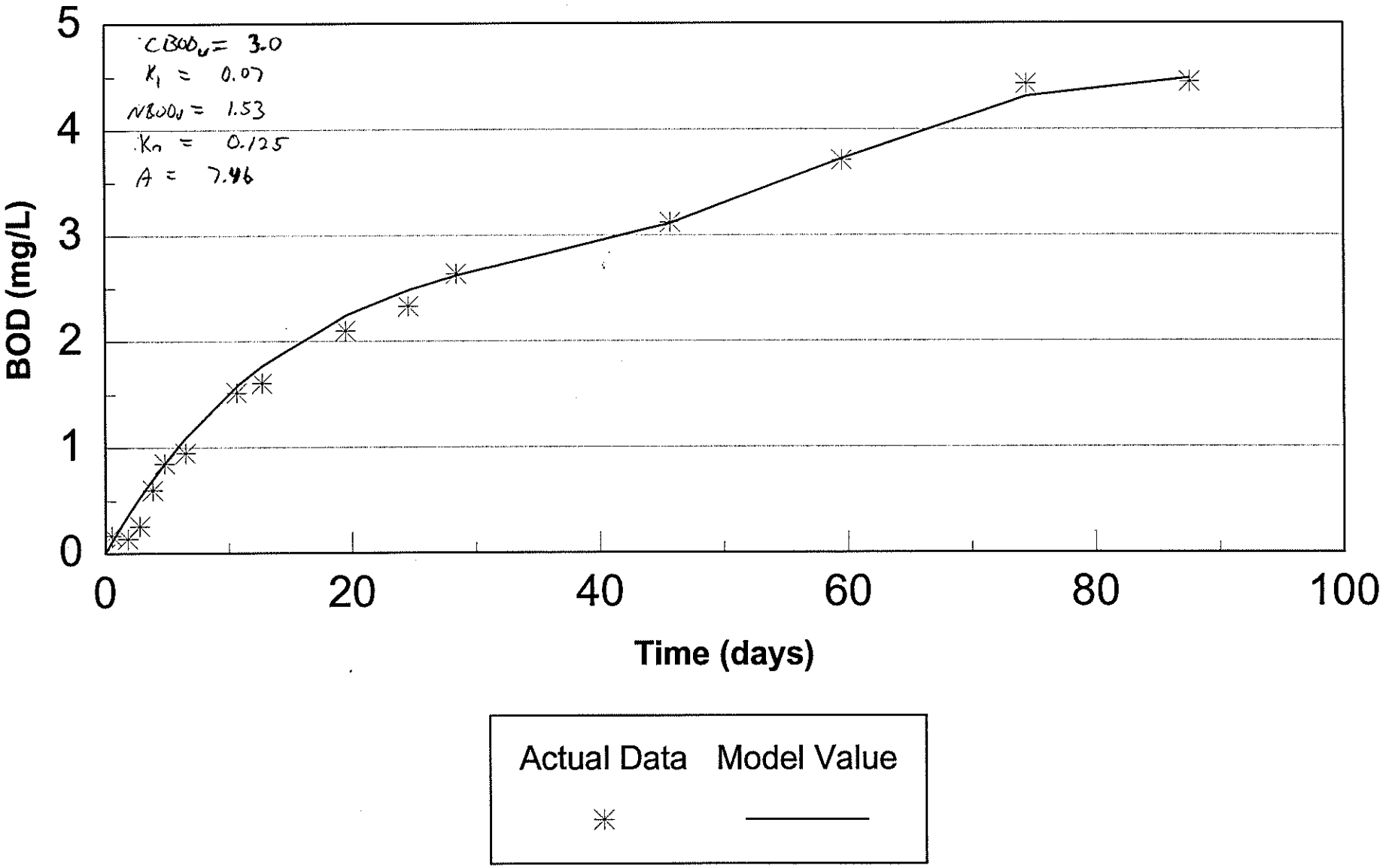
| MODEL INPUT | | | | |
|---|---|---|---|---|
| **CBODu** | **k1** | **NBODU** | **A** | **kn** |
| 2.9 | 0.07 | 1.57181 | 7.45725 | 0.12687 |

| LABORATORY DATA | | | | BOD FROM DATA (mg/L) | MODEL BOD (mg/L) |
|---|---|---|---|---|---|
| **DATE** | **TIME** | **DAYS** | **DISSOLVED OXYGEN (mg/L)** | | |
| 12-Nov-98 | 21:30 | 0.00 | 9.89 | 0 | 0.00 |
| 13-Nov-98 | 09:41 | 0.51 | 9.72 | 0.17 | 0.10 |
| 14-Nov-98 | 17:13 | 1.82 | 9.76 | 0.13 | 0.35 |
| 15-Nov-98 | 16:03 | 2.77 | 9.68 | 0.21 | 0.51 |
| 16-Nov-98 | 17:08 | 3.82 | 9.10 | 0.79 | 0.68 |
| 17-Nov-98 | 16:06 | 4.78 | 9.06 | 0.83 | 0.83 |
| 19-Nov-98 | 08:30 | 6.46 | 8.98 | 0.91 | 1.06 |
| 23-Nov-98 | 12:42 | 10.63 | 8.52 | 1.37 | 1.53 |
| 25-Nov-98 | 13:37 | 12.67 | 8.41 | 1.48 | 1.71 |
| 02-Dec-98 | 09:08 | 19.48 | 7.89 | 2 | 2.17 |
| 07-Dec-98 | 10:39 | 24.55 | 7.67 | 2.22 | 2.40 |
| 11-Dec-98 | 08:07 | 28.44 | 7.32 | 2.57 | 2.54 |
| 28-Dec-98 | 14:52 | 45.72 | 6.83 | 3.06 | 3.03 |
| 11-Jan-99 | 11:10 | 59.57 | 6.24 | 3.65 | 3.68 |
| 26-Jan-99 | 08:55 | 74.48 | 5.53 | 4.36 | 4.27 |
| 08-Feb-99 | 13:04 | 87.65 | 5.51 | 4.38 | 4.43 |
| | | | | | |

# TIME-SERIES BOD

## OUACHITA RIVER MILE 203

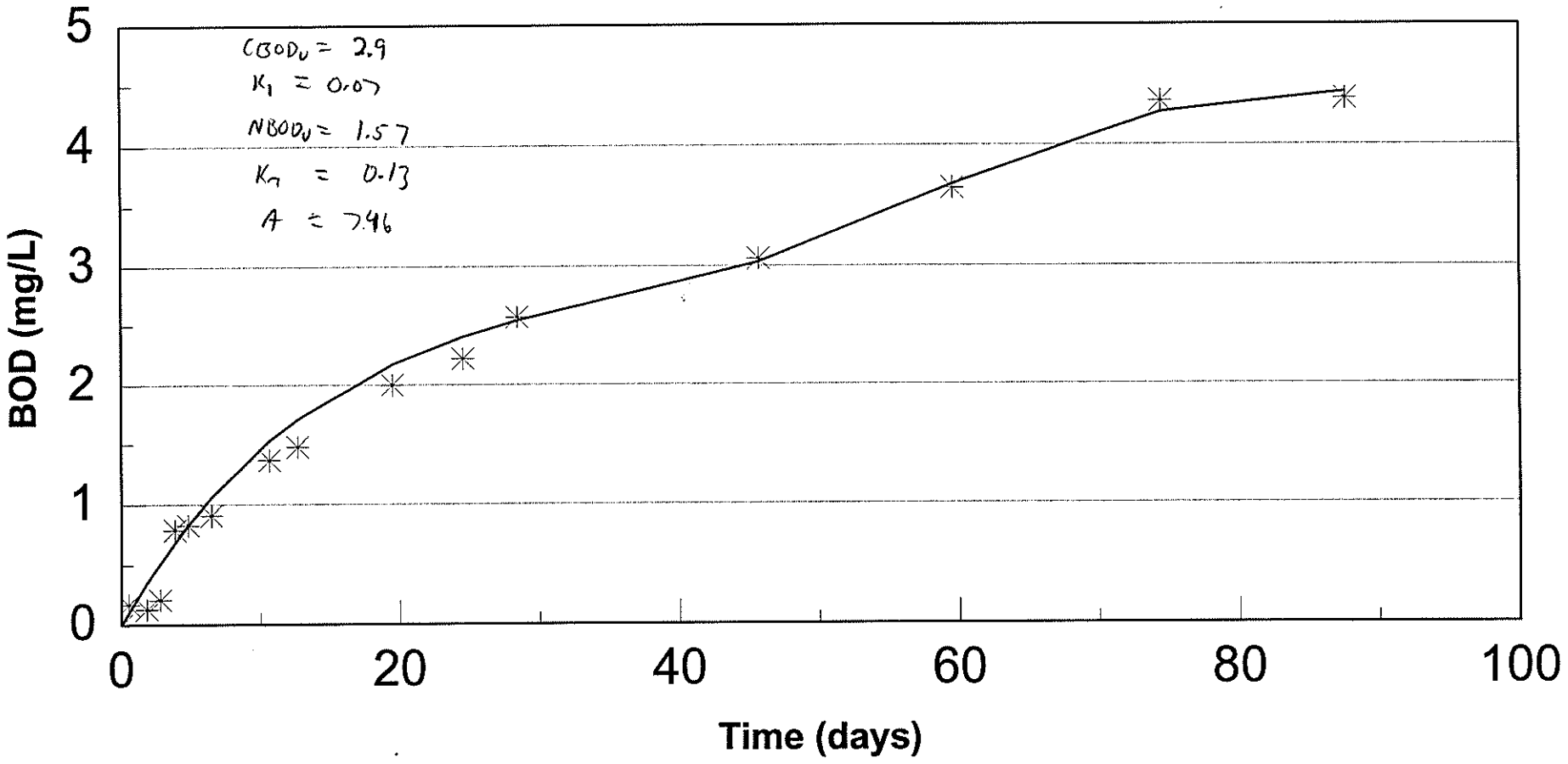
## SAMPLE A



# TIME-SERIES BOD

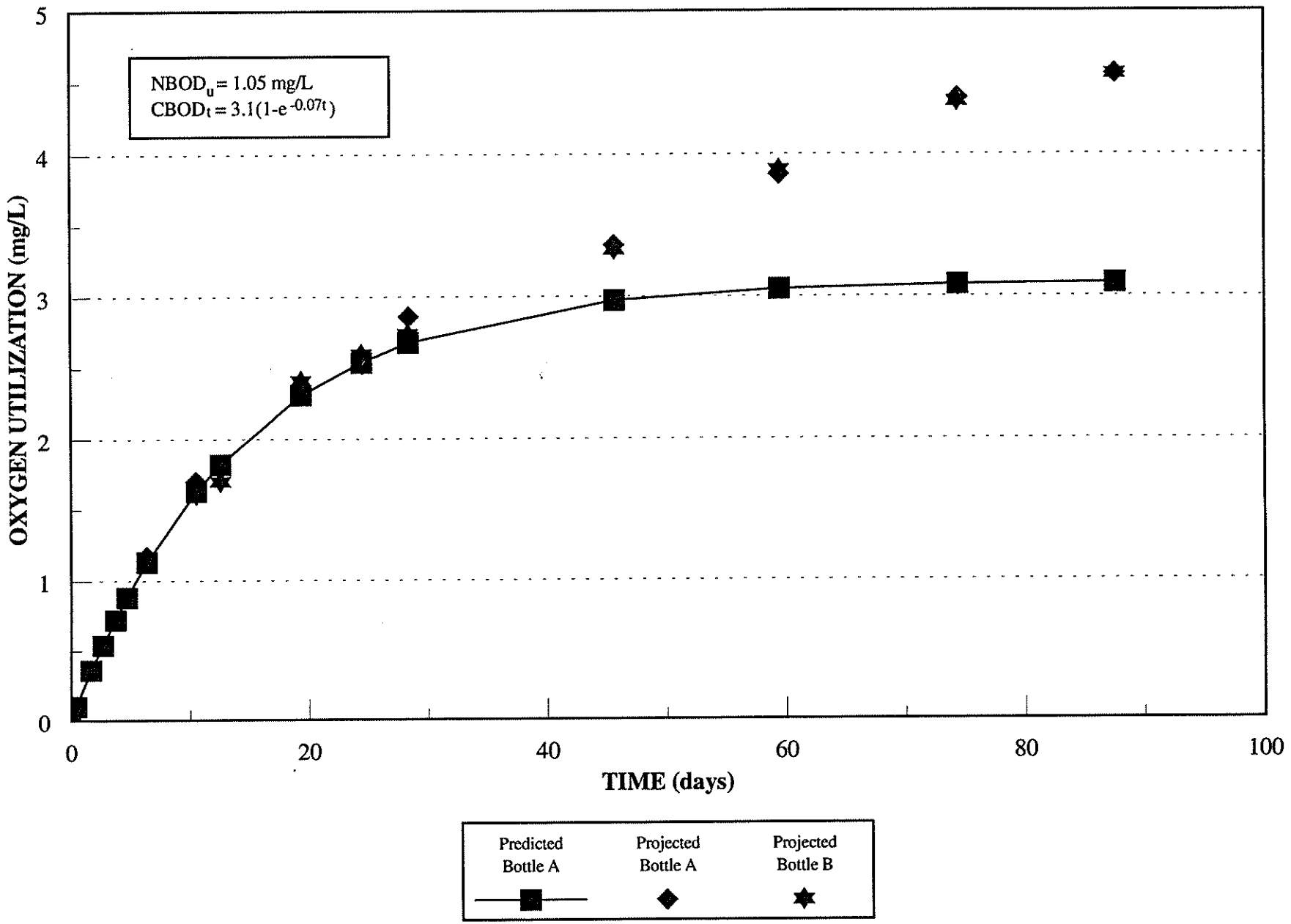
## OUACHITA RIVER MILE 203

## SAMPLE B



# TIME-SERIES BOD

## OUACHITA RIVER MILE 198




Data recorded November 12, 1998

STATION ORM 198

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | 3.1<br>0.07 | 3.1<br>0.07 | 3.1<br>0.07 |
| COLLECTION DATE | SETUP TIME | READ DATE | READ TIME | READ TIME (hrs) | TOTAL TIME (hrs) | TOTAL TIME (days) | BOTTLE A O2 (mg/L) | BOTTLE B O2 (mg/L) | BOTTLE A O2 UPTAKE (mg/L) | BOTTLE B O2 UPTAKE (mg/L) | PREDICTED O2 UPTAKE (mg/L) | PROJECTED BOTTLE A O2 UPTAKE (mg/L) | PROJECTED BOTTLE B O2 UPTAKE (mg/L) |
| 12-Nov-98 | 16:08 | 12-Nov-98 | 21:59 | 21.9833 | 0.0000 | 0.0000 | 9.87 | 9.42 | 0 | 0 | 0.00 | 0.00 | 0.00 |
| | | 13-Nov-98 | 09:36 | 33.6000 | 11.6167 | 0.4840 | 9.68 | 9.67 | 0.19 | -0.25 | 0.10 | 0.10 | 0.10 |
| | | 14-Nov-98 | 15:41 | 63.6833 | 41.7000 | 1.7375 | 9.42 | 9.32 | 0.45 | 0.1 | 0.36 | 0.36 | 0.36 |
| | | 15-Nov-98 | 16:10 | 88.1667 | 66.1833 | 2.7576 | 9.55 * | 9.57 * | 0.32 | -0.15 | 0.54 | 0.54 | 0.54 |
| | | 16-Nov-98 | 17:13 | 113.2167 | 91.2333 | 3.8014 | 9.05 | 9.09 | 0.82 | 0.33 | 0.72 | 0.72 | 0.72 |
| | | 17-Nov-98 | 16:12 | 136.2000 | 114.2167 | 4.7590 | 8.89 | 8.90 | 0.98 | 0.52 | 0.88 | 0.88 | 0.88 |
| | | 19-Nov-98 | 08:40 | 176.6667 | 154.6833 | 6.4451 | 8.86 | 8.86 | 1.01 | 0.56 | 1.13 | 1.17 | 1.17 |
| | | 23-Nov-98 | 12:50 | 276.8333 | 254.8500 | 10.6188 | 8.29 | 8.38 | 1.58 | 1.04 | 1.63 | 1.70 | 1.61 |
| | | 25-Nov-98 | 13:45 | 325.7500 | 303.7667 | 12.6569 | 8.19 | 8.29 | 1.68 | 1.13 | 1.82 | 1.80 | 1.70 |
| | | 02-Dec-98 | 09:16 | 489.2667 | 467.2833 | 19.4701 | 7.66 | 7.58 | 2.21 | 1.84 | 2.31 | 2.33 | 2.41 |
| | | 07-Dec-98 | 10:52 | 610.8667 | 588.8833 | 24.5368 | 7.46 | 7.59 | 2.41 | 1.83 | 2.54 | 2.53 | 2.60 |
| | | 11-Dec-98 | 08:13 | 704.2167 | 682.2333 | 28.4264 | 7.13 | 7.25 | 2.74 | 2.17 | 2.68 | 2.86 | 2.74 |
| | | 28-Dec-98 | 14:42 | 1118.7000 | 1096.7167 | 45.6965 | 6.63 | 6.66 | 3.24 | 2.76 | 2.97 | 3.36 | 3.33 |
| | | 11-Jan-99 | 11:17 | 1451.2833 | 1429.3000 | 59.5542 | 6.13 | 6.10 | 3.74 | 3.32 | 3.05 | 3.86 | 3.89 |
| | | 26-Jan-99 | 09:00 | 1809.0000 | 1787.0167 | 74.4590 | 5.60 | 5.62 | 4.27 | 3.8 | 3.08 | 4.39 | 4.37 |
| | | 08-Feb-99 | 13:13 | 2125.2167 | 2103.2333 | 87.6347 | 5.43 | 5.43 | 4.44 | 3.99 | 3.09 | 4.56 | 4.56 |

**Notes:**

* These bottles had a large number of air bubbles at onset of measuring

$NBOD_t \approx 1.05$

$$CBOD_t = \frac{3.1\left(1 - e^{-0.07t}\right)}{1.15}$$

## TABLE X. ORM 198A MODEL CALIBRATION

| MODEL INPUT | | | | |
|---|---|---|---|---|
| **CBODu** | **k1** | **NBODU** | **A** | **kn** |
| 2.74535 | 0.0722 | 1.93922 | 3.86013 | 0.06786 |

| LABORATORY DATA | | | | BOD FROM DATA (mg/L) | MODEL BOD (mg/L) |
|---|---|---|---|---|---|
| **DATE** | **TIME** | **DAYS** | **DISSOLVED OXYGEN (mg/L)** | | |
| 12-Nov-98 | 21:59 | 0.00 | 9.87 | 0 | 0.04 |
| 13-Nov-98 | 09:36 | 0.48 | 9.68 | 0.19 | 0.14 |
| 14-Nov-98 | 15:41 | 1.74 | 9.42 | 0.45 | 0.37 |
| 15-Nov-98 | 16:10 | 2.76 | 9.55 | 0.32 | 0.54 |
| 16-Nov-98 | 17:13 | 3.80 | 9.05 | 0.82 | 0.71 |
| 17-Nov-98 | 16:12 | 4.76 | 8.89 | 0.98 | 0.85 |
| 19-Nov-98 | 08:40 | 6.45 | 8.86 | 1.01 | 1.08 |
| 23-Nov-98 | 12:50 | 10.62 | 8.29 | 1.58 | 1.55 |
| 25-Nov-98 | 13:45 | 12.66 | 8.19 | 1.68 | 1.74 |
| 02-Dec-98 | 09:16 | 19.47 | 7.66 | 2.21 | 2.21 |
| 07-Dec-98 | 10:52 | 24.54 | 7.46 | 2.41 | 2.47 |
| 11-Dec-98 | 08:13 | 28.43 | 7.13 | 2.74 | 2.64 |
| 28-Dec-98 | 14:42 | 45.70 | 6.63 | 3.24 | 3.26 |
| 11-Jan-99 | 11:17 | 59.55 | 6.13 | 3.74 | 3.77 |
| 26-Jan-99 | 09:00 | 74.46 | 5.60 | 4.27 | 4.22 |
| 08-Feb-99 | 13:13 | 87.63 | 5.43 | 4.44 | 4.47 |
| | | | | | |

## TABLE X. ORM 198B MODEL CALIBRATION

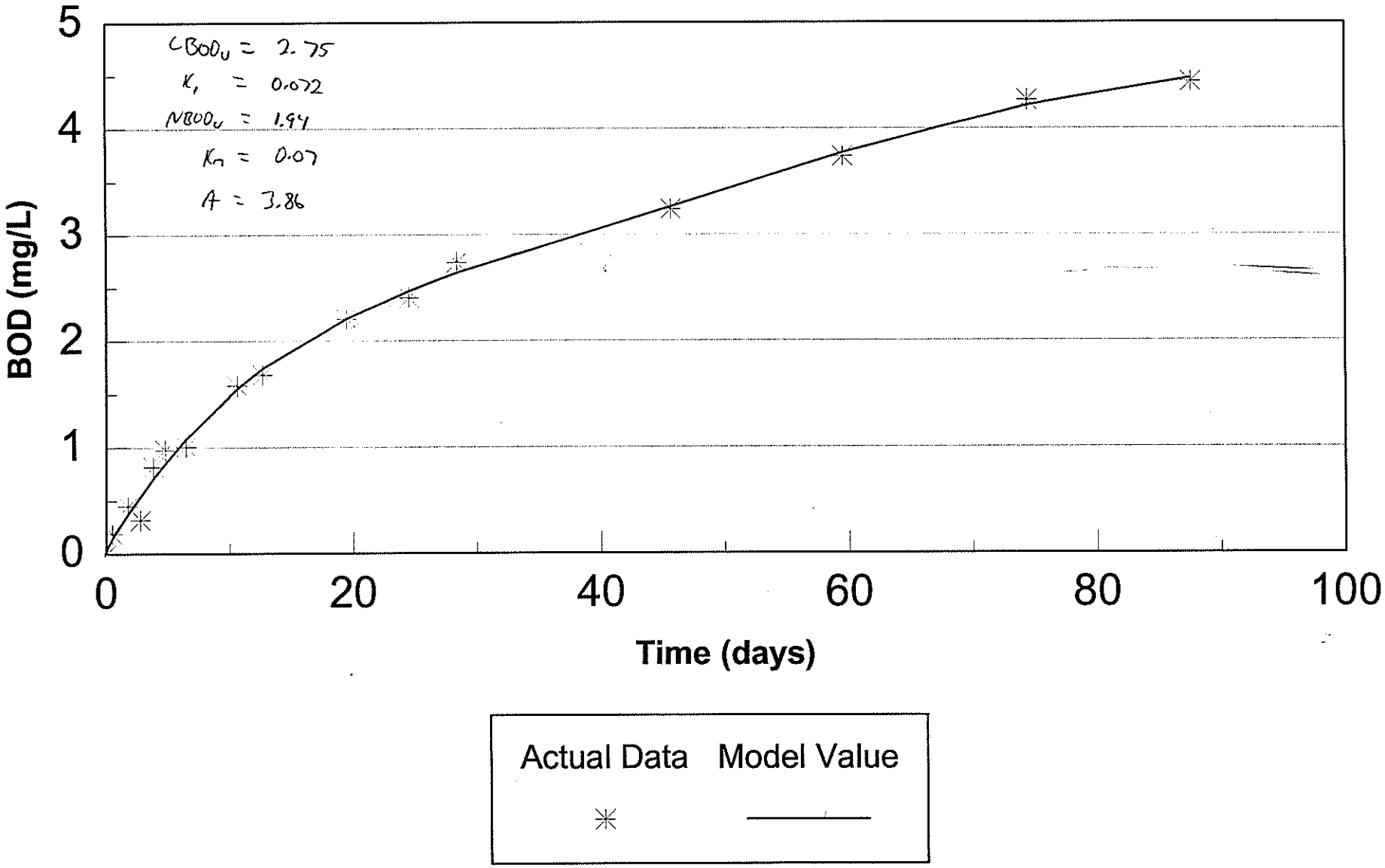
| MODEL INPUT | | | | |
|---|---|---|---|---|
| **CBODu** | **k1** | **NBODU** | **A** | **kn** |
| 2.45 | 0.07 | 1.7 | 5.72627 | 0.1 |

| LABORATORY DATA | | | | BOD FROM DATA (mg/L) | MODEL BOD (mg/L) |
|---|---|---|---|---|---|
| **DATE** | **TIME** | **DAYS** | **DISSOLVED OXYGEN (mg/L)** | | |
| 12-Nov-98 | 21:59 | 0.00 | 9.42 | 0 | 0.01 |
| 13-Nov-98 | 09:36 | 0.48 | 9.67 | -0.25 | 0.09 |
| 14-Nov-98 | 15:41 | 1.74 | 9.32 | 0.1 | 0.29 |
| 15-Nov-98 | 16:10 | 2.76 | 9.57 | -0.15 | 0.44 |
| 16-Nov-98 | 17:13 | 3.80 | 9.09 | 0.33 | 0.58 |
| 17-Nov-98 | 16:12 | 4.76 | 8.90 | 0.52 | 0.70 |
| 19-Nov-98 | 08:40 | 6.45 | 8.86 | 0.56 | 0.90 |
| 23-Nov-98 | 12:50 | 10.62 | 8.38 | 1.04 | 1.30 |
| 25-Nov-98 | 13:45 | 12.66 | 8.29 | 1.13 | 1.46 |
| 02-Dec-98 | 09:16 | 19.47 | 7.58 | 1.84 | 1.86 |
| 07-Dec-98 | 10:52 | 24.54 | 7.59 | 1.83 | 2.07 |
| 11-Dec-98 | 08:13 | 28.43 | 7.25 | 2.17 | 2.21 |
| 28-Dec-98 | 14:42 | 45.70 | 6.66 | 2.76 | 2.76 |
| 11-Jan-99 | 11:17 | 59.55 | 6.10 | 3.32 | 3.36 |
| 26-Jan-99 | 09:00 | 74.46 | 5.62 | 3.8 | 3.88 |
| 08-Feb-99 | 13:13 | 87.63 | 5.43 | 3.99 | 4.07 |
| | | | | | |

# TIME-SERIES BOD

## OUACHITA RIVER MILE 198

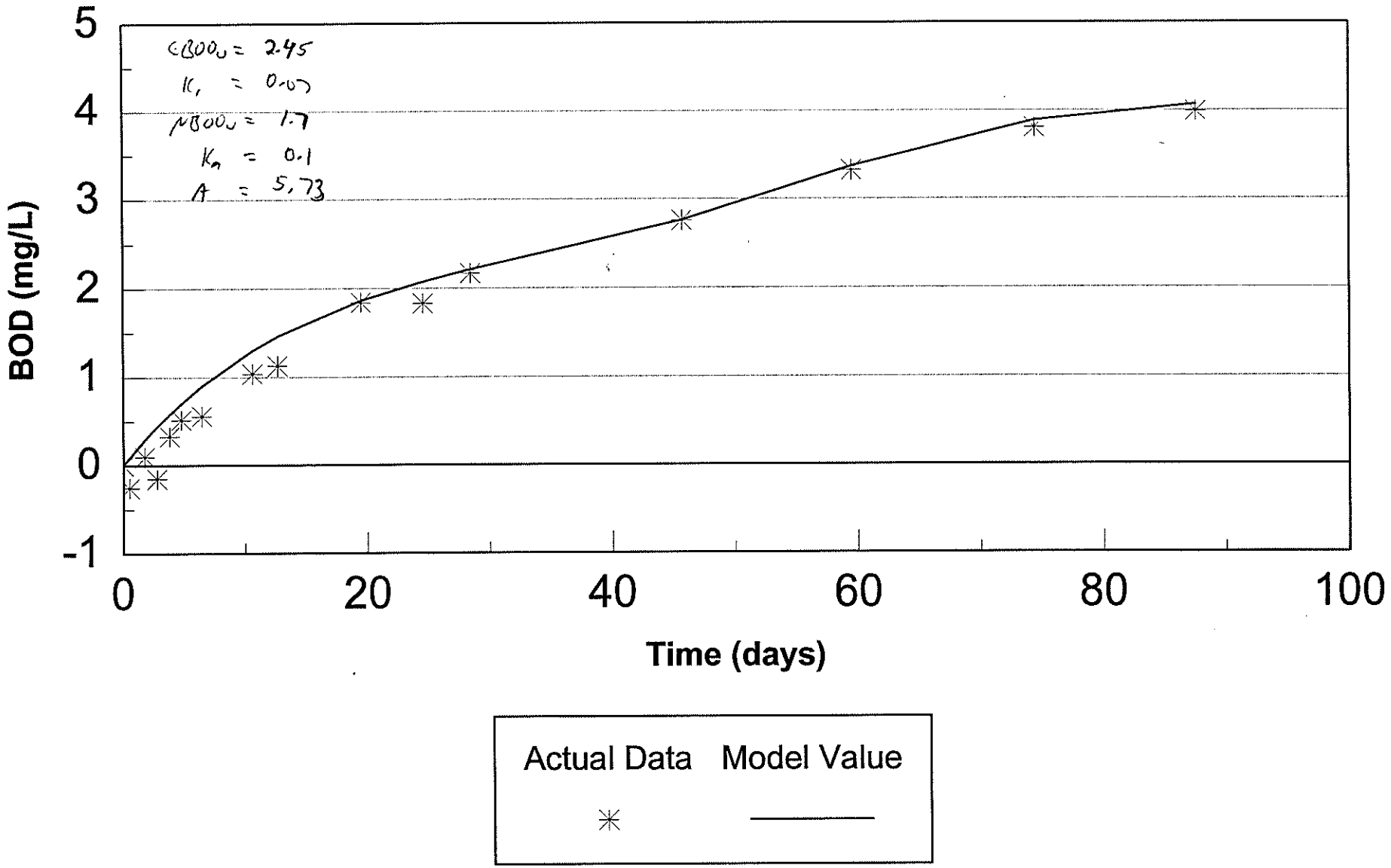
## SAMPLE A



# TIME-SERIES BOD

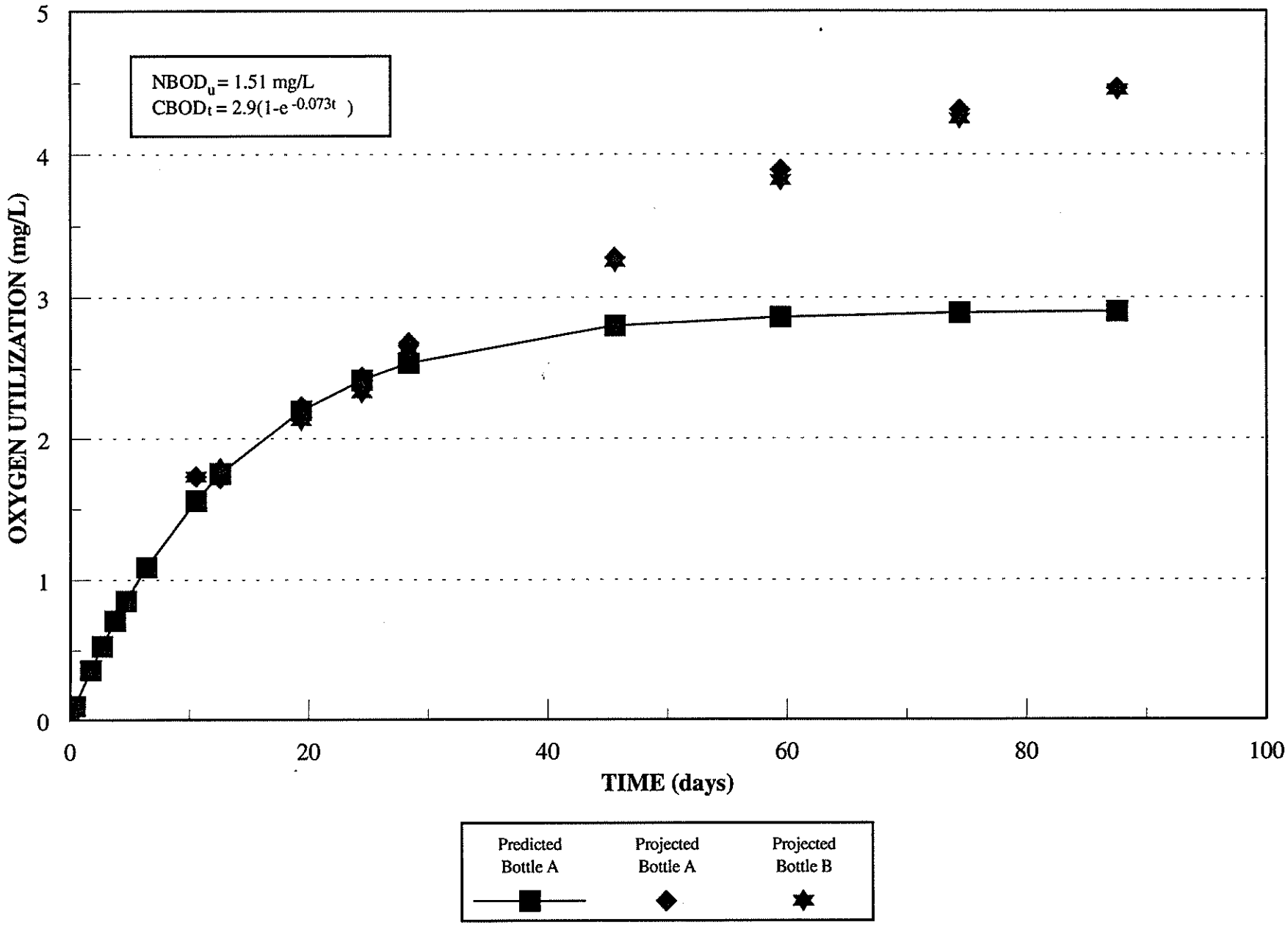
## OUACHITA RIVER MILE 198

## SAMPLE B



# TIME-SERIES BOD

## OUACHITA RIVER MILE 194




Data recorded November 12, 1998

TABLE _. OUAC...A RIVER TIME-SERIES BODS - ORM 194

STATION ORM 194

| | | | | | | | | | | | 2.9<br>0.073 | 2.9<br>0.073 | 2.9<br>0.073 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COLLECTION DATE | SETUP TIME | READ DATE | READ TIME | READ TIME (hrs) | TOTAL TIME (hrs) | TOTAL TIME (days) | BOTTLE A O2 (mg/L) | BOTTLE B O2 (mg/L) | BOTTLE A O2 UPTAKE (mg/L) | BOTTLE B O2 UPTAKE (mg/L) | PREDICTED BOTTLE A O2 UPTAKE (mg/L) | PROJECTED BOTTLE A O2 UPTAKE (mg/L) | PROJECTED BOTTLE B O2 UPTAKE (mg/L) |
| 12-Nov-98 | 22:10 | 12-Nov-98 | 22:10 | 22.1667 | 0.0000 | 0.0000 | 9.63 | 9.66 | 0 | 0 | 0.00 | 0.00 | 0.00 |
| | | 13-Nov-98 | 09:51 | 33.8500 | 11.6833 | 0.4868 | 9.39 | 9.43 | 0.24 | 0.23 | 0.10 | 0.10 | 0.10 |
| | | 14-Nov-98 | 17:23 | 65.3833 | 43.2167 | 1.8007 | 9.51 * | 9.42 * | 0.12 | 0.24 | 0.36 | 0.36 | 0.36 |
| | | 15-Nov-98 | 16:15 | 88.2500 | 66.0833 | 2.7535 | 9.33 ** | 9.38 ** | 0.3 | 0.28 | 0.53 | 0.53 | 0.53 |
| | | 16-Nov-98 | 18:05 | 114.0833 | 91.9167 | 3.8299 | 8.92 | 8.96 | 0.71 | 0.7 | 0.71 | 0.71 | 0.71 |
| | | 17-Nov-98 | 16:16 | 136.2667 | 114.1000 | 4.7542 | 8.59 | 8.60 | 1.04 | 1.06 | 0.85 | 0.85 | 0.85 |
| | | 19-Nov-98 | 09:20 | 177.3333 | 155.1667 | 6.4653 | 8.47 | 8.63 | 1.16 | 1.03 | 1.09 | 1.09 | 1.09 |
| | | 23-Nov-98 | 13:07 | 277.1167 | 254.9500 | 10.6229 | 8.17 | 8.11 | 1.46 | 1.55 | 1.56 | 1.73 | 1.73 |
| | | 25-Nov-98 | 13:52 | 325.8667 | 303.7000 | 12.6542 | 8.01 | 7.88 | 1.62 | 1.78 | 1.75 | 1.72 | 1.79 |
| | | 02-Dec-98 | 09:22 | 489.3667 | 467.2000 | 19.4667 | 7.50 | 7.54 | 2.13 | 2.12 | 2.20 | 2.23 | 2.13 |
| | | 07-Dec-98 | 10:57 | 610.9500 | 588.7833 | 24.5326 | 7.29 | 7.34 | 2.34 | 2.32 | 2.42 | 2.44 | 2.33 |
| | | 11-Dec-98 | 08:16 | 704.2667 | 682.1000 | 28.4208 | 7.05 | 7.04 | 2.58 | 2.62 | 2.54 | 2.68 | 2.63 |
| | | 28-Dec-98 | 14:30 | 1118.5000 | 1096.3333 | 45.6806 | 6.45 | 6.42 | 3.18 | 3.24 | 2.80 | 3.28 | 3.25 |
| | | 11-Jan-99 | 11:25 | 1451.4167 | 1429.2500 | 59.5521 | 5.84 | 5.85 | 3.79 | 3.81 | 2.86 | 3.89 | 3.82 |
| | | 26-Jan-99 | 09:10 | 1809.1667 | 1787.0000 | 74.4583 | 5.42 | 5.42 | 4.21 | 4.24 | 2.89 | 4.31 | 4.25 |
| | | 08-Feb-99 | 13:22 | 2125.3667 | 2103.2000 | 87.6333 | 5.27 | 5.22 | 4.36 | 4.44 | 2.90 | 4.46 | 4.45 |

Notes:

* These bottles had large numbers of air bubbles. VW

** Large number of air bubbles. VW

$NBOD_t \approx 1.51$ mg/L

$$CBOD_t = \frac{2.9\left(1 - e^{-0.073t}\right)}{4.41}$$

## TABLE X. ORM 194A MODEL CALIBRATION

| MODEL INPUT | | | | |
|---|---|---|---|---|
| **CBODu** | **k1** | **NBODU** | **A** | **kn** |
| 2.71364 | 0.0733 | 1.76535 | 4.93327 | 0.09147 |

| LABORATORY DATA | | | | BOD FROM DATA (mg/L) | MODEL BOD (mg/L) |
|---|---|---|---|---|---|
| **DATE** | **TIME** | **DAYS** | **DISSOLVED OXYGEN (mg/L)** | | |
| 12-Nov-98 | 22:10 | 0.00 | 9.63 | 0 | 0.01 |
| 13-Nov-98 | 09:51 | 0.49 | 9.39 | 0.24 | 0.11 |
| 14-Nov-98 | 17:23 | 1.80 | 9.51 | 0.12 | 0.35 |
| 15-Nov-98 | 16:15 | 2.75 | 9.33 | 0.3 | 0.51 |
| 16-Nov-98 | 18:05 | 3.83 | 8.92 | 0.71 | 0.68 |
| 17-Nov-98 | 16:16 | 4.75 | 8.59 | 1.04 | 0.82 |
| 19-Nov-98 | 09:20 | 6.47 | 8.47 | 1.16 | 1.05 |
| 23-Nov-98 | 13:07 | 10.62 | 8.17 | 1.46 | 1.50 |
| 25-Nov-98 | 13:52 | 12.65 | 8.01 | 1.62 | 1.68 |
| 02-Dec-98 | 09:22 | 19.47 | 7.50 | 2.13 | 2.13 |
| 07-Dec-98 | 10:57 | 24.53 | 7.29 | 2.34 | 2.38 |
| 11-Dec-98 | 08:16 | 28.42 | 7.05 | 2.58 | 2.53 |
| 28-Dec-98 | 14:30 | 45.68 | 6.45 | 3.18 | 3.18 |
| 11-Jan-99 | 11:25 | 59.55 | 5.84 | 3.79 | 3.78 |
| 26-Jan-99 | 09:10 | 74.46 | 5.42 | 4.21 | 4.23 |
| 08-Feb-99 | 13:22 | 87.63 | 5.27 | 4.36 | 4.40 |
| | | | | | |

## TABLE X. ORM 194B MODEL CALIBRATION

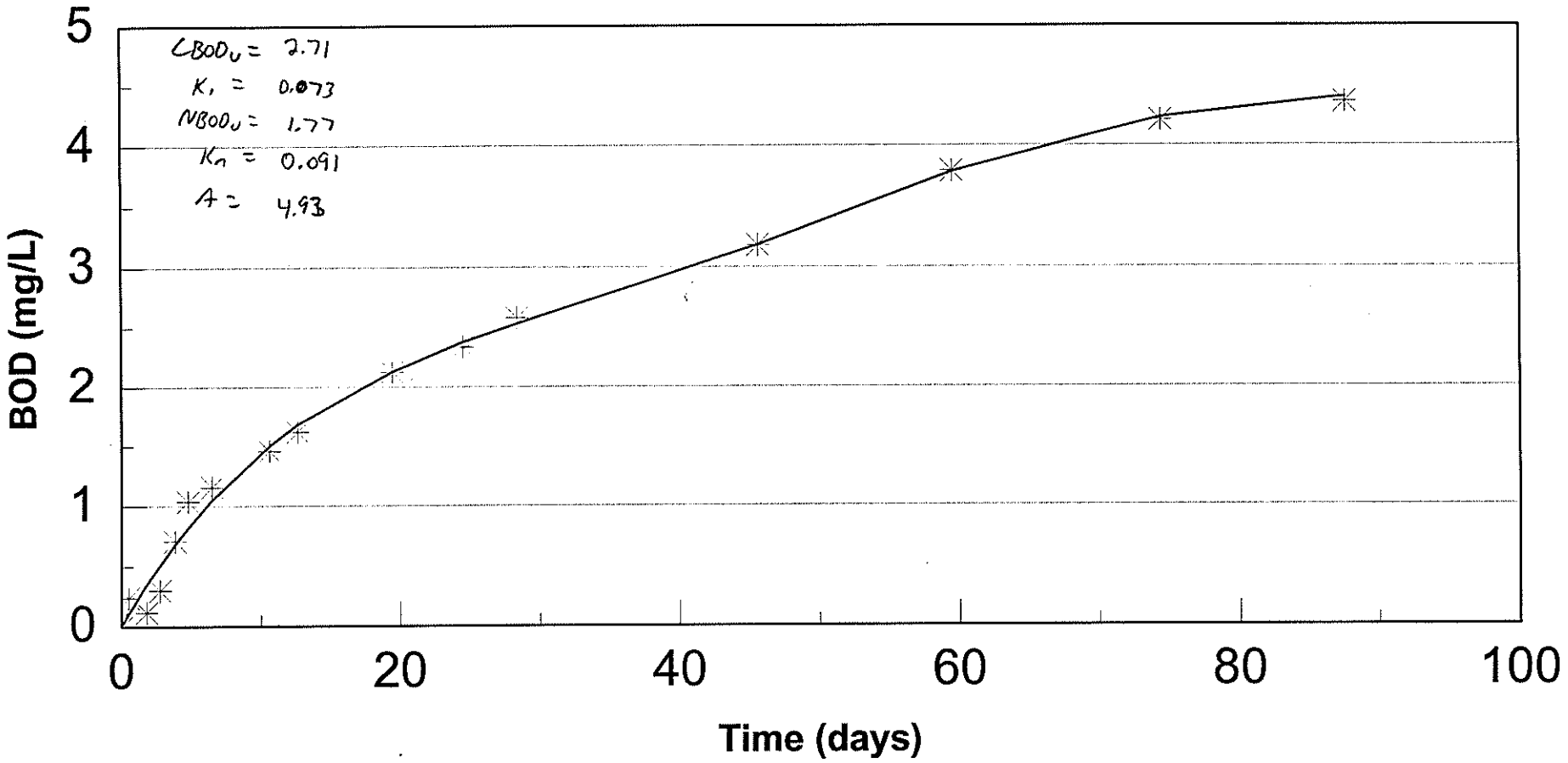
| MODEL INPUT | | | | |
|---|---|---|---|---|
| **CBODu** | **k1** | **NBODU** | **A** | **kn** |
| 2.69494 | 0.07561 | 1.81945 | 4.69259 | 0.08789 |

| LABORATORY DATA | | | | BOD FROM DATA (mg/L) | MODEL BOD (mg/L) |
|---|---|---|---|---|---|
| **DATE** | **TIME** | **DAYS** | **DISSOLVED OXYGEN (mg/L)** | | |
| 12-Nov-98 | 22:10 | 0.00 | 9.66 | 0 | 0.02 |
| 13-Nov-98 | 09:51 | 0.49 | 9.43 | 0.23 | 0.11 |
| 14-Nov-98 | 17:23 | 1.80 | 9.42 | 0.24 | 0.36 |
| 15-Nov-98 | 16:15 | 2.75 | 9.38 | 0.28 | 0.53 |
| 16-Nov-98 | 18:05 | 3.83 | 8.96 | 0.7 | 0.70 |
| 17-Nov-98 | 16:16 | 4.75 | 8.60 | 1.06 | 0.84 |
| 19-Nov-98 | 09:20 | 6.47 | 8.63 | 1.03 | 1.07 |
| 23-Nov-98 | 13:07 | 10.62 | 8.11 | 1.55 | 1.53 |
| 25-Nov-98 | 13:52 | 12.65 | 7.88 | 1.78 | 1.71 |
| 02-Dec-98 | 09:22 | 19.47 | 7.54 | 2.12 | 2.16 |
| 07-Dec-98 | 10:57 | 24.53 | 7.34 | 2.32 | 2.41 |
| 11-Dec-98 | 08:16 | 28.42 | 7.04 | 2.62 | 2.56 |
| 28-Dec-98 | 14:30 | 45.68 | 6.42 | 3.24 | 3.22 |
| 11-Jan-99 | 11:25 | 59.55 | 5.85 | 3.81 | 3.82 |
| 26-Jan-99 | 09:10 | 74.46 | 5.42 | 4.24 | 4.26 |
| 08-Feb-99 | 13:22 | 87.63 | 5.22 | 4.44 | 4.43 |
| | | | | | |

# TIME-SERIES BOD

## OUACHITA RIVER MILE 194

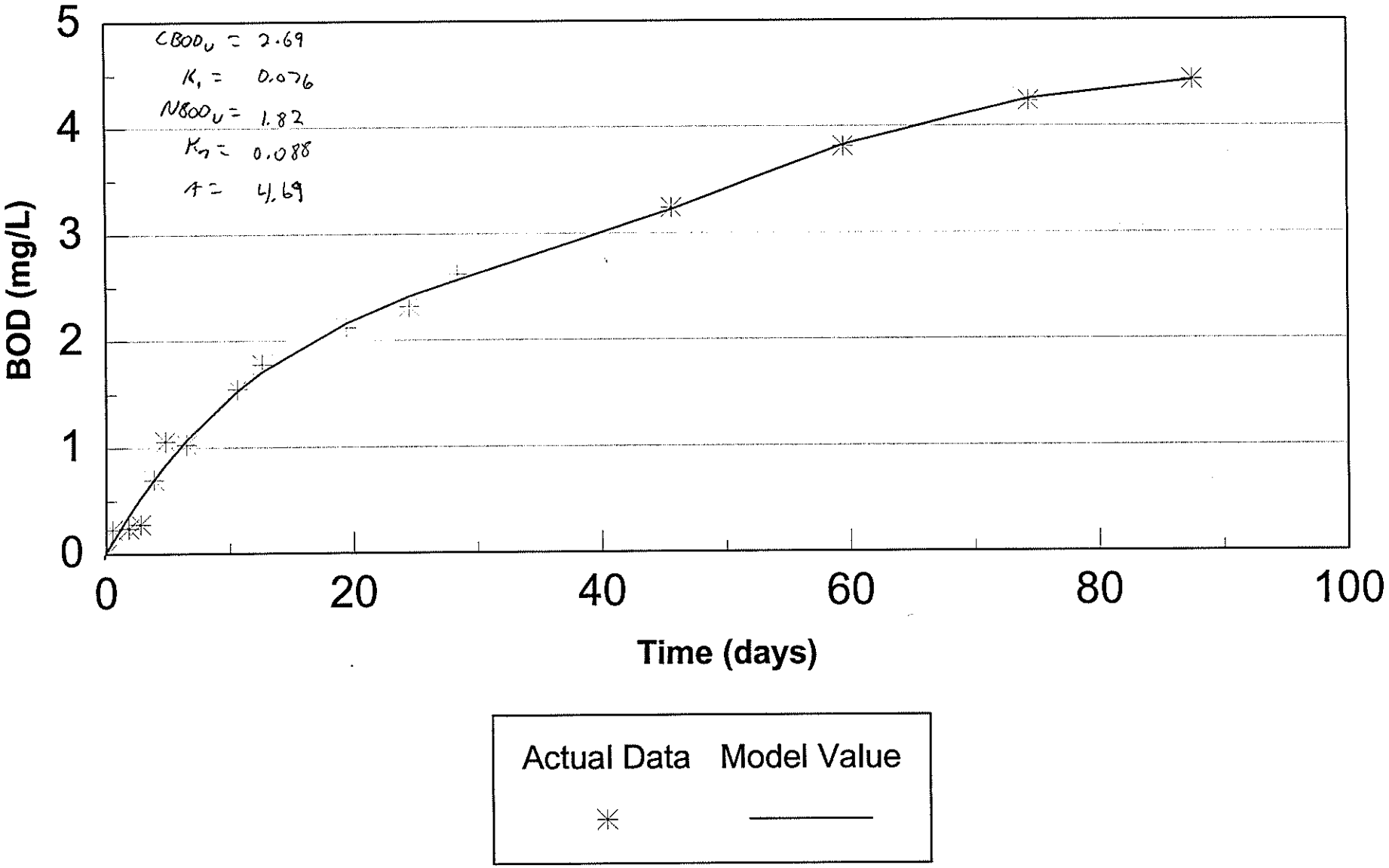
## SAMPLE A



# TIME-SERIES BOD

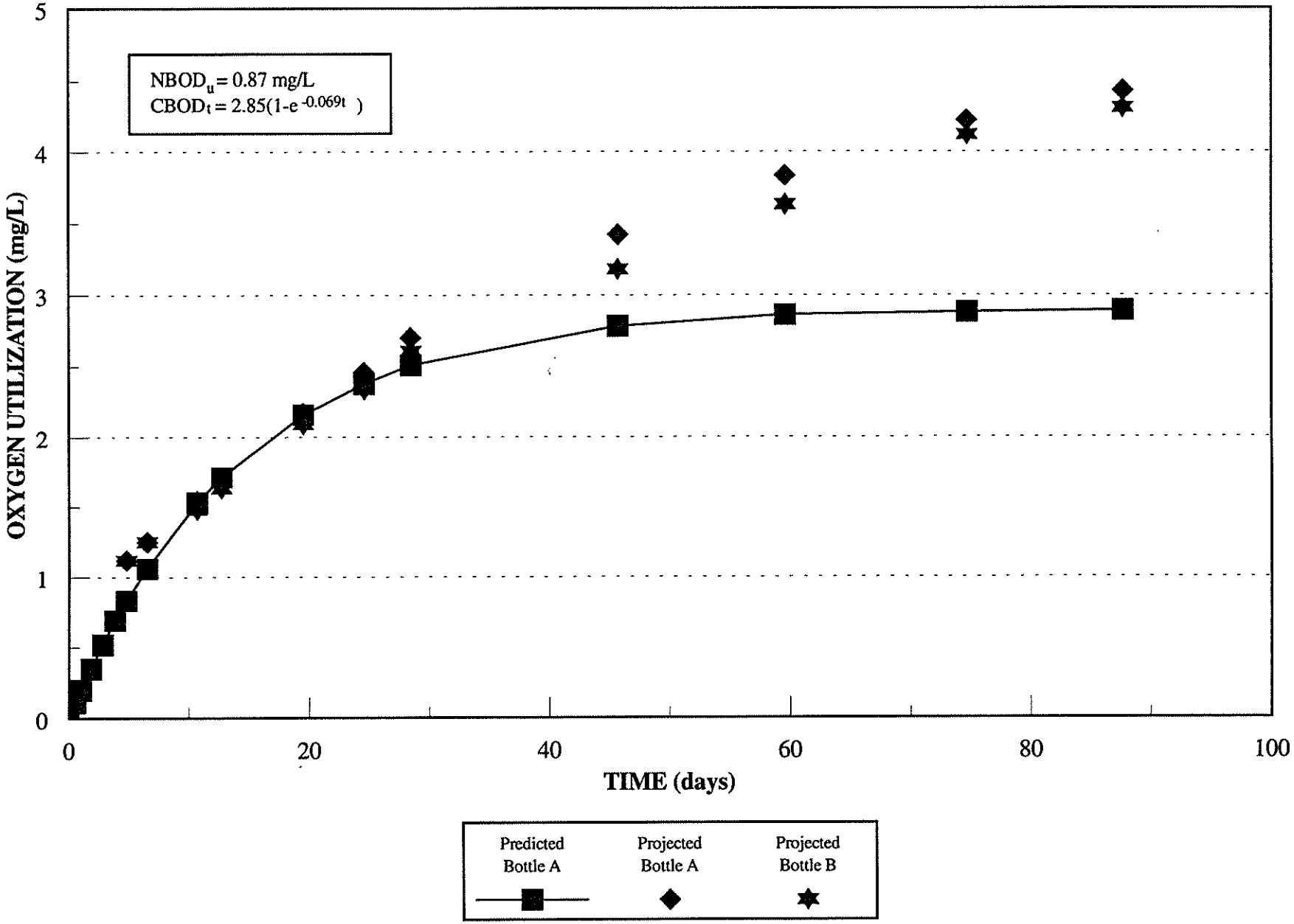
## OUACHITA RIVER MILE 194

## SAMPLE B



# TIME-SERIES BOD

## OUACHITA RIVER MILE 191.6




Data recorded November 12, 1998

TABLE _. OUACHITA RIVER TIME-SERIES BODS - ORM 191.6

| STATION | ORM 191.6 |
|---|---|

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 2.9 | 2.9 | 2.9 |
| | | | | | | | | | | | 0.07 | 0.07 | 0.07 |
| COLLECTION DATE | SETUP TIME | READ DATE | READ TIME | READ TIME (hrs) | TOTAL TIME (hrs) | TOTAL TIME (days) | BOTTLE A O2 (mg/L) | BOTTLE B O2 (mg/L) | BOTTLE A O2 UPTAKE (mg/L) | BOTTLE B O2 UPTAKE (mg/L) | PREDICTED BOTTLE A O2 UPTAKE (mg/L) | PROJECTED BOTTLE A O2 UPTAKE (mg/L) | PROJECTED BOTTLE B O2 UPTAKE (mg/L) |
| 12-Nov-98 | 22:20 | 12-Nov-98 | 22:20 | 22.3333 | 0.0000 | 0.0000 | 9.56 | 9.52 | 0 | 0 | 0.00 | 0.00 | 0.00 |
| | | 13-Nov-98 | 09:46 | 35.3000 | 12.9667 | 0.5403 | 9.35 | 9.37 | 0.21 | 0.15 | 0.11 | 0.11 | 0.11 |
| | | 13-Nov-98 | 20:58 | 46.5000 | 24.1667 | 1.0069 | 9.55 | 9.63 | 0.01 | -0.11 | 0.20 | 0.20 | 0.20 |
| | | 14-Nov-98 | 17:31 | 67.0500 | 44.7167 | 1.8632 | 9.42 * | 9.39 * | 0.14 | 0.13 | 0.35 | 0.35 | 0.35 |
| | | 15-Nov-98 | 16:25 | 89.9500 | 67.6167 | 2.8174 | 9.22 * | 9.17 * | 0.34 | 0.35 | 0.52 | 0.52 | 0.52 |
| | | 16-Nov-98 | 17:23 | 114.9167 | 92.5833 | 3.8576 | 8.70 | 8.70 | 0.86 | 0.82 | 0.69 | 0.69 | 0.69 |
| | | 17-Nov-98 | 16:19 | 137.8500 | 115.5167 | 4.8132 | 8.44 | 8.39 | 1.12 | 1.13 | 0.83 | 1.12 | 1.12 |
| | | 19-Nov-98 | 09:25 | 178.9500 | 156.6167 | 6.5257 | 8.45 | 8.43 | 1.11 | 1.09 | 1.06 | 1.25 | 1.25 |
| | | 23-Nov-98 | 13:10 | 278.7000 | 256.3667 | 10.6819 | 7.97 | 8.01 | 1.59 | 1.51 | 1.53 | 1.54 | 1.48 |
| | | 25-Nov-98 | 13:59 | 327.5167 | 305.1833 | 12.7160 | 7.83 | 7.86 | 1.73 | 1.66 | 1.71 | 1.68 | 1.63 |
| | | 02-Dec-98 | 09:28 | 491.0000 | 468.6667 | 19.5278 | 7.34 | 7.40 | 2.22 | 2.12 | 2.16 | 2.17 | 2.09 |
| | | 07-Dec-98 | 11:05 | 612.6167 | 590.2833 | 24.5951 | 7.05 | 7.15 | 2.51 | 2.37 | 2.38 | 2.46 | 2.34 |
| | | 11-Dec-98 | 08:20 | 705.8667 | 683.5333 | 28.4806 | 6.81 | 6.88 | 2.75 | 2.64 | 2.51 | 2.70 | 2.61 |
| | | 28-Dec-98 | 14:05 | 1119.6167 | 1097.2833 | 45.7201 | 6.09 | 6.31 | 3.47 | 3.21 | 2.78 | 3.42 | 3.18 |
| | | 11-Jan-99 | 11:35 | 1453.1167 | 1430.7833 | 59.6160 | 5.68 | 5.86 | 3.88 | 3.66 | 2.86 | 3.83 | 3.63 |
| | | 26-Jan-99 | 14:10 | 1815.7000 | 1793.3667 | 74.7236 | 5.29 | 5.37 | 4.27 | 4.15 | 2.88 | 4.22 | 4.12 |
| | | 08-Feb-99 | 13:32 | 2127.0667 | 2104.7333 | 87.6972 | 5.08 | 5.18 | 4.48 | 4.34 | 2.89 | 4.43 | 4.31 |

$NBOD_t \approx 0.87 \text{ mg/L}$

$$CBOD_t \approx \frac{2.85}{3.75}\left(1 - e^{-0.069t}\right)$$

## TABLE X. ORM 191.6A MODEL CALIBRATION

| MODEL INPUT | | | | |
|---|---|---|---|---|
| **CBODu** | **k1** | **NBODU** | **A** | **kn** |
| 2.96981 | 0.06869 | 1.55911 | 4.45213 | 0.08458 |

| LABORATORY DATA | | | | BOD FROM DATA (mg/L) | MODEL BOD (mg/L) |
|---|---|---|---|---|---|
| **DATE** | **TIME** | **DAYS** | **DISSOLVED OXYGEN (mg/L)** | | |
| 12-Nov-98 | 22:20 | 0.00 | 9.56 | 0 | 0.02 |
| 13-Nov-98 | 09:46 | 0.48 | 9.35 | 0.21 | 0.11 |
| 13-Nov-98 | 20:58 | 0.94 | 9.55 | 0.01 | 0.21 |
| 14-Nov-98 | 17:31 | 1.80 | 9.42 | 0.14 | 0.37 |
| 15-Nov-98 | 16:25 | 2.75 | 9.22 | 0.34 | 0.53 |
| 16-Nov-98 | 17:23 | 3.79 | 8.70 | 0.86 | 0.71 |
| 17-Nov-98 | 16:19 | 4.75 | 8.44 | 1.12 | 0.85 |
| 19-Nov-98 | 09:25 | 6.46 | 8.45 | 1.11 | 1.10 |
| 23-Nov-98 | 13:10 | 10.62 | 7.97 | 1.59 | 1.58 |
| 25-Nov-98 | 13:59 | 12.65 | 7.83 | 1.73 | 1.78 |
| 02-Dec-98 | 09:28 | 19.46 | 7.34 | 2.22 | 2.28 |
| 07-Dec-98 | 11:05 | 24.53 | 7.05 | 2.51 | 2.55 |
| 11-Dec-98 | 08:20 | 28.42 | 6.81 | 2.75 | 2.73 |
| 28-Dec-98 | 14:05 | 45.66 | 6.09 | 3.47 | 3.40 |
| 11-Jan-99 | 11:35 | 59.55 | 5.68 | 3.88 | 3.92 |
| 26-Jan-99 | 14:10 | 74.66 | 5.29 | 4.27 | 4.30 |
| 08-Feb-99 | 13:32 | 87.63 | 5.08 | 4.48 | 4.44 |

## TABLE X. ORM 191.6B MODEL CALIBRATION

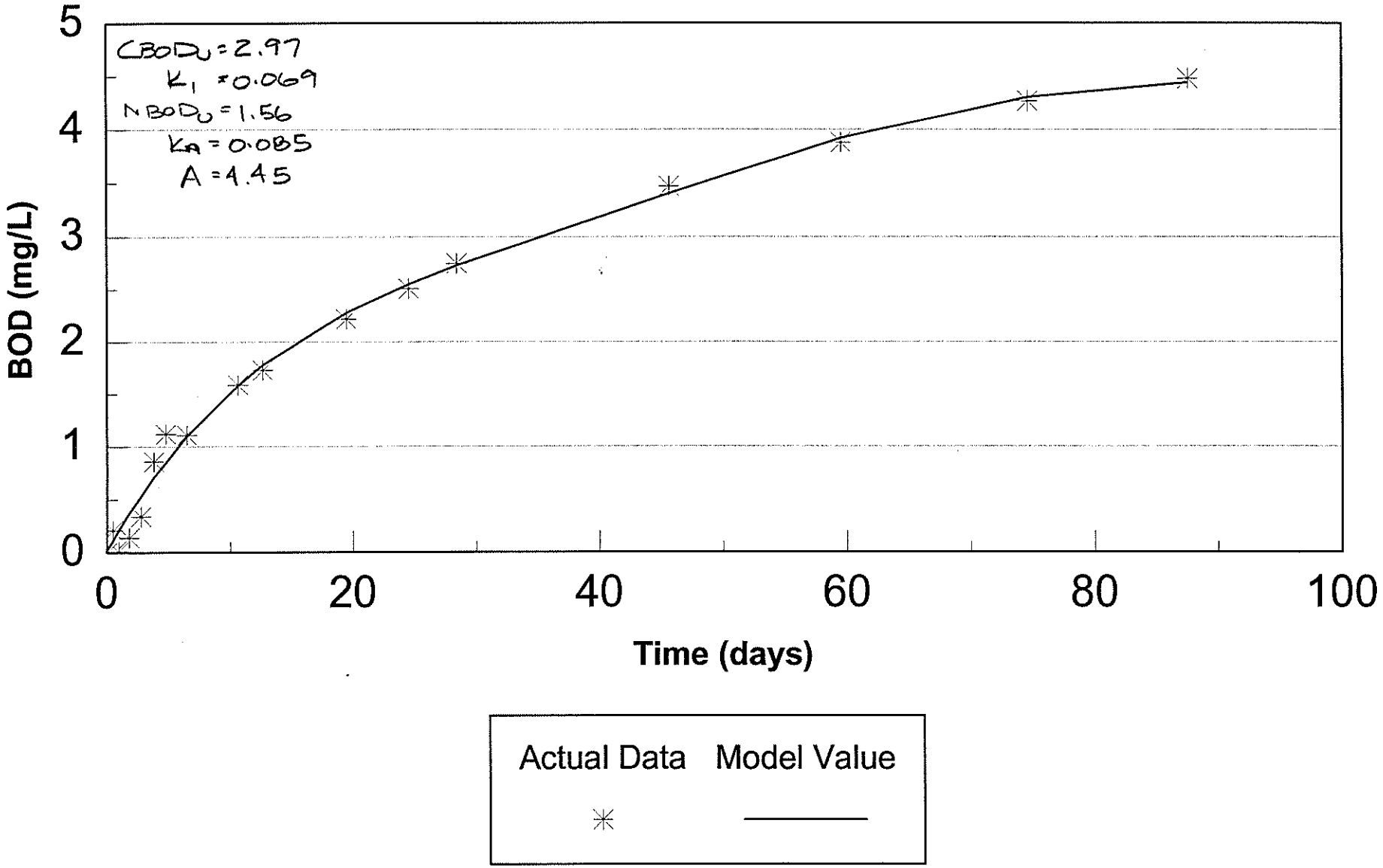
| MODEL INPUT | | | | |
|---|---|---|---|---|
| **CBODu** | **k1** | **NBODU** | **A** | **kn** |
| 2.82212 | 0.07155 | 1.61536 | 4.96928 | 0.08779 |

| LABORATORY DATA | | | | BOD FROM DATA (mg/L) | MODEL BOD (mg/L) |
|---|---|---|---|---|---|
| **DATE** | **TIME** | **DAYS** | **DISSOLVED OXYGEN (mg/L)** | | |
| 12-Nov-98 | 22:20 | 0.00 | 9.52 | 0 | 0.01 |
| 13-Nov-98 | 09:46 | 0.48 | 9.37 | 0.15 | 0.11 |
| 13-Nov-98 | 20:58 | 0.94 | 9.63 | -0.11 | 0.20 |
| 14-Nov-98 | 17:31 | 1.80 | 9.39 | 0.13 | 0.35 |
| 15-Nov-98 | 16:25 | 2.75 | 9.17 | 0.35 | 0.52 |
| 16-Nov-98 | 17:23 | 3.79 | 8.70 | 0.82 | 0.69 |
| 17-Nov-98 | 16:19 | 4.75 | 8.39 | 1.13 | 0.83 |
| 19-Nov-98 | 09:25 | 6.46 | 8.43 | 1.09 | 1.06 |
| 23-Nov-98 | 13:10 | 10.62 | 8.01 | 1.51 | 1.53 |
| 25-Nov-98 | 13:59 | 12.65 | 7.86 | 1.66 | 1.71 |
| 02-Dec-98 | 09:28 | 19.46 | 7.40 | 2.12 | 2.18 |
| 07-Dec-98 | 11:05 | 24.53 | 7.15 | 2.37 | 2.43 |
| 11-Dec-98 | 08:20 | 28.42 | 6.88 | 2.64 | 2.58 |
| 28-Dec-98 | 14:05 | 45.66 | 6.31 | 3.21 | 3.16 |
| 11-Jan-99 | 11:35 | 59.55 | 5.86 | 3.66 | 3.69 |
| 26-Jan-99 | 14:10 | 74.66 | 5.37 | 4.15 | 4.15 |
| 08-Feb-99 | 13:32 | 87.63 | 5.18 | 4.34 | 4.33 |

# TIME-SERIES BOD

## OUACHITA RIVER MILE 191.6

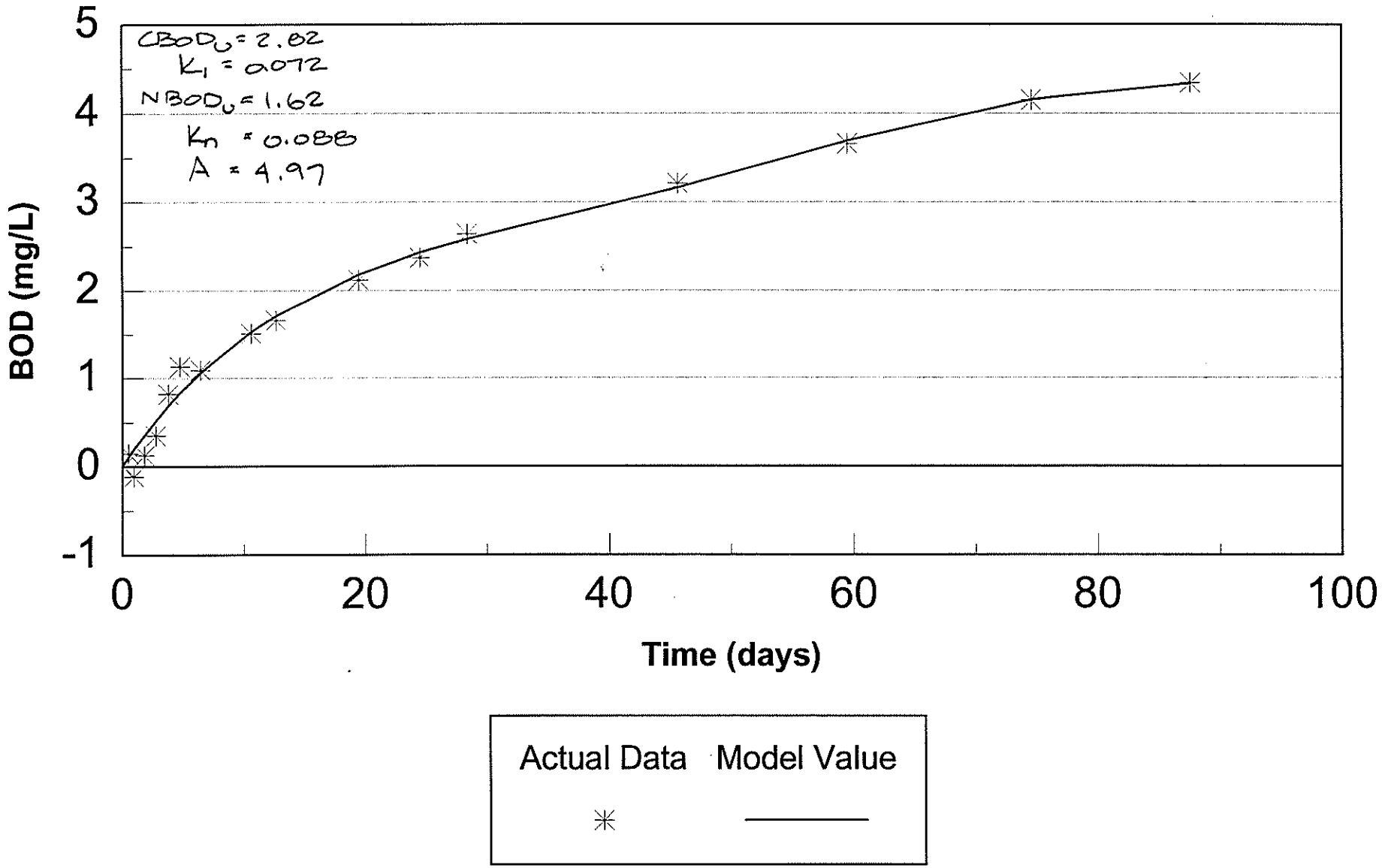
## SAMPLE A



# TIME-SERIES BOD

## OUACHITA RIVER MILE 191.6

## SAMPLE B



# APPENDIX 8

# CHLOROPHYLL a ANALYSES
# AND
# ALGAE IDENTIFICATION

**AquAeTer, Inc. Chlorophyll *a* Data**
**Example Calculations**
**Specialized Assays, Inc. Chlorophyll a Data**
**USEPA Method**
**Standard Method**
**Algae Identification**

# AQUAETER, INC.
# CHLOROPHYLL *a* DATA

TABLE A8-1. FLUOROMETRIC CHLOROPHYLL a MEASUREMENTS

| STATION ID (ORM) | DEPTH (ft) | SENSITIVITY SETTING (S) | FLUOROMETER READING FOR SENSITIVITY SETTING (Rs) | CH[illegible]TION CO[illegible]TOR (F) | CORRECTED CHLOROPHYLL a CONCENTRATION IN WHOLE WATER, CS,c (ug/L) | PHEOPHYTIN a CONCENTRATION IN EXTRACT, PE (ug/L) | PHEOPHYTIN a CONCENTRATION IN WHOLE WATER, PS (ug/L) |
|---|---|---|---|---|---|---|---|
| 229 | 1 | 1 (1) | 15.3 | 1 | 2.32 | 37.86 | 1.51 |
| 192 | 3 | 1 | 15.3 | 1 | 2.88 | 46.95 | 1.88 |
| 213.5 | 1 | 1 | 15.3 | 1 | 2.32 | 37.86 | 1.51 |
| 229 | 3 | 1 | 15.3 | 1 | 1.72 | 28.06 | 1.12 |
| 208.8 | 3 | 1 | 15.3 | 1 | 1.76 | 28.76 | 1.15 |
| 203 | 3 | 1 | 15.3 | 1 | 2.13 | 34.71 | 1.39 |
| DUP 21 | 1 | 1 | 15.3 | 1 | 1.57 | 25.53 | 1.02 |
| 198 | 1 | 1 | 15.3 | - | - | - | - |
| 208.8 | 1 | 1 | 15.3 | 1 | 2.33 | 37.94 | 1.52 |
| 198 | 5 | 1 | 15.3 | | | 0.00 | |
| 192 | 5 | 1 | 15.3 | 1 | 3.24 | 52.81 | 2.11 |
| 194 | 1 | 1 | 15.3 | - | - | - | - |
| 192 | 17 | 1 | 15.3 | 1 | 3.50 | 57.09 | 2.28 |
| 192 | 1 | 1 | 15.3 | 1 | 2.73 | 44.59 | 1.78 |
| 229 | 5 | 1 | 15.3 | 1 | 0.46 | 7.55 | 0.30 |
| 208.8 | 14 | 1 | 15.3 | 1 | 2.71 | 44.15 | 1.77 |
| 203 | 1 | 1 | 15.3 | 1 | 2.88 | 47.04 | 1.88 |
| DUP 21 | 5 | 1 | 15.3 | 1 | 2.59 | 42.32 | 1.69 |
| 194 | 3 | 1 | 15.3 | 1 | 2.43 | 34.83 | 1.39 |
| 218.7 | 3 | 1 | 15.3 | 1 | 2.26 | 27.52 | 1.10 |
| 218.7 | 1 | 1 | 15.3 | 1 | 2.50 | 28.46 | 1.14 |
| 203 | 5 | 1 | 15.3 | 1 | 2.22 | 66.11 | 2.64 |
| 198 | 3 | 1 | 15.3 | 1 | 2.18 | 29.65 | 1.19 |
| 194 | 5 | 1 | 15.3 | 1 | 2.19 | 41.14 | 1.65 |
| 213.5 | 3 | 1 | 15.3 | 1 | 1.64 | 58.55 | 2.34 |
| 224 | 3 | 1 | 15.3 | 1 | 1.72 | 33.30 | 1.33 |
| 224 | 5 | 1 | 15.3 | 1 | 2.08 | 37.21 | 1.49 |
| 224 | 1 | 1 | 15.3 | 1 | 2.00 | 41.65 | 1.67 |
| DUP 21 | 5 | 1 | 15.3 | 1 | 2.82 | 73.61 | 2.94 |
| 208 | 5 | 1 | 15.3 | 1 | 2.20 | 49.15 | 1.97 |

NOTES:

1) The fluorometer was calibrated to a standard supplied by Turner Designs for which it was not necessary to adjust the sensitivity se
2) The sample cuvettes were destroyed upon centrifuging.
3) An acidification response factor of 1.34 was assumed for samples for which a before acidification (Rb) value was not measured. T
4) Sample was lost in the field.

Transcribed by JS
CK'd by: STM

0650/6

| | | Ca | Vol | READ | CENT. | DT. |
|---|---|---|---|---|---|---|
| ORM 229 | 1' | 43.3 | 4mL | 1724 | 1010-1025 | 11/18/98 |
| ORM 192 | 3' | 53.7 | 4mL | 1810 | 1010-1025 | 11/18/98 |
| ORM 213.5 | 1' | 43.3 | 4mL | 1748 | 1010-1025 | 11/18/98 |
| ORM 229 | 3' | 32.1 | 4mL | 1650 | 1010-1025 | 11/18/98 |
| ORM 208.8 | 3' | 32.9 | 4mL | 1653 | 1010-1025 | 11/18/98 |

→ Above samples set at room temperature 1040-1620. Due to difficulty with the fluorometer samples were centrifuged for additional 5 mins. at 1620

| | | | | | | |
|---|---|---|---|---|---|---|
| ORM 203 | 3' | 39.7 | 4mL | 1800 | 1650-1710 | 11/18/98 |
| ORM 213.5 | 1' DUP | 29.2 | 2mL | | 1036-1043 | 11/19/98 |
| ORM 198 | 1' | exploded in centrifuge | | | | 11/19/98 |
| ORM 208.8 | 1' | 43.4 | 2mL | 1205 | 1036-1043 | 11/19/98 |
| ORM 198 | 5' | exploded in centrifuge | | | | 11/19/98 |
| ORM 192 | 5' | 60.4 | 2mL | 1205 | 1036-1043 | 11/19/98 |
| ORM 194 | 1' | exploded in centrifuge | | | | 11/19/98 |

11/19/98
1034 Calibrate fluorometer

| | | | | | | |
|---|---|---|---|---|---|---|
| ORM 192 | 17' | 65.3 | 3mL | 1340 | 1224-1244 | 11/19/98 |
| ORM 192 | 1' | 51.0 | 2.5mL | 1327 | 1224-1244 | 11/19/98 |
| ORM 229 | 5' | 8.64 | 1.3mL | 1340 | 1224-1244 | 11/19/98 |

| | | Ca | Vol | READ | CENT. | Date |
|---|---|---|---|---|---|---|
| ORM 208.8 | 14' | 50.5 | 2.4mL | 1340 | 1224-1244 | 11/19/98 |
| ORM 203 | 1' | 53.8 | 2.4mL | | 1344-1458 | 11/19/98 |
| ORM 213.5 | 5' DUP | 48.4 | 3.0mL | | 1344-1458 | 11/19/98 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ORM 194 | 3' | 60.8 w/o | 44.2 w/HCl | 2mL | 1435 | 1400-1420 | 11/20/98 |
| ORM 218.7 | 3' | 56.5 | 39.9 | 2mL | 1435 | | 11/20/98 |
| ORM 218.7 | 1' | 62.4 | 43.6 | 3mL | 1428 | | 11/20/98 |
| ORM 203 | 5' | 55.4 | 48.6 | 3mL | 1428 | | 11/20/98 |
| ORM 198 | 3' | 54.6 | 39.3 | 3mL | 1720 | 1437-1457 | 11/20/98 |
| ORM 194 | 5' | 54.8 | 42.2 | 2mL | 1720 | 1437-1457 | 11/20/98 |
| ORM 213.5 | 3' | 41.0 | 38.3 | 2mL | 1720 | 1437-1457 | 11/20/98 |
| ORM 224 | 3' | 42.9 | 33.3 | 2mL | 1720 | 1437-1457 | 11/20/98 |
| ORM 224 | 5' | 52.0 | 39.6 | 3mL | 1720 | 1437-1457 | 11/20/98 |
| ORM 224 | 1' | 50 | 39.5 | 4mL | 1720 | 1437-1457 | 11/20/98 |
| ORM 218.7 | 5' DUP | 50.5 | 39.3 | 3mL | 1733 | 1645-1705 | 11/20/98 |
| ORM 208.8 | 5' | 54.9 | 44.2 | 3mL | 1733 | | |

NEM

0650/5

| | | Transfered to Centrifuge Tubes |
|---|---|---|
| ORM 194 3' | 1456 | 11/19/98 |
| ORM 213.5 3' | 1509 | 11/19/98 |
| ORM 208.8 5' | 1520 | 11/19/98 |
| ORM 294 5' | 1536 | 11/19/98 |
| ORM 224 3' | 1552 | 11/19/98 |
| ORM 224 5' | 1604 | 11/19/98 |
| ORM 218.7 5' DUP. | 1613 | 11/19/98 |
| ORM 218.7 1' | 1623 | 11/19/98 |
| ORM 203 5' | 1637 | 11/19/98 |
| ORM 198 3' | 1646 | 11/19/98 |
| ORM 224 1' dropped on boat | 1656 | 11/19/98 |
| ORM 218.7 3' | 1504 | 11/19/98 |

11/20/98 1403 Calibrate Fluorometer to
blank = -0.2
Standard 15.3 mg/L = 15.1 mg/L

| | | Transfered Centrifuge to tubes |
|---|---|---|
| ORM 218.7 Dup 3' ⇒ dropped | 1000 | 11/17/98 |
| ORM 229 1' | 1029 | 11/17/98 |
| ORM 192 3' | 1049 | 11/17/98 |
| ORM 213.5 1' | 1145 | 11/17/98 |
| ORM 229 3' | 1159 | 11/17/98 |
| ORM 208.8 3' | 1214 | 11/17/98 |
| ORM 208.8 14' | 1225 | 11/17/98 |
| ORM 198 5' | 1237 | 11/17/98 |
| ORM 203 3' | 1304 | 11/17/98 |
| ORM 229 5' | 1321 | 11/17/98 |
| ORM 194 1' | 1356 | 11/17/98 |
| ORM 213.5 DUP 1' | 1409 | 11/17/98 |
| ORM 192 17' | 1416 | 11/17/98 |
| ORM 203 1' | 1428 | 11/17/98 |
| ORM 213.5 DUP 5' | 1436 | 11/17/98 |
| ORM 192 1' | 1446 | 11/17/98 |
| ORM 192 5' | 1520 | 11/17/98 |
| ORM 198 1' | 1528 | 11/17/98 |
| ORM 208.8 1' | 1539 | 11/17/98 |

# EXAMPLE CALCULATIONS

JOB 0650/6

SHEET NO. 1 OF 4

CALCULATED BY NEM DATE 12.3.98

CHECKED BY STM DATE 12.15.98

SCALE

AquAeTer
215 Jamestown Park, Suite 204
Brentwood, TN 37027
(615) 373-8532 FAX (615) 373-8512

RIVER MILE 229 1'

✓ SENSITIVITY SETTING → THE FLUOROMETER CALIBRATED TO THE STANDARD; THEREFORE, THE SENSITIVITY IS 1.

✓ FLUOROMETER SENSITIVITY SETTING → STANDARD WAS 15.3 mg/L; THE FLUOROMETER WAS CALIBRATED TO 15.3 mg/L SENSITIVITY

✓ CHLOROPHYLL a [ ] → STANDARD 15.3 mg/L FOR CALIBRATION

RESPONSE FACTOR FOR SENSITIVITY SETTING ⇒ $F_S = C_A/R_S$ ✓
STANDARD WAS 15.3 & FLUOROMETER READ 15.3 mg/L = 1

✓ BEFORE ACIDIFCATION ⇒ BEFORE ADDITION OF HCL. HOWEVER, UP TO ROW 29 ORM 213.5 5' BEFORE WAS NOT READ W/ THE FLUOROMETER SO AN AVERAGE OF THE BEFORE ACIDIFCATION DATA WAS USED. 1.34

✓ AFTER ACIDIFICATION - HCL ADDED TO SAMPLE

✓ ACIDIFICATION RESPONSE RATIO = $r = R_b/R_a$ ✓
= THIS IS PURE (STANDARD SOLUTION) CHLOROPHYLL a RESPONSE TO ACIDIFICATION. SINCE THIS STEP WAS NOT PREFORMED WE ARE USING STANDARD METHOD STANDARD RESPONSE RATIO OF 1.7

JOB 0650.16

SHEET NO. 2 OF 4

CALCULATED BY NEM DATE 12.3.98

CHECKED BY STM DATE 12.15.98

SCALE

AquAeTer
215 Jamestown Park, Suite 204
Brentwood, TN 37027
(615) 373-8532 FAX (615) 373-8512

CORRECTED CHLOROPHYLL a CONCENTRATION IN EXTRACT
$CE,C$

> AFTER ACIDIFICATION REPRESENTATIVE OF CONCENTRACTION IN EXTRACT, OF CHLOROPHYLL a

$$CE,C = FS\left(\frac{R}{R-1}\right)(R_B - R_A)$$

$$CE,C = 1\left(\frac{1.70}{1.70-1}\right)(58.6-43.3)$$

$$CE,C = 1\left(\frac{1.70}{0.70}\right)(14.7)$$

$$CE,C = 1\,(2.43)(14.7)$$

$$CE,C = 35.72 \Rightarrow (35.75 \text{ ROUNDING DIFFERENCE})$$

UNCORRECTED CHLOROPHYLL a CONCENTRATION IN EXTRACT
$CE,U$

> BEFORE ACIDIFICATION REPRESENTATIVE OF CONCENTRATION OF CHLOROPHYLL a + PHEOPHYTINS IN EXTRACT

$$CE,U = R_B * FS$$

$$CE,U = 58.02 \times 1 = 58.02$$

EXTRACT VOLUME ⇒ DURING EXTRACTION A TOTAL VOLUME OF 10 ML OF ACETONE + 90% ACETONE WERE ADDED; THEREFORE, OUR EXTRACTION VOLUME IS .01 L

SAMPLE VOLUME ⇒ 250 ML (.25 L) FILTERED IN THE FIELD

JOB 06506

SHEET NO. 3 OF 4

CALCULATED BY NEM DATE 12.3.98

CHECKED BY STM DATE 12.15.98

SCALE

AquAeTer
215 Jamestown Park, Suite 204
Brentwood, TN 37027
(615) 373-8532 FAX (615) 373-8512

✓ DILUTION FACTOR → SAMPLES WERE NOT DILUTED AT ANY POINT; THEREFORE, DILUTION FACTOR IS 1.

CORRECTED CHLOROPHYLL a CONCENTRATION IN WHOLE WATER SAMPLE, $C_{S,C}$ (ug/L)

$$C_{S,C} = \frac{C_{E,U} * \text{EXTRACT VOLUME (L)} * \text{DILUTION FACTOR}}{\text{SAMPLE VOLUME (L)}}$$

$$C_{S,C} = \frac{58.02 \text{ ug/L} * 0.01 \text{ L} * 1}{0.250 \text{ L}} = 2.3208 \text{ ug/L}$$

$C_{S,C} = 2.32$ ug/L ✓

PHEOPHYTIN a CONCENTRATION IN EXTRACT, PE ug/L

$$PE = Fs\left(\frac{r}{r-1}\right)(rR_{HA} - R_B)$$

$$PE = 1\left(\frac{1.70}{1.70-1}\right)(1.7(43.3) - 58.02)$$

$$PE = 1\left(\frac{1.70}{0.70}\right)(73.61 - 58.02)$$

$$PE = 1(2.43)(15.59)$$

$PE = 37.88$ ug/L

JOB 0650/16

SHEET NO. 4 OF 4

CALCULATED BY NEM DATE 12.3.98

CHECKED BY STM DATE 12.15.98

SCALE

AquAeTer
215 Jamestown Park, Suite 204
Brentwood, TN 37027
(615) 373-8532 FAX (615) 373-8512

PHEOPHYTIN a CONCENTRATION IN WHOLE WATER, $P_S$ mg/L ✓

$$P_S = \frac{PE \checkmark * \text{EXTRACTION VOL. (L)} \checkmark * DF \checkmark}{\text{SAMPLE VOL (L)} \checkmark}$$

$$P_S = \frac{37.86 \checkmark * 0.01 \checkmark L * 1 \checkmark}{0.250\ L \checkmark} = 1.51 \checkmark$$

$P_S = 1.51$ mg/L ✓

**SPECIALIZED ASSAYS, INC.**
**CHLOROPHYLL *a* DATA**

**"Specialized Assays, Inc. Laboratory results are considered unreliable due to analysis outside of holding times."**

# SPECIALIZED ASSAYS ENVIRONMENTAL

7A-054484

2960 Foster Creighton Drive
Nashville, TN 37204
615-726-0177, 800-765-0980
FAX 615/726-3404

REFERRING CLIENT

Account: 5924
Aquaeter
Allison Parker
215 Jamestown Park Suite 204
Brentwood, TN 37027
Ph: 615-373-8532 Fax: 615-373-851

Specialized Assays: (800) 765-098(

ILLING CONTROL NUMBER (FOR LAB USE ONLY) 120486

PROJECT # 0650/5

P.O. #

AMPLERS (Signature-Please Print) DMB/NEM/STM/MRC

PROJECT NAME Ouachita River

| FOR LAB USE ONLY ACC# | SAMPLE DESCRIPTION | DATE | TIME | COMP | GRAB | # OF CONT | ANALYSIS REQUESTED |
|---|---|---|---|---|---|---|---|
| 8-A141377 | ORM 192 - Day 1 - 1 ft | 11/12/98 | 1654 | | ✓ | 3 | Chlorophyll-a |
| 8-A141378 | ORM 208.8 Day 1 - 5 ft | 11/12/98 | 1315 | | ✓ | 3 | chlorophyll-a |
| 8-A141379 | ORM 208.8 Day 1 - 1 ft | 11/12/98 | 1310 | | ✓ | 3 | Chlorophyll-a |
| | | | | | | | |
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| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | Received for Laboratory by: | Date / Time |
|---|---|---|---|---|
| Jane M Bradford | 0059 ~~1859~~ 11/13/98 | Darren Stewart | [signature] | 11/13/98 3:20 |
| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | Remarks | |
| Darren Stewart | 11/13/98 3:20 | | | |
| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | | |
| uished by: (Signature) | Date / Time | Received by: (Signature) | SAI Project #: | |

For further assistance in completing the chain of custody form please refer to the instructions found on the opposite si

# SPECIALIZED ASSAYS ENVIRONMENTAL

7A-054485

2960 Foster Creighton Drive
Nashville, TN 37204
615-726-0177, 800-765-0980
FAX 615/726-3404

Specialized Assays: (800) 765-098(

## REFERRING CLIENT

Account: 5924
Aquaeter
~~Allison Parker~~ DANA BRADFORD
215 Jamestown Park Suite 204
Brentwood, TN 37027
Ph: 615-373-8532 Fax: 615-373-8512

BILLING CONTROL NUMBER (FOR LAB USE ONLY) 120486

PROJECT # 010510/5

P.O. #

SAMPLERS (Signature-Please Print) NEM, DMB, STM, MRC

PROJECT NAME Ouchita River

| FOR LAB USE ONLY ACC# | SAMPLE DESCRIPTION | DATE | TIME | COMP | GRAB | # OF CONT | ANALYSIS REQUESTED |
|---|---|---|---|---|---|---|---|
| 98-A141380 | DAY 1 | 11.12.98 | | | X | 2 | CHLOROPHYLL-a |
| 98-A141381 | ORM 192-DAY 1-S | 11.12.98 | 1654 | | X | 3 | CHLOROPHYLL-a |
| 98-A141382 | ORM 224-DAY 1 | 11.12.98 | 1620 | | X | 3 | TDS (375.4), CL (325.1), SO4 (375.4) |
| 98-A141383 | CC | 11.12.98 | 1613 | | X | 3 | TDS (375.4), CL (325.1), SO4 (375.4) |

| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | Received for Laboratory by: | Date / Time |
|---|---|---|---|---|
| Dana M Bradford | 0132 11/13/98 | Darren Stanley | [illegible] | 11/13/98 3:20 |
| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | Remarks | |
| Darren Stanley | 11/13/98 3:20 | | | |
| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | | |
| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | SAI Project #: | |

For further assistance in completing the chain of custody form please refer to the instructions found on the opposite si

# SPECIALIZED ASSAYS
# ENVIRONMENTAL

7A-054493


2960 Foster Creighton Drive
Nashville, TN 37204
615-726-0177, 800-765-0980
FAX 615/726-3404

Specialized Assays: (800) 765-0980


## REFERRING CLIENT

Account: 5924
Aquaeter
~~Allison Parker~~ Dana Bradford
215 Jamestown Park Suite 204
Brentwood, TN 37027
Ph: 615-373-8532 Fax: 615-373-8512

LLING CONTROL NUMBER (FOR LAB USE ONLY) 120900

PROJECT # 980650/5

P.O. #

\MPLERS (Signature-Please Print)
STM, DMB, NEM

PROJECT NAME
Ouachita River

| FOR LAB USE ONLY ACC# | SAMPLE DESCRIPTION | DATE | TIME | COMP | GRAB | # OF CONT | ANALYSIS REQUESTED |
|---|---|---|---|---|---|---|---|
| 140308 | ORM 229 - 1ft Day 1 | 11/10/98 | 1135 ~~1140~~ DMB | | ✓ | 3 | Chlorophyll-a |
| 309 | ORM 229- 5ft Day 1 | 11/10/98 | 1140 | | ✓ | 3 | chlorophyll-a |
| 310 | ORM 224 - 1ft Day 1 | 11/10/98 | 1324 | | ✓ | 3 | chlorophyll-a |
| 140311 | ORM 224- 5ft Day 1 | 11/10/98 | 1324 | | ✓ | 3 | Chlorophyll-a |
| | | | | | | | |
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| | | | | |
|---|---|---|---|---|
| elinquished by: (Signature) Tracy Mathis | Date / Time 11/11/98 725 | Received by: (Signature) | Received for Laboratory by: J Jarvis | Date / Time 11/11/98 1640 |
| elinquished by: (Signature) | Date / Time | Received by: (Signature) | Remarks 3°C | |
| elinquished by: (Signature) | Date / Time | Received by: (Signature) | | |
| e shed by: (Signature) | Date / Time | Received by: (Signature) | SAI Project #: | |

For further assistance in completing the chain of custody form please refer to the instructions found on the opposite sid

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Nashville, TN 37204-0566
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# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 0690/5
Project Name: OUACLUTA RIVER
Sampler: D. M. B.

Lab Number: 98-A141379
Sample ID: ORM 208.8-DAY 1-1'
Sample Type: Water
Site ID:

Date Collected: 11/12/98
Time Collected: 13:10
Date Received: 11/13/98
Time Received: 15:20

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| <MISCELLANEOUS CHEMISTRY> | | | | | | | | | | |
| Chlorophyll A | ND | mg/l | 0.005 | 0.005 | 1 | 11/19/98 | 19:22 | G. Baun | ADAC 3.130 7520 | |

ND = Not detected at the report limit.

Report Approved By: _____ Report Date: 11/20/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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Phone 1-615-726-0177

# ANALYTICAL REPORT

AQUAETER 5524
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 0630/5
Project Name: OUACLUTA RIVER
Sampler: D. M. B.

Lab Number: 98-A1413B1
Sample ID: ORM 192-DAY 1-5'
Sample Type: Water
Site ID:

Date Collected: 11/12/98
Time Collected: 16:54
Date Received: 11/13/98
Time Received: 15:20

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| %MISCELLANEOUS CHEMISTRY% | | | | | | | | | | |
| Chlorophyll A | ND | ug/l | 0.005 | 0.005 | 1 | 11/19/98 | 19:20 | G. Baun | ADAC 3.130 7520 | |

ND = Not detected at the report limit.

Report Approved By: T J Duello Report Date: 11/20/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

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# ANALYTICAL REPORT

AQUATER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 9650/5
Project Name: OUACHITA RIVER
Sampler: D. M. B.

Lab Number: 98-A141378
Sample ID: ORM 208.8-DAY 1-5'
Sample Type: Water
Site ID:

Date Collected: 11/12/98
Time Collected: 13:15
Date Received: 11/13/98
Time Received: 15:20

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| *MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Chlorophyll a | ND | mg/l | 0.005 | 0.005 | 1 | 11/19/98 | 19:22 | G. Baun | ADAC 3.130 7520 | |

ND = Not detected at the report limit.

Report Approved By: T J Dueilo Report Date: 11/20/98

Theodore J. Dueilo, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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Nashville, TN 37204-0566
Phone 1-615-726-0177

# ANALYTICAL REPORT

SQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 0650/5
Project Name: OUACLUTA RIVER
Sampler: D. M. B.

Lab Number: 98-A141380
Sample ID: DAY 1
Sample Type: Water
Site ID:

Date Collected: 11/12/98
Time Collected:
Date Received: 11/13/98
Time Received: 15:20

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| >MISCELLANEOUS CHEMISTRY< | | | | | | | | | | |
| Chlorophyll A | ND | mg/l | 0.005 | 0.005 | 1 | 11/19/98 | 19:22 | G. Daun | ADAC 3.130 7520 | |

ND = Not detected at the report limit.

Report Approved By: T. J. Duello  Report Date: 11/20/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 0650/5
Project Name: OUACHITA RIVER
Sampler: D. M. B.

Lab Number: 98-A141377
Sample ID: ORM 192-DAY 1-1'
Sample Type: Water
Site ID:

Date Collected: 11/12/98
Time Collected: 16:54
Date Received: 11/13/98
Time Received: 15:20

| Analyte | Result | Units | Report Limit | Down Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| **MISCELLANEOUS CHEMISTRY** | | | | | | | | | | |
| Chlorophyll a | ND | mg/L | 0.005 | 0.005 | 1 | 11/19/98 | 19:22 | G. Daun | ADAC 3.130 | 7520 |

ND = Not detected at the report limit.

Report Approved By: T. J. Duello Report Date: 11/20/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny R. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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Nashville, TN 37204-0566
Phone 1-615-726-0177

# ANALYTICAL REPORT

AQUAETER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 980650/5
Project Name: OUACHETA RIVER
Sampler: S.M

Lab Number: 98-A140310
Sample ID: ORM 224-1' DAY 1
Sample Type: Water
Site ID:

Date Collected: 11/10/98
Time Collected: 13:24
Date Received: 11/11/98
Time Received: 16:40

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| MISCELLANEOUS CHEMISTRY | | | | | | | | | | |
| Chlorophyll a | ND | mg/l | 0.005 | 0.005 | 1 | 11/19/98 | 19:21 | G. Daun | ADAC 3.130 7520 | |

ND = Not detected at the report limit.

Report Approved By: JPMitchell Report Date: 11/19/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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Phone 1-615-726-0177

# ANALYTICAL REPORT

QUAESTER 5924
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 980650/S
Project Name: OUACHETA RIVER
Sampler: S.M.

Lab Number: 98-A140309
Sample ID: ORM 229-5' DAY 1
Sample Type: Water
Site ID:

Date Collected: 11/10/98
Time Collected: 11:40
Date Received: 11/11/98
Time Received: 16:40

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| MISCELLANEOUS CHEMISTRY: | | | | | | | | | | |
| Chlorophyll A | ND | mg/l | 0.005 | 0.005 | 1 | 11/19/98 | 19:21 | G. Dunn | AOAC 3.130 7520 | |

ND = Not detected at the report limit.

Report Approved By: _____ Report Date: 11/19/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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Nashville, TN 37204-0566
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# ANALYTICAL REPORT

QUAETER 5724
ALLISON PARKER
SUITE 204, 215 JAMESTOWN PARK
BRENTWOOD, TN 37027

Project: 980650/6
Project Name: OUACHITA RIVER
Sampler: S.M.

Lab Number: 98-A140308
Sample ID: ORM 229-1' DAY 1
Sample Type: Water
Site ID:

Date Collected: 11/10/98
Time Collected: 11:35
Date Received: 11/11/98
Time Received: 16:40

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| **MISCELLANEOUS CHEMISTRY** | | | | | | | | | | |
| Chlorophyll a | 49 | ug/l | 0.000 | 0.005 | 1 | 11/19/98 | 19:20 | S. Baun | ADAC 9.130 7520 | |

ND = Not detected at the report limit.

Report Approved By: J.P. Mitchell Report Date: 11/19/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

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Nashville, TN 37204-0566
Phone 1-615-726-0177

# ANALYTICAL REPORT

QUAETER 5924
LLISON PARKER
UITE 204, 215 JAMESTOWN PARK
RENTWOOD, TN 37027

Project: 980650/5
Project Name: OUACHETA RIVER
Sampler: B.M.

Lab Number: 98-A140311
Sample ID: ORM 224-5' DAY 1
Sample Type: Water
Site ID:

Date Collected: 11/10/98
Time Collected: 13:24
Date Received: 11/11/98
Time Received: 16:40

| Analyte | Result | Units | Report Limit | Quan Limit | Dil Factor | Date | Time | Analyst | Method | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| *MISCELLANEOUS CHEMISTRY* | | | | | | | | | | |
| Chlorophyll A | ND | mg/l | 0.005 | 0.005 | 1 | 11/19/98 | 19:21 | G. Baun | AOAC 3.130 | 7520 |

ND = not detected at the report limit.

Report Approved By: JDMitchell  Report Date: 11/19/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.B., Laboratory Director
Johnny A. Mitchell, Dir. Technical Services

Laboratory Certification Number: 02008

COPY 1

# USEPA METHOD

# Method 445.0

# *In Vitro* Determination of Chlorophyll *a* and Pheophytin *a* in Marine and Freshwater Algae by Fluorescence

Elizabeth J. Arar

and

Gary B. Collins

Revision 1.2
September 1997

**National Exposure Research Laboratory**
**Office of Research and Development**
**U.S. Environmental Protection Agency**
**Cincinnati, Ohio 45268**

# Method 445.0

# *In Vitro* Determination of Chlorophyll *a* and Pheophytin *a* in Marine and Freshwater Algae by Fluorescence

## 1.0 Scope and Application

***1.1*** This method provides a procedure for low level determination of chlorophyll *a* (chl *a*) and its magnesium-free derivative, pheophytin *a* (pheo *a*), in marine and freshwater phytoplankton using fluorescence detection.[1,2] Phaeophorbides present in the sample are determined collectively as pheophytin *a*. For users primarily interested in chl *a* there is currently available a set of very narrow bandpass excitation and emission filters (Turner Designs, Sunnyvale, CA) that nearly eliminates the spectral interference caused by the presence of pheo *a* and chlorophyll *b*. The difference between the modified method and the conventional fluorometric method is that the equations used for the determination of chlor *a* without pheo *a* correction (uncorrected chlor *a*), are used instead of the equations for "corrected chlor *a*". This EPA laboratory has evaluated the modified filters and found the technique to be an acceptable alternative to the conventional fluorometric method using pheo *a* correction.[3]

| Analyte | Chemical Abstracts Service Registry Number (CASRN) |
|---|---|
| Chlorophyll *a* | 479-61-8 |

***1.2*** Instrumental detection limits (IDL) of 0.05 µg chl *a*/L and 0.06 µg pheo *a*/L in a solution of 90% acetone were determined by this laboratory. Method detection limits (MDL) using mixed assemblages of algae provide little information because the fluorescence of other pigments interferes in the fluorescence of chlorophyll *a* and pheophytin *a*.[4] A single lab estimated detection limit for chlorophyll *a* was determined to be 0.11 µg/L in 10 mL of final extraction solution. The upper limit of the linear dynamic range for the instrumentation used in this method evaluation was 250 µg chl *a*/L.

***1.3*** This method was multilaboratory validated in 1996.[5] Results from that study may be found in Section 13. Additional QC procedures also have been added as a result of that study.

***1.4*** This method uses 90% acetone as the extraction solvent because of its efficiency for most types of algae. There is evidence that certain chlorophylls and carotenoids are more thoroughly extracted with methanol[5-8] or dimethyl sulfoxide.[9] Bowles, et al.[8] found that for chlorophyll *a*, however, 90% acetone was an effective extractant when the extraction period was optimized for the dominant species present in the sample.

***1.5*** Depending on the type of algae under investigation, this method can have uncorrectable interferences (Sect. 4.0). In cases where taxomonic classification is unavailable, a spectrophotometric or high performance liquid chromatographic (HPLC) method may provide more accurate data for chlorophyll *a* and pheophytin *a*.

***1.6*** This method is for use by analysts experienced in the handling of photosynthetic pigments and in the operation of fluorescence detectors or by analysts under the close supervision of such qualified persons.

## 2.0 Summary of Method

***2.1*** Chlorophyll-containing phytoplankton in a measured volume of sample water are concentrated by filtering at low vacuum through a glass fiber filter. The pigments are extracted from the phytoplankton in 90% acetone with the aid of a mechanical tissue grinder and allowed to steep for a minimum of 2 h, but not to exceed 24 h, to ensure thorough extraction of the chlorophyll *a*. The filter slurry is centrifuged at 675 g for 15 min (or at 1000 g for 5 min) to clarify the solution. An aliquot of the supernatant is transferred to a glass cuvette and fluorescence is measured before and after acidification to 0.003 N HCl with 0.1 N HCl. Sensitivity calibration factors, which have been previously determined on solutions of

pure chlorophyll *a* of known concentration, are used to calculate the concentration of chlorophyll *a* and pheophytin *a* in the sample extract. The concentration in the natural water sample is reported in µg/L.

## 3.0 Definitions

***3.1 Estimated Detection Limit*** (EDL) -- The minimum concentration of an analyte that yields a fluorescence 3X the fluorescence of blank filters which have been extracted according to this method.

***3.2 Linear Dynamic Range*** (LDR) -- The absolute quantity or concentration range over which the instrument response to an analyte is linear.

***3.3 Instrument Detection Limit*** (IDL) -- The minimum quantity of analyte or the concentration equivalent which gives an analyte signal equal to three times the standard deviation of the background signal at the selected wavelength, mass, retention time, absorbance line, etc. For this method the background is a solution of 90% acetone.

***3.4 Stock Standard Solution*** (SSS) -- A concentrated solution containing one or more method analytes prepared in the laboratory using assayed reference materials or purchased from a reputable commercial source.

***3.5 Primary Dilution Standard Solution*** (PDS) -- A solution of the analytes prepared in the laboratory from stock standard solutions and diluted as needed to prepare calibration solutions and other needed analyte solutions.

***3.6 Calibration Standard*** (CAL) -- A solution prepared from the primary dilution standard solution or stock standard solutions containing the internal standards and surrogate analytes. The CAL solutions are used to calibrate the instrument response with respect to analyte concentration.

***3.7 Response Factor*** (RF) -- The ratio of the response of the instrument to a known amount of analyte.

***3.8 Laboratory Reagent Blank*** (LRB) -- An aliquot of reagent water or other blank matrices that are treated exactly as a sample including exposure to all glassware, equipment, solvents, reagents, internal standards, and surrogates that are used with other samples. The LRB is used to determine if method analytes or other interferences are present in the laboratory environment, reagents, or apparatus.

***3.9 Field Duplicates*** (FD1 and FD2) -- Two separate samples collected at the same time and place under identical circumstances and treated exactly the same throughout field and laboratory procedures. Analyses of FD1 and FD2 give a measure of the precision associated with sample collection, preservation and storage, as well as with laboratory procedures.

***3.10 Quality Control Sample*** (QCS) -- A solution of method analytes of known concentrations which is used to fortify an aliquot of LRB or sample matrix. Ideally, the QCS is obtained from a source external to the laboratory and different from the source of calibration standards. It is used to check laboratory performance with externally prepared test materials.

***3.11 Material Safety Data Sheet*** (MSDS) -- Written information provided by vendors concerning a chemical's toxicity, health hazards, physical properties, fire, and reactivity data including storage, spill, and handling precautions.

## 4.0 Interferences

***4.1*** Any substance extracted from the filter or acquired from laboratory contamination that fluoresces in the red region of the spectrum may interfere in the accurate measurement of both chlorophyll *a* and pheophytin *a*.

***4.2*** The relative amounts of chlorophyll *a*, *b* and *c* vary with the taxonomic composition of the phytoplankton. Chlorophylls *b* and *c* may significantly interfere with chlorophyll *a* measurements depending on the amount present. Due to the spectral overlap of chlorophyll *b* with pheophytin *a* and chlorophyll *a*, underestimation of chlorophyll *a* occurs accompanied by overestimation of pheophytin *a* when chlorophyll *b* is present in the sample. The degree of interference depends upon the ratio of *a*:*b*. This laboratory found that at a ratio of 5:1, using the acidification procedure to correct for pheophytin *a*, chlorophyll *a* was underestimated by approximately 5%. Loftis and Carpenter[10] reported an underestimation of 16% when the *a*:*b* ratio was 2.5:1. A ratio of 1:1 is the highest ratio likely to occur in nature. They also reported overestimation of chlorophyll *a* in the presence of chlorophyll *c* of as much as 10% when the *a*:*c* ratio was 1:1 (the theoretical maximum likely to occur in nature). The presence of chlorophyll *c* also causes the under-

estimation of pheophytin *a*. The effect of chlorophyll *c* is not as severe as the effect of chlorophyll *b* on the measurement of chlorophyll *a* and pheophytin *a*. Knowledge of the taxonomy of the algae under consideration will aid in determining if the spectrophotometric method using trichromatic equations to determine chlorophyll *a*, *b*, and *c* or an HPLC method would be more appropriate.[11-16] In the presence of chlorophyll *b* or pheopigments, the modified fluorometric method described here is also appropriate.[5]

*4.3* Quenching effects are observed in highly concentrated solutions or in the presence of high concentrations of other chlorophylls or carotenoids. Minimum sensitivity settings on the fluorometer should be avoided; samples should be diluted instead.

*4.4* Fluorescence is temperature dependent with higher sensitivity occurring at lower temperatures. Samples, standards, LRBs and QCSs must be at the same temperature to prevent errors and/or low precision. Analyses of samples at ambient temperature is recommended in this method. Ambient temperature should not fluctuate more than ± 3 °C between calibrations or recalibration of the fluorometer will be necessary.

*4.5* Samples must be clarified by centrifugation prior to analysis.

*4.6* All photosynthetic pigments are light and temperature sensitive. Work must be performed in subdued light and all standards, QC materials and filter samples must be stored in the dark at -20 °C or -70°C to prevent degradation.

## 5.0 Safety

*5.1* The toxicity or carcinogenicity of the chemicals used in this method have not been fully established. Each chemical should be regarded as a potential health hazard and handled with caution and respect. Each laboratory is responsible for maintaining a current awareness file of Occupational Safety and Health Administration (OSHA) regulations regarding the safe handling of the chemicals specified in this method.[17-20] A file of MSDS should also be made available to all personnel involved in the chemical analysis.

*5.2* The grinding of filters during the extraction step of this method should be conducted in a fume hood due to the volatilization of acetone by the tissue grinder.

## 6.0 Apparatus and Equipment

*6.1* Fluorometer -- Equipped with a high intensity F4T.5 blue lamp, red-sensitive photomultiplier, and filters for excitation (CS-5-60) and emission (CS-2-64). A Turner Designs Model 10 Series fluorometer was used in the evaluation of this method. The modified method requires excitation filter (436FS10) and emission filter (680FS10).

*6.2* Centrifuge, capable of 675 g.

*6.3* Tissue grinder, Teflon pestle (50 mm X 20 mm) with grooves in the tip with 1/4" stainless steel rod long enough to chuck onto a suitable drive motor and 30-mL capacity glass grinding tube.

*6.4* Filters, glass fiber, 47-mm or 25-mm, nominal pore size of 0.7 µm unless otherwise justified by data quality objectives. Whatman GF/F filters were used in this work.

*6.5* Petri dishes, plastic, 50 X 9-mm, or some other solid container for transporting and storing sampled filters.

*6.6* Aluminum foil.

*6.7* Laboratory tissues.

*6.8* Tweezers or flat-tipped forceps.

*6.9* Vacuum pump or source capable of maintaining a vacuum up to 6 in. Hg.

*6.10* Room thermometer.

**6.11 Labware** -- All reusable labware (glass, polyethylene, Teflon, etc.) that comes in contact with chlorophyll solutions should be clean and acid free. An acceptable cleaning procedure is soaking for 4 h in laboratory grade detergent and water, rinsing with tap water, distilled deionized water and acetone.

*6.11.1* Assorted Class A calibrated pipets.

*6.11.2* Graduated cylinders, 500-mL and 1-L.

*6.11.3* Volumetric flasks, Class A calibrated, 25-mL, 50-mL, 100-mL and 1-L capacity.

*6.11.4* Glass rods.

*6.11.5* Pasteur type pipets or medicine droppers.

*6.11.6* Disposable glass cuvettes for the fluorometer.

*6.11.7* Filtration apparatus consisting of 1 or 2-L filtration flask, 47-mm fritted glass disk base and a glass filter tower.

*6.11.8* Centrifuge tubes, polypropylene or glass, 15-mL capacity with nonpigmented screw-caps.

*6.11.9* Polyethylene squirt bottles.

## *7.0* Reagents and Standards

*7.1* Acetone, HPLC grade, (CASRN 67-64-1).

*7.2* Hydrochloric acid (HCl), concentrated (sp. gr. 1.19), (CASRN 7647-01-0).

*7.3* Chlorophyll *a* free of chlorophyll *b*. May be obtained from a commercial supplier such as Sigma Chemical (St. Louis, MO). Turner Designs (Sunnyvale, CA) supplies ready-made standards.

*7.4* **Water** – ASTM Type I water (ASTM D1193) is required. Suitable water may be obtained by passing distilled water through a mixed bed of anion and cation exchange resins.

*7.5* ***0.1 N HCl Solution*** -- Add 8.5 mL of concentrated HCl to approximately 500 mL water and dilute to 1 L.

*7.6* ***Aqueous Acetone Solution*** -- 90% acetone /10% water. Carefully measure 100 mL of water into the 1-L graduated cylinder. Transfer to a 1-L flask or storage bottle. Measure 900 mL of acetone into the graduated cylinder and transfer to the flask or bottle containing the water. Mix, label and store.

*7.7* ***Chlorophyll Stock Standard Solution*** (SSS) -- Chlorophyll *a* from a commercial supplier will be shipped in an amber glass ampoule which has been flame sealed. This dry standard should be stored at -20 or -70°C in the dark and the SSS prepared just prior to use. Tap the ampoule until all the dried chlorophyll is in the bottom of the ampoule. In subdued light, carefully break the tip off the ampoule. Transfer the entire contents of the ampoule into a 50-mL volumetric flask. Dilute to volume with 90% acetone, label the flask and wrap with aluminum foil to protect from light. The concentration of the solution must be determined spectrophotometrically using a multiwavelength spectrophotometer.[10] When stored in a light and airtight container at freezer temperatures, the SSS is stable for at least six months. The concentration of all dilutions of the SSS must be determined spectrophotometrically each time they are made.

*7.8* ***Laboratory Reagent Blank*** (LRB) -- A blank filter which is extracted and analyzed just as a sample filter. The LRB should be the last filter extracted of a sample set. It is used to assess possible contamination of the reagents or apparatus.

*7.9* ***Chlorophyll a Primary Dilution Standard Solution*** (PDS) -- Add 1 mL of the SSS (Sect. 7.8) to a clean 100-mL flask and dilute to volume with the aqueous acetone solution (Sect. 7.7). If exactly 1 mg of pure chlorophyll *a* was used to prepare the SSS, the concentration of the PDS is 200 µg/L. Prepare fresh just prior to use.

*7.10* ***Quality Control Sample*** (QCS) -- Since there are no commercially available QCSs, dilutions of a stock standard of a different lot number from that used to prepare calibration solutions may be used.

## *8.0* Sample Collection, Preservation and Storage

*8.1* ***Water Sample Collection*** -- Water may be obtained by a pump or grab sampler. Data quality objectives will determine the depth at which samples are taken. Healthy phytoplankton, however, are generally obtained from the photic zone (depth at which the illumination level is 1% of surface illumination). Enough water should be collected to concentrate phytoplankton on at least three filters so that precision can be assessed. Filtration volume size will depend on the particulate load of the water. Four liters may be required for open ocean water where phytoplankton density is usually low, whereas 1 L or less is generally sufficient for lake, bay or estuary water. All apparatus should be clean and acid-free. Filtering should be performed in subdued light as soon as possible after sampling since algal poulations, thus chlorophyll *a* concentration, can change in relatively short periods of time. Aboard ship filtration is highly recommended.

Assemble the filtration apparatus and attach the vacuum source with vacuum gauge and regulator. Vacuum filtration should not exceed 6 in. Hg (20 kPa). Higher

filtration pressures and excessively long filtration times (> 10 min) may damage cells and result in loss of chorophyll.

Prior to drawing a subsample from the water sample container, thoroughly but gently agitate the container to suspend the particulates (stir or invert several times). Pour the subsample into a graduated cylinder and accurately measure the volume. Pour the subsample into the filter tower of the filtration apparatus and apply a vacuum (not to exceed 20 kPa). A sufficient volume has been filtered when a visible green or brown color is apparent on the filter. Do not suck the filter dry with the vacuum; instead slowly release the vacuum as the final volume approaches the level of the filter and completely release the vacuum as the last bit of water is pulled through the filter. Remove the filter from the fritted base with tweezers, fold once with the particulate matter inside, lightly blot the filter with a tissue to remove excess moisture and place it in the petri dish or other suitable container. If the filter will not be immediately extracted, then wrap the container with aluminum foil to protect the phytoplankton from light and store the filter at -20 or -70°C. Short term storage (2 to 4 h) on ice is acceptable, but samples should be stored at -20 or -70°C as soon as possible.

*8.2* ***Preservation*** -- Sampled filters should be stored frozen (-20°C or -70°C) in the dark until extraction.

*8.3* ***Holding Time*** -- Filters can be stored frozen at -20 or -70°C for as long as 3½ weeks without significant loss of chlorophyll *a*.[21]

## *9.0* Quality Control

*9.1* Each Laboratory using this method is required to operate a formal quality control (QC) program. The minimum requirements of this program consist of an initial demonstration of laboratory capability and the continued analysis of laboratory reagent blanks, field duplicates and quality control samples as a continuing check on performance. The laboratory is required to maintain performance records that define the quality of the data thus generated.

### *9.2* Initial Demonstration of Performance (Mandatory)

*9.2.1* The initial demonstration of performance is used to characterize instrument performance (instrumental detection limits, linear dynamic range and MDLs) and laboratory performance (analyses of QCSs) prior to sample analyses.

*9.2.2* Linear Dynamic Range (LDR) -- The LDR should be determined by analyzing a minimum of 5 calibration standards ranging in concentration from 0.2 µg/L to 200 µg chl *a*/L across all sensitivity settings of the fluorometer. If using an analog fluorometer or a digital fluorometer requiring manual changes in sensitivity settings, normalize responses by dividing the response by the sensitivity setting multiplier. Perform the linear regression of normalized response vs. concentration and obtain the constants $m$ and $b$, where $m$ is the slope and $b$ is the y-intercept. Incrementally analyze standards of higher concentration until the measured fluorescence response, $R$, of a standard no longer yields a calculated concentration, $C_c$, that is ± 10% of the known concentration, $C$, where $C_c = (R - b)/m$. That concentration defines the upper limit of the LDR for your instrument. Should samples be encountered that have a concentration which is 90% of the upper limit of the LDR, these samples must be diluted and reanalyzed.

*9.2.3* Instrumental Detection Limit (IDL) -- Zero the fluorometer with a solution of 90% acetone on the maximum sensitivity setting. Pure chlorophyll *a* in 90% acetone should be serially diluted until it is no longer detected by the fluorometer on a maximum sensitivity setting.

*9.2.4* Estimated Detection Limit (EDL) -- Several blank filters should be extracted according to the procedure in Sect. 11, using clean glassware and apparatus, and the fluorescence measured. A solution of pure chlorophyll *a* in 90% acetone should be serially diluted until it yields a response which is 3X the average response of the blank filters.

*9.2.5* Quality Control Sample (QCS) -- When beginning to use this method, on a quarterly basis or as required to meet data quality needs, verify the calibration standards and acceptable instrument performance with the analysis of a QCS (Sect. 7.10). If the determined value is not within the confidence limits established by project data quality objectives, then the determinative step of this method is unacceptable. The source of the problem must be identified and corrected before continuing analyses.

*9.2.6* Extraction Proficiency -- Personnel performing this method for the first time should demonstrate proficiency in the extraction of sampled filters (Sect. 11.1).

Twenty to thirty natural samples should be obtained using the procedure outlined in Sect. 8.1 of this method. Sets of 10 or more samples should be extracted and analyzed according to Sect. 11.2. The percent relative standard deviation (%RSD) of uncorrected values of chlorophyll *a* should not exceed 15% for samples that are approximately 10X the IDL. RSD for pheophytin *a* might typically range from 10 to 50%.

9.2.7 Corrected Chl *a* -- Multilaboratory testing of this method revealed that many analysts do not adequately mix the acidified sample when determining corrected chl *a*. The problem manifests itself by highly erratic pheo-*a* results, high %RSDs for corrected chl *a* and poor agreement between corrected and uncorrected chl *a*. To determine if a new analyst is performing the acidification step properly, perform the following QC procedure:

Prepare 100 mL of a 50 ppb chl *a* solution in 90% acetone. The new analyst should analyze 5-10 separate aliquots, using separate cuvettes, according to instructions in Section 11.2. Process the results according to Section 12 and calculate separate means and %RSDs for corrected and uncorrected chl *a*. If the means differ by more than 10%, then the stock chl *a* has probably degraded and fresh stock should be prepared. The %RSD for corrected chl *a* should not exceed 5%. If the %RSD exceeds 5%, repeat the procedure until the %RSD 5%.

