

บรรณานุกรม

ภาษาไทย

- ธวัช ชัยมาลิก, ปลาทอง, ชาวเกษตรและเทคโนโลยี, ปีที่ 3 ฉบับที่ 113-121, ชมรมถ่ายทอดเทคโนโลยีการเกษตร, มหาวิทยาลัยเกษตรศาสตร์ บางเขน, กรุงเทพฯ 2531
- บุญชัย กิจลัมฤทธิ์โรจน์, หลักการใช้อาหารปลา-กุ้ง, ศูนย์ผลิตตำราเกษตรเพื่อชนบท, 2532
- ปัญญา โพร้ฐิตรีตน์, เทคนิคการเลี้ยงและการเพาะพันธุ์ปลาสวยงาม, คณะวิชาเกษตรและอุตสาหกรรม สหวิทยาลัยรัตนโกสินทร์จันทร์เกษม, 2530
- เมฆ บุณพราหมณ์, การเลี้ยงปลา, ภาควิชาเพาะเลี้ยงสัตว์น้ำ คณะประมง มหาวิทยาลัยเกษตรศาสตร์, 2530
- มันสิน ดัณฑุลเวศม์, การจัดการคุณภาพน้ำในบ่อเลี้ยงสัตว์น้ำ, ภาควิชาวิศวกรรมสิ่งแวดล้อม คณะวิศวกรรมศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย, 2534
- วท., รายงานการจัดทำแผนควบคุมคุณภาพน้ำในแม่น้ำท่าจีน, ระยะที่ 2 (NEB. PUB 1983-002) จัดทำโดยสถาบันวิจัยวิทยาศาสตร์และเทคโนโลยีแห่งประเทศไทย เสนอต่อสำนักงานคณะกรรมการสิ่งแวดล้อมแห่งชาติ, 2525
- วิทย์ ธารชลาณุกิจ, การเพาะเลี้ยงและการขยายพันธุ์ปลา, ภาควิชาเพาะเลี้ยงสัตว์น้ำ คณะประมง มหาวิทยาลัยเกษตรศาสตร์, 2530
- สุรพล สุตารา, ปะการัง แหล่งธรรมชาติที่จะนำรายได้สู่ชาวบ้าน, หน่วยวิจัยปะการัง, ภาควิชาวิทยาศาสตร์ทางทะเล, คณะวิทยาศาสตร์, จุฬาลงกรณ์มหาวิทยาลัย, 2532
- อรณพ สุวสารมัย, แนะนำการเลี้ยงปลาตู้น้ำจืดที่ถูกหลักวิชา, โรงพิมพ์ไทยสัมพันธ์, กรุงเทพฯ, 2529

ภาษาอังกฤษ

- APHA, AWWA and WPCF, Standard Methods for the Enviromental Engineering of Water and Wastewater 17th. ed., American Public Health Association U.S.A., 1988.
- Boyd, C., Water Quality Management for Pond Fish Culture, Elsevier Scientific Publishing Com., 1984.
- Carmignani, G.M. and Bennett, J.P., Rapid start-up of a biological filter in a closed aquaculture system, Aquaculture. 11, pp. 85-88, 1977.
- Casiano, V.L., Application of coarse-media slow sand filtration and rapid sand filtration in aquaculture, NO. AE 88-30, Asian Institute of Technology, Bangkok, Thailand, 1988.
- Circa, A., Baggase Pith as a Fish Pond Input, AIT Thesis, NO. AE 87-32, Asian Institute of Techonlogy, Bangkok, Thailand, 1987.
- George F., H., A guide to freshwater Aquarium fishes, Hamlyn London, England, 1984.
- Johnson, P.W. and Sieburth, J. McN., Ammonia remeoval by Selectiveion exchange, a back up system for microbiological filter in closed-system aquaculture, Aquaculture, pp. 61-68, 1974.
- Mills, D., Tropical aquarium fishes, First Edition, The Hamlyn Publishing Group Ltd., 1988.

Petrovicky, I., Aquarium fish of the world, The Hamlyn Publishing Group Ltd., 1988.

P. Le Cloirec et. G. Martin, Total dissolved inorganic nitrogen removal with two coupled autotrophic biological nitrification and denitrification processes, Aqua Vol. 39, pp. 16-23, 1990.

Scheurmann, I., How to do Tropical aquarium fishes, 2nd, Bong Bow, England, 1986.

Spotte, S., Fish and Invertebrate Culture, water Management in Closed System, Second Edition, John Wiley & Sons, Inc., 1979.

Wheaton, F.W., Aquacultural Engineering, Agriculture Engineering Department, University of Maryland, Robert E. Krieger Publishing Company, Malabar, Florida, 1985.

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย



ภาคผนวก

ศูนย์วิจัยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย



ภาคผนวก ก.
ข้อมูลต่างๆในการวิจัย

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย



ตาราง ก.

แสดงข้อมูลสินค้าตัวแปรเปลี่ยนตามทิวเคราะห์ตลอดการวิจัย

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

| DATE | DAY | TEMPERATURE : C | | | | | | |
|-----------|-----|-----------------|----|-----|----|-----|----|-----|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 01-Dec-91 | 1 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 02-Dec-91 | 2 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 03-Dec-91 | 3 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 04-Dec-91 | 4 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 05-Dec-91 | 5 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 06-Dec-91 | 6 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 09-Dec-91 | 9 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| 10-Dec-91 | 10 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 11-Dec-91 | 11 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 12-Dec-91 | 12 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 13-Dec-91 | 13 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 14-Dec-91 | 16 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 17-Dec-91 | 17 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 18-Dec-91 | 18 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| 19-Dec-91 | 19 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| 20-Dec-91 | 20 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| 23-Dec-91 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| 24-Dec-91 | 24 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 25-Dec-91 | 25 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| 26-Dec-91 | 26 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| 27-Dec-91 | 27 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 30-Dec-91 | 30 | 21 | 21 | 21 | 21 | 21 | 21 | 21 |
| 31-Dec-91 | 31 | 22 | 22 | 22 | 22 | 22 | 22 | 22 |
| 01-Jan-92 | 32 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| 02-Jan-92 | 33 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 03-Jan-92 | 34 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 06-Jan-92 | 37 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 07-Jan-92 | 38 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 08-Jan-92 | 39 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| 09-Jan-92 | 40 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 10-Jan-92 | 41 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| 13-Jan-92 | 44 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| 14-Jan-92 | 45 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| 15-Jan-92 | 46 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 16-Jan-92 | 47 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| 17-Jan-92 | 48 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 20-Jan-92 | 51 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 21-Jan-92 | 52 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 22-Jan-92 | 53 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 23-Jan-92 | 54 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 24-Jan-92 | 55 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 27-Jan-92 | 58 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 28-Jan-92 | 59 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 29-Jan-92 | 60 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 30-Jan-92 | 61 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 31-Jan-92 | 62 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 03-Feb-92 | 65 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 04-Feb-92 | 66 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 05-Feb-92 | 67 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| 06-Feb-92 | 68 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| 07-Feb-92 | 69 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |

| DATE | DAY | TEMPERATURE : C | | | | | | |
|-----------|-----|-----------------|----|-----|----|-----|----|-----|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 10-Feb-92 | 72 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| 11-Feb-92 | 73 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| 12-Feb-92 | 74 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| 13-Feb-92 | 75 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| 14-Feb-92 | 76 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| 17-Feb-92 | 79 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| 18-Feb-92 | 80 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 19-Feb-92 | 81 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 20-Feb-92 | 82 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 21-Feb-92 | 83 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 24-Feb-92 | 86 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 25-Feb-92 | 87 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 26-Feb-92 | 88 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 27-Feb-92 | 89 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| 28-Feb-92 | 90 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 02-Mar-92 | 93 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 03-Mar-92 | 94 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 04-Mar-92 | 95 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 05-Mar-92 | 96 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 06-Mar-92 | 97 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 09-Mar-92 | 100 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 10-Mar-92 | 101 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| 11-Mar-92 | 102 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 12-Mar-92 | 103 | 28 | 28 | 28 | 28 | 28 | 28 | 28 |
| 13-Mar-92 | 104 | 28 | 28 | 28 | 28 | 28 | 28 | 28 |
| 16-Mar-92 | 107 | 28 | 28 | 28 | 28 | 28 | 28 | 28 |
| 17-Mar-92 | 108 | 28 | 28 | 28 | 28 | 28 | 28 | 28 |
| 18-Mar-92 | 109 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| 19-Mar-92 | 110 | 28 | 28 | 28 | 28 | 28 | 28 | 28 |
| 20-Mar-92 | 111 | 28 | 28 | 28 | 28 | 28 | 28 | 28 |

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

ตาราง ก-2 แสดงข้อมูลดิบค่าออกซิเจนละลายน้ำ

DO DATA

113

| DATE | DAY | DO : mg/L | | | | | | |
|-----------|-----|-----------|------|------|------|------|------|------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 01-Dec-91 | 1 | 7.00 | 7.00 | 7.20 | 7.00 | 7.20 | 7.00 | 7.20 |
| 02-Dec-91 | 2 | 7.00 | 6.80 | 7.20 | 7.00 | 7.20 | 6.80 | 7.10 |
| 03-Dec-91 | 3 | 7.00 | 7.00 | 7.20 | 7.00 | 7.30 | 7.00 | 7.20 |
| 04-Dec-91 | 4 | 6.80 | 7.00 | 7.20 | 7.00 | 7.40 | 6.80 | 7.30 |
| 05-Dec-91 | 5 | 7.00 | 7.00 | 7.20 | 7.00 | 7.20 | 7.00 | 7.20 |
| 06-Dec-91 | 6 | 7.00 | 7.20 | 7.30 | 7.00 | 7.20 | 7.00 | 7.20 |
| 09-Dec-91 | 9 | 7.00 | 6.80 | 7.00 | 7.00 | 7.20 | 6.80 | 7.10 |
| 10-Dec-91 | 10 | 6.80 | 6.80 | 7.00 | 7.00 | 7.20 | 6.80 | 7.10 |
| 11-Dec-91 | 11 | 6.80 | 7.00 | 7.20 | 7.00 | 7.20 | 6.80 | 7.10 |
| 12-Dec-91 | 12 | 6.80 | 7.00 | 7.20 | 7.00 | 7.20 | 6.80 | 7.10 |
| 13-Dec-91 | 13 | 6.80 | 7.00 | 7.30 | 7.00 | 7.20 | 7.00 | 7.10 |
| 14-Dec-91 | 14 | 6.80 | 7.00 | 7.10 | 7.00 | 7.20 | 6.80 | 7.10 |
| 17-Dec-91 | 17 | 7.20 | 7.20 | 7.30 | 7.20 | 7.20 | 7.20 | 7.40 |
| 18-Dec-91 | 18 | 7.20 | 7.20 | 7.40 | 7.20 | 7.20 | 7.20 | 7.40 |
| 19-Dec-91 | 19 | 7.00 | 7.00 | 7.10 | 7.00 | 7.20 | 7.00 | 7.20 |
| 20-Dec-91 | 20 | 7.00 | 7.00 | 7.20 | 7.00 | 7.20 | 7.20 | 7.30 |
| 23-Dec-91 | 23 | 7.00 | 7.00 | 7.20 | 7.00 | 7.20 | 7.00 | 7.20 |
| 24-Dec-91 | 24 | 7.00 | 7.00 | 7.10 | 7.00 | 7.20 | 7.00 | 7.20 |
| 25-Dec-91 | 25 | 7.00 | 7.00 | 7.20 | 7.00 | 7.20 | 7.00 | 7.20 |
| 26-Dec-91 | 26 | 7.00 | 7.20 | 7.20 | 6.80 | 7.40 | 7.00 | 7.20 |
| 27-Dec-91 | 27 | 6.80 | 7.00 | 7.20 | 7.20 | 7.50 | 7.00 | 7.20 |
| 30-Dec-91 | 30 | 7.00 | 7.00 | 7.20 | 7.00 | 7.30 | 7.00 | 7.20 |
| 31-Dec-91 | 31 | 7.00 | 6.80 | 7.00 | 7.20 | 7.40 | 7.00 | 7.20 |
| 01-Jan-92 | 32 | 7.00 | 7.00 | 7.30 | 7.00 | 7.30 | 7.00 | 7.20 |
| 02-Jan-92 | 33 | 7.00 | 7.00 | 7.20 | 7.00 | 7.30 | 7.00 | 7.20 |
| 03-Jan-92 | 34 | 7.20 | 7.00 | 7.10 | 7.00 | 7.30 | 7.00 | 7.20 |
| 06-Jan-92 | 37 | 7.00 | 7.00 | 7.20 | 7.00 | 7.30 | 7.00 | 7.20 |
| 07-Jan-92 | 38 | 7.00 | 7.00 | 7.20 | 7.00 | 7.30 | 7.00 | 7.20 |
| 08-Jan-92 | 39 | 7.00 | 7.00 | 7.40 | 7.00 | 7.30 | 7.00 | 7.20 |
| 09-Jan-92 | 40 | 7.00 | 7.00 | 7.30 | 7.20 | 7.30 | 6.80 | 7.10 |
| 10-Jan-92 | 41 | 7.00 | 7.00 | 7.30 | 7.00 | 7.30 | 7.00 | 7.20 |
| 13-Jan-92 | 44 | 7.00 | 7.20 | 7.40 | 7.00 | 7.30 | 7.20 | 7.40 |
| 14-Jan-92 | 45 | 7.00 | 7.20 | 7.40 | 7.00 | 7.30 | 7.00 | 7.20 |
| 15-Jan-92 | 46 | 7.00 | 7.20 | 7.50 | 7.00 | 7.30 | 6.80 | 7.00 |
| 16-Jan-92 | 47 | 7.00 | 7.20 | 7.50 | 7.00 | 7.30 | 7.00 | 7.20 |
| 17-Jan-92 | 48 | 7.00 | 7.20 | 7.50 | 7.20 | 7.30 | 6.80 | 7.00 |
| 20-Jan-92 | 50 | 7.00 | 7.20 | 7.40 | 7.20 | 7.40 | 6.80 | 7.00 |
| 21-Jan-92 | 52 | 7.00 | 7.20 | 7.30 | 7.20 | 7.40 | 6.80 | 7.00 |
| 22-Jan-92 | 53 | 7.00 | 7.20 | 7.40 | 7.20 | 7.40 | 6.80 | 7.00 |
| 23-Jan-92 | 54 | 7.00 | 7.00 | 7.10 | 7.20 | 7.40 | 6.80 | 7.00 |
| 24-Jan-92 | 55 | 7.00 | 7.00 | 7.20 | 7.20 | 7.40 | 6.80 | 7.00 |
| 27-Jan-92 | 58 | 7.00 | 7.00 | 7.20 | 6.80 | 7.40 | 7.00 | 7.20 |
| 28-Jan-92 | 59 | 6.40 | 6.80 | 7.10 | 6.80 | 7.30 | 6.20 | 7.00 |
| 29-Jan-92 | 60 | 7.00 | 6.80 | 7.10 | 7.00 | 7.30 | 6.80 | 7.00 |
| 30-Jan-92 | 61 | 7.00 | 6.80 | 7.00 | 7.00 | 7.20 | 6.80 | 7.00 |
| 31-Jan-92 | 62 | 7.00 | 6.80 | 7.00 | 7.20 | 7.40 | 6.80 | 7.00 |
| 03-Feb-92 | 65 | 7.00 | 7.00 | 7.20 | 7.20 | 7.40 | 6.80 | 7.00 |
| 04-Feb-92 | 66 | 7.00 | 7.20 | 7.40 | 7.20 | 7.40 | 7.00 | 7.20 |
| 05-Feb-92 | 67 | 7.00 | 7.20 | 7.40 | 7.20 | 7.40 | 7.00 | 7.20 |
| 06-Feb-92 | 66 | 7.00 | 7.20 | 7.40 | 7.20 | 7.40 | 7.00 | 7.20 |
| 07-Feb-92 | 69 | 7.00 | 7.20 | 7.40 | 7.20 | 7.40 | 7.00 | 7.20 |

| DATE | DAY | DO : mg/L | | | | | | |
|-----------|-----|-----------|------|------|------|------|------|------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 10-Feb-92 | 72 | 7.00 | 7.20 | 7.30 | 7.20 | 7.40 | 7.00 | 7.20 |
| 11-Feb-92 | 73 | 7.00 | 7.20 | 7.30 | 7.20 | 7.40 | 7.00 | 7.20 |
| 12-Feb-92 | 74 | 7.00 | 7.20 | 7.40 | 7.20 | 7.40 | 7.00 | 7.20 |
| 13-Feb-92 | 75 | 7.00 | 7.00 | 7.20 | 7.00 | 7.40 | 7.00 | 7.20 |
| 14-Feb-92 | 76 | 7.00 | 7.20 | 7.40 | 7.00 | 7.20 | 7.20 | 7.40 |
| 17-Feb-92 | 79 | 7.00 | 7.20 | 7.70 | 7.20 | 7.40 | 7.00 | 7.20 |
| 18-Feb-92 | 80 | 7.00 | 7.20 | 7.40 | 7.20 | 7.50 | 7.20 | 7.40 |
| 19-Feb-92 | 81 | 7.00 | 7.20 | 7.30 | 7.20 | 7.50 | 7.20 | 7.40 |
| 20-Feb-92 | 82 | 7.00 | 7.00 | 7.40 | 7.00 | 7.30 | 6.80 | 7.00 |
| 21-Feb-92 | 83 | 7.00 | 7.20 | 7.30 | 7.20 | 7.50 | 7.00 | 7.20 |
| 24-Feb-92 | 86 | 7.00 | 7.20 | 7.40 | 7.00 | 7.20 | 6.80 | 7.10 |
| 25-Feb-92 | 87 | 6.80 | 6.60 | 6.80 | 6.60 | 7.00 | 6.80 | 7.10 |
| 26-Feb-92 | 88 | 6.40 | 6.20 | 6.80 | 6.20 | 7.00 | 6.40 | 6.60 |
| 27-Feb-92 | 89 | 6.60 | 6.00 | 6.40 | 6.00 | 6.00 | 6.40 | 6.40 |
| 28-Feb-92 | 90 | 6.40 | 6.20 | 6.80 | 6.20 | 6.50 | 6.40 | 6.50 |
| 02-Mar-92 | 93 | 6.40 | 6.00 | 6.20 | 6.20 | 6.60 | 6.40 | 6.60 |
| 03-Mar-92 | 94 | 6.20 | 6.00 | 6.30 | 6.20 | 6.60 | 6.20 | 6.40 |
| 04-Mar-92 | 95 | 6.20 | 6.00 | 6.40 | 6.00 | 6.40 | 6.40 | 6.60 |
| 05-Mar-92 | 96 | 7.20 | 6.60 | 6.80 | 7.00 | 7.20 | 7.00 | 7.20 |
| 06-Mar-92 | 97 | 7.40 | 7.20 | 7.40 | 7.20 | 7.40 | 6.80 | 7.00 |
| 09-Mar-92 | 100 | 7.20 | 7.40 | 7.50 | 7.40 | 7.60 | 7.00 | 7.20 |
| 10-Mar-92 | 101 | 6.20 | 6.00 | 7.00 | 6.20 | 7.00 | 6.40 | 6.80 |
| 11-Mar-92 | 102 | 6.40 | 6.40 | 7.20 | 6.40 | 7.00 | 6.20 | 6.60 |
| 12-Mar-92 | 103 | 6.00 | 5.60 | 5.60 | 5.60 | 5.60 | 6.00 | 6.00 |
| 13-Mar-92 | 104 | 6.00 | 6.20 | 6.40 | 6.00 | 6.30 | 6.20 | 6.40 |
| 16-Mar-92 | 107 | 6.40 | 6.20 | 6.50 | 6.20 | 6.60 | 6.20 | 6.60 |
| 17-Mar-92 | 108 | 6.20 | 6.00 | 6.60 | 6.00 | 6.40 | 6.00 | 6.60 |
| 18-Mar-92 | 109 | 6.00 | 5.80 | 6.50 | 5.80 | 6.00 | 6.00 | 6.10 |
| 19-Mar-92 | 110 | 6.00 | 5.80 | 6.00 | 5.80 | 5.80 | 6.00 | 6.10 |
| 20-Mar-92 | 111 | 6.00 | 5.00 | 5.00 | 6.00 | 6.00 | 6.00 | 6.00 |

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

| DATE | DAY | pH | | | | | | |
|-----------|-----|------|------|------|------|------|------|------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 10-Feb-92 | 72 | 7.20 | 7.40 | 7.30 | 7.70 | 7.70 | 6.90 | 6.60 |
| 11-Feb-92 | 73 | 7.00 | 7.30 | 7.10 | 7.60 | 7.60 | 6.70 | 6.40 |
| 12-Feb-92 | 74 | 7.30 | 7.40 | 7.10 | 7.70 | 7.70 | 7.30 | 6.70 |
| 13-Feb-92 | 75 | 7.20 | 7.40 | 7.40 | 7.60 | 7.60 | 6.40 | 6.00 |
| 14-Feb-92 | 76 | 7.20 | 7.40 | 7.40 | 7.70 | 7.70 | 6.20 | 5.50 |
| 17-Feb-92 | 79 | 7.30 | 7.50 | 7.70 | 7.70 | 7.70 | 6.50 | 6.00 |
| 18-Feb-92 | 80 | 7.30 | 7.60 | 7.70 | 7.70 | 7.70 | 6.40 | 6.00 |
| 19-Feb-92 | 81 | 7.40 | 7.70 | 7.40 | 7.70 | 8.00 | 6.70 | 6.70 |
| 20-Feb-92 | 82 | 7.20 | 7.40 | 7.40 | 7.70 | 7.70 | 5.80 | 5.40 |
| 21-Feb-92 | 83 | 7.20 | 7.50 | 7.20 | 7.70 | 7.60 | 6.00 | 5.50 |
| 24-Feb-92 | 86 | 7.00 | 7.50 | 7.40 | 7.80 | 7.80 | 6.30 | 5.80 |
| 25-Feb-92 | 87 | 6.90 | 7.40 | 7.30 | 7.70 | 7.70 | 6.50 | 6.10 |
| 26-Feb-92 | 88 | 7.10 | 7.50 | 7.30 | 7.70 | 7.60 | 6.70 | 6.10 |
| 27-Feb-92 | 89 | 7.10 | 7.50 | 7.30 | 7.70 | 7.70 | 6.20 | 6.00 |
| 28-Feb-92 | 90 | 7.20 | 7.40 | 7.30 | 7.60 | 7.60 | 6.40 | 6.20 |
| 02-Mar-92 | 93 | 7.00 | 7.50 | 7.30 | 7.80 | 7.70 | 7.00 | 6.40 |
| 03-Mar-92 | 94 | 7.00 | 7.40 | 7.20 | 7.70 | 7.60 | 6.60 | 6.20 |
| 04-Mar-92 | 95 | 7.00 | 7.60 | 7.50 | 7.70 | 7.60 | 6.30 | 6.30 |
| 05-Mar-92 | 96 | 7.00 | 7.60 | 7.50 | 7.60 | 7.50 | 6.30 | 6.00 |
| 06-Mar-92 | 97 | 7.00 | 7.70 | 7.60 | 7.70 | 7.70 | 6.90 | 6.60 |
| 09-Mar-92 | 100 | 6.90 | 7.70 | 7.60 | 7.80 | 7.70 | 6.50 | 6.30 |
| 10-Mar-92 | 101 | 6.90 | 7.80 | 7.50 | 7.70 | 7.40 | 6.80 | 6.50 |
| 11-Mar-92 | 102 | 6.90 | 7.70 | 7.50 | 7.80 | 7.60 | 6.70 | 6.60 |
| 12-Mar-92 | 103 | 6.80 | 7.80 | 7.50 | 7.70 | 7.40 | 6.50 | 6.30 |
| 13-Mar-92 | 104 | 6.90 | 7.80 | 7.70 | 7.70 | 7.70 | 6.40 | 6.00 |
| 16-Mar-92 | 107 | 7.00 | 7.80 | 7.70 | 7.80 | 7.70 | 6.50 | 6.20 |
| 17-Mar-92 | 108 | 7.00 | 7.80 | 7.70 | 7.80 | 7.70 | 6.40 | 6.10 |
| 18-Mar-92 | 109 | 7.00 | 7.90 | 7.70 | 7.80 | 7.70 | 6.40 | 6.10 |
| 19-Mar-92 | 110 | 7.00 | 8.00 | 7.80 | 7.70 | 7.70 | 6.70 | 6.40 |
| 20-Mar-92 | 111 | 7.10 | 7.80 | 7.80 | 7.80 | 7.80 | 6.80 | 6.50 |

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

| DATE | DAY | pH | | | | | | |
|-----------|-----|------|------|------|------|------|------|------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 01-Dec-91 | 1 | 7.90 | 7.90 | 7.90 | 7.90 | 7.90 | 7.90 | 7.90 |
| 02-Dec-91 | 2 | 7.90 | 8.00 | 8.00 | 8.00 | 8.00 | 7.90 | 7.90 |
| 03-Dec-91 | 3 | 7.90 | 8.00 | 7.90 | 8.00 | 7.90 | 7.90 | 7.90 |
| 04-Dec-91 | 4 | 7.90 | 8.00 | 7.90 | 8.00 | 7.90 | 7.90 | 7.80 |
| 05-Dec-91 | 5 | 7.90 | 8.00 | 7.90 | 8.00 | 7.90 | 7.90 | 7.70 |
| 06-Dec-91 | 6 | 7.90 | 8.00 | 8.00 | 8.00 | 8.00 | 7.50 | 7.00 |
| 09-Dec-91 | 9 | 7.60 | 7.70 | 7.70 | 7.80 | 7.80 | 7.40 | 7.30 |
| 10-Dec-91 | 10 | 7.60 | 7.80 | 7.80 | 7.80 | 7.90 | 7.20 | 7.10 |
| 11-Dec-91 | 11 | 7.80 | 7.90 | 8.00 | 8.00 | 8.20 | 7.40 | 7.10 |
| 12-Dec-91 | 12 | 7.70 | 7.90 | 8.00 | 8.00 | 8.10 | 7.00 | 6.80 |
| 13-Dec-91 | 13 | 7.70 | 8.00 | 8.00 | 8.10 | 8.10 | 7.10 | 6.90 |
| 14-Dec-91 | 14 | 7.70 | 8.00 | 8.00 | 8.10 | 8.10 | 7.00 | 6.80 |
| 17-Dec-91 | 17 | 8.20 | 7.80 | 7.80 | 7.80 | 7.90 | 7.20 | 7.00 |
| 18-Dec-91 | 18 | 7.20 | 7.60 | 7.70 | 7.70 | 7.70 | 6.80 | 6.60 |
| 19-Dec-91 | 19 | 7.80 | 8.00 | 8.00 | 8.00 | 8.00 | 6.40 | 6.10 |
| 20-Dec-91 | 20 | 7.90 | 8.00 | 8.00 | 8.10 | 8.10 | 6.90 | 6.40 |
| 23-Dec-91 | 23 | 7.80 | 7.90 | 7.90 | 8.00 | 8.00 | 6.40 | 6.30 |
| 24-Dec-91 | 24 | 7.90 | 8.00 | 8.00 | 8.10 | 8.10 | 6.90 | 6.40 |
| 25-Dec-91 | 25 | 7.90 | 8.00 | 8.00 | 8.10 | 8.10 | 6.70 | 6.30 |
| 26-Dec-91 | 26 | 7.80 | 8.00 | 8.00 | 8.00 | 8.00 | 6.70 | 6.40 |
| 27-Dec-91 | 27 | 7.80 | 8.10 | 8.10 | 8.10 | 8.10 | 6.60 | 6.40 |
| 30-Dec-91 | 30 | 7.80 | 8.00 | 8.00 | 8.00 | 8.00 | 6.70 | 6.40 |
| 31-Dec-91 | 31 | 7.80 | 7.90 | 7.90 | 8.00 | 8.00 | 6.70 | 6.40 |
| 01-Jan-92 | 32 | 7.80 | 8.00 | 8.00 | 8.00 | 8.00 | 6.70 | 6.40 |
| 02-Jan-92 | 33 | 7.70 | 7.90 | 7.90 | 7.90 | 8.00 | 6.70 | 6.40 |
| 03-Jan-92 | 34 | 7.80 | 8.00 | 7.90 | 8.00 | 7.90 | 6.60 | 6.30 |
| 06-Jan-92 | 37 | 7.70 | 8.00 | 8.00 | 7.90 | 7.90 | 6.60 | 6.30 |
| 07-Jan-92 | 38 | 7.80 | 7.90 | 7.90 | 8.00 | 8.00 | 6.60 | 6.30 |
| 08-Jan-92 | 39 | 7.80 | 8.00 | 8.00 | 8.00 | 8.00 | 6.70 | 6.40 |
| 09-Jan-92 | 40 | 7.80 | 8.00 | 8.00 | 8.00 | 8.00 | 6.40 | 6.20 |
| 10-Jan-92 | 41 | 7.80 | 8.00 | 8.00 | 8.00 | 8.00 | 6.40 | 6.20 |
| 13-Jan-92 | 44 | 7.70 | 7.90 | 7.90 | 8.00 | 7.90 | 6.60 | 6.30 |
| 14-Jan-92 | 45 | 7.70 | 7.80 | 7.90 | 8.00 | 8.00 | 6.60 | 6.20 |
| 15-Jan-92 | 46 | 7.70 | 7.90 | 7.90 | 8.00 | 7.90 | 6.50 | 6.20 |
| 16-Jan-92 | 47 | 7.60 | 7.80 | 7.80 | 7.90 | 7.90 | 6.40 | 6.10 |
| 17-Jan-92 | 48 | 7.60 | 7.80 | 7.90 | 7.90 | 7.90 | 6.70 | 6.40 |
| 20-Jan-92 | 51 | 7.60 | 7.80 | 7.80 | 8.00 | 8.00 | 7.30 | 6.90 |
| 21-Jan-92 | 52 | 7.70 | 7.80 | 7.80 | 7.90 | 7.90 | 7.10 | 6.90 |
| 22-Jan-92 | 53 | 7.70 | 7.90 | 7.90 | 7.90 | 7.90 | 7.00 | 6.80 |
| 23-Jan-92 | 54 | 7.60 | 7.90 | 7.80 | 7.90 | 7.90 | 6.90 | 6.70 |
| 24-Jan-92 | 55 | 7.40 | 7.80 | 7.80 | 7.90 | 7.90 | 5.70 | 5.30 |
| 27-Jan-92 | 58 | 7.40 | 7.90 | 7.90 | 7.90 | 7.90 | 5.70 | 5.30 |
| 28-Jan-92 | 59 | 7.30 | 7.80 | 7.80 | 7.80 | 7.80 | 6.00 | 5.90 |
| 29-Jan-92 | 60 | 7.50 | 7.80 | 7.80 | 7.90 | 7.90 | 6.00 | 5.50 |
| 30-Jan-92 | 61 | 7.40 | 7.80 | 7.80 | 7.70 | 7.70 | 5.80 | 5.20 |
| 31-Jan-92 | 62 | 7.40 | 7.70 | 7.70 | 7.80 | 7.80 | 6.00 | 5.50 |
| 03-Feb-92 | 65 | 7.40 | 7.60 | 7.60 | 7.70 | 7.70 | 6.00 | 5.20 |
| 04-Feb-92 | 66 | 7.50 | 7.60 | 7.50 | 7.70 | 7.70 | 6.20 | 5.70 |
| 05-Feb-92 | 67 | 7.60 | 7.70 | 7.60 | 7.80 | 7.80 | 6.40 | 6.00 |
| 06-Feb-92 | 68 | 7.50 | 7.50 | 7.40 | 7.70 | 7.70 | 6.20 | 5.70 |
| 07-Feb-92 | 69 | 7.60 | 7.60 | 7.60 | 7.70 | 7.70 | 6.80 | 6.70 |