### *9.3* Assessing Laboratory Performance (Mandatory)

*9.3.1* Laboratory Reagent Blank (LRB) – The laboratory must analyze at least one blank filter with each sample batch. The LRB should be the last filter extracted. LRB data are used to assess contamination from the laboratory environment. LRB values that exceed the IDL indicate contamination from the laboratory environment. When LRB values constitute 10% or more of the analyte level determined for a sample, fresh samples or field duplicates must be analyzed after the contamination has been corrected and acceptable LRB values have been obtained.

## *10.0* Calibration and Standardization

***10.1 Calibration*** -- Calibration should be performed bimonthly or when there has been an adjustment made to the instrument, such as replacement of lamp, filters or photomultiplier. Prepare 0.2, 2, 5, 20 and 200 µg chl *a*/L calibration standards from the PDS (Sect. 7.11). Allow the instrument to warm up for at least 15 min. Measure the fluorescence of each standard at sensitivity settings that provide midscale readings. Obtain response factors for chlorophyll *a* for each sensitivity setting as follows:

$$F_s = C_a/R_s$$

where:

$F_s$ = response factor for sensitivity setting, S.

$R_s$ = fluorometer reading for sensitivity setting, S.

$C_a$ = concentration of chlorophyll *a*.

**NOTE:** If you are using special narrow bandpass filters for chl *a* determination, **DO NOT** acidify. Use the "uncorrected" chl *a* calculation described in Section 12.1.

If pheophytin *a* determinations will be made, it will be necessary to obtain before-to-after acidification response ratios of the chlorophyll *a* calibration standards as follows: (1) measure the fluorescence of the standard, (2) remove the cuvette from the fluorometer, (3) acidify the solution to .003 N HCl[6] with the 0.1 N HCl solution, (4) use a pasteur type pipet to thoroughly mix the sample by aspirating and dispensing the sample into the cuvette, keeping the pipet tip below the surface of the liquid to avoid aerating the sample, (5) wait 90 sec and measure the fluorescence of the standard solution again. Addition of the acid may be made using a medicine dropper. It will be necessary to know how many drops are equal to 1 mL of acid. For a cuvette that holds 5 mL of extraction solution, it will be necessary to add 0.15 mL of 0.1 N HCl to reach a final acid concentration of 0.003N in the 5 mL. Calculate the ratio, r, as follows:

$$r = R_b/R_a$$

where:

$R_b$ = fluorescence of pure chlorophyll *a* standard solution before acidification.

$R_a$ = fluorescence of pure chlorophyll *a* standard solution after acidification.

## 11.0 Procedure

### *11.1* Extraction of Filter Samples

*11.1.1* If sampled filters have been frozen, remove them from the freezer but keep them in the dark. Set up the tissue grinder and have on hand tissues and squirt bottles containing water and acetone. Workspace lighting should be the minimum that is necessary to read instructions and operate instrumentation. Remove a filter from its container and place it in the glass grinding tube. The filter may be torn into smaller pieces to facilitate extraction. Push it to the bottom of the tube with a glass rod. With a volumetric pipet, add 4 mL of the aqueous acetone solution (Sect. 7.6) to the grinding tube. Grind the filter until it has been converted to a slurry. (**NOTE:** Although grinding is required, care must be taken not to overheat the sample. Good judgement and common sense will help you in deciding when the sample has been sufficiently macerated.) Pour the slurry into a 15-mL screw-cap centrifuge tube and, using a 6-mL volumetric pipet, rinse the pestle and the grinding tube with 90% acetone. Add the rinse to the centrifuge tube containing the filter slurry. Cap the tube and shake it vigorously. Place it in the dark before proceeding to the next filter extraction. Before placing another filter in the grinding tube, use the acetone and water squirt bottles to thoroughly rinse the pestle, grinding tube and glass rod. The last rinse should be with acetone. Use a clean tissue to remove any filter residue that adheres to the pestle or to the steel rod of the pestle. Proceed to the next filter and repeat the steps above. The entire extraction with transferring and rinsing steps takes 5 min. Approximately 500 mL of acetone and water waste are generated per 20 samples from the rinsing of glassware and apparatus.

*11.1.2* Shake each tube vigorously before placing them to steep in the dark at 4°C. Samples should be allowed to steep for a minimum of 2 h but not to exceed 24 h. The tubes should be shaken at least once during the steeping period.

*11.1.3* After steeping is complete, shake the tubes vigorously and centrifuge samples for 15 min at 675 g or for 5 min at 1000 g. Samples should be allowed to come to ambient temperature before analysis. This can be done by placing the tubes in a constant temperature water bath or by letting them stand at room temperature for 30 min. Recalibrate the fluorometer if the room temperature fluctuated ± 3°C from the last calibration date.

### *11.2* SAMPLE ANALYSIS

*11.2.1* After the fluorometer has warmed up for at least 15 min, use the 90% acetone solution to zero the instrument on the sensitivity setting that will be used for sample analysis.

*11.2.2* Pour or pipet the supernatant of the extracted sample into a sample cuvette. The volume of sample required in your instrument's cuvette should be known so that the correct amount of acid can be added in the pheophytin *a* determinative step. For a cuvette that holds 5 mL of extraction solution, 0.15 mL of the 0.1 N HCl solution should be used. Choose a sensitivity setting that yields a midscale reading when possible and avoid the minimum sensitivity setting. If the concentration of chlorophyll *a* in the sample is 90% of the upper limit of the LDR, then dilute the sample with the 90% acetone solution and reanalyze. Record the fluorescence measurement and sensitivity setting used for the sample. Remove the cuvette from the fluorometer and acidify the extract to a final concentration of 0.003 N HCl using the 0.1 N HCl solution. Use a pasteur type pipet to thoroughly mix the sample by aspirating and dispensing the sample into the cuvette, keeping the pipet tip below the surface of the liquid to avoid aerating the sample. Wait 90 sec before measuring fluorescence again. NOTE: Proper mixing is critical for precise and accurate results. Twenty-five to thirty-five samples can be extracted and analyzed in one 8 hr day.

**NOTE:** If you are using special narrow bandpass filters for chl *a* determination, **DO NOT** acidify samples. Use the "uncorrected" chl *a* calculations described in Section 12.1.

## *12.0* Data Analysis and Calculations

***12.1*** For "uncorrected chlorophyll *a*," calculate the chlorophyll *a* concentration in the extract as:

$$C_{E,u} = R_b \times F_s$$

where $C_{E,u}$ = uncorrected chlorophyll *a* concentration (µg/L) in the extract solution analyzed,

$R_b$ = fluoresence response of sample extract before acidification, and

$F_s$ = fluoresence respnse factor for sensitivity setting S.

Calculate the "uncorrected" concentration of chlorophyll *a* in the whole water sample as follows:

$$C_{S,u} = \frac{C_{E,u} \times \textit{extract volume (L)} \times DF}{\textit{sample volume (L)}}$$

where $C_{S,u}$ = uncorrected chlorophyll *a* concentration (µg/L) in the whole water sample,

extract volume = volume (L) of extraction prepared before any dilutions,

DF = dilution factor,

sample volume = volume (L) of whole water sample.

***12.2*** For "corrected chlorophyll *a*", calculate the chlorophyll *a* concentration in the extract as :

$C_{E,c} = F_s\ (r/r\text{-}1)\ (R_b - R_a)$

where:

$C_{E,c}$ = corrected chlorophyll *a* concentration (µg/L) in the extract solution analyzed,

$F_s$ = response factor for the sensitivity setting S,

r = the before-to-after acidification ratio of a pure chlorophyll *a* solution (Sect. 10.1),

$R_b$ = fluorescence of sample extract before acidification, and

$R_a$ = fluorescence of sample extract after acidification.

Calculate the "corrected" concentration of chlorophyll *a* in the whole water sample as follows:

$$C_{s,c} = \frac{C_{E,u} \times \textit{extract volume (L)} \times DF}{\textit{sample volume (L)}}$$

where $C_{S,c}$ = corrected chlorophyll *a* concetration (µg/L) in the whole water sample,

extract volume = volume (L) of extract prepared before dilution,

***12.3*** Calculate the pheophytin *a* concentration as follows:

$$P_E = F_s\ (r/r\text{-}1)\ (rR_a - R_b)$$

$$P_s = \frac{P_E \times \textit{extract volume (L)} \times DF}{\textit{sample volume (L)}}$$

where $P_E$ = pheophytin *a* concentration (µg/L) in the sample extract; and

$P_s$ = pheophytin *a* concentration (µg/L) in the whole water sample.

***12.4*** LRB and QCS data should be reported with each sample data set.

## *13.0* Method Performance

***13.1*** The single lab EDL for the instrument used in the evaluation of this method was 0.05 µg/L for chlorophyll *a* and 0.06 µg/L pheophytin *a*.

***13.2*** The precision (%RSD) for chlorophyll *a* in mostly blue-green and green phytoplankton natural samples which were steeped for 2 h vs 24 h is reported in Table 1. Although the means were the same, precision was better for samples which were allowed to steep for 24 h prior to analysis. Since pheophytin *a* was found in the samples, the chlorophyll *a* values are "corrected" (Sect. 12.2). Table 2 contains precision data for pheophytin *a*. A statistical analysis of the pheophytin *a* data indicated a significant difference in the mean values at the 0.05 significance level. The cause of the lower pheophytin *a* values in samples extracted for 24 h is not known.

***13.3*** Three QCS ampoules obtained from the USEPA were analyzed and compared to the reported confidence limits in Table 3. **NOTE:** The USEPA no longer provides these QCSs.

***13.4*** **Multilaboratory Testing** - A multilaboratory validation and comparison study of EPA Methods 445.0, 446.0 and 447.0 for chlorophyll *a* was conducted in 1996 by Research Triangle Institute, Research Triangle Park, N.C. (EPA Contract No. 68-C5-0011). There were 21 volunteer participants in the fluorometric methods

component that returned data; 10 that used the modified fluorometric method and 11 that used the conventional method. The primary goals of the study were to determine estimated detection limits and to assess precision (%RSD) and bias (as percent recovery) for select unialgal species, and natural seawater.

13.4.1 The term, pooled estimated detection limit (p-EDL), is used in this method to distinguish it from the EPA defined method detection limit (MDL). An EPA MDL determination is not possible nor practical for a natural water or pure species sample due to known spectral interferences and to the fact that it is impossible to prepare solutions of known concentrations that incorporate all sources of error (sample collection, filtration, processing). The statistical approach used to determine the p-EDL was an adaptation of the Clayton, et.al.[22] method that does not assume constant error variances across concentration and controls for Type II error. The statistical approach used involved calculating an estimated DL for each lab that had the desired Type I and Type II error rates (0.01 and 0.05, respectively). The median DLs over labs was then determined and is reported in Table 4. It is referred to as pooled-EDL (p-EDL).

Solutions of pure chlorophyll *a* in 90% acetone were prepared at three concentrations (0.11, 0.2 and 1.6 ppm) and shipped with blank glass fiber filters to participating laboratories. Analysts were instructed to spike the filters in duplicate with a given volume of solution and to process the spiked filters according to the method. The results from these data were used to determine a p-EDL for each method. Results (in ppm) are given in Table 4. The standard fluorometric and HPLC methods gave the lowest p-EDLs while the spectrophotometric (monochromatic equations) gave the highest p-EDLs. Due to the large dilutions required to analyze these solutions, the fluorometric p-EDLs are unrealistically high compared to what is achievable by a single lab. Typical single lab EDLs can easily be 1000 fold lower than the p-EDL reported in Table 4.

13.4.2 To address precision and bias in chlorophyll *a* determination for different algal species, three pure unialgal cultures (Amphidinium, Dunaliella and Phaeodactylum) were cultured and grown in the laboratory. Four different "concentrations" of each species were prepared by filtering varying volumes of the algae. The filters were frozen and shipped to participant labs. Analysts were instructed to extract and analyze the filters according to the respective methods. The "true" concentration was assigned by taking the average of the HPLC results for the highest concentration algae sample since chlorophyll *a* is separated from other interfering pigments prior to determination. Pooled precision (as determined by %RSD) data are presented in Tables 5-7 and accuracy data (as percent recovery) are presented in Table 8. No significant differences in precision were observed across concentrations for any of the species. It should be noted that there was considerable lab-to-lab variation (as exhibited by the min and max recoveries in Table 8) and in this case the median is a better measure of central tendency than the mean.

In summary, the mean and median concentrations determined for Amphidinium carterae (class dinophyceae) are similar for all methods. No method consistently exhibited high or low values relative to the other methods. The only concentration trend observed was that the spectrophotometric method-trichromatic equations (SP-T) showed a slight percent increase in recovery with increasing algae filtration volume.

For Dunaliella tertiolecti (class chlorophyceae) and Phaeodactylum tricornutum (class bacillariophyceae) there was generally good agreement between the fluorometric and the spectrophotometric methods, however, the HPLC method yielded lower recoveries with increasing algae filtration volume for both species. No definitive explanation can be offered at this time for this phenomenon. A possible explanation for the Phaeodactylum is that it contained significant amounts of chlorophyllide *a* which is determined as chlorophyll *a* in the fluorometric and spectrophotometric methods. The conventional fluorometric method (FL-STD) showed a slight decrease in chlorophyll *a* recovery with increasing Dunaliella filtration volume. The spectrophotometric-trichromatic equations (SP-T) showed a slight increase in chlorophyll *a* recovery with increasing Dunaliella filtration volume. The fluorometric and the spectrophotometric methods both showed a slight decrease in chlorophyll *a* recovery with increasing Phaeodactylum filtration volume.

Results for the natural seawater sample are presented in Table 9. Only one filtration volume (100 mL) was provided in duplicate to participant labs.

## *14.0* Pollution Prevention

***14.1*** Pollution prevention encompasses any technique that reduces or eliminates the quantity or toxicity of waste at the point of generation. Numerous opportunities for pollution prevention exist in laboratory operation. The EPA has established a preferred hierarchy of

environmental management techniques that places pollution prevention as the management option of first choice. Whenever feasible, laboratory personnel should use pollution prevention techniques to address their waste generation (e.g., Sect. 11.1.1). When wastes cannot be feasibly reduced at the source, the Agency recommends recycling as the next best option.

***14.2*** For information about pollution prevention that may be applicable to laboratories and research institutions, consult *Less is Better: Laboratory Chemical Management for Waste Reduction*, available from the American Chemical Society's Department of Government Relations and Science Policy, 1155 16th Street N.W., Washington D.C. 20036, (202)872-4477.

## *15.0* Waste Management

***15.1*** The Environmental Protection Agency requires that laboratory waste management practices be conducted consistent with all applicable rules and regulations. The Agency urges laboratories to protect the air, water, and land by minimizing and controlling all releases from hoods and bench operations, complying with the letter and spirit of any sewer discharge permits and regulations, and by complying with all solid and hazardous waste regulations, particularly the hazardous waste identification rules and land disposal restrictions. For further information on waste management consult *The Waste Management Manual for Laboratory Personnel*, available from the American Chemical Society at the address listed in the Sect. 14.2.

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## *17.0* TABLES, DIAGRAMS, FLOWCHARTS, AND VALIDATION DATA

### TABLE 1. COMPARISON OF PRECISION OF TWO EXTRACTION PERIODS

**CORRECTED CHLOROPHYLL *a***

| | Sample A[1] | | Sample B[2] | |
|---|---|---|---|---|
| | 2 h[3] | 24 h[3] | 2 h[3] | 24 h[3] |
| Mean Concentration (µg/L) | 49.6 | 52.9 | 78.6 | 78.8 |
| Standard Deviation (µg/L) | 4.89 | 2.64 | 6.21 | 2.77 |
| Relative Standard Deviation (%) | 9.9 | 5.0 | 7.9 | 3.5 |

1 Values reported are the mean measured concentrations (n=6) of chlorophyll *a* in the natural water based on a 100-mL filtration volume.

2 Values reported are the mean measured concentrations (n=9) of the extraction solution. Sample filtration volume was 300 mL.

3 The length of time that the filters steeped after they were macerated.

**TABLE 2. COMPARISON OF PRECISION OF TWO EXTRACTIONS PERIODS FOR Pheophytin *a***

| | Pheophytin *a* | | | |
|---|---|---|---|---|
| | Sample A[1] | | Sample B[2] | |
| | 2 h[3] | 24 h[3] | 2 h[3] | 24 h[3] |
| Mean Concentration (µg/L) | 9.22 | 8.19 | 13.1 | 10.61 |
| Standard Deviation (µg/L) | 2.36 | 3.55 | 3.86 | 2.29 |
| Relative Standard Deviation (%) | 25.6 | 43.2 | 29.5 | 21.6 |

1 Values reported are the mean measured concentrations (n=6) of pheophytin *a* in the natural water based on a 100-mL filtration volume.

2 Values reported are the mean measured concentrations (n=9) of pheophytin *a* the extraction solution. Sample filtration volume was 300 mL.

3 The length of time that the filters steeped after they were macerated.

TABLE 3. ANALYSES OF USEPA QC SAMPLES

| ANALYTE | REFERENCE VALUE | CONFIDENCE LIMITS |
|---|---|---|
| Chlorophyll *a* | 2.1 µg/L | 0.5 to 3.7 µg/L |
| Pheophytin *a* | 0.3 µg/L | -0.2 to 0.8 µg/L |

| ANALYTE | MEAN MEASURED VALUE | % Relative Standard[1] Deviation |
|---|---|---|
| Chlorophyll *a* | 2.8 µg/L | 1.5 |
| Pheophytin *a* | 0.3 µg/L | 33 |

[1] N = 3

## TABLE 4. POOLED ESTIMATED DETECTION LIMITS FOR CHLOROPHYLL *A* METHODS[1]

| Method[2] | N[3] | p-EDL[4] (mg/L) |
|---|---|---|
| FL -Mod[5] | 8 | 0.096 |
| FL - Std[5] | 9 | 0.082 |
| HPLC | 4 | 0.081 |
| SP-M | 15 | 0.229 |
| SP-T | 15 | 0.104 |

(1) See Section 13.4.1 for a description of the statistical approach used to determine p-EDLs.

(2) FL-Mod = fluorometric method using special interference filters.

FL-Std = conventional fluorometric method with pheophytin *a* correction.

HPLC = EPA method 447.0

SP-M = EPA method 446.0, monochromatic equation.

SP-T = EPA method 446.0, trichromatic equations.

(3) N = number of labs whose data was used.

(4) The p-EDL was determined with p = 0.01 and q (type II error rate) = 0.05.

(5) Due to the large dilutions required to analyze the solutions by fluorometry, the fluormetric p-EDLs are unrealistically high.

## TABLE 5. POOLED PRECISION FOR DUNALIELLA TERTIOLECTI SAMPLES

| Method[1] | mLs of culture filtered | N[2] | Mean (mg chl*a*/L) | Std. Dev. | %RSD |
|---|---|---|---|---|---|
| Fl-Mod | 5 | 7 | 0.163 | 0.037 | 22.8 |
| | 10 | 7 | 0.298 | 0.080 | 26.7 |
| | 50 | 7 | 1.684 | 0.385 | 22.9 |
| | 100 | 7 | 3.311 | 0.656 | 19.8 |
| Fl-Std | 5 | 8 | 0.185 | 0.056 | 30.4 |
| | 10 | 8 | 0.341 | 0.083 | 24.4 |
| | 50 | 8 | 1.560 | 0.311 | 19.9 |
| | 100 | 8 | 3.171 | 0.662 | 20.9 |

(1) Fl-Mod = fluorometric method using special interference filters.

Fl-Std = conventional fluorometric method with pheophytin *a* correction.

(2) N = number of volunteer labs whose data was used.

**TABLE 6. POOLED PRECISION FOR AMPHIDINIUM CARTERAE SAMPLES**

| Method[1] | mLs of culture filtered | N[2] | Mean (mg chla/L) | Std. Dev. | %RSD |
|---|---|---|---|---|---|
| Fl-Mod | 5 | 7 | 0.066 | 0.010 | 14.6 |
| | 10 | 7 | 0.142 | 0.045 | 31.5 |
| | 50 | 7 | 0.757 | 0.208 | 27.5 |
| | 100 | 7 | 1.381 | 0.347 | 25.1 |
| Fl-Std | 5 | 8 | 0.076 | 0.018 | 23.2 |
| | 10 | 8 | 0.165 | 0.040 | 24.3 |
| | 50 | 8 | 0.796 | 0.140 | 17.5 |
| | 100 | 8 | 1.508 | 0.324 | 21.5 |

(1) Fl-Mod = fluorometric method using special interference filters.

Fl-Std = conventional fluorometric method with pheophytin *a* correction.

(2) N = number of volunteer labs whose data was used.

**TABLE 7. POOLED PRECISION FOR PHAEODACTYLUM TRICORNUTUM SAMPLES**

| Method[1] | mLs of culture filtered | N[2] | Mean (mg chla/L) | Std. Dev. | %RSD |
|---|---|---|---|---|---|
| FI-Mod | 5 | 7 | 0.221 | 0.040 | 18.0 |
| | 10 | 7 | 0.462 | 0.094 | 20.3 |
| | 50 | 7 | 2.108 | 0.491 | 23.3 |
| | 100 | 7 | 3.568 | 1.186 | 33.2 |
| FI-Std | 5 | 8 | 0.214 | 0.053 | 24.8 |
| | 10 | 8 | 0.493 | 0.091 | 18.4 |
| | 50 | 8 | 2.251 | 0.635 | 28.2 |
| | 100 | 8 | 4.173 | 0.929 | 22.3 |

(1) FI-Mod = fluorometric method using special interference filters.

FI-Std = conventional fluorometric method with pheophytin *a* correction.

(2) N = number of volunteer labs whose data was used.

NOTE: The phaeodactylum extract contained significant amounts of chlorophyll *c* and chlorophyllide *a* which interferes in chlorophyll *a* measurement in the fluorometric method, therefore, the concentration of chlorophyll *a* is overestimated compared to the HPLC method which separates the three pigments. The FL-Mod interference filters minimize this interference more so than the conventional filters.

**TABLE 8. MINIMUM, MEDIAN, AND MAXIMUM PERCENT RECOVERIES BY GENERA, METHOD, AND CONCENTRATION LEVEL**

| Species | Statistic | Method | Percent Recovery | | | |
|---|---|---|---|---|---|---|
| | | | Conc. Level 1 | Conc. Level 2 | Conc. Level 3 | Conc. Level 4 |
| Amphidinium | Minimum | FL-MOD | 70 | 73 | 75 | 76 |
| | | FL-STD | 66 | 91 | 91 | 90 |
| | | HPLC | 82 | 85 | 87 | 88 |
| | | SP-M | 36 | 48 | 68 | 64 |
| | | SP-T | 21 | 63 | 71 | 70 |
| | Median | FL-MOD | 105 | 112 | 105 | 104 |
| | | FL-STD | 109 | 107 | 111 | 109 |
| | | HPLC | 102 | 106 | 112 | 105 |
| | | SP-M | 99 | 101 | 101 | 101 |
| | | SP-T | 95 | 96 | 106 | 107 |
| | Maximum | FL-MOD | 121 | 126 | 143 | 146 |
| | | FL-STD | 156 | 154 | 148 | 148 |
| | | HPLC | 284 | 210 | 131 | 116 |
| | | SP-M | 141 | 133 | 126 | 125 |
| | | SP-T | 115 | 116 | 119 | 117 |
| | | | | | | |
| Dunaliella | Minimum | FL-MOD | 162 | 159 | 157 | 156 |
| | | FL-STD | 179 | 171 | 165 | 164 |
| | | HPLC | 165 | 109 | 64 | 41 |
| | | SP-M | 120 | 188 | 167 | 164 |
| | | SP-T | 167 | 169 | 166 | 165 |
| | Median | FL-MOD | 206 | 246 | 227 | 223 |
| | | FL-STD | 250 | 228 | 224 | 210 |
| | | HPLC | 252 | 177 | 89 | 80 |

Table 8 cont'd

| Species | Statistic | Method | Percent Recovery | | | |
|---|---|---|---|---|---|---|
| | | | Conc. Level 1 | Conc. Level 2 | Conc. Level 3 | Conc. Level 4 |
| | | SP-M | 240 | 247 | 247 | 243 |
| | | SP-T | 225 | 244 | 256 | 256 |
| Dunaliella | Maximum | FL-MOD | 295 | 277 | 287 | 288 |
| | | FL-STD | 439 | 385 | 276 | 261 |
| | | HPLC | 392 | 273 | 172 | 154 |
| | | SP-M | 342 | 316 | 296 | 293 |
| | | SP-T | 291 | 283 | 283 | 283 |
| Phaeodactylum | Minimum | FL-MOD | 216 | 183 | 157 | 154 |
| | | FL-STD | 189 | 220 | 223 | 219 |
| | | HPLC | 150 | 119 | 84 | 75 |
| | | SP-M | 161 | 138 | 156 | 160 |
| | | SP-T | 203 | 195 | 216 | 244 |
| | Median | FL-MOD | 292 | 285 | 250 | 245 |
| | | FL-STD | 296 | 263 | 254 | 254 |
| | | HPLC | 225 | 203 | 114 | 90 |
| | | SP-M | 287 | 274 | 254 | 253 |
| | | SP-T | 286 | 281 | 277 | 274 |
| | Maximum | FL-MOD | 357 | 337 | 320 | 318 |
| | | FL-STD | 371 | 415 | 415 | 334 |
| | | HPLC | 394 | 289 | 182 | 139 |
| | | SP-M | 446 | 344 | 330 | 328 |
| | | SP-T | 357 | 316 | 318 | 299 |

**TABLE 9. CHLOROPHYLL *A* CONCENTRATIONS IN MG/L DETERMINED IN FILTERED SEAWATER SAMPLES**

| Method | Con.[1] | No. Obs. | No. Labs | Mean | Std. Dev. | RSD(%) | Minimum | Median | Maxium |
|---|---|---|---|---|---|---|---|---|---|
| FL-MOD | 100 | 14 | 7 | 1.418 | 0.425 | 30.0 | 0.675 | 1.455 | 2.060 |
| FL-STD | 100 | 15 | 8 | 1.576 | 0.237 | 15.0 | 1.151 | 1.541 | 1.977 |
| HPLC | 100 | 10 | 5 | 1.384 | 0.213 | 15.4 | 1.080 | 1.410 | 1.680 |
| SP-M | 100 | 38 | 19 | 1.499 | 0.219 | 14.6 | 0.945 | 1.533 | 1.922 |
| SP-T | 100 | 36 | 18 | 1.636 | 0.160 | 9.8 | 1.250 | 1.650 | 1.948 |
| All Methods | 100 | 113 | 57 | 1.533 | 0.251 | 16.4 | 0.657 | 1.579 | 2.060 |

(1) Con = mLs of seawater filtered.

# STANDARD METHOD

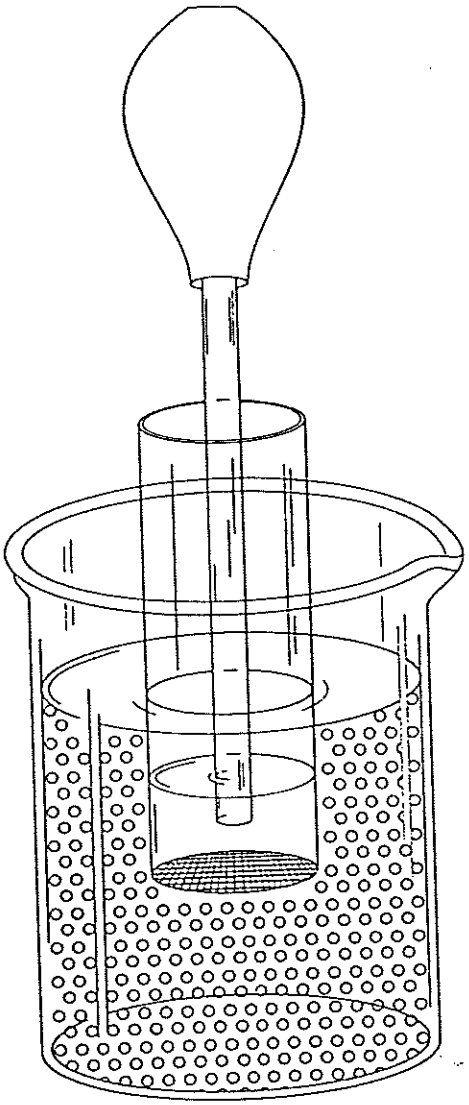

Figure 10200:9. A simple, efficient device for concentrating plankton. The tube is lowered into the beaker containing the sample. Water filtering into the tube is removed with the rubber bulb. The filter is nylon monofilament screen cloth that is glued to the bottom of the tube. The mesh size should be sufficiently small to prevent zooplankters from entering the filtrate (after Dodson and Thomas[5]).

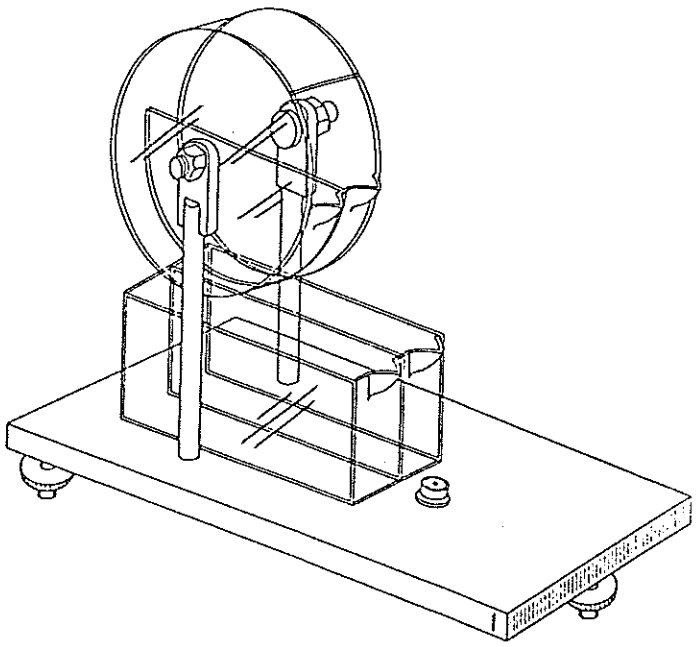

Figure 10200:10. The Folsom plankton splitter.

where:

$C$ = number of organisms counted,
$V'$ = volume of the concentrated sample, mL,
$V''$ = volume counted, mL, and
$V'''$ = volume of the grab sample, $m^3$.

To obtain organisms per liter divide by 1000.

## 3. References


1. Longhurst, A.R. & D.L.R. Seibert. 1967. Skill in the use of Folsom's plankton sample splitter. *Limnol. Oceanogr.* 12:334.
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# 10200 H. Chlorophyll

The concentration of photosynthetic pigments is used extensively to estimate phytoplankton biomass.[1,2] All green plants contain chlorophyll *a*, which constitutes approximately 1 to 2% of the dry weight of planktonic algae. Other pigments that occur in phytoplankton include chlorophylls *b* and *c*, xanthophylls, phycobilins, and carotenes. The important chlorophyll degradation products found in the aquatic environment are the chlorophyllides, pheophorbides, and pheophytins. The presence or absence of the various photosynthetic pigments is used, among other features, to separate the major algal groups.

The three methods for determining chlorophyll *a* in phytoplankton are the spectrophotometric,[3-5] the fluorometric,[6-8] and the high-performance liquid chromatographic (HPLC) techniques.[9] Fluorometry is more sensitive than spectrophotometry, requires less sample, and can be used for in-vivo measurements.[10] These optical methods can significantly under- or overestimate chlorophyll *a* concentrations,[11-18] in part because of the overlap of the absorption and fluorescence bands of co-occurring accessory pigments and chlorophyll degradation products.

Pheophorbide *a* and pheophytin *a*, two common degradation

products of chlorophyll *a*, can interfere with the determination of chlorophyll *a* because they absorb light and fluoresce in the same region of the spectrum as does chlorophyll *a*. If these pheopigments are present, significant errors in chlorophyll *a* values will result. Pheopigments can be measured either by spectrophotometry or fluorometry, but in marine and freshwater environments the fluorometric method is unreliable when chlorophyll *b* co-occurs. Upon acidification of chlorophyll *b*, the resulting fluorescence emission of pheophytin *b* is coincident with that of pheophytin *a*, thus producing underestimation and overestimation of chlorophyll *a* and pheopigments, respectively.

HPLC is a useful method for quantifying photosynthetic pigments[9,13,15,16,19-21] including chlorophyll *a*, accessory pigments (e.g., chlorophylls *b* and *c*), and chlorophyll degradation products (chlorophyllides, pheophorbides, and pheophytins). Pigment distribution is useful for quantitative assessment of phytoplankton community composition and zooplankton grazing activity.[22]

### 1. Pigment Extraction

Conduct work with chlorophyll extracts in subdued light to avoid degradation. Use opaque containers or wrap with aluminum foil. The pigments are extracted from the plankton concentrate with aqueous acetone and the optical density (absorbance) of the extract is determined with a spectrophotometer. The ease with which the chlorophylls are removed from the cells varies considerably with different algae. To achieve consistent complete extraction of the pigments, disrupt the cells mechanically with a tissue grinder.

Glass fiber filters are preferred for removing algae from water. The glass fibers assist in breaking the cells during grinding, larger volumes of water can be filtered, and no precipitate forms after acidification. Inert membrane filters such as polyester filters may be used where these factors are irrelevant.

*a. Equipment and reagents:*

1) *Tissue grinder:** Successfully macerating glass fiber filters in tissue grinders with grinding tube and pestle of conical design may be difficult. Preferably use round-bottom grinding tubes with a matching pestle having grooves in the TFE tip.

2) *Clinical centrifuge.*

3) *Centrifuge tubes,* 15-mL graduated, screw-cap.

4) *Filtration equipment,* filters, glass fiber† or membrane (0.45-µm porosity, 47-mm diam); vacuum pump; solvent-resistant disposable filter assembly, 1.0-µm pore size;‡ 10-mL solvent-resistant syringe.

5) *Saturated magnesium carbonate solution:* Add 1.0 g finely powdered $MgCO_3$ to 100 mL distilled water.

6) *Aqueous acetone solution:* Mix 90 parts acetone (reagent-grade BP 56°C) with 10 parts saturated magnesium carbonate solution. For HPLC pigment analysis, mix 90 parts HPLC-grade acetone with 10 parts distilled water.

*b. Extraction procedure:*

1) Concentrate sample by centrifuging or filtering as soon as possible after collection. If processing must be delayed, hold samples on ice or at 4°C and protect from exposure to light. Use opaque bottles because even brief exposure to light during storage will alter chlorophyll values. Samples on filters taken from water having pH 7 or higher may be placed in airtight plastic bags and stored frozen for 3 weeks. Samples from acidic water must be processed promptly to prevent chlorophyll degradation. Use glassware and cuvettes that are clean and acid-free.

2) Place sample in a tissue grinder, cover the 2 to 3 mL 90% aqueous acetone solution, and macerate at 500 rpm for 1 min. Use TFE/glass grinder for a glass-fiber filter and glass/glass grinder for a membrane filter.

3) Transfer sample to a screw-cap centrifuge tube, rinse grinder with a few milliliters 90% aqueous acetone, and add the rinse to the extraction slurry. Adjust total volume to 10 mL, with 90% aqueous acetone. Use solvent sparingly and avoid excessive dilution of pigments. Steep samples at least 2 h at 4°C in the dark. Glass fiber filters of 25- and 47-mm diam§ have dry displacement volumes of 0.03 and 0.10 mL, respectively, and introduce errors of about 0.3 and 1.0% if a 10-mL extraction volume is used.

4) Clarify by filtering through a solvent-resistant disposable filter (to minimize retention of extract in filter and filter holder, force 1 to 2 mL air through the filter after the extract), or by centrifuging in closed tubes for 20 min at 500 g. Decant clarified extract into a clean, calibrated, 15-mL, screw-cap centrifuge tube and measure total volume. Proceed as in 2, 3, 4, or 5 below.

### 2. Spectrophotometric Determination of Chlorophyll

*a. Equipment and reagents:*

1) *Spectrophotometer,* with a narrow band (pass) width (0.5 to 2.0 nm) because the chlorophyll absorption peak is relatively narrow. At a spectral band width of 20 nm the chlorophyll *a* concentration may be underestimated by as much as 40%.

2) *Cuvettes,* with 1-, 4-, and 10-cm path lengths.

3) *Pipets,* 0.1- and 5.0-mL.

4) *Hydrochloric acid,* HCl, 0.1*N*.

*b. Determination of chlorophyll* a *in the presence of pheophytin* a: Chlorophyll *a* may be overestimated by including pheopigments that absorb near the same wavelength as chlorophyll *a*. Addition of acid to chlorophyll *a* results in loss of the magnesium atom, converting it to pheophytin *a*. Acidify carefully to a final molarity of not more than $3 \times 10^{-3}M$ to prevent certain accessory pigments from changing to absorb at the same wavelength as pheophytin *a*.[13] When a solution of pure chlorophyll *a* is converted to pheophytin *a* by acidification, the absorption-peak-ratio (OD664/OD665) of 1.70 is used in correcting the apparent chlorophyll *a* concentration for pheophytin *a*.

Samples with an OD664 before/OD665 after acidification ratio ($664_b/665_a$) of 1.70 are considered to contain no pheophytin *a* and to be in excellent physiological condition. Solutions of pure pheophytin show no reduction in OD665 upon acidification and have a $664_b/665_a$ ratio of 1.0. Thus, mixtures of chlorophyll *a* and pheophytin *a* have absorption peak ratios ranging between 1.0 and 1.7. These ratios are based on the use of 90% acetone as solvent. Using 100% acetone as solvent results in a chlorophyll *a* before-to-after acidification ratio of about 2.0.[3]

Spectrophotometric procedure—Transfer 3 mL clarified extract to a 1-cm cuvette and read optical density (OD) at 750 and 664 nm. Acidify extract in the cuvette with 0.1 mL 0.1*N* HCl. Gently agitate the acidified extract and read OD at 750 and at 665 nm, 90 s after acidification. The volumes of extract and acid

* Kontes Glass Co., Vineland, N.J. 08360: Glass/glass grinder, Model No. 8855; Glass/TEE grinder, Model 886000; or equivalent.

† Whatman GF/F (0.7 µm), GFB (1.0 µm), Gelman AE (1 µm),[23] or equivalent.

‡ Gelman Acrodisc or equivalent.

§ GF/F or equivalent.

and the time after acidification are critical for accurate, consistent results.

The OD664 before acidification should be between 0.1 and 1.0. For very dilute extracts use cuvettes having a longer path length. If a larger cell is used, add a proportionately larger volume of acid. Correct OD obtained with larger cuvettes to 1 cm before making calculations.

Subtract the 750-nm OD value from the readings before (OD 664 nm) and after acidification (OD 665 nm).

Using the corrected values calculate chlorophyll *a* and pheophytin *a* per cubic meter as follows:

$$\text{Chlorophyll } a,\ \text{mg/m}^3 = \frac{26.7\ (664_b - 665_a) \times V_1}{V_2 \times L}$$

$$\text{Pheophytin } a,\ \text{mg/m}^3 = \frac{26.7\ [1.7\ (665_a) - 664_b] \times V_1}{V_2 \times L}$$

where:

$V_1$ = volume of extract, L,
$V_2$ = volume of sample, $m^3$,
$L$ = light path length or width of cuvette, cm, and
$664_b$, $665_a$ = optical densities of 90% acetone extract before and after acidification, respectively.

The value 26.7 is the absorbance correction and equals $A \times K$

where:

$A$ = absorbance coefficient for chlorophyll *a* at 664 nm = 11.0, and
$K$ = ratio expressing correction for acidification.

$$= \frac{\left(\frac{664_b}{665_a}\right) \textit{pure chlorophyll a}}{\left(\frac{664_b}{665_a}\right) \textit{pure chlorophyll a} - \left(\frac{664_b}{665_a}\right) \textit{pure pheophytin a}}$$

$$= \frac{1.7}{1.7 - 1.0} = 2.43$$

*c. Determination of chlorophyll* a, b, *and* c *(trichromatic method):* Spectrophotometric procedure—Transfer extract to a 1-cm cuvette and measure optical density (OD) at 750, 664, 647, and 630 nm. Choose a cell path length or dilution to give OD664 between 0.1 and 1.0.

Use the optical density readings at 664, 647, and 630 nm to determine chlorophyll *a*, *b*, and *c*, respectively. The OD reading at 750 nm is a correction for turbidity. Subtract this reading from each of the pigment OD values of the other wavelengths before using them in the equations below. Because the OD of the extract at 750 nm is very sensitive to changes in the acetone-to-water proportions, adhere closely to the 90 parts acetone:10 parts water (v/v) formula for pigment extraction. Turbidity can be removed easily by filtration through a disposable, solvent-resistant filter attached to a syringe or by centrifuging for 20 min at 500 *g*.

Calculate the concentrations of chlorophyll *a*, *b*, and *c* in the extract by inserting the corrected optical densities in following equations:[5]

a) $C_a = 11.85(\text{OD664}) - 1.54(\text{OD647}) - 0.08(\text{OD630})$
b) $C_b = 21.03(\text{OD647}) - 5.43(\text{OD664}) - 2.66(\text{OD630})$
c) $C_c = 24.52(\text{OD630}) - 7.60(\text{OD647}) - 1.67(\text{OD664})$

where:

$C_a$, $C_b$, and $C_c$ = concentrations of chlorophyll *a*, *b*, and *c*, respectively, mg/L, and
OD664, OD647, and OD630 = corrected optical densities (with a 1-cm light path) at the respective wavelengths.

After determining the concentration of pigment in the extract, calculate the amount of pigment per unit volume as follows:

$$\text{Chlorophyll } a,\ \text{mg/m}^3 = \frac{C_a \times \text{extract volume, L}}{\text{volume of sample, m}^3}$$

## 3. Fluorometric Determination of Chlorophyll *a*

The fluorometric method for chlorophyll *a* is more sensitive than the spectrophotometric method and thus smaller samples can be used. Calibrate the fluorometer spectrophotometrically with a sample from the same source to achieve acceptable results. Optimum sensitivity for chlorophyll *a* extract measurements is obtained at an excitation wavelength of 430 nm and an emission wavelength of 663 nm. A method for continuous measurement of chlorophyll *a* in vivo is available, but is reported to be less efficient than the in-vitro method given here, yielding about one-tenth as much fluorescence per unit weight as the same amount in solution. Pheophytin *a* also can be determined fluorometrically.[24]

*a. Equipment and reagents:* In addition to those listed under 1*a* and 2*a* above:

*Fluorometer,*‖ equipped with a high-intensity F4T.5 blue lamp, photomultiplier tube R-446 (red-sensitive), sliding window orifices 1×, 3×, 10×, and 30×, and filters for light emission (CS-2-64) and excitation (CS-5-60). A high-sensitivity door is preferable.

*b. Extraction procedure:* Prepare sample as directed in 1*b* above.

1) Calibrate fluorometer with a chlorophyll solution of known concentration as follows: Prepare chlorophyll extract and analyze spectrophotometrically. Prepare serial dilutions of the extract to provide concentrations of approximately 2, 6, 20, and 60 µg chlorophyll *a*/L. Make fluorometric readings for each solution at each sensitivity setting (sliding window orifice): 1×, 3×, 10×, and 30×. Using the values obtained, derive calibration factors to convert fluorometric readings in each sensitivity level to concentrations of chlorophyll *a*, as follows:

$$F_s = \frac{C_a'}{R_s}$$

where:

$F_s$ = calibration factor for sensitivity setting $S$,
$R_s$ = fluorometer reading for sensitivity setting $S$, and,
$C_a'$ = concentration of chlorophyll *a* determined spectrophotometrically, µg/L.

2) Measure sample fluorescence at sensitivity settings that will provide a midscale reading. (Avoid using the 1× window because of quenching effects.) Convert fluorescence readings to concentrations of chlorophyll *a* by multiplying the readings by the appropriate calibration factor.

‖ Model 10-005, Turner Designs, Sunnyvale, Calif. or equivalent.

*c. Determination of chlorophyll a in the presence of pheophytin a:* This method normally is not applicable to freshwater samples. See discussion under 10200G and 1*c* above.

1) Equipment and reagents—In addition to those listed under 1*a* and 2*a* above, pure chlorophyll *a*# (or a plankton chlorophyll extract with a spectrophotometric before-and-after acidification ratio of 1.70 containing no chlorophyll *b*).

2) Fluorometric procedure—Calibrate fluorometer as directed in ¶ 3*b*1). Determine extract fluorescence at each sensitivity setting before and after acifidication. Calculate calibration factors ($F_s$) and before-and-after acidification fluorescence ratio by dividing fluorescence reading obtained before acidification by the reading obtained after acidification. Avoid readings on the 1× scale and those outside the range of 20 to 80 fluorometric units.

3) Calculations—Determine the "corrected" chlorophyll *a* and pheophytin *a* in sample extracts with the following equations:[8,24]

$$\text{Chlorophyll } a,\ \text{mg/m}^3 = F_s \frac{r}{r-1}(R_b - R_a)\frac{V_e}{V_s}$$

$$\text{Pheophytin } a,\ \text{mg/m}^3 = F_s \frac{r}{r-1}(rR_a - R_b)\frac{V_e}{V_s}$$

where:

$F_s$ = conversion factor for sensitivity setting $S$ (see ¶ 2*b*, above),
$R_b$ = fluorescence of extract before acidification,
$R_a$ = fluorescence of extract after acidification,
$r$ = $R_b/R_a$, as determined with pure chlorophyll *a* for the instrument (redetermine $r$ and $F_s$ if filters or light source are changed),
$V_e$ = volume of extract, and
$V_s$ = volume of sample.

*d. Extraction of whole water, nonfiltered samples:* Alternatively, to prevent cell lysis during filtration, extract whole water sample.

1) Equipment and reagents—Fluorometer equipped with a high-sensitivity R928 phototube** with output impedance of 36 ma/W at 675 nm and a high-sensitivity door. Place neutral density filter (40–60N) in the rear light path,†† selected to permit reagent blanking on the highest sensitivity scale.

2) Extraction procedure—Decant 1.5 mL sample into screw-cap test tube and add 8.5 mL 100% acetone. Mix with vortex mixer and hold in the dark for 6 h at room temperature. Filter through glass fiber filter‡‡ or centrifuge. Measure fluorescence as described in Section 10200H.3 and estimate concentrations as in ¶ 3*c*. Because humic substances interfere, if they are present filter a sample portion (see 10200H.1*b*) and process filtrate with sample. Subtract filtrate (blank) fluorescence from that of sample.

## 4. High-Performance Liquid Chromatographic Determination of Algal Chlorophylls and Their Degradation Products

*a. Equipment and reagents:* In addition to those listed for pigment extraction, ¶ 1*a* above:

1) *High-pressure liquid chromatograph* capable of a flow rate of 2.0 mL/m.

2) *High-pressure injector valve* equipped with a 100-µL sample loop.

3) *Guard column* (4.0 × 0.5 cm, $C_{18}$ packing material, 3-µm particle size, or equivalent protection system) for extending life of primary column.

4) *Reverse-phase HPLC column.*§§

5) *Fluorescence detector* capable of excitation at 430 ± 30 nm and measuring emission at wavelengths greater than 600 nm.

6) *Data recorder device:* Strip chart recorder or, preferably, an electronic integrator.

7) *Syringe*, glass, 250-µL.

8) *HPLC eluents:* System A (80:15:5; methanol:Type I reagent water:ion-pairing solution) and System B (80:20; methanol:acetone). Use HPLC-grade solvents; measure volumes before mixing. Filter eluents through a solvent-resistant 0.4-µm filter before use and degas with helium. Prepare the ion-pairing (IP) solution from 15 g tetrabutylammonium acetate‖ ‖ and 77 g ammonium acetate## made up to 1 L with Type I reagent water.[15]

9) *Calibration standards:* Individually dissolve 1 mg each pure chlorophyll *a* and *b*.‖ in 100 mL 90% acetone. Determine the exact concentrations spectrophotometrically ($\epsilon_{664}$ for chlorophyll *a* in 90% acetone = 87.67 L g$^{-1}$ cm$^{-1}$; $\epsilon_{647}$ for chlorophyll *b* in 90% acetone = 51.36 L g$^{-1}$ cm$^{-1}$).[5] Prepare pheophytin *a* + *a'* and *b* + *b'* standards from the primary chlorophyll *a* and *b* standards by acidification with hydrochloric acid; correct respective concentrations for $Mg^{2+}$ loss. Extract chlorophyll *c* with 90% acetone from diatoms, purify by thin-layer chromatography (TLC)[25] and calibrate spectrophotometrically ($\epsilon_{631}$ for a mixture containing equal amounts of chlorophylls $c_1$ and $c_2$ in 90% acetone containing 1% pyridine = 42.6 L g$^{-1}$ cm$^{-1}$; the absence of this small amount of pyridine is presumed to cause only small differences in the absorption properties of chlorophyll *c*.[26] Alternatively, determine the chlorophyll *c* content of a 90% acetone extract made from diatoms, spectrophotometrically (chlorophyll $c_1 + c_2$, µg/mL = $24.36E_{630} - 3.73E_{664}$)[5] and use as standard. Prepare chlorophyllide *a* from diatoms,[27] purify by TLC[25] and calibrate spectrophotometrically in 90% acetone ($\epsilon_{664}$ for chlorophyllide *a* = 128 L g$^{-1}$ cm$^{-1}$).[28] Prepare pheophorbide *a* by acidification of chlorophyllide *a*, purify by TLC,[25] and calibrate spectrophotometrically in 90% acetone ($\epsilon_{665}$ for pheophorbide *a* = 69.8 L g$^{-1}$ cm$^{-1}$).[28] Standards stored under nitrogen in the dark at −20°C are stable for about 1 month.

*b. Procedure:*

1) Set up and equilibrate the HPLC system with solvent System A at a flow rate of 2 mL/min. Adjust fluorometer sensitivity to provide full-scale reading with the most concentrated chlorophyll *a* standard.

2) Calibrate HPLC system by preparing working standards from the primary standards (on day of use). Once retention times of the standards are determined for a particular system, simplify standardization by preparing serial dilutions from mixed standards. Prepare separately mixed standards for the chlorophylls and chlorophyllide *a* and for the pheophytins and pheophorbide *a*. Mix 1-mL portions of standards with 300 µL ion-pairing solutions and equilibrate for 5 min before injection (use of ion-pairing agents greatly enhances separation of dephytolated pigments, chlorophyllide *a*, chlorophyll *c*, and pheophorbide *a*). Prepare blanks by mixing 1 mL 90% acetone with 300 µL IP solution. Rinse syringe twice with 150 µL standard and draw

# Purified chlorophyll *a*, Sigma Chemical Company, St. Louis, Mo., or equivalent.
** Hammamatsu Corp., Middlesex, N.J., or equivalent.
†† If using Model 10-005, Turner Designs, or equivalent.
‡‡ Whatman GF F or equivalent.

§§ Microsorb $C_{18}$ column, 10 cm long, 3-µm particle size, Rainin Co., or equivalent.
‖ ‖ Fluka Chemical Corp., 980 South Second Street, Ronkonkoma, N.Y., or equivalent.
## Sigma Chemical Company, or equivalent.

about 250 µL standard into syringe for injection. Place syringe in injector valve, overfilling the 100-µL sample loop. Construct calibration curves by plotting fluorescence peak areas (or heights) against standard pigment concentrations.

3) Prepare samples for injection by mixing a 1-mL portion of the 90% acetone pigment extract with 300 µL IP solution.

4) Use a two-step solvent program to optimize separation of the chorophylls from their degradation products.[15] After injection, change from solvent System A to System B over 5 min and follow with System B for 15 min at a flow rate of 2 mL/min. Re-equilibrate the column with System A for 5 min before the next injection for a total analysis time of approximately 25 min. Degas the solvent systems with helium during analysis. Increase lifetime of HPLC column by storing it in 100% methanol between runs. Periodically flush the HPLC system with reagent water (Type I) to avoid buildup of ion pairing agents.

5) Calculate individual pigment concentrations using the following formula:

$$C_i = \frac{A_i F_i V_E}{V_I V_S}$$

where:

$C_i$ = individual pigment concentration, mg/L,
$A_i$ = area of individual pigment peak from sample injection,
$F_i$ = standard response factor (mg pigment/0.1 mL standard divided by corresponding peak area).
$V_I$ = injection volume (0.1 mL),
$V_E$ = extraction volume, mL, and
$V_S$ = sample volume, L.

6) This method is designed only for quantification of chlorophylls and their degradation products. Detect carotenoid pigments, which also are present in 90% acetone extracts but do not fluoresce, by absorbance spectroscopy (at about 440 nm).[21]

7) The elution order and approximate retention times for the major chlorophyll pigments and their degradation products are shown in Figure 10200:11. The detection limits ($s/n \geq 2$) vary with fluorometer configuration and flow rate; however, they range from 10 to 100 pg per injection for most chlorophylls and their degradation products.[15,21,29] The accuracy of the HPLC method depends primarily on purity of pigment standards. Preferably measure absorption spectra (350 to 750 nm) of the standards and compare with published data. Pigment purity also can be assessed by HPLC analysis, providing there are no co-eluting contaminants with absorption and fluorescence bands overlapping those of the standards. HPLC and spectrophotometrically derived pigment concentrations for available EPA standards agree reasonably well (± 20%) if spectrophotometric results are corrected for the presence of pheopigments and the HPLC results are expressed as pigment equivalents (e.g., chlorophyll *a* equivalents = chlorophyllide *a* + chlorophyll *a* + chlorophyll *a'*, provided that the proper molecular weight corrections are applied).[30] Thus, if significant amounts of chlorophyll derivatives are present, pigment concentrations determined spectrophotometrically will be overestimated. The agreement between HPLC and fluorometrically derived results depends on the presence of accessory chlorophylls *b*, *c*, and their derivatives. Triplicate injections of a fivefold dilution of an EPA sample gave coefficients of variation of 7.5% (chlorophyllide *a*), 9.1% (chlorophyll *c*), 13.4% (pheophorbide *a*), 9.6% (chlorophyll *b*), 0.5% (chlorophyll *a*), 6.2% (pheophytin *a*), and 22.9% (pheophytin *a'*), with an average value of 10% for the seven pigments analyzed.

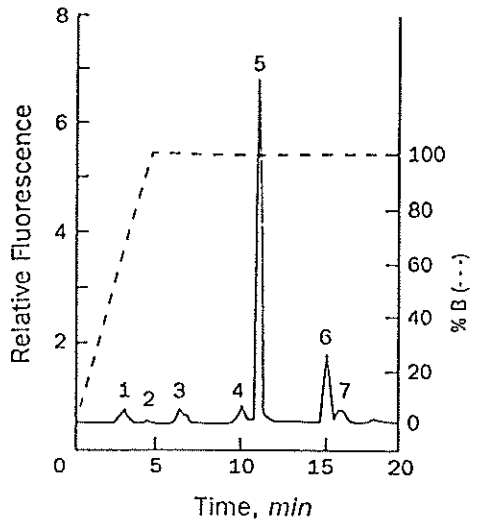



Figure 10200:11. Reverse-phase HPLC chromatogram for a fivefold dilution of EPA sample. Injection volume 100 µL; peaks detected by fluorescence spectroscopy ($\lambda_{ex}$: 400–460 nm; $\lambda_{em}$: >600 nm). Peak identities are: 1—chlorophyllide *a*; 2—chlorophyll *c*; 3—pheophorbide *a*; 4—chlorophyll *b*; 5—chlorophyll *a*; 6—pheophytin *a*; and 7—pheophytin *a*. The chlorophyll *b* degradation products, pheophytin *b* and pheophytin *b'*, were below detection limits. Peak identities confirmed by on-line diode array spectroscopy (350–550 nm).

## 5. High-Performance Liquid Chromatographic Determination of Algal Chlorophyll and Carotenoid Pigments (PROPOSED)

*a. Equipment and reagents:* In addition to those listed for pigment extraction, ¶ 1*a* above:

1) *High-performance liquid chromatographic pump* capable of gradient delivery of three different solvents at a flow rate of 1 mL/min.

2) *High-pressure injector valve* equipped with a 200-µL sample loop.

3) *Guard column* (50 × 4.6 mm, $C_{18}$ packing material,*** 5-µm particle size) for extending life of primary column.

4) *Reverse-phase HPLC column* with endcapping (250 × 4.6 mm, 5-µm particle size, $C_{18}$ column***).

5) *Variable wavelength or filter absorbance detector* with low-volume flowthrough cell. Detection wavelength is 436 nm.

6) *Data recording device:* Strip chart recorder or, preferably, an electronic integrator or computer equipped with hardware and software for chromatographic data analysis.

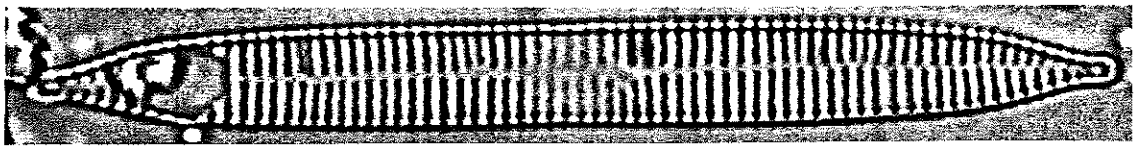
7) *Syringe, glass,* 500-µL.

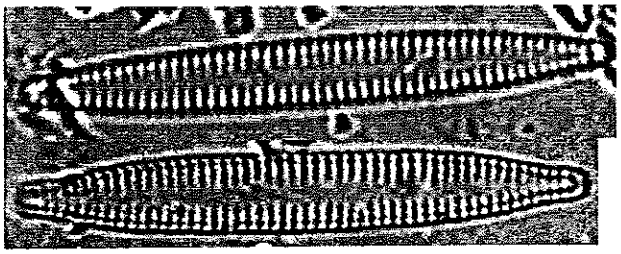
8) *HPLC eluents:* Eluent A (80:20, v:v; methanol:0.5*M* ammonium acetate, pH 7.2); Eluent B (90:10, v:v; acetonitrile:water), and Eluent C, ethyl acetate. Use HPLC-grade solvents. Measure volumes before mixing. Filter eluents through a solvent-resistant 0.4-µm filter before use and degas with helium.

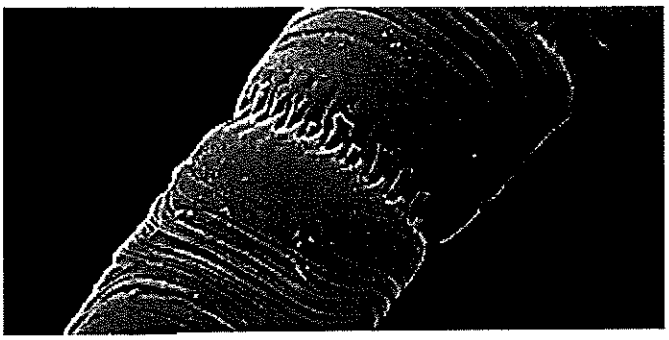
9) *Calibration standards:* Chlorophylls *a* and *b*, and β,β-carotene can be purchased††† as can zeaxanthin and lutein.‡‡‡ Other pigment standards can be purified from plant extracts by

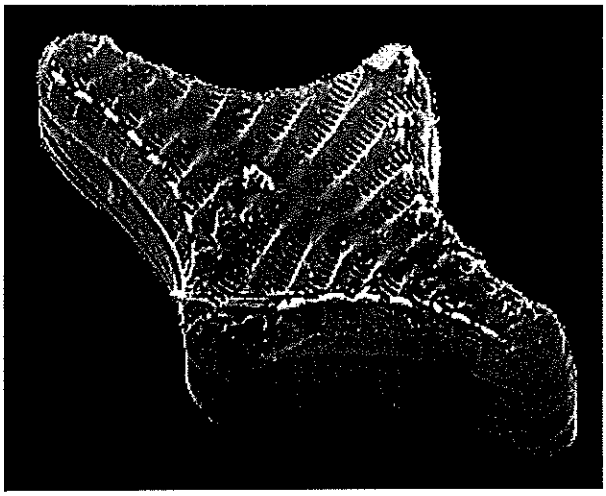
*** Spherisorb ODS-2, Phase Separations Inc., Norwalk, Conn., or equivalent.
††† Sigma Chemical Co., St. Louis, Mo., or equivalent.
‡‡‡ Roth Chemical Co., distributed by Atomergic Chemetals Corp., Farmingdale, N.Y., or equivalent.

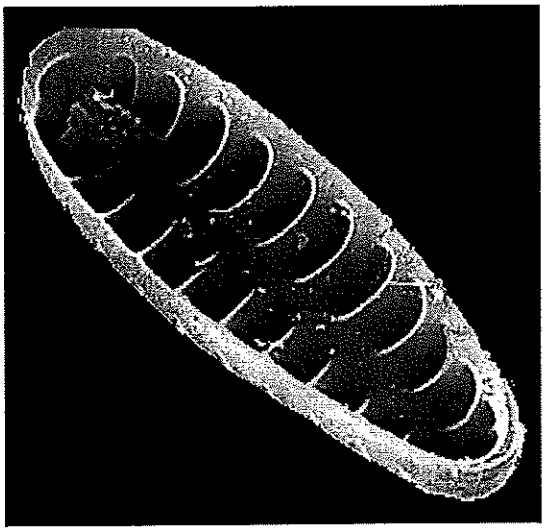
# ALGAE IDENTIFICATION

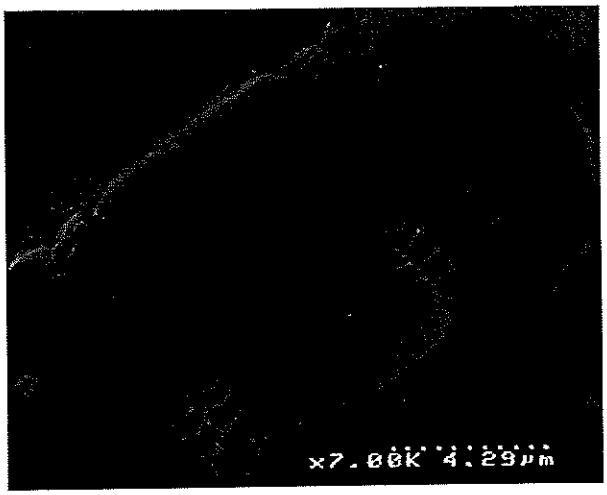











x7.00K 4.29µm

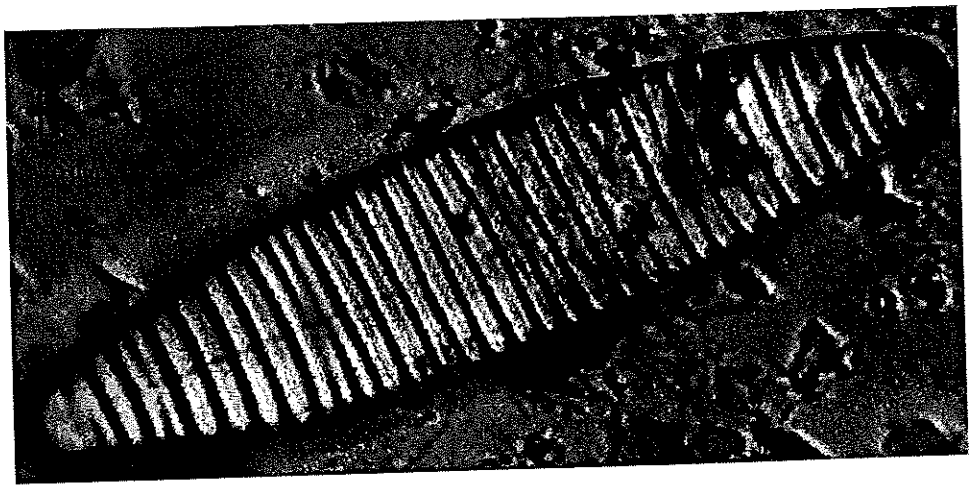


TABLE 10200:III. EXTINCTION COEFFICIENTS AND CHROMATOGRAPHIC PROPERTIES OF PIGMENTS SEPARATED BY REVERSE-PHASE HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY (CF. FIGURE 10200:12)

| Pigment Identity | Wavelength (solvent) *nm* | $E_{1cm}$ *L g$^{-1}$ cm$^{-1}$* | Ref. No. | Retention Time *min* | % c.v. ($n$ = 3 inj) | Absorption Maxima in Eluent* *nm* | | |
|---|---|---|---|---|---|---|---|---|
| Chlorophyllide *a* | 664 (90% acetone) | 128.0 | 28 | 7.8 | 5.7 | nd† | nd | nd |
| Chlorophyll $c_{1+2}$ | 631 (90% acetone) | 42.6 | 26 | 8.9 | 0.6 | 444 | 576 | 630 |
| Peridinin | 466 (acetone) | 134.0 | 33 | 10.0 | 1.2 | | 472 | |
| Fucoxanthin | 449 (acetone) | 160.0 | 44 | 11.0 | 0.9 | | 446 | (466) |
| Neoxanthin | 439 (ethanol) | 224.3 | 35 | 11.5 | 5.9 | 416 | 441 | 470 |
| Violaxanthin | 443 (ethanol) | 255.0 | 35 | 13.2 | 2.6 | 416 | 440 | 470 |
| Diadinoxanthin | 448 (acetone) | 223.0 | 36 | 14.6 | 6.0 | 422 | 446 | 476 |
| Lutein | 445 (ethanol) | 255.0 | 35 | 17.5 | 0.7 | (422) | 446 | 476 |
| Zeaxanthin | 450 (ethanol) | 254.0 | 35 | 18.0 | 2.2 | (428) | 454 | 478 |
| Chlorophyll *b* | 647 (90% acetone) | 51.36 | 5 | 21.1 | 1.0 | 456 | 596 | 646 |
| Chlorophyll *a* | 664 (90% acetone) | 87.67 | 5 | 22.3 | 0.8 | 431 | 618 | 665 |
| β,β-Carotene | 453 (90% acetone)‡ | 262.0 | 35 | 25.4 | 2.0 | 427 | 462 | 480 |

* All absorption maxima are from Wright et al.[32] except those for chlorophyll $c_{1+2}$ (R.R. Bidigare and M. Latasa, unpublished data).
† Not determined.
‡ Because of a potential insolubility problem of β,β-carotene in ethanol, prepare this standard in 90% acetone, not ethanol. It is assumed that the extinction coefficient of β,β-carotene in 90% acetone is the same as that in ethanol.

thin-layer chromatography (TLC)[25] or preparative-scale HPLC. Determine concentration of all standards using a monochromator-based spectrophotometer in the appropriate solvents before calibration of the HPLC system. The recommended extinction coefficients for most common algal pigments found in freshwater systems are given in Table 10200:III. Measure absorbance in a 1-cm cuvette at the appropriate wavelength (usually at $\lambda_{max}$) and 750 nm (to correct for light scattering). Calculate concentrations of standards as follows:

$$C_i = \frac{(A_{\lambda max} - A_{750nm})}{E_{1cm} \times b} \times 1000$$

where:

$C_i$ = individual pigment concentration, mg/L,
$A$ = absorbance at specific wavelength,
$E_{1cm}$ = weight-specific absorption coefficient, L g$^{-1}$ cm$^{-1}$,
$b$ = pathlength of cuvette, cm, and
1000 = conversion factor, g to mg.

Standards stored under nitrogen in the dark at −20°C are stable for about 1 month.

*b. Procedure:*

1) Set up and equilibrate the HPLC system with Eluent A at a flow rate of 1 mL/min.

2) Calibrate the HPLC using working standards (about 0 to 1000 ng/mL) prepared from primary standards on day of use. Mix 1 mL standard with 300 µL distilled water, shake, and equilibrate for 5 min before injection (diluting standards and sample extracts with water increases affinity of pigments for the column in the loading step, resulting in an improved separation of more polar pigments). Rinse syringe twice with 300 µL standard and draw 500 µL standard into syringe for injection. Place syringe in injector valve, overfilling the 200 µL sample loop 2.5-fold. To check for possible interferences in the extraction solvent and/or filter, prepare a blank by extracting a glass fiber filter in 90% acetone; mixing 1 mL 90% acetone filter extract and 300 µL distilled water; and injecting into the HPLC system. Plot absorbance peak areas (or heights) against standard pigment concentrations. Calculate response factors as the slope of the regression between the weights of the injected standards (ng) and the areas of the parent pigment (plus areas of structurally-related isomers if present). These isomers contribute to the absorption signal of the standards; disregarding them results in over-estimation of pigments in sample extracts.[31]

3) Prepare samples for injection by mixing a 1 mL portion of the 90% acetone pigment extract and 300 µL distilled water, shake, and equilibrate for 5 min before injection.

4) Following sample injection, use a gradient program to optimize separation of chlorophyll and carotenoid pigments. The system described in Table 10200:IV has been developed from the original method[32] to insure elution of most hydrophobic pigments. Degas solvent system with helium during analysis. Periodically flush HPLC system with distilled water to avoid accumulation of ion-pairing reagents.

TABLE 10200:IV. HPLC SOLVENT SYSTEM PROGRAM

| Time *min* | Flow Rate *mL/min* | Percentage of Eluent A | B | C | Conditions |
|---|---|---|---|---|---|
| Analysis protocol: | | | | | |
| 0.0 | 1.0 | 100 | 0 | 0 | Injection |
| 2.0 | 1.0 | 0 | 100 | 0 | Linear gradient |
| 2.6 | 1.0 | 0 | 90 | 10 | Linear gradient |
| 13.6 | 1.0 | 0 | 65 | 35 | Linear gradient |
| 18.0 | 1.0 | 0 | 31 | 69 | Linear gradient |
| 23.0 | 1.0 | 0 | 31 | 69 | Hold |
| 25.0 | 1.0 | 0 | 100 | 0 | Linear gradient |
| 26.0 | 1.0 | 100 | 0 | 0 | Linear gradient |
| 34.0 | 1.0 | 100 | 0 | 0 | Hold |
| Shutdown protocol: | | | | | |
| 0.0 | 1.0 | 100 | 0 | 0 | Analysis complete |
| 3.0 | 1.0 | 0 | 100 | 0 | Linear gradient |
| 6.0 | 1.0 | 0 | 0 | 100 | Linear gradient |
| 16.0 | 1.0 | 0 | 0 | 100 | Washing |
| 17.0 | 0.0 | 0 | 0 | 100 | Shutdown |

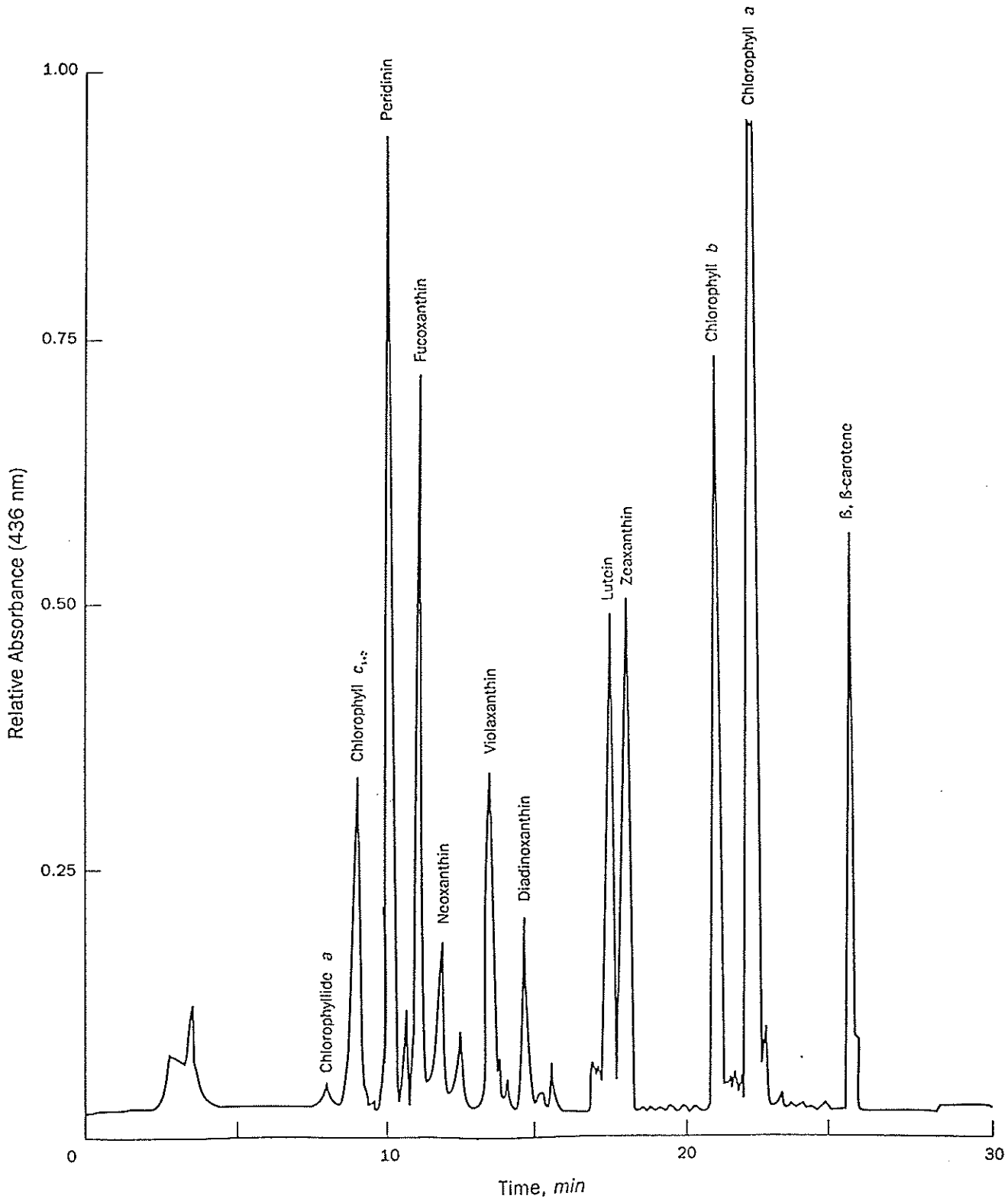



Figure 10200:12. Reverse-phase HPLC pigment chromatogram for a mixture of common algal pigments found in freshwater systems. For further data see Table 10200:III. Sample contained a natural extract with authentic known additions. The small unlabeled peaks are pigment degradation products.

5) Routinely determine peak identities by comparing retention nes of sample peaks with those of pure standards. Confirm eak identities spectrophotometrically by collecting eluting peaks from the column outlet (or directly with an on-line diode array spectrophotometer). Absorption maxima for most common pigments found in freshwater systems are given in Table 10200:III.

6) Calculate individual pigment concentrations using the formula given in ¶ 4*b*5) preceding.

7) This method is designed for separation of chlorophyll and carotenoid pigments (Figure 10200:12), however, it also separates major chlorophyll breakdown products.

8) Method precision was assessed by making triplicate injections of a mixture of phytoplankton and plant extracts. Coefficients of variation ranged from 0.6 to 6.0% (Table 10200:III). Using an appropriate internal standard increases precision.

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# ALGAL IDENTIFICATION AND COUNTS

TABLE 1. PLANKTON SAMPLES, AquAeTer, INC., JANUARY 1999.

| SPECIES | ORM 224 | No./mL | ORM 208.8 | No./mL | ORM 192 | No./mL |
|---|---|---|---|---|---|---|
| **SARCOMASTIGOPHORA** | | | | | | |
| **Rhizopoda** | | | | | | |
| **Lobosa** | | | | | | |
| Difflugiidae | | | | | | |
| *Dufflugia sp.* | 1 | 0.1 | | | 4 | 0.4 |
| Arcellidae | | | | | | |
| *Arcella vulgaris* | 1 | 0.1 | | | | |
| **CHLOROPHYTA** | | | | | | |
| **Chlorococcales** | | | | | | |
| Chlamydomonadaceae | | | | | | |
| *Chlorogonium sp.* | | | 1 | 0.1 | | |
| Hydrodictyaceae | | | | | | |
| Oocystaceae | | | | | | |
| *Ankistrodesmus sp.* | 5 | 0.5 | 10 | 1 | 25 | 2.5 |
| *Pediastrum sp.* | | | 1 | 0.1 | | |
| Scenedesmaceae | | | | | | |
| *Scenedesmus sp.* | 2 | 0.2 | 4 | 0.4 | 5 | 0.5 |
| **EUGLENOPHYTA** | | | | | | |
| **Euglenales** | | | | | | |
| Euglenaceae | | | | | | |
| *Trachelomonas sp.* | 2 | 0.2 | | | | |
| **PYRRHOPHYTA** | | | | | | |
| **Dinophyceae** | | | | | | |
| **Dinokontae** | | | | | | |
| Peridiniaceae | | | | | | |
| *Peridinium sp.* | | | | | 1 | 0.1 |
| **CRYPTOPHYTA** | | | | | | |
| Cryptomonadaceae | | | | | | |
| *Cryptomonas sp.* | 6 | 0.6 | 6 | 0.6 | 33 | 3.3 |
| **CHRYSOPHYTA** | | | | | | |
| **Tribonematales** | | | | | | |
| Tribonemataceae | | | | | | |
| *Bumilleria exilis* | 3 | 0.3 | 4 | 0.4 | 8 | 0.8 |
| **Bacillariophyceae** | | | | | | |
| **Centrales** | | | | | | |
| Coscinodiscaceae | | | | | | |
| *Melosira sp.* | | | | | 2 | 0.2 |
| Biddulphiaceae | | | | | | |
| *Terpsinoe americana* | 2 | 0.2 | | | | |
| **Pennales** | | | | | | |
| Cymbellaceae | | | | | | |
| *Cymbella sp.* | 1 | 0.1 | | | | |
| Eunotiaceae | | | | | | |
| *Eunotia pectinalis* | 1 | 0.1 | | | 1 | 0.1 |
| Fragilariaceae | | | | | | |
| *Diatoma sp.* | 17 | 1.7 | 1 | 0.1 | 4 | 0.4 |
| *Fragilaria sp.* | | | | | 14 | 1.4 |
| *Synedra sp.* | 56 | 5.6 | 11 | 1.1 | 15 | 1.5 |

TABLE 1. PLANKTON SAMPLES, AquAeTer, INC., JANUARY 1999.

| SPECIES | ORM 224 | No./mL | ORM 208.8 | No./mL | ORM 192 | No./mL |
|---|---|---|---|---|---|---|
| Gomphonemaceae | | | | | | |
| *Gomphonema sp.* | | | | | 4 | 0.4 |
| Naviculaceae | | | | | | |
| *Gyrosigma sp.* | 5 | 0.5 | 2 | 0.2 | 2 | 0.2 |
| *Navicula spp.* | 34 | 3.4 | 20 | 2 | 19 | 1.9 |
| *Stauroneis sp.* | | | 2 | 0.2 | | |
| Nitzschiaceae | | | | | | |
| *Nitzschia sp.* | 1 | 0.1 | 1 | 0.1 | 7 | 0.7 |
| Surirellaceae | | | | | | |
| *Surirella ovalis* | | | 2 | 0.2 | | |
| *Surirella sp.* | | | 1 | 0.1 | 2 | 0.2 |
| **ROTIFERA** | | | | | | |
| **Monogononta** | | | | | | |
| **Ploima** | | | | | | |
| Brachionidae | | | | | | |
| *Keratella sp.* | 2 | 0.2 | | | | |
| Hexarthridae | | | | | | |
| *Hexarthra sp.* | | | 1 | 0.1 | 1 | 0.1 |
| **TOTAL NO. OF SPECIES** | **139** | **13.9** | **67** | **6.7** | **147** | **14.7** |
| **TOTAL NO. OF ORGANISMS** | **16** | | **15** | | **17** | |

TABLE 1. PLANKTON SAMPLES, AquAeTer, INC., JANUARY 1999.

| SPECIES | ORM 229 Count | ORM 229 No./mL |
|---|---|---|
| **SARCOMASTIGOPHORA** | | |
| **Rhizopoda** | | |
| **Lobosa** | | |
| Difflugiidae | | |
| *Dufflugia sp.* | 1 | 0.1 |
| **CHLOROPHYTA** | | |
| **Chlorococcales** | | |
| Oocystaceae | | |
| *Ankistrodesmus sp.* | 7 | 0.7 |
| Microsporaceae | | |
| *Microspora sp.* | 1 | 0.1 |
| **Zygnematales** | | |
| Desmidiaceae | | |
| *Euastrum sp.* | 1 | 0.1 |
| **EUGLENOPHYTA** | | |
| **Euglenales** | | |
| Euglenaceae | | |
| *Euglena sp.* | 1 | 0.1 |
| **PYRRHOPHYTA** | | |
| **Dinophyceae** | | |
| **Dinokontae** | | |
| Peridiniaceae | | |
| *Peridinium sp.* | 1 | 0.1 |
| **CRYPTOPHYTA** | | |
| Cryptomonadaceae | | |
| *Cryptomonas sp.* | 1 | 0.1 |
| **CHRYSOPHYTA** | | |
| **Tribonematales** | | |
| Tribonemataceae | | |
| *Bumilleria exilis* | 2 | 0.2 |
| **Bacillariophyceae** | | |
| Gomphonemaceae | | |
| *Gomphonema sp.* | 1 | 0.1 |
| Naviculaceae | | |
| *Gyrosigma sp.* | 1 | 0.1 |
| *Navicula spp.* | 6 | 0.6 |
| Nitzschiaceae | | |
| *Nitzschia sp.* | 8 | 0.8 |
| **TOTAL NO. OF SPECIES** | **31** | **3.1** |
| **TOTAL NO. OF ORGANISMS** | **12** | |

# APPENDIX 9

# PRIMARY PRODUCTIVITY ANALYSES

**Odum Method**
**Light and Dark Bottle Method**

# ODUM METHOD

JOB 0650/6
SHEET NO. 1 OF 2
CALCULATED BY SMS DATE 12/18/98
CHECKED BY DMB DATE 12/18/98
SCALE Example Odum calculation

AquAeTer
215 Jamestown Park, Suite 204
Brentwood, TN 37027
(615) 373-8532 FAX (615) 373-8512

ORM 224 07:00 to 08:00

uncorrected $\Delta DO = 5.54 - 5.46 = 0.08$ mg/L/hr

water temp = 32°C = 305 K

DOsat: $\ln C_{sf} = -139.34411 + \frac{1.575701 \times 10^5}{T} - \frac{6.642308 \times 10^7}{T^2} + \frac{1.243800 \times 10^{10}}{T^3} - \frac{8.621949 \times 10^{11}}{T^4}$

$C_{sf} = 7.32$ mg/L

reaeration: $D_m = 1.91 \times 10^{-3} (1.037)^{T-30} = 2.95 \times 10^{-3}$ ft²/d

Flow
8·5·98 737 cfs
8·4·98 760 cfs average = 1076 cfs
8·3·98 1730 cfs

Area (from profiles)
ORM 224 3642 ft²
ORM 222 3693 ft²
ORM 208.8 5733 ft²
ORM 192 8533 ft²
average = 5400 ft²

Depth (from profiles)
ORM 224 12 ft

$V = \frac{Q}{A} = \frac{1076 \text{ cfs}}{5400 \text{ ft}^2} = 0.20 \frac{\text{ft}}{\text{s}} = 17280 \frac{\text{ft}}{\text{d}}$

JOB 0650|6
SHEET NO. 2 OF 2
CALCULATED BY SMS DATE 12/18/98
CHECKED BY DMB DATE 12/18/98
SCALE Example Odum Calculation

AquAeTer
215 Jamestown Park, Suite 204
Brentwood, TN 37027
(615) 373-8532 FAX (615) 373-8512

$$K_2 @ 20°C = \frac{(Dmu)^{0.5}}{d^{1.5}} = \frac{[(2.95 \times 10^{-3} ft^2/d)(17280 ft/d)]^{0.5}}{(12 ft)^{1.5}} = 0.172 /d$$

$$K_2 ambient = K_{2,20}(1.024)^{T-20} = 0.172/d\ (1.024)^{32-20} = 0.228/d$$

diffusion: $D = \frac{C_{sf} K_2}{24} = \frac{(7.32 mg/L)(0.228/d)}{24 hr/d} = 0.07\ mg/L/hr$

Corrected $\Delta DO$ = uncorrected $\Delta DO - D$
= 0.08 mg/L/h − 0.07 mg/L/hr = 0.01 mg/L/hr

After plotting corrected $\Delta DO$ vs. time, the area under the curve during the photoperiod (0700-2000) was calculated using AutoCAD. As Attached.

Area under curve = 1.68 $g/m^3/d$ = 1.68 mg/L/d = $P_G$

Average hourly uncorrected $\Delta DO$ for dark period (2100 − 0700)

= 0.16 mg/L/hr

R = (0.16 mg/L/hr)(11 hr/day) = 1.76 mg/L/d

Net productivity = $P_G - R$ = 1.68 mg/L/d − 1.76 mg/L/d
= −0.08 mg/L/d

JOB 0650/6

SHEET NO. _____ OF _____

CALCULATED BY SMS DATE 12/17/98

CHECKED BY DMB DATE 12/18/98

SCALE avg hrly ΔDO

AquAeTer
215 Jamestown Park, Suite 204
Brentwood, TN 37027
(615) 373-8532 FAX (615) 373-8512

| | light | dark (F) | z | t | R = Ft |
|---|---|---|---|---|---|
| 224 | 0.15 | 0.16 | 3.66 | 11 | 1.76 |
| 208.8 | 0.17 | 0.20 | 3.05 | 11 | 2.20 |
| 189.3 | 0.06 | 0.08 | 4.89 | 10 | 0.80 |

g/m³/d

Area under curve = Gross Primary Productivity

224 $1.68 \frac{g}{m^3 \cdot d}$

208.8 $3.28 \frac{g}{m^3 \cdot d}$

189.3 $1.5 \frac{g}{m^3 \cdot d}$

TABLE A9-1. COMPUTATION OF CORRECTED RATES OF OXYGEN CHANGE FROM SINGLE STATION METHOD
DIURNAL CURVES OF OXYGEN CONCENTRATION AND TEMPERATURE
ORM 224

| TIME (hh:mm) | DO (mg/L) | UNCORRECTED DELTA DO (mg/L/h) | WATER TEMP (°C) | WATER TEMP (K) | SATURATION DO (mg/L) | Dm (ft^2/d) | K2 AT 20°C (1/d) | K2 AT AMBIENT (1/d) | D (mg/L/h) | AVERAGE D (mg/L/h) | CORRECTED DELTA DO (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 07:00 | 5.46 | | 32.00 | 305.00 | 7.3 | 0.003 | 0.172 | 0.228 | 0.070 | | |
| | | 0.08 | | | | | | | | 0.070 | 0.01 |
| 08:00 | 5.54 | | 32.00 | 305.00 | 7.3 | 0.003 | 0.172 | 0.228 | 0.070 | | |
| | | 0.15 | | | | | | | | 0.070 | 0.08 |
| 09:00 | 5.69 | | 32.00 | 305.00 | 7.3 | 0.003 | 0.172 | 0.228 | 0.070 | | |
| | | 0.20 | | | | | | | | 0.070 | 0.13 |
| 10:00 | 5.89 | | 32.09 | 305.09 | 7.3 | 0.003 | 0.172 | 0.229 | 0.070 | | |
| | | 0.23 | | | | | | | | 0.070 | 0.16 |
| 11:00 | 6.12 | | 32.23 | 305.23 | 7.3 | 0.003 | 0.173 | 0.231 | 0.070 | | |
| | | 0.24 | | | | | | | | 0.070 | 0.17 |
| 12:00 | 6.36 | | 32.36 | 305.36 | 7.3 | 0.003 | 0.173 | 0.232 | 0.070 | | |
| | | 0.22 | | | | | | | | 0.071 | 0.15 |
| 13:00 | 6.58 | | 32.64 | 305.64 | 7.2 | 0.003 | 0.174 | 0.235 | 0.071 | | |
| | | 0.18 | | | | | | | | 0.071 | 0.11 |
| 14:00 | 6.77 | | 32.92 | 305.92 | 7.2 | 0.003 | 0.175 | 0.237 | 0.071 | | |
| | | 0.13 | | | | | | | | 0.072 | 0.05 |
| 15:00 | 6.89 | | 33.20 | 306.20 | 7.2 | 0.003 | 0.176 | 0.240 | 0.072 | | |
| | | 0.06 | | | | | | | | 0.072 | -0.02 |
| 16:00 | 6.95 | | 33.50 | 306.50 | 7.1 | 0.003 | 0.177 | 0.243 | 0.072 | | |
| | | -0.02 | | | | | | | | 0.072 | -0.09 |
| 17:00 | 6.93 | | 33.35 | 306.35 | 7.2 | 0.003 | 0.176 | 0.242 | 0.072 | | |
| | | -0.09 | | | | | | | | 0.072 | -0.17 |
| 18:00 | 6.83 | | 33.19 | 306.19 | 7.2 | 0.003 | 0.176 | 0.240 | 0.072 | | |
| | | -0.16 | | | | | | | | 0.072 | -0.23 |
| 19:00 | 6.67 | | 33.04 | 306.04 | 7.2 | 0.003 | 0.175 | 0.239 | 0.072 | | |
| | | -0.21 | | | | | | | | 0.071 | -0.28 |
| 20:00 | 6.47 | | 32.88 | 305.88 | 7.2 | 0.003 | 0.175 | 0.237 | 0.071 | | |
| | | -0.23 | | | | | | | | 0.071 | -0.31 |
| 21:00 | 6.23 | | 32.73 | 305.73 | 7.2 | 0.003 | 0.174 | 0.236 | 0.071 | | |
| | | -0.24 | | | | | | | | 0.071 | -0.31 |
| 22:00 | 6.00 | | 32.58 | 305.58 | 7.3 | 0.003 | 0.174 | 0.234 | 0.071 | | |
| | | -0.22 | | | | | | | | 0.071 | -0.29 |
| 23:00 | 5.78 | | 32.47 | 305.47 | 7.3 | 0.003 | 0.173 | 0.233 | 0.071 | | |
| | | -0.17 | | | | | | | | 0.070 | -0.24 |
| 00:00 | 5.61 | | 32.42 | 305.42 | 7.3 | 0.003 | 0.173 | 0.233 | 0.070 | | |
| | | -0.11 | | | | | | | | 0.070 | -0.18 |
| 01:00 | 5.49 | | 32.37 | 305.37 | 7.3 | 0.003 | 0.173 | 0.232 | 0.070 | | |
| | | -0.04 | | | | | | | | 0.070 | -0.11 |
| 02:00 | 5.45 | | 32.31 | 305.31 | 7.3 | 0.003 | 0.173 | 0.231 | 0.070 | | |
| | | 0.03 | | | | | | | | 0.070 | -0.04 |
| 03:00 | 5.48 | | 32.26 | 305.26 | 7.3 | 0.003 | 0.173 | 0.231 | 0.070 | | |
| | | 0.11 | | | | | | | | 0.070 | 0.04 |
| 04:00 | 5.59 | | 32.21 | 305.21 | 7.3 | 0.003 | 0.173 | 0.230 | 0.070 | | |
| | | 0.17 | | | | | | | | 0.070 | 0.10 |
| 05:00 | 5.76 | | 32.15 | 305.15 | 7.3 | 0.003 | 0.172 | 0.230 | 0.070 | | |
| | | 0.21 | | | | | | | | 0.070 | 0.14 |
| 06:00 | 5.97 | | 32.10 | 305.10 | 7.3 | 0.003 | 0.172 | 0.229 | 0.070 | | |
| | | 0.24 | | | | | | | | 0.070 | 0.17 |
| 07:00 | 6.21 | | 32.10 | 305.10 | 7.3 | 0.003 | 0.172 | 0.229 | 0.070 | | |

TABLE A9-2. COMPUTATION OF CORRECTED RATES OF OXYGEN CHANGE FROM SINGLE STATION METHOD
DIURNAL CURVES OF OXYGEN CONCENTRATION AND TEMPERATURE
ORM 208.8

| TIME (hh:mm) | DO (mg/L) | UNCORRECTED DELTA DO (mg/L/h) | WATER TEMP (°C) | WATER TEMP (K) | SATURATION DO (mg/L) | Dm (ft^2/d) | K2 AT 20°C (1/d) | K2 AT AMBIENT (1/d) | D (mg/L/h) | AVERAGE D (mg/L/h) | CORRECTED DELTA DO (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 07:00 | 4.95 | | 33.00 | 306.00 | 7.2 | 0.003 | 0.230 | 0.313 | 0.094 | | |
| | | -0.05 | | | | | | | | 0.094 | -0.14 |
| 08:00 | 4.90 | | 33.00 | 306.00 | 7.2 | 0.003 | 0.230 | 0.313 | 0.094 | | |
| | | 0.05 | | | | | | | | 0.094 | -0.04 |
| 09:00 | 4.95 | | 33.00 | 306.00 | 7.2 | 0.003 | 0.230 | 0.313 | 0.094 | | |
| | | 0.13 | | | | | | | | 0.094 | 0.04 |
| 10:00 | 5.08 | | 33.00 | 306.00 | 7.2 | 0.003 | 0.230 | 0.313 | 0.094 | | |
| | | 0.22 | | | | | | | | 0.094 | 0.13 |
| 11:00 | 5.30 | | 33.00 | 306.00 | 7.2 | 0.003 | 0.230 | 0.313 | 0.094 | | |
| | | 0.27 | | | | | | | | 0.094 | 0.18 |
| 12:00 | 5.57 | | 33.00 | 306.00 | 7.2 | 0.003 | 0.230 | 0.313 | 0.094 | | |
| | | 0.31 | | | | | | | | 0.094 | 0.22 |
| 13:00 | 5.88 | | 33.30 | 306.30 | 7.2 | 0.003 | 0.231 | 0.317 | 0.095 | | |
| | | 0.30 | | | | | | | | 0.095 | 0.21 |
| 14:00 | 6.18 | | 33.50 | 306.50 | 7.1 | 0.003 | 0.232 | 0.320 | 0.095 | | |
| | | 0.28 | | | | | | | | 0.095 | 0.18 |
| 15:00 | 6.46 | | 33.70 | 306.70 | 7.1 | 0.003 | 0.233 | 0.322 | 0.096 | | |
| | | 0.23 | | | | | | | | 0.096 | 0.13 |
| 16:00 | 6.69 | | 33.90 | 306.90 | 7.1 | 0.003 | 0.234 | 0.325 | 0.096 | | |
| | | 0.15 | | | | | | | | 0.096 | 0.05 |
| 17:00 | 6.84 | | 34.00 | 307.00 | 7.1 | 0.003 | 0.234 | 0.327 | 0.096 | | |
| | | 0.06 | | | | | | | | 0.096 | -0.04 |
| 18:00 | 6.90 | | 34.00 | 307.00 | 7.1 | 0.003 | 0.234 | 0.327 | 0.096 | | |
| | | -0.04 | | | | | | | | 0.096 | -0.14 |
| 19:00 | 6.86 | | 34.00 | 307.00 | 7.1 | 0.003 | 0.234 | 0.327 | 0.096 | | |
| | | -0.12 | | | | | | | | 0.096 | -0.22 |
| 20:00 | 6.74 | | 33.86 | 306.86 | 7.1 | 0.003 | 0.234 | 0.325 | 0.096 | | |
| | | -0.21 | | | | | | | | 0.096 | -0.31 |
| 21:00 | 6.53 | | 33.72 | 306.72 | 7.1 | 0.003 | 0.233 | 0.323 | 0.096 | | |
| | | -0.26 | | | | | | | | 0.096 | -0.36 |
| 22:00 | 6.27 | | 33.58 | 306.58 | 7.1 | 0.003 | 0.233 | 0.321 | 0.095 | | |
| | | -0.31 | | | | | | | | 0.095 | -0.41 |
| 23:00 | 5.96 | | 33.44 | 306.44 | 7.1 | 0.003 | 0.232 | 0.319 | 0.095 | | |
| | | -0.30 | | | | | | | | 0.095 | -0.39 |
| 00:00 | 5.66 | | 33.30 | 306.30 | 7.2 | 0.003 | 0.231 | 0.317 | 0.095 | | |
| | | -0.29 | | | | | | | | 0.095 | -0.38 |
| 01:00 | 5.37 | | 33.16 | 306.16 | 7.2 | 0.003 | 0.231 | 0.315 | 0.094 | | |
| | | -0.23 | | | | | | | | 0.094 | -0.32 |
| 02:00 | 5.14 | | 33.00 | 306.00 | 7.2 | 0.003 | 0.230 | 0.313 | 0.094 | | |
| | | -0.16 | | | | | | | | 0.094 | -0.25 |
| 03:00 | 4.98 | | 33.00 | 306.00 | 7.2 | 0.003 | 0.230 | 0.313 | 0.094 | | |
| | | -0.08 | | | | | | | | 0.094 | -0.17 |
| 04:00 | 4.90 | | 33.00 | 306.00 | 7.2 | 0.003 | 0.230 | 0.313 | 0.094 | | |
| | | 0.03 | | | | | | | | 0.094 | -0.06 |
| 05:00 | 4.93 | | 33.00 | 306.00 | 7.2 | 0.003 | 0.230 | 0.313 | 0.094 | | |
| | | 0.11 | | | | | | | | 0.094 | 0.02 |
| 06:00 | 5.04 | | 33.00 | 306.00 | 7.2 | 0.003 | 0.230 | 0.313 | 0.094 | | |
| | | 0.20 | | | | | | | | 0.094 | 0.11 |
| 07:00 | 5.24 | | 33.00 | 306.00 | 7.2 | 0.003 | 0.230 | 0.313 | 0.094 | | |

TABLE A9-3. COMPUTATION OF CORRECTED RATES OF OXYGEN CHANGE FROM SINGLE STATION METHOD
DIURNAL CURVES OF OXYGEN CONCENTRATION AND TEMPERATURE
ORM 189.3

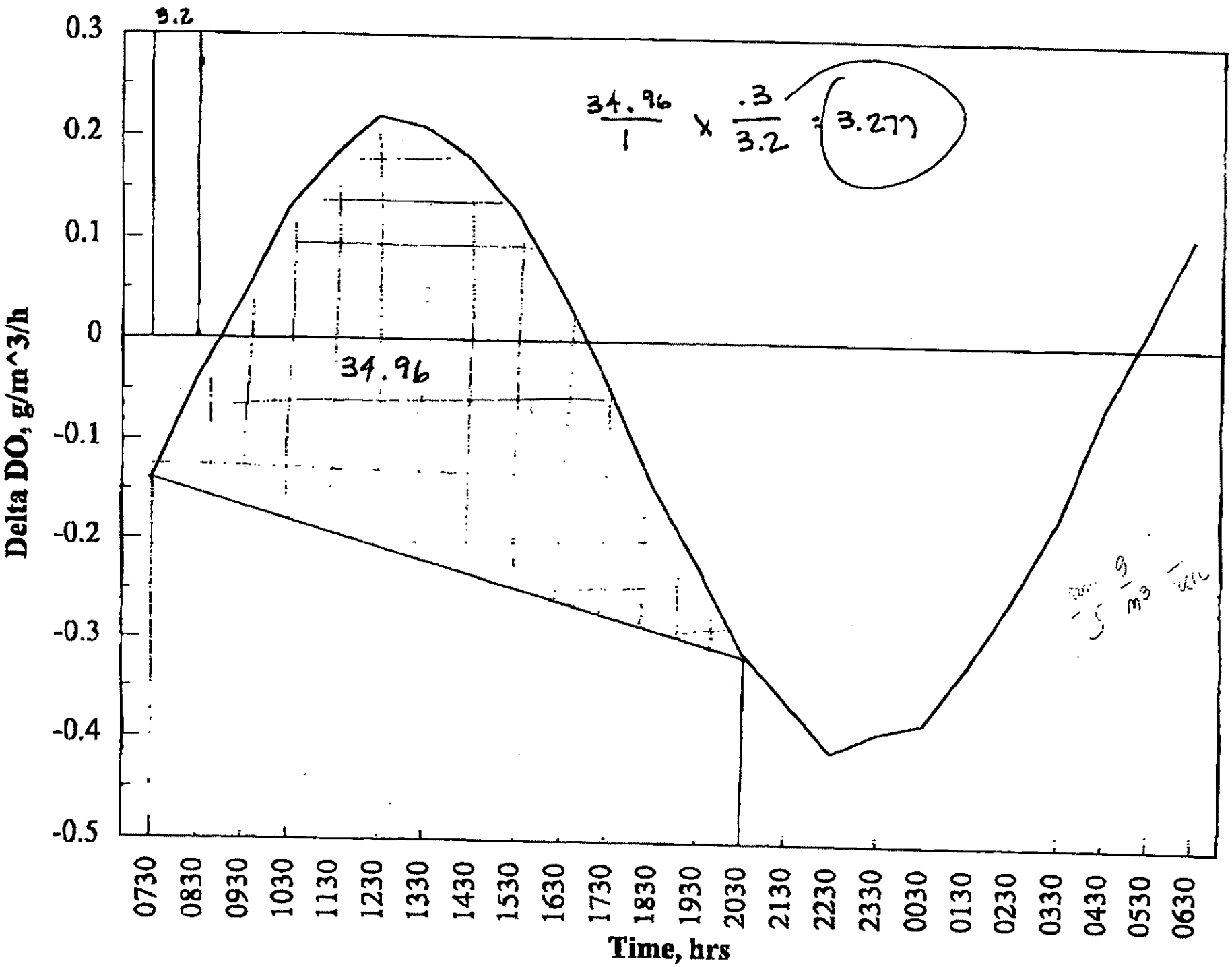
| TIME (hh:mm) | DO (mg/L) | UNCORRECTED DELTA DO (mg/L) | WATER TEMP (°C) | WATER TEMP (K) | SATURATION DO (mg/L) | Dm (ft^2/d) | K2 AT 20°C (1/d) | K2 AT AMBIENT (1/d) | D (mg/L/h) | AVERAGE D (mg/L/h) | CORRECTED DELTA DO (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 07:00 | 5.21 | | 32.50 | 305.50 | 7.3 | 0.003 | 0.115 | 0.155 | 0.047 | | |
| | | -0.01 | | | | | | | | 0.047 | -0.06 |
| 08:00 | 5.20 | | 32.50 | 305.50 | 7.3 | 0.003 | 0.115 | 0.155 | 0.047 | | |
| | | 0.02 | | | | | | | | 0.047 | -0.02 |
| 09:00 | 5.22 | | 32.50 | 305.50 | 7.3 | 0.003 | 0.115 | 0.155 | 0.047 | | |
| | | 0.05 | | | | | | | | 0.047 | 0.01 |
| 10:00 | 5.28 | | 32.50 | 305.50 | 7.3 | 0.003 | 0.115 | 0.155 | 0.047 | | |
| | | 0.08 | | | | | | | | 0.047 | 0.03 |
| 11:00 | 5.35 | | 32.50 | 305.50 | 7.3 | 0.003 | 0.115 | 0.155 | 0.047 | | |
| | | 0.10 | | | | | | | | 0.047 | 0.05 |
| 12:00 | 5.45 | | 32.50 | 305.50 | 7.3 | 0.003 | 0.115 | 0.155 | 0.047 | | |
| | | 0.11 | | | | | | | | 0.047 | 0.06 |
| 13:00 | 5.56 | | 32.50 | 305.50 | 7.3 | 0.003 | 0.115 | 0.155 | 0.047 | | |
| | | 0.11 | | | | | | | | 0.047 | 0.06 |
| 14:00 | 5.67 | | 32.50 | 305.50 | 7.3 | 0.003 | 0.115 | 0.155 | 0.047 | | |
| | | 0.11 | | | | | | | | 0.047 | 0.06 |
| 15:00 | 5.78 | | 32.63 | 305.63 | 7.2 | 0.003 | 0.116 | 0.156 | 0.047 | | |
| | | 0.09 | | | | | | | | 0.047 | 0.05 |
| 16:00 | 5.87 | | 32.75 | 305.75 | 7.2 | 0.003 | 0.116 | 0.157 | 0.047 | | |
| | | 0.07 | | | | | | | | 0.047 | 0.02 |
| 17:00 | 5.94 | | 32.88 | 305.88 | 7.2 | 0.003 | 0.116 | 0.158 | 0.047 | | |
| | | 0.04 | | | | | | | | 0.047 | -0.00 |
| 18:00 | 5.99 | | 33.00 | 306.00 | 7.2 | 0.003 | 0.116 | 0.159 | 0.048 | | |
| | | 0.01 | | | | | | | | 0.048 | -0.03 |
| 19:00 | 6.00 | | 33.13 | 306.13 | 7.2 | 0.003 | 0.117 | 0.159 | 0.048 | | |
| | | -0.02 | | | | | | | | 0.048 | -0.06 |
| 20:00 | 5.98 | | 33.25 | 306.25 | 7.2 | 0.003 | 0.117 | 0.160 | 0.048 | | |
| | | -0.05 | | | | | | | | 0.048 | -0.09 |
| 21:00 | 5.94 | | 33.38 | 306.38 | 7.2 | 0.003 | 0.117 | 0.161 | 0.048 | | |
| | | -0.07 | | | | | | | | 0.048 | -0.12 |
| 22:00 | 5.87 | | 32.50 | 305.50 | 7.3 | 0.003 | 0.115 | 0.155 | 0.047 | | |
| | | -0.09 | | | | | | | | 0.047 | -0.14 |
| 23:00 | 5.77 | | 32.63 | 305.63 | 7.2 | 0.003 | 0.116 | 0.156 | 0.047 | | |
| | | -0.11 | | | | | | | | 0.047 | -0.15 |
| 00:00 | 5.67 | | 32.75 | 305.75 | 7.2 | 0.003 | 0.116 | 0.157 | 0.047 | | |
| | | -0.11 | | | | | | | | 0.047 | -0.16 |
| 01:00 | 5.55 | | 32.88 | 305.88 | 7.2 | 0.003 | 0.116 | 0.158 | 0.047 | | |
| | | -0.11 | | | | | | | | 0.047 | -0.16 |
| 02:00 | 5.45 | | 33.00 | 306.00 | 7.2 | 0.003 | 0.116 | 0.159 | 0.048 | | |
| | | -0.10 | | | | | | | | 0.048 | -0.14 |
| 03:00 | 5.35 | | 33.25 | 306.25 | 7.2 | 0.003 | 0.117 | 0.160 | 0.048 | | |
| | | -0.08 | | | | | | | | 0.048 | -0.12 |
| 04:00 | 5.27 | | 33.50 | 306.50 | 7.1 | 0.003 | 0.118 | 0.162 | 0.048 | | |
| | | -0.05 | | | | | | | | 0.048 | -0.10 |
| 05:00 | 5.22 | | 33.75 | 306.75 | 7.1 | 0.003 | 0.118 | 0.164 | 0.048 | | |
| | | -0.02 | | | | | | | | 0.047 | -0.07 |
| 06:00 | 5.20 | | 32.00 | 305.00 | 7.3 | 0.003 | 0.114 | 0.152 | 0.046 | | |
| | | 0.01 | | | | | | | | 0.046 | -0.04 |
| 07:00 | 5.21 | | 32.13 | 305.13 | 7.3 | 0.003 | 0.115 | 0.153 | 0.047 | | |

14hr photoperiod

OR 189.3

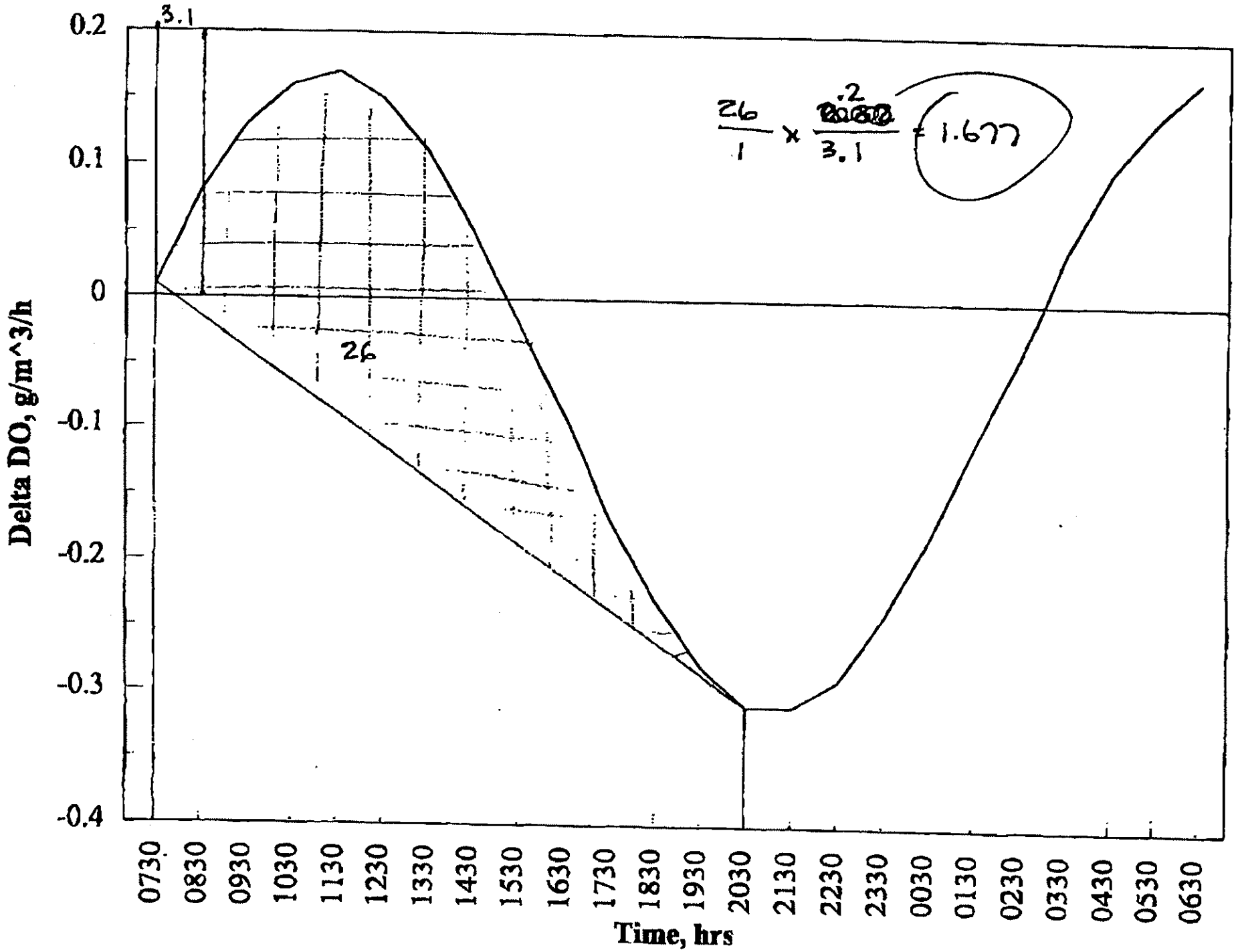
# OR... 208.8

13 hr photo. riod



# OK I 224

13hr photope..od



JOB 0650/6

SHEET NO. _____ OF _____

CALCULATED BY SMS DATE 12/09/98

CHECKED BY DMB DATE 12/18/98 → only values w/ck marks

SCALE travel time calcs

AquAeTer
215 Jamestown Park, Suite 204
Brentwood, TN 37027
(615) 373-8532 FAX (615) 373-8512

**Ouachita River Flows:** (from GP)

| | | | |
|---|---|---|---|
| (ORM 224 ORM 208.8) | 8-5-98 | 737 ✓ | |
| | 8-4-98 | 760 ✓ | avg = 1076 cfs ✓ |
| | 8-3-98 | 1730 ✓ | |
| (ORM 189.3) | 7-1-98 | 1187 ✓ | |
| | 6-30-98 | 1210 ✓ | avg = 1141 cfs ✓ |
| | 6-29-98 | 1025 ✓ | |

**Areas:** (from profiles)

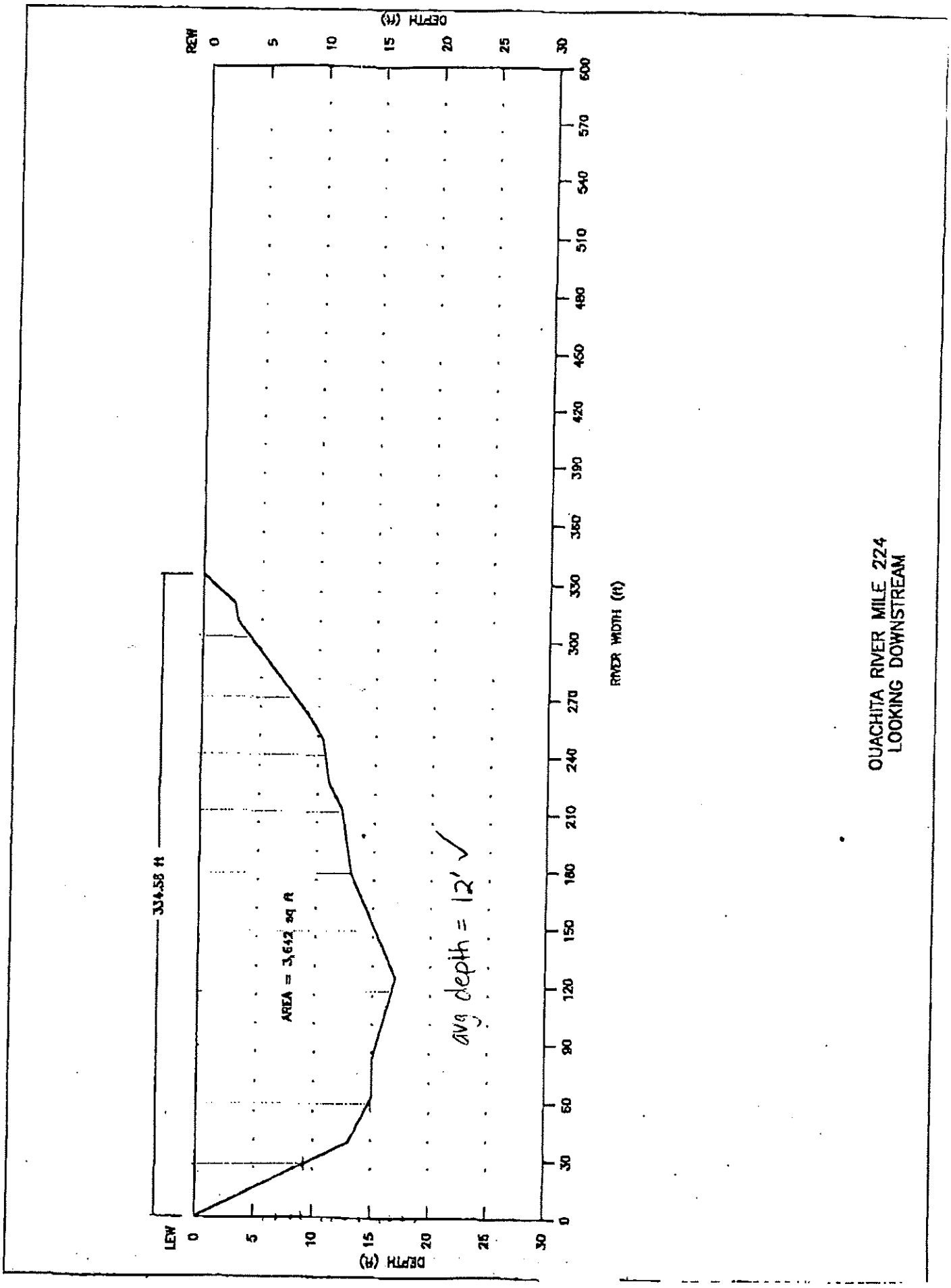
| | | |
|---|---|---|
| ORM 224 | 3642 ft² ✓ | |
| ORM 222 | 3693 ft² ✓ | avg = 5400 ft² ✓ |
| ORM 208.8 | 5733 ft² ✓ | |
| ORM 192 | 8533 ft² ✓ | |

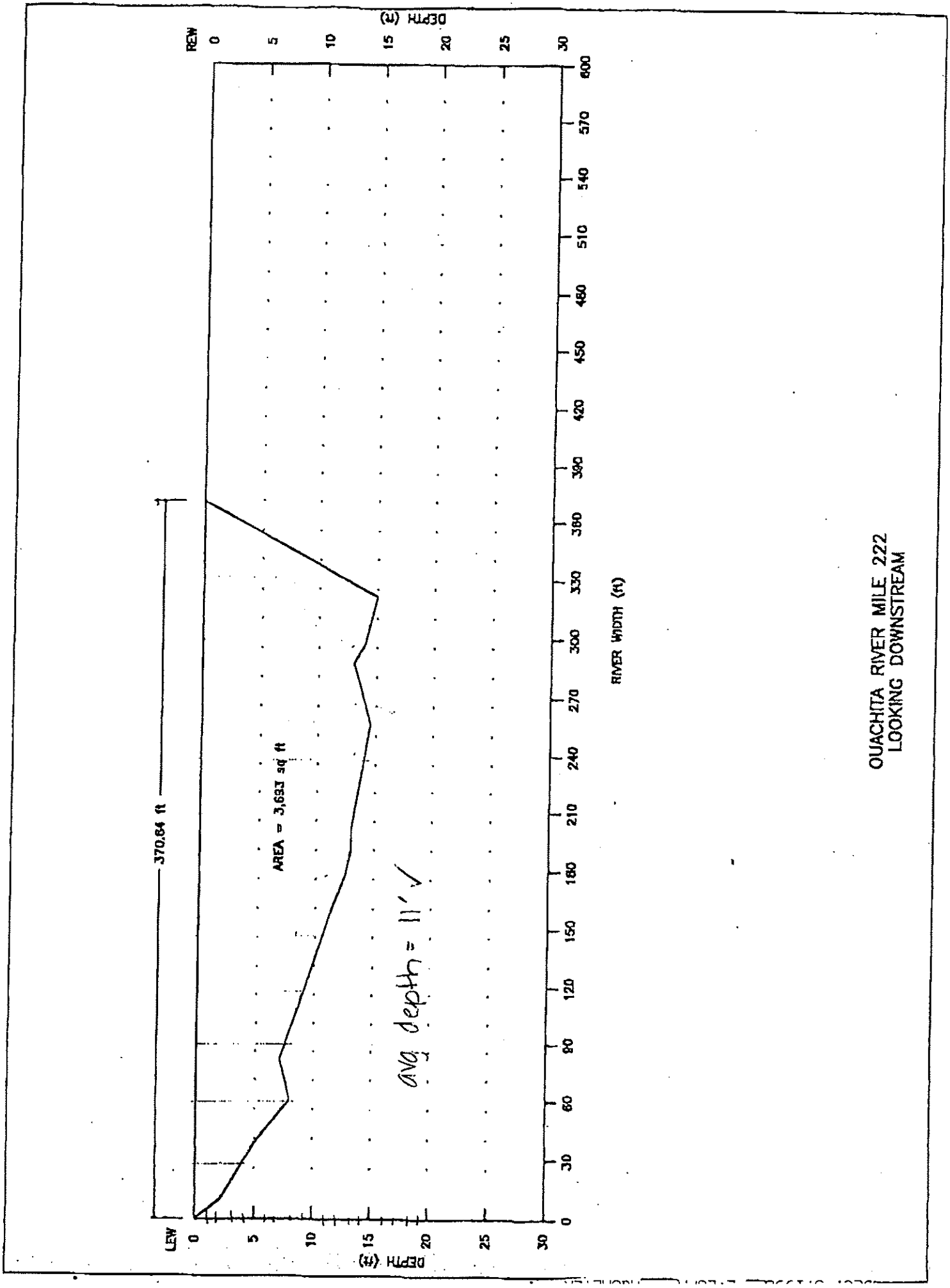
**Velocity**

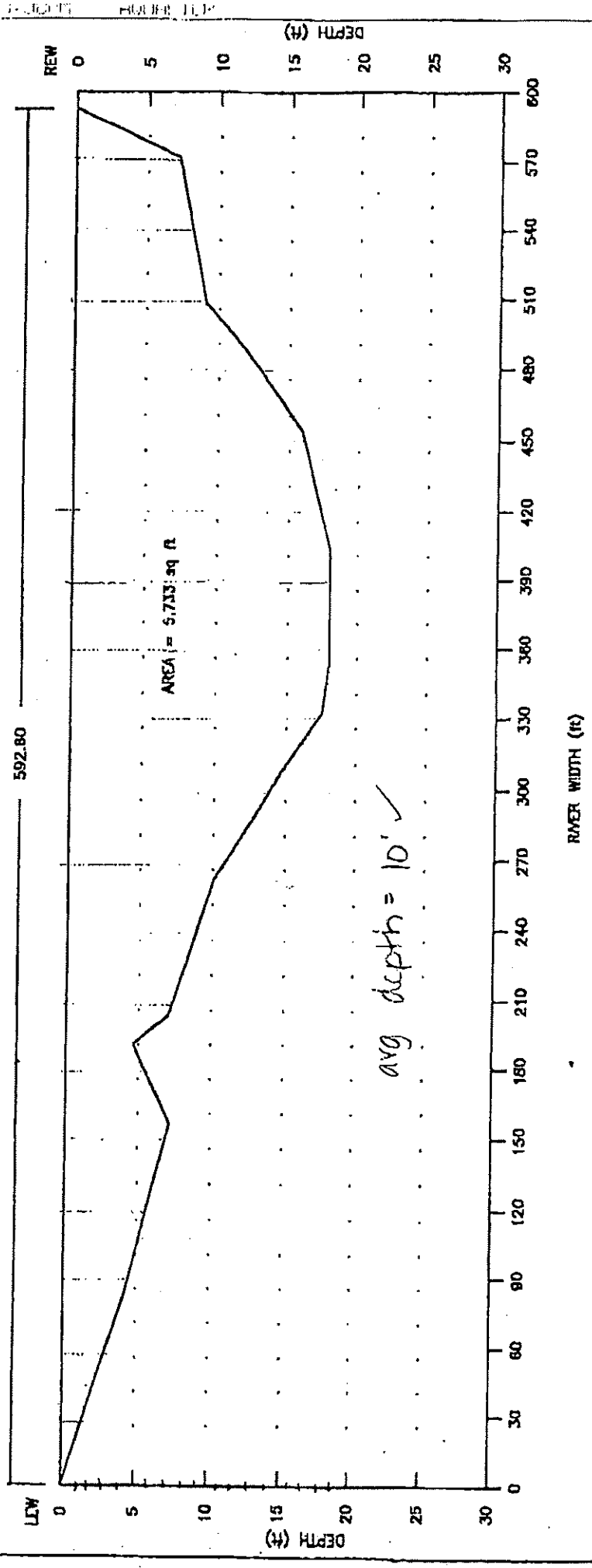
224: $\frac{Q}{A} = \frac{1076}{5400} = 0.20$ ft/sec ✓

208.8: 0.20 ft/sec ✓ avg = 0.205 ft/sec

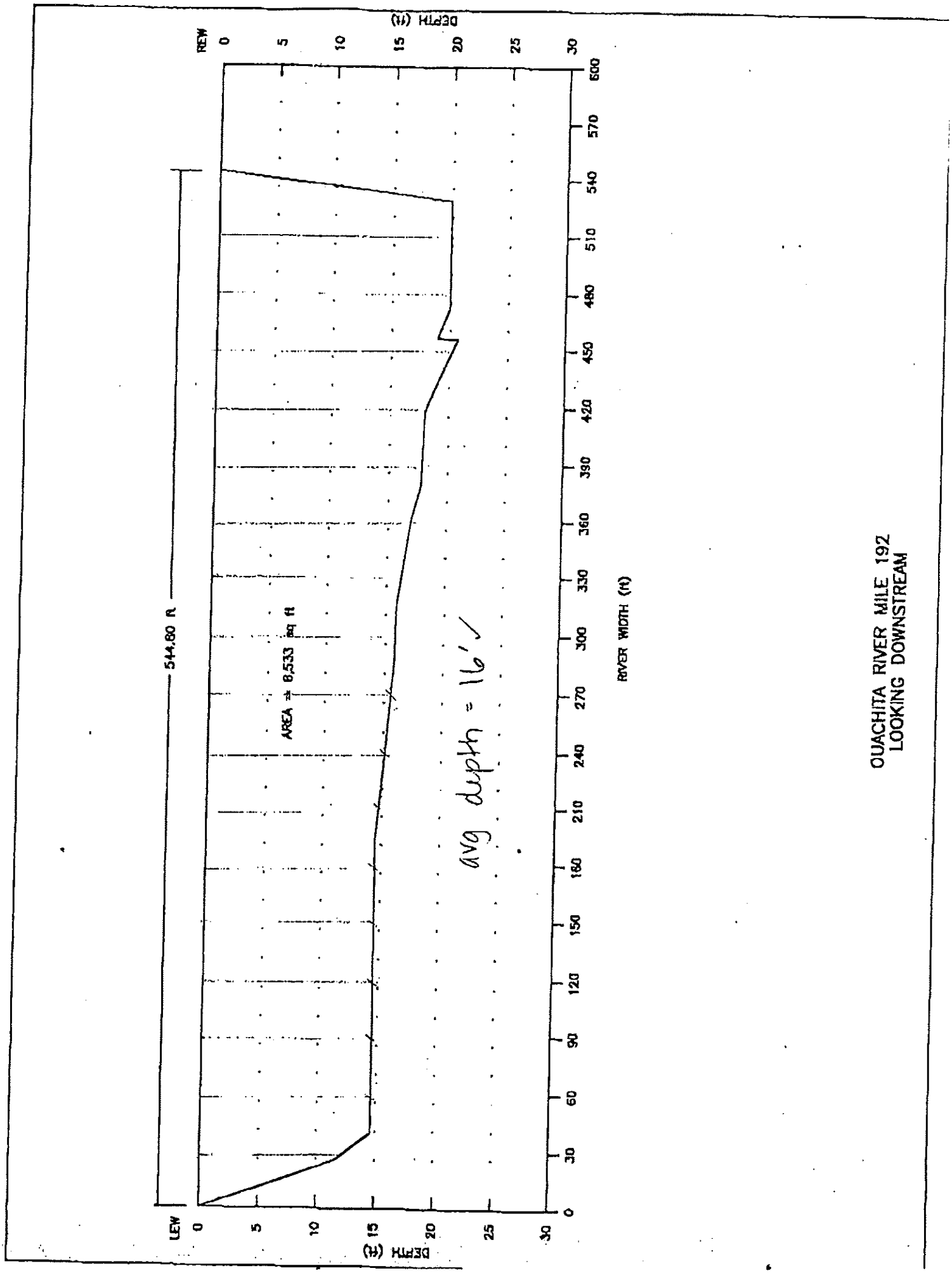
189.3: $\frac{1141}{5400} = 0.21$ ft/sec ✓


REW
LEW
334.58 ft
AREA = 3,642 sq ft
avg depth = 12'
DEPTH (ft)
RIVER WIDTH (ft)
OUACHITA RIVER MILE 224
LOOKING DOWNSTREAM


OUACHITA RIVER MILE 222
LOOKING DOWNSTREAM
RIVER WIDTH (ft)
DEPTH (ft)
REW
LEW
370.64 ft
AREA = 3,693 sq ft
avg depth = 11'




OUACHITA RIVER MILE 208.8
LOOKING DOWNSTREAM


DEPTH (ft)
REW
0
5
10
15
20
25
30
600
570
540
510
480
450
420
390
360
330
300
270
240
210
180
150
120
90
60
30
0
544.80 ft
AREA = 8,533 sq ft
avg depth = 16'
RIVER WIDTH (ft)
LEW
DEPTH (ft)
OUACHITA RIVER MILE 192
LOOKING DOWNSTREAM

Flow data from USGS (cfs)

| Jun 98 Date | Jun 98 Flow | Jul 98 Date | Jul 98 Flow | Aug 98 Date | Aug 98 Flow | Sep 98 Date | Sep 98 Flow |
|---|---|---|---|---|---|---|---|
| 1 | 7675 | 1 | 1187 | 3 | 1730 | | |
| 2 | 8995 | 2 | 1838 | 4 | 760 | | |
| 3 | 9886 | 6 | 998 | 5 | 737 | | |
| 4 | 9809 | 7 | 1322 | 6 | 730 | | |
| 5 | 6658 | 8 | 1029 | 7 | 880 | | |
| 8 | 1832 | 9 | 1176 | 10 | 795 | | |
| 9 | 2338 | 10 | 1582 | 11 | 813 | | |
| 10 | 1598 | 13 | 1170 | 12 | 813 | | |
| 11 | 1542 | 14 | 1962 | 17 | 953 | | |
| 12 | 1577 | 15 | 1550 | 18 | 882 | | |
| 15 | 1943 | 16 | 1176 | 19 | 886 | | |
| 16 | 3610 | 17 | 900 | 20 | 1088 | | |
| 17 | 1600 | 20 | 1150 | 21 | 1092 | | |
| 18 | 1024 | 21 | 1378 | 24 | 874 | | |
| 19 | 982 | 22 | 1062 | 25 | 1008 | | |
| 22 | 1544 | 24 | 1374 | 26 | 942 | | |
| 23 | 990 | 27 | 909 | 27 | 881 | | |
| 24 | 1189 | 28 | 894 | | | | |
| 25 | 1040 | 29 | 888 | | | | |
| 26 | 893 | 30 | 894 | | | | |
| 29 | 1025 | 31 | 986 | | | | |
| 30 | 1210 | | | | | | |
| | | | | | | | |

Avg 6/18-6/25 1128 cfs

Avg 7/14-7/21 1353

Avg 8/20-8/27 980 cfs

# LIGHT AND DARK BOTTLE METHOD

TABLE A9-4. LIGHT/DARK BOTTLE MEASUREMENTS
OUACHITA RIVER MILE 224

| DATE | TIME OF DAY (hr:min) | ELAPSED TIME (hrs) | ELAPSED TIME (days) | DEPTH (ft) | LIGHT BOTTLES (mg/L) | | | | | | | DARK BOTTLES (mg/L) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | BOTTLE 1 | | BOTTLE 2 | | BOTTLE 3 | | AVERAGE DO (mg/L) | BOTTLE 1 | | BOTTLE 2 | | AVERAGE DO (mg/L) |
| | | | | | DO (mg/L) | TEMP (°C) | DO (mg/L) | TEMP (°C) | DO (mg/L) | TEMP (°C) | | DO (mg/L) | TEMP (°C) | DO (mg/L) | TEMP (°C) | |
| 11/11/98 | 07:47 | 0.00 | 0.00 | 1 | 10.90 | - | 10.95 | - | 11.00 | - | 10.95 | - | - | - | - | - |
| | 08:30 | 0.00 | 0.00 | 3 | 10.70 | - | 10.80 | - | 10.75 | - | 10.75 | - | - | - | - | - |
| | 09:17 | 0.00 | 0.00 | 5 | 10.90 | - | 11.00 | - | 11.00 | - | 10.97 | - | - | - | - | - |
| | 16:05 | 8.30 | 0.35 | 1 | 10.80 | - | 11.00 | - | - | - | 10.90 | 10.80 | - | 9.60 | - | 10.20 |
| | 16:00 | 7.50 | 0.31 | 3 | 10.80 | - | (1) | - | - | - | 10.80 | 10.70 | - | 11.30 | - | 11.00 |
| | 15:37 | 6.33 | 0.26 | 5 | 10.90 | - | 11.10 | - | - | - | 11.00 | 11.40 | - | 11.20 | - | 11.30 |
| | 18:59 | 11.20 | 0.47 | 1 | 11.10 | - | 11.10 | - | - | - | 11.10 | 11.20 | - | 11.00 | - | 11.10 |
| | 19:00 | 10.50 | 0.44 | 3 | 10.75 | - | 10.90 | - | - | - | 10.83 | 10.80 | - | 10.75 | - | 10.78 |
| | 19:02 | 9.75 | 0.41 | 5 | 11.10 | - | 11.30 | - | - | - | 11.20 | 11.25 | - | 11.05 | - | 11.15 |
| | 21:06 | 13.32 | 0.55 | 1 | 10.80 | - | 11.00 | - | - | - | 10.90 | 11.00 | - | 11.10 | - | 11.05 |
| | 21:09 | 12.65 | 0.53 | 3 | 10.90 | - | 10.90 | - | - | - | 10.90 | 10.90 | - | 10.90 | - | 10.90 |
| | 21:11 | 11.93 | 0.50 | 5 | 11.00 | - | 11.00 | - | - | - | 11.00 | 11.30 | - | 11.20 | - | 11.25 |
| 11/12/98 | 11:58 | 28.18 | 1.17 | 1 | 11.05 | - | (1) | - | - | - | 11.05 | 11.10 | - | 10.90 | - | 11.00 |
| | 12:01 | 27.52 | 1.15 | 3 | 11.00 | - | (1) | - | - | - | 11.00 | 10.85 | - | 10.80 | - | 10.83 |
| | 12:12 | 26.92 | 1.12 | 5 | 11.10 | - | 11.20 | - | - | - | 11.15 | 11.20 | - | 11.20 | - | 11.20 |

**NOTES:**

1) Sample either spilled or generated air bubbles; therefore, sample was not used.
2) Initial time is the the time at which the sample DO was fixed. The samples were set into the water for incubation at the following times: 1) 1 ft - 10:29; 2) 3 ft - 10:57; and 3) 5 ft - 11:46.
3) All times presented are the times at which the sample DO was fixed.
4) "-" - sample bottles not set up.
5) DO was read using a Winkler titration. However, it was determined that the sodium thiosulfate titrant was incorrectly labeled as to the expiration date and had expired. Therefore, the above DO readings can be used as a comparison to each other, but the readings are not the actual DO values for the sample.
6) Temperature measurements are not available for the above samples because the DO was fixed using a Winkler titration.