| DATE | DAY | ORP :mV | | | | | | |
|-----------|-----|---------|----|-----|----|-----|-----|-----|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 01-Dec-91 | 1 | 80 | 80 | 80 | 80 | 80 | 80 | 80 |
| 02-Dec-91 | 2 | 80 | 60 | 50 | 60 | 50 | 80 | 80 |
| 03-Dec-91 | 3 | 60 | 60 | 60 | 60 | 60 | 50 | 80 |
| 04-Dec-91 | 4 | 60 | 60 | 50 | 60 | 50 | 80 | 80 |
| 05-Dec-91 | 5 | 60 | 60 | 50 | 60 | 50 | 80 | 80 |
| 06-Dec-91 | 6 | 80 | 60 | 50 | 50 | 50 | 80 | 80 |
| 09-Dec-91 | 9 | 50 | 50 | 50 | 40 | 50 | 80 | 80 |
| 10-Dec-91 | 10 | 60 | 60 | 50 | 50 | 50 | 50 | 50 |
| 11-Dec-91 | 11 | 40 | 40 | 40 | 40 | 40 | 50 | 50 |
| 12-Dec-91 | 12 | 40 | 40 | 30 | 40 | 30 | 50 | 50 |
| 13-Dec-91 | 13 | 40 | 40 | 40 | 40 | 30 | 50 | 50 |
| 14-Dec-91 | 16 | 40 | 40 | 30 | 40 | 30 | 50 | 50 |
| 17-Dec-91 | 17 | 50 | 40 | 40 | 30 | 30 | 60 | 60 |
| 18-Dec-91 | 18 | 60 | 50 | 50 | 40 | 40 | 60 | 80 |
| 19-Dec-91 | 19 | 40 | 30 | 30 | 30 | 30 | 60 | 60 |
| 20-Dec-91 | 20 | 60 | 50 | 50 | 60 | 60 | 80 | 80 |
| 23-Dec-91 | 23 | 50 | 40 | 40 | 40 | 40 | 60 | 60 |
| 24-Dec-91 | 24 | 50 | 30 | 30 | 30 | 30 | 60 | 60 |
| 25-Dec-91 | 25 | 50 | 40 | 40 | 30 | 30 | 80 | 80 |
| 26-Dec-91 | 26 | 50 | 40 | 40 | 30 | 30 | 80 | 80 |
| 27-Dec-91 | 27 | 50 | 50 | 50 | 40 | 40 | 60 | 60 |
| 30-Dec-91 | 30 | 40 | 40 | 40 | 40 | 30 | 40 | 40 |
| 31-Dec-91 | 31 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| 01-Jan-92 | 32 | 40 | 20 | 20 | 20 | 20 | 50 | 50 |
| 02-Jan-92 | 33 | 40 | 20 | 20 | 20 | 20 | 50 | 40 |
| 03-Jan-92 | 34 | 40 | 20 | 20 | 20 | 20 | 50 | 50 |
| 06-Jan-92 | 37 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| 07-Jan-92 | 38 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| 08-Jan-92 | 39 | 20 | 20 | 20 | 20 | 20 | 40 | 40 |
| 09-Jan-92 | 40 | 20 | 20 | 20 | 20 | 20 | 40 | 40 |
| 10-Jan-92 | 41 | 20 | 20 | 20 | 20 | 20 | 40 | 40 |
| 13-Jan-92 | 44 | 20 | 20 | 20 | 20 | 20 | 40 | 40 |
| 14-Jan-92 | 45 | 20 | 20 | 20 | 20 | 20 | 40 | 40 |
| 15-Jan-92 | 46 | 20 | 20 | 20 | 20 | 20 | 40 | 40 |
| 16-Jan-92 | 47 | 20 | 20 | 20 | 20 | 20 | 40 | 40 |
| 17-Jan-92 | 48 | 20 | 20 | 20 | 20 | 20 | 40 | 40 |
| 20-Jan-92 | 51 | 20 | 20 | 20 | 20 | 20 | 40 | 40 |
| 21-Jan-92 | 52 | 20 | 20 | 20 | 20 | 20 | 40 | 40 |
| 22-Jan-92 | 53 | 20 | 20 | 20 | 20 | 20 | 40 | 40 |
| 23-Jan-92 | 54 | 20 | 20 | 20 | 20 | 20 | 40 | 40 |
| 24-Jan-92 | 55 | 50 | 40 | 20 | 20 | 20 | 100 | 100 |
| 27-Jan-92 | 58 | 60 | 40 | 40 | 40 | 40 | 100 | 100 |
| 28-Jan-92 | 59 | 60 | 50 | 50 | 40 | 40 | 100 | 100 |
| 29-Jan-92 | 60 | 60 | 40 | 40 | 40 | 40 | 110 | 110 |
| 30-Jan-92 | 61 | 60 | 40 | 40 | 20 | 20 | 100 | 110 |
| 31-Jan-92 | 62 | 60 | 40 | 40 | 40 | 40 | 100 | 100 |
| 03-Feb-92 | 65 | 50 | 40 | 40 | 40 | 40 | 100 | 100 |
| 04-Feb-92 | 66 | 80 | 50 | 50 | 40 | 40 | 100 | 80 |
| 05-Feb-92 | 67 | 60 | 50 | 40 | 40 | 20 | 80 | 80 |
| 06-Feb-92 | 68 | 60 | 50 | 40 | 40 | 40 | 100 | 100 |
| 07-Feb-92 | 69 | 60 | 40 | 40 | 40 | 40 | 80 | 80 |

| DATE | DAY | DRP :mV | | | | | | |
|-----------|-----|---------|----|-----|----|-----|-----|-----|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 10-Feb-92 | 72 | 60 | 40 | 40 | 20 | 20 | 60 | 60 |
| 11-Feb-92 | 73 | 50 | 40 | 40 | 20 | 20 | 40 | 40 |
| 12-Feb-92 | 74 | 50 | 40 | 40 | 20 | 20 | 40 | 40 |
| 13-Feb-92 | 75 | 50 | 20 | 20 | 20 | 20 | 50 | 50 |
| 14-Feb-92 | 76 | 50 | 40 | 20 | 20 | 20 | 80 | 80 |
| 17-Feb-92 | 79 | 50 | 40 | 40 | 20 | 20 | 100 | 100 |
| 18-Feb-92 | 80 | 50 | 40 | 40 | 20 | 20 | 80 | 80 |
| 19-Feb-92 | 81 | 50 | 40 | 40 | 20 | 20 | 80 | 80 |
| 20-Feb-92 | 82 | 60 | 40 | 40 | 40 | 40 | 100 | 100 |
| 21-Feb-92 | 83 | 60 | 40 | 40 | 40 | 40 | 100 | 100 |
| 24-Feb-92 | 86 | 60 | 40 | 40 | 20 | 20 | 80 | 100 |
| 25-Feb-92 | 87 | 60 | 40 | 40 | 40 | 40 | 80 | 100 |
| 26-Feb-92 | 88 | 60 | 40 | 40 | 20 | 20 | 60 | 80 |
| 27-Feb-92 | 89 | 80 | 40 | 40 | 20 | 20 | 80 | 80 |
| 28-Feb-92 | 90 | 60 | 40 | 40 | 20 | 20 | 80 | 60 |
| 02-Mar-92 | 93 | 60 | 40 | 40 | 20 | 20 | 80 | 80 |
| 03-Mar-92 | 94 | 60 | 40 | 40 | 40 | 40 | 80 | 80 |
| 04-Mar-92 | 95 | 60 | 40 | 40 | 20 | 20 | 80 | 80 |
| 05-Mar-92 | 96 | 60 | 40 | 40 | 20 | 20 | 60 | 60 |
| 06-Mar-92 | 97 | 60 | 40 | 40 | 20 | 40 | 50 | 50 |
| 09-Mar-92 | 100 | 60 | 40 | 40 | 50 | 50 | 80 | 80 |
| 10-Mar-92 | 101 | 100 | 50 | 50 | 40 | 40 | 50 | 50 |
| 11-Mar-92 | 102 | 80 | 40 | 40 | 20 | 20 | 60 | 60 |
| 12-Mar-92 | 103 | 60 | 40 | 40 | 20 | 20 | 60 | 60 |
| 13-Mar-92 | 104 | 60 | 40 | 40 | 40 | 40 | 80 | 80 |
| 16-Mar-92 | 107 | 60 | 40 | 40 | 20 | 20 | 60 | 60 |
| 17-Mar-92 | 108 | 60 | 40 | 40 | 20 | 20 | 60 | 60 |
| 18-Mar-92 | 109 | 60 | 40 | 20 | 20 | 20 | 60 | 60 |
| 19-Mar-92 | 110 | 60 | 20 | 20 | 20 | 30 | 60 | 60 |
| 20-Mar-92 | 111 | 60 | 20 | 20 | 20 | 20 | 60 | 60 |

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

TURBIDITY DATA

| DATE | DAY | TURBIDITY : NTU | | | | | | |
|-----------|-----|-----------------|-----|-----|-----|-----|-----|-----|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 01-Dec-91 | 1 | 0.2 | 0.2 | 0 | 0.2 | 0 | 0.2 | 0 |
| 02-Dec-91 | 2 | 0.3 | 0.3 | 0.2 | 0.3 | 0.2 | 0.3 | 0.2 |
| 03-Dec-91 | 3 | 0.3 | 0.3 | 0.2 | 0.3 | 0.2 | 0.3 | 0.2 |
| 04-Dec-91 | 4 | 0.3 | 0.4 | 0.3 | 0.4 | 0.3 | 0.4 | 0.3 |
| 05-Dec-91 | 5 | 0.4 | 0.4 | 0.2 | 0.4 | 0.2 | 0.4 | 0.2 |
| 06-Dec-91 | 6 | 0.4 | 0.5 | 0.3 | 0.4 | 0.3 | 0.6 | 0.4 |
| 09-Dec-91 | 9 | 0.5 | 0.5 | 0.5 | 0.8 | 0.5 | 0.8 | 0.6 |
| 10-Dec-91 | 10 | 0.6 | 0.5 | 0.2 | 0.8 | 0.5 | 0.8 | 0.6 |
| 11-Dec-91 | 11 | 0.5 | 0.6 | 0.5 | 0.6 | 0.4 | 0.7 | 0.6 |
| 12-Dec-91 | 12 | 0.6 | 0.5 | 0.3 | 0.6 | 0.4 | 0.8 | 0.5 |
| 13-Dec-91 | 13 | 0.6 | 0.6 | 0.5 | 0.6 | 0.3 | 0.8 | 0.6 |
| 16-Dec-91 | 16 | 0.7 | 0.8 | 0.5 | 0.6 | 0.3 | 0.8 | 0.6 |
| 17-Dec-91 | 17 | 0.6 | 0.6 | 0.5 | 0.8 | 0.6 | 0.8 | 0.6 |
| 18-Dec-91 | 18 | 0.8 | 0.8 | 0.6 | 1 | 0.8 | 1.3 | 1.2 |
| 19-Dec-91 | 19 | 0.8 | 0.8 | 0.6 | 1 | 0.7 | 1.3 | 1.2 |
| 20-Dec-91 | 20 | 1 | 1 | 0.8 | 0.8 | 0.7 | 0.8 | 0.7 |
| 23-Dec-91 | 23 | 0.6 | 1 | 0.8 | 0.8 | 0.5 | 0.8 | 0.7 |
| 24-Dec-91 | 24 | 0.8 | 1.1 | 1 | 0.6 | 0.5 | 1.1 | 0.9 |
| 25-Dec-91 | 25 | 1 | 1 | 0.8 | 0.7 | 0.6 | 1.2 | 1 |
| 26-Dec-91 | 26 | 0.7 | 0.8 | 0.6 | 0.8 | 0.6 | 0.8 | 0.6 |
| 27-Dec-91 | 27 | 0.8 | 0.8 | 0.6 | 1 | 0.8 | 0.8 | 0.7 |
| 30-Dec-91 | 30 | 0.6 | 0.8 | 0.6 | 1 | 0.7 | 1 | 0.8 |
| 31-Dec-91 | 31 | 0.7 | 0.8 | 0.6 | 0.8 | 0.6 | 1 | 0.7 |
| 01-Jan-92 | 32 | 0.6 | 0.8 | 0.6 | 1 | 0.8 | 1 | 0.8 |
| 02-Jan-92 | 33 | 0.6 | 0.8 | 0.6 | 1 | 0.8 | 1 | 0.8 |
| 03-Jan-92 | 34 | 0.5 | 0.9 | 0.6 | 0.8 | 0.6 | 1.2 | 0.8 |
| 06-Jan-92 | 37 | 0.5 | 0.8 | 0.7 | 1 | 0.8 | 1.1 | 0.8 |
| 07-Jan-92 | 38 | 0.6 | 0.9 | 0.6 | 1 | 0.8 | 1 | 0.6 |
| 08-Jan-92 | 39 | 0.8 | 0.8 | 0.6 | 1 | 0.7 | 1 | 0.8 |
| 09-Jan-92 | 40 | 0.8 | 0.8 | 0.6 | 1 | 0.8 | 1.1 | 0.8 |
| 10-Jan-92 | 41 | 0.8 | 0.8 | 0.5 | 0.8 | 0.6 | 1 | 0.8 |
| 13-Jan-92 | 44 | 0.8 | 0.9 | 0.6 | 0.8 | 0.6 | 1.1 | 0.8 |
| 14-Jan-92 | 45 | 0.8 | 0.9 | 0.6 | 0.8 | 0.6 | 1.8 | 1.7 |
| 15-Jan-92 | 46 | 0.8 | 0.9 | 0.6 | 0.9 | 0.7 | 1 | 0.8 |
| 16-Jan-92 | 47 | 0.7 | 0.8 | 0.6 | 1 | 0.7 | 1.1 | 0.7 |
| 17-Jan-92 | 48 | 0.8 | 0.9 | 0.7 | 0.8 | 0.6 | 1 | 0.7 |
| 20-Jan-92 | 51 | 0.8 | 0.8 | 0.6 | 1 | 0.8 | 1.2 | 0.8 |
| 21-Jan-92 | 52 | 0.8 | 0.8 | 0.6 | 1 | 0.7 | 1.1 | 0.9 |
| 22-Jan-92 | 53 | 0.9 | 1 | 0.8 | 0.8 | 0.6 | 1.1 | 0.8 |
| 23-Jan-92 | 54 | 0.8 | 1 | 0.8 | 0.9 | 0.6 | 1 | 0.8 |
| 24-Jan-92 | 55 | 0.8 | 1.2 | 1.1 | 1 | 0.8 | 1.1 | 0.9 |
| 27-Jan-92 | 58 | 0.8 | 1.2 | 1 | 1 | 0.9 | 1.2 | 1 |
| 28-Jan-92 | 59 | 1.2 | 1.3 | 1.2 | 1 | 0.8 | 1.5 | 1.3 |
| 29-Jan-92 | 60 | 1 | 1.5 | 1.4 | 1.4 | 1 | 1.4 | 1.2 |
| 30-Jan-92 | 61 | 1 | 1.3 | 1.2 | 2.8 | 2.6 | 1.2 | 1.1 |
| 31-Jan-92 | 62 | 1 | 3.6 | 3.4 | 1.3 | 1.2 | 1.4 | 1.2 |
| 03-Feb-92 | 65 | 0.8 | 1.8 | 1.5 | 1.4 | 1.2 | 1.8 | 1.6 |
| 04-Feb-92 | 66 | 0.5 | 2.6 | 2.2 | 1.1 | 0.8 | 2.2 | 1.7 |
| 05-Feb-92 | 67 | 0.5 | 2.5 | 2 | 1 | 0.6 | 1.8 | 1.5 |
| 06-Feb-92 | 68 | 0.6 | 3 | 2.6 | 0.6 | 0.5 | 1.9 | 1.6 |
| 07-Feb-92 | 69 | 0.6 | 2.9 | 2.6 | 0.8 | 0.6 | 2.1 | 1.8 |

| DATE | DAY | TURBIDITY : NTU | | | | | | |
|-----------|-----|-----------------|-----|-----|-----|-----|-----|-----|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 10-Feb-92 | 72 | 0.8 | 4 | 3.5 | 0.8 | 0.5 | 2.3 | 2.1 |
| 11-Feb-92 | 73 | 1 | 3.5 | 3 | 0.8 | 0.5 | 2.5 | 2.4 |
| 12-Feb-92 | 74 | 1.2 | 5.8 | 5.4 | 0.8 | 0.5 | 2.8 | 2.8 |
| 13-Feb-92 | 75 | 1 | 6.8 | 6.8 | 1.2 | 0.5 | 3 | 3 |
| 14-Feb-92 | 76 | 1.5 | 5 | 3.5 | 2 | 0.8 | 3.5 | 2 |
| 17-Feb-92 | 79 | 1 | 4.7 | 4.3 | 1.3 | 0.8 | 2.8 | 1.5 |
| 18-Feb-92 | 80 | 1 | 5.5 | 4.6 | 1.2 | 0.9 | 2.5 | 1.5 |
| 19-Feb-92 | 81 | 1 | 5.9 | 4.7 | 1.5 | 0.8 | 2.2 | 1.2 |
| 20-Feb-92 | 82 | 1.5 | 4.8 | 4 | 3 | 1.5 | 2.5 | 1 |
| 21-Feb-92 | 83 | 1.8 | 4.8 | 3.6 | 2.5 | 1.2 | 1.8 | 1 |
| 24-Feb-92 | 86 | 1 | 2 | 1.2 | 1.2 | 1 | 1.2 | 1 |
| 25-Feb-92 | 87 | 1 | 2.5 | 2.3 | 2.5 | 1.5 | 1.4 | 1 |
| 26-Feb-92 | 88 | 1 | 4.5 | 3.8 | 1.8 | 1.6 | 1.8 | 1 |
| 27-Feb-92 | 89 | 1 | 4 | 3.8 | 2.1 | 1.8 | 1.5 | 1.2 |
| 28-Feb-92 | 90 | 1 | 6 | 5 | 2.2 | 1.8 | 2.3 | 2 |
| 02-Mar-92 | 93 | 2.7 | 3 | 2 | 1.5 | 0.6 | 1.7 | 1.5 |
| 03-Mar-92 | 94 | 1 | 6.7 | 4.5 | 1.2 | 0.8 | 1.8 | 1.5 |
| 04-Mar-92 | 95 | 1 | 6.8 | 6.5 | 2 | 1.5 | 2 | 1.6 |
| 05-Mar-92 | 96 | 1.5 | 7 | 6.7 | 2.5 | 2 | 1.8 | 1.5 |
| 06-Mar-92 | 97 | 1.3 | 2.2 | 2 | 1.6 | 1.3 | 2.5 | 2.5 |
| 09-Mar-92 | 100 | 2.4 | 2.5 | 2.2 | 1 | 0.8 | 2.5 | 1.7 |
| 10-Mar-92 | 101 | 1.2 | 4 | 3.2 | 2 | 1.8 | 3.5 | 2.5 |
| 11-Mar-92 | 102 | 1.5 | 4.8 | 3.5 | 2.5 | 2.4 | 3.5 | 2.9 |
| 12-Mar-92 | 103 | 1 | 5 | 4.5 | 2.8 | 2.7 | 4 | 3.8 |
| 13-Mar-92 | 104 | 2.5 | 5 | 5 | 2.9 | 2.7 | 2.8 | 2.3 |
| 16-Mar-92 | 107 | 2.7 | 4.3 | 3.8 | 3.3 | 3 | 2.7 | 2 |
| 17-Mar-92 | 108 | 4.1 | 4.5 | 3.8 | 3.5 | 3.3 | 2.8 | 2 |
| 18-Mar-92 | 109 | 2.5 | 4.5 | 2.6 | 3 | 2 | 3 | 2.4 |
| 19-Mar-92 | 110 | 5.5 | 3.8 | 2.5 | 3.5 | 1.1 | 3.6 | 2.8 |
| 20-Mar-92 | 111 | 8.5 | 6.5 | 3.5 | 4 | 1.5 | 6.5 | 5 |

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

| DATE | DAY | COLOR: UNITS | | | | | | |
|-----------|-----|--------------|----|-----|----|-----|----|-----|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 01-Dec-91 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02-Dec-91 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03-Dec-91 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04-Dec-91 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05-Dec-91 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06-Dec-91 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09-Dec-91 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10-Dec-91 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11-Dec-91 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-Dec-91 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13-Dec-91 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16-Dec-91 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17-Dec-91 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18-Dec-91 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19-Dec-91 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-Dec-91 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23-Dec-91 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24-Dec-91 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-Dec-91 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 26-Dec-91 | 26 | 5 | 0 | 0 | 0 | 0 | 5 | 0 |
| 27-Dec-91 | 27 | 5 | 0 | 0 | 0 | 0 | 5 | 0 |
| 30-Dec-91 | 30 | 5 | 0 | 0 | 0 | 0 | 5 | 0 |
| 31-Jan-92 | 31 | 5 | 1 | 0 | 1 | 0 | 10 | 5 |
| 01-Jan-92 | 32 | 10 | 5 | 1 | 1 | 1 | 10 | 5 |
| 02-Jan-92 | 33 | 10 | 5 | 1 | 1 | 1 | 10 | 10 |
| 03-Jan-92 | 34 | 10 | 5 | 5 | 5 | 1 | 10 | 10 |
| 06-Jan-92 | 37 | 15 | 10 | 5 | 10 | 5 | 15 | 15 |
| 07-Jan-92 | 38 | 15 | 15 | 10 | 10 | 5 | 15 | 15 |
| 08-Jan-92 | 39 | 15 | 10 | 10 | 10 | 10 | 20 | 15 |
| 09-Jan-92 | 40 | 15 | 10 | 10 | 10 | 10 | 20 | 10 |
| 10-Jan-92 | 41 | 20 | 20 | 10 | 20 | 10 | 20 | 10 |
| 13-Jan-92 | 44 | 20 | 20 | 10 | 20 | 10 | 30 | 20 |
| 14-Jan-92 | 45 | 20 | 20 | 10 | 20 | 10 | 30 | 20 |
| 15-Jan-92 | 46 | 20 | 20 | 15 | 20 | 10 | 20 | 20 |
| 16-Jan-92 | 47 | 20 | 20 | 10 | 20 | 10 | 20 | 20 |
| 17-Jan-92 | 48 | 20 | 20 | 10 | 20 | 10 | 20 | 20 |
| 20-Jan-92 | 51 | 20 | 20 | 10 | 20 | 10 | 20 | 20 |
| 21-Jan-92 | 52 | 20 | 20 | 10 | 20 | 10 | 20 | 15 |
| 22-Jan-92 | 53 | 20 | 30 | 20 | 20 | 10 | 20 | 20 |
| 23-Jan-92 | 54 | 20 | 20 | 10 | 20 | 10 | 20 | 10 |
| 24-Jan-92 | 55 | 20 | 20 | 10 | 20 | 10 | 20 | 20 |
| 27-Jan-92 | 58 | 20 | 20 | 10 | 20 | 10 | 20 | 10 |
| 28-Jan-92 | 59 | 30 | 20 | 10 | 20 | 10 | 20 | 20 |
| 29-Jan-92 | 60 | 30 | 20 | 10 | 20 | 10 | 20 | 20 |
| 30-Jan-92 | 61 | 30 | 20 | 10 | 20 | 10 | 30 | 10 |
| 31-Jan-92 | 62 | 30 | 20 | 10 | 20 | 10 | 20 | 20 |
| 03-Feb-92 | 65 | 30 | 20 | 10 | 20 | 10 | 30 | 20 |
| 04-Feb-92 | 66 | 30 | 30 | 20 | 30 | 20 | 30 | 20 |
| 05-Feb-92 | 67 | 30 | 30 | 20 | 30 | 20 | 30 | 20 |
| 06-Feb-92 | 68 | 30 | 30 | 20 | 30 | 20 | 30 | 20 |
| 07-Feb-92 | 69 | 30 | 30 | 20 | 30 | 20 | 30 | 20 |

| DATE | DAY | COLOR: UNITS | | | | | | |
|-----------|-----|--------------|-----|-----|-----|-----|-----|-----|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 10-Feb-92 | 72 | 40 | 40 | 30 | 40 | 30 | 40 | 30 |
| 11-Feb-92 | 73 | 40 | 40 | 30 | 40 | 30 | 40 | 30 |
| 12-Feb-92 | 74 | 40 | 40 | 30 | 40 | 30 | 40 | 20 |
| 13-Feb-92 | 75 | 40 | 40 | 30 | 40 | 30 | 40 | 30 |
| 14-Feb-92 | 76 | 40 | 40 | 20 | 40 | 20 | 40 | 20 |
| 17-Feb-92 | 79 | 30 | 40 | 20 | 40 | 20 | 40 | 30 |
| 18-Feb-92 | 80 | 30 | 40 | 20 | 40 | 20 | 40 | 30 |
| 19-Feb-92 | 81 | 40 | 40 | 30 | 40 | 30 | 40 | 30 |
| 20-Feb-92 | 82 | 40 | 40 | 20 | 40 | 20 | 40 | 20 |
| 21-Feb-92 | 83 | 40 | 40 | 20 | 40 | 20 | 40 | 20 |
| 24-Feb-92 | 86 | 30 | 40 | 10 | 40 | 10 | 30 | 20 |
| 25-Feb-92 | 87 | 30 | 40 | 10 | 20 | 10 | 40 | 10 |
| 26-Feb-92 | 88 | 30 | 40 | 20 | 40 | 20 | 40 | 10 |
| 27-Feb-92 | 89 | 60 | 60 | 45 | 60 | 40 | 45 | 30 |
| 28-Feb-92 | 90 | 50 | 50 | 40 | 50 | 30 | 50 | 45 |
| 02-Mar-92 | 93 | 50 | 60 | 50 | 60 | 50 | 60 | 40 |
| 03-Mar-92 | 94 | 50 | 60 | 50 | 60 | 50 | 60 | 45 |
| 04-Mar-92 | 95 | 50 | 60 | 50 | 50 | 45 | 60 | 50 |
| 05-Mar-92 | 96 | 60 | 60 | 60 | 60 | 60 | 50 | 45 |
| 06-Mar-92 | 97 | 60 | 60 | 50 | 60 | 50 | 50 | 45 |
| 09-Mar-92 | 100 | 60 | 60 | 60 | 60 | 45 | 50 | 45 |
| 10-Mar-92 | 101 | 70 | 60 | 60 | 60 | 45 | 50 | 45 |
| 11-Mar-92 | 102 | 70 | 60 | 50 | 60 | 50 | 60 | 45 |
| 12-Mar-92 | 103 | 60 | 60 | 50 | 60 | 50 | 50 | 50 |
| 13-Mar-92 | 104 | 60 | 60 | 60 | 60 | 60 | 50 | 50 |
| 16-Mar-92 | 107 | 70 | 70 | 70 | 70 | 70 | 70 | 70 |
| 17-Mar-92 | 108 | 70 | 70 | 70 | 70 | 70 | 70 | 70 |
| 18-Mar-92 | 109 | 70 | 70 | 70 | 70 | 70 | 70 | 70 |
| 19-Mar-92 | 110 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 20-Mar-92 | 111 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

ALKALINITY DATA

| DATE | DAY | ALKALINITY mg/L as CaCO ₃ | | | | | | |
|-----------|-----|--------------------------------------|--------|--------|--------|--------|--------|--------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 01-Dec-91 | 1 | 216.00 | 208.00 | 200.00 | 200.00 | 196.00 | 188.00 | 180.00 |
| 02-Dec-91 | 2 | 188.00 | 184.00 | 180.00 | 208.00 | 200.00 | 184.00 | 180.00 |
| 04-Dec-91 | 4 | 184.00 | 248.00 | 200.00 | 188.00 | 180.00 | 132.00 | 128.00 |
| 06-Dec-91 | 6 | 152.00 | 204.00 | 196.00 | 194.00 | 192.00 | 96.00 | 56.00 |
| 09-Dec-91 | 9 | 248.00 | 144.00 | 120.00 | 144.00 | 136.00 | 52.00 | 40.00 |
| 11-Dec-91 | 11 | 152.00 | 140.00 | 140.00 | 168.00 | 92.00 | 120.00 | 60.00 |
| 13-Dec-91 | 13 | 176.00 | 172.00 | 160.00 | 142.00 | 112.00 | 72.00 | 72.00 |
| 16-Dec-91 | 16 | 128.00 | 136.00 | 132.00 | 156.00 | 140.00 | 160.00 | 76.00 |
| 18-Dec-91 | 18 | 288.00 | 160.00 | 140.00 | 180.00 | 180.00 | 112.00 | 84.00 |
| 20-Dec-91 | 20 | 220.00 | 152.00 | 150.00 | 192.00 | 192.00 | 88.00 | 60.00 |
| 23-Dec-91 | 23 | 240.00 | 156.00 | 156.00 | 180.00 | 168.00 | 76.00 | 76.00 |
| 25-Dec-91 | 25 | 204.00 | 204.00 | 184.00 | 186.00 | 180.00 | 104.00 | 102.00 |
| 27-Dec-91 | 27 | 128.00 | 188.00 | 180.00 | 184.00 | 160.00 | 92.00 | 64.00 |
| 30-Dec-91 | 30 | 164.00 | 160.00 | 144.00 | 188.00 | 160.00 | 100.00 | 64.00 |
| 01-Jan-92 | 32 | 180.00 | 184.00 | 184.00 | 248.00 | 176.00 | 148.00 | 124.00 |
| 03-Jan-92 | 34 | 172.00 | 188.00 | 140.00 | 240.00 | 148.00 | 156.00 | 136.00 |
| 06-Jan-92 | 37 | 152.00 | 228.00 | 180.00 | 272.00 | 180.00 | 148.00 | 108.00 |
| 08-Jan-92 | 39 | 128.00 | 160.00 | 148.00 | 164.00 | 148.00 | 148.00 | 140.00 |
| 10-Jan-92 | 41 | 132.00 | 164.00 | 152.00 | 160.00 | 144.00 | 148.00 | 144.00 |
| 13-Jan-92 | 44 | 120.00 | 108.00 | 92.00 | 112.00 | 112.00 | 112.00 | 112.00 |
| 15-Jan-92 | 46 | 124.00 | 120.00 | 116.00 | 124.00 | 120.00 | 116.00 | 116.00 |
| 17-Jan-92 | 48 | 124.00 | 132.00 | 132.00 | 136.00 | 136.00 | 124.00 | 116.00 |
| 20-Jan-92 | 51 | 136.00 | 144.00 | 140.00 | 152.00 | 144.00 | 128.00 | 128.00 |
| 22-Jan-92 | 53 | 180.00 | 148.00 | 144.00 | 164.00 | 160.00 | 156.00 | 144.00 |
| 24-Jan-92 | 55 | 148.00 | 168.00 | 152.00 | 166.00 | 164.00 | 140.00 | 120.00 |
| 27-Jan-92 | 58 | 124.00 | 128.00 | 124.00 | 136.00 | 132.00 | 108.00 | 84.00 |
| 29-Jan-92 | 60 | 104.00 | 136.00 | 100.00 | 104.00 | 100.00 | 132.00 | 108.00 |
| 31-Jan-92 | 62 | 132.00 | 128.00 | 104.00 | 140.00 | 124.00 | 102.00 | 100.00 |
| 03-Feb-92 | 65 | 140.00 | 168.00 | 120.00 | 136.00 | 136.00 | 158.00 | 152.00 |
| 05-Feb-92 | 67 | 120.00 | 192.00 | 180.00 | 120.00 | 100.00 | 196.00 | 164.00 |
| 07-Feb-92 | 69 | 144.00 | 316.00 | 160.00 | 208.00 | 112.00 | 142.00 | 140.00 |
| 10-Feb-92 | 72 | 96.00 | 112.00 | 104.00 | 176.00 | 168.00 | 152.00 | 144.00 |
| 12-Feb-92 | 74 | 88.00 | 156.00 | 100.00 | 148.00 | 124.00 | 168.00 | 132.00 |
| 14-Feb-92 | 76 | 120.00 | 156.00 | 140.00 | 204.00 | 192.00 | 184.00 | 128.00 |
| 17-Feb-92 | 79 | 104.00 | 160.00 | 160.00 | 216.00 | 200.00 | 160.00 | 132.00 |
| 19-Feb-92 | 81 | 156.00 | 196.00 | 184.00 | 224.00 | 188.00 | 188.00 | 166.00 |
| 21-Feb-92 | 83 | 220.00 | 220.00 | 196.00 | 224.00 | 148.00 | 196.00 | 176.00 |
| 24-Feb-92 | 86 | 132.00 | 188.00 | 152.00 | 216.00 | 204.00 | 228.00 | 156.00 |
| 26-Feb-92 | 88 | 172.00 | 264.00 | 220.00 | 216.00 | 208.00 | 172.00 | 160.00 |
| 28-Feb-92 | 90 | 128.00 | 248.00 | 248.00 | 182.00 | 164.00 | 138.00 | 136.00 |
| 02-Mar-92 | 93 | 192.00 | 256.00 | 224.00 | 208.00 | 160.00 | 240.00 | 208.00 |
| 04-Mar-92 | 95 | 160.00 | 182.00 | 144.00 | 184.00 | 140.00 | 128.00 | 128.00 |
| 06-Mar-92 | 97 | 212.00 | 204.00 | 188.00 | 196.00 | 180.00 | 148.00 | 132.00 |
| 09-Mar-92 | 100 | 164.00 | 180.00 | 180.00 | 168.00 | 168.00 | 156.00 | 116.00 |
| 11-Mar-92 | 102 | 136.00 | 180.00 | 176.00 | 172.00 | 164.00 | 120.00 | 116.00 |
| 13-Mar-92 | 104 | 152.00 | 188.00 | 168.00 | 184.00 | 128.00 | 140.00 | 88.00 |
| 16-Mar-92 | 107 | 128.00 | 252.00 | 208.00 | 196.00 | 192.00 | 136.00 | 116.00 |
| 18-Mar-92 | 109 | 136.00 | 260.00 | 220.00 | 232.00 | 216.00 | 140.00 | 124.00 |
| 20-Mar-92 | 111 | 140.00 | 272.00 | 240.00 | 248.00 | 200.00 | 120.00 | 116.00 |

| DATE | DAY | HARDNESS : mg/L as CaCO ₃ | | | | | | |
|-----------|-----|--------------------------------------|-----|-----|-----|-----|------|------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 01-Dec-91 | 1 | 200 | 200 | 196 | 216 | 208 | 220 | 220 |
| 02-Dec-91 | 2 | 208 | 200 | 194 | 208 | 200 | 266 | 256 |
| 04-Dec-91 | 4 | 224 | 188 | 180 | 196 | 196 | 276 | 276 |
| 06-Dec-91 | 6 | 156 | 156 | 152 | 196 | 172 | 368 | 312 |
| 09-Dec-91 | 9 | 164 | 188 | 180 | 192 | 172 | 432 | 412 |
| 11-Dec-91 | 11 | 220 | 228 | 228 | 236 | 216 | 528 | 429 |
| 13-Dec-91 | 13 | 232 | 224 | 212 | 236 | 224 | 516 | 500 |
| 16-Dec-91 | 16 | 220 | 248 | 228 | 268 | 236 | 608 | 600 |
| 18-Dec-91 | 18 | 176 | 280 | 232 | 248 | 244 | 464 | 400 |
| 20-Dec-91 | 20 | 192 | 240 | 228 | 280 | 244 | 636 | 500 |
| 23-Dec-91 | 23 | 204 | 252 | 244 | 252 | 240 | 480 | 392 |
| 25-Dec-91 | 25 | 252 | 252 | 252 | 276 | 244 | 564 | 480 |
| 27-Dec-91 | 27 | 252 | 224 | 204 | 224 | 216 | 484 | 400 |
| 30-Dec-91 | 30 | 268 | 308 | 296 | 308 | 292 | 600 | 504 |
| 01-Jan-92 | 32 | 268 | 284 | 256 | 268 | 268 | 596 | 536 |
| 03-Jan-92 | 34 | 280 | 296 | 284 | 316 | 296 | 568 | 528 |
| 06-Jan-92 | 37 | 280 | 304 | 304 | 320 | 304 | 392 | 368 |
| 08-Jan-92 | 39 | 288 | 288 | 276 | 316 | 284 | 408 | 360 |
| 10-Jan-92 | 41 | 246 | 284 | 276 | 320 | 316 | 392 | 360 |
| 13-Jan-92 | 44 | 288 | 304 | 276 | 316 | 284 | 412 | 368 |
| 15-Jan-92 | 46 | 272 | 304 | 284 | 324 | 288 | 460 | 392 |
| 17-Jan-92 | 48 | 280 | 320 | 316 | 296 | 252 | 520 | 480 |
| 20-Jan-92 | 51 | 204 | 240 | 236 | 240 | 236 | 1370 | 990 |
| 22-Jan-92 | 53 | 244 | 240 | 236 | 284 | 240 | 1010 | 720 |
| 24-Jan-92 | 55 | 224 | 240 | 240 | 240 | 236 | 1490 | 1120 |
| 27-Jan-92 | 58 | 204 | 232 | 220 | 276 | 248 | 1430 | 1400 |
| 29-Jan-92 | 60 | 204 | 232 | 224 | 272 | 248 | 1360 | 1300 |
| 31-Jan-92 | 62 | 208 | 252 | 248 | 228 | 220 | 1370 | 980 |
| 03-Feb-92 | 65 | 348 | 392 | 344 | 392 | 380 | 1750 | 1740 |
| 05-Feb-92 | 67 | 284 | 308 | 268 | 320 | 312 | 1470 | 1370 |
| 07-Feb-92 | 69 | 312 | 292 | 280 | 312 | 304 | 1220 | 990 |
| 10-Feb-92 | 72 | 344 | 324 | 320 | 344 | 328 | 1410 | 990 |
| 12-Feb-92 | 74 | 328 | 308 | 296 | 368 | 352 | 1180 | 1000 |
| 14-Feb-92 | 76 | 344 | 312 | 304 | 352 | 340 | 1370 | 1310 |
| 17-Feb-92 | 79 | 384 | 328 | 296 | 348 | 344 | 1370 | 1190 |
| 19-Feb-92 | 81 | 368 | 340 | 336 | 396 | 360 | 1550 | 1130 |
| 21-Feb-92 | 83 | 372 | 312 | 304 | 340 | 332 | 1580 | 1090 |
| 24-Feb-92 | 86 | 412 | 340 | 340 | 380 | 344 | 1340 | 990 |
| 26-Feb-92 | 88 | 416 | 356 | 332 | 400 | 384 | 1500 | 1430 |
| 28-Feb-92 | 90 | 432 | 364 | 336 | 372 | 360 | 1590 | 1520 |
| 02-Mar-92 | 93 | 460 | 340 | 312 | 372 | 368 | 1440 | 790 |
| 04-Mar-92 | 95 | 424 | 324 | 316 | 360 | 360 | 1470 | 1320 |
| 06-Mar-92 | 97 | 592 | 550 | 496 | 590 | 560 | 1480 | 1190 |
| 09-Mar-92 | 100 | 650 | 520 | 485 | 610 | 550 | 1340 | 1100 |
| 11-Mar-92 | 102 | 670 | 520 | 500 | 615 | 590 | 1490 | 1140 |
| 13-Mar-92 | 104 | 705 | 510 | 465 | 610 | 565 | 1560 | 1490 |
| 16-Mar-92 | 107 | 670 | 550 | 485 | 555 | 510 | 1530 | 1160 |
| 18-Mar-92 | 109 | 580 | 480 | 435 | 510 | 475 | 1250 | 990 |
| 20-Mar-92 | 111 | 575 | 470 | 420 | 495 | 450 | 1210 | 850 |

| DATE | DAY | NH3-N : mg/L | | | | | | |
|-----------|-----|--------------|-------|-------|-------|-------|-------|-------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 01-Dec-91 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02-Dec-91 | 2 | 0.017 | 0.01 | 0 | 0.01 | 0 | 0.01 | 0 |
| 04-Dec-91 | 4 | 0.01 | 0.025 | 0.01 | 0.025 | 0 | 0.01 | 0.01 |
| 06-Dec-91 | 6 | 0.025 | 0.05 | 0.03 | 0.04 | 0 | 0.015 | 0.01 |
| 09-Dec-91 | 9 | 0.12 | 0.1 | 0.08 | 0.05 | 0 | 0.017 | 0.015 |
| 11-Dec-91 | 11 | 0.09 | 0.06 | 0.035 | 0.025 | 0 | 0.02 | 0.015 |
| 13-Dec-91 | 13 | 0.04 | 0.07 | 0.06 | 0.04 | 0.025 | 0.025 | 0.025 |
| 16-Dec-91 | 16 | 0.05 | 0.001 | 0 | 0.02 | 0.02 | 0.025 | 0 |
| 18-Dec-91 | 18 | 0.07 | 0.05 | 0.025 | 0.001 | 0 | 0.001 | 0 |
| 20-Dec-91 | 20 | 0.085 | 0.06 | 0.06 | 0.06 | 0.025 | 0.09 | 0.06 |
| 23-Dec-91 | 23 | 0.075 | 0.06 | 0.04 | 0.04 | 0 | 0.025 | 0.02 |
| 25-Dec-91 | 25 | 0.07 | 0.17 | 0.15 | 0.075 | 0.075 | 0.1 | 0.095 |
| 27-Dec-91 | 27 | 0.095 | 0.07 | 0.07 | 0.075 | 0.06 | 0.095 | 0.09 |
| 30-Dec-91 | 30 | 0.025 | 0.14 | 0.13 | 0.095 | 0.04 | 0.09 | 0.07 |
| 01-Jan-92 | 32 | 0.015 | 0.07 | 0.025 | 0.09 | 0.06 | 0.06 | 0.025 |
| 03-Jan-92 | 34 | 0.035 | 0.195 | 0.04 | 0.025 | 0 | 0.22 | 0.095 |
| 06-Jan-92 | 37 | 0.025 | 0.025 | 0.015 | 0.05 | 0.04 | 0.13 | 0.05 |
| 08-Jan-92 | 39 | 0.025 | 0.015 | 0.015 | 0.025 | 0.015 | 0.04 | 0.025 |
| 10-Jan-92 | 41 | 0 | 0.005 | 0 | 0.002 | 0 | 0.001 | 0 |
| 13-Jan-92 | 44 | 0 | 0.31 | 0.05 | 0.06 | 0.03 | 0.03 | 0 |
| 15-Jan-92 | 46 | 0.095 | 0.178 | 0.14 | 0.105 | 0.075 | 0.03 | 0 |
| 17-Jan-92 | 48 | 0.21 | 0.15 | 0.095 | 0.094 | 0.04 | 0.15 | 0.095 |
| 20-Jan-92 | 51 | 0.12 | 0.015 | 0.015 | 0.055 | 0.025 | 0.015 | 0.015 |
| 22-Jan-92 | 53 | 0.05 | 0.01 | 0.01 | 0.001 | 0 | 0.01 | 0 |
| 24-Jan-92 | 55 | 0.042 | 0.008 | 0 | 0.025 | 0 | 0.108 | 0.108 |
| 27-Jan-92 | 58 | 0.032 | 0.001 | 0 | 0.001 | 0 | 0.18 | 0.15 |
| 29-Jan-92 | 60 | 0.025 | 0.013 | 0 | 0.05 | 0.05 | 0.55 | 0.425 |
| 31-Jan-92 | 62 | 0 | 0.025 | 0 | 0.005 | 0 | 1.5 | 1 |
| 03-Feb-92 | 65 | 0.042 | 0.042 | 0 | 0.017 | 0.017 | 0.417 | 0.358 |
| 05-Feb-92 | 67 | 0 | 0.1 | 0 | 0.001 | 0 | 2.07 | 1.27 |
| 07-Feb-92 | 69 | 0.036 | 0.179 | 0.036 | 0.125 | 0.054 | 2 | 1.929 |
| 10-Feb-92 | 72 | 0 | 0.25 | 0.045 | 0.15 | 0.1 | 1.65 | 0.6 |
| 12-Feb-92 | 74 | 0.031 | 0.156 | 0.141 | 0.094 | 0.031 | 2.969 | 1.25 |
| 14-Feb-92 | 76 | 0.01 | 0.06 | 0.025 | 0.001 | 0 | 0.15 | 0.075 |
| 17-Feb-92 | 79 | 0.128 | 0.125 | 0.094 | 0.094 | 0.031 | 1.188 | 0.028 |
| 19-Feb-92 | 81 | 0 | 0.15 | 0.06 | 0.02 | 0 | 0.25 | 0.05 |
| 21-Feb-92 | 83 | 0 | 0.2 | 0.04 | 0.06 | 0.05 | 0.03 | 0.009 |
| 24-Feb-92 | 86 | 0.075 | 0.125 | 0.05 | 0.038 | 0.025 | 0.025 | 0.025 |
| 26-Feb-92 | 88 | 0.078 | 0.156 | 0.156 | 0.094 | 0.068 | 0.188 | 0.094 |
| 28-Feb-92 | 90 | 0.031 | 0.172 | 0.078 | 0.125 | 0.109 | 0.094 | 0.063 |
| 02-Mar-92 | 93 | 0.075 | 0.35 | 0.25 | 0.2 | 0.175 | 0.5 | 0.25 |
| 04-Mar-92 | 95 | 0.045 | 0.1 | 0.075 | 0.045 | 0.045 | 0.045 | 0 |
| 06-Mar-92 | 97 | 0.06 | 0.28 | 0.12 | 0.005 | 0 | 0.16 | 0.06 |
| 09-Mar-92 | 100 | 0.167 | 0.333 | 0.267 | 0.133 | 0.1 | 0.733 | 0.633 |
| 11-Mar-92 | 102 | 0.115 | 0.615 | 0.538 | 0.192 | 0 | 0.423 | 0.138 |
| 13-Mar-92 | 104 | 0.065 | 0.132 | 0.098 | 0.001 | 0 | 0.001 | 0 |
| 16-Mar-92 | 107 | 0.296 | 0.592 | 0.428 | 0.526 | 0.493 | 0.526 | 0.328 |
| 18-Mar-92 | 109 | 0.385 | 0.847 | 0.424 | 0.27 | 0.054 | 1.925 | 1.463 |
| 20-Mar-92 | 111 | 0.568 | 1 | 0.5 | 0.346 | 0.231 | 2.308 | 2.308 |

| DATE | DAY | NO2-N : mg/L | | | | | | |
|-----------|-----|--------------|-------|-------|-------|-------|-------|-------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 01-Dec-91 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02-Dec-91 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04-Dec-91 | 4 | 0.001 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06-Dec-91 | 6 | 0.017 | 0.01 | 0.001 | 0.01 | 0 | 0 | 0 |
| 09-Dec-91 | 9 | 0.01 | 0.04 | 0.001 | 0.04 | 0.001 | 0.011 | 0.001 |
| 11-Dec-91 | 11 | 0.04 | 0.04 | 0.04 | 0.04 | 0.001 | 0.1 | 0.04 |
| 13-Dec-91 | 13 | 0.04 | 0.18 | 0.11 | 0.11 | 0.1 | 0.18 | 0.18 |
| 16-Dec-91 | 16 | 0.1 | 0.18 | 0.18 | 0.04 | 0.04 | 0.1 | 0.04 |
| 18-Dec-91 | 18 | 0 | 0.11 | 0.04 | 0.001 | 0 | 0.01 | 0 |
| 20-Dec-91 | 20 | 0.018 | 0.32 | 0.28 | 0.18 | 0.18 | 0.2 | 0.18 |
| 23-Dec-91 | 23 | 0.23 | 0.18 | 0.1 | 0.1 | 0 | 0.04 | 0.001 |
| 25-Dec-91 | 25 | 0.04 | 0.04 | 0.001 | 0.04 | 0.001 | 0.1 | 0.001 |
| 27-Dec-91 | 27 | 0.34 | 0.28 | 0.2 | 0.28 | 0.14 | 0.1 | 0.001 |
| 30-Dec-91 | 30 | 0.1 | 0.5 | 0.28 | 0.32 | 0.32 | 0.11 | 0.11 |
| 01-Jan-92 | 32 | 0.24 | 0.5 | 0.5 | 0.28 | 0.25 | 0.28 | 0.28 |
| 03-Jan-92 | 34 | 0.32 | 0.5 | 0.39 | 0.31 | 0.28 | 0.24 | 0.24 |
| 06-Jan-92 | 37 | 0.18 | 0.39 | 0.32 | 0.24 | 0.2 | 0.2 | 0.2 |
| 08-Jan-92 | 39 | 0.1 | 0.4 | 0.34 | 0.28 | 0.28 | 0.2 | 0.2 |
| 10-Jan-92 | 41 | 0.25 | 0.4 | 0.34 | 0.31 | 0.25 | 0.2 | 0.2 |
| 13-Jan-92 | 44 | 0.35 | 0.5 | 0.45 | 0.41 | 0.37 | 0.32 | 0.25 |
| 15-Jan-92 | 46 | 0.2 | 0.65 | 0.58 | 0.55 | 0.48 | 0.4 | 0.32 |
| 17-Jan-92 | 48 | 0.42 | 0.82 | 0.76 | 0.56 | 0.52 | 0.51 | 0.45 |
| 20-Jan-92 | 51 | 0.43 | 0.65 | 0.6 | 0.5 | 0.45 | 0.52 | 0.45 |
| 22-Jan-92 | 53 | 0.3 | 0.55 | 0.52 | 0.38 | 0.3 | 0.6 | 0.45 |
| 24-Jan-92 | 55 | 0.2 | 0.56 | 0.5 | 0.38 | 0.34 | 1 | 0.73 |
| 27-Jan-92 | 58 | 0.16 | 0.32 | 0.3 | 0.3 | 0.24 | 0.46 | 0.38 |
| 29-Jan-92 | 60 | 0.2 | 0.54 | 0.5 | 0.32 | 0.28 | 0.88 | 0.7 |
| 31-Jan-92 | 62 | 0.32 | 1.16 | 1 | 0.64 | 0.64 | 1.6 | 1.16 |
| 03-Feb-92 | 65 | 0.32 | 0.64 | 0.58 | 0.4 | 0.38 | 1 | 1 |
| 05-Feb-92 | 67 | 0.3 | 1.24 | 1.2 | 0.6 | 0.44 | 1 | 1 |
| 07-Feb-92 | 69 | 0.4 | 1 | 0.66 | 0.58 | 0.54 | 0.63 | 0.63 |
| 10-Feb-92 | 72 | 0.28 | 0.8 | 0.5 | 1.36 | 1.32 | 1.13 | 1.1 |
| 12-Feb-92 | 74 | 0.12 | 0.83 | 0.67 | 0.38 | 0.22 | 1.17 | 1.13 |
| 14-Feb-92 | 76 | 0.28 | 0.96 | 0.96 | 0.62 | 0.58 | 0.4 | 0.3 |
| 17-Feb-92 | 79 | 0.2 | 1 | 0.94 | 0.38 | 0.3 | 0.08 | 0.032 |
| 19-Feb-92 | 81 | 0.2 | 1.46 | 1.4 | 1 | 0.76 | 0.76 | 0.68 |
| 21-Feb-92 | 83 | 0.4 | 1.13 | 1.13 | 0.53 | 0.4 | 0.68 | 0.66 |
| 24-Feb-92 | 86 | 0.12 | 0.5 | 0.4 | 0.3 | 0.24 | 0.3 | 0.2 |
| 26-Feb-92 | 88 | 0.5 | 2.2 | 1.1 | 1 | 0.58 | 0.4 | 0.2 |
| 28-Feb-92 | 90 | 0.833 | 1.45 | 1.133 | 1.133 | 0.833 | 0.533 | 0.4 |
| 02-Mar-92 | 93 | 0.2 | 0.8 | 0.6 | 0.8 | 0.6 | 0.8 | 0.6 |
| 04-Mar-92 | 95 | 0.2 | 2.2 | 0.08 | 1.25 | 1 | 0.02 | 0.02 |
| 06-Mar-92 | 97 | 2.5 | 2.1 | 1.9 | 2.1 | 1.65 | 1.667 | 1.567 |
| 09-Mar-92 | 100 | 0.5 | 0.75 | 0.6 | 0.75 | 0.75 | 1.75 | 1.65 |
| 11-Mar-92 | 102 | 2.2 | 0.833 | 0.633 | 0.533 | 0.4 | 1.7 | 0.833 |
| 13-Mar-92 | 104 | 2.5 | 1.567 | 1.267 | 1.8 | 1.667 | 1.1 | 0.833 |
| 16-Mar-92 | 107 | 1.75 | 1.267 | 0.967 | 2.1 | 1.1 | 1 | 0.967 |
| 18-Mar-92 | 109 | 2.1 | 1.267 | 1 | 1.567 | 1.1 | 1 | 0.4 |
| 20-Mar-92 | 111 | 2.5 | 1.25 | 1.1 | 1.4 | 1.35 | 0.833 | 0.633 |

| DATE | DAY | NO3-N : mg/L | | | | | | |
|-----------|-----|--------------|-------|-------|-------|-------|-------|-------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 01-Dec-91 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02-Dec-91 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04-Dec-91 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06-Dec-91 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09-Dec-91 | 9 | 0.029 | 0.01 | 0.01 | 0 | 0 | 0 | 0 |
| 11-Dec-91 | 11 | 0.015 | 0.01 | 0.02 | 0.08 | 0.1 | 0 | 0 |
| 13-Dec-91 | 13 | 0.04 | 0.02 | 0.025 | 0.09 | 0.11 | 0 | 0 |
| 16-Dec-91 | 16 | 0.23 | 0.07 | 0.09 | 0.27 | 0.29 | 0 | 0 |
| 18-Dec-91 | 18 | 1 | 0.06 | 0.218 | 0.22 | 0.35 | 0 | 0 |
| 20-Dec-91 | 20 | 0.6 | 0.01 | 0.22 | 0.14 | 0.2 | 0 | 0 |
| 23-Dec-91 | 23 | 0.15 | 0.09 | 0.15 | 0.21 | 0.33 | 0 | 0 |
| 25-Dec-91 | 25 | 0.79 | 0.17 | 0.21 | 0.129 | 0.311 | 0 | 0 |
| 27-Dec-91 | 27 | 0.33 | 0.02 | 0.05 | 0.09 | 0.11 | 0 | 0 |
| 30-Dec-91 | 30 | 0.19 | 0.04 | 0.07 | 0.08 | 0.1 | 0.01 | 0.01 |
| 01-Jan-92 | 32 | 0.09 | 0.22 | 0.22 | 0.258 | 0.6 | 0.01 | 0.01 |
| 03-Jan-92 | 34 | 0.52 | 0.22 | 0.22 | 0.22 | 0.258 | 0.12 | 0.12 |
| 06-Jan-92 | 37 | 0.82 | 0.61 | 0.68 | 0.61 | 0.68 | 0.65 | 0.63 |
| 08-Jan-92 | 39 | 0.82 | 0.72 | 0.72 | 0.61 | 0.65 | 0.65 | 0.65 |
| 10-Jan-92 | 41 | 0.263 | 0.373 | 0.375 | 0.338 | 0.403 | 0.15 | 0.1 |
| 13-Jan-92 | 44 | 0.2 | 0.173 | 0.263 | 0.144 | 0.203 | 0.194 | 0.156 |
| 15-Jan-92 | 46 | 0.313 | 0.195 | 0.225 | 0.295 | 0.325 | 0.268 | 0.263 |
| 17-Jan-92 | 48 | 0.355 | 0.115 | 0.43 | 0.003 | 0.007 | 0.019 | 0.003 |
| 20-Jan-92 | 51 | 0.345 | 0.275 | 0.6 | 0.325 | 0.375 | 0.355 | 0.263 |
| 22-Jan-92 | 53 | 0.288 | 0.325 | 0.73 | 0.133 | 0.133 | 0.325 | 0.275 |
| 24-Jan-92 | 55 | 0.313 | 0.375 | 0.69 | 0.323 | 0.33 | 0.25 | 0.145 |
| 27-Jan-92 | 58 | 0.513 | 0.036 | 0.094 | 0.235 | 0.33 | 0.203 | 0.183 |
| 29-Jan-92 | 60 | 0.575 | 0.013 | 0.048 | 0.233 | 0.393 | 0.083 | 0.07 |
| 31-Jan-92 | 62 | 0.455 | 0.09 | 0.25 | 0.023 | 0.073 | 0.07 | 0.01 |
| 03-Feb-92 | 65 | 0.28 | 0.47 | 0.527 | 0.303 | 0.483 | 0.5 | 0.4 |
| 05-Feb-92 | 67 | 0.2 | 0.225 | 0.31 | 0.343 | 0.433 | 0.587 | 0.167 |
| 07-Feb-92 | 69 | 0.383 | 0.033 | 0.507 | 0.458 | 0.493 | 0.537 | 0.537 |
| 10-Feb-92 | 72 | 1.47 | 0.925 | 0.95 | 0.325 | 0.43 | 0.43 | 0 |
| 12-Feb-92 | 74 | 1.63 | 0.755 | 0.92 | 1.205 | 1.37 | 0.39 | 0.045 |
| 14-Feb-92 | 76 | 1.47 | 0.465 | 0.79 | 0.845 | 1.13 | 1.025 | 0.725 |
| 17-Feb-92 | 79 | 1.225 | 0.485 | 0.75 | 1.37 | 1.45 | 0.945 | 0.843 |
| 19-Feb-92 | 81 | 1.55 | 0.029 | 0.25 | 0.665 | 0.75 | 0.665 | 0.445 |
| 21-Feb-92 | 83 | 1.025 | 1.37 | 1.37 | 1.97 | 2.1 | 0.745 | 0.465 |
| 24-Feb-92 | 86 | 1.63 | 0.925 | 1.35 | 1.125 | 1.51 | 1.225 | 0.725 |
| 26-Feb-92 | 88 | 1.25 | 0.3 | 0.65 | 0.75 | 1.17 | 1.55 | 0.125 |
| 28-Feb-92 | 90 | 0.917 | 0.3 | 0.417 | 0.617 | 0.917 | 1.025 | 0.892 |
| 03-Mar-92 | 93 | 2.3 | 0.95 | 1.15 | 0.825 | 0.95 | 0.525 | 0.425 |
| 04-Mar-92 | 95 | 2.3 | 0.3 | 1.345 | 0.425 | 0.5 | 1.005 | 0.85 |
| 06-Mar-92 | 97 | 2.35 | 0.75 | 1.6 | 1.4 | 1.85 | 2.15 | 1.74 |
| 09-Mar-92 | 100 | 1.25 | 1 | 1.9 | 1 | 1 | 0.1 | 0 |
| 11-Mar-92 | 102 | 0.3 | 0.917 | 0.917 | 1.217 | 1.35 | 0.05 | 0.042 |
| 13-Mar-92 | 104 | 1 | 0.183 | 0.283 | 0.5 | 0.833 | 0.292 | 0.025 |
| 16-Mar-92 | 107 | 3.25 | 0.908 | 0.983 | 2 | 2.9 | 0.575 | 0.073 |
| 18-Mar-92 | 109 | 2.1 | 1 | 1.267 | 1.1 | 1.567 | 1 | 0.4 |
| 20-Mar-92 | 111 | 2.5 | 1.1 | 1.25 | 1.35 | 1.4 | 0.833 | 0.633 |

| DATE | DAY | COD : mg/L | | | | | | |
|-----------|-----|------------|--------|--------|-------|-------|--------|-------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 01-Dec-91 | 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 02-Dec-91 | 2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 04-Dec-91 | 4 | 5.78 | 5.78 | 0.00 | 5.78 | 0.00 | 5.78 | 0.00 |
| 06-Dec-91 | 6 | 11.56 | 5.78 | 5.78 | 5.78 | 5.78 | 11.56 | 5.78 |
| 11-Dec-91 | 9 | 11.29 | 11.29 | 5.65 | 11.29 | 5.65 | 11.29 | 11.29 |
| 13-Dec-91 | 11 | 16.94 | 11.29 | 5.65 | 11.29 | 5.65 | 16.94 | 11.29 |
| 16-Dec-91 | 13 | 16.94 | 16.94 | 5.64 | 16.94 | 5.64 | 16.94 | 11.29 |
| 18-Dec-91 | 16 | 16.55 | 16.55 | 5.52 | 16.55 | 11.03 | 11.03 | 11.03 |
| 20-Dec-91 | 18 | 16.00 | 16.00 | 8.00 | 16.00 | 8.00 | 16.00 | 8.00 |
| 23-Dec-91 | 20 | 16.27 | 16.27 | 8.13 | 16.27 | 8.13 | 16.27 | 8.13 |
| 25-Dec-91 | 23 | 15.74 | 15.74 | 15.74 | 15.74 | 7.87 | 23.61 | 7.86 |
| 27-Dec-91 | 25 | 30.00 | 30.00 | 15.00 | 22.50 | 7.50 | 30.00 | 15.00 |
| 30-Dec-91 | 27 | 22.86 | 22.86 | 15.24 | 22.86 | 7.60 | 15.24 | 7.62 |
| 01-Dec-91 | 30 | 15.24 | 22.86 | 7.62 | 15.24 | 7.62 | 15.24 | 7.62 |
| 01-Jan-92 | 32 | 15.00 | 30.00 | 7.50 | 15.00 | 7.50 | 30.00 | 7.50 |
| 03-Jan-92 | 34 | 22.86 | 22.86 | 7.62 | 22.86 | 7.62 | 22.86 | 7.62 |
| 06-Jan-92 | 37 | 15.24 | 22.86 | 7.62 | 22.86 | 7.62 | 25.24 | 22.89 |
| 08-Jan-92 | 39 | 22.86 | 22.86 | 7.62 | 22.86 | 7.62 | 22.86 | 15.24 |
| 10-Jan-92 | 41 | 22.86 | 22.86 | 7.62 | 22.86 | 7.62 | 22.86 | 15.24 |
| 13-Jan-92 | 44 | 21.82 | 14.55 | 7.27 | 14.55 | 7.27 | 14.55 | 14.55 |
| 15-Jan-92 | 46 | 14.55 | 21.86 | 7.27 | 14.55 | 7.27 | 29.10 | 14.55 |
| 17-Jan-92 | 48 | 21.82 | 14.55 | 7.27 | 14.55 | 0.00 | 14.55 | 14.55 |
| 20-Jan-92 | 51 | 21.82 | 7.72 | 0.00 | 7.27 | 0.00 | 14.56 | 14.56 |
| 22-Jan-92 | 53 | 13.91 | 20.87 | 6.96 | 20.87 | 6.96 | 27.83 | 13.91 |
| 24-Jan-92 | 55 | 13.91 | 20.87 | 6.96 | 20.87 | 6.96 | 27.83 | 13.91 |
| 27-Jan-92 | 58 | 20.28 | 33.80 | 13.52 | 33.30 | 20.28 | 33.80 | 27.04 |
| 29-Jan-92 | 60 | 20.87 | 34.78 | 20.87 | 27.83 | 6.96 | 34.78 | 13.91 |
| 31-Jan-92 | 62 | 31.48 | 39.34 | 23.61 | 31.48 | 23.61 | 47.21 | 39.34 |
| 03-Feb-92 | 65 | 31.48 | 39.34 | 31.48 | 15.74 | 7.87 | 39.34 | 31.48 |
| 05-Feb-92 | 67 | 23.23 | 38.71 | 23.23 | 15.48 | 7.74 | 46.45 | 38.71 |
| 07-Feb-92 | 69 | 15.48 | 46.45 | 30.97 | 7.74 | 7.74 | 46.45 | 38.71 |
| 10-Feb-92 | 72 | 30.97 | 46.45 | 30.97 | 38.71 | 15.48 | 46.45 | 38.71 |
| 12-Feb-92 | 74 | 22.86 | 45.71 | 3.48 | 15.28 | 7.62 | 38.10 | 30.48 |
| 14-Feb-92 | 76 | 30.48 | 68.57 | 38.10 | 30.48 | 30.48 | 45.71 | 45.71 |
| 17-Feb-92 | 79 | 23.23 | 61.94 | 46.45 | 23.22 | 15.48 | 38.71 | 23.23 |
| 19-Feb-92 | 81 | 36.92 | 88.62 | 81.23 | 44.31 | 36.92 | 44.31 | 36.92 |
| 21-Feb-92 | 83 | 44.31 | 96.00 | 81.23 | 81.23 | 66.46 | 81.23 | 73.85 |
| 24-Feb-92 | 86 | 36.36 | 80.00 | 50.91 | 36.36 | 29.10 | 43.64 | 36.36 |
| 26-Feb-92 | 88 | 42.99 | 64.48 | 64.48 | 21.49 | 14.33 | 50.15 | 42.99 |
| 28-Feb-92 | 90 | 57.31 | 78.81 | 78.81 | 50.20 | 42.99 | 78.81 | 57.31 |
| 02-Mar-92 | 93 | 84.71 | 77.65 | 56.47 | 70.59 | 35.29 | 63.53 | 56.47 |
| 04-Mar-92 | 95 | 56.47 | 98.82 | 98.82 | 84.71 | 42.35 | 70.59 | 63.53 |
| 06-Mar-92 | 97 | 64.48 | 78.81 | 78.81 | 78.81 | 42.99 | 71.64 | 64.48 |
| 09-Mar-92 | 100 | 70.82 | 86.56 | 78.69 | 39.34 | 23.61 | 94.43 | 70.82 |
| 11-Mar-92 | 102 | 69.68 | 100.65 | 85.16 | 54.19 | 38.71 | 85.16 | 61.94 |
| 13-Mar-92 | 104 | 100.65 | 116.13 | 77.42 | 54.19 | 54.19 | 77.42 | 69.68 |
| 16-Mar-92 | 107 | 85.16 | 108.39 | 100.65 | 92.90 | 77.42 | 123.87 | 85.16 |
| 18-Mar-92 | 109 | 116.13 | 123.87 | 108.38 | 85.16 | 69.08 | 131.61 | 92.90 |
| 20-Mar-92 | 111 | 137.14 | 137.14 | 129.52 | 68.57 | 60.95 | 137.14 | 99.05 |



ภาคผนวก ข.