TABLE A9-5. LIGHT/DARK BOTTLE MEASUREMENTS
OUACHITA RIVER MILE 208.8

| DATE | TIME OF DAY (hr:min) | ELAPSED TIME (hrs) | ELAPSED TIME (days) | DEPTH (ft) | LIGHT BOTTLES (mg/L) | | | | | | | DARK BOTTLES (mg/L) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | BOTTLE 1 | | BOTTLE 2 | | BOTTLE 3 | | AVERAGE DO (mg/L) | BOTTLE 1 | | BOTTLE 2 | | AVERAGE DO (mg/L) |
| | | | | | DO (mg/L) | TEMP (°C) | DO (mg/L) | TEMP (°C) | DO (mg/L) | TEMP (°C) | | DO (mg/L) | TEMP (°C) | DO (mg/L) | TEMP (°C) | |
| 11/11/98 | - | - | - | 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| | - | - | - | 3 | - | - | - | - | - | - | - | - | - | - | - | - |
| | 13:49 | 0.00 | 0.00 | 5 | 10.25 | - | 10.25 | - | 10.25 | - | 10.25 | - | - | - | - | - |
| | - | - | - | 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| | 15:40 | 0.00 | 0.00 | 3 | 10.30 | - | 10.40 | - | 10.40 | - | 10.37 | - | - | - | - | - |
| | 17:37 | 3.80 | 0.16 | 5 | 10.55 | - | 10.55 | - | - | - | 10.55 | 10.50 | - | 10.50 | - | 10.50 |
| | - | - | - | 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| | 20:12 | 4.53 | 0.19 | 3 | 10.50 | - | 10.40 | - | - | - | 10.45 | 10.70 | - | 10.50 | - | 10.60 |
| | 20:13 | 6.40 | 0.27 | 5 | 10.40 | - | 10.50 | - | - | - | 10.45 | 10.40 | - | 10.30 | - | 10.35 |
| 11/12/98 | - | - | - | 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| | 08:40 | 17.00 | 0.71 | 3 | 10.35 | - | (1) | - | - | - | 10.35 | 10.25 | - | 10.25 | - | 10.25 |
| | 08:33 | 18.73 | 0.78 | 5 | 10.55 | - | (1) | - | - | - | 10.55 | 10.45 | - | 10.60 | - | 10.53 |

NOTES:
NOTES:
1) Sample either spilled or generated air bubbles; therefore, sample was not used.
2) Initial time is the the time at which the sample DO was fixed. The samples were set into the water for incubation at the following times: 1) 3 ft - 17:06; and 3) 5 ft - .
3) All times presented are the times at which the sample DO was fixed.

TABLE A9-6. LIGHT/DARK BOTTLE MEASUREMENTS
OUACHITA RIVER MILE 192

| DATE | TIME OF DAY (hr:min) | ELAPSED TIME (hrs) | ELAPSED TIME (days) | DEPTH (ft) | LIGHT BOTTLES (mg/L) | | | | | | | DARK BOTTLES (mg/L) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | BOTTLE 1 | | BOTTLE 2 | | BOTTLE 3 | | AVERAGE DO (mg/L) | BOTTLE 1 | | BOTTLE 2 | | AVERAGE DO (mg/L) |
| | | | | | DO (mg/L) | TEMP (°C) | DO (mg/L) | TEMP (°C) | DO (mg/L) | TEMP (°C) | | DO (mg/L) | TEMP (°C) | DO (mg/L) | TEMP (°C) | |
| 11/11/98 | 06:45 | 0.00 | 0.00 | 1 | 8.73 | 13.2 | 8.74 | 13.7 | 8.77 | 12.5 | 8.75 | - | - | - | - | - |
| | 07:17 | 0.00 | 0.00 | 3 | 8.68 | 12.4 | 8.59 | 12.5 | 8.60 | 12.8 | 8.62 | - | - | - | - | - |
| | 08:00 | 0.00 | 0.00 | 5 | 8.65 | 13.6 | 8.65 | 14.0 | 8.65 | 14.4 | 8.65 | - | - | - | - | - |
| | 11:34 | 4.82 | 0.20 | 1 | 8.96 | 17.8 | 8.94 | 18.2 | - | - | 8.95 | 8.82 | 18.7 | 8.69 | 18.5 | 8.76 |
| | 11:51 | 4.57 | 0.19 | 3 | 8.66 | 17.8 | 8.68 | 17.4 | - | - | 8.67 | 8.65 | 17.8 | 8.64 | 18.0 | 8.65 |
| | 12:06 | 4.10 | 0.17 | 5 | 8.79 | 17.5 | 8.78 | 17.5 | - | - | 8.79 | 8.82 | 17.4 | (1) | (1) | 8.82 |
| | 14:44 | 7.98 | 0.33 | 1 | 8.92 | 17.5 | 8.97 | 16.9 | - | - | 8.95 | 8.73 | 17.3 | 8.71 | 17.3 | 8.72 |
| | 14:56 | 7.65 | 0.32 | 3 | 8.72 | 17.0 | 8.76 | 16.8 | - | - | 8.74 | 8.61 | 17.1 | 8.62 | 17.0 | 8.62 |
| | 15:08 | 7.13 | 0.30 | 5 | 8.80 | 17.2 | 8.77 | 16.9 | - | - | 8.79 | 8.76 | 17.1 | 8.74 | 17.1 | 8.75 |
| | 18:26 | 11.68 | 0.49 | 1 | 8.94 | 16.4 | 8.94 | 15.8 | - | - | 8.94 | 8.69 | 16.0 | 8.67 | 15.4 | 8.68 |
| | 18:41 | 11.40 | 0.48 | 3 | 8.73 | 15.4 | 8.70 | 15.5 | - | - | 8.72 | 8.60 | 15.6 | 8.62 | 15.5 | 8.61 |
| | 18:55 | 10.92 | 0.45 | 5 | 8.75 | 15.6 | 8.77 | 15.2 | - | - | 8.76 | 8.73 | 15.1 | 8.74 | 14.8 | 8.74 |
| 11/12/98 | 06:30 | 23.75 | 0.99 | 1 | 8.75 | 15.0 | 8.75 | 15.0 | - | - | 8.75 | 8.55 | 15.2 | 8.54 | 15.2 | 8.55 |
| | 06:40 | 23.38 | 0.97 | 3 | 8.53 | 15.0 | 8.54 | 14.9 | - | - | 8.54 | 8.45 | 15.0 | 8.42 | 15.0 | 8.44 |
| | 06:52 | 22.87 | 0.95 | 5 | 8.59 | 14.2 | 8.62 | 14.6 | - | - | 8.61 | 8.59 | 14.5 | 8.58 | 14.4 | 8.59 |

NOTES:
1) No stopper in bottle. Sample is not useable.
2) Initial time is the sample DO read time. The samples were set into the water for incubation at the following times: 1) 1 ft - 07:30; 2) 3 ft - 0815; and 3) 5 ft - 08:56.
3) "-" - sample bottles not set up.

JOB 100 ouachita

SHEET NO. 1 OF 2

CALCULATED BY DMB DATE 12/2/98

CHECKED BY CMC DATE 12/2/98

SCALE

AquAeTer
215 Jamestown Park, Suite 204
Brentwood, TN 37027
(615) 373-8532 FAX (615) 373-8512

Ouachita River near Crossett, AR
November 1998
Light + Dark Bottle Analysis

ORM 192 - 1 ft Samples

Gross Productivity

$$mg\,O_2/m^3/day = \frac{LB - DB}{t} \times 1{,}000$$

$$= \frac{(8.95 - 8.55)\,mg}{0.99\,d\ \ L} = \frac{0.40\,mg/L}{d} \times \frac{1000L}{m^3} = \frac{400\,mg}{m^3 \cdot d}$$

Respiration

$$mg\,O_2/m^3/day = \frac{IB - DB}{t} \times 1{,}000$$

$$= \frac{(8.75 - 8.55)\,mg}{0.99\,d\ \ L} = \frac{0.20\,mg/L}{d} \times \frac{1000L}{m^3} = \frac{200\,mg}{m^3 \cdot d}$$

Net Productivity

Net Prod = gross prod - resp = $\frac{0.40\,mg/L}{d} - \frac{0.20\,mg/L}{d} = \frac{0.20\,mg/L}{d}$

$= 200\,mg/m^3 \cdot d$

NOTE

LB - DO in light bottle at maximum production
DB - DO in dark bottle at ~ 24 hours
IB - DO in initial bottle at beginning of incubation
t = incubation period in days (assumed the total ~24 hr incubation period)

JOB 980650/6
SHEET NO. 2 OF 2
CALCULATED BY DMB DATE 12/18/98
CHECKED BY SMS DATE 12/18/98
SCALE

AquAeTer
215 Jamestown Park, Suite 204
Brentwood, TN 37027
(615) 373-8532 FAX (615) 373-8512

# Calculation of Estimated Dark Bottle Concentration

ORM 192 @ 1 ft depth

IB - DB = 8.75 - 8.55 = 0.20 mg/L ✓

ORM 192 @ 3 ft depth
IB - DB = 8.62 - 8.44 = 0.18 mg/L ✓
ORM 208.8 @ 3 ft
IB - DB = 10.37 - 10.25 = 0.12 mg/L ✓

Avg IB - DB = 0.30/2 = 0.15 mg/L ✓

ORM 192 @ 5 ft
IB - DB = 8.65 mg/L - 8.59 mg/L = 0.06 mg/L ✓

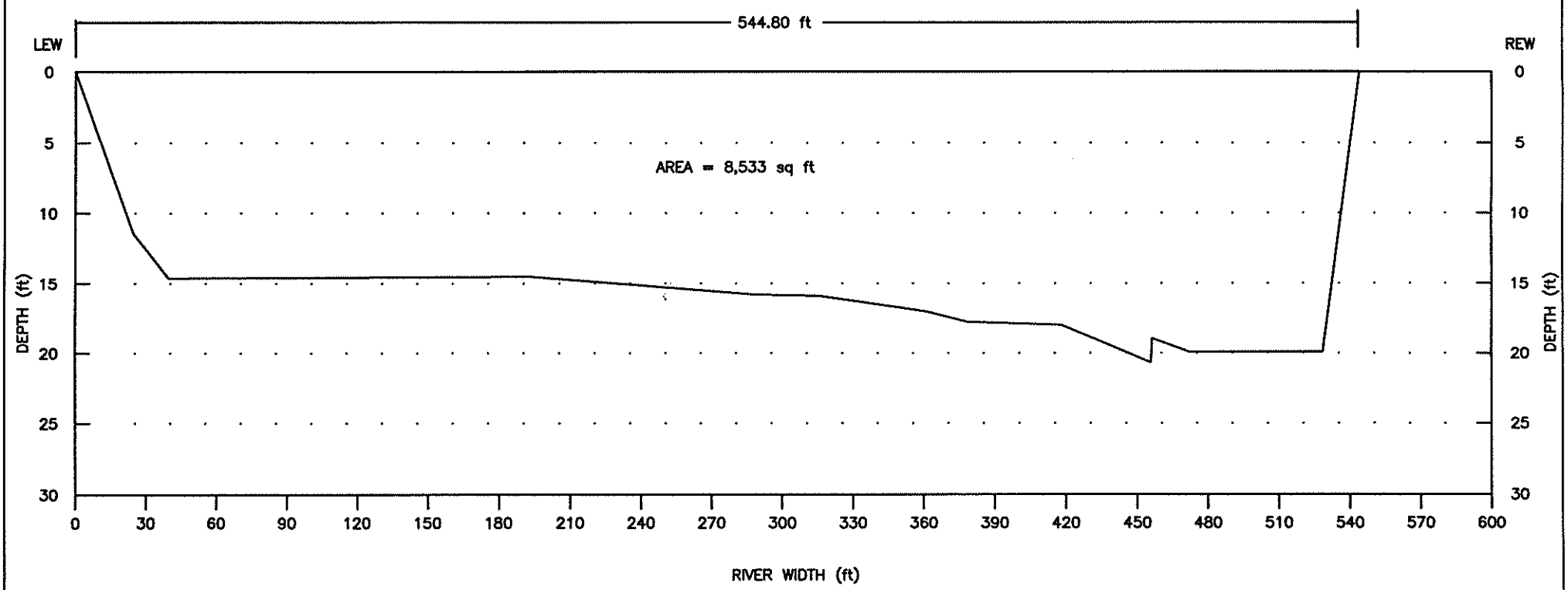
Example Calculation
Adjustment for ORM 224 @ 1 ft to get estimated DB

Estimated DB = IB - (IB - DB @ 192 - 1')
= 10.95 mg/L - 0.20 mg/L = 10.75 mg/L ✓

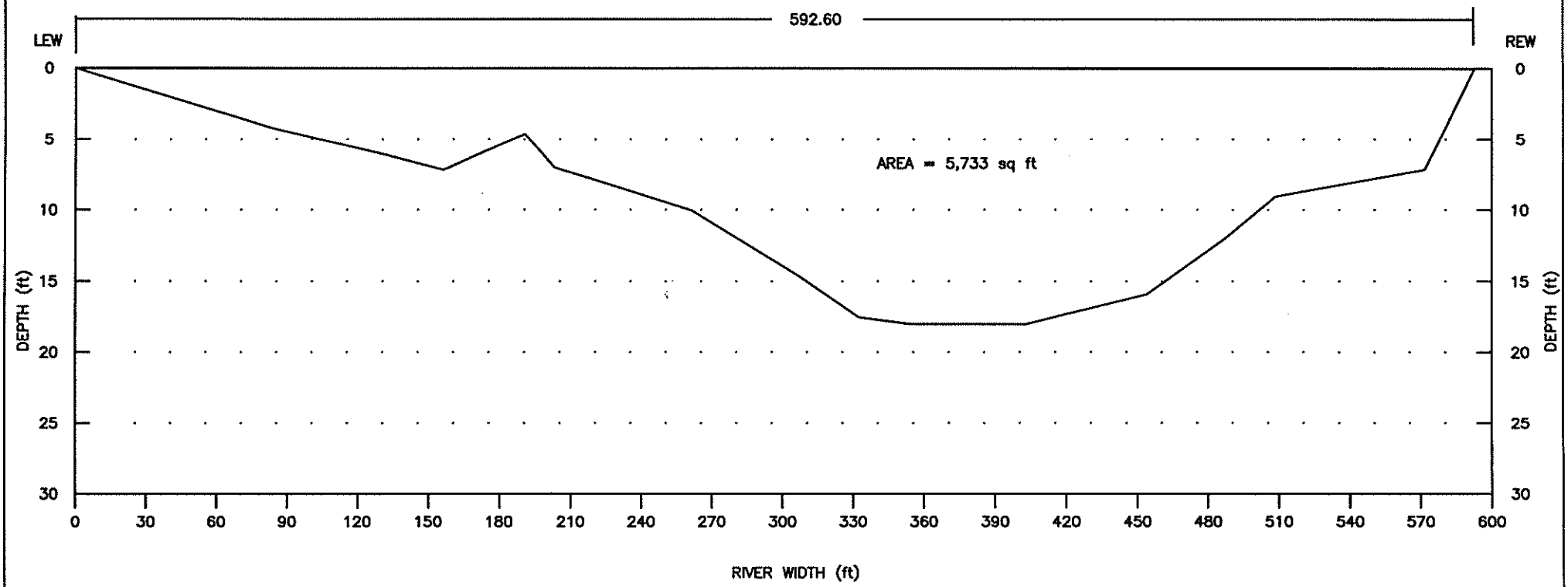
# APPENDIX 10

# BATHYMETRIC PROFILES
# AND
# DEPTH MEASUREMENTS

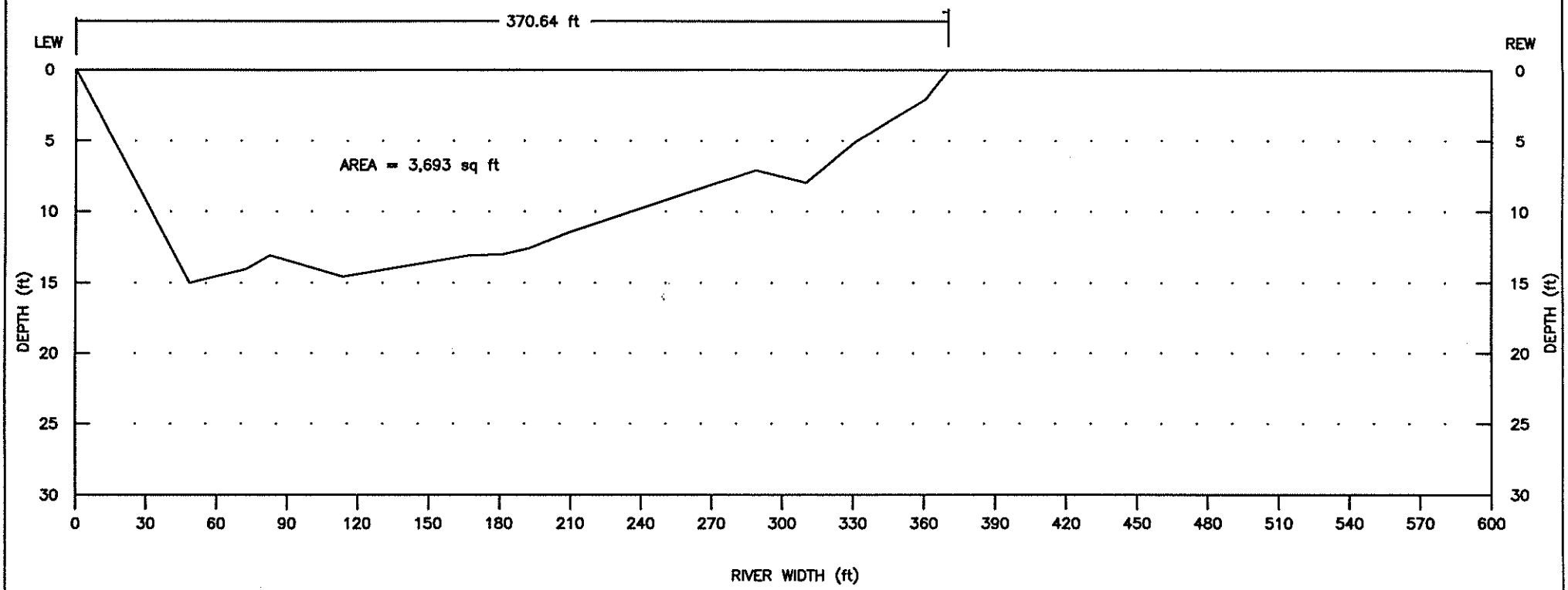
# BATHYMETRIC PROFILES



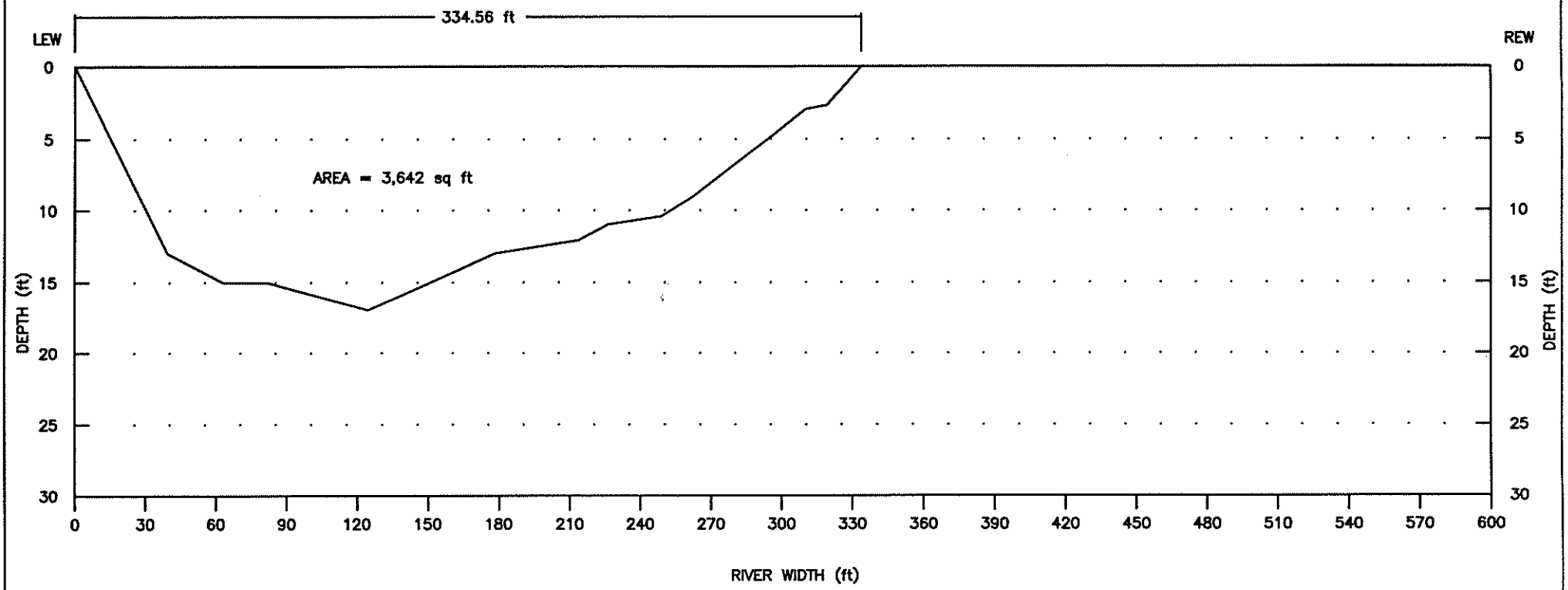

OUACHITA RIVER MILE 192
LOOKING DOWNSTREAM




OUACHITA RIVER MILE 208.8
LOOKING DOWNSTREAM

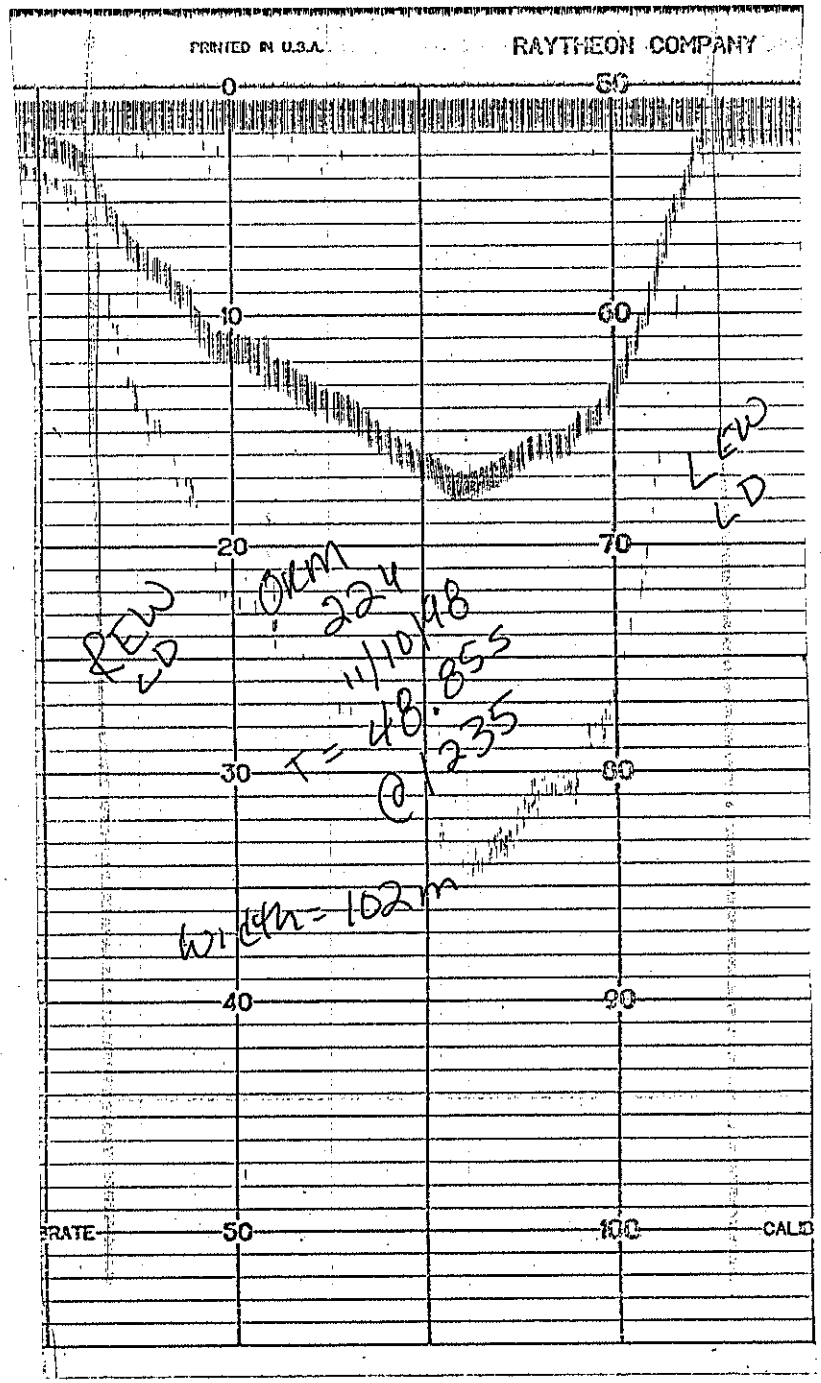



OUACHITA RIVER MILE 222
LOOKING DOWNSTREAM

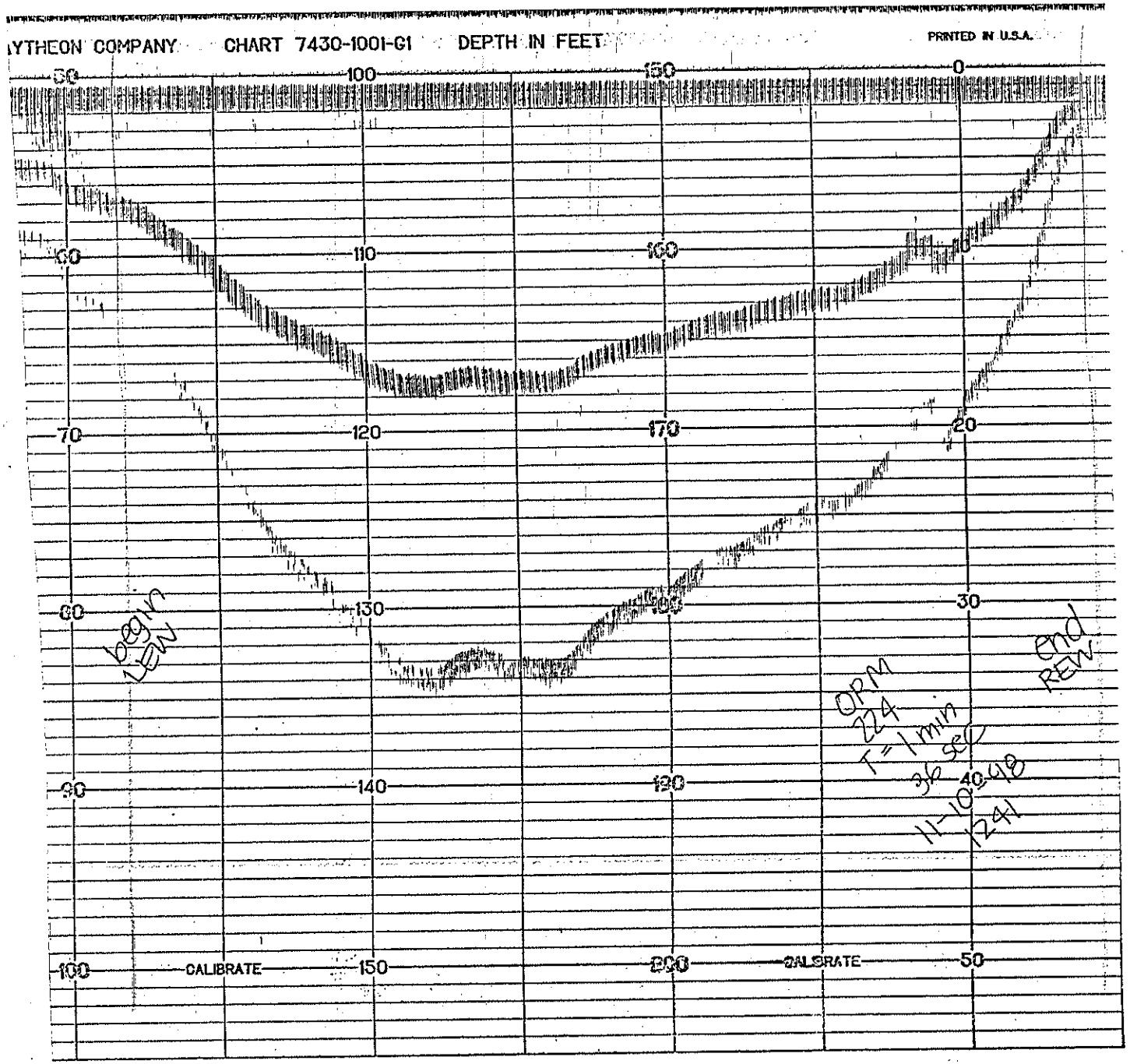



OUACHITA RIVER MILE 224
LOOKING DOWNSTREAM

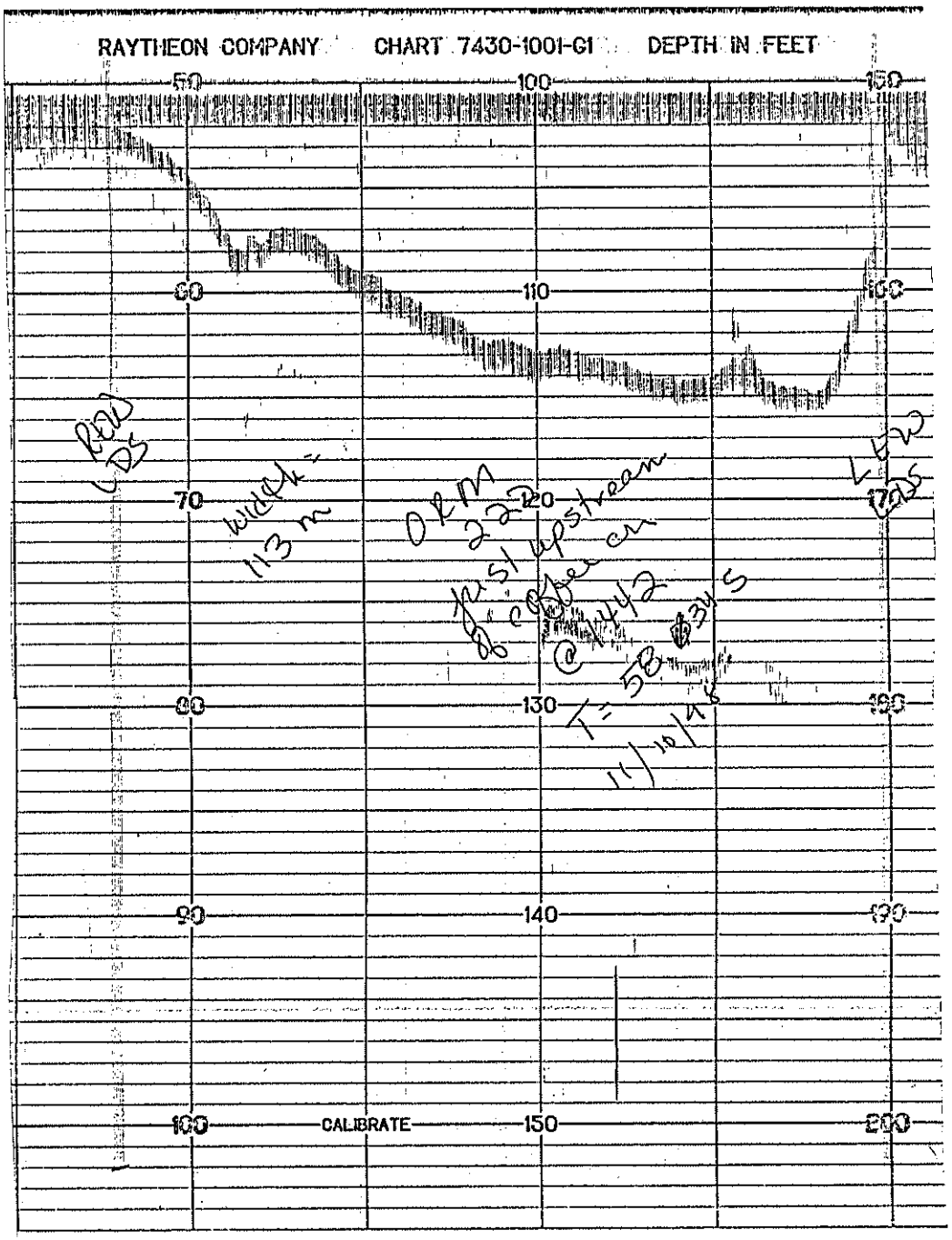
GP Crossen 100650
Ouachita River Mile 21



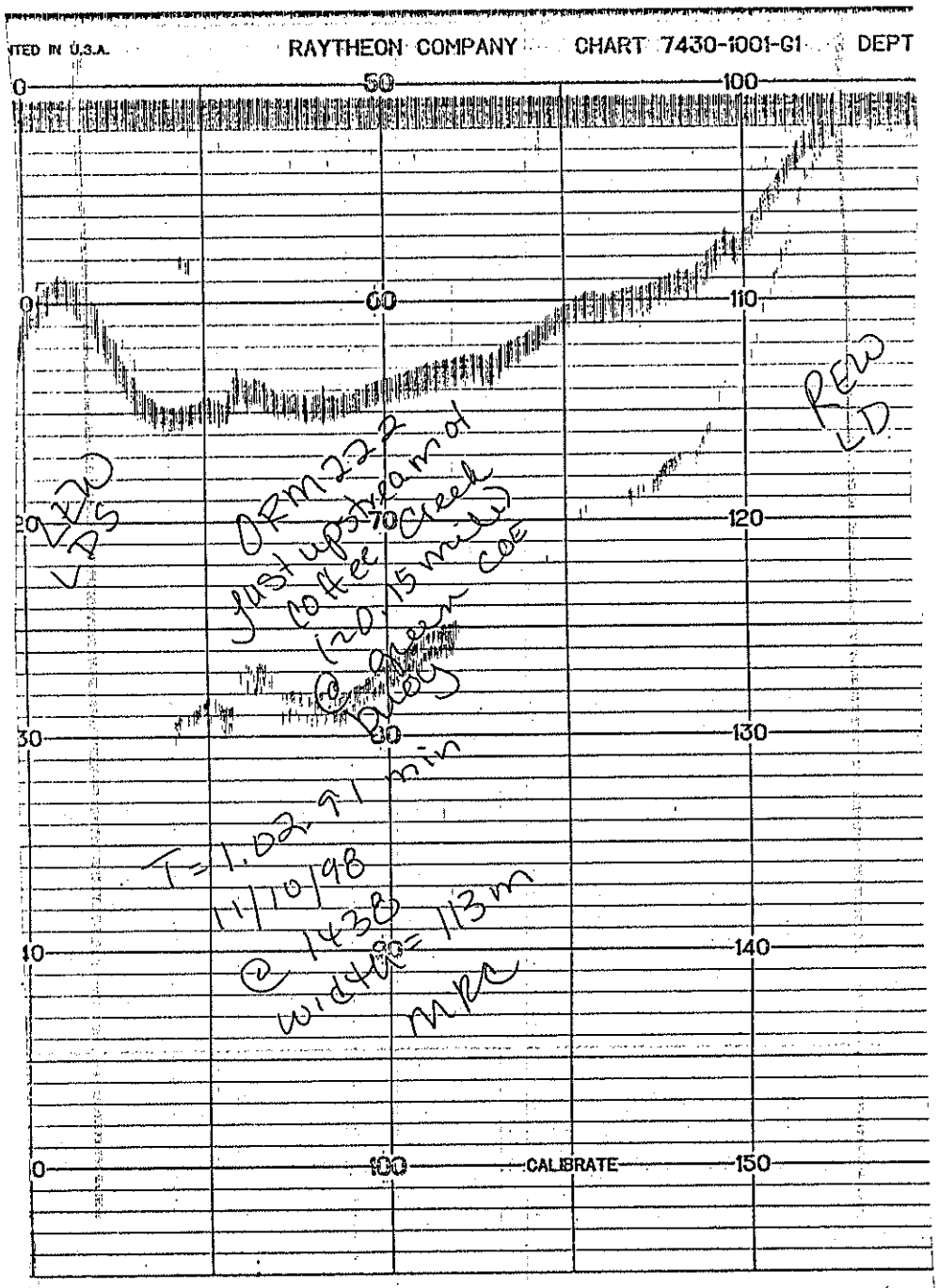
GP Crossett 980650
Ouachita River Mile 224 Dup



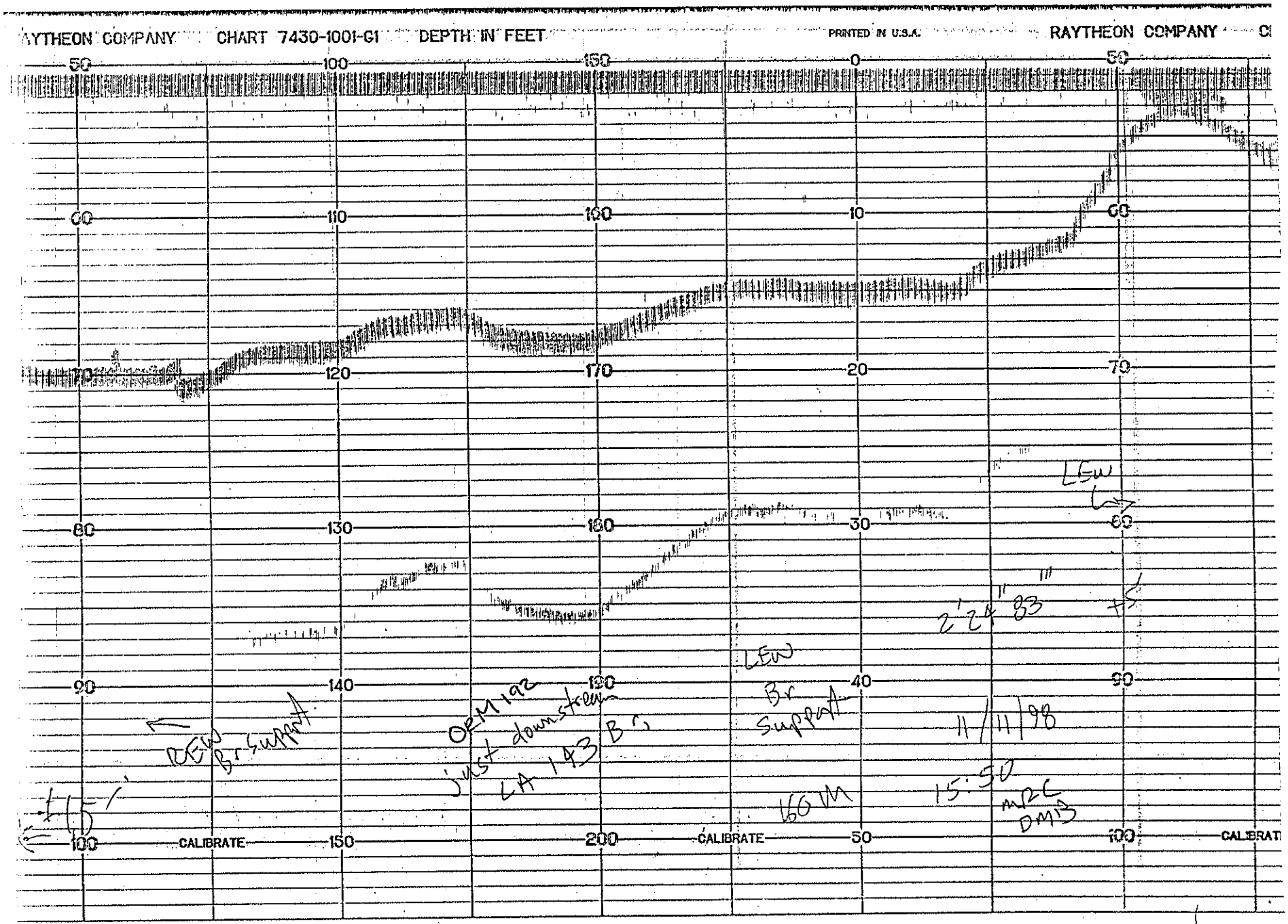
GP Crossett 980650
Ouachita River Mile 222



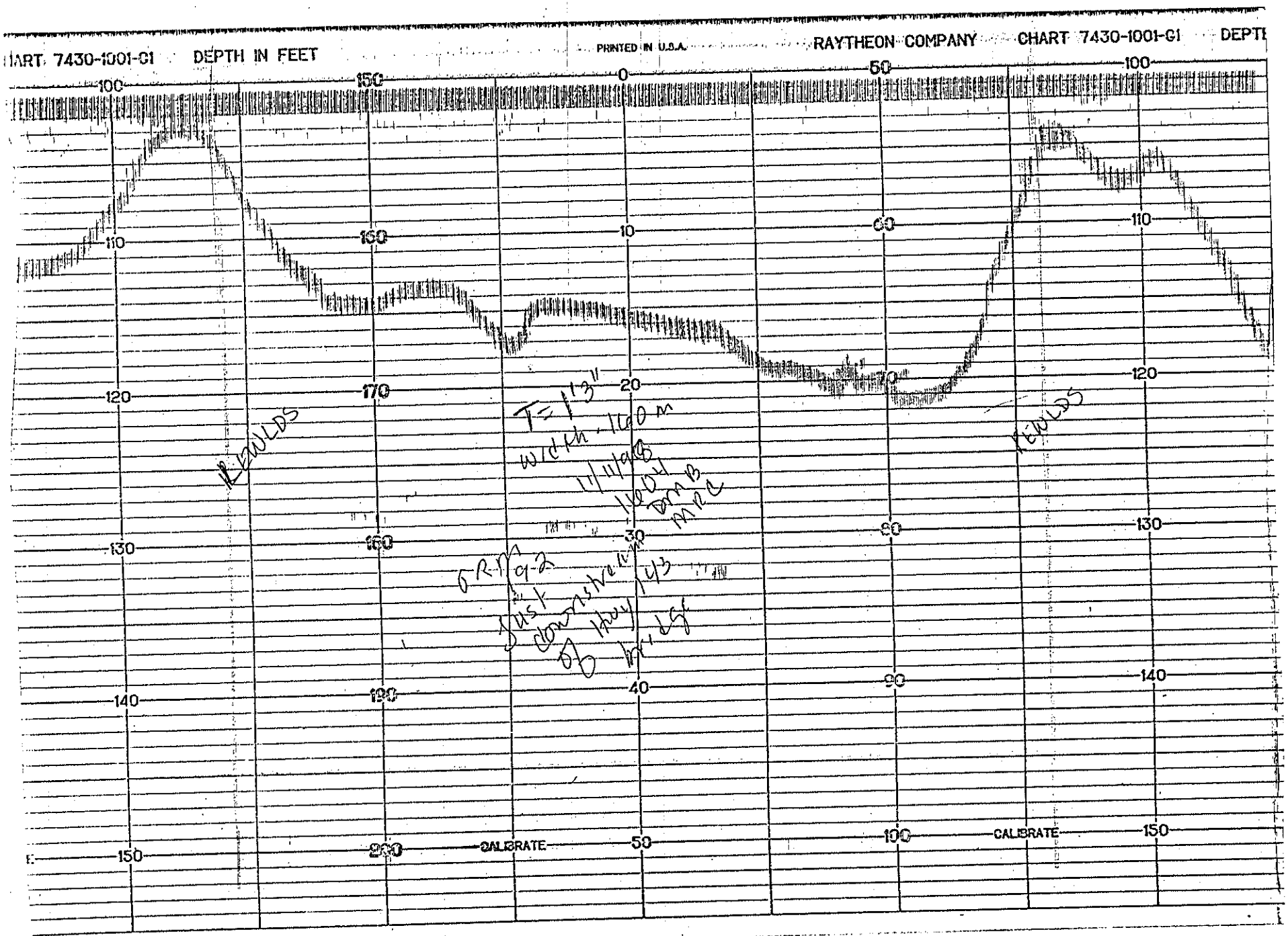
GP Crossett 9806E
Ouachita River Mile 222 Dup



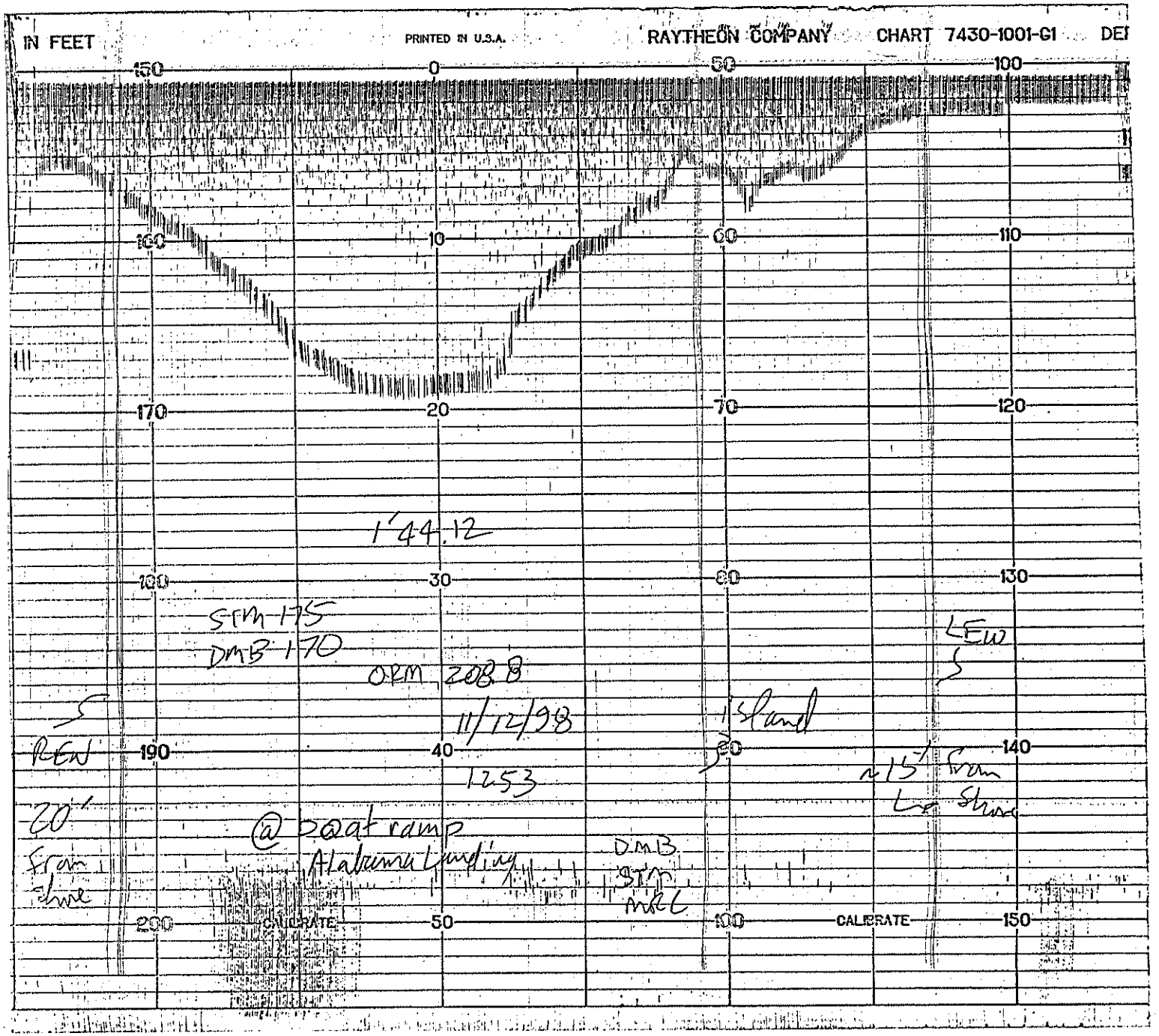
GP Crossett 980650
Ouachita River Mile 192



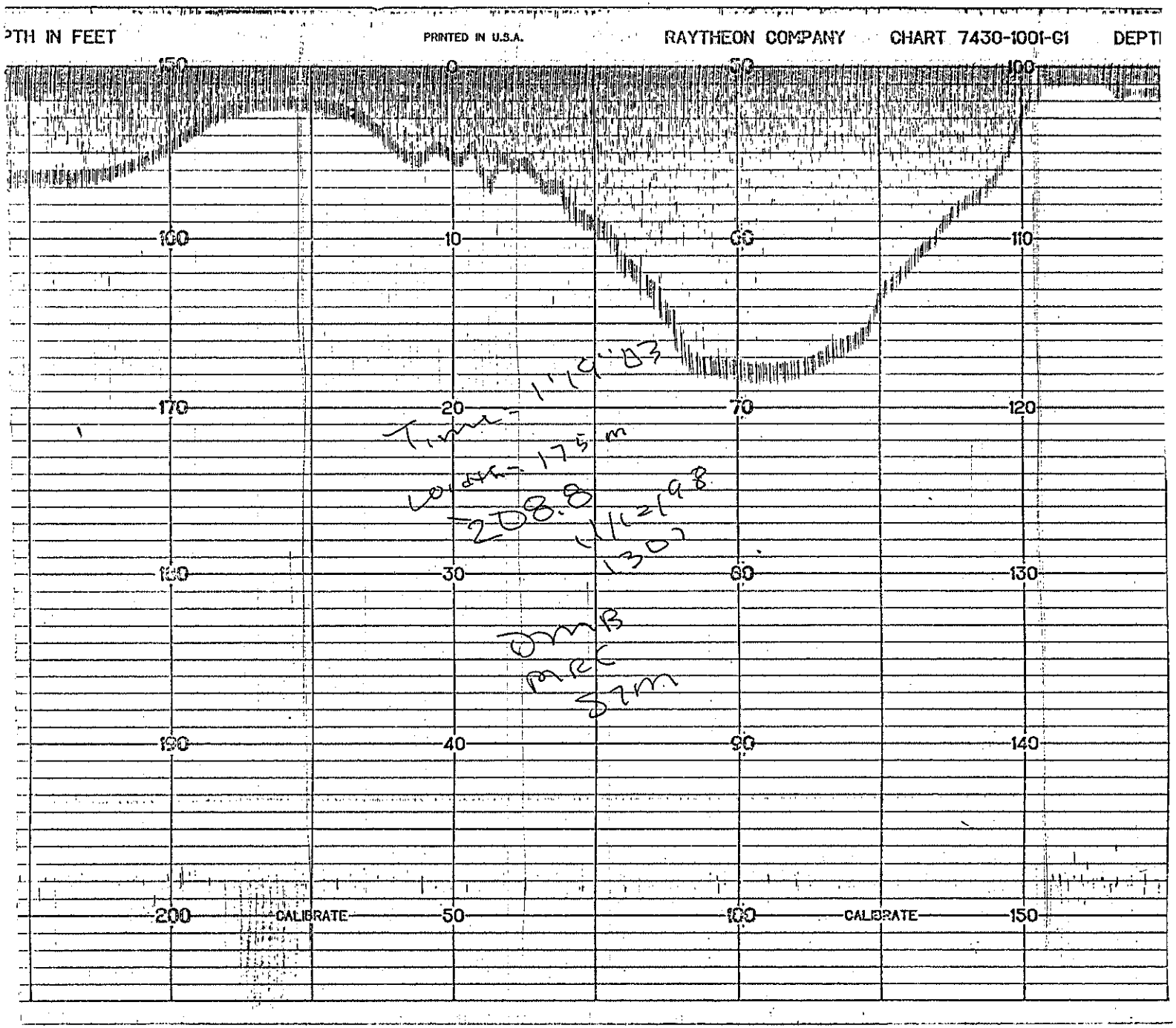
GP Cossett 980650
Ouachita River Mile .12 Oup



GP Crossett 98 .50
Ouachita River mile 208.8

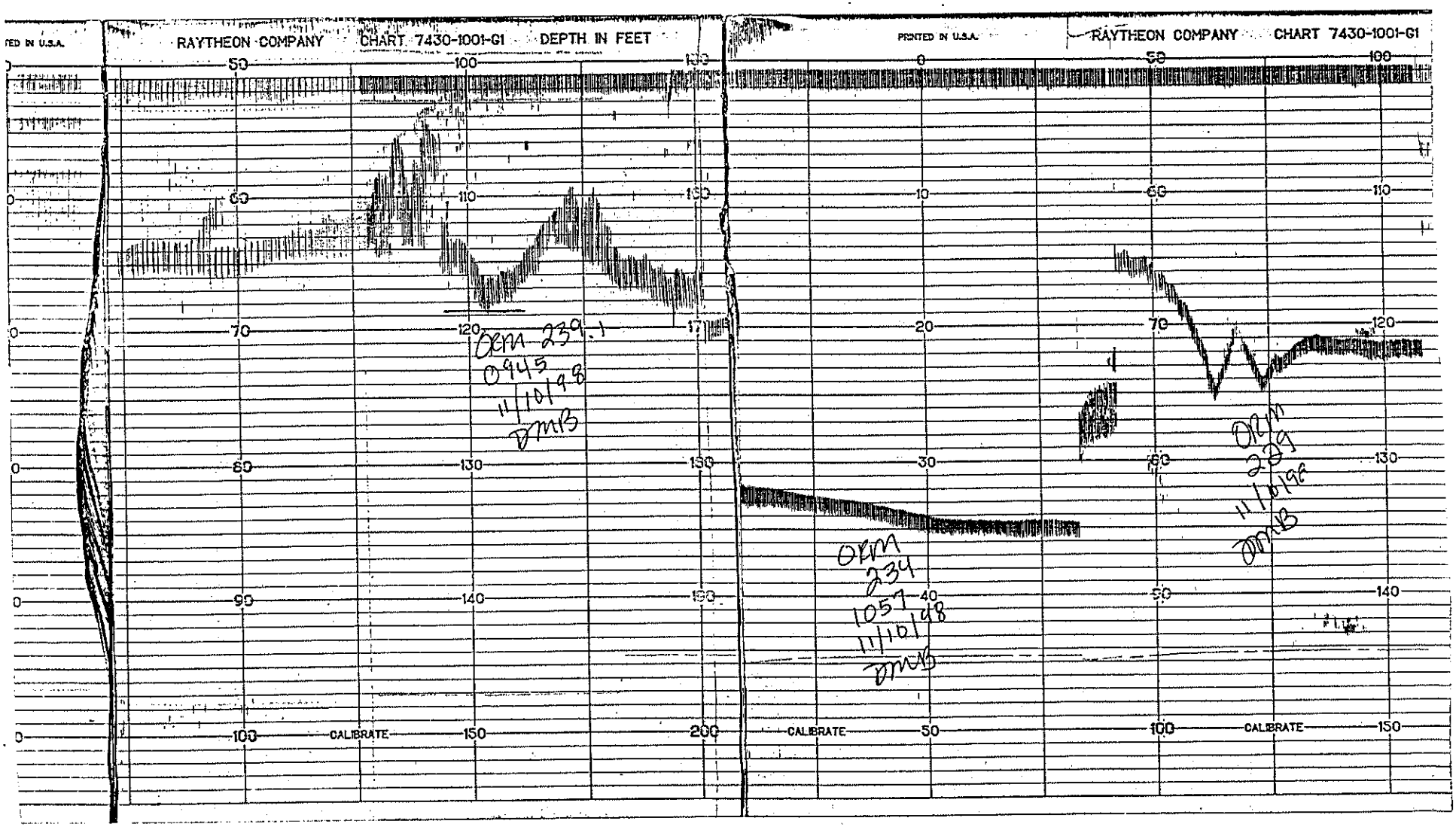


GP - Crossett 980651
Ouachita River mile 28.8 Dup



# MISCELLANEOUS DEPTH MEASUREMENTS

GP Crossett 980650
Ouachita River



# APPENDIX 11

# CALIBRATION AND WASTELOAD ALLOCATION MODELS

**Model Input Files**
**Model Output Files**
**Model Input Files**
September, Mean Temperature
September, 90th Percentile Temperature
**Model Output Files**
September, Mean Temperature
September, 90th Percentile Temperature

# CALIBRATION MODEL INPUT FILES

# CROSSET5.DAT

```
TITLE01              GEORGIA PACIFIC, OUACHITA RIVER NEAR CROSSETT, AR
TITLE02              CALIBRATION DATA SET, AUGUST 27, 1998 (12/98 REVISION)
TITLE03   NO         CONSERVATIVE MINERAL   I
TITLE04   NO         CONSERVATIVE MINERAL  II
TITLE05   NO         CONSERVATIVE MINERAL III
TITLE06   NO         TEMPERATURE
TITLE07  YES         BIOCHEMICAL OXYGEN DEMAND IN MG/L
TITLE08  YES         ALGAE AS CHL-A IN UG/L
TITLE09  YES         PHOSPHORUS CYCLE AS P IN MG/L
TITLE10                (ORGANIC-P; DISSOLVED-P)
TITLE11  YES         NITROGEN CYCLE AS N IN MG/L
TITLE12                (ORGANIC-N; AMMONIA-N; NITRITE-N; NITRATE-N)
TITLE13  YES         DISSOLVED OXYGEN IN MG/L
TITLE14   NO         FECAL COLIFORMS IN NO./100 ML
TITLE15   NO         ARBITRARY NON-CONSERVATIVE  BOD    MG/L
ENDTITLE
LIST DATA INPUT
WRITE OPTIONAL SUMMARY
NO FLOW AUGMENTATION
STEADY STATE
NO TRAPEZOIDAL X-SECTIONS
NO PRINT LCD/SOLAR DATA
NO PLOT DO AND BOD
FIXED DNSTM CONC (YES=1)=         0          ULT BOD CONV RATE COEF            0
INPUT METRIC (YES=1)    =         0          OUTPUT METRIC (YES=1)    =        0
NUMBER OF REACHES       =         8          NUMBER OF JUNCTIONS      =        0
NUM OF HEADWATERS       =         1          NUMBER OF POINT LOADS    =        8
TIME STEP (HOURS)       =         1          LNTH  COMP  ELEMENT (DX)=      0.25
MAXIMUM ROUTE TIME (HRS)=       250          TIME INC. FOR RPT2 (HRS)=         1
LATITUDE OF BASIN (DEG) =      33.0          LONGITUDE OF BASIN (DEG)=      92.0
STANDARD MERIDIAN (DEG) =      90.0          DAY OF YEAR START TIME   =     190.0
EVAP. COEFF. (AE)       =   0.00001          EVAP. COEF. (BE)         =  0.00010
ELEV  OF BASIN (ELEV)   =        60          DUST ATTENUATION COEF.   =      0.13
ENDATA1
O UPTAKE BY NH3 OXID(MG O/MG N)=   3.43  O UPTAKE BY NO2 OXID(MG O/MG N)=   1.14
O PROD  BY ALGAE (MG O/MG A)   =    1.8  O UPTAKE BY ALGAE (MG O/MG A)  =   2.00
N CONTENT OF ALGAE (MG N/MG A) =   .085  P CONTENT OF ALGAE (MG P/MG A) =  0.015
ALG MAX SPEC GROWTH RATE(1/DAY)=    2.5  ALGAE RESPIRATION RATE (1/DAY) =  0.05
N HALF SATURATION CONST  (MG/L)=   0.20  P HALF SATURATION CONST  (MG/L)=  0.01
LIN ALG EXCO (1/FT)/(UG-CHLA/L)= 0.0027  NLINCO(1/FT)/(UG-CHLA/L)**(2/3)= 0.0165
LIGHT FUNCTION OPTION (LFNOPT) =      2  LIGHT SATURATION COEF(LNGY/MIN)=   .100
DAILY AVERAGING OPTION (LAVOPT)=      2  LIGHT AVERAGING FACTOR (AFACT) =  0.92
NUMBER OF DAYLIGHT HOURS (DLH) =     13  TOTAL DAILY SOLAR RADT(BTU/FT2)=   754
ALGY GROWTH CALC OPTION(LGROPT)=      1  ALGAL PREF FOR NH3-N (PREFN)   =   0.5
ALG/TEMP SOLR RAD FACTOR(TFACT)=   0.44  NITRIFICATION INHIBITION COEF  =  10.0
ENDATA1A
ENDATA1B
STREAM REACH     1.0          REACH 1    FROM       227.0    TO         222.0
STREAM REACH     2.0          REACH 2    FROM       222.0    TO         217.0
STREAM REACH     3.0          REACH 3    FROM       217.0    TO         212.0
STREAM REACH     4.0          REACH 4    FROM       212.0    TO         207.0
STREAM REACH     5.0          REACH 5    FROM       207.0    TO         202.0
STREAM REACH     6.0          REACH 6    FROM       202.0    TO         197.0
STREAM REACH     7.0          REACH 7    FROM       197.0    TO         192.0
STREAM REACH     8.0          REACH 8    FROM       192.0    TO         190.0
ENDATA2
STREAM REACH              1.0       1.0       3.0    1.0
STREAM REACH              2.0       1.0       3.0    1.0
STREAM REACH              3.0       1.0       3.0    1.0
STREAM REACH              4.0       1.0       3.0    1.0
STREAM REACH              5.0       1.0       3.0    1.0
STREAM REACH              6.0       1.0       3.0    1.0
STREAM REACH              7.0       1.0       3.0    1.0
STREAM REACH              8.0       1.0       3.0    1.0
ENDATA3
```

```
FLAG FIELD RCH=  1.0      20.0          1.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.
FLAG FIELD RCH=  2.0      20.0          6.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.
FLAG FIELD RCH=  3.0      20.0          2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.
FLAG FIELD RCH=  4.0      20.0          2.2.2.6.2.2.2.2.2.2.2.2.2.2.2.6.2.2.
FLAG FIELD RCH=  5.0      20.0          2.2.2.2.2.2.2.2.2.2.2.2.2.2.6.2.2.2.
FLAG FIELD RCH=  6.0      20.0          2.2.2.2.2.2.2.2.2.2.2.6.2.2.2.2.2.2.
FLAG FIELD RCH=  7.0      20.0          6.2.2.2.2.2.2.2.2.2.2.6.2.2.2.2.2.2.
FLAG FIELD RCH=  8.0       8.0          6.2.2.2.2.2.2.5.
ENDATA4
HYDRAULICS RCH=  1.0      38.0    .00046      .897   7.17000      .0500      .035
HYDRAULICS RCH=  2.0      38.0    .00046      .897   7.17000      .0500      .035
HYDRAULICS RCH=  3.0      22.0    .00046      .897   7.17000      .0500      .035
HYDRAULICS RCH=  4.0      21.0    .00046      .897   8.00000      .0500      .035
HYDRAULICS RCH=  5.0      10.0    .00028      .946   12.0000      .0180      .035
HYDRAULICS RCH=  6.0      17.0    .00028      .946   12.0000      .0180      .035
HYDRAULICS RCH=  7.0       7.0    .00020      .930   15.0300      .0110      .035
HYDRAULICS RCH=  8.0       7.0    .00020      .930   15.0300      .0110      .035
ENDATA5
ENDATA5A
REACT COEF RCH=  1.0   0.050     0.0   .0510 3.0       0  0.0000 0.00E-4
REACT COEF RCH=  2.0   0.075     0.0   .0510 3.0       0  0.0000 0.00E-4
REACT COEF RCH=  3.0   0.075     0.0   .0510 3.0       0  0.0000 0.00E-4
REACT COEF RCH=  4.0   0.075     0.0   .0710 3.0       0  0.0000 0.00E-4
REACT COEF RCH=  5.0   0.050     0.0   .0710 3.0       0  0.0000 0.00E-4
REACT COEF RCH=  6.0   0.050     0.0   .0710 3.0       0  0.0000 0.00E-4
REACT COEF RCH=  7.0   0.050     0.0   .0510 3.0       0  0.0000 0.00E-4
REACT COEF RCH=  8.0   0.050     0.0   .0510 3.0       0  0.0000 0.00E-4
ENDATA6
N AND P COEF   RCH=  1.0  0.100   .00  0.100   0.0   1.0   .00   0.0   0.0
N AND P COEF   RCH=  2.0  0.100   .00  0.100   0.0   1.0   .00   0.0   0.0
N AND P COEF   RCH=  3.0  0.100   .00  0.100   0.0   1.0   .00   0.0   0.0
N AND P COEF   RCH=  4.0  0.100   .00  0.100   0.0   1.0   .00   0.0   0.0
N AND P COEF   RCH=  5.0  0.100   .00  0.100   0.0   1.0   .00   0.0   0.0
N AND P COEF   RCH=  6.0  0.100   .00  0.100   0.0   1.0   .05   0.0   0.0
N AND P COEF   RCH=  7.0  0.100   .00  0.100   0.0   1.0   .05   0.0   0.0
N AND P COEF   RCH=  8.0  0.100   .00  0.100   0.0   1.0   .05   0.0   0.0
ENDATA6A
ALG/OTHER COEF RCH=  1.0   15.0  0.80   0.57   0.0   0.0   0.0   0.0
ALG/OTHER COEF RCH=  2.0   15.0  0.80   0.90   0.0   0.0   0.0   0.0
ALG/OTHER COEF RCH=  3.0   15.0  0.80   0.60   0.0   0.0   0.0   0.0
ALG/OTHER COEF RCH=  4.0   15.0  0.80   0.72   0.0   0.0   0.0   0.0
ALG/OTHER COEF RCH=  5.0   15.0  0.80   0.77   0.0   0.0   0.0   0.0
ALG/OTHER COEF RCH=  6.0   15.0  0.80   0.71   0.0   0.0   0.0   0.0
ALG/OTHER COEF RCH=  7.0   15.0  0.80   0.50   0.0   0.0   0.0   0.0
ALG/OTHER COEF RCH=  8.0   15.0  0.80   0.50   0.0   0.0   0.0   0.0
ENDATA6B
INITIAL COND-1 RCH=  1.0   88.7  5.95   3.75
INITIAL COND-1 RCH=  2.0   88.7  5.95   3.75
INITIAL COND-1 RCH=  3.0   88.7  5.95   3.75
INITIAL COND-1 RCH=  4.0   88.7  5.95   3.75
INITIAL COND-1 RCH=  5.0   88.7  5.95   3.75
INITIAL COND-1 RCH=  6.0   88.7  5.95   3.75
INITIAL COND-1 RCH=  7.0   88.7  5.95   3.75
INITIAL COND-1 RCH=  8.0   88.7  5.95   3.75
ENDATA7
INITIAL COND-2 RCH=  1.0    8.4  0.484  0.05  0.10  0.40  0.070  0.04
INITIAL COND-2 RCH=  2.0    8.4  0.484  0.05  0.10  0.40  0.070  0.04
INITIAL COND-2 RCH=  3.0    8.4  0.484  0.05  0.10  0.40  0.070  0.04
INITIAL COND-2 RCH=  4.0    8.4  0.484  0.05  0.10  0.40  0.070  0.04
INITIAL COND-2 RCH=  5.0    8.4  0.484  0.05  0.10  0.40  0.070  0.04
INITIAL COND-2 RCH=  6.0    8.4  0.484  0.05  0.10  0.40  0.070  0.04
INITIAL COND-2 RCH=  7.0    8.4  0.484  0.05  0.10  0.40  0.070  0.04
INITIAL COND-2 RCH=  8.0    8.4  0.484  0.05  0.10  0.40  0.070  0.04
ENDATA7A
```

```
INCR INFLOW-1  RCH=  1.0    2.0   88.7  5.95   2.8
INCR INFLOW-1  RCH=  2.0    2.0   88.7  5.95   2.8
INCR INFLOW-1  RCH=  3.0    2.0   88.7  5.95   2.8
INCR INFLOW-1  RCH=  4.0    2.0   88.7  5.95   2.8
INCR INFLOW-1  RCH=  5.0    2.0   88.7  5.95   2.8
INCR INFLOW-1  RCH=  6.0    2.0   88.7  5.95   2.8
INCR INFLOW-1  RCH=  7.0    2.0   88.7  5.95   2.8
INCR INFLOW-1  RCH=  8.0    2.0   88.7  5.95   2.8
ENDATA8
INCR INFLOW-2  RCH=  1.0   0.00  0.484   0.05   0.10   0.40   0.07   0.04
INCR INFLOW-2  RCH=  2.0   0.00  0.484   0.05   0.10   0.40   0.07   0.04
INCR INFLOW-2  RCH=  3.0   0.00  0.484   0.05   0.10   0.40   0.07   0.04
INCR INFLOW-2  RCH=  4.0   0.00  0.484   0.05   0.10   0.40   0.07   0.04
INCR INFLOW-2  RCH=  5.0   0.00  0.484   0.05   0.10   0.40   0.07   0.04
INCR INFLOW-2  RCH=  6.0   0.00  0.484   0.05   0.10   0.40   0.07   0.04
INCR INFLOW-2  RCH=  7.0   0.00  0.484   0.05   0.10   0.40   0.07   0.04
INCR INFLOW-2  RCH=  8.0   0.00  0.484   0.05   0.10   0.40   0.07   0.04
ENDATA8A
ENDATA9
HEADWTR-1 HDW=  1.0  OUACHITA RIVER      980  88.7  5.95  3.75
ENDATA10
HEADWTR-2  HDW=  1.0    0.0    0.0    8.4 0.484  0.05  0.10  0.40 0.070  0.04
ENDATA10A
POINTLD-1 PTL=  1.0COFFEE CREEK  0.0     42.1  86.9  3.50  48.8
POINTLD-1 PTL=  2.0PIERRE CREEK  0.0      1.0  88.7  5.50   5.0
POINTLD-1 PTL=  3.0POSSUM BAYOU  0.0      0.1  88.7  5.50  2.80
POINTLD-1 PTL=  4.0BAYOUDEBUTTE  0.0      1.0  88.7  5.50   5.0
POINTLD-1 PTL=  5.0 BOGGY BAYOU  0.0      0.1  88.7  5.50  2.80
POINTLD-1 PTL=  6.0PAWPAW BAYOU  0.0      0.1  88.7  5.50  2.80
POINTLD-1 PTL=  7.0BAYOU BARTHO  0.0    222.0  85.1  5.40  2.80
POINTLD-1 PTL=  8.0STERLINGTONW  0.0     0.77  88.7  3.00  60.0
ENDATA11
POINTLD-2 PTL=   1.0    0.0    0.0   1.00  2.73  3.56  0.10  0.40 0.220 0.589
POINTLD-2 PTL=   2.0    0.0    0.0   1.00 0.484  0.05  0.10  0.40 0.070 0.040
POINTLD-2 PTL=   3.0    0.0    0.0   1.00 0.484  0.05  0.10  0.40 0.070 0.040
POINTLD-2 PTL=   4.0    0.0    0.0   1.00 5.000  5.00  0.10  0.40 0.070 1.000
POINTLD-2 PTL=   5.0    0.0    0.0    2.8 0.484  0.05  0.10  0.40 0.070 0.040
POINTLD-2 PTL=   6.0    0.0    0.0   1.00 0.484  0.05  0.10  0.40 0.070 0.040
POINTLD-2 PTL=   7.0    0.0    0.0   8.40 0.484  0.05  0.10  0.40 0.070 0.040
POINTLD-2 PTL=   8.0    0.0    0.0   10.0 12.00  12.00 0.10  2.00 1.000 3.000
ENDATA11A
ENDATA12
ENDATA13
ENDATA13A
BEGIN  RCH    1    2    3    4    5    6    7    8    9
PLOT   RCH    1    2    3    4    5    6    7    8    9
```

# CALIBRATION MODEL OUTPUT FILES

# CROSSET5.OUT

* * * QUAL-2E STREAM QUALITY ROUTING MODEL * * *
Version 3.22 -- May 1996

$$$ (PROBLEM TITLES) $$$

| CARD TYPE | | QUAL-2E PROGRAM TITLES |
|---|---|---|
| TITLE01 | | GEORGIA PACIFIC, OUACHITA RIVER NEAR CROSSETT, AR |
| TITLE02 | | CALIBRATION DATA SET, AUGUST 27, 1998 (12/98 REVISION) |
| TITLE03 | NO | CONSERVATIVE MINERAL I |
| TITLE04 | NO | CONSERVATIVE MINERAL II |
| TITLE05 | NO | CONSERVATIVE MINERAL III |
| TITLE06 | NO | TEMPERATURE |
| TITLE07 | YES | BIOCHEMICAL OXYGEN DEMAND IN MG/L |
| TITLE08 | YES | ALGAE AS CHL-A IN UG/L |
| TITLE09 | YES | PHOSPHORUS CYCLE AS P IN MG/L |
| TITLE10 | | (ORGANIC-P; DISSOLVED-P) |
| TITLE11 | YES | NITROGEN CYCLE AS N IN MG/L |
| TITLE12 | | (ORGANIC-N; AMMONIA-N; NITRITE-N; NITRATE-N) |
| TITLE13 | YES | DISSOLVED OXYGEN IN MG/L |
| TITLE14 | NO | FECAL COLIFORMS IN NO./100 ML |
| TITLE15 | NO | ARBITRARY NON-CONSERVATIVE BOD MG/L |
| ENDTITLE | | |

$$$ DATA TYPE 1 (CONTROL DATA) $$$

| CARD TYPE | | CARD TYPE | |
|---|---|---|---|
| LIST DATA INPUT | 0.00000 | | 0.00000 |
| WRITE OPTIONAL SUMMARY | 0.00000 | | 0.00000 |
| NO FLOW AUGMENTATION | 0.00000 | | 0.00000 |
| STEADY STATE | 0.00000 | | 0.00000 |
| NO TRAPEZOIDAL X-SECTIONS | 0.00000 | | 0.00000 |
| NO PRINT LCD/SOLAR DATA | 0.00000 | | 0.00000 |
| NO PLOT DO AND BOD | 0.00000 | | 0.00000 |
| FIXED DNSTM CONC (YES=1) = | 0.00000 | ULT BOD CONV RATE COEF | 0.23000 |
| INPUT METRIC (YES=1) = | 0.00000 | OUTPUT METRIC (YES=1) = | 0.00000 |
| NUMBER OF REACHES = | 8.00000 | NUMBER OF JUNCTIONS = | 0.00000 |
| NUM OF HEADWATERS = | 1.00000 | NUMBER OF POINT LOADS = | 8.00000 |
| TIME STEP (HOURS) = | 1.00000 | LNTH COMP ELEMENT (DX) = | 0.25000 |
| MAXIMUM ROUTE TIME (HRS) = | 250.00000 | TIME INC. FOR RPT2 (HRS) = | 1.00000 |
| LATITUDE OF BASIN (DEG) = | 33.00000 | LONGITUDE OF BASIN (DEG) = | 92.00000 |
| STANDARD MERIDIAN (DEG) = | 90.00000 | DAY OF YEAR START TIME = | 190.00000 |
| EVAP. COEFF. (AE) = | 0.00001 | EVAP. COEF. (BE) = | 0.00010 |
| ELEV OF BASIN (ELEV) = | 60.00000 | DUST ATTENUATION COEF. = | 0.13000 |
| ENDATA1 | 0.00000 | | 0.00000 |

$$$ DATA TYPE 1A (ALGAE PRODUCTION AND NITROGEN OXIDATION CONSTANTS) $$$

| CARD TYPE | | CARD TYPE | |
|---|---|---|---|
| O UPTAKE BY NH3 OXID(MG O/MG N) = | 3.4300 | O UPTAKE BY NO2 OXID(MG O/MG N) = | 1.1400 |
| O PROD BY ALGAE (MG O/MG A) = | 1.8000 | O UPTAKE BY ALGAE (MG O/MG A) = | 2.0000 |
| N CONTENT OF ALGAE (MG N/MG A) = | 0.0850 | P CONTENT OF ALGAE (MG P/MG A) = | 0.0150 |
| ALG MAX SPEC GROWTH RATE(1/DAY) = | 2.5000 | ALGAE RESPIRATION RATE (1/DAY) = | 0.0500 |
| N HALF SATURATION CONST (MG/L) = | 0.2000 | P HALF SATURATION CONST (MG/L) = | 0.0100 |
| LIN ALG SHADE CO (1/FT-UGCHA/L=) | 0.0027 | NLIN SHADE(1/FT-(UGCHA/L)**2/3) = | 0.0165 |
| LIGHT FUNCTION OPTION (LFNOPT) = | 2.0000 | LIGHT SAT'N COEF (BTU/FT2-MIN) = | 0.1000 |
| DAILY AVERAGING OPTION (LAVOPT) = | 2.0000 | LIGHT AVERAGING FACTOR (AFACT) = | 0.9200 |
| NUMBER OF DAYLIGHT HOURS (DLH) = | 13.0000 | TOTAL DAILY SOLR RAD (BTU/FT-2) = | 754.0000 |
| ALGY GROWTH CALC OPTION(LGROPT) = | 1.0000 | ALGAL PREF FOR NH3-N (PREFN) = | 0.5000 |
| ALG/TEMP SOLR RAD FACTOR(TFACT) = | 0.4400 | NITRIFICATION INHIBITION COEF = | 10.0000 |
| ENDATA1A | 0.0000 | | 0.0000 |

$$$ DATA TYPE 1B (TEMPERATURE CORRECTION CONSTANTS FOR RATE COEFFICIENTS) $$$

| CARD TYPE | RATE CODE | THETA VALUE | |
|---|---|---|---|
| THETA( 1) | BOD DECA | 1.047 | DFLT |
| THETA( 2) | BOD SETT | 1.024 | DFLT |
| THETA( 3) | OXY TRAN | 1.024 | DFLT |
| THETA( 4) | SOD RATE | 1.060 | DFLT |
| THETA( 5) | ORGN DEC | 1.047 | DFLT |
| THETA( 6) | ORGN SET | 1.024 | DFLT |
| THETA( 7) | NH3 DECA | 1.083 | DFLT |
| THETA( 8) | NH3 SRCE | 1.074 | DFLT |
| THETA( 9) | NO2 DECA | 1.047 | DFLT |
| THETA(10) | PORG DEC | 1.047 | DFLT |
| THETA(11) | PORG SET | 1.024 | DFLT |
| THETA(12) | DISP SRC | 1.074 | DFLT |
| THETA(13) | ALG GROW | 1.047 | DFLT |
| THETA(14) | ALG RESP | 1.047 | DFLT |
| THETA(15) | ALG SETT | 1.024 | DFLT |
| THETA(16) | COLI DEC | 1.047 | DFLT |
| THETA(17) | ANC DECA | 1.000 | DFLT |
| THETA(18) | ANC SETT | 1.024 | DFLT |
| THETA(19) | ANC SRCE | 1.000 | DFLT |
| ENDATA1B | | | |

$$$ DATA TYPE 2 (REACH IDENTIFICATION) $$$

| CARD TYPE | REACH ORDER AND IDENT | | | R. MI/KM | | R. MI/KM |
|---|---|---|---|---|---|---|
| STREAM REACH | 1.0 | REACH 1 | FRO | 227.0 | TO | 222.0 |
| STREAM REACH | 2.0 | REACH 2 | FRO | 222.0 | TO | 217.0 |
| STREAM REACH | 3.0 | REACH 3 | FRO | 217.0 | TO | 212.0 |
| STREAM REACH | 4.0 | REACH 4 | FRO | 212.0 | TO | 207.0 |
| STREAM REACH | 5.0 | REACH 5 | FRO | 207.0 | TO | 202.0 |
| STREAM REACH | 6.0 | REACH 6 | FRO | 202.0 | TO | 197.0 |
| STREAM REACH | 7.0 | REACH 7 | FRO | 197.0 | TO | 192.0 |
| STREAM REACH | 8.0 | REACH 8 | FRO | 192.0 | TO | 190.0 |
| ENDATA2 | 0.0 | | | 0.0 | | 0.0 |

$$$ DATA TYPE 3 (TARGET LEVEL DO AND FLOW AUGMENTATION SOURCES) $$$

| CARD TYPE | REACH | AVAIL HDWS | TARGET | ORDER OF AVAIL SOURCES | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| STREAM REACH | 1. | 1. | 3.0 | 1. | 0. | 0. | 0. | 0. | 0. |
| STREAM REACH | 2. | 1. | 3.0 | 1. | 0. | 0. | 0. | 0. | 0. |
| STREAM REACH | 3. | 1. | 3.0 | 1. | 0. | 0. | 0. | 0. | 0. |
| STREAM REACH | 4. | 1. | 3.0 | 1. | 0. | 0. | 0. | 0. | 0. |
| STREAM REACH | 5. | 1. | 3.0 | 1. | 0. | 0. | 0. | 0. | 0. |
| STREAM REACH | 6. | 1. | 3.0 | 1. | 0. | 0. | 0. | 0. | 0. |
| STREAM REACH | 7. | 1. | 3.0 | 1. | 0. | 0. | 0. | 0. | 0. |
| STREAM REACH | 8. | 1. | 3.0 | 1. | 0. | 0. | 0. | 0. | 0. |
| ENDATA3 | 0. | 0. | 0.0 | 0. | 0. | 0. | 0. | 0. | 0. |

$$$ DATA TYPE 4 (COMPUTATIONAL REACH FLAG FIELD) $$$

| CARD TYPE | REACH ELEMENTS/REACH | COMPUTATIONAL FLAGS |
|---|---|---|
| FLAG FIELD | 1. 20. | 1.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2. |
| FLAG FIELD | 2. 20. | 6.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2. |
| FLAG FIELD | 3. 20. | 2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2. |
| FLAG FIELD | 4. 20. | 2.2.2.6.2.2.2.2.2.2.2.2.2.2.6.2.2. |
| FLAG FIELD | 5. 20. | 2.2.2.2.2.2.2.2.2.2.2.2.2.2.6.2.2. |
| FLAG FIELD | 6. 20. | 2.2.2.2.2.2.2.2.2.2.6.2.2.2.2.2.2. |
| FLAG FIELD | 7. 20. | 6.2.2.2.2.2.2.2.2.2.6.2.2.2.2.2.2. |
| FLAG FIELD | 8. 8. | 6.2.2.2.2.2.5.0.0.0.0.0.0.0.0.0.0. |
| ENDATA4 | 0. 0. | 0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0. |

$$$ DATA TYPE 5 (HYDRAULIC DATA FOR DETERMINING VELOCITY AND DEPTH) $$$

| | | | a | b | c | d | |
|---|---|---|---|---|---|---|---|
| CARD TYPE | REACH | COEF-DSPN | COEFQV | EXPOQV | COEFQH | EXPOQH | CMANN |
| HYDRAULICS | 1. | 38.00 | 0.000 | 0.897 | 7.170 | 0.050 | 0.035 |
| HYDRAULICS | 2. | 38.00 | 0.000 | 0.897 | 7.170 | 0.050 | 0.035 |
| HYDRAULICS | 3. | 22.00 | 0.000 | 0.897 | 7.170 | 0.050 | 0.035 |
| HYDRAULICS | 4. | 21.00 | 0.000 | 0.897 | 8.000 | 0.050 | 0.035 |
| HYDRAULICS | 5. | 10.00 | 0.000 | 0.946 | 12.000 | 0.018 | 0.035 |
| HYDRAULICS | 6. | 17.00 | 0.000 | 0.946 | 12.000 | 0.018 | 0.035 |
| HYDRAULICS | 7. | 7.00 | 0.000 | 0.930 | 15.030 | 0.011 | 0.035 |
| HYDRAULICS | 8. | 7.00 | 0.000 | 0.930 | 15.030 | 0.011 | 0.035 |
| ENDATA5 | 0. | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

$$$ DATA TYPE 5A (STEADY STATE TEMPERATURE AND CLIMATOLOGY DATA) $$$

| CARD TYPE | REACH | ELEVATION | DUST COEF | CLOUD COVER | DRY BULB TEMP | WET BULB TEMP | ATM PRESSURE | WIND | SOLAR RAD ATTENUATION |
|---|---|---|---|---|---|---|---|---|---|
| ENDATA5A | 0. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 6 (REACTION COEFFICIENTS FOR DEOXYGENATION AND REAERATION) $$$

| CARD TYPE | REACH | K1 | K3 | SOD RATE | K2OPT | K2 | COEQK2 TSIV COEF FOR OPT 8 | OR OR | EXPQK2 SLOPE FOR OPT 8 |
|---|---|---|---|---|---|---|---|---|---|
| REACT COEF | 1. | 0.05 | 0.00 | 0.051 | 3. | 0.00 | 0.000 | | 0.00000 |
| REACT COEF | 2. | 0.08 | 0.00 | 0.051 | 3. | 0.00 | 0.000 | | 0.00000 |
| REACT COEF | 3. | 0.08 | 0.00 | 0.051 | 3. | 0.00 | 0.000 | | 0.00000 |
| REACT COEF | 4. | 0.08 | 0.00 | 0.071 | 3. | 0.00 | 0.000 | | 0.00000 |
| REACT COEF | 5. | 0.05 | 0.00 | 0.071 | 3. | 0.00 | 0.000 | | 0.00000 |
| REACT COEF | 6. | 0.05 | 0.00 | 0.071 | 3. | 0.00 | 0.000 | | 0.00000 |
| REACT COEF | 7. | 0.05 | 0.00 | 0.051 | 3. | 0.00 | 0.000 | | 0.00000 |
| REACT COEF | 8. | 0.05 | 0.00 | 0.051 | 3. | 0.00 | 0.000 | | 0.00000 |
| ENDATA6 | 0. | 0.00 | 0.00 | 0.000 | 0. | 0.00 | 0.000 | | 0.00000 |

$$$ DATA TYPE 6A (NITROGEN AND PHOSPHORUS CONSTANTS) $$$

| CARD TYPE | REACH | CKNH2 | SETNH2 | CKNH3 | SNH3 | CKNO2 | CKPORG | SETPORG | SPO4 |
|---|---|---|---|---|---|---|---|---|---|
| N AND P COEF | 1. | 0.10 | 0.00 | 0.10 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| N AND P COEF | 2. | 0.10 | 0.00 | 0.10 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| N AND P COEF | 3. | 0.10 | 0.00 | 0.10 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| N AND P COEF | 4. | 0.10 | 0.00 | 0.10 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| N AND P COEF | 5. | 0.10 | 0.00 | 0.10 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| N AND P COEF | 6. | 0.10 | 0.00 | 0.10 | 0.00 | 1.00 | 0.05 | 0.00 | 0.00 |
| N AND P COEF | 7. | 0.10 | 0.00 | 0.10 | 0.00 | 1.00 | 0.05 | 0.00 | 0.00 |
| N AND P COEF | 8. | 0.10 | 0.00 | 0.10 | 0.00 | 1.00 | 0.05 | 0.00 | 0.00 |
| ENDATA6A | 0. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 6B (ALGAE/OTHER COEFFICIENTS) $$$

| CARD TYPE | REACH | ALPHAO | ALGSET | EXCOEF | CK5 CKCOLI | CKANC | SETANC | SRCANC |
|---|---|---|---|---|---|---|---|---|
| ALG/OTHER COEF | 1. | 15.00 | 0.80 | 0.57 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 2. | 15.00 | 0.80 | 0.90 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 3. | 15.00 | 0.80 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 4. | 15.00 | 0.80 | 0.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 5. | 15.00 | 0.80 | 0.77 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 6. | 15.00 | 0.80 | 0.71 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 7. | 15.00 | 0.80 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 8. | 15.00 | 0.80 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| ENDATA6B | 0. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 7 (INITIAL CONDITIONS) $$$

| CARD TYPE | REACH | TEMP | D.O. | BOD | CM-1 | CM-2 | CM-3 | ANC | COLI |
|---|---|---|---|---|---|---|---|---|---|
| INITIAL COND-1 | 1. | 88.70 | 5.95 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INITIAL COND-1 | 2. | 88.70 | 5.95 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INITIAL COND-1 | 3. | 88.70 | 5.95 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INITIAL COND-1 | 4. | 88.70 | 5.95 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INITIAL COND-1 | 5. | 88.70 | 5.95 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INITIAL COND-1 | 6. | 88.70 | 5.95 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INITIAL COND-1 | 7. | 88.70 | 5.95 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INITIAL COND-1 | 8. | 88.70 | 5.95 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| ENDATA7 | 0. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 7A (INITIAL CONDITIONS FOR CHOROPHYLL A, NITROGEN, AND PHOSPHORUS) $$$

| CARD TYPE | REACH | CHL-A | ORG-N | NH3-N | NO2-N | NO3-N | ORG-P | DIS-P |
|---|---|---|---|---|---|---|---|---|
| INITIAL COND-2 | 1. | 8.40 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INITIAL COND-2 | 2. | 8.40 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INITIAL COND-2 | 3. | 8.40 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INITIAL COND-2 | 4. | 8.40 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INITIAL COND-2 | 5. | 8.40 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INITIAL COND-2 | 6. | 8.40 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INITIAL COND-2 | 7. | 8.40 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INITIAL COND-2 | 8. | 8.40 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| ENDATA7A | 0. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 8 (INCREMENTAL INFLOW CONDITIONS) $$$

| CARD TYPE | REACH | FLOW | TEMP | D.O. | BOD | CM-1 | CM-2 | CM-3 | ANC | COLI |
|---|---|---|---|---|---|---|---|---|---|---|
| INCR INFLOW-1 | 1. | 2.000 | 88.70 | 5.95 | 2.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INCR INFLOW-1 | 2. | 2.000 | 88.70 | 5.95 | 2.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INCR INFLOW-1 | 3. | 2.000 | 88.70 | 5.95 | 2.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INCR INFLOW-1 | 4. | 2.000 | 88.70 | 5.95 | 2.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INCR INFLOW-1 | 5. | 2.000 | 88.70 | 5.95 | 2.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INCR INFLOW-1 | 6. | 2.000 | 88.70 | 5.95 | 2.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INCR INFLOW-1 | 7. | 2.000 | 88.70 | 5.95 | 2.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INCR INFLOW-1 | 8. | 2.000 | 88.70 | 5.95 | 2.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| ENDATA8 | 0. | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 8A (INCREMENTAL INFLOW CONDITIONS FOR CHLOROPHYLL A, NITROGEN, AND PHOSPHORUS) $$$

| CARD TYPE | REACH | CHL-A | ORG-N | NH3-N | NO2-N | NO3-N | ORG-P | DIS-P |
|---|---|---|---|---|---|---|---|---|
| INCR INFLOW-2 | 1. | 0.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INCR INFLOW-2 | 2. | 0.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INCR INFLOW-2 | 3. | 0.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INCR INFLOW-2 | 4. | 0.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INCR INFLOW-2 | 5. | 0.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INCR INFLOW-2 | 6. | 0.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INCR INFLOW-2 | 7. | 0.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INCR INFLOW-2 | 8. | 0.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| ENDATA8A | 0. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 9 (STREAM JUNCTIONS) $$$

| CARD TYPE | JUNCTION ORDER AND IDENT | UPSTRM | JUNCTION | TRIB |
|---|---|---|---|---|
| ENDATA9 | 0. | 0. | 0. | 0. |

$$$ DATA TYPE 10 (HEADWATER SOURCES) $$$

| CARD TYPE | HDWTR ORDER | NAME | FLOW | TEMP | D.O. | BOD | CM-1 | CM-2 | CM-3 |
|---|---|---|---|---|---|---|---|---|---|
| HEADWTR-1 | 1. | OUACHITA RIVER | 980.00 | 89.70 | 5.95 | 3.75 | 0.00 | 0.00 | 0.00 |
| ENDATA10 | 0. | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 10A (HEADWATER CONDITIONS FOR CHLOROPHYLL, NITROGEN, PHOSPHORUS, COLIFORM AND SELECTED NON-CONSERVATIVE CONSTITUENT) $$$

| CARD TYPE | HDWTR ORDER | ANC | COLI | CHL-A | ORG-N | NH3-N | NO2-N | NO3-N | ORG-P | DIS-P |
|---|---|---|---|---|---|---|---|---|---|---|
| HEADWTR-2 | 1. | 0.00 | 0.00E+00 | 8.40 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| ENDATA10A | 0. | 0.00 | 0.00E+00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 11 (POINT SOURCE / POINT SOURCE CHARACTERISTICS) $$$

| CARD TYPE | POINT LOAD ORDER | NAME | EFF | FLOW | TEMP | D.O. | BOD | CM-1 | CM-2 | CM-3 |
|---|---|---|---|---|---|---|---|---|---|---|
| POINTLD-1 | 1. | COFFEE CREEK | 0.00 | 42.10 | 86.90 | 3.50 | 48.80 | 0.00 | 0.00 | 0.00 |
| POINTLD-1 | 2. | PIERRE CREEK | 0.00 | 1.00 | 88.70 | 5.50 | 5.00 | 0.00 | 0.00 | 0.00 |
| POINTLD-1 | 3. | POSSUM BAYOU | 0.00 | 0.10 | 88.70 | 5.50 | 2.80 | 0.00 | 0.00 | 0.00 |
| POINTLD-1 | 4. | BAYOUDEBUTTE | 0.00 | 1.00 | 88.70 | 5.50 | 5.00 | 0.00 | 0.00 | 0.00 |
| POINTLD-1 | 5. | BOGGY BAYOU | 0.00 | 0.10 | 88.70 | 5.50 | 2.80 | 0.00 | 0.00 | 0.00 |
| POINTLD-1 | 6. | PAWPAW BAYOU | 0.00 | 0.10 | 88.70 | 5.50 | 2.80 | 0.00 | 0.00 | 0.00 |
| POINTLD-1 | 7. | BAYOU BARTHO | 0.00 | 222.00 | 85.10 | 5.40 | 2.80 | 0.00 | 0.00 | 0.00 |
| POINTLD-1 | 8. | STERLINGTONW | 0.00 | 0.77 | 88.70 | 3.00 | 60.00 | 0.00 | 0.00 | 0.00 |
| ENDATA11 | 0. | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 11A (POINT SOURCE CHARACTERISTICS - CHLOROPHYLL A, NITROGEN, PHOSPHORUS, COLIFORMS AND SELECTED NON-CONSERVATIVE CONSTITUENT) $$$

| CARD TYPE | POINT LOAD ORDER | ANC | COLI | CHL-A | ORG-N | NH3-N | NO2-N | NO3-N | ORG-P | DIS-P |
|---|---|---|---|---|---|---|---|---|---|---|
| POINTLD-2 | 1. | 0.00 | 0.00E+00 | 1.00 | 2.73 | 3.56 | 0.10 | 0.40 | 0.22 | 1.59 |
| POINTLD-2 | 2. | 0.00 | 0.00E+00 | 1.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| POINTLD-2 | 3. | 0.00 | 0.00E+00 | 1.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| POINTLD-2 | 4. | 0.00 | 0.00E+00 | 1.00 | 5.00 | 5.00 | 0.10 | 0.40 | 0.07 | 1.00 |
| POINTLD-2 | 5. | 0.00 | 0.00E+00 | 2.80 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| POINTLD-2 | 6. | 0.00 | 0.00E+00 | 1.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| POINTLD-2 | 7. | 0.00 | 0.00E+00 | 8.40 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| POINTLD-2 | 8. | 0.00 | 0.00E+00 | 10.00 | 12.00 | 12.00 | 0.10 | 2.00 | 1.00 | 3.00 |
| ENDATA11A | 0. | 0.00 | 0.00E+00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 12 (DAM CHARACTERISTICS) $$$

| | DAM | RCH | ELE | ADAM | BDAM | FDAM | HDAM |
|---|---|---|---|---|---|---|---|
| ENDATA12 | 0. | 0. | 0. | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 13 (DOWNSTREAM BOUNDARY CONDITIONS-1) $$$

| CARD TYPE | TEMP | D.O. | BOD | CM-1 | CM-2 | CM-3 | ANC | COLI |
|---|---|---|---|---|---|---|---|---|
| ENDATA13 | DOWNSTREAM BOUNDARY CONCENTRATIONS ARE UNCONSTRAINED | | | | | | | |

$$$ DATA TYPE 13A (DOWNSTREAM BOUNDARY CONDITIONS-2) $$$

| CARD TYPE | CHL-A | ORG-N | NH3-N | NO2-N | NH3-N | ORG-P | DIS-P |
|---|---|---|---|---|---|---|---|
| ENDATA13A | DOWNSTREAM BOUNDARY CONCENTRATIONS ARE UNCONSTRAINED | | | | | | |

BIOCHEMICAL OXYGEN DEMAND IN MG/L ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.73 | 3.71 | 3.68 | 3.66 | 3.64 | 3.62 | 3.60 | 3.58 | 3.56 | 3.54 | 3.52 | 3.50 | 3.48 | 3.46 | 3.44 | 3.42 | 3.40 | 3.38 | 3.36 | 3.38 |
| 2 | 5.16 | 5.12 | 5.07 | 5.03 | 4.99 | 4.95 | 4.91 | 4.87 | 4.82 | 4.78 | 4.74 | 4.70 | 4.66 | 4.63 | 4.59 | 4.55 | 4.51 | 4.47 | 4.43 | 4.40 |
| 3 | 4.36 | 4.32 | 4.29 | 4.25 | 4.22 | 4.18 | 4.15 | 4.11 | 4.08 | 4.04 | 4.01 | 3.98 | 3.94 | 3.91 | 3.88 | 3.84 | 3.81 | 3.78 | 3.75 | 3.72 |
| 4 | 3.69 | 3.66 | 3.63 | 3.60 | 3.57 | 3.54 | 3.51 | 3.48 | 3.45 | 3.42 | 3.39 | 3.36 | 3.34 | 3.31 | 3.28 | 3.25 | 3.23 | 3.20 | 3.17 | 3.15 |
| 5 | 3.13 | 3.11 | 3.09 | 3.07 | 3.05 | 3.03 | 3.01 | 2.99 | 2.97 | 2.95 | 2.93 | 2.91 | 2.89 | 2.87 | 2.86 | 2.84 | 2.82 | 2.80 | 2.78 | 2.77 |
| 6 | 2.75 | 2.73 | 2.71 | 2.70 | 2.68 | 2.66 | 2.64 | 2.63 | 2.61 | 2.59 | 2.58 | 2.56 | 2.54 | 2.53 | 2.51 | 2.49 | 2.48 | 2.46 | 2.45 | 2.43 |
| 7 | 2.41 | 2.39 | 2.36 | 2.34 | 2.31 | 2.29 | 2.27 | 2.25 | 2.22 | 2.20 | 2.18 | 2.16 | 2.25 | 2.23 | 2.21 | 2.20 | 2.18 | 2.16 | 2.14 | 2.12 |
| 8 | 2.14 | 2.12 | 2.10 | 2.09 | 2.07 | 2.05 | 2.04 | 2.02 | | | | | | | | | | | | |

STEADY STATE ALGAE/NUTRIENT/DISSOLVED OXYGEN SIMULATION; CONVERGENCE SUMMARY:

| VARIABLE | ITERATION | NUMBER OF NONCONVERGENT ELEMENTS |
|---|---|---|

ALGAE AS CHL-A IN UG/L ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8.59 | 8.79 | 8.99 | 9.20 | 9.41 | 9.63 | 9.85 | 10.08 | 10.31 | 10.55 | 10.79 | 11.04 | 11.29 | 11.55 | 11.82 | 12.09 | 12.37 | 12.65 | 12.94 | 13.22 |
| 2 | 12.87 | 13.00 | 13.13 | 13.27 | 13.41 | 13.55 | 13.69 | 13.83 | 13.98 | 14.12 | 14.27 | 14.42 | 14.56 | 14.72 | 14.87 | 15.02 | 15.18 | 15.34 | 15.50 | 15.66 |
| 3 | 15.98 | 16.31 | 16.64 | 16.98 | 17.33 | 17.69 | 18.05 | 18.42 | 18.80 | 19.18 | 19.57 | 19.97 | 20.38 | 20.80 | 21.23 | 21.66 | 22.11 | 22.56 | 23.02 | 23.49 |
| 4 | 23.80 | 24.12 | 24.44 | 24.74 | 25.07 | 25.40 | 25.74 | 26.08 | 26.43 | 26.78 | 27.13 | 27.49 | 27.86 | 28.23 | 28.60 | 28.98 | 29.37 | 29.75 | 30.15 | 30.55 |
| 5 | 30.84 | 31.16 | 31.48 | 31.80 | 32.13 | 32.47 | 32.80 | 33.14 | 33.48 | 33.83 | 34.18 | 34.53 | 34.89 | 35.25 | 35.61 | 35.98 | 36.32 | 36.70 | 37.07 | 37.46 |
| 6 | 37.91 | 38.37 | 38.83 | 39.30 | 39.77 | 40.25 | 40.74 | 41.23 | 41.73 | 42.23 | 42.74 | 43.25 | 43.77 | 44.30 | 44.83 | 45.37 | 45.92 | 46.47 | 47.03 | 47.60 |
| 7 | 48.60 | 49.86 | 51.16 | 52.49 | 53.85 | 55.25 | 56.69 | 58.16 | 59.67 | 61.22 | 62.81 | 64.37 | 55.73 | 56.93 | 58.16 | 59.41 | 60.69 | 62.00 | 63.33 | 64.69 |
| 8 | 66.04 | 67.46 | 68.90 | 70.37 | 71.87 | 73.41 | 74.98 | 76.56 | | | | | | | | | | | | |

ORGANIC PHOSPHORUS AS P IN MG/L ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 2 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 3 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 4 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 5 | 0.08 | 0.08 | 0.08 | 0.08 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 6 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 7 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 8 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | | | | | | | | | | | | |

DISSOLVED PHOSPHORUS AS P IN MG/L ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 2 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 3 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 4 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 |
| 5 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 6 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 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 | | | | | | | | | | | | |

ORGANIC NITROGEN AS N IN MG/L ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.48 | 0.47 | 0.47 | 0.46 | 0.46 | 0.45 | 0.45 | 0.44 | 0.44 | 0.43 | 0.43 | 0.42 | 0.42 | 0.42 | 0.41 | 0.41 | 0.40 | 0.40 | 0.39 | 0.39 |
| 2 | 0.48 | 0.48 | 0.47 | 0.47 | 0.46 | 0.46 | 0.45 | 0.45 | 0.44 | 0.44 | 0.43 | 0.43 | 0.43 | 0.42 | 0.42 | 0.41 | 0.41 | 0.41 | 0.40 | 0.40 |
| 3 | 0.39 | 0.39 | 0.39 | 0.38 | 0.38 | 0.37 | 0.37 | 0.37 | 0.36 | 0.36 | 0.36 | 0.35 | 0.35 | 0.35 | 0.34 | 0.34 | 0.34 | 0.34 | 0.33 | 0.33 |
| 4 | 0.33 | 0.32 | 0.32 | 0.32 | 0.32 | 0.31 | 0.31 | 0.31 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.29 | 0.29 | 0.29 | 0.29 | 0.28 | 0.28 | 0.28 |
| 5 | 0.28 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.26 | 0.26 | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.24 | 0.24 |
| 6 | 0.24 | 0.24 | 0.24 | 0.24 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 |
| 7 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.20 | 0.20 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.24 | 0.24 |
| 8 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.24 | | | | | | | | | | | | |

AMMONIA AS N IN MG/L ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.05 | 0.06 | 0.06 | 0.07 | 0.07 | 0.07 | 0.08 | 0.08 | 0.09 | 0.09 | 0.09 | 0.09 | 0.10 | 0.10 | 0.10 | 0.11 | 0.11 | 0.11 | 0.11 | 0.12 |
| 2 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 |
| 3 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| 4 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 |
| 5 | 0.23 | 0.23 | 0.23 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 |
| 6 | 0.21 | 0.21 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.18 | 0.18 | 0.18 | 0.18 |
| 7 | 0.18 | 0.18 | 0.17 | 0.17 | 0.17 | 0.17 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.15 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| 8 | 0.14 | 0.14 | 0.14 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | | | | | | | | | | | | |

NITRITE AS N IN MG/L ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.09 | 0.08 | 0.07 | 0.07 | 0.06 | 0.06 | 0.05 | 0.05 | 0.04 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 |
| 2 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 3 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 4 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 5 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 6 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 7 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 |
| 8 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | | | | | | | | | | | | |

NITRATE AS N IN MG/L ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.41 | 0.42 | 0.42 | 0.43 | 0.44 | 0.44 | 0.44 | 0.45 | 0.45 | 0.45 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 |
| 2 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.48 | 0.48 | 0.48 | 0.48 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.50 | 0.50 | 0.50 | 0.50 | 0.51 | 0.51 |
| 3 | 0.51 | 0.51 | 0.51 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 |
| 4 | 0.53 | 0.53 | 0.53 | 0.53 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 |
| 5 | 0.54 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 |
| 6 | 0.53 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 |
| 7 | 0.52 | 0.52 | 0.51 | 0.50 | 0.50 | 0.49 | 0.48 | 0.48 | 0.47 | 0.46 | 0.45 | 0.44 | 0.43 | 0.43 | 0.42 | 0.41 | 0.41 | 0.40 | 0.39 | 0.39 |
| 8 | 0.38 | 0.37 | 0.36 | 0.35 | 0.34 | 0.34 | 0.33 | 0.32 | | | | | | | | | | | | |