รายการคำนวณประสิทธิภาพและ เปรียบเทียบข้อมูลต่าง ๆ ในการวิจัย

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

| DATE | DAY | TEMPERATURE : C | | | | | | | |
|---------------|-------|-----------------|-------|-------|-------|-------|-------|-------|-------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 | |
| 01-Dec-91 | 1 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 02-Dec-91 | 2 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 03-Dec-91 | 3 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 04-Dec-91 | 4 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 05-Dec-91 | 5 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 06-Dec-91 | 6 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 09-Dec-91 | 9 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| 10-Dec-91 | 10 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 11-Dec-91 | 11 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 12-Dec-91 | 12 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 13-Dec-91 | 13 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 14-Dec-91 | 16 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 17-Dec-91 | 17 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 18-Dec-91 | 18 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| 19-Dec-91 | 19 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| 20-Dec-91 | 20 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| 23-Dec-91 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| 24-Dec-91 | 24 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 25-Dec-91 | 25 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| 26-Dec-91 | 26 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| 27-Dec-91 | 27 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 30-Dec-91 | 30 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 |
| 31-Dec-91 | 31 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 |
| TOTAL VALUE | MONTH | 571 | 571 | 571 | 571 | 571 | 571 | 571 | 571 |
| AVERAGE VALUE | | 24.83 | 24.83 | 24.83 | 24.83 | 24.83 | 24.83 | 24.83 | 24.83 |
| NUMBER,N | | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| STD.DEVIATION | | 1.52 | 1.52 | 1.52 | 1.52 | 1.52 | 1.52 | 1.52 | 1.52 |
| MAXIMUM VALUE | | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| MINIMUM VALUE | | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 |

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

| DATE | DAY | TEMPERATURE : C | | | | | | |
|---------------|--------|-----------------|-------|-------|-------|-------|-------|-------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 01-Jan-92 | 32 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| 02-Jan-92 | 33 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 03-Jan-92 | 34 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 06-Jan-92 | 37 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 07-Jan-92 | 38 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 08-Jan-92 | 39 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| 09-Jan-92 | 40 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 10-Jan-92 | 41 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| 13-Jan-92 | 44 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| 14-Jan-92 | 45 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| 15-Jan-92 | 46 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 16-Jan-92 | 47 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| 17-Jan-92 | 48 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 20-Jan-92 | 51 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 21-Jan-92 | 52 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 22-Jan-92 | 53 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 23-Jan-92 | 54 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 24-Jan-92 | 55 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 27-Jan-92 | 58 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 28-Jan-92 | 59 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 29-Jan-92 | 60 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 30-Jan-92 | 61 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 31-Jan-92 | 62 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| TOTAL VALUE | MONTH2 | 578 | 578 | 578 | 578 | 578 | 578 | 578 |
| AVERAGE VALUE | | 25.13 | 25.13 | 25.13 | 25.13 | 25.13 | 25.13 | 25.13 |
| NUMBER,N | | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| STD.DEVIATION | | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| MAXIMUM VALUE | | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| MINIMUM VALUE | | 23 | 23 | 23 | 23 | 23 | 23 | 23 |

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

| DATE | DAY | TEMPERATURE : C | | | | | | |
|--------------------|-----|-----------------|-------|-------|-------|-------|-------|-------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 03-Feb-92 | 65 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 04-Feb-92 | 66 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 05-Feb-92 | 67 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| 06-Feb-92 | 68 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| 07-Feb-92 | 69 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| 10-Feb-92 | 72 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| 11-Feb-92 | 73 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| 12-Feb-92 | 74 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| 13-Feb-92 | 75 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| 14-Feb-92 | 76 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| 17-Feb-92 | 79 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| 18-Feb-92 | 80 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 19-Feb-92 | 81 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 20-Feb-92 | 82 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 21-Feb-92 | 83 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 24-Feb-92 | 86 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 25-Feb-92 | 87 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 26-Feb-92 | 88 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 27-Feb-92 | 89 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| 28-Feb-92 | 90 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TOTAL VALUE MONTH3 | | 521 | 521 | 521 | 521 | 521 | 521 | 521 |
| AVERAGE VALUE | | 26.05 | 26.05 | 26.05 | 26.05 | 26.05 | 26.05 | 26.05 |
| NUMBER, N | | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| STD. DEVIATION | | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| MAXIMUM VALUE | | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| MINIMUM VALUE | | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| 02-Mar-92 | 93 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 03-Mar-92 | 94 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 04-Mar-92 | 95 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 05-Mar-92 | 96 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 06-Mar-92 | 97 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| 09-Mar-92 | 100 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 10-Mar-92 | 101 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| 11-Mar-92 | 102 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 12-Mar-92 | 103 | 28 | 28 | 28 | 28 | 28 | 28 | 28 |
| 13-Mar-92 | 104 | 28 | 28 | 28 | 28 | 28 | 28 | 28 |
| 16-Mar-92 | 107 | 28 | 28 | 28 | 28 | 28 | 28 | 28 |
| 17-Mar-92 | 108 | 28 | 28 | 28 | 28 | 28 | 28 | 28 |
| 18-Mar-92 | 109 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| 19-Mar-92 | 110 | 28 | 28 | 28 | 28 | 28 | 28 | 28 |
| 20-Mar-92 | 111 | 28 | 28 | 28 | 28 | 28 | 28 | 28 |
| TOTAL VALUE MONTH4 | | 399 | 399 | 399 | 399 | 399 | 399 | 399 |
| AVERAGE VALUE | | 26.6 | 26.6 | 26.6 | 26.6 | 26.6 | 26.6 | 26.6 |
| NUMBER, N | | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| STD. DEVIATION | | 1.31 | 1.31 | 1.31 | 1.31 | 1.31 | 1.31 | 1.31 |
| MAXIMUM VALUE | | 28 | 28 | 28 | 28 | 28 | 28 | 28 |
| MINIMUM VALUE | | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

| DATE | DAY | DO : mg/L | | | | | | |
|--------------------|-----|-----------|------|------|------|------|------|------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 01-Dec-91 | 1 | 7.00 | 7.00 | 7.20 | 7.00 | 7.20 | 7.00 | 7.20 |
| 02-Dec-91 | 2 | 7.00 | 6.80 | 7.20 | 7.00 | 7.20 | 6.80 | 7.10 |
| 03-Dec-91 | 3 | 7.00 | 7.00 | 7.20 | 7.00 | 7.30 | 7.00 | 7.20 |
| 04-Dec-91 | 4 | 6.80 | 7.00 | 7.20 | 7.00 | 7.40 | 6.80 | 7.30 |
| 05-Dec-91 | 5 | 7.00 | 7.00 | 7.20 | 7.00 | 7.20 | 7.00 | 7.20 |
| 06-Dec-91 | 6 | 7.00 | 7.20 | 7.30 | 7.00 | 7.20 | 7.00 | 7.20 |
| 09-Dec-91 | 9 | 7.00 | 6.80 | 7.00 | 7.00 | 7.20 | 6.80 | 7.10 |
| 10-Dec-91 | 10 | 6.80 | 6.80 | 7.00 | 7.00 | 7.20 | 6.80 | 7.10 |
| 11-Dec-91 | 11 | 6.80 | 7.00 | 7.20 | 7.00 | 7.20 | 6.80 | 7.10 |
| 12-Dec-91 | 12 | 6.80 | 7.00 | 7.20 | 7.00 | 7.20 | 6.80 | 7.10 |
| 13-Dec-91 | 13 | 6.80 | 7.00 | 7.30 | 7.00 | 7.20 | 7.00 | 7.10 |
| 14-Dec-91 | 14 | 6.80 | 7.00 | 7.10 | 7.00 | 7.20 | 6.80 | 7.10 |
| 17-Dec-91 | 17 | 7.20 | 7.20 | 7.30 | 7.20 | 7.20 | 7.20 | 7.40 |
| 18-Dec-91 | 18 | 7.20 | 7.20 | 7.40 | 7.20 | 7.20 | 7.20 | 7.40 |
| 19-Dec-91 | 19 | 7.00 | 7.00 | 7.10 | 7.00 | 7.20 | 7.00 | 7.20 |
| 20-Dec-91 | 20 | 7.00 | 7.00 | 7.20 | 7.00 | 7.20 | 7.20 | 7.30 |
| 23-Dec-91 | 23 | 7.00 | 7.00 | 7.20 | 7.00 | 7.20 | 7.00 | 7.20 |
| 24-Dec-91 | 24 | 7.00 | 7.00 | 7.10 | 7.00 | 7.20 | 7.00 | 7.20 |
| 25-Dec-91 | 25 | 7.00 | 7.00 | 7.20 | 7.00 | 7.20 | 7.00 | 7.20 |
| 26-Dec-91 | 26 | 7.00 | 7.20 | 7.20 | 6.80 | 7.40 | 7.00 | 7.20 |
| 27-Dec-91 | 27 | 6.80 | 7.00 | 7.20 | 7.20 | 7.50 | 7.00 | 7.20 |
| 30-Dec-91 | 30 | 7.00 | 7.00 | 7.20 | 7.00 | 7.30 | 7.00 | 7.20 |
| 31-Dec-91 | 31 | 7.00 | 6.80 | 7.00 | 7.20 | 7.40 | 7.00 | 7.20 |
| TOTAL VALUE MONTH1 | | 160 | 161 | 165 | 162 | 167 | 160 | 166 |
| AVERAGE VALUE | | 6.96 | 7.00 | 7.18 | 7.03 | 7.25 | 6.97 | 7.20 |
| NUMBER, N | | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| STD. DEVIATION | | 0.12 | 0.12 | 0.10 | 0.09 | 0.09 | 0.13 | 0.09 |
| MAXIMUM VALUE | | 7 | 7 | 7 | 7 | 8 | 7 | 7 |
| MINIMUM VALUE | | 7 | 7 | 7 | 7 | 7 | 7 | 7 |

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

| DATE | DAY | DO : mg/L | | | | | | |
|----------------|-----|-----------|------|------|------|------|------|------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 01-Jan-92 | 32 | 7.00 | 7.00 | 7.30 | 7.00 | 7.30 | 7.00 | 7.20 |
| 02-Jan-92 | 33 | 7.00 | 7.00 | 7.20 | 7.00 | 7.30 | 7.00 | 7.20 |
| 03-Jan-92 | 34 | 7.20 | 7.00 | 7.10 | 7.00 | 7.30 | 7.00 | 7.20 |
| 06-Jan-92 | 37 | 7.00 | 7.00 | 7.20 | 7.00 | 7.30 | 7.00 | 7.20 |
| 07-Jan-92 | 38 | 7.00 | 7.00 | 7.20 | 7.00 | 7.30 | 7.00 | 7.20 |
| 08-Jan-92 | 39 | 7.00 | 7.00 | 7.40 | 7.00 | 7.30 | 7.00 | 7.20 |
| 09-Jan-92 | 40 | 7.00 | 7.00 | 7.30 | 7.20 | 7.30 | 6.80 | 7.10 |
| 10-Jan-92 | 41 | 7.00 | 7.00 | 7.30 | 7.00 | 7.30 | 7.00 | 7.20 |
| 13-Jan-92 | 44 | 7.00 | 7.20 | 7.40 | 7.00 | 7.30 | 7.20 | 7.40 |
| 14-Jan-92 | 45 | 7.00 | 7.20 | 7.40 | 7.00 | 7.30 | 7.00 | 7.20 |
| 15-Jan-92 | 46 | 7.00 | 7.20 | 7.50 | 7.00 | 7.30 | 6.80 | 7.00 |
| 16-Jan-92 | 47 | 7.00 | 7.20 | 7.50 | 7.00 | 7.30 | 7.00 | 7.20 |
| 17-Jan-92 | 48 | 7.00 | 7.20 | 7.50 | 7.20 | 7.30 | 6.80 | 7.00 |
| 20-Jan-92 | 50 | 7.00 | 7.20 | 7.40 | 7.20 | 7.40 | 6.80 | 7.00 |
| 21-Jan-92 | 52 | 7.00 | 7.20 | 7.30 | 7.20 | 7.40 | 6.80 | 7.00 |
| 22-Jan-92 | 53 | 7.00 | 7.20 | 7.40 | 7.20 | 7.40 | 6.80 | 7.00 |
| 23-Jan-92 | 54 | 7.00 | 7.00 | 7.10 | 7.20 | 7.40 | 6.80 | 7.00 |
| 24-Jan-92 | 55 | 7.00 | 7.00 | 7.20 | 7.20 | 7.40 | 6.80 | 7.00 |
| 27-Jan-92 | 58 | 7.00 | 7.00 | 7.20 | 6.80 | 7.40 | 7.00 | 7.20 |
| 28-Jan-92 | 59 | 6.40 | 6.80 | 7.10 | 6.80 | 7.30 | 6.20 | 7.00 |
| 29-Jan-92 | 60 | 7.00 | 6.80 | 7.10 | 7.00 | 7.30 | 6.80 | 7.00 |
| 30-Jan-92 | 61 | 7.00 | 6.80 | 7.00 | 7.00 | 7.20 | 6.80 | 7.00 |
| 31-Jan-92 | 62 | 7.00 | 6.80 | 7.00 | 7.20 | 7.40 | 6.80 | 7.00 |
| TOTAL VALUE | | 161 | 162 | 167 | 162 | 169 | 158 | 164 |
| AVERAGE VALUE | | 6.98 | 7.03 | 7.27 | 7.05 | 7.33 | 6.88 | 7.11 |
| NUMBER, N | | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| STD. DEVIATION | | 0.13 | 0.14 | 0.15 | 0.12 | 0.05 | 0.18 | 0.11 |
| MAXIMUM VALUE | | 7.20 | 7.20 | 7.50 | 7.20 | 7.40 | 7.20 | 7.40 |
| MINIMUM VALUE | | 6.40 | 6.80 | 7.00 | 6.80 | 7.20 | 6.20 | 7.00 |

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

ตาราง ข-2 แสดงรายการคำนวณค่าเฉลี่ยออกซิเจนละลายน้ำ

| DATE | DAY | DO : mg/L | | | | | | |
|--------------------|-----|-----------|-------|-------|-------|-------|-------|-------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 03-Feb-92 | 65 | 7.00 | 7.00 | 7.20 | 7.20 | 7.40 | 6.80 | 7.00 |
| 04-Feb-92 | 66 | 7.00 | 7.20 | 7.40 | 7.20 | 7.40 | 7.00 | 7.20 |
| 05-Feb-92 | 67 | 7.00 | 7.20 | 7.40 | 7.20 | 7.40 | 7.00 | 7.20 |
| 06-Feb-92 | 66 | 7.00 | 7.20 | 7.40 | 7.20 | 7.40 | 7.00 | 7.20 |
| 07-Feb-92 | 69 | 7.00 | 7.20 | 7.40 | 7.20 | 7.40 | 7.00 | 7.20 |
| 10-Feb-92 | 72 | 7.00 | 7.20 | 7.30 | 7.20 | 7.40 | 7.00 | 7.20 |
| 11-Feb-92 | 73 | 7.00 | 7.20 | 7.30 | 7.20 | 7.40 | 7.00 | 7.20 |
| 12-Feb-92 | 74 | 7.00 | 7.20 | 7.40 | 7.20 | 7.40 | 7.00 | 7.20 |
| 13-Feb-92 | 75 | 7.00 | 7.00 | 7.20 | 7.00 | 7.40 | 7.00 | 7.20 |
| 14-Feb-92 | 76 | 7.00 | 7.20 | 7.40 | 7.00 | 7.20 | 7.20 | 7.40 |
| 17-Feb-92 | 79 | 7.00 | 7.20 | 7.70 | 7.20 | 7.40 | 7.00 | 7.20 |
| 18-Feb-92 | 80 | 7.00 | 7.20 | 7.40 | 7.20 | 7.50 | 7.20 | 7.40 |
| 19-Feb-92 | 81 | 7.00 | 7.20 | 7.30 | 7.20 | 7.50 | 7.20 | 7.40 |
| 20-Feb-92 | 82 | 7.00 | 7.00 | 7.40 | 7.00 | 7.30 | 6.80 | 7.00 |
| 21-Feb-92 | 83 | 7.00 | 7.20 | 7.30 | 7.20 | 7.50 | 7.00 | 7.20 |
| 24-Feb-92 | 86 | 7.00 | 7.20 | 7.40 | 7.00 | 7.20 | 6.80 | 7.10 |
| 25-Feb-92 | 87 | 6.80 | 6.60 | 6.80 | 6.60 | 7.00 | 6.80 | 7.10 |
| 26-Feb-92 | 88 | 6.40 | 6.20 | 6.80 | 6.20 | 7.00 | 6.40 | 6.60 |
| 27-Feb-92 | 89 | 6.60 | 6.00 | 6.40 | 6.00 | 6.00 | 6.40 | 6.40 |
| 28-Feb-92 | 90 | 6.40 | 6.20 | 6.80 | 6.20 | 6.50 | 6.40 | 6.50 |
| TOTAL VALUE MONTH3 | | 138 | 140 | 145 | 139 | 145 | 138 | 142 |
| AVERAGE VALUE | | 6.91 | 6.98 | 7.24 | 6.97 | 7.24 | 6.90 | 7.10 |
| NUMBER, N | | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| STD. DEVIATION | | 0.19 | 0.38 | 0.30 | 0.38 | 0.37 | 0.24 | 0.27 |
| MAXIMUM VALUE | | 7.00 | 7.20 | 7.70 | 7.20 | 7.50 | 7.20 | 7.40 |
| MINIMUM VALUE | | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| 02-Mar-92 | 93 | 6.40 | 6.00 | 6.20 | 6.20 | 6.60 | 6.40 | 6.60 |
| 03-Mar-92 | 94 | 6.20 | 6.00 | 6.30 | 6.20 | 6.60 | 6.20 | 6.40 |
| 04-Mar-92 | 95 | 6.20 | 6.00 | 6.40 | 6.00 | 6.40 | 6.40 | 6.60 |
| 05-Mar-92 | 96 | 7.20 | 6.60 | 6.80 | 7.00 | 7.20 | 7.00 | 7.20 |
| 06-Mar-92 | 97 | 7.40 | 7.20 | 7.40 | 7.20 | 7.40 | 6.80 | 7.00 |
| 09-Mar-92 | 100 | 7.20 | 7.40 | 7.50 | 7.40 | 7.60 | 7.00 | 7.20 |
| 10-Mar-92 | 101 | 6.20 | 6.00 | 7.00 | 6.20 | 7.00 | 6.40 | 6.80 |
| 11-Mar-92 | 102 | 6.40 | 6.40 | 7.20 | 6.40 | 7.00 | 6.20 | 6.60 |
| 12-Mar-92 | 103 | 6.00 | 5.60 | 5.60 | 5.60 | 5.60 | 6.00 | 6.00 |
| 13-Mar-92 | 104 | 6.00 | 6.20 | 6.40 | 6.00 | 6.30 | 6.20 | 6.40 |
| 16-Mar-92 | 107 | 6.40 | 6.20 | 6.50 | 6.20 | 6.60 | 6.20 | 6.60 |
| 17-Mar-92 | 108 | 6.20 | 6.00 | 6.60 | 6.00 | 6.40 | 6.00 | 6.60 |
| 18-Mar-92 | 109 | 6.00 | 5.80 | 6.50 | 5.80 | 6.00 | 6.00 | 6.10 |
| 19-Mar-92 | 110 | 6.00 | 5.80 | 6.00 | 5.80 | 5.80 | 6.00 | 6.10 |
| 20-Mar-92 | 111 | 6.00 | 5.00 | 5.00 | 6.00 | 6.00 | 6.00 | 6.00 |
| TOTAL VALUE MONTH4 | | 95.80 | 92.20 | 97.40 | 94.00 | 98.50 | 94.80 | 98.20 |
| AVERAGE VALUE | | 6.39 | 6.15 | 6.49 | 6.27 | 6.57 | 6.32 | 6.55 |
| NUMBER, N | | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| STD. DEVIATION | | 0.46 | 0.57 | 0.64 | 0.51 | 0.57 | 0.34 | 0.38 |
| MAXIMUM VALUE | | 7.40 | 7.40 | 7.50 | 7.40 | 7.60 | 7.00 | 7.20 |
| MINIMUM VALUE | | 6.00 | 5.00 | 5.00 | 5.60 | 5.60 | 6.00 | 6.00 |

| DATE | DAY | pH | | | | | | |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 01-Dec-91 | 1 | 7.90 | 7.90 | 7.90 | 7.90 | 7.90 | 7.90 | 7.90 |
| 02-Dec-91 | 2 | 7.90 | 8.00 | 8.00 | 8.00 | 8.00 | 7.90 | 7.90 |
| 03-Dec-91 | 3 | 7.90 | 8.00 | 7.90 | 8.00 | 7.90 | 7.90 | 7.90 |
| 04-Dec-91 | 4 | 7.90 | 8.00 | 7.90 | 8.00 | 7.90 | 7.90 | 7.80 |
| 05-Dec-91 | 5 | 7.90 | 8.00 | 7.90 | 8.00 | 7.90 | 7.90 | 7.70 |
| 06-Dec-91 | 6 | 7.90 | 8.00 | 8.00 | 8.00 | 8.00 | 7.50 | 7.00 |
| 09-Dec-91 | 9 | 7.60 | 7.70 | 7.70 | 7.80 | 7.80 | 7.40 | 7.30 |
| 10-Dec-91 | 10 | 7.60 | 7.80 | 7.80 | 7.80 | 7.90 | 7.20 | 7.10 |
| 11-Dec-91 | 11 | 7.80 | 7.90 | 8.00 | 8.00 | 8.20 | 7.40 | 7.10 |
| 12-Dec-91 | 12 | 7.70 | 7.90 | 8.00 | 8.00 | 8.10 | 7.00 | 6.80 |
| 13-Dec-91 | 13 | 7.70 | 8.00 | 8.00 | 8.10 | 8.10 | 7.10 | 6.90 |
| 14-Dec-91 | 14 | 7.70 | 8.00 | 8.00 | 8.10 | 8.10 | 7.00 | 6.80 |
| 17-Dec-91 | 17 | 8.20 | 7.80 | 7.80 | 7.80 | 7.90 | 7.20 | 7.00 |
| 18-Dec-91 | 18 | 7.20 | 7.60 | 7.70 | 7.70 | 7.70 | 6.80 | 6.60 |
| 19-Dec-91 | 19 | 7.80 | 8.00 | 8.00 | 8.00 | 8.00 | 6.40 | 6.10 |
| 20-Dec-91 | 20 | 7.90 | 8.00 | 8.00 | 8.10 | 8.10 | 6.90 | 6.40 |
| 23-Dec-91 | 23 | 7.80 | 7.90 | 7.90 | 8.00 | 8.00 | 6.40 | 6.30 |
| 24-Dec-91 | 24 | 7.90 | 8.00 | 8.00 | 8.10 | 8.10 | 6.90 | 6.40 |
| 25-Dec-91 | 25 | 7.90 | 8.00 | 8.00 | 8.10 | 8.10 | 6.70 | 6.30 |
| 26-Dec-91 | 26 | 7.80 | 8.00 | 8.00 | 8.00 | 8.00 | 6.70 | 6.40 |
| 27-Dec-91 | 27 | 7.80 | 8.10 | 8.10 | 8.10 | 8.10 | 6.60 | 6.40 |
| 30-Dec-91 | 30 | 7.80 | 8.00 | 8.00 | 8.00 | 8.00 | 6.70 | 6.40 |
| 31-Dec-91 | 31 | 7.80 | 7.90 | 7.90 | 8.00 | 8.00 | 6.70 | 6.40 |
| TOTAL VALUE | MONTH1 | 179.40 | 182.50 | 182.50 | 183.60 | 183.80 | 164.10 | 158.90 |
| AVERAGE VALUE | | 7.80 | 7.93 | 7.93 | 7.98 | 7.99 | 7.13 | 6.91 |
| NUMBER,N | | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| STD.DEVIATION | | 0.18 | 0.11 | 0.10 | 0.11 | 0.11 | 0.49 | 0.58 |
| MAXIMUM VALUE | | 8.20 | 8.10 | 8.10 | 8.10 | 8.20 | 7.90 | 7.90 |
| MINIMUM VALUE | | 7.20 | 7.60 | 7.70 | 7.70 | 7.70 | 6.40 | 6.10 |

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

| DATE | DAY | pH | | | | | | |
|----------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 01-Jan-92 | 32 | 7.80 | 8.00 | 8.00 | 8.00 | 8.00 | 6.70 | 6.40 |
| 02-Jan-92 | 33 | 7.70 | 7.90 | 7.90 | 7.90 | 8.00 | 6.70 | 6.40 |
| 03-Jan-92 | 34 | 7.80 | 8.00 | 7.90 | 8.00 | 7.90 | 6.60 | 6.30 |
| 06-Jan-92 | 37 | 7.70 | 8.00 | 8.00 | 7.90 | 7.90 | 6.60 | 6.30 |
| 07-Jan-92 | 38 | 7.80 | 7.90 | 7.90 | 8.00 | 8.00 | 6.60 | 6.30 |
| 08-Jan-92 | 39 | 7.80 | 8.00 | 8.00 | 8.00 | 8.00 | 6.70 | 6.40 |
| 09-Jan-92 | 40 | 7.80 | 8.00 | 8.00 | 8.00 | 8.00 | 6.40 | 6.20 |
| 10-Jan-92 | 41 | 7.80 | 8.00 | 8.00 | 8.00 | 8.00 | 6.40 | 6.20 |
| 13-Jan-92 | 44 | 7.70 | 7.90 | 7.90 | 8.00 | 7.90 | 6.60 | 6.30 |
| 14-Jan-92 | 45 | 7.70 | 7.80 | 7.90 | 8.00 | 8.00 | 6.60 | 6.20 |
| 15-Jan-92 | 46 | 7.70 | 7.90 | 7.90 | 8.00 | 7.90 | 6.50 | 6.20 |
| 16-Jan-92 | 47 | 7.60 | 7.80 | 7.80 | 7.90 | 7.90 | 6.40 | 6.10 |
| 17-Jan-92 | 48 | 7.60 | 7.80 | 7.90 | 7.90 | 7.90 | 6.70 | 6.40 |
| 20-Jan-92 | 51 | 7.60 | 7.80 | 7.80 | 8.00 | 8.00 | 7.30 | 6.90 |
| 21-Jan-92 | 52 | 7.70 | 7.80 | 7.80 | 7.90 | 7.90 | 7.10 | 6.90 |
| 22-Jan-92 | 53 | 7.70 | 7.90 | 7.90 | 7.90 | 7.90 | 7.00 | 6.80 |
| 23-Jan-92 | 54 | 7.60 | 7.90 | 7.80 | 7.90 | 7.90 | 6.90 | 6.70 |
| 24-Jan-92 | 55 | 7.40 | 7.80 | 7.80 | 7.90 | 7.90 | 5.70 | 5.30 |
| 27-Jan-92 | 58 | 7.40 | 7.90 | 7.90 | 7.90 | 7.90 | 5.70 | 5.30 |
| 28-Jan-92 | 59 | 7.30 | 7.80 | 7.80 | 7.80 | 7.80 | 6.00 | 5.90 |
| 29-Jan-92 | 60 | 7.50 | 7.80 | 7.80 | 7.90 | 7.90 | 6.00 | 5.50 |
| 30-Jan-92 | 61 | 7.40 | 7.80 | 7.80 | 7.70 | 7.70 | 5.80 | 5.20 |
| 31-Jan-92 | 62 | 7.40 | 7.70 | 7.70 | 7.80 | 7.80 | 6.00 | 5.50 |
| TOTAL VALUE | MONTH1 | 175.50 | 181.20 | 181.20 | 182.30 | 182.10 | 149.00 | 141.70 |
| AVERAGE VALUE | | 7.63 | 7.88 | 7.88 | 7.93 | 7.92 | 6.48 | 6.16 |
| NUMBER, N | | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| STD. DEVIATION | | 0.15 | 0.09 | 0.08 | 0.08 | 0.08 | 0.43 | 0.49 |
| MAXIMUM VALUE | | 7.80 | 8.00 | 8.00 | 8.00 | 8.00 | 7.30 | 6.90 |
| MINIMUM VALUE | | 7.30 | 7.70 | 7.70 | 7.70 | 7.70 | 5.70 | 5.20 |

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

| DATE | DAY | pH | | | | | | |
|----------------|---------|--------|--------|--------|--------|--------|--------|--------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 03-Feb-92 | 65 | 7.40 | 7.60 | 7.60 | 7.70 | 7.70 | 6.00 | 5.20 |
| 04-Feb-92 | 66 | 7.50 | 7.60 | 7.50 | 7.70 | 7.70 | 6.20 | 5.70 |
| 05-Feb-92 | 67 | 7.60 | 7.70 | 7.60 | 7.80 | 7.80 | 6.40 | 6.00 |
| 06-Feb-92 | 68 | 7.50 | 7.50 | 7.40 | 7.70 | 7.70 | 6.20 | 5.70 |
| 07-Feb-92 | 69 | 7.60 | 7.60 | 7.60 | 7.70 | 7.70 | 6.80 | 6.70 |
| 10-Feb-92 | 72 | 7.20 | 7.40 | 7.30 | 7.70 | 7.70 | 6.90 | 6.60 |
| 11-Feb-92 | 73 | 7.00 | 7.30 | 7.10 | 7.60 | 7.60 | 6.70 | 6.40 |
| 12-Feb-92 | 74 | 7.30 | 7.40 | 7.10 | 7.70 | 7.70 | 7.30 | 6.70 |
| 13-Feb-92 | 75 | 7.20 | 7.40 | 7.40 | 7.60 | 7.60 | 6.40 | 6.00 |
| 14-Feb-92 | 76 | 7.20 | 7.40 | 7.40 | 7.70 | 7.70 | 6.20 | 5.50 |
| 17-Feb-92 | 79 | 7.30 | 7.50 | 7.70 | 7.70 | 7.70 | 6.50 | 6.00 |
| 18-Feb-92 | 80 | 7.30 | 7.60 | 7.70 | 7.70 | 7.70 | 6.40 | 6.00 |
| 19-Feb-92 | 81 | 7.40 | 7.70 | 7.40 | 7.70 | 8.00 | 6.70 | 6.70 |
| 20-Feb-92 | 82 | 7.20 | 7.40 | 7.40 | 7.70 | 7.70 | 5.80 | 5.40 |
| 21-Feb-92 | 83 | 7.20 | 7.50 | 7.20 | 7.70 | 7.60 | 6.00 | 5.50 |
| 24-Feb-92 | 86 | 7.00 | 7.50 | 7.40 | 7.80 | 7.80 | 6.30 | 5.80 |
| 25-Feb-92 | 87 | 6.90 | 7.40 | 7.30 | 7.70 | 7.70 | 6.50 | 6.10 |
| 26-Feb-92 | 88 | 7.10 | 7.50 | 7.30 | 7.70 | 7.60 | 6.70 | 6.10 |
| 27-Feb-92 | 89 | 7.10 | 7.50 | 7.30 | 7.70 | 7.70 | 6.20 | 6.00 |
| 28-Feb-92 | 90 | 7.20 | 7.40 | 7.30 | 7.60 | 7.60 | 6.40 | 6.20 |
| TOTAL VALUE | MONTH 3 | 145.20 | 149.90 | 148.00 | 153.90 | 154.00 | 128.60 | 120.30 |
| AVERAGE VALUE | | 7.26 | 7.50 | 7.40 | 7.70 | 7.70 | 6.43 | 6.02 |
| NUMBER, N | | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| STD. DEVIATION | | 0.19 | 0.11 | 0.17 | 0.05 | 0.09 | 0.34 | 0.43 |
| MAXIMUM VALUE | | 7.60 | 7.70 | 7.70 | 7.80 | 8.00 | 7.30 | 6.70 |
| MINIMUM VALUE | | 6.90 | 7.30 | 7.10 | 7.60 | 7.60 | 5.80 | 5.20 |
| 02-Mar-92 | 93 | 7.00 | 7.50 | 7.30 | 7.80 | 7.70 | 7.00 | 6.40 |
| 03-Mar-92 | 94 | 7.00 | 7.40 | 7.20 | 7.70 | 7.60 | 6.60 | 6.20 |
| 04-Mar-92 | 95 | 7.00 | 7.60 | 7.50 | 7.70 | 7.60 | 6.30 | 6.30 |
| 05-Mar-92 | 96 | 7.00 | 7.60 | 7.50 | 7.60 | 7.50 | 6.30 | 6.00 |
| 06-Mar-92 | 97 | 7.00 | 7.70 | 7.60 | 7.70 | 7.70 | 6.90 | 6.60 |
| 09-Mar-92 | 100 | 6.90 | 7.70 | 7.60 | 7.80 | 7.70 | 6.50 | 6.30 |
| 10-Mar-92 | 101 | 6.90 | 7.80 | 7.50 | 7.70 | 7.40 | 6.80 | 6.50 |
| 11-Mar-92 | 102 | 6.90 | 7.70 | 7.50 | 7.80 | 7.60 | 6.70 | 6.60 |
| 12-Mar-92 | 103 | 6.80 | 7.80 | 7.50 | 7.70 | 7.40 | 6.50 | 6.30 |
| 13-Mar-92 | 104 | 6.90 | 7.80 | 7.70 | 7.70 | 7.70 | 6.40 | 6.00 |
| 16-Mar-92 | 107 | 7.00 | 7.80 | 7.70 | 7.80 | 7.70 | 6.50 | 6.20 |
| 17-Mar-92 | 108 | 7.00 | 7.80 | 7.70 | 7.80 | 7.70 | 6.40 | 6.10 |
| 18-Mar-92 | 109 | 7.00 | 7.90 | 7.70 | 7.80 | 7.70 | 6.40 | 6.10 |
| 19-Mar-92 | 110 | 7.00 | 8.00 | 7.80 | 7.70 | 7.70 | 6.70 | 6.40 |
| 20-Mar-92 | 111 | 7.10 | 7.80 | 7.80 | 7.80 | 7.80 | 6.80 | 6.50 |
| TOTAL VALUE | MONTH 4 | 104.50 | 115.90 | 113.60 | 116.10 | 114.50 | 98.80 | 94.50 |
| AVERAGE VALUE | | 6.97 | 7.73 | 7.57 | 7.74 | 7.63 | 6.59 | 6.30 |
| NUMBER, N | | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| STD. DEVIATION | | 0.07 | 0.15 | 0.17 | 0.06 | 0.11 | 0.21 | 0.19 |
| MAXIMUM VALUE | | 7.10 | 8.00 | 7.80 | 7.80 | 7.80 | 7.00 | 6.60 |
| MINIMUM VALUE | | 6.80 | 7.40 | 7.20 | 7.60 | 7.40 | 6.30 | 6.00 |

| DATE | DAY | ORP :mV | | | | | | |
|---------------------|-----|---------|-------|-------|-------|-------|-------|-------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 01-Dec-91 | 1 | 80 | 80 | 80 | 80 | 80 | 80 | 80 |
| 02-Dec-91 | 2 | 80 | 60 | 50 | 60 | 50 | 80 | 80 |
| 03-Dec-91 | 3 | 60 | 60 | 60 | 60 | 60 | 50 | 80 |
| 04-Dec-91 | 4 | 60 | 60 | 50 | 60 | 50 | 80 | 80 |
| 05-Dec-91 | 5 | 60 | 60 | 50 | 60 | 50 | 80 | 80 |
| 06-Dec-91 | 6 | 80 | 60 | 50 | 50 | 50 | 80 | 80 |
| 09-Dec-91 | 9 | 50 | 50 | 50 | 40 | 50 | 80 | 80 |
| 10-Dec-91 | 10 | 60 | 60 | 50 | 50 | 50 | 50 | 50 |
| 11-Dec-91 | 11 | 40 | 40 | 40 | 40 | 40 | 50 | 50 |
| 12-Dec-91 | 12 | 40 | 40 | 30 | 40 | 30 | 50 | 50 |
| 13-Dec-91 | 13 | 40 | 40 | 40 | 40 | 30 | 50 | 50 |
| 14-Dec-91 | 16 | 40 | 40 | 30 | 40 | 30 | 50 | 50 |
| 17-Dec-91 | 17 | 50 | 40 | 40 | 30 | 30 | 60 | 60 |
| 18-Dec-91 | 18 | 60 | 50 | 50 | 40 | 40 | 60 | 80 |
| 19-Dec-91 | 19 | 40 | 30 | 30 | 30 | 30 | 60 | 60 |
| 20-Dec-91 | 20 | 60 | 50 | 50 | 60 | 60 | 80 | 80 |
| 23-Dec-91 | 23 | 50 | 40 | 40 | 40 | 40 | 60 | 60 |
| 24-Dec-91 | 24 | 50 | 30 | 30 | 30 | 30 | 60 | 60 |
| 25-Dec-91 | 25 | 50 | 40 | 40 | 30 | 30 | 80 | 80 |
| 26-Dec-91 | 26 | 50 | 40 | 40 | 30 | 30 | 80 | 80 |
| 27-Dec-91 | 27 | 50 | 50 | 50 | 40 | 40 | 60 | 60 |
| 30-Dec-91 | 30 | 40 | 40 | 40 | 40 | 30 | 40 | 40 |
| 31-Dec-91 | 31 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| TOTAL VALUE MONTH 1 | | 1230 | 1100 | 1030 | 1030 | 970 | 1460 | 1510 |
| AVERAGE VALUE | | 53.48 | 47.83 | 44.78 | 44.78 | 42.17 | 63.48 | 65.65 |
| NUMBER,N | | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| STD.DEVIATION | | 12.72 | 11.78 | 10.98 | 12.81 | 12.84 | 14.33 | 14.69 |
| MAXIMUM VALUE | | 80 | 80 | 80 | 80 | 80 | 80 | 80 |
| MINIMUM VALUE | | 40 | 30 | 30 | 30 | 30 | 40 | 40 |

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

| DATE | DAY | DRP :mV | | | | | | |
|--------------------|-----|---------|-------|-------|-------|-------|-------|-------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 01-Jan-92 | 32 | 40 | 20 | 20 | 20 | 20 | 50 | 50 |
| 02-Jan-92 | 33 | 40 | 20 | 20 | 20 | 20 | 50 | 40 |
| 03-Jan-92 | 34 | 40 | 20 | 20 | 20 | 20 | 50 | 50 |
| 06-Jan-92 | 37 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| 07-Jan-92 | 38 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| 08-Jan-92 | 39 | 20 | 20 | 20 | 20 | 20 | 40 | 40 |
| 09-Jan-92 | 40 | 20 | 20 | 20 | 20 | 20 | 40 | 40 |
| 10-Jan-92 | 41 | 20 | 20 | 20 | 20 | 20 | 40 | 40 |
| 13-Jan-92 | 44 | 20 | 20 | 20 | 20 | 20 | 40 | 40 |
| 14-Jan-92 | 45 | 20 | 20 | 20 | 20 | 20 | 40 | 40 |
| 15-Jan-92 | 46 | 20 | 20 | 20 | 20 | 20 | 40 | 40 |
| 16-Jan-92 | 47 | 20 | 20 | 20 | 20 | 20 | 40 | 40 |
| 17-Jan-92 | 48 | 20 | 20 | 20 | 20 | 20 | 40 | 40 |
| 20-Jan-92 | 51 | 20 | 20 | 20 | 20 | 20 | 40 | 40 |
| 21-Jan-92 | 52 | 20 | 20 | 20 | 20 | 20 | 40 | 40 |
| 22-Jan-92 | 53 | 20 | 20 | 20 | 20 | 20 | 40 | 40 |
| 23-Jan-92 | 54 | 20 | 20 | 20 | 20 | 20 | 40 | 40 |
| 24-Jan-92 | 55 | 50 | 40 | 20 | 20 | 20 | 100 | 100 |
| 27-Jan-92 | 58 | 60 | 40 | 40 | 40 | 40 | 100 | 100 |
| 28-Jan-92 | 59 | 60 | 50 | 50 | 40 | 40 | 100 | 100 |
| 29-Jan-92 | 60 | 60 | 40 | 40 | 40 | 40 | 110 | 110 |
| 30-Jan-92 | 61 | 60 | 40 | 40 | 20 | 20 | 100 | 110 |
| 31-Jan-92 | 62 | 60 | 40 | 40 | 40 | 40 | 100 | 100 |
| TOTAL VALUE MONTH2 | | 750 | 590 | 570 | 540 | 540 | 1280 | 1280 |
| AVERAGE VALUE | | 32.61 | 25.65 | 24.78 | 23.48 | 23.48 | 55.65 | 55.65 |
| NUMBER,N | | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| STD.DEVIATION | | 32.61 | 25.65 | 24.78 | 23.48 | 23.48 | 55.65 | 55.65 |
| MAXIMUM VALUE | | 60 | 50 | 50 | 40 | 40 | 110 | 110 |
| MINIMUM VALUE | | 20 | 20 | 20 | 20 | 20 | 20 | 20 |

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

| DATE | DAY | DRP :mV | | | | | | |
|---------------------|-----|---------|------|-------|-------|-------|-------|-------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 03-Feb-92 | 65 | 50 | 40 | 40 | 40 | 40 | 100 | 100 |
| 04-Feb-92 | 66 | 80 | 50 | 50 | 40 | 40 | 100 | 80 |
| 05-Feb-92 | 67 | 60 | 50 | 40 | 40 | 20 | 80 | 80 |
| 06-Feb-92 | 68 | 60 | 50 | 40 | 40 | 40 | 100 | 100 |
| 07-Feb-92 | 69 | 60 | 40 | 40 | 40 | 40 | 80 | 80 |
| 10-Feb-92 | 72 | 60 | 40 | 40 | 20 | 20 | 60 | 60 |
| 11-Feb-92 | 73 | 50 | 40 | 40 | 20 | 20 | 40 | 40 |
| 12-Feb-92 | 74 | 50 | 40 | 40 | 20 | 20 | 40 | 40 |
| 13-Feb-92 | 75 | 50 | 20 | 20 | 20 | 20 | 50 | 50 |
| 14-Feb-92 | 76 | 50 | 40 | 20 | 20 | 20 | 80 | 80 |
| 17-Feb-92 | 79 | 50 | 40 | 40 | 20 | 20 | 100 | 100 |
| 18-Feb-92 | 80 | 50 | 40 | 40 | 20 | 20 | 80 | 80 |
| 19-Feb-92 | 81 | 50 | 40 | 40 | 20 | 20 | 80 | 80 |
| 20-Feb-92 | 82 | 60 | 40 | 40 | 40 | 40 | 100 | 100 |
| 21-Feb-92 | 83 | 60 | 40 | 40 | 40 | 40 | 100 | 100 |
| 24-Feb-92 | 86 | 60 | 40 | 40 | 20 | 20 | 80 | 100 |
| 25-Feb-92 | 87 | 60 | 40 | 40 | 40 | 40 | 80 | 100 |
| 26-Feb-92 | 88 | 60 | 40 | 40 | 20 | 20 | 60 | 80 |
| 27-Feb-92 | 89 | 80 | 40 | 40 | 20 | 20 | 80 | 80 |
| 28-Feb-92 | 90 | 60 | 40 | 40 | 20 | 20 | 80 | 60 |
| TOTAL VALUE MONTH3 | | 1160 | 810 | 770 | 560 | 540 | 1570 | 1590 |
| AVERAGE VALUE | | 58 | 40.5 | 38.5 | 28 | 27 | 78.5 | 79.5 |
| NUMBER,N | | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| STD.DEVIATION | | 8.72 | 5.89 | 6.54 | 9.80 | 9.54 | 19.05 | 19.62 |
| MAXIMUM VALUE | | 80 | 50 | 50 | 40 | 40 | 100 | 100 |
| MINIMUM AVERAGE | | 50 | 20 | 20 | 20 | 20 | 40 | 40 |
| 02-Mar-92 | 93 | 60 | 40 | 40 | 20 | 20 | 80 | 80 |
| 03-Mar-92 | 94 | 60 | 40 | 40 | 40 | 40 | 80 | 80 |
| 04-Mar-92 | 95 | 60 | 40 | 40 | 20 | 20 | 80 | 80 |
| 05-Mar-92 | 96 | 60 | 40 | 40 | 20 | 20 | 60 | 60 |
| 06-Mar-92 | 97 | 60 | 40 | 40 | 20 | 40 | 50 | 50 |
| 09-Mar-92 | 100 | 60 | 40 | 40 | 50 | 50 | 80 | 80 |
| 10-Mar-92 | 101 | 100 | 50 | 50 | 40 | 40 | 50 | 50 |
| 11-Mar-92 | 102 | 80 | 40 | 40 | 20 | 20 | 60 | 60 |
| 12-Mar-92 | 103 | 60 | 40 | 40 | 20 | 20 | 60 | 60 |
| 13-Mar-92 | 104 | 60 | 40 | 40 | 40 | 40 | 80 | 80 |
| 16-Mar-92 | 107 | 60 | 40 | 40 | 20 | 20 | 60 | 60 |
| 17-Mar-92 | 108 | 60 | 40 | 40 | 20 | 20 | 60 | 60 |
| 18-Mar-92 | 109 | 60 | 40 | 20 | 20 | 20 | 60 | 60 |
| 19-Mar-92 | 110 | 60 | 20 | 20 | 20 | 30 | 60 | 60 |
| 20-Mar-92 | 111 | 60 | 20 | 20 | 20 | 20 | 60 | 60 |
| TOTAL VALUE MONTH 4 | | 960 | 570 | 550 | 390 | 420 | 980 | 980 |
| AVERAGE VALUE | | 64 | 38 | 36.67 | 26 | 28 | 65.33 | 65.33 |
| NUMBER,N | | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| STD.DEVIATION | | 10.83 | 7.48 | 8.69 | 10.20 | 10.46 | 10.87 | 10.87 |
| MAXIMUM VALUE | | 100 | 50 | 50 | 50 | 50 | 80 | 80 |
| MINIMUM VALUE | | 60 | 20 | 20 | 20 | 20 | 50 | 50 |

| DAY | COLOR : UNIT | | | | | | | | | | |
|---------------|--------------|------|------|--------|--------|------|--------|--------|------|--------|-------|
| | 1 | 2 | F-2 | %EFF.2 | 3 | F-3 | %EFF.3 | 4 | F-4 | %EFF.4 | |
| 1 | NIL | NIL | NIL | | NIL | NIL | | NIL | NIL | | |
| 2 | NIL | NIL | NIL | | NIL | NIL | | NIL | NIL | | |
| 3 | NIL | NIL | NIL | | NIL | NIL | | NIL | NIL | | |
| 4 | NIL | NIL | NIL | | NIL | NIL | | NIL | NIL | | |
| 5 | NIL | NIL | NIL | | NIL | NIL | | NIL | NIL | | |
| 6 | NIL | NIL | NIL | | NIL | NIL | | NIL | NIL | | |
| 9 | NIL | NIL | NIL | | NIL | NIL | | NIL | NIL | | |
| 10 | NIL | NIL | NIL | | NIL | NIL | | NIL | NIL | | |
| 11 | NIL | NIL | NIL | | NIL | NIL | | NIL | NIL | | |
| 12 | NIL | NIL | NIL | | NIL | NIL | | NIL | NIL | | |
| 13 | NIL | NIL | NIL | | NIL | NIL | | NIL | NIL | | |
| 16 | NIL | NIL | NIL | | NIL | NIL | | NIL | NIL | | |
| 17 | NIL | NIL | NIL | | NIL | NIL | | NIL | NIL | | |
| 18 | NIL | NIL | NIL | | NIL | NIL | | NIL | NIL | | |
| 19 | NIL | NIL | NIL | | NIL | NIL | | NIL | NIL | | |
| 20 | NIL | NIL | NIL | | NIL | NIL | | NIL | NIL | | |
| 23 | NIL | NIL | NIL | | NIL | NIL | | NIL | NIL | | |
| 24 | NIL | NIL | NIL | | NIL | NIL | | NIL | NIL | | |
| 25 | NIL | NIL | NIL | | NIL | NIL | | NIL | NIL | | |
| 26 | 5 | NIL | NIL | | NIL | NIL | | 5 | NIL | | |
| 27 | 5 | NIL | NIL | | NIL | NIL | | 5 | NIL | | |
| 30 | 5 | NIL | NIL | | NIL | NIL | | 5 | NIL | | |
| 31 | 5 | 1 | NIL | | 1 | NIL | | 10 | 5 | | |
| TOTAL VALUE | MONTH 1 | 20 | 1 | 0 | | 1 | 0 | | 25 | 5 | |
| AVERAGE VALUE | | 0.87 | 0.04 | 0.00 | 100.00 | 0.04 | 0.00 | 100.00 | 1.09 | 0.22 | 80.00 |
| NUMBER, N | | 23 | 23 | 23 | | 23 | 23 | | 23 | 23 | |
| STD.DEVIATION | | 1.90 | 0.20 | 0.00 | | 0.20 | 0.00 | | 2.54 | 1.02 | |
| MAXIMUM VALUE | | 5 | 1 | 0 | | 1 | 0 | | 10 | 5 | |
| MINIMUM VALUE | | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

| DAY | COLOR : UNIT | | | | | | | | | |
|---------------|--------------|-------|-------|--------|-------|-------|--------|-------|-------|--------|
| | 1 | 2 | F-2 | XEFF.2 | 3 | F-3 | XEFF.3 | 4 | F-4 | XEFF.4 |
| 32 | 10 | 5 | 1 | | 1 | 1 | | 10 | 5 | |
| 33 | 10 | 5 | 1 | | 1 | 1 | | 10 | 10 | |
| 34 | 10 | 5 | 5 | | 5 | 1 | | 10 | 10 | |
| 37 | 15 | 10 | 5 | | 10 | 5 | | 15 | 15 | |
| 38 | 15 | 15 | 10 | | 10 | 5 | | 15 | 15 | |
| 39 | 15 | 10 | 10 | | 10 | 5 | | 20 | 15 | |
| 40 | 15 | 10 | 10 | | 10 | 10 | | 20 | 10 | |
| 41 | 20 | 20 | 10 | | 20 | 10 | | 20 | 10 | |
| 44 | 20 | 20 | 10 | | 20 | 10 | | 30 | 20 | |
| 45 | 20 | 20 | 10 | | 20 | 10 | | 30 | 20 | |
| 46 | 20 | 20 | 15 | | 20 | 10 | | 20 | 20 | |
| 47 | 20 | 20 | 10 | | 20 | 10 | | 20 | 20 | |
| 48 | 20 | 20 | 10 | | 20 | 10 | | 20 | 20 | |
| 51 | 20 | 20 | 10 | | 20 | 10 | | 20 | 20 | |
| 52 | 20 | 20 | 10 | | 20 | 10 | | 20 | 15 | |
| 53 | 20 | 30 | 20 | | 20 | 10 | | 20 | 20 | |
| 54 | 20 | 20 | 10 | | 20 | 10 | | 20 | 10 | |
| 55 | 20 | 20 | 10 | | 20 | 10 | | 20 | 20 | |
| 58 | 20 | 20 | 10 | | 20 | 10 | | 20 | 10 | |
| 59 | 30 | 20 | 10 | | 20 | 10 | | 20 | 20 | |
| 60 | 30 | 20 | 10 | | 20 | 10 | | 20 | 20 | |
| 61 | 30 | 20 | 10 | | 20 | 10 | | 20 | 10 | |
| 62 | 30 | 20 | 10 | | 20 | 10 | | 30 | 20 | |
| TOTAL VALUE | MONTH 2 | 450 | 390 | 217 | | 367 | 188 | | 450 | 355 |
| AVERAGE VALUE | | 19.57 | 16.96 | 9.43 | 44.36 | 15.96 | 8.17 | 48.77 | 19.57 | 15.43 |
| NUMBER, N | | 23 | 23 | 23 | | 23 | 23 | | 23 | 23 |
| STD.DEVIATION | | 5.882 | 6.210 | 3.786 | | 6.497 | 3.239 | | 5.298 | 4.871 |
| MAXIMUM VALUE | | 30 | 30 | 20 | | 20 | 10 | | 30 | 20 |
| MINIMUM VALUE | | 10 | 5 | 1 | | 1 | 1 | | 10 | 5 |

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

| DAY | COLOR : UNIT | | | | | | | | | | |
|---------------|--------------|-------|-------|--------|-------|-------|--------|-------|-------|--------|-------|
| | 1 | 2 | F-2 | %EFF.2 | 3 | F-3 | %EFF.3 | 4 | F-4 | %EFF.4 | |
| 65 | 30 | 20 | 10 | | 20 | 10 | | 30 | 20 | | |
| 66 | 30 | 30 | 20 | | 30 | 20 | | 30 | 20 | | |
| 67 | 30 | 30 | 20 | | 30 | 20 | | 30 | 20 | | |
| 68 | 30 | 30 | 20 | | 30 | 20 | | 30 | 20 | | |
| 69 | 30 | 30 | 20 | | 30 | 20 | | 30 | 20 | | |
| 72 | 40 | 40 | 30 | | 40 | 30 | | 40 | 30 | | |
| 73 | 40 | 40 | 30 | | 40 | 30 | | 40 | 30 | | |
| 74 | 40 | 40 | 30 | | 40 | 30 | | 40 | 20 | | |
| 75 | 40 | 40 | 30 | | 40 | 30 | | 40 | 30 | | |
| 76 | 40 | 40 | 20 | | 40 | 20 | | 40 | 20 | | |
| 79 | 30 | 40 | 20 | | 40 | 20 | | 40 | 30 | | |
| 80 | 30 | 40 | 20 | | 40 | 20 | | 40 | 30 | | |
| 81 | 40 | 40 | 30 | | 40 | 30 | | 40 | 30 | | |
| 82 | 40 | 40 | 20 | | 40 | 20 | | 40 | 20 | | |
| 83 | 40 | 40 | 20 | | 40 | 20 | | 40 | 20 | | |
| 86 | 30 | 40 | 10 | | 40 | 10 | | 30 | 20 | | |
| 87 | 30 | 40 | 10 | | 20 | 10 | | 40 | 10 | | |
| 88 | 30 | 40 | 20 | | 40 | 20 | | 40 | 10 | | |
| 89 | 60 | 60 | 45 | | 60 | 40 | | 45 | 30 | | |
| 90 | 50 | 50 | 40 | | 50 | 30 | | 50 | 45 | | |
| TOTAL VALUE | MONTH 3 | 730 | 770 | 465 | | 750 | 450 | | 755 | 475 | |
| AVERAGE VALUE | | 36.5 | 38.5 | 23.25 | 39.61 | 37.5 | 22.5 | 40.00 | 37.75 | 23.75 | 37.09 |
| NUMBER, N | | 20 | 20 | 20 | | 20 | 20 | | 20 | 20 | |
| STD.DEVIATION | | 7.921 | 7.921 | 8.983 | | 8.874 | 7.665 | | 5.585 | 7.886 | |
| MAXIMUM VALUE | | 60 | 60 | 45 | | 60 | 40 | | 50 | 45 | |
| MINIMUM VALUE | | 30 | 20 | 10 | | 20 | 10 | | 30 | 10 | |
| 93 | 50 | 60 | 50 | | 60 | 50 | | 60 | 40 | | |
| 94 | 50 | 60 | 50 | | 60 | 50 | | 60 | 45 | | |
| 95 | 50 | 60 | 50 | | 50 | 45 | | 60 | 50 | | |
| 96 | 60 | 60 | 60 | | 60 | 60 | | 50 | 45 | | |
| 97 | 60 | 60 | 50 | | 60 | 50 | | 50 | 45 | | |
| 100 | 60 | 60 | 60 | | 60 | 45 | | 50 | 45 | | |
| 101 | 70 | 60 | 60 | | 60 | 45 | | 50 | 45 | | |
| 102 | 70 | 60 | 50 | | 60 | 50 | | 60 | 45 | | |
| 103 | 60 | 60 | 50 | | 60 | 50 | | 50 | 50 | | |
| 104 | 60 | 60 | 60 | | 60 | 60 | | 50 | 50 | | |
| 107 | 70 | 70 | 70 | | 70 | 70 | | 70 | 70 | | |
| 108 | 70 | 70 | 70 | | 70 | 70 | | 70 | 70 | | |
| 109 | 70 | 70 | 70 | | 70 | 70 | | 70 | 70 | | |
| 110 | 100 | 100 | 100 | | 100 | 100 | | 100 | 100 | | |
| 111 | 100 | 100 | 100 | | 100 | 100 | | 100 | 100 | | |
| TOTAL VALUE | MONTH 4 | 1000 | 1010 | 950 | | 1000 | 915 | | 950 | 870 | |
| AVERAGE VALUE | | 66.67 | 67.33 | 63.33 | 5.94 | 66.67 | 61.00 | 8.50 | 63.33 | 58.00 | 8.42 |
| NUMBER, N | | 15 | 15 | 15 | | 15 | 15 | | 15 | 15 | |
| STD.DEVIATION | | 14.91 | 13.40 | 16.19 | | 13.98 | 17.63 | | 16.19 | 19.13 | |
| MAXIMUM VALUE | | 100 | 100 | 100 | | 100 | 100 | | 100 | 100 | |
| MINIMUM VALUE | | 50 | 60 | 50 | | 50 | 45 | | 50 | 40 | |

TURBIDITY REMOVAL DATA

| DATE | DAY | TURBIDITY : NTU | | | | | | | | | |
|---------------------|-----|-----------------|-------|-------|--------|-------|-------|--------|-------|-------|--------|
| | | 1 | 2 | F-2 | XEFF.2 | 3 | F-3 | XEFF.3 | 4 | F-4 | XEFF.4 |
| 01-Dec-91 | 1 | 0.2 | 0.2 | | | 0.2 | | | 0.2 | | |
| 02-Dec-91 | 2 | 0.3 | 0.3 | 0.2 | | 0.3 | 0.2 | | 0.3 | 0.2 | |
| 03-Dec-91 | 3 | 0.3 | 0.3 | 0.2 | | 0.3 | 0.2 | | 0.3 | 0.2 | |
| 04-Dec-91 | 4 | 0.3 | 0.4 | 0.3 | | 0.4 | 0.3 | | 0.4 | 0.3 | |
| 05-Dec-91 | 5 | 0.4 | 0.4 | 0.2 | | 0.4 | 0.2 | | 0.4 | 0.2 | |
| 06-Dec-91 | 6 | 0.4 | 0.5 | 0.3 | | 0.4 | 0.3 | | 0.6 | 0.4 | |
| 09-Dec-91 | 9 | 0.5 | 0.5 | 0.5 | | 0.8 | 0.5 | | 0.8 | 0.6 | |
| 10-Dec-91 | 10 | 0.6 | 0.5 | 0.2 | | 0.8 | 0.5 | | 0.8 | 0.6 | |
| 11-Dec-91 | 11 | 0.5 | 0.6 | 0.5 | | 0.6 | 0.4 | | 0.7 | 0.6 | |
| 12-Dec-91 | 12 | 0.6 | 0.5 | 0.3 | | 0.6 | 0.4 | | 0.8 | 0.5 | |
| 13-Dec-91 | 13 | 0.6 | 0.6 | 0.5 | | 0.6 | 0.3 | | 0.8 | 0.6 | |
| 14-Dec-91 | 16 | 0.7 | 0.8 | 0.5 | | 0.6 | 0.3 | | 0.8 | 0.6 | |
| 17-Dec-91 | 17 | 0.6 | 0.6 | 0.5 | | 0.8 | 0.6 | | 0.8 | 0.6 | |
| 18-Dec-91 | 18 | 0.8 | 0.8 | 0.6 | | 1 | 0.8 | | 1.3 | 1.2 | |
| 19-Dec-91 | 19 | 0.8 | 0.8 | 0.6 | | 1 | 0.7 | | 1.3 | 1.2 | |
| 20-Dec-91 | 20 | 1 | 1 | 0.8 | | 0.8 | 0.7 | | 0.8 | 0.7 | |
| 23-Dec-91 | 23 | 0.6 | 1 | 0.8 | | 0.8 | 0.5 | | 0.8 | 0.7 | |
| 24-Dec-91 | 24 | 0.8 | 1.1 | 1 | | 0.6 | 0.5 | | 1.1 | 0.9 | |
| 25-Dec-91 | 25 | 1 | 1 | 0.8 | | 0.7 | 0.6 | | 1.2 | 1 | |
| 26-Dec-91 | 26 | 0.7 | 0.8 | 0.6 | | 0.8 | 0.6 | | 0.8 | 0.6 | |
| 27-Dec-91 | 27 | 0.8 | 0.8 | 0.6 | | 1 | 0.8 | | 0.8 | 0.7 | |
| 30-Dec-91 | 30 | 0.6 | 0.8 | 0.6 | | 1 | 0.7 | | 1 | 0.8 | |
| 31-Dec-91 | 31 | 0.7 | 0.8 | 0.6 | | 0.8 | 0.6 | | 1 | 0.7 | |
| TOTAL VALUE MONTH 1 | | 13.8 | 15.1 | 11.2 | | 15.3 | 10.7 | | 17.8 | 13.9 | |
| AVERAGE VALUE | | 0.600 | 0.657 | 0.509 | 22.46 | 0.665 | 0.486 | 26.89 | 0.774 | 0.632 | 18.36 |
| NUMBER, N | | 23 | 23 | 22 | | 23 | 22 | | 23 | 22 | |
| STD. DEVIATION | | 0.213 | 0.246 | 0.219 | | 0.237 | 0.189 | | 0.298 | 0.274 | |
| MAXIMUM VALUE | | 1 | 1.1 | 1 | | 1 | 0.8 | | 1.3 | 1.2 | |
| MINIMUM VALUE | | 0.2 | 0.2 | 0.2 | | 0.2 | 0.2 | | 0.2 | 0.2 | |

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

TURBIDITY REMOVAL DATA

| DATE | DAY | TURBIDITY : NTU | | | | | | | | | |
|---------------------|-----|-----------------|-------|-------|--------|-------|-------|--------|-------|-------|--------|
| | | 1 | 2 | F-2 | XEFF.2 | 3 | F-3 | XEFF.3 | 4 | F-4 | XEFF.4 |
| 01-Jan-92 | 32 | 0.6 | 0.8 | 0.6 | | 1 | 0.8 | | 1 | 0.8 | |
| 02-Jan-92 | 33 | 0.6 | 0.8 | 0.6 | | 1 | 0.8 | | 1 | 0.8 | |
| 03-Jan-92 | 34 | 0.5 | 0.9 | 0.6 | | 0.8 | 0.6 | | 1.2 | 0.8 | |
| 06-Jan-92 | 37 | 0.5 | 0.8 | 0.7 | | 1 | 0.8 | | 1.1 | 0.8 | |
| 07-Jan-92 | 38 | 0.6 | 0.9 | 0.6 | | 1 | 0.8 | | 1 | 0.6 | |
| 08-Jan-92 | 39 | 0.8 | 0.6 | 0.6 | | 1 | 0.7 | | 1 | 0.8 | |
| 09-Jan-92 | 40 | 0.8 | 0.8 | 0.6 | | 1 | 0.8 | | 1.1 | 0.8 | |
| 10-Jan-92 | 41 | 0.8 | 0.8 | 0.5 | | 0.8 | 0.6 | | 1 | 0.8 | |
| 13-Jan-92 | 44 | 0.8 | 0.9 | 0.6 | | 0.8 | 0.6 | | 1.1 | 0.8 | |
| 14-Jan-92 | 45 | 0.8 | 0.9 | 0.6 | | 0.8 | 0.6 | | 1.8 | 1.7 | |
| 15-Jan-92 | 46 | 0.8 | 0.9 | 0.6 | | 0.9 | 0.7 | | 1 | 0.8 | |
| 16-Jan-92 | 47 | 0.7 | 0.8 | 0.6 | | 1 | 0.7 | | 1.1 | 0.7 | |
| 17-Jan-92 | 48 | 0.8 | 0.9 | 0.7 | | 0.8 | 0.6 | | 1 | 0.7 | |
| 20-Jan-92 | 51 | 0.8 | 0.8 | 0.6 | | 1 | 0.8 | | 1.2 | 0.8 | |
| 21-Jan-92 | 52 | 0.8 | 0.8 | 0.6 | | 1 | 0.7 | | 1.1 | 0.9 | |
| 22-Jan-92 | 53 | 0.9 | 1 | 0.8 | | 0.8 | 0.6 | | 1.1 | 0.8 | |
| 23-Jan-92 | 54 | 0.8 | 1 | 0.8 | | 0.9 | 0.6 | | 1 | 0.8 | |
| 24-Jan-92 | 55 | 0.8 | 1.2 | 1.1 | | 1 | 0.8 | | 1.1 | 0.9 | |
| 27-Jan-92 | 57 | 0.8 | 1.2 | 1 | | 1 | 0.9 | | 1.2 | 1 | |
| 28-Jan-92 | 59 | 1.2 | 1.3 | 1.2 | | 1 | 0.8 | | 1.5 | 1.3 | |
| 29-Jan-92 | 60 | 1 | 1.5 | 1.4 | | 1.4 | 1 | | 1.4 | 1.2 | |
| 30-Jan-92 | 61 | 1 | 1.3 | 1.2 | | 2.8 | 2.6 | | 1.2 | 1.1 | |
| 31-Jan-92 | 62 | 1 | 3.6 | 3.4 | | 1.3 | 1.2 | | 1.4 | 1.2 | |
| TOTAL VALUE MONTH 2 | | 18.2 | 24.7 | 20 | | 24.1 | 19.1 | | 26.6 | 20.9 | |
| AVERAGE VALUE | | 0.791 | 1.074 | 0.870 | 19.03 | 1.048 | 0.830 | 20.75 | 1.157 | 0.909 | 21.43 |
| NUMBER, N | | 23 | 23 | 23 | | 23 | 23 | | 23 | 23 | |
| STD.DEVIATION | | 0.161 | 0.573 | 0.592 | | 0.401 | 0.404 | | 0.195 | 0.239 | |
| MAXIMUM VALUE | | 1.2 | 3.6 | 3.4 | | 2.8 | 2.6 | | 1.8 | 1.7 | |
| MINIMUM VALUE | | 0.5 | 0.8 | 0.5 | | 0.8 | 0.6 | | 1 | 0.6 | |

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

TURBIDITY REMOVAL DATA

| DATE | DAY | TURBIDITY : NTU | | | | | | | | | |
|---------------------|-----|-----------------|-------|-------|--------|-------|-------|--------|-------|-------|--------|
| | | 1 | 2 | F-2 | XEFF.2 | 3 | F-3 | XEFF.3 | 4 | F-4 | XEFF.4 |
| 03-Feb-92 | 65 | 0.8 | 1.8 | 1.5 | | 1.4 | 1.2 | | 1.8 | 1.6 | |
| 04-Feb-92 | 66 | 0.2 | 2.6 | 2.2 | | 1.1 | 0.8 | | 2.2 | 1.7 | |
| 05-Feb-92 | 67 | 0.5 | 2.5 | 2 | | 1 | 0.6 | | 1.8 | 1.5 | |
| 06-Feb-92 | 68 | 0.6 | 3 | 2.6 | | 0.6 | 0.5 | | 1.9 | 1.6 | |
| 07-Feb-92 | 69 | 0.6 | 2.9 | 2.6 | | 0.8 | 0.6 | | 2.1 | 1.8 | |
| 10-Feb-92 | 72 | 0.8 | 4 | 3.5 | | 0.8 | 0.5 | | 2.3 | 2.1 | |
| 11-Feb-92 | 73 | 1 | 3.5 | 3 | | 0.8 | 0.5 | | 2.5 | 2.4 | |
| 12-Feb-92 | 74 | 1.2 | 5.8 | 5.4 | | 0.8 | 0.5 | | 2.8 | 2.8 | |
| 13-Feb-92 | 75 | 1 | 6.8 | 6.8 | | 1.2 | 0.5 | | 3 | 3 | |
| 14-Feb-92 | 76 | 1.5 | 5 | 3.5 | | 2 | 0.8 | | 3.5 | 2 | |
| 17-Feb-92 | 79 | 1 | 4.7 | 4.3 | | 1.3 | 0.8 | | 2.8 | 1.5 | |
| 18-Feb-92 | 80 | 1 | 5.5 | 4.6 | | 1.2 | 0.9 | | 2.5 | 1.5 | |
| 19-Feb-92 | 81 | 1 | 5.9 | 4.7 | | 1.5 | 0.8 | | 2.2 | 1.2 | |
| 20-Feb-92 | 82 | 1.5 | 4.8 | 4 | | 3 | 1.5 | | 2.5 | 1 | |
| 21-Feb-92 | 83 | 1.8 | 4.8 | 3.6 | | 2.5 | 1.2 | | 1.8 | 1 | |
| 24-Feb-92 | 86 | 1 | 2 | 1.2 | | 1.2 | 1 | | 1.2 | 1 | |
| 25-Feb-92 | 87 | 1 | 2.5 | 2.3 | | 2.5 | 1.5 | | 1.4 | 1 | |
| 26-Feb-92 | 88 | 1 | 4.5 | 3.8 | | 1.8 | 1.6 | | 1.8 | 1 | |
| 27-Feb-92 | 89 | 1 | 4 | 3.8 | | 2.1 | 1.8 | | 1.5 | 1.2 | |
| 28-Feb-92 | 90 | 1 | 6 | 5 | | 2.2 | 1.8 | | 2.3 | 2 | |
| ----- | | | | | | | | | | | |
| TOTAL VALUE MONTH 3 | | 19.5 | 82.6 | 70.4 | | 29.8 | 19.4 | | 43.9 | 32.9 | |
| AVERAGE VALUE | | 0.975 | 4.13 | 3.52 | 14.77 | 1.49 | 0.97 | 34.90 | 2.195 | 1.645 | 25.06 |
| NUMBER, N | | 20 | 20 | 20 | | 20 | 20 | | 20 | 20 | |
| STD. DEVIATION | | 0.351 | 1.438 | 1.360 | | 0.669 | 0.444 | | 0.557 | 0.582 | |
| MAXIMUM VALUE | | 1.8 | 6.8 | 6.8 | | 3 | 1.8 | | 3.5 | 3 | |
| MINIMUM VALUE | | 0.2 | 1.8 | 1.2 | | 0.6 | 0.5 | | 1.2 | 1 | |
| ----- | | | | | | | | | | | |
| 02-Mar-92 | 93 | 2.7 | 3 | 2 | | 1.5 | 0.6 | | 1.7 | 1.5 | |
| 03-Mar-92 | 94 | 1 | 6.7 | 4.5 | | 1.2 | 0.8 | | 1.8 | 1.5 | |
| 04-Mar-92 | 95 | 1 | 6.8 | 6.5 | | 2 | 1.5 | | 2 | 1.6 | |
| 05-Mar-92 | 96 | 1.5 | 7 | 6.7 | | 2.5 | 2 | | 1.8 | 1.5 | |
| 06-Mar-92 | 97 | 1.3 | 2.2 | 2 | | 1.6 | 1.3 | | 2.5 | 2.5 | |
| 09-Mar-92 | 100 | 2.4 | 2.5 | 2.2 | | 1 | 0.8 | | 2.5 | 1.7 | |
| 10-Mar-92 | 101 | 1.2 | 4 | 3.2 | | 2 | 1.8 | | 3.5 | 2.5 | |
| 11-Mar-92 | 102 | 1.5 | 4.8 | 3.5 | | 2.5 | 2.4 | | 3.5 | 2.9 | |
| 12-Mar-92 | 103 | 1 | 5 | 4.5 | | 2.8 | 2.7 | | 4 | 3.8 | |
| 13-Mar-92 | 104 | 2.5 | 5 | 5 | | 2.9 | 2.7 | | 2.8 | 2.3 | |
| 16-Mar-92 | 107 | 2.7 | 4.3 | 3.8 | | 3.3 | 3 | | 2.7 | 2 | |
| 17-Mar-92 | 108 | 4.1 | 4.5 | 3.8 | | 3.5 | 3.3 | | 2.8 | 2 | |
| 18-Mar-92 | 109 | 2.5 | 4.5 | 2.6 | | 3 | 2 | | 3 | 2.4 | |
| 19-Mar-92 | 110 | 5.3 | 3.8 | 2.5 | | 3.5 | 1.1 | | 3.6 | 2.8 | |
| 20-Mar-92 | 111 | 6.5 | 6.5 | 3.5 | | 4 | 1.5 | | 6.5 | 5 | |
| ----- | | | | | | | | | | | |
| TOTAL VALUE MONTH 4 | | 39.2 | 70.6 | 56.3 | | 37.3 | 27.5 | | 44.7 | 36 | |
| AVERAGE VALUE | | 2.61 | 4.71 | 3.75 | 25.40 | 2.49 | 1.83 | 35.64 | 2.98 | 2.40 | 24.17 |
| NUMBER, N | | 15 | 15 | 15 | | 15 | 15 | | 15 | 15 | |
| STD. DEVIATION | | 1.97 | 1.48 | 1.43 | | 0.88 | 0.82 | | 1.16 | 0.93 | |
| MAXIMUM VALUE | | 8.5 | 7 | 6.7 | | 4 | 3.3 | | 6.5 | 5 | |
| MINIMUM VALUE | | 1 | 2.2 | 2 | | 1 | 0.6 | | 1.7 | 1.5 | |