DISSOLVED OXYGEN IN MG/L ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.94 | 5.94 | 5.93 | 5.93 | 5.93 | 5.93 | 5.93 | 5.93 | 5.94 | 5.94 | 5.95 | 5.95 | 5.96 | 5.97 | 5.98 | 5.99 | 6.00 | 6.02 | 6.03 | 6.04 |
| 2 | 5.90 | 5.87 | 5.83 | 5.80 | 5.77 | 5.74 | 5.71 | 5.68 | 5.65 | 5.63 | 5.60 | 5.58 | 5.55 | 5.53 | 5.51 | 5.49 | 5.47 | 5.45 | 5.43 | 5.42 |
| 3 | 5.42 | 5.42 | 5.43 | 5.44 | 5.44 | 5.45 | 5.46 | 5.48 | 5.49 | 5.50 | 5.52 | 5.54 | 5.55 | 5.57 | 5.60 | 5.62 | 5.64 | 5.67 | 5.69 | 5.72 |
| 4 | 5.72 | 5.72 | 5.72 | 5.72 | 5.72 | 5.72 | 5.72 | 5.73 | 5.73 | 5.74 | 5.74 | 5.75 | 5.76 | 5.77 | 5.78 | 5.79 | 5.81 | 5.82 | 5.84 | 5.85 |
| 5 | 5.86 | 5.86 | 5.87 | 5.88 | 5.88 | 5.89 | 5.90 | 5.91 | 5.92 | 5.93 | 5.95 | 5.96 | 5.97 | 5.99 | 6.00 | 6.02 | 6.03 | 6.05 | 6.07 | 6.09 |
| 6 | 6.11 | 6.14 | 6.17 | 6.20 | 6.23 | 6.26 | 6.29 | 6.33 | 6.36 | 6.40 | 6.43 | 6.47 | 6.51 | 6.54 | 6.58 | 6.62 | 6.66 | 6.71 | 6.75 | 6.79 |
| 7 | 6.88 | 7.00 | 7.12 | 7.25 | 7.39 | 7.52 | 7.66 | 7.81 | 7.96 | 8.11 | 8.27 | 8.43 | 8.01 | 8.13 | 8.25 | 8.37 | 8.49 | 8.62 | 8.75 | 8.88 |
| 8 | 9.02 | 9.16 | 9.30 | 9.45 | 9.60 | 9.75 | 9.91 | 10.07 | | | | | | | | | | | | |

| | | |
|---|---|---|
| ALGAE GROWTH RATE | 1 | 147 |
| ALGAE GROWTH RATE | 2 | 145 |
| ALGAE GROWTH RATE | 3 | 134 |
| ALGAE GROWTH RATE | 4 | 120 |
| ALGAE GROWTH RATE | 5 | 82 |
| ALGAE GROWTH RATE | 6 | 56 |
| ALGAE GROWTH RATE | 7 | 30 |
| ALGAE GROWTH RATE | 8 | 1 |
| ALGAE GROWTH RATE | 9 | 0 |
| ALGAE GROWTH RATE | 10 | 0 |

SUMMARY OF CONDITIONS FOR ALGAL GROWTH RATE SIMULATION:

1. LIGHT AVERAGING OPTION. LAVOPT= 2

   METHOD: MEAN SOLAR RADIATION DURING DAYLIGHT HOURS

   SOURCE OF SOLAR VALUES: DATA TYPE 1A
   DAILY NET SOLAR RADIATION: 754.000 BTU/FT-2 ( 204.613 LANGLEYS)
   NUMBER OF DAYLIGHT HOURS: 0.0
   PHOTOSYNTHETIC ACTIVE FRACTION OF SOLAR RADIATION (TFACT): N/A
   MEAN SOLAR RADIATION ADJUSTMENT FACTOR (AFACT): 0.920

2. LIGHT FUNCTION OPTION: LFNOPT= 2

   SMITH FUNCTION, WITH 71% IMAX = 0.027 LANGLEYS/MIN

3. GROWTH ATTENUATION OPTION FOR NUTRIENTS. LGROPT= 1

   MULTIPLICATIVE: FL*FN*FP

DISSOLVED OXYGEN IN MG/L — ITERATION 10

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.94 | 5.94 | 5.93 | 5.93 | 5.93 | 5.93 | 5.93 | 5.94 | 5.94 | 5.95 | 5.95 | 5.96 | 5.97 | 5.98 | 5.99 | 6.00 | 6.01 | 6.02 | 6.03 | 6.04 |
| 2 | 5.91 | 5.88 | 5.85 | 5.83 | 5.80 | 5.78 | 5.75 | 5.73 | 5.71 | 5.69 | 5.67 | 5.65 | 5.63 | 5.62 | 5.60 | 5.59 | 5.57 | 5.56 | 5.55 | 5.54 |
| 3 | 5.55 | 5.56 | 5.57 | 5.59 | 5.60 | 5.62 | 5.63 | 5.65 | 5.67 | 5.69 | 5.71 | 5.73 | 5.75 | 5.78 | 5.80 | 5.82 | 5.85 | 5.87 | 5.90 | 5.92 |
| 4 | 5.92 | 5.92 | 5.92 | 5.91 | 5.91 | 5.91 | 5.91 | 5.91 | 5.91 | 5.91 | 5.91 | 5.91 | 5.91 | 5.91 | 5.91 | 5.91 | 5.91 | 5.91 | 5.92 | 5.92 |
| 5 | 5.91 | 5.90 | 5.89 | 5.88 | 5.87 | 5.86 | 5.85 | 5.84 | 5.83 | 5.82 | 5.81 | 5.80 | 5.78 | 5.77 | 5.76 | 5.74 | 5.73 | 5.71 | 5.70 | 5.68 |
| 6 | 5.67 | 5.66 | 5.65 | 5.64 | 5.63 | 5.62 | 5.62 | 5.61 | 5.60 | 5.59 | 5.59 | 5.58 | 5.58 | 5.57 | 5.56 | 5.56 | 5.56 | 5.55 | 5.55 | 5.54 |
| 7 | 5.55 | 5.56 | 5.56 | 5.57 | 5.58 | 5.59 | 5.59 | 5.60 | 5.61 | 5.61 | 5.62 | 5.63 | 5.60 | 5.62 | 5.64 | 5.66 | 5.67 | 5.69 | 5.71 | 5.73 |
| 8 | 5.75 | 5.77 | 5.79 | 5.81 | 5.83 | 5.85 | 5.87 | 5.89 | | | | | | | | | | | | |

BIOCHEMICAL OXYGEN DEMAND IN MG/L — ITERATION 10

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.73 | 3.71 | 3.68 | 3.66 | 3.64 | 3.62 | 3.60 | 3.58 | 3.56 | 3.54 | 3.52 | 3.50 | 3.48 | 3.46 | 3.44 | 3.42 | 3.40 | 3.38 | 3.36 | 3.38 |
| 2 | 5.16 | 5.12 | 5.07 | 5.03 | 4.99 | 4.95 | 4.91 | 4.87 | 4.82 | 4.78 | 4.74 | 4.70 | 4.66 | 4.63 | 4.59 | 4.55 | 4.51 | 4.47 | 4.43 | 4.40 |
| 3 | 4.36 | 4.32 | 4.29 | 4.25 | 4.22 | 4.18 | 4.15 | 4.11 | 4.08 | 4.04 | 4.01 | 3.98 | 3.94 | 3.91 | 3.88 | 3.84 | 3.81 | 3.78 | 3.75 | 3.72 |
| 4 | 3.69 | 3.66 | 3.63 | 3.60 | 3.57 | 3.54 | 3.51 | 3.48 | 3.45 | 3.42 | 3.39 | 3.36 | 3.34 | 3.31 | 3.28 | 3.25 | 3.23 | 3.20 | 3.17 | 3.15 |
| 5 | 3.13 | 3.11 | 3.09 | 3.07 | 3.05 | 3.03 | 3.01 | 2.99 | 2.97 | 2.95 | 2.93 | 2.91 | 2.89 | 2.87 | 2.86 | 2.84 | 2.82 | 2.80 | 2.78 | 2.77 |
| 6 | 2.75 | 2.73 | 2.71 | 2.70 | 2.68 | 2.66 | 2.64 | 2.63 | 2.61 | 2.59 | 2.58 | 2.56 | 2.54 | 2.53 | 2.51 | 2.49 | 2.48 | 2.46 | 2.45 | 2.43 |
| 7 | 2.41 | 2.39 | 2.36 | 2.34 | 2.31 | 2.29 | 2.27 | 2.25 | 2.22 | 2.20 | 2.18 | 2.16 | 2.25 | 2.23 | 2.21 | 2.20 | 2.18 | 2.16 | 2.14 | 2.12 |
| 8 | 2.14 | 2.12 | 2.10 | 2.09 | 2.07 | 2.05 | 2.04 | 2.02 | | | | | | | | | | | | |

ORGANIC NITROGEN AS N IN MG/L — ITERATION 10

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.48 | 0.47 | 0.47 | 0.46 | 0.46 | 0.45 | 0.45 | 0.44 | 0.44 | 0.43 | 0.43 | 0.42 | 0.42 | 0.42 | 0.41 | 0.41 | 0.40 | 0.40 | 0.39 | 0.39 |
| 2 | 0.48 | 0.48 | 0.47 | 0.47 | 0.46 | 0.46 | 0.45 | 0.45 | 0.44 | 0.44 | 0.43 | 0.43 | 0.43 | 0.42 | 0.42 | 0.41 | 0.41 | 0.41 | 0.40 | 0.40 |
| 3 | 0.39 | 0.39 | 0.39 | 0.38 | 0.38 | 0.38 | 0.37 | 0.37 | 0.36 | 0.36 | 0.36 | 0.35 | 0.35 | 0.35 | 0.35 | 0.34 | 0.34 | 0.34 | 0.33 | 0.33 |
| 4 | 0.33 | 0.32 | 0.32 | 0.32 | 0.32 | 0.31 | 0.31 | 0.31 | 0.31 | 0.30 | 0.30 | 0.30 | 0.30 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.28 | 0.28 |
| 5 | 0.28 | 0.28 | 0.27 | 0.27 | 0.27 | 0.27 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.24 | 0.24 |
| 6 | 0.24 | 0.24 | 0.24 | 0.24 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.21 | 0.21 | 0.21 | 0.21 |
| 7 | 0.21 | 0.21 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.19 | 0.19 | 0.19 | 0.19 | 0.24 | 0.24 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.22 |
| 8 | 0.23 | 0.23 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.21 | | | | | | | | | | | | |

AMMONIA AS N IN MG/L — ITERATION 10

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.05 | 0.06 | 0.06 | 0.07 | 0.07 | 0.07 | 0.08 | 0.08 | 0.08 | 0.09 | 0.09 | 0.09 | 0.10 | 0.10 | 0.10 | 0.10 | 0.11 | 0.11 | 0.11 | 0.12 |
| 2 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 | 0.25 |
| 3 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 |
| 4 | 0.23 | 0.23 | 0.23 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 |
| 5 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |
| 6 | 0.19 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.16 |
| 7 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| 8 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | | | | | | | | | | | | |

NITRITE AS N IN MG/L — ITERATION 10

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.09 | 0.08 | 0.07 | 0.07 | 0.06 | 0.06 | 0.05 | 0.05 | 0.04 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 |
| 2 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 3 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 4 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 5 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 6 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 7 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 |
| 8 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | | | | | | | | | | | | |

NITRATE AS N IN MG/L — ITERATION 10

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.41 | 0.42 | 0.42 | 0.43 | 0.44 | 0.44 | 0.44 | 0.45 | 0.45 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 |
| 2 | 0.47 | 0.47 | 0.47 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.49 | 0.49 | 0.49 | 0.49 | 0.50 | 0.50 | 0.50 | 0.50 | 0.51 | 0.51 | 0.51 | 0.51 |
| 3 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 |
| 4 | 0.54 | 0.54 | 0.54 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 |
| 5 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.60 |
| 6 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.61 | 0.61 | 0.61 | 0.61 | 0.61 | 0.61 | 0.61 | 0.61 | 0.61 | 0.61 | 0.62 | 0.62 | 0.62 | 0.62 |
| 7 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 |
| 8 | 0.60 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | | | | | | | | | | | | |

ORGANIC PHOSPHORUS AS P IN MG/L — ITERATION 10

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 2 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 3 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 4 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 5 | 0.08 | 0.08 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 6 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 7 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 8 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | | | | | | | | | | | | |

DISSOLVED PHOSPHORUS AS P IN MG/L — ITERATION 10

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 2 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 3 | 0.05 | 0.05 | 0.05 | 0.05 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 |
| 4 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| 5 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 6 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 7 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 8 | 0.02 | 0.02 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | | | | | | | | | | | | |

ALGAE AS CHL-A IN UG/L — ITERATION 10

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8.60 | 8.80 | 9.00 | 9.21 | 9.43 | 9.65 | 9.88 | 10.11 | 10.35 | 10.59 | 10.84 | 11.09 | 11.35 | 11.61 | 11.87 | 12.14 | 12.42 | 12.69 | 12.98 | 13.25 |
| 2 | 12.94 | 13.12 | 13.30 | 13.49 | 13.67 | 13.86 | 14.05 | 14.25 | 14.44 | 14.64 | 14.84 | 15.04 | 15.24 | 15.44 | 15.65 | 15.86 | 16.07 | 16.28 | 16.49 | 16.71 |
| 3 | 17.10 | 17.49 | 17.89 | 18.29 | 18.70 | 19.12 | 19.54 | 19.96 | 20.39 | 20.82 | 21.26 | 21.70 | 22.14 | 22.59 | 23.04 | 23.50 | 23.95 | 24.41 | 24.87 | 25.33 |
| 4 | 25.64 | 25.94 | 26.25 | 26.53 | 26.84 | 27.14 | 27.45 | 27.75 | 28.05 | 28.35 | 28.64 | 28.94 | 29.23 | 29.52 | 29.80 | 30.08 | 30.36 | 30.63 | 30.90 | 31.16 |
| 5 | 31.33 | 31.52 | 31.70 | 31.87 | 32.03 | 32.19 | 32.35 | 32.50 | 32.64 | 32.77 | 32.90 | 33.01 | 33.13 | 33.23 | 33.32 | 33.40 | 33.47 | 33.55 | 33.62 | 33.69 |
| 6 | 33.79 | 33.88 | 33.98 | 34.08 | 34.18 | 34.28 | 34.39 | 34.49 | 34.59 | 34.69 | 34.80 | 34.90 | 35.00 | 35.10 | 35.21 | 35.31 | 35.42 | 35.52 | 35.62 | 35.73 |
| 7 | 35.94 | 36.21 | 36.47 | 36.73 | 36.99 | 37.23 | 37.47 | 37.71 | 37.95 | 38.18 | 38.40 | 38.58 | 33.59 | 33.89 | 34.19 | 34.48 | 34.77 | 35.05 | 35.34 | 35.62 |
| 8 | 35.91 | 36.22 | 36.52 | 36.82 | 37.11 | 37.40 | 37.68 | 37.95 | | | | | | | | | | | | |

ALGAE GROWTH RATES IN PER DAY ARE — ITERATION 10

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 |
| 2 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.38 |
| 3 | 0.53 | 0.53 | 0.53 | 0.52 | 0.52 | 0.52 | 0.51 | 0.51 | 0.51 | 0.50 | 0.50 | 0.50 | 0.49 | 0.49 | 0.49 | 0.48 | 0.48 | 0.47 | 0.47 | 0.47 |
| 4 | 0.36 | 0.36 | 0.36 | 0.35 | 0.35 | 0.35 | 0.35 | 0.34 | 0.34 | 0.34 | 0.34 | 0.33 | 0.33 | 0.33 | 0.32 | 0.32 | 0.32 | 0.31 | 0.31 | 0.31 |
| 5 | 0.24 | 0.24 | 0.24 | 0.23 | 0.23 | 0.23 | 0.23 | 0.22 | 0.22 | 0.22 | 0.21 | 0.21 | 0.21 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.19 | 0.19 |
| 6 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| 7 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.24 | 0.24 | 0.24 | 0.24 | 0.23 | 0.23 | 0.23 | 0.23 |
| 8 | 0.24 | 0.24 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.22 | | | | | | | | | | | | |

PHOTOSYNTHESIS-RESPIRATION RATIOS ARE — ITERATION 10

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.51 | 5.53 | 5.55 | 5.56 | 5.56 | 5.56 | 5.56 | 5.56 | 5.55 | 5.54 | 5.53 | 5.51 | 5.50 | 5.48 | 5.46 | 5.44 | 5.41 | 5.39 | 5.36 | 5.37 |
| 2 | 4.24 | 4.23 | 4.22 | 4.22 | 4.21 | 4.20 | 4.19 | 4.19 | 4.18 | 4.17 | 4.16 | 4.15 | 4.15 | 4.14 | 4.13 | 4.12 | 4.11 | 4.10 | 4.09 | 4.08 |
| 3 | 5.66 | 5.63 | 5.60 | 5.57 | 5.53 | 5.50 | 5.46 | 5.43 | 5.39 | 5.35 | 5.31 | 5.28 | 5.24 | 5.20 | 5.16 | 5.11 | 5.07 | 5.03 | 4.99 | 4.94 |
| 4 | 3.84 | 3.81 | 3.79 | 3.76 | 3.74 | 3.71 | 3.68 | 3.65 | 3.62 | 3.60 | 3.57 | 3.54 | 3.50 | 3.47 | 3.44 | 3.41 | 3.37 | 3.34 | 3.30 | 3.27 |
| 5 | 2.56 | 2.53 | 2.51 | 2.48 | 2.45 | 2.42 | 2.39 | 2.36 | 2.33 | 2.30 | 2.26 | 2.23 | 2.19 | 2.16 | 2.12 | 2.08 | 2.12 | 2.08 | 2.04 | 2.00 |
| 6 | 2.13 | 2.13 | 2.13 | 2.14 | 2.14 | 2.14 | 2.14 | 2.14 | 2.14 | 2.14 | 2.14 | 2.14 | 2.14 | 2.14 | 2.14 | 2.14 | 2.14 | 2.14 | 2.13 | 2.13 |
| 7 | 2.26 | 2.25 | 2.23 | 2.22 | 2.20 | 2.19 | 2.17 | 2.16 | 2.14 | 2.13 | 2.11 | 2.10 | 2.55 | 2.53 | 2.51 | 2.50 | 2.48 | 2.46 | 2.44 | 2.43 |
| 8 | 2.53 | 2.51 | 2.49 | 2.47 | 2.44 | 2.42 | 2.40 | 2.38 | | | | | | | | | | | | |

***** STEADY STATE SIMULATION *****

** HYDRAULICS SUMMARY **

| ELE ORD | RCH NUM | ELE NUM | BEGIN LOC MILE | END LOC MILE | FLOW CFS | POINT SRCE CFS | INCR FLOW CFS | VEL FPS | TRVL TIME DAY | DEPTH FT | WIDTH FT | VOLUME K-FT-3 | BOTTOM AREA K-FT-2 | X-SECT AREA FT-2 | DSPRSN COEF FT-2/S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 227.00 | 226.75 | 980.10 | 0.00 | 0.10 | 0.222 | 0.069 | 10.118 | 436.778 | 5833.34 | 603.26 | 4419.19 | 7.75 |
| 2 | 1 | 2 | 226.75 | 226.50 | 980.20 | 0.00 | 0.10 | 0.222 | 0.069 | 10.118 | 436.780 | 5833.40 | 603.26 | 4419.24 | 7.75 |
| 3 | 1 | 3 | 226.50 | 226.25 | 980.30 | 0.00 | 0.10 | 0.222 | 0.069 | 10.118 | 436.782 | 5833.46 | 603.26 | 4419.29 | 7.75 |
| 4 | 1 | 4 | 226.25 | 226.00 | 980.40 | 0.00 | 0.10 | 0.222 | 0.069 | 10.118 | 436.785 | 5833.52 | 603.27 | 4419.33 | 7.75 |
| 5 | 1 | 5 | 226.00 | 225.75 | 980.50 | 0.00 | 0.10 | 0.222 | 0.069 | 10.118 | 436.787 | 5833.58 | 603.27 | 4419.38 | 7.75 |
| 6 | 1 | 6 | 225.75 | 225.50 | 980.60 | 0.00 | 0.10 | 0.222 | 0.069 | 10.118 | 436.789 | 5833.64 | 603.27 | 4419.43 | 7.75 |
| 7 | 1 | 7 | 225.50 | 225.25 | 980.70 | 0.00 | 0.10 | 0.222 | 0.069 | 10.118 | 436.792 | 5833.70 | 603.28 | 4419.47 | 7.75 |
| 8 | 1 | 8 | 225.25 | 225.00 | 980.80 | 0.00 | 0.10 | 0.222 | 0.069 | 10.118 | 436.794 | 5833.76 | 603.28 | 4419.52 | 7.75 |
| 9 | 1 | 9 | 225.00 | 224.75 | 980.90 | 0.00 | 0.10 | 0.222 | 0.069 | 10.118 | 436.796 | 5833.82 | 603.28 | 4419.56 | 7.75 |
| 10 | 1 | 10 | 224.75 | 224.50 | 981.00 | 0.00 | 0.10 | 0.222 | 0.069 | 10.118 | 436.799 | 5833.89 | 603.29 | 4419.61 | 7.75 |
| 11 | 1 | 11 | 224.50 | 224.25 | 981.10 | 0.00 | 0.10 | 0.222 | 0.069 | 10.118 | 436.801 | 5833.95 | 603.29 | 4419.66 | 7.75 |
| 12 | 1 | 12 | 224.25 | 224.00 | 981.20 | 0.00 | 0.10 | 0.222 | 0.069 | 10.118 | 436.803 | 5834.01 | 603.29 | 4419.70 | 7.75 |
| 13 | 1 | 13 | 224.00 | 223.75 | 981.30 | 0.00 | 0.10 | 0.222 | 0.069 | 10.118 | 436.806 | 5834.07 | 603.30 | 4419.75 | 7.75 |
| 14 | 1 | 14 | 223.75 | 223.50 | 981.40 | 0.00 | 0.10 | 0.222 | 0.069 | 10.118 | 436.808 | 5834.13 | 603.30 | 4419.80 | 7.76 |
| 15 | 1 | 15 | 223.50 | 223.25 | 981.50 | 0.00 | 0.10 | 0.222 | 0.069 | 10.118 | 436.811 | 5834.19 | 603.30 | 4419.84 | 7.76 |
| 16 | 1 | 16 | 223.25 | 223.00 | 981.60 | 0.00 | 0.10 | 0.222 | 0.069 | 10.118 | 436.813 | 5834.25 | 603.31 | 4419.89 | 7.76 |
| 17 | 1 | 17 | 223.00 | 222.75 | 981.70 | 0.00 | 0.10 | 0.222 | 0.069 | 10.119 | 436.815 | 5834.31 | 603.31 | 4419.94 | 7.76 |
| 18 | 1 | 18 | 222.75 | 222.50 | 981.80 | 0.00 | 0.10 | 0.222 | 0.069 | 10.119 | 436.818 | 5834.38 | 603.31 | 4419.98 | 7.76 |
| 19 | 1 | 19 | 222.50 | 222.25 | 981.90 | 0.00 | 0.10 | 0.222 | 0.069 | 10.119 | 436.820 | 5834.44 | 603.32 | 4420.03 | 7.76 |
| 20 | 1 | 20 | 222.25 | 222.00 | 982.00 | 0.00 | 0.10 | 0.222 | 0.069 | 10.119 | 436.822 | 5834.50 | 603.32 | 4420.07 | 7.76 |
| 21 | 2 | 1 | 222.00 | 221.75 | 1024.20 | 42.10 | 0.10 | 0.231 | 0.066 | 10.140 | 437.798 | 5859.84 | 604.66 | 4439.27 | 8.07 |
| 22 | 2 | 2 | 221.75 | 221.50 | 1024.30 | 0.00 | 0.10 | 0.231 | 0.066 | 10.140 | 437.800 | 5859.90 | 604.67 | 4439.32 | 8.07 |
| 23 | 2 | 3 | 221.50 | 221.25 | 1024.40 | 0.00 | 0.10 | 0.231 | 0.066 | 10.140 | 437.802 | 5859.96 | 604.67 | 4439.36 | 8.07 |
| 24 | 2 | 4 | 221.25 | 221.00 | 1024.50 | 0.00 | 0.10 | 0.231 | 0.066 | 10.140 | 437.804 | 5860.02 | 604.67 | 4439.41 | 8.07 |
| 25 | 2 | 5 | 221.00 | 220.75 | 1024.60 | 0.00 | 0.10 | 0.231 | 0.066 | 10.140 | 437.807 | 5860.07 | 604.67 | 4439.45 | 8.08 |
| 26 | 2 | 6 | 220.75 | 220.50 | 1024.70 | 0.00 | 0.10 | 0.231 | 0.066 | 10.140 | 437.809 | 5860.13 | 604.68 | 4439.50 | 8.08 |
| 27 | 2 | 7 | 220.50 | 220.25 | 1024.80 | 0.00 | 0.10 | 0.231 | 0.066 | 10.140 | 437.811 | 5860.19 | 604.68 | 4439.54 | 8.08 |
| 28 | 2 | 8 | 220.25 | 220.00 | 1024.90 | 0.00 | 0.10 | 0.231 | 0.066 | 10.140 | 437.813 | 5860.25 | 604.68 | 4439.58 | 8.08 |
| 29 | 2 | 9 | 220.00 | 219.75 | 1025.00 | 0.00 | 0.10 | 0.231 | 0.066 | 10.140 | 437.816 | 5860.31 | 604.69 | 4439.63 | 8.08 |
| 30 | 2 | 10 | 219.75 | 219.50 | 1025.10 | 0.00 | 0.10 | 0.231 | 0.066 | 10.140 | 437.818 | 5860.37 | 604.69 | 4439.67 | 8.08 |
| 31 | 2 | 11 | 219.50 | 219.25 | 1025.20 | 0.00 | 0.10 | 0.231 | 0.066 | 10.141 | 437.820 | 5860.43 | 604.69 | 4439.72 | 8.08 |
| 32 | 2 | 12 | 219.25 | 219.00 | 1025.30 | 0.00 | 0.10 | 0.231 | 0.066 | 10.141 | 437.822 | 5860.49 | 604.70 | 4439.76 | 8.08 |
| 33 | 2 | 13 | 219.00 | 218.75 | 1025.40 | 0.00 | 0.10 | 0.231 | 0.066 | 10.141 | 437.825 | 5860.55 | 604.70 | 4439.81 | 8.08 |
| 34 | 2 | 14 | 218.75 | 218.50 | 1025.50 | 0.00 | 0.10 | 0.231 | 0.066 | 10.141 | 437.827 | 5860.60 | 604.70 | 4439.85 | 8.08 |
| 35 | 2 | 15 | 218.50 | 218.25 | 1025.60 | 0.00 | 0.10 | 0.231 | 0.066 | 10.141 | 437.829 | 5860.66 | 604.71 | 4439.90 | 8.08 |
| 36 | 2 | 16 | 218.25 | 218.00 | 1025.70 | 0.00 | 0.10 | 0.231 | 0.066 | 10.141 | 437.832 | 5860.72 | 604.71 | 4439.94 | 8.08 |
| 37 | 2 | 17 | 218.00 | 217.75 | 1025.80 | 0.00 | 0.10 | 0.231 | 0.066 | 10.141 | 437.834 | 5860.78 | 604.71 | 4439.99 | 8.08 |
| 38 | 2 | 18 | 217.75 | 217.50 | 1025.90 | 0.00 | 0.10 | 0.231 | 0.066 | 10.141 | 437.836 | 5860.84 | 604.72 | 4440.03 | 8.09 |
| 39 | 2 | 19 | 217.50 | 217.25 | 1026.00 | 0.00 | 0.10 | 0.231 | 0.066 | 10.141 | 437.838 | 5860.90 | 604.72 | 4440.07 | 8.09 |
| 40 | 2 | 20 | 217.25 | 217.00 | 1026.10 | 0.00 | 0.10 | 0.231 | 0.066 | 10.141 | 437.841 | 5860.96 | 604.72 | 4440.12 | 8.09 |
| 41 | 3 | 1 | 217.00 | 216.75 | 1026.20 | 0.00 | 0.10 | 0.231 | 0.066 | 10.141 | 437.843 | 5861.02 | 604.72 | 4440.16 | 4.68 |
| 42 | 3 | 2 | 216.75 | 216.50 | 1026.30 | 0.00 | 0.10 | 0.231 | 0.066 | 10.141 | 437.845 | 5861.08 | 604.73 | 4440.21 | 4.68 |

***** STEADY STATE SIMULATION *****

** HYDRAULICS SUMMARY **

| ELE ORD | RCH NUM | ELE NUM | BEGIN LOC MILE | END LOC MILE | FLOW CFS | POINT SRCE CFS | INCR FLOW CFS | VEL FPS | TRVL TIME DAY | DEPTH FT | WIDTH FT | VOLUME K-FT-3 | BOTTOM AREA K-FT-2 | X-SECT AREA FT-2 | DSPRSN COEF FT-2/S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 43 | 3 | 3 | 216.50 | 216.25 | 1026.40 | 0.00 | 0.10 | 0.231 | 0.066 | 10.141 | 437.847 | 5861.13 | 604.73 | 4440.25 | 4.68 |
| 44 | 3 | 4 | 216.25 | 216.00 | 1026.50 | 0.00 | 0.10 | 0.231 | 0.066 | 10.141 | 437.850 | 5861.19 | 604.73 | 4440.30 | 4.68 |
| 45 | 3 | 5 | 216.00 | 215.75 | 1026.60 | 0.00 | 0.10 | 0.231 | 0.066 | 10.141 | 437.852 | 5861.25 | 604.74 | 4440.34 | 4.68 |
| 46 | 3 | 6 | 215.75 | 215.50 | 1026.70 | 0.00 | 0.10 | 0.231 | 0.066 | 10.141 | 437.854 | 5861.31 | 604.74 | 4440.39 | 4.68 |
| 47 | 3 | 7 | 215.50 | 215.25 | 1026.80 | 0.00 | 0.10 | 0.231 | 0.066 | 10.141 | 437.856 | 5861.37 | 604.74 | 4440.43 | 4.68 |
| 48 | 3 | 8 | 215.25 | 215.00 | 1026.90 | 0.00 | 0.10 | 0.231 | 0.066 | 10.141 | 437.859 | 5861.43 | 604.75 | 4440.48 | 4.69 |
| 49 | 3 | 9 | 215.00 | 214.75 | 1027.00 | 0.00 | 0.10 | 0.231 | 0.066 | 10.141 | 437.861 | 5861.49 | 604.75 | 4440.52 | 4.69 |
| 50 | 3 | 10 | 214.75 | 214.50 | 1027.10 | 0.00 | 0.10 | 0.231 | 0.066 | 10.141 | 437.863 | 5861.55 | 604.75 | 4440.56 | 4.69 |
| 51 | 3 | 11 | 214.50 | 214.25 | 1027.20 | 0.00 | 0.10 | 0.231 | 0.066 | 10.141 | 437.865 | 5861.60 | 604.76 | 4440.61 | 4.69 |
| 52 | 3 | 12 | 214.25 | 214.00 | 1027.30 | 0.00 | 0.10 | 0.231 | 0.066 | 10.142 | 437.868 | 5861.66 | 604.76 | 4440.65 | 4.69 |
| 53 | 3 | 13 | 214.00 | 213.75 | 1027.40 | 0.00 | 0.10 | 0.231 | 0.066 | 10.142 | 437.870 | 5861.72 | 604.76 | 4440.70 | 4.69 |
| 54 | 3 | 14 | 213.75 | 213.50 | 1027.50 | 0.00 | 0.10 | 0.231 | 0.066 | 10.142 | 437.872 | 5861.78 | 604.77 | 4440.74 | 4.69 |
| 55 | 3 | 15 | 213.50 | 213.25 | 1027.60 | 0.00 | 0.10 | 0.231 | 0.066 | 10.142 | 437.874 | 5861.84 | 604.77 | 4440.79 | 4.69 |
| 56 | 3 | 16 | 213.25 | 213.00 | 1027.70 | 0.00 | 0.10 | 0.231 | 0.066 | 10.142 | 437.877 | 5861.90 | 604.77 | 4440.83 | 4.69 |
| 57 | 3 | 17 | 213.00 | 212.75 | 1027.80 | 0.00 | 0.10 | 0.231 | 0.066 | 10.142 | 437.879 | 5861.96 | 604.77 | 4440.88 | 4.69 |
| 58 | 3 | 18 | 212.75 | 212.50 | 1027.90 | 0.00 | 0.10 | 0.231 | 0.066 | 10.142 | 437.881 | 5862.02 | 604.78 | 4440.92 | 4.69 |
| 59 | 3 | 19 | 212.50 | 212.25 | 1028.00 | 0.00 | 0.10 | 0.231 | 0.066 | 10.142 | 437.883 | 5862.07 | 604.78 | 4440.96 | 4.69 |
| 60 | 3 | 20 | 212.25 | 212.00 | 1028.10 | 0.00 | 0.10 | 0.232 | 0.066 | 10.142 | 437.886 | 5862.13 | 604.78 | 4441.01 | 4.69 |
| 61 | 4 | 1 | 212.00 | 211.75 | 1028.20 | 0.00 | 0.10 | 0.232 | 0.066 | 11.316 | 392.457 | 5862.19 | 547.92 | 4441.05 | 4.91 |
| 62 | 4 | 2 | 211.75 | 211.50 | 1028.30 | 0.00 | 0.10 | 0.232 | 0.066 | 11.316 | 392.459 | 5862.25 | 547.92 | 4441.10 | 4.91 |
| 63 | 4 | 3 | 211.50 | 211.25 | 1028.40 | 0.00 | 0.10 | 0.232 | 0.066 | 11.316 | 392.461 | 5862.31 | 547.92 | 4441.14 | 4.91 |
| 64 | 4 | 4 | 211.25 | 211.00 | 1029.50 | 1.00 | 0.10 | 0.232 | 0.066 | 11.317 | 392.483 | 5862.95 | 547.95 | 4441.63 | 4.91 |
| 65 | 4 | 5 | 211.00 | 210.75 | 1029.60 | 0.00 | 0.10 | 0.232 | 0.066 | 11.317 | 392.485 | 5863.01 | 547.96 | 4441.68 | 4.91 |
| 66 | 4 | 6 | 210.75 | 210.50 | 1029.70 | 0.00 | 0.10 | 0.232 | 0.066 | 11.317 | 392.487 | 5863.07 | 547.96 | 4441.72 | 4.91 |
| 67 | 4 | 7 | 210.50 | 210.25 | 1029.80 | 0.00 | 0.10 | 0.232 | 0.066 | 11.317 | 392.489 | 5863.13 | 547.96 | 4441.77 | 4.91 |
| 68 | 4 | 8 | 210.25 | 210.00 | 1029.90 | 0.00 | 0.10 | 0.232 | 0.066 | 11.317 | 392.491 | 5863.19 | 547.97 | 4441.81 | 4.91 |
| 69 | 4 | 9 | 210.00 | 209.75 | 1030.00 | 0.00 | 0.10 | 0.232 | 0.066 | 11.317 | 392.493 | 5863.25 | 547.97 | 4441.85 | 4.91 |
| 70 | 4 | 10 | 209.75 | 209.50 | 1030.10 | 0.00 | 0.10 | 0.232 | 0.066 | 11.317 | 392.495 | 5863.31 | 547.97 | 4441.90 | 4.91 |
| 71 | 4 | 11 | 209.50 | 209.25 | 1030.20 | 0.00 | 0.10 | 0.232 | 0.066 | 11.317 | 392.498 | 5863.36 | 547.97 | 4441.94 | 4.91 |
| 72 | 4 | 12 | 209.25 | 209.00 | 1030.30 | 0.00 | 0.10 | 0.232 | 0.066 | 11.317 | 392.500 | 5863.42 | 547.98 | 4441.99 | 4.91 |
| 73 | 4 | 13 | 209.00 | 208.75 | 1030.40 | 0.00 | 0.10 | 0.232 | 0.066 | 11.317 | 392.502 | 5863.48 | 547.98 | 4442.03 | 4.92 |
| 74 | 4 | 14 | 208.75 | 208.50 | 1030.50 | 0.00 | 0.10 | 0.232 | 0.066 | 11.317 | 392.504 | 5863.54 | 547.98 | 4442.08 | 4.92 |
| 75 | 4 | 15 | 208.50 | 208.25 | 1030.60 | 0.00 | 0.10 | 0.232 | 0.066 | 11.317 | 392.506 | 5863.60 | 547.99 | 4442.12 | 4.92 |
| 76 | 4 | 16 | 208.25 | 208.00 | 1030.70 | 0.00 | 0.10 | 0.232 | 0.066 | 11.317 | 392.508 | 5863.66 | 547.99 | 4442.16 | 4.92 |
| 77 | 4 | 17 | 208.00 | 207.75 | 1030.80 | 0.00 | 0.10 | 0.232 | 0.066 | 11.317 | 392.510 | 5863.72 | 547.99 | 4442.21 | 4.92 |
| 78 | 4 | 18 | 207.75 | 207.50 | 1031.00 | 0.10 | 0.10 | 0.232 | 0.066 | 11.318 | 392.514 | 5863.83 | 548.00 | 4442.30 | 4.92 |
| 79 | 4 | 19 | 207.50 | 207.25 | 1031.10 | 0.00 | 0.10 | 0.232 | 0.066 | 11.318 | 392.516 | 5863.89 | 548.00 | 4442.34 | 4.92 |
| 80 | 4 | 20 | 207.25 | 207.00 | 1031.20 | 0.00 | 0.10 | 0.232 | 0.066 | 11.318 | 392.518 | 5863.95 | 548.00 | 4442.39 | 4.92 |
| 81 | 5 | 1 | 207.00 | 206.75 | 1031.30 | 0.00 | 0.10 | 0.199 | 0.077 | 13.596 | 382.070 | 6857.07 | 540.23 | 5194.75 | 2.33 |
| 82 | 5 | 2 | 206.75 | 206.50 | 1031.40 | 0.00 | 0.10 | 0.199 | 0.077 | 13.596 | 382.071 | 6857.11 | 540.23 | 5194.78 | 2.33 |
| 83 | 5 | 3 | 206.50 | 206.25 | 1031.50 | 0.00 | 0.10 | 0.199 | 0.077 | 13.596 | 382.072 | 6857.14 | 540.23 | 5194.81 | 2.33 |
| 84 | 5 | 4 | 206.25 | 206.00 | 1031.60 | 0.00 | 0.10 | 0.199 | 0.077 | 13.596 | 382.074 | 6857.18 | 540.23 | 5194.83 | 2.33 |

***** STEADY STATE SIMULATION *****

** HYDRAULICS SUMMARY **

| ELE ORD | RCH NUM | ELE NUM | BEGIN LOC MILE | END LOC MILE | FLOW CFS | POINT SRCE CFS | INCR FLOW CFS | VEL FPS | TRVL TIME DAY | DEPTH FT | WIDTH FT | VOLUME K-FT-3 | BOTTOM AREA K-FT-2 | X-SECT AREA FT-2 | DSPRSN COEF FT-2/S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 85 | 5 | 5 | 206.00 | 205.75 | 1031.70 | 0.00 | 0.10 | 0.199 | 0.077 | 13.596 | 382.075 | 6857.22 | 540.23 | 5194.86 | 2.33 |
| 86 | 5 | 6 | 205.75 | 205.50 | 1031.80 | 0.00 | 0.10 | 0.199 | 0.077 | 13.596 | 382.076 | 6857.25 | 540.24 | 5194.89 | 2.34 |
| 87 | 5 | 7 | 205.50 | 205.25 | 1031.90 | 0.00 | 0.10 | 0.199 | 0.077 | 13.596 | 382.078 | 6857.29 | 540.24 | 5194.91 | 2.34 |
| 88 | 5 | 8 | 205.25 | 205.00 | 1032.00 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.079 | 6857.32 | 540.24 | 5194.94 | 2.34 |
| 89 | 5 | 9 | 205.00 | 204.75 | 1032.10 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.080 | 6857.36 | 540.24 | 5194.97 | 2.34 |
| 90 | 5 | 10 | 204.75 | 204.50 | 1032.20 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.082 | 6857.40 | 540.24 | 5195.00 | 2.34 |
| 91 | 5 | 11 | 204.50 | 204.25 | 1032.30 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.083 | 6857.43 | 540.24 | 5195.02 | 2.34 |
| 92 | 5 | 12 | 204.25 | 204.00 | 1032.40 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.084 | 6857.47 | 540.25 | 5195.05 | 2.34 |
| 93 | 5 | 13 | 204.00 | 203.75 | 1032.50 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.086 | 6857.50 | 540.25 | 5195.08 | 2.34 |
| 94 | 5 | 14 | 203.75 | 203.50 | 1032.60 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.087 | 6857.54 | 540.25 | 5195.10 | 2.34 |
| 95 | 5 | 15 | 203.50 | 203.25 | 1032.70 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.088 | 6857.57 | 540.25 | 5195.13 | 2.34 |
| 96 | 5 | 16 | 203.25 | 203.00 | 1032.80 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.090 | 6857.61 | 540.25 | 5195.16 | 2.34 |
| 97 | 5 | 17 | 203.00 | 202.75 | 1033.90 | 1.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.104 | 6858.00 | 540.27 | 5195.46 | 2.34 |
| 98 | 5 | 18 | 202.75 | 202.50 | 1034.00 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.106 | 6858.04 | 540.28 | 5195.48 | 2.34 |
| 99 | 5 | 19 | 202.50 | 202.25 | 1034.10 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.107 | 6858.08 | 540.28 | 5195.51 | 2.34 |
| 100 | 5 | 20 | 202.25 | 202.00 | 1034.20 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.108 | 6858.11 | 540.28 | 5195.54 | 2.34 |
| 101 | 6 | 1 | 202.00 | 201.75 | 1034.30 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.110 | 6858.15 | 540.28 | 5195.57 | 3.98 |
| 102 | 6 | 2 | 201.75 | 201.50 | 1034.40 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.111 | 6858.18 | 540.28 | 5195.59 | 3.98 |
| 103 | 6 | 3 | 201.50 | 201.25 | 1034.50 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.112 | 6858.22 | 540.28 | 5195.62 | 3.98 |
| 104 | 6 | 4 | 201.25 | 201.00 | 1034.60 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.114 | 6858.25 | 540.29 | 5195.65 | 3.98 |
| 105 | 6 | 5 | 201.00 | 200.75 | 1034.70 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.115 | 6858.29 | 540.29 | 5195.67 | 3.98 |
| 106 | 6 | 6 | 200.75 | 200.50 | 1034.80 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.116 | 6858.33 | 540.29 | 5195.70 | 3.98 |
| 107 | 6 | 7 | 200.50 | 200.25 | 1034.90 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.118 | 6858.36 | 540.29 | 5195.73 | 3.98 |
| 108 | 6 | 8 | 200.25 | 200.00 | 1035.00 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.119 | 6858.40 | 540.29 | 5195.76 | 3.98 |
| 109 | 6 | 9 | 200.00 | 199.75 | 1035.10 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.120 | 6858.43 | 540.30 | 5195.78 | 3.98 |
| 110 | 6 | 10 | 199.75 | 199.50 | 1035.20 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.122 | 6858.47 | 540.30 | 5195.81 | 3.98 |
| 111 | 6 | 11 | 199.50 | 199.25 | 1035.30 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.123 | 6858.51 | 540.30 | 5195.84 | 3.98 |
| 112 | 6 | 12 | 199.25 | 199.00 | 1035.40 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.124 | 6858.54 | 540.30 | 5195.86 | 3.98 |
| 113 | 6 | 13 | 199.00 | 198.75 | 1035.60 | 0.10 | 0.10 | 0.199 | 0.077 | 13.597 | 382.127 | 6858.61 | 540.30 | 5195.92 | 3.98 |
| 114 | 6 | 14 | 198.75 | 198.50 | 1035.70 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.128 | 6858.65 | 540.31 | 5195.95 | 3.98 |
| 115 | 6 | 15 | 198.50 | 198.25 | 1035.80 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.130 | 6858.68 | 540.31 | 5195.97 | 3.98 |
| 116 | 6 | 16 | 198.25 | 198.00 | 1035.90 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.131 | 6858.72 | 540.31 | 5196.00 | 3.98 |
| 117 | 6 | 17 | 198.00 | 197.75 | 1036.00 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.132 | 6858.76 | 540.31 | 5196.03 | 3.99 |
| 118 | 6 | 18 | 197.75 | 197.50 | 1036.10 | 0.00 | 0.10 | 0.199 | 0.077 | 13.597 | 382.134 | 6858.79 | 540.31 | 5196.05 | 3.99 |
| 119 | 6 | 19 | 197.50 | 197.25 | 1036.20 | 0.00 | 0.10 | 0.199 | 0.077 | 13.598 | 382.135 | 6858.83 | 540.32 | 5196.08 | 3.99 |
| 120 | 6 | 20 | 197.25 | 197.00 | 1036.30 | 0.00 | 0.10 | 0.199 | 0.077 | 13.598 | 382.136 | 6858.86 | 540.32 | 5196.11 | 3.99 |
| 121 | 7 | 1 | 197.00 | 196.75 | 1036.50 | 0.10 | 0.10 | 0.127 | 0.120 | 16.223 | 501.106 | 10730.84 | 704.29 | 8129.42 | 1.22 |
| 122 | 7 | 2 | 196.75 | 196.50 | 1036.60 | 0.00 | 0.10 | 0.128 | 0.120 | 16.223 | 501.109 | 10730.91 | 704.29 | 8129.48 | 1.22 |
| 123 | 7 | 3 | 196.50 | 196.25 | 1036.70 | 0.00 | 0.10 | 0.128 | 0.120 | 16.223 | 501.112 | 10730.98 | 704.30 | 8129.53 | 1.22 |
| 124 | 7 | 4 | 196.25 | 196.00 | 1036.80 | 0.00 | 0.10 | 0.128 | 0.120 | 16.223 | 501.114 | 10731.06 | 704.30 | 8129.59 | 1.22 |
| 125 | 7 | 5 | 196.00 | 195.75 | 1036.90 | 0.00 | 0.10 | 0.128 | 0.120 | 16.223 | 501.117 | 10731.13 | 704.30 | 8129.64 | 1.22 |
| 126 | 7 | 6 | 195.75 | 195.50 | 1037.00 | 0.00 | 0.10 | 0.128 | 0.120 | 16.223 | 501.120 | 10731.20 | 704.31 | 8129.70 | 1.22 |

***** STEADY STATE SIMULATION *****

** HYDRAULICS SUMMARY **

| ELE ORD | RCH NUM | ELE NUM | BEGIN LOC MILE | END LOC MILE | FLOW CFS | POINT SRCE CFS | INCR FLOW CFS | VEL FPS | TRVL TIME DAY | DEPTH FT | WIDTH FT | VOLUME K-FT-3 | BOTTOM AREA K-FT-2 | X-SECT AREA FT-2 | DSPRSN COEF FT-2/S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 127 | 7 | 7 | 195.50 | 195.25 | 1037.10 | 0.00 | 0.10 | 0.128 | 0.120 | 16.223 | 501.123 | 10731.27 | 704.31 | 8129.75 | 1.22 |
| 128 | 7 | 8 | 195.25 | 195.00 | 1037.20 | 0.00 | 0.10 | 0.128 | 0.120 | 16.223 | 501.126 | 10731.35 | 704.32 | 8129.81 | 1.22 |
| 129 | 7 | 9 | 195.00 | 194.75 | 1037.30 | 0.00 | 0.10 | 0.128 | 0.120 | 16.223 | 501.129 | 10731.42 | 704.32 | 8129.86 | 1.22 |
| 130 | 7 | 10 | 194.75 | 194.50 | 1037.40 | 0.00 | 0.10 | 0.128 | 0.120 | 16.223 | 501.132 | 10731.49 | 704.32 | 8129.92 | 1.22 |
| 131 | 7 | 11 | 194.50 | 194.25 | 1037.50 | 0.00 | 0.10 | 0.128 | 0.120 | 16.223 | 501.134 | 10731.56 | 704.33 | 8129.97 | 1.22 |
| 132 | 7 | 12 | 194.25 | 194.00 | 1037.60 | 0.00 | 0.10 | 0.128 | 0.120 | 16.223 | 501.137 | 10731.64 | 704.33 | 8130.03 | 1.22 |
| 133 | 7 | 13 | 194.00 | 193.75 | 1259.70 | 222.00 | 0.10 | 0.153 | 0.100 | 16.258 | 506.905 | 10878.34 | 712.04 | 8241.17 | 1.46 |
| 134 | 7 | 14 | 193.75 | 193.50 | 1259.80 | 0.00 | 0.10 | 0.153 | 0.100 | 16.258 | 506.908 | 10878.40 | 712.04 | 8241.21 | 1.46 |
| 135 | 7 | 15 | 193.50 | 193.25 | 1259.90 | 0.00 | 0.10 | 0.153 | 0.100 | 16.258 | 506.910 | 10878.46 | 712.04 | 8241.26 | 1.46 |
| 136 | 7 | 16 | 193.25 | 193.00 | 1260.00 | 0.00 | 0.10 | 0.153 | 0.100 | 16.258 | 506.912 | 10878.52 | 712.04 | 8241.30 | 1.46 |
| 137 | 7 | 17 | 193.00 | 192.75 | 1260.10 | 0.00 | 0.10 | 0.153 | 0.100 | 16.258 | 506.915 | 10878.58 | 712.05 | 8241.35 | 1.46 |
| 138 | 7 | 18 | 192.75 | 192.50 | 1260.20 | 0.00 | 0.10 | 0.153 | 0.100 | 16.258 | 506.917 | 10878.64 | 712.05 | 8241.39 | 1.46 |
| 139 | 7 | 19 | 192.50 | 192.25 | 1260.30 | 0.00 | 0.10 | 0.153 | 0.100 | 16.258 | 506.919 | 10878.70 | 712.05 | 8241.44 | 1.46 |
| 140 | 7 | 20 | 192.25 | 192.00 | 1260.40 | 0.00 | 0.10 | 0.153 | 0.100 | 16.258 | 506.922 | 10878.76 | 712.06 | 8241.49 | 1.46 |
| 141 | 8 | 1 | 192.00 | 191.75 | 1261.42 | 0.77 | 0.25 | 0.153 | 0.100 | 16.258 | 506.946 | 10879.38 | 712.09 | 8241.95 | 1.46 |
| 142 | 8 | 2 | 191.75 | 191.50 | 1261.67 | 0.00 | 0.25 | 0.153 | 0.100 | 16.258 | 506.952 | 10879.53 | 712.10 | 8242.07 | 1.46 |
| 143 | 8 | 3 | 191.50 | 191.25 | 1261.92 | 0.00 | 0.25 | 0.153 | 0.100 | 16.258 | 506.958 | 10879.68 | 712.11 | 8242.18 | 1.46 |
| 144 | 8 | 4 | 191.25 | 191.00 | 1262.17 | 0.00 | 0.25 | 0.153 | 0.100 | 16.258 | 506.964 | 10879.83 | 712.11 | 8242.29 | 1.46 |
| 145 | 8 | 5 | 191.00 | 190.75 | 1262.42 | 0.00 | 0.25 | 0.153 | 0.100 | 16.258 | 506.970 | 10879.98 | 712.12 | 8242.41 | 1.46 |
| 146 | 8 | 6 | 190.75 | 190.50 | 1262.67 | 0.00 | 0.25 | 0.153 | 0.100 | 16.258 | 506.976 | 10880.13 | 712.13 | 8242.52 | 1.46 |
| 147 | 8 | 7 | 190.50 | 190.25 | 1262.92 | 0.00 | 0.25 | 0.153 | 0.100 | 16.258 | 506.982 | 10880.28 | 712.14 | 8242.64 | 1.46 |
| 148 | 8 | 8 | 190.25 | 190.00 | 1263.17 | 0.00 | 0.25 | 0.153 | 0.100 | 16.258 | 506.987 | 10880.43 | 712.15 | 8242.75 | 1.46 |

***** STEADY STATE SIMULATION *****

** REACTION COEFFICIENT SUMMARY **

| RCH NUM | ELE NUM | DO SAT MG/L | K2 OPT | OXYGN REAIR 1/DAY | BOD DECAY 1/DAY | BOD SETT 1/DAY | SOD RATE G/F2D | ORGN DECAY 1/DAY | ORGN SETT 1/DAY | NH3 DECAY 1/DAY | NH3 SRCE MG/F2D | NO2 DECAY 1/DAY | ORGP DECAY 1/DAY | ORGP SETT 1/DAY | DISP SRCE MG/F2D | COLI DECAY 1/DAY | ANC DECAY 1/DAY | ANC SETT 1/DAY | ANC SRCE MG/F2D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 7.37 | 3 | 0.25 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 2 | 7.37 | 3 | 0.25 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 3 | 7.37 | 3 | 0.25 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 4 | 7.37 | 3 | 0.25 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 5 | 7.37 | 3 | 0.25 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 6 | 7.37 | 3 | 0.25 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 7 | 7.37 | 3 | 0.25 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 8 | 7.37 | 3 | 0.25 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 9 | 7.37 | 3 | 0.25 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 10 | 7.37 | 3 | 0.25 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 11 | 7.37 | 3 | 0.25 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 12 | 7.37 | 3 | 0.25 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 13 | 7.37 | 3 | 0.25 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 14 | 7.37 | 3 | 0.25 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 15 | 7.37 | 3 | 0.25 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 16 | 7.37 | 3 | 0.25 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 17 | 7.37 | 3 | 0.25 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 18 | 7.37 | 3 | 0.25 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 19 | 7.37 | 3 | 0.25 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 20 | 7.37 | 3 | 0.25 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 1 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 2 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 3 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 4 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 5 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 6 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 7 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 8 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 9 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 10 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 11 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 12 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 13 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 14 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 15 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 16 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 17 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 18 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 19 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 20 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 1 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 2 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

***** STEADY STATE SIMULATION *****

** REACTION COEFFICIENT SUMMARY **

| RCH NUM | ELE NUM | DO SAT MG/L | K2 OPT | OXYGN REAIR 1/DAY | BOD DECAY 1/DAY | BOD SETT 1/DAY | SOD RATE G/F2D | ORGN DECAY 1/DAY | ORGN SETT 1/DAY | NH3 DECAY 1/DAY | NH3 SRCE MG/F2D | NO2 DECAY 1/DAY | ORGP DECAY 1/DAY | ORGP SETT 1/DAY | DISP SRCE MG/F2D | COLI DECAY 1/DAY | ANC DECAY 1/DAY | ANC SETT 1/DAY | ANC SRCE MG/F2D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 3 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 4 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 5 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 6 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 7 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 8 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 9 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 10 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 11 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 12 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 13 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 14 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 15 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 16 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 17 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 18 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 19 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 20 | 7.37 | 3 | 0.25 | 0.13 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 1 | 7.37 | 3 | 0.23 | 0.13 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 2 | 7.37 | 3 | 0.22 | 0.13 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 3 | 7.37 | 3 | 0.22 | 0.13 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 4 | 7.37 | 3 | 0.22 | 0.13 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 5 | 7.37 | 3 | 0.22 | 0.13 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 6 | 7.37 | 3 | 0.22 | 0.13 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 7 | 7.37 | 3 | 0.22 | 0.13 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 8 | 7.37 | 3 | 0.22 | 0.13 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 9 | 7.37 | 3 | 0.22 | 0.13 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 10 | 7.37 | 3 | 0.22 | 0.13 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 11 | 7.37 | 3 | 0.22 | 0.13 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 12 | 7.37 | 3 | 0.22 | 0.13 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 13 | 7.37 | 3 | 0.22 | 0.13 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 14 | 7.37 | 3 | 0.22 | 0.13 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 15 | 7.37 | 3 | 0.22 | 0.13 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 16 | 7.37 | 3 | 0.22 | 0.13 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 17 | 7.37 | 3 | 0.22 | 0.13 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 18 | 7.37 | 3 | 0.22 | 0.13 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 19 | 7.37 | 3 | 0.22 | 0.13 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 20 | 7.37 | 3 | 0.22 | 0.13 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 1 | 7.37 | 3 | 0.18 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 2 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 3 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 4 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

***** STEADY STATE SIMULATION *****

** REACTION COEFFICIENT SUMMARY **

| RCH NUM | ELE NUM | DO SAT MG/L | K2 OPT | OXYGN REAIR 1/DAY | BOD DECAY 1/DAY | BOD SETT 1/DAY | SOD RATE G/F2D | ORGN DECAY 1/DAY | ORGN SETT 1/DAY | NH3 DECAY 1/DAY | NH3 SRCE MG/F2D | NO2 DECAY 1/DAY | ORGP DECAY 1/DAY | ORGP SETT 1/DAY | DISP SRCE MG/F2D | COLI DECAY 1/DAY | ANC DECAY 1/DAY | ANC SETT 1/DAY | ANC SRCE MG/F2D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 5 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 6 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 7 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 8 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 9 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 10 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 11 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 12 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 13 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 14 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 15 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 16 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 17 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 18 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 19 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 20 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 1 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 2 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 3 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 4 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 5 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 6 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 7 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 8 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 9 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 10 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 11 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 12 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 13 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 14 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 15 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 16 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 17 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 18 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 19 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 20 | 7.37 | 3 | 0.15 | 0.08 | 0.00 | 0.14 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 1 | 7.37 | 3 | 0.12 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 2 | 7.37 | 3 | 0.09 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 3 | 7.37 | 3 | 0.09 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 4 | 7.37 | 3 | 0.09 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 5 | 7.37 | 3 | 0.09 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 6 | 7.37 | 3 | 0.09 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

***** STEADY STATE SIMULATION *****

** REACTION COEFFICIENT SUMMARY **

| RCH NUM | ELE NUM | DO SAT MG/L | K2 OPT | OXYGN REAIR 1/DAY | BOD DECAY 1/DAY | BOD SETT 1/DAY | SOD RATE G/F2D | ORGN DECAY 1/DAY | ORGN SETT 1/DAY | NH3 DECAY 1/DAY | NH3 SRCE MG/F2D | NO2 DECAY 1/DAY | ORGP DECAY 1/DAY | ORGP SETT 1/DAY | DISP SRCE MG/F2D | COLI DECAY 1/DAY | ANC DECAY 1/DAY | ANC SETT 1/DAY | ANC SRCE MG/F2D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 7 | 7.37 | 3 | 0.09 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 8 | 7.37 | 3 | 0.09 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 9 | 7.37 | 3 | 0.09 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 10 | 7.37 | 3 | 0.09 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 11 | 7.37 | 3 | 0.09 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 12 | 7.37 | 3 | 0.09 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 13 | 7.37 | 3 | 0.10 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 14 | 7.37 | 3 | 0.10 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 15 | 7.37 | 3 | 0.10 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 16 | 7.37 | 3 | 0.10 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 17 | 7.37 | 3 | 0.10 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 18 | 7.37 | 3 | 0.10 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 19 | 7.37 | 3 | 0.10 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 20 | 7.37 | 3 | 0.10 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 1 | 7.37 | 3 | 0.10 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 2 | 7.37 | 3 | 0.10 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 3 | 7.37 | 3 | 0.10 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 4 | 7.37 | 3 | 0.10 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 5 | 7.37 | 3 | 0.10 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 6 | 7.37 | 3 | 0.10 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 7 | 7.37 | 3 | 0.10 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 8 | 7.37 | 3 | 0.10 | 0.08 | 0.00 | 0.10 | 0.17 | 0.00 | 0.25 | 0.00 | 1.70 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

***** STEADY STATE SIMULATION *****

** WATER QUALITY VARIABLES **

| RCH NUM | ELE NUM | TEMP DEG-F | CM-1 | CM-2 | CM-3 | DO MG/L | BOD MG/L | ORGN MG/L | NH3N MG/L | NO2N MG/L | NO3N MG/L | SUM-N MG/L | ORGP MG/L | DIS-P MG/L | SUM-P MG/L | COLI #/100ML | ANC BOD MG/L | CHLA UG/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 88.70 | 0.00 | 0.00 | 0.00 | 5.94 | 3.73 | 0.48 | 0.05 | 0.09 | 0.41 | 1.03 | 0.07 | 0.04 | 0.11 | 0.00E+00 | 0.00 | 8.60 |
| 1 | 2 | 88.70 | 0.00 | 0.00 | 0.00 | 5.94 | 3.71 | 0.47 | 0.06 | 0.08 | 0.42 | 1.03 | 0.07 | 0.04 | 0.11 | 0.00E+00 | 0.00 | 8.80 |
| 1 | 3 | 88.70 | 0.00 | 0.00 | 0.00 | 5.93 | 3.68 | 0.47 | 0.06 | 0.07 | 0.42 | 1.03 | 0.07 | 0.04 | 0.11 | 0.00E+00 | 0.00 | 9.00 |
| 1 | 4 | 88.70 | 0.00 | 0.00 | 0.00 | 5.93 | 3.66 | 0.46 | 0.07 | 0.07 | 0.43 | 1.03 | 0.07 | 0.04 | 0.11 | 0.00E+00 | 0.00 | 9.21 |
| 1 | 5 | 88.70 | 0.00 | 0.00 | 0.00 | 5.93 | 3.64 | 0.46 | 0.07 | 0.06 | 0.44 | 1.03 | 0.07 | 0.04 | 0.11 | 0.00E+00 | 0.00 | 9.43 |
| 1 | 6 | 88.70 | 0.00 | 0.00 | 0.00 | 5.93 | 3.62 | 0.45 | 0.07 | 0.06 | 0.44 | 1.02 | 0.07 | 0.04 | 0.11 | 0.00E+00 | 0.00 | 9.65 |
| 1 | 7 | 88.70 | 0.00 | 0.00 | 0.00 | 5.93 | 3.60 | 0.45 | 0.08 | 0.05 | 0.44 | 1.02 | 0.07 | 0.04 | 0.11 | 0.00E+00 | 0.00 | 9.88 |
| 1 | 8 | 88.70 | 0.00 | 0.00 | 0.00 | 5.94 | 3.58 | 0.44 | 0.08 | 0.05 | 0.45 | 1.02 | 0.07 | 0.04 | 0.11 | 0.00E+00 | 0.00 | 10.11 |
| 1 | 9 | 88.70 | 0.00 | 0.00 | 0.00 | 5.94 | 3.56 | 0.44 | 0.08 | 0.04 | 0.45 | 1.02 | 0.07 | 0.04 | 0.11 | 0.00E+00 | 0.00 | 10.35 |
| 1 | 10 | 88.70 | 0.00 | 0.00 | 0.00 | 5.95 | 3.54 | 0.43 | 0.09 | 0.04 | 0.46 | 1.02 | 0.07 | 0.04 | 0.11 | 0.00E+00 | 0.00 | 10.59 |
| 1 | 11 | 88.70 | 0.00 | 0.00 | 0.00 | 5.95 | 3.52 | 0.43 | 0.09 | 0.04 | 0.46 | 1.02 | 0.07 | 0.04 | 0.11 | 0.00E+00 | 0.00 | 10.84 |
| 1 | 12 | 88.70 | 0.00 | 0.00 | 0.00 | 5.96 | 3.50 | 0.42 | 0.09 | 0.04 | 0.46 | 1.01 | 0.07 | 0.04 | 0.11 | 0.00E+00 | 0.00 | 11.09 |
| 1 | 13 | 88.70 | 0.00 | 0.00 | 0.00 | 5.97 | 3.48 | 0.42 | 0.10 | 0.03 | 0.46 | 1.01 | 0.07 | 0.04 | 0.11 | 0.00E+00 | 0.00 | 11.35 |
| 1 | 14 | 88.70 | 0.00 | 0.00 | 0.00 | 5.98 | 3.46 | 0.42 | 0.10 | 0.03 | 0.46 | 1.01 | 0.07 | 0.03 | 0.11 | 0.00E+00 | 0.00 | 11.61 |
| 1 | 15 | 88.70 | 0.00 | 0.00 | 0.00 | 5.99 | 3.44 | 0.41 | 0.10 | 0.03 | 0.46 | 1.01 | 0.07 | 0.03 | 0.11 | 0.00E+00 | 0.00 | 11.87 |
| 1 | 16 | 88.70 | 0.00 | 0.00 | 0.00 | 6.00 | 3.42 | 0.41 | 0.10 | 0.03 | 0.47 | 1.01 | 0.07 | 0.03 | 0.11 | 0.00E+00 | 0.00 | 12.14 |
| 1 | 17 | 88.70 | 0.00 | 0.00 | 0.00 | 6.01 | 3.40 | 0.40 | 0.11 | 0.03 | 0.47 | 1.00 | 0.07 | 0.03 | 0.10 | 0.00E+00 | 0.00 | 12.42 |
| 1 | 18 | 88.70 | 0.00 | 0.00 | 0.00 | 6.02 | 3.38 | 0.40 | 0.11 | 0.03 | 0.47 | 1.00 | 0.07 | 0.03 | 0.10 | 0.00E+00 | 0.00 | 12.69 |
| 1 | 19 | 88.70 | 0.00 | 0.00 | 0.00 | 6.03 | 3.36 | 0.39 | 0.11 | 0.02 | 0.47 | 1.00 | 0.07 | 0.03 | 0.10 | 0.00E+00 | 0.00 | 12.98 |
| 1 | 20 | 88.70 | 0.00 | 0.00 | 0.00 | 6.04 | 3.38 | 0.39 | 0.12 | 0.02 | 0.47 | 1.00 | 0.07 | 0.03 | 0.10 | 0.00E+00 | 0.00 | 13.25 |
| 2 | 1 | 88.70 | 0.00 | 0.00 | 0.00 | 5.91 | 5.16 | 0.48 | 0.26 | 0.03 | 0.47 | 1.23 | 0.08 | 0.05 | 0.13 | 0.00E+00 | 0.00 | 12.94 |
| 2 | 2 | 88.70 | 0.00 | 0.00 | 0.00 | 5.88 | 5.12 | 0.48 | 0.26 | 0.03 | 0.47 | 1.23 | 0.08 | 0.05 | 0.13 | 0.00E+00 | 0.00 | 13.12 |
| 2 | 3 | 88.70 | 0.00 | 0.00 | 0.00 | 5.85 | 5.07 | 0.47 | 0.26 | 0.03 | 0.47 | 1.23 | 0.08 | 0.05 | 0.13 | 0.00E+00 | 0.00 | 13.30 |
| 2 | 4 | 88.70 | 0.00 | 0.00 | 0.00 | 5.83 | 5.03 | 0.47 | 0.26 | 0.03 | 0.48 | 1.23 | 0.08 | 0.05 | 0.13 | 0.00E+00 | 0.00 | 13.49 |
| 2 | 5 | 88.70 | 0.00 | 0.00 | 0.00 | 5.80 | 4.99 | 0.46 | 0.26 | 0.03 | 0.48 | 1.23 | 0.08 | 0.05 | 0.13 | 0.00E+00 | 0.00 | 13.67 |
| 2 | 6 | 88.70 | 0.00 | 0.00 | 0.00 | 5.78 | 4.95 | 0.46 | 0.26 | 0.03 | 0.48 | 1.23 | 0.08 | 0.05 | 0.13 | 0.00E+00 | 0.00 | 13.86 |
| 2 | 7 | 88.70 | 0.00 | 0.00 | 0.00 | 5.75 | 4.91 | 0.45 | 0.26 | 0.03 | 0.48 | 1.22 | 0.08 | 0.05 | 0.13 | 0.00E+00 | 0.00 | 14.05 |
| 2 | 8 | 88.70 | 0.00 | 0.00 | 0.00 | 5.73 | 4.87 | 0.45 | 0.26 | 0.03 | 0.48 | 1.22 | 0.08 | 0.05 | 0.13 | 0.00E+00 | 0.00 | 14.25 |
| 2 | 9 | 88.70 | 0.00 | 0.00 | 0.00 | 5.71 | 4.82 | 0.44 | 0.26 | 0.03 | 0.49 | 1.22 | 0.08 | 0.05 | 0.13 | 0.00E+00 | 0.00 | 14.44 |
| 2 | 10 | 88.70 | 0.00 | 0.00 | 0.00 | 5.69 | 4.78 | 0.44 | 0.26 | 0.03 | 0.49 | 1.22 | 0.08 | 0.05 | 0.13 | 0.00E+00 | 0.00 | 14.64 |
| 2 | 11 | 88.70 | 0.00 | 0.00 | 0.00 | 5.67 | 4.74 | 0.43 | 0.26 | 0.03 | 0.49 | 1.22 | 0.08 | 0.05 | 0.13 | 0.00E+00 | 0.00 | 14.84 |
| 2 | 12 | 88.70 | 0.00 | 0.00 | 0.00 | 5.65 | 4.70 | 0.43 | 0.26 | 0.03 | 0.49 | 1.22 | 0.08 | 0.05 | 0.13 | 0.00E+00 | 0.00 | 15.04 |
| 2 | 13 | 88.70 | 0.00 | 0.00 | 0.00 | 5.63 | 4.66 | 0.43 | 0.26 | 0.04 | 0.50 | 1.21 | 0.08 | 0.05 | 0.13 | 0.00E+00 | 0.00 | 15.24 |
| 2 | 14 | 88.70 | 0.00 | 0.00 | 0.00 | 5.62 | 4.63 | 0.42 | 0.26 | 0.04 | 0.50 | 1.21 | 0.08 | 0.05 | 0.13 | 0.00E+00 | 0.00 | 15.44 |
| 2 | 15 | 88.70 | 0.00 | 0.00 | 0.00 | 5.60 | 4.59 | 0.42 | 0.26 | 0.04 | 0.50 | 1.21 | 0.08 | 0.05 | 0.13 | 0.00E+00 | 0.00 | 15.65 |
| 2 | 16 | 88.70 | 0.00 | 0.00 | 0.00 | 5.59 | 4.55 | 0.41 | 0.26 | 0.04 | 0.50 | 1.21 | 0.08 | 0.05 | 0.13 | 0.00E+00 | 0.00 | 15.86 |
| 2 | 17 | 88.70 | 0.00 | 0.00 | 0.00 | 5.57 | 4.51 | 0.41 | 0.25 | 0.04 | 0.51 | 1.21 | 0.08 | 0.05 | 0.13 | 0.00E+00 | 0.00 | 16.07 |
| 2 | 18 | 88.70 | 0.00 | 0.00 | 0.00 | 5.56 | 4.47 | 0.41 | 0.25 | 0.04 | 0.51 | 1.21 | 0.08 | 0.05 | 0.13 | 0.00E+00 | 0.00 | 16.28 |
| 2 | 19 | 88.70 | 0.00 | 0.00 | 0.00 | 5.55 | 4.43 | 0.40 | 0.25 | 0.04 | 0.51 | 1.20 | 0.08 | 0.05 | 0.13 | 0.00E+00 | 0.00 | 16.49 |
| 2 | 20 | 88.70 | 0.00 | 0.00 | 0.00 | 5.54 | 4.40 | 0.40 | 0.25 | 0.04 | 0.51 | 1.20 | 0.08 | 0.05 | 0.13 | 0.00E+00 | 0.00 | 16.71 |
| 3 | 1 | 88.70 | 0.00 | 0.00 | 0.00 | 5.55 | 4.36 | 0.39 | 0.25 | 0.04 | 0.52 | 1.20 | 0.08 | 0.05 | 0.13 | 0.00E+00 | 0.00 | 17.10 |
| 3 | 2 | 88.70 | 0.00 | 0.00 | 0.00 | 5.56 | 4.32 | 0.39 | 0.25 | 0.04 | 0.52 | 1.20 | 0.08 | 0.05 | 0.13 | 0.00E+00 | 0.00 | 17.49 |

***** STEADY STATE SIMULATION *****

** WATER QUALITY VARIABLES **

| RCH NUM | ELE NUM | TEMP DEG-F | CM-1 | CM-2 | CM-3 | DO MG/L | BOD MG/L | ORGN MG/L | NH3N MG/L | NO2N MG/L | NO3N MG/L | SUM-N MG/L | ORGP MG/L | DIS-P MG/L | SUM-P MG/L | COLI #/100ML | ANC BOD MG/L | CHLA UG/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 3 | 88.70 | 0.00 | 0.00 | 0.00 | 5.57 | 4.29 | 0.39 | 0.25 | 0.04 | 0.52 | 1.19 | 0.08 | 0.05 | 0.12.00E+00 | | 0.00 | 17.89 |
| 3 | 4 | 88.70 | 0.00 | 0.00 | 0.00 | 5.59 | 4.25 | 0.38 | 0.25 | 0.04 | 0.52 | 1.19 | 0.08 | 0.05 | 0.12.00E+00 | | 0.00 | 18.29 |
| 3 | 5 | 88.70 | 0.00 | 0.00 | 0.00 | 5.60 | 4.22 | 0.38 | 0.25 | 0.04 | 0.52 | 1.19 | 0.08 | 0.04 | 0.12.00E+00 | | 0.00 | 18.70 |
| 3 | 6 | 88.70 | 0.00 | 0.00 | 0.00 | 5.62 | 4.18 | 0.38 | 0.25 | 0.04 | 0.52 | 1.18 | 0.08 | 0.04 | 0.12.00E+00 | | 0.00 | 19.12 |
| 3 | 7 | 88.70 | 0.00 | 0.00 | 0.00 | 5.63 | 4.15 | 0.37 | 0.25 | 0.04 | 0.53 | 1.18 | 0.08 | 0.04 | 0.12.00E+00 | | 0.00 | 19.54 |
| 3 | 8 | 88.70 | 0.00 | 0.00 | 0.00 | 5.65 | 4.11 | 0.37 | 0.25 | 0.04 | 0.53 | 1.18 | 0.08 | 0.04 | 0.12.00E+00 | | 0.00 | 19.96 |
| 3 | 9 | 88.70 | 0.00 | 0.00 | 0.00 | 5.67 | 4.08 | 0.36 | 0.24 | 0.04 | 0.53 | 1.17 | 0.08 | 0.04 | 0.12.00E+00 | | 0.00 | 20.39 |
| 3 | 10 | 88.70 | 0.00 | 0.00 | 0.00 | 5.69 | 4.04 | 0.36 | 0.24 | 0.04 | 0.53 | 1.17 | 0.08 | 0.04 | 0.12.00E+00 | | 0.00 | 20.82 |
| 3 | 11 | 88.70 | 0.00 | 0.00 | 0.00 | 5.71 | 4.01 | 0.36 | 0.24 | 0.04 | 0.53 | 1.17 | 0.08 | 0.04 | 0.12.00E+00 | | 0.00 | 21.26 |
| 3 | 12 | 88.70 | 0.00 | 0.00 | 0.00 | 5.73 | 3.98 | 0.35 | 0.24 | 0.04 | 0.53 | 1.16 | 0.08 | 0.04 | 0.12.00E+00 | | 0.00 | 21.70 |
| 3 | 13 | 88.70 | 0.00 | 0.00 | 0.00 | 5.75 | 3.94 | 0.35 | 0.24 | 0.04 | 0.53 | 1.16 | 0.08 | 0.04 | 0.12.00E+00 | | 0.00 | 22.14 |
| 3 | 14 | 88.70 | 0.00 | 0.00 | 0.00 | 5.78 | 3.91 | 0.35 | 0.24 | 0.04 | 0.53 | 1.16 | 0.08 | 0.04 | 0.12.00E+00 | | 0.00 | 22.59 |
| 3 | 15 | 88.70 | 0.00 | 0.00 | 0.00 | 5.80 | 3.88 | 0.35 | 0.24 | 0.04 | 0.54 | 1.15 | 0.08 | 0.04 | 0.12.00E+00 | | 0.00 | 23.04 |
| 3 | 16 | 88.70 | 0.00 | 0.00 | 0.00 | 5.82 | 3.84 | 0.34 | 0.23 | 0.04 | 0.54 | 1.15 | 0.08 | 0.04 | 0.12.00E+00 | | 0.00 | 23.50 |
| 3 | 17 | 88.70 | 0.00 | 0.00 | 0.00 | 5.85 | 3.81 | 0.34 | 0.23 | 0.04 | 0.54 | 1.15 | 0.08 | 0.04 | 0.12.00E+00 | | 0.00 | 23.95 |
| 3 | 18 | 88.70 | 0.00 | 0.00 | 0.00 | 5.87 | 3.78 | 0.34 | 0.23 | 0.04 | 0.54 | 1.14 | 0.08 | 0.04 | 0.12.00E+00 | | 0.00 | 24.41 |
| 3 | 19 | 88.70 | 0.00 | 0.00 | 0.00 | 5.90 | 3.75 | 0.33 | 0.23 | 0.04 | 0.54 | 1.14 | 0.08 | 0.03 | 0.12.00E+00 | | 0.00 | 24.87 |
| 3 | 20 | 88.70 | 0.00 | 0.00 | 0.00 | 5.92 | 3.72 | 0.33 | 0.23 | 0.04 | 0.54 | 1.14 | 0.08 | 0.03 | 0.11.00E+00 | | 0.00 | 25.33 |
| 4 | 1 | 88.70 | 0.00 | 0.00 | 0.00 | 5.92 | 3.69 | 0.33 | 0.23 | 0.04 | 0.54 | 1.13 | 0.08 | 0.03 | 0.11.00E+00 | | 0.00 | 25.64 |
| 4 | 2 | 88.70 | 0.00 | 0.00 | 0.00 | 5.92 | 3.66 | 0.32 | 0.23 | 0.03 | 0.54 | 1.13 | 0.08 | 0.03 | 0.11.00E+00 | | 0.00 | 25.94 |
| 4 | 3 | 88.70 | 0.00 | 0.00 | 0.00 | 5.92 | 3.63 | 0.32 | 0.23 | 0.03 | 0.54 | 1.13 | 0.08 | 0.03 | 0.11.00E+00 | | 0.00 | 26.25 |
| 4 | 4 | 88.70 | 0.00 | 0.00 | 0.00 | 5.91 | 3.60 | 0.32 | 0.22 | 0.03 | 0.55 | 1.12 | 0.08 | 0.03 | 0.11.00E+00 | | 0.00 | 26.53 |
| 4 | 5 | 88.70 | 0.00 | 0.00 | 0.00 | 5.91 | 3.57 | 0.32 | 0.22 | 0.03 | 0.55 | 1.12 | 0.08 | 0.03 | 0.11.00E+00 | | 0.00 | 26.84 |
| 4 | 6 | 88.70 | 0.00 | 0.00 | 0.00 | 5.91 | 3.54 | 0.31 | 0.22 | 0.03 | 0.55 | 1.12 | 0.08 | 0.03 | 0.11.00E+00 | | 0.00 | 27.14 |
| 4 | 7 | 88.70 | 0.00 | 0.00 | 0.00 | 5.91 | 3.51 | 0.31 | 0.22 | 0.03 | 0.55 | 1.12 | 0.08 | 0.03 | 0.11.00E+00 | | 0.00 | 27.45 |
| 4 | 8 | 88.70 | 0.00 | 0.00 | 0.00 | 5.91 | 3.48 | 0.31 | 0.22 | 0.03 | 0.55 | 1.11 | 0.08 | 0.03 | 0.11.00E+00 | | 0.00 | 27.75 |
| 4 | 9 | 88.70 | 0.00 | 0.00 | 0.00 | 5.91 | 3.45 | 0.31 | 0.22 | 0.03 | 0.55 | 1.11 | 0.08 | 0.03 | 0.11.00E+00 | | 0.00 | 28.05 |
| 4 | 10 | 88.70 | 0.00 | 0.00 | 0.00 | 5.91 | 3.42 | 0.30 | 0.22 | 0.03 | 0.55 | 1.11 | 0.08 | 0.03 | 0.11.00E+00 | | 0.00 | 28.35 |
| 4 | 11 | 88.70 | 0.00 | 0.00 | 0.00 | 5.91 | 3.39 | 0.30 | 0.22 | 0.03 | 0.55 | 1.11 | 0.08 | 0.03 | 0.11.00E+00 | | 0.00 | 28.64 |
| 4 | 12 | 88.70 | 0.00 | 0.00 | 0.00 | 5.91 | 3.36 | 0.30 | 0.21 | 0.03 | 0.56 | 1.10 | 0.08 | 0.03 | 0.11.00E+00 | | 0.00 | 28.94 |
| 4 | 13 | 88.70 | 0.00 | 0.00 | 0.00 | 5.91 | 3.34 | 0.30 | 0.21 | 0.03 | 0.56 | 1.10 | 0.08 | 0.03 | 0.11.00E+00 | | 0.00 | 29.23 |
| 4 | 14 | 88.70 | 0.00 | 0.00 | 0.00 | 5.91 | 3.31 | 0.29 | 0.21 | 0.03 | 0.56 | 1.10 | 0.08 | 0.02 | 0.11.00E+00 | | 0.00 | 29.52 |
| 4 | 15 | 88.70 | 0.00 | 0.00 | 0.00 | 5.91 | 3.28 | 0.29 | 0.21 | 0.03 | 0.56 | 1.10 | 0.08 | 0.02 | 0.11.00E+00 | | 0.00 | 29.80 |
| 4 | 16 | 88.70 | 0.00 | 0.00 | 0.00 | 5.91 | 3.25 | 0.29 | 0.21 | 0.03 | 0.56 | 1.09 | 0.08 | 0.02 | 0.11.00E+00 | | 0.00 | 30.08 |
| 4 | 17 | 88.70 | 0.00 | 0.00 | 0.00 | 5.91 | 3.23 | 0.29 | 0.21 | 0.03 | 0.56 | 1.09 | 0.08 | 0.02 | 0.11.00E+00 | | 0.00 | 30.36 |
| 4 | 18 | 88.70 | 0.00 | 0.00 | 0.00 | 5.91 | 3.20 | 0.29 | 0.21 | 0.03 | 0.56 | 1.09 | 0.08 | 0.02 | 0.11.00E+00 | | 0.00 | 30.63 |
| 4 | 19 | 88.70 | 0.00 | 0.00 | 0.00 | 5.92 | 3.17 | 0.28 | 0.21 | 0.03 | 0.56 | 1.08 | 0.08 | 0.02 | 0.11.00E+00 | | 0.00 | 30.90 |
| 4 | 20 | 88.70 | 0.00 | 0.00 | 0.00 | 5.92 | 3.15 | 0.28 | 0.21 | 0.03 | 0.56 | 1.08 | 0.08 | 0.02 | 0.11.00E+00 | | 0.00 | 31.16 |
| 5 | 1 | 88.70 | 0.00 | 0.00 | 0.00 | 5.91 | 3.13 | 0.28 | 0.20 | 0.03 | 0.57 | 1.08 | 0.08 | 0.02 | 0.11.00E+00 | | 0.00 | 31.33 |
| 5 | 2 | 88.70 | 0.00 | 0.00 | 0.00 | 5.90 | 3.11 | 0.28 | 0.20 | 0.03 | 0.57 | 1.08 | 0.08 | 0.02 | 0.10.00E+00 | | 0.00 | 31.52 |
| 5 | 3 | 88.70 | 0.00 | 0.00 | 0.00 | 5.89 | 3.09 | 0.27 | 0.20 | 0.03 | 0.57 | 1.08 | 0.09 | 0.02 | 0.10.00E+00 | | 0.00 | 31.70 |
| 5 | 4 | 88.70 | 0.00 | 0.00 | 0.00 | 5.88 | 3.07 | 0.27 | 0.20 | 0.03 | 0.57 | 1.07 | 0.09 | 0.02 | 0.10.00E+00 | | 0.00 | 31.87 |

***** STEADY STATE SIMULATION *****

** WATER QUALITY VARIABLES **

| RCH NUM | ELE NUM | TEMP DEG-F | CM-1 | CM-2 | CM-3 | DO MG/L | BOD MG/L | ORGN MG/L | NH3N MG/L | NO2N MG/L | NO3N MG/L | SUM-N MG/L | ORGP MG/L | DIS-P MG/L | SUM-P MG/L | COLI #/100ML | ANC BOD MG/L | CHLA UG/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 5 | 88.70 | 0.00 | 0.00 | 0.00 | 5.87 | 3.05 | 0.27 | 0.20 | 0.03 | 0.57 | 1.07 | 0.09 | 0.02 | 0.10.00E+00 | | 0.00 | 32.03 |
| 5 | 6 | 88.70 | 0.00 | 0.00 | 0.00 | 5.86 | 3.03 | 0.27 | 0.20 | 0.03 | 0.57 | 1.07 | 0.09 | 0.02 | 0.10.00E+00 | | 0.00 | 32.19 |
| 5 | 7 | 88.70 | 0.00 | 0.00 | 0.00 | 5.85 | 3.01 | 0.26 | 0.20 | 0.03 | 0.58 | 1.07 | 0.09 | 0.02 | 0.10.00E+00 | | 0.00 | 32.35 |
| 5 | 8 | 88.70 | 0.00 | 0.00 | 0.00 | 5.84 | 2.99 | 0.26 | 0.20 | 0.03 | 0.58 | 1.07 | 0.09 | 0.02 | 0.10.00E+00 | | 0.00 | 32.50 |
| 5 | 9 | 88.70 | 0.00 | 0.00 | 0.00 | 5.83 | 2.97 | 0.26 | 0.19 | 0.03 | 0.58 | 1.06 | 0.09 | 0.02 | 0.10.00E+00 | | 0.00 | 32.64 |
| 5 | 10 | 88.70 | 0.00 | 0.00 | 0.00 | 5.82 | 2.95 | 0.26 | 0.19 | 0.03 | 0.58 | 1.06 | 0.09 | 0.02 | 0.10.00E+00 | | 0.00 | 32.77 |
| 5 | 11 | 88.70 | 0.00 | 0.00 | 0.00 | 5.81 | 2.93 | 0.26 | 0.19 | 0.03 | 0.58 | 1.06 | 0.09 | 0.01 | 0.10.00E+00 | | 0.00 | 32.90 |
| 5 | 12 | 88.70 | 0.00 | 0.00 | 0.00 | 5.80 | 2.91 | 0.25 | 0.19 | 0.03 | 0.58 | 1.06 | 0.09 | 0.01 | 0.10.00E+00 | | 0.00 | 33.01 |
| 5 | 13 | 88.70 | 0.00 | 0.00 | 0.00 | 5.78 | 2.89 | 0.25 | 0.19 | 0.03 | 0.58 | 1.06 | 0.09 | 0.01 | 0.10.00E+00 | | 0.00 | 33.13 |
| 5 | 14 | 88.70 | 0.00 | 0.00 | 0.00 | 5.77 | 2.87 | 0.25 | 0.19 | 0.03 | 0.59 | 1.05 | 0.09 | 0.01 | 0.10.00E+00 | | 0.00 | 33.23 |
| 5 | 15 | 88.70 | 0.00 | 0.00 | 0.00 | 5.76 | 2.86 | 0.25 | 0.19 | 0.03 | 0.59 | 1.05 | 0.09 | 0.01 | 0.10.00E+00 | | 0.00 | 33.32 |
| 5 | 16 | 88.70 | 0.00 | 0.00 | 0.00 | 5.74 | 2.84 | 0.25 | 0.19 | 0.03 | 0.59 | 1.05 | 0.09 | 0.01 | 0.10.00E+00 | | 0.00 | 33.40 |
| 5 | 17 | 88.70 | 0.00 | 0.00 | 0.00 | 5.73 | 2.82 | 0.25 | 0.19 | 0.03 | 0.59 | 1.06 | 0.09 | 0.01 | 0.10.00E+00 | | 0.00 | 33.47 |
| 5 | 18 | 88.70 | 0.00 | 0.00 | 0.00 | 5.71 | 2.80 | 0.25 | 0.19 | 0.03 | 0.59 | 1.06 | 0.09 | 0.01 | 0.10.00E+00 | | 0.00 | 33.55 |
| 5 | 19 | 88.70 | 0.00 | 0.00 | 0.00 | 5.70 | 2.78 | 0.24 | 0.19 | 0.03 | 0.59 | 1.06 | 0.09 | 0.01 | 0.10.00E+00 | | 0.00 | 33.62 |
| 5 | 20 | 88.70 | 0.00 | 0.00 | 0.00 | 5.68 | 2.77 | 0.24 | 0.19 | 0.03 | 0.60 | 1.05 | 0.09 | 0.01 | 0.10.00E+00 | | 0.00 | 33.69 |
| 6 | 1 | 88.70 | 0.00 | 0.00 | 0.00 | 5.67 | 2.75 | 0.24 | 0.19 | 0.03 | 0.60 | 1.05 | 0.09 | 0.01 | 0.10.00E+00 | | 0.00 | 33.79 |
| 6 | 2 | 88.70 | 0.00 | 0.00 | 0.00 | 5.66 | 2.73 | 0.24 | 0.18 | 0.03 | 0.60 | 1.05 | 0.09 | 0.01 | 0.10.00E+00 | | 0.00 | 33.88 |
| 6 | 3 | 88.70 | 0.00 | 0.00 | 0.00 | 5.65 | 2.71 | 0.24 | 0.18 | 0.03 | 0.60 | 1.05 | 0.09 | 0.01 | 0.10.00E+00 | | 0.00 | 33.98 |
| 6 | 4 | 88.70 | 0.00 | 0.00 | 0.00 | 5.64 | 2.70 | 0.24 | 0.18 | 0.03 | 0.60 | 1.05 | 0.09 | 0.01 | 0.10.00E+00 | | 0.00 | 34.08 |
| 6 | 5 | 88.70 | 0.00 | 0.00 | 0.00 | 5.63 | 2.68 | 0.23 | 0.18 | 0.03 | 0.60 | 1.05 | 0.09 | 0.01 | 0.10.00E+00 | | 0.00 | 34.18 |
| 6 | 6 | 88.70 | 0.00 | 0.00 | 0.00 | 5.62 | 2.66 | 0.23 | 0.18 | 0.03 | 0.60 | 1.04 | 0.09 | 0.01 | 0.10.00E+00 | | 0.00 | 34.28 |
| 6 | 7 | 88.70 | 0.00 | 0.00 | 0.00 | 5.62 | 2.64 | 0.23 | 0.18 | 0.03 | 0.61 | 1.04 | 0.09 | 0.01 | 0.10.00E+00 | | 0.00 | 34.39 |
| 6 | 8 | 88.70 | 0.00 | 0.00 | 0.00 | 5.61 | 2.63 | 0.23 | 0.18 | 0.03 | 0.61 | 1.04 | 0.09 | 0.01 | 0.10.00E+00 | | 0.00 | 34.49 |
| 6 | 9 | 88.70 | 0.00 | 0.00 | 0.00 | 5.60 | 2.61 | 0.23 | 0.18 | 0.03 | 0.61 | 1.04 | 0.09 | 0.01 | 0.10.00E+00 | | 0.00 | 34.59 |
| 6 | 10 | 88.70 | 0.00 | 0.00 | 0.00 | 5.59 | 2.59 | 0.23 | 0.18 | 0.03 | 0.61 | 1.04 | 0.09 | 0.01 | 0.10.00E+00 | | 0.00 | 34.69 |
| 6 | 11 | 88.70 | 0.00 | 0.00 | 0.00 | 5.59 | 2.58 | 0.22 | 0.17 | 0.03 | 0.61 | 1.04 | 0.08 | 0.01 | 0.10.00E+00 | | 0.00 | 34.80 |
| 6 | 12 | 88.70 | 0.00 | 0.00 | 0.00 | 5.58 | 2.56 | 0.22 | 0.17 | 0.03 | 0.61 | 1.03 | 0.08 | 0.01 | 0.10.00E+00 | | 0.00 | 34.90 |
| 6 | 13 | 88.70 | 0.00 | 0.00 | 0.00 | 5.58 | 2.54 | 0.22 | 0.17 | 0.03 | 0.61 | 1.03 | 0.08 | 0.01 | 0.10.00E+00 | | 0.00 | 35.00 |
| 6 | 14 | 88.70 | 0.00 | 0.00 | 0.00 | 5.57 | 2.53 | 0.22 | 0.17 | 0.03 | 0.61 | 1.03 | 0.08 | 0.01 | 0.10.00E+00 | | 0.00 | 35.10 |
| 6 | 15 | 88.70 | 0.00 | 0.00 | 0.00 | 5.56 | 2.51 | 0.22 | 0.17 | 0.03 | 0.61 | 1.03 | 0.08 | 0.01 | 0.10.00E+00 | | 0.00 | 35.21 |
| 6 | 16 | 88.70 | 0.00 | 0.00 | 0.00 | 5.56 | 2.49 | 0.22 | 0.17 | 0.03 | 0.61 | 1.03 | 0.08 | 0.01 | 0.10.00E+00 | | 0.00 | 35.31 |
| 6 | 17 | 88.70 | 0.00 | 0.00 | 0.00 | 5.56 | 2.48 | 0.21 | 0.17 | 0.03 | 0.62 | 1.02 | 0.08 | 0.01 | 0.09.00E+00 | | 0.00 | 35.42 |
| 6 | 18 | 88.70 | 0.00 | 0.00 | 0.00 | 5.55 | 2.46 | 0.21 | 0.17 | 0.03 | 0.62 | 1.02 | 0.08 | 0.01 | 0.09.00E+00 | | 0.00 | 35.52 |
| 6 | 19 | 88.70 | 0.00 | 0.00 | 0.00 | 5.55 | 2.45 | 0.21 | 0.17 | 0.03 | 0.62 | 1.02 | 0.08 | 0.01 | 0.09.00E+00 | | 0.00 | 35.62 |
| 6 | 20 | 88.70 | 0.00 | 0.00 | 0.00 | 5.54 | 2.43 | 0.21 | 0.16 | 0.03 | 0.62 | 1.02 | 0.08 | 0.01 | 0.09.00E+00 | | 0.00 | 35.73 |
| 7 | 1 | 88.70 | 0.00 | 0.00 | 0.00 | 5.55 | 2.41 | 0.21 | 0.16 | 0.03 | 0.62 | 1.02 | 0.08 | 0.01 | 0.09.00E+00 | | 0.00 | 35.94 |
| 7 | 2 | 88.70 | 0.00 | 0.00 | 0.00 | 5.56 | 2.39 | 0.21 | 0.16 | 0.03 | 0.62 | 1.01 | 0.08 | 0.01 | 0.09.00E+00 | | 0.00 | 36.21 |
| 7 | 3 | 88.70 | 0.00 | 0.00 | 0.00 | 5.56 | 2.36 | 0.20 | 0.16 | 0.02 | 0.62 | 1.01 | 0.08 | 0.01 | 0.09.00E+00 | | 0.00 | 36.47 |
| 7 | 4 | 88.70 | 0.00 | 0.00 | 0.00 | 5.57 | 2.34 | 0.20 | 0.16 | 0.02 | 0.62 | 1.01 | 0.08 | 0.01 | 0.09.00E+00 | | 0.00 | 36.73 |
| 7 | 5 | 88.70 | 0.00 | 0.00 | 0.00 | 5.58 | 2.31 | 0.20 | 0.16 | 0.02 | 0.62 | 1.00 | 0.08 | 0.01 | 0.09.00E+00 | | 0.00 | 36.98 |
| 7 | 6 | 88.70 | 0.00 | 0.00 | 0.00 | 5.59 | 2.29 | 0.20 | 0.15 | 0.02 | 0.62 | 1.00 | 0.08 | 0.01 | 0.09.00E+00 | | 0.00 | 37.23 |

***** STEADY STATE SIMULATION *****

** WATER QUALITY VARIABLES **

| RCH NUM | ELE NUM | TEMP DEG-F | CM-1 | CM-2 | CM-3 | DO MG/L | BOD MG/L | ORGN MG/L | NH3N MG/L | NO2N MG/L | NO3N MG/L | SUM-N MG/L | ORGP MG/L | DIS-P MG/L | SUM-P MG/L | COLI #/100ML | ANC BOD MG/L | CHLA UG/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 7 | 88.70 | 0.00 | 0.00 | 0.00 | 5.59 | 2.27 | 0.20 | 0.15 | 0.02 | 0.62 | 1.00 | 0.08 | 0.01 | 0.09 | 0.00E+00 | 0.00 | 37.47 |
| 7 | 8 | 88.70 | 0.00 | 0.00 | 0.00 | 5.60 | 2.25 | 0.20 | 0.15 | 0.02 | 0.62 | 1.00 | 0.08 | 0.01 | 0.09 | 0.00E+00 | 0.00 | 37.71 |
| 7 | 9 | 88.70 | 0.00 | 0.00 | 0.00 | 5.61 | 2.22 | 0.19 | 0.15 | 0.02 | 0.63 | 0.99 | 0.08 | 0.01 | 0.09 | 0.00E+00 | 0.00 | 37.95 |
| 7 | 10 | 88.70 | 0.00 | 0.00 | 0.00 | 5.61 | 2.20 | 0.19 | 0.15 | 0.02 | 0.63 | 0.99 | 0.08 | 0.01 | 0.09 | 0.00E+00 | 0.00 | 38.18 |
| 7 | 11 | 88.70 | 0.00 | 0.00 | 0.00 | 5.62 | 2.18 | 0.19 | 0.15 | 0.02 | 0.63 | 0.99 | 0.08 | 0.01 | 0.09 | 0.00E+00 | 0.00 | 38.40 |
| 7 | 12 | 88.70 | 0.00 | 0.00 | 0.00 | 5.63 | 2.16 | 0.19 | 0.15 | 0.02 | 0.63 | 0.98 | 0.08 | 0.01 | 0.09 | 0.00E+00 | 0.00 | 38.58 |
| 7 | 13 | 88.70 | 0.00 | 0.00 | 0.00 | 5.60 | 2.25 | 0.24 | 0.13 | 0.03 | 0.59 | 0.99 | 0.08 | 0.02 | 0.09 | 0.00E+00 | 0.00 | 33.59 |
| 7 | 14 | 88.70 | 0.00 | 0.00 | 0.00 | 5.62 | 2.23 | 0.24 | 0.13 | 0.03 | 0.59 | 0.99 | 0.08 | 0.02 | 0.09 | 0.00E+00 | 0.00 | 33.89 |
| 7 | 15 | 88.70 | 0.00 | 0.00 | 0.00 | 5.64 | 2.21 | 0.23 | 0.13 | 0.03 | 0.59 | 0.98 | 0.07 | 0.02 | 0.09 | 0.00E+00 | 0.00 | 34.19 |
| 7 | 16 | 88.70 | 0.00 | 0.00 | 0.00 | 5.66 | 2.20 | 0.23 | 0.13 | 0.03 | 0.59 | 0.98 | 0.07 | 0.01 | 0.09 | 0.00E+00 | 0.00 | 34.48 |
| 7 | 17 | 88.70 | 0.00 | 0.00 | 0.00 | 5.67 | 2.18 | 0.23 | 0.13 | 0.03 | 0.59 | 0.98 | 0.07 | 0.01 | 0.09 | 0.00E+00 | 0.00 | 34.77 |
| 7 | 18 | 88.70 | 0.00 | 0.00 | 0.00 | 5.69 | 2.16 | 0.23 | 0.13 | 0.03 | 0.59 | 0.97 | 0.07 | 0.01 | 0.09 | 0.00E+00 | 0.00 | 35.05 |
| 7 | 19 | 88.70 | 0.00 | 0.00 | 0.00 | 5.71 | 2.14 | 0.23 | 0.13 | 0.02 | 0.59 | 0.97 | 0.07 | 0.01 | 0.09 | 0.00E+00 | 0.00 | 35.34 |
| 7 | 20 | 88.70 | 0.00 | 0.00 | 0.00 | 5.73 | 2.12 | 0.22 | 0.13 | 0.02 | 0.59 | 0.97 | 0.07 | 0.01 | 0.09 | 0.00E+00 | 0.00 | 35.62 |
| 8 | 1 | 88.70 | 0.00 | 0.00 | 0.00 | 5.75 | 2.14 | 0.23 | 0.13 | 0.02 | 0.60 | 0.98 | 0.07 | 0.02 | 0.09 | 0.00E+00 | 0.00 | 35.91 |
| 8 | 2 | 88.70 | 0.00 | 0.00 | 0.00 | 5.77 | 2.12 | 0.23 | 0.13 | 0.02 | 0.59 | 0.98 | 0.07 | 0.02 | 0.09 | 0.00E+00 | 0.00 | 36.22 |
| 8 | 3 | 88.70 | 0.00 | 0.00 | 0.00 | 5.79 | 2.10 | 0.22 | 0.13 | 0.02 | 0.59 | 0.97 | 0.07 | 0.02 | 0.09 | 0.00E+00 | 0.00 | 36.52 |
| 8 | 4 | 88.70 | 0.00 | 0.00 | 0.00 | 5.81 | 2.09 | 0.22 | 0.13 | 0.02 | 0.59 | 0.97 | 0.07 | 0.02 | 0.09 | 0.00E+00 | 0.00 | 36.82 |
| 8 | 5 | 88.70 | 0.00 | 0.00 | 0.00 | 5.83 | 2.07 | 0.22 | 0.13 | 0.02 | 0.59 | 0.97 | 0.07 | 0.01 | 0.09 | 0.00E+00 | 0.00 | 37.11 |
| 8 | 6 | 88.70 | 0.00 | 0.00 | 0.00 | 5.85 | 2.05 | 0.22 | 0.13 | 0.02 | 0.59 | 0.97 | 0.07 | 0.01 | 0.09 | 0.00E+00 | 0.00 | 37.40 |
| 8 | 7 | 88.70 | 0.00 | 0.00 | 0.00 | 5.87 | 2.04 | 0.22 | 0.13 | 0.02 | 0.59 | 0.96 | 0.07 | 0.01 | 0.09 | 0.00E+00 | 0.00 | 37.68 |
| 8 | 8 | 88.70 | 0.00 | 0.00 | 0.00 | 5.89 | 2.02 | 0.21 | 0.13 | 0.02 | 0.59 | 0.96 | 0.07 | 0.01 | 0.09 | 0.00E+00 | 0.00 | 37.95 |

***** STEADY STATE SIMULATION *****

** ALGAE DATA **

| ELE ORD | RCH NUM | ELE NUM | CHLA UG/L | ALGY GRWTH 1/DAY | ALGY RESP 1/DAY | ALGY SETT FT/DA | A P/R RATIO * | NET P-R MG/L-D | NH3 PREF * | NH3-N FRACT N-UPTKE * | LIGHT EXTCO 1/FT | ALGAE GROWTH RATE ATTEN FACTORS LIGHT * | NITRGN * | PHSPRS * |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 8.60 | 0.52 | 0.08 | 1.05 | 5.51 | 0.44 | 0.50 | 0.12 | 0.66 | 0.22 | 0.70 | 0.80 |
| 2 | 1 | 2 | 8.80 | 0.52 | 0.08 | 1.05 | 5.53 | 0.45 | 0.50 | 0.12 | 0.66 | 0.22 | 0.70 | 0.80 |
| 3 | 1 | 3 | 9.00 | 0.52 | 0.08 | 1.05 | 5.55 | 0.46 | 0.50 | 0.13 | 0.67 | 0.22 | 0.71 | 0.80 |
| 4 | 1 | 4 | 9.21 | 0.52 | 0.08 | 1.05 | 5.56 | 0.48 | 0.50 | 0.13 | 0.67 | 0.22 | 0.71 | 0.79 |
| 5 | 1 | 5 | 9.43 | 0.52 | 0.08 | 1.05 | 5.56 | 0.49 | 0.50 | 0.14 | 0.67 | 0.22 | 0.72 | 0.79 |
| 6 | 1 | 6 | 9.65 | 0.52 | 0.08 | 1.05 | 5.56 | 0.50 | 0.50 | 0.14 | 0.67 | 0.22 | 0.72 | 0.79 |
| 7 | 1 | 7 | 9.88 | 0.52 | 0.08 | 1.05 | 5.56 | 0.51 | 0.50 | 0.15 | 0.67 | 0.22 | 0.72 | 0.79 |
| 8 | 1 | 8 | 10.11 | 0.52 | 0.08 | 1.05 | 5.56 | 0.52 | 0.50 | 0.15 | 0.67 | 0.22 | 0.73 | 0.79 |
| 9 | 1 | 9 | 10.35 | 0.52 | 0.08 | 1.05 | 5.55 | 0.53 | 0.50 | 0.16 | 0.68 | 0.22 | 0.73 | 0.79 |
| 10 | 1 | 10 | 10.59 | 0.52 | 0.08 | 1.05 | 5.54 | 0.54 | 0.50 | 0.16 | 0.68 | 0.21 | 0.73 | 0.79 |
| 11 | 1 | 11 | 10.84 | 0.52 | 0.08 | 1.05 | 5.53 | 0.56 | 0.50 | 0.17 | 0.68 | 0.21 | 0.73 | 0.78 |
| 12 | 1 | 12 | 11.09 | 0.52 | 0.08 | 1.05 | 5.51 | 0.57 | 0.50 | 0.17 | 0.68 | 0.21 | 0.73 | 0.78 |
| 13 | 1 | 13 | 11.35 | 0.52 | 0.08 | 1.05 | 5.50 | 0.58 | 0.50 | 0.17 | 0.68 | 0.21 | 0.74 | 0.78 |
| 14 | 1 | 14 | 11.61 | 0.52 | 0.08 | 1.05 | 5.48 | 0.59 | 0.50 | 0.18 | 0.69 | 0.21 | 0.74 | 0.78 |
| 15 | 1 | 15 | 11.87 | 0.51 | 0.08 | 1.05 | 5.46 | 0.60 | 0.50 | 0.18 | 0.69 | 0.21 | 0.74 | 0.78 |
| 16 | 1 | 16 | 12.14 | 0.51 | 0.08 | 1.05 | 5.44 | 0.61 | 0.50 | 0.18 | 0.69 | 0.21 | 0.74 | 0.77 |
| 17 | 1 | 17 | 12.42 | 0.51 | 0.08 | 1.05 | 5.41 | 0.62 | 0.50 | 0.19 | 0.69 | 0.21 | 0.74 | 0.77 |
| 18 | 1 | 18 | 12.69 | 0.51 | 0.08 | 1.05 | 5.39 | 0.63 | 0.50 | 0.19 | 0.69 | 0.21 | 0.74 | 0.77 |
| 19 | 1 | 19 | 12.98 | 0.51 | 0.08 | 1.05 | 5.36 | 0.64 | 0.50 | 0.19 | 0.70 | 0.21 | 0.74 | 0.77 |
| 20 | 1 | 20 | 13.25 | 0.51 | 0.08 | 1.05 | 5.37 | 0.65 | 0.50 | 0.20 | 0.70 | 0.21 | 0.75 | 0.77 |
| 21 | 2 | 1 | 12.94 | 0.40 | 0.08 | 1.05 | 4.24 | 0.47 | 0.50 | 0.35 | 1.03 | 0.14 | 0.78 | 0.85 |
| 22 | 2 | 2 | 13.12 | 0.40 | 0.08 | 1.05 | 4.23 | 0.48 | 0.50 | 0.35 | 1.03 | 0.14 | 0.78 | 0.84 |
| 23 | 2 | 3 | 13.30 | 0.40 | 0.08 | 1.05 | 4.22 | 0.48 | 0.50 | 0.35 | 1.03 | 0.14 | 0.78 | 0.84 |
| 24 | 2 | 4 | 13.49 | 0.40 | 0.08 | 1.05 | 4.22 | 0.49 | 0.50 | 0.35 | 1.03 | 0.14 | 0.79 | 0.84 |
| 25 | 2 | 5 | 13.67 | 0.40 | 0.08 | 1.05 | 4.21 | 0.50 | 0.50 | 0.35 | 1.03 | 0.14 | 0.79 | 0.84 |
| 26 | 2 | 6 | 13.86 | 0.40 | 0.08 | 1.05 | 4.20 | 0.50 | 0.50 | 0.35 | 1.03 | 0.14 | 0.79 | 0.84 |
| 27 | 2 | 7 | 14.05 | 0.40 | 0.08 | 1.05 | 4.19 | 0.51 | 0.50 | 0.35 | 1.03 | 0.14 | 0.79 | 0.84 |
| 28 | 2 | 8 | 14.25 | 0.39 | 0.08 | 1.05 | 4.19 | 0.51 | 0.50 | 0.35 | 1.04 | 0.14 | 0.79 | 0.84 |
| 29 | 2 | 9 | 14.44 | 0.39 | 0.08 | 1.05 | 4.18 | 0.52 | 0.50 | 0.35 | 1.04 | 0.14 | 0.79 | 0.84 |
| 30 | 2 | 10 | 14.64 | 0.39 | 0.08 | 1.05 | 4.17 | 0.52 | 0.50 | 0.34 | 1.04 | 0.14 | 0.79 | 0.84 |
| 31 | 2 | 11 | 14.84 | 0.39 | 0.08 | 1.05 | 4.16 | 0.53 | 0.50 | 0.34 | 1.04 | 0.14 | 0.79 | 0.84 |
| 32 | 2 | 12 | 15.04 | 0.39 | 0.08 | 1.05 | 4.15 | 0.54 | 0.50 | 0.34 | 1.04 | 0.14 | 0.79 | 0.84 |
| 33 | 2 | 13 | 15.24 | 0.39 | 0.08 | 1.05 | 4.15 | 0.54 | 0.50 | 0.34 | 1.04 | 0.14 | 0.79 | 0.83 |
| 34 | 2 | 14 | 15.44 | 0.39 | 0.08 | 1.05 | 4.14 | 0.55 | 0.50 | 0.34 | 1.04 | 0.14 | 0.79 | 0.83 |
| 35 | 2 | 15 | 15.65 | 0.39 | 0.08 | 1.05 | 4.13 | 0.55 | 0.50 | 0.34 | 1.05 | 0.14 | 0.79 | 0.83 |
| 36 | 2 | 16 | 15.86 | 0.39 | 0.08 | 1.05 | 4.12 | 0.56 | 0.50 | 0.34 | 1.05 | 0.14 | 0.79 | 0.83 |
| 37 | 2 | 17 | 16.07 | 0.39 | 0.08 | 1.05 | 4.11 | 0.56 | 0.50 | 0.33 | 1.05 | 0.14 | 0.79 | 0.83 |
| 38 | 2 | 18 | 16.28 | 0.39 | 0.08 | 1.05 | 4.10 | 0.57 | 0.50 | 0.33 | 1.05 | 0.14 | 0.79 | 0.83 |
| 39 | 2 | 19 | 16.49 | 0.39 | 0.08 | 1.05 | 4.09 | 0.58 | 0.50 | 0.33 | 1.05 | 0.14 | 0.79 | 0.83 |
| 40 | 2 | 20 | 16.71 | 0.38 | 0.08 | 1.05 | 4.08 | 0.58 | 0.50 | 0.33 | 1.05 | 0.14 | 0.79 | 0.83 |
| 41 | 3 | 1 | 17.10 | 0.53 | 0.08 | 1.05 | 5.66 | 0.90 | 0.50 | 0.33 | 0.76 | 0.19 | 0.79 | 0.82 |
| 42 | 3 | 2 | 17.49 | 0.53 | 0.08 | 1.05 | 5.63 | 0.92 | 0.50 | 0.33 | 0.76 | 0.19 | 0.79 | 0.82 |

***** STEADY STATE SIMULATION *****

** ALGAE DATA **

| ELE ORD | RCH NUM | ELE NUM | CHLA UG/L | ALGY GRWTH 1/DAY | ALGY RESP 1/DAY | ALGY SETT FT/DA | A P/R RATIO * | NET P-R MG/L-D | NH3 PREF * | NH3-N FRACT N-UPTKE * | LIGHT EXTCO 1/FT | ALGAE GROWTH RATE ATTEN FACTORS LIGHT * | NITRGN * | PHSPRS * |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 43 | 3 | 3 | 17.89 | 0.53 | 0.08 | 1.05 | 5.60 | 0.93 | 0.50 | 0.33 | 0.76 | 0.19 | 0.79 | 0.82 |
| 44 | 3 | 4 | 18.29 | 0.52 | 0.08 | 1.05 | 5.57 | 0.94 | 0.50 | 0.32 | 0.76 | 0.19 | 0.79 | 0.82 |
| 45 | 3 | 5 | 18.70 | 0.52 | 0.08 | 1.05 | 5.53 | 0.96 | 0.50 | 0.32 | 0.77 | 0.19 | 0.79 | 0.82 |
| 46 | 3 | 6 | 19.12 | 0.52 | 0.08 | 1.05 | 5.50 | 0.97 | 0.50 | 0.32 | 0.77 | 0.19 | 0.79 | 0.81 |
| 47 | 3 | 7 | 19.54 | 0.51 | 0.08 | 1.05 | 5.46 | 0.99 | 0.50 | 0.32 | 0.77 | 0.19 | 0.79 | 0.81 |
| 48 | 3 | 8 | 19.96 | 0.51 | 0.08 | 1.05 | 5.43 | 1.00 | 0.50 | 0.32 | 0.78 | 0.19 | 0.79 | 0.81 |
| 49 | 3 | 9 | 20.39 | 0.51 | 0.08 | 1.05 | 5.39 | 1.01 | 0.50 | 0.32 | 0.78 | 0.19 | 0.79 | 0.81 |
| 50 | 3 | 10 | 20.82 | 0.50 | 0.08 | 1.05 | 5.35 | 1.03 | 0.50 | 0.31 | 0.78 | 0.19 | 0.79 | 0.80 |
| 51 | 3 | 11 | 21.26 | 0.50 | 0.08 | 1.05 | 5.31 | 1.04 | 0.50 | 0.31 | 0.78 | 0.19 | 0.79 | 0.80 |
| 52 | 3 | 12 | 21.70 | 0.50 | 0.08 | 1.05 | 5.28 | 1.05 | 0.50 | 0.31 | 0.79 | 0.18 | 0.79 | 0.80 |
| 53 | 3 | 13 | 22.14 | 0.49 | 0.08 | 1.05 | 5.24 | 1.06 | 0.50 | 0.31 | 0.79 | 0.18 | 0.79 | 0.80 |
| 54 | 3 | 14 | 22.59 | 0.49 | 0.08 | 1.05 | 5.20 | 1.07 | 0.50 | 0.31 | 0.79 | 0.18 | 0.79 | 0.79 |
| 55 | 3 | 15 | 23.04 | 0.49 | 0.08 | 1.05 | 5.16 | 1.08 | 0.50 | 0.31 | 0.80 | 0.18 | 0.79 | 0.79 |
| 56 | 3 | 16 | 23.50 | 0.48 | 0.08 | 1.05 | 5.11 | 1.09 | 0.50 | 0.30 | 0.80 | 0.18 | 0.79 | 0.79 |
| 57 | 3 | 17 | 23.95 | 0.48 | 0.08 | 1.05 | 5.07 | 1.10 | 0.50 | 0.30 | 0.80 | 0.18 | 0.79 | 0.78 |
| 58 | 3 | 18 | 24.41 | 0.47 | 0.08 | 1.05 | 5.03 | 1.11 | 0.50 | 0.30 | 0.80 | 0.18 | 0.79 | 0.78 |
| 59 | 3 | 19 | 24.87 | 0.47 | 0.08 | 1.05 | 4.99 | 1.12 | 0.50 | 0.30 | 0.81 | 0.18 | 0.79 | 0.77 |
| 60 | 3 | 20 | 25.33 | 0.47 | 0.08 | 1.05 | 4.94 | 1.13 | 0.50 | 0.30 | 0.81 | 0.18 | 0.79 | 0.77 |
| 61 | 4 | 1 | 25.64 | 0.36 | 0.08 | 1.05 | 3.84 | 0.82 | 0.50 | 0.30 | 0.93 | 0.14 | 0.79 | 0.77 |
| 62 | 4 | 2 | 25.94 | 0.36 | 0.08 | 1.05 | 3.81 | 0.83 | 0.50 | 0.29 | 0.93 | 0.14 | 0.79 | 0.76 |
| 63 | 4 | 3 | 26.25 | 0.36 | 0.08 | 1.05 | 3.79 | 0.83 | 0.50 | 0.29 | 0.94 | 0.14 | 0.79 | 0.76 |
| 64 | 4 | 4 | 26.53 | 0.35 | 0.08 | 1.05 | 3.76 | 0.83 | 0.50 | 0.29 | 0.94 | 0.14 | 0.79 | 0.76 |
| 65 | 4 | 5 | 26.84 | 0.35 | 0.08 | 1.05 | 3.74 | 0.83 | 0.50 | 0.29 | 0.94 | 0.14 | 0.79 | 0.75 |
| 66 | 4 | 6 | 27.14 | 0.35 | 0.08 | 1.05 | 3.71 | 0.83 | 0.50 | 0.29 | 0.94 | 0.14 | 0.79 | 0.75 |
| 67 | 4 | 7 | 27.45 | 0.35 | 0.08 | 1.05 | 3.68 | 0.83 | 0.50 | 0.29 | 0.94 | 0.14 | 0.79 | 0.75 |
| 68 | 4 | 8 | 27.75 | 0.34 | 0.08 | 1.05 | 3.65 | 0.83 | 0.50 | 0.28 | 0.95 | 0.14 | 0.79 | 0.74 |
| 69 | 4 | 9 | 28.05 | 0.34 | 0.08 | 1.05 | 3.62 | 0.83 | 0.50 | 0.28 | 0.95 | 0.14 | 0.79 | 0.74 |
| 70 | 4 | 10 | 28.35 | 0.34 | 0.08 | 1.05 | 3.60 | 0.83 | 0.50 | 0.28 | 0.95 | 0.14 | 0.79 | 0.73 |
| 71 | 4 | 11 | 28.64 | 0.34 | 0.08 | 1.05 | 3.57 | 0.83 | 0.50 | 0.28 | 0.95 | 0.14 | 0.79 | 0.73 |
| 72 | 4 | 12 | 28.94 | 0.33 | 0.08 | 1.05 | 3.54 | 0.83 | 0.50 | 0.28 | 0.95 | 0.14 | 0.79 | 0.72 |
| 73 | 4 | 13 | 29.23 | 0.33 | 0.08 | 1.05 | 3.50 | 0.83 | 0.50 | 0.28 | 0.96 | 0.14 | 0.79 | 0.72 |
| 74 | 4 | 14 | 29.52 | 0.33 | 0.08 | 1.05 | 3.47 | 0.83 | 0.50 | 0.28 | 0.96 | 0.14 | 0.79 | 0.71 |
| 75 | 4 | 15 | 29.80 | 0.32 | 0.08 | 1.05 | 3.44 | 0.82 | 0.50 | 0.27 | 0.96 | 0.14 | 0.79 | 0.71 |
| 76 | 4 | 16 | 30.08 | 0.32 | 0.08 | 1.05 | 3.41 | 0.82 | 0.50 | 0.27 | 0.96 | 0.14 | 0.79 | 0.70 |
| 77 | 4 | 17 | 30.36 | 0.32 | 0.08 | 1.05 | 3.37 | 0.81 | 0.50 | 0.27 | 0.96 | 0.14 | 0.79 | 0.70 |
| 78 | 4 | 18 | 30.63 | 0.31 | 0.08 | 1.05 | 3.34 | 0.81 | 0.50 | 0.27 | 0.96 | 0.14 | 0.79 | 0.69 |
| 79 | 4 | 19 | 30.90 | 0.31 | 0.08 | 1.05 | 3.30 | 0.80 | 0.50 | 0.27 | 0.97 | 0.14 | 0.79 | 0.68 |
| 80 | 4 | 20 | 31.16 | 0.31 | 0.08 | 1.05 | 3.27 | 0.80 | 0.50 | 0.27 | 0.97 | 0.13 | 0.79 | 0.68 |
| 81 | 5 | 1 | 31.33 | 0.24 | 0.08 | 1.05 | 2.56 | 0.55 | 0.50 | 0.27 | 1.02 | 0.11 | 0.79 | 0.67 |
| 82 | 5 | 2 | 31.52 | 0.24 | 0.08 | 1.05 | 2.53 | 0.55 | 0.50 | 0.26 | 1.02 | 0.11 | 0.79 | 0.67 |
| 83 | 5 | 3 | 31.70 | 0.24 | 0.08 | 1.05 | 2.51 | 0.54 | 0.50 | 0.26 | 1.02 | 0.11 | 0.79 | 0.66 |
| 84 | 5 | 4 | 31.87 | 0.23 | 0.08 | 1.05 | 2.48 | 0.53 | 0.50 | 0.26 | 1.02 | 0.11 | 0.79 | 0.65 |

***** STEADY STATE SIMULATION *****

** ALGAE DATA **

| ELE ORD | RCH NUM | ELE NUM | CHLA UG/L | ALGY GRWTH 1/DAY | ALGY RESP 1/DAY | ALGY SETT FT/DA | A P/R RATIO * | NET P-R MG/L-D | NH3 PREF * | NH3-N FRACT N-UPTKE * | LIGHT EXTCO 1/FT | ALGAE GROWTH RATE ATTEN FACTORS LIGHT * | NITRGN * | PHSPRS * |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 85 | 5 | 5 | 32.03 | 0.23 | 0.08 | 1.05 | 2.45 | 0.53 | 0.50 | 0.26 | 1.02 | 0.11 | 0.79 | 0.65 |
| 86 | 5 | 6 | 32.19 | 0.23 | 0.08 | 1.05 | 2.42 | 0.52 | 0.50 | 0.26 | 1.02 | 0.11 | 0.79 | 0.64 |
| 87 | 5 | 7 | 32.35 | 0.23 | 0.08 | 1.05 | 2.39 | 0.51 | 0.50 | 0.26 | 1.03 | 0.11 | 0.79 | 0.63 |
| 88 | 5 | 8 | 32.50 | 0.22 | 0.08 | 1.05 | 2.36 | 0.50 | 0.50 | 0.25 | 1.03 | 0.11 | 0.79 | 0.62 |
| 89 | 5 | 9 | 32.64 | 0.22 | 0.08 | 1.05 | 2.33 | 0.49 | 0.50 | 0.25 | 1.03 | 0.11 | 0.79 | 0.62 |
| 90 | 5 | 10 | 32.77 | 0.22 | 0.08 | 1.05 | 2.30 | 0.48 | 0.50 | 0.25 | 1.03 | 0.11 | 0.79 | 0.61 |
| 91 | 5 | 11 | 32.90 | 0.21 | 0.08 | 1.05 | 2.26 | 0.47 | 0.50 | 0.25 | 1.03 | 0.11 | 0.79 | 0.60 |
| 92 | 5 | 12 | 33.01 | 0.21 | 0.08 | 1.05 | 2.23 | 0.46 | 0.50 | 0.25 | 1.03 | 0.11 | 0.79 | 0.59 |
| 93 | 5 | 13 | 33.13 | 0.21 | 0.08 | 1.05 | 2.19 | 0.45 | 0.50 | 0.25 | 1.03 | 0.11 | 0.79 | 0.58 |
| 94 | 5 | 14 | 33.23 | 0.20 | 0.08 | 1.05 | 2.16 | 0.43 | 0.50 | 0.24 | 1.03 | 0.11 | 0.79 | 0.57 |
| 95 | 5 | 15 | 33.32 | 0.20 | 0.08 | 1.05 | 2.12 | 0.42 | 0.50 | 0.24 | 1.03 | 0.11 | 0.80 | 0.56 |
| 96 | 5 | 16 | 33.40 | 0.20 | 0.08 | 1.05 | 2.08 | 0.41 | 0.50 | 0.24 | 1.03 | 0.11 | 0.80 | 0.55 |
| 97 | 5 | 17 | 33.47 | 0.20 | 0.08 | 1.05 | 2.12 | 0.42 | 0.50 | 0.24 | 1.03 | 0.11 | 0.80 | 0.56 |
| 98 | 5 | 18 | 33.55 | 0.20 | 0.08 | 1.05 | 2.08 | 0.41 | 0.50 | 0.24 | 1.03 | 0.11 | 0.80 | 0.55 |
| 99 | 5 | 19 | 33.62 | 0.19 | 0.08 | 1.05 | 2.04 | 0.40 | 0.50 | 0.24 | 1.03 | 0.11 | 0.80 | 0.54 |
| 100 | 5 | 20 | 33.69 | 0.19 | 0.08 | 1.05 | 2.00 | 0.38 | 0.50 | 0.24 | 1.03 | 0.11 | 0.80 | 0.53 |
| 101 | 6 | 1 | 33.79 | 0.20 | 0.08 | 1.05 | 2.13 | 0.43 | 0.50 | 0.24 | 0.97 | 0.11 | 0.80 | 0.53 |
| 102 | 6 | 2 | 33.88 | 0.20 | 0.08 | 1.05 | 2.13 | 0.43 | 0.50 | 0.24 | 0.97 | 0.11 | 0.80 | 0.53 |
| 103 | 6 | 3 | 33.98 | 0.20 | 0.08 | 1.05 | 2.13 | 0.44 | 0.50 | 0.23 | 0.98 | 0.11 | 0.80 | 0.53 |
| 104 | 6 | 4 | 34.08 | 0.20 | 0.08 | 1.05 | 2.14 | 0.44 | 0.50 | 0.23 | 0.98 | 0.11 | 0.80 | 0.54 |
| 105 | 6 | 5 | 34.18 | 0.20 | 0.08 | 1.05 | 2.14 | 0.44 | 0.50 | 0.23 | 0.98 | 0.11 | 0.80 | 0.54 |
| 106 | 6 | 6 | 34.28 | 0.20 | 0.08 | 1.05 | 2.14 | 0.44 | 0.50 | 0.23 | 0.98 | 0.11 | 0.80 | 0.54 |
| 107 | 6 | 7 | 34.39 | 0.20 | 0.08 | 1.05 | 2.14 | 0.44 | 0.50 | 0.23 | 0.98 | 0.11 | 0.80 | 0.54 |
| 108 | 6 | 8 | 34.49 | 0.20 | 0.08 | 1.05 | 2.14 | 0.45 | 0.50 | 0.23 | 0.98 | 0.11 | 0.80 | 0.54 |
| 109 | 6 | 9 | 34.59 | 0.20 | 0.08 | 1.05 | 2.14 | 0.45 | 0.50 | 0.23 | 0.98 | 0.11 | 0.80 | 0.54 |
| 110 | 6 | 10 | 34.69 | 0.20 | 0.08 | 1.05 | 2.14 | 0.45 | 0.50 | 0.22 | 0.98 | 0.11 | 0.80 | 0.54 |
| 111 | 6 | 11 | 34.80 | 0.20 | 0.08 | 1.05 | 2.14 | 0.45 | 0.50 | 0.22 | 0.98 | 0.11 | 0.80 | 0.54 |
| 112 | 6 | 12 | 34.90 | 0.20 | 0.08 | 1.05 | 2.14 | 0.45 | 0.50 | 0.22 | 0.98 | 0.11 | 0.80 | 0.54 |
| 113 | 6 | 13 | 35.00 | 0.20 | 0.08 | 1.05 | 2.14 | 0.45 | 0.50 | 0.22 | 0.98 | 0.11 | 0.80 | 0.54 |
| 114 | 6 | 14 | 35.10 | 0.20 | 0.08 | 1.05 | 2.14 | 0.45 | 0.50 | 0.22 | 0.98 | 0.11 | 0.80 | 0.54 |
| 115 | 6 | 15 | 35.21 | 0.20 | 0.08 | 1.05 | 2.14 | 0.45 | 0.50 | 0.22 | 0.98 | 0.11 | 0.80 | 0.54 |
| 116 | 6 | 16 | 35.31 | 0.20 | 0.08 | 1.05 | 2.14 | 0.46 | 0.50 | 0.22 | 0.98 | 0.11 | 0.80 | 0.54 |
| 117 | 6 | 17 | 35.42 | 0.20 | 0.08 | 1.05 | 2.14 | 0.46 | 0.50 | 0.21 | 0.98 | 0.11 | 0.80 | 0.54 |
| 118 | 6 | 18 | 35.52 | 0.20 | 0.08 | 1.05 | 2.14 | 0.46 | 0.50 | 0.21 | 0.98 | 0.11 | 0.80 | 0.54 |
| 119 | 6 | 19 | 35.62 | 0.20 | 0.08 | 1.05 | 2.13 | 0.46 | 0.50 | 0.21 | 0.99 | 0.11 | 0.80 | 0.54 |
| 120 | 6 | 20 | 35.73 | 0.20 | 0.08 | 1.05 | 2.13 | 0.46 | 0.50 | 0.21 | 0.99 | 0.11 | 0.80 | 0.54 |
| 121 | 7 | 1 | 35.94 | 0.21 | 0.08 | 1.05 | 2.26 | 0.51 | 0.50 | 0.21 | 0.78 | 0.12 | 0.80 | 0.54 |
| 122 | 7 | 2 | 36.21 | 0.21 | 0.08 | 1.05 | 2.25 | 0.51 | 0.50 | 0.21 | 0.78 | 0.12 | 0.80 | 0.54 |
| 123 | 7 | 3 | 36.47 | 0.21 | 0.08 | 1.05 | 2.23 | 0.51 | 0.50 | 0.20 | 0.78 | 0.12 | 0.80 | 0.53 |
| 124 | 7 | 4 | 36.73 | 0.21 | 0.08 | 1.05 | 2.22 | 0.51 | 0.50 | 0.20 | 0.78 | 0.12 | 0.80 | 0.53 |
| 125 | 7 | 5 | 36.98 | 0.21 | 0.08 | 1.05 | 2.20 | 0.50 | 0.50 | 0.20 | 0.78 | 0.12 | 0.80 | 0.53 |
| 126 | 7 | 6 | 37.23 | 0.21 | 0.08 | 1.05 | 2.19 | 0.50 | 0.50 | 0.20 | 0.78 | 0.12 | 0.80 | 0.53 |

***** STEADY STATE SIMULATION *****

** ALGAE DATA **

| ELE ORD | RCH NUM | ELE NUM | CHLA UG/L | ALGY GRWTH 1/DAY | ALGY RESP 1/DAY | ALGY SETT FT/DA | A P/R RATIO * | NET P-R MG/L-D | NH3 PREF * | NH3-N FRACT N-UPTKE * | LIGHT EXTCO 1/FT | ALGAE GROWTH RATE ATTEN FACTORS LIGHT * | NITRGN * | PHSPRS * |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 127 | 7 | 7 | 37.47 | 0.20 | 0.08 | 1.05 | 2.17 | 0.50 | 0.50 | 0.20 | 0.79 | 0.12 | 0.80 | 0.52 |
| 128 | 7 | 8 | 37.71 | 0.20 | 0.08 | 1.05 | 2.16 | 0.49 | 0.50 | 0.20 | 0.79 | 0.12 | 0.80 | 0.52 |
| 129 | 7 | 9 | 37.95 | 0.20 | 0.08 | 1.05 | 2.14 | 0.49 | 0.50 | 0.19 | 0.79 | 0.12 | 0.79 | 0.52 |
| 130 | 7 | 10 | 38.18 | 0.20 | 0.08 | 1.05 | 2.13 | 0.49 | 0.50 | 0.19 | 0.79 | 0.12 | 0.79 | 0.52 |
| 131 | 7 | 11 | 38.40 | 0.20 | 0.08 | 1.05 | 2.11 | 0.48 | 0.50 | 0.19 | 0.79 | 0.12 | 0.79 | 0.51 |
| 132 | 7 | 12 | 38.58 | 0.20 | 0.08 | 1.05 | 2.10 | 0.48 | 0.50 | 0.19 | 0.79 | 0.11 | 0.79 | 0.51 |
| 133 | 7 | 13 | 33.59 | 0.24 | 0.08 | 1.05 | 2.55 | 0.59 | 0.50 | 0.18 | 0.76 | 0.12 | 0.78 | 0.61 |
| 134 | 7 | 14 | 33.89 | 0.24 | 0.08 | 1.05 | 2.53 | 0.59 | 0.50 | 0.18 | 0.76 | 0.12 | 0.78 | 0.60 |
| 135 | 7 | 15 | 34.19 | 0.24 | 0.08 | 1.05 | 2.51 | 0.59 | 0.50 | 0.18 | 0.77 | 0.12 | 0.78 | 0.60 |
| 136 | 7 | 16 | 34.48 | 0.24 | 0.08 | 1.05 | 2.50 | 0.58 | 0.50 | 0.18 | 0.77 | 0.12 | 0.78 | 0.60 |
| 137 | 7 | 17 | 34.77 | 0.23 | 0.08 | 1.05 | 2.48 | 0.58 | 0.50 | 0.18 | 0.77 | 0.12 | 0.78 | 0.60 |
| 138 | 7 | 18 | 35.05 | 0.23 | 0.08 | 1.05 | 2.46 | 0.58 | 0.50 | 0.18 | 0.77 | 0.12 | 0.78 | 0.59 |
| 139 | 7 | 19 | 35.34 | 0.23 | 0.08 | 1.05 | 2.44 | 0.58 | 0.50 | 0.18 | 0.77 | 0.12 | 0.78 | 0.59 |
| 140 | 7 | 20 | 35.62 | 0.23 | 0.08 | 1.05 | 2.43 | 0.57 | 0.50 | 0.18 | 0.77 | 0.12 | 0.78 | 0.59 |
| 141 | 8 | 1 | 35.91 | 0.24 | 0.08 | 1.05 | 2.53 | 0.62 | 0.50 | 0.18 | 0.78 | 0.12 | 0.78 | 0.61 |
| 142 | 8 | 2 | 36.22 | 0.24 | 0.08 | 1.05 | 2.51 | 0.62 | 0.50 | 0.18 | 0.78 | 0.12 | 0.78 | 0.61 |
| 143 | 8 | 3 | 36.52 | 0.23 | 0.08 | 1.05 | 2.49 | 0.61 | 0.50 | 0.18 | 0.78 | 0.12 | 0.78 | 0.61 |
| 144 | 8 | 4 | 36.82 | 0.23 | 0.08 | 1.05 | 2.47 | 0.61 | 0.50 | 0.18 | 0.78 | 0.12 | 0.78 | 0.60 |
| 145 | 8 | 5 | 37.11 | 0.23 | 0.08 | 1.05 | 2.44 | 0.61 | 0.50 | 0.18 | 0.78 | 0.12 | 0.78 | 0.60 |
| 146 | 8 | 6 | 37.40 | 0.23 | 0.08 | 1.05 | 2.42 | 0.60 | 0.50 | 0.18 | 0.79 | 0.12 | 0.78 | 0.59 |
| 147 | 8 | 7 | 37.68 | 0.23 | 0.08 | 1.05 | 2.40 | 0.60 | 0.50 | 0.18 | 0.79 | 0.12 | 0.78 | 0.59 |
| 148 | 8 | 8 | 37.95 | 0.22 | 0.08 | 1.05 | 2.38 | 0.59 | 0.50 | 0.18 | 0.79 | 0.12 | 0.78 | 0.59 |

***** STEADY STATE SIMULATION *****

** DISSOLVED OXYGEN DATA **

| ELE ORD | RCH NUM | ELE NUM | TEMP DEG-F | DO SAT MG/L | DO MG/L | DO DEF MG/L | DAM INPUT MG/L | NIT INHIB FACT | COMPONENTS OF DISSOLVED OXYGEN MASS BALANCE (MG/L-DAY) F-FNCTN INPUT | OXYGN REAIR | C-BOD | SOD | NET P-R | NH3-N | NO2-N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 88.70 | 7.37 | 5.94 | 1.42 | 0.00 | 1.00 | 86.37 | 0.35 | -0.32 | -0.35 | 0.44 | -0.05 | -0.17 |
| 2 | 1 | 2 | 88.70 | 7.37 | 5.94 | 1.43 | 0.00 | 1.00 | 0.01 | 0.36 | -0.31 | -0.35 | 0.45 | -0.05 | -0.16 |
| 3 | 1 | 3 | 88.70 | 7.37 | 5.93 | 1.43 | 0.00 | 1.00 | 0.01 | 0.36 | -0.31 | -0.35 | 0.46 | -0.05 | -0.14 |
| 4 | 1 | 4 | 88.70 | 7.37 | 5.93 | 1.44 | 0.00 | 1.00 | 0.01 | 0.36 | -0.31 | -0.35 | 0.48 | -0.06 | -0.13 |
| 5 | 1 | 5 | 88.70 | 7.37 | 5.93 | 1.44 | 0.00 | 1.00 | 0.01 | 0.36 | -0.31 | -0.35 | 0.49 | -0.06 | -0.12 |
| 6 | 1 | 6 | 88.70 | 7.37 | 5.93 | 1.44 | 0.00 | 1.00 | 0.01 | 0.36 | -0.31 | -0.35 | 0.50 | -0.06 | -0.11 |
| 7 | 1 | 7 | 88.70 | 7.37 | 5.93 | 1.43 | 0.00 | 1.00 | 0.01 | 0.36 | -0.31 | -0.35 | 0.51 | -0.07 | -0.10 |
| 8 | 1 | 8 | 88.70 | 7.37 | 5.94 | 1.43 | 0.00 | 1.00 | 0.01 | 0.36 | -0.30 | -0.35 | 0.52 | -0.07 | -0.09 |
| 9 | 1 | 9 | 88.70 | 7.37 | 5.94 | 1.43 | 0.00 | 1.00 | 0.01 | 0.36 | -0.30 | -0.35 | 0.53 | -0.07 | -0.08 |
| 10 | 1 | 10 | 88.70 | 7.37 | 5.95 | 1.42 | 0.00 | 1.00 | 0.01 | 0.35 | -0.30 | -0.35 | 0.54 | -0.08 | -0.08 |
| 11 | 1 | 11 | 88.70 | 7.37 | 5.95 | 1.41 | 0.00 | 1.00 | 0.01 | 0.35 | -0.30 | -0.35 | 0.56 | -0.08 | -0.07 |
| 12 | 1 | 12 | 88.70 | 7.37 | 5.96 | 1.41 | 0.00 | 1.00 | 0.01 | 0.35 | -0.30 | -0.35 | 0.57 | -0.08 | -0.07 |
| 13 | 1 | 13 | 88.70 | 7.37 | 5.97 | 1.40 | 0.00 | 1.00 | 0.01 | 0.35 | -0.29 | -0.35 | 0.58 | -0.08 | -0.06 |
| 14 | 1 | 14 | 88.70 | 7.37 | 5.98 | 1.39 | 0.00 | 1.00 | 0.01 | 0.35 | -0.29 | -0.35 | 0.59 | -0.09 | -0.06 |
| 15 | 1 | 15 | 88.70 | 7.37 | 5.99 | 1.38 | 0.00 | 1.00 | 0.01 | 0.34 | -0.29 | -0.35 | 0.60 | -0.09 | -0.06 |
| 16 | 1 | 16 | 88.70 | 7.37 | 6.00 | 1.37 | 0.00 | 1.00 | 0.01 | 0.34 | -0.29 | -0.35 | 0.61 | -0.09 | -0.05 |
| 17 | 1 | 17 | 88.70 | 7.37 | 6.01 | 1.36 | 0.00 | 1.00 | 0.01 | 0.34 | -0.29 | -0.35 | 0.62 | -0.09 | -0.05 |
| 18 | 1 | 18 | 88.70 | 7.37 | 6.02 | 1.35 | 0.00 | 1.00 | 0.01 | 0.34 | -0.29 | -0.35 | 0.63 | -0.09 | -0.05 |
| 19 | 1 | 19 | 88.70 | 7.37 | 6.03 | 1.33 | 0.00 | 1.00 | 0.01 | 0.33 | -0.28 | -0.35 | 0.64 | -0.10 | -0.05 |
| 20 | 1 | 20 | 88.70 | 7.37 | 6.04 | 1.32 | 0.00 | 1.00 | 0.01 | 0.33 | -0.29 | -0.35 | 0.65 | -0.10 | -0.05 |
| 21 | 2 | 1 | 88.70 | 7.37 | 5.91 | 1.46 | 0.00 | 1.00 | 2.18 | 0.37 | -0.66 | -0.35 | 0.47 | -0.22 | -0.05 |
| 22 | 2 | 2 | 88.70 | 7.37 | 5.88 | 1.49 | 0.00 | 1.00 | 0.01 | 0.38 | -0.65 | -0.35 | 0.48 | -0.22 | -0.06 |
| 23 | 2 | 3 | 88.70 | 7.37 | 5.85 | 1.51 | 0.00 | 1.00 | 0.01 | 0.38 | -0.65 | -0.35 | 0.48 | -0.22 | -0.06 |
| 24 | 2 | 4 | 88.70 | 7.37 | 5.83 | 1.54 | 0.00 | 1.00 | 0.01 | 0.39 | -0.64 | -0.35 | 0.49 | -0.22 | -0.06 |
| 25 | 2 | 5 | 88.70 | 7.37 | 5.80 | 1.57 | 0.00 | 1.00 | 0.01 | 0.40 | -0.63 | -0.35 | 0.50 | -0.22 | -0.06 |
| 26 | 2 | 6 | 88.70 | 7.37 | 5.78 | 1.59 | 0.00 | 1.00 | 0.01 | 0.40 | -0.63 | -0.35 | 0.50 | -0.22 | -0.06 |
| 27 | 2 | 7 | 88.70 | 7.37 | 5.75 | 1.61 | 0.00 | 1.00 | 0.01 | 0.41 | -0.62 | -0.35 | 0.51 | -0.22 | -0.06 |
| 28 | 2 | 8 | 88.70 | 7.37 | 5.73 | 1.64 | 0.00 | 1.00 | 0.01 | 0.41 | -0.62 | -0.35 | 0.51 | -0.22 | -0.06 |
| 29 | 2 | 9 | 88.70 | 7.37 | 5.71 | 1.66 | 0.00 | 1.00 | 0.01 | 0.42 | -0.61 | -0.35 | 0.52 | -0.22 | -0.07 |
| 30 | 2 | 10 | 88.70 | 7.37 | 5.69 | 1.68 | 0.00 | 1.00 | 0.01 | 0.43 | -0.61 | -0.35 | 0.52 | -0.22 | -0.07 |
| 31 | 2 | 11 | 88.70 | 7.37 | 5.67 | 1.70 | 0.00 | 1.00 | 0.01 | 0.43 | -0.60 | -0.35 | 0.53 | -0.22 | -0.07 |
| 32 | 2 | 12 | 88.70 | 7.37 | 5.65 | 1.72 | 0.00 | 1.00 | 0.01 | 0.43 | -0.60 | -0.35 | 0.54 | -0.22 | -0.07 |
| 33 | 2 | 13 | 88.70 | 7.37 | 5.63 | 1.73 | 0.00 | 1.00 | 0.01 | 0.44 | -0.59 | -0.35 | 0.54 | -0.22 | -0.07 |
| 34 | 2 | 14 | 88.70 | 7.37 | 5.62 | 1.75 | 0.00 | 1.00 | 0.01 | 0.44 | -0.59 | -0.35 | 0.55 | -0.22 | -0.07 |
| 35 | 2 | 15 | 88.70 | 7.37 | 5.60 | 1.76 | 0.00 | 1.00 | 0.01 | 0.45 | -0.58 | -0.35 | 0.55 | -0.22 | -0.07 |
| 36 | 2 | 16 | 88.70 | 7.37 | 5.59 | 1.78 | 0.00 | 1.00 | 0.01 | 0.45 | -0.58 | -0.35 | 0.56 | -0.22 | -0.07 |
| 37 | 2 | 17 | 88.70 | 7.37 | 5.57 | 1.79 | 0.00 | 1.00 | 0.01 | 0.45 | -0.57 | -0.35 | 0.56 | -0.22 | -0.07 |
| 38 | 2 | 18 | 88.70 | 7.37 | 5.56 | 1.81 | 0.00 | 1.00 | 0.01 | 0.46 | -0.57 | -0.35 | 0.57 | -0.22 | -0.07 |
| 39 | 2 | 19 | 88.70 | 7.37 | 5.55 | 1.82 | 0.00 | 1.00 | 0.01 | 0.46 | -0.56 | -0.35 | 0.58 | -0.22 | -0.07 |
| 40 | 2 | 20 | 88.70 | 7.37 | 5.54 | 1.83 | 0.00 | 1.00 | 0.01 | 0.46 | -0.56 | -0.35 | 0.58 | -0.22 | -0.07 |
| 41 | 3 | 1 | 88.70 | 7.37 | 5.55 | 1.82 | 0.00 | 1.00 | 0.01 | 0.46 | -0.55 | -0.35 | 0.90 | -0.22 | -0.07 |
| 42 | 3 | 2 | 88.70 | 7.37 | 5.56 | 1.81 | 0.00 | 1.00 | 0.01 | 0.46 | -0.55 | -0.35 | 0.92 | -0.22 | -0.07 |

***** STEADY STATE SIMULATION *****

** DISSOLVED OXYGEN DATA **

| ELE ORD | RCH NUM | ELE NUM | TEMP DEG-F | DO SAT MG/L | DO MG/L | DO DEF MG/L | DAM INPUT MG/L | NIT INHIB FACT | COMPONENTS OF DISSOLVED OXYGEN MASS BALANCE (MG/L-DAY) F-FNCTN INPUT | OXYGN REAIR | C-BOD | SOD | NET P-R | NH3-N | NO2-N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 43 | 3 | 3 | 88.70 | 7.37 | 5.57 | 1.79 | 0.00 | 1.00 | 0.01 | 0.45 | -0.55 | -0.35 | 0.93 | -0.22 | -0.07 |
| 44 | 3 | 4 | 88.70 | 7.37 | 5.59 | 1.78 | 0.00 | 1.00 | 0.01 | 0.45 | -0.54 | -0.35 | 0.94 | -0.21 | -0.07 |
| 45 | 3 | 5 | 88.70 | 7.37 | 5.60 | 1.77 | 0.00 | 1.00 | 0.01 | 0.45 | -0.54 | -0.35 | 0.96 | -0.21 | -0.07 |
| 46 | 3 | 6 | 88.70 | 7.37 | 5.62 | 1.75 | 0.00 | 1.00 | 0.01 | 0.44 | -0.53 | -0.35 | 0.97 | -0.21 | -0.07 |
| 47 | 3 | 7 | 88.70 | 7.37 | 5.63 | 1.73 | 0.00 | 1.00 | 0.01 | 0.44 | -0.53 | -0.35 | 0.99 | -0.21 | -0.07 |
| 48 | 3 | 8 | 88.70 | 7.37 | 5.65 | 1.72 | 0.00 | 1.00 | 0.01 | 0.43 | -0.52 | -0.35 | 1.00 | -0.21 | -0.07 |
| 49 | 3 | 9 | 88.70 | 7.37 | 5.67 | 1.70 | 0.00 | 1.00 | 0.01 | 0.43 | -0.52 | -0.35 | 1.01 | -0.21 | -0.07 |
| 50 | 3 | 10 | 88.70 | 7.37 | 5.69 | 1.68 | 0.00 | 1.00 | 0.01 | 0.43 | -0.51 | -0.35 | 1.03 | -0.21 | -0.07 |
| 51 | 3 | 11 | 88.70 | 7.37 | 5.71 | 1.66 | 0.00 | 1.00 | 0.01 | 0.42 | -0.51 | -0.35 | 1.04 | -0.21 | -0.07 |
| 52 | 3 | 12 | 88.70 | 7.37 | 5.73 | 1.64 | 0.00 | 1.00 | 0.01 | 0.41 | -0.51 | -0.35 | 1.05 | -0.21 | -0.07 |
| 53 | 3 | 13 | 88.70 | 7.37 | 5.75 | 1.61 | 0.00 | 1.00 | 0.01 | 0.41 | -0.50 | -0.35 | 1.06 | -0.21 | -0.07 |
| 54 | 3 | 14 | 88.70 | 7.37 | 5.78 | 1.59 | 0.00 | 1.00 | 0.01 | 0.40 | -0.50 | -0.35 | 1.07 | -0.20 | -0.07 |
| 55 | 3 | 15 | 88.70 | 7.37 | 5.80 | 1.57 | 0.00 | 1.00 | 0.01 | 0.40 | -0.49 | -0.35 | 1.08 | -0.20 | -0.07 |
| 56 | 3 | 16 | 88.70 | 7.37 | 5.82 | 1.54 | 0.00 | 1.00 | 0.01 | 0.39 | -0.49 | -0.35 | 1.09 | -0.20 | -0.07 |
| 57 | 3 | 17 | 88.70 | 7.37 | 5.85 | 1.52 | 0.00 | 1.00 | 0.01 | 0.39 | -0.49 | -0.35 | 1.10 | -0.20 | -0.07 |
| 58 | 3 | 18 | 88.70 | 7.37 | 5.87 | 1.49 | 0.00 | 1.00 | 0.01 | 0.38 | -0.48 | -0.35 | 1.11 | -0.20 | -0.07 |
| 59 | 3 | 19 | 88.70 | 7.37 | 5.90 | 1.47 | 0.00 | 1.00 | 0.01 | 0.37 | -0.48 | -0.35 | 1.12 | -0.20 | -0.07 |
| 60 | 3 | 20 | 88.70 | 7.37 | 5.92 | 1.44 | 0.00 | 1.00 | 0.01 | 0.37 | -0.47 | -0.35 | 1.13 | -0.20 | -0.07 |
| 61 | 4 | 1 | 88.70 | 7.37 | 5.92 | 1.45 | 0.00 | 1.00 | 0.01 | 0.34 | -0.47 | -0.43 | 0.82 | -0.20 | -0.07 |
| 62 | 4 | 2 | 88.70 | 7.37 | 5.92 | 1.45 | 0.00 | 1.00 | 0.01 | 0.31 | -0.47 | -0.43 | 0.83 | -0.19 | -0.07 |
| 63 | 4 | 3 | 88.70 | 7.37 | 5.92 | 1.45 | 0.00 | 1.00 | 0.01 | 0.31 | -0.46 | -0.43 | 0.83 | -0.19 | -0.07 |
| 64 | 4 | 4 | 88.70 | 7.37 | 5.91 | 1.45 | 0.00 | 1.00 | 0.09 | 0.31 | -0.46 | -0.43 | 0.83 | -0.19 | -0.07 |
| 65 | 4 | 5 | 88.70 | 7.37 | 5.91 | 1.46 | 0.00 | 1.00 | 0.01 | 0.31 | -0.45 | -0.43 | 0.83 | -0.19 | -0.07 |
| 66 | 4 | 6 | 88.70 | 7.37 | 5.91 | 1.46 | 0.00 | 1.00 | 0.01 | 0.31 | -0.45 | -0.43 | 0.83 | -0.19 | -0.07 |
| 67 | 4 | 7 | 88.70 | 7.37 | 5.91 | 1.46 | 0.00 | 1.00 | 0.01 | 0.31 | -0.45 | -0.43 | 0.83 | -0.19 | -0.07 |
| 68 | 4 | 8 | 88.70 | 7.37 | 5.91 | 1.46 | 0.00 | 1.00 | 0.01 | 0.31 | -0.44 | -0.43 | 0.83 | -0.19 | -0.07 |
| 69 | 4 | 9 | 88.70 | 7.37 | 5.91 | 1.46 | 0.00 | 1.00 | 0.01 | 0.31 | -0.44 | -0.43 | 0.83 | -0.19 | -0.07 |
| 70 | 4 | 10 | 88.70 | 7.37 | 5.91 | 1.46 | 0.00 | 1.00 | 0.01 | 0.31 | -0.44 | -0.43 | 0.83 | -0.19 | -0.07 |
| 71 | 4 | 11 | 88.70 | 7.37 | 5.91 | 1.46 | 0.00 | 1.00 | 0.01 | 0.31 | -0.43 | -0.43 | 0.83 | -0.19 | -0.06 |
| 72 | 4 | 12 | 88.70 | 7.37 | 5.91 | 1.46 | 0.00 | 1.00 | 0.01 | 0.31 | -0.43 | -0.43 | 0.83 | -0.18 | -0.06 |
| 73 | 4 | 13 | 88.70 | 7.37 | 5.91 | 1.46 | 0.00 | 1.00 | 0.01 | 0.31 | -0.42 | -0.43 | 0.83 | -0.18 | -0.06 |
| 74 | 4 | 14 | 88.70 | 7.37 | 5.91 | 1.46 | 0.00 | 1.00 | 0.01 | 0.31 | -0.42 | -0.43 | 0.83 | -0.18 | -0.06 |
| 75 | 4 | 15 | 88.70 | 7.37 | 5.91 | 1.46 | 0.00 | 1.00 | 0.01 | 0.31 | -0.42 | -0.43 | 0.82 | -0.18 | -0.06 |
| 76 | 4 | 16 | 88.70 | 7.37 | 5.91 | 1.45 | 0.00 | 1.00 | 0.01 | 0.31 | -0.41 | -0.43 | 0.82 | -0.18 | -0.06 |
| 77 | 4 | 17 | 88.70 | 7.37 | 5.91 | 1.45 | 0.00 | 1.00 | 0.01 | 0.31 | -0.41 | -0.43 | 0.81 | -0.18 | -0.06 |
| 78 | 4 | 18 | 88.70 | 7.37 | 5.91 | 1.45 | 0.00 | 1.00 | 0.02 | 0.31 | -0.41 | -0.43 | 0.81 | -0.18 | -0.06 |
| 79 | 4 | 19 | 88.70 | 7.37 | 5.92 | 1.45 | 0.00 | 1.00 | 0.01 | 0.31 | -0.40 | -0.43 | 0.80 | -0.18 | -0.06 |
| 80 | 4 | 20 | 88.70 | 7.37 | 5.92 | 1.45 | 0.00 | 1.00 | 0.01 | 0.31 | -0.40 | -0.43 | 0.80 | -0.18 | -0.06 |
| 81 | 5 | 1 | 88.70 | 7.37 | 5.91 | 1.46 | 0.00 | 1.00 | 0.01 | 0.27 | -0.27 | -0.36 | 0.55 | -0.18 | -0.06 |
| 82 | 5 | 2 | 88.70 | 7.37 | 5.90 | 1.47 | 0.00 | 1.00 | 0.01 | 0.22 | -0.26 | -0.36 | 0.55 | -0.17 | -0.06 |
| 83 | 5 | 3 | 88.70 | 7.37 | 5.89 | 1.48 | 0.00 | 1.00 | 0.01 | 0.22 | -0.26 | -0.36 | 0.54 | -0.17 | -0.06 |
| 84 | 5 | 4 | 88.70 | 7.37 | 5.88 | 1.48 | 0.00 | 1.00 | 0.01 | 0.22 | -0.26 | -0.36 | 0.53 | -0.17 | -0.06 |

***** STEADY STATE SIMULATION *****

** DISSOLVED OXYGEN DATA **

| ELE ORD | RCH NUM | ELE NUM | TEMP DEG-F | DO SAT MG/L | DO MG/L | DO DEF MG/L | DAM INPUT MG/L | NIT INHIB FACT | COMPONENTS OF DISSOLVED OXYGEN MASS BALANCE (MG/L-DAY) F-FNCTN INPUT | OXYGN REAIR | C-BOD | SOD | NET P-R | NH3-N | NO2-N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 85 | 5 | 5 | 88.70 | 7.37 | 5.87 | 1.49 | 0.00 | 1.00 | 0.01 | 0.23 | -0.26 | -0.36 | 0.53 | -0.17 | -0.06 |
| 86 | 5 | 6 | 88.70 | 7.37 | 5.86 | 1.50 | 0.00 | 1.00 | 0.01 | 0.23 | -0.26 | -0.36 | 0.52 | -0.17 | -0.06 |
| 87 | 5 | 7 | 88.70 | 7.37 | 5.85 | 1.51 | 0.00 | 1.00 | 0.01 | 0.23 | -0.26 | -0.36 | 0.51 | -0.17 | -0.06 |
| 88 | 5 | 8 | 88.70 | 7.37 | 5.84 | 1.52 | 0.00 | 1.00 | 0.01 | 0.23 | -0.25 | -0.36 | 0.50 | -0.17 | -0.06 |
| 89 | 5 | 9 | 88.70 | 7.37 | 5.83 | 1.54 | 0.00 | 1.00 | 0.01 | 0.23 | -0.25 | -0.36 | 0.49 | -0.17 | -0.06 |
| 90 | 5 | 10 | 88.70 | 7.37 | 5.82 | 1.55 | 0.00 | 1.00 | 0.01 | 0.23 | -0.25 | -0.36 | 0.48 | -0.17 | -0.06 |
| 91 | 5 | 11 | 88.70 | 7.37 | 5.81 | 1.56 | 0.00 | 1.00 | 0.01 | 0.24 | -0.25 | -0.36 | 0.47 | -0.17 | -0.06 |
| 92 | 5 | 12 | 88.70 | 7.37 | 5.80 | 1.57 | 0.00 | 1.00 | 0.01 | 0.24 | -0.25 | -0.36 | 0.46 | -0.16 | -0.06 |
| 93 | 5 | 13 | 88.70 | 7.37 | 5.78 | 1.58 | 0.00 | 1.00 | 0.01 | 0.24 | -0.25 | -0.36 | 0.45 | -0.16 | -0.06 |
| 94 | 5 | 14 | 88.70 | 7.37 | 5.77 | 1.60 | 0.00 | 1.00 | 0.01 | 0.24 | -0.24 | -0.36 | 0.43 | -0.16 | -0.06 |
| 95 | 5 | 15 | 88.70 | 7.37 | 5.76 | 1.61 | 0.00 | 1.00 | 0.01 | 0.24 | -0.24 | -0.36 | 0.42 | -0.16 | -0.06 |
| 96 | 5 | 16 | 88.70 | 7.37 | 5.74 | 1.62 | 0.00 | 1.00 | 0.01 | 0.25 | -0.24 | -0.36 | 0.41 | -0.16 | -0.06 |
| 97 | 5 | 17 | 88.70 | 7.37 | 5.73 | 1.64 | 0.00 | 1.00 | 0.08 | 0.25 | -0.24 | -0.36 | 0.42 | -0.16 | -0.06 |
| 98 | 5 | 18 | 88.70 | 7.37 | 5.71 | 1.65 | 0.00 | 1.00 | 0.01 | 0.25 | -0.24 | -0.36 | 0.41 | -0.16 | -0.06 |
| 99 | 5 | 19 | 88.70 | 7.37 | 5.70 | 1.67 | 0.00 | 1.00 | 0.01 | 0.25 | -0.24 | -0.36 | 0.40 | -0.16 | -0.06 |
| 100 | 5 | 20 | 88.70 | 7.37 | 5.68 | 1.68 | 0.00 | 1.00 | 0.01 | 0.25 | -0.23 | -0.36 | 0.38 | -0.16 | -0.06 |
| 101 | 6 | 1 | 88.70 | 7.37 | 5.67 | 1.69 | 0.00 | 1.00 | 0.01 | 0.26 | -0.23 | -0.36 | 0.43 | -0.16 | -0.06 |
| 102 | 6 | 2 | 88.70 | 7.37 | 5.66 | 1.70 | 0.00 | 1.00 | 0.01 | 0.26 | -0.23 | -0.36 | 0.43 | -0.16 | -0.05 |
| 103 | 6 | 3 | 88.70 | 7.37 | 5.65 | 1.71 | 0.00 | 1.00 | 0.01 | 0.26 | -0.23 | -0.36 | 0.44 | -0.16 | -0.05 |
| 104 | 6 | 4 | 88.70 | 7.37 | 5.64 | 1.72 | 0.00 | 1.00 | 0.01 | 0.26 | -0.23 | -0.36 | 0.44 | -0.16 | -0.05 |
| 105 | 6 | 5 | 88.70 | 7.37 | 5.63 | 1.73 | 0.00 | 1.00 | 0.01 | 0.26 | -0.23 | -0.36 | 0.44 | -0.16 | -0.05 |
| 106 | 6 | 6 | 88.70 | 7.37 | 5.62 | 1.74 | 0.00 | 1.00 | 0.01 | 0.26 | -0.23 | -0.36 | 0.44 | -0.15 | -0.05 |
| 107 | 6 | 7 | 88.70 | 7.37 | 5.62 | 1.75 | 0.00 | 1.00 | 0.01 | 0.27 | -0.22 | -0.36 | 0.44 | -0.15 | -0.05 |
| 108 | 6 | 8 | 88.70 | 7.37 | 5.61 | 1.76 | 0.00 | 1.00 | 0.01 | 0.27 | -0.22 | -0.36 | 0.45 | -0.15 | -0.05 |
| 109 | 6 | 9 | 88.70 | 7.37 | 5.60 | 1.77 | 0.00 | 1.00 | 0.01 | 0.27 | -0.22 | -0.36 | 0.45 | -0.15 | -0.05 |
| 110 | 6 | 10 | 88.70 | 7.37 | 5.59 | 1.77 | 0.00 | 1.00 | 0.01 | 0.27 | -0.22 | -0.36 | 0.45 | -0.15 | -0.05 |
| 111 | 6 | 11 | 88.70 | 7.37 | 5.59 | 1.78 | 0.00 | 1.00 | 0.01 | 0.27 | -0.22 | -0.36 | 0.45 | -0.15 | -0.05 |
| 112 | 6 | 12 | 88.70 | 7.37 | 5.58 | 1.79 | 0.00 | 1.00 | 0.01 | 0.27 | -0.22 | -0.36 | 0.45 | -0.15 | -0.05 |
| 113 | 6 | 13 | 88.70 | 7.37 | 5.58 | 1.79 | 0.00 | 1.00 | 0.01 | 0.27 | -0.22 | -0.36 | 0.45 | -0.15 | -0.05 |
| 114 | 6 | 14 | 88.70 | 7.37 | 5.57 | 1.80 | 0.00 | 1.00 | 0.01 | 0.27 | -0.21 | -0.36 | 0.45 | -0.15 | -0.05 |
| 115 | 6 | 15 | 88.70 | 7.37 | 5.56 | 1.80 | 0.00 | 1.00 | 0.01 | 0.27 | -0.21 | -0.36 | 0.45 | -0.15 | -0.05 |
| 116 | 6 | 16 | 88.70 | 7.37 | 5.56 | 1.81 | 0.00 | 1.00 | 0.01 | 0.27 | -0.21 | -0.36 | 0.46 | -0.15 | -0.05 |
| 117 | 6 | 17 | 88.70 | 7.37 | 5.56 | 1.81 | 0.00 | 1.00 | 0.01 | 0.27 | -0.21 | -0.36 | 0.46 | -0.14 | -0.05 |
| 118 | 6 | 18 | 88.70 | 7.37 | 5.55 | 1.82 | 0.00 | 1.00 | 0.01 | 0.28 | -0.21 | -0.36 | 0.46 | -0.14 | -0.05 |
| 119 | 6 | 19 | 88.70 | 7.37 | 5.55 | 1.82 | 0.00 | 1.00 | 0.01 | 0.28 | -0.21 | -0.36 | 0.46 | -0.14 | -0.05 |
| 120 | 6 | 20 | 88.70 | 7.37 | 5.54 | 1.82 | 0.00 | 1.00 | 0.01 | 0.28 | -0.21 | -0.36 | 0.46 | -0.14 | -0.05 |
| 121 | 7 | 1 | 88.70 | 7.37 | 5.55 | 1.82 | 0.00 | 1.00 | 0.01 | 0.22 | -0.20 | -0.22 | 0.51 | -0.14 | -0.05 |
| 122 | 7 | 2 | 88.70 | 7.37 | 5.56 | 1.81 | 0.00 | 1.00 | 0.00 | 0.17 | -0.20 | -0.22 | 0.51 | -0.14 | -0.05 |
| 123 | 7 | 3 | 88.70 | 7.37 | 5.56 | 1.80 | 0.00 | 1.00 | 0.00 | 0.17 | -0.20 | -0.22 | 0.51 | -0.14 | -0.05 |
| 124 | 7 | 4 | 88.70 | 7.37 | 5.57 | 1.80 | 0.00 | 1.00 | 0.00 | 0.17 | -0.20 | -0.22 | 0.51 | -0.14 | -0.05 |
| 125 | 7 | 5 | 88.70 | 7.37 | 5.58 | 1.79 | 0.00 | 1.00 | 0.00 | 0.17 | -0.20 | -0.22 | 0.50 | -0.13 | -0.05 |
| 126 | 7 | 6 | 88.70 | 7.37 | 5.59 | 1.78 | 0.00 | 1.00 | 0.00 | 0.17 | -0.19 | -0.22 | 0.50 | -0.13 | -0.05 |

***** STEADY STATE SIMULATION *****

** DISSOLVED OXYGEN DATA **

| ELE ORD | RCH NUM | ELE NUM | TEMP DEG-F | DO SAT MG/L | DO MG/L | DO DEF MG/L | DAM INPUT MG/L | NIT INHIB FACT | COMPONENTS OF DISSOLVED OXYGEN MASS BALANCE (MG/L-DAY) F-FNCTN INPUT | OXYGN REAIR | C-BOD | SOD | NET P-R | NH3-N | NO2-N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 127 | 7 | 7 | 88.70 | 7.37 | 5.59 | 1.77 | 0.00 | 1.00 | 0.00 | 0.17 | -0.19 | -0.22 | 0.50 | -0.13 | -0.05 |
| 128 | 7 | 8 | 88.70 | 7.37 | 5.60 | 1.77 | 0.00 | 1.00 | 0.00 | 0.16 | -0.19 | -0.22 | 0.49 | -0.13 | -0.05 |
| 129 | 7 | 9 | 88.70 | 7.37 | 5.61 | 1.76 | 0.00 | 1.00 | 0.00 | 0.16 | -0.19 | -0.22 | 0.49 | -0.13 | -0.05 |
| 130 | 7 | 10 | 88.70 | 7.37 | 5.61 | 1.75 | 0.00 | 1.00 | 0.00 | 0.16 | -0.19 | -0.22 | 0.49 | -0.13 | -0.04 |
| 131 | 7 | 11 | 88.70 | 7.37 | 5.62 | 1.75 | 0.00 | 1.00 | 0.00 | 0.16 | -0.18 | -0.22 | 0.48 | -0.13 | -0.04 |
| 132 | 7 | 12 | 88.70 | 7.37 | 5.63 | 1.74 | 0.00 | 1.00 | 0.00 | 0.16 | -0.18 | -0.22 | 0.48 | -0.12 | -0.04 |
| 133 | 7 | 13 | 88.70 | 7.37 | 5.60 | 1.76 | 0.00 | 1.00 | 9.53 | 0.17 | -0.19 | -0.22 | 0.59 | -0.11 | -0.07 |
| 134 | 7 | 14 | 88.70 | 7.37 | 5.62 | 1.75 | 0.00 | 1.00 | 0.00 | 0.18 | -0.19 | -0.22 | 0.59 | -0.11 | -0.06 |
| 135 | 7 | 15 | 88.70 | 7.37 | 5.64 | 1.73 | 0.00 | 1.00 | 0.00 | 0.18 | -0.19 | -0.22 | 0.59 | -0.11 | -0.06 |
| 136 | 7 | 16 | 88.70 | 7.37 | 5.66 | 1.71 | 0.00 | 1.00 | 0.00 | 0.17 | -0.19 | -0.22 | 0.58 | -0.11 | -0.05 |
| 137 | 7 | 17 | 88.70 | 7.37 | 5.67 | 1.69 | 0.00 | 1.00 | 0.00 | 0.17 | -0.18 | -0.22 | 0.58 | -0.11 | -0.05 |
| 138 | 7 | 18 | 88.70 | 7.37 | 5.69 | 1.68 | 0.00 | 1.00 | 0.00 | 0.17 | -0.18 | -0.22 | 0.58 | -0.11 | -0.05 |
| 139 | 7 | 19 | 88.70 | 7.37 | 5.71 | 1.66 | 0.00 | 1.00 | 0.00 | 0.17 | -0.18 | -0.22 | 0.58 | -0.11 | -0.05 |
| 140 | 7 | 20 | 88.70 | 7.37 | 5.73 | 1.64 | 0.00 | 1.00 | 0.00 | 0.17 | -0.18 | -0.22 | 0.57 | -0.11 | -0.05 |
| 141 | 8 | 1 | 88.70 | 7.37 | 5.75 | 1.62 | 0.00 | 1.00 | 0.03 | 0.16 | -0.18 | -0.22 | 0.62 | -0.12 | -0.05 |
| 142 | 8 | 2 | 88.70 | 7.37 | 5.77 | 1.60 | 0.00 | 1.00 | 0.01 | 0.16 | -0.18 | -0.22 | 0.62 | -0.12 | -0.04 |
| 143 | 8 | 3 | 88.70 | 7.37 | 5.79 | 1.58 | 0.00 | 1.00 | 0.01 | 0.16 | -0.18 | -0.22 | 0.61 | -0.11 | -0.04 |
| 144 | 8 | 4 | 88.70 | 7.37 | 5.81 | 1.56 | 0.00 | 1.00 | 0.01 | 0.16 | -0.18 | -0.22 | 0.61 | -0.11 | -0.04 |
| 145 | 8 | 5 | 88.70 | 7.37 | 5.83 | 1.54 | 0.00 | 1.00 | 0.01 | 0.16 | -0.18 | -0.22 | 0.61 | -0.11 | -0.04 |
| 146 | 8 | 6 | 88.70 | 7.37 | 5.85 | 1.52 | 0.00 | 1.00 | 0.01 | 0.15 | -0.17 | -0.22 | 0.60 | -0.11 | -0.04 |
| 147 | 8 | 7 | 88.70 | 7.37 | 5.87 | 1.50 | 0.00 | 1.00 | 0.01 | 0.15 | -0.17 | -0.22 | 0.60 | -0.11 | -0.04 |
| 148 | 8 | 8 | 88.70 | 7.37 | 5.89 | 1.48 | 0.00 | 1.00 | 0.01 | 0.15 | -0.17 | -0.22 | 0.59 | -0.11 | -0.04 |

# WASTELOAD ALLOCATION MODEL INPUT FILES

**September, Mean Temperature**
**September, 90th Percentile Temperature**

CR5SEP.DAT

Sept. WLA for Avg. $H_2O$ Temp.

```
TITLE01              GEORGIA PACIFIC, OUACHITA RIVER NEAR CROSSETT, AR
TITLE02              SEPTEMBER PREDICTIVE MODEL (12/98 REVISION)
TITLE03   NO         CONSERVATIVE MINERAL   I
TITLE04   NO         CONSERVATIVE MINERAL  II
TI[illegible]   NO         CONSERVATIVE MINERAL III
TITL[illegible]6   NO         TEMPERATURE
TITLE07  YES         BIOCHEMICAL OXYGEN DEMAND IN MG/L
TITLE08  YES         ALGAE AS CHL-A IN UG/L
TITLE09  YES         PHOSPHORUS CYCLE AS P IN MG/L
TITLE10                (ORGANIC-P; DISSOLVED-P)
TITLE11  YES         NITROGEN CYCLE AS N IN MG/L
TITLE12                (ORGANIC-N; AMMONIA-N; NITRITE-N; NITRATE-N)
TITLE13  YES         DISSOLVED OXYGEN IN MG/L
TITLE14   NO         FECAL COLIFORMS IN NO./100 ML
TITLE15   NO         ARBITRARY NON-CONSERVATIVE  BOD    MG/L
ENDTITLE
LIST DATA INPUT
WRITE OPTIONAL SUMMARY
NO FLOW AUGMENTATION
STEADY STATE
NO TRAPEZOIDAL X-SECTIONS
NO PRINT LCD/SOLAR DATA
NO PLOT DO AND BOD
FIXED DNSTM CONC (YES=1)=          0        ULT BOD CONV RATE COEF          0
INPUT METRIC (YES=1)     =          0        OUTPUT METRIC (YES=1)    =      0
NUMBER OF REACHES        =          8        NUMBER OF JUNCTIONS      =      0
NUM OF HEADWATERS        =          1        NUMBER OF POINT LOADS    =      8
TIME STEP (HOURS)        =          1        LNTH  COMP  ELEMENT (DX)=    0.25
MAXIMUM ROUTE TIME (HRS)=        250        TIME INC. FOR RPT2 (HRS)=       1
LA[illegible]TUDE OF BASIN (DEG) =      33.0        LONGITUDE OF BASIN (DEG)=    92.0
S    ARD MERIDIAN (DEG) =      90.0        DAY OF YEAR START TIME  =   190.0
EVAP. COEFF. (AE)        =   0.00001        EVAP. COEF. (BE)        =  0.00010
ELEV  OF BASIN (ELEV)    =         60        DUST ATTENUATION COEF.  =    0.13
ENDATA1
O UPTAKE BY NH3 OXID(MG O/MG N)=   3.43  O UPTAKE BY NO2 OXID(MG O/MG N)=   1.14
O PROD  BY ALGAE (MG O/MG A)   =    1.8  O UPTAKE BY ALGAE (MG O/MG A)  =   2.00
N CONTENT OF ALGAE (MG N/MG A) =   .085  P CONTENT OF ALGAE (MG P/MG A) =  0.015
ALG MAX SPEC GROWTH RATE(1/DAY)=    2.5  ALGAE RESPIRATION RATE (1/DAY) =   0.05
N HALF SATURATION CONST  (MG/L)=   0.20  P HALF SATURATION CONST  (MG/L)=   0.01
LIN ALG EXCO (1/FT)/(UG-CHLA/L)= 0.0027  NLINCO(1/FT)/(UG-CHLA/L)**(2/3)= 0.0165
LIGHT FUNCTION OPTION (LFNOPT) =      2  LIGHT SATURATION COEF(LNGY/MIN)=   .100
DAILY AVERAGING OPTION (LAVOPT)=      2  LIGHT AVERAGING FACTOR (AFACT) =   0.92
NUMBER OF DAYLIGHT HOURS (DLH) =     12  TOTAL DAILY SOLAR RADT(BTU/FT2)=    646
ALGY GROWTH CALC OPTION(LGROPT)=      1  ALGAL PREF FOR NH3-N (PREFN)   =    0.5
ALG/TEMP SOLR RAD FACTOR(TFACT)=   0.44  NITRIFICATION INHIBITION COEF  =   10.0
ENDATA1A
ENDATA1B
STREAM REACH     1.0          REACH 1    FROM      227.0    TO       222.0
STREAM REACH     2.0          REACH 2    FROM      222.0    TO       217.0
STREAM REACH     3.0          REACH 3    FROM      217.0    TO       212.0
STREAM REACH     4.0          REACH 4    FROM      212.0    TO       207.0
STREAM REACH     5.0          REACH 5    FROM      207.0    TO       202.0
STREAM REACH     6.0          REACH 6    FROM      202.0    TO       197.0
STREAM REACH     7.0          REACH 7    FROM      197.0    TO       192.0
STREAM REACH     8.0          REACH 8    FROM      192.0    TO       190.0
   \TA2
 [illegible]EAM REACH          1.0       1.0       3.0   1.0
STREAM REACH                2.0       1.0       3.0   1.0
STREAM REACH                3.0       1.0       3.0   1.0
STREAM REACH                4.0       1.0       3.0   1.0
```

```
STREAM REACH                5.0       1.0       3.0    1.0
STREAM REACH                6.0       1.0       3.0    1.0
STREAM REACH                7.0       1.0       3.0    1.0
STREAM REACH                8.0       1.0       3.0    1.0
EN    3
FL.. FIELD RCH=  1.0       20.0          1.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.
FLAG FIELD RCH=  2.0       20.0          6.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.
FLAG FIELD RCH=  3.0       20.0          2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.
FLAG FIELD RCH=  4.0       20.0          2.2.2.6.2.2.2.2.2.2.2.2.2.6.2.2.
FLAG FIELD RCH=  5.0       20.0          2.2.2.2.2.2.2.2.2.2.2.2.2.6.2.2.
FLAG FIELD RCH=  6.0       20.0          2.2.2.2.2.2.2.2.2.2.6.2.2.2.2.2.
FLAG FIELD RCH=  7.0       20.0          6.2.2.2.2.2.2.2.2.2.6.2.2.2.2.2.
FLAG FIELD RCH=  8.0        8.0          6.2.2.2.2.2.2.5.
ENDATA4
HYDRAULICS RCH=  1.0       38.0    .00046      .897   7.17000     .0500      .035
HYDRAULICS RCH=  2.0       38.0    .00046      .897   7.17000     .0500      .035
HYDRAULICS RCH=  3.0       22.0    .00046      .897   7.17000     .0500      .035
HYDRAULICS RCH=  4.0       21.0    .00046      .897   8.00000     .0500      .035
HYDRAULICS RCH=  5.0       10.0    .00028      .946   12.0000     .0180      .035
HYDRAULICS RCH=  6.0       17.0    .00028      .946   12.0000     .0180      .035
HYDRAULICS RCH=  7.0        7.0    .00020      .930   15.0300     .0110      .035
HYDRAULICS RCH=  8.0        7.0    .00020      .930   15.0300     .0110      .035
ENDATA5
ENDATA5A
REACT COEF RCH=  1.0   0.050     0.0   .0510 3.0       0  0.0000 0.00E-4
REACT COEF RCH=  2.0   0.075     0.0   .0510 3.0       0  0.0000 0.00E-4
REACT COEF RCH=  3.0   0.075     0.0   .0510 3.0       0  0.0000 0.00E-4
REACT COEF RCH=  4.0   0.075     0.0   .0710 3.0       0  0.0000 0.00E-4
REACT COEF RCH=  5.0   0.050     0.0   .0710 3.0       0  0.0000 0.00E-4
RE^CT COEF RCH=  6.0   0.050     0.0   .0710 3.0       0  0.0000 0.00E-4
1     COEF RCH=  7.0   0.050     0.0   .0510 3.0       0  0.0000 0.00E-4
REACT COEF RCH=  8.0   0.050     0.0   .0510 3.0       0  0.0000 0.00E-4
ENDATA6
N AND P COEF   RCH=  1.0  0.100   .00  0.100   0.0   1.0   .00   0.0   0.0
N AND P COEF   RCH=  2.0  0.100   .00  0.100   0.0   1.0   .00   0.0   0.0
N AND P COEF   RCH=  3.0  0.100   .00  0.100   0.0   1.0   .00   0.0   0.0
N AND P COEF   RCH=  4.0  0.100   .00  0.100   0.0   1.0   .00   0.0   0.0
N AND P COEF   RCH=  5.0  0.100   .00  0.100   0.0   1.0   .00   0.0   0.0
N AND P COEF   RCH=  6.0  0.100   .00  0.100   0.0   1.0   .05   0.0   0.0
N AND P COEF   RCH=  7.0  0.100   .00  0.100   0.0   1.0   .05   0.0   0.0
N AND P COEF   RCH=  8.0  0.100   .00  0.100   0.0   1.0   .05   0.0   0.0
ENDATA6A
ALG/OTHER COEF RCH=  1.0   15.0  0.80   0.57   0.0   0.0   0.0   0.0
ALG/OTHER COEF RCH=  2.0   15.0  0.80   0.90   0.0   0.0   0.0   0.0
ALG/OTHER COEF RCH=  3.0   15.0  0.80   0.60   0.0   0.0   0.0   0.0
ALG/OTHER COEF RCH=  4.0   15.0  0.80   0.72   0.0   0.0   0.0   0.0
ALG/OTHER COEF RCH=  5.0   15.0  0.80   0.77   0.0   0.0   0.0   0.0
ALG/OTHER COEF RCH=  6.0   15.0  0.80   0.71   0.0   0.0   0.0   0.0
ALG/OTHER COEF RCH=  7.0   15.0  0.80   0.50   0.0   0.0   0.0   0.0
ALG/OTHER COEF RCH=  8.0   15.0  0.80   0.50   0.0   0.0   0.0   0.0
ENDATA6B
INITIAL COND-1 RCH=  1.0   80.6   6.53   3.75
INITIAL COND-1 RCH=  2.0   80.6   6.53   3.75
INITIAL COND-1 RCH=  3.0   80.6   6.53   3.75
INITIAL COND-1 RCH=  4.0   80.6   6.53   3.75
    TIAL COND-1 RCH=  5.0   80.6   6.53   3.75
    TIAL COND-1 RCH=  6.0   80.6   6.53   3.75
INITIAL COND-1 RCH=  7.0   80.6   6.53   3.75
INITIAL COND-1 RCH=  8.0   80.6   6.53   3.75
ENDATA7
```

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INITIAL COND-2 RCH=  1.0    2.8  0.484   0.05   0.10   0.40  0.070   0.04
INITIAL COND-2 RCH=  2.0    2.8  0.484   0.05   0.10   0.40  0.070   0.04
INITIAL COND-2 RCH=  3.0    2.8  0.484   0.05   0.10   0.40  0.070   0.04
INITIAL COND-2 RCH=  4.0    2.8  0.484   0.05   0.10   0.40  0.070   0.04
INI  L COND-2 RCH=  5.0    2.8  0.484   0.05   0.10   0.40  0.070   0.04
INI  L COND-2 RCH=  6.0    2.8  0.484   0.05   0.10   0.40  0.070   0.04
INITIAL COND-2 RCH=  7.0    2.8  0.484   0.05   0.10   0.40  0.070   0.04
INITIAL COND-2 RCH=  8.0    2.8  0.484   0.05   0.10   0.40  0.070   0.04
ENDATA7A
INCR INFLOW-1  RCH=  1.0    2.0   80.6  6.53   2.8
INCR INFLOW-1  RCH=  2.0    2.0   80.6  6.53   2.8
INCR INFLOW-1  RCH=  3.0    2.0   80.6  6.53   2.8
INCR INFLOW-1  RCH=  4.0    2.0   80.6  6.53   2.8
INCR INFLOW-1  RCH=  5.0    2.0   80.6  6.53   2.8
INCR INFLOW-1  RCH=  6.0    2.0   80.6  6.53   2.8
INCR INFLOW-1  RCH=  7.0    2.0   80.6  6.53   2.8
INCR INFLOW-1  RCH=  8.0    2.0   80.6  6.53   2.8
ENDATA8
INCR INFLOW-2  RCH=  1.0   0.00  0.484   0.05   0.10   0.40   0.07   0.04
INCR INFLOW-2  RCH=  2.0   0.00  0.484   0.05   0.10   0.40   0.07   0.04
INCR INFLOW-2  RCH=  3.0   0.00  0.484   0.05   0.10   0.40   0.07   0.04
INCR INFLOW-2  RCH=  4.0   0.00  0.484   0.05   0.10   0.40   0.07   0.04
INCR INFLOW-2  RCH=  5.0   0.00  0.484   0.05   0.10   0.40   0.07   0.04
INCR INFLOW-2  RCH=  6.0   0.00  0.484   0.05   0.10   0.40   0.07   0.04
INCR INFLOW-2  RCH=  7.0   0.00  0.484   0.05   0.10   0.40   0.07   0.04
INCR INFLOW-2  RCH=  8.0   0.00  0.484   0.05   0.10   0.40   0.07   0.04
ENDATA8A
ENDATA9
HEADWTR-1 HDW=  1.0  OUACHITA RIVER       829  80.6  6.53  3.75
ENDATA10
H    TR-2  HDW=  1.0    0.0    0.0    8.4 0.484  0.05  0.10  0.40 0.070  0.04
ENDATA10A
POINTLD-1 PTL=  1.0COFFEE CREEK  0.0     69.6  78.8  3.50  87.0
POINTLD-1 PTL=  2.0PIERRE CREEK  0.0      1.0  80.6  5.98   5.0
POINTLD-1 PTL=  3.0POSSUM BAYOU  0.0      0.1  80.6  5.98  2.80
POINTLD-1 PTL=  4.0BAYOUDEBUTTE  0.0      1.0  80.6  5.98   5.0
POINTLD-1 PTL=  5.0 BOGGY BAYOU  0.0      0.1  80.6  5.98  2.80
POINTLD-1 PTL=  6.0PAWPAW BAYOU  0.0      0.1  80.6  5.98  2.80
POINTLD-1 PTL=  7.0BAYOU BARTHO  0.0    222.0  78.8  5.98  2.80
POINTLD-1 PTL=  8.0STERLINGTONW  0.0     0.77  80.6  3.00  60.0
ENDATA11
POINTLD-2 PTL=   1.0   0.0   0.0  1.00  2.73  3.56  0.10  0.40 0.220 0.589
POINTLD-2 PTL=   2.0   0.0   0.0  1.00 0.484  0.05  0.10  0.40 0.070 0.040
POINTLD-2 PTL=   3.0   0.0   0.0  1.00 0.484  0.05  0.10  0.40 0.070 0.040
POINTLD-2 PTL=   4.0   0.0   0.0  1.00 5.000  5.00  0.10  0.40 0.070 1.000
POINTLD-2 PTL=   5.0   0.0   0.0   2.8 0.484  0.05  0.10  0.40 0.070 0.040
POINTLD-2 PTL=   6.0   0.0   0.0  1.00 0.484  0.05  0.10  0.40 0.070 0.040
POINTLD-2 PTL=   7.0   0.0   0.0  8.40 0.484  0.05  0.10  0.40 0.070 0.040
POINTLD-2 PTL=   8.0   0.0   0.0  10.0 12.00  12.00 0.10  2.00 1.000 3.000
ENDATA11A
ENDATA12
ENDATA13
ENDATA13A
BEGIN  RCH    1    2    3    4    5    6    7    8    9
PLOT   RCH    1    2    3    4    5    6    7    8    9
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CRSSEP9.DAT

Sept. WLA input file for 90th %tile temp.

```
TITLE01              GEORGIA PACIFIC, OUACHITA RIVER NEAR CROSSETT, AR
TITLE02              SEPTEMBER PREDICTIVE MODEL (12/98 REVISION)
TITLE03   NO         CONSERVATIVE MINERAL   I
TITLE04   NO         CONSERVATIVE MINERAL  II
TI    5   NO         CONSERVATIVE MINERAL III
TITLE06   NO         TEMPERATURE
TITLE07   YES        BIOCHEMICAL OXYGEN DEMAND IN MG/L
TITLE08   YES        ALGAE AS CHL-A IN UG/L
TITLE09   YES        PHOSPHORUS CYCLE AS P IN MG/L
TITLE10                (ORGANIC-P; DISSOLVED-P)
TITLE11   YES        NITROGEN CYCLE AS N IN MG/L
TITLE12                (ORGANIC-N; AMMONIA-N; NITRITE-N; NITRATE-N)
TITLE13   YES        DISSOLVED OXYGEN IN MG/L
TITLE14   NO         FECAL COLIFORMS IN NO./100 ML
TITLE15   NO         ARBITRARY NON-CONSERVATIVE  BOD    MG/L
ENDTITLE
LIST DATA INPUT
WRITE OPTIONAL SUMMARY
NO FLOW AUGMENTATION
STEADY STATE
NO TRAPEZOIDAL X-SECTIONS
NO PRINT LCD/SOLAR DATA
NO PLOT DO AND BOD
FIXED DNSTM CONC (YES=1)=         0          ULT BOD CONV RATE COEF           0
INPUT METRIC (YES=1)    =         0          OUTPUT METRIC (YES=1)    =       0
NUMBER OF REACHES       =         8          NUMBER OF JUNCTIONS      =       0
NUM OF HEADWATERS       =         1          NUMBER OF POINT LOADS    =       8
TIME STEP (HOURS)       =         1          LNTH  COMP  ELEMENT (DX)=     0.25
MAXIMUM ROUTE TIME (HRS)=       250          TIME INC. FOR RPT2 (HRS)=        1
L[illegible]TUDE OF BASIN (DEG) =    33.0    LONGITUDE OF BASIN (DEG)=     92.0
S   ARD MERIDIAN (DEG) =    90.0            DAY OF YEAR START TIME   =    190.0
EVAP. COEFF. (AE)       =  0.00001          EVAP. COEF. (BE)         =  0.00010
ELEV  OF BASIN (ELEV)   =        60         DUST ATTENUATION COEF.   =     0.13
ENDATA1
O UPTAKE BY NH3 OXID(MG O/MG N)=   3.43  O UPTAKE BY NO2 OXID(MG O/MG N)=   1.14
O PROD  BY ALGAE (MG O/MG A)   =    1.8  O UPTAKE BY ALGAE (MG O/MG A)  =   2.00
N CONTENT OF ALGAE (MG N/MG A) =   .085  P CONTENT OF ALGAE (MG P/MG A) =  0.015
ALG MAX SPEC GROWTH RATE(1/DAY)=    2.5  ALGAE RESPIRATION RATE (1/DAY) =   0.05
N HALF SATURATION CONST  (MG/L)=   0.20  P HALF SATURATION CONST  (MG/L)=   0.01
LIN ALG EXCO (1/FT)/(UG-CHLA/L)= 0.0027  NLINCO(1/FT)/(UG-CHLA/L)**(2/3)= 0.0165
LIGHT FUNCTION OPTION (LFNOPT) =      2  LIGHT SATURATION COEF(LNGY/MIN)=   .100
DAILY AVERAGING OPTION (LAVOPT)=      2  LIGHT AVERAGING FACTOR (AFACT) =   0.92
NUMBER OF DAYLIGHT HOURS (DLH) =     12  TOTAL DAILY SOLAR RADT(BTU/FT2)=    646
ALGY GROWTH CALC OPTION(LGROPT)=      1  ALGAL PREF FOR NH3-N (PREFN)   =   0.5
ALG/TEMP SOLR RAD FACTOR(TFACT)=   0.44  NITRIFICATION INHIBITION COEF  =  10.0
ENDATA1A
ENDATA1B
STREAM REACH      1.0          REACH 1    FROM      227.0    TO       222.0
STREAM REACH      2.0          REACH 2    FROM      222.0    TO       217.0
STREAM REACH      3.0          REACH 3    FROM      217.0    TO       212.0
STREAM REACH      4.0          REACH 4    FROM      212.0    TO       207.0
STREAM REACH      5.0          REACH 5    FROM      207.0    TO       202.0
STREAM REACH      6.0          REACH 6    FROM      202.0    TO       197.0
STREAM REACH      7.0          REACH 7    FROM      197.0    TO       192.0
STREAM REACH      8.0          REACH 8    FROM      192.0    TO       190.0
    TA2
[illegible]EAM REACH              1.0      1.0      3.0   1.0
STREAM REACH                      2.0      1.0      3.0   1.0
STREAM REACH                      3.0      1.0      3.0   1.0
STREAM REACH                      4.0      1.0      3.0   1.0
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STREAM REACH                5.0       1.0       3.0   1.0
STREAM REACH                6.0       1.0       3.0   1.0
STREAM REACH                7.0       1.0       3.0   1.0
STREAM REACH                8.0       1.0       3.0   1.0
EN   3
FLA  FIELD RCH=  1.0       20.0          1.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.
FLAG FIELD RCH=  2.0       20.0          6.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.
FLAG FIELD RCH=  3.0       20.0          2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.
FLAG FIELD RCH=  4.0       20.0          2.2.2.6.2.2.2.2.2.2.2.2.2.2.6.2.2.
FLAG FIELD RCH=  5.0       20.0          2.2.2.2.2.2.2.2.2.2.2.2.2.6.2.2.2.
FLAG FIELD RCH=  6.0       20.0          2.2.2.2.2.2.2.2.2.2.6.2.2.2.2.2.2.
FLAG FIELD RCH=  7.0       20.0          6.2.2.2.2.2.2.2.2.2.6.2.2.2.2.2.2.
FLAG FIELD RCH=  8.0        8.0          6.2.2.2.2.2.2.5.
ENDATA4
HYDRAULICS RCH=  1.0       38.0    .00046      .897    7.17000      .0500      .035
HYDRAULICS RCH=  2.0       38.0    .00046      .897    7.17000      .0500      .035
HYDRAULICS RCH=  3.0       22.0    .00046      .897    7.17000      .0500      .035
HYDRAULICS RCH=  4.0       21.0    .00046      .897    8.00000      .0500      .035
HYDRAULICS RCH=  5.0       10.0    .00028      .946    12.0000      .0180      .035
HYDRAULICS RCH=  6.0       17.0    .00028      .946    12.0000      .0180      .035
HYDRAULICS RCH=  7.0        7.0    .00020      .930    15.0300      .0110      .035
HYDRAULICS RCH=  8.0        7.0    .00020      .930    15.0300      .0110      .035
ENDATA5
ENDATA5A
REACT COEF RCH=  1.0   0.050     0.0   .0510 3.0        0  0.0000 0.00E-4
REACT COEF RCH=  2.0   0.075     0.0   .0510 3.0        0  0.0000 0.00E-4
REACT COEF RCH=  3.0   0.075     0.0   .0510 3.0        0  0.0000 0.00E-4
REACT COEF RCH=  4.0   0.075     0.0   .0710 3.0        0  0.0000 0.00E-4
REACT COEF RCH=  5.0   0.050     0.0   .0710 3.0        0  0.0000 0.00E-4
RE   T COEF RCH=  6.0   0.050     0.0   .0710 3.0        0  0.0000 0.00E-4
R      COEF RCH=  7.0   0.050     0.0   .0510 3.0        0  0.0000 0.00E-4
REACT COEF RCH=  8.0   0.050     0.0   .0510 3.0        0  0.0000 0.00E-4
ENDATA6
N AND P COEF   RCH=  1.0  0.100   .00  0.100   0.0   1.0   .00   0.0   0.0
N AND P COEF   RCH=  2.0  0.100   .00  0.100   0.0   1.0   .00   0.0   0.0
N AND P COEF   RCH=  3.0  0.100   .00  0.100   0.0   1.0   .00   0.0   0.0
N AND P COEF   RCH=  4.0  0.100   .00  0.100   0.0   1.0   .00   0.0   0.0
N AND P COEF   RCH=  5.0  0.100   .00  0.100   0.0   1.0   .00   0.0   0.0
N AND P COEF   RCH=  6.0  0.100   .00  0.100   0.0   1.0   .05   0.0   0.0
N AND P COEF   RCH=  7.0  0.100   .00  0.100   0.0   1.0   .05   0.0   0.0
N AND P COEF   RCH=  8.0  0.100   .00  0.100   0.0   1.0   .05   0.0   0.0
ENDATA6A
ALG/OTHER COEF RCH=  1.0   15.0  0.80   0.57   0.0   0.0   0.0   0.0
ALG/OTHER COEF RCH=  2.0   15.0  0.80   0.90   0.0   0.0   0.0   0.0
ALG/OTHER COEF RCH=  3.0   15.0  0.80   0.60   0.0   0.0   0.0   0.0
ALG/OTHER COEF RCH=  4.0   15.0  0.80   0.72   0.0   0.0   0.0   0.0
ALG/OTHER COEF RCH=  5.0   15.0  0.80   0.77   0.0   0.0   0.0   0.0
ALG/OTHER COEF RCH=  6.0   15.0  0.80   0.71   0.0   0.0   0.0   0.0
ALG/OTHER COEF RCH=  7.0   15.0  0.80   0.50   0.0   0.0   0.0   0.0
ALG/OTHER COEF RCH=  8.0   15.0  0.80   0.50   0.0   0.0   0.0   0.0
ENDATA6B
INITIAL COND-1 RCH=  1.0   85.6   6.22   3.75
INITIAL COND-1 RCH=  2.0   85.6   6.22   3.75
INITIAL COND-1 RCH=  3.0   85.6   6.22   3.75
INITIAL COND-1 RCH=  4.0   85.6   6.22   3.75
   IAL COND-1 RCH=  5.0   85.6   6.22   3.75
  IAL COND-1 RCH=  6.0   85.6   6.22   3.75
INITIAL COND-1 RCH=  7.0   85.6   6.22   3.75
INITIAL COND-1 RCH=  8.0   85.6   6.22   3.75
ENDATA7
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INITIAL COND-2 RCH=  1.0     2.8  0.484   0.05   0.10   0.40  0.070   0.04
INITIAL COND-2 RCH=  2.0     2.8  0.484   0.05   0.10   0.40  0.070   0.04
INITIAL COND-2 RCH=  3.0     2.8  0.484   0.05   0.10   0.40  0.070   0.04
INITIAL COND-2 RCH=  4.0     2.8  0.484   0.05   0.10   0.40  0.070   0.04
IN    L COND-2 RCH=  5.0     2.8  0.484   0.05   0.10   0.40  0.070   0.04
INITIAL COND-2 RCH=  6.0     2.8  0.484   0.05   0.10   0.40  0.070   0.04
INITIAL COND-2 RCH=  7.0     2.8  0.484   0.05   0.10   0.40  0.070   0.04
INITIAL COND-2 RCH=  8.0     2.8  0.484   0.05   0.10   0.40  0.070   0.04
ENDATA7A
INCR INFLOW-1  RCH=  1.0     2.0   85.6  6.22   2.8
INCR INFLOW-1  RCH=  2.0     2.0   85.6  6.22   2.8
INCR INFLOW-1  RCH=  3.0     2.0   85.6  6.22   2.8
INCR INFLOW-1  RCH=  4.0     2.0   85.6  6.22   2.8
INCR INFLOW-1  RCH=  5.0     2.0   85.6  6.22   2.8
INCR INFLOW-1  RCH=  6.0     2.0   85.6  6.22   2.8
INCR INFLOW-1  RCH=  7.0     2.0   85.6  6.22   2.8
INCR INFLOW-1  RCH=  8.0     2.0   85.6  6.22   2.8
ENDATA8
INCR INFLOW-2  RCH=  1.0    0.00  0.484   0.05   0.10   0.40   0.07   0.04
INCR INFLOW-2  RCH=  2.0    0.00  0.484   0.05   0.10   0.40   0.07   0.04
INCR INFLOW-2  RCH=  3.0    0.00  0.484   0.05   0.10   0.40   0.07   0.04
INCR INFLOW-2  RCH=  4.0    0.00  0.484   0.05   0.10   0.40   0.07   0.04
INCR INFLOW-2  RCH=  5.0    0.00  0.484   0.05   0.10   0.40   0.07   0.04
INCR INFLOW-2  RCH=  6.0    0.00  0.484   0.05   0.10   0.40   0.07   0.04
INCR INFLOW-2  RCH=  7.0    0.00  0.484   0.05   0.10   0.40   0.07   0.04
INCR INFLOW-2  RCH=  8.0    0.00  0.484   0.05   0.10   0.40   0.07   0.04
ENDATA8A
ENDATA9
HEADWTR-1 HDW=  1.0  OUACHITA RIVER      829  85.6  6.22  3.75
EN   TA10
H    TR-2  HDW=  1.0    0.0    0.0    8.4 0.484  0.05  0.10  0.40 0.070  0.04
ENDATA10A
POINTLD-1 PTL=  1.0COFFEE CREEK  0.0     69.6  83.8  3.50  70.0
POINTLD-1 PTL=  2.0PIERRE CREEK  0.0      1.0  85.6  5.69   5.0
POINTLD-1 PTL=  3.0POSSUM BAYOU  0.0      0.1  85.6  5.69  2.80
POINTLD-1 PTL=  4.0BAYOUDEBUTTE  0.0      1.0  85.6  5.69   5.0
POINTLD-1 PTL=  5.0 BOGGY BAYOU  0.0      0.1  85.6  5.69  2.80
POINTLD-1 PTL=  6.0PAWPAW BAYOU  0.0      0.1  85.6  5.69  2.80
POINTLD-1 PTL=  7.0BAYOU BARTHO  0.0    222.0  83.8  5.69  2.80
POINTLD-1 PTL=  8.0STERLINGTONW  0.0     0.77  85.6  3.00  60.0
ENDATA11
POINTLD-2 PTL=   1.0    0.0    0.0  1.00  2.73  3.56  0.10  0.40 0.220 0.589
POINTLD-2 PTL=   2.0    0.0    0.0  1.00 0.484  0.05  0.10  0.40 0.070 0.040
POINTLD-2 PTL=   3.0    0.0    0.0  1.00 0.484  0.05  0.10  0.40 0.070 0.040
POINTLD-2 PTL=   4.0    0.0    0.0  1.00 5.000  5.00  0.10  0.40 0.070 1.000
POINTLD-2 PTL=   5.0    0.0    0.0   2.8 0.484  0.05  0.10  0.40 0.070 0.040
POINTLD-2 PTL=   6.0    0.0    0.0  1.00 0.484  0.05  0.10  0.40 0.070 0.040
POINTLD-2 PTL=   7.0    0.0    0.0  8.40 0.484  0.05  0.10  0.40 0.070 0.040
POINTLD-2 PTL=   8.0    0.0    0.0  10.0 12.00  12.00 0.10  2.00 1.000 3.000
ENDATA11A
ENDATA12
ENDATA13
ENDATA13A
BEGIN  RCH    1    2    3    4    5    6    7    8    9
PLOT   RCH    1    2    3    4    5    6    7    8    9
```

# WASTELOAD ALLOCATION MODEL OUTPUT FILES

**September, Mean Temperature**
**September, 90th Percentile Temperature**

* * * QUAL-2E STREAM QUALITY ROUTING MODEL * * *

Version 3.22 -- May 1996

$$$ (PROBLEM TITLES) $$$

| CARD TYPE | | QUAL-2E PROGRAM TITLES |
|---|---|---|
| TITLE01 | | GEORGIA PACIFIC, OUACHITA RIVER NEAR CROSSETT, AR |
| TITLE02 | | SEPTEMBER PREDICTIVE MODEL (12/98 REVISION) |
| TITLE03 | NO | CONSERVATIVE MINERAL I |
| TITLE04 | NO | CONSERVATIVE MINERAL II |
| TITLE05 | NO | CONSERVATIVE MINERAL III |
| TITLE06 | NO | TEMPERATURE |
| TITLE07 | YES | BIOCHEMICAL OXYGEN DEMAND IN MG/L |
| TITLE08 | YES | ALGAE AS CHL-A IN UG/L |
| TITLE09 | YES | PHOSPHORUS CYCLE AS P IN MG/L |
| TITLE10 | | (ORGANIC-P; DISSOLVED-P) |
| TITLE11 | YES | NITROGEN CYCLE AS N IN MG/L |
| TITLE12 | | (ORGANIC-N; AMMONIA-N; NITRITE-N; NITRATE-N) |
| TITLE13 | YES | DISSOLVED OXYGEN IN MG/L |
| TITLE14 | NO | FECAL COLIFORMS IN NO./100 ML |
| TITLE15 | NO | ARBITRARY NON-CONSERVATIVE BOD MG/L |
| ENDTITLE | | |

CR5SEP.OUT

OUTPUT file for Avg. Temp. WLA

$$$ DATA TYPE 1 (CONTROL DATA) $$$

| CARD TYPE | | CARD TYPE | |
|---|---|---|---|
| LIST DATA INPUT | 0.00000 | | 0.00000 |
| WRITE OPTIONAL SUMMARY | 0.00000 | | 0.00000 |
| NO FLOW AUGMENTATION | 0.00000 | | 0.00000 |
| STEADY STATE | 0.00000 | | 0.00000 |
| NO TRAPEZOIDAL X-SECTIONS | 0.00000 | | 0.00000 |
| NO PRINT LCD/SOLAR DATA | 0.00000 | | 0.00000 |
| NO PLOT DO AND BOD | 0.00000 | | 0.00000 |
| FIXED DNSTM CONC (YES=1) = | 0.00000 | ULT BOD CONV RATE COEF | 0.23000 |
| INPUT METRIC (YES=1) = | 0.00000 | OUTPUT METRIC (YES=1) = | 0.00000 |
| NUMBER OF REACHES = | 8.00000 | NUMBER OF JUNCTIONS = | 0.00000 |
| NUM OF HEADWATERS = | 1.00000 | NUMBER OF POINT LOADS = | 8.00000 |
| TIME STEP (HOURS) = | 1.00000 | LNTH COMP ELEMENT (DX) = | 0.25000 |
| MAXIMUM ROUTE TIME (HRS) = | 250.00000 | TIME INC. FOR RPT2 (HRS) = | 1.00000 |
| LATITUDE OF BASIN (DEG) = | 33.00000 | LONGITUDE OF BASIN (DEG) = | 92.00000 |
| STANDARD MERIDIAN (DEG) = | 90.00000 | DAY OF YEAR START TIME = | 190.00000 |
| EVAP. COEFF. (AE) = | 0.00001 | EVAP. COEF. (BE) = | 0.00010 |
| ELEV OF BASIN (ELEV) = | 60.00000 | DUST ATTENUATION COEF. = | 0.13000 |
| ENDATA1 | 0.00000 | | 0.00000 |

$$$ DATA TYPE 1A (ALGAE PRODUCTION AND NITROGEN OXIDATION CONSTANTS) $$$

| CARD TYPE | | CARD TYPE | |
|---|---|---|---|
| O UPTAKE BY NH3 OXID(MG O/MG N) = | 3.4300 | O UPTAKE BY NO2 OXID(MG O/MG N) = | 1.1400 |
| O PROD BY ALGAE (MG O/MG A) = | 1.8000 | O UPTAKE BY ALGAE (MG O/MG A) = | 2.0000 |
| N CONTENT OF ALGAE (MG N/MG A) = | 0.0850 | P CONTENT OF ALGAE (MG P/MG A) = | 0.0150 |
| ALG MAX SPEC GROWTH RATE(1/DAY) = | 2.5000 | ALGAE RESPIRATION RATE (1/DAY) = | 0.0500 |
| N HALF SATURATION CONST (MG/L) = | 0.2000 | P HALF SATURATION CONST (MG/L) = | 0.0100 |
| LIN ALG SHADE CO (1/FT-UGCHA/L=) | 0.0027 | NLIN SHADE(1/FT-(UGCHA/L)**2/3) = | 0.0165 |
| LIGHT FUNCTION OPTION (LFNOPT) = | 2.0000 | LIGHT SAT'N COEF (BTU/FT2-MIN) = | 0.1000 |
| DAILY AVERAGING OPTION (LAVOPT) = | 2.0000 | LIGHT AVERAGING FACTOR (AFACT) = | 0.9200 |
| NUMBER OF DAYLIGHT HOURS (DLH) = | 12.0000 | TOTAL DAILY SOLR RAD (BTU/FT-2) = | 646.0000 |
| ALGY GROWTH CALC OPTION(LGROPT) = | 1.0000 | ALGAL PREF FOR NH3-N (PREFN) = | 0.5000 |
| ALG/TEMP SOLR RAD FACTOR(TFACT) = | 0.4400 | NITRIFICATION INHIBITION COEF = | 10.0000 |
| ENDATA1A | 0.0000 | | 0.0000 |

$$$ DATA TYPE 1B (TEMPERATURE CORRECTION CONSTANTS FOR RATE COEFFICIENTS) $$$

| CARD TYPE | RATE CODE | THETA VALUE | |
|---|---|---|---|
| THETA( 1) | BOD DECA | 1.047 | DFLT |
| THETA( 2) | BOD SETT | 1.024 | DFLT |
| THETA( 3) | OXY TRAN | 1.024 | DFLT |
| THETA( 4) | SOD RATE | 1.060 | DFLT |
| THETA( 5) | ORGN DEC | 1.047 | DFLT |
| THETA( 6) | ORGN SET | 1.024 | DFLT |
| THETA( 7) | NH3 DECA | 1.083 | DFLT |
| THETA( 8) | NH3 SRCE | 1.074 | DFLT |
| THETA( 9) | NO2 DECA | 1.047 | DFLT |
| THETA(10) | PORG DEC | 1.047 | DFLT |
| THETA(11) | PORG SET | 1.024 | DFLT |
| THETA(12) | DISP SRC | 1.074 | DFLT |
| THETA(13) | ALG GROW | 1.047 | DFLT |
| THETA(14) | ALG RESP | 1.047 | DFLT |
| THETA(15) | ALG SETT | 1.024 | DFLT |
| THETA(16) | COLI DEC | 1.047 | DFLT |
| THETA(17) | ANC DECA | 1.000 | DFLT |
| THETA(18) | ANC SETT | 1.024 | DFLT |
| THETA(19) | ANC SRCE | 1.000 | DFLT |
| ENDATA1B | | | |

$$$ DATA TYPE 2 (REACH IDENTIFICATION) $$$

| CARD TYPE | REACH ORDER AND IDENT | | | R. MI/KM | | R. MI/KM |
|---|---|---|---|---|---|---|
| STREAM REACH | 1.0 | REACH 1 | FRO | 227.0 | TO | 222.0 |
| STREAM REACH | 2.0 | REACH 2 | FRO | 222.0 | TO | 217.0 |
| STREAM REACH | 3.0 | REACH 3 | FRO | 217.0 | TO | 212.0 |
| STREAM REACH | 4.0 | REACH 4 | FRO | 212.0 | TO | 207.0 |
| STREAM REACH | 5.0 | REACH 5 | FRO | 207.0 | TO | 202.0 |
| STREAM REACH | 6.0 | REACH 6 | FRO. | 202.0 | TO | 197.0 |
| STREAM REACH | 7.0 | REACH 7 | FRO | 197.0 | TO | 192.0 |
| STREAM REACH | 8.0 | REACH 8 | FRO | 192.0 | TO | 190.0 |
| ENDATA2 | 0.0 | | | 0.0 | | 0.0 |

$$$ DATA TYPE 3 (TARGET LEVEL DO AND FLOW AUGMENTATION SOURCES) $$$

| CARD TYPE | REACH | AVAIL HDWS | TARGET | ORDER OF AVAIL SOURCES | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| STREAM REACH | 1. | 1. | 3.0 | 1. | 0. | 0. | 0. | 0. | 0. |
| STREAM REACH | 2. | 1. | 3.0 | 1. | 0. | 0. | 0. | 0. | 0. |
| STREAM REACH | 3. | 1. | 3.0 | 1. | 0. | 0. | 0. | 0. | 0. |
| STREAM REACH | 4. | 1. | 3.0 | 1. | 0. | 0. | 0. | 0. | 0. |
| STREAM REACH | 5. | 1. | 3.0 | 1. | 0. | 0. | 0. | 0. | 0. |
| STREAM REACH | 6. | 1. | 3.0 | 1. | 0. | 0. | 0. | 0. | 0. |
| STREAM REACH | 7. | 1. | 3.0 | 1. | 0. | 0. | 0. | 0. | 0. |
| STREAM REACH | 8. | 1. | 3.0 | 1. | 0. | 0. | 0. | 0. | 0. |
| ENDATA3 | 0. | 0. | 0.0 | 0. | 0. | 0. | 0. | 0. | 0. |

$$$ DATA TYPE 4 (COMPUTATIONAL REACH FLAG FIELD) $$$

| CARD TYPE | REACH | ELEMENTS/REACH | COMPUTATIONAL FLAGS |
|---|---|---|---|
| FLAG FIELD | 1. | 20. | 1.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2. |
| FLAG FIELD | 2. | 20. | 6.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2. |
| FLAG FIELD | 3. | 20. | 2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2. |
| FLAG FIELD | 4. | 20. | 2.2.2.6.2.2.2.2.2.2.2.2.2.2.6.2.2. |
| FLAG FIELD | 5. | 20. | 2.2.2.2.2.2.2.2.2.2.2.2.2.2.6.2.2.2. |

| | | | |
|---|---|---|---|
| FLAG FIELD | 6. | 20. | 2.2.2.2.2.2.2.2.2.2.2.6.2.2.2.2.2.2.2. |
| FLAG FIELD | 7. | 20. | 6.2.2.2.2.2.2.2.2.2.2.6.2.2.2.2.2.2.2. |
| FLAG FIELD | 8. | 8. | 6.2.2.2.2.2.2.5.0.0.0.0.0.0.0.0.0.0.0. |
| ENDATA4 | 0. | 0. | 0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0. |

$$$ DATA TYPE 5 (HYDRAULIC DATA FOR DETERMINING VELOCITY AND DEPTH) $$$

| CARD TYPE | REACH | COEF-DSPN | COEFQV | EXPOQV | COEFQH | EXPOQH | CMANN |
|---|---|---|---|---|---|---|---|
| HYDRAULICS | 1. | 38.00 | 0.000 | 0.897 | 7.170 | 0.050 | 0.035 |
| HYDRAULICS | 2. | 38.00 | 0.000 | 0.897 | 7.170 | 0.050 | 0.035 |
| HYDRAULICS | 3. | 22.00 | 0.000 | 0.897 | 7.170 | 0.050 | 0.035 |
| HYDRAULICS | 4. | 21.00 | 0.000 | 0.897 | 8.000 | 0.050 | 0.035 |
| HYDRAULICS | 5. | 10.00 | 0.000 | 0.946 | 12.000 | 0.018 | 0.035 |
| HYDRAULICS | 6. | 17.00 | 0.000 | 0.946 | 12.000 | 0.018 | 0.035 |
| HYDRAULICS | 7. | 7.00 | 0.000 | 0.930 | 15.030 | 0.011 | 0.035 |
| HYDRAULICS | 8. | 7.00 | 0.000 | 0.930 | 15.030 | 0.011 | 0.035 |
| ENDATA5 | 0. | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

$$$ DATA TYPE 5A (STEADY STATE TEMPERATURE AND CLIMATOLOGY DATA) $$$

| CARD TYPE | REACH | ELEVATION | DUST COEF | CLOUD COVER | DRY BULB TEMP | WET BULB TEMP | ATM PRESSURE | WIND | SOLAR RAD ATTENUATION |
|---|---|---|---|---|---|---|---|---|---|
| ENDATA5A | 0. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 6 (REACTION COEFFICIENTS FOR DEOXYGENATION AND REAERATION) $$$

| CARD TYPE | REACH | K1 | K3 | SOD RATE | K2OPT | K2 | COEQK2 TSIV COEF FOR OPT 8 | OR OR | EXPQK2 SLOPE FOR OPT 8 |
|---|---|---|---|---|---|---|---|---|---|
| REACT COEF | 1. | 0.05 | 0.00 | 0.051 | 3. | 0.00 | 0.000 | | 0.00000 |
| REACT COEF | 2. | 0.08 | 0.00 | 0.051 | 3. | 0.00 | 0.000 | | 0.00000 |
| REACT COEF | 3. | 0.08 | 0.00 | 0.051 | 3. | 0.00 | 0.000 | | 0.00000 |
| REACT COEF | 4. | 0.08 | 0.00 | 0.071 | 3. | 0.00 | 0.000 | | 0.00000 |
| REACT COEF | 5. | 0.05 | 0.00 | 0.071 | 3. | 0.00 | 0.000 | | 0.00000 |
| REACT COEF | 6. | 0.05 | 0.00 | 0.071 | 3. | 0.00 | 0.000 | | 0.00000 |
| REACT COEF | 7. | 0.05 | 0.00 | 0.051 | 3. | 0.00 | 0.000 | | 0.00000 |
| REACT COEF | 8. | 0.05 | 0.00 | 0.051 | 3. | 0.00 | 0.000 | | 0.00000 |
| ENDATA6 | 0. | 0.00 | 0.00 | 0.000 | 0. | 0.00 | 0.000 | | 0.00000 |

$$$ DATA TYPE 6A (NITROGEN AND PHOSPHORUS CONSTANTS) $$$

| CARD TYPE | REACH | CKNH2 | SETNH2 | CKNH3 | SNH3 | CKNO2 | CKPORG | SETPORG | SPO4 |
|---|---|---|---|---|---|---|---|---|---|
| N AND P COEF | 1. | 0.10 | 0.00 | 0.10 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| N AND P COEF | 2. | 0.10 | 0.00 | 0.10 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| N AND P COEF | 3. | 0.10 | 0.00 | 0.10 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| N AND P COEF | 4. | 0.10 | 0.00 | 0.10 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| N AND P COEF | 5. | 0.10 | 0.00 | 0.10 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| N AND P COEF | 6. | 0.10 | 0.00 | 0.10 | 0.00 | 1.00 | 0.05 | 0.00 | 0.00 |
| N AND P COEF | 7. | 0.10 | 0.00 | 0.10 | 0.00 | 1.00 | 0.05 | 0.00 | 0.00 |
| N AND P COEF | 8. | 0.10 | 0.00 | 0.10 | 0.00 | 1.00 | 0.05 | 0.00 | 0.00 |
| ENDATA6A | 0. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 6B (ALGAE/OTHER COEFFICIENTS) $$$

| CARD TYPE | REACH | ALPHAO | ALGSET | EXCOEF | CK5 CKCOLI | CKANC | SETANC | SRCANC |
|---|---|---|---|---|---|---|---|---|
| ALG/OTHER COEF | 1. | 15.00 | 0.80 | 0.57 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 2. | 15.00 | 0.80 | 0.90 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 3. | 15.00 | 0.80 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 4. | 15.00 | 0.80 | 0.72 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ALG/OTHER COEF | 5. | 15.00 | 0.80 | 0.77 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 6. | 15.00 | 0.80 | 0.71 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 7. | 15.00 | 0.80 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 8. | 15.00 | 0.80 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| ENDATA6B | 0. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 7 (INITIAL CONDITIONS) $$$

| CARD TYPE | REACH | TEMP | D.O. | BOD | CM-1 | CM-2 | CM-3 | ANC | COLI |
|---|---|---|---|---|---|---|---|---|---|
| INITIAL COND-1 | 1. | 80.60 | 6.53 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INITIAL COND-1 | 2. | 80.60 | 6.53 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INITIAL COND-1 | 3. | 80.60 | 6.53 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INITIAL COND-1 | 4. | 80.60 | 6.53 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INITIAL COND-1 | 5. | 80.60 | 6.53 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INITIAL COND-1 | 6. | 80.60 | 6.53 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INITIAL COND-1 | 7. | 80.60 | 6.53 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INITIAL COND-1 | 8. | 80.60 | 6.53 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| ENDATA7 | 0. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 7A (INITIAL CONDITIONS FOR CHOROPHYLL A, NITROGEN, AND PHOSPHORUS) $$$

| CARD TYPE | REACH | CHL-A | ORG-N | NH3-N | NO2-N | NO3-N | ORG-P | DIS-P |
|---|---|---|---|---|---|---|---|---|
| INITIAL COND-2 | 1. | 2.80 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INITIAL COND-2 | 2. | 2.80 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INITIAL COND-2 | 3. | 2.80 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INITIAL COND-2 | 4. | 2.80 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INITIAL COND-2 | 5. | 2.80 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INITIAL COND-2 | 6. | 2.80 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INITIAL COND-2 | 7. | 2.80 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INITIAL COND-2 | 8. | 2.80 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| ENDATA7A | 0. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 8 (INCREMENTAL INFLOW CONDITIONS) $$$

| CARD TYPE | REACH | FLOW | TEMP | D.O. | BOD | CM-1 | CM-2 | CM-3 | ANC | COLI |
|---|---|---|---|---|---|---|---|---|---|---|
| INCR INFLOW-1 | 1. | 2.000 | 80.60 | 6.53 | 2.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INCR INFLOW-1 | 2. | 2.000 | 80.60 | 6.53 | 2.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INCR INFLOW-1 | 3. | 2.000 | 80.60 | 6.53 | 2.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INCR INFLOW-1 | 4. | 2.000 | 80.60 | 6.53 | 2.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INCR INFLOW-1 | 5. | 2.000 | 80.60 | 6.53 | 2.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INCR INFLOW-1 | 6. | 2.000 | 80.60 | 6.53 | 2.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INCR INFLOW-1 | 7. | 2.000 | 80.60 | 6.53 | 2.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INCR INFLOW-1 | 8. | 2.000 | 80.60 | 6.53 | 2.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| ENDATA8 | 0. | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 8A (INCREMENTAL INFLOW CONDITIONS FOR CHLOROPHYLL A, NITROGEN, AND PHOSPHORUS) $$$

| CARD TYPE | REACH | CHL-A | ORG-N | NH3-N | NO2-N | NO3-N | ORG-P | DIS-P |
|---|---|---|---|---|---|---|---|---|
| INCR INFLOW-2 | 1. | 0.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INCR INFLOW-2 | 2. | 0.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INCR INFLOW-2 | 3. | 0.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INCR INFLOW-2 | 4. | 0.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INCR INFLOW-2 | 5. | 0.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INCR INFLOW-2 | 6. | 0.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INCR INFLOW-2 | 7. | 0.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INCR INFLOW-2 | 8. | 0.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| ENDATA8A | 0. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 9 (STREAM JUNCTIONS) $$$

| CARD TYPE | JUNCTION ORDER AND IDENT | UPSTRM | JUNCTION | TRIB |
|---|---|---|---|---|
| ENDATA9 | 0. | 0. | 0. | 0. |

$$$ DATA TYPE 10 (HEADWATER SOURCES) $$$

| CARD TYPE | HDWTR ORDER | NAME | FLOW | TEMP | D.O. | BOD | CM-1 | CM-2 | CM-3 |
|---|---|---|---|---|---|---|---|---|---|
| HEADWTR-1 | 1. | OUACHITA RIVER | 829.00 | 80.60 | 6.53 | 3.75 | 0.00 | 0.00 | 0.00 |
| ENDATA10 | 0. | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 10A (HEADWATER CONDITIONS FOR CHLOROPHYLL, NITROGEN, PHOSPHORUS, COLIFORM AND SELECTED NON-CONSERVATIVE CONSTITUENT) $$$

| CARD TYPE | HDWTR ORDER | ANC | COLI | CHL-A | ORG-N | NH3-N | NO2-N | NO3-N | ORG-P | DIS-P |
|---|---|---|---|---|---|---|---|---|---|---|
| HEADWTR-2 | 1. | 0.00 | 0.00E+00 | 8.40 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| ENDATA10A | 0. | 0.00 | 0.00E+00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 11 (POINT SOURCE / POINT SOURCE CHARACTERISTICS) $$$

| CARD TYPE | POINT LOAD ORDER | NAME | EFF | FLOW | TEMP | D.O. | BOD | CM-1 | CM-2 | CM-3 |
|---|---|---|---|---|---|---|---|---|---|---|
| POINTLD-1 | 1. | COFFEE CREEK | 0.00 | 69.60 | 78.80 | 3.50 | 87.00 | 0.00 | 0.00 | 0.00 |
| POINTLD-1 | 2. | PIERRE CREEK | 0.00 | 1.00 | 80.60 | 5.98 | 5.00 | 0.00 | 0.00 | 0.00 |
| POINTLD-1 | 3. | POSSUM BAYOU | 0.00 | 0.10 | 80.60 | 5.98 | 2.80 | 0.00 | 0.00 | 0.00 |
| POINTLD-1 | 4. | BAYOUDEBUTTE | 0.00 | 1.00 | 80.60 | 5.98 | 5.00 | 0.00 | 0.00 | 0.00 |
| POINTLD-1 | 5. | BOGGY BAYOU | 0.00 | 0.10 | 80.60 | 5.98 | 2.80 | 0.00 | 0.00 | 0.00 |
| POINTLD-1 | 6. | PAWPAW BAYOU | 0.00 | 0.10 | 80.60 | 5.98 | 2.80 | 0.00 | 0.00 | 0.00 |
| POINTLD-1 | 7. | BAYOU BARTHO | 0.00 | 222.00 | 78.80 | 5.98 | 2.80 | 0.00 | 0.00 | 0.00 |
| POINTLD-1 | 8. | STERLINGTONW | 0.00 | 0.77 | 80.60 | 3.00 | 60.00 | 0.00 | 0.00 | 0.00 |
| ENDATA11 | 0. | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 11A (POINT SOURCE CHARACTERISTICS - CHLOROPHYLL A, NITROGEN, PHOSPHORUS, COLIFORMS AND SELECTED NON-CONSERVATIVE CONSTITUENT) $$$

| CARD TYPE | POINT LOAD ORDER | ANC | COLI | CHL-A | ORG-N | NH3-N | NO2-N | NO3-N | ORG-P | DIS-P |
|---|---|---|---|---|---|---|---|---|---|---|
| POINTLD-2 | 1. | 0.00 | 0.00E+00 | 1.00 | 2.73 | 3.56 | 0.10 | 0.40 | 0.22 | 0.59 |
| POINTLD-2 | 2. | 0.00 | 0.00E+00 | 1.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| POINTLD-2 | 3. | 0.00 | 0.00E+00 | 1.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| POINTLD-2 | 4. | 0.00 | 0.00E+00 | 1.00 | 5.00 | 5.00 | 0.10 | 0.40 | 0.07 | 1.00 |
| POINTLD-2 | 5. | 0.00 | 0.00E+00 | 2.80 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| POINTLD-2 | 6. | 0.00 | 0.00E+00 | 1.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| POINTLD-2 | 7. | 0.00 | 0.00E+00 | 8.40 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| POINTLD-2 | 8. | 0.00 | 0.00E+00 | 10.00 | 12.00 | 12.00 | 0.10 | 2.00 | 1.00 | 3.00 |
| ENDATA11A | 0. | 0.00 | 0.00E+00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 12 (DAM CHARACTERISTICS) $$$

| | DAM | RCH | ELE | ADAM | BDAM | FDAM | HDAM |
|---|---|---|---|---|---|---|---|
| ENDATA12 | 0. | 0. | 0. | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 13 (DOWNSTREAM BOUNDARY CONDITIONS-1) $$$

| CARD TYPE | TEMP | D.O. | BOD | CM-1 | CM-2 | CM-3 | ANC | COLI |
|---|---|---|---|---|---|---|---|---|
| ENDATA13 | DOWNSTREAM BOUNDARY CONCENTRATIONS ARE UNCONSTRAINED | | | | | | | |

$$$ DATA TYPE 13A (DOWNSTREAM BOUNDARY CONDITIONS-2) $$$

| CARD TYPE | CHL-A | ORG-N | NH3-N | NO2-N | NH3-N | ORG-P | DIS-P |
|---|---|---|---|---|---|---|---|
| ENDATA13A | DOWNSTREAM BOUNDARY CONCENTRATIONS ARE UNCONSTRAINED | | | | | | |

BIOCHEMICAL OXYGEN DEMAND IN MG/L ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3.73 | 3.71 | 3.69 | 3.67 | 3.65 | 3.63 | 3.61 | 3.59 | 3.57 | 3.55 | 3.53 | 3.51 | 3.49 | 3.47 | 3.45 | 3.43 | 3.41 | 3.40 | 3.38 | 3.52 |
| 2 | 9.74 | 9.67 | 9.59 | 9.52 | 9.45 | 9.37 | 9.30 | 9.23 | 9.16 | 9.09 | 9.02 | 8.95 | 8.88 | 8.81 | 8.74 | 8.68 | 8.61 | 8.54 | 8.48 | 8.41 |
| 3 | 8.35 | 8.28 | 8.22 | 8.16 | 8.10 | 8.03 | 7.97 | 7.91 | 7.85 | 7.79 | 7.73 | 7.67 | 7.61 | 7.55 | 7.49 | 7.44 | 7.38 | 7.32 | 7.27 | 7.21 |
| 4 | 7.16 | 7.10 | 7.05 | 6.99 | 6.94 | 6.88 | 6.83 | 6.78 | 6.73 | 6.68 | 6.63 | 6.57 | 6.52 | 6.47 | 6.42 | 6.38 | 6.33 | 6.28 | 6.23 | 6.18 |
| 5 | 6.15 | 6.11 | 6.08 | 6.04 | 6.00 | 5.97 | 5.93 | 5.89 | 5.86 | 5.82 | 5.79 | 5.75 | 5.72 | 5.69 | 5.65 | 5.62 | 5.58 | 5.55 | 5.52 | 5.48 |
| 6 | 5.45 | 5.42 | 5.39 | 5.35 | 5.32 | 5.29 | 5.26 | 5.23 | 5.20 | 5.16 | 5.13 | 5.10 | 5.07 | 5.04 | 5.01 | 4.98 | 4.95 | 4.92 | 4.89 | 4.86 |
| 7 | 4.83 | 4.78 | 4.74 | 4.69 | 4.65 | 4.61 | 4.56 | 4.52 | 4.48 | 4.44 | 4.40 | 4.36 | 4.02 | 3.99 | 3.96 | 3.93 | 3.90 | 3.87 | 3.84 | 3.82 |
| 8 | 3.82 | 3.79 | 3.77 | 3.74 | 3.71 | 3.68 | 3.65 | 3.63 | | | | | | | | | | | | |

STEADY STATE ALGAE/NUTRIENT/DISSOLVED OXYGEN SIMULATION; CONVERGENCE SUMMARY:

| VARIABLE | ITERATION | NUMBER OF NONCONVERGENT ELEMENTS |
|---|---|---|

ALGAE AS CHL-A IN UG/L — ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8.57 | 8.74 | 8.92 | 9.10 | 9.28 | 9.47 | 9.66 | 9.86 | 10.06 | 10.26 | 10.47 | 10.68 | 10.89 | 11.11 | 11.34 | 11.57 | 11.80 | 12.04 | 12.28 | 12.50 |
| 2 | 11.72 | 11.81 | 11.90 | 12.00 | 12.09 | 12.18 | 12.28 | 12.37 | 12.47 | 12.57 | 12.66 | 12.76 | 12.86 | 12.96 | 13.06 | 13.16 | 13.27 | 13.37 | 13.47 | 13.58 |
| 3 | 13.81 | 14.05 | 14.29 | 14.53 | 14.78 | 15.04 | 15.30 | 15.56 | 15.82 | 16.10 | 16.37 | 16.65 | 16.94 | 17.23 | 17.52 | 17.82 | 18.13 | 18.44 | 18.76 | 19.08 |
| 4 | 19.28 | 19.48 | 19.69 | 19.88 | 20.09 | 20.31 | 20.52 | 20.74 | 20.96 | 21.18 | 21.41 | 21.64 | 21.87 | 22.10 | 22.33 | 22.57 | 22.81 | 23.05 | 23.30 | 23.54 |
| 5 | 23.71 | 23.90 | 24.09 | 24.29 | 24.48 | 24.67 | 24.87 | 25.07 | 25.27 | 25.47 | 25.67 | 25.88 | 26.08 | 26.29 | 26.50 | 26.71 | 26.90 | 27.11 | 27.33 | 27.54 |
| 6 | 27.81 | 28.08 | 28.34 | 28.62 | 28.89 | 29.17 | 29.45 | 29.73 | 30.01 | 30.30 | 30.59 | 30.88 | 31.17 | 31.47 | 31.77 | 32.08 | 32.38 | 32.69 | 33.01 | 33.33 |
| 7 | 33.92 | 34.68 | 35.45 | 36.24 | 37.05 | 37.88 | 38.72 | 39.59 | 40.47 | 41.37 | 42.30 | 43.19 | 37.08 | 37.75 | 38.44 | 39.13 | 39.84 | 40.56 | 41.29 | 42.04 |
| 8 | 42.77 | 43.53 | 44.31 | 45.11 | 45.91 | 46.73 | 47.57 | 48.41 | | | | | | | | | | | | |

ORGANIC PHOSPHORUS AS P IN MG/L — ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 2 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 3 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 4 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 5 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.08 | 0.08 | 0.08 | 0.08 |
| 7 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 8 | 0.08 | 0.08 | 0.08 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | | | | | | | | | | | | |

DISSOLVED PHOSPHORUS AS P IN MG/L — ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 2 | 0.08 | 0.08 | 0.08 | 0.08 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 3 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 4 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 5 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 6 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 7 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 8 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 | | | | | | | | | | | | |

ORGANIC NITROGEN AS N IN MG/L — ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.48 | 0.47 | 0.47 | 0.46 | 0.46 | 0.45 | 0.45 | 0.45 | 0.44 | 0.44 | 0.43 | 0.43 | 0.42 | 0.42 | 0.41 | 0.41 | 0.41 | 0.40 | 0.40 | 0.40 |
| 2 | 0.57 | 0.56 | 0.56 | 0.55 | 0.55 | 0.54 | 0.54 | 0.53 | 0.53 | 0.52 | 0.52 | 0.51 | 0.51 | 0.50 | 0.50 | 0.49 | 0.49 | 0.48 | 0.48 | 0.48 |
| 3 | 0.47 | 0.47 | 0.46 | 0.46 | 0.45 | 0.45 | 0.45 | 0.44 | 0.44 | 0.43 | 0.43 | 0.43 | 0.42 | 0.42 | 0.41 | 0.41 | 0.41 | 0.40 | 0.40 | 0.40 |
| 4 | 0.39 | 0.39 | 0.39 | 0.38 | 0.38 | 0.38 | 0.37 | 0.37 | 0.37 | 0.36 | 0.36 | 0.36 | 0.36 | 0.35 | 0.35 | 0.35 | 0.34 | 0.34 | 0.34 | 0.34 |
| 5 | 0.33 | 0.33 | 0.33 | 0.32 | 0.32 | 0.32 | 0.31 | 0.31 | 0.31 | 0.31 | 0.30 | 0.30 | 0.30 | 0.30 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 |
| 6 | 0.28 | 0.28 | 0.28 | 0.28 | 0.27 | 0.27 | 0.27 | 0.27 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.24 |
| 7 | 0.24 | 0.24 | 0.24 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.22 | 0.22 | 0.22 | 0.22 | 0.27 | 0.27 | 0.26 | 0.26 | 0.26 | 0.26 | 0.25 | 0.25 |
| | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | | | | | | | | | | | | |

AMMONIA AS N IN MG/L — ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.05 | 0.06 | 0.06 | 0.07 | 0.07 | 0.07 | 0.08 | 0.08 | 0.09 | 0.09 | 0.09 | 0.09 | 0.10 | 0.10 | 0.10 | 0.11 | 0.11 | 0.11 | 0.11 | 0.12 |
| 2 | 0.38 | 0.38 | 0.38 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 |
| 3 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 |
| | 0.37 | 0.37 | 0.37 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.34 |
| | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 |
| 6 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.28 | 0.28 | 0.28 |
| 7 | 0.28 | 0.27 | 0.27 | 0.27 | 0.27 | 0.26 | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 | 0.25 | 0.21 | 0.21 | 0.21 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| 8 | 0.21 | 0.21 | 0.21 | 0.21 | 0.20 | 0.20 | 0.20 | 0.20 | | | | | | | | | | | | |

NITRITE AS N IN MG/L ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.09 | 0.08 | 0.08 | 0.07 | 0.06 | 0.06 | 0.05 | 0.05 | 0.04 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 |
| 2 | 0.03 | 0.03 | 0.03 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.05 | 0.05 | 0.05 | 0.05 |
| 3 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 4 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 5 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 6 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 7 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 |
| 8 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | | | | | | | | | | | | |

NITRATE AS N IN MG/L ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.41 | 0.42 | 0.42 | 0.43 | 0.43 | 0.44 | 0.44 | 0.45 | 0.45 | 0.45 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.47 | 0.47 | 0.47 |
| 2 | 0.46 | 0.47 | 0.47 | 0.47 | 0.47 | 0.48 | 0.48 | 0.48 | 0.48 | 0.49 | 0.49 | 0.49 | 0.50 | 0.50 | 0.50 | 0.51 | 0.51 | 0.51 | 0.52 | 0.52 |
| 3 | 0.52 | 0.53 | 0.53 | 0.53 | 0.53 | 0.54 | 0.54 | 0.54 | 0.54 | 0.55 | 0.55 | 0.55 | 0.55 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.57 | 0.57 |
| 4 | 0.57 | 0.57 | 0.58 | 0.58 | 0.58 | 0.58 | 0.59 | 0.59 | 0.59 | 0.59 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.61 | 0.61 | 0.61 | 0.61 | 0.62 |
| 5 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 0.64 | 0.65 | 0.65 | 0.65 | 0.65 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.67 |
| | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 |
| 7 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.68 | 0.68 | 0.68 | 0.63 | 0.63 | 0.63 | 0.63 | 0.62 | 0.62 | 0.62 | 0.62 |
| 8 | 0.62 | 0.62 | 0.61 | 0.61 | 0.61 | 0.61 | 0.60 | 0.60 | | | | | | | | | | | | |

DISSOLVED OXYGEN IN MG/L ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.52 | 6.52 | 6.52 | 6.52 | 6.52 | 6.52 | 6.52 | 6.53 | 6.53 | 6.54 | 6.54 | 6.55 | 6.56 | 6.57 | 6.58 | 6.59 | 6.60 | 6.61 | 6.62 | 6.62 |
| 2 | 6.32 | 6.25 | 6.18 | 6.12 | 6.06 | 5.99 | 5.93 | 5.87 | 5.82 | 5.76 | 5.71 | 5.65 | 5.60 | 5.55 | 5.51 | 5.46 | 5.41 | 5.37 | 5.33 | 5.28 |
| 3 | 5.26 | 5.24 | 5.21 | 5.19 | 5.18 | 5.16 | 5.14 | 5.13 | 5.11 | 5.10 | 5.09 | 5.08 | 5.08 | 5.07 | 5.07 | 5.06 | 5.06 | 5.06 | 5.06 | 5.06 |
| 4 | 5.04 | 5.02 | 5.00 | 4.98 | 4.96 | 4.94 | 4.92 | 4.90 | 4.89 | 4.87 | 4.86 | 4.84 | 4.83 | 4.82 | 4.81 | 4.80 | 4.80 | 4.79 | 4.79 | 4.78 |
| 5 | 4.77 | 4.76 | 4.75 | 4.74 | 4.73 | 4.72 | 4.71 | 4.71 | 4.70 | 4.69 | 4.69 | 4.68 | 4.68 | 4.68 | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 |
| 6 | 4.68 | 4.69 | 4.69 | 4.70 | 4.71 | 4.72 | 4.73 | 4.74 | 4.76 | 4.77 | 4.78 | 4.80 | 4.81 | 4.83 | 4.84 | 4.86 | 4.88 | 4.89 | 4.91 | 4.93 |
| 7 | 4.98 | 5.03 | 5.09 | 5.14 | 5.21 | 5.27 | 5.34 | 5.41 | 5.48 | 5.55 | 5.63 | 5.72 | 5.82 | 5.87 | 5.93 | 5.99 | 6.05 | 6.12 | 6.18 | 6.25 |
| 8 | 6.31 | 6.38 | 6.46 | 6.53 | 6.61 | 6.68 | 6.76 | 6.84 | | | | | | | | | | | | |

| | | |
|---|---|---|
| ALGAE GROWTH RATE | 1 | 147 |
| ALGAE GROWTH RATE | 2 | 147 |
| ALGAE GROWTH RATE | 3 | 143 |
| ALGAE GROWTH RATE | 4 | 126 |
| ALGAE GROWTH RATE | 5 | 71 |
| ALGAE GROWTH RATE | 6 | 11 |
| ALGAE GROWTH RATE | 7 | 0 |
| ALGAE GROWTH RATE | 8 | 0 |

MARY OF CONDITIONS FOR ALGAL GROWTH RATE SIMULATION:

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1. LIGHT AVERAGING OPTION. LAVOPT= 2

METHOD: MEAN SOLAR RADIATION DURING DAYLIGHT HOURS

SOURCE OF SOLAR VALUES: DATA TYPE 1A

DAILY NET SOLAR RADIATION: 646.000 BTU/FT-2 ( 175.305 LANGLEYS)

NUMBER OF DAYLIGHT HOURS: 0.0

PHOTOSYNTHETIC ACTIVE FRACTION OF SOLAR RADIATION (TFACT): N/A

MEAN SOLAR RADIATION ADJUSTMENT FACTOR (AFACT): 0.920

2. LIGHT FUNCTION OPTION: LFNOPT= 2

SMITH FUNCTION, WITH 71% IMAX = 0.027 LANGLEYS/MIN

3. GROWTH ATTENUATION OPTION FOR NUTRIENTS. LGROPT= 1

MULTIPLICATIVE: FL*FN*FP

DISSOLVED OXYGEN IN MG/L — ITERATION 8

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.52 | 6.52 | 6.51 | 6.51 | 6.51 | 6.51 | 6.51 | 6.51 | 6.51 | 6.51 | 6.52 | 6.52 | 6.53 | 6.53 | 6.54 | 6.55 | 6.55 | 6.56 | 6.57 | 6.57 |
| 2 | 6.27 | 6.21 | 6.15 | 6.09 | 6.03 | 5.98 | 5.92 | 5.87 | 5.82 | 5.77 | 5.72 | 5.67 | 5.63 | 5.58 | 5.54 | 5.50 | 5.46 | 5.42 | 5.39 | 5.35 |
| 3 | 5.33 | 5.32 | 5.30 | 5.29 | 5.28 | 5.27 | 5.26 | 5.25 | 5.25 | 5.24 | 5.24 | 5.24 | 5.24 | 5.24 | 5.24 | 5.25 | 5.25 | 5.26 | 5.27 | 5.27 |
| 4 | 5.26 | 5.24 | 5.22 | 5.21 | 5.19 | 5.18 | 5.17 | 5.15 | 5.14 | 5.13 | 5.13 | 5.12 | 5.11 | 5.10 | 5.10 | 5.09 | 5.09 | 5.09 | 5.09 | 5.08 |
| 5 | 5.08 | 5.07 | 5.07 | 5.06 | 5.05 | 5.05 | 5.04 | 5.03 | 5.03 | 5.03 | 5.02 | 5.02 | 5.02 | 5.01 | 5.01 | 5.01 | 5.01 | 5.01 | 5.01 | 5.01 |
| 6 | 5.01 | 5.02 | 5.03 | 5.03 | 5.04 | 5.05 | 5.05 | 5.06 | 5.07 | 5.08 | 5.09 | 5.10 | 5.11 | 5.12 | 5.13 | 5.14 | 5.15 | 5.17 | 5.18 | 5.19 |
| 7 | 5.22 | 5.24 | 5.27 | 5.30 | 5.33 | 5.36 | 5.39 | 5.42 | 5.45 | 5.48 | 5.52 | 5.55 | 5.65 | 5.68 | 5.70 | 5.73 | 5.75 | 5.78 | 5.80 | 5.83 |
| 8 | 5.85 | 5.88 | 5.91 | 5.94 | 5.97 | 5.99 | 6.02 | 6.05 | | | | | | | | | | | | |