| DATE | DAY | ALKALINITY:mg/L as CaCO ₃ | | | | | | |
|--------------------|-----|--------------------------------------|---------|---------|---------|---------|---------|---------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 01-Dec-91 | 1 | 216.00 | 208.00 | 200.00 | 200.00 | 196.00 | 188.00 | 180.00 |
| 02-Dec-91 | 2 | 188.00 | 184.00 | 180.00 | 208.00 | 200.00 | 184.00 | 180.00 |
| 04-Dec-91 | 4 | 184.00 | 248.00 | 200.00 | 188.00 | 180.00 | 132.00 | 128.00 |
| 06-Dec-91 | 6 | 152.00 | 204.00 | 196.00 | 194.00 | 192.00 | 96.00 | 56.00 |
| 09-Dec-91 | 9 | 248.00 | 144.00 | 120.00 | 144.00 | 136.00 | 52.00 | 40.00 |
| 11-Dec-91 | 11 | 152.00 | 140.00 | 140.00 | 168.00 | 92.00 | 120.00 | 60.00 |
| 13-Dec-91 | 13 | 176.00 | 172.00 | 160.00 | 142.00 | 112.00 | 72.00 | 72.00 |
| 16-Dec-91 | 16 | 128.00 | 136.00 | 132.00 | 156.00 | 140.00 | 160.00 | 76.00 |
| 18-Dec-91 | 18 | 288.00 | 160.00 | 140.00 | 180.00 | 180.00 | 112.00 | 84.00 |
| 20-Dec-91 | 20 | 220.00 | 152.00 | 150.00 | 192.00 | 192.00 | 88.00 | 60.00 |
| 23-Dec-91 | 23 | 240.00 | 156.00 | 156.00 | 180.00 | 168.00 | 76.00 | 76.00 |
| 25-Dec-91 | 25 | 204.00 | 204.00 | 184.00 | 186.00 | 180.00 | 104.00 | 102.00 |
| 27-Dec-91 | 27 | 128.00 | 188.00 | 180.00 | 184.00 | 160.00 | 92.00 | 64.00 |
| 30-Dec-91 | 30 | 164.00 | 160.00 | 144.00 | 188.00 | 160.00 | 100.00 | 64.00 |
| TOTAL VALUE | | 2688.00 | 2456.00 | 2282.00 | 2510.00 | 2288.00 | 1576.00 | 1242.00 |
| AVERAGE VALUE | | 192.00 | 175.43 | 163.00 | 179.29 | 163.43 | 112.57 | 88.71 |
| NUMBER, N | | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| STD. DEVIATION | | 45.25 | 30.94 | 25.78 | 19.19 | 31.56 | 39.33 | 42.53 |
| MAXIMUM VALUE | | 288.00 | 248.00 | 200.00 | 208.00 | 200.00 | 188.00 | 180.00 |
| MINIMUM VALUE | | 128.00 | 136.00 | 120.00 | 142.00 | 92.00 | 52.00 | 40.00 |
| 01-Jan-92 | 32 | 180.00 | 184.00 | 184.00 | 248.00 | 176.00 | 148.00 | 124.00 |
| 03-Jan-92 | 34 | 172.00 | 188.00 | 140.00 | 240.00 | 148.00 | 156.00 | 136.00 |
| 06-Jan-92 | 37 | 152.00 | 228.00 | 180.00 | 272.00 | 180.00 | 148.00 | 108.00 |
| 08-Jan-92 | 39 | 128.00 | 160.00 | 148.00 | 164.00 | 148.00 | 148.00 | 140.00 |
| 10-Jan-92 | 41 | 132.00 | 164.00 | 152.00 | 160.00 | 144.00 | 148.00 | 144.00 |
| 13-Jan-92 | 44 | 120.00 | 108.00 | 92.00 | 112.00 | 112.00 | 112.00 | 112.00 |
| 15-Jan-92 | 46 | 124.00 | 120.00 | 116.00 | 124.00 | 120.00 | 116.00 | 116.00 |
| 17-Jan-92 | 48 | 124.00 | 132.00 | 132.00 | 136.00 | 136.00 | 124.00 | 116.00 |
| 20-Jan-92 | 51 | 136.00 | 144.00 | 140.00 | 152.00 | 144.00 | 128.00 | 128.00 |
| 22-Jan-92 | 53 | 180.00 | 148.00 | 144.00 | 164.00 | 160.00 | 156.00 | 144.00 |
| 24-Jan-92 | 55 | 148.00 | 168.00 | 152.00 | 166.00 | 164.00 | 140.00 | 120.00 |
| 27-Jan-92 | 58 | 124.00 | 128.00 | 124.00 | 136.00 | 132.00 | 108.00 | 84.00 |
| 29-Jan-92 | 60 | 104.00 | 136.00 | 100.00 | 104.00 | 100.00 | 132.00 | 108.00 |
| 31-Jan-92 | 62 | 132.00 | 128.00 | 104.00 | 140.00 | 124.00 | 102.00 | 100.00 |
| TOTAL VALUE MONTH2 | | 1956.00 | 2136.00 | 1908.00 | 2318.00 | 1988.00 | 1866.00 | 1680.00 |
| AVERAGE VALUE | | 139.71 | 152.57 | 136.29 | 165.57 | 142.00 | 133.29 | 120.00 |
| NUMBER, N | | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| STD. DEVIATION | | 22.65 | 30.94 | 26.47 | 49.77 | 22.51 | 17.79 | 16.84 |
| MAXIMUM VALUE | | 180.00 | 228.00 | 184.00 | 272.00 | 180.00 | 156.00 | 144.00 |
| MINIMUM VALUE | | 104.00 | 108.00 | 92.00 | 104.00 | 100.00 | 102.00 | 84.00 |

ตาราง ข-7 แสดงรายการคำนวณค่าเฉลี่ยความเป็นด่าง

| DATE | DAY | ALKALINITY:mg/L as CaCO ₃ | | | | | | |
|---------------|--------|--------------------------------------|---------|---------|---------|---------|---------|---------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 03-Feb-92 | 65 | 140.00 | 168.00 | 120.00 | 136.00 | 136.00 | 158.00 | 152.00 |
| 05-Feb-92 | 67 | 120.00 | 192.00 | 180.00 | 120.00 | 100.00 | 196.00 | 164.00 |
| 07-Feb-92 | 69 | 144.00 | 316.00 | 160.00 | 208.00 | 112.00 | 142.00 | 140.00 |
| 10-Feb-92 | 72 | 96.00 | 112.00 | 104.00 | 176.00 | 168.00 | 152.00 | 144.00 |
| 12-Feb-92 | 74 | 88.00 | 156.00 | 100.00 | 148.00 | 124.00 | 168.00 | 132.00 |
| 14-Feb-92 | 76 | 120.00 | 156.00 | 140.00 | 204.00 | 192.00 | 184.00 | 128.00 |
| 17-Feb-92 | 79 | 104.00 | 160.00 | 160.00 | 216.00 | 200.00 | 160.00 | 132.00 |
| 19-Feb-92 | 81 | 156.00 | 196.00 | 184.00 | 224.00 | 188.00 | 188.00 | 166.00 |
| 21-Feb-92 | 83 | 220.00 | 220.00 | 196.00 | 224.00 | 148.00 | 196.00 | 176.00 |
| 24-Feb-92 | 86 | 132.00 | 188.00 | 152.00 | 216.00 | 204.00 | 228.00 | 156.00 |
| 26-Feb-92 | 88 | 172.00 | 264.00 | 220.00 | 216.00 | 208.00 | 172.00 | 160.00 |
| 28-Feb-92 | 90 | 128.00 | 248.00 | 248.00 | 182.00 | 164.00 | 138.00 | 136.00 |
| TOTAL VALUE | MONTH3 | 1620.00 | 2376.00 | 1964.00 | 2270.00 | 1944.00 | 2082.00 | 1786.00 |
| AVERAGE VALUE | | 135.00 | 198.00 | 163.67 | 189.17 | 162.00 | 173.50 | 148.83 |
| NUMBER,N | | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| STD.DEVIATION | | 34.57 | 53.75 | 43.06 | 34.99 | 36.06 | 24.95 | 15.04 |
| MAXIMUM VALUE | | 220.00 | 316.00 | 248.00 | 224.00 | 208.00 | 228.00 | 176.00 |
| MINIMUM VALUE | | 88.00 | 112.00 | 100.00 | 120.00 | 100.00 | 138.00 | 128.00 |
| 02-Mar-92 | 93 | 192.00 | 256.00 | 224.00 | 208.00 | 160.00 | 240.00 | 208.00 |
| 04-Mar-92 | 95 | 160.00 | 182.00 | 144.00 | 184.00 | 140.00 | 128.00 | 128.00 |
| 06-Mar-92 | 97 | 212.00 | 204.00 | 188.00 | 196.00 | 180.00 | 148.00 | 132.00 |
| 09-Mar-92 | 100 | 164.00 | 180.00 | 180.00 | 168.00 | 168.00 | 156.00 | 116.00 |
| 11-Mar-92 | 102 | 136.00 | 180.00 | 176.00 | 172.00 | 164.00 | 120.00 | 116.00 |
| 13-Mar-92 | 104 | 152.00 | 188.00 | 168.00 | 184.00 | 128.00 | 140.00 | 88.00 |
| 16-Mar-92 | 107 | 128.00 | 252.00 | 208.00 | 196.00 | 192.00 | 136.00 | 116.00 |
| 18-Mar-92 | 109 | 136.00 | 260.00 | 220.00 | 232.00 | 216.00 | 140.00 | 124.00 |
| 20-Mar-92 | 111 | 140.00 | 272.00 | 240.00 | 248.00 | 200.00 | 120.00 | 116.00 |
| TOTAL VALUE | MONTH4 | 1420.00 | 1974.00 | 1748.00 | 1788.00 | 1548.00 | 1328.00 | 1144.00 |
| AVERAGE VALUE | | 157.78 | 219.33 | 194.22 | 198.67 | 172.00 | 147.56 | 127.11 |
| NUMBER,N | | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| STD.DEVIATIO | | 26.54 | 37.33 | 29.10 | 25.23 | 26.60 | 34.59 | 30.91 |
| MAXIMUM VALUE | | 212.00 | 272.00 | 240.00 | 248.00 | 216.00 | 240.00 | 208.00 |
| MINIMUM VALUE | | 128.00 | 180.00 | 144.00 | 168.00 | 128.00 | 120.00 | 88.00 |

ตาราง ข-8 แสดงรายการคำนวณค่าเฉลี่ยความกระด้าง

AERAGE HARDNESS

150

| DATE | DAY | HARDNESS : mg/L as CaCO ₃ | | | | | | |
|--------------------|-----|--------------------------------------|---------|---------|---------|---------|----------|---------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 01-Dec-91 | 1 | 200 | 200 | 196 | 216 | 208 | 220 | 220 |
| 02-Dec-91 | 2 | 208 | 200 | 194 | 208 | 200 | 266 | 256 |
| 04-Dec-91 | 4 | 224 | 188 | 180 | 196 | 196 | 276 | 276 |
| 06-Dec-91 | 6 | 156 | 156 | 152 | 196 | 172 | 368 | 312 |
| 09-Dec-91 | 9 | 164 | 188 | 180 | 192 | 172 | 432 | 412 |
| 11-Dec-91 | 11 | 220 | 228 | 228 | 236 | 216 | 528 | 429 |
| 13-Dec-91 | 13 | 232 | 224 | 212 | 236 | 224 | 516 | 500 |
| 16-Dec-91 | 16 | 220 | 248 | 228 | 268 | 236 | 608 | 600 |
| 18-Dec-91 | 18 | 176 | 280 | 232 | 248 | 244 | 464 | 400 |
| 20-Dec-91 | 20 | 192 | 240 | 228 | 280 | 244 | 636 | 500 |
| 23-Dec-91 | 23 | 204 | 252 | 244 | 252 | 240 | 480 | 392 |
| 25-Dec-91 | 25 | 252 | 252 | 252 | 276 | 244 | 564 | 480 |
| 27-Dec-91 | 27 | 252 | 224 | 204 | 224 | 216 | 484 | 400 |
| 30-Dec-91 | 30 | 268 | 308 | 296 | 308 | 292 | 600 | 504 |
| TOTAL VALUE MONTH1 | | 2968.00 | 3188.00 | 3026.00 | 3336.00 | 3104.00 | 6442.00 | 5681.00 |
| AERAGE VALUE | | 212.00 | 227.71 | 216.14 | 238.29 | 221.71 | 460.14 | 405.79 |
| NUMBER,N | | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| STD.DEVIATION | | 32.04 | 38.53 | 34.74 | 34.37 | 30.83 | 128.28 | 104.90 |
| MAXIMUM VALUE | | 268.00 | 308.00 | 296.00 | 308.00 | 292.00 | 636.00 | 600.00 |
| MINIMUM VALUE | | 156.00 | 156.00 | 152.00 | 192.00 | 172.00 | 220.00 | 220.00 |
| 01-Jan-92 | 32 | 268 | 284 | 256 | 268 | 268 | 596 | 536 |
| 03-Jan-92 | 34 | 280 | 296 | 284 | 316 | 296 | 568 | 528 |
| 06-Jan-92 | 37 | 280 | 304 | 304 | 320 | 304 | 392 | 368 |
| 08-Jan-92 | 39 | 288 | 288 | 276 | 316 | 284 | 408 | 360 |
| 10-Jan-92 | 41 | 246 | 284 | 276 | 320 | 316 | 392 | 360 |
| 13-Jan-92 | 44 | 288 | 304 | 276 | 316 | 284 | 412 | 368 |
| 15-Jan-92 | 46 | 272 | 304 | 284 | 324 | 288 | 460 | 392 |
| 17-Jan-92 | 48 | 280 | 320 | 316 | 296 | 252 | 520 | 480 |
| 20-Jan-92 | 51 | 204 | 240 | 236 | 240 | 236 | 1370 | 990 |
| 22-Jan-92 | 53 | 244 | 240 | 236 | 284 | 240 | 1010 | 720 |
| 24-Jan-92 | 55 | 224 | 240 | 240 | 240 | 236 | 1490 | 1120 |
| 27-Jan-92 | 58 | 204 | 232 | 220 | 276 | 248 | 1430 | 1400 |
| 29-Jan-92 | 60 | 204 | 232 | 224 | 272 | 248 | 1360 | 1300 |
| 31-Jan-92 | 62 | 208 | 252 | 248 | 228 | 220 | 1370 | 980 |
| TOTAL VALUE MONTH2 | | 3490.00 | 3820.00 | 3676.00 | 4016.00 | 3720.00 | 11778.00 | 9902.00 |
| AVERAGE VALUE | | 249.29 | 272.86 | 262.57 | 286.86 | 265.71 | 841.29 | 707.29 |
| NUMBER,N | | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| STD.DEVIATION | | 32.98 | 30.66 | 28.67 | 32.48 | 28.55 | 445.87 | 362.53 |
| MAXIMUM VALUE | | 288.00 | 320.00 | 316.00 | 324.00 | 316.00 | 1490.00 | 1400.00 |
| MINIMUM VALUE | | 204.00 | 232.00 | 220.00 | 228.00 | 220.00 | 392.00 | 360.00 |

ตาราง ข-8 แสดงรายการคำนวณค่าเฉลี่ยความกระด้าง

AERAGE HARDNESS

151

| DATE | DAY | HARDNESS : mg/L as CaCO ₃ | | | | | | |
|--------------------|-----|--------------------------------------|---------|---------|---------|---------|----------|----------|
| | | 1 | 2 | F-2 | 3 | F-3 | 4 | F-4 |
| 03-Feb-92 | 65 | 348 | 392 | 344 | 392 | 380 | 1750 | 1740 |
| 05-Feb-92 | 67 | 284 | 308 | 268 | 320 | 312 | 1470 | 1370 |
| 07-Feb-92 | 69 | 312 | 292 | 280 | 312 | 304 | 1220 | 990 |
| 10-Feb-92 | 72 | 344 | 324 | 320 | 344 | 328 | 1410 | 990 |
| 12-Feb-92 | 74 | 328 | 308 | 296 | 368 | 352 | 1180 | 1000 |
| 14-Feb-92 | 76 | 344 | 312 | 304 | 352 | 340 | 1370 | 1310 |
| 17-Feb-92 | 79 | 384 | 328 | 296 | 348 | 344 | 1370 | 1190 |
| 19-Feb-92 | 81 | 368 | 340 | 336 | 396 | 360 | 1550 | 1130 |
| 21-Feb-92 | 83 | 372 | 312 | 304 | 340 | 332 | 1580 | 1090 |
| 24-Feb-92 | 86 | 412 | 340 | 340 | 380 | 344 | 1340 | 990 |
| 26-Feb-92 | 88 | 416 | 356 | 332 | 400 | 384 | 1500 | 1430 |
| 28-Feb-92 | 90 | 432 | 364 | 336 | 372 | 360 | 1590 | 1520 |
| TOTAL VALUE MONTH3 | | 4344.00 | 3976.00 | 3756.00 | 4324.00 | 4140.00 | 17330.00 | 14750.00 |
| AVERAGE VALUE | | 362.00 | 331.33 | 313.00 | 360.33 | 345.00 | 1444.17 | 1229.17 |
| NUMBER,N | | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| STD.DEVIATION | | 42.35 | 27.32 | 24.17 | 27.83 | 23.27 | 155.80 | 235.78 |
| MAXIMUM VALUE | | 432.00 | 392.00 | 344.00 | 400.00 | 384.00 | 1750.00 | 1740.00 |
| MINIMUM VALUE | | 284.00 | 292.00 | 268.00 | 312.00 | 304.00 | 1180.00 | 990.00 |
| 02-Mar-92 | 93 | 460 | 340 | 312 | 372 | 368 | 1440 | 790 |
| 04-Mar-92 | 95 | 424 | 324 | 316 | 360 | 360 | 1470 | 1320 |
| 06-Mar-92 | 97 | 592 | 550 | 496 | 590 | 560 | 1480 | 1190 |
| 09-Mar-92 | 100 | 650 | 520 | 485 | 610 | 550 | 1340 | 1100 |
| 11-Mar-92 | 102 | 670 | 520 | 500 | 615 | 590 | 1490 | 1140 |
| 13-Mar-92 | 104 | 705 | 510 | 465 | 610 | 565 | 1560 | 1490 |
| 16-Mar-92 | 107 | 670 | 550 | 485 | 555 | 510 | 1530 | 1160 |
| 18-Mar-92 | 109 | 580 | 480 | 435 | 510 | 475 | 1250 | 990 |
| 20-Mar-92 | 111 | 575 | 470 | 420 | 495 | 450 | 1210 | 850 |
| TOTAL VALUE MONTH4 | | 5326.00 | 4264.00 | 3914.00 | 4717.00 | 4428.00 | 12770.00 | 10030.00 |
| AVERAGE VALUE | | 591.78 | 473.78 | 434.89 | 524.11 | 492.00 | 1418.89 | 1114.44 |
| NUMBER,N | | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| STD.DEVIATION | | 90.91 | 79.99 | 69.41 | 93.94 | 80.35 | 116.66 | 206.19 |
| MAXIMUM VALUE | | 705.00 | 550.00 | 500.00 | 615.00 | 590.00 | 1560.00 | 1490.00 |
| MINIMUM VALUE | | 424.00 | 324.00 | 312.00 | 360.00 | 360.00 | 1210.00 | 790.00 |

| | | NH3-N:mg/L | | | | | | | | | |
|---------------|---------|------------|-------|-------|---------|-------|-------|---------|-------|-------|---------|
| DATE | DAY | 1 | 2 | F-2 | %EFF. 2 | 3 | F-3 | %EFF. 3 | 4 | F-4 | %EFF. 4 |
| 01-Dec-91 | 1 | | | | | | | | | | |
| 02-Dec-91 | 2 | | | | | 0.01 | | | 0.01 | | |
| 04-Dec-91 | 4 | 0.01 | 0.025 | 0.01 | | 0.025 | | | 0.01 | 0.01 | |
| 06-Dec-91 | 6 | 0.025 | 0.05 | 0.03 | | 0.04 | | | 0.015 | 0.01 | |
| 09-Dec-91 | 9 | 0.12 | 0.1 | 0.08 | | 0.05 | | | 0.017 | 0.015 | |
| 11-Dec-91 | 11 | 0.09 | 0.06 | 0.035 | | 0.025 | | | 0.02 | 0.015 | |
| 13-Dec-91 | 13 | 0.04 | 0.07 | 0.06 | | 0.04 | 0.025 | | 0.025 | 0.025 | |
| 16-Dec-91 | 16 | 0.05 | 0.001 | | | 0.02 | 0.02 | | | | |
| 18-Dec-91 | 18 | 0.07 | 0.05 | 0.025 | | 0.001 | | | | | |
| 20-Dec-91 | 20 | 0.085 | 0.06 | 0.06 | | 0.06 | 0.025 | | 0.09 | 0.06 | |
| 23-Dec-91 | 23 | 0.075 | 0.06 | 0.04 | | 0.04 | | | 0.025 | 0.02 | |
| 25-Dec-91 | 25 | 0.07 | 0.17 | 0.15 | | 0.075 | 0.075 | | 0.1 | 0.095 | |
| 27-Dec-91 | 27 | 0.095 | 0.07 | 0.07 | | 0.075 | 0.06 | | 0.095 | 0.09 | |
| 30-Dec-91 | 30 | 0.025 | 0.14 | 0.13 | | 0.095 | 0.04 | | 0.09 | 0.07 | |
| ----- | | | | | | | | | | | |
| TOTAL VALUE | MONTH1 | 0.772 | 0.772 | 0.69 | | 0.556 | 0.245 | | 0.497 | 0.41 | |
| AVERAGE VALUE | | 0.059 | 0.067 | 0.063 | 5.837 | 0.043 | 0.041 | 4.526 | 0.045 | 0.041 | 9.256 |
| NUMBER, N | | 13 | 13 | 11 | | 13 | 6 | | 11 | 10 | |
| STD.DEVIATION | | 0.033 | 0.046 | 0.042 | | 0.027 | 0.020 | | 0.037 | 0.032 | |
| MAXIMUM VALUE | | 0.12 | 0.17 | 0.15 | | 0.095 | 0.075 | | 0.1 | 0.095 | |
| MINIMUM VALUE | | 0.01 | 0.001 | 0.01 | | 0.001 | 0.02 | | 0.01 | 0.01 | |
| ----- | | | | | | | | | | | |
| 01-Jan-92 | 32 | 0.015 | 0.07 | 0.025 | | 0.09 | 0.06 | | 0.06 | 0.025 | |
| 03-Jan-92 | 34 | 0.035 | 0.195 | 0.04 | | 0.025 | | | 0.22 | 0.095 | |
| 06-Jan-92 | 37 | 0.025 | 0.025 | 0.015 | | 0.05 | 0.04 | | 0.13 | 0.05 | |
| 08-Jan-92 | 39 | 0.025 | 0.015 | 0.015 | | 0.025 | 0.015 | | 0.04 | 0.025 | |
| 10-Jan-92 | 41 | | 0.005 | | | 0.002 | | | 0.001 | | |
| 13-Jan-92 | 44 | | 0.31 | 0.05 | | 0.06 | 0.03 | | 0.03 | | |
| 15-Jan-92 | 46 | 0.095 | 0.178 | 0.14 | | 0.105 | 0.075 | | 0.03 | | |
| 17-Jan-92 | 48 | 0.21 | 0.15 | 0.095 | | 0.094 | 0.04 | | 0.15 | 0.095 | |
| 20-Jan-92 | 51 | 0.12 | 0.015 | 0.015 | | 0.055 | 0.025 | | 0.015 | 0.015 | |
| 22-Jan-92 | 53 | 0.05 | 0.01 | 0.01 | | | | | 0.01 | | |
| 24-Jan-92 | 55 | 0.042 | 0.008 | | | 0.025 | | | 0.108 | 0.108 | |
| 27-Jan-92 | 58 | 0.032 | 0.001 | | | | | | 0.18 | 0.15 | |
| 29-Jan-92 | 60 | 0.025 | 0.013 | | | 0.05 | 0.05 | | 0.55 | 0.425 | |
| 31-Jan-92 | 62 | | 0.025 | | | 0.005 | | | 1.5 | 1 | |
| ----- | | | | | | | | | | | |
| TOTAL VALUE | MONTH 2 | 0.674 | 1.02 | 0.405 | | 0.586 | 0.335 | | 3.024 | 1.988 | |
| AVERAGE VALUE | | 0.061 | 0.073 | 0.045 | 38.235 | 0.049 | 0.042 | 14.249 | 0.216 | 0.199 | 7.963 |
| NUMBER, N | | 10 | 13 | 8 | | 11 | 7 | | 13 | 9 | |
| STD.DEVIATION | | 0.056 | 0.093 | 0.042 | | 0.033 | 0.018 | | 0.382 | 0.290 | |
| MAXIMUM VALUE | | 0.21 | 0.31 | 0.14 | | 0.105 | 0.075 | | 1.5 | 1 | |
| MINIMUM VALUE | | 0.015 | 0.001 | 0.01 | | 0.002 | 0.015 | | 0.001 | 0.015 | |

| | | NH3-N:mg/L | | | | | | | | | |
|---------------------|-----|------------|-------|-------|---------|-------|-------|---------|--------|-------|---------|
| DATE | DAY | 1 | 2 | F-2 | %EFF. 2 | 3 | F-3 | %EFF. 3 | 4 | F-4 | %EFF. 4 |
| 03-Feb-92 | 65 | 0.042 | 0.042 | | | 0.017 | 0.017 | | 0.417 | 0.358 | |
| 05-Feb-92 | 67 | | 0.1 | | | 0.001 | | | 2.07 | 1.27 | |
| 07-Feb-92 | 69 | 0.036 | 0.179 | 0.036 | | 0.125 | 0.054 | | 2 | 1.929 | |
| 10-Feb-92 | 72 | | 0.25 | 0.045 | | 0.15 | 0.1 | | 1.65 | 0.6 | |
| 12-Feb-92 | 74 | 0.031 | 0.156 | 0.141 | | 0.094 | 0.031 | | 2.969 | 1.25 | |
| 14-Feb-92 | 76 | 0.01 | 0.06 | 0.025 | | 0.001 | | | 0.15 | 0.075 | |
| 17-Feb-92 | 79 | 0.128 | 0.125 | 0.094 | | 0.094 | 0.031 | | 1.188 | 0.028 | |
| 19-Feb-92 | 81 | | 0.15 | 0.06 | | 0.02 | | | 0.25 | 0.05 | |
| 21-Feb-92 | 83 | | 0.2 | 0.04 | | 0.06 | 0.05 | | 0.03 | 0.009 | |
| 24-Feb-92 | 86 | 0.075 | 0.125 | 0.05 | | 0.038 | 0.025 | | 0.025 | 0.025 | |
| 26-Feb-92 | 88 | 0.078 | 0.156 | 0.156 | | 0.094 | 0.068 | | 0.188 | 0.094 | |
| 28-Feb-92 | 90 | 0.031 | 0.172 | 0.078 | | 0.125 | 0.109 | | 0.094 | 0.063 | |
| TOTAL VALUE MONTH3 | | 0.431 | 1.715 | 0.725 | | 0.819 | 0.485 | | 11.031 | 5.751 | |
| AVERAGE VALUE | | 0.054 | 0.143 | 0.073 | 49.271 | 0.068 | 0.054 | 21.042 | 0.919 | 0.479 | 47.865 |
| NUMBER, N | | 8 | 12 | 10 | | 12 | 9 | | 12 | 12 | |
| STD.DEVIATION | | 0.035 | 0.055 | 0.043 | | 0.050 | 0.031 | | 0.975 | 0.623 | |
| MAXIMUM VALUE | | 0.128 | 0.25 | 0.156 | | 0.15 | 0.109 | | 2.969 | 1.929 | |
| MINIMUM VALUE | | 0.01 | 0.042 | 0.025 | | 0.001 | 0.017 | | 0.025 | 0.009 | |
| 02-Mar-92 | 93 | 0.075 | 0.35 | 0.25 | | 0.2 | 0.175 | | 0.5 | 0.25 | |
| 04-Mar-92 | 95 | 0.045 | 0.1 | 0.075 | | 0.045 | 0.045 | | 0.045 | | |
| 06-Mar-92 | 97 | 0.06 | 0.28 | 0.12 | | 0.005 | | | 0.16 | 0.06 | |
| 09-Mar-92 | 100 | 0.167 | 0.333 | 0.267 | | 0.133 | 0.1 | | 0.733 | 0.633 | |
| 11-Mar-92 | 102 | 0.115 | 0.615 | 0.538 | | 0.192 | | | 0.423 | 0.138 | |
| 13-Mar-92 | 104 | 0.065 | 0.132 | 0.098 | | 0.001 | | | | | |
| 16-Mar-92 | 107 | 0.296 | 0.592 | 0.428 | | 0.526 | 0.493 | | 0.526 | 0.328 | |
| 18-Mar-92 | 109 | 0.385 | 0.847 | 0.424 | | 0.27 | 0.054 | | 1.925 | 1.463 | |
| 20-Mar-92 | 111 | 0.568 | 1 | 0.5 | | 0.346 | 0.231 | | 2.308 | 2.308 | |
| TOTAL VALUE MONTH 4 | | 1.776 | 4.249 | 2.7 | | 1.718 | 1.098 | | 6.62 | 5.18 | |
| AVERAGE VALUE | | 0.197 | 0.472 | 0.300 | 36.456 | 0.191 | 0.183 | 4.133 | 0.828 | 0.740 | 10.574 |
| NUMBER, N | | 9 | 9 | 9 | | 9 | 6 | | 8 | 7 | |
| STD.DEVIATION | | 0.171 | 0.294 | 0.169 | | 0.163 | 0.153 | | 0.777 | 0.777 | |
| MAXIMUM VALUE | | 0.568 | 1 | 0.538 | | 0.526 | 0.493 | | 2.308 | 2.308 | |
| MINIMUM VALUE | | 0.045 | 0.1 | 0.075 | | 0.001 | 0.045 | | 0.045 | 0.06 | |

| DATE | DAY | NO2-N : $\mu\text{g/L}$ | | | | | | | | | |
|----------------|--------|-------------------------|------|------|--------------------------|------|------|--------------------------|------|------|--------------------------|
| | | 1 | 2 | F-2 | $\bar{X}_{\text{EFF.2}}$ | 3 | F-3 | $\bar{X}_{\text{EFF.3}}$ | 4 | F-4 | $\bar{X}_{\text{EFF.4}}$ |
| 01-Dec-91 | 1 | | | | | | | | | | |
| 02-Dec-91 | 2 | | | | | | | | | | |
| 04-Dec-91 | 4 | | | | | | | | | | |
| 06-Dec-91 | 6 | 0.02 | 0.01 | | | | | | | | |
| 09-Dec-91 | 9 | 0.01 | 0.04 | | | 0.04 | | | | | |
| 11-Dec-91 | 11 | 0.04 | 0.04 | 0.04 | | 0.04 | | | 0.10 | 0.04 | |
| 13-Dec-91 | 13 | 0.04 | 0.18 | 0.11 | | 0.11 | 0.10 | | 0.18 | 0.18 | |
| 16-Dec-91 | 16 | 0.10 | 0.18 | 0.18 | | 0.04 | 0.04 | | 0.10 | 0.04 | |
| 18-Dec-91 | 18 | | 0.11 | 0.04 | | | 0.01 | | | | |
| 20-Dec-91 | 20 | 0.02 | 0.32 | 0.28 | | 0.18 | 0.18 | | 0.20 | 0.18 | |
| 23-Dec-91 | 23 | 0.23 | 0.18 | 0.10 | | | | | 0.04 | | |
| 25-Dec-91 | 25 | 0.04 | 0.04 | | | 0.04 | 0.01 | | 0.10 | | |
| 27-Dec-91 | 27 | 0.34 | 0.28 | 0.20 | | 0.28 | 0.14 | | 0.11 | | |
| 30-Dec-91 | 30 | 0.10 | 0.50 | 0.28 | | 0.32 | 0.32 | | 0.11 | 0.11 | |
| ----- | | | | | | | | | | | |
| TOTAL VALUE | MONTH1 | 0.94 | 1.88 | 1.23 | | 1.05 | 0.80 | | 0.94 | 0.55 | |
| AVERAGE VALUE | | 0.09 | 0.17 | 0.15 | 10.04 | 0.13 | 0.11 | 12.93 | 0.12 | 0.11 | 6.38 |
| NUMBER, N | | 10 | 11 | 8 | | 8 | 7 | | 8 | 5 | |
| STD. DEVIATION | | 0.10 | 0.14 | 0.09 | | 0.11 | 0.10 | | 0.05 | 0.06 | |
| MAXIMUM VALUE | | 0.34 | 0.50 | 0.28 | | 0.32 | 0.32 | | 0.20 | 0.18 | |
| MINIMUM VALUE | | 0.01 | 0.01 | 0.04 | | 0.04 | 0.01 | | 0.04 | 0.04 | |
| ----- | | | | | | | | | | | |
| 01-Jan-92 | 32 | 0.24 | 0.50 | 0.50 | | 0.28 | 0.25 | | 0.28 | 0.28 | |
| 03-Jan-92 | 34 | 0.32 | 0.50 | 0.39 | | 0.31 | 0.28 | | 0.24 | 0.24 | |
| 06-Jan-92 | 37 | 0.18 | 0.39 | 0.32 | | 0.24 | 0.20 | | 0.20 | 0.20 | |
| 08-Jan-92 | 39 | 0.10 | 0.40 | 0.34 | | 0.28 | 0.28 | | 0.20 | 0.20 | |
| 10-Jan-92 | 41 | 0.25 | 0.40 | 0.34 | | 0.31 | 0.25 | | 0.20 | 0.20 | |
| 13-Jan-92 | 44 | 0.35 | 0.50 | 0.45 | | 0.41 | 0.37 | | 0.32 | 0.25 | |
| 15-Jan-92 | 46 | 0.20 | 0.65 | 0.58 | | 0.55 | 0.48 | | 0.40 | 0.32 | |
| 17-Jan-92 | 48 | 0.42 | 0.82 | 0.76 | | 0.56 | 0.52 | | 0.51 | 0.45 | |
| 20-Jan-92 | 51 | 0.43 | 0.65 | 0.60 | | 0.50 | 0.45 | | 0.52 | 0.45 | |
| 22-Jan-92 | 53 | 0.30 | 0.55 | 0.52 | | 0.38 | 0.30 | | 0.60 | 0.45 | |
| 24-Jan-92 | 55 | 0.20 | 0.56 | 0.50 | | 0.38 | 0.34 | | 1.00 | 0.73 | |
| 27-Jan-92 | 58 | 0.16 | 0.32 | 0.30 | | 0.30 | 0.24 | | 0.46 | 0.38 | |
| 29-Jan-92 | 60 | 0.20 | 0.54 | 0.50 | | 0.32 | 0.28 | | 0.88 | 0.70 | |
| 31-Jan-92 | 62 | 0.32 | 1.16 | 1.00 | | 0.64 | 0.64 | | 1.60 | 1.16 | |
| ----- | | | | | | | | | | | |
| TOTAL VALUE | MONTH2 | 3.67 | 7.94 | 7.10 | | 5.46 | 4.88 | | 7.41 | 6.01 | |
| AVERAGE VALUE | | 0.26 | 0.57 | 0.51 | 10.58 | 0.39 | 0.35 | 10.62 | 0.53 | 0.43 | 18.89 |
| NUMBER, N | | 19 | 20 | 17 | | 17 | 16 | | 17 | 14 | |
| STD. DEVIATION | | 0.09 | 0.21 | 0.18 | | 0.12 | 0.12 | | 0.38 | 0.26 | |
| MAXIMUM VALUE | | 0.43 | 1.16 | 1.00 | | 0.64 | 0.64 | | 1.60 | 1.16 | |
| MINIMUM VALUE | | 0.10 | 0.32 | 0.30 | | 0.24 | 0.20 | | 0.20 | 0.20 | |