BIOCHEMICAL OXYGEN DEMAND IN MG/L — ITERATION 8

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.73 | 3.71 | 3.69 | 3.67 | 3.65 | 3.63 | 3.61 | 3.59 | 3.57 | 3.55 | 3.53 | 3.51 | 3.49 | 3.47 | 3.45 | 3.43 | 3.41 | 3.40 | 3.38 | 3.52 |
| 2 | 9.74 | 9.67 | 9.59 | 9.52 | 9.45 | 9.37 | 9.30 | 9.23 | 9.16 | 9.09 | 9.02 | 8.95 | 8.88 | 8.81 | 8.74 | 8.68 | 8.61 | 8.54 | 8.48 | 8.41 |
| 3 | 8.35 | 8.28 | 8.22 | 8.16 | 8.10 | 8.03 | 7.97 | 7.91 | 7.85 | 7.79 | 7.73 | 7.67 | 7.61 | 7.55 | 7.49 | 7.44 | 7.38 | 7.32 | 7.27 | 7.21 |
| 4 | 7.16 | 7.10 | 7.05 | 6.99 | 6.94 | 6.88 | 6.83 | 6.78 | 6.73 | 6.68 | 6.63 | 6.57 | 6.52 | 6.47 | 6.42 | 6.38 | 6.33 | 6.28 | 6.23 | 6.18 |
| 5 | 6.15 | 6.11 | 6.08 | 6.04 | 6.00 | 5.97 | 5.93 | 5.89 | 5.86 | 5.82 | 5.79 | 5.75 | 5.72 | 5.69 | 5.65 | 5.62 | 5.58 | 5.55 | 5.52 | 5.48 |
| 6 | 5.45 | 5.42 | 5.39 | 5.35 | 5.32 | 5.29 | 5.26 | 5.23 | 5.20 | 5.16 | 5.13 | 5.10 | 5.07 | 5.04 | 5.01 | 4.98 | 4.95 | 4.92 | 4.89 | 4.86 |
| 7 | 4.83 | 4.78 | 4.74 | 4.69 | 4.65 | 4.61 | 4.56 | 4.52 | 4.48 | 4.44 | 4.40 | 4.36 | 4.02 | 3.99 | 3.96 | 3.93 | 3.90 | 3.87 | 3.84 | 3.82 |
| 8 | 3.82 | 3.79 | 3.77 | 3.74 | 3.71 | 3.68 | 3.65 | 3.63 | | | | | | | | | | | | |

ORGANIC NITROGEN AS N IN MG/L — ITERATION 8

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.48 | 0.47 | 0.47 | 0.46 | 0.46 | 0.45 | 0.45 | 0.45 | 0.44 | 0.44 | 0.43 | 0.43 | 0.42 | 0.42 | 0.41 | 0.41 | 0.41 | 0.40 | 0.40 | 0.40 |
| | 0.57 | 0.56 | 0.56 | 0.55 | 0.55 | 0.54 | 0.54 | 0.53 | 0.53 | 0.52 | 0.52 | 0.51 | 0.51 | 0.50 | 0.50 | 0.49 | 0.49 | 0.48 | 0.48 | 0.48 |
| 3 | 0.47 | 0.47 | 0.46 | 0.46 | 0.45 | 0.45 | 0.45 | 0.44 | 0.44 | 0.43 | 0.43 | 0.43 | 0.42 | 0.42 | 0.41 | 0.41 | 0.41 | 0.40 | 0.40 | 0.40 |
| 4 | 0.39 | 0.39 | 0.39 | 0.38 | 0.38 | 0.38 | 0.37 | 0.37 | 0.37 | 0.37 | 0.36 | 0.36 | 0.36 | 0.35 | 0.35 | 0.35 | 0.35 | 0.34 | 0.34 | 0.34 |
| 5 | 0.33 | 0.33 | 0.33 | 0.33 | 0.32 | 0.32 | 0.32 | 0.31 | 0.31 | 0.31 | 0.31 | 0.30 | 0.30 | 0.30 | 0.30 | 0.29 | 0.30 | 0.29 | 0.29 | 0.29 |
| 6 | 0.29 | 0.28 | 0.28 | 0.28 | 0.28 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| 7 | 0.25 | 0.24 | 0.24 | 0.24 | 0.24 | 0.23 | 0.23 | 0.23 | 0.23 | 0.22 | 0.22 | 0.22 | 0.27 | 0.27 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.25 |
| 8 | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.24 | | | | | | | | | | | | |

AMMONIA AS N IN MG/L — ITERATION 8

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.05 | 0.06 | 0.06 | 0.07 | 0.07 | 0.07 | 0.08 | 0.08 | 0.08 | 0.09 | 0.09 | 0.09 | 0.10 | 0.10 | 0.10 | 0.11 | 0.11 | 0.11 | 0.11 | 0.12 |
| 2 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.37 |
| 3 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.34 |
| 4 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.31 | 0.31 |
| 5 | 0.31 | 0.31 | 0.31 | 0.31 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.28 | 0.29 | 0.29 | 0.28 | 0.28 |
| 6 | 0.28 | 0.28 | 0.28 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| 7 | 0.24 | 0.24 | 0.24 | 0.23 | 0.23 | 0.23 | 0.23 | 0.22 | 0.22 | 0.22 | 0.22 | 0.21 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 |
| 8 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | | | | | | | | | | | | |

NITRITE AS N IN MG/L — ITERATION 8

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.09 | 0.08 | 0.08 | 0.07 | 0.06 | 0.06 | 0.05 | 0.05 | 0.04 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 |
| 2 | 0.03 | 0.03 | 0.03 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.05 | 0.05 |
| | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 5 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 6 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 7 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 8 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |

NITRATE AS N IN MG/L — ITERATION 8

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.41 | 0.42 | 0.42 | 0.43 | 0.44 | 0.44 | 0.44 | 0.45 | 0.45 | 0.45 | 0.46 | 0.46 | 0.46 | 0.46 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 |
| 2 | 0.47 | 0.47 | 0.47 | 0.48 | 0.48 | 0.48 | 0.49 | 0.49 | 0.49 | 0.49 | 0.50 | 0.50 | 0.50 | 0.51 | 0.51 | 0.52 | 0.52 | 0.52 | 0.53 | 0.53 |
| 3 | 0.53 | 0.54 | 0.54 | 0.54 | 0.54 | 0.55 | 0.55 | 0.55 | 0.56 | 0.56 | 0.56 | 0.56 | 0.57 | 0.57 | 0.57 | 0.57 | 0.58 | 0.58 | 0.58 | 0.58 |
| 4 | 0.59 | 0.59 | 0.59 | 0.60 | 0.60 | 0.60 | 0.60 | 0.61 | 0.61 | 0.61 | 0.61 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 |
| 5 | 0.64 | 0.64 | 0.64 | 0.64 | 0.65 | 0.65 | 0.65 | 0.65 | 0.66 | 0.66 | 0.66 | 0.66 | 0.67 | 0.67 | 0.67 | 0.67 | 0.68 | 0.68 | 0.68 | 0.68 |
| 6 | 0.68 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 |
| 7 | 0.71 | 0.71 | 0.71 | 0.71 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.67 |
| 8 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.66 | 0.66 | | | | | | | | | | | | |

ORGANIC PHOSPHORUS AS P IN MG/L — ITERATION 8

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 2 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 3 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 4 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 5 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 6 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.08 |
| 7 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 8 | 0.08 | 0.08 | 0.08 | 0.08 | 0.07 | 0.07 | 0.07 | 0.07 | | | | | | | | | | | | |

DISSOLVED PHOSPHORUS AS P IN MG/L — ITERATION 8

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 |
| | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 3 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 4 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 5 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 6 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 7 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 8 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | | | | | | | | | | | | |

ALGAE AS CHL-A IN UG/L — ITERATION 8

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8.55 | 8.70 | 8.86 | 9.02 | 9.19 | 9.35 | 9.53 | 9.70 | 9.88 | 10.06 | 10.24 | 10.43 | 10.62 | 10.81 | 11.00 | 11.20 | 11.40 | 11.60 | 11.81 | 11.99 |
| 2 | 11.30 | 11.43 | 11.56 | 11.70 | 11.84 | 11.98 | 12.12 | 12.26 | 12.40 | 12.54 | 12.69 | 12.84 | 12.98 | 13.13 | 13.28 | 13.44 | 13.59 | 13.75 | 13.90 | 14.06 |
| 3 | 14.36 | 14.66 | 14.96 | 15.27 | 15.59 | 15.90 | 16.23 | 16.56 | 16.89 | 17.22 | 17.57 | 17.91 | 18.26 | 18.61 | 18.97 | 19.34 | 19.70 | 20.07 | 20.45 | 20.82 |
| 4 | 21.08 | 21.34 | 21.59 | 21.83 | 22.09 | 22.35 | 22.62 | 22.88 | 23.15 | 23.42 | 23.68 | 23.95 | 24.22 | 24.50 | 24.77 | 25.04 | 25.32 | 25.59 | 25.87 | 26.15 |
| 5 | 26.34 | 26.56 | 26.77 | 26.99 | 27.20 | 27.42 | 27.63 | 27.85 | 28.06 | 28.28 | 28.49 | 28.70 | 28.92 | 29.13 | 29.34 | 29.55 | 29.73 | 29.94 | 30.15 | 30.36 |
| 6 | 30.61 | 30.86 | 31.10 | 31.35 | 31.60 | 31.85 | 32.10 | 32.35 | 32.60 | 32.86 | 33.11 | 33.36 | 33.61 | 33.86 | 34.11 | 34.37 | 34.62 | 34.87 | 35.12 | 35.38 |
| 7 | 35.80 | 36.32 | 36.84 | 37.35 | 37.87 | 38.39 | 38.90 | 39.42 | 39.93 | 40.43 | 40.94 | 41.39 | 35.36 | 35.74 | 36.12 | 36.50 | 36.88 | 37.25 | 37.63 | 38.00 |
| 8 | 38.37 | 38.75 | 39.13 | 39.51 | 39.89 | 40.26 | 40.63 | 41.00 | | | | | | | | | | | | |

ALGAE GROWTH RATES IN PER DAY ARE — ITERATION 8

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.38 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 |
| 2 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 |
| | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 | 0.41 | 0.41 | 0.41 |
| | 0.32 | 0.32 | 0.32 | 0.32 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 |
| 5 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 |
| 6 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.22 | 0.22 | 0.22 | 0.22 |
| 7 | 0.24 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.23 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 8 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.21 | 0.21 | 0.21 |

PHOTOSYNTHESIS-RESPIRATION RATIOS ARE ITERATION 8

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5.00 | 5.03 | 5.04 | 5.06 | 5.07 | 5.07 | 5.08 | 5.08 | 5.08 | 5.07 | 5.07 | 5.06 | 5.05 | 5.04 | 5.03 | 5.02 | 5.01 | 4.99 | 4.98 | 5.01 |
| 2 | 4.19 | 4.19 | 4.19 | 4.18 | 4.18 | 4.18 | 4.17 | 4.17 | 4.16 | 4.16 | 4.16 | 4.15 | 4.15 | 4.14 | 4.14 | 4.14 | 4.13 | 4.13 | 4.12 | 4.12 |
| 3 | 5.77 | 5.75 | 5.73 | 5.71 | 5.69 | 5.67 | 5.65 | 5.63 | 5.60 | 5.58 | 5.56 | 5.54 | 5.52 | 5.49 | 5.47 | 5.44 | 5.42 | 5.40 | 5.37 | 5.35 |
| 4 | 4.15 | 4.13 | 4.12 | 4.11 | 4.10 | 4.09 | 4.07 | 4.06 | 4.05 | 4.03 | 4.02 | 4.01 | 3.99 | 3.98 | 3.96 | 3.95 | 3.94 | 3.92 | 3.91 | 3.89 |
| 5 | 3.05 | 3.04 | 3.03 | 3.02 | 3.01 | 3.00 | 2.99 | 2.98 | 2.97 | 2.96 | 2.95 | 2.94 | 2.93 | 2.92 | 2.91 | 2.89 | 2.90 | 2.89 | 2.88 | 2.87 |
| 6 | 3.04 | 3.03 | 3.03 | 3.02 | 3.01 | 3.01 | 3.00 | 2.99 | 2.99 | 2.98 | 2.97 | 2.97 | 2.96 | 2.95 | 2.94 | 2.94 | 2.93 | 2.92 | 2.91 | 2.90 |
| 7 | 3.08 | 3.06 | 3.04 | 3.02 | 2.99 | 2.97 | 2.95 | 2.93 | 2.91 | 2.89 | 2.87 | 2.84 | 2.94 | 2.93 | 2.92 | 2.90 | 2.89 | 2.87 | 2.85 | 2.84 |
| 8 | 2.87 | 2.86 | 2.84 | 2.82 | 2.81 | 2.79 | 2.77 | 2.75 | | | | | | | | | | | | |

***** STEADY STATE SIMULATION *****

** HYDRAULICS SUMMARY **

| ELE ORD | RCH NUM | ELE NUM | BEGIN LOC MILE | END LOC MILE | FLOW CFS | POINT SRCE CFS | INCR FLOW CFS | VEL FPS | TRVL TIME DAY | DEPTH FT | WIDTH FT | VOLUME K-FT-3 | BOTTOM AREA K-FT-2 | X-SECT AREA FT-2 | DSPRSN COEF FT-2/S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 227.00 | 226.75 | 829.10 | 0.00 | 0.10 | 0.191 | 0.080 | 10.033 | 432.921 | 5733.67 | 597.94 | 4343.69 | 6.62 |
| 2 | 1 | 2 | 226.75 | 226.50 | 829.20 | 0.00 | 0.10 | 0.191 | 0.080 | 10.033 | 432.924 | 5733.74 | 597.95 | 4343.74 | 6.62 |
| 3 | 1 | 3 | 226.50 | 226.25 | 829.30 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.927 | 5733.81 | 597.95 | 4343.80 | 6.62 |
| 4 | 1 | 4 | 226.25 | 226.00 | 829.40 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.930 | 5733.88 | 597.96 | 4343.85 | 6.62 |
| 5 | 1 | 5 | 226.00 | 225.75 | 829.50 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.933 | 5733.95 | 597.96 | 4343.90 | 6.62 |
| 6 | 1 | 6 | 225.75 | 225.50 | 829.60 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.935 | 5734.02 | 597.96 | 4343.96 | 6.62 |
| 7 | 1 | 7 | 225.50 | 225.25 | 829.70 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.938 | 5734.10 | 597.97 | 4344.01 | 6.62 |
| 8 | 1 | 8 | 225.25 | 225.00 | 829.80 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.941 | 5734.17 | 597.97 | 4344.07 | 6.63 |
| 9 | 1 | 9 | 225.00 | 224.75 | 829.90 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.944 | 5734.24 | 597.98 | 4344.12 | 6.63 |
| 10 | 1 | 10 | 224.75 | 224.50 | 830.00 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.946 | 5734.31 | 597.98 | 4344.17 | 6.63 |
| 11 | 1 | 11 | 224.50 | 224.25 | 830.10 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.949 | 5734.38 | 597.98 | 4344.23 | 6.63 |
| 12 | 1 | 12 | 224.25 | 224.00 | 830.20 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.952 | 5734.45 | 597.99 | 4344.28 | 6.63 |
| 13 | 1 | 13 | 224.00 | 223.75 | 830.30 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.955 | 5734.52 | 597.99 | 4344.33 | 6.63 |
| 14 | 1 | 14 | 223.75 | 223.50 | 830.40 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.957 | 5734.59 | 597.99 | 4344.39 | 6.63 |
| 15 | 1 | 15 | 223.50 | 223.25 | 830.50 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.960 | 5734.66 | 598.00 | 4344.44 | 6.63 |
| 16 | 1 | 16 | 223.25 | 223.00 | 830.60 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.963 | 5734.74 | 598.00 | 4344.50 | 6.63 |
| 17 | 1 | 17 | 223.00 | 222.75 | 830.70 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.966 | 5734.81 | 598.01 | 4344.55 | 6.63 |
| 18 | 1 | 18 | 222.75 | 222.50 | 830.80 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.968 | 5734.88 | 598.01 | 4344.60 | 6.63 |
| 1e | 1 | 19 | 222.50 | 222.25 | 830.90 | 0.00 | 0.10 | 0.191 | 0.080 | 10.035 | 432.971 | 5734.95 | 598.01 | 4344.66 | 6.63 |
| | 1 | 20 | 222.25 | 222.00 | 831.00 | 0.00 | 0.10 | 0.191 | 0.080 | 10.035 | 432.974 | 5735.02 | 598.02 | 4344.71 | 6.63 |
| 21 | 2 | 1 | 222.00 | 221.75 | 900.70 | 69.60 | 0.10 | 0.206 | 0.074 | 10.075 | 434.826 | 5782.80 | 600.57 | 4380.91 | 7.16 |
| 22 | 2 | 2 | 221.75 | 221.50 | 900.80 | 0.00 | 0.10 | 0.206 | 0.074 | 10.075 | 434.829 | 5782.86 | 600.57 | 4380.96 | 7.16 |
| 23 | 2 | 3 | 221.50 | 221.25 | 900.90 | 0.00 | 0.10 | 0.206 | 0.074 | 10.075 | 434.831 | 5782.93 | 600.58 | 4381.01 | 7.16 |
| 24 | 2 | 4 | 221.25 | 221.00 | 901.00 | 0.00 | 0.10 | 0.206 | 0.074 | 10.075 | 434.834 | 5782.99 | 600.58 | 4381.06 | 7.16 |
| 25 | 2 | 5 | 221.00 | 220.75 | 901.10 | 0.00 | 0.10 | 0.206 | 0.074 | 10.075 | 434.836 | 5783.06 | 600.58 | 4381.11 | 7.16 |
| 26 | 2 | 6 | 220.75 | 220.50 | 901.20 | 0.00 | 0.10 | 0.206 | 0.074 | 10.075 | 434.839 | 5783.13 | 600.59 | 4381.16 | 7.16 |
| 27 | 2 | 7 | 220.50 | 220.25 | 901.30 | 0.00 | 0.10 | 0.206 | 0.074 | 10.075 | 434.842 | 5783.19 | 600.59 | 4381.21 | 7.16 |
| 28 | 2 | 8 | 220.25 | 220.00 | 901.40 | 0.00 | 0.10 | 0.206 | 0.074 | 10.075 | 434.844 | 5783.26 | 600.59 | 4381.26 | 7.16 |
| 29 | 2 | 9 | 220.00 | 219.75 | 901.50 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.847 | 5783.32 | 600.60 | 4381.31 | 7.16 |
| 30 | 2 | 10 | 219.75 | 219.50 | 901.60 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.849 | 5783.39 | 600.60 | 4381.36 | 7.16 |
| 31 | 2 | 11 | 219.50 | 219.25 | 901.70 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.852 | 5783.46 | 600.60 | 4381.41 | 7.16 |
| 32 | 2 | 12 | 219.25 | 219.00 | 901.80 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.854 | 5783.52 | 600.61 | 4381.46 | 7.16 |
| 33 | 2 | 13 | 219.00 | 218.75 | 901.90 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.857 | 5783.59 | 600.61 | 4381.51 | 7.16 |
| 34 | 2 | 14 | 218.75 | 218.50 | 902.00 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.859 | 5783.65 | 600.61 | 4381.56 | 7.17 |
| 35 | 2 | 15 | 218.50 | 218.25 | 902.10 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.862 | 5783.72 | 600.62 | 4381.61 | 7.17 |
| 36 | 2 | 16 | 218.25 | 218.00 | 902.20 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.865 | 5783.79 | 600.62 | 4381.66 | 7.17 |
| 37 | 2 | 17 | 218.00 | 217.75 | 902.30 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.867 | 5783.85 | 600.63 | 4381.71 | 7.17 |
| 38 | 2 | 18 | 217.75 | 217.50 | 902.40 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.870 | 5783.92 | 600.63 | 4381.76 | 7.17 |
| 39 | 2 | 19 | 217.50 | 217.25 | 902.50 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.872 | 5783.98 | 600.63 | 4381.81 | 7.17 |
| 40 | 2 | 20 | 217.25 | 217.00 | 902.60 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.875 | 5784.05 | 600.64 | 4381.86 | 7.17 |
| | 3 | 1 | 217.00 | 216.75 | 902.70 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.877 | 5784.12 | 600.64 | 4381.91 | 4.15 |
| | 3 | 2 | 216.75 | 216.50 | 902.80 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.880 | 5784.18 | 600.64 | 4381.96 | 4.15 |

***** STEADY STATE SIMULATION *****

** HYDRAULICS SUMMARY **

| ELE ORD | RCH NUM | ELE NUM | BEGIN LOC MILE | END LOC MILE | FLOW CFS | POINT SRCE CFS | INCR FLOW CFS | VEL FPS | TRVL TIME DAY | DEPTH FT | WIDTH FT | VOLUME K-FT-3 | BOTTOM AREA K-FT-2 | X-SECT AREA FT-2 | DSPRSN COEF FT-2/S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 43 | 3 | 3 | 216.50 | 216.25 | 902.90 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.882 | 5784.25 | 600.65 | 4382.01 | 4.15 |
| 44 | 3 | 4 | 216.25 | 216.00 | 903.00 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.885 | 5784.31 | 600.65 | 4382.06 | 4.15 |
| 45 | 3 | 5 | 216.00 | 215.75 | 903.10 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.888 | 5784.38 | 600.65 | 4382.11 | 4.15 |
| 46 | 3 | 6 | 215.75 | 215.50 | 903.20 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.890 | 5784.45 | 600.66 | 4382.16 | 4.15 |
| 47 | 3 | 7 | 215.50 | 215.25 | 903.30 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.893 | 5784.51 | 600.66 | 4382.21 | 4.15 |
| 48 | 3 | 8 | 215.25 | 215.00 | 903.40 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.895 | 5784.58 | 600.66 | 4382.26 | 4.15 |
| 49 | 3 | 9 | 215.00 | 214.75 | 903.50 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.898 | 5784.64 | 600.67 | 4382.31 | 4.15 |
| 50 | 3 | 10 | 214.75 | 214.50 | 903.60 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.900 | 5784.71 | 600.67 | 4382.36 | 4.16 |
| 51 | 3 | 11 | 214.50 | 214.25 | 903.70 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.903 | 5784.78 | 600.67 | 4382.41 | 4.16 |
| 52 | 3 | 12 | 214.25 | 214.00 | 903.80 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.905 | 5784.84 | 600.68 | 4382.46 | 4.16 |
| 53 | 3 | 13 | 214.00 | 213.75 | 903.90 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.908 | 5784.91 | 600.68 | 4382.51 | 4.16 |
| 54 | 3 | 14 | 213.75 | 213.50 | 904.00 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.910 | 5784.97 | 600.68 | 4382.56 | 4.16 |
| 55 | 3 | 15 | 213.50 | 213.25 | 904.10 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.913 | 5785.04 | 600.69 | 4382.60 | 4.16 |
| 56 | 3 | 16 | 213.25 | 213.00 | 904.20 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.916 | 5785.11 | 600.69 | 4382.66 | 4.16 |
| 57 | 3 | 17 | 213.00 | 212.75 | 904.30 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.918 | 5785.17 | 600.70 | 4382.71 | 4.16 |
| 58 | 3 | 18 | 212.75 | 212.50 | 904.40 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.921 | 5785.24 | 600.70 | 4382.75 | 4.16 |
| 59 | 3 | 19 | 212.50 | 212.25 | 904.50 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.923 | 5785.30 | 600.70 | 4382.80 | 4.16 |
| 60 | 3 | 20 | 212.25 | 212.00 | 904.60 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.926 | 5785.37 | 600.71 | 4382.85 | 4.16 |
| 61 | 4 | 1 | 212.00 | 211.75 | 904.70 | 0.00 | 0.10 | 0.206 | 0.074 | 11.244 | 389.804 | 5785.43 | 544.23 | 4382.90 | 4.35 |
| 62 | 4 | 2 | 211.75 | 211.50 | 904.80 | 0.00 | 0.10 | 0.206 | 0.074 | 11.244 | 389.807 | 5785.50 | 544.23 | 4382.95 | 4.35 |
| 63 | 4 | 3 | 211.50 | 211.25 | 904.90 | 0.00 | 0.10 | 0.206 | 0.074 | 11.244 | 389.809 | 5785.57 | 544.23 | 4383.00 | 4.35 |
| 64 | 4 | 4 | 211.25 | 211.00 | 906.00 | 1.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.834 | 5786.29 | 544.27 | 4383.55 | 4.36 |
| 65 | 4 | 5 | 211.00 | 210.75 | 906.10 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.836 | 5786.36 | 544.27 | 4383.60 | 4.36 |
| 66 | 4 | 6 | 210.75 | 210.50 | 906.20 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.839 | 5786.42 | 544.27 | 4383.65 | 4.36 |
| 67 | 4 | 7 | 210.50 | 210.25 | 906.30 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.841 | 5786.49 | 544.28 | 4383.70 | 4.36 |
| 68 | 4 | 8 | 210.25 | 210.00 | 906.40 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.843 | 5786.55 | 544.28 | 4383.75 | 4.36 |
| 69 | 4 | 9 | 210.00 | 209.75 | 906.50 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.846 | 5786.62 | 544.28 | 4383.80 | 4.36 |
| 70 | 4 | 10 | 209.75 | 209.50 | 906.60 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.848 | 5786.68 | 544.29 | 4383.85 | 4.36 |
| 71 | 4 | 11 | 209.50 | 209.25 | 906.70 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.850 | 5786.75 | 544.29 | 4383.90 | 4.36 |
| 72 | 4 | 12 | 209.25 | 209.00 | 906.80 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.852 | 5786.82 | 544.29 | 4383.95 | 4.36 |
| 73 | 4 | 13 | 209.00 | 208.75 | 906.90 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.855 | 5786.88 | 544.30 | 4384.00 | 4.36 |
| 74 | 4 | 14 | 208.75 | 208.50 | 907.00 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.857 | 5786.95 | 544.30 | 4384.05 | 4.36 |
| 75 | 4 | 15 | 208.50 | 208.25 | 907.10 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.859 | 5787.01 | 544.30 | 4384.10 | 4.36 |
| 76 | 4 | 16 | 208.25 | 208.00 | 907.20 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.861 | 5787.08 | 544.31 | 4384.15 | 4.36 |
| 77 | 4 | 17 | 208.00 | 207.75 | 907.30 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.864 | 5787.14 | 544.31 | 4384.20 | 4.36 |
| 78 | 4 | 18 | 207.75 | 207.50 | 907.50 | 0.10 | 0.10 | 0.207 | 0.074 | 11.246 | 389.868 | 5787.28 | 544.31 | 4384.30 | 4.36 |
| 79 | 4 | 19 | 207.50 | 207.25 | 907.60 | 0.00 | 0.10 | 0.207 | 0.074 | 11.246 | 389.871 | 5787.34 | 544.32 | 4384.35 | 4.36 |
| 80 | 4 | 20 | 207.25 | 207.00 | 907.70 | 0.00 | 0.10 | 0.207 | 0.074 | 11.246 | 389.873 | 5787.41 | 544.32 | 4384.40 | 4.36 |
| 81 | 5 | 1 | 207.00 | 206.75 | 907.80 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.319 | 6810.00 | 537.83 | 5159.09 | 2.06 |
| 82 | 5 | 2 | 206.75 | 206.50 | 907.90 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.321 | 6810.04 | 537.84 | 5159.12 | 2.06 |
|  | 5 | 3 | 206.50 | 206.25 | 908.00 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.322 | 6810.09 | 537.84 | 5159.16 | 2.07 |
|  | 5 | 4 | 206.25 | 206.00 | 908.10 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.324 | 6810.13 | 537.84 | 5159.19 | 2.07 |

***** STEADY STATE SIMULATION *****

** HYDRAULICS SUMMARY **

| ELE ORD | RCH NUM | ELE NUM | BEGIN LOC MILE | END LOC MILE | FLOW CFS | POINT SRCE CFS | INCR FLOW CFS | VEL FPS | TRVL TIME DAY | DEPTH FT | WIDTH FT | VOLUME K-FT-3 | BOTTOM AREA K-FT-2 | X-SECT AREA FT-2 | DSPRSN COEF FT-2/S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 85 | 5 | 5 | 206.00 | 205.75 | 908.20 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.325 | 6810.17 | 537.84 | 5159.22 | 2.07 |
| 86 | 5 | 6 | 205.75 | 205.50 | 908.30 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.327 | 6810.21 | 537.84 | 5159.25 | 2.07 |
| 87 | 5 | 7 | 205.50 | 205.25 | 908.40 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.328 | 6810.25 | 537.85 | 5159.28 | 2.07 |
| 88 | 5 | 8 | 205.25 | 205.00 | 908.50 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.330 | 6810.29 | 537.85 | 5159.31 | 2.07 |
| 89 | 5 | 9 | 205.00 | 204.75 | 908.60 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.331 | 6810.33 | 537.85 | 5159.34 | 2.07 |
| 90 | 5 | 10 | 204.75 | 204.50 | 908.70 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.333 | 6810.37 | 537.85 | 5159.37 | 2.07 |
| 91 | 5 | 11 | 204.50 | 204.25 | 908.80 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.334 | 6810.41 | 537.85 | 5159.40 | 2.07 |
| 92 | 5 | 12 | 204.25 | 204.00 | 908.90 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.336 | 6810.45 | 537.86 | 5159.43 | 2.07 |
| 93 | 5 | 13 | 204.00 | 203.75 | 909.00 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.337 | 6810.49 | 537.86 | 5159.46 | 2.07 |
| 94 | 5 | 14 | 203.75 | 203.50 | 909.10 | 0.00 | 0.10 | 0.176 | 0.087 | 13.566 | 380.339 | 6810.53 | 537.86 | 5159.49 | 2.07 |
| 95 | 5 | 15 | 203.50 | 203.25 | 909.20 | 0.00 | 0.10 | 0.176 | 0.087 | 13.566 | 380.340 | 6810.57 | 537.86 | 5159.52 | 2.07 |
| 96 | 5 | 16 | 203.25 | 203.00 | 909.30 | 0.00 | 0.10 | 0.176 | 0.087 | 13.566 | 380.342 | 6810.61 | 537.86 | 5159.55 | 2.07 |
| 97 | 5 | 17 | 203.00 | 202.75 | 910.40 | 1.00 | 0.10 | 0.176 | 0.087 | 13.566 | 380.358 | 6811.06 | 537.89 | 5159.89 | 2.07 |
| 98 | 5 | 18 | 202.75 | 202.50 | 910.50 | 0.00 | 0.10 | 0.176 | 0.087 | 13.566 | 380.360 | 6811.10 | 537.89 | 5159.92 | 2.07 |
| 99 | 5 | 19 | 202.50 | 202.25 | 910.60 | 0.00 | 0.10 | 0.176 | 0.087 | 13.566 | 380.361 | 6811.14 | 537.89 | 5159.95 | 2.07 |
| 100 | 5 | 20 | 202.25 | 202.00 | 910.70 | 0.00 | 0.10 | 0.176 | 0.087 | 13.566 | 380.363 | 6811.18 | 537.89 | 5159.98 | 2.07 |
| 101 | 6 | 1 | 202.00 | 201.75 | 910.80 | 0.00 | 0.10 | 0.177 | 0.087 | 13.566 | 380.364 | 6811.22 | 537.90 | 5160.01 | 3.52 |
| 10 | 6 | 2 | 201.75 | 201.50 | 910.90 | 0.00 | 0.10 | 0.177 | 0.087 | 13.566 | 380.366 | 6811.26 | 537.90 | 5160.04 | 3.52 |
| 103 | 6 | 3 | 201.50 | 201.25 | 911.00 | 0.00 | 0.10 | 0.177 | 0.087 | 13.566 | 380.367 | 6811.30 | 537.90 | 5160.07 | 3.52 |
| 104 | 6 | 4 | 201.25 | 201.00 | 911.10 | 0.00 | 0.10 | 0.177 | 0.087 | 13.566 | 380.369 | 6811.34 | 537.90 | 5160.10 | 3.52 |
| 105 | 6 | 5 | 201.00 | 200.75 | 911.20 | 0.00 | 0.10 | 0.177 | 0.087 | 13.566 | 380.371 | 6811.38 | 537.90 | 5160.14 | 3.52 |
| 106 | 6 | 6 | 200.75 | 200.50 | 911.30 | 0.00 | 0.10 | 0.177 | 0.087 | 13.566 | 380.372 | 6811.42 | 537.91 | 5160.17 | 3.52 |
| 107 | 6 | 7 | 200.50 | 200.25 | 911.40 | 0.00 | 0.10 | 0.177 | 0.087 | 13.566 | 380.373 | 6811.46 | 537.91 | 5160.20 | 3.52 |
| 108 | 6 | 8 | 200.25 | 200.00 | 911.50 | 0.00 | 0.10 | 0.177 | 0.086 | 13.566 | 380.375 | 6811.50 | 537.91 | 5160.23 | 3.52 |
| 109 | 6 | 9 | 200.00 | 199.75 | 911.60 | 0.00 | 0.10 | 0.177 | 0.086 | 13.566 | 380.376 | 6811.54 | 537.91 | 5160.26 | 3.52 |
| 110 | 6 | 10 | 199.75 | 199.50 | 911.70 | 0.00 | 0.10 | 0.177 | 0.086 | 13.566 | 380.378 | 6811.58 | 537.91 | 5160.29 | 3.52 |
| 111 | 6 | 11 | 199.50 | 199.25 | 911.80 | 0.00 | 0.10 | 0.177 | 0.086 | 13.566 | 380.379 | 6811.62 | 537.92 | 5160.32 | 3.52 |
| 112 | 6 | 12 | 199.25 | 199.00 | 911.90 | 0.00 | 0.10 | 0.177 | 0.086 | 13.566 | 380.381 | 6811.66 | 537.92 | 5160.35 | 3.53 |
| 113 | 6 | 13 | 199.00 | 198.75 | 912.10 | 0.10 | 0.10 | 0.177 | 0.086 | 13.566 | 380.384 | 6811.74 | 537.92 | 5160.41 | 3.53 |
| 114 | 6 | 14 | 198.75 | 198.50 | 912.20 | 0.00 | 0.10 | 0.177 | 0.086 | 13.566 | 380.386 | 6811.78 | 537.92 | 5160.44 | 3.53 |
| 115 | 6 | 15 | 198.50 | 198.25 | 912.30 | 0.00 | 0.10 | 0.177 | 0.086 | 13.566 | 380.387 | 6811.82 | 537.93 | 5160.47 | 3.53 |
| 116 | 6 | 16 | 198.25 | 198.00 | 912.40 | 0.00 | 0.10 | 0.177 | 0.086 | 13.566 | 380.389 | 6811.86 | 537.93 | 5160.50 | 3.53 |
| 117 | 6 | 17 | 198.00 | 197.75 | 912.50 | 0.00 | 0.10 | 0.177 | 0.086 | 13.566 | 380.390 | 6811.90 | 537.93 | 5160.53 | 3.53 |
| 118 | 6 | 18 | 197.75 | 197.50 | 912.60 | 0.00 | 0.10 | 0.177 | 0.086 | 13.566 | 380.392 | 6811.94 | 537.93 | 5160.56 | 3.53 |
| 119 | 6 | 19 | 197.50 | 197.25 | 912.70 | 0.00 | 0.10 | 0.177 | 0.086 | 13.566 | 380.393 | 6811.98 | 537.93 | 5160.59 | 3.53 |
| 120 | 6 | 20 | 197.25 | 197.00 | 912.80 | 0.00 | 0.10 | 0.177 | 0.086 | 13.567 | 380.395 | 6812.02 | 537.94 | 5160.62 | 3.53 |
| 121 | 7 | 1 | 197.00 | 196.75 | 913.00 | 0.10 | 0.10 | 0.113 | 0.135 | 16.200 | 497.369 | 10635.96 | 699.30 | 8057.55 | 1.08 |
| 122 | 7 | 2 | 196.75 | 196.50 | 913.10 | 0.00 | 0.10 | 0.113 | 0.135 | 16.200 | 497.372 | 10636.04 | 699.30 | 8057.61 | 1.08 |
| 123 | 7 | 3 | 196.50 | 196.25 | 913.20 | 0.00 | 0.10 | 0.113 | 0.135 | 16.200 | 497.375 | 10636.13 | 699.30 | 8057.67 | 1.08 |
| 124 | 7 | 4 | 196.25 | 196.00 | 913.30 | 0.00 | 0.10 | 0.113 | 0.135 | 16.200 | 497.379 | 10636.21 | 699.31 | 8057.73 | 1.08 |
| 1 | 7 | 5 | 196.00 | 195.75 | 913.40 | 0.00 | 0.10 | 0.113 | 0.135 | 16.200 | 497.382 | 10636.29 | 699.31 | 8057.79 | 1.08 |
| 12 | 7 | 6 | 195.75 | 195.50 | 913.50 | 0.00 | 0.10 | 0.113 | 0.135 | 16.200 | 497.385 | 10636.37 | 699.32 | 8057.86 | 1.08 |

***** STEADY STATE SIMULATION *****

** HYDRAULICS SUMMARY **

| ELE ORD | RCH NUM | ELE NUM | BEGIN LOC MILE | END LOC MILE | FLOW CFS | POINT SRCE CFS | INCR FLOW CFS | VEL FPS | TRVL TIME DAY | DEPTH FT | WIDTH FT | VOLUME K-FT-3 | BOTTOM AREA K-FT-2 | X-SECT AREA FT-2 | DSPRSN COEF FT-2/S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 127 | 7 | 7 | 195.50 | 195.25 | 913.60 | 0.00 | 0.10 | 0.113 | 0.135 | 16.200 | 497.388 | 10636.45 | 699.32 | 8057.92 | 1.08 |
| 128 | 7 | 8 | 195.25 | 195.00 | 913.70 | 0.00 | 0.10 | 0.113 | 0.135 | 16.200 | 497.391 | 10636.53 | 699.33 | 8057.98 | 1.08 |
| 129 | 7 | 9 | 195.00 | 194.75 | 913.80 | 0.00 | 0.10 | 0.113 | 0.135 | 16.200 | 497.395 | 10636.61 | 699.33 | 8058.04 | 1.08 |
| 130 | 7 | 10 | 194.75 | 194.50 | 913.90 | 0.00 | 0.10 | 0.113 | 0.135 | 16.201 | 497.398 | 10636.70 | 699.33 | 8058.10 | 1.08 |
| 131 | 7 | 11 | 194.50 | 194.25 | 914.00 | 0.00 | 0.10 | 0.113 | 0.135 | 16.201 | 497.401 | 10636.78 | 699.34 | 8058.16 | 1.08 |
| 132 | 7 | 12 | 194.25 | 194.00 | 914.10 | 0.00 | 0.10 | 0.113 | 0.135 | 16.201 | 497.404 | 10636.86 | 699.34 | 8058.23 | 1.08 |
| 133 | 7 | 13 | 194.00 | 193.75 | 1136.20 | 222.00 | 0.10 | 0.139 | 0.110 | 16.239 | 503.829 | 10800.05 | 707.93 | 8181.85 | 1.33 |
| 134 | 7 | 14 | 193.75 | 193.50 | 1136.30 | 0.00 | 0.10 | 0.139 | 0.110 | 16.239 | 503.831 | 10800.12 | 707.93 | 8181.91 | 1.33 |
| 135 | 7 | 15 | 193.50 | 193.25 | 1136.40 | 0.00 | 0.10 | 0.139 | 0.110 | 16.239 | 503.834 | 10800.18 | 707.93 | 8181.96 | 1.33 |
| 136 | 7 | 16 | 193.25 | 193.00 | 1136.50 | 0.00 | 0.10 | 0.139 | 0.110 | 16.239 | 503.836 | 10800.25 | 707.94 | 8182.01 | 1.33 |
| 137 | 7 | 17 | 193.00 | 192.75 | 1136.60 | 0.00 | 0.10 | 0.139 | 0.110 | 16.239 | 503.839 | 10800.31 | 707.94 | 8182.06 | 1.33 |
| 138 | 7 | 18 | 192.75 | 192.50 | 1136.70 | 0.00 | 0.10 | 0.139 | 0.110 | 16.239 | 503.842 | 10800.38 | 707.94 | 8182.11 | 1.33 |
| 139 | 7 | 19 | 192.50 | 192.25 | 1136.80 | 0.00 | 0.10 | 0.139 | 0.110 | 16.239 | 503.844 | 10800.45 | 707.95 | 8182.16 | 1.33 |
| 140 | 7 | 20 | 192.25 | 192.00 | 1136.90 | 0.00 | 0.10 | 0.139 | 0.110 | 16.239 | 503.847 | 10800.51 | 707.95 | 8182.21 | 1.33 |
| 141 | 8 | 1 | 192.00 | 191.75 | 1137.92 | 0.77 | 0.25 | 0.139 | 0.110 | 16.240 | 503.874 | 10801.19 | 707.99 | 8182.72 | 1.33 |
| 142 | 8 | 2 | 191.75 | 191.50 | 1138.17 | 0.00 | 0.25 | 0.139 | 0.110 | 16.240 | 503.880 | 10801.36 | 707.99 | 8182.85 | 1.33 |
| 143 | 8 | 3 | 191.50 | 191.25 | 1138.42 | 0.00 | 0.25 | 0.139 | 0.110 | 16.240 | 503.887 | 10801.52 | 708.00 | 8182.97 | 1.33 |
| 144 | 8 | 4 | 191.25 | 191.00 | 1138.67 | 0.00 | 0.25 | 0.139 | 0.110 | 16.240 | 503.893 | 10801.69 | 708.01 | 8183.10 | 1.33 |
| 145 | 8 | 5 | 191.00 | 190.75 | 1138.92 | 0.00 | 0.25 | 0.139 | 0.110 | 16.240 | 503.900 | 10801.86 | 708.02 | 8183.22 | 1.33 |
| 146 | 8 | 6 | 190.75 | 190.50 | 1139.17 | 0.00 | 0.25 | 0.139 | 0.110 | 16.240 | 503.906 | 10802.02 | 708.03 | 8183.35 | 1.33 |
| 147 | 8 | 7 | 190.50 | 190.25 | 1139.42 | 0.00 | 0.25 | 0.139 | 0.110 | 16.240 | 503.913 | 10802.19 | 708.04 | 8183.48 | 1.33 |
| 148 | 8 | 8 | 190.25 | 190.00 | 1139.67 | 0.00 | 0.25 | 0.139 | 0.110 | 16.240 | 503.919 | 10802.35 | 708.05 | 8183.60 | 1.33 |

***** STEADY STATE SIMULATION *****

** REACTION COEFFICIENT SUMMARY **

| RCH NUM | ELE NUM | DO SAT MG/L | K2 OPT | OXYGN REAIR 1/DAY | BOD DECAY 1/DAY | BOD SETT 1/DAY | SOD RATE G/F2D | ORGN DECAY 1/DAY | ORGN SETT 1/DAY | NH3 DECAY 1/DAY | NH3 SRCE MG/F2D | NO2 DECAY 1/DAY | ORGP DECAY 1/DAY | ORGP SETT 1/DAY | DISP SRCE MG/F2D | COLI DECAY 1/DAY | ANC DECAY 1/DAY | ANC SETT 1/DAY | ANC SRCE MG/F2D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 7.97 | 3 | 0.21 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 2 | 7.97 | 3 | 0.21 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 3 | 7.97 | 3 | 0.21 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 4 | 7.97 | 3 | 0.21 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 5 | 7.97 | 3 | 0.21 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 6 | 7.97 | 3 | 0.21 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 7 | 7.97 | 3 | 0.21 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 8 | 7.97 | 3 | 0.21 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 9 | 7.97 | 3 | 0.21 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 10 | 7.97 | 3 | 0.21 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 11 | 7.97 | 3 | 0.21 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 12 | 7.97 | 3 | 0.21 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 13 | 7.97 | 3 | 0.21 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 14 | 7.97 | 3 | 0.21 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 15 | 7.97 | 3 | 0.21 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 16 | 7.97 | 3 | 0.21 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 17 | 7.97 | 3 | 0.21 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 18 | 7.97 | 3 | 0.21 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 19 | 7.97 | 3 | 0.21 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 20 | 7.97 | 3 | 0.21 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 1 | 7.97 | 3 | 0.21 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 2 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 3 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 4 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 5 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 6 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 7 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 8 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 9 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 10 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 11 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 12 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 13 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 14 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 15 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 16 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 17 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 18 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 19 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 20 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 1 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 2 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

***** STEADY STATE SIMULATION *****

** REACTION COEFFICIENT SUMMARY **

| RCH NUM | ELE NUM | DO SAT MG/L | K2 OPT | OXYGN REAIR 1/DAY | BOD DECAY 1/DAY | BOD SETT 1/DAY | SOD RATE G/F2D | ORGN DECAY 1/DAY | ORGN SETT 1/DAY | NH3 DECAY 1/DAY | NH3 SRCE MG/F2D | NO2 DECAY 1/DAY | ORGP DECAY 1/DAY | ORGP SETT 1/DAY | DISP SRCE MG/F2D | COLI DECAY 1/DAY | ANC DECAY 1/DAY | ANC SETT 1/DAY | ANC SRCE MG/F2D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 3 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 4 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 5 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 6 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 7 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 8 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 9 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 10 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 11 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 12 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 13 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 14 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 15 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 16 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 17 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 18 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 19 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 20 | 7.97 | 3 | 0.22 | 0.10 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 1 | 7.97 | 3 | 0.20 | 0.10 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 2 | 7.97 | 3 | 0.18 | 0.10 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 3 | 7.97 | 3 | 0.18 | 0.10 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 4 | 7.97 | 3 | 0.18 | 0.10 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 5 | 7.97 | 3 | 0.18 | 0.10 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 6 | 7.97 | 3 | 0.18 | 0.10 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 7 | 7.97 | 3 | 0.18 | 0.10 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 8 | 7.97 | 3 | 0.18 | 0.10 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 9 | 7.97 | 3 | 0.18 | 0.10 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 10 | 7.97 | 3 | 0.18 | 0.10 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 11 | 7.97 | 3 | 0.18 | 0.10 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 12 | 7.97 | 3 | 0.18 | 0.10 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 13 | 7.97 | 3 | 0.18 | 0.10 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 14 | 7.97 | 3 | 0.18 | 0.10 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 15 | 7.97 | 3 | 0.18 | 0.10 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 16 | 7.97 | 3 | 0.18 | 0.10 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 17 | 7.97 | 3 | 0.18 | 0.10 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 18 | 7.97 | 3 | 0.18 | 0.10 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 19 | 7.97 | 3 | 0.18 | 0.10 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 20 | 7.97 | 3 | 0.18 | 0.10 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 1 | 7.97 | 3 | 0.16 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 2 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|  | 3 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|  | 4 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

***** STEADY STATE SIMULATION *****

** REACTION COEFFICIENT SUMMARY **

| RCH NUM | ELE NUM | DO SAT MG/L | K2 OPT | OXYGN REAIR 1/DAY | BOD DECAY 1/DAY | BOD SETT 1/DAY | SOD RATE G/F2D | ORGN DECAY 1/DAY | ORGN SETT 1/DAY | NH3 DECAY 1/DAY | NH3 SRCE MG/F2D | NO2 DECAY 1/DAY | ORGP DECAY 1/DAY | ORGP SETT 1/DAY | DISP SRCE MG/F2D | COLI DECAY 1/DAY | ANC DECAY 1/DAY | ANC SETT 1/DAY | ANC SRCE MG/F2D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 5 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 6 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 7 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 8 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 9 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 10 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 11 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 12 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 13 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 14 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 15 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 16 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 17 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 18 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 19 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 20 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 1 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 2 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 3 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 4 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 5 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 6 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 7 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 8 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 9 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 10 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 11 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 12 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 13 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 14 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 15 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 16 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 17 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 18 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 19 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 20 | 7.97 | 3 | 0.13 | 0.07 | 0.00 | 0.11 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 1 | 7.97 | 3 | 0.10 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 2 | 7.97 | 3 | 0.08 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 3 | 7.97 | 3 | 0.08 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 4 | 7.97 | 3 | 0.08 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 5 | 7.97 | 3 | 0.08 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 6 | 7.97 | 3 | 0.08 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

***** STEADY STATE SIMULATION *****

** REACTION COEFFICIENT SUMMARY **

| RCH NUM | ELE NUM | DO SAT MG/L | K2 OPT | OXYGN REAIR 1/DAY | BOD DECAY 1/DAY | BOD SETT 1/DAY | SOD RATE G/F2D | ORGN DECAY 1/DAY | ORGN SETT 1/DAY | NH3 DECAY 1/DAY | NH3 SRCE MG/F2D | NO2 DECAY 1/DAY | ORGP DECAY 1/DAY | ORGP SETT 1/DAY | DISP SRCE MG/F2D | COLI DECAY 1/DAY | ANC DECAY 1/DAY | ANC SETT 1/DAY | ANC SRCE MG/F2D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 7 | 7.97 | 3 | 0.08 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 8 | 7.97 | 3 | 0.08 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 9 | 7.97 | 3 | 0.08 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 10 | 7.97 | 3 | 0.08 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 11 | 7.97 | 3 | 0.08 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 12 | 7.97 | 3 | 0.08 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 13 | 7.97 | 3 | 0.08 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 14 | 7.97 | 3 | 0.09 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 15 | 7.97 | 3 | 0.09 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 16 | 7.97 | 3 | 0.09 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 17 | 7.97 | 3 | 0.09 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 18 | 7.97 | 3 | 0.09 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 19 | 7.97 | 3 | 0.09 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 20 | 7.97 | 3 | 0.09 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 1 | 7.97 | 3 | 0.09 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 2 | 7.97 | 3 | 0.09 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|  | 3 | 7.97 | 3 | 0.09 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|  | 4 | 7.97 | 3 | 0.09 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 5 | 7.97 | 3 | 0.09 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 6 | 7.97 | 3 | 0.09 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 7 | 7.97 | 3 | 0.09 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 8 | 7.97 | 3 | 0.09 | 0.07 | 0.00 | 0.08 | 0.14 | 0.00 | 0.17 | 0.00 | 1.38 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

***** STEADY STATE SIMULATION *****

** WATER QUALITY VARIABLES **

| RCH NUM | ELE NUM | TEMP DEG-F | CM-1 | CM-2 | CM-3 | DO MG/L | BOD MG/L | ORGN MG/L | NH3N MG/L | NO2N MG/L | NO3N MG/L | SUM-N MG/L | ORGP MG/L | DIS-P MG/L | SUM-P MG/L | COLI #/100ML | ANC BOD MG/L | CHLA UG/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 80.60 | 0.00 | 0.00 | 0.00 | 6.52 | 3.73 | 0.48 | 0.05 | 0.09 | 0.41 | 1.03 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 8.55 |
| 1 | 2 | 80.60 | 0.00 | 0.00 | 0.00 | 6.52 | 3.71 | 0.47 | 0.06 | 0.08 | 0.42 | 1.03 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 8.70 |
| 1 | 3 | 80.60 | 0.00 | 0.00 | 0.00 | 6.51 | 3.69 | 0.47 | 0.06 | 0.08 | 0.42 | 1.03 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 8.86 |
| 1 | 4 | 80.60 | 0.00 | 0.00 | 0.00 | 6.51 | 3.67 | 0.46 | 0.07 | 0.07 | 0.43 | 1.03 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 9.02 |
| 1 | 5 | 80.60 | 0.00 | 0.00 | 0.00 | 6.51 | 3.65 | 0.46 | 0.07 | 0.06 | 0.44 | 1.03 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 9.19 |
| 1 | 6 | 80.60 | 0.00 | 0.00 | 0.00 | 6.51 | 3.63 | 0.45 | 0.07 | 0.06 | 0.44 | 1.03 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 9.35 |
| 1 | 7 | 80.60 | 0.00 | 0.00 | 0.00 | 6.51 | 3.61 | 0.45 | 0.08 | 0.05 | 0.44 | 1.02 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 9.53 |
| 1 | 8 | 80.60 | 0.00 | 0.00 | 0.00 | 6.51 | 3.59 | 0.45 | 0.08 | 0.05 | 0.45 | 1.02 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 9.70 |
| 1 | 9 | 80.60 | 0.00 | 0.00 | 0.00 | 6.51 | 3.57 | 0.44 | 0.08 | 0.04 | 0.45 | 1.02 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 9.88 |
| 1 | 10 | 80.60 | 0.00 | 0.00 | 0.00 | 6.51 | 3.55 | 0.44 | 0.09 | 0.04 | 0.45 | 1.02 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 10.06 |
| 1 | 11 | 80.60 | 0.00 | 0.00 | 0.00 | 6.52 | 3.53 | 0.43 | 0.09 | 0.04 | 0.46 | 1.02 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 10.24 |
| 1 | 12 | 80.60 | 0.00 | 0.00 | 0.00 | 6.52 | 3.51 | 0.43 | 0.09 | 0.04 | 0.46 | 1.02 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 10.43 |
| 1 | 13 | 80.60 | 0.00 | 0.00 | 0.00 | 6.53 | 3.49 | 0.42 | 0.10 | 0.03 | 0.46 | 1.02 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 10.62 |
| 1 | 14 | 80.60 | 0.00 | 0.00 | 0.00 | 6.53 | 3.47 | 0.42 | 0.10 | 0.03 | 0.46 | 1.01 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 10.81 |
| 1 | 15 | 80.60 | 0.00 | 0.00 | 0.00 | 6.54 | 3.45 | 0.41 | 0.10 | 0.03 | 0.47 | 1.01 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 11.00 |
| 1 | 16 | 80.60 | 0.00 | 0.00 | 0.00 | 6.55 | 3.43 | 0.41 | 0.11 | 0.03 | 0.47 | 1.01 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 11.20 |
| 1 | 17 | 80.60 | 0.00 | 0.00 | 0.00 | 6.55 | 3.41 | 0.41 | 0.11 | 0.03 | 0.47 | 1.01 | 0.07 | 0.03 | 0.11 | 00E+00 | 0.00 | 11.40 |
| 1 | 18 | 80.60 | 0.00 | 0.00 | 0.00 | 6.56 | 3.40 | 0.40 | 0.11 | 0.03 | 0.47 | 1.01 | 0.07 | 0.03 | 0.11 | 00E+00 | 0.00 | 11.60 |
|  | 19 | 80.60 | 0.00 | 0.00 | 0.00 | 6.57 | 3.38 | 0.40 | 0.11 | 0.02 | 0.47 | 1.01 | 0.07 | 0.03 | 0.11 | 00E+00 | 0.00 | 11.81 |
|  | 20 | 80.60 | 0.00 | 0.00 | 0.00 | 6.57 | 3.52 | 0.40 | 0.12 | 0.02 | 0.47 | 1.02 | 0.07 | 0.03 | 0.11 | 00E+00 | 0.00 | 11.99 |
| 2 | 1 | 80.60 | 0.00 | 0.00 | 0.00 | 6.27 | 9.74 | 0.57 | 0.38 | 0.03 | 0.47 | 1.45 | 0.08 | 0.08 | 0.16 | 00E+00 | 0.00 | 11.30 |
| 2 | 2 | 80.60 | 0.00 | 0.00 | 0.00 | 6.21 | 9.67 | 0.56 | 0.38 | 0.03 | 0.47 | 1.45 | 0.08 | 0.08 | 0.16 | 00E+00 | 0.00 | 11.43 |
| 2 | 3 | 80.60 | 0.00 | 0.00 | 0.00 | 6.15 | 9.59 | 0.56 | 0.38 | 0.03 | 0.47 | 1.45 | 0.08 | 0.08 | 0.16 | 00E+00 | 0.00 | 11.56 |
| 2 | 4 | 80.60 | 0.00 | 0.00 | 0.00 | 6.09 | 9.52 | 0.55 | 0.38 | 0.04 | 0.48 | 1.45 | 0.08 | 0.08 | 0.16 | 00E+00 | 0.00 | 11.70 |
| 2 | 5 | 80.60 | 0.00 | 0.00 | 0.00 | 6.03 | 9.45 | 0.55 | 0.38 | 0.04 | 0.48 | 1.45 | 0.08 | 0.08 | 0.16 | 00E+00 | 0.00 | 11.84 |
| 2 | 6 | 80.60 | 0.00 | 0.00 | 0.00 | 5.98 | 9.37 | 0.54 | 0.38 | 0.04 | 0.48 | 1.44 | 0.08 | 0.07 | 0.16 | 00E+00 | 0.00 | 11.98 |
| 2 | 7 | 80.60 | 0.00 | 0.00 | 0.00 | 5.92 | 9.30 | 0.54 | 0.38 | 0.04 | 0.49 | 1.44 | 0.08 | 0.07 | 0.16 | 00E+00 | 0.00 | 12.12 |
| 2 | 8 | 80.60 | 0.00 | 0.00 | 0.00 | 5.87 | 9.23 | 0.53 | 0.38 | 0.04 | 0.49 | 1.44 | 0.08 | 0.07 | 0.16 | 00E+00 | 0.00 | 12.26 |
| 2 | 9 | 80.60 | 0.00 | 0.00 | 0.00 | 5.82 | 9.16 | 0.53 | 0.38 | 0.04 | 0.49 | 1.44 | 0.08 | 0.07 | 0.16 | 00E+00 | 0.00 | 12.40 |
| 2 | 10 | 80.60 | 0.00 | 0.00 | 0.00 | 5.77 | 9.09 | 0.52 | 0.38 | 0.04 | 0.49 | 1.44 | 0.08 | 0.07 | 0.16 | 00E+00 | 0.00 | 12.54 |
| 2 | 11 | 80.60 | 0.00 | 0.00 | 0.00 | 5.72 | 9.02 | 0.52 | 0.38 | 0.04 | 0.50 | 1.44 | 0.08 | 0.07 | 0.16 | 00E+00 | 0.00 | 12.69 |
| 2 | 12 | 80.60 | 0.00 | 0.00 | 0.00 | 5.67 | 8.95 | 0.51 | 0.38 | 0.04 | 0.50 | 1.44 | 0.08 | 0.07 | 0.16 | 00E+00 | 0.00 | 12.84 |
| 2 | 13 | 80.60 | 0.00 | 0.00 | 0.00 | 5.63 | 8.88 | 0.51 | 0.38 | 0.04 | 0.50 | 1.43 | 0.08 | 0.07 | 0.16 | 00E+00 | 0.00 | 12.98 |
| 2 | 14 | 80.60 | 0.00 | 0.00 | 0.00 | 5.58 | 8.81 | 0.50 | 0.38 | 0.04 | 0.51 | 1.43 | 0.08 | 0.07 | 0.16 | 00E+00 | 0.00 | 13.13 |
| 2 | 15 | 80.60 | 0.00 | 0.00 | 0.00 | 5.54 | 8.74 | 0.50 | 0.38 | 0.04 | 0.51 | 1.43 | 0.08 | 0.07 | 0.16 | 00E+00 | 0.00 | 13.28 |
| 2 | 16 | 80.60 | 0.00 | 0.00 | 0.00 | 5.50 | 8.68 | 0.49 | 0.38 | 0.04 | 0.52 | 1.43 | 0.08 | 0.07 | 0.16 | 00E+00 | 0.00 | 13.44 |
| 2 | 17 | 80.60 | 0.00 | 0.00 | 0.00 | 5.46 | 8.61 | 0.49 | 0.38 | 0.04 | 0.52 | 1.43 | 0.08 | 0.07 | 0.16 | 00E+00 | 0.00 | 13.59 |
| 2 | 18 | 80.60 | 0.00 | 0.00 | 0.00 | 5.42 | 8.54 | 0.48 | 0.38 | 0.04 | 0.52 | 1.43 | 0.08 | 0.07 | 0.15 | 00E+00 | 0.00 | 13.75 |
| 2 | 19 | 80.60 | 0.00 | 0.00 | 0.00 | 5.39 | 8.48 | 0.48 | 0.38 | 0.05 | 0.53 | 1.43 | 0.08 | 0.07 | 0.15 | 00E+00 | 0.00 | 13.90 |
| 2 | 20 | 80.60 | 0.00 | 0.00 | 0.00 | 5.35 | 8.41 | 0.48 | 0.37 | 0.05 | 0.53 | 1.42 | 0.08 | 0.07 | 0.15 | 00E+00 | 0.00 | 14.06 |
|  | 1 | 80.60 | 0.00 | 0.00 | 0.00 | 5.33 | 8.35 | 0.47 | 0.37 | 0.05 | 0.53 | 1.42 | 0.08 | 0.07 | 0.15 | 00E+00 | 0.00 | 14.36 |
|  | 2 | 80.60 | 0.00 | 0.00 | 0.00 | 5.32 | 8.28 | 0.47 | 0.37 | 0.05 | 0.54 | 1.42 | 0.08 | 0.07 | 0.15 | 00E+00 | 0.00 | 14.66 |

***** STEADY STATE SIMULATION *****

** WATER QUALITY VARIABLES **

| RCH NUM | ELE NUM | TEMP DEG-F | CM-1 | CM-2 | CM-3 | DO MG/L | BOD MG/L | ORGN MG/L | NH3N MG/L | NO2N MG/L | NO3N MG/L | SUM-N MG/L | ORGP MG/L | DIS-P MG/L | SUM-P MG/L | COLI #/100ML | ANC BOD MG/L | CHLA UG/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 3 | 80.60 | 0.00 | 0.00 | 0.00 | 5.30 | 8.22 | 0.46 | 0.37 | 0.05 | 0.54 | 1.42 | 0.08 | 0.07 | 0.15.00E+00 | | 0.00 | 14.96 |
| 3 | 4 | 80.60 | 0.00 | 0.00 | 0.00 | 5.29 | 8.16 | 0.46 | 0.37 | 0.05 | 0.54 | 1.41 | 0.08 | 0.07 | 0.15.00E+00 | | 0.00 | 15.27 |
| 3 | 5 | 80.60 | 0.00 | 0.00 | 0.00 | 5.28 | 8.10 | 0.45 | 0.37 | 0.05 | 0.54 | 1.41 | 0.08 | 0.07 | 0.15.00E+00 | | 0.00 | 15.59 |
| 3 | 6 | 80.60 | 0.00 | 0.00 | 0.00 | 5.27 | 8.03 | 0.45 | 0.37 | 0.05 | 0.55 | 1.41 | 0.08 | 0.07 | 0.15.00E+00 | | 0.00 | 15.90 |
| 3 | 7 | 80.60 | 0.00 | 0.00 | 0.00 | 5.26 | 7.97 | 0.45 | 0.37 | 0.05 | 0.55 | 1.41 | 0.08 | 0.07 | 0.15.00E+00 | | 0.00 | 16.23 |
| 3 | 8 | 80.60 | 0.00 | 0.00 | 0.00 | 5.25 | 7.91 | 0.44 | 0.36 | 0.05 | 0.55 | 1.40 | 0.08 | 0.07 | 0.15.00E+00 | | 0.00 | 16.56 |
| 3 | 9 | 80.60 | 0.00 | 0.00 | 0.00 | 5.25 | 7.85 | 0.44 | 0.36 | 0.05 | 0.56 | 1.40 | 0.08 | 0.07 | 0.15.00E+00 | | 0.00 | 16.89 |
| 3 | 10 | 80.60 | 0.00 | 0.00 | 0.00 | 5.24 | 7.79 | 0.43 | 0.36 | 0.05 | 0.56 | 1.40 | 0.08 | 0.07 | 0.15.00E+00 | | 0.00 | 17.22 |
| 3 | 11 | 80.60 | 0.00 | 0.00 | 0.00 | 5.24 | 7.73 | 0.43 | 0.36 | 0.05 | 0.56 | 1.40 | 0.08 | 0.06 | 0.15.00E+00 | | 0.00 | 17.57 |
| 3 | 12 | 80.60 | 0.00 | 0.00 | 0.00 | 5.24 | 7.67 | 0.43 | 0.36 | 0.05 | 0.56 | 1.39 | 0.08 | 0.06 | 0.15.00E+00 | | 0.00 | 17.91 |
| 3 | 13 | 80.60 | 0.00 | 0.00 | 0.00 | 5.24 | 7.61 | 0.42 | 0.36 | 0.05 | 0.57 | 1.39 | 0.08 | 0.06 | 0.15.00E+00 | | 0.00 | 18.26 |
| 3 | 14 | 80.60 | 0.00 | 0.00 | 0.00 | 5.24 | 7.55 | 0.42 | 0.35 | 0.05 | 0.57 | 1.39 | 0.09 | 0.06 | 0.15.00E+00 | | 0.00 | 18.61 |
| 3 | 15 | 80.60 | 0.00 | 0.00 | 0.00 | 5.24 | 7.49 | 0.41 | 0.35 | 0.05 | 0.57 | 1.39 | 0.09 | 0.06 | 0.15.00E+00 | | 0.00 | 18.97 |
| 3 | 16 | 80.60 | 0.00 | 0.00 | 0.00 | 5.25 | 7.44 | 0.41 | 0.35 | 0.05 | 0.57 | 1.38 | 0.09 | 0.06 | 0.15.00E+00 | | 0.00 | 19.34 |
| 3 | 17 | 80.60 | 0.00 | 0.00 | 0.00 | 5.25 | 7.38 | 0.41 | 0.35 | 0.05 | 0.58 | 1.38 | 0.09 | 0.06 | 0.15.00E+00 | | 0.00 | 19.70 |
| 3 | 18 | 80.60 | 0.00 | 0.00 | 0.00 | 5.26 | 7.32 | 0.40 | 0.35 | 0.05 | 0.58 | 1.38 | 0.09 | 0.06 | 0.15.00E+00 | | 0.00 | 20.07 |
| 3 | 19 | 80.60 | 0.00 | 0.00 | 0.00 | 5.27 | 7.27 | 0.40 | 0.35 | 0.05 | 0.58 | 1.37 | 0.09 | 0.06 | 0.15.00E+00 | | 0.00 | 20.45 |
| 3 | 20 | 80.60 | 0.00 | 0.00 | 0.00 | 5.27 | 7.21 | 0.40 | 0.34 | 0.05 | 0.58 | 1.37 | 0.09 | 0.06 | 0.15.00E+00 | | 0.00 | 20.82 |
| 4 | 1 | 80.60 | 0.00 | 0.00 | 0.00 | 5.26 | 7.16 | 0.39 | 0.34 | 0.04 | 0.59 | 1.37 | 0.09 | 0.06 | 0.14.00E+00 | | 0.00 | 21.08 |
| 4 | 2 | 80.60 | 0.00 | 0.00 | 0.00 | 5.24 | 7.10 | 0.39 | 0.34 | 0.04 | 0.59 | 1.37 | 0.09 | 0.06 | 0.14.00E+00 | | 0.00 | 21.34 |
| 4 | 3 | 80.60 | 0.00 | 0.00 | 0.00 | 5.22 | 7.05 | 0.39 | 0.34 | 0.04 | 0.59 | 1.36 | 0.09 | 0.06 | 0.14.00E+00 | | 0.00 | 21.59 |
| 4 | 4 | 80.60 | 0.00 | 0.00 | 0.00 | 5.21 | 6.99 | 0.38 | 0.34 | 0.04 | 0.60 | 1.36 | 0.09 | 0.06 | 0.14.00E+00 | | 0.00 | 21.83 |
| 4 | 5 | 80.60 | 0.00 | 0.00 | 0.00 | 5.19 | 6.94 | 0.38 | 0.34 | 0.04 | 0.60 | 1.36 | 0.09 | 0.06 | 0.14.00E+00 | | 0.00 | 22.09 |
| 4 | 6 | 80.60 | 0.00 | 0.00 | 0.00 | 5.18 | 6.88 | 0.38 | 0.34 | 0.04 | 0.60 | 1.36 | 0.09 | 0.06 | 0.14.00E+00 | | 0.00 | 22.35 |
| 4 | 7 | 80.60 | 0.00 | 0.00 | 0.00 | 5.17 | 6.83 | 0.37 | 0.33 | 0.04 | 0.60 | 1.35 | 0.09 | 0.06 | 0.14.00E+00 | | 0.00 | 22.62 |
| 4 | 8 | 80.60 | 0.00 | 0.00 | 0.00 | 5.15 | 6.78 | 0.37 | 0.33 | 0.04 | 0.61 | 1.35 | 0.09 | 0.06 | 0.14.00E+00 | | 0.00 | 22.88 |
| 4 | 9 | 80.60 | 0.00 | 0.00 | 0.00 | 5.14 | 6.73 | 0.37 | 0.33 | 0.04 | 0.61 | 1.35 | 0.09 | 0.05 | 0.14.00E+00 | | 0.00 | 23.15 |
| 4 | 10 | 80.60 | 0.00 | 0.00 | 0.00 | 5.13 | 6.68 | 0.37 | 0.33 | 0.04 | 0.61 | 1.35 | 0.09 | 0.05 | 0.14.00E+00 | | 0.00 | 23.42 |
| 4 | 11 | 80.60 | 0.00 | 0.00 | 0.00 | 5.13 | 6.63 | 0.36 | 0.33 | 0.04 | 0.61 | 1.35 | 0.09 | 0.05 | 0.14.00E+00 | | 0.00 | 23.68 |
| 4 | 12 | 80.60 | 0.00 | 0.00 | 0.00 | 5.12 | 6.57 | 0.36 | 0.33 | 0.04 | 0.62 | 1.34 | 0.09 | 0.05 | 0.14.00E+00 | | 0.00 | 23.95 |
| 4 | 13 | 80.60 | 0.00 | 0.00 | 0.00 | 5.11 | 6.52 | 0.36 | 0.32 | 0.04 | 0.62 | 1.34 | 0.09 | 0.05 | 0.14.00E+00 | | 0.00 | 24.22 |
| 4 | 14 | 80.60 | 0.00 | 0.00 | 0.00 | 5.10 | 6.47 | 0.35 | 0.32 | 0.04 | 0.62 | 1.34 | 0.09 | 0.05 | 0.14.00E+00 | | 0.00 | 24.50 |
| 4 | 15 | 80.60 | 0.00 | 0.00 | 0.00 | 5.10 | 6.42 | 0.35 | 0.32 | 0.04 | 0.62 | 1.34 | 0.09 | 0.05 | 0.14.00E+00 | | 0.00 | 24.77 |
| 4 | 16 | 80.60 | 0.00 | 0.00 | 0.00 | 5.09 | 6.38 | 0.35 | 0.32 | 0.04 | 0.62 | 1.33 | 0.09 | 0.05 | 0.14.00E+00 | | 0.00 | 25.04 |
| 4 | 17 | 80.60 | 0.00 | 0.00 | 0.00 | 5.09 | 6.33 | 0.35 | 0.32 | 0.04 | 0.63 | 1.33 | 0.09 | 0.05 | 0.14.00E+00 | | 0.00 | 25.32 |
| 4 | 18 | 80.60 | 0.00 | 0.00 | 0.00 | 5.09 | 6.28 | 0.34 | 0.32 | 0.04 | 0.63 | 1.33 | 0.09 | 0.05 | 0.14.00E+00 | | 0.00 | 25.59 |
| 4 | 19 | 80.60 | 0.00 | 0.00 | 0.00 | 5.09 | 6.23 | 0.34 | 0.31 | 0.04 | 0.63 | 1.33 | 0.09 | 0.05 | 0.14.00E+00 | | 0.00 | 25.87 |
| 4 | 20 | 80.60 | 0.00 | 0.00 | 0.00 | 5.08 | 6.18 | 0.34 | 0.31 | 0.04 | 0.63 | 1.32 | 0.09 | 0.05 | 0.14.00E+00 | | 0.00 | 26.15 |
| 5 | 1 | 80.60 | 0.00 | 0.00 | 0.00 | 5.08 | 6.15 | 0.33 | 0.31 | 0.04 | 0.64 | 1.32 | 0.09 | 0.05 | 0.14.00E+00 | | 0.00 | 26.34 |
| 5 | 2 | 80.60 | 0.00 | 0.00 | 0.00 | 5.07 | 6.11 | 0.33 | 0.31 | 0.04 | 0.64 | 1.32 | 0.09 | 0.05 | 0.14.00E+00 | | 0.00 | 26.56 |
| | 3 | 80.60 | 0.00 | 0.00 | 0.00 | 5.07 | 6.08 | 0.33 | 0.31 | 0.04 | 0.64 | 1.32 | 0.09 | 0.05 | 0.14.00E+00 | | 0.00 | 26.77 |
| | 4 | 80.60 | 0.00 | 0.00 | 0.00 | 5.06 | 6.04 | 0.33 | 0.31 | 0.04 | 0.64 | 1.31 | 0.09 | 0.05 | 0.14.00E+00 | | 0.00 | 26.99 |

***** STEADY STATE SIMULATION *****

** WATER QUALITY VARIABLES **

| RCH NUM | ELE NUM | TEMP DEG-F | CM-1 | CM-2 | CM-3 | DO MG/L | BOD MG/L | ORGN MG/L | NH3N MG/L | NO2N MG/L | NO3N MG/L | SUM-N MG/L | ORGP MG/L | DIS-P MG/L | SUM-P MG/L | COLI #/100ML | ANC BOD MG/L | CHLA UG/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 5 | 80.60 | 0.00 | 0.00 | 0.00 | 5.05 | 6.00 | 0.32 | 0.30 | 0.04 | 0.65 | 1.31 | 0.09 | 0.05 | 0.13.00E+00 | | 0.00 | 27.20 |
| 5 | 6 | 80.60 | 0.00 | 0.00 | 0.00 | 5.05 | 5.97 | 0.32 | 0.30 | 0.04 | 0.65 | 1.31 | 0.09 | 0.05 | 0.13.00E+00 | | 0.00 | 27.42 |
| 5 | 7 | 80.60 | 0.00 | 0.00 | 0.00 | 5.04 | 5.93 | 0.32 | 0.30 | 0.04 | 0.65 | 1.31 | 0.09 | 0.04 | 0.13.00E+00 | | 0.00 | 27.63 |
| 5 | 8 | 80.60 | 0.00 | 0.00 | 0.00 | 5.03 | 5.89 | 0.31 | 0.30 | 0.04 | 0.65 | 1.31 | 0.09 | 0.04 | 0.13.00E+00 | | 0.00 | 27.85 |
| 5 | 9 | 80.60 | 0.00 | 0.00 | 0.00 | 5.03 | 5.86 | 0.31 | 0.30 | 0.04 | 0.66 | 1.30 | 0.09 | 0.04 | 0.13.00E+00 | | 0.00 | 28.06 |
| 5 | 10 | 80.60 | 0.00 | 0.00 | 0.00 | 5.03 | 5.82 | 0.31 | 0.29 | 0.04 | 0.66 | 1.30 | 0.09 | 0.04 | 0.13.00E+00 | | 0.00 | 28.28 |
| 5 | 11 | 80.60 | 0.00 | 0.00 | 0.00 | 5.02 | 5.79 | 0.31 | 0.29 | 0.04 | 0.66 | 1.30 | 0.09 | 0.04 | 0.13.00E+00 | | 0.00 | 28.49 |
| 5 | 12 | 80.60 | 0.00 | 0.00 | 0.00 | 5.02 | 5.75 | 0.30 | 0.29 | 0.04 | 0.66 | 1.30 | 0.09 | 0.04 | 0.13.00E+00 | | 0.00 | 28.70 |
| 5 | 13 | 80.60 | 0.00 | 0.00 | 0.00 | 5.02 | 5.72 | 0.30 | 0.29 | 0.04 | 0.67 | 1.29 | 0.09 | 0.04 | 0.13.00E+00 | | 0.00 | 28.92 |
| 5 | 14 | 80.60 | 0.00 | 0.00 | 0.00 | 5.01 | 5.69 | 0.30 | 0.29 | 0.04 | 0.67 | 1.29 | 0.09 | 0.04 | 0.13.00E+00 | | 0.00 | 29.13 |
| 5 | 15 | 80.60 | 0.00 | 0.00 | 0.00 | 5.01 | 5.65 | 0.30 | 0.29 | 0.04 | 0.67 | 1.29 | 0.09 | 0.04 | 0.13.00E+00 | | 0.00 | 29.34 |
| 5 | 16 | 80.60 | 0.00 | 0.00 | 0.00 | 5.01 | 5.62 | 0.29 | 0.28 | 0.04 | 0.67 | 1.29 | 0.09 | 0.04 | 0.13.00E+00 | | 0.00 | 29.55 |
| 5 | 17 | 80.60 | 0.00 | 0.00 | 0.00 | 5.01 | 5.58 | 0.30 | 0.29 | 0.04 | 0.68 | 1.30 | 0.09 | 0.04 | 0.13.00E+00 | | 0.00 | 29.73 |
| 5 | 18 | 80.60 | 0.00 | 0.00 | 0.00 | 5.01 | 5.55 | 0.29 | 0.29 | 0.04 | 0.68 | 1.29 | 0.09 | 0.04 | 0.13.00E+00 | | 0.00 | 29.94 |
| 5 | 19 | 80.60 | 0.00 | 0.00 | 0.00 | 5.01 | 5.52 | 0.29 | 0.28 | 0.04 | 0.68 | 1.29 | 0.09 | 0.04 | 0.13.00E+00 | | 0.00 | 30.15 |
| 5 | 20 | 80.60 | 0.00 | 0.00 | 0.00 | 5.01 | 5.48 | 0.29 | 0.28 | 0.04 | 0.68 | 1.29 | 0.09 | 0.04 | 0.13.00E+00 | | 0.00 | 30.36 |
| | 1 | 80.60 | 0.00 | 0.00 | 0.00 | 5.01 | 5.45 | 0.29 | 0.28 | 0.04 | 0.68 | 1.29 | 0.09 | 0.04 | 0.13.00E+00 | | 0.00 | 30.61 |
| | 2 | 80.60 | 0.00 | 0.00 | 0.00 | 5.02 | 5.42 | 0.28 | 0.28 | 0.04 | 0.69 | 1.28 | 0.09 | 0.04 | 0.13.00E+00 | | 0.00 | 30.86 |
| 6 | 3 | 80.60 | 0.00 | 0.00 | 0.00 | 5.03 | 5.39 | 0.28 | 0.28 | 0.04 | 0.69 | 1.28 | 0.09 | 0.04 | 0.13.00E+00 | | 0.00 | 31.10 |
| 6 | 4 | 80.60 | 0.00 | 0.00 | 0.00 | 5.03 | 5.35 | 0.28 | 0.27 | 0.04 | 0.69 | 1.28 | 0.09 | 0.04 | 0.13.00E+00 | | 0.00 | 31.35 |
| 6 | 5 | 80.60 | 0.00 | 0.00 | 0.00 | 5.04 | 5.32 | 0.28 | 0.27 | 0.04 | 0.69 | 1.28 | 0.09 | 0.04 | 0.13.00E+00 | | 0.00 | 31.60 |
| 6 | 6 | 80.60 | 0.00 | 0.00 | 0.00 | 5.05 | 5.29 | 0.27 | 0.27 | 0.04 | 0.69 | 1.27 | 0.09 | 0.04 | 0.13.00E+00 | | 0.00 | 31.85 |
| 6 | 7 | 80.60 | 0.00 | 0.00 | 0.00 | 5.05 | 5.26 | 0.27 | 0.27 | 0.04 | 0.69 | 1.27 | 0.09 | 0.04 | 0.13.00E+00 | | 0.00 | 32.10 |
| 6 | 8 | 80.60 | 0.00 | 0.00 | 0.00 | 5.06 | 5.23 | 0.27 | 0.27 | 0.04 | 0.70 | 1.27 | 0.09 | 0.04 | 0.13.00E+00 | | 0.00 | 32.35 |
| 6 | 9 | 80.60 | 0.00 | 0.00 | 0.00 | 5.07 | 5.20 | 0.27 | 0.27 | 0.04 | 0.70 | 1.27 | 0.09 | 0.04 | 0.13.00E+00 | | 0.00 | 32.60 |
| 6 | 10 | 80.60 | 0.00 | 0.00 | 0.00 | 5.08 | 5.16 | 0.27 | 0.26 | 0.04 | 0.70 | 1.26 | 0.09 | 0.04 | 0.13.00E+00 | | 0.00 | 32.86 |
| 6 | 11 | 80.60 | 0.00 | 0.00 | 0.00 | 5.09 | 5.13 | 0.26 | 0.26 | 0.04 | 0.70 | 1.26 | 0.09 | 0.04 | 0.13.00E+00 | | 0.00 | 33.11 |
| 6 | 12 | 80.60 | 0.00 | 0.00 | 0.00 | 5.10 | 5.10 | 0.26 | 0.26 | 0.03 | 0.70 | 1.26 | 0.09 | 0.04 | 0.12.00E+00 | | 0.00 | 33.36 |
| 6 | 13 | 80.60 | 0.00 | 0.00 | 0.00 | 5.11 | 5.07 | 0.26 | 0.26 | 0.03 | 0.70 | 1.26 | 0.09 | 0.04 | 0.12.00E+00 | | 0.00 | 33.61 |
| 6 | 14 | 80.60 | 0.00 | 0.00 | 0.00 | 5.12 | 5.04 | 0.26 | 0.26 | 0.03 | 0.70 | 1.25 | 0.09 | 0.04 | 0.12.00E+00 | | 0.00 | 33.86 |
| 6 | 15 | 80.60 | 0.00 | 0.00 | 0.00 | 5.13 | 5.01 | 0.26 | 0.25 | 0.03 | 0.71 | 1.25 | 0.09 | 0.04 | 0.12.00E+00 | | 0.00 | 34.11 |
| 6 | 16 | 80.60 | 0.00 | 0.00 | 0.00 | 5.14 | 4.98 | 0.25 | 0.25 | 0.03 | 0.71 | 1.25 | 0.09 | 0.04 | 0.12.00E+00 | | 0.00 | 34.37 |
| 6 | 17 | 80.60 | 0.00 | 0.00 | 0.00 | 5.15 | 4.95 | 0.25 | 0.25 | 0.03 | 0.71 | 1.24 | 0.09 | 0.04 | 0.12.00E+00 | | 0.00 | 34.62 |
| 6 | 18 | 80.60 | 0.00 | 0.00 | 0.00 | 5.17 | 4.92 | 0.25 | 0.25 | 0.03 | 0.71 | 1.24 | 0.09 | 0.04 | 0.12.00E+00 | | 0.00 | 34.87 |
| 6 | 19 | 80.60 | 0.00 | 0.00 | 0.00 | 5.18 | 4.89 | 0.25 | 0.25 | 0.03 | 0.71 | 1.24 | 0.09 | 0.04 | 0.12.00E+00 | | 0.00 | 35.12 |
| 6 | 20 | 80.60 | 0.00 | 0.00 | 0.00 | 5.19 | 4.86 | 0.25 | 0.25 | 0.03 | 0.71 | 1.24 | 0.08 | 0.04 | 0.12.00E+00 | | 0.00 | 35.38 |
| 7 | 1 | 80.60 | 0.00 | 0.00 | 0.00 | 5.22 | 4.83 | 0.25 | 0.24 | 0.03 | 0.71 | 1.23 | 0.08 | 0.04 | 0.12.00E+00 | | 0.00 | 35.80 |
| 7 | 2 | 80.60 | 0.00 | 0.00 | 0.00 | 5.24 | 4.78 | 0.24 | 0.24 | 0.03 | 0.71 | 1.23 | 0.08 | 0.04 | 0.12.00E+00 | | 0.00 | 36.32 |
| 7 | 3 | 80.60 | 0.00 | 0.00 | 0.00 | 5.27 | 4.74 | 0.24 | 0.24 | 0.03 | 0.71 | 1.22 | 0.08 | 0.04 | 0.12.00E+00 | | 0.00 | 36.84 |
| 7 | 4 | 80.60 | 0.00 | 0.00 | 0.00 | 5.30 | 4.69 | 0.24 | 0.23 | 0.03 | 0.71 | 1.22 | 0.08 | 0.03 | 0.12.00E+00 | | 0.00 | 37.35 |
| | 5 | 80.60 | 0.00 | 0.00 | 0.00 | 5.33 | 4.65 | 0.24 | 0.23 | 0.03 | 0.72 | 1.21 | 0.08 | 0.03 | 0.12.00E+00 | | 0.00 | 37.87 |
| | 6 | 80.60 | 0.00 | 0.00 | 0.00 | 5.36 | 4.61 | 0.23 | 0.23 | 0.03 | 0.72 | 1.21 | 0.08 | 0.03 | 0.12.00E+00 | | 0.00 | 38.39 |

***** STEADY STATE SIMULATION *****

** WATER QUALITY VARIABLES **

| RCH NUM | ELE NUM | TEMP DEG-F | CM-1 | CM-2 | CM-3 | DO MG/L | BOD MG/L | ORGN MG/L | NH3N MG/L | NO2N MG/L | NO3N MG/L | SUM-N MG/L | ORGP MG/L | DIS-P MG/L | SUM-P MG/L | COLI #/100ML | ANC BOD MG/L | CHLA UG/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 7 | 80.60 | 0.00 | 0.00 | 0.00 | 5.39 | 4.56 | 0.23 | 0.23 | 0.03 | 0.72 | 1.21 | 0.08 | 0.03 | 0.12 | 00E+00 | 0.00 | 38.90 |
| 7 | 8 | 80.60 | 0.00 | 0.00 | 0.00 | 5.42 | 4.52 | 0.23 | 0.22 | 0.03 | 0.72 | 1.20 | 0.08 | 0.03 | 0.11 | 00E+00 | 0.00 | 39.42 |
| 7 | 9 | 80.60 | 0.00 | 0.00 | 0.00 | 5.45 | 4.48 | 0.23 | 0.22 | 0.03 | 0.72 | 1.20 | 0.08 | 0.03 | 0.11 | 00E+00 | 0.00 | 39.93 |
| 7 | 10 | 80.60 | 0.00 | 0.00 | 0.00 | 5.48 | 4.44 | 0.22 | 0.22 | 0.03 | 0.72 | 1.19 | 0.08 | 0.03 | 0.11 | 00E+00 | 0.00 | 40.43 |
| 7 | 11 | 80.60 | 0.00 | 0.00 | 0.00 | 5.52 | 4.40 | 0.22 | 0.22 | 0.03 | 0.72 | 1.19 | 0.08 | 0.03 | 0.11 | 00E+00 | 0.00 | 40.94 |
| 7 | 12 | 80.60 | 0.00 | 0.00 | 0.00 | 5.55 | 4.36 | 0.22 | 0.21 | 0.03 | 0.72 | 1.18 | 0.08 | 0.03 | 0.11 | 00E+00 | 0.00 | 41.39 |
| 7 | 13 | 80.60 | 0.00 | 0.00 | 0.00 | 5.65 | 4.02 | 0.27 | 0.18 | 0.04 | 0.66 | 1.15 | 0.08 | 0.03 | 0.11 | 00E+00 | 0.00 | 35.36 |
| 7 | 14 | 80.60 | 0.00 | 0.00 | 0.00 | 5.68 | 3.99 | 0.27 | 0.18 | 0.04 | 0.66 | 1.15 | 0.08 | 0.03 | 0.11 | 00E+00 | 0.00 | 35.74 |
| 7 | 15 | 80.60 | 0.00 | 0.00 | 0.00 | 5.70 | 3.96 | 0.26 | 0.18 | 0.04 | 0.66 | 1.14 | 0.08 | 0.03 | 0.11 | 00E+00 | 0.00 | 36.12 |
| 7 | 16 | 80.60 | 0.00 | 0.00 | 0.00 | 5.73 | 3.93 | 0.26 | 0.18 | 0.03 | 0.66 | 1.14 | 0.08 | 0.03 | 0.11 | 00E+00 | 0.00 | 36.50 |
| 7 | 17 | 80.60 | 0.00 | 0.00 | 0.00 | 5.75 | 3.90 | 0.26 | 0.18 | 0.03 | 0.66 | 1.14 | 0.08 | 0.03 | 0.11 | 00E+00 | 0.00 | 36.88 |
| 7 | 18 | 80.60 | 0.00 | 0.00 | 0.00 | 5.78 | 3.87 | 0.26 | 0.18 | 0.03 | 0.66 | 1.13 | 0.08 | 0.03 | 0.11 | 00E+00 | 0.00 | 37.25 |
| 7 | 19 | 80.60 | 0.00 | 0.00 | 0.00 | 5.80 | 3.84 | 0.26 | 0.18 | 0.03 | 0.66 | 1.13 | 0.08 | 0.03 | 0.11 | 00E+00 | 0.00 | 37.63 |
| 7 | 20 | 80.60 | 0.00 | 0.00 | 0.00 | 5.83 | 3.82 | 0.25 | 0.18 | 0.03 | 0.67 | 1.12 | 0.08 | 0.03 | 0.11 | 00E+00 | 0.00 | 38.00 |
| 8 | 1 | 80.60 | 0.00 | 0.00 | 0.00 | 5.85 | 3.82 | 0.26 | 0.18 | 0.03 | 0.67 | 1.14 | 0.08 | 0.03 | 0.11 | 00E+00 | 0.00 | 38.37 |
| 8 | 2 | 80.60 | 0.00 | 0.00 | 0.00 | 5.88 | 3.79 | 0.26 | 0.18 | 0.03 | 0.67 | 1.13 | 0.08 | 0.03 | 0.11 | 00E+00 | 0.00 | 38.75 |
|  | 3 | 80.60 | 0.00 | 0.00 | 0.00 | 5.91 | 3.77 | 0.25 | 0.18 | 0.03 | 0.67 | 1.13 | 0.08 | 0.03 | 0.11 | 00E+00 | 0.00 | 39.13 |
|  | 4 | 80.60 | 0.00 | 0.00 | 0.00 | 5.94 | 3.74 | 0.25 | 0.18 | 0.03 | 0.67 | 1.13 | 0.08 | 0.03 | 0.11 | 00E+00 | 0.00 | 39.51 |
| 8 | 5 | 80.60 | 0.00 | 0.00 | 0.00 | 5.97 | 3.71 | 0.25 | 0.18 | 0.03 | 0.67 | 1.12 | 0.07 | 0.03 | 0.11 | 00E+00 | 0.00 | 39.89 |
| 8 | 6 | 80.60 | 0.00 | 0.00 | 0.00 | 5.99 | 3.68 | 0.25 | 0.18 | 0.03 | 0.67 | 1.12 | 0.07 | 0.03 | 0.10 | 00E+00 | 0.00 | 40.26 |
| 8 | 7 | 80.60 | 0.00 | 0.00 | 0.00 | 6.02 | 3.65 | 0.25 | 0.18 | 0.03 | 0.66 | 1.12 | 0.07 | 0.03 | 0.10 | 00E+00 | 0.00 | 40.63 |
| 8 | 8 | 80.60 | 0.00 | 0.00 | 0.00 | 6.05 | 3.63 | 0.24 | 0.18 | 0.03 | 0.66 | 1.11 | 0.07 | 0.03 | 0.10 | 00E+00 | 0.00 | 41.00 |

***** STEADY STATE SIMULATION *****

** ALGAE DATA **

| ELE ORD | RCH NUM | ELE NUM | CHLA UG/L | ALGY GRWTH 1/DAY | ALGY RESP 1/DAY | ALGY SETT FT/DA | A P/R RATIO * | NET P-R MG/L-D | NH3 PREF * | NH3-N FRACT N-UPTKE * | LIGHT EXTCO 1/FT | ALGAE GROWTH RATE ATTEN FACTORS LIGHT * | NITRGN * | PHSPRS * |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 8.55 | 0.38 | 0.07 | 0.94 | 5.00 | 0.31 | 0.50 | 0.12 | 0.66 | 0.20 | 0.70 | 0.80 |
| 2 | 1 | 2 | 8.70 | 0.39 | 0.07 | 0.94 | 5.03 | 0.32 | 0.50 | 0.12 | 0.66 | 0.20 | 0.70 | 0.80 |
| 3 | 1 | 3 | 8.86 | 0.39 | 0.07 | 0.94 | 5.04 | 0.33 | 0.50 | 0.13 | 0.66 | 0.20 | 0.71 | 0.80 |
| 4 | 1 | 4 | 9.02 | 0.39 | 0.07 | 0.94 | 5.06 | 0.34 | 0.50 | 0.13 | 0.67 | 0.20 | 0.71 | 0.80 |
| 5 | 1 | 5 | 9.19 | 0.39 | 0.07 | 0.94 | 5.07 | 0.34 | 0.50 | 0.14 | 0.67 | 0.20 | 0.72 | 0.79 |
| 6 | 1 | 6 | 9.35 | 0.39 | 0.07 | 0.94 | 5.07 | 0.35 | 0.50 | 0.14 | 0.67 | 0.20 | 0.72 | 0.79 |
| 7 | 1 | 7 | 9.53 | 0.39 | 0.07 | 0.94 | 5.08 | 0.36 | 0.50 | 0.15 | 0.67 | 0.20 | 0.72 | 0.79 |
| 8 | 1 | 8 | 9.70 | 0.39 | 0.07 | 0.94 | 5.08 | 0.36 | 0.50 | 0.15 | 0.67 | 0.20 | 0.73 | 0.79 |
| 9 | 1 | 9 | 9.88 | 0.39 | 0.07 | 0.94 | 5.08 | 0.37 | 0.50 | 0.16 | 0.67 | 0.20 | 0.73 | 0.79 |
| 10 | 1 | 10 | 10.06 | 0.39 | 0.07 | 0.94 | 5.07 | 0.38 | 0.50 | 0.16 | 0.67 | 0.20 | 0.73 | 0.79 |
| 11 | 1 | 11 | 10.24 | 0.39 | 0.07 | 0.94 | 5.07 | 0.38 | 0.50 | 0.17 | 0.68 | 0.20 | 0.73 | 0.79 |
| 12 | 1 | 12 | 10.43 | 0.39 | 0.07 | 0.94 | 5.06 | 0.39 | 0.50 | 0.17 | 0.68 | 0.20 | 0.73 | 0.78 |
| 13 | 1 | 13 | 10.62 | 0.39 | 0.07 | 0.94 | 5.05 | 0.40 | 0.50 | 0.17 | 0.68 | 0.19 | 0.74 | 0.78 |
| 14 | 1 | 14 | 10.81 | 0.39 | 0.07 | 0.94 | 5.04 | 0.40 | 0.50 | 0.18 | 0.68 | 0.19 | 0.74 | 0.78 |
| 15 | 1 | 15 | 11.00 | 0.39 | 0.07 | 0.94 | 5.03 | 0.41 | 0.50 | 0.18 | 0.68 | 0.19 | 0.74 | 0.78 |
| 16 | 1 | 16 | 11.20 | 0.38 | 0.07 | 0.94 | 5.02 | 0.41 | 0.50 | 0.18 | 0.68 | 0.19 | 0.74 | 0.78 |
| 17 | 1 | 17 | 11.40 | 0.38 | 0.07 | 0.94 | 5.01 | 0.42 | 0.50 | 0.19 | 0.68 | 0.19 | 0.74 | 0.78 |
|  | 1 | 18 | 11.60 | 0.38 | 0.07 | 0.94 | 4.99 | 0.43 | 0.50 | 0.19 | 0.69 | 0.19 | 0.74 | 0.77 |
|  | 1 | 19 | 11.81 | 0.38 | 0.07 | 0.94 | 4.98 | 0.43 | 0.50 | 0.19 | 0.69 | 0.19 | 0.74 | 0.77 |
| 20 | 1 | 20 | 11.99 | 0.38 | 0.07 | 0.94 | 5.01 | 0.44 | 0.50 | 0.21 | 0.69 | 0.19 | 0.75 | 0.78 |
| 21 | 2 | 1 | 11.30 | 0.32 | 0.07 | 0.94 | 4.19 | 0.33 | 0.50 | 0.45 | 1.01 | 0.13 | 0.81 | 0.88 |
| 22 | 2 | 2 | 11.43 | 0.32 | 0.07 | 0.94 | 4.19 | 0.34 | 0.50 | 0.45 | 1.01 | 0.13 | 0.81 | 0.88 |
| 23 | 2 | 3 | 11.56 | 0.32 | 0.07 | 0.94 | 4.19 | 0.34 | 0.50 | 0.45 | 1.02 | 0.13 | 0.81 | 0.88 |
| 24 | 2 | 4 | 11.70 | 0.32 | 0.07 | 0.94 | 4.18 | 0.34 | 0.50 | 0.44 | 1.02 | 0.13 | 0.81 | 0.88 |
| 25 | 2 | 5 | 11.84 | 0.32 | 0.07 | 0.94 | 4.18 | 0.35 | 0.50 | 0.44 | 1.02 | 0.13 | 0.81 | 0.88 |
| 26 | 2 | 6 | 11.98 | 0.32 | 0.07 | 0.94 | 4.18 | 0.35 | 0.50 | 0.44 | 1.02 | 0.13 | 0.81 | 0.88 |
| 27 | 2 | 7 | 12.12 | 0.32 | 0.07 | 0.94 | 4.17 | 0.35 | 0.50 | 0.44 | 1.02 | 0.13 | 0.81 | 0.88 |
| 28 | 2 | 8 | 12.26 | 0.32 | 0.07 | 0.94 | 4.17 | 0.36 | 0.50 | 0.44 | 1.02 | 0.13 | 0.81 | 0.88 |
| 29 | 2 | 9 | 12.40 | 0.32 | 0.07 | 0.94 | 4.16 | 0.36 | 0.50 | 0.44 | 1.02 | 0.13 | 0.81 | 0.88 |
| 30 | 2 | 10 | 12.54 | 0.32 | 0.07 | 0.94 | 4.16 | 0.36 | 0.50 | 0.43 | 1.02 | 0.13 | 0.81 | 0.88 |
| 31 | 2 | 11 | 12.69 | 0.32 | 0.07 | 0.94 | 4.16 | 0.37 | 0.50 | 0.43 | 1.02 | 0.13 | 0.81 | 0.88 |
| 32 | 2 | 12 | 12.84 | 0.32 | 0.07 | 0.94 | 4.15 | 0.37 | 0.50 | 0.43 | 1.03 | 0.13 | 0.81 | 0.88 |
| 33 | 2 | 13 | 12.98 | 0.32 | 0.07 | 0.94 | 4.15 | 0.38 | 0.50 | 0.43 | 1.03 | 0.13 | 0.82 | 0.88 |
| 34 | 2 | 14 | 13.13 | 0.32 | 0.07 | 0.94 | 4.14 | 0.38 | 0.50 | 0.43 | 1.03 | 0.13 | 0.82 | 0.88 |
| 35 | 2 | 15 | 13.28 | 0.32 | 0.07 | 0.94 | 4.14 | 0.38 | 0.50 | 0.42 | 1.03 | 0.13 | 0.82 | 0.88 |
| 36 | 2 | 16 | 13.44 | 0.32 | 0.07 | 0.94 | 4.14 | 0.39 | 0.50 | 0.42 | 1.03 | 0.13 | 0.82 | 0.88 |
| 37 | 2 | 17 | 13.59 | 0.32 | 0.07 | 0.94 | 4.13 | 0.39 | 0.50 | 0.42 | 1.03 | 0.13 | 0.82 | 0.88 |
| 38 | 2 | 18 | 13.75 | 0.32 | 0.07 | 0.94 | 4.13 | 0.40 | 0.50 | 0.42 | 1.03 | 0.13 | 0.82 | 0.88 |
| 39 | 2 | 19 | 13.90 | 0.32 | 0.07 | 0.94 | 4.12 | 0.40 | 0.50 | 0.42 | 1.03 | 0.13 | 0.82 | 0.88 |
| 40 | 2 | 20 | 14.06 | 0.32 | 0.07 | 0.94 | 4.12 | 0.40 | 0.50 | 0.41 | 1.03 | 0.13 | 0.82 | 0.88 |
| -- | 3 | 1 | 14.36 | 0.44 | 0.07 | 0.94 | 5.77 | 0.63 | 0.50 | 0.41 | 0.74 | 0.18 | 0.82 | 0.88 |
| 42 | 3 | 2 | 14.66 | 0.44 | 0.07 | 0.94 | 5.75 | 0.64 | 0.50 | 0.41 | 0.74 | 0.18 | 0.82 | 0.87 |

***** STEADY STATE SIMULATION *****

** ALGAE DATA **

| ELE ORD | RCH NUM | ELE NUM | CHLA UG/L | ALGY GRWTH 1/DAY | ALGY RESP 1/DAY | ALGY SETT FT/DA | A P/R RATIO * | NET P-R MG/L-D | NH3 PREF * | NH3-N FRACT N-UPTKE * | LIGHT EXTCO 1/FT | ALGAE GROWTH RATE ATTEN FACTORS LIGHT * | NITRGN * | PHSPRS * |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 43 | 3 | 3 | 14.96 | 0.44 | 0.07 | 0.94 | 5.73 | 0.65 | 0.50 | 0.41 | 0.74 | 0.18 | 0.82 | 0.87 |
| 44 | 3 | 4 | 15.27 | 0.44 | 0.07 | 0.94 | 5.71 | 0.66 | 0.50 | 0.41 | 0.74 | 0.18 | 0.82 | 0.87 |
| 45 | 3 | 5 | 15.59 | 0.44 | 0.07 | 0.94 | 5.69 | 0.67 | 0.50 | 0.40 | 0.75 | 0.18 | 0.82 | 0.87 |
| 46 | 3 | 6 | 15.90 | 0.43 | 0.07 | 0.94 | 5.67 | 0.68 | 0.50 | 0.40 | 0.75 | 0.18 | 0.82 | 0.87 |
| 47 | 3 | 7 | 16.23 | 0.43 | 0.07 | 0.94 | 5.65 | 0.69 | 0.50 | 0.40 | 0.75 | 0.18 | 0.82 | 0.87 |
| 48 | 3 | 8 | 16.56 | 0.43 | 0.07 | 0.94 | 5.63 | 0.70 | 0.50 | 0.40 | 0.75 | 0.18 | 0.82 | 0.87 |
| 49 | 3 | 9 | 16.89 | 0.43 | 0.07 | 0.94 | 5.60 | 0.72 | 0.50 | 0.39 | 0.75 | 0.17 | 0.82 | 0.87 |
| 50 | 3 | 10 | 17.22 | 0.43 | 0.07 | 0.94 | 5.58 | 0.73 | 0.50 | 0.39 | 0.76 | 0.17 | 0.82 | 0.87 |
| 51 | 3 | 11 | 17.57 | 0.43 | 0.07 | 0.94 | 5.56 | 0.74 | 0.50 | 0.39 | 0.76 | 0.17 | 0.82 | 0.87 |
| 52 | 3 | 12 | 17.91 | 0.42 | 0.07 | 0.94 | 5.54 | 0.75 | 0.50 | 0.39 | 0.76 | 0.17 | 0.82 | 0.87 |
| 53 | 3 | 13 | 18.26 | 0.42 | 0.07 | 0.94 | 5.52 | 0.76 | 0.50 | 0.39 | 0.76 | 0.17 | 0.82 | 0.86 |
| 54 | 3 | 14 | 18.61 | 0.42 | 0.07 | 0.94 | 5.49 | 0.77 | 0.50 | 0.38 | 0.77 | 0.17 | 0.82 | 0.86 |
| 55 | 3 | 15 | 18.97 | 0.42 | 0.07 | 0.94 | 5.47 | 0.78 | 0.50 | 0.38 | 0.77 | 0.17 | 0.82 | 0.86 |
| 56 | 3 | 16 | 19.34 | 0.42 | 0.07 | 0.94 | 5.44 | 0.79 | 0.50 | 0.38 | 0.77 | 0.17 | 0.82 | 0.86 |
| 57 | 3 | 17 | 19.70 | 0.42 | 0.07 | 0.94 | 5.42 | 0.80 | 0.50 | 0.38 | 0.77 | 0.17 | 0.82 | 0.86 |
| 58 | 3 | 18 | 20.07 | 0.41 | 0.07 | 0.94 | 5.40 | 0.81 | 0.50 | 0.38 | 0.78 | 0.17 | 0.82 | 0.86 |
| 59 | 3 | 19 | 20.45 | 0.41 | 0.07 | 0.94 | 5.37 | 0.82 | 0.50 | 0.37 | 0.78 | 0.17 | 0.82 | 0.86 |
|  | 3 | 20 | 20.82 | 0.41 | 0.07 | 0.94 | 5.35 | 0.83 | 0.50 | 0.37 | 0.78 | 0.17 | 0.82 | 0.86 |
| 61 | 4 | 1 | 21.08 | 0.32 | 0.07 | 0.94 | 4.15 | 0.61 | 0.50 | 0.37 | 0.90 | 0.13 | 0.82 | 0.86 |
| 62 | 4 | 2 | 21.34 | 0.32 | 0.07 | 0.94 | 4.13 | 0.62 | 0.50 | 0.37 | 0.90 | 0.13 | 0.82 | 0.85 |
| 63 | 4 | 3 | 21.59 | 0.32 | 0.07 | 0.94 | 4.12 | 0.62 | 0.50 | 0.36 | 0.91 | 0.13 | 0.82 | 0.85 |
| 64 | 4 | 4 | 21.83 | 0.32 | 0.07 | 0.94 | 4.11 | 0.62 | 0.50 | 0.36 | 0.91 | 0.13 | 0.82 | 0.85 |
| 65 | 4 | 5 | 22.09 | 0.31 | 0.07 | 0.94 | 4.10 | 0.63 | 0.50 | 0.36 | 0.91 | 0.13 | 0.82 | 0.85 |
| 66 | 4 | 6 | 22.35 | 0.31 | 0.07 | 0.94 | 4.09 | 0.63 | 0.50 | 0.36 | 0.91 | 0.13 | 0.82 | 0.85 |
| 67 | 4 | 7 | 22.62 | 0.31 | 0.07 | 0.94 | 4.07 | 0.64 | 0.50 | 0.36 | 0.91 | 0.13 | 0.82 | 0.85 |
| 68 | 4 | 8 | 22.88 | 0.31 | 0.07 | 0.94 | 4.06 | 0.64 | 0.50 | 0.35 | 0.91 | 0.13 | 0.82 | 0.85 |
| 69 | 4 | 9 | 23.15 | 0.31 | 0.07 | 0.94 | 4.05 | 0.65 | 0.50 | 0.35 | 0.92 | 0.13 | 0.82 | 0.85 |
| 70 | 4 | 10 | 23.42 | 0.31 | 0.07 | 0.94 | 4.03 | 0.65 | 0.50 | 0.35 | 0.92 | 0.13 | 0.82 | 0.84 |
| 71 | 4 | 11 | 23.68 | 0.31 | 0.07 | 0.94 | 4.02 | 0.66 | 0.50 | 0.35 | 0.92 | 0.13 | 0.82 | 0.84 |
| 72 | 4 | 12 | 23.95 | 0.31 | 0.07 | 0.94 | 4.01 | 0.66 | 0.50 | 0.35 | 0.92 | 0.13 | 0.82 | 0.84 |
| 73 | 4 | 13 | 24.22 | 0.31 | 0.07 | 0.94 | 3.99 | 0.67 | 0.50 | 0.34 | 0.92 | 0.13 | 0.82 | 0.84 |
| 74 | 4 | 14 | 24.50 | 0.30 | 0.07 | 0.94 | 3.98 | 0.67 | 0.50 | 0.34 | 0.93 | 0.13 | 0.82 | 0.84 |
| 75 | 4 | 15 | 24.77 | 0.30 | 0.07 | 0.94 | 3.96 | 0.68 | 0.50 | 0.34 | 0.93 | 0.13 | 0.82 | 0.84 |
| 76 | 4 | 16 | 25.04 | 0.30 | 0.07 | 0.94 | 3.95 | 0.68 | 0.50 | 0.34 | 0.93 | 0.13 | 0.82 | 0.84 |
| 77 | 4 | 17 | 25.32 | 0.30 | 0.07 | 0.94 | 3.94 | 0.68 | 0.50 | 0.34 | 0.93 | 0.13 | 0.83 | 0.83 |
| 78 | 4 | 18 | 25.59 | 0.30 | 0.07 | 0.94 | 3.92 | 0.69 | 0.50 | 0.33 | 0.93 | 0.13 | 0.83 | 0.83 |
| 79 | 4 | 19 | 25.87 | 0.30 | 0.07 | 0.94 | 3.91 | 0.69 | 0.50 | 0.33 | 0.93 | 0.13 | 0.83 | 0.83 |
| 80 | 4 | 20 | 26.15 | 0.30 | 0.07 | 0.94 | 3.89 | 0.70 | 0.50 | 0.33 | 0.94 | 0.13 | 0.83 | 0.83 |
| 81 | 5 | 1 | 26.34 | 0.23 | 0.07 | 0.94 | 3.05 | 0.50 | 0.50 | 0.33 | 0.99 | 0.10 | 0.83 | 0.83 |
|  | 5 | 2 | 26.56 | 0.23 | 0.07 | 0.94 | 3.04 | 0.50 | 0.50 | 0.33 | 0.99 | 0.10 | 0.83 | 0.83 |
|  | 5 | 3 | 26.77 | 0.23 | 0.07 | 0.94 | 3.03 | 0.50 | 0.50 | 0.32 | 0.99 | 0.10 | 0.83 | 0.82 |
| 84 | 5 | 4 | 26.99 | 0.23 | 0.07 | 0.94 | 3.02 | 0.50 | 0.50 | 0.32 | 0.99 | 0.10 | 0.83 | 0.82 |

***** STEADY STATE SIMULATION *****

** ALGAE DATA **

| ELE ORD | RCH NUM | ELE NUM | CHLA UG/L | ALGY GRWTH 1/DAY | ALGY RESP 1/DAY | ALGY SETT FT/DA | A P/R RATIO * | NET P-R MG/L-D | NH3 PREF * | NH3-N FRACT N-UPTKE * | LIGHT EXTCO 1/FT | ALGAE GROWTH RATE ATTEN FACTORS LIGHT * | NITRGN * | PHSPRS * |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 85 | 5 | 5 | 27.20 | 0.23 | 0.07 | 0.94 | 3.01 | 0.50 | 0.50 | 0.32 | 0.99 | 0.10 | 0.83 | 0.82 |
| 86 | 5 | 6 | 27.42 | 0.23 | 0.07 | 0.94 | 3.00 | 0.51 | 0.50 | 0.32 | 0.99 | 0.10 | 0.83 | 0.82 |
| 87 | 5 | 7 | 27.63 | 0.23 | 0.07 | 0.94 | 2.99 | 0.51 | 0.50 | 0.32 | 1.00 | 0.10 | 0.83 | 0.82 |
| 88 | 5 | 8 | 27.85 | 0.23 | 0.07 | 0.94 | 2.98 | 0.51 | 0.50 | 0.31 | 1.00 | 0.10 | 0.83 | 0.82 |
| 89 | 5 | 9 | 28.06 | 0.23 | 0.07 | 0.94 | 2.97 | 0.51 | 0.50 | 0.31 | 1.00 | 0.10 | 0.83 | 0.81 |
| 90 | 5 | 10 | 28.28 | 0.23 | 0.07 | 0.94 | 2.96 | 0.51 | 0.50 | 0.31 | 1.00 | 0.10 | 0.83 | 0.81 |
| 91 | 5 | 11 | 28.49 | 0.23 | 0.07 | 0.94 | 2.95 | 0.51 | 0.50 | 0.31 | 1.00 | 0.10 | 0.83 | 0.81 |
| 92 | 5 | 12 | 28.70 | 0.23 | 0.07 | 0.94 | 2.94 | 0.51 | 0.50 | 0.30 | 1.00 | 0.10 | 0.83 | 0.81 |
| 93 | 5 | 13 | 28.92 | 0.22 | 0.07 | 0.94 | 2.93 | 0.51 | 0.50 | 0.30 | 1.00 | 0.10 | 0.83 | 0.81 |
| 94 | 5 | 14 | 29.13 | 0.22 | 0.07 | 0.94 | 2.92 | 0.51 | 0.50 | 0.30 | 1.01 | 0.10 | 0.83 | 0.80 |
| 95 | 5 | 15 | 29.34 | 0.22 | 0.07 | 0.94 | 2.91 | 0.51 | 0.50 | 0.30 | 1.01 | 0.10 | 0.83 | 0.80 |
| 96 | 5 | 16 | 29.55 | 0.22 | 0.07 | 0.94 | 2.89 | 0.51 | 0.50 | 0.30 | 1.01 | 0.10 | 0.83 | 0.80 |
| 97 | 5 | 17 | 29.73 | 0.22 | 0.07 | 0.94 | 2.90 | 0.52 | 0.50 | 0.30 | 1.01 | 0.10 | 0.83 | 0.80 |
| 98 | 5 | 18 | 29.94 | 0.22 | 0.07 | 0.94 | 2.89 | 0.52 | 0.50 | 0.30 | 1.01 | 0.10 | 0.83 | 0.80 |
| 99 | 5 | 19 | 30.15 | 0.22 | 0.07 | 0.94 | 2.88 | 0.52 | 0.50 | 0.29 | 1.01 | 0.10 | 0.83 | 0.80 |
| 100 | 5 | 20 | 30.36 | 0.22 | 0.07 | 0.94 | 2.87 | 0.52 | 0.50 | 0.29 | 1.01 | 0.10 | 0.83 | 0.79 |
| 1 | 6 | 1 | 30.61 | 0.23 | 0.07 | 0.94 | 3.04 | 0.57 | 0.50 | 0.29 | 0.95 | 0.10 | 0.83 | 0.79 |
| 102 | 6 | 2 | 30.86 | 0.23 | 0.07 | 0.94 | 3.03 | 0.58 | 0.50 | 0.29 | 0.96 | 0.10 | 0.83 | 0.79 |
| 103 | 6 | 3 | 31.10 | 0.23 | 0.07 | 0.94 | 3.03 | 0.58 | 0.50 | 0.29 | 0.96 | 0.10 | 0.83 | 0.79 |
| 104 | 6 | 4 | 31.35 | 0.23 | 0.07 | 0.94 | 3.02 | 0.58 | 0.50 | 0.28 | 0.96 | 0.10 | 0.83 | 0.79 |
| 105 | 6 | 5 | 31.60 | 0.23 | 0.07 | 0.94 | 3.01 | 0.59 | 0.50 | 0.28 | 0.96 | 0.10 | 0.83 | 0.79 |
| 106 | 6 | 6 | 31.85 | 0.23 | 0.07 | 0.94 | 3.01 | 0.59 | 0.50 | 0.28 | 0.96 | 0.10 | 0.83 | 0.79 |
| 107 | 6 | 7 | 32.10 | 0.23 | 0.07 | 0.94 | 3.00 | 0.59 | 0.50 | 0.28 | 0.96 | 0.10 | 0.83 | 0.79 |
| 108 | 6 | 8 | 32.35 | 0.23 | 0.07 | 0.94 | 2.99 | 0.59 | 0.50 | 0.28 | 0.97 | 0.10 | 0.83 | 0.79 |
| 109 | 6 | 9 | 32.60 | 0.23 | 0.07 | 0.94 | 2.99 | 0.60 | 0.50 | 0.28 | 0.97 | 0.10 | 0.83 | 0.79 |
| 110 | 6 | 10 | 32.86 | 0.23 | 0.07 | 0.94 | 2.98 | 0.60 | 0.50 | 0.27 | 0.97 | 0.10 | 0.83 | 0.79 |
| 111 | 6 | 11 | 33.11 | 0.23 | 0.07 | 0.94 | 2.97 | 0.60 | 0.50 | 0.27 | 0.97 | 0.10 | 0.83 | 0.79 |
| 112 | 6 | 12 | 33.36 | 0.23 | 0.07 | 0.94 | 2.97 | 0.60 | 0.50 | 0.27 | 0.97 | 0.10 | 0.83 | 0.79 |
| 113 | 6 | 13 | 33.61 | 0.23 | 0.07 | 0.94 | 2.96 | 0.61 | 0.50 | 0.27 | 0.97 | 0.10 | 0.83 | 0.79 |
| 114 | 6 | 14 | 33.86 | 0.23 | 0.07 | 0.94 | 2.95 | 0.61 | 0.50 | 0.27 | 0.97 | 0.10 | 0.83 | 0.79 |
| 115 | 6 | 15 | 34.11 | 0.23 | 0.07 | 0.94 | 2.94 | 0.61 | 0.50 | 0.26 | 0.98 | 0.10 | 0.83 | 0.79 |
| 116 | 6 | 16 | 34.37 | 0.23 | 0.07 | 0.94 | 2.94 | 0.61 | 0.50 | 0.26 | 0.98 | 0.10 | 0.83 | 0.79 |
| 117 | 6 | 17 | 34.62 | 0.22 | 0.07 | 0.94 | 2.93 | 0.61 | 0.50 | 0.26 | 0.98 | 0.10 | 0.83 | 0.79 |
| 118 | 6 | 18 | 34.87 | 0.22 | 0.07 | 0.94 | 2.92 | 0.62 | 0.50 | 0.26 | 0.98 | 0.10 | 0.83 | 0.78 |
| 119 | 6 | 19 | 35.12 | 0.22 | 0.07 | 0.94 | 2.91 | 0.62 | 0.50 | 0.26 | 0.98 | 0.10 | 0.83 | 0.78 |
| 120 | 6 | 20 | 35.38 | 0.22 | 0.07 | 0.94 | 2.90 | 0.62 | 0.50 | 0.26 | 0.98 | 0.10 | 0.83 | 0.78 |
| 121 | 7 | 1 | 35.80 | 0.24 | 0.07 | 0.94 | 3.08 | 0.68 | 0.50 | 0.25 | 0.78 | 0.11 | 0.83 | 0.78 |
| 122 | 7 | 2 | 36.32 | 0.23 | 0.07 | 0.94 | 3.06 | 0.69 | 0.50 | 0.25 | 0.78 | 0.11 | 0.83 | 0.78 |
| 123 | 7 | 3 | 36.84 | 0.23 | 0.07 | 0.94 | 3.04 | 0.69 | 0.50 | 0.25 | 0.78 | 0.10 | 0.83 | 0.78 |
| [illegible] | 7 | 4 | 37.35 | 0.23 | 0.07 | 0.94 | 3.02 | 0.69 | 0.50 | 0.25 | 0.79 | 0.10 | 0.83 | 0.78 |
| 125 | 7 | 5 | 37.87 | 0.23 | 0.07 | 0.94 | 2.99 | 0.69 | 0.50 | 0.24 | 0.79 | 0.10 | 0.83 | 0.77 |
| 126 | 7 | 6 | 38.39 | 0.23 | 0.07 | 0.94 | 2.97 | 0.70 | 0.50 | 0.24 | 0.79 | 0.10 | 0.83 | 0.77 |

***** STEADY STATE SIMULATION *****

** ALGAE DATA **

| ELE ORD | RCH NUM | ELE NUM | CHLA UG/L | ALGY GRWTH 1/DAY | ALGY RESP 1/DAY | ALGY SETT FT/DA | A P/R RATIO * | NET P-R MG/L-D | NH3 PREF * | NH3-N FRACT N-UPTKE * | LIGHT EXTCO 1/FT | ALGAE GROWTH RATE ATTEN FACTORS LIGHT * | NITRGN * | PHSPRS * |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 127 | 7 | 7 | 38.90 | 0.23 | 0.07 | 0.94 | 2.95 | 0.70 | 0.50 | 0.24 | 0.79 | 0.10 | 0.83 | 0.77 |
| 128 | 7 | 8 | 39.42 | 0.22 | 0.07 | 0.94 | 2.93 | 0.70 | 0.50 | 0.24 | 0.80 | 0.10 | 0.82 | 0.77 |
| 129 | 7 | 9 | 39.93 | 0.22 | 0.07 | 0.94 | 2.91 | 0.70 | 0.50 | 0.24 | 0.80 | 0.10 | 0.82 | 0.77 |
| 130 | 7 | 10 | 40.43 | 0.22 | 0.07 | 0.94 | 2.89 | 0.70 | 0.50 | 0.23 | 0.80 | 0.10 | 0.82 | 0.76 |
| 131 | 7 | 11 | 40.94 | 0.22 | 0.07 | 0.94 | 2.87 | 0.70 | 0.50 | 0.23 | 0.81 | 0.10 | 0.82 | 0.76 |
| 132 | 7 | 12 | 41.39 | 0.22 | 0.07 | 0.94 | 2.84 | 0.70 | 0.50 | 0.23 | 0.81 | 0.10 | 0.82 | 0.76 |
| 133 | 7 | 13 | 35.36 | 0.23 | 0.07 | 0.94 | 2.94 | 0.63 | 0.50 | 0.22 | 0.77 | 0.11 | 0.81 | 0.77 |
| 134 | 7 | 14 | 35.74 | 0.22 | 0.07 | 0.94 | 2.93 | 0.63 | 0.50 | 0.21 | 0.78 | 0.11 | 0.81 | 0.76 |
| 135 | 7 | 15 | 36.12 | 0.22 | 0.07 | 0.94 | 2.92 | 0.64 | 0.50 | 0.21 | 0.78 | 0.11 | 0.81 | 0.76 |
| 136 | 7 | 16 | 36.50 | 0.22 | 0.07 | 0.94 | 2.90 | 0.64 | 0.50 | 0.21 | 0.78 | 0.10 | 0.81 | 0.76 |
| 137 | 7 | 17 | 36.88 | 0.22 | 0.07 | 0.94 | 2.89 | 0.64 | 0.50 | 0.21 | 0.78 | 0.10 | 0.81 | 0.76 |
| 138 | 7 | 18 | 37.25 | 0.22 | 0.07 | 0.94 | 2.87 | 0.64 | 0.50 | 0.21 | 0.78 | 0.10 | 0.81 | 0.76 |
| 139 | 7 | 19 | 37.63 | 0.22 | 0.07 | 0.94 | 2.85 | 0.64 | 0.50 | 0.21 | 0.79 | 0.10 | 0.81 | 0.75 |
| 140 | 7 | 20 | 38.00 | 0.22 | 0.07 | 0.94 | 2.84 | 0.64 | 0.50 | 0.21 | 0.79 | 0.10 | 0.81 | 0.75 |
| 141 | 8 | 1 | 38.37 | 0.22 | 0.07 | 0.94 | 2.87 | 0.66 | 0.50 | 0.22 | 0.79 | 0.10 | 0.81 | 0.76 |
|  | 8 | 2 | 38.75 | 0.22 | 0.07 | 0.94 | 2.86 | 0.66 | 0.50 | 0.22 | 0.79 | 0.10 | 0.81 | 0.76 |
|  | 8 | 3 | 39.13 | 0.22 | 0.07 | 0.94 | 2.84 | 0.66 | 0.50 | 0.22 | 0.80 | 0.10 | 0.81 | 0.76 |
| 144 | 8 | 4 | 39.51 | 0.22 | 0.07 | 0.94 | 2.82 | 0.66 | 0.50 | 0.21 | 0.80 | 0.10 | 0.81 | 0.76 |
| 145 | 8 | 5 | 39.89 | 0.22 | 0.07 | 0.94 | 2.81 | 0.66 | 0.50 | 0.21 | 0.80 | 0.10 | 0.81 | 0.75 |
| 146 | 8 | 6 | 40.26 | 0.21 | 0.07 | 0.94 | 2.79 | 0.66 | 0.50 | 0.21 | 0.80 | 0.10 | 0.81 | 0.75 |
| 147 | 8 | 7 | 40.63 | 0.21 | 0.07 | 0.94 | 2.77 | 0.66 | 0.50 | 0.21 | 0.80 | 0.10 | 0.81 | 0.75 |
| 148 | 8 | 8 | 41.00 | 0.21 | 0.07 | 0.94 | 2.75 | 0.66 | 0.50 | 0.21 | 0.81 | 0.10 | 0.81 | 0.75 |

***** STEADY STATE SIMULATION *****

** DISSOLVED OXYGEN DATA **

| ELE ORD | RCH NUM | ELE NUM | TEMP DEG-F | DO SAT MG/L | DO MG/L | DO DEF MG/L | DAM INPUT MG/L | NIT INHIB FACT | COMPONENTS OF DISSOLVED OXYGEN MASS BALANCE (MG/L-DAY) F-FNCTN INPUT | OXYGN REAIR | C-BOD | SOD | NET P-R | NH3-N | NO2-N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 80.60 | 7.97 | 6.52 | 1.45 | 0.00 | 1.00 | 81.58 | 0.30 | -0.26 | -0.27 | 0.31 | -0.03 | -0.14 |
| 2 | 1 | 2 | 80.60 | 7.97 | 6.52 | 1.45 | 0.00 | 1.00 | 0.01 | 0.31 | -0.26 | -0.27 | 0.32 | -0.04 | -0.13 |
| 3 | 1 | 3 | 80.60 | 7.97 | 6.51 | 1.46 | 0.00 | 1.00 | 0.01 | 0.31 | -0.25 | -0.27 | 0.33 | -0.04 | -0.12 |
| 4 | 1 | 4 | 80.60 | 7.97 | 6.51 | 1.46 | 0.00 | 1.00 | 0.01 | 0.31 | -0.25 | -0.27 | 0.34 | -0.04 | -0.11 |
| 5 | 1 | 5 | 80.60 | 7.97 | 6.51 | 1.46 | 0.00 | 1.00 | 0.01 | 0.31 | -0.25 | -0.27 | 0.34 | -0.04 | -0.10 |
| 6 | 1 | 6 | 80.60 | 7.97 | 6.51 | 1.46 | 0.00 | 1.00 | 0.01 | 0.31 | -0.25 | -0.27 | 0.35 | -0.04 | -0.09 |
| 7 | 1 | 7 | 80.60 | 7.97 | 6.51 | 1.46 | 0.00 | 1.00 | 0.01 | 0.31 | -0.25 | -0.27 | 0.36 | -0.05 | -0.08 |
| 8 | 1 | 8 | 80.60 | 7.97 | 6.51 | 1.46 | 0.00 | 1.00 | 0.01 | 0.31 | -0.25 | -0.27 | 0.36 | -0.05 | -0.08 |
| 9 | 1 | 9 | 80.60 | 7.97 | 6.51 | 1.46 | 0.00 | 1.00 | 0.01 | 0.31 | -0.25 | -0.27 | 0.37 | -0.05 | -0.07 |
| 10 | 1 | 10 | 80.60 | 7.97 | 6.51 | 1.46 | 0.00 | 1.00 | 0.01 | 0.31 | -0.24 | -0.27 | 0.38 | -0.05 | -0.07 |
| 11 | 1 | 11 | 80.60 | 7.97 | 6.52 | 1.45 | 0.00 | 1.00 | 0.01 | 0.31 | -0.24 | -0.27 | 0.38 | -0.05 | -0.06 |
| 12 | 1 | 12 | 80.60 | 7.97 | 6.52 | 1.45 | 0.00 | 1.00 | 0.01 | 0.30 | -0.24 | -0.27 | 0.39 | -0.06 | -0.06 |
| 13 | 1 | 13 | 80.60 | 7.97 | 6.53 | 1.44 | 0.00 | 1.00 | 0.01 | 0.30 | -0.24 | -0.27 | 0.40 | -0.06 | -0.05 |
| 14 | 1 | 14 | 80.60 | 7.97 | 6.53 | 1.44 | 0.00 | 1.00 | 0.01 | 0.30 | -0.24 | -0.27 | 0.40 | -0.06 | -0.05 |
| 15 | 1 | 15 | 80.60 | 7.97 | 6.54 | 1.43 | 0.00 | 1.00 | 0.01 | 0.30 | -0.24 | -0.27 | 0.41 | -0.06 | -0.05 |
| 16 | 1 | 16 | 80.60 | 7.97 | 6.55 | 1.42 | 0.00 | 1.00 | 0.01 | 0.30 | -0.24 | -0.27 | 0.41 | -0.06 | -0.04 |
| 17 | 1 | 17 | 80.60 | 7.97 | 6.55 | 1.42 | 0.00 | 1.00 | 0.01 | 0.30 | -0.24 | -0.27 | 0.42 | -0.06 | -0.04 |
| | 1 | 18 | 80.60 | 7.97 | 6.56 | 1.41 | 0.00 | 1.00 | 0.01 | 0.30 | -0.23 | -0.27 | 0.43 | -0.07 | -0.04 |
| | 1 | 19 | 80.60 | 7.97 | 6.57 | 1.40 | 0.00 | 1.00 | 0.01 | 0.29 | -0.23 | -0.27 | 0.43 | -0.07 | -0.04 |
| 20 | 1 | 20 | 80.60 | 7.97 | 6.57 | 1.40 | 0.00 | 1.00 | 0.01 | 0.29 | -0.24 | -0.27 | 0.44 | -0.07 | -0.04 |
| 21 | 2 | 1 | 80.60 | 7.97 | 6.27 | 1.70 | 0.00 | 1.00 | 3.65 | 0.36 | -1.01 | -0.27 | 0.33 | -0.23 | -0.05 |
| 22 | 2 | 2 | 80.60 | 7.97 | 6.21 | 1.76 | 0.00 | 1.00 | 0.01 | 0.38 | -1.00 | -0.27 | 0.34 | -0.23 | -0.05 |
| 23 | 2 | 3 | 80.60 | 7.97 | 6.15 | 1.82 | 0.00 | 1.00 | 0.01 | 0.39 | -0.99 | -0.27 | 0.34 | -0.23 | -0.05 |
| 24 | 2 | 4 | 80.60 | 7.97 | 6.09 | 1.88 | 0.00 | 1.00 | 0.01 | 0.41 | -0.98 | -0.27 | 0.34 | -0.23 | -0.06 |
| 25 | 2 | 5 | 80.60 | 7.97 | 6.03 | 1.94 | 0.00 | 1.00 | 0.01 | 0.42 | -0.98 | -0.27 | 0.35 | -0.23 | -0.06 |
| 26 | 2 | 6 | 80.60 | 7.97 | 5.98 | 1.99 | 0.00 | 1.00 | 0.01 | 0.43 | -0.97 | -0.27 | 0.35 | -0.23 | -0.06 |
| 27 | 2 | 7 | 80.60 | 7.97 | 5.92 | 2.05 | 0.00 | 1.00 | 0.01 | 0.44 | -0.96 | -0.27 | 0.35 | -0.23 | -0.06 |
| 28 | 2 | 8 | 80.60 | 7.97 | 5.87 | 2.10 | 0.00 | 1.00 | 0.01 | 0.46 | -0.95 | -0.27 | 0.36 | -0.23 | -0.06 |
| 29 | 2 | 9 | 80.60 | 7.97 | 5.82 | 2.15 | 0.00 | 1.00 | 0.01 | 0.47 | -0.95 | -0.27 | 0.36 | -0.23 | -0.06 |
| 30 | 2 | 10 | 80.60 | 7.97 | 5.77 | 2.20 | 0.00 | 1.00 | 0.01 | 0.48 | -0.94 | -0.27 | 0.36 | -0.23 | -0.06 |
| 31 | 2 | 11 | 80.60 | 7.97 | 5.72 | 2.25 | 0.00 | 1.00 | 0.01 | 0.49 | -0.93 | -0.27 | 0.37 | -0.23 | -0.07 |
| 32 | 2 | 12 | 80.60 | 7.97 | 5.67 | 2.30 | 0.00 | 1.00 | 0.01 | 0.50 | -0.93 | -0.27 | 0.37 | -0.23 | -0.07 |
| 33 | 2 | 13 | 80.60 | 7.97 | 5.63 | 2.34 | 0.00 | 1.00 | 0.01 | 0.51 | -0.92 | -0.27 | 0.38 | -0.23 | -0.07 |
| 34 | 2 | 14 | 80.60 | 7.97 | 5.58 | 2.39 | 0.00 | 1.00 | 0.01 | 0.52 | -0.91 | -0.27 | 0.38 | -0.23 | -0.07 |
| 35 | 2 | 15 | 80.60 | 7.97 | 5.54 | 2.43 | 0.00 | 1.00 | 0.01 | 0.53 | -0.90 | -0.27 | 0.38 | -0.23 | -0.07 |
| 36 | 2 | 16 | 80.60 | 7.97 | 5.50 | 2.47 | 0.00 | 1.00 | 0.01 | 0.54 | -0.90 | -0.27 | 0.39 | -0.23 | -0.07 |
| 37 | 2 | 17 | 80.60 | 7.97 | 5.46 | 2.51 | 0.00 | 1.00 | 0.01 | 0.54 | -0.89 | -0.27 | 0.39 | -0.23 | -0.07 |
| 38 | 2 | 18 | 80.60 | 7.97 | 5.42 | 2.55 | 0.00 | 1.00 | 0.01 | 0.55 | -0.88 | -0.27 | 0.40 | -0.23 | -0.07 |
| 39 | 2 | 19 | 80.60 | 7.97 | 5.39 | 2.58 | 0.00 | 1.00 | 0.01 | 0.56 | -0.88 | -0.27 | 0.40 | -0.22 | -0.07 |
| 40 | 2 | 20 | 80.60 | 7.97 | 5.35 | 2.62 | 0.00 | 1.00 | 0.01 | 0.57 | -0.87 | -0.27 | 0.40 | -0.22 | -0.07 |
| | 3 | 1 | 80.60 | 7.97 | 5.33 | 2.63 | 0.00 | 1.00 | 0.01 | 0.57 | -0.86 | -0.27 | 0.63 | -0.22 | -0.07 |
| 42 | 3 | 2 | 80.60 | 7.97 | 5.32 | 2.65 | 0.00 | 1.00 | 0.01 | 0.58 | -0.86 | -0.27 | 0.64 | -0.22 | -0.07 |

***** STEADY STATE SIMULATION *****

** DISSOLVED OXYGEN DATA **

| ELE ORD | RCH NUM | ELE NUM | TEMP DEG-F | DO SAT MG/L | DO MG/L | DO DEF MG/L | DAM INPUT MG/L | NIT INHIB FACT | COMPONENTS OF DISSOLVED OXYGEN MASS BALANCE (MG/L-DAY) F-FNCTN INPUT | OXYGN REAIR | C-BOD | SOD | NET P-R | NH3-N | NO2-N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 43 | 3 | 3 | 80.60 | 7.97 | 5.30 | 2.66 | 0.00 | 1.00 | 0.01 | 0.58 | -0.85 | -0.27 | 0.65 | -0.22 | -0.07 |
| 44 | 3 | 4 | 80.60 | 7.97 | 5.29 | 2.68 | 0.00 | 1.00 | 0.01 | 0.58 | -0.84 | -0.27 | 0.66 | -0.22 | -0.07 |
| 45 | 3 | 5 | 80.60 | 7.97 | 5.28 | 2.69 | 0.00 | 1.00 | 0.01 | 0.58 | -0.84 | -0.27 | 0.67 | -0.22 | -0.07 |
| 46 | 3 | 6 | 80.60 | 7.97 | 5.27 | 2.70 | 0.00 | 1.00 | 0.01 | 0.59 | -0.83 | -0.27 | 0.68 | -0.22 | -0.07 |
| 47 | 3 | 7 | 80.60 | 7.97 | 5.26 | 2.71 | 0.00 | 1.00 | 0.01 | 0.59 | -0.82 | -0.27 | 0.69 | -0.22 | -0.07 |
| 48 | 3 | 8 | 80.60 | 7.97 | 5.25 | 2.71 | 0.00 | 1.00 | 0.01 | 0.59 | -0.82 | -0.27 | 0.70 | -0.22 | -0.07 |
| 49 | 3 | 9 | 80.60 | 7.97 | 5.25 | 2.72 | 0.00 | 1.00 | 0.01 | 0.59 | -0.81 | -0.27 | 0.72 | -0.22 | -0.07 |
| 50 | 3 | 10 | 80.60 | 7.97 | 5.24 | 2.72 | 0.00 | 1.00 | 0.01 | 0.59 | -0.81 | -0.27 | 0.73 | -0.22 | -0.07 |
| 51 | 3 | 11 | 80.60 | 7.97 | 5.24 | 2.73 | 0.00 | 1.00 | 0.01 | 0.59 | -0.80 | -0.27 | 0.74 | -0.22 | -0.07 |
| 52 | 3 | 12 | 80.60 | 7.97 | 5.24 | 2.73 | 0.00 | 1.00 | 0.01 | 0.59 | -0.79 | -0.27 | 0.75 | -0.21 | -0.07 |
| 53 | 3 | 13 | 80.60 | 7.97 | 5.24 | 2.73 | 0.00 | 1.00 | 0.01 | 0.59 | -0.79 | -0.27 | 0.76 | -0.21 | -0.07 |
| 54 | 3 | 14 | 80.60 | 7.97 | 5.24 | 2.73 | 0.00 | 1.00 | 0.01 | 0.59 | -0.78 | -0.27 | 0.77 | -0.21 | -0.07 |
| 55 | 3 | 15 | 80.60 | 7.97 | 5.24 | 2.72 | 0.00 | 1.00 | 0.01 | 0.59 | -0.78 | -0.27 | 0.78 | -0.21 | -0.07 |
| 56 | 3 | 16 | 80.60 | 7.97 | 5.25 | 2.72 | 0.00 | 1.00 | 0.01 | 0.59 | -0.77 | -0.27 | 0.79 | -0.21 | -0.07 |
| 57 | 3 | 17 | 80.60 | 7.97 | 5.25 | 2.72 | 0.00 | 1.00 | 0.01 | 0.59 | -0.76 | -0.27 | 0.80 | -0.21 | -0.07 |
| 58 | 3 | 18 | 80.60 | 7.97 | 5.26 | 2.71 | 0.00 | 1.00 | 0.01 | 0.59 | -0.76 | -0.27 | 0.81 | -0.21 | -0.07 |
| 59 | 3 | 19 | 80.60 | 7.97 | 5.27 | 2.70 | 0.00 | 1.00 | 0.01 | 0.59 | -0.75 | -0.27 | 0.82 | -0.21 | -0.07 |
|  | 3 | 20 | 80.60 | 7.97 | 5.27 | 2.69 | 0.00 | 1.00 | 0.01 | 0.59 | -0.75 | -0.27 | 0.83 | -0.21 | -0.07 |
| 61 | 4 | 1 | 80.60 | 7.97 | 5.26 | 2.71 | 0.00 | 1.00 | 0.01 | 0.54 | -0.74 | -0.34 | 0.61 | -0.21 | -0.07 |
| 62 | 4 | 2 | 80.60 | 7.97 | 5.24 | 2.73 | 0.00 | 1.00 | 0.01 | 0.50 | -0.73 | -0.34 | 0.62 | -0.20 | -0.07 |
| 63 | 4 | 3 | 80.60 | 7.97 | 5.22 | 2.75 | 0.00 | 1.00 | 0.01 | 0.51 | -0.73 | -0.34 | 0.62 | -0.20 | -0.07 |
| 64 | 4 | 4 | 80.60 | 7.97 | 5.21 | 2.76 | 0.00 | 1.00 | 0.10 | 0.51 | -0.72 | -0.34 | 0.62 | -0.20 | -0.07 |
| 65 | 4 | 5 | 80.60 | 7.97 | 5.19 | 2.78 | 0.00 | 1.00 | 0.01 | 0.51 | -0.72 | -0.34 | 0.63 | -0.20 | -0.07 |
| 66 | 4 | 6 | 80.60 | 7.97 | 5.18 | 2.79 | 0.00 | 1.00 | 0.01 | 0.51 | -0.71 | -0.34 | 0.63 | -0.20 | -0.07 |
| 67 | 4 | 7 | 80.60 | 7.97 | 5.17 | 2.80 | 0.00 | 1.00 | 0.01 | 0.52 | -0.71 | -0.34 | 0.64 | -0.20 | -0.07 |
| 68 | 4 | 8 | 80.60 | 7.97 | 5.15 | 2.81 | 0.00 | 1.00 | 0.01 | 0.52 | -0.70 | -0.34 | 0.64 | -0.20 | -0.07 |
| 69 | 4 | 9 | 80.60 | 7.97 | 5.14 | 2.82 | 0.00 | 1.00 | 0.01 | 0.52 | -0.70 | -0.34 | 0.65 | -0.20 | -0.07 |
| 70 | 4 | 10 | 80.60 | 7.97 | 5.13 | 2.83 | 0.00 | 1.00 | 0.01 | 0.52 | -0.69 | -0.34 | 0.65 | -0.20 | -0.07 |
| 71 | 4 | 11 | 80.60 | 7.97 | 5.13 | 2.84 | 0.00 | 1.00 | 0.01 | 0.52 | -0.69 | -0.34 | 0.66 | -0.20 | -0.07 |
| 72 | 4 | 12 | 80.60 | 7.97 | 5.12 | 2.85 | 0.00 | 1.00 | 0.01 | 0.53 | -0.68 | -0.34 | 0.66 | -0.20 | -0.07 |
| 73 | 4 | 13 | 80.60 | 7.97 | 5.11 | 2.86 | 0.00 | 1.00 | 0.01 | 0.53 | -0.68 | -0.34 | 0.67 | -0.19 | -0.07 |
| 74 | 4 | 14 | 80.60 | 7.97 | 5.10 | 2.86 | 0.00 | 1.00 | 0.01 | 0.53 | -0.67 | -0.34 | 0.67 | -0.19 | -0.07 |
| 75 | 4 | 15 | 80.60 | 7.97 | 5.10 | 2.87 | 0.00 | 1.00 | 0.01 | 0.53 | -0.66 | -0.34 | 0.68 | -0.19 | -0.07 |
| 76 | 4 | 16 | 80.60 | 7.97 | 5.09 | 2.87 | 0.00 | 1.00 | 0.01 | 0.53 | -0.66 | -0.34 | 0.68 | -0.19 | -0.07 |
| 77 | 4 | 17 | 80.60 | 7.97 | 5.09 | 2.88 | 0.00 | 1.00 | 0.01 | 0.53 | -0.65 | -0.34 | 0.68 | -0.19 | -0.07 |
| 78 | 4 | 18 | 80.60 | 7.97 | 5.09 | 2.88 | 0.00 | 1.00 | 0.02 | 0.53 | -0.65 | -0.34 | 0.69 | -0.19 | -0.07 |
| 79 | 4 | 19 | 80.60 | 7.97 | 5.09 | 2.88 | 0.00 | 1.00 | 0.01 | 0.53 | -0.64 | -0.34 | 0.69 | -0.19 | -0.07 |
| 80 | 4 | 20 | 80.60 | 7.97 | 5.08 | 2.88 | 0.00 | 1.00 | 0.01 | 0.53 | -0.64 | -0.34 | 0.70 | -0.19 | -0.07 |
| 81 | 5 | 1 | 80.60 | 7.97 | 5.08 | 2.89 | 0.00 | 1.00 | 0.01 | 0.45 | -0.42 | -0.28 | 0.50 | -0.19 | -0.07 |
|  | 5 | 2 | 80.60 | 7.97 | 5.07 | 2.90 | 0.00 | 1.00 | 0.01 | 0.37 | -0.42 | -0.28 | 0.50 | -0.19 | -0.06 |
| 83 | 5 | 3 | 80.60 | 7.97 | 5.07 | 2.90 | 0.00 | 1.00 | 0.01 | 0.37 | -0.42 | -0.28 | 0.50 | -0.18 | -0.06 |
| 84 | 5 | 4 | 80.60 | 7.97 | 5.06 | 2.91 | 0.00 | 1.00 | 0.01 | 0.37 | -0.42 | -0.28 | 0.50 | -0.18 | -0.06 |

***** STEADY STATE SIMULATION *****

** DISSOLVED OXYGEN DATA **

| ELE ORD | RCH NUM | ELE NUM | TEMP DEG-F | DO SAT MG/L | DO MG/L | DO DEF MG/L | DAM INPUT MG/L | NIT INHIB FACT | COMPONENTS OF DISSOLVED OXYGEN MASS BALANCE (MG/L-DAY) F-FNCTN INPUT | OXYGN REAIR | C-BOD | SOD | NET P-R | NH3-N | NO2-N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 85 | 5 | 5 | 80.60 | 7.97 | 5.05 | 2.92 | 0.00 | 1.00 | 0.01 | 0.37 | -0.41 | -0.28 | 0.50 | -0.18 | -0.06 |
| 86 | 5 | 6 | 80.60 | 7.97 | 5.05 | 2.92 | 0.00 | 1.00 | 0.01 | 0.38 | -0.41 | -0.28 | 0.51 | -0.18 | -0.06 |
| 87 | 5 | 7 | 80.60 | 7.97 | 5.04 | 2.93 | 0.00 | 1.00 | 0.01 | 0.38 | -0.41 | -0.28 | 0.51 | -0.18 | -0.06 |
| 88 | 5 | 8 | 80.60 | 7.97 | 5.03 | 2.93 | 0.00 | 1.00 | 0.01 | 0.38 | -0.41 | -0.28 | 0.51 | -0.18 | -0.06 |
| 89 | 5 | 9 | 80.60 | 7.97 | 5.03 | 2.94 | 0.00 | 1.00 | 0.01 | 0.38 | -0.40 | -0.28 | 0.51 | -0.18 | -0.06 |
| 90 | 5 | 10 | 80.60 | 7.97 | 5.03 | 2.94 | 0.00 | 1.00 | 0.01 | 0.38 | -0.40 | -0.28 | 0.51 | -0.18 | -0.06 |
| 91 | 5 | 11 | 80.60 | 7.97 | 5.02 | 2.95 | 0.00 | 1.00 | 0.01 | 0.38 | -0.40 | -0.28 | 0.51 | -0.18 | -0.06 |
| 92 | 5 | 12 | 80.60 | 7.97 | 5.02 | 2.95 | 0.00 | 1.00 | 0.01 | 0.38 | -0.40 | -0.28 | 0.51 | -0.17 | -0.06 |
| 93 | 5 | 13 | 80.60 | 7.97 | 5.02 | 2.95 | 0.00 | 1.00 | 0.01 | 0.38 | -0.39 | -0.28 | 0.51 | -0.17 | -0.06 |
| 94 | 5 | 14 | 80.60 | 7.97 | 5.01 | 2.95 | 0.00 | 1.00 | 0.01 | 0.38 | -0.39 | -0.28 | 0.51 | -0.17 | -0.06 |
| 95 | 5 | 15 | 80.60 | 7.97 | 5.01 | 2.96 | 0.00 | 1.00 | 0.01 | 0.38 | -0.39 | -0.28 | 0.51 | -0.17 | -0.06 |
| 96 | 5 | 16 | 80.60 | 7.97 | 5.01 | 2.96 | 0.00 | 1.00 | 0.01 | 0.38 | -0.39 | -0.28 | 0.51 | -0.17 | -0.06 |
| 97 | 5 | 17 | 80.60 | 7.97 | 5.01 | 2.96 | 0.00 | 1.00 | 0.08 | 0.38 | -0.39 | -0.28 | 0.52 | -0.17 | -0.06 |
| 98 | 5 | 18 | 80.60 | 7.97 | 5.01 | 2.96 | 0.00 | 1.00 | 0.01 | 0.38 | -0.38 | -0.28 | 0.52 | -0.17 | -0.06 |
| 99 | 5 | 19 | 80.60 | 7.97 | 5.01 | 2.96 | 0.00 | 1.00 | 0.01 | 0.38 | -0.38 | -0.28 | 0.52 | -0.17 | -0.06 |
| 100 | 5 | 20 | 80.60 | 7.97 | 5.01 | 2.96 | 0.00 | 1.00 | 0.01 | 0.38 | -0.38 | -0.28 | 0.52 | -0.17 | -0.06 |
| 1 | 6 | 1 | 80.60 | 7.97 | 5.01 | 2.95 | 0.00 | 1.00 | 0.01 | 0.38 | -0.38 | -0.28 | 0.57 | -0.17 | -0.06 |
| 102 | 6 | 2 | 80.60 | 7.97 | 5.02 | 2.95 | 0.00 | 1.00 | 0.01 | 0.38 | -0.37 | -0.28 | 0.58 | -0.17 | -0.06 |
| 103 | 6 | 3 | 80.60 | 7.97 | 5.03 | 2.94 | 0.00 | 1.00 | 0.01 | 0.38 | -0.37 | -0.28 | 0.58 | -0.17 | -0.06 |
| 104 | 6 | 4 | 80.60 | 7.97 | 5.03 | 2.94 | 0.00 | 1.00 | 0.01 | 0.38 | -0.37 | -0.28 | 0.58 | -0.16 | -0.06 |
| 105 | 6 | 5 | 80.60 | 7.97 | 5.04 | 2.93 | 0.00 | 1.00 | 0.01 | 0.38 | -0.37 | -0.28 | 0.59 | -0.16 | -0.06 |
| 106 | 6 | 6 | 80.60 | 7.97 | 5.05 | 2.92 | 0.00 | 1.00 | 0.01 | 0.38 | -0.36 | -0.28 | 0.59 | -0.16 | -0.06 |
| 107 | 6 | 7 | 80.60 | 7.97 | 5.05 | 2.92 | 0.00 | 1.00 | 0.01 | 0.38 | -0.36 | -0.28 | 0.59 | -0.16 | -0.06 |
| 108 | 6 | 8 | 80.60 | 7.97 | 5.06 | 2.91 | 0.00 | 1.00 | 0.01 | 0.37 | -0.36 | -0.28 | 0.59 | -0.16 | -0.06 |
| 109 | 6 | 9 | 80.60 | 7.97 | 5.07 | 2.90 | 0.00 | 1.00 | 0.01 | 0.37 | -0.36 | -0.28 | 0.60 | -0.16 | -0.06 |
| 110 | 6 | 10 | 80.60 | 7.97 | 5.08 | 2.89 | 0.00 | 1.00 | 0.01 | 0.37 | -0.36 | -0.28 | 0.60 | -0.16 | -0.06 |
| 111 | 6 | 11 | 80.60 | 7.97 | 5.09 | 2.88 | 0.00 | 1.00 | 0.01 | 0.37 | -0.35 | -0.28 | 0.60 | -0.16 | -0.06 |
| 112 | 6 | 12 | 80.60 | 7.97 | 5.10 | 2.87 | 0.00 | 1.00 | 0.01 | 0.37 | -0.35 | -0.28 | 0.60 | -0.16 | -0.05 |
| 113 | 6 | 13 | 80.60 | 7.97 | 5.11 | 2.86 | 0.00 | 1.00 | 0.02 | 0.37 | -0.35 | -0.28 | 0.61 | -0.15 | -0.05 |
| 114 | 6 | 14 | 80.60 | 7.97 | 5.12 | 2.85 | 0.00 | 1.00 | 0.01 | 0.37 | -0.35 | -0.28 | 0.61 | -0.15 | -0.05 |
| 115 | 6 | 15 | 80.60 | 7.97 | 5.13 | 2.84 | 0.00 | 1.00 | 0.01 | 0.37 | -0.35 | -0.28 | 0.61 | -0.15 | -0.05 |
| 116 | 6 | 16 | 80.60 | 7.97 | 5.14 | 2.83 | 0.00 | 1.00 | 0.01 | 0.36 | -0.34 | -0.28 | 0.61 | -0.15 | -0.05 |
| 117 | 6 | 17 | 80.60 | 7.97 | 5.15 | 2.81 | 0.00 | 1.00 | 0.01 | 0.36 | -0.34 | -0.28 | 0.61 | -0.15 | -0.05 |
| 118 | 6 | 18 | 80.60 | 7.97 | 5.17 | 2.80 | 0.00 | 1.00 | 0.01 | 0.36 | -0.34 | -0.28 | 0.62 | -0.15 | -0.05 |
| 119 | 6 | 19 | 80.60 | 7.97 | 5.18 | 2.79 | 0.00 | 1.00 | 0.01 | 0.36 | -0.34 | -0.28 | 0.62 | -0.15 | -0.05 |
| 120 | 6 | 20 | 80.60 | 7.97 | 5.19 | 2.78 | 0.00 | 1.00 | 0.01 | 0.36 | -0.34 | -0.28 | 0.62 | -0.15 | -0.05 |
| 121 | 7 | 1 | 80.60 | 7.97 | 5.22 | 2.75 | 0.00 | 1.00 | 0.01 | 0.29 | -0.33 | -0.17 | 0.68 | -0.15 | -0.05 |
| 122 | 7 | 2 | 80.60 | 7.97 | 5.24 | 2.73 | 0.00 | 1.00 | 0.01 | 0.22 | -0.33 | -0.17 | 0.69 | -0.14 | -0.05 |
| 123 | 7 | 3 | 80.60 | 7.97 | 5.27 | 2.70 | 0.00 | 1.00 | 0.01 | 0.21 | -0.33 | -0.17 | 0.69 | -0.14 | -0.05 |
| 1 | 7 | 4 | 80.60 | 7.97 | 5.30 | 2.67 | 0.00 | 1.00 | 0.01 | 0.21 | -0.32 | -0.17 | 0.69 | -0.14 | -0.05 |
| 12 | 7 | 5 | 80.60 | 7.97 | 5.33 | 2.64 | 0.00 | 1.00 | 0.01 | 0.21 | -0.32 | -0.17 | 0.69 | -0.14 | -0.05 |
| 126 | 7 | 6 | 80.60 | 7.97 | 5.36 | 2.61 | 0.00 | 1.00 | 0.01 | 0.21 | -0.32 | -0.17 | 0.70 | -0.14 | -0.05 |

***** STEADY STATE SIMULATION *****

** DISSOLVED OXYGEN DATA **

| ELE ORD | RCH NUM | ELE NUM | TEMP DEG-F | DO SAT MG/L | DO MG/L | DO DEF MG/L | DAM INPUT MG/L | NIT INHIB FACT | COMPONENTS OF DISSOLVED OXYGEN MASS BALANCE (MG/L-DAY) F-FNCTN INPUT | OXYGN REAIR | C-BOD | SOD | NET P-R | NH3-N | NO2-N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 127 | 7 | 7 | 80.60 | 7.97 | 5.39 | 2.58 | 0.00 | 1.00 | 0.01 | 0.20 | -0.31 | -0.17 | 0.70 | -0.14 | -0.05 |
| 128 | 7 | 8 | 80.60 | 7.97 | 5.42 | 2.55 | 0.00 | 1.00 | 0.01 | 0.20 | -0.31 | -0.17 | 0.70 | -0.13 | -0.05 |
| 129 | 7 | 9 | 80.60 | 7.97 | 5.45 | 2.52 | 0.00 | 1.00 | 0.01 | 0.20 | -0.31 | -0.17 | 0.70 | -0.13 | -0.05 |
| 130 | 7 | 10 | 80.60 | 7.97 | 5.48 | 2.49 | 0.00 | 1.00 | 0.01 | 0.20 | -0.31 | -0.17 | 0.70 | -0.13 | -0.05 |
| 131 | 7 | 11 | 80.60 | 7.97 | 5.52 | 2.45 | 0.00 | 1.00 | 0.01 | 0.19 | -0.30 | -0.17 | 0.70 | -0.13 | -0.05 |
| 132 | 7 | 12 | 80.60 | 7.97 | 5.55 | 2.42 | 0.00 | 1.00 | 0.01 | 0.19 | -0.30 | -0.17 | 0.70 | -0.13 | -0.05 |
| 133 | 7 | 13 | 80.60 | 7.97 | 5.65 | 2.31 | 0.00 | 1.00 | 10.63 | 0.19 | -0.28 | -0.17 | 0.63 | -0.11 | -0.06 |
| 134 | 7 | 14 | 80.60 | 7.97 | 5.68 | 2.29 | 0.00 | 1.00 | 0.01 | 0.20 | -0.28 | -0.17 | 0.63 | -0.11 | -0.06 |
| 135 | 7 | 15 | 80.60 | 7.97 | 5.70 | 2.27 | 0.00 | 1.00 | 0.01 | 0.20 | -0.27 | -0.17 | 0.64 | -0.11 | -0.06 |
| 136 | 7 | 16 | 80.60 | 7.97 | 5.73 | 2.24 | 0.00 | 1.00 | 0.01 | 0.20 | -0.27 | -0.17 | 0.64 | -0.11 | -0.05 |
| 137 | 7 | 17 | 80.60 | 7.97 | 5.75 | 2.22 | 0.00 | 1.00 | 0.01 | 0.19 | -0.27 | -0.17 | 0.64 | -0.11 | -0.05 |
| 138 | 7 | 18 | 80.60 | 7.97 | 5.78 | 2.19 | 0.00 | 1.00 | 0.01 | 0.19 | -0.27 | -0.17 | 0.64 | -0.11 | -0.05 |
| 139 | 7 | 19 | 80.60 | 7.97 | 5.80 | 2.17 | 0.00 | 1.00 | 0.01 | 0.19 | -0.27 | -0.17 | 0.64 | -0.11 | -0.05 |
| 140 | 7 | 20 | 80.60 | 7.97 | 5.83 | 2.14 | 0.00 | 1.00 | 0.01 | 0.19 | -0.26 | -0.17 | 0.64 | -0.11 | -0.05 |
| 141 | 8 | 1 | 80.60 | 7.97 | 5.85 | 2.11 | 0.00 | 1.00 | 0.03 | 0.18 | -0.26 | -0.17 | 0.66 | -0.11 | -0.04 |
| | 8 | 2 | 80.60 | 7.97 | 5.88 | 2.09 | 0.00 | 1.00 | 0.01 | 0.18 | -0.26 | -0.17 | 0.66 | -0.11 | -0.04 |
| | 8 | 3 | 80.60 | 7.97 | 5.91 | 2.06 | 0.00 | 1.00 | 0.01 | 0.18 | -0.26 | -0.17 | 0.66 | -0.11 | -0.04 |
| 144 | 8 | 4 | 80.60 | 7.97 | 5.94 | 2.03 | 0.00 | 1.00 | 0.01 | 0.18 | -0.26 | -0.17 | 0.66 | -0.11 | -0.04 |
| 145 | 8 | 5 | 80.60 | 7.97 | 5.97 | 2.00 | 0.00 | 1.00 | 0.01 | 0.17 | -0.26 | -0.17 | 0.66 | -0.11 | -0.04 |
| 146 | 8 | 6 | 80.60 | 7.97 | 5.99 | 1.98 | 0.00 | 1.00 | 0.01 | 0.17 | -0.25 | -0.17 | 0.66 | -0.11 | -0.04 |
| 147 | 8 | 7 | 80.60 | 7.97 | 6.02 | 1.95 | 0.00 | 1.00 | 0.01 | 0.17 | -0.25 | -0.17 | 0.66 | -0.11 | -0.04 |
| 148 | 8 | 8 | 80.60 | 7.97 | 6.05 | 1.92 | 0.00 | 1.00 | 0.01 | 0.17 | -0.25 | -0.17 | 0.66 | -0.11 | -0.04 |

* * * QUAL-2E STREAM QUALITY ROUTING MODEL * * *

Version 3.22 -- May 1996

CR5SEP9.OUT

Sept. WLA output file for 90th %tile Temperature

$$$ (PROBLEM TITLES) $$$

| CARD TYPE | | QUAL-2E PROGRAM TITLES |
|---|---|---|
| TITLE01 | | GEORGIA PACIFIC, OUACHITA RIVER NEAR CROSSETT, AR |
| TITLE02 | | SEPTEMBER PREDICTIVE MODEL (12/98 REVISION) |
| TITLE03 | NO | CONSERVATIVE MINERAL I |
| TITLE04 | NO | CONSERVATIVE MINERAL II |
| TITLE05 | NO | CONSERVATIVE MINERAL III |
| TITLE06 | NO | TEMPERATURE |
| TITLE07 | YES | BIOCHEMICAL OXYGEN DEMAND IN MG/L |
| TITLE08 | YES | ALGAE AS CHL-A IN UG/L |
| TITLE09 | YES | PHOSPHORUS CYCLE AS P IN MG/L |
| TITLE10 | | (ORGANIC-P; DISSOLVED-P) |
| TITLE11 | YES | NITROGEN CYCLE AS N IN MG/L |
| TITLE12 | | (ORGANIC-N; AMMONIA-N; NITRITE-N; NITRATE-N) |
| TITLE13 | YES | DISSOLVED OXYGEN IN MG/L |
| TITLE14 | NO | FECAL COLIFORMS IN NO./100 ML |
| TITLE15 | NO | ARBITRARY NON-CONSERVATIVE BOD MG/L |
| ENDTITLE | | |

$$$ DATA TYPE 1 (CONTROL DATA) $$$

| CARD TYPE | | CARD TYPE | |
|---|---|---|---|
| LIST DATA INPUT | 0.00000 | | 0.00000 |
| WRITE OPTIONAL SUMMARY | 0.00000 | | 0.00000 |
| NO FLOW AUGMENTATION | 0.00000 | | 0.00000 |
| STEADY STATE | 0.00000 | | 0.00000 |
| NO TRAPEZOIDAL X-SECTIONS | 0.00000 | | 0.00000 |
| NO PRINT LCD/SOLAR DATA | 0.00000 | | 0.00000 |
| NO PLOT DO AND BOD | 0.00000 | | 0.00000 |
| FIXED DNSTM CONC (YES=1) = | 0.00000 | ULT BOD CONV RATE COEF | 0.23000 |
| INPUT METRIC (YES=1) = | 0.00000 | OUTPUT METRIC (YES=1) = | 0.00000 |
| NUMBER OF REACHES = | 8.00000 | NUMBER OF JUNCTIONS = | 0.00000 |
| NUM OF HEADWATERS = | 1.00000 | NUMBER OF POINT LOADS = | 8.00000 |
| TIME STEP (HOURS) = | 1.00000 | LNTH COMP ELEMENT (DX) = | 0.25000 |
| MAXIMUM ROUTE TIME (HRS) = | 250.00000 | TIME INC. FOR RPT2 (HRS) = | 1.00000 |
| LATITUDE OF BASIN (DEG) = | 33.00000 | LONGITUDE OF BASIN (DEG) = | 92.00000 |
| STANDARD MERIDIAN (DEG) = | 90.00000 | DAY OF YEAR START TIME = | 190.00000 |
| EVAP. COEFF. (AE) = | 0.00001 | EVAP. COEF. (BE) = | 0.00010 |
| ELEV OF BASIN (ELEV) = | 60.00000 | DUST ATTENUATION COEF. = | 0.13000 |
| ENDATA1 | 0.00000 | | 0.00000 |

$$$ DATA TYPE 1A (ALGAE PRODUCTION AND NITROGEN OXIDATION CONSTANTS) $$$

| CARD TYPE | | CARD TYPE | |
|---|---|---|---|
| O UPTAKE BY NH3 OXID(MG O/MG N) = | 3.4300 | O UPTAKE BY NO2 OXID(MG O/MG N) = | 1.1400 |
| O PROD BY ALGAE (MG O/MG A) = | 1.8000 | O UPTAKE BY ALGAE (MG O/MG A) = | 2.0000 |
| N CONTENT OF ALGAE (MG N/MG A) = | 0.0850 | P CONTENT OF ALGAE (MG P/MG A) = | 0.0150 |
| ALG MAX SPEC GROWTH RATE(1/DAY) = | 2.5000 | ALGAE RESPIRATION RATE (1/DAY) = | 0.0500 |
| N HALF SATURATION CONST (MG/L) = | 0.2000 | P HALF SATURATION CONST (MG/L) = | 0.0100 |
| LIN ALG SHADE CO (1/FT-UGCHA/L=) | 0.0027 | NLIN SHADE(1/FT-(UGCHA/L)**2/3) = | 0.0165 |
| LIGHT FUNCTION OPTION (LFNOPT) = | 2.0000 | LIGHT SAT'N COEF (BTU/FT2-MIN) = | 0.1000 |
| DAILY AVERAGING OPTION (LAVOPT) = | 2.0000 | LIGHT AVERAGING FACTOR (AFACT) = | 0.9200 |
| NUMBER OF DAYLIGHT HOURS (DLH) = | 12.0000 | TOTAL DAILY SOLR RAD (BTU/FT-2) = | 646.0000 |
| ALGY GROWTH CALC OPTION(LGROPT) = | 1.0000 | ALGAL PREF FOR NH3-N (PREFN) = | 0.5000 |
| ALG/TEMP SOLR RAD FACTOR(TFACT) = | 0.4400 | NITRIFICATION INHIBITION COEF = | 10.0000 |
| ENDATA1A | 0.0000 | | 0.0000 |

$$$ DATA TYPE 1B (TEMPERATURE CORRECTION CONSTANTS FOR RATE COEFFICIENTS) $$$

| CARD TYPE | RATE CODE | THETA VALUE | |
|---|---|---|---|
| THETA( 1) | BOD DECA | 1.047 | DFLT |
| THETA( 2) | BOD SETT | 1.024 | DFLT |
| THETA( 3) | OXY TRAN | 1.024 | DFLT |
| THETA( 4) | SOD RATE | 1.060 | DFLT |
| THETA( 5) | ORGN DEC | 1.047 | DFLT |
| THETA( 6) | ORGN SET | 1.024 | DFLT |
| THETA( 7) | NH3 DECA | 1.083 | DFLT |
| THETA( 8) | NH3 SRCE | 1.074 | DFLT |
| THETA( 9) | NO2 DECA | 1.047 | DFLT |
| THETA(10) | PORG DEC | 1.047 | DFLT |
| THETA(11) | PORG SET | 1.024 | DFLT |
| THETA(12) | DISP SRC | 1.074 | DFLT |
| THETA(13) | ALG GROW | 1.047 | DFLT |
| THETA(14) | ALG RESP | 1.047 | DFLT |
| THETA(15) | ALG SETT | 1.024 | DFLT |
| THETA(16) | COLI DEC | 1.047 | DFLT |
| THETA(17) | ANC DECA | 1.000 | DFLT |
| THETA(18) | ANC SETT | 1.024 | DFLT |
| THETA(19) | ANC SRCE | 1.000 | DFLT |

ENDATA1B

$$$ DATA TYPE 2 (REACH IDENTIFICATION) $$$

| CARD TYPE | REACH ORDER AND IDENT | | | R. MI/KM | | R. MI/KM |
|---|---|---|---|---|---|---|
| STREAM REACH | 1.0 | REACH 1 | FRO | 227.0 | TO | 222.0 |
| STREAM REACH | 2.0 | REACH 2 | FRO | 222.0 | TO | 217.0 |
| STREAM REACH | 3.0 | REACH 3 | FRO | 217.0 | TO | 212.0 |
| STREAM REACH | 4.0 | REACH 4 | FRO | 212.0 | TO | 207.0 |
| STREAM REACH | 5.0 | REACH 5 | FRO | 207.0 | TO | 202.0 |
| STREAM REACH | 6.0 | REACH 6 | FRO | 202.0 | TO | 197.0 |
| STREAM REACH | 7.0 | REACH 7 | FRO | 197.0 | TO | 192.0 |
| STREAM REACH | 8.0 | REACH 8 | FRO | 192.0 | TO | 190.0 |
| ENDATA2 | 0.0 | | | 0.0 | | 0.0 |

$$$ DATA TYPE 3 (TARGET LEVEL DO AND FLOW AUGMENTATION SOURCES) $$$

| CARD TYPE | REACH | AVAIL HDWS | TARGET | ORDER OF AVAIL SOURCES | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| STREAM REACH | 1. | 1. | 3.0 | 1. | 0. | 0. | 0. | 0. | 0. |
| STREAM REACH | 2. | 1. | 3.0 | 1. | 0. | 0. | 0. | 0. | 0. |
| STREAM REACH | 3. | 1. | 3.0 | 1. | 0. | 0. | 0. | 0. | 0. |
| STREAM REACH | 4. | 1. | 3.0 | 1. | 0. | 0. | 0. | 0. | 0. |
| STREAM REACH | 5. | 1. | 3.0 | 1. | 0. | 0. | 0. | 0. | 0. |
| STREAM REACH | 6. | 1. | 3.0 | 1. | 0. | 0. | 0. | 0. | 0. |
| STREAM REACH | 7. | 1. | 3.0 | 1. | 0. | 0. | 0. | 0. | 0. |
| STREAM REACH | 8. | 1. | 3.0 | 1. | 0. | 0. | 0. | 0. | 0. |
| ENDATA3 | 0. | 0. | 0.0 | 0. | 0. | 0. | 0. | 0. | 0. |

$$$ DATA TYPE 4 (COMPUTATIONAL REACH FLAG FIELD) $$$

| CARD TYPE | REACH | ELEMENTS/REACH | COMPUTATIONAL FLAGS |
|---|---|---|---|
| FLAG FIELD | 1. | 20. | 1.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2. |
| FLAG FIELD | 2. | 20. | 6.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2. |
| FLAG FIELD | 3. | 20. | 2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2. |
| FLAG FIELD | 4. | 20. | 2.2.2.6.2.2.2.2.2.2.2.2.2.2.2.6.2.2. |
| FLAG FIELD | 5. | 20. | 2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.6.2.2.2. |

| | | | |
|---|---|---|---|
| FLAG FIELD | 6. | 20. | 2.2.2.2.2.2.2.2.2.2.2.6.2.2.2.2.2.2.2. |
| FLAG FIELD | 7. | 20. | 6.2.2.2.2.2.2.2.2.2.2.6.2.2.2.2.2.2.2. |
| FLAG FIELD | 8. | 8. | 6.2.2.2.2.2.2.5.0.0.0.0.0.0.0.0.0.0.0. |
| ENDATA4 | 0. | 0. | 0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0. |

$$$ DATA TYPE 5 (HYDRAULIC DATA FOR DETERMINING VELOCITY AND DEPTH) $$$

| CARD TYPE | REACH | COEF-DSPN | COEFQV | EXPOQV | COEFQH | EXPOQH | CMANN |
|---|---|---|---|---|---|---|---|
| HYDRAULICS | 1. | 38.00 | 0.000 | 0.897 | 7.170 | 0.050 | 0.035 |
| HYDRAULICS | 2. | 38.00 | 0.000 | 0.897 | 7.170 | 0.050 | 0.035 |
| HYDRAULICS | 3. | 22.00 | 0.000 | 0.897 | 7.170 | 0.050 | 0.035 |
| HYDRAULICS | 4. | 21.00 | 0.000 | 0.897 | 8.000 | 0.050 | 0.035 |
| HYDRAULICS | 5. | 10.00 | 0.000 | 0.946 | 12.000 | 0.018 | 0.035 |
| HYDRAULICS | 6. | 17.00 | 0.000 | 0.946 | 12.000 | 0.018 | 0.035 |
| HYDRAULICS | 7. | 7.00 | 0.000 | 0.930 | 15.030 | 0.011 | 0.035 |
| HYDRAULICS | 8. | 7.00 | 0.000 | 0.930 | 15.030 | 0.011 | 0.035 |
| ENDATA5 | 0. | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

$$$ DATA TYPE 5A (STEADY STATE TEMPERATURE AND CLIMATOLOGY DATA) $$$

| CARD TYPE | REACH | ELEVATION | DUST COEF | CLOUD COVER | DRY BULB TEMP | WET BULB TEMP | ATM PRESSURE | WIND | SOLAR RAD ATTENUATION |
|---|---|---|---|---|---|---|---|---|---|
| ENDATA5A | 0. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 6 (REACTION COEFFICIENTS FOR DEOXYGENATION AND REAERATION) $$$

| CARD TYPE | REACH | K1 | K3 | SOD RATE | K2OPT | K2 | COEQK2 TSIV COEF FOR OPT 8 | OR OR | EXPQK2 SLOPE FOR OPT 8 |
|---|---|---|---|---|---|---|---|---|---|
| REACT COEF | 1. | 0.05 | 0.00 | 0.051 | 3. | 0.00 | 0.000 | | 0.00000 |
| REACT COEF | 2. | 0.08 | 0.00 | 0.051 | 3. | 0.00 | 0.000 | | 0.00000 |
| REACT COEF | 3. | 0.08 | 0.00 | 0.051 | 3. | 0.00 | 0.000 | | 0.00000 |
| REACT COEF | 4. | 0.08 | 0.00 | 0.071 | 3. | 0.00 | 0.000 | | 0.00000 |
| REACT COEF | 5. | 0.05 | 0.00 | 0.071 | 3. | 0.00 | 0.000 | | 0.00000 |
| REACT COEF | 6. | 0.05 | 0.00 | 0.071 | 3. | 0.00 | 0.000 | | 0.00000 |
| REACT COEF | 7. | 0.05 | 0.00 | 0.051 | 3. | 0.00 | 0.000 | | 0.00000 |
| REACT COEF | 8. | 0.05 | 0.00 | 0.051 | 3. | 0.00 | 0.000 | | 0.00000 |
| ENDATA6 | 0. | 0.00 | 0.00 | 0.000 | 0. | 0.00 | 0.000 | | 0.00000 |

$$$ DATA TYPE 6A (NITROGEN AND PHOSPHORUS CONSTANTS) $$$

| CARD TYPE | REACH | CKNH2 | SETNH2 | CKNH3 | SNH3 | CKNO2 | CKPORG | SETPORG | SPO4 |
|---|---|---|---|---|---|---|---|---|---|
| N AND P COEF | 1. | 0.10 | 0.00 | 0.10 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| N AND P COEF | 2. | 0.10 | 0.00 | 0.10 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| N AND P COEF | 3. | 0.10 | 0.00 | 0.10 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| N AND P COEF | 4. | 0.10 | 0.00 | 0.10 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| N AND P COEF | 5. | 0.10 | 0.00 | 0.10 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| N AND P COEF | 6. | 0.10 | 0.00 | 0.10 | 0.00 | 1.00 | 0.05 | 0.00 | 0.00 |
| N AND P COEF | 7. | 0.10 | 0.00 | 0.10 | 0.00 | 1.00 | 0.05 | 0.00 | 0.00 |
| N AND P COEF | 8. | 0.10 | 0.00 | 0.10 | 0.00 | 1.00 | 0.05 | 0.00 | 0.00 |
| ENDATA6A | 0. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 6B (ALGAE/OTHER COEFFICIENTS) $$$

| CARD TYPE | REACH | ALPHAO | ALGSET | EXCOEF | CK5 CKCOLI | CKANC | SETANC | SRCANC |
|---|---|---|---|---|---|---|---|---|
| ALG/OTHER COEF | 1. | 15.00 | 0.80 | 0.57 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 2. | 15.00 | 0.80 | 0.90 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 3. | 15.00 | 0.80 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 4. | 15.00 | 0.80 | 0.72 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ALG/OTHER COEF | 5. | 15.00 | 0.80 | 0.77 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 6. | 15.00 | 0.80 | 0.71 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 7. | 15.00 | 0.80 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| ALG/OTHER COEF | 8. | 15.00 | 0.80 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| ENDATA6B | 0. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 7 (INITIAL CONDITIONS) $$$

| CARD TYPE | REACH | TEMP | D.O. | BOD | CM-1 | CM-2 | CM-3 | ANC | COLI |
|---|---|---|---|---|---|---|---|---|---|
| INITIAL COND-1 | 1. | 85.60 | 6.22 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INITIAL COND-1 | 2. | 85.60 | 6.22 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INITIAL COND-1 | 3. | 85.60 | 6.22 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INITIAL COND-1 | 4. | 85.60 | 6.22 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INITIAL COND-1 | 5. | 85.60 | 6.22 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INITIAL COND-1 | 6. | 85.60 | 6.22 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INITIAL COND-1 | 7. | 85.60 | 6.22 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INITIAL COND-1 | 8. | 85.60 | 6.22 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| ENDATA7 | 0. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 7A (INITIAL CONDITIONS FOR CHOROPHYLL A, NITROGEN, AND PHOSPHORUS) $$$

| CARD TYPE | REACH | CHL-A | ORG-N | NH3-N | NO2-N | NO3-N | ORG-P | DIS-P |
|---|---|---|---|---|---|---|---|---|
| INITIAL COND-2 | 1. | 2.80 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INITIAL COND-2 | 2. | 2.80 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INITIAL COND-2 | 3. | 2.80 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INITIAL COND-2 | 4. | 2.80 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INITIAL COND-2 | 5. | 2.80 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INITIAL COND-2 | 6. | 2.80 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INITIAL COND-2 | 7. | 2.80 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INITIAL COND-2 | 8. | 2.80 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| ENDATA7A | 0. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 8 (INCREMENTAL INFLOW CONDITIONS) $$$

| CARD TYPE | REACH | FLOW | TEMP | D.O. | BOD | CM-1 | CM-2 | CM-3 | ANC | COLI |
|---|---|---|---|---|---|---|---|---|---|---|
| INCR INFLOW-1 | 1. | 2.000 | 85.60 | 6.22 | 2.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INCR INFLOW-1 | 2. | 2.000 | 85.60 | 6.22 | 2.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INCR INFLOW-1 | 3. | 2.000 | 85.60 | 6.22 | 2.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INCR INFLOW-1 | 4. | 2.000 | 85.60 | 6.22 | 2.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INCR INFLOW-1 | 5. | 2.000 | 85.60 | 6.22 | 2.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INCR INFLOW-1 | 6. | 2.000 | 85.60 | 6.22 | 2.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INCR INFLOW-1 | 7. | 2.000 | 85.60 | 6.22 | 2.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| INCR INFLOW-1 | 8. | 2.000 | 85.60 | 6.22 | 2.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| ENDATA8 | 0. | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 8A (INCREMENTAL INFLOW CONDITIONS FOR CHLOROPHYLL A, NITROGEN, AND PHOSPHORUS) $$$

| CARD TYPE | REACH | CHL-A | ORG-N | NH3-N | NO2-N | NO3-N | ORG-P | DIS-P |
|---|---|---|---|---|---|---|---|---|
| INCR INFLOW-2 | 1. | 0.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INCR INFLOW-2 | 2. | 0.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INCR INFLOW-2 | 3. | 0.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INCR INFLOW-2 | 4. | 0.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INCR INFLOW-2 | 5. | 0.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INCR INFLOW-2 | 6. | 0.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INCR INFLOW-2 | 7. | 0.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| INCR INFLOW-2 | 8. | 0.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| ENDATA8A | 0. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 9 (STREAM JUNCTIONS) $$$

| CARD TYPE | JUNCTION ORDER AND IDENT | UPSTRM | JUNCTION | TRIB |
|---|---|---|---|---|
| ENDATA9 | 0. | 0. | 0. | 0. |

$$$ DATA TYPE 10 (HEADWATER SOURCES) $$$

| CARD TYPE | HDWTR ORDER | NAME | FLOW | TEMP | D.O. | BOD | CM-1 | CM-2 | CM-3 |
|---|---|---|---|---|---|---|---|---|---|
| HEADWTR-1 | 1. | OUACHITA RIVER | 829.00 | 85.60 | 6.22 | 3.75 | 0.00 | 0.00 | 0.00 |
| ENDATA10 | 0. | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 10A (HEADWATER CONDITIONS FOR CHLOROPHYLL, NITROGEN, PHOSPHORUS, COLIFORM AND SELECTED NON-CONSERVATIVE CONSTITUENT) $$$

| CARD TYPE | HDWTR ORDER | ANC | COLI | CHL-A | ORG-N | NH3-N | NO2-N | NO3-N | ORG-P | DIS-P |
|---|---|---|---|---|---|---|---|---|---|---|
| HEADWTR-2 | 1. | 0.00 | 0.00E+00 | 8.40 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| ENDATA10A | 0. | 0.00 | 0.00E+00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 11 (POINT SOURCE / POINT SOURCE CHARACTERISTICS) $$$

| CARD TYPE | POINT LOAD ORDER | NAME | EFF | FLOW | TEMP | D.O. | BOD | CM-1 | CM-2 | CM-3 |
|---|---|---|---|---|---|---|---|---|---|---|
| POINTLD-1 | 1. | COFFEE CREEK | 0.00 | 69.60 | 83.80 | 3.50 | 70.00 | 0.00 | 0.00 | 0.00 |
| POINTLD-1 | 2. | PIERRE CREEK | 0.00 | 1.00 | 85.60 | 5.69 | 5.00 | 0.00 | 0.00 | 0.00 |
| POINTLD-1 | 3. | POSSUM BAYOU | 0.00 | 0.10 | 85.60 | 5.69 | 2.80 | 0.00 | 0.00 | 0.00 |
| POINTLD-1 | 4. | BAYOUDEBUTTE | 0.00 | 1.00 | 85.60 | 5.69 | 5.00 | 0.00 | 0.00 | 0.00 |
| POINTLD-1 | 5. | BOGGY BAYOU | 0.00 | 0.10 | 85.60 | 5.69 | 2.80 | 0.00 | 0.00 | 0.00 |
| POINTLD-1 | 6. | PAWPAW BAYOU | 0.00 | 0.10 | 85.60 | 5.69 | 2.80 | 0.00 | 0.00 | 0.00 |
| POINTLD-1 | 7. | BAYOU BARTHO | 0.00 | 222.00 | 83.80 | 5.69 | 2.80 | 0.00 | 0.00 | 0.00 |
| POINTLD-1 | 8. | STERLINGTONW | 0.00 | 0.77 | 85.60 | 3.00 | 60.00 | 0.00 | 0.00 | 0.00 |
| ENDATA11 | 0. | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 11A (POINT SOURCE CHARACTERISTICS - CHLOROPHYLL A, NITROGEN, PHOSPHORUS, COLIFORMS AND SELECTED NON-CONSERVATIVE CONSTITUENT) $$$

| CARD TYPE | POINT LOAD ORDER | ANC | COLI | CHL-A | ORG-N | NH3-N | NO2-N | NO3-N | ORG-P | DIS-P |
|---|---|---|---|---|---|---|---|---|---|---|
| POINTLD-2 | 1. | 0.00 | 0.00E+00 | 1.00 | 2.73 | 3.56 | 0.10 | 0.40 | 0.22 | 0.59 |
| POINTLD-2 | 2. | 0.00 | 0.00E+00 | 1.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| POINTLD-2 | 3. | 0.00 | 0.00E+00 | 1.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| POINTLD-2 | 4. | 0.00 | 0.00E+00 | 1.00 | 5.00 | 5.00 | 0.10 | 0.40 | 0.07 | 1.00 |
| POINTLD-2 | 5. | 0.00 | 0.00E+00 | 2.80 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| POINTLD-2 | 6. | 0.00 | 0.00E+00 | 1.00 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| POINTLD-2 | 7. | 0.00 | 0.00E+00 | 8.40 | 0.48 | 0.05 | 0.10 | 0.40 | 0.07 | 0.04 |
| POINTLD-2 | 8. | 0.00 | 0.00E+00 | 10.00 | 12.00 | 12.00 | 0.10 | 2.00 | 1.00 | 3.00 |
| ENDATA11A | 0. | 0.00 | 0.00E+00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 12 (DAM CHARACTERISTICS) $$$

| | DAM | RCH | ELE | ADAM | BDAM | FDAM | HDAM |
|---|---|---|---|---|---|---|---|
| ENDATA12 | 0. | 0. | 0. | 0.00 | 0.00 | 0.00 | 0.00 |

$$$ DATA TYPE 13 (DOWNSTREAM BOUNDARY CONDITIONS-1) $$$

| CARD TYPE | TEMP | D.O. | BOD | CM-1 | CM-2 | CM-3 | ANC | COLI |
|---|---|---|---|---|---|---|---|---|
| ENDATA13 | DOWNSTREAM BOUNDARY CONCENTRATIONS ARE UNCONSTRAINED | | | | | | | |

$$$ DATA TYPE 13A (DOWNSTREAM BOUNDARY CONDITIONS-2) $$$

| CARD TYPE | CHL-A | ORG-N | NH3-N | NO2-N | NH3-N | ORG-P | DIS-P |
|---|---|---|---|---|---|---|---|
| ENDATA13A | DOWNSTREAM BOUNDARY CONCENTRATIONS ARE UNCONSTRAINED | | | | | | |

BIOCHEMICAL OXYGEN DEMAND IN MG/L ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.73 | 3.70 | 3.68 | 3.66 | 3.63 | 3.61 | 3.59 | 3.57 | 3.54 | 3.52 | 3.50 | 3.48 | 3.46 | 3.43 | 3.41 | 3.39 | 3.37 | 3.35 | 3.33 | 3.44 |
| 2 | 8.39 | 8.31 | 8.24 | 8.17 | 8.10 | 8.03 | 7.96 | 7.89 | 7.82 | 7.75 | 7.68 | 7.62 | 7.55 | 7.48 | 7.42 | 7.35 | 7.29 | 7.23 | 7.16 | 7.10 |
| 3 | 7.04 | 6.98 | 6.92 | 6.86 | 6.80 | 6.74 | 6.68 | 6.62 | 6.56 | 6.51 | 6.45 | 6.39 | 6.34 | 6.28 | 6.23 | 6.17 | 6.12 | 6.07 | 6.02 | 5.96 |
| 4 | 5.91 | 5.86 | 5.81 | 5.76 | 5.71 | 5.66 | 5.61 | 5.56 | 5.51 | 5.46 | 5.42 | 5.37 | 5.32 | 5.28 | 5.23 | 5.19 | 5.14 | 5.10 | 5.05 | 5.01 |
| 5 | 4.98 | 4.94 | 4.91 | 4.88 | 4.84 | 4.81 | 4.78 | 4.75 | 4.71 | 4.68 | 4.65 | 4.62 | 4.59 | 4.56 | 4.52 | 4.49 | 4.46 | 4.43 | 4.40 | 4.37 |
| 6 | 4.34 | 4.31 | 4.29 | 4.26 | 4.23 | 4.20 | 4.17 | 4.14 | 4.11 | 4.09 | 4.06 | 4.03 | 4.00 | 3.98 | 3.95 | 3.92 | 3.90 | 3.87 | 3.84 | 3.82 |
| 7 | 3.79 | 3.75 | 3.71 | 3.67 | 3.63 | 3.59 | 3.55 | 3.52 | 3.48 | 3.44 | 3.41 | 3.37 | 3.23 | 3.20 | 3.18 | 3.15 | 3.12 | 3.10 | 3.07 | 3.04 |
| 8 | 3.06 | 3.03 | 3.00 | 2.98 | 2.95 | 2.93 | 2.90 | 2.88 | | | | | | | | | | | | |

STEADY STATE ALGAE/NUTRIENT/DISSOLVED OXYGEN SIMULATION; CONVERGENCE SUMMARY:

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| VARIABLE | ITERATION | NUMBER OF NONCONVERGENT ELEMENTS |
|---|---|---|

ALGAE AS CHL-A IN UG/L — ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8.60 | 8.80 | 9.01 | 9.22 | 9.44 | 9.66 | 9.89 | 10.12 | 10.36 | 10.60 | 10.85 | 11.11 | 11.37 | 11.64 | 11.91 | 12.19 | 12.48 | 12.77 | 13.07 | 13.35 |
| 2 | 12.53 | 12.65 | 12.77 | 12.89 | 13.01 | 13.13 | 13.25 | 13.38 | 13.50 | 13.63 | 13.75 | 13.88 | 14.01 | 14.14 | 14.27 | 14.41 | 14.54 | 14.68 | 14.81 | 14.96 |
| 3 | 15.25 | 15.56 | 15.87 | 16.19 | 16.51 | 16.84 | 17.18 | 17.53 | 17.88 | 18.24 | 18.60 | 18.97 | 19.35 | 19.74 | 20.14 | 20.54 | 20.95 | 21.37 | 21.80 | 22.23 |
| 4 | 22.51 | 22.80 | 23.08 | 23.35 | 23.64 | 23.94 | 24.24 | 24.54 | 24.85 | 25.16 | 25.48 | 25.80 | 26.12 | 26.45 | 26.78 | 27.12 | 27.46 | 27.80 | 28.15 | 28.50 |
| 5 | 28.74 | 29.02 | 29.29 | 29.57 | 29.85 | 30.14 | 30.42 | 30.71 | 31.00 | 31.30 | 31.60 | 31.90 | 32.20 | 32.51 | 32.81 | 33.12 | 33.40 | 33.72 | 34.04 | 34.36 |
| 6 | 34.76 | 35.15 | 35.55 | 35.95 | 36.36 | 36.77 | 37.19 | 37.61 | 38.03 | 38.46 | 38.90 | 39.34 | 39.78 | 40.23 | 40.69 | 41.15 | 41.61 | 42.08 | 42.56 | 43.04 |
| 7 | 43.94 | 45.09 | 46.26 | 47.46 | 48.70 | 49.96 | 51.26 | 52.59 | 53.96 | 55.36 | 56.80 | 58.20 | 49.54 | 50.59 | 51.65 | 52.74 | 53.85 | 54.98 | 56.14 | 57.32 |
| 8 | 58.48 | 59.71 | 60.95 | 62.22 | 63.52 | 64.85 | 66.20 | 67.56 | | | | | | | | | | | | |

ORGANIC PHOSPHORUS AS P IN MG/L — ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 2 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 3 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 4 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 7 | 0.09 | 0.09 | 0.09 | 0.09 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 8 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | | | | | | | | | | | | |

DISSOLVED PHOSPHORUS AS P IN MG/L — ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 2 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 3 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 4 | 0.06 | 0.06 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.04 | 0.04 |
| 5 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 6 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 |
| 7 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 |
| 8 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | | | | | | | | |

ORGANIC NITROGEN AS N IN MG/L — ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.48 | 0.47 | 0.47 | 0.46 | 0.46 | 0.45 | 0.45 | 0.44 | 0.44 | 0.43 | 0.43 | 0.42 | 0.42 | 0.41 | 0.41 | 0.40 | 0.40 | 0.39 | 0.39 | 0.39 |
| 2 | 0.56 | 0.55 | 0.55 | 0.54 | 0.54 | 0.53 | 0.52 | 0.52 | 0.51 | 0.51 | 0.50 | 0.50 | 0.49 | 0.49 | 0.48 | 0.48 | 0.47 | 0.47 | 0.46 | 0.46 |
| 3 | 0.45 | 0.45 | 0.44 | 0.44 | 0.43 | 0.43 | 0.42 | 0.42 | 0.42 | 0.41 | 0.41 | 0.40 | 0.40 | 0.40 | 0.39 | 0.39 | 0.38 | 0.38 | 0.38 | 0.37 |
| 4 | 0.37 | 0.37 | 0.36 | 0.36 | 0.36 | 0.35 | 0.35 | 0.35 | 0.34 | 0.34 | 0.34 | 0.33 | 0.33 | 0.33 | 0.33 | 0.32 | 0.32 | 0.32 | 0.31 | 0.31 |
| 5 | 0.31 | 0.31 | 0.30 | 0.30 | 0.30 | 0.29 | 0.29 | 0.29 | 0.29 | 0.28 | 0.28 | 0.28 | 0.28 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.26 |
| 6 | 0.26 | 0.26 | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 |
| | 0.23 | 0.23 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.21 | 0.21 | 0.21 | 0.21 | 0.26 | 0.26 | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 | 0.25 |
| 8 | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | | | | | | | | | | | | |

AMMONIA AS N IN MG/L — ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.05 | 0.06 | 0.06 | 0.07 | 0.07 | 0.08 | 0.08 | 0.08 | 0.09 | 0.09 | 0.10 | 0.10 | 0.10 | 0.10 | 0.11 | 0.11 | 0.11 | 0.12 | 0.12 | 0.13 |
| 2 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 |
| 3 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 |
| | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.31 | 0.31 | 0.31 |
| 5 | 0.31 | 0.31 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.27 |
| 6 | 0.27 | 0.27 | 0.27 | 0.27 | 0.26 | 0.26 | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.23 | 0.23 |
| 7 | 0.23 | 0.23 | 0.22 | 0.22 | 0.22 | 0.21 | 0.21 | 0.21 | 0.20 | 0.20 | 0.20 | 0.20 | 0.17 | 0.17 | 0.17 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 |
| 8 | 0.17 | 0.17 | 0.17 | 0.17 | 0.16 | 0.16 | 0.16 | 0.16 | | | | | | | | | | | | |

NITRITE AS N IN MG/L ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.09 | 0.08 | 0.07 | 0.07 | 0.06 | 0.05 | 0.05 | 0.05 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 |
| 2 | 0.03 | 0.03 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 3 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 4 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 5 | 0.05 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 6 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 |
| 7 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 8 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 | | | | | | | | | | | | |

NITRATE AS N IN MG/L ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.41 | 0.42 | 0.43 | 0.43 | 0.44 | 0.44 | 0.45 | 0.45 | 0.45 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 |
| 2 | 0.47 | 0.47 | 0.47 | 0.47 | 0.48 | 0.48 | 0.48 | 0.49 | 0.49 | 0.49 | 0.50 | 0.50 | 0.51 | 0.51 | 0.51 | 0.52 | 0.52 | 0.53 | 0.53 | 0.53 |
| 3 | 0.54 | 0.54 | 0.54 | 0.55 | 0.55 | 0.55 | 0.56 | 0.56 | 0.56 | 0.57 | 0.57 | 0.57 | 0.57 | 0.58 | 0.58 | 0.58 | 0.58 | 0.59 | 0.59 | 0.59 |
| 4 | 0.59 | 0.60 | 0.60 | 0.60 | 0.60 | 0.61 | 0.61 | 0.61 | 0.61 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 |
| | 0.64 | 0.64 | 0.64 | 0.65 | 0.65 | 0.65 | 0.65 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.68 | 0.68 |
| | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 |
| 7 | 0.68 | 0.68 | 0.67 | 0.67 | 0.66 | 0.66 | 0.66 | 0.65 | 0.64 | 0.64 | 0.63 | 0.63 | 0.58 | 0.58 | 0.57 | 0.57 | 0.57 | 0.56 | 0.56 | 0.55 |
| 8 | 0.54 | 0.54 | 0.53 | 0.53 | 0.52 | 0.51 | 0.50 | 0.49 | | | | | | | | | | | | |

DISSOLVED OXYGEN IN MG/L ITERATION 1

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.21 | 6.20 | 6.20 | 6.19 | 6.19 | 6.19 | 6.19 | 6.19 | 6.19 | 6.20 | 6.20 | 6.21 | 6.22 | 6.23 | 6.24 | 6.25 | 6.26 | 6.27 | 6.28 | 6.29 |
| 2 | 6.01 | 5.94 | 5.87 | 5.80 | 5.74 | 5.67 | 5.61 | 5.55 | 5.49 | 5.44 | 5.38 | 5.33 | 5.28 | 5.23 | 5.18 | 5.14 | 5.09 | 5.05 | 5.01 | 4.97 |
| 3 | 4.95 | 4.93 | 4.92 | 4.90 | 4.89 | 4.88 | 4.87 | 4.87 | 4.86 | 4.86 | 4.86 | 4.86 | 4.86 | 4.87 | 4.87 | 4.88 | 4.89 | 4.90 | 4.91 | 4.93 |
| 4 | 4.91 | 4.89 | 4.88 | 4.86 | 4.85 | 4.84 | 4.83 | 4.82 | 4.81 | 4.81 | 4.80 | 4.80 | 4.80 | 4.79 | 4.79 | 4.80 | 4.80 | 4.80 | 4.81 | 4.81 |
| 5 | 4.81 | 4.81 | 4.81 | 4.80 | 4.80 | 4.80 | 4.80 | 4.80 | 4.80 | 4.81 | 4.81 | 4.81 | 4.82 | 4.83 | 4.83 | 4.84 | 4.85 | 4.86 | 4.87 | 4.88 |
| 6 | 4.90 | 4.92 | 4.94 | 4.97 | 4.99 | 5.01 | 5.04 | 5.06 | 5.09 | 5.12 | 5.15 | 5.18 | 5.21 | 5.24 | 5.27 | 5.30 | 5.34 | 5.37 | 5.41 | 5.45 |
| 7 | 5.53 | 5.63 | 5.73 | 5.84 | 5.95 | 6.07 | 6.19 | 6.32 | 6.45 | 6.59 | 6.73 | 6.87 | 6.73 | 6.83 | 6.93 | 7.04 | 7.14 | 7.25 | 7.36 | 7.48 |
| 8 | 7.59 | 7.71 | 7.84 | 7.96 | 8.09 | 8.23 | 8.36 | 8.50 | | | | | | | | | | | | |

| | | |
|---|---|---|
| ALGAE GROWTH RATE | 1 | 147 |
| ALGAE GROWTH RATE | 2 | 145 |
| ALGAE GROWTH RATE | 3 | 144 |
| ALGAE GROWTH RATE | 4 | 123 |
| ALGAE GROWTH RATE | 5 | 74 |
| ALGAE GROWTH RATE | 6 | 12 |
| ALGAE GROWTH RATE | 7 | 2 |
| ALGAE GROWTH RATE | 8 | 0 |
| ALGAE GROWTH RATE | 9 | 0 |

SUMMARY OF CONDITIONS FOR ALGAL GROWTH RATE SIMULATION:

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1. LIGHT AVERAGING OPTION. LAVOPT= 2

METHOD: MEAN SOLAR RADIATION DURING DAYLIGHT HOURS

SOURCE OF SOLAR VALUES: DATA TYPE 1A
DAILY NET SOLAR RADIATION: 646.000 BTU/FT-2 ( 175.305 LANGLEYS)
NUMBER OF DAYLIGHT HOURS: 0.0
PHOTOSYNTHETIC ACTIVE FRACTION OF SOLAR RADIATION (TFACT): N/A
MEAN SOLAR RADIATION ADJUSTMENT FACTOR (AFACT): 0.920

2. LIGHT FUNCTION OPTION: LFNOPT= 2

SMITH FUNCTION, WITH 71% IMAX = 0.027 LANGLEYS/MIN

3. GROWTH ATTENUATION OPTION FOR NUTRIENTS. LGROPT= 1

MULTIPLICATIVE: FL*FN*FP

DISSOLVED OXYGEN IN MG/L ITERATION 9

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.21 | 6.20 | 6.19 | 6.18 | 6.18 | 6.17 | 6.17 | 6.17 | 6.17 | 6.17 | 6.17 | 6.18 | 6.18 | 6.18 | 6.19 | 6.20 | 6.20 | 6.21 | 6.22 | 6.22 |
| 2 | 5.95 | 5.88 | 5.82 | 5.76 | 5.70 | 5.65 | 5.59 | 5.54 | 5.49 | 5.44 | 5.39 | 5.35 | 5.30 | 5.26 | 5.22 | 5.18 | 5.14 | 5.11 | 5.07 | 5.04 |
| 3 | 5.03 | 5.02 | 5.01 | 5.01 | 5.00 | 5.00 | 5.00 | 5.00 | 5.01 | 5.01 | 5.02 | 5.02 | 5.03 | 5.04 | 5.06 | 5.07 | 5.08 | 5.10 | 5.12 | 5.14 |
| 4 | 5.13 | 5.11 | 5.10 | 5.09 | 5.08 | 5.07 | 5.07 | 5.06 | 5.06 | 5.05 | 5.05 | 5.05 | 5.05 | 5.05 | 5.05 | 5.05 | 5.05 | 5.05 | 5.06 | 5.06 |
| 5 | 5.06 | 5.06 | 5.05 | 5.05 | 5.04 | 5.04 | 5.03 | 5.03 | 5.03 | 5.03 | 5.02 | 5.02 | 5.02 | 5.02 | 5.02 | 5.02 | 5.02 | 5.02 | 5.02 | 5.02 |
| 6 | 5.03 | 5.03 | 5.04 | 5.04 | 5.05 | 5.06 | 5.07 | 5.08 | 5.09 | 5.09 | 5.10 | 5.11 | 5.12 | 5.14 | 5.15 | 5.16 | 5.17 | 5.18 | 5.19 | 5.20 |
| 7 | 5.23 | 5.26 | 5.29 | 5.32 | 5.35 | 5.38 | 5.41 | 5.44 | 5.47 | 5.49 | 5.52 | 5.55 | 5.60 | 5.62 | 5.65 | 5.67 | 5.70 | 5.72 | 5.74 | 5.77 |
| 8 | 5.79 | 5.82 | 5.85 | 5.87 | 5.90 | 5.92 | 5.95 | 5.97 | | | | | | | | | | | | |

BIOCHEMICAL OXYGEN DEMAND IN MG/L ITERATION 9

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.73 | 3.70 | 3.68 | 3.66 | 3.63 | 3.61 | 3.59 | 3.57 | 3.54 | 3.52 | 3.50 | 3.48 | 3.46 | 3.43 | 3.41 | 3.39 | 3.37 | 3.35 | 3.33 | 3.44 |
| 2 | 8.39 | 8.31 | 8.24 | 8.17 | 8.10 | 8.03 | 7.96 | 7.89 | 7.82 | 7.75 | 7.68 | 7.62 | 7.55 | 7.48 | 7.42 | 7.35 | 7.29 | 7.23 | 7.16 | 7.10 |
| 3 | 7.04 | 6.98 | 6.92 | 6.86 | 6.80 | 6.74 | 6.68 | 6.62 | 6.56 | 6.51 | 6.45 | 6.39 | 6.34 | 6.28 | 6.23 | 6.17 | 6.12 | 6.07 | 6.02 | 5.96 |
| 4 | 5.91 | 5.86 | 5.81 | 5.76 | 5.71 | 5.66 | 5.61 | 5.56 | 5.51 | 5.46 | 5.42 | 5.37 | 5.32 | 5.28 | 5.23 | 5.19 | 5.14 | 5.10 | 5.05 | 5.01 |
| 5 | 4.98 | 4.94 | 4.91 | 4.88 | 4.84 | 4.81 | 4.78 | 4.75 | 4.71 | 4.68 | 4.65 | 4.62 | 4.59 | 4.56 | 4.52 | 4.49 | 4.46 | 4.43 | 4.40 | 4.37 |
| 6 | 4.34 | 4.31 | 4.29 | 4.26 | 4.23 | 4.20 | 4.17 | 4.14 | 4.11 | 4.09 | 4.06 | 4.03 | 4.00 | 3.98 | 3.95 | 3.92 | 3.90 | 3.87 | 3.84 | 3.82 |
| 7 | 3.79 | 3.75 | 3.71 | 3.67 | 3.63 | 3.59 | 3.55 | 3.52 | 3.48 | 3.44 | 3.41 | 3.37 | 3.23 | 3.20 | 3.18 | 3.15 | 3.12 | 3.10 | 3.07 | 3.04 |
| 8 | 3.06 | 3.03 | 3.00 | 2.98 | 2.95 | 2.93 | 2.90 | 2.88 | | | | | | | | | | | | |

ORGANIC NITROGEN AS N IN MG/L ITERATION 9

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.48 | 0.47 | 0.47 | 0.46 | 0.46 | 0.45 | 0.45 | 0.44 | 0.44 | 0.43 | 0.43 | 0.42 | 0.42 | 0.41 | 0.41 | 0.40 | 0.40 | 0.39 | 0.39 | 0.39 |
| | 0.56 | 0.55 | 0.55 | 0.54 | 0.54 | 0.53 | 0.52 | 0.52 | 0.51 | 0.51 | 0.50 | 0.50 | 0.49 | 0.49 | 0.48 | 0.48 | 0.47 | 0.47 | 0.46 | 0.46 |
| 3 | 0.45 | 0.45 | 0.44 | 0.44 | 0.43 | 0.43 | 0.42 | 0.42 | 0.42 | 0.41 | 0.41 | 0.40 | 0.40 | 0.40 | 0.39 | 0.39 | 0.38 | 0.38 | 0.38 | 0.37 |
| 4 | 0.37 | 0.37 | 0.36 | 0.36 | 0.36 | 0.35 | 0.35 | 0.35 | 0.34 | 0.34 | 0.34 | 0.34 | 0.33 | 0.33 | 0.33 | 0.32 | 0.32 | 0.32 | 0.32 | 0.31 |
| 5 | 0.31 | 0.31 | 0.30 | 0.30 | 0.30 | 0.30 | 0.29 | 0.29 | 0.29 | 0.29 | 0.28 | 0.28 | 0.28 | 0.28 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 |
| 6 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.23 | 0.23 | 0.23 | 0.23 |
| 7 | 0.23 | 0.23 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 | 0.25 | 0.24 | 0.24 |
| 8 | 0.25 | 0.25 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.23 | | | | | | | | | | | | |

AMMONIA AS N IN MG/L ITERATION 9

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.05 | 0.06 | 0.06 | 0.07 | 0.07 | 0.08 | 0.08 | 0.08 | 0.09 | 0.09 | 0.09 | 0.10 | 0.10 | 0.10 | 0.11 | 0.11 | 0.11 | 0.11 | 0.12 | 0.13 |
| 2 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.36 | 0.36 |
| 3 | 0.36 | 0.36 | 0.36 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.33 | 0.33 | 0.33 | 0.33 | 0.32 | 0.32 | 0.32 |
| 4 | 0.32 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.28 | 0.28 | 0.28 | 0.28 |
| 5 | 0.28 | 0.27 | 0.27 | 0.27 | 0.27 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.24 | 0.25 | 0.25 | 0.24 | 0.24 |
| 6 | 0.24 | 0.24 | 0.24 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.20 |
| 7 | 0.20 | 0.20 | 0.20 | 0.19 | 0.19 | 0.19 | 0.19 | 0.18 | 0.18 | 0.18 | 0.18 | 0.17 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 |
| 8 | 0.16 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | | | | | | | | | | | | |

NITRITE AS N IN MG/L ITERATION 9

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.09 | 0.08 | 0.07 | 0.07 | 0.06 | 0.05 | 0.05 | 0.05 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 |
| 2 | 0.03 | 0.03 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 5 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 6 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 7 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 8 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |

NITRATE AS N IN MG/L — ITERATION 9

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.41 | 0.42 | 0.43 | 0.43 | 0.44 | 0.44 | 0.45 | 0.45 | 0.46 | 0.46 | 0.46 | 0.46 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 |
| 2 | 0.47 | 0.47 | 0.48 | 0.48 | 0.48 | 0.49 | 0.49 | 0.50 | 0.50 | 0.50 | 0.51 | 0.51 | 0.52 | 0.52 | 0.52 | 0.53 | 0.53 | 0.54 | 0.54 | 0.55 |
| 3 | 0.55 | 0.55 | 0.56 | 0.56 | 0.56 | 0.57 | 0.57 | 0.57 | 0.58 | 0.58 | 0.58 | 0.59 | 0.59 | 0.59 | 0.60 | 0.60 | 0.60 | 0.60 | 0.61 | 0.61 |
| 4 | 0.61 | 0.61 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 0.64 | 0.64 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.66 | 0.66 |
| 5 | 0.66 | 0.66 | 0.67 | 0.67 | 0.67 | 0.67 | 0.68 | 0.68 | 0.68 | 0.68 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 |
| 6 | 0.70 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.73 | 0.73 |
| 7 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.72 | 0.66 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 |
| 8 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.66 | 0.66 | 0.66 | | | | | | | | | | | | |

ORGANIC PHOSPHORUS AS P IN MG/L — ITERATION 9

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 2 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 3 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 4 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 5 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 6 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 7 | 0.09 | 0.09 | 0.09 | 0.09 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 8 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | | | | | | | | | | | | |

DISSOLVED PHOSPHORUS AS P IN MG/L — ITERATION 9

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| | 0.08 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 3 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.05 |
| 4 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 5 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 6 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 7 | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| 8 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | | | | | | | | | | | | |

ALGAE AS CHL-A IN UG/L — ITERATION 9

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8.58 | 8.76 | 8.94 | 9.13 | 9.33 | 9.53 | 9.73 | 9.94 | 10.15 | 10.37 | 10.58 | 10.81 | 11.04 | 11.27 | 11.50 | 11.74 | 11.98 | 12.22 | 12.47 | 12.70 |
| 2 | 11.98 | 12.15 | 12.31 | 12.48 | 12.65 | 12.82 | 13.00 | 13.17 | 13.35 | 13.53 | 13.71 | 13.90 | 14.08 | 14.27 | 14.46 | 14.65 | 14.85 | 15.04 | 15.24 | 15.44 |
| 3 | 15.81 | 16.18 | 16.56 | 16.95 | 17.34 | 17.74 | 18.14 | 18.55 | 18.97 | 19.39 | 19.82 | 20.25 | 20.69 | 21.14 | 21.59 | 22.04 | 22.50 | 22.97 | 23.44 | 23.91 |
| 4 | 24.23 | 24.55 | 24.87 | 25.17 | 25.50 | 25.82 | 26.15 | 26.48 | 26.81 | 27.15 | 27.48 | 27.81 | 28.15 | 28.48 | 28.82 | 29.15 | 29.49 | 29.82 | 30.15 | 30.49 |
| 5 | 30.72 | 30.98 | 31.23 | 31.48 | 31.73 | 31.98 | 32.23 | 32.47 | 32.72 | 32.96 | 33.20 | 33.43 | 33.67 | 33.90 | 34.13 | 34.35 | 34.54 | 34.77 | 34.99 | 35.20 |
| 6 | 35.46 | 35.72 | 35.98 | 36.24 | 36.50 | 36.76 | 37.02 | 37.27 | 37.53 | 37.78 | 38.04 | 38.29 | 38.54 | 38.80 | 39.05 | 39.30 | 39.55 | 39.80 | 40.04 | 40.29 |
| 7 | 40.70 | 41.22 | 41.72 | 42.22 | 42.72 | 43.21 | 43.69 | 44.16 | 44.63 | 45.08 | 45.53 | 45.92 | 39.00 | 39.38 | 39.75 | 40.11 | 40.48 | 40.84 | 41.20 | 41.55 |
| 8 | 41.90 | 42.27 | 42.63 | 42.98 | 43.34 | 43.68 | 44.02 | 44.35 | | | | | | | | | | | | |

ALGAE GROWTH RATES IN PER DAY ARE — ITERATION 9

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 |
| 2 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.35 | 0.35 |
| | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.48 | 0.48 | 0.48 | 0.48 | 0.47 | 0.47 | 0.47 | 0.47 | 0.46 | 0.46 | 0.46 | 0.46 | 0.45 | 0.45 | 0.45 |
| 4 | 0.35 | 0.35 | 0.35 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.32 | 0.32 | 0.32 | 0.32 |
| 5 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 |
| 6 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.22 |
| 7 | 0.24 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.22 | 0.22 | 0.22 | 0.22 | 0.21 | 0.21 | 0.23 | 0.23 | 0.23 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 8 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.21 | 0.21 | 0.21 |

PHOTOSYNTHESIS-RESPIRATION RATIOS ARE ITERATION 9

| RCH/CL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.01 | 5.03 | 5.05 | 5.06 | 5.07 | 5.07 | 5.07 | 5.07 | 5.07 | 5.06 | 5.05 | 5.04 | 5.03 | 5.01 | 5.00 | 4.98 | 4.96 | 4.94 | 4.92 | 4.95 |
| 2 | 4.17 | 4.16 | 4.16 | 4.15 | 4.15 | 4.14 | 4.14 | 4.13 | 4.13 | 4.12 | 4.12 | 4.11 | 4.11 | 4.10 | 4.10 | 4.09 | 4.08 | 4.08 | 4.07 | 4.07 |
| 3 | 5.67 | 5.65 | 5.62 | 5.60 | 5.57 | 5.55 | 5.52 | 5.49 | 5.47 | 5.44 | 5.41 | 5.38 | 5.35 | 5.33 | 5.30 | 5.27 | 5.24 | 5.21 | 5.17 | 5.14 |
| 4 | 4.00 | 3.98 | 3.97 | 3.95 | 3.93 | 3.92 | 3.90 | 3.88 | 3.87 | 3.85 | 3.83 | 3.81 | 3.79 | 3.77 | 3.76 | 3.74 | 3.72 | 3.70 | 3.68 | 3.66 |
| 5 | 2.87 | 2.86 | 2.84 | 2.83 | 2.81 | 2.80 | 2.78 | 2.77 | 2.75 | 2.74 | 2.72 | 2.70 | 2.69 | 2.67 | 2.65 | 2.64 | 2.64 | 2.62 | 2.61 | 2.59 |
| 6 | 2.74 | 2.73 | 2.72 | 2.72 | 2.71 | 2.70 | 2.69 | 2.68 | 2.68 | 2.67 | 2.66 | 2.65 | 2.64 | 2.63 | 2.62 | 2.62 | 2.61 | 2.60 | 2.59 | 2.58 |
| 7 | 2.71 | 2.68 | 2.66 | 2.64 | 2.61 | 2.59 | 2.56 | 2.54 | 2.51 | 2.49 | 2.46 | 2.44 | 2.63 | 2.61 | 2.60 | 2.58 | 2.56 | 2.54 | 2.53 | 2.51 |
| 8 | 2.56 | 2.54 | 2.52 | 2.50 | 2.48 | 2.46 | 2.44 | 2.42 | | | | | | | | | | | | |

***** STEADY STATE SIMULATION *****

** HYDRAULICS SUMMARY **

| ELE ORD | RCH NUM | ELE NUM | BEGIN LOC MILE | END LOC MILE | FLOW CFS | POINT SRCE CFS | INCR FLOW CFS | VEL FPS | TRVL TIME DAY | DEPTH FT | WIDTH FT | VOLUME K-FT-3 | BOTTOM AREA K-FT-2 | X-SECT AREA FT-2 | DSPRSN COEF FT-2/S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 227.00 | 226.75 | 829.10 | 0.00 | 0.10 | 0.191 | 0.080 | 10.033 | 432.921 | 5733.67 | 597.94 | 4343.69 | 6.62 |
| 2 | 1 | 2 | 226.75 | 226.50 | 829.20 | 0.00 | 0.10 | 0.191 | 0.080 | 10.033 | 432.924 | 5733.74 | 597.95 | 4343.74 | 6.62 |
| 3 | 1 | 3 | 226.50 | 226.25 | 829.30 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.927 | 5733.81 | 597.95 | 4343.80 | 6.62 |
| 4 | 1 | 4 | 226.25 | 226.00 | 829.40 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.930 | 5733.88 | 597.96 | 4343.85 | 6.62 |
| 5 | 1 | 5 | 226.00 | 225.75 | 829.50 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.933 | 5733.95 | 597.96 | 4343.90 | 6.62 |
| 6 | 1 | 6 | 225.75 | 225.50 | 829.60 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.935 | 5734.02 | 597.96 | 4343.96 | 6.62 |
| 7 | 1 | 7 | 225.50 | 225.25 | 829.70 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.938 | 5734.10 | 597.97 | 4344.01 | 6.62 |
| 8 | 1 | 8 | 225.25 | 225.00 | 829.80 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.941 | 5734.17 | 597.97 | 4344.07 | 6.63 |
| 9 | 1 | 9 | 225.00 | 224.75 | 829.90 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.944 | 5734.24 | 597.98 | 4344.12 | 6.63 |
| 10 | 1 | 10 | 224.75 | 224.50 | 830.00 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.946 | 5734.31 | 597.98 | 4344.17 | 6.63 |
| 11 | 1 | 11 | 224.50 | 224.25 | 830.10 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.949 | 5734.38 | 597.98 | 4344.23 | 6.63 |
| 12 | 1 | 12 | 224.25 | 224.00 | 830.20 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.952 | 5734.45 | 597.99 | 4344.28 | 6.63 |
| 13 | 1 | 13 | 224.00 | 223.75 | 830.30 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.955 | 5734.52 | 597.99 | 4344.33 | 6.63 |
| 14 | 1 | 14 | 223.75 | 223.50 | 830.40 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.957 | 5734.59 | 597.99 | 4344.39 | 6.63 |
| 15 | 1 | 15 | 223.50 | 223.25 | 830.50 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.960 | 5734.66 | 598.00 | 4344.44 | 6.63 |
| 16 | 1 | 16 | 223.25 | 223.00 | 830.60 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.963 | 5734.74 | 598.00 | 4344.50 | 6.63 |
| 17 | 1 | 17 | 223.00 | 222.75 | 830.70 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.966 | 5734.81 | 598.01 | 4344.55 | 6.63 |
| 18 | 1 | 18 | 222.75 | 222.50 | 830.80 | 0.00 | 0.10 | 0.191 | 0.080 | 10.034 | 432.968 | 5734.88 | 598.01 | 4344.60 | 6.63 |
| - - | 1 | 19 | 222.50 | 222.25 | 830.90 | 0.00 | 0.10 | 0.191 | 0.080 | 10.035 | 432.971 | 5734.95 | 598.01 | 4344.66 | 6.63 |
| | 1 | 20 | 222.25 | 222.00 | 831.00 | 0.00 | 0.10 | 0.191 | 0.080 | 10.035 | 432.974 | 5735.02 | 598.02 | 4344.71 | 6.63 |
| 21 | 2 | 1 | 222.00 | 221.75 | 900.70 | 69.60 | 0.10 | 0.206 | 0.074 | 10.075 | 434.826 | 5782.80 | 600.57 | 4380.91 | 7.16 |
| 22 | 2 | 2 | 221.75 | 221.50 | 900.80 | 0.00 | 0.10 | 0.206 | 0.074 | 10.075 | 434.829 | 5782.86 | 600.57 | 4380.96 | 7.16 |
| 23 | 2 | 3 | 221.50 | 221.25 | 900.90 | 0.00 | 0.10 | 0.206 | 0.074 | 10.075 | 434.831 | 5782.93 | 600.58 | 4381.01 | 7.16 |
| 24 | 2 | 4 | 221.25 | 221.00 | 901.00 | 0.00 | 0.10 | 0.206 | 0.074 | 10.075 | 434.834 | 5782.99 | 600.58 | 4381.06 | 7.16 |
| 25 | 2 | 5 | 221.00 | 220.75 | 901.10 | 0.00 | 0.10 | 0.206 | 0.074 | 10.075 | 434.836 | 5783.06 | 600.58 | 4381.11 | 7.16 |
| 26 | 2 | 6 | 220.75 | 220.50 | 901.20 | 0.00 | 0.10 | 0.206 | 0.074 | 10.075 | 434.839 | 5783.13 | 600.59 | 4381.16 | 7.16 |
| 27 | 2 | 7 | 220.50 | 220.25 | 901.30 | 0.00 | 0.10 | 0.206 | 0.074 | 10.075 | 434.842 | 5783.19 | 600.59 | 4381.21 | 7.16 |
| 28 | 2 | 8 | 220.25 | 220.00 | 901.40 | 0.00 | 0.10 | 0.206 | 0.074 | 10.075 | 434.844 | 5783.26 | 600.59 | 4381.26 | 7.16 |
| 29 | 2 | 9 | 220.00 | 219.75 | 901.50 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.847 | 5783.32 | 600.60 | 4381.31 | 7.16 |
| 30 | 2 | 10 | 219.75 | 219.50 | 901.60 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.849 | 5783.39 | 600.60 | 4381.36 | 7.16 |
| 31 | 2 | 11 | 219.50 | 219.25 | 901.70 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.852 | 5783.46 | 600.60 | 4381.41 | 7.16 |
| 32 | 2 | 12 | 219.25 | 219.00 | 901.80 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.854 | 5783.52 | 600.61 | 4381.46 | 7.16 |
| 33 | 2 | 13 | 219.00 | 218.75 | 901.90 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.857 | 5783.59 | 600.61 | 4381.51 | 7.16 |
| 34 | 2 | 14 | 218.75 | 218.50 | 902.00 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.859 | 5783.65 | 600.61 | 4381.56 | 7.17 |
| 35 | 2 | 15 | 218.50 | 218.25 | 902.10 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.862 | 5783.72 | 600.62 | 4381.61 | 7.17 |
| 36 | 2 | 16 | 218.25 | 218.00 | 902.20 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.865 | 5783.79 | 600.62 | 4381.66 | 7.17 |
| 37 | 2 | 17 | 218.00 | 217.75 | 902.30 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.867 | 5783.85 | 600.63 | 4381.71 | 7.17 |
| 38 | 2 | 18 | 217.75 | 217.50 | 902.40 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.870 | 5783.92 | 600.63 | 4381.76 | 7.17 |
| 39 | 2 | 19 | 217.50 | 217.25 | 902.50 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.872 | 5783.98 | 600.63 | 4381.81 | 7.17 |
| 40 | 2 | 20 | 217.25 | 217.00 | 902.60 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.875 | 5784.05 | 600.64 | 4381.86 | 7.17 |
| | 3 | 1 | 217.00 | 216.75 | 902.70 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.877 | 5784.12 | 600.64 | 4381.91 | 4.15 |
| | 3 | 2 | 216.75 | 216.50 | 902.80 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.880 | 5784.18 | 600.64 | 4381.96 | 4.15 |

***** STEADY STATE SIMULATION *****

** HYDRAULICS SUMMARY **

| ELE ORD | RCH NUM | ELE NUM | BEGIN LOC MILE | END LOC MILE | FLOW CFS | POINT SRCE CFS | INCR FLOW CFS | VEL FPS | TRVL TIME DAY | DEPTH FT | WIDTH FT | VOLUME K-FT-3 | BOTTOM AREA K-FT-2 | X-SECT AREA FT-2 | DSPRSN COEF FT-2/S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 43 | 3 | 3 | 216.50 | 216.25 | 902.90 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.882 | 5784.25 | 600.65 | 4382.01 | 4.15 |
| 44 | 3 | 4 | 216.25 | 216.00 | 903.00 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.885 | 5784.31 | 600.65 | 4382.06 | 4.15 |
| 45 | 3 | 5 | 216.00 | 215.75 | 903.10 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.888 | 5784.38 | 600.65 | 4382.11 | 4.15 |
| 46 | 3 | 6 | 215.75 | 215.50 | 903.20 | 0.00 | 0.10 | 0.206 | 0.074 | 10.076 | 434.890 | 5784.45 | 600.66 | 4382.16 | 4.15 |
| 47 | 3 | 7 | 215.50 | 215.25 | 903.30 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.893 | 5784.51 | 600.66 | 4382.21 | 4.15 |
| 48 | 3 | 8 | 215.25 | 215.00 | 903.40 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.895 | 5784.58 | 600.66 | 4382.26 | 4.15 |
| 49 | 3 | 9 | 215.00 | 214.75 | 903.50 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.898 | 5784.64 | 600.67 | 4382.31 | 4.15 |
| 50 | 3 | 10 | 214.75 | 214.50 | 903.60 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.900 | 5784.71 | 600.67 | 4382.36 | 4.16 |
| 51 | 3 | 11 | 214.50 | 214.25 | 903.70 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.903 | 5784.78 | 600.67 | 4382.41 | 4.16 |
| 52 | 3 | 12 | 214.25 | 214.00 | 903.80 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.905 | 5784.84 | 600.68 | 4382.46 | 4.16 |
| 53 | 3 | 13 | 214.00 | 213.75 | 903.90 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.908 | 5784.91 | 600.68 | 4382.51 | 4.16 |
| 54 | 3 | 14 | 213.75 | 213.50 | 904.00 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.910 | 5784.97 | 600.68 | 4382.56 | 4.16 |
| 55 | 3 | 15 | 213.50 | 213.25 | 904.10 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.913 | 5785.04 | 600.69 | 4382.60 | 4.16 |
| 56 | 3 | 16 | 213.25 | 213.00 | 904.20 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.916 | 5785.11 | 600.69 | 4382.66 | 4.16 |
| 57 | 3 | 17 | 213.00 | 212.75 | 904.30 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.918 | 5785.17 | 600.70 | 4382.71 | 4.16 |
| 58 | 3 | 18 | 212.75 | 212.50 | 904.40 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.921 | 5785.24 | 600.70 | 4382.75 | 4.16 |
| 59 | 3 | 19 | 212.50 | 212.25 | 904.50 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.923 | 5785.30 | 600.70 | 4382.80 | 4.16 |
| 60 | 3 | 20 | 212.25 | 212.00 | 904.60 | 0.00 | 0.10 | 0.206 | 0.074 | 10.077 | 434.926 | 5785.37 | 600.71 | 4382.85 | 4.16 |
| 61 | 4 | 1 | 212.00 | 211.75 | 904.70 | 0.00 | 0.10 | 0.206 | 0.074 | 11.244 | 389.804 | 5785.43 | 544.23 | 4382.90 | 4.35 |
| 62 | 4 | 2 | 211.75 | 211.50 | 904.80 | 0.00 | 0.10 | 0.206 | 0.074 | 11.244 | 389.807 | 5785.50 | 544.23 | 4382.95 | 4.35 |
| 63 | 4 | 3 | 211.50 | 211.25 | 904.90 | 0.00 | 0.10 | 0.206 | 0.074 | 11.244 | 389.809 | 5785.57 | 544.23 | 4383.00 | 4.35 |
| 64 | 4 | 4 | 211.25 | 211.00 | 906.00 | 1.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.834 | 5786.29 | 544.27 | 4383.55 | 4.36 |
| 65 | 4 | 5 | 211.00 | 210.75 | 906.10 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.836 | 5786.36 | 544.27 | 4383.60 | 4.36 |
| 66 | 4 | 6 | 210.75 | 210.50 | 906.20 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.839 | 5786.42 | 544.27 | 4383.65 | 4.36 |
| 67 | 4 | 7 | 210.50 | 210.25 | 906.30 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.841 | 5786.49 | 544.28 | 4383.70 | 4.36 |
| 68 | 4 | 8 | 210.25 | 210.00 | 906.40 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.843 | 5786.55 | 544.28 | 4383.75 | 4.36 |
| 69 | 4 | 9 | 210.00 | 209.75 | 906.50 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.846 | 5786.62 | 544.28 | 4383.80 | 4.36 |
| 70 | 4 | 10 | 209.75 | 209.50 | 906.60 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.848 | 5786.68 | 544.29 | 4383.85 | 4.36 |
| 71 | 4 | 11 | 209.50 | 209.25 | 906.70 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.850 | 5786.75 | 544.29 | 4383.90 | 4.36 |
| 72 | 4 | 12 | 209.25 | 209.00 | 906.80 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.852 | 5786.82 | 544.29 | 4383.95 | 4.36 |
| 73 | 4 | 13 | 209.00 | 208.75 | 906.90 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.855 | 5786.88 | 544.30 | 4384.00 | 4.36 |
| 74 | 4 | 14 | 208.75 | 208.50 | 907.00 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.857 | 5786.95 | 544.30 | 4384.05 | 4.36 |
| 75 | 4 | 15 | 208.50 | 208.25 | 907.10 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.859 | 5787.01 | 544.30 | 4384.10 | 4.36 |
| 76 | 4 | 16 | 208.25 | 208.00 | 907.20 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.861 | 5787.08 | 544.31 | 4384.15 | 4.36 |
| 77 | 4 | 17 | 208.00 | 207.75 | 907.30 | 0.00 | 0.10 | 0.207 | 0.074 | 11.245 | 389.864 | 5787.14 | 544.31 | 4384.20 | 4.36 |
| 78 | 4 | 18 | 207.75 | 207.50 | 907.50 | 0.10 | 0.10 | 0.207 | 0.074 | 11.246 | 389.868 | 5787.28 | 544.31 | 4384.30 | 4.36 |
| 79 | 4 | 19 | 207.50 | 207.25 | 907.60 | 0.00 | 0.10 | 0.207 | 0.074 | 11.246 | 389.871 | 5787.34 | 544.32 | 4384.35 | 4.36 |
| 80 | 4 | 20 | 207.25 | 207.00 | 907.70 | 0.00 | 0.10 | 0.207 | 0.074 | 11.246 | 389.873 | 5787.41 | 544.32 | 4384.40 | 4.36 |
| 81 | 5 | 1 | 207.00 | 206.75 | 907.80 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.319 | 6810.00 | 537.83 | 5159.09 | 2.06 |
| 82 | 5 | 2 | 206.75 | 206.50 | 907.90 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.321 | 6810.04 | 537.84 | 5159.12 | 2.06 |
| | 5 | 3 | 206.50 | 206.25 | 908.00 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.322 | 6810.09 | 537.84 | 5159.16 | 2.07 |
| | 5 | 4 | 206.25 | 206.00 | 908.10 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.324 | 6810.13 | 537.84 | 5159.19 | 2.07 |

***** STEADY STATE SIMULATION *****

** HYDRAULICS SUMMARY **

| ELE ORD | RCH NUM | ELE NUM | BEGIN LOC MILE | END LOC MILE | FLOW CFS | POINT SRCE CFS | INCR FLOW CFS | VEL FPS | TRVL TIME DAY | DEPTH FT | WIDTH FT | VOLUME K-FT-3 | BOTTOM AREA K-FT-2 | X-SECT AREA FT-2 | DSPRSN COEF FT-2/S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 85 | 5 | 5 | 206.00 | 205.75 | 908.20 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.325 | 6810.17 | 537.84 | 5159.22 | 2.07 |
| 86 | 5 | 6 | 205.75 | 205.50 | 908.30 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.327 | 6810.21 | 537.84 | 5159.25 | 2.07 |
| 87 | 5 | 7 | 205.50 | 205.25 | 908.40 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.328 | 6810.25 | 537.85 | 5159.28 | 2.07 |
| 88 | 5 | 8 | 205.25 | 205.00 | 908.50 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.330 | 6810.29 | 537.85 | 5159.31 | 2.07 |
| 89 | 5 | 9 | 205.00 | 204.75 | 908.60 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.331 | 6810.33 | 537.85 | 5159.34 | 2.07 |
| 90 | 5 | 10 | 204.75 | 204.50 | 908.70 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.333 | 6810.37 | 537.85 | 5159.37 | 2.07 |
| 91 | 5 | 11 | 204.50 | 204.25 | 908.80 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.334 | 6810.41 | 537.85 | 5159.40 | 2.07 |
| 92 | 5 | 12 | 204.25 | 204.00 | 908.90 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.336 | 6810.45 | 537.86 | 5159.43 | 2.07 |
| 93 | 5 | 13 | 204.00 | 203.75 | 909.00 | 0.00 | 0.10 | 0.176 | 0.087 | 13.565 | 380.337 | 6810.49 | 537.86 | 5159.46 | 2.07 |
| 94 | 5 | 14 | 203.75 | 203.50 | 909.10 | 0.00 | 0.10 | 0.176 | 0.087 | 13.566 | 380.339 | 6810.53 | 537.86 | 5159.49 | 2.07 |
| 95 | 5 | 15 | 203.50 | 203.25 | 909.20 | 0.00 | 0.10 | 0.176 | 0.087 | 13.566 | 380.340 | 6810.57 | 537.86 | 5159.52 | 2.07 |
| 96 | 5 | 16 | 203.25 | 203.00 | 909.30 | 0.00 | 0.10 | 0.176 | 0.087 | 13.566 | 380.342 | 6810.61 | 537.86 | 5159.55 | 2.07 |
| 97 | 5 | 17 | 203.00 | 202.75 | 910.40 | 1.00 | 0.10 | 0.176 | 0.087 | 13.566 | 380.358 | 6811.06 | 537.89 | 5159.89 | 2.07 |
| 98 | 5 | 18 | 202.75 | 202.50 | 910.50 | 0.00 | 0.10 | 0.176 | 0.087 | 13.566 | 380.360 | 6811.10 | 537.89 | 5159.92 | 2.07 |
| 99 | 5 | 19 | 202.50 | 202.25 | 910.60 | 0.00 | 0.10 | 0.176 | 0.087 | 13.566 | 380.361 | 6811.14 | 537.89 | 5159.95 | 2.07 |
| 100 | 5 | 20 | 202.25 | 202.00 | 910.70 | 0.00 | 0.10 | 0.176 | 0.087 | 13.566 | 380.363 | 6811.18 | 537.89 | 5159.98 | 2.07 |
| 1 | 6 | 1 | 202.00 | 201.75 | 910.80 | 0.00 | 0.10 | 0.177 | 0.087 | 13.566 | 380.364 | 6811.22 | 537.90 | 5160.01 | 3.52 |
| | 6 | 2 | 201.75 | 201.50 | 910.90 | 0.00 | 0.10 | 0.177 | 0.087 | 13.566 | 380.366 | 6811.26 | 537.90 | 5160.04 | 3.52 |
| 103 | 6 | 3 | 201.50 | 201.25 | 911.00 | 0.00 | 0.10 | 0.177 | 0.087 | 13.566 | 380.367 | 6811.30 | 537.90 | 5160.07 | 3.52 |
| 104 | 6 | 4 | 201.25 | 201.00 | 911.10 | 0.00 | 0.10 | 0.177 | 0.087 | 13.566 | 380.369 | 6811.34 | 537.90 | 5160.10 | 3.52 |
| 105 | 6 | 5 | 201.00 | 200.75 | 911.20 | 0.00 | 0.10 | 0.177 | 0.087 | 13.566 | 380.371 | 6811.38 | 537.90 | 5160.14 | 3.52 |
| 106 | 6 | 6 | 200.75 | 200.50 | 911.30 | 0.00 | 0.10 | 0.177 | 0.087 | 13.566 | 380.372 | 6811.42 | 537.91 | 5160.17 | 3.52 |
| 107 | 6 | 7 | 200.50 | 200.25 | 911.40 | 0.00 | 0.10 | 0.177 | 0.087 | 13.566 | 380.373 | 6811.46 | 537.91 | 5160.20 | 3.52 |
| 108 | 6 | 8 | 200.25 | 200.00 | 911.50 | 0.00 | 0.10 | 0.177 | 0.086 | 13.566 | 380.375 | 6811.50 | 537.91 | 5160.23 | 3.52 |
| 109 | 6 | 9 | 200.00 | 199.75 | 911.60 | 0.00 | 0.10 | 0.177 | 0.086 | 13.566 | 380.376 | 6811.54 | 537.91 | 5160.26 | 3.52 |
| 110 | 6 | 10 | 199.75 | 199.50 | 911.70 | 0.00 | 0.10 | 0.177 | 0.086 | 13.566 | 380.378 | 6811.58 | 537.91 | 5160.29 | 3.52 |
| 111 | 6 | 11 | 199.50 | 199.25 | 911.80 | 0.00 | 0.10 | 0.177 | 0.086 | 13.566 | 380.379 | 6811.62 | 537.92 | 5160.32 | 3.52 |
| 112 | 6 | 12 | 199.25 | 199.00 | 911.90 | 0.00 | 0.10 | 0.177 | 0.086 | 13.566 | 380.381 | 6811.66 | 537.92 | 5160.35 | 3.53 |
| 113 | 6 | 13 | 199.00 | 198.75 | 912.10 | 0.10 | 0.10 | 0.177 | 0.086 | 13.566 | 380.384 | 6811.74 | 537.92 | 5160.41 | 3.53 |
| 114 | 6 | 14 | 198.75 | 198.50 | 912.20 | 0.00 | 0.10 | 0.177 | 0.086 | 13.566 | 380.386 | 6811.78 | 537.92 | 5160.44 | 3.53 |
| 115 | 6 | 15 | 198.50 | 198.25 | 912.30 | 0.00 | 0.10 | 0.177 | 0.086 | 13.566 | 380.387 | 6811.82 | 537.93 | 5160.47 | 3.53 |
| 116 | 6 | 16 | 198.25 | 198.00 | 912.40 | 0.00 | 0.10 | 0.177 | 0.086 | 13.566 | 380.389 | 6811.86 | 537.93 | 5160.50 | 3.53 |
| 117 | 6 | 17 | 198.00 | 197.75 | 912.50 | 0.00 | 0.10 | 0.177 | 0.086 | 13.566 | 380.390 | 6811.90 | 537.93 | 5160.53 | 3.53 |
| 118 | 6 | 18 | 197.75 | 197.50 | 912.60 | 0.00 | 0.10 | 0.177 | 0.086 | 13.566 | 380.392 | 6811.94 | 537.93 | 5160.56 | 3.53 |
| 119 | 6 | 19 | 197.50 | 197.25 | 912.70 | 0.00 | 0.10 | 0.177 | 0.086 | 13.566 | 380.393 | 6811.98 | 537.93 | 5160.59 | 3.53 |
| 120 | 6 | 20 | 197.25 | 197.00 | 912.80 | 0.00 | 0.10 | 0.177 | 0.086 | 13.567 | 380.395 | 6812.02 | 537.94 | 5160.62 | 3.53 |
| 121 | 7 | 1 | 197.00 | 196.75 | 913.00 | 0.10 | 0.10 | 0.113 | 0.135 | 16.200 | 497.369 | 10635.96 | 699.30 | 8057.55 | 1.08 |
| 122 | 7 | 2 | 196.75 | 196.50 | 913.10 | 0.00 | 0.10 | 0.113 | 0.135 | 16.200 | 497.372 | 10636.04 | 699.30 | 8057.61 | 1.08 |
| 123 | 7 | 3 | 196.50 | 196.25 | 913.20 | 0.00 | 0.10 | 0.113 | 0.135 | 16.200 | 497.375 | 10636.13 | 699.30 | 8057.67 | 1.08 |
| 124 | 7 | 4 | 196.25 | 196.00 | 913.30 | 0.00 | 0.10 | 0.113 | 0.135 | 16.200 | 497.379 | 10636.21 | 699.31 | 8057.73 | 1.08 |
| | 7 | 5 | 196.00 | 195.75 | 913.40 | 0.00 | 0.10 | 0.113 | 0.135 | 16.200 | 497.382 | 10636.29 | 699.31 | 8057.79 | 1.08 |
| | 7 | 6 | 195.75 | 195.50 | 913.50 | 0.00 | 0.10 | 0.113 | 0.135 | 16.200 | 497.385 | 10636.37 | 699.32 | 8057.86 | 1.08 |

***** STEADY STATE SIMULATION *****

** HYDRAULICS SUMMARY **

| ELE ORD | RCH NUM | ELE NUM | BEGIN LOC MILE | END LOC MILE | FLOW CFS | POINT SRCE CFS | INCR FLOW CFS | VEL FPS | TRVL TIME DAY | DEPTH FT | WIDTH FT | VOLUME K-FT-3 | BOTTOM AREA K-FT-2 | X-SECT AREA FT-2 | DSPRSN COEF FT-2/S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 127 | 7 | 7 | 195.50 | 195.25 | 913.60 | 0.00 | 0.10 | 0.113 | 0.135 | 16.200 | 497.388 | 10636.45 | 699.32 | 8057.92 | 1.08 |
| 128 | 7 | 8 | 195.25 | 195.00 | 913.70 | 0.00 | 0.10 | 0.113 | 0.135 | 16.200 | 497.391 | 10636.53 | 699.33 | 8057.98 | 1.08 |
| 129 | 7 | 9 | 195.00 | 194.75 | 913.80 | 0.00 | 0.10 | 0.113 | 0.135 | 16.200 | 497.395 | 10636.61 | 699.33 | 8058.04 | 1.08 |
| 130 | 7 | 10 | 194.75 | 194.50 | 913.90 | 0.00 | 0.10 | 0.113 | 0.135 | 16.201 | 497.398 | 10636.70 | 699.33 | 8058.10 | 1.08 |
| 131 | 7 | 11 | 194.50 | 194.25 | 914.00 | 0.00 | 0.10 | 0.113 | 0.135 | 16.201 | 497.401 | 10636.78 | 699.34 | 8058.16 | 1.08 |
| 132 | 7 | 12 | 194.25 | 194.00 | 914.10 | 0.00 | 0.10 | 0.113 | 0.135 | 16.201 | 497.404 | 10636.86 | 699.34 | 8058.23 | 1.08 |
| 133 | 7 | 13 | 194.00 | 193.75 | 1136.20 | 222.00 | 0.10 | 0.139 | 0.110 | 16.239 | 503.829 | 10800.05 | 707.93 | 8181.85 | 1.33 |
| 134 | 7 | 14 | 193.75 | 193.50 | 1136.30 | 0.00 | 0.10 | 0.139 | 0.110 | 16.239 | 503.831 | 10800.12 | 707.93 | 8181.91 | 1.33 |
| 135 | 7 | 15 | 193.50 | 193.25 | 1136.40 | 0.00 | 0.10 | 0.139 | 0.110 | 16.239 | 503.834 | 10800.18 | 707.93 | 8181.96 | 1.33 |
| 136 | 7 | 16 | 193.25 | 193.00 | 1136.50 | 0.00 | 0.10 | 0.139 | 0.110 | 16.239 | 503.836 | 10800.25 | 707.94 | 8182.01 | 1.33 |
| 137 | 7 | 17 | 193.00 | 192.75 | 1136.60 | 0.00 | 0.10 | 0.139 | 0.110 | 16.239 | 503.839 | 10800.31 | 707.94 | 8182.06 | 1.33 |
| 138 | 7 | 18 | 192.75 | 192.50 | 1136.70 | 0.00 | 0.10 | 0.139 | 0.110 | 16.239 | 503.842 | 10800.38 | 707.94 | 8182.11 | 1.33 |
| 139 | 7 | 19 | 192.50 | 192.25 | 1136.80 | 0.00 | 0.10 | 0.139 | 0.110 | 16.239 | 503.844 | 10800.45 | 707.95 | 8182.16 | 1.33 |
| 140 | 7 | 20 | 192.25 | 192.00 | 1136.90 | 0.00 | 0.10 | 0.139 | 0.110 | 16.239 | 503.847 | 10800.51 | 707.95 | 8182.21 | 1.33 |
| 141 | 8 | 1 | 192.00 | 191.75 | 1137.92 | 0.77 | 0.25 | 0.139 | 0.110 | 16.240 | 503.874 | 10801.19 | 707.99 | 8182.72 | 1.33 |
| 142 | 8 | 2 | 191.75 | 191.50 | 1138.17 | 0.00 | 0.25 | 0.139 | 0.110 | 16.240 | 503.880 | 10801.36 | 707.99 | 8182.85 | 1.33 |
| 1 | 8 | 3 | 191.50 | 191.25 | 1138.42 | 0.00 | 0.25 | 0.139 | 0.110 | 16.240 | 503.887 | 10801.52 | 708.00 | 8182.97 | 1.33 |
| 1 | 8 | 4 | 191.25 | 191.00 | 1138.67 | 0.00 | 0.25 | 0.139 | 0.110 | 16.240 | 503.893 | 10801.69 | 708.01 | 8183.10 | 1.33 |
| 145 | 8 | 5 | 191.00 | 190.75 | 1138.92 | 0.00 | 0.25 | 0.139 | 0.110 | 16.240 | 503.900 | 10801.86 | 708.02 | 8183.22 | 1.33 |
| 146 | 8 | 6 | 190.75 | 190.50 | 1139.17 | 0.00 | 0.25 | 0.139 | 0.110 | 16.240 | 503.906 | 10802.02 | 708.03 | 8183.35 | 1.33 |
| 147 | 8 | 7 | 190.50 | 190.25 | 1139.42 | 0.00 | 0.25 | 0.139 | 0.110 | 16.240 | 503.913 | 10802.19 | 708.04 | 8183.48 | 1.33 |
| 148 | 8 | 8 | 190.25 | 190.00 | 1139.67 | 0.00 | 0.25 | 0.139 | 0.110 | 16.240 | 503.919 | 10802.35 | 708.05 | 8183.60 | 1.33 |

***** STEADY STATE SIMULATION *****

** REACTION COEFFICIENT SUMMARY **

| RCH NUM | ELE NUM | DO SAT MG/L | K2 OPT | OXYGN REAIR 1/DAY | BOD DECAY 1/DAY | BOD SETT 1/DAY | SOD RATE G/F2D | ORGN DECAY 1/DAY | ORGN SETT 1/DAY | NH3 DECAY 1/DAY | NH3 SRCE MG/F2D | NO2 DECAY 1/DAY | ORGP DECAY 1/DAY | ORGP SETT 1/DAY | DISP SRCE MG/F2D | COLI DECAY 1/DAY | ANC DECAY 1/DAY | ANC SETT 1/DAY | ANC SRCE MG/F2D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 7.59 | 3 | 0.22 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 2 | 7.59 | 3 | 0.22 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 3 | 7.59 | 3 | 0.22 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 4 | 7.59 | 3 | 0.22 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 5 | 7.59 | 3 | 0.22 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 6 | 7.59 | 3 | 0.22 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 7 | 7.59 | 3 | 0.22 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 8 | 7.59 | 3 | 0.22 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 9 | 7.59 | 3 | 0.22 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 10 | 7.59 | 3 | 0.22 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 11 | 7.59 | 3 | 0.22 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 12 | 7.59 | 3 | 0.22 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 13 | 7.59 | 3 | 0.22 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 14 | 7.59 | 3 | 0.22 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 15 | 7.59 | 3 | 0.22 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 16 | 7.59 | 3 | 0.22 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 17 | 7.59 | 3 | 0.22 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 18 | 7.59 | 3 | 0.22 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 19 | 7.59 | 3 | 0.22 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 20 | 7.59 | 3 | 0.22 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 1 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 2 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 3 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 4 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 5 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 6 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 7 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 8 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 9 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 10 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 11 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 12 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 13 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 14 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 15 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 16 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 17 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 18 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 19 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 20 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 1 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 2 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

***** STEADY STATE SIMULATION *****

** REACTION COEFFICIENT SUMMARY **

| RCH NUM | ELE NUM | DO SAT MG/L | K2 OPT | OXYGN REAIR 1/DAY | BOD DECAY 1/DAY | BOD SETT 1/DAY | SOD RATE G/F2D | ORGN DECAY 1/DAY | ORGN SETT 1/DAY | NH3 DECAY 1/DAY | NH3 SRCE MG/F2D | NO2 DECAY 1/DAY | ORGP DECAY 1/DAY | ORGP SETT 1/DAY | DISP SRCE MG/F2D | COLI DECAY 1/DAY | ANC DECAY 1/DAY | ANC SETT 1/DAY | ANC SRCE MG/F2D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 3 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 4 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 5 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 6 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 7 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 8 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 9 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 10 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 11 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 12 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 13 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 14 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 15 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 16 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 17 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 18 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 19 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 20 | 7.59 | 3 | 0.23 | 0.12 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 1 | 7.59 | 3 | 0.21 | 0.12 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 2 | 7.59 | 3 | 0.20 | 0.12 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 3 | 7.59 | 3 | 0.20 | 0.12 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 4 | 7.59 | 3 | 0.20 | 0.12 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 5 | 7.59 | 3 | 0.20 | 0.12 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 6 | 7.59 | 3 | 0.20 | 0.12 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 7 | 7.59 | 3 | 0.20 | 0.12 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 8 | 7.59 | 3 | 0.20 | 0.12 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 9 | 7.59 | 3 | 0.20 | 0.12 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 10 | 7.59 | 3 | 0.20 | 0.12 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 11 | 7.59 | 3 | 0.20 | 0.12 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 12 | 7.59 | 3 | 0.20 | 0.12 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 13 | 7.59 | 3 | 0.20 | 0.12 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 14 | 7.59 | 3 | 0.20 | 0.12 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 15 | 7.59 | 3 | 0.20 | 0.12 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 16 | 7.59 | 3 | 0.20 | 0.12 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 17 | 7.59 | 3 | 0.20 | 0.12 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 18 | 7.59 | 3 | 0.20 | 0.12 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 19 | 7.59 | 3 | 0.20 | 0.12 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 20 | 7.59 | 3 | 0.20 | 0.12 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 1 | 7.59 | 3 | 0.17 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 2 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|  | 3 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|  | 4 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

***** STEADY STATE SIMULATION *****

** REACTION COEFFICIENT SUMMARY **

| RCH NUM | ELE NUM | DO SAT MG/L | K2 OPT | OXYGN REAIR 1/DAY | BOD DECAY 1/DAY | BOD SETT 1/DAY | SOD RATE G/F2D | ORGN DECAY 1/DAY | ORGN SETT 1/DAY | NH3 DECAY 1/DAY | NH3 SRCE MG/F2D | NO2 DECAY 1/DAY | ORGP DECAY 1/DAY | ORGP SETT 1/DAY | DISP SRCE MG/F2D | COLI DECAY 1/DAY | ANC DECAY 1/DAY | ANC SETT 1/DAY | ANC SRCE MG/F2D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 5 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 6 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 7 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 8 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 9 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 10 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 11 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 12 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 13 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 14 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 15 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 16 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 17 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 18 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 19 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 20 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 1 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 2 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 3 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 4 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 5 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 6 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 7 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 8 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 9 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 10 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 11 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 12 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 13 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 14 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 15 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 16 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 17 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 18 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 19 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 20 | 7.59 | 3 | 0.14 | 0.08 | 0.00 | 0.13 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 1 | 7.59 | 3 | 0.11 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 2 | 7.59 | 3 | 0.08 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 3 | 7.59 | 3 | 0.08 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 4 | 7.59 | 3 | 0.08 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 5 | 7.59 | 3 | 0.08 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 6 | 7.59 | 3 | 0.08 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

***** STEADY STATE SIMULATION *****

** REACTION COEFFICIENT SUMMARY **

| RCH NUM | ELE NUM | DO SAT MG/L | K2 OPT | OXYGN REAIR 1/DAY | BOD DECAY 1/DAY | BOD SETT 1/DAY | SOD RATE G/F2D | ORGN DECAY 1/DAY | ORGN SETT 1/DAY | NH3 DECAY 1/DAY | NH3 SRCE MG/F2D | NO2 DECAY 1/DAY | ORGP DECAY 1/DAY | ORGP SETT 1/DAY | DISP SRCE MG/F2D | COLI DECAY 1/DAY | ANC DECAY 1/DAY | ANC SETT 1/DAY | ANC SRCE MG/F2D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 7 | 7.59 | 3 | 0.08 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 8 | 7.59 | 3 | 0.08 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 9 | 7.59 | 3 | 0.08 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 10 | 7.59 | 3 | 0.08 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 11 | 7.59 | 3 | 0.08 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 12 | 7.59 | 3 | 0.08 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 13 | 7.59 | 3 | 0.09 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 14 | 7.59 | 3 | 0.09 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 15 | 7.59 | 3 | 0.09 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 16 | 7.59 | 3 | 0.09 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 17 | 7.59 | 3 | 0.09 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 18 | 7.59 | 3 | 0.09 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 19 | 7.59 | 3 | 0.09 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 20 | 7.59 | 3 | 0.09 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 1 | 7.59 | 3 | 0.09 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 2 | 7.59 | 3 | 0.09 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|  | 3 | 7.59 | 3 | 0.09 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|  | 4 | 7.59 | 3 | 0.09 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 5 | 7.59 | 3 | 0.09 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 6 | 7.59 | 3 | 0.09 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 7 | 7.59 | 3 | 0.09 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 8 | 7.59 | 3 | 0.09 | 0.08 | 0.00 | 0.09 | 0.16 | 0.00 | 0.22 | 0.00 | 1.57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

***** STEADY STATE SIMULATION *****

** WATER QUALITY VARIABLES **

| RCH NUM | ELE NUM | TEMP DEG-F | CM-1 | CM-2 | CM-3 | DO MG/L | BOD MG/L | ORGN MG/L | NH3N MG/L | NO2N MG/L | NO3N MG/L | SUM-N MG/L | ORGP MG/L | DIS-P MG/L | SUM-P MG/L | COLI #/100ML | ANC BOD MG/L | CHLA UG/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 85.60 | 0.00 | 0.00 | 0.00 | 6.21 | 3.73 | 0.48 | 0.05 | 0.09 | 0.41 | 1.03 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 8.58 |
| 1 | 2 | 85.60 | 0.00 | 0.00 | 0.00 | 6.20 | 3.70 | 0.47 | 0.06 | 0.08 | 0.42 | 1.03 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 8.76 |
| 1 | 3 | 85.60 | 0.00 | 0.00 | 0.00 | 6.19 | 3.68 | 0.47 | 0.06 | 0.07 | 0.43 | 1.03 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 8.94 |
| 1 | 4 | 85.60 | 0.00 | 0.00 | 0.00 | 6.18 | 3.66 | 0.46 | 0.07 | 0.07 | 0.43 | 1.03 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 9.13 |
| 1 | 5 | 85.60 | 0.00 | 0.00 | 0.00 | 6.18 | 3.63 | 0.46 | 0.07 | 0.06 | 0.44 | 1.03 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 9.33 |
| 1 | 6 | 85.60 | 0.00 | 0.00 | 0.00 | 6.17 | 3.61 | 0.45 | 0.08 | 0.05 | 0.44 | 1.03 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 9.53 |
| 1 | 7 | 85.60 | 0.00 | 0.00 | 0.00 | 6.17 | 3.59 | 0.45 | 0.08 | 0.05 | 0.45 | 1.02 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 9.73 |
| 1 | 8 | 85.60 | 0.00 | 0.00 | 0.00 | 6.17 | 3.57 | 0.44 | 0.08 | 0.05 | 0.45 | 1.02 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 9.94 |
| 1 | 9 | 85.60 | 0.00 | 0.00 | 0.00 | 6.17 | 3.54 | 0.44 | 0.09 | 0.04 | 0.46 | 1.02 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 10.15 |
| 1 | 10 | 85.60 | 0.00 | 0.00 | 0.00 | 6.17 | 3.52 | 0.43 | 0.09 | 0.04 | 0.46 | 1.02 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 10.37 |
| 1 | 11 | 85.60 | 0.00 | 0.00 | 0.00 | 6.17 | 3.50 | 0.43 | 0.09 | 0.04 | 0.46 | 1.02 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 10.58 |
| 1 | 12 | 85.60 | 0.00 | 0.00 | 0.00 | 6.18 | 3.48 | 0.42 | 0.10 | 0.03 | 0.46 | 1.02 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 10.81 |
| 1 | 13 | 85.60 | 0.00 | 0.00 | 0.00 | 6.18 | 3.46 | 0.42 | 0.10 | 0.03 | 0.47 | 1.01 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 11.04 |
| 1 | 14 | 85.60 | 0.00 | 0.00 | 0.00 | 6.18 | 3.43 | 0.41 | 0.10 | 0.03 | 0.47 | 1.01 | 0.07 | 0.04 | 0.11 | 00E+00 | 0.00 | 11.27 |
| 1 | 15 | 85.60 | 0.00 | 0.00 | 0.00 | 6.19 | 3.41 | 0.41 | 0.11 | 0.03 | 0.47 | 1.01 | 0.07 | 0.03 | 0.11 | 00E+00 | 0.00 | 11.50 |
| 1 | 16 | 85.60 | 0.00 | 0.00 | 0.00 | 6.20 | 3.39 | 0.40 | 0.11 | 0.03 | 0.47 | 1.01 | 0.07 | 0.03 | 0.11 | 00E+00 | 0.00 | 11.74 |
| 1 | 17 | 85.60 | 0.00 | 0.00 | 0.00 | 6.20 | 3.37 | 0.40 | 0.11 | 0.03 | 0.47 | 1.01 | 0.07 | 0.03 | 0.11 | 00E+00 | 0.00 | 11.98 |
| 1 | 18 | 85.60 | 0.00 | 0.00 | 0.00 | 6.21 | 3.35 | 0.39 | 0.11 | 0.02 | 0.47 | 1.00 | 0.07 | 0.03 | 0.10 | 00E+00 | 0.00 | 12.22 |
| | 19 | 85.60 | 0.00 | 0.00 | 0.00 | 6.22 | 3.33 | 0.39 | 0.12 | 0.02 | 0.47 | 1.00 | 0.07 | 0.03 | 0.10 | 00E+00 | 0.00 | 12.47 |
| | 20 | 85.60 | 0.00 | 0.00 | 0.00 | 6.22 | 3.44 | 0.39 | 0.13 | 0.02 | 0.47 | 1.01 | 0.07 | 0.03 | 0.11 | 00E+00 | 0.00 | 12.70 |
| 2 | 1 | 85.60 | 0.00 | 0.00 | 0.00 | 5.95 | 8.39 | 0.56 | 0.38 | 0.03 | 0.47 | 1.45 | 0.08 | 0.08 | 0.16 | 00E+00 | 0.00 | 11.98 |
| 2 | 2 | 85.60 | 0.00 | 0.00 | 0.00 | 5.88 | 8.31 | 0.55 | 0.38 | 0.03 | 0.47 | 1.44 | 0.08 | 0.07 | 0.16 | 00E+00 | 0.00 | 12.15 |
| 2 | 3 | 85.60 | 0.00 | 0.00 | 0.00 | 5.82 | 8.24 | 0.55 | 0.38 | 0.04 | 0.48 | 1.44 | 0.08 | 0.07 | 0.16 | 00E+00 | 0.00 | 12.31 |
| 2 | 4 | 85.60 | 0.00 | 0.00 | 0.00 | 5.76 | 8.17 | 0.54 | 0.38 | 0.04 | 0.48 | 1.44 | 0.08 | 0.07 | 0.16 | 00E+00 | 0.00 | 12.48 |
| 2 | 5 | 85.60 | 0.00 | 0.00 | 0.00 | 5.70 | 8.10 | 0.54 | 0.38 | 0.04 | 0.48 | 1.44 | 0.08 | 0.07 | 0.16 | 00E+00 | 0.00 | 12.65 |
| 2 | 6 | 85.60 | 0.00 | 0.00 | 0.00 | 5.65 | 8.03 | 0.53 | 0.38 | 0.04 | 0.49 | 1.44 | 0.08 | 0.07 | 0.16 | 00E+00 | 0.00 | 12.82 |
| 2 | 7 | 85.60 | 0.00 | 0.00 | 0.00 | 5.59 | 7.96 | 0.52 | 0.38 | 0.04 | 0.49 | 1.44 | 0.08 | 0.07 | 0.16 | 00E+00 | 0.00 | 13.00 |
| 2 | 8 | 85.60 | 0.00 | 0.00 | 0.00 | 5.54 | 7.89 | 0.52 | 0.38 | 0.04 | 0.50 | 1.43 | 0.08 | 0.07 | 0.16 | 00E+00 | 0.00 | 13.17 |
| 2 | 9 | 85.60 | 0.00 | 0.00 | 0.00 | 5.49 | 7.82 | 0.51 | 0.38 | 0.04 | 0.50 | 1.43 | 0.08 | 0.07 | 0.16 | 00E+00 | 0.00 | 13.35 |
| 2 | 10 | 85.60 | 0.00 | 0.00 | 0.00 | 5.44 | 7.75 | 0.51 | 0.38 | 0.04 | 0.50 | 1.43 | 0.08 | 0.07 | 0.16 | 00E+00 | 0.00 | 13.53 |
| 2 | 11 | 85.60 | 0.00 | 0.00 | 0.00 | 5.39 | 7.68 | 0.50 | 0.37 | 0.05 | 0.51 | 1.43 | 0.08 | 0.07 | 0.16 | 00E+00 | 0.00 | 13.71 |
| 2 | 12 | 85.60 | 0.00 | 0.00 | 0.00 | 5.35 | 7.62 | 0.50 | 0.37 | 0.05 | 0.51 | 1.43 | 0.08 | 0.07 | 0.16 | 00E+00 | 0.00 | 13.90 |
| 2 | 13 | 85.60 | 0.00 | 0.00 | 0.00 | 5.30 | 7.55 | 0.49 | 0.37 | 0.05 | 0.52 | 1.43 | 0.08 | 0.07 | 0.15 | 00E+00 | 0.00 | 14.08 |
| 2 | 14 | 85.60 | 0.00 | 0.00 | 0.00 | 5.26 | 7.48 | 0.49 | 0.37 | 0.05 | 0.52 | 1.42 | 0.08 | 0.07 | 0.15 | 00E+00 | 0.00 | 14.27 |
| 2 | 15 | 85.60 | 0.00 | 0.00 | 0.00 | 5.22 | 7.42 | 0.48 | 0.37 | 0.05 | 0.52 | 1.42 | 0.08 | 0.07 | 0.15 | 00E+00 | 0.00 | 14.46 |
| 2 | 16 | 85.60 | 0.00 | 0.00 | 0.00 | 5.18 | 7.35 | 0.48 | 0.37 | 0.05 | 0.53 | 1.42 | 0.08 | 0.07 | 0.15 | 00E+00 | 0.00 | 14.65 |
| 2 | 17 | 85.60 | 0.00 | 0.00 | 0.00 | 5.14 | 7.29 | 0.47 | 0.37 | 0.05 | 0.53 | 1.42 | 0.08 | 0.07 | 0.15 | 00E+00 | 0.00 | 14.85 |
| 2 | 18 | 85.60 | 0.00 | 0.00 | 0.00 | 5.11 | 7.23 | 0.47 | 0.37 | 0.05 | 0.54 | 1.42 | 0.08 | 0.07 | 0.15 | 00E+00 | 0.00 | 15.04 |
| 2 | 19 | 85.60 | 0.00 | 0.00 | 0.00 | 5.07 | 7.16 | 0.46 | 0.36 | 0.05 | 0.54 | 1.42 | 0.08 | 0.07 | 0.15 | 00E+00 | 0.00 | 15.24 |
| 2 | 20 | 85.60 | 0.00 | 0.00 | 0.00 | 5.04 | 7.10 | 0.46 | 0.36 | 0.05 | 0.55 | 1.41 | 0.08 | 0.07 | 0.15 | 00E+00 | 0.00 | 15.44 |
| | 1 | 85.60 | 0.00 | 0.00 | 0.00 | 5.03 | 7.04 | 0.45 | 0.36 | 0.05 | 0.55 | 1.41 | 0.08 | 0.07 | 0.15 | 00E+00 | 0.00 | 15.81 |
| | 2 | 85.60 | 0.00 | 0.00 | 0.00 | 5.02 | 6.98 | 0.45 | 0.36 | 0.05 | 0.55 | 1.41 | 0.08 | 0.07 | 0.15 | 00E+00 | 0.00 | 16.18 |

***** STEADY STATE SIMULATION *****

** WATER QUALITY VARIABLES **

| RCH NUM | ELE NUM | TEMP DEG-F | CM-1 | CM-2 | CM-3 | DO MG/L | BOD MG/L | ORGN MG/L | NH3N MG/L | NO2N MG/L | NO3N MG/L | SUM-N MG/L | ORGP MG/L | DIS-P MG/L | SUM-P MG/L | COLI #/100ML | ANC BOD MG/L | CHLA UG/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 3 | 85.60 | 0.00 | 0.00 | 0.00 | 5.01 | 6.92 | 0.44 | 0.36 | 0.05 | 0.56 | 1.41 | 0.08 | 0.07 | 0.15 | 00E+00 | 0.00 | 16.56 |
| 3 | 4 | 85.60 | 0.00 | 0.00 | 0.00 | 5.01 | 6.86 | 0.44 | 0.35 | 0.05 | 0.56 | 1.40 | 0.08 | 0.07 | 0.15 | 00E+00 | 0.00 | 16.95 |
| 3 | 5 | 85.60 | 0.00 | 0.00 | 0.00 | 5.00 | 6.80 | 0.43 | 0.35 | 0.05 | 0.56 | 1.40 | 0.08 | 0.07 | 0.15 | 00E+00 | 0.00 | 17.34 |
| 3 | 6 | 85.60 | 0.00 | 0.00 | 0.00 | 5.00 | 6.74 | 0.43 | 0.35 | 0.05 | 0.57 | 1.40 | 0.08 | 0.06 | 0.15 | 00E+00 | 0.00 | 17.74 |
| 3 | 7 | 85.60 | 0.00 | 0.00 | 0.00 | 5.00 | 6.68 | 0.42 | 0.35 | 0.05 | 0.57 | 1.39 | 0.09 | 0.06 | 0.15 | 00E+00 | 0.00 | 18.14 |
| 3 | 8 | 85.60 | 0.00 | 0.00 | 0.00 | 5.00 | 6.62 | 0.42 | 0.35 | 0.05 | 0.57 | 1.39 | 0.09 | 0.06 | 0.15 | 00E+00 | 0.00 | 18.55 |
| 3 | 9 | 85.60 | 0.00 | 0.00 | 0.00 | 5.01 | 6.56 | 0.42 | 0.34 | 0.05 | 0.58 | 1.39 | 0.09 | 0.06 | 0.15 | 00E+00 | 0.00 | 18.97 |
| 3 | 10 | 85.60 | 0.00 | 0.00 | 0.00 | 5.01 | 6.51 | 0.41 | 0.34 | 0.05 | 0.58 | 1.38 | 0.09 | 0.06 | 0.15 | 00E+00 | 0.00 | 19.39 |
| 3 | 11 | 85.60 | 0.00 | 0.00 | 0.00 | 5.02 | 6.45 | 0.41 | 0.34 | 0.05 | 0.58 | 1.38 | 0.09 | 0.06 | 0.15 | 00E+00 | 0.00 | 19.82 |
| 3 | 12 | 85.60 | 0.00 | 0.00 | 0.00 | 5.02 | 6.39 | 0.40 | 0.34 | 0.05 | 0.59 | 1.38 | 0.09 | 0.06 | 0.15 | 00E+00 | 0.00 | 20.25 |
| 3 | 13 | 85.60 | 0.00 | 0.00 | 0.00 | 5.03 | 6.34 | 0.40 | 0.34 | 0.05 | 0.59 | 1.37 | 0.09 | 0.06 | 0.15 | 00E+00 | 0.00 | 20.69 |
| 3 | 14 | 85.60 | 0.00 | 0.00 | 0.00 | 5.04 | 6.28 | 0.40 | 0.33 | 0.05 | 0.59 | 1.37 | 0.09 | 0.06 | 0.14 | 00E+00 | 0.00 | 21.14 |
| 3 | 15 | 85.60 | 0.00 | 0.00 | 0.00 | 5.06 | 6.23 | 0.39 | 0.33 | 0.05 | 0.60 | 1.37 | 0.09 | 0.06 | 0.14 | 00E+00 | 0.00 | 21.59 |
| 3 | 16 | 85.60 | 0.00 | 0.00 | 0.00 | 5.07 | 6.17 | 0.39 | 0.33 | 0.05 | 0.60 | 1.36 | 0.09 | 0.06 | 0.14 | 00E+00 | 0.00 | 22.04 |
| 3 | 17 | 85.60 | 0.00 | 0.00 | 0.00 | 5.08 | 6.12 | 0.38 | 0.33 | 0.05 | 0.60 | 1.36 | 0.09 | 0.06 | 0.14 | 00E+00 | 0.00 | 22.50 |
| 3 | 18 | 85.60 | 0.00 | 0.00 | 0.00 | 5.10 | 6.07 | 0.38 | 0.32 | 0.05 | 0.60 | 1.36 | 0.09 | 0.06 | 0.14 | 00E+00 | 0.00 | 22.97 |
| 3 | 19 | 85.60 | 0.00 | 0.00 | 0.00 | 5.12 | 6.02 | 0.38 | 0.32 | 0.05 | 0.61 | 1.35 | 0.09 | 0.06 | 0.14 | 00E+00 | 0.00 | 23.44 |
| 3 | 20 | 85.60 | 0.00 | 0.00 | 0.00 | 5.14 | 5.96 | 0.37 | 0.32 | 0.05 | 0.61 | 1.35 | 0.09 | 0.05 | 0.14 | 00E+00 | 0.00 | 23.91 |
| 4 | 1 | 85.60 | 0.00 | 0.00 | 0.00 | 5.13 | 5.91 | 0.37 | 0.32 | 0.05 | 0.61 | 1.35 | 0.09 | 0.05 | 0.14 | 00E+00 | 0.00 | 24.23 |
| 4 | 2 | 85.60 | 0.00 | 0.00 | 0.00 | 5.11 | 5.86 | 0.37 | 0.31 | 0.05 | 0.61 | 1.34 | 0.09 | 0.05 | 0.14 | 00E+00 | 0.00 | 24.55 |
| 4 | 3 | 85.60 | 0.00 | 0.00 | 0.00 | 5.10 | 5.81 | 0.36 | 0.31 | 0.05 | 0.62 | 1.34 | 0.09 | 0.05 | 0.14 | 00E+00 | 0.00 | 24.87 |
| 4 | 4 | 85.60 | 0.00 | 0.00 | 0.00 | 5.09 | 5.76 | 0.36 | 0.31 | 0.05 | 0.62 | 1.34 | 0.09 | 0.05 | 0.14 | 00E+00 | 0.00 | 25.17 |
| 4 | 5 | 85.60 | 0.00 | 0.00 | 0.00 | 5.08 | 5.71 | 0.36 | 0.31 | 0.05 | 0.62 | 1.33 | 0.09 | 0.05 | 0.14 | 00E+00 | 0.00 | 25.50 |
| 4 | 6 | 85.60 | 0.00 | 0.00 | 0.00 | 5.07 | 5.66 | 0.35 | 0.31 | 0.05 | 0.63 | 1.33 | 0.09 | 0.05 | 0.14 | 00E+00 | 0.00 | 25.82 |
| 4 | 7 | 85.60 | 0.00 | 0.00 | 0.00 | 5.07 | 5.61 | 0.35 | 0.30 | 0.04 | 0.63 | 1.33 | 0.09 | 0.05 | 0.14 | 00E+00 | 0.00 | 26.15 |
| 4 | 8 | 85.60 | 0.00 | 0.00 | 0.00 | 5.06 | 5.56 | 0.35 | 0.30 | 0.04 | 0.63 | 1.33 | 0.09 | 0.05 | 0.14 | 00E+00 | 0.00 | 26.48 |
| 4 | 9 | 85.60 | 0.00 | 0.00 | 0.00 | 5.06 | 5.51 | 0.34 | 0.30 | 0.04 | 0.63 | 1.32 | 0.09 | 0.05 | 0.14 | 00E+00 | 0.00 | 26.81 |
| 4 | 10 | 85.60 | 0.00 | 0.00 | 0.00 | 5.05 | 5.46 | 0.34 | 0.30 | 0.04 | 0.64 | 1.32 | 0.09 | 0.05 | 0.14 | 00E+00 | 0.00 | 27.15 |
| 4 | 11 | 85.60 | 0.00 | 0.00 | 0.00 | 5.05 | 5.42 | 0.34 | 0.30 | 0.04 | 0.64 | 1.32 | 0.09 | 0.05 | 0.14 | 00E+00 | 0.00 | 27.48 |
| 4 | 12 | 85.60 | 0.00 | 0.00 | 0.00 | 5.05 | 5.37 | 0.34 | 0.29 | 0.04 | 0.64 | 1.31 | 0.09 | 0.05 | 0.14 | 00E+00 | 0.00 | 27.81 |
| 4 | 13 | 85.60 | 0.00 | 0.00 | 0.00 | 5.05 | 5.32 | 0.33 | 0.29 | 0.04 | 0.64 | 1.31 | 0.09 | 0.05 | 0.13 | 00E+00 | 0.00 | 28.15 |
| 4 | 14 | 85.60 | 0.00 | 0.00 | 0.00 | 5.05 | 5.28 | 0.33 | 0.29 | 0.04 | 0.65 | 1.31 | 0.09 | 0.05 | 0.13 | 00E+00 | 0.00 | 28.48 |
| 4 | 15 | 85.60 | 0.00 | 0.00 | 0.00 | 5.05 | 5.23 | 0.33 | 0.29 | 0.04 | 0.65 | 1.30 | 0.09 | 0.04 | 0.13 | 00E+00 | 0.00 | 28.82 |
| 4 | 16 | 85.60 | 0.00 | 0.00 | 0.00 | 5.05 | 5.19 | 0.32 | 0.29 | 0.04 | 0.65 | 1.30 | 0.09 | 0.04 | 0.13 | 00E+00 | 0.00 | 29.15 |
| 4 | 17 | 85.60 | 0.00 | 0.00 | 0.00 | 5.05 | 5.14 | 0.32 | 0.28 | 0.04 | 0.65 | 1.30 | 0.09 | 0.04 | 0.13 | 00E+00 | 0.00 | 29.49 |
| 4 | 18 | 85.60 | 0.00 | 0.00 | 0.00 | 5.05 | 5.10 | 0.32 | 0.28 | 0.04 | 0.65 | 1.30 | 0.09 | 0.04 | 0.13 | 00E+00 | 0.00 | 29.82 |
| 4 | 19 | 85.60 | 0.00 | 0.00 | 0.00 | 5.06 | 5.05 | 0.32 | 0.28 | 0.04 | 0.66 | 1.29 | 0.09 | 0.04 | 0.13 | 00E+00 | 0.00 | 30.15 |
| 4 | 20 | 85.60 | 0.00 | 0.00 | 0.00 | 5.06 | 5.01 | 0.31 | 0.28 | 0.04 | 0.66 | 1.29 | 0.09 | 0.04 | 0.13 | 00E+00 | 0.00 | 30.49 |
| 5 | 1 | 85.60 | 0.00 | 0.00 | 0.00 | 5.06 | 4.98 | 0.31 | 0.28 | 0.04 | 0.66 | 1.29 | 0.09 | 0.04 | 0.13 | 00E+00 | 0.00 | 30.72 |
| 5 | 2 | 85.60 | 0.00 | 0.00 | 0.00 | 5.06 | 4.94 | 0.31 | 0.27 | 0.04 | 0.66 | 1.28 | 0.09 | 0.04 | 0.13 | 00E+00 | 0.00 | 30.98 |
| | 3 | 85.60 | 0.00 | 0.00 | 0.00 | 5.05 | 4.91 | 0.30 | 0.27 | 0.04 | 0.67 | 1.28 | 0.09 | 0.04 | 0.13 | 00E+00 | 0.00 | 31.23 |
| | 4 | 85.60 | 0.00 | 0.00 | 0.00 | 5.05 | 4.88 | 0.30 | 0.27 | 0.04 | 0.67 | 1.28 | 0.09 | 0.04 | 0.13 | 00E+00 | 0.00 | 31.48 |

***** STEADY STATE SIMULATION *****

** WATER QUALITY VARIABLES **

| RCH NUM | ELE NUM | TEMP DEG-F | CM-1 | CM-2 | CM-3 | DO MG/L | BOD MG/L | ORGN MG/L | NH3N MG/L | NO2N MG/L | NO3N MG/L | SUM-N MG/L | ORGP MG/L | DIS-P MG/L | SUM-P MG/L | COLI #/100ML | ANC BOD MG/L | CHLA UG/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 5 | 85.60 | 0.00 | 0.00 | 0.00 | 5.04 | 4.84 | 0.30 | 0.27 | 0.04 | 0.67 | 1.28 | 0.09 | 0.04 | 0.13 | 00E+00 | 0.00 | 31.73 |
| 5 | 6 | 85.60 | 0.00 | 0.00 | 0.00 | 5.04 | 4.81 | 0.30 | 0.26 | 0.04 | 0.67 | 1.27 | 0.09 | 0.04 | 0.13 | 00E+00 | 0.00 | 31.98 |
| 5 | 7 | 85.60 | 0.00 | 0.00 | 0.00 | 5.03 | 4.78 | 0.29 | 0.26 | 0.04 | 0.68 | 1.27 | 0.09 | 0.04 | 0.13 | 00E+00 | 0.00 | 32.23 |
| 5 | 8 | 85.60 | 0.00 | 0.00 | 0.00 | 5.03 | 4.75 | 0.29 | 0.26 | 0.04 | 0.68 | 1.27 | 0.09 | 0.04 | 0.13 | 00E+00 | 0.00 | 32.47 |
| 5 | 9 | 85.60 | 0.00 | 0.00 | 0.00 | 5.03 | 4.71 | 0.29 | 0.26 | 0.04 | 0.68 | 1.27 | 0.09 | 0.04 | 0.13 | 00E+00 | 0.00 | 32.72 |
| 5 | 10 | 85.60 | 0.00 | 0.00 | 0.00 | 5.03 | 4.68 | 0.29 | 0.26 | 0.04 | 0.68 | 1.26 | 0.09 | 0.03 | 0.13 | 00E+00 | 0.00 | 32.96 |
| 5 | 11 | 85.60 | 0.00 | 0.00 | 0.00 | 5.02 | 4.65 | 0.28 | 0.25 | 0.04 | 0.69 | 1.26 | 0.09 | 0.03 | 0.13 | 00E+00 | 0.00 | 33.20 |
| 5 | 12 | 85.60 | 0.00 | 0.00 | 0.00 | 5.02 | 4.62 | 0.28 | 0.25 | 0.04 | 0.69 | 1.26 | 0.09 | 0.03 | 0.13 | 00E+00 | 0.00 | 33.43 |
| 5 | 13 | 85.60 | 0.00 | 0.00 | 0.00 | 5.02 | 4.59 | 0.28 | 0.25 | 0.04 | 0.69 | 1.26 | 0.09 | 0.03 | 0.12 | 00E+00 | 0.00 | 33.67 |
| 5 | 14 | 85.60 | 0.00 | 0.00 | 0.00 | 5.02 | 4.56 | 0.28 | 0.25 | 0.04 | 0.69 | 1.25 | 0.09 | 0.03 | 0.12 | 00E+00 | 0.00 | 33.90 |
| 5 | 15 | 85.60 | 0.00 | 0.00 | 0.00 | 5.02 | 4.52 | 0.27 | 0.25 | 0.04 | 0.69 | 1.25 | 0.09 | 0.03 | 0.12 | 00E+00 | 0.00 | 34.13 |
| 5 | 16 | 85.60 | 0.00 | 0.00 | 0.00 | 5.02 | 4.49 | 0.27 | 0.24 | 0.04 | 0.70 | 1.25 | 0.09 | 0.03 | 0.12 | 00E+00 | 0.00 | 34.35 |
| 5 | 17 | 85.60 | 0.00 | 0.00 | 0.00 | 5.02 | 4.46 | 0.27 | 0.25 | 0.04 | 0.70 | 1.26 | 0.09 | 0.03 | 0.12 | 00E+00 | 0.00 | 34.54 |
| 5 | 18 | 85.60 | 0.00 | 0.00 | 0.00 | 5.02 | 4.43 | 0.27 | 0.25 | 0.04 | 0.70 | 1.25 | 0.09 | 0.03 | 0.12 | 00E+00 | 0.00 | 34.77 |
| 5 | 19 | 85.60 | 0.00 | 0.00 | 0.00 | 5.02 | 4.40 | 0.27 | 0.24 | 0.04 | 0.70 | 1.25 | 0.09 | 0.03 | 0.12 | 00E+00 | 0.00 | 34.99 |
| 5 | 20 | 85.60 | 0.00 | 0.00 | 0.00 | 5.02 | 4.37 | 0.27 | 0.24 | 0.04 | 0.70 | 1.25 | 0.09 | 0.03 | 0.12 | 00E+00 | 0.00 | 35.20 |
| | 1 | 85.60 | 0.00 | 0.00 | 0.00 | 5.03 | 4.34 | 0.26 | 0.24 | 0.04 | 0.70 | 1.24 | 0.09 | 0.03 | 0.12 | 00E+00 | 0.00 | 35.46 |
| | 2 | 85.60 | 0.00 | 0.00 | 0.00 | 5.03 | 4.31 | 0.26 | 0.24 | 0.03 | 0.71 | 1.24 | 0.09 | 0.03 | 0.12 | 00E+00 | 0.00 | 35.72 |
| 6 | 3 | 85.60 | 0.00 | 0.00 | 0.00 | 5.04 | 4.29 | 0.26 | 0.24 | 0.03 | 0.71 | 1.24 | 0.09 | 0.03 | 0.12 | 00E+00 | 0.00 | 35.98 |
| 6 | 4 | 85.60 | 0.00 | 0.00 | 0.00 | 5.04 | 4.26 | 0.26 | 0.23 | 0.03 | 0.71 | 1.24 | 0.09 | 0.03 | 0.12 | 00E+00 | 0.00 | 36.24 |
| 6 | 5 | 85.60 | 0.00 | 0.00 | 0.00 | 5.05 | 4.23 | 0.26 | 0.23 | 0.03 | 0.71 | 1.23 | 0.09 | 0.03 | 0.12 | 00E+00 | 0.00 | 36.50 |
| 6 | 6 | 85.60 | 0.00 | 0.00 | 0.00 | 5.06 | 4.20 | 0.25 | 0.23 | 0.03 | 0.71 | 1.23 | 0.09 | 0.03 | 0.12 | 00E+00 | 0.00 | 36.76 |
| 6 | 7 | 85.60 | 0.00 | 0.00 | 0.00 | 5.07 | 4.17 | 0.25 | 0.23 | 0.03 | 0.71 | 1.23 | 0.09 | 0.03 | 0.12 | 00E+00 | 0.00 | 37.02 |
| 6 | 8 | 85.60 | 0.00 | 0.00 | 0.00 | 5.08 | 4.14 | 0.25 | 0.23 | 0.03 | 0.71 | 1.22 | 0.09 | 0.03 | 0.12 | 00E+00 | 0.00 | 37.27 |
| 6 | 9 | 85.60 | 0.00 | 0.00 | 0.00 | 5.09 | 4.11 | 0.25 | 0.22 | 0.03 | 0.72 | 1.22 | 0.09 | 0.03 | 0.12 | 00E+00 | 0.00 | 37.53 |
| 6 | 10 | 85.60 | 0.00 | 0.00 | 0.00 | 5.09 | 4.09 | 0.25 | 0.22 | 0.03 | 0.72 | 1.22 | 0.09 | 0.03 | 0.12 | 00E+00 | 0.00 | 37.78 |
| 6 | 11 | 85.60 | 0.00 | 0.00 | 0.00 | 5.10 | 4.06 | 0.24 | 0.22 | 0.03 | 0.72 | 1.22 | 0.09 | 0.03 | 0.12 | 00E+00 | 0.00 | 38.04 |
| 6 | 12 | 85.60 | 0.00 | 0.00 | 0.00 | 5.11 | 4.03 | 0.24 | 0.22 | 0.03 | 0.72 | 1.21 | 0.09 | 0.03 | 0.12 | 00E+00 | 0.00 | 38.29 |
| 6 | 13 | 85.60 | 0.00 | 0.00 | 0.00 | 5.12 | 4.00 | 0.24 | 0.22 | 0.03 | 0.72 | 1.21 | 0.09 | 0.03 | 0.12 | 00E+00 | 0.00 | 38.54 |
| 6 | 14 | 85.60 | 0.00 | 0.00 | 0.00 | 5.14 | 3.98 | 0.24 | 0.21 | 0.03 | 0.72 | 1.21 | 0.09 | 0.03 | 0.12 | 00E+00 | 0.00 | 38.80 |
| 6 | 15 | 85.60 | 0.00 | 0.00 | 0.00 | 5.15 | 3.95 | 0.24 | 0.21 | 0.03 | 0.72 | 1.20 | 0.09 | 0.03 | 0.12 | 00E+00 | 0.00 | 39.05 |
| 6 | 16 | 85.60 | 0.00 | 0.00 | 0.00 | 5.16 | 3.92 | 0.24 | 0.21 | 0.03 | 0.72 | 1.20 | 0.09 | 0.03 | 0.11 | 00E+00 | 0.00 | 39.30 |
| 6 | 17 | 85.60 | 0.00 | 0.00 | 0.00 | 5.17 | 3.90 | 0.23 | 0.21 | 0.03 | 0.72 | 1.20 | 0.09 | 0.03 | 0.11 | 00E+00 | 0.00 | 39.55 |
| 6 | 18 | 85.60 | 0.00 | 0.00 | 0.00 | 5.18 | 3.87 | 0.23 | 0.21 | 0.03 | 0.72 | 1.20 | 0.09 | 0.03 | 0.11 | 00E+00 | 0.00 | 39.80 |
| 6 | 19 | 85.60 | 0.00 | 0.00 | 0.00 | 5.19 | 3.84 | 0.23 | 0.21 | 0.03 | 0.73 | 1.19 | 0.09 | 0.03 | 0.11 | 00E+00 | 0.00 | 40.04 |
| 6 | 20 | 85.60 | 0.00 | 0.00 | 0.00 | 5.20 | 3.82 | 0.23 | 0.20 | 0.03 | 0.73 | 1.19 | 0.09 | 0.03 | 0.11 | 00E+00 | 0.00 | 40.29 |
| 7 | 1 | 85.60 | 0.00 | 0.00 | 0.00 | 5.23 | 3.79 | 0.23 | 0.20 | 0.03 | 0.73 | 1.19 | 0.09 | 0.03 | 0.11 | 00E+00 | 0.00 | 40.70 |
| 7 | 2 | 85.60 | 0.00 | 0.00 | 0.00 | 5.26 | 3.75 | 0.23 | 0.20 | 0.03 | 0.73 | 1.18 | 0.09 | 0.02 | 0.11 | 00E+00 | 0.00 | 41.22 |
| 7 | 3 | 85.60 | 0.00 | 0.00 | 0.00 | 5.29 | 3.71 | 0.22 | 0.20 | 0.03 | 0.73 | 1.18 | 0.09 | 0.02 | 0.11 | 00E+00 | 0.00 | 41.72 |
| 7 | 4 | 85.60 | 0.00 | 0.00 | 0.00 | 5.32 | 3.67 | 0.22 | 0.19 | 0.03 | 0.73 | 1.17 | 0.09 | 0.02 | 0.11 | 00E+00 | 0.00 | 42.22 |
| | 5 | 85.60 | 0.00 | 0.00 | 0.00 | 5.35 | 3.63 | 0.22 | 0.19 | 0.03 | 0.73 | 1.17 | 0.08 | 0.02 | 0.11 | 00E+00 | 0.00 | 42.72 |
| | 6 | 85.60 | 0.00 | 0.00 | 0.00 | 5.38 | 3.59 | 0.22 | 0.19 | 0.03 | 0.73 | 1.16 | 0.08 | 0.02 | 0.11 | 00E+00 | 0.00 | 43.21 |

***** STEADY STATE SIMULATION *****

** WATER QUALITY VARIABLES **

| RCH NUM | ELE NUM | TEMP DEG-F | CM-1 | CM-2 | CM-3 | DO MG/L | BOD MG/L | ORGN MG/L | NH3N MG/L | NO2N MG/L | NO3N MG/L | SUM-N MG/L | ORGP MG/L | DIS-P MG/L | SUM-P MG/L | COLI #/100ML | ANC BOD MG/L | CHLA UG/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 7 | 85.60 | 0.00 | 0.00 | 0.00 | 5.41 | 3.55 | 0.22 | 0.19 | 0.03 | 0.73 | 1.16 | 0.08 | 0.02 | 0.11 | 00E+00 | 0.00 | 43.69 |
| 7 | 8 | 85.60 | 0.00 | 0.00 | 0.00 | 5.44 | 3.52 | 0.21 | 0.18 | 0.03 | 0.73 | 1.15 | 0.08 | 0.02 | 0.11 | 00E+00 | 0.00 | 44.16 |
| 7 | 9 | 85.60 | 0.00 | 0.00 | 0.00 | 5.47 | 3.48 | 0.21 | 0.18 | 0.03 | 0.73 | 1.15 | 0.08 | 0.02 | 0.11 | 00E+00 | 0.00 | 44.63 |
| 7 | 10 | 85.60 | 0.00 | 0.00 | 0.00 | 5.49 | 3.44 | 0.21 | 0.18 | 0.03 | 0.73 | 1.14 | 0.08 | 0.02 | 0.10 | 00E+00 | 0.00 | 45.08 |
| 7 | 11 | 85.60 | 0.00 | 0.00 | 0.00 | 5.52 | 3.41 | 0.21 | 0.18 | 0.03 | 0.73 | 1.14 | 0.08 | 0.02 | 0.10 | 00E+00 | 0.00 | 45.53 |
| 7 | 12 | 85.60 | 0.00 | 0.00 | 0.00 | 5.55 | 3.37 | 0.21 | 0.17 | 0.03 | 0.72 | 1.13 | 0.08 | 0.02 | 0.10 | 00E+00 | 0.00 | 45.92 |
| 7 | 13 | 85.60 | 0.00 | 0.00 | 0.00 | 5.60 | 3.23 | 0.26 | 0.15 | 0.04 | 0.66 | 1.11 | 0.08 | 0.02 | 0.10 | 00E+00 | 0.00 | 39.00 |
| 7 | 14 | 85.60 | 0.00 | 0.00 | 0.00 | 5.62 | 3.20 | 0.26 | 0.15 | 0.04 | 0.67 | 1.11 | 0.08 | 0.02 | 0.10 | 00E+00 | 0.00 | 39.38 |
| 7 | 15 | 85.60 | 0.00 | 0.00 | 0.00 | 5.65 | 3.18 | 0.25 | 0.15 | 0.03 | 0.67 | 1.10 | 0.08 | 0.02 | 0.10 | 00E+00 | 0.00 | 39.75 |
| 7 | 16 | 85.60 | 0.00 | 0.00 | 0.00 | 5.67 | 3.15 | 0.25 | 0.15 | 0.03 | 0.67 | 1.10 | 0.08 | 0.02 | 0.10 | 00E+00 | 0.00 | 40.11 |
| 7 | 17 | 85.60 | 0.00 | 0.00 | 0.00 | 5.70 | 3.12 | 0.25 | 0.15 | 0.03 | 0.67 | 1.10 | 0.08 | 0.02 | 0.10 | 00E+00 | 0.00 | 40.48 |
| 7 | 18 | 85.60 | 0.00 | 0.00 | 0.00 | 5.72 | 3.10 | 0.25 | 0.15 | 0.03 | 0.67 | 1.09 | 0.08 | 0.02 | 0.10 | 00E+00 | 0.00 | 40.84 |
| 7 | 19 | 85.60 | 0.00 | 0.00 | 0.00 | 5.74 | 3.07 | 0.24 | 0.15 | 0.03 | 0.67 | 1.09 | 0.08 | 0.02 | 0.10 | 00E+00 | 0.00 | 41.20 |
| 7 | 20 | 85.60 | 0.00 | 0.00 | 0.00 | 5.77 | 3.04 | 0.24 | 0.15 | 0.03 | 0.67 | 1.08 | 0.08 | 0.02 | 0.10 | 00E+00 | 0.00 | 41.55 |
| 8 | 1 | 85.60 | 0.00 | 0.00 | 0.00 | 5.79 | 3.06 | 0.25 | 0.16 | 0.03 | 0.67 | 1.10 | 0.08 | 0.02 | 0.10 | 00E+00 | 0.00 | 41.90 |
| 8 | 2 | 85.60 | 0.00 | 0.00 | 0.00 | 5.82 | 3.03 | 0.25 | 0.15 | 0.03 | 0.67 | 1.09 | 0.08 | 0.02 | 0.10 | 00E+00 | 0.00 | 42.27 |
| | 3 | 85.60 | 0.00 | 0.00 | 0.00 | 5.85 | 3.00 | 0.24 | 0.15 | 0.02 | 0.67 | 1.09 | 0.08 | 0.02 | 0.10 | 00E+00 | 0.00 | 42.63 |
| | 4 | 85.60 | 0.00 | 0.00 | 0.00 | 5.87 | 2.98 | 0.24 | 0.15 | 0.02 | 0.67 | 1.09 | 0.08 | 0.02 | 0.10 | 00E+00 | 0.00 | 42.98 |
| 8 | 5 | 85.60 | 0.00 | 0.00 | 0.00 | 5.90 | 2.95 | 0.24 | 0.15 | 0.02 | 0.67 | 1.08 | 0.08 | 0.02 | 0.10 | 00E+00 | 0.00 | 43.34 |
| 8 | 6 | 85.60 | 0.00 | 0.00 | 0.00 | 5.92 | 2.93 | 0.24 | 0.15 | 0.02 | 0.66 | 1.08 | 0.08 | 0.02 | 0.10 | 00E+00 | 0.00 | 43.68 |
| 8 | 7 | 85.60 | 0.00 | 0.00 | 0.00 | 5.95 | 2.90 | 0.24 | 0.15 | 0.02 | 0.66 | 1.08 | 0.08 | 0.02 | 0.10 | 00E+00 | 0.00 | 44.02 |
| 8 | 8 | 85.60 | 0.00 | 0.00 | 0.00 | 5.97 | 2.88 | 0.23 | 0.15 | 0.02 | 0.66 | 1.07 | 0.08 | 0.02 | 0.10 | 00E+00 | 0.00 | 44.35 |

***** STEADY STATE SIMULATION *****

** ALGAE DATA **

| ELE ORD | RCH NUM | ELE NUM | CHLA UG/L | ALGY GRWTH 1/DAY | ALGY RESP 1/DAY | ALGY SETT FT/DA | A P/R RATIO * | NET P-R MG/L-D | NH3 PREF * | NH3-N FRACT N-UPTKE * | LIGHT EXTCO 1/FT | ALGAE GROWTH RATE ATTEN FACTORS LIGHT * | NITRGN * | PHSPRS * |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 8.58 | 0.44 | 0.08 | 1.01 | 5.01 | 0.36 | 0.50 | 0.12 | 0.66 | 0.20 | 0.70 | 0.80 |
| 2 | 1 | 2 | 8.76 | 0.44 | 0.08 | 1.01 | 5.03 | 0.37 | 0.50 | 0.12 | 0.66 | 0.20 | 0.70 | 0.80 |
| 3 | 1 | 3 | 8.94 | 0.44 | 0.08 | 1.01 | 5.05 | 0.38 | 0.50 | 0.13 | 0.67 | 0.20 | 0.71 | 0.80 |
| 4 | 1 | 4 | 9.13 | 0.44 | 0.08 | 1.01 | 5.06 | 0.39 | 0.50 | 0.14 | 0.67 | 0.20 | 0.71 | 0.79 |
| 5 | 1 | 5 | 9.33 | 0.44 | 0.08 | 1.01 | 5.07 | 0.40 | 0.50 | 0.14 | 0.67 | 0.20 | 0.72 | 0.79 |
| 6 | 1 | 6 | 9.53 | 0.44 | 0.08 | 1.01 | 5.07 | 0.41 | 0.50 | 0.15 | 0.67 | 0.20 | 0.72 | 0.79 |
| 7 | 1 | 7 | 9.73 | 0.44 | 0.08 | 1.01 | 5.07 | 0.41 | 0.50 | 0.15 | 0.67 | 0.20 | 0.73 | 0.79 |
| 8 | 1 | 8 | 9.94 | 0.44 | 0.08 | 1.01 | 5.07 | 0.42 | 0.50 | 0.16 | 0.67 | 0.20 | 0.73 | 0.79 |
| 9 | 1 | 9 | 10.15 | 0.44 | 0.08 | 1.01 | 5.07 | 0.43 | 0.50 | 0.16 | 0.67 | 0.20 | 0.73 | 0.79 |
| 10 | 1 | 10 | 10.37 | 0.44 | 0.08 | 1.01 | 5.06 | 0.44 | 0.50 | 0.17 | 0.68 | 0.20 | 0.73 | 0.79 |
| 11 | 1 | 11 | 10.58 | 0.44 | 0.08 | 1.01 | 5.05 | 0.45 | 0.50 | 0.17 | 0.68 | 0.19 | 0.74 | 0.78 |
| 12 | 1 | 12 | 10.81 | 0.44 | 0.08 | 1.01 | 5.04 | 0.46 | 0.50 | 0.17 | 0.68 | 0.19 | 0.74 | 0.78 |
| 13 | 1 | 13 | 11.04 | 0.44 | 0.08 | 1.01 | 5.03 | 0.46 | 0.50 | 0.18 | 0.68 | 0.19 | 0.74 | 0.78 |
| 14 | 1 | 14 | 11.27 | 0.44 | 0.08 | 1.01 | 5.01 | 0.47 | 0.50 | 0.18 | 0.68 | 0.19 | 0.74 | 0.78 |
| 15 | 1 | 15 | 11.50 | 0.44 | 0.08 | 1.01 | 5.00 | 0.48 | 0.50 | 0.19 | 0.69 | 0.19 | 0.74 | 0.78 |
| 16 | 1 | 16 | 11.74 | 0.43 | 0.08 | 1.01 | 4.98 | 0.49 | 0.50 | 0.19 | 0.69 | 0.19 | 0.74 | 0.77 |
| 17 | 1 | 17 | 11.98 | 0.43 | 0.08 | 1.01 | 4.96 | 0.50 | 0.50 | 0.19 | 0.69 | 0.19 | 0.74 | 0.77 |
| | 1 | 18 | 12.22 | 0.43 | 0.08 | 1.01 | 4.94 | 0.50 | 0.50 | 0.19 | 0.69 | 0.19 | 0.75 | 0.77 |
| | 1 | 19 | 12.47 | 0.43 | 0.08 | 1.01 | 4.92 | 0.51 | 0.50 | 0.20 | 0.69 | 0.19 | 0.75 | 0.77 |
| 20 | 1 | 20 | 12.70 | 0.43 | 0.08 | 1.01 | 4.95 | 0.52 | 0.50 | 0.21 | 0.69 | 0.19 | 0.75 | 0.77 |
| 21 | 2 | 1 | 11.98 | 0.36 | 0.08 | 1.01 | 4.17 | 0.40 | 0.50 | 0.45 | 1.02 | 0.13 | 0.81 | 0.88 |
| 22 | 2 | 2 | 12.15 | 0.36 | 0.08 | 1.01 | 4.16 | 0.40 | 0.50 | 0.45 | 1.02 | 0.13 | 0.81 | 0.88 |
| 23 | 2 | 3 | 12.31 | 0.36 | 0.08 | 1.01 | 4.16 | 0.41 | 0.50 | 0.44 | 1.02 | 0.13 | 0.81 | 0.88 |
| 24 | 2 | 4 | 12.48 | 0.36 | 0.08 | 1.01 | 4.15 | 0.41 | 0.50 | 0.44 | 1.02 | 0.13 | 0.81 | 0.88 |
| 25 | 2 | 5 | 12.65 | 0.36 | 0.08 | 1.01 | 4.15 | 0.42 | 0.50 | 0.44 | 1.02 | 0.13 | 0.81 | 0.88 |
| 26 | 2 | 6 | 12.82 | 0.36 | 0.08 | 1.01 | 4.14 | 0.42 | 0.50 | 0.44 | 1.03 | 0.13 | 0.81 | 0.88 |
| 27 | 2 | 7 | 13.00 | 0.36 | 0.08 | 1.01 | 4.14 | 0.43 | 0.50 | 0.44 | 1.03 | 0.13 | 0.81 | 0.88 |
| 28 | 2 | 8 | 13.17 | 0.36 | 0.08 | 1.01 | 4.13 | 0.43 | 0.50 | 0.43 | 1.03 | 0.13 | 0.81 | 0.88 |
| 29 | 2 | 9 | 13.35 | 0.36 | 0.08 | 1.01 | 4.13 | 0.44 | 0.50 | 0.43 | 1.03 | 0.13 | 0.81 | 0.88 |
| 30 | 2 | 10 | 13.53 | 0.36 | 0.08 | 1.01 | 4.12 | 0.44 | 0.50 | 0.43 | 1.03 | 0.13 | 0.81 | 0.88 |
| 31 | 2 | 11 | 13.71 | 0.36 | 0.08 | 1.01 | 4.12 | 0.45 | 0.50 | 0.42 | 1.03 | 0.13 | 0.82 | 0.88 |
| 32 | 2 | 12 | 13.90 | 0.36 | 0.08 | 1.01 | 4.11 | 0.45 | 0.50 | 0.42 | 1.03 | 0.13 | 0.82 | 0.88 |
| 33 | 2 | 13 | 14.08 | 0.36 | 0.08 | 1.01 | 4.11 | 0.46 | 0.50 | 0.42 | 1.03 | 0.13 | 0.82 | 0.88 |
| 34 | 2 | 14 | 14.27 | 0.36 | 0.08 | 1.01 | 4.10 | 0.46 | 0.50 | 0.42 | 1.04 | 0.13 | 0.82 | 0.88 |
| 35 | 2 | 15 | 14.46 | 0.36 | 0.08 | 1.01 | 4.10 | 0.47 | 0.50 | 0.41 | 1.04 | 0.13 | 0.82 | 0.88 |
| 36 | 2 | 16 | 14.65 | 0.36 | 0.08 | 1.01 | 4.09 | 0.47 | 0.50 | 0.41 | 1.04 | 0.13 | 0.82 | 0.87 |
| 37 | 2 | 17 | 14.85 | 0.36 | 0.08 | 1.01 | 4.08 | 0.48 | 0.50 | 0.41 | 1.04 | 0.13 | 0.82 | 0.87 |
| 38 | 2 | 18 | 15.04 | 0.36 | 0.08 | 1.01 | 4.08 | 0.48 | 0.50 | 0.40 | 1.04 | 0.13 | 0.82 | 0.87 |
| 39 | 2 | 19 | 15.24 | 0.35 | 0.08 | 1.01 | 4.07 | 0.49 | 0.50 | 0.40 | 1.04 | 0.13 | 0.82 | 0.87 |
| 40 | 2 | 20 | 15.44 | 0.35 | 0.08 | 1.01 | 4.07 | 0.49 | 0.50 | 0.40 | 1.04 | 0.13 | 0.82 | 0.87 |
| | 3 | 1 | 15.81 | 0.49 | 0.08 | 1.01 | 5.67 | 0.77 | 0.50 | 0.40 | 0.75 | 0.18 | 0.82 | 0.87 |
| 42 | 3 | 2 | 16.18 | 0.49 | 0.08 | 1.01 | 5.65 | 0.79 | 0.50 | 0.39 | 0.75 | 0.18 | 0.82 | 0.87 |

***** STEADY STATE SIMULATION *****

** ALGAE DATA **

| ELE ORD | RCH NUM | ELE NUM | CHLA UG/L | ALGY GRWTH 1/DAY | ALGY RESP 1/DAY | ALGY SETT FT/DA | A P/R RATIO * | NET P-R MG/L-D | NH3 PREF * | NH3-N FRACT N-UPTKE * | LIGHT EXTCO 1/FT | ALGAE GROWTH RATE ATTEN FACTORS LIGHT * | NITRGN * | PHSPRS * |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 43 | 3 | 3 | 16.56 | 0.49 | 0.08 | 1.01 | 5.62 | 0.80 | 0.50 | 0.39 | 0.75 | 0.18 | 0.82 | 0.87 |
| 44 | 3 | 4 | 16.95 | 0.49 | 0.08 | 1.01 | 5.60 | 0.81 | 0.50 | 0.39 | 0.75 | 0.17 | 0.82 | 0.87 |
| 45 | 3 | 5 | 17.34 | 0.49 | 0.08 | 1.01 | 5.57 | 0.83 | 0.50 | 0.38 | 0.76 | 0.17 | 0.82 | 0.87 |
| 46 | 3 | 6 | 17.74 | 0.48 | 0.08 | 1.01 | 5.55 | 0.84 | 0.50 | 0.38 | 0.76 | 0.17 | 0.82 | 0.87 |
| 47 | 3 | 7 | 18.14 | 0.48 | 0.08 | 1.01 | 5.52 | 0.86 | 0.50 | 0.38 | 0.76 | 0.17 | 0.82 | 0.86 |
| 48 | 3 | 8 | 18.55 | 0.48 | 0.08 | 1.01 | 5.49 | 0.87 | 0.50 | 0.38 | 0.77 | 0.17 | 0.82 | 0.86 |
| 49 | 3 | 9 | 18.97 | 0.48 | 0.08 | 1.01 | 5.47 | 0.89 | 0.50 | 0.37 | 0.77 | 0.17 | 0.82 | 0.86 |
| 50 | 3 | 10 | 19.39 | 0.47 | 0.08 | 1.01 | 5.44 | 0.90 | 0.50 | 0.37 | 0.77 | 0.17 | 0.82 | 0.86 |
| 51 | 3 | 11 | 19.82 | 0.47 | 0.08 | 1.01 | 5.41 | 0.91 | 0.50 | 0.37 | 0.77 | 0.17 | 0.82 | 0.86 |
| 52 | 3 | 12 | 20.25 | 0.47 | 0.08 | 1.01 | 5.38 | 0.93 | 0.50 | 0.37 | 0.78 | 0.17 | 0.82 | 0.86 |
| 53 | 3 | 13 | 20.69 | 0.47 | 0.08 | 1.01 | 5.35 | 0.94 | 0.50 | 0.36 | 0.78 | 0.17 | 0.82 | 0.86 |
| 54 | 3 | 14 | 21.14 | 0.46 | 0.08 | 1.01 | 5.33 | 0.96 | 0.50 | 0.36 | 0.78 | 0.17 | 0.82 | 0.86 |
| 55 | 3 | 15 | 21.59 | 0.46 | 0.08 | 1.01 | 5.30 | 0.97 | 0.50 | 0.36 | 0.79 | 0.17 | 0.82 | 0.85 |
| 56 | 3 | 16 | 22.04 | 0.46 | 0.08 | 1.01 | 5.27 | 0.98 | 0.50 | 0.35 | 0.79 | 0.17 | 0.82 | 0.85 |
| 57 | 3 | 17 | 22.50 | 0.46 | 0.08 | 1.01 | 5.24 | 1.00 | 0.50 | 0.35 | 0.79 | 0.17 | 0.82 | 0.85 |
| 58 | 3 | 18 | 22.97 | 0.45 | 0.08 | 1.01 | 5.21 | 1.01 | 0.50 | 0.35 | 0.80 | 0.17 | 0.82 | 0.85 |
| 59 | 3 | 19 | 23.44 | 0.45 | 0.08 | 1.01 | 5.17 | 1.02 | 0.50 | 0.35 | 0.80 | 0.17 | 0.82 | 0.85 |
|  | 3 | 20 | 23.91 | 0.45 | 0.08 | 1.01 | 5.14 | 1.04 | 0.50 | 0.34 | 0.80 | 0.16 | 0.82 | 0.85 |
| 61 | 4 | 1 | 24.23 | 0.35 | 0.08 | 1.01 | 4.00 | 0.76 | 0.50 | 0.34 | 0.92 | 0.13 | 0.82 | 0.84 |
| 62 | 4 | 2 | 24.55 | 0.35 | 0.08 | 1.01 | 3.98 | 0.76 | 0.50 | 0.34 | 0.93 | 0.13 | 0.82 | 0.84 |
| 63 | 4 | 3 | 24.87 | 0.35 | 0.08 | 1.01 | 3.97 | 0.77 | 0.50 | 0.34 | 0.93 | 0.13 | 0.82 | 0.84 |
| 64 | 4 | 4 | 25.17 | 0.34 | 0.08 | 1.01 | 3.95 | 0.78 | 0.50 | 0.33 | 0.93 | 0.13 | 0.82 | 0.84 |
| 65 | 4 | 5 | 25.50 | 0.34 | 0.08 | 1.01 | 3.93 | 0.78 | 0.50 | 0.33 | 0.93 | 0.13 | 0.82 | 0.84 |
| 66 | 4 | 6 | 25.82 | 0.34 | 0.08 | 1.01 | 3.92 | 0.79 | 0.50 | 0.33 | 0.93 | 0.13 | 0.82 | 0.84 |
| 67 | 4 | 7 | 26.15 | 0.34 | 0.08 | 1.01 | 3.90 | 0.79 | 0.50 | 0.33 | 0.94 | 0.13 | 0.82 | 0.83 |
| 68 | 4 | 8 | 26.48 | 0.34 | 0.08 | 1.01 | 3.88 | 0.80 | 0.50 | 0.32 | 0.94 | 0.13 | 0.82 | 0.83 |
| 69 | 4 | 9 | 26.81 | 0.34 | 0.08 | 1.01 | 3.87 | 0.80 | 0.50 | 0.32 | 0.94 | 0.13 | 0.82 | 0.83 |
| 70 | 4 | 10 | 27.15 | 0.34 | 0.08 | 1.01 | 3.85 | 0.81 | 0.50 | 0.32 | 0.94 | 0.13 | 0.82 | 0.83 |
| 71 | 4 | 11 | 27.48 | 0.33 | 0.08 | 1.01 | 3.83 | 0.81 | 0.50 | 0.32 | 0.94 | 0.13 | 0.82 | 0.83 |
| 72 | 4 | 12 | 27.81 | 0.33 | 0.08 | 1.01 | 3.81 | 0.82 | 0.50 | 0.31 | 0.95 | 0.12 | 0.82 | 0.82 |
| 73 | 4 | 13 | 28.15 | 0.33 | 0.08 | 1.01 | 3.79 | 0.82 | 0.50 | 0.31 | 0.95 | 0.12 | 0.82 | 0.82 |
| 74 | 4 | 14 | 28.48 | 0.33 | 0.08 | 1.01 | 3.77 | 0.83 | 0.50 | 0.31 | 0.95 | 0.12 | 0.82 | 0.82 |
| 75 | 4 | 15 | 28.82 | 0.33 | 0.08 | 1.01 | 3.76 | 0.83 | 0.50 | 0.31 | 0.95 | 0.12 | 0.82 | 0.82 |
| 76 | 4 | 16 | 29.15 | 0.33 | 0.08 | 1.01 | 3.74 | 0.83 | 0.50 | 0.31 | 0.96 | 0.12 | 0.82 | 0.81 |
| 77 | 4 | 17 | 29.49 | 0.32 | 0.08 | 1.01 | 3.72 | 0.84 | 0.50 | 0.30 | 0.96 | 0.12 | 0.82 | 0.81 |
| 78 | 4 | 18 | 29.82 | 0.32 | 0.08 | 1.01 | 3.70 | 0.84 | 0.50 | 0.30 | 0.96 | 0.12 | 0.82 | 0.81 |
| 79 | 4 | 19 | 30.15 | 0.32 | 0.08 | 1.01 | 3.68 | 0.84 | 0.50 | 0.30 | 0.96 | 0.12 | 0.82 | 0.81 |
| 80 | 4 | 20 | 30.49 | 0.32 | 0.08 | 1.01 | 3.66 | 0.85 | 0.50 | 0.30 | 0.96 | 0.12 | 0.82 | 0.80 |
| 81 | 5 | 1 | 30.72 | 0.25 | 0.08 | 1.01 | 2.87 | 0.60 | 0.50 | 0.29 | 1.01 | 0.10 | 0.82 | 0.80 |
|  | 5 | 2 | 30.98 | 0.25 | 0.08 | 1.01 | 2.86 | 0.60 | 0.50 | 0.29 | 1.02 | 0.10 | 0.82 | 0.80 |
|  | 5 | 3 | 31.23 | 0.25 | 0.08 | 1.01 | 2.84 | 0.60 | 0.50 | 0.29 | 1.02 | 0.10 | 0.82 | 0.80 |
| 84 | 5 | 4 | 31.48 | 0.25 | 0.08 | 1.01 | 2.83 | 0.60 | 0.50 | 0.29 | 1.02 | 0.10 | 0.82 | 0.79 |

***** STEADY STATE SIMULATION *****

** ALGAE DATA **

| ELE ORD | RCH NUM | ELE NUM | CHLA UG/L | ALGY GRWTH 1/DAY | ALGY RESP 1/DAY | ALGY SETT FT/DA | A P/R RATIO * | NET P-R MG/L-D | NH3 PREF * | NH3-N FRACT N-UPTKE * | LIGHT EXTCO 1/FT | ALGAE GROWTH RATE ATTEN FACTORS LIGHT * | NITRGN * | PHSPRS * |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 85 | 5 | 5 | 31.73 | 0.25 | 0.08 | 1.01 | 2.81 | 0.60 | 0.50 | 0.28 | 1.02 | 0.10 | 0.82 | 0.79 |
| 86 | 5 | 6 | 31.98 | 0.24 | 0.08 | 1.01 | 2.80 | 0.60 | 0.50 | 0.28 | 1.02 | 0.10 | 0.82 | 0.79 |
| 87 | 5 | 7 | 32.23 | 0.24 | 0.08 | 1.01 | 2.78 | 0.60 | 0.50 | 0.28 | 1.02 | 0.10 | 0.82 | 0.78 |
| 88 | 5 | 8 | 32.47 | 0.24 | 0.08 | 1.01 | 2.77 | 0.60 | 0.50 | 0.28 | 1.03 | 0.10 | 0.82 | 0.78 |
| 89 | 5 | 9 | 32.72 | 0.24 | 0.08 | 1.01 | 2.75 | 0.60 | 0.50 | 0.28 | 1.03 | 0.10 | 0.82 | 0.78 |
| 90 | 5 | 10 | 32.96 | 0.24 | 0.08 | 1.01 | 2.74 | 0.60 | 0.50 | 0.27 | 1.03 | 0.10 | 0.82 | 0.77 |
| 91 | 5 | 11 | 33.20 | 0.24 | 0.08 | 1.01 | 2.72 | 0.60 | 0.50 | 0.27 | 1.03 | 0.10 | 0.82 | 0.77 |
| 92 | 5 | 12 | 33.43 | 0.24 | 0.08 | 1.01 | 2.70 | 0.60 | 0.50 | 0.27 | 1.03 | 0.09 | 0.82 | 0.77 |
| 93 | 5 | 13 | 33.67 | 0.23 | 0.08 | 1.01 | 2.69 | 0.59 | 0.50 | 0.27 | 1.03 | 0.09 | 0.82 | 0.76 |
| 94 | 5 | 14 | 33.90 | 0.23 | 0.08 | 1.01 | 2.67 | 0.59 | 0.50 | 0.26 | 1.03 | 0.09 | 0.82 | 0.76 |
| 95 | 5 | 15 | 34.13 | 0.23 | 0.08 | 1.01 | 2.65 | 0.59 | 0.50 | 0.26 | 1.04 | 0.09 | 0.82 | 0.76 |
| 96 | 5 | 16 | 34.35 | 0.23 | 0.08 | 1.01 | 2.64 | 0.59 | 0.50 | 0.26 | 1.04 | 0.09 | 0.82 | 0.75 |
| 97 | 5 | 17 | 34.54 | 0.23 | 0.08 | 1.01 | 2.64 | 0.59 | 0.50 | 0.26 | 1.04 | 0.09 | 0.83 | 0.75 |
| 98 | 5 | 18 | 34.77 | 0.23 | 0.08 | 1.01 | 2.62 | 0.59 | 0.50 | 0.26 | 1.04 | 0.09 | 0.83 | 0.75 |
| 99 | 5 | 19 | 34.99 | 0.23 | 0.08 | 1.01 | 2.61 | 0.59 | 0.50 | 0.26 | 1.04 | 0.09 | 0.83 | 0.75 |
| 100 | 5 | 20 | 35.20 | 0.23 | 0.08 | 1.01 | 2.59 | 0.58 | 0.50 | 0.26 | 1.04 | 0.09 | 0.83 | 0.74 |
| | 6 | 1 | 35.46 | 0.24 | 0.08 | 1.01 | 2.74 | 0.64 | 0.50 | 0.25 | 0.98 | 0.10 | 0.83 | 0.74 |
| 102 | 6 | 2 | 35.72 | 0.24 | 0.08 | 1.01 | 2.73 | 0.65 | 0.50 | 0.25 | 0.99 | 0.10 | 0.83 | 0.74 |
| 103 | 6 | 3 | 35.98 | 0.24 | 0.08 | 1.01 | 2.72 | 0.65 | 0.50 | 0.25 | 0.99 | 0.10 | 0.83 | 0.74 |
| 104 | 6 | 4 | 36.24 | 0.24 | 0.08 | 1.01 | 2.72 | 0.65 | 0.50 | 0.25 | 0.99 | 0.10 | 0.83 | 0.74 |
| 105 | 6 | 5 | 36.50 | 0.24 | 0.08 | 1.01 | 2.71 | 0.65 | 0.50 | 0.25 | 0.99 | 0.10 | 0.82 | 0.74 |
| 106 | 6 | 6 | 36.76 | 0.24 | 0.08 | 1.01 | 2.70 | 0.65 | 0.50 | 0.24 | 0.99 | 0.10 | 0.82 | 0.74 |
| 107 | 6 | 7 | 37.02 | 0.23 | 0.08 | 1.01 | 2.69 | 0.65 | 0.50 | 0.24 | 0.99 | 0.10 | 0.82 | 0.74 |
| 108 | 6 | 8 | 37.27 | 0.23 | 0.08 | 1.01 | 2.68 | 0.66 | 0.50 | 0.24 | 0.99 | 0.10 | 0.82 | 0.73 |
| 109 | 6 | 9 | 37.53 | 0.23 | 0.08 | 1.01 | 2.68 | 0.66 | 0.50 | 0.24 | 1.00 | 0.10 | 0.82 | 0.73 |
| 110 | 6 | 10 | 37.78 | 0.23 | 0.08 | 1.01 | 2.67 | 0.66 | 0.50 | 0.24 | 1.00 | 0.10 | 0.82 | 0.73 |
| 111 | 6 | 11 | 38.04 | 0.23 | 0.08 | 1.01 | 2.66 | 0.66 | 0.50 | 0.23 | 1.00 | 0.10 | 0.82 | 0.73 |
| 112 | 6 | 12 | 38.29 | 0.23 | 0.08 | 1.01 | 2.65 | 0.66 | 0.50 | 0.23 | 1.00 | 0.10 | 0.82 | 0.73 |
| 113 | 6 | 13 | 38.54 | 0.23 | 0.08 | 1.01 | 2.64 | 0.66 | 0.50 | 0.23 | 1.00 | 0.10 | 0.82 | 0.73 |
| 114 | 6 | 14 | 38.80 | 0.23 | 0.08 | 1.01 | 2.63 | 0.66 | 0.50 | 0.23 | 1.00 | 0.10 | 0.82 | 0.73 |
| 115 | 6 | 15 | 39.05 | 0.23 | 0.08 | 1.01 | 2.62 | 0.66 | 0.50 | 0.23 | 1.01 | 0.10 | 0.82 | 0.73 |
| 116 | 6 | 16 | 39.30 | 0.23 | 0.08 | 1.01 | 2.62 | 0.66 | 0.50 | 0.23 | 1.01 | 0.10 | 0.82 | 0.73 |
| 117 | 6 | 17 | 39.55 | 0.23 | 0.08 | 1.01 | 2.61 | 0.66 | 0.50 | 0.22 | 1.01 | 0.10 | 0.82 | 0.72 |
| 118 | 6 | 18 | 39.80 | 0.23 | 0.08 | 1.01 | 2.60 | 0.66 | 0.50 | 0.22 | 1.01 | 0.10 | 0.82 | 0.72 |
| 119 | 6 | 19 | 40.04 | 0.23 | 0.08 | 1.01 | 2.59 | 0.66 | 0.50 | 0.22 | 1.01 | 0.10 | 0.82 | 0.72 |
| 120 | 6 | 20 | 40.29 | 0.22 | 0.08 | 1.01 | 2.58 | 0.66 | 0.50 | 0.22 | 1.01 | 0.10 | 0.82 | 0.72 |
| 121 | 7 | 1 | 40.70 | 0.24 | 0.08 | 1.01 | 2.71 | 0.73 | 0.50 | 0.22 | 0.81 | 0.10 | 0.82 | 0.72 |
| 122 | 7 | 2 | 41.22 | 0.23 | 0.08 | 1.01 | 2.68 | 0.72 | 0.50 | 0.22 | 0.81 | 0.10 | 0.82 | 0.71 |
| 123 | 7 | 3 | 41.72 | 0.23 | 0.08 | 1.01 | 2.66 | 0.72 | 0.50 | 0.21 | 0.81 | 0.10 | 0.82 | 0.71 |
| | 7 | 4 | 42.22 | 0.23 | 0.08 | 1.01 | 2.64 | 0.72 | 0.50 | 0.21 | 0.81 | 0.10 | 0.82 | 0.71 |
| - - | 7 | 5 | 42.72 | 0.23 | 0.08 | 1.01 | 2.61 | 0.72 | 0.50 | 0.21 | 0.82 | 0.10 | 0.82 | 0.70 |
| 126 | 7 | 6 | 43.21 | 0.23 | 0.08 | 1.01 | 2.59 | 0.72 | 0.50 | 0.21 | 0.82 | 0.10 | 0.82 | 0.70 |

***** STEADY STATE SIMULATION *****

** ALGAE DATA **

| ELE ORD | RCH NUM | ELE NUM | CHLA UG/L | ALGY GRWTH 1/DAY | ALGY RESP 1/DAY | ALGY SETT FT/DA | A P/R RATIO * | NET P-R MG/L-D | NH3 PREF * | NH3-N FRACT N-UPTKE * | LIGHT EXTCO 1/FT | ALGAE GROWTH RATE ATTEN FACTORS LIGHT * | NITRGN * | PHSPRS * |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 127 | 7 | 7 | 43.69 | 0.22 | 0.08 | 1.01 | 2.56 | 0.71 | 0.50 | 0.20 | 0.82 | 0.10 | 0.82 | 0.70 |
| 128 | 7 | 8 | 44.16 | 0.22 | 0.08 | 1.01 | 2.54 | 0.71 | 0.50 | 0.20 | 0.83 | 0.10 | 0.82 | 0.69 |
| 129 | 7 | 9 | 44.63 | 0.22 | 0.08 | 1.01 | 2.51 | 0.71 | 0.50 | 0.20 | 0.83 | 0.10 | 0.82 | 0.69 |
| 130 | 7 | 10 | 45.08 | 0.22 | 0.08 | 1.01 | 2.49 | 0.70 | 0.50 | 0.20 | 0.83 | 0.10 | 0.82 | 0.68 |
| 131 | 7 | 11 | 45.53 | 0.21 | 0.08 | 1.01 | 2.46 | 0.70 | 0.50 | 0.20 | 0.83 | 0.10 | 0.82 | 0.68 |
| 132 | 7 | 12 | 45.92 | 0.21 | 0.08 | 1.01 | 2.44 | 0.69 | 0.50 | 0.19 | 0.84 | 0.10 | 0.82 | 0.67 |
| 133 | 7 | 13 | 39.00 | 0.23 | 0.08 | 1.01 | 2.63 | 0.66 | 0.50 | 0.18 | 0.80 | 0.10 | 0.80 | 0.71 |
| 134 | 7 | 14 | 39.38 | 0.23 | 0.08 | 1.01 | 2.61 | 0.66 | 0.50 | 0.18 | 0.80 | 0.10 | 0.80 | 0.70 |
| 135 | 7 | 15 | 39.75 | 0.23 | 0.08 | 1.01 | 2.60 | 0.66 | 0.50 | 0.18 | 0.80 | 0.10 | 0.80 | 0.70 |
| 136 | 7 | 16 | 40.11 | 0.22 | 0.08 | 1.01 | 2.58 | 0.66 | 0.50 | 0.18 | 0.80 | 0.10 | 0.80 | 0.70 |
| 137 | 7 | 17 | 40.48 | 0.22 | 0.08 | 1.01 | 2.56 | 0.66 | 0.50 | 0.18 | 0.80 | 0.10 | 0.80 | 0.70 |
| 138 | 7 | 18 | 40.84 | 0.22 | 0.08 | 1.01 | 2.54 | 0.66 | 0.50 | 0.18 | 0.81 | 0.10 | 0.80 | 0.69 |
| 139 | 7 | 19 | 41.20 | 0.22 | 0.08 | 1.01 | 2.53 | 0.66 | 0.50 | 0.18 | 0.81 | 0.10 | 0.80 | 0.69 |
| 140 | 7 | 20 | 41.55 | 0.22 | 0.08 | 1.01 | 2.51 | 0.65 | 0.50 | 0.18 | 0.81 | 0.10 | 0.80 | 0.69 |
| 141 | 8 | 1 | 41.90 | 0.22 | 0.08 | 1.01 | 2.56 | 0.68 | 0.50 | 0.19 | 0.81 | 0.10 | 0.80 | 0.70 |
| [illegible] | 8 | 2 | 42.27 | 0.22 | 0.08 | 1.01 | 2.54 | 0.68 | 0.50 | 0.19 | 0.81 | 0.10 | 0.80 | 0.70 |
| [illegible] | 8 | 3 | 42.63 | 0.22 | 0.08 | 1.01 | 2.52 | 0.68 | 0.50 | 0.19 | 0.82 | 0.10 | 0.80 | 0.70 |
| 144 | 8 | 4 | 42.98 | 0.22 | 0.08 | 1.01 | 2.50 | 0.68 | 0.50 | 0.19 | 0.82 | 0.10 | 0.80 | 0.69 |
| 145 | 8 | 5 | 43.34 | 0.22 | 0.08 | 1.01 | 2.48 | 0.67 | 0.50 | 0.19 | 0.82 | 0.10 | 0.80 | 0.69 |
| 146 | 8 | 6 | 43.68 | 0.21 | 0.08 | 1.01 | 2.46 | 0.67 | 0.50 | 0.19 | 0.82 | 0.10 | 0.80 | 0.69 |
| 147 | 8 | 7 | 44.02 | 0.21 | 0.08 | 1.01 | 2.44 | 0.66 | 0.50 | 0.19 | 0.82 | 0.10 | 0.80 | 0.68 |
| 148 | 8 | 8 | 44.35 | 0.21 | 0.08 | 1.01 | 2.42 | 0.66 | 0.50 | 0.19 | 0.83 | 0.10 | 0.80 | 0.68 |

***** STEADY STATE SIMULATION *****

** DISSOLVED OXYGEN DATA **

| ELE ORD | RCH NUM | ELE NUM | TEMP DEG-F | DO SAT MG/L | DO MG/L | DO DEF MG/L | DAM INPUT MG/L | NIT INHIB FACT | COMPONENTS OF DISSOLVED OXYGEN MASS BALANCE (MG/L-DAY) F-FNCTN INPUT | OXYGN REAIR | C-BOD | SOD | NET P-R | NH3-N | NO2-N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 85.60 | 7.59 | 6.21 | 1.38 | 0.00 | 1.00 | 77.71 | 0.31 | -0.29 | -0.32 | 0.36 | -0.04 | -0.16 |
| 2 | 1 | 2 | 85.60 | 7.59 | 6.20 | 1.39 | 0.00 | 1.00 | 0.01 | 0.31 | -0.29 | -0.32 | 0.37 | -0.04 | -0.14 |
| 3 | 1 | 3 | 85.60 | 7.59 | 6.19 | 1.40 | 0.00 | 1.00 | 0.01 | 0.31 | -0.29 | -0.32 | 0.38 | -0.05 | -0.13 |
| 4 | 1 | 4 | 85.60 | 7.59 | 6.18 | 1.41 | 0.00 | 1.00 | 0.01 | 0.32 | -0.29 | -0.32 | 0.39 | -0.05 | -0.12 |
| 5 | 1 | 5 | 85.60 | 7.59 | 6.18 | 1.41 | 0.00 | 1.00 | 0.01 | 0.32 | -0.28 | -0.32 | 0.40 | -0.05 | -0.11 |
| 6 | 1 | 6 | 85.60 | 7.59 | 6.17 | 1.41 | 0.00 | 1.00 | 0.01 | 0.32 | -0.28 | -0.32 | 0.41 | -0.06 | -0.10 |
| 7 | 1 | 7 | 85.60 | 7.59 | 6.17 | 1.42 | 0.00 | 1.00 | 0.01 | 0.32 | -0.28 | -0.32 | 0.41 | -0.06 | -0.09 |
| 8 | 1 | 8 | 85.60 | 7.59 | 6.17 | 1.42 | 0.00 | 1.00 | 0.01 | 0.32 | -0.28 | -0.32 | 0.42 | -0.06 | -0.08 |
| 9 | 1 | 9 | 85.60 | 7.59 | 6.17 | 1.42 | 0.00 | 1.00 | 0.01 | 0.32 | -0.28 | -0.32 | 0.43 | -0.07 | -0.07 |
| 10 | 1 | 10 | 85.60 | 7.59 | 6.17 | 1.42 | 0.00 | 1.00 | 0.01 | 0.32 | -0.28 | -0.32 | 0.44 | -0.07 | -0.07 |
| 11 | 1 | 11 | 85.60 | 7.59 | 6.17 | 1.41 | 0.00 | 1.00 | 0.01 | 0.32 | -0.27 | -0.32 | 0.45 | -0.07 | -0.06 |
| 12 | 1 | 12 | 85.60 | 7.59 | 6.18 | 1.41 | 0.00 | 1.00 | 0.01 | 0.32 | -0.27 | -0.32 | 0.46 | -0.07 | -0.06 |
| 13 | 1 | 13 | 85.60 | 7.59 | 6.18 | 1.41 | 0.00 | 1.00 | 0.01 | 0.32 | -0.27 | -0.32 | 0.46 | -0.08 | -0.06 |
| 14 | 1 | 14 | 85.60 | 7.59 | 6.18 | 1.40 | 0.00 | 1.00 | 0.01 | 0.32 | -0.27 | -0.32 | 0.47 | -0.08 | -0.05 |
| 15 | 1 | 15 | 85.60 | 7.59 | 6.19 | 1.40 | 0.00 | 1.00 | 0.01 | 0.31 | -0.27 | -0.32 | 0.48 | -0.08 | -0.05 |
| 16 | 1 | 16 | 85.60 | 7.59 | 6.20 | 1.39 | 0.00 | 1.00 | 0.01 | 0.31 | -0.27 | -0.32 | 0.49 | -0.08 | -0.05 |
| 17 | 1 | 17 | 85.60 | 7.59 | 6.20 | 1.39 | 0.00 | 1.00 | 0.01 | 0.31 | -0.26 | -0.32 | 0.50 | -0.08 | -0.04 |
| | 1 | 18 | 85.60 | 7.59 | 6.21 | 1.38 | 0.00 | 1.00 | 0.01 | 0.31 | -0.26 | -0.32 | 0.50 | -0.09 | -0.04 |
| | 1 | 19 | 85.60 | 7.59 | 6.22 | 1.37 | 0.00 | 1.00 | 0.01 | 0.31 | -0.26 | -0.32 | 0.51 | -0.09 | -0.04 |
| 20 | 1 | 20 | 85.60 | 7.59 | 6.22 | 1.37 | 0.00 | 1.00 | 0.01 | 0.31 | -0.27 | -0.32 | 0.52 | -0.09 | -0.04 |
| 21 | 2 | 1 | 85.60 | 7.59 | 5.95 | 1.64 | 0.00 | 1.00 | 3.65 | 0.37 | -0.99 | -0.32 | 0.40 | -0.29 | -0.06 |
| 22 | 2 | 2 | 85.60 | 7.59 | 5.88 | 1.70 | 0.00 | 1.00 | 0.01 | 0.40 | -0.98 | -0.32 | 0.40 | -0.29 | -0.06 |
| 23 | 2 | 3 | 85.60 | 7.59 | 5.82 | 1.77 | 0.00 | 1.00 | 0.01 | 0.41 | -0.97 | -0.32 | 0.41 | -0.29 | -0.06 |
| 24 | 2 | 4 | 85.60 | 7.59 | 5.76 | 1.83 | 0.00 | 1.00 | 0.01 | 0.42 | -0.96 | -0.32 | 0.41 | -0.29 | -0.07 |
| 25 | 2 | 5 | 85.60 | 7.59 | 5.70 | 1.88 | 0.00 | 1.00 | 0.01 | 0.44 | -0.95 | -0.32 | 0.42 | -0.29 | -0.07 |
| 26 | 2 | 6 | 85.60 | 7.59 | 5.65 | 1.94 | 0.00 | 1.00 | 0.01 | 0.45 | -0.94 | -0.32 | 0.42 | -0.28 | -0.07 |
| 27 | 2 | 7 | 85.60 | 7.59 | 5.59 | 2.00 | 0.00 | 1.00 | 0.01 | 0.46 | -0.94 | -0.32 | 0.43 | -0.28 | -0.07 |
| 28 | 2 | 8 | 85.60 | 7.59 | 5.54 | 2.05 | 0.00 | 1.00 | 0.01 | 0.47 | -0.93 | -0.32 | 0.43 | -0.28 | -0.08 |
| 29 | 2 | 9 | 85.60 | 7.59 | 5.49 | 2.10 | 0.00 | 1.00 | 0.01 | 0.49 | -0.92 | -0.32 | 0.44 | -0.28 | -0.08 |
| 30 | 2 | 10 | 85.60 | 7.59 | 5.44 | 2.15 | 0.00 | 1.00 | 0.01 | 0.50 | -0.91 | -0.32 | 0.44 | -0.28 | -0.08 |
| 31 | 2 | 11 | 85.60 | 7.59 | 5.39 | 2.20 | 0.00 | 1.00 | 0.01 | 0.51 | -0.90 | -0.32 | 0.45 | -0.28 | -0.08 |
| 32 | 2 | 12 | 85.60 | 7.59 | 5.35 | 2.24 | 0.00 | 1.00 | 0.01 | 0.52 | -0.90 | -0.32 | 0.45 | -0.28 | -0.08 |
| 33 | 2 | 13 | 85.60 | 7.59 | 5.30 | 2.29 | 0.00 | 1.00 | 0.01 | 0.53 | -0.89 | -0.32 | 0.46 | -0.28 | -0.08 |
| 34 | 2 | 14 | 85.60 | 7.59 | 5.26 | 2.33 | 0.00 | 1.00 | 0.01 | 0.54 | -0.88 | -0.32 | 0.46 | -0.28 | -0.08 |
| 35 | 2 | 15 | 85.60 | 7.59 | 5.22 | 2.37 | 0.00 | 1.00 | 0.01 | 0.55 | -0.87 | -0.32 | 0.47 | -0.28 | -0.09 |
| 36 | 2 | 16 | 85.60 | 7.59 | 5.18 | 2.41 | 0.00 | 1.00 | 0.01 | 0.56 | -0.86 | -0.32 | 0.47 | -0.28 | -0.09 |
| 37 | 2 | 17 | 85.60 | 7.59 | 5.14 | 2.44 | 0.00 | 1.00 | 0.01 | 0.57 | -0.86 | -0.32 | 0.48 | -0.27 | -0.09 |
| 38 | 2 | 18 | 85.60 | 7.59 | 5.11 | 2.48 | 0.00 | 1.00 | 0.01 | 0.58 | -0.85 | -0.32 | 0.48 | -0.27 | -0.09 |
| 39 | 2 | 19 | 85.60 | 7.59 | 5.07 | 2.51 | 0.00 | 1.00 | 0.01 | 0.58 | -0.84 | -0.32 | 0.49 | -0.27 | -0.09 |
| 40 | 2 | 20 | 85.60 | 7.59 | 5.04 | 2.55 | 0.00 | 1.00 | 0.01 | 0.59 | -0.83 | -0.32 | 0.49 | -0.27 | -0.09 |
| | 3 | 1 | 85.60 | 7.59 | 5.03 | 2.56 | 0.00 | 1.00 | 0.01 | 0.59 | -0.83 | -0.32 | 0.77 | -0.27 | -0.09 |
| 42 | 3 | 2 | 85.60 | 7.59 | 5.02 | 2.57 | 0.00 | 1.00 | 0.01 | 0.60 | -0.82 | -0.32 | 0.79 | -0.27 | -0.09 |

***** STEADY STATE SIMULATION *****

** DISSOLVED OXYGEN DATA **

| ELE ORD | RCH NUM | ELE NUM | TEMP DEG-F | DO SAT MG/L | DO MG/L | DO DEF MG/L | DAM INPUT MG/L | NIT INHIB FACT | COMPONENTS OF DISSOLVED OXYGEN MASS BALANCE (MG/L-DAY) F-FNCTN INPUT | OXYGN REAIR | C-BOD | SOD | NET P-R | NH3-N | NO2-N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 43 | 3 | 3 | 85.60 | 7.59 | 5.01 | 2.57 | 0.00 | 1.00 | 0.01 | 0.60 | -0.81 | -0.32 | 0.80 | -0.27 | -0.09 |
| 44 | 3 | 4 | 85.60 | 7.59 | 5.01 | 2.58 | 0.00 | 1.00 | 0.01 | 0.60 | -0.81 | -0.32 | 0.81 | -0.27 | -0.09 |
| 45 | 3 | 5 | 85.60 | 7.59 | 5.00 | 2.58 | 0.00 | 1.00 | 0.01 | 0.60 | -0.80 | -0.32 | 0.83 | -0.26 | -0.09 |
| 46 | 3 | 6 | 85.60 | 7.59 | 5.00 | 2.59 | 0.00 | 1.00 | 0.01 | 0.60 | -0.79 | -0.32 | 0.84 | -0.26 | -0.09 |
| 47 | 3 | 7 | 85.60 | 7.59 | 5.00 | 2.59 | 0.00 | 1.00 | 0.01 | 0.60 | -0.79 | -0.32 | 0.86 | -0.26 | -0.09 |
| 48 | 3 | 8 | 85.60 | 7.59 | 5.00 | 2.58 | 0.00 | 1.00 | 0.01 | 0.60 | -0.78 | -0.32 | 0.87 | -0.26 | -0.09 |
| 49 | 3 | 9 | 85.60 | 7.59 | 5.01 | 2.58 | 0.00 | 1.00 | 0.01 | 0.60 | -0.77 | -0.32 | 0.89 | -0.26 | -0.09 |
| 50 | 3 | 10 | 85.60 | 7.59 | 5.01 | 2.58 | 0.00 | 1.00 | 0.01 | 0.60 | -0.76 | -0.32 | 0.90 | -0.26 | -0.09 |
| 51 | 3 | 11 | 85.60 | 7.59 | 5.02 | 2.57 | 0.00 | 1.00 | 0.01 | 0.60 | -0.76 | -0.32 | 0.91 | -0.25 | -0.09 |
| 52 | 3 | 12 | 85.60 | 7.59 | 5.02 | 2.56 | 0.00 | 1.00 | 0.01 | 0.59 | -0.75 | -0.32 | 0.93 | -0.25 | -0.09 |
| 53 | 3 | 13 | 85.60 | 7.59 | 5.03 | 2.55 | 0.00 | 1.00 | 0.01 | 0.59 | -0.75 | -0.32 | 0.94 | -0.25 | -0.09 |
| 54 | 3 | 14 | 85.60 | 7.59 | 5.04 | 2.54 | 0.00 | 1.00 | 0.01 | 0.59 | -0.74 | -0.32 | 0.96 | -0.25 | -0.09 |
| 55 | 3 | 15 | 85.60 | 7.59 | 5.06 | 2.53 | 0.00 | 1.00 | 0.01 | 0.59 | -0.73 | -0.32 | 0.97 | -0.25 | -0.09 |
| 56 | 3 | 16 | 85.60 | 7.59 | 5.07 | 2.52 | 0.00 | 1.00 | 0.01 | 0.58 | -0.73 | -0.32 | 0.98 | -0.25 | -0.09 |
| 57 | 3 | 17 | 85.60 | 7.59 | 5.08 | 2.50 | 0.00 | 1.00 | 0.01 | 0.58 | -0.72 | -0.32 | 1.00 | -0.24 | -0.08 |
| 58 | 3 | 18 | 85.60 | 7.59 | 5.10 | 2.49 | 0.00 | 1.00 | 0.01 | 0.58 | -0.71 | -0.32 | 1.01 | -0.24 | -0.08 |
| 59 | 3 | 19 | 85.60 | 7.59 | 5.12 | 2.47 | 0.00 | 1.00 | 0.01 | 0.57 | -0.71 | -0.32 | 1.02 | -0.24 | -0.08 |
| | 3 | 20 | 85.60 | 7.59 | 5.14 | 2.45 | 0.00 | 1.00 | 0.01 | 0.57 | -0.70 | -0.32 | 1.04 | -0.24 | -0.08 |
| 61 | 4 | 1 | 85.60 | 7.59 | 5.13 | 2.46 | 0.00 | 1.00 | 0.01 | 0.53 | -0.69 | -0.39 | 0.76 | -0.24 | -0.08 |
| 62 | 4 | 2 | 85.60 | 7.59 | 5.11 | 2.47 | 0.00 | 1.00 | 0.01 | 0.49 | -0.69 | -0.39 | 0.76 | -0.24 | -0.08 |
| 63 | 4 | 3 | 85.60 | 7.59 | 5.10 | 2.49 | 0.00 | 1.00 | 0.01 | 0.49 | -0.68 | -0.39 | 0.77 | -0.23 | -0.08 |
| 64 | 4 | 4 | 85.60 | 7.59 | 5.09 | 2.50 | 0.00 | 1.00 | 0.09 | 0.49 | -0.68 | -0.39 | 0.78 | -0.23 | -0.08 |
| 65 | 4 | 5 | 85.60 | 7.59 | 5.08 | 2.50 | 0.00 | 1.00 | 0.01 | 0.49 | -0.67 | -0.39 | 0.78 | -0.23 | -0.08 |
| 66 | 4 | 6 | 85.60 | 7.59 | 5.07 | 2.51 | 0.00 | 1.00 | 0.01 | 0.50 | -0.67 | -0.39 | 0.79 | -0.23 | -0.08 |
| 67 | 4 | 7 | 85.60 | 7.59 | 5.07 | 2.52 | 0.00 | 1.00 | 0.01 | 0.50 | -0.66 | -0.39 | 0.79 | -0.23 | -0.08 |
| 68 | 4 | 8 | 85.60 | 7.59 | 5.06 | 2.53 | 0.00 | 1.00 | 0.01 | 0.50 | -0.65 | -0.39 | 0.80 | -0.23 | -0.08 |
| 69 | 4 | 9 | 85.60 | 7.59 | 5.06 | 2.53 | 0.00 | 1.00 | 0.01 | 0.50 | -0.65 | -0.39 | 0.80 | -0.22 | -0.08 |
| 70 | 4 | 10 | 85.60 | 7.59 | 5.05 | 2.53 | 0.00 | 1.00 | 0.01 | 0.50 | -0.64 | -0.39 | 0.81 | -0.22 | -0.08 |
| 71 | 4 | 11 | 85.60 | 7.59 | 5.05 | 2.54 | 0.00 | 1.00 | 0.01 | 0.50 | -0.64 | -0.39 | 0.81 | -0.22 | -0.08 |
| 72 | 4 | 12 | 85.60 | 7.59 | 5.05 | 2.54 | 0.00 | 1.00 | 0.01 | 0.50 | -0.63 | -0.39 | 0.82 | -0.22 | -0.08 |
| 73 | 4 | 13 | 85.60 | 7.59 | 5.05 | 2.54 | 0.00 | 1.00 | 0.01 | 0.50 | -0.63 | -0.39 | 0.82 | -0.22 | -0.08 |
| 74 | 4 | 14 | 85.60 | 7.59 | 5.05 | 2.54 | 0.00 | 1.00 | 0.01 | 0.50 | -0.62 | -0.39 | 0.83 | -0.22 | -0.08 |
| 75 | 4 | 15 | 85.60 | 7.59 | 5.05 | 2.54 | 0.00 | 1.00 | 0.01 | 0.50 | -0.62 | -0.39 | 0.83 | -0.22 | -0.08 |
| 76 | 4 | 16 | 85.60 | 7.59 | 5.05 | 2.54 | 0.00 | 1.00 | 0.01 | 0.50 | -0.61 | -0.39 | 0.83 | -0.21 | -0.08 |
| 77 | 4 | 17 | 85.60 | 7.59 | 5.05 | 2.54 | 0.00 | 1.00 | 0.01 | 0.50 | -0.60 | -0.39 | 0.84 | -0.21 | -0.07 |
| 78 | 4 | 18 | 85.60 | 7.59 | 5.05 | 2.53 | 0.00 | 1.00 | 0.02 | 0.50 | -0.60 | -0.39 | 0.84 | -0.21 | -0.07 |
| 79 | 4 | 19 | 85.60 | 7.59 | 5.06 | 2.53 | 0.00 | 1.00 | 0.01 | 0.50 | -0.59 | -0.39 | 0.84 | -0.21 | -0.07 |
| 80 | 4 | 20 | 85.60 | 7.59 | 5.06 | 2.53 | 0.00 | 1.00 | 0.01 | 0.50 | -0.59 | -0.39 | 0.85 | -0.21 | -0.07 |
| 81 | 5 | 1 | 85.60 | 7.59 | 5.06 | 2.53 | 0.00 | 1.00 | 0.01 | 0.42 | -0.39 | -0.33 | 0.60 | -0.21 | -0.07 |
| | 5 | 2 | 85.60 | 7.59 | 5.06 | 2.53 | 0.00 | 1.00 | 0.01 | 0.35 | -0.39 | -0.33 | 0.60 | -0.20 | -0.07 |
| | 5 | 3 | 85.60 | 7.59 | 5.05 | 2.54 | 0.00 | 1.00 | 0.01 | 0.35 | -0.38 | -0.33 | 0.60 | -0.20 | -0.07 |
| 84 | 5 | 4 | 85.60 | 7.59 | 5.05 | 2.54 | 0.00 | 1.00 | 0.01 | 0.35 | -0.38 | -0.33 | 0.60 | -0.20 | -0.07 |

***** STEADY STATE SIMULATION *****

** DISSOLVED OXYGEN DATA **

| ELE ORD | RCH NUM | ELE NUM | TEMP DEG-F | DO SAT MG/L | DO MG/L | DO DEF MG/L | DAM INPUT MG/L | NIT INHIB FACT | COMPONENTS OF DISSOLVED OXYGEN MASS BALANCE (MG/L-DAY) F-FNCTN INPUT | OXYGN REAIR | C-BOD | SOD | NET P-R | NH3-N | NO2-N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 85 | 5 | 5 | 85.60 | 7.59 | 5.04 | 2.55 | 0.00 | 1.00 | 0.01 | 0.35 | -0.38 | -0.33 | 0.60 | -0.20 | -0.07 |
| 86 | 5 | 6 | 85.60 | 7.59 | 5.04 | 2.55 | 0.00 | 1.00 | 0.01 | 0.35 | -0.38 | -0.33 | 0.60 | -0.20 | -0.07 |
| 87 | 5 | 7 | 85.60 | 7.59 | 5.03 | 2.55 | 0.00 | 1.00 | 0.01 | 0.35 | -0.37 | -0.33 | 0.60 | -0.20 | -0.07 |
| 88 | 5 | 8 | 85.60 | 7.59 | 5.03 | 2.56 | 0.00 | 1.00 | 0.01 | 0.35 | -0.37 | -0.33 | 0.60 | -0.19 | -0.07 |
| 89 | 5 | 9 | 85.60 | 7.59 | 5.03 | 2.56 | 0.00 | 1.00 | 0.01 | 0.35 | -0.37 | -0.33 | 0.60 | -0.19 | -0.07 |
| 90 | 5 | 10 | 85.60 | 7.59 | 5.03 | 2.56 | 0.00 | 1.00 | 0.01 | 0.35 | -0.37 | -0.33 | 0.60 | -0.19 | -0.07 |
| 91 | 5 | 11 | 85.60 | 7.59 | 5.02 | 2.56 | 0.00 | 1.00 | 0.01 | 0.35 | -0.36 | -0.33 | 0.60 | -0.19 | -0.07 |
| 92 | 5 | 12 | 85.60 | 7.59 | 5.02 | 2.56 | 0.00 | 1.00 | 0.01 | 0.35 | -0.36 | -0.33 | 0.60 | -0.19 | -0.07 |
| 93 | 5 | 13 | 85.60 | 7.59 | 5.02 | 2.57 | 0.00 | 1.00 | 0.01 | 0.35 | -0.36 | -0.33 | 0.59 | -0.19 | -0.07 |
| 94 | 5 | 14 | 85.60 | 7.59 | 5.02 | 2.57 | 0.00 | 1.00 | 0.01 | 0.35 | -0.36 | -0.33 | 0.59 | -0.19 | -0.07 |
| 95 | 5 | 15 | 85.60 | 7.59 | 5.02 | 2.57 | 0.00 | 1.00 | 0.01 | 0.35 | -0.35 | -0.33 | 0.59 | -0.18 | -0.07 |
| 96 | 5 | 16 | 85.60 | 7.59 | 5.02 | 2.57 | 0.00 | 1.00 | 0.01 | 0.35 | -0.35 | -0.33 | 0.59 | -0.18 | -0.06 |
| 97 | 5 | 17 | 85.60 | 7.59 | 5.02 | 2.57 | 0.00 | 1.00 | 0.08 | 0.35 | -0.35 | -0.33 | 0.59 | -0.19 | -0.06 |
| 98 | 5 | 18 | 85.60 | 7.59 | 5.02 | 2.57 | 0.00 | 1.00 | 0.01 | 0.35 | -0.35 | -0.33 | 0.59 | -0.18 | -0.06 |
| 99 | 5 | 19 | 85.60 | 7.59 | 5.02 | 2.57 | 0.00 | 1.00 | 0.01 | 0.35 | -0.35 | -0.33 | 0.59 | -0.18 | -0.06 |
| 100 | 5 | 20 | 85.60 | 7.59 | 5.02 | 2.57 | 0.00 | 1.00 | 0.01 | 0.35 | -0.34 | -0.33 | 0.58 | -0.18 | -0.06 |
| [illegible] | 6 | 1 | 85.60 | 7.59 | 5.03 | 2.56 | 0.00 | 1.00 | 0.01 | 0.35 | -0.34 | -0.33 | 0.64 | -0.18 | -0.06 |
| 102 | 6 | 2 | 85.60 | 7.59 | 5.03 | 2.56 | 0.00 | 1.00 | 0.01 | 0.35 | -0.34 | -0.33 | 0.65 | -0.18 | -0.06 |
| 103 | 6 | 3 | 85.60 | 7.59 | 5.04 | 2.55 | 0.00 | 1.00 | 0.01 | 0.35 | -0.34 | -0.33 | 0.65 | -0.18 | -0.06 |
| 104 | 6 | 4 | 85.60 | 7.59 | 5.04 | 2.54 | 0.00 | 1.00 | 0.01 | 0.35 | -0.33 | -0.33 | 0.65 | -0.17 | -0.06 |
| 105 | 6 | 5 | 85.60 | 7.59 | 5.05 | 2.54 | 0.00 | 1.00 | 0.01 | 0.35 | -0.33 | -0.33 | 0.65 | -0.17 | -0.06 |
| 106 | 6 | 6 | 85.60 | 7.59 | 5.06 | 2.53 | 0.00 | 1.00 | 0.01 | 0.35 | -0.33 | -0.33 | 0.65 | -0.17 | -0.06 |
| 107 | 6 | 7 | 85.60 | 7.59 | 5.07 | 2.52 | 0.00 | 1.00 | 0.01 | 0.35 | -0.33 | -0.33 | 0.65 | -0.17 | -0.06 |
| 108 | 6 | 8 | 85.60 | 7.59 | 5.08 | 2.51 | 0.00 | 1.00 | 0.01 | 0.35 | -0.32 | -0.33 | 0.66 | -0.17 | -0.06 |
| 109 | 6 | 9 | 85.60 | 7.59 | 5.09 | 2.50 | 0.00 | 1.00 | 0.01 | 0.34 | -0.32 | -0.33 | 0.66 | -0.17 | -0.06 |
| 110 | 6 | 10 | 85.60 | 7.59 | 5.09 | 2.49 | 0.00 | 1.00 | 0.01 | 0.34 | -0.32 | -0.33 | 0.66 | -0.17 | -0.06 |
| 111 | 6 | 11 | 85.60 | 7.59 | 5.10 | 2.48 | 0.00 | 1.00 | 0.01 | 0.34 | -0.32 | -0.33 | 0.66 | -0.16 | -0.06 |
| 112 | 6 | 12 | 85.60 | 7.59 | 5.11 | 2.47 | 0.00 | 1.00 | 0.01 | 0.34 | -0.32 | -0.33 | 0.66 | -0.16 | -0.06 |
| 113 | 6 | 13 | 85.60 | 7.59 | 5.12 | 2.46 | 0.00 | 1.00 | 0.02 | 0.34 | -0.31 | -0.33 | 0.66 | -0.16 | -0.06 |
| 114 | 6 | 14 | 85.60 | 7.59 | 5.14 | 2.45 | 0.00 | 1.00 | 0.01 | 0.34 | -0.31 | -0.33 | 0.66 | -0.16 | -0.06 |
| 115 | 6 | 15 | 85.60 | 7.59 | 5.15 | 2.44 | 0.00 | 1.00 | 0.01 | 0.34 | -0.31 | -0.33 | 0.66 | -0.16 | -0.06 |
| 116 | 6 | 16 | 85.60 | 7.59 | 5.16 | 2.43 | 0.00 | 1.00 | 0.01 | 0.33 | -0.31 | -0.33 | 0.66 | -0.16 | -0.06 |
| 117 | 6 | 17 | 85.60 | 7.59 | 5.17 | 2.42 | 0.00 | 1.00 | 0.01 | 0.33 | -0.31 | -0.33 | 0.66 | -0.16 | -0.06 |
| 118 | 6 | 18 | 85.60 | 7.59 | 5.18 | 2.41 | 0.00 | 1.00 | 0.01 | 0.33 | -0.30 | -0.33 | 0.66 | -0.16 | -0.06 |
| 119 | 6 | 19 | 85.60 | 7.59 | 5.19 | 2.40 | 0.00 | 1.00 | 0.01 | 0.33 | -0.30 | -0.33 | 0.66 | -0.15 | -0.05 |
| 120 | 6 | 20 | 85.60 | 7.59 | 5.20 | 2.38 | 0.00 | 1.00 | 0.01 | 0.33 | -0.30 | -0.33 | 0.66 | -0.15 | -0.05 |
| 121 | 7 | 1 | 85.60 | 7.59 | 5.23 | 2.36 | 0.00 | 1.00 | 0.01 | 0.26 | -0.30 | -0.20 | 0.73 | -0.15 | -0.05 |
| 122 | 7 | 2 | 85.60 | 7.59 | 5.26 | 2.33 | 0.00 | 1.00 | 0.01 | 0.20 | -0.29 | -0.20 | 0.72 | -0.15 | -0.05 |
| 123 | 7 | 3 | 85.60 | 7.59 | 5.29 | 2.30 | 0.00 | 1.00 | 0.01 | 0.19 | -0.29 | -0.20 | 0.72 | -0.15 | -0.05 |
| [illegible] | 7 | 4 | 85.60 | 7.59 | 5.32 | 2.27 | 0.00 | 1.00 | 0.01 | 0.19 | -0.29 | -0.20 | 0.72 | -0.15 | -0.05 |
| [illegible] | 7 | 5 | 85.60 | 7.59 | 5.35 | 2.24 | 0.00 | 1.00 | 0.01 | 0.19 | -0.28 | -0.20 | 0.72 | -0.14 | -0.05 |
| 126 | 7 | 6 | 85.60 | 7.59 | 5.38 | 2.21 | 0.00 | 1.00 | 0.01 | 0.19 | -0.28 | -0.20 | 0.72 | -0.14 | -0.05 |

***** STEADY STATE SIMULATION *****

** DISSOLVED OXYGEN DATA **

| ELE ORD | RCH NUM | ELE NUM | TEMP DEG-F | DO SAT MG/L | DO MG/L | DO DEF MG/L | DAM INPUT MG/L | NIT INHIB FACT | COMPONENTS OF DISSOLVED OXYGEN MASS BALANCE (MG/L-DAY) F-FNCTN INPUT | OXYGN REAIR | C-BOD | SOD | NET P-R | NH3-N | NO2-N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 127 | 7 | 7 | 85.60 | 7.59 | 5.41 | 2.18 | 0.00 | 1.00 | 0.01 | 0.18 | -0.28 | -0.20 | 0.71 | -0.14 | -0.05 |
| 128 | 7 | 8 | 85.60 | 7.59 | 5.44 | 2.15 | 0.00 | 1.00 | 0.01 | 0.18 | -0.28 | -0.20 | 0.71 | -0.14 | -0.05 |
| 129 | 7 | 9 | 85.60 | 7.59 | 5.47 | 2.12 | 0.00 | 1.00 | 0.01 | 0.18 | -0.27 | -0.20 | 0.71 | -0.14 | -0.05 |
| 130 | 7 | 10 | 85.60 | 7.59 | 5.49 | 2.09 | 0.00 | 1.00 | 0.01 | 0.18 | -0.27 | -0.20 | 0.70 | -0.13 | -0.05 |
| 131 | 7 | 11 | 85.60 | 7.59 | 5.52 | 2.06 | 0.00 | 1.00 | 0.01 | 0.17 | -0.27 | -0.20 | 0.70 | -0.13 | -0.05 |
| 132 | 7 | 12 | 85.60 | 7.59 | 5.55 | 2.04 | 0.00 | 1.00 | 0.01 | 0.17 | -0.26 | -0.20 | 0.69 | -0.13 | -0.05 |
| 133 | 7 | 13 | 85.60 | 7.59 | 5.60 | 1.99 | 0.00 | 1.00 | 10.11 | 0.18 | -0.25 | -0.20 | 0.66 | -0.11 | -0.07 |
| 134 | 7 | 14 | 85.60 | 7.59 | 5.62 | 1.96 | 0.00 | 1.00 | 0.00 | 0.18 | -0.25 | -0.20 | 0.66 | -0.11 | -0.06 |
| 135 | 7 | 15 | 85.60 | 7.59 | 5.65 | 1.94 | 0.00 | 1.00 | 0.00 | 0.18 | -0.25 | -0.20 | 0.66 | -0.11 | -0.06 |
| 136 | 7 | 16 | 85.60 | 7.59 | 5.67 | 1.92 | 0.00 | 1.00 | 0.00 | 0.18 | -0.25 | -0.20 | 0.66 | -0.11 | -0.06 |
| 137 | 7 | 17 | 85.60 | 7.59 | 5.70 | 1.89 | 0.00 | 1.00 | 0.00 | 0.18 | -0.24 | -0.20 | 0.66 | -0.11 | -0.05 |
| 138 | 7 | 18 | 85.60 | 7.59 | 5.72 | 1.87 | 0.00 | 1.00 | 0.00 | 0.17 | -0.24 | -0.20 | 0.66 | -0.11 | -0.05 |
| 139 | 7 | 19 | 85.60 | 7.59 | 5.74 | 1.84 | 0.00 | 1.00 | 0.00 | 0.17 | -0.24 | -0.20 | 0.66 | -0.11 | -0.05 |
| 140 | 7 | 20 | 85.60 | 7.59 | 5.77 | 1.82 | 0.00 | 1.00 | 0.00 | 0.17 | -0.24 | -0.20 | 0.65 | -0.11 | -0.05 |
| 141 | 8 | 1 | 85.60 | 7.59 | 5.79 | 1.80 | 0.00 | 1.00 | 0.03 | 0.17 | -0.24 | -0.20 | 0.68 | -0.12 | -0.05 |
| | 8 | 2 | 85.60 | 7.59 | 5.82 | 1.77 | 0.00 | 1.00 | 0.01 | 0.16 | -0.24 | -0.20 | 0.68 | -0.12 | -0.04 |
| | 8 | 3 | 85.60 | 7.59 | 5.85 | 1.74 | 0.00 | 1.00 | 0.01 | 0.16 | -0.24 | -0.20 | 0.68 | -0.12 | -0.04 |
| 144 | 8 | 4 | 85.60 | 7.59 | 5.87 | 1.72 | 0.00 | 1.00 | 0.01 | 0.16 | -0.23 | -0.20 | 0.68 | -0.12 | -0.04 |
| 145 | 8 | 5 | 85.60 | 7.59 | 5.90 | 1.69 | 0.00 | 1.00 | 0.01 | 0.16 | -0.23 | -0.20 | 0.67 | -0.11 | -0.04 |
| 146 | 8 | 6 | 85.60 | 7.59 | 5.92 | 1.67 | 0.00 | 1.00 | 0.01 | 0.16 | -0.23 | -0.20 | 0.67 | -0.11 | -0.04 |
| 147 | 8 | 7 | 85.60 | 7.59 | 5.95 | 1.64 | 0.00 | 1.00 | 0.01 | 0.15 | -0.23 | -0.20 | 0.66 | -0.11 | -0.04 |
| 148 | 8 | 8 | 85.60 | 7.59 | 5.97 | 1.62 | 0.00 | 1.00 | 0.01 | 0.15 | -0.23 | -0.20 | 0.66 | -0.11 | -0.04 |

## CONTENTS OF DISKETTES

**DISK 1**

| File Name | Description |
|---|---|
| pkunzip.exe | file compression software |
| install.zip | QUAL2E installation program (first part) |

**DISK 2**

| File Name | Description |
|---|---|
| install.zip | QUAL2E installation program (second part) |
| input.zip | Model input (*.dat) files |
| output.zip | Model output (*.out) files |

**DESCRIPTION OF QUAL2E MODEL INPUT AND OUTPUT FILES**

| File Name | Description |
|---|---|
| cr5jun.dat | WLA input file for June 7Q10, Average Water Temperature |
| cr5jun.out | WLA output file for June 7Q10, Average Water Temperature |
| cr5jul.dat | WLA input file for July 7Q10, Average Water Temperature |
| cr5jul.out | WLA output file for July 7Q10, Average Water Temperature |
| cr5aug.dat | WLA input file for August 7Q10, Average Water Temperature |
| cr5aug.out | WLA output file for August 7Q10, Average Water Temperature |
| cr5sep.dat | WLA input file for September 7Q10, Average Water Temperature |
| cr5sep.out | WLA output file for September 7Q10, Average Water Temperature |
| cr5jun9.dat | WLA input file for June 7Q10, 90$^{th}$ Percentile Water Temperature |
| cr5jun9.out | WLA output file for June 7Q10, 90$^{th}$ Percentile Water Temperature |
| cr5jul9.dat | WLA input file for July 7Q10, 90$^{th}$ Percentile Water Temperature |
| cr5jul9.out | WLA output file for July 7Q10, 90$^{th}$ Percentile Water Temperature |
| cr5aug9.dat | WLA input file for August 7Q10, 90$^{th}$ Percentile Water Temperature |
| cr5aug9.out | WLA output file for August 7Q10, 90$^{th}$ Percentile Water Temperature |
| cr5sep9.dat | WLA input file for September 7Q10, 90$^{th}$ Percentile Water Temperature |
| cr5sep9.out | WLA output file for September 7Q10, 90$^{th}$ Percentile Water Temperature |
| crosset5.dat | Calibration model input file |
| crosset5.out | Calibration model output file |