| DATE | DAY | NO2-N : mg/L | | | | | | | | | |
|---------------|--------|--------------|-------|-------|--------|-------|------|--------|------|------|--------|
| | | 1 | 2 | F-2 | %EFF.2 | 3 | F-3 | %EFF.3 | 4 | F-4 | %EFF.4 |
| 03-Feb-92 | 65 | 0.32 | 0.64 | 0.58 | | 0.40 | 0.38 | | 1.00 | 1.00 | |
| 05-Feb-92 | 67 | 0.30 | 1.24 | 1.20 | | 0.60 | 0.44 | | 1.00 | 1.00 | |
| 07-Feb-92 | 69 | 0.40 | 1.00 | 0.66 | | 0.58 | 0.54 | | 0.63 | 0.63 | |
| 10-Feb-92 | 72 | 0.28 | 0.80 | 0.50 | | 1.36 | 1.32 | | 1.13 | 1.10 | |
| 12-Feb-92 | 74 | 0.12 | 0.83 | 0.67 | | 0.38 | 0.22 | | 1.17 | 1.13 | |
| 14-Feb-92 | 76 | 0.28 | 0.96 | 0.96 | | 0.62 | 0.58 | | 0.40 | 0.30 | |
| 17-Feb-92 | 79 | 0.20 | 1.00 | 0.94 | | 0.38 | 0.30 | | 0.08 | 0.03 | |
| 19-Feb-92 | 81 | 0.20 | 1.46 | 1.40 | | 1.00 | 0.76 | | 0.76 | 0.68 | |
| 21-Feb-92 | 83 | 0.40 | 1.13 | 1.13 | | 0.53 | 0.40 | | 0.68 | 0.66 | |
| 24-Feb-92 | 86 | 0.12 | 0.50 | 0.40 | | 0.30 | 0.24 | | 0.30 | 0.20 | |
| 26-Feb-92 | 88 | 0.50 | 2.20 | 1.10 | | 1.00 | 0.58 | | 0.40 | 0.20 | |
| 28-Feb-92 | 90 | 0.83 | 1.45 | 1.13 | | 1.13 | 0.83 | | 0.53 | 0.40 | |
| ----- | | | | | | | | | | | |
| TOTAL VALUE | MONTH3 | 3.95 | 13.21 | 10.67 | | 8.28 | 6.59 | | 8.08 | 7.33 | |
| AVERAGE VALUE | | 0.33 | 1.10 | 0.89 | 19.21 | 0.69 | 0.55 | 20.40 | 0.67 | 0.61 | 9.29 |
| NUMBER, N | | 12 | 12 | 12 | | 12 | 12 | | 12 | 12 | |
| STD.DEVIATION | | 0.19 | 0.43 | 0.30 | | 0.33 | 0.30 | | 0.33 | 0.37 | |
| MAXIMUM VALUE | | 0.83 | 2.20 | 1.40 | | 1.36 | 1.32 | | 1.17 | 1.13 | |
| MINIMUM VALUE | | 0.12 | 0.50 | 0.40 | | 0.30 | 0.22 | | 0.08 | 0.03 | |
| ----- | | | | | | | | | | | |
| 02-Mar-92 | 93 | 0.20 | 0.80 | 0.60 | | 0.80 | 0.60 | | 0.80 | 0.60 | |
| 04-Mar-92 | 95 | 0.20 | 2.20 | 0.08 | | 1.25 | 1.00 | | 0.02 | 0.02 | |
| 06-Mar-92 | 97 | 2.50 | 2.10 | 1.90 | | 2.10 | 1.65 | | 1.67 | 1.57 | |
| 09-Mar-92 | 100 | 0.50 | 0.75 | 0.60 | | 0.75 | 0.75 | | 1.75 | 1.65 | |
| 11-Mar-92 | 102 | 2.20 | 0.83 | 0.63 | | 0.53 | 0.40 | | 1.70 | 0.83 | |
| 13-Mar-92 | 104 | 2.50 | 1.57 | 1.27 | | 1.80 | 1.67 | | 1.10 | 0.83 | |
| 16-Mar-92 | 107 | 1.75 | 1.27 | 0.97 | | 2.10 | 1.10 | | 1.00 | 0.97 | |
| 18-Mar-92 | 109 | 2.10 | 1.27 | 1.00 | | 1.57 | 1.10 | | 1.00 | 0.40 | |
| 20-Mar-92 | 111 | 2.50 | 1.25 | 1.10 | | 1.40 | 1.35 | | 0.83 | 0.63 | |
| ----- | | | | | | | | | | | |
| TOTAL VALUE | MONTH4 | 14.45 | 12.03 | 8.15 | | 12.30 | 9.62 | | 9.87 | 7.50 | |
| AVERAGE VALUE | | 1.61 | 1.34 | 0.91 | 32.30 | 1.37 | 1.07 | 21.81 | 1.10 | 0.83 | 23.98 |
| NUMBER, N | | 9 | 9 | 9 | | 9 | 9 | | 9 | 9 | |
| STD.DEVIATION | | 0.95 | 0.50 | 0.48 | | 0.55 | 0.42 | | 0.52 | 0.49 | |
| MAXIMUM VALUE | | 2.50 | 2.20 | 1.90 | | 2.10 | 1.67 | | 1.75 | 1.65 | |
| MINIMUM VALUE | | 0.20 | 0.75 | 0.08 | | 0.53 | 0.40 | | 0.02 | 0.02 | |

| DATE | DAY | NO3-N : mg/L | | | | | | | | | |
|---------------------|-----|--------------|-------|------------|---------|------------|-------|------------|-------|-------|------|
| | | 1 | 2 | F-2 %EFF.2 | 3 | F-3 %EFF.3 | 4 | F-4 %EFF.4 | | | |
| 01-Dec-91 | 1 | | | | | | | | | | |
| 02-Dec-91 | 2 | | | | | | | | | | |
| 04-Dec-91 | 4 | | | | | | | | | | |
| 06-Dec-91 | 6 | | | | | | | | | | |
| 09-Dec-91 | 9 | 0.029 | 0.01 | 0.01 | | | | | | | |
| 11-Dec-91 | 11 | 0.015 | 0.01 | 0.02 | 0.08 | 0.1 | | | | | |
| 13-Dec-91 | 13 | 0.04 | 0.02 | 0.025 | 0.09 | 0.11 | | | | | |
| 16-Dec-91 | 16 | 0.23 | 0.07 | 0.09 | 0.27 | 0.29 | | | | | |
| 18-Dec-91 | 18 | 1 | 0.06 | 0.218 | 0.22 | 0.35 | | | | | |
| 20-Dec-91 | 20 | 0.6 | 0.01 | 0.22 | 0.14 | 0.2 | | | | | |
| 23-Dec-91 | 23 | 0.15 | 0.09 | 0.15 | 0.21 | 0.33 | | | | | |
| 25-Dec-91 | 25 | 0.79 | 0.17 | 0.21 | 0.129 | 0.311 | | | | | |
| 27-Dec-91 | 27 | 0.33 | 0.02 | 0.05 | 0.09 | 0.11 | | | | | |
| 30-Dec-91 | 30 | 0.19 | 0.04 | 0.07 | 0.08 | 0.1 | 0.01 | 0.01 | | | |
| TOTAL VALUE MONTH 1 | | 3.374 | 0.5 | 1.063 | 1.309 | 1.901 | 0.01 | 0.01 | | | |
| AVERAGE VALUE | | 0.337 | 0.050 | 0.106 | -112.60 | 0.145 | 0.211 | -45.23 | 0.010 | 0.010 | 0.00 |
| NUMBER, N | | 10 | 10 | 10 | | 9 | 9 | | 1 | 1 | |
| STD. DEVIATION | | 0.327 | 0.048 | 0.081 | | 0.067 | 0.103 | | 0.000 | 0.000 | |
| MAXIMUM VALUE | | 1 | 0.17 | 0.22 | | 0.27 | 0.35 | | 0.01 | 0.01 | |
| MINIMUM VALUE | | 0.015 | 0.01 | 0.01 | | 0.08 | 0.1 | | 0.01 | 0.01 | |

NO3-N REMOVAL EFFICIENCY DATA

| | | | | | | | | | | | |
|---------------------|----|-------|-------|-------|--------|-------|-------|--------|-------|-------|-------|
| 01-Jan-92 | 32 | 0.09 | 0.22 | 0.22 | 0.258 | 0.6 | 0.01 | 0.01 | | | |
| 03-Jan-92 | 34 | 0.52 | 0.22 | 0.22 | 0.22 | 0.258 | 0.12 | 0.12 | | | |
| 06-Jan-92 | 37 | 0.82 | 0.61 | 0.68 | 0.61 | 0.68 | 0.65 | 0.63 | | | |
| 08-Jan-92 | 39 | 0.82 | 0.72 | 0.72 | 0.61 | 0.65 | 0.65 | 0.65 | | | |
| 10-Jan-92 | 41 | 0.263 | 0.373 | 0.375 | 0.338 | 0.403 | 0.15 | 0.1 | | | |
| 13-Jan-92 | 44 | 0.2 | 0.173 | 0.263 | 0.144 | 0.203 | 0.194 | 0.156 | | | |
| 15-Jan-92 | 46 | 0.313 | 0.195 | 0.225 | 0.295 | 0.325 | 0.268 | 0.263 | | | |
| 17-Jan-92 | 48 | 0.355 | 0.115 | 0.43 | 0.003 | 0.007 | 0.019 | 0.003 | | | |
| 20-Jan-92 | 51 | 0.345 | 0.275 | 0.6 | 0.325 | 0.375 | 0.355 | 0.263 | | | |
| 22-Jan-92 | 53 | 0.288 | 0.325 | 0.73 | 0.133 | 0.133 | 0.325 | 0.275 | | | |
| 24-Jan-92 | 55 | 0.313 | 0.375 | 0.69 | 0.323 | 0.33 | 0.25 | 0.145 | | | |
| 27-Jan-92 | 58 | 0.513 | 0.036 | 0.094 | 0.235 | 0.33 | 0.203 | 0.183 | | | |
| 29-Jan-92 | 60 | 0.575 | 0.013 | 0.048 | 0.233 | 0.393 | 0.083 | 0.07 | | | |
| 31-Jan-92 | 62 | 0.455 | 0.09 | 0.25 | 0.023 | 0.073 | 0.07 | 0.01 | | | |
| TOTAL VALUE MONTH 2 | | 5.87 | 3.74 | 5.545 | 3.75 | 4.76 | 3.347 | 2.878 | | | |
| AVERAGE VALUE | | 0.419 | 0.267 | 0.396 | -48.26 | 0.268 | 0.340 | -26.93 | 0.239 | 0.206 | 14.01 |
| NUMBER, N | | 14 | 14 | 14 | | 14 | 14 | | 14 | 14 | |
| STD. DEVIATION | | 0.206 | 0.196 | 0.234 | | 0.172 | 0.196 | | 0.196 | 0.198 | |
| MAXIMUM VALUE | | 0.82 | 0.72 | 0.73 | | 0.61 | 0.68 | | 0.65 | 0.65 | |
| MINIMUM VALUE | | 0.09 | 0.013 | 0.048 | | 0.003 | 0.007 | | 0.01 | 0.003 | |

| DATE | DAY | NO3-N : mg/L | | | | | | | | | |
|---------------------|-----|--------------|-------|------------|--------|------------|-------|------------|-------|-------|-------|
| | | 1 | 2 | F-2 XEFF.2 | 3 | F-3 XEFF.3 | 4 | F-4 XEFF.4 | | | |
| 03-Feb-92 | 65 | 0.28 | 0.47 | 0.527 | 0.303 | 0.483 | | 0.5 | 0.4 | | |
| 05-Feb-92 | 67 | 0.2 | 0.225 | 0.31 | 0.343 | 0.433 | | 0.587 | 0.167 | | |
| 07-Feb-92 | 69 | 0.383 | 0.033 | 0.507 | 0.458 | 0.493 | | 0.537 | 0.537 | | |
| 10-Feb-92 | 72 | 1.47 | 0.925 | 0.95 | 0.325 | 0.43 | | 0.43 | | | |
| 12-Feb-92 | 74 | 1.63 | 0.755 | 0.92 | 1.205 | 1.37 | | 0.39 | 0.045 | | |
| 14-Feb-92 | 76 | 1.47 | 0.465 | 0.79 | 0.845 | 1.13 | | 1.025 | 0.725 | | |
| 17-Feb-92 | 79 | 1.225 | 0.485 | 0.75 | 1.37 | 1.45 | | 0.945 | 0.843 | | |
| 19-Feb-92 | 81 | 1.55 | 0.029 | 0.25 | 0.665 | 0.75 | | 0.665 | 0.445 | | |
| 21-Feb-92 | 83 | 1.025 | 1.37 | 1.37 | 1.97 | 2.1 | | 0.745 | 0.465 | | |
| 24-Feb-92 | 86 | 1.63 | 0.925 | 1.35 | 1.125 | 1.51 | | 1.225 | 0.725 | | |
| 26-Feb-92 | 88 | 1.25 | 0.3 | 0.65 | 0.75 | 1.17 | | 1.55 | 0.125 | | |
| 28-Feb-92 | 90 | 0.917 | 0.3 | 0.417 | 0.617 | 0.917 | | 1.025 | 0.892 | | |
| ----- | | | | | | | | | | | |
| TOTAL VALUE MONTH 3 | | 13.03 | 6.282 | 8.791 | 9.976 | 12.236 | | 9.624 | 5.369 | | |
| AVERAGE VALUE | | 1.086 | 0.524 | 0.733 | -39.94 | 0.831 | 1.020 | -22.65 | 0.802 | 0.488 | 39.14 |
| NUMBER,N | | 12 | 12 | 12 | | 12 | 12 | | 12 | 11 | |
| STD.DEVIATION | | 0.509 | 0.385 | 0.352 | | 0.484 | 0.508 | | 0.341 | 0.277 | |
| MAXIMUM VALUE | | 1.63 | 1.37 | 1.37 | | 1.97 | 2.1 | | 1.55 | 0.892 | |
| MINIMUM VALUE | | 0.2 | 0.029 | 0.25 | | 0.303 | 0.43 | | 0.39 | 0.045 | |
| ----- | | | | | | | | | | | |
| 03-Mar-92 | 93 | 2.3 | 0.95 | 1.15 | 0.825 | 0.95 | | 0.525 | 0.425 | | |
| 04-Mar-92 | 95 | 2.3 | 0.3 | 1.345 | 0.425 | 0.5 | | 1.005 | 0.85 | | |
| 06-Mar-92 | 97 | 2.35 | 0.75 | 1.6 | 1.4 | 1.85 | | 2.15 | 1.74 | | |
| 09-Mar-92 | 100 | 1.25 | 1 | 1.9 | 1 | 1 | | 0.1 | | | |
| 11-Mar-92 | 102 | 0.3 | 0.917 | 0.917 | 1.217 | 1.35 | | 0.05 | 0.042 | | |
| 13-Mar-92 | 104 | 1 | 0.183 | 0.283 | 0.5 | 0.833 | | 0.292 | 0.025 | | |
| 16-Mar-92 | 107 | 3.25 | 0.908 | 0.983 | 2 | 2.9 | | 0.575 | 0.073 | | |
| 18-Mar-92 | 109 | 2.1 | 1 | 1.267 | 1.1 | 1.567 | | 1 | 0.4 | | |
| 20-Mar-92 | 111 | 2.5 | 1.1 | 1.25 | 1.35 | 1.4 | | 0.833 | 0.633 | | |
| ----- | | | | | | | | | | | |
| TOTAL VALUE MONTH 4 | | 17.35 | 7.108 | 10.695 | 9.817 | 12.35 | | 6.53 | 4.188 | | |
| AVERAGE VALUE | | 1.928 | 0.790 | 1.188 | -50.46 | 1.091 | 1.372 | -25.80 | 0.726 | 0.524 | 27.85 |
| NUMBER,N | | 9 | 9 | 9 | | 9 | 9 | | 9 | 8 | |
| STD.DEVIATION | | 0.852 | 0.307 | 0.428 | | 0.457 | 0.664 | | 0.605 | 0.537 | |
| MAXIMUM VALUE | | 3.25 | 1.1 | 1.9 | | 2 | 2.9 | | 2.15 | 1.74 | |
| MINIMUM VALUE | | 0.3 | 0.183 | 0.283 | | 0.425 | 0.5 | | 0.05 | 0.025 | |

จุฬาลงกรณ์มหาวิทยาลัย

| | | COD : mg/l | | | | | | | | | | |
|---------------|-----|------------|--------|--------|--------|-------|--------|--------|-------|--------|--------|-------|
| DATE | DAY | 1 | 2 | F-2 | XEFF.2 | 3 | F-3 | XEFF.3 | 4 | F-4 | XEFF.4 | |
| 01-Dec-91 | 1 | | | | | | | | | | | |
| 02-Dec-91 | 2 | | | | | | | | | | | |
| 04-Dec-91 | 4 | 5.78 | 5.78 | | | 5.78 | | | 5.78 | | | |
| 06-Dec-91 | 6 | 11.56 | 5.78 | 5.78 | | 5.78 | 5.78 | | 11.56 | 5.78 | | |
| 09-Dec-91 | 9 | 11.29 | 11.29 | 5.65 | | 11.29 | 5.65 | | 11.29 | 11.29 | | |
| 11-Dec-91 | 11 | 16.94 | 11.29 | 5.65 | | 11.29 | 5.65 | | 16.94 | 11.29 | | |
| 13-Dec-91 | 13 | 16.94 | 16.94 | 5.64 | | 16.94 | 5.64 | | 16.94 | 11.29 | | |
| 16-Dec-91 | 16 | 16.55 | 16.55 | 5.52 | | 16.55 | 11.03 | | 11.03 | 11.03 | | |
| 18-Dec-91 | 18 | 16.00 | 16.00 | 8.00 | | 16.00 | 8.00 | | 16.00 | 8.00 | | |
| 20-Dec-91 | 20 | 16.27 | 16.27 | 8.13 | | 16.27 | 8.13 | | 16.27 | 8.13 | | |
| 23-Dec-91 | 23 | 15.74 | 15.74 | 15.74 | | 15.74 | 7.87 | | 23.61 | 7.86 | | |
| 25-Dec-91 | 25 | 30.00 | 30.00 | 15.00 | | 22.50 | 7.50 | | 30.00 | 15.00 | | |
| 27-Dec-91 | 27 | 22.86 | 22.86 | 15.24 | | 22.86 | 7.60 | | 15.24 | 7.62 | | |
| 30-Dec-91 | 30 | 15.24 | 22.86 | 7.62 | | 15.24 | 7.62 | | 15.24 | 7.62 | | |
| TOTAL VALUE | | MONTH1 | 195.17 | 191.36 | 97.97 | | 176.24 | 80.47 | | 189.9 | 104.91 | |
| AVERAGE VALUE | | | 16.26 | 15.95 | 8.91 | 44.15 | 14.69 | 7.32 | 50.19 | 15.83 | 9.54 | 39.73 |
| NUMBER, N | | | 12 | 12 | 11 | | 12 | 11 | | 12 | 11 | |
| STD.DEVIATION | | | 5.71 | 6.74 | 4.05 | | 5.19 | 1.54 | | 5.97 | 2.52 | |
| MAXIMUM VALUE | | | 30 | 30 | 15.74 | | 22.86 | 11.03 | | 30 | 15 | |
| MINIMUM VALUE | | | 5.78 | 5.78 | 5.52 | | 5.78 | 5.64 | | 5.78 | 5.78 | |
| 01-Jan-92 | | 32 | 15.00 | 30.00 | 7.50 | | 15.00 | 7.50 | | 30.00 | 7.50 | |
| 03-Jan-92 | | 34 | 22.86 | 22.86 | 7.62 | | 22.86 | 7.62 | | 22.86 | 7.62 | |
| 06-Jan-92 | | 37 | 15.24 | 22.86 | 7.62 | | 22.86 | 7.62 | | 25.24 | 22.89 | |
| 08-Jan-92 | | 39 | 22.86 | 22.86 | 7.62 | | 22.86 | 7.62 | | 22.86 | 15.24 | |
| 10-Jan-92 | | 41 | 22.86 | 22.86 | 7.62 | | 22.86 | 7.62 | | 22.86 | 15.24 | |
| 13-Jan-92 | | 44 | 21.82 | 14.55 | 7.27 | | 14.55 | 7.27 | | 14.55 | 14.55 | |
| 15-Jan-92 | | 46 | 14.55 | 21.86 | 7.27 | | 14.55 | 7.27 | | 29.10 | 14.55 | |
| 17-Jan-92 | | 48 | 21.82 | 14.55 | 7.27 | | 14.55 | | | 14.55 | 14.55 | |
| 20-Jan-92 | | 51 | 21.82 | 7.72 | | | 7.27 | | | 14.56 | 14.56 | |
| 22-Jan-92 | | 53 | 13.91 | 20.87 | 6.96 | | 20.87 | 6.96 | | 27.83 | 13.91 | |
| 24-Jan-92 | | 55 | 13.91 | 20.87 | 6.96 | | 20.87 | 6.96 | | 27.83 | 13.91 | |
| 27-Jan-92 | | 58 | 20.28 | 33.80 | 13.52 | | 33.30 | 20.28 | | 33.80 | 27.04 | |
| 29-Jan-92 | | 60 | 20.87 | 34.78 | 20.87 | | 27.83 | 6.96 | | 34.78 | 13.91 | |
| 31-Jan-92 | | 62 | 31.48 | 39.34 | 23.61 | | 31.48 | 23.61 | | 47.21 | 39.34 | |
| TOTAL VALUE | | MONTH2 | 279.28 | 329.78 | 131.71 | | 291.71 | 117.29 | | 368.03 | 234.81 | |
| AVERAGE VALUE | | | 19.95 | 23.56 | 10.13 | 56.99 | 20.84 | 9.77 | 53.09 | 26.29 | 16.77 | 36.20 |
| NUMBER, N | | | 14 | 14 | 13 | | 14 | 12 | | 14 | 14 | |
| STD.DEVIATION | | | 4.77 | 8.25 | 5.44 | | 6.92 | 5.49 | | 8.63 | 7.89 | |
| MAXIMUM VALUE | | | 31.48 | 39.34 | 23.61 | | 33.3 | 23.61 | | 47.21 | 39.34 | |
| MINIMUM VALUE | | | 13.91 | 7.72 | 6.96 | | 7.27 | 6.96 | | 14.55 | 7.5 | |

| DATE | DAY | COD : mg/l | | | | | | | | | |
|----------------|--------|------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | | 1 | 2 | F-2 | XEFF.2 | 3 | F-3 | XEFF.3 | 4 | F-4 | XEFF.4 |
| 03-Feb-92 | 65 | 31.48 | 39.34 | 31.48 | | 15.74 | 7.78 | | 39.34 | 31.48 | |
| 05-Feb-92 | 67 | 23.23 | 38.71 | 23.23 | | 15.48 | 7.74 | | 46.45 | 38.71 | |
| 07-Feb-92 | 69 | 15.48 | 46.45 | 30.97 | | 7.74 | 7.74 | | 46.45 | 38.71 | |
| 10-Feb-92 | 72 | 30.97 | 46.45 | 30.97 | | 38.51 | 15.48 | | 46.45 | 38.71 | |
| 12-Feb-92 | 74 | 22.86 | 45.71 | 30.48 | | 15.28 | 7.62 | | 38.10 | 30.48 | |
| 14-Feb-92 | 76 | 30.48 | 68.57 | 38.10 | | 30.48 | 30.48 | | 45.71 | 45.71 | |
| 17-Feb-92 | 79 | 23.23 | 61.94 | 46.45 | | 23.22 | 15.48 | | 38.71 | 23.23 | |
| 19-Feb-92 | 81 | 36.92 | 88.62 | 81.23 | | 44.31 | 36.92 | | 44.31 | 36.92 | |
| 21-Feb-92 | 83 | 44.31 | 96.00 | 81.23 | | 81.23 | 66.46 | | 81.23 | 73.85 | |
| 24-Feb-92 | 86 | 36.36 | 80.00 | 50.91 | | 36.36 | 29.10 | | 43.64 | 36.36 | |
| 26-Feb-92 | 88 | 42.99 | 64.48 | 64.48 | | 21.49 | 14.33 | | 50.15 | 42.99 | |
| 28-Feb-92 | 90 | 57.31 | 78.81 | 78.81 | | 50.20 | 42.99 | | 78.81 | 57.31 | |
| ----- | | | | | | | | | | | |
| TOTAL VALUE | MONTH3 | 395.62 | 755.08 | 588.34 | | 380.04 | 282.12 | | 599.35 | 494.46 | |
| AVERAGE VALUE | | 32.97 | 62.92 | 49.03 | 22.08 | 31.67 | 23.51 | 25.77 | 49.95 | 41.21 | 17.50 |
| NUMBER, N | | 12 | 12 | 12 | | 12 | 12 | | 12 | 12 | |
| MAXIMUM VALUE | | 57.31 | 96 | 81.23 | | 81.23 | 66.46 | | 81.23 | 73.85 | |
| MINIMUM VALUE | | 15.48 | 38.71 | 23.23 | | 7.74 | 7.62 | | 38.1 | 23.23 | |
| ----- | | | | | | | | | | | |
| 02-Mar-92 | 93 | 84.71 | 77.65 | 56.47 | | 70.59 | 35.29 | | 63.53 | 56.47 | |
| 04-Mar-92 | 95 | 56.47 | 98.82 | 98.82 | | 84.71 | 42.35 | | 70.59 | 63.53 | |
| 06-Mar-92 | 97 | 64.48 | 78.81 | 78.81 | | 78.81 | 42.99 | | 71.64 | 64.48 | |
| 09-Mar-92 | 100 | 70.82 | 86.56 | 78.69 | | 39.34 | 23.61 | | 94.43 | 70.82 | |
| 11-Mar-92 | 102 | 69.68 | 100.65 | 85.16 | | 54.19 | 38.71 | | 85.16 | 61.94 | |
| 13-Mar-92 | 104 | 100.65 | 116.13 | 77.42 | | 54.19 | 54.19 | | 77.42 | 69.68 | |
| 16-Mar-92 | 107 | 85.16 | 108.39 | 100.65 | | 92.90 | 77.42 | | 123.87 | 85.16 | |
| 18-Mar-92 | 109 | 116.13 | 123.87 | 108.38 | | 85.16 | 69.08 | | 131.61 | 92.9 | |
| 20-Mar-92 | 111 | 137.14 | 137.14 | 129.52 | | 68.57 | 60.95 | | 137.14 | 99.05 | |
| ----- | | | | | | | | | | | |
| TOTAL VALUE | MONTH4 | 785.24 | 928.02 | 813.92 | | 628.46 | 444.59 | | 855.39 | 664.03 | |
| AVERAGE VALUE | | 87.25 | 103.11 | 90.44 | 12.29 | 69.83 | 49.40 | 29.26 | 95.04 | 73.78 | 22.37 |
| NUMBER, N | | 9 | 9 | 9 | | 9 | 9 | | 9 | 9 | |
| STD. DEVIATION | | 24.85 | 19.22 | 20.13 | | 16.63 | 16.32 | | 26.85 | 14.11 | |
| MAXIMUM VALUE | | 137.14 | 137.14 | 129.52 | | 92.9 | 77.42 | | 137.14 | 99.05 | |
| MINIMUM VALUE | | 56.47 | 77.65 | 56.47 | | 39.34 | 23.61 | | 63.53 | 56.47 | |

จุฬาลงกรณ์มหาวิทยาลัย

COD DATA FORM

| DATE | SAMPLE | SAMPLE SIZE (ml) | TITRATION | | | COD (ml/L) |
|----------------|--------|---------------------|-----------|-------|-------|--|
| | | | BEFORE | AFTER | DIFF. | |
| 30-Nov-91 | N | 10.00 | 0.00 | 6.60 | 6.60 | $(A-B) \times 6.1 \times 80000 / N \times \text{SAMPLE}$ |
| | B | 10.00 | 6.60 | 13.00 | 6.40 | A=6.4 |
| | S1 | 10.00 | 13.00 | 17.40 | 4.40 | 145.50 A-B=2.0 |
| | S2 | 10.00 | 17.40 | 21.90 | 4.50 | 138.20 A-B=1.9 |
| | S3 | 10.00 | 21.90 | 26.40 | 4.50 | 138.20 A-B=1.9 |
| | S4 | 10.00 | 26.40 | 31.00 | 4.60 | 131.00 A-B=1.8 |
| | S5 | 10.00 | 31.00 | 35.50 | 4.50 | 138.20 A-B=1.9 |
| TOTAL VALUE | | | | | | 691.10 |
| AVERAGE VALUE | | | | | | 138.22 |
| NUMBER(n) | | | | | | 5.00 |
| STD. DEVIATION | | | | | | 4.59 |
| MAXIMUM VALUE | | | | | | 145.50 |
| MINIMUM VALUE | | | | | | 131.00 |



ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

DATA OF GROWTH RATE #1

| DATE | TIME (d) | TOTAL WEIGHT (gm.) | AVE. WEIGHT (gm.) | % WEIGHT GAIN (%) | D.W.G (g/d) | S.G.R (%/d) |
|-----------|----------|---------------------|--------------------|-------------------|-------------|-------------|
| 01-Dec-91 | 1 | 81.50 | 11.64 | 0.00 | 0.00 | 0.00 |
| 14-Dec-91 | 14 | 83.30 | 11.90 | 2.23 | 0.02 | 12.86 |
| 24-Dec-91 | 24 | 90.90 | 12.99 | 9.12 | 0.05 | 31.67 |
| 07-Jan-92 | 38 | 104.20 | 14.89 | 14.63 | 0.05 | 35.00 |
| 21-Jan-92 | 52 | 123.00 | 17.57 | 18.04 | 0.05 | 36.15 |
| 04-Feb-92 | 66 | 139.50 | 19.93 | 13.41 | 0.04 | 25.00 |
| 18-Feb-92 | 80 | 155.50 | 22.21 | 11.47 | 0.03 | 20.00 |
| 03-Mar-92 | 94 | 177.00 | 25.29 | 13.83 | 0.03 | 22.87 |
| 17-Mar-92 | 108 | 181.80 | 25.97 | 2.71 | 0.01 | 4.44 |
| 20-Mar-92 | 111 | 182.80 | 26.11 | 0.55 | 0.00 | 0.90 |

* AVE.WEIGHT : AVERAGE WEIGHT (gm.)

$$\frac{\text{Total weight (gm.)}}{\text{No. of fish (7)}}$$

* % WEIGHT G : PERCENTAGE WEIGHT GAIN (%)

$$\frac{\text{mean final weight} - \text{mean initial weight}}{\text{mean initial weight}} \times 100$$

* D.W.G : DAILY WEIGHT GAIN (gm./d)

$$\frac{\text{mean final weight} - \text{mean initial weight}}{\text{time (d)}}$$

* S.G.R : SPECIFIC GROWTH RATE (%/d)

$$\frac{\text{final weight} - \text{initial weight}}{\text{time (d)}} \times 100$$

จุฬาลงกรณ์มหาวิทยาลัย

DATA OF GROWTH RATE #2

| DATE | TIME (d) | TOTAL WEIGHT (gm.) | AVE. WEIGHT (gm.) | % WEIGHT GAIN (%) | D.W.G (g/d) | S.G.R (%/d) |
|-----------|----------|---------------------|--------------------|-------------------|-------------|-------------|
| 01-Dec-91 | 1 | 82.50 | 11.79 | 0.00 | 0.00 | 0.00 |
| 14-Dec-91 | 14 | 83.60 | 11.94 | 1.33 | 0.01 | 7.86 |
| 24-Dec-91 | 24 | 95.50 | 13.64 | 14.23 | 0.07 | 49.58 |
| 07-Jan-92 | 38 | 109.50 | 15.64 | 14.66 | 0.05 | 36.84 |
| 21-Jan-92 | 52 | 122.00 | 17.43 | 11.42 | 0.03 | 24.04 |
| 04-Feb-92 | 66 | 140.00 | 20.00 | 14.75 | 0.04 | 27.27 |
| 18-Feb-92 | 80 | 150.50 | 21.50 | 7.50 | 0.02 | 13.13 |
| 03-Mar-92 | 94 | 175.50 | 25.07 | 16.61 | 0.04 | 26.60 |
| 17-Mar-92 | 108 | 183.00 | 26.14 | 4.27 | 0.01 | 6.94 |
| 20-Mar-92 | 111 | 184.30 | 26.33 | 0.71 | 0.00 | 1.17 |

DATA OF GROWTH RATE #3

| DATE | TIME (d) | TOTAL WEIGHT (gm.) | TOTAL WEIGHT (gm.) | % WEIGHT GAIN (%) | D.W.G (g/d) | S.G.R (%/d) |
|-----------|----------|---------------------|---------------------|-------------------|-------------|-------------|
| 01-Dec-91 | 1 | 81.00 | 11.57 | 0.00 | 0.00 | 0.00 |
| 14-Dec-91 | 14 | 81.80 | 11.69 | 0.99 | 0.01 | 5.71 |
| 24-Dec-91 | 24 | 93.40 | 13.34 | 14.18 | 0.07 | 48.33 |
| 07-Jan-92 | 38 | 106.50 | 15.21 | 14.03 | 0.05 | 34.47 |
| 21-Jan-92 | 52 | 128.50 | 18.36 | 20.66 | 0.06 | 42.31 |
| 04-Feb-92 | 66 | 145.50 | 20.79 | 13.23 | 0.04 | 25.76 |
| 18-Feb-92 | 80 | 168.00 | 24.00 | 15.46 | 0.04 | 28.13 |
| 03-Mar-92 | 94 | 193.50 | 27.64 | 15.18 | 0.04 | 27.13 |
| 17-Mar-92 | 108 | 206.00 | 29.43 | 6.46 | 0.02 | 11.57 |
| 20-Mar-92 | 111 | 207.60 | 29.66 | 0.78 | 0.00 | 1.44 |

DATA OF GROWTH RATE #4

| DATE | TIME (d) | TOTAL WEIGHT (gm.) | TOTAL WEIGHT (gm.) | % WEIGHT GAIN (%) | D.W.G (g/d) | S.G.R (%/d) |
|-----------|----------|---------------------|---------------------|-------------------|-------------|-------------|
| 01-Dec-91 | 1 | 81.00 | 11.57 | 0.00 | 0.00 | 0.00 |
| 14-Dec-91 | 14 | 81.30 | 11.61 | 0.37 | 0.00 | 2.14 |
| 24-Dec-91 | 24 | 89.50 | 12.79 | 10.09 | 0.05 | 34.17 |
| 07-Jan-92 | 38 | 103.00 | 14.71 | 15.08 | 0.05 | 35.53 |
| 21-Jan-92 | 52 | 115.50 | 16.50 | 12.14 | 0.03 | 24.04 |
| 04-Feb-92 | 66 | 125.50 | 17.93 | 8.66 | 0.02 | 15.15 |
| 18-Feb-92 | 80 | 136.00 | 19.43 | 8.37 | 0.02 | 13.13 |
| 03-Mar-92 | 94 | 157.00 | 22.43 | 15.44 | 0.03 | 22.34 |
| 17-Mar-92 | 108 | 164.60 | 23.51 | 4.84 | 0.01 | 7.04 |
| 20-Mar-92 | 111 | 165.20 | 23.60 | 0.36 | 0.00 | 0.54 |

DATA OF LENGTH RATE # 1

| DATE | TIME (d) | TOTAL LENGTH (cm) | AVE. LENGTH (cm) | % L.G (%) |
|-----------|----------|-------------------|------------------|-----------|
| 01-Dec-91 | 1 | 55.00 | 7.86 | 0.00 |
| 14-Dec-91 | 14 | 55.00 | 7.86 | 0.00 |
| 24-Dec-91 | 24 | 58.00 | 8.29 | 5.45 |
| 07-Jan-92 | 38 | 62.50 | 8.93 | 7.76 |
| 21-Jan-92 | 52 | 65.00 | 9.29 | 4.00 |
| 04-Feb-92 | 66 | 68.50 | 9.79 | 5.38 |
| 18-Feb-92 | 80 | 71.00 | 10.14 | 3.65 |
| 03-Mar-92 | 94 | 76.00 | 10.86 | 7.04 |
| 17-Mar-92 | 108 | 80.00 | 11.43 | 5.26 |
| 20-Mar-92 | 111 | 80.00 | 11.43 | 0.00 |

AVE. LENGTH : AVERAGE LENGTH (cm.)
 Total length (cm.)
 = -----
 No. of fish (7)

% L.G : PERCENTAGE LENGTH GAIN (%)
 mean final length- mean initial length
 = ----- #100
 mean initial weight

ศูนย์วิทยทรัพยากร
 จุฬาลงกรณ์มหาวิทยาลัย

DATA OF LENGTH RATE # 2

| DATE | TIME (d) | TOTAL LENGTH (cm.) | AVE. LENGTH (cm.) | % L.G (%) |
|-----------|-------------|------------------------|-----------------------|--------------|
| 01-Dec-91 | 1 | 55.00 | 7.86 | 0.00 |
| 14-Dec-91 | 14 | 55.00 | 7.86 | 0.00 |
| 24-Dec-91 | 24 | 60.00 | 8.57 | 9.09 |
| 07-Jan-92 | 38 | 63.00 | 9.00 | 5.00 |
| 21-Jan-92 | 52 | 66.00 | 9.43 | 4.76 |
| 04-Feb-92 | 66 | 68.50 | 9.79 | 3.79 |
| 18-Feb-92 | 80 | 70.00 | 10.00 | 2.19 |
| 03-Mar-92 | 94 | 75.00 | 10.71 | 7.14 |
| 17-Mar-92 | 108 | 79.00 | 11.29 | 5.33 |
| 20-Mar-92 | 111 | 79.00 | 11.29 | 0.00 |

DATA OF LENGTH RATE # 3

| DATE | TIME (d) | TOTAL LENGTH (cm.) | AVE. LENGTH (cm.) | % L.G (%) |
|-----------|-------------|------------------------|-----------------------|--------------|
| 01-Dec-91 | 1 | 55.00 | 7.86 | 0.00 |
| 14-Dec-91 | 14 | 55.00 | 7.86 | 0.00 |
| 24-Dec-91 | 24 | 59.00 | 8.43 | 7.27 |
| 07-Jan-92 | 38 | 63.00 | 9.00 | 6.78 |
| 21-Jan-92 | 52 | 66.50 | 9.50 | 5.56 |
| 04-Feb-92 | 66 | 69.00 | 9.86 | 3.76 |
| 18-Feb-92 | 80 | 70.50 | 10.07 | 2.17 |
| 03-Mar-92 | 94 | 76.50 | 10.93 | 8.52 |
| 17-Mar-92 | 108 | 81.50 | 11.64 | 6.52 |
| 20-Mar-92 | 111 | 81.50 | 11.64 | 0.00 |

DATA OF LENGTH RATE # 4

| DATE | TIME (d) | TOTAL LENGTH (cm.) | AVE. LENGTH (cm.) | % L.G (%) |
|-----------|-------------|------------------------|-----------------------|--------------|
| 01-Dec-91 | 1 | 55.00 | 7.86 | 0.00 |
| 14-Dec-91 | 14 | 55.00 | 7.86 | 0.00 |
| 24-Dec-91 | 24 | 58.00 | 8.29 | 5.45 |
| 07-Jan-92 | 38 | 62.50 | 8.93 | 7.76 |
| 21-Jan-92 | 52 | 66.00 | 9.43 | 5.60 |
| 04-Feb-92 | 66 | 69.00 | 9.86 | 4.55 |
| 18-Feb-92 | 80 | 71.50 | 10.21 | 3.62 |
| 03-Mar-92 | 94 | 74.50 | 10.64 | 4.20 |
| 17-Mar-92 | 108 | 78.00 | 11.14 | 4.70 |
| 20-Mar-92 | 111 | 78.00 | 11.14 | 0.00 |



ภาคผนวก ค.

แสดงข้อมูลของปลาทองตลอดการวิจัย

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

ตาราง ค.1

| รายการ /วันที่.1../.12../.2534.. | ตู้ที่ 1 | ตู้ที่ 2 | ตู้ที่ 3 | ตู้ที่ 4 |
|----------------------------------|----------|----------|----------|----------|
| 1. น้ำหนักของปลาทอง 7 ตัว | | | | |
| 1.1 ปลาทองตัวที่ 1 / กรัม | 6.0 | 5.0 | 5.0 | 5.5 |
| 1.2 ปลาทองตัวที่ 2 / กรัม | 9.5 | 11.0 | 14.0 | 9.0 |
| 1.3 ปลาทองตัวที่ 3 / กรัม | 9.0 | 9.0 | 12.6 | 12.0 |
| 1.4 ปลาทองตัวที่ 4 / กรัม | 14.0 | 16.0 | 17.7 | 15.5 |
| 1.5 ปลาทองตัวที่ 5 / กรัม | 15.5 | 11.5 | 15.0 | 8.0 |
| 1.6 ปลาทองตัวที่ 6 / กรัม | 13.0 | 18.0 | 10.0 | 18.0 |
| 1.7 ปลาทองตัวที่ 7 / กรัม | 14.5 | 12.0 | 6.7 | 13.0 |
| น้ำหนักรวมของปลาทอง/ กรัม | 81.5 | 82.5 | 81.0 | 81.0 |
| น้ำหนักเฉลี่ยของปลาทอง/ กรัม | 11.64 | 11.78 | 11.57 | 11.57 |
| 2. ความยาวของปลาทอง 7 ตัว | | | | |
| 2.1 ปลาทองตัวที่ 1 / ซม. | 7.0 | 6.0 | 6.0 | 6.0 |
| 2.2 ปลาทองตัวที่ 2 / ซม. | 6.0 | 7.0 | 9.0 | 7.0 |
| 2.3 ปลาทองตัวที่ 3 / ซม. | 8.0 | 7.0 | 6.0 | 6.0 |
| 2.4 ปลาทองตัวที่ 4 / ซม. | 9.0 | 10.0 | 10.0 | 9.0 |
| 2.5 ปลาทองตัวที่ 5 / ซม. | 10.0 | 7.0 | 9.0 | 8.0 |
| 2.6 ปลาทองตัวที่ 6 / ซม. | 6.0 | 10.0 | 8.0 | 10.0 |
| 2.7 ปลาทองตัวที่ 7 / ซม. | 9.0 | 8.0 | 7.0 | 9.0 |
| ความยาวของปลาทอง / ซม. | 55.0 | 55.0 | 55.0 | 55.0 |
| ความยาวเฉลี่ยของปลาทอง/ ซม. | 7.86 | 7.86 | 7.86 | 7.86 |

ตาราง ค-2

| รายการ / วันที่.14./12./2534 | ตู้ที่ 1 | ตู้ที่ 2 | ตู้ที่ 3 | ตู้ที่ 4 |
|------------------------------|----------|----------|----------|----------|
| 1. น้ำหนักของปลาทอง 7 ตัว | | | | |
| 1.1 ปลาทองตัวที่ 1 / กรัม | 6.0 | 5.5 | 5.2 | 5.6 |
| 1.2 ปลาทองตัวที่ 2 / กรัม | 9.8 | 11.2 | 14.2 | 9.2 |
| 1.3 ปลาทองตัวที่ 3 / กรัม | 9.5 | 9.2 | 12.6 | 12.0 |
| 1.4 ปลาทองตัวที่ 4 / กรัม | 14.2 | 16.0 | 17.7 | 15.5 |
| 1.5 ปลาทองตัวที่ 5 / กรัม | 15.8 | 11.5 | 15.2 | 8.0 |
| 1.6 ปลาทองตัวที่ 6 / กรัม | 13.2 | 18.0 | 10.1 | 18.0 |
| 1.7 ปลาทองตัวที่ 7 / กรัม | 14.8 | 12.2 | 6.8 | 13.0 |
| น้ำหนักรวมของปลาทอง/ กรัม | 83.3 | 83.6 | 81.8 | 81.3 |
| น้ำหนักเฉลี่ยของปลาทอง/ กรัม | 11.9 | 11.94 | 11.69 | 11.62 |
| 2. ความยาวของปลาทอง 7 ตัว | | | | |
| 2.1 ปลาทองตัวที่ 1 / ซม. | 7.0 | 6.0 | 6.0 | 6.0 |
| 2.2 ปลาทองตัวที่ 2 / ซม. | 6.0 | 7.0 | 9.0 | 9.0 |
| 2.3 ปลาทองตัวที่ 3 / ซม. | 8.0 | 7.0 | 9.0 | 7.0 |
| 2.4 ปลาทองตัวที่ 4 / ซม. | 9.0 | 10.0 | 10.0 | 9.0 |
| 2.5 ปลาทองตัวที่ 5 / ซม. | 10.0 | 7.0 | 9.0 | 8.0 |
| 2.6 ปลาทองตัวที่ 6 / ซม. | 6.0 | 10.0 | 8.0 | 10.0 |
| 2.7 ปลาทองตัวที่ 7 / ซม. | 9.0 | 8.0 | 7.0 | 9.0 |
| ความยาวของปลาทอง / ซม. | 55.0 | 55.0 | 55.0 | 55.0 |
| ความยาวเฉลี่ยของปลาทอง/ ซม. | 7.86 | 7.86 | 7.86 | 7.86 |

ตาราง ค-3

| รายการ / วันที่ 24 / 12 / 2534 | ตู้ที่ 1 | ตู้ที่ 2 | ตู้ที่ 3 | ตู้ที่ 4 |
|--------------------------------|----------|----------|----------|----------|
| 1. น้ำหนักของปลาทอง 7 ตัว | | | | |
| 1.1 ปลาทองตัวที่ 1 / กรัม | 8.0 | 8.5 | 7.0 | 5.8 |
| 1.2 ปลาทองตัวที่ 2 / กรัม | 10.0 | 11.5 | 14.0 | 9.2 |
| 1.3 ปลาทองตัวที่ 3 / กรัม | 11.0 | 10.2 | 13.2 | 13.5 |
| 1.4 ปลาทองตัวที่ 4 / กรัม | 15.7 | 19.7 | 20.8 | 16.7 |
| 1.5 ปลาทองตัวที่ 5 / กรัม | 16.0 | 12.8 | 16.2 | 10.0 |
| 1.6 ปลาทองตัวที่ 6 / กรัม | 15.0 | 20.3 | 10.7 | 20.8 |
| 1.7 ปลาทองตัวที่ 7 / กรัม | 15.2 | 12.5 | 11.5 | 13.5 |
| น้ำหนักรวมของปลาทอง/ กรัม | 90.9 | 95.5 | 93.4 | 89.5 |
| น้ำหนักเฉลี่ยของปลาทอง/ กรัม | 12.98 | 13.64 | 13.34 | 12.78 |
| 2. ความยาวของปลาทอง 7 ตัว | | | | |
| 2.1 ปลาทองตัวที่ 1 / ซม. | 7.5 | 6.0 | 6.0 | 6.0 |
| 2.2 ปลาทองตัวที่ 2 / ซม. | 6.5 | 7.5 | 9.5 | 8.0 |
| 2.3 ปลาทองตัวที่ 3 / ซม. | 9.0 | 8.0 | 7.0 | 6.0 |
| 2.4 ปลาทองตัวที่ 4 / ซม. | 9.0 | 11.0 | 10.5 | 9.5 |
| 2.5 ปลาทองตัวที่ 5 / ซม. | 10.5 | 7.5 | 10.0 | 8.5 |
| 2.6 ปลาทองตัวที่ 6 / ซม. | 6.5 | 11.5 | 9.0 | 10.5 |
| 2.7 ปลาทองตัวที่ 7 / ซม. | 9.0 | 8.5 | 7.0 | 9.5 |
| ความยาวของปลาทอง / ซม. | 58.0 | 60.0 | 59.0 | 58.0 |
| ความยาวเฉลี่ยของปลาทอง/ ซม. | 8.29 | 8.57 | 8.43 | 8.29 |

ตาราง ค-4

| รายการ / วันที่ 7 / 1 / 2535 | ตู่ที่ 1 | ตู่ที่ 2 | ตู่ที่ 3 | ตู่ที่ 4 |
|------------------------------|----------|----------|----------|----------|
| 1. น้ำหนักของปลาทอง 7 ตัว | | | | |
| 1.1 ปลาทองตัวที่ 1 / กรัม | 10.0 | 10.0 | 9.0 | 6.0 |
| 1.2 ปลาทองตัวที่ 2 / กรัม | 12.0 | 12.5 | 14.0 | 9.5 |
| 1.3 ปลาทองตัวที่ 3 / กรัม | 14.5 | 11.0 | 14.0 | 19.5 |
| 1.4 ปลาทองตัวที่ 4 / กรัม | 17.0 | 24.0 | 24.0 | 20.0 |
| 1.5 ปลาทองตัวที่ 5 / กรัม | 17.0 | 14.0 | 18.0 | 11.0 |
| 1.6 ปลาทองตัวที่ 6 / กรัม | 17.7 | 25.0 | 11.5 | 24.0 |
| 1.7 ปลาทองตัวที่ 7 / กรัม | 16.0 | 13.0 | 16.0 | 14.0 |
| น้ำหนักรวมของปลาทอง/ กรัม | 104.2 | 109.5 | 106.5 | 103.0 |
| น้ำหนักเฉลี่ยของปลาทอง/ กรัม | 14.88 | 15.64 | 15.21 | 14.85 |
| 2. ความยาวของปลาทอง 7 ตัว | | | | |
| 2.1 ปลาทองตัวที่ 1 / ซม. | 8.0 | 6.0 | 6.5 | 7.0 |
| 2.2 ปลาทองตัวที่ 2 / ซม. | 7.0 | 8.0 | 10.0 | 8.0 |
| 2.3 ปลาทองตัวที่ 3 / ซม. | 9.5 | 9.0 | 7.5 | 7.5 |
| 2.4 ปลาทองตัวที่ 4 / ซม. | 10.0 | 12.0 | 11.5 | 10.0 |
| 2.5 ปลาทองตัวที่ 5 / ซม. | 11.0 | 8.0 | 11.0 | 9.0 |
| 2.6 ปลาทองตัวที่ 6 / ซม. | 7.0 | 11.0 | 9.5 | 11.0 |
| 2.7 ปลาทองตัวที่ 7 / ซม. | 10.0 | 9.0 | 7.0 | 10.0 |
| ความยาวของปลาทอง / ซม. | 62.5 | 63.0 | 63.0 | 62.5 |
| ความยาวเฉลี่ยของปลาทอง/ ซม. | 8.92 | 9.00 | 9.00 | 8.90 |

ตาราง ค-5

| รายการ / วันที่ 21/ 1 / 2535 | ตู่ที่ 1 | ตู่ที่ 2 | ตู่ที่ 3 | ตู่ที่ 4 |
|------------------------------|----------|----------|----------|----------|
| 1. น้ำหนักของปลาทอง 7 ตัว | | | | |
| 1.1 ปลาทองตัวที่ 1 / กรัม | 11.5 | 12.5 | 11.5 | 8.0 |
| 1.2 ปลาทองตัวที่ 2 / กรัม | 15.0 | 13.5 | 18.5 | 10.0 |
| 1.3 ปลาทองตัวที่ 3 / กรัม | 13.0 | 12.5 | 18.0 | 20.0 |
| 1.4 ปลาทองตัวที่ 4 / กรัม | 22.0 | 28.0 | 26.0 | 22.5 |
| 1.5 ปลาทองตัวที่ 5 / กรัม | 19.5 | 17.0 | 22.5 | 12.5 |
| 1.6 ปลาทองตัวที่ 6 / กรัม | 24.0 | 25.0 | 12.0 | 25.0 |
| 1.7 ปลาทองตัวที่ 7 / กรัม | 18.0 | 13.5 | 20.0 | 17.5 |
| น้ำหนักรวมของปลาทอง/ กรัม | 123.0 | 122.0 | 128.5 | 115.5 |
| น้ำหนักเฉลี่ยของปลาทอง/ กรัม | 17.57 | 17.43 | 18.36 | 16.50 |
| 2. ความยาวของปลาทอง 7 ตัว | | | | |
| 2.1 ปลาทองตัวที่ 1 / ซม. | 8.5 | 7.0 | 7.0 | 7.0 |
| 2.2 ปลาทองตัวที่ 2 / ซม. | 7.0 | 9.0 | 10.5 | 8.0 |
| 2.3 ปลาทองตัวที่ 3 / ซม. | 10.0 | 9.0 | 8.0 | 8.0 |
| 2.4 ปลาทองตัวที่ 4 / ซม. | 11.0 | 12.0 | 12.0 | 10.0 |
| 2.5 ปลาทองตัวที่ 5 / ซม. | 11.0 | 8.0 | 11.5 | 10.0 |
| 2.6 ปลาทองตัวที่ 6 / ซม. | 11.0 | 11.0 | 10.0 | 12.5 |
| 2.7 ปลาทองตัวที่ 7 / ซม. | 10.0 | 10.0 | 7.5 | 10.5 |
| ความยาวของปลาทอง / ซม. | 65.0 | 66.0 | 66.5 | 66.0 |
| ความยาวเฉลี่ยของปลาทอง/ ซม. | 9.29 | 9.43 | 9.50 | 9.43 |

ตาราง ค-6

| รายการ / วันที่ 4 / 2 / 2535 | ตุ้ ตุ้ 1 | ตุ้ ตุ้ 2 | ตุ้ ตุ้ 3 | ตุ้ ตุ้ 4 |
|------------------------------|--------------|--------------|--------------|--------------|
| 1. น้ำหนักของปลาทอง 7 ตัว | | | | |
| 1.1 ปลาทองตัวที่ 1 / กรัม | 15.0 | 16.0 | 13.0 | 9.0 |
| 1.2 ปลาทองตัวที่ 2 / กรัม | 18.5 | 17.0 | 20.0 | 10.5 |
| 1.3 ปลาทองตัวที่ 3 / กรัม | 14.0 | 13.0 | 22.5 | 21.0 |
| 1.4 ปลาทองตัวที่ 4 / กรัม | 25.0 | 31.0 | 28.5 | 23.5 |
| 1.5 ปลาทองตัวที่ 5 / กรัม | 22.0 | 20.0 | 26.5 | 14.0 |
| 1.6 ปลาทองตัวที่ 6 / กรัม | 25.0 | 29.0 | 14.0 | 29.5 |
| 1.7 ปลาทองตัวที่ 7 / กรัม | 20.0 | 14.5 | 21.0 | 18.0 |
| น้ำหนักรวมของปลาทอง/ กรัม | 139.5 | 140.0 | 145.5 | 125.5 |
| น้ำหนักเฉลี่ยของปลาทอง/ กรัม | 19.93 | 20.00 | 20.79 | 17.92 |
| 2. ความยาวของปลาทอง 7 ตัว | | | | |
| 2.1 ปลาทองตัวที่ 1 / ซม. | 9.0 | 7.0 | 7.0 | 7.5 |
| 2.2 ปลาทองตัวที่ 2 / ซม. | 7.5 | 9.5 | 10.5 | 8.0 |
| 2.3 ปลาทองตัวที่ 3 / ซม. | 10.5 | 9.5 | 8.5 | 8.5 |
| 2.4 ปลาทองตัวที่ 4 / ซม. | 11.5 | 12.5 | 12.0 | 10.5 |
| 2.5 ปลาทองตัวที่ 5 / ซม. | 11.5 | 8.5 | 12.0 | 10.5 |
| 2.6 ปลาทองตัวที่ 6 / ซม. | 8.0 | 11.0 | 11.0 | 13.0 |
| 2.7 ปลาทองตัวที่ 7 / ซม. | 10.5 | 10.5 | 8.0 | 11.0 |
| ความยาวของปลาทอง / ซม. | 68.5 | 68.5 | 69.0 | 69.0 |
| ความยาวเฉลี่ยของปลาทอง/ ซม. | 9.79 | 9.79 | 9.86 | 9.86 |

ตาราง ค-7

| รายการ / วันที่ 18 / 2 / 2535 | ตุ้ ตุ้ 1 | ตุ้ ตุ้ 2 | ตุ้ ตุ้ 3 | ตุ้ ตุ้ 4 |
|-------------------------------|--------------|--------------|--------------|--------------|
| 1. น้ำหนักของปลาทอง 7 ตัว | | | | |
| 1.1 ปลาทองตัวที่ 1 / กรัม | 17.5 | 17.0 | 15.0 | 11.0 |
| 1.2 ปลาทองตัวที่ 2 / กรัม | 20.0 | 18.0 | 22.0 | 11.0 |
| 1.3 ปลาทองตัวที่ 3 / กรัม | 16.0 | 14.5 | 26.0 | 25.0 |
| 1.4 ปลาทองตัวที่ 4 / กรัม | 28.0 | 33.0 | 33.0 | 25.0 |
| 1.5 ปลาทองตัวที่ 5 / กรัม | 23.0 | 21.0 | 30.0 | 15.0 |
| 1.6 ปลาทองตัวที่ 6 / กรัม | 29.0 | 30.5 | 17.0 | 30.5 |
| 1.7 ปลาทองตัวที่ 7 / กรัม | 22.0 | 16.5 | 25.0 | 18.5 |
| น้ำหนักรวมของปลาทอง/ กรัม | 155.5 | 150.5 | 168.0 | 136.0 |
| น้ำหนักเฉลี่ยของปลาทอง/ กรัม | 22.21 | 21.50 | 24.00 | 19.43 |
| 2. ความยาวของปลาทอง 7 ตัว | | | | |
| 2.1 ปลาทองตัวที่ 1 / ซม. | 9.0 | 7.0 | 7.0 | 8.0 |
| 2.2 ปลาทองตัวที่ 2 / ซม. | 8.0 | 10.0 | 11.0 | 8.5 |
| 2.3 ปลาทองตัวที่ 3 / ซม. | 11.0 | 9.5 | 8.5 | 8.5 |
| 2.4 ปลาทองตัวที่ 4 / ซม. | 12.0 | 13.0 | 12.5 | 11.0 |
| 2.5 ปลาทองตัวที่ 5 / ซม. | 12.0 | 9.0 | 12.5 | 11.0 |
| 2.6 ปลาทองตัวที่ 6 / ซม. | 8.0 | 11.0 | 10.5 | 13.0 |
| 2.7 ปลาทองตัวที่ 7 / ซม. | 11.0 | 10.5 | 8.5 | 11.5 |
| ความยาวของปลาทอง / ซม. | 71.0 | 70.0 | 70.5 | 71.5 |
| ความยาวเฉลี่ยของปลาทอง/ ซม. | 10.14 | 10.00 | 10.07 | 10.21 |

ตาราง ค-8

| รายการ / วันที่ 3 / 3 / 2535 | ตู่ที่ 1 | ตู่ที่ 2 | ตู่ที่ 3 | ตู่ที่ 4 |
|-------------------------------|----------|----------|----------|----------|
| 1. น้ำหนักของปลาทอง 7 ตัว | | | | |
| 1.1 ปลาทองตัวที่ 1 / กรัม | 20.0 | 21.0 | 17.0 | 16.0 |
| 1.2 ปลาทองตัวที่ 2 / กรัม | 21.0 | 21.0 | 24.0 | 12.0 |
| 1.3 ปลาทองตัวที่ 3 / กรัม | 18.0 | 15.5 | 30.5 | 31.0 |
| 1.4 ปลาทองตัวที่ 4 / กรัม | 35.0 | 43.0 | 36.0 | 29.0 |
| 1.5 ปลาทองตัวที่ 5 / กรัม | 25.0 | 25.0 | 38.0 | 17.0 |
| 1.6 ปลาทองตัวที่ 6 / กรัม | 34.0 | 32.0 | 20.0 | 32.5 |
| 1.7 ปลาทองตัวที่ 7 / กรัม | 24.0 | 18.0 | 28.0 | 19.5 |
| น้ำหนักรวมของปลาทอง / กรัม | 177.0 | 175.5 | 193.5 | 157.0 |
| น้ำหนักเฉลี่ยของปลาทอง / กรัม | 25.29 | 25.07 | 27.64 | 22.43 |
| 2. ความยาวของปลาทอง 7 ตัว | | | | |
| 2.1 ปลาทองตัวที่ 1 / ซม. | 9.5 | 7.5 | 7.0 | 8.0 |
| 2.2 ปลาทองตัวที่ 2 / ซม. | 8.5 | 10.5 | 11.5 | 9.0 |
| 2.3 ปลาทองตัวที่ 3 / ซม. | 11.5 | 10.0 | 9.0 | 9.0 |
| 2.4 ปลาทองตัวที่ 4 / ซม. | 14.0 | 14.5 | 13.5 | 11.5 |
| 2.5 ปลาทองตัวที่ 5 / ซม. | 12.5 | 9.5 | 14.0 | 11.5 |
| 2.6 ปลาทองตัวที่ 6 / ซม. | 8.5 | 11.5 | 12.0 | 13.5 |
| 2.7 ปลาทองตัวที่ 7 / ซม. | 11.5 | 11.5 | 9.5 | 12.0 |
| ความยาวของปลาทอง / ซม. | 76.0 | 75.0 | 76.5 | 74.5 |
| ความยาวเฉลี่ยของปลาทอง / ซม. | 10.85 | 10.71 | 10.93 | 10.64 |

ตาราง ค-9

| รายการ / วันที่ 17 / 3 / 535 | ตู่ที่ 1 | ตู่ที่ 2 | ตู่ที่ 3 | ตู่ที่ 4 |
|-------------------------------|----------|----------|----------|----------|
| 1. น้ำหนักของปลาทอง 7 ตัว | | | | |
| 1.1 ปลาทองตัวที่ 1 / กรัม | 21.0 | 21.5 | 19.3 | 16.5 |
| 1.2 ปลาทองตัวที่ 2 / กรัม | 21.5 | 21.8 | 25.5 | 13.0 |
| 1.3 ปลาทองตัวที่ 3 / กรัม | 18.3 | 16.0 | 32.2 | 32.5 |
| 1.4 ปลาทองตัวที่ 4 / กรัม | 35.5 | 44.5 | 37.0 | 30.1 |
| 1.5 ปลาทองตัวที่ 5 / กรัม | 25.8 | 26.0 | 41.5 | 18.5 |
| 1.6 ปลาทองตัวที่ 6 / กรัม | 34.6 | 34.0 | 21.0 | 33.5 |
| 1.7 ปลาทองตัวที่ 7 / กรัม | 25.1 | 19.2 | 29.5 | 20.5 |
| น้ำหนักรวมของปลาทอง / กรัม | 181.8 | 183.0 | 206.0 | 164.6 |
| น้ำหนักเฉลี่ยของปลาทอง / กรัม | 25.97 | 26.14 | 29.43 | 23.51 |
| 2. ความยาวของปลาทอง 7 ตัว | | | | |
| 2.1 ปลาทองตัวที่ 1 / ซม. | 10.0 | 7.5 | 7.5 | 8.0 |
| 2.2 ปลาทองตัวที่ 2 / ซม. | 9.0 | 11.0 | 12.5 | 9.5 |
| 2.3 ปลาทองตัวที่ 3 / ซม. | 12.0 | 10.5 | 9.5 | 9.5 |
| 2.4 ปลาทองตัวที่ 4 / ซม. | 14.5 | 15.0 | 14.0 | 12.0 |
| 2.5 ปลาทองตัวที่ 5 / ซม. | 13.5 | 10.5 | 15.0 | 12.0 |
| 2.6 ปลาทองตัวที่ 6 / ซม. | 9.0 | 12.0 | 12.5 | 14.5 |
| 2.7 ปลาทองตัวที่ 7 / ซม. | 12.0 | 12.5 | 10.5 | 12.5 |
| ความยาวของปลาทอง / ซม. | 80.0 | 79.0 | 81.5 | 78.0 |
| ความยาวเฉลี่ยของปลาทอง / ซม. | 11.42 | 11.29 | 11.64 | 11.14 |

ตาราง ค-10

| รายการ / วันที่ 20 / 3 / 2535 | ตู่ที่ 1 | ตู่ที่ 2 | ตู่ที่ 3 | ตู่ที่ 4 |
|-------------------------------|----------|----------|----------|----------|
| 1. น้ำหนักของปลาทอง 7 ตัว | | | | |
| 1.1 ปลาทองตัวที่ 1 / กรัม | 21.2 | 21.8 | 19.5 | 16.5 |
| 1.2 ปลาทองตัวที่ 2 / กรัม | 21.8 | 22.0 | 25.8 | 13.1 |
| 1.3 ปลาทองตัวที่ 3 / กรัม | 18.4 | 16.0 | 32.5 | 32.6 |
| 1.4 ปลาทองตัวที่ 4 / กรัม | 35.6 | 44.7 | 37.3 | 30.2 |
| 1.5 ปลาทองตัวที่ 5 / กรัม | 25.9 | 26.3 | 41.7 | 18.6 |
| 1.6 ปลาทองตัวที่ 6 / กรัม | 34.7 | 34.2 | 21.1 | 33.6 |
| 1.7 ปลาทองตัวที่ 7 / กรัม | 25.2 | 19.3 | 29.7 | 20.6 |
| น้ำหนักรวมของปลาทอง/ กรัม | 182.8 | 184.3 | 207.6 | 165.2 |
| น้ำหนักเฉลี่ยของปลาทอง/ กรัม | 26.11 | 26.33 | 29.67 | 23.60 |
| 2. ความยาวของปลาทอง 7 ตัว | | | | |
| 2.1 ปลาทองตัวที่ 1 / ซม. | 10.0 | 7.5 | 7.5 | 8.0 |
| 2.2 ปลาทองตัวที่ 2 / ซม. | 9.0 | 11.0 | 12.5 | 9.5 |
| 2.3 ปลาทองตัวที่ 3 / ซม. | 12.0 | 10.5 | 9.5 | 9.5 |
| 2.4 ปลาทองตัวที่ 4 / ซม. | 14.5 | 15.0 | 14.0 | 12.0 |
| 2.5 ปลาทองตัวที่ 5 / ซม. | 13.5 | 10.5 | 15.0 | 12.0 |
| 2.6 ปลาทองตัวที่ 6 / ซม. | 9.0 | 12.0 | 12.5 | 14.5 |
| 2.7 ปลาทองตัวที่ 7 / ซม. | 12.0 | 12.5 | 10.5 | 12.5 |
| ความยาวของปลาทอง / ซม. | 80.0 | 79.0 | 81.5 | 78.0 |
| ความยาวเฉลี่ยของปลาทอง/ ซม. | 11.42 | 11.29 | 11.64 | 11.14 |

ประวัติผู้วิจัย

นางสาว นันทาวดี กิติศรี เกิดที่จังหวัดลำาน สำเร็จการศึกษาชั้นต้น วิศวกรรมศาสตรบัณฑิต (สภาวะแวดล้อม) จากมหาวิทยาลัยเชียงใหม่เมื่อปีพ.ศ. 2528 จากนั้นได้เข้ารับราชการที่สำนักงานคณะกรรมการสิ่งแวดล้อมแห่งชาติ และที่กองวิจัยและพัฒนา การสื่อสารแห่งประเทศไทย ตามลำดับ ปัจจุบันศึกษาต่อปริญญาโท คณะวิศวกรรมศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย



ศูนย์วิทยุทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย