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# FINAL REPORT

of the

Technical Assistance Study  
(TA-1481 PAK)

on

## CROP-BASED IRRIGATION OPERATIONS IN THE NORTH WEST FRONTIER PROVINCE OF PAKISTAN

### VOLUME III: DATA COLLECTION PROCEDURES AND DATA SETS

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# CROP-BASED IRRIGATION OPERATIONS STUDY IN THE NORTH WEST FRONTIER PROVINCE OF PAKISTAN

## VOLUME III: DATA COLLECTION PROCEDURES AND DATA SETS

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## **Chapter 1**

### **INTRODUCTION**

#### **1.1. Objectives**

The International Irrigation Management Institute (IIMI), Pakistan Division, undertook a project on Crop-Based Irrigation Operations in the North-West Frontier Province (NWFP) in July 1991 with funding from the Asian Development Bank (ADB). The data collection was started in October 1991 and ended in October 1993. The project will be finalized in June 1994.

Under project reporting requirements, a final report is to be prepared by IIMI that would cover all project activities that took place during the study's implementation. In order to facilitate the reading of the extensive work undertaken, IIMI decided to divide the final report into three separate, but inter-related volumes. The first volume summarizes the main findings and lists recommendations prepared by IIMI regarding improvements in system operations. The second volume presents the research results from the data analysis and the justifications that led to the recommendations presented in Volume I.

This document (Volume III) is the third and last volume of the overall FINAL REPORT for the study on Crop-based Irrigation Operations in the NWFP. It presents briefly the methodologies followed in data collection and provides representative sets of data collected during the two years of field activities. The main objective of this volume is to make data available to staff from operating agencies that have facilitated IIMI's work during the two years of field presence, but also to researchers and policy makers involved in the management of irrigation systems in Pakistan. This volume will also be a valuable source of information for students with interest in water management and the operation of irrigation systems.

Although the Crop-Based Irrigation Operations in the NWFP project focused on the management of two irrigation systems in the NWFP, the Lower Swat Canal (LSC) and the Chashma Right Bank Canal (CRBC), regular field activities were limited to the CRBC irrigation system. Thus, data presented in this volume are related to the CRBC irrigation system only.

#### **1.2 Content of the Present Volume**

The data have been organized under the following headings:

canal water flows (Chapter 2)

management of outlets (Chapter 3)

agricultural production (Chapter 4)

climatic data for the D.I.Khan area (Chapter 5)

water supply in relation to water demand: the Relative Water Supply, RWS (Chapter 6)

In the following chapters, a brief description on how the particular set of data was obtained, along with the data itself, is provided.

The reader should be aware that the data provided in chapters 2, 3 and 4, was directly measured or collected by IIMI. On the other hand, the information regarding climatic data in Chapter 5 has been taken from the Meteorological Station at D. I. Khan. Finally, the data in Chapter 6 pertaining to the relative water supply is no longer primary data, per se, but rather is the result of data processing.

The data is tabulated in such a way as to be self explanatory. The reader will recognize that IIMI has followed a standard research methodology in the compilation and analysis of the information.

### 1.3 Presentation of the Sample Areas

The research was undertaken in Stage-I of the CRBC irrigation system. Five channels (four distributaries and a minor) were monitored during the two years of field activities. All four distributaries are located in the newly developed area, whereas the minor is located in the Old Paharpur remodelled area. Figure 1-1 shows the location of the sample areas within Stage I of the CRBC irrigation system. Table 1-1 summarizes the main design characteristics of the sample channels.

**TABLE 1-1 CHARACTERISTICS OF SAMPLE DISTRIBUTARIES**

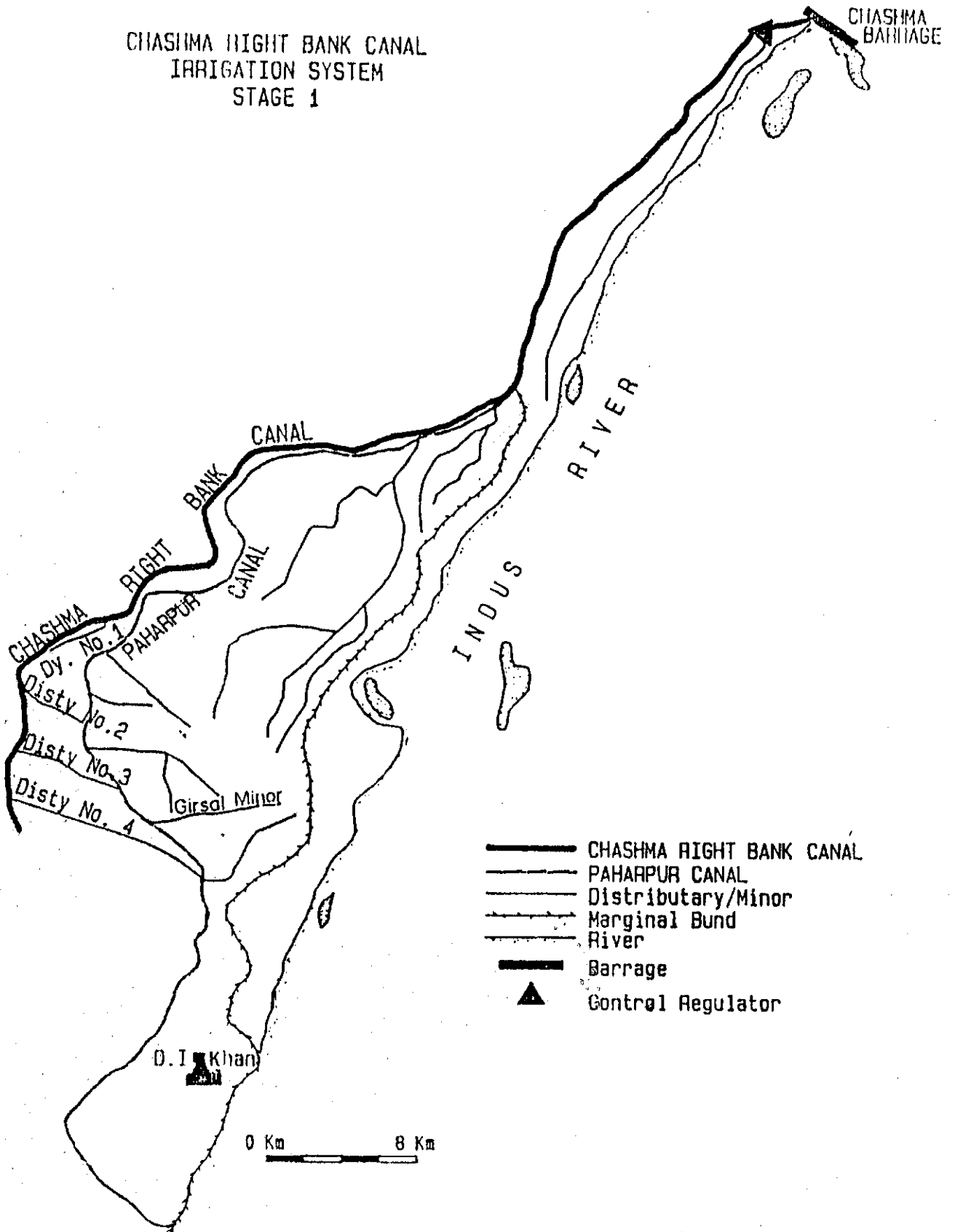
Channels	Location	Design discharge (cumecs)	CCA (ha)	Number of W/C *
Distributary # 1	New area	0.57	1183	14
Distributary # 2	New area	1.41	2016	12
Distributary # 3	New area	3.20	5363	20
Distributary # 4	New area	5.94	9683	36
Girsal Minor	Old Paharpur	1.07	1660	24

without including the outlets of off-taking minors



Figure 1-1

Location of Sample Areas Monitored by IIMI



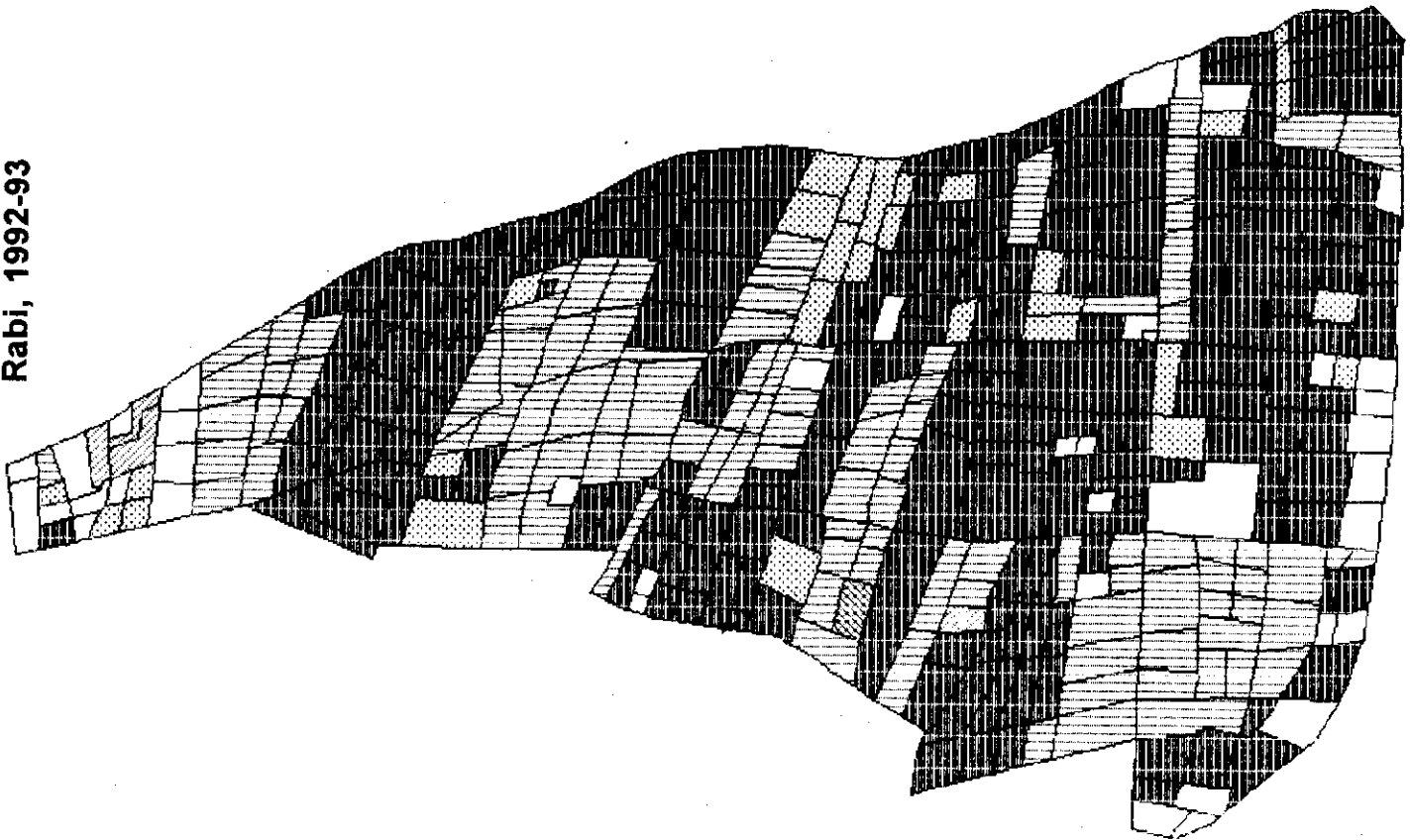
Sample outlets (watercourses) were monitored in Distributary # 3, Distributary # 4 and the Girsal Minor. In total, 20 watercourses were included in the regular field monitoring activities implemented by IIMI in the area. As the sketches (*Chakbandi* maps) for the command areas of all these sample outlets were not available, only 12 watercourse were monitored for crop surveys (all eight of Distributary # 3 and four out of eight in Distributary # 4). The sketches of the command area were prepared by IIMI field staff. The crop census maps for the watercourse command area served by outlet 11920-L served by Distributary # 3 is given in Figure 1-2 and Figure 1-3 for the *Rabi* and *Kharif* seasons, respectively. The list of all 20 sample outlets is given below in Table 1.2.

Those watercourse command areas utilized for the crop surveys under Distributary # 4 are mark with an (\*) in Table 1-2.

**TABLE 1-2 LIST OF SAMPLE WATERCOURSES**

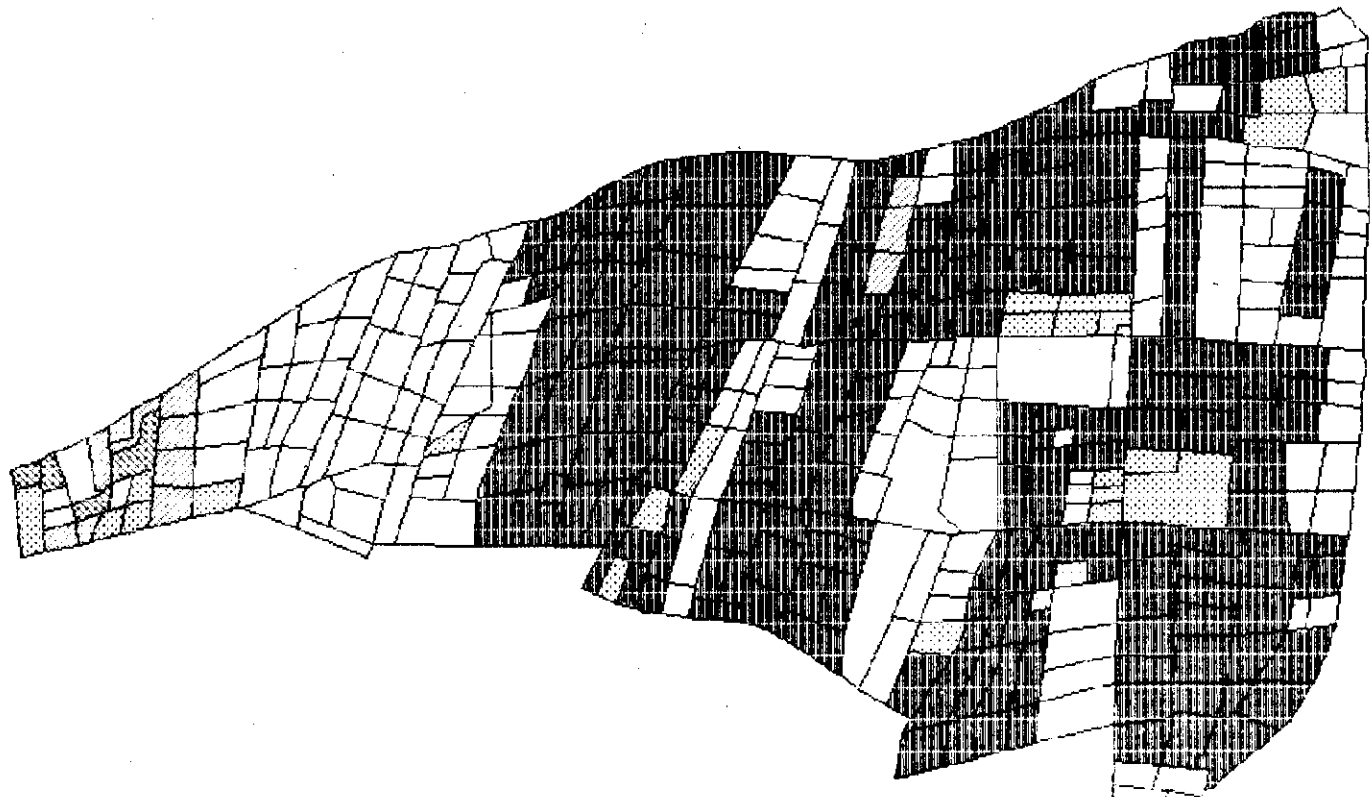
Off-taking Channel	Watercourse Location
Distributary # 3	570-L 690-R 6468-L 6468-R 10150-R 11920-L 14810-R 15382-R
Distributary # 4	1860-R* 3168-L 8980-L* 12860-R 16512-L* 20752-R 24495-L 28448-R *
Girsal Minor	5767-L 13526-R 21516-L 29650-TL

Chashma Right Bank Canal  
Distributary No. 3  
Predominant Crop Census for  
Watercourse No. 11920L



- Barren
- Gram
- Fodder
- Sugarcane
- Vegetable/Others
- Wheat
- Fallow

Chashma Right Bank Canal  
Distributary No. 3  
Predominant Crop Census for  
Watercourse No. 11920L



- Barren
- Fodder
- Sugarcane
- Vegetable/Others
- Rice
- Fallow

## Chapter 2

### CANAL WATER FLOWS

#### 2.1 Procedures.

In the operation of an irrigation system, it is important to know the amount of flow passing through a particular structure. To determine this discharge with reasonable accuracy, a stage-discharge relationship needs to be established; this is known as a field calibration for determining the rating curves of a structure.

The working head at various flow control structures in the irrigation system were measured by IIMI field staff every day. Two methods used during this study for measuring the water depths were:

- i) Staff gauge readings: The staff gauges are placed against the wall of an irrigation structure at a point where the flow has the least turbulence. These gauges are referenced to a zero level normally at the crest of the structure in order to take reliable and accurate readings. Sometimes, staff gauges are installed in the middle of the channel and are referenced to the design bed level. A primary advantage of a staff gauge is that it is fairly easy to read, while the main disadvantage is that it requires repainting every year since the markings below the water surface become obscure because of encrustations.
- ii) Benchmark or White Mark, a procedure developed by IIMI, uses temporary or permanent *white marks* (WMs) placed on the side walls of irrigation structures as a means to measure flow depths and subsequently calculate the discharge in the channel. These WMs are referenced to fixed points and the correct elevation is established in order to obtain an exact depth. WMs can be placed at either or both upstream and downstream of a structure depending upon the flow condition. For free or modular flows, only the upstream depth over the structure crest is required to establish the discharge, while for submerged or non-modular flow conditions, both the upstream and downstream depth measurements are needed referenced to the same datum.

WMs are painted usually in rectangular shapes with a groove at the bottom. The groove is made thin and deep in the wall in order to ensure that the readings are taken always from the same reference point in case the WMs are tampered with. The mark can be extended on any side if there is a need to change the location of the WM either due to tampering or any other damage to the structure. The measurements are taken from the

groove to the water surface level, and the following relationship is derived:

D = distance from the structure crest to the groove (lower end of the White Mark)

d = tape measurement from water surface level to groove

Dw = D - d; the actual water depth, in meters (feet)

D is carefully measured only once at the time of placing the WM or whenever possible (for example during the annual canal closure) with the help of a Dumpy level, or other suitable surveyors instrument, by taking the difference between the crest and the WM groove.

For open channel structures, the WM is painted on the upstream wall of the structure and is related to its crest for free flow conditions. For submerged flow conditions, a WM on the downstream side is also essential.

## 2.2 Development of Rating Curves

In most water conveyance systems, there are numerous structures that can be calibrated for the purpose of water measurement. The common discharge structures in the delivery network that can be calibrated are drop structures, gates, culverts and inverted siphons. In fact, any type of structure that constricts the flow can be field calibrated for discharge measurement.

### 2.2.1 At the Distributary Head

Any type of opening in which the upstream water level is higher than the top of the opening is referred to as an orifice. Gate structures behave hydraulically as orifices, which can have either modular or non-modular flow.

In the Chashma Right Bank Canal, there are gated structures at the off-taking points for the distributaries. The calibration of these structures became a relatively complex task due to the presence of stop logs (or *karries*) in the downstream drop structures near the off-taking points. These *karries* are being changed from time to time, hence changing the downstream conditions and thereby making it impossible for developing stage-discharge relation for downstream conditions (the usual practice of the Irrigation Department).

Figure 2.2.1 (a)

# Distributary # 1, CRBC Discharge Coefficient Vs Gate Opening

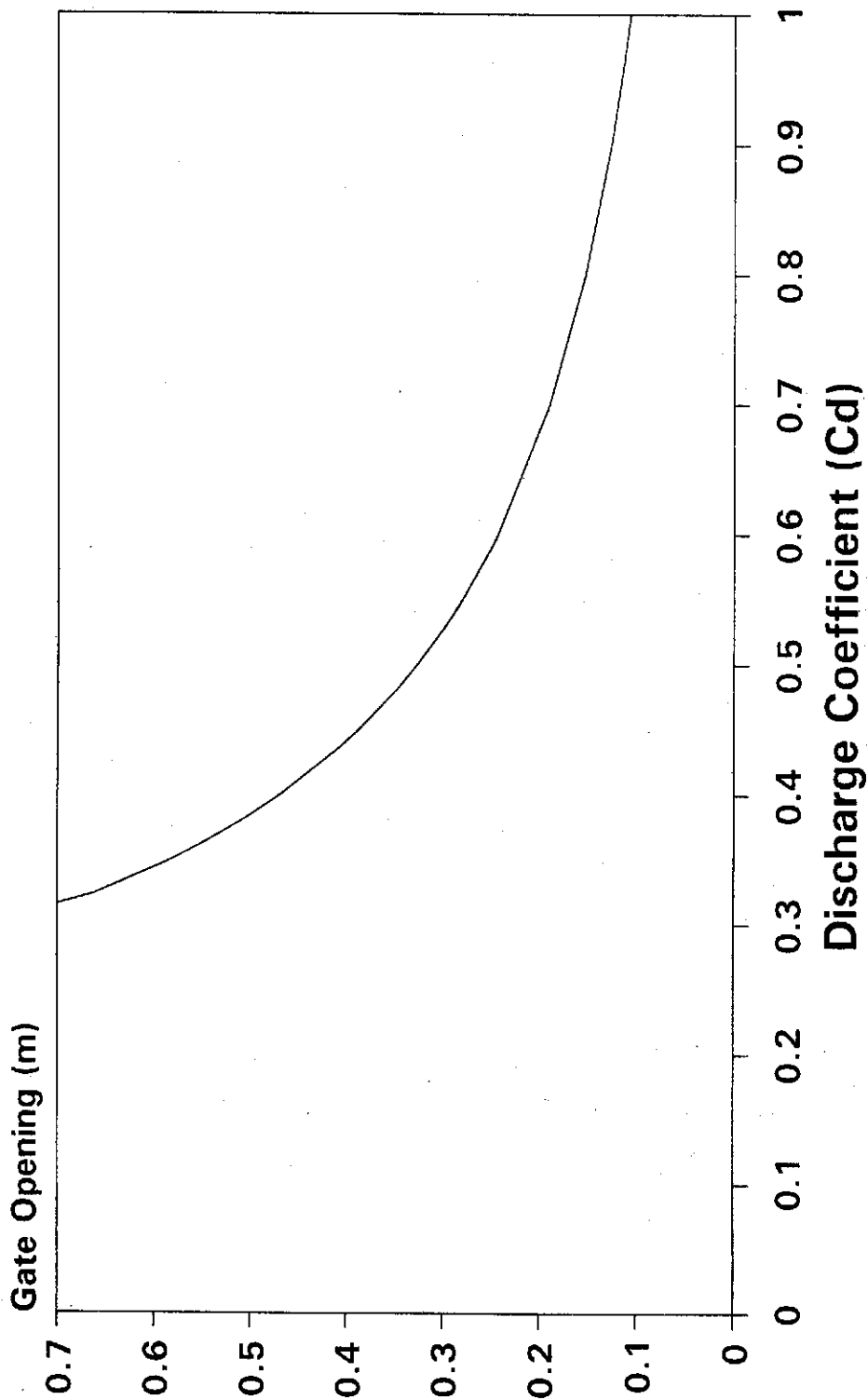


Figure 2.2.1 (b)

## Distributary # 2, CRBC Discharge Coefficient Vs Gate Opening

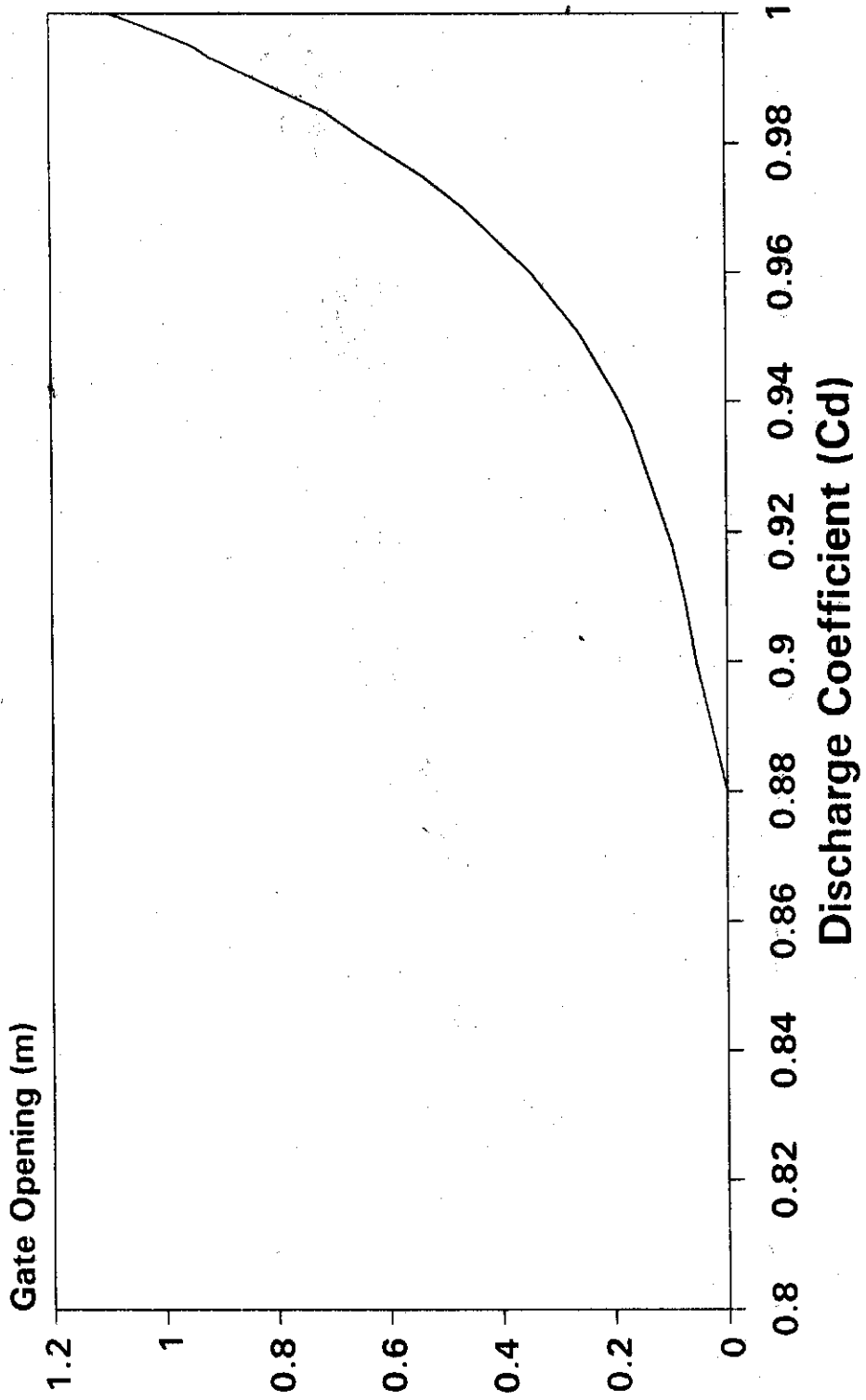
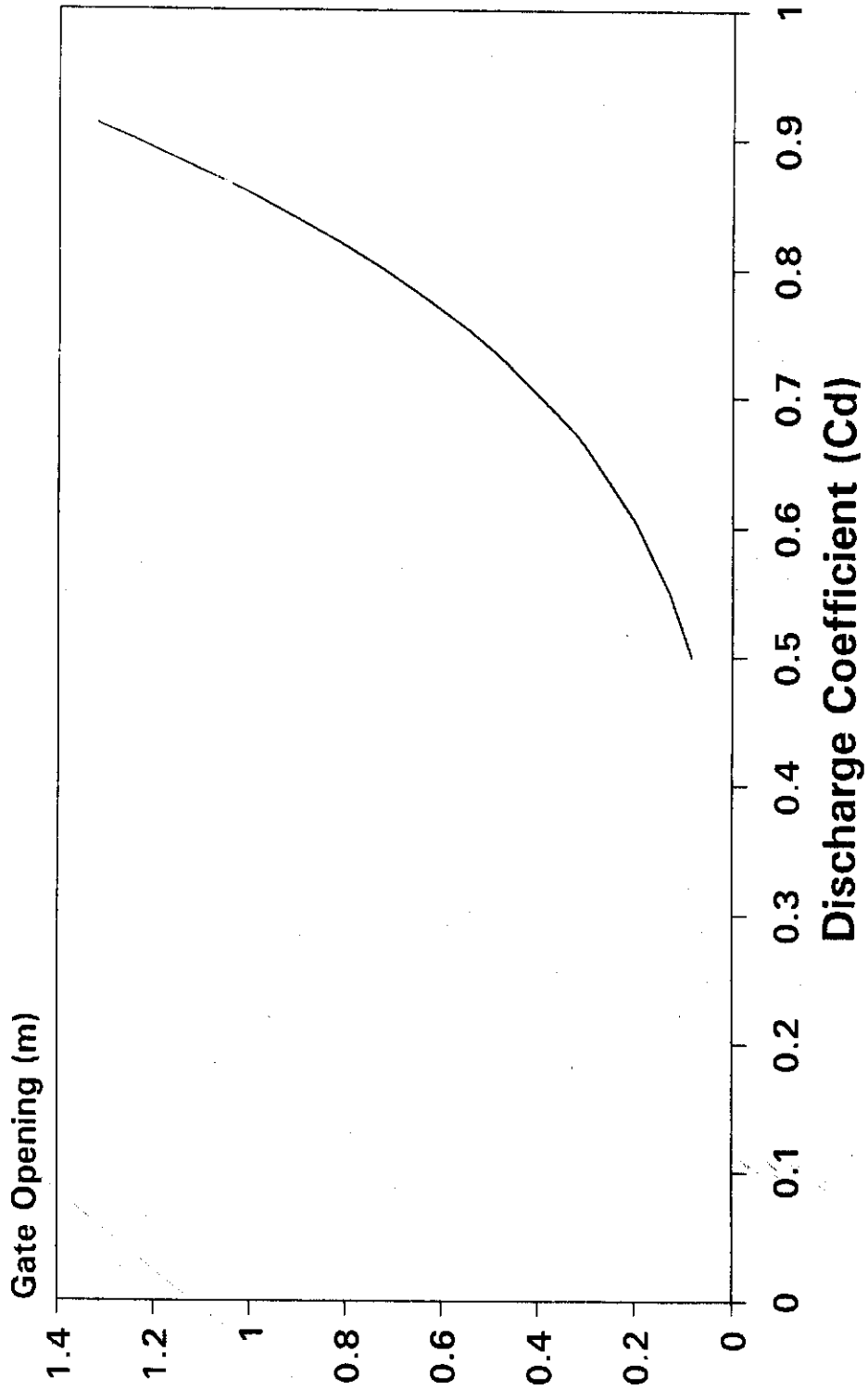




Figure 2.2.1 (c)

### Distributary # 3 and # 4, CRBC Discharge Coefficient Vs Gate Opening



In order to overcome this problem, IIMI decided to calibrate the gates present at each off-taking point, rather than to develop the stage-discharge relationship as is a normal practice by PID. In order to have a wide range of flows (low to maximum) several discharge measurements were taken over a long period of time for each distributary. Subsequently, and in accordance with standard calibration procedures, a graphical relationship between gate opening and Coefficient of Discharge ( $C_d$ ) was developed for each distributary. The graphs for these  $C_d$  values against gate opening are included below.

The field observations indicated that Distributary # 1 behaved as free (modular) flow, whereas all other three distributaries (2,3 &4) were operating under submerged (non-modular) flow conditions. Therefore, different formulae have to be applied for each type of flow.

The formulae used for the calibration of the discharge at the head of the distributaries are given below:

a) For Distributary # 1 (Free flow)

$$Q = C_d \times A \times \sqrt{2 g \left( H_a - \frac{W}{2} \right)}$$

b) For Distributaries # 2, 3 and 4 (Submerged flow)

$$Q = C_d \times B \times W \times \sqrt{2 g (H_a - H_b)}$$

Where

- Q = discharge (m<sup>3</sup>/s)
- H<sub>a</sub> = upstream head (m)
- H<sub>b</sub> = downstream head (m)
- W = gate openings (m)
- B = width of gate (m)
- A = area of partially filled circular pipe (m<sup>2</sup>)
- C<sub>d</sub> = coefficient of discharge, dimensionless

The coefficient of discharge is taken from the appropriate graph (referred above) for each individual distributary; it varies according to the gate opening of each particular structure.

## 2.2.2 At the Watercourse Head

The outlets used in the CRBC system are pipe-type outlets, as already mentioned in Volume II of the final report. There are three types of flow condition associated with this type of outlet.

- i) *If the upstream and downstream water levels are below the top of the pipe opening, then the opening is hydraulically performing as a culvert structure.*
- ii) *If the upstream water level is higher than the pipe opening, and the jet of water emanating from the pipe discharges freely either into the air or into the downstream channel without backwater effects, then the pipe is operating under free orifice flow conditions (modular flow).*
- iii) *If the downstream water level is also above the top of the pipe, then submerged orifice flow conditions exist and the flow is non-modular.*

a) For modular (Free) flow in a pipe, the discharge equation is:

$$Q = C_d \times A \times \sqrt{2g \left( H_a - \frac{d}{2} \right)}$$

b) For non-modular flow in a pipe, the discharge equation is:

$$Q = C_d \times A \times \sqrt{2g (H_a - H_b)}$$

Where	Q	= discharge	(m <sup>3</sup> /s)
	H <sub>a</sub>	= upstream head	(m)
	H <sub>b</sub>	= downstream head	(m)
	d	= diameter of pipe	(m)
	A	= area of pipe opening	(m <sup>2</sup> )
	C <sub>d</sub>	= coefficient of discharge, dimensionless	

Several discharge measurements were taken in the selected watercourses and the value of Cd has been determined for each watercourse. The value of Cd varies between 0.48 and 0.92 for the selected watercourses. In fact, theoretically, the value of the coefficient of discharge, Cd, is expected to be 0.61, but practically the values usually range from 0.3 to 0.9. The following table displays the Cd values for the sample watercourses.

**TABLE 2-1. ESTIMATED COEFFICIENT OF DISCHARGE FOR SAMPLE WATERCOURSES**

Distributary 3		Distributary 4	
Watercourse	Cd	Watercourse	Cd
570-L	0.55	1860-R	0.92
690-R	0.90	4030-L/2430-L*	0.48/0.79
6468-L	0.66	8980-L	0.56
6468-R	0.85	12860-R	0.81
10150-R	0.87	16512-L	0.54
11920-L	0.66	20752-R	0.69
14810-R	0.77	24495-L	0.53
15382-R	0.76	28448-R	0.70

\* Watercourse shifted to new location as 2430-L after annual closure of 1993

## **2.3 Data Sets**

**TABLE 2-2 DAILY DISCHARGES AT THE HEAD OF DISTRIBUTARIES (CUSECS)**

<b>Canal Q (Design)</b>	<b>Disty-1 20</b>	<b>Disty-2 50</b>	<b>Disty-3 113</b>	<b>Disty-4 210</b>
<b>DATE</b>	<b>Discharge in Cusecs</b>			
01/03/92	12.7	NM	59.0	NM
02/03/92	13.0	NM	84.3	NM
03/03/92	12.2	NM	101.3	NM
04/03/92	12.3	NM	80.9	NM
05/03/92	7.0	NM	96.1	NM
06/03/92	NM	NM	NM	NM
07/03/92	8.6	NM	132.3	NM
08/03/92	8.8	NM	120.1	NM
09/03/92	9.0	45.5	130.1	NM
10/03/92	12.2	47.0	124.9	NM
11/03/92	13.8	50.7	119.1	NM
12/03/92	11.8	48.0	120.8	NM
13/03/92	NM	NM	NM	NM
14/03/92	8.2	50.6	106.7	172.2
15/03/92	8.6	47.7	117.4	157.1
16/03/92	9.5	44.5	86.4	149.6
17/03/92	9.7	48.0	87.0	147.4
18/03/92	10.5	40.1	137.2	151.4
19/03/92	13.2	40.9	112.7	141.9
20/03/92	NM	NM	NM	NM
21/03/92	12.9	42.8	121.5	146.9
22/03/92	14.9	51.7	NM	147.8
23/03/92	NM	NM	NM	NM
24/03/92	12.3	31.7	103.5	169.6
25/03/92	NM	NM	NM	NM
26/03/92	7.2	21.4	79.4	147.6
27/03/92	NM	NM	NM	NM
28/03/92	C	51.7	88.7	162.6
29/03/92	12.7	17.1	60.8	135.6
30/03/92	C	19.4	58.5	130.0
31/03/92	8.2	26.0	60.6	128.0
01/04/92	12.1	17.2	58.3	136.1
02/04/92	13.4	17.2	54.8	137.9
03/04/92	NM	NM	NM	NM
04/04/92	NM	NM	NM	NM
05/04/92	NM	NM	NM	NM
06/04/92	NM	NM	NM	NM
07/04/92	NM	8.5	53.8	NM
08/04/92	13.8	21.1	44.8	145.5
09/04/92	12.9	35.1	42.9	142.6
10/04/92	NM	NM	NM	NM
11/04/92	3.6	12.8	40.2	96.5
12/04/92	7.0	14.8	40.3	123.8
13/04/92	0.7	20.3	41.1	143.5
14/04/92	9.6	16.1	54.6	127.6
15/04/92	17.5	17.0	49.1	NM
16/04/92	6.0	11.6	NM	91.2
17/04/92	NM	NM	NM	NM
18/04/92	19.8	25.9	101.8	129.1
19/04/92	4.8	16.8	60.1	126.6
20/04/92	4.8	20.2	88.9	116.4
21/04/92	3.9	12.2	NM	106.3

TABLE 2-2 (cont.)

Canal Q (Design)	Diety-1 20	Diety-2 50	Diety-3 113	Diety-4 210
DATE	Discharge in Cusecs			
22/04/92	4.4	20.0	82.6	94.0
23/04/92	0	13.6	56.6	72.6
24/04/92	NM	NM	NM	NM
25/04/92	10.9	14.3	60.8	123.2
26/04/92	6.2	25.0	66.1	124.8
27/04/92	7.9	22.3	56.4	123.0
28/04/92	11.1	23.0	56.9	127.4
29/04/92	10.5	17.6	50.9	105.2
30/04/92	7.0	20.0	66.0	113.9
01/05/92	NM	NM	NM	NM
02/05/92	10.2	24.4	57.5	NM
03/05/92	7.6	25.9	56.2	125.7
04/05/92	12.1	34.8	57.2	126.6
05/05/92	11.1	30.3	56.0	131.6
06/05/92	10.9	34.3	56.3	135.5
07/05/92	9.1	31.2	55.9	135.9
08/05/92	NM	NM	NM	NM
09/05/92	12.3	36.1	55.3	138.8
10/05/92	10.1	36.9	57.4	130.8
11/05/92	10.2	38.9	55.8	130.2
12/05/92	6.8	40.7	55.8	129.6
13/05/92	8.4	35.5	55.0	132.3
14/05/92	10.3	44.3	90.1	140.5
15/05/92	NM	NM	NM	NM
16/05/92	11.4	43.6	98.8	145.6
17/05/92	11.4	47.6	99.3	142.4
18/05/92	10.3	47.9	99.6	140.5
19/05/92	13.9	46.4	100.9	141.8
20/05/92	13.7	42.7	100.6	150.4
21/05/92	13.8	45.9	100.1	147.7
22/05/92	NM	NM	NM	NM
23/05/92	17.3	46.2	99.3	156.8
24/05/92	12.4	46.2	99.3	154.2
25/05/92	12.9	44.4	98.7	152.5
26/05/92	12.2	39.8	96.2	156.9
27/05/92	14.0	46.3	99.2	147.7
28/05/92	13.0	48.4	101.8	153.5
29/05/92	NM	NM	NM	NM
30/05/92	15.2	32.4	102.3	152.8
31/05/92	13.2	30.3	99.1	148.3
01/06/92	17.6	41.8	99.1	147.9
02/06/92	15.4	42.8	96.3	148.8
03/06/92	15.7	47.6	97.9	150.5
04/06/92	13.3	47.1	97.4	148.2
05/06/92	NM	NM	NM	NM
06/06/92	18.6	47.9	97.0	153.4
07/06/92	14.8	44.9	96.1	154.7
08/06/92	13.8	43.7	97.7	157.8
09/06/92	15.7	45.0	96.7	147.7
10/06/92	12.5	43.0	97.5	149.6
11/06/92	NM	NM	NM	NM
12/06/92	NM	NM	NM	NM
13/06/92	NM	NM	NM	NM
14/06/92	15.6	38.2	110.6	163.4
15/06/92	14.6	45.7	100.2	145.8

TABLE 2-2 (cont.)

Canal Q (Design)	Disty-1 20	Disty-2 50	Disty-3 113	Disty-4 210
DATE	Discharge in Cusecs			
16/06/92	14.5	50.0	119.4	212.8
17/06/92	16.3	57.2	125.3	188.0
18/06/92	15.4	52.8	132.6	176.5
19/06/92	NM	NM	NM	NM
20/06/92	18.0	49.5	132.0	150.6
21/06/92	17.6	54.3	162.1	188.6
22/06/92	15.3	56.3	137.5	152.1
23/06/92	14.9	56.5	NM	168.0
24/06/92	15.7	63.6	155.3	192.9
25/06/92	15.8	59.9	163.5	193.1
26/06/92	NM	NM	NM	NM
27/06/92	16.3	58.4	165.0	185.8
28/06/92	15.0	57.8	176.5	186.3
29/06/92	16.3	60.7	167.6	205.6
30/06/92	17.0	61.2	169.7	212.5
01/07/92	NM	55.7	138.0	202.9
02/07/92	16.9	48.4	134.4	212.5
03/07/92	NM	NM	NM	NM
04/07/92	17.5	63.6	159.5	176.2
05/07/92	18.0	60.7	185.7	186.1
06/07/92	17.5	61.5	190.9	185.6
07/07/92	17.5	62.9	179.0	188.4
08/07/92	16.4	62.1	169.4	187.0
09/07/92	17.5	61.5	157.0	188.2
10/07/92	NM	NM	NM	NM
11/07/92	NM	NM	NM	NM
12/07/92	NM	NM	NM	NM
13/07/92	NM	NM	NM	184.1
14/07/92	16.9	49.4	NM	184.6
15/07/92	17.4	53.7	166.2	226.4
16/07/92	16.3	64.9	182.6	224.2
17/07/92	NM	NM	NM	NM
18/07/92	17.2	61.0	167.4	222.5
19/07/92	17.3	60.4	159.6	224.1
20/07/92	16.1	60.5	157.0	226.5
21/07/92	15.5	57.7	175.1	222.7
22/07/92	16.9	61.5	166.1	222.4
23/07/92	16.3	57.2	162.1	221.5
24/07/92	NM	NM	NM	NM
25/07/92	17.1	58.1	NM	223.5
26/07/92	16.3	50.4	117.1	222.6
27/07/92	17.4	31.8	98.8	210.2
28/07/92	14.5	28.8	102.6	194.0
29/07/92	15.9	54.7	100.6	187.3
30/07/92	13.6	32.2	100.8	197.4
31/07/92	NM	NM	NM	NM
01/08/92	16.0	58.0	105.7	190.3
02/08/92	15.0	50.6	104.9	188.0
03/08/92	17.7	15.8	152.8	189.2
04/08/92	15.5	24.3	137.8	192.4
05/08/92	15.3	18.4	137.7	193.5
06/08/92	14.2	39.9	149.0	188.2
07/08/92	NM	NM	NM	NM
08/08/92	15.9	60.2	155.6	194.2
09/08/92	13.9	41.7	135.9	197.6



TABLE 2-2 (cont.)

Canal Q (Design)	Disty-1 20	Disty-2 50	Disty-3 113	Disty-4 210
DATE	Discharge in Cusecs			
10/08/92	12.6	46.9	141.3	199.2
11/08/92	15.7	45.3	156.3	201.1
12/08/92	15.6	52.6	150.2	190.9
13/08/92	15.7	53.5	149.1	189.1
14/08/92	NM	NM	NM	NM
15/08/92	16.4	51.8	155.2	185.5
16/08/92	16.6	51.2	152.0	185.5
17/08/92	18.0	52.5	150.8	180.7
18/08/92	14.2	59.3	148.6	184.2
19/08/92	17.1	53.1	150.0	187.1
20/08/92	16.9	53.0	149.9	186.5
21/08/92	NM	NM	NM	NM
22/08/92	15.8	58.7	145.1	178.4
23/08/92	17.8	64.4	126.6	179.2
24/08/92	17.6	52.4	142.8	192.9
25/08/92	18.5	51.7	147.5	193.6
26/08/92	17.1	61.8	146.8	182.3
27/08/92	18.6	63.1	146.8	178.6
28/08/92	NM	NM	NM	NM
29/08/92	17.9	61.1	150.5	184.2
30/08/92	19.6	54.1	147.1	183.4
31/08/92	18.5	54.1	149.7	194.1
01/09/92	16.9	60.3	155.6	201.3
02/09/92	17.7	60.0	155.2	197.0
03/09/92	16.6	31.1	NM	183.7
04/09/92	NM	NM	NM	NM
05/09/92	17.2	34.3	125.9	173.1
06/09/92	NM	NM	NM	NM
07/09/92	17.6	46.5	136.9	186.3
08/09/92	4.6	50.7	NM	NM
09/09/92	4.6	50.7	NM	NM
10/09/92	NM	NM	NM	NM
11/09/92	NM	NM	NM	NM
12/09/92	4.6	16.2	60.8	78.1
13/09/92	13.1	20.6	55.2	75.6
14/09/92	9.8	24.1	58.1	80.4
15/09/92	12.2	20.7	54.7	75.9
16/09/92	NM	NM	53.9	76.4
17/09/92	11.1	NM	44.2	109.7
18/09/92	NM	NM	NM	NM
19/09/92	12.6	25.3	73.1	207.5
20/09/92	11.3	20.8	69.5	107.1
21/09/92	14.2	34.8	78.6	125.9
22/09/92	11.3	28.3	67.5	108.5
23/09/92	12.2	55.5	70.4	95.2
24/09/92	9.8	38.2	71.5	130.7
25/09/92	NM	NM	NM	NM
26/09/92	14.4	30.4	55.8	112.2
27/09/92	14.5	NM	55.2	119.9
28/09/92	16.1	NM	78.1	121.3
29/09/92	NM	NM	69.8	117.6
30/09/92	NM	NM	72.5	138.4
01/10/92	13.2	36.4	64.9	114.9
02/10/92	NM	NM	NM	NM
03/10/92	12.6	37.4	70.8	142.2

TABLE 2-2 (cont.)

Canal Q (Design)	Disty-1 20	Disty-2 50	Disty-3 113	Disty-4 210
DATE	Discharge in Cusecs			
04/10/92	14.8	30.4	70.5	137.6
05/10/92	16.0	44.3	64.7	219.0
06/10/92	15.8	C	56.1	119.8
07/10/92	14.9	20.4	53.2	130.8
08/10/92	14.9	32.7	47.4	118.6
09/10/92	NM	NM	NM	NM
10/10/92	16.4	31.1	57.5	147.6
11/10/92	15.1	20.5	57.4	143.0
12/10/92	14.9	36.7	54.4	200.0
13/10/92	16.0	34.9	56.8	132.7
14/10/92	15.8	36.6	NM	133.3
15/10/92	14.7	38.9	62.6	126.3
16/10/92	NM	NM	NM	NM
17/10/92	14.7	39.3	67.0	143.7
18/10/92	NM	NM	75.3	144.6
19/10/92	14.3	41.0	63.8	127.2
20/10/92	15.4	39.1	83.4	142.1
21/10/92	16.4	41.4	80.4	137.9
22/10/92	16.3	43.5	81.6	138.5
23/10/92	NM	NM	NM	NM
24/10/92	16.4	41.6	84.4	143.6
25/10/92	11.6	NM	93.1	138.3
26/10/92	11.6	53.7	90.8	146.5
27/10/92	15.6	42.7	110.9	144.8
28/10/92	16.0	44.3	112.4	145.3
29/10/92	15.9	NM	111.9	139.6
30/10/92	NM	NM	NM	NM
31/10/92	16.2	42.2	109.3	146.3
01/11/92	16.9	32.8	113.1	147.7
02/11/92	17.0	33.0	121.4	138.0
03/11/92	15.9	35.5	104.9	129.5
04/11/92	18.2	32.4	103.8	131.9
05/11/92	17.0	30.0	104.7	135.1
06/11/92	NM	NM	NM	129.3
07/11/92	16.8	32.0	93.9	130.9
08/11/92	17.1	28.6	92.5	134.0
09/11/92	NM	NM	NM	NM
10/11/92	17.9	31.3	87.6	135.0
11/11/92	17.5	29.9	71.3	135.6
12/11/92	17.5	25.2	64.9	128.6
13/11/92	NM	NM	62.5	121.2
14/11/92	17.5	NM	61.7	143.0
15/11/92	17.6	NM	64.3	136.8
16/11/92	16.2	26.0	64.1	140.1
17/11/92	17.7	27.0	74.9	129.7
18/11/92	18.8	27.3	60.6	135.1
19/11/92	16.1	15.6	NM	126.3
20/11/92	NM	NM	54.2	116.6
21/11/92	17.3	13.0	53.9	117.5
22/11/92	15.1	16.3	59.0	131.4
23/11/92	14.5	11.4	55.2	120.4
24/11/92	11.8	11.8	46.6	101.6
25/11/92	15.6	19.6	60.4	116.7
26/11/92	15.6	NM	63.6	119.6
27/11/92	12.3	18.4	61.3	120.0

**TABLE 2-2 (cont.)**

<b>Canal Q (Design)</b>	<b>Disty-1 20</b>	<b>Disty-2 50</b>	<b>Disty-3 113</b>	<b>Disty-4 210</b>
<b>DATE</b>	<b>Discharge in Cusecs</b>			
28/11/92	16.8	24.4	61.2	120.0
29/11/92	NM	NM	54.4	115.4
30/11/92	13.8	1.8	54.4	108.1
01/12/92	C	14.7	55.3	109.3
02/12/92	C	22.6	55.4	109.3
03/12/92	15.7	15.8	55.4	110.0
04/12/92	11.5	26.6	55.3	112.0
05/12/92	12.6	17.2	54.9	107.6
06/12/92	C	13.9	54.8	110.2
07/12/92	C	13.9	53.3	108.1
08/12/92	NM	NM	NM	NM
09/12/92	7.9	12.7	53.2	111.4
10/12/92	C	30.7	58.2	113.7
11/12/92	NM	NM	NM	NM
12/12/92	9.3	12.3	56.2	103.0
13/12/92	8.9	14.2	57.2	100.4
14/12/92	13.2	5.5	55.8	98.6
15/12/92	9.6	21.2	63.5	108.3
16/12/92	9.2	19.1	61.6	105.6
17/12/92	9.5	6.2	61.4	102.2
18/12/92	10.2	15.0	62.9	110.8
19/12/92	10.7	18.3	61.4	106.1
20/12/92	8.5	17.1	70.2	111.1
21/12/92	10.7	19.1	63.6	103.2
22/12/92	13.6	29.0	76.8	116.4
23/12/92	15.3	38.9	80.8	115.4
24/12/92	13.8	23.3	83.4	121.7
25/12/92	14.1	43.9	NM	123.3
26/12/92	11.6	45.6	77.1	116.5
27/12/92	NM	NM	89.7	123.1
28/12/92	16.3	43.9	87.0	124.5
29/12/92	17.6	39.9	111.8	122.0
30/12/92	17.2	48.0	95.6	116.6
31/12/92	17.7	48.1	93.3	127.9
01/01/93	17.7	43.3	89.5	148.5
02/01/93	18.4	41.6	80.9	142.9
03/01/93	19.6	44.4	73.2	141.7
04/01/93	22.4	29.5	73.6	144.0
05/01/93	NM	43.6	74.0	141.2
06/01/93	18.9	32.6	66.7	134.4
07/01/93	17.0	26.6	67.5	136.2
08/01/93	14.9	27.0	47.7	131.8
09/01/93	17.9	53.3	46.6	145.8
10/01/93	17.9	14.4	51.2	138.1
11/01/93	17.9	48.5	51.9	132.6
12/01/93	17.5	45.2	50.5	121.0
13/01/93	17.7	32.1	60.5	122.4
14/01/93	11.8	34.5	53.8	125.1
15/01/93	An-C	An-C	An-C	An-C
16/01/93	An-C	An-C	An-C	An-C
17/01/93	An-C	An-C	An-C	An-C
18/01/93	An-C	An-C	An-C	An-C
19/01/93	An-C	An-C	An-C	An-C
20/01/93	An-C	An-C	An-C	An-C
21/01/93	An-C	An-C	An-C	An-C

TABLE 2-2 (cont.)

Canal Q (Design)	Disty-1 20	Disty-2 50	Disty-3 113	Disty-4 210
DATE	Discharge in Cusecs			
22/01/93	An-C	An-C	An-C	An-C
23/01/93	An-C	An-C	An-C	An-C
24/01/93	An-C	An-C	An-C	An-C
25/01/93	An-C	An-C	An-C	An-C
26/01/93	An-C	An-C	An-C	An-C
27/01/93	An-C	An-C	An-C	An-C
28/01/93	An-C	An-C	An-C	An-C
29/01/93	An-C	An-C	An-C	An-C
30/01/93	An-C	An-C	An-C	An-C
31/01/93	An-C	An-C	An-C	An-C
01/02/93	An-C	An-C	An-C	An-C
02/02/93	An-C	An-C	An-C	An-C
03/02/93	An-C	An-C	An-C	An-C
04/02/93	An-C	An-C	An-C	An-C
05/02/93	An-C	An-C	An-C	An-C
06/02/93	An-C	An-C	An-C	An-C
07/02/93	An-C	An-C	An-C	An-C
08/02/93	An-C	An-C	An-C	An-C
09/02/93	An-C	An-C	An-C	An-C
10/02/93	An-C	An-C	An-C	An-C
11/02/93	An-C	An-C	An-C	An-C
12/02/93	An-C	An-C	An-C	An-C
13/02/93	An-C	An-C	An-C	An-C
14/02/93	An-C	An-C	An-C	An-C
15/02/93	An-C	An-C	An-C	An-C
16/02/93	An-C	An-C	An-C	An-C
17/02/93	An-C	An-C	An-C	An-C
18/02/93	An-C	An-C	An-C	An-C
19/02/93	An-C	An-C	An-C	An-C
20/02/93	NM	NM	39.7	53.9
21/02/93	12.9	60.8	NM	134.3
22/02/93	10.5	43.6	62.9	113.9
23/02/93	NM	45.9	62.7	126.5
24/02/93	NM	40.3	NM	NM
25/02/93	14.2	65.3	63.0	138.2
26/02/93	11.8	46.5	64.0	141.4
27/02/93	11.3	45.0	63.4	139.7
28/02/93	10.3	46.8	60.9	140.7
01/03/93	10.7	47.2	60.6	145.3
02/03/93	11.5	51.4	72.3	144.9
03/03/93	9.5	52.3	60.6	139.1
04/03/93	12.7	42.2	70.0	153.1
05/03/93	13.8	47.8	68.9	156.0
06/03/93	15.9	50.2	64.5	159.6
07/03/93	14.5	46.3	64.7	151.2
08/03/93	15.6	44.1	67.0	159.3
09/03/93	14.1	45.4	60.7	145.6
10/03/93	12.5	47.6	NM	132.6
11/03/93	10.5	NM	67.1	129.7
12/03/93	11.5	34.9	64.3	145.8
13/03/93	0.0	NM	NM	NM
14/03/93	0.0	NM	22.3	97.0
15/03/93	0.0	NM	21.6	96.1
16/03/93	C	C	C	C
17/03/93	C	C	C	C

**TABLE 2-2 (cont.)**

<b>Canal Q (Design)</b>	<b>Disty-1 20</b>	<b>Disty-2 50</b>	<b>Disty-3 113</b>	<b>Disty-4 210</b>
<b>DATE</b>	<b>Discharge in Cusecs</b>			
18/03/93	C	C	C	C
19/03/93	C	C	C	C
20/03/93	9.7	39.3	26.8	101.9
21/03/93	C	43.3	32.2	96.1
22/03/93	6.7	18.8	NM	NM
23/03/93	1.7	18.2	NM	NM
24/03/93	NM	NM	NM	NM
25/03/93	NM	NM	NM	NM
26/03/93	NM	NM	NM	NM
27/03/93	NM	NM	26.0	103.4
28/03/93	14.7	28.3	36.1	101.4
29/03/93	14.0	28.3	36.7	98.7
30/03/93	13.1	26.2	36.6	138.4
31/03/93	13.6	31.9	59.1	132.9
01/04/93	12.8	33.2	66.8	143.7
02/04/93	12.4	39.1	63.8	144.3
03/04/93	13.8	33.6	53.3	144.6
04/04/93	17.4	46.3	62.9	153.4
05/04/93	17.3	67.7	58.5	156.1
06/04/93	18.6	46.7	58.7	150.9
07/04/93	16.7	44.1	55.4	155.0
08/04/93	16.3	42.6	66.0	155.8
09/04/93	18.1	45.3	51.9	159.7
10/04/93	17.3	44.7	57.6	159.2
11/04/93	15.4	44.0	54.3	170.0
12/04/93	5.6	45.7	36.5	145.3
13/04/93	8.9	45.7	37.3	148.1
14/04/93	7.8	22.7	31.0	138.0
15/04/93	8.5	38.2	30.7	135.4
16/04/93	12.9	30.0	NM	139.8
17/04/93	4.6	29.8	20.2	135.5
18/04/93	4.9	34.0	20.9	141.7
19/04/93	C	34.0	20.4	137.7
20/04/93	1.3	34.6	23.6	138.1
21/04/93	7.9	45.2	50.8	133.2
22/04/93	15.3	42.3	51.4	136.4
23/04/93	5.3	46.4	50.9	132.5
24/04/93	6.4	45.9	66.6	139.5
25/04/93	13.3	43.8	69.0	159.6
26/04/93	12.9	44.8	66.0	131.5
27/04/93	14.8	41.7	66.5	134.7
28/04/93	14.9	41.7	67.3	139.4
29/04/93	13.4	42.4	50.1	124.0
30/04/93	NM	NM	NM	NM
01/05/93	NM	NM	NM	NM
02/05/93 <sub>1</sub>	7.8	46.2	54.8	137.1
03/05/93	11.3	46.1	54.5	140.7
04/05/93	NM	43.4	54.0	136.8
05/05/93	12.0	43.4	53.6	137.3
06/05/93	13.7	42.6	52.2	135.3
07/05/93	13.7	46.8	54.2	138.6
08/05/93	13.8	47.8	52.6	133.5
09/05/93	15.3	45.9	52.0	134.0
10/05/93	NM	43.4	52.7	134.8
11/05/93	NM	43.4	53.2	132.3

**TABLE 2-2 (cont.)**

<b>Canal Q (Design)</b>	<b>Disty-1 20</b>	<b>Disty-2 50</b>	<b>Disty-3 113</b>	<b>Disty-4 210</b>
<b>DATE</b>	<b>Discharge in Cusecs</b>			
12/05/93	15.0	44.6	54.7	135.8
13/05/93	15.8	42.5	63.7	132.8
14/05/93	19.0	44.6	61.9	137.2
15/05/93	15.8	44.4	NM	135.3
16/05/93	17.1	41.3	54.3	44.8
17/05/93	17.2	48.5	52.2	79.2
18/05/93	11.0	35.2	53.2	103.0
19/05/93	11.8	48.5	57.8	127.8
20/05/93	13.8	48.6	58.7	147.5
21/05/93	16.4	39.1	59.0	149.0
22/05/93	15.9	43.5	59.8	145.6
23/05/93	15.8	56.1	58.0	149.1
24/05/93	18.6	55.2	57.8	143.0
25/05/93	18.9	55.1	58.9	160.5
26/05/93	17.9	48.0	51.2	162.2
27/05/93	17.5	54.8	57.3	161.1
28/05/93	18.6	46.2	70.8	161.1
29/05/93	17.3	56.2	65.5	164.6
30/05/93	18.2	59.0	66.7	195.7
31/05/93	17.9	57.4	66.7	200.3
01/06/93	NM	NM	NM	NM
02/06/93	NM	NM	NM	NM
03/06/93	NM	NM	NM	NM
04/06/93	NM	NM	NM	NM
05/06/93	16.4	49.2	99.9	191.7
06/06/93	17.6	48.0	83.9	199.1
07/06/93	17.9	48.8	89.8	191.7
08/06/93	17.5	45.9	106.6	204.2
09/06/93	17.4	53.6	103.8	196.9
10/06/93	18.5	50.3	105.0	205.5
11/06/93	18.4	50.7	NM	228.1
12/06/93	17.9	51.6	100.6	236.3
13/06/93	17.4	54.9	99.2	234.0
14/06/93	17.2	42.1	119.5	234.1
15/06/93	18.2	54.0	134.8	243.6
16/06/93	17.9	45.9	142.6	232.0
17/06/93	18.5	54.5	146.0	229.8
18/06/93	18.2	59.0	148.3	240.8
19/06/93	17.4	58.4	149.1	248.4
20/06/93	18.7	57.3	136.2	242.0
21/06/93	18.1	60.0	146.3	230.2
22/06/93	18.6	62.8	151.2	245.9
23/06/93	23.1	57.3	152.0	238.7
24/06/93	19.2	57.3	139.9	228.0
25/06/93	20.3	54.0	150.1	228.8
26/06/93	21.6	54.2	156.1	240.1
27/06/93	20.8	55.8	146.5	229.1
28/06/93	21.2	55.8	146.1	216.1
29/06/93	20.6	53.5	151.2	228.1
30/06/93	NM	NM	NM	NM
01/07/93	NM	NM	NM	NM
02/07/93	NM	NM	NM	NM
03/07/93	19.2	60.0	149.0	216.4
04/07/93	18.9	54.4	145.3	214.0
05/07/93	18.1	57.7	141.0	227.5

**TABLE 2-2 (cont.)**

<b>Canal Q (Design)</b>	<b>Diety-1 20</b>	<b>Diety-2 50</b>	<b>Diety-3 113</b>	<b>Diety-4 210</b>
<b>DATE</b>	<b>Discharge in Cusecs</b>			
06/07/93	20.2	56.8	144.0	239.4
07/07/93	NM	NM	143.8	228.9
08/07/93	NM	NM	NM	NM
09/07/93	18.6	50.7	118.7	197.1
10/07/93	18.5	28.1	115.8	193.1
11/07/93	C	2.0	119.1	200.5
12/07/93	C	8.6	37.2	163.6
13/07/93	3.7	46.5	66.3	160.3
14/07/93	5.3	43.7	157.3	194.1
15/07/93	12.5	48.2	139.0	239.0
16/07/93	9.9	38.8	100.1	240.3
17/07/93	9.9	34.1	101.2	234.5
18/07/93	10.9	35.8	103.5	243.1
19/07/93	15.6	46.8	102.2	214.4
20/07/93	15.4	48.6	123.9	214.8
21/07/93	NM	51.6	126.2	200.7
22/07/93	2.4	NM	26.3	227.2
23/07/93	NM	NM	NM	217.4
24/07/93	C	NM	12.6	190.5
25/07/93	1.2	21.9	12.4	169.5
26/07/93	10.7	22.5	NM	177.5
27/07/93	16.7	35.0	NM	173.7
28/07/93	NM	NM	94.1	169.0
29/07/93	NM	NM	93.3	167.2
30/07/93	16.7	44.2	94.7	190.5
31/07/93	16.1	41.8	93.0	189.5
01/08/93	17.3	45.7	108.6	230.5
02/08/93	16.4	42.1	104.0	221.0
03/08/93	16.7	42.3	106.1	230.6
04/08/93	16.8	41.1	117.9	226.7
05/08/93	16.3	43.6	110.0	222.1
06/08/93	17.4	44.7	111.2	226.3
07/08/93	17.6	NM	113.4	239.2
08/08/93	17.3	37.1	118.7	242.1
09/08/93	17.4	40.2	106.8	227.2
10/08/93	17.5	46.7	108.5	239.8
11/08/93	17.5	47.9	112.2	245.6
12/08/93	17.0	53.8	112.6	246.2
13/08/93	15.6	50.0	NM	NM
14/08/93	15.3	48.1	NM	NM
15/08/93	15.1	48.8	111.7	235.8
16/08/93	14.7	50.7	109.1	210.0
17/08/93	15.2	51.6	112.0	203.3
18/08/93	16.1	49.9	112.3	205.0
19/08/93	16.2	50.9	112.0	214.7
20/08/93	15.0	54.4	106.1	206.9
21/08/93	NM	50.9	112.5	206.6
22/08/93	C	62.0	111.6	206.6
23/08/93	C	62.5	112.1	213.3
24/08/93	C	54.3	112.8	210.6
25/08/93	11.1	56.4	90.6	208.7
26/08/93	10.1	56.1	90.0	206.2
27/08/93	2.5	43.7	90.3	204.9
28/08/93	11.5	52.5	89.4	200.0
29/08/93	11.5	54.0	90.0	203.3

TABLE 2-2 (cont.)

Canal Q (Design)	Disty-1 20	Disty-2 50	Disty-3 113	Disty-4 210
DATE	Discharge in Cusecs			
30/08/93	11.8	40.5	89.4	230.0
31/08/93	11.9	51.4	NM	NM
01/09/93	15.3	44.5	101.5	198.5
02/09/93	18.6	48.0	101.9	205.0
03/09/93	20.5	47.5	104.7	208.8
04/09/93	19.0	47.7	100.8	203.1
05/09/93	17.1	45.7	102.5	202.7
06/09/93	16.2	49.2	NM	NM
07/09/93	17.3	46.6	93.3	197.4
08/09/93	17.4	45.2	92.0	205.8
09/09/93	18.7	46.0	61.3	194.5
10/09/93	18.8	49.8	NM	NM
11/09/93	19.3	50.1	NM	NM
12/09/93	18.4	35.8	61.9	177.3
13/09/93	8.9	32.5	NM	182.8
14/09/93	18.1	33.6	60.9	179.5
15/09/93	18.1	33.6	62.3	185.7
16/09/93	18.4	29.9	59.5	188.7
17/09/93	18.3	35.4	40.3	179.1
18/09/93	17.2	32.5	39.7	178.3
19/09/93	17.6	32.6	39.0	171.0
20/09/93	17.9	33.4	40.0	180.3
21/09/93	16.9	32.1	39.5	175.8
22/09/93	16.8	30.6	38.4	171.0
23/09/93	17.1	33.4	38.7	175.7
24/09/93	17.0	34.1	38.8	183.5
25/09/93	17.9	33.8	38.6	150.3
26/09/93	16.4	33.5	38.7	156.7
27/09/93	16.1	37.9	38.7	148.2
28/09/93	NM	37.2	38.8	149.4
29/09/93	17.7	33.4	38.7	152.8
30/09/93	NM	29.2	38.6	152.8
01/10/93	16.3	37.9	40.0	155.4
02/10/93	17.1	35.6	39.2	153.0
03/10/93	17.1	36.7	39.2	153.8
04/10/93	15.8	33.5	38.8	151.2
05/10/93	C	32.7	38.6	144.7
06/10/93	C	32.7	36.1	150.4
07/10/93	C	36.0	39.4	163.3
08/10/93	C	31.6	38.9	150.8
09/10/93	C	36.7	39.4	152.9
10/10/93	C	33.5	40.0	152.0
11/10/93	C	32.3	38.7	147.1
12/10/93	C	30.7	66.7	150.8
13/10/93	4.9	31.5	68.0	164.7
14/10/93	13.7	35.7	77.2	152.8
15/10/93	13.5	40.8	75.1	180.1
16/10/93	13.0	41.8	75.3	185.4
17/10/93	14.7	42.3	75.5	161.4
18/10/93	13.3	42.3	71.8	155.5
19/10/93	17.9	43.6	74.9	161.2
20/10/93	18.4	37.6	76.3	158.6
21/10/93	18.6	42.4	78.6	171.9
22/10/93	18.3	43.3	75.7	172.0
23/10/93	17.5	45.5	75.5	173.5



**TABLE 2-2 (cont.)**

<b>Canal Q (Design)</b>	<b>Disty-1 20</b>	<b>Disty-2 50</b>	<b>Disty-3 113</b>	<b>Disty-4 210</b>
<b>DATE</b>	<b>Discharge in Cusecs</b>			
24/10/93	18.2	43.0	75.8	173.8
25/10/93	18.7	44.4	75.7	168.7
26/10/93	18.3	43.3	75.5	169.8
27/10/93	18.0	40.9	75.5	168.7
28/10/93	17.1	37.4	75.0	169.5
29/10/93	18.4	37.2	74.7	169.8
30/10/93	18.0	38.5	74.9	163.0
31/10/93	17.0	36.3	75.6	173.4

**Terminology Used:**

NM = Not Measured (Mainly Fridays & Holidays)

C = Closed

An-C = Annual Closure

TABLE 2-3 DAILY DISCHARGES FOR SELECTED WATERCOURSES - DISTRIBUTARY # 3

Canal Q (Design)	Diety-3 113	570-L 1.29	690-R 2.44	6466-L 2.61	6466-R 1.87	10150-R 1.56	11920-L 1.17	14810-R 1.8	15382-R 2.63	
DATE	Discharges in Cusecs									
01/12/91	95.27	1.65	3.08	2.95	2.49	1.00	2.41	1.51	C	
02/12/91	101.01	1.66	3.22	3.01	1.66	C	C	C	C	
03/12/91	97.49	1.65	3.09	2.98	1.10	C	1.56	C	C	
04/12/91	100.89	1.66	3.21	3.02	C	2.27	C	C	2.29	
05/12/91	99.73	1.67	3.18	C	C	2.89	C	C	2.33	
06/12/91	NM	NM	NM	NM	NM	NM	NM	NM	NM	
07/12/91	96.19	C	3.16	C	1.65	1.05	2.52	C	2.28	
08/12/91	99.08	C	3.13	3.48	1.52	1.02	2.02	1.29	PC	
09/12/91	96.85	0.97	3.08	2.99	1.34	C	2.00	C	2.15	
10/12/91	95.90	C	3.09	2.95	1.22	0.40	1.93	1.28	2.06	
11/12/91	94.00	1.39	3.03	2.93	1.17	0.16	1.80	1.47	2.24	
12/12/91	108.65	1.65	3.42	C	1.46	1.03	C	C	2.37	
13/12/91	NM	NM	NM	NM	NM	NM	NM	NM	NM	
14/12/91	105.89	1.62	3.35	3.04	2.08	0.78	PC	1.36	2.34	
15/12/91	110.84	1.62	3.49	C	1.66	1.32	PC	C	2.40	
16/12/91	112.17	1.54	3.48	3.15	1.22	0.97	2.70	1.53	2.44	
17/12/91	116.52	1.58	3.62	3.22	1.68	0.93	2.11	C	2.50	
18/12/91	119.59	1.75	3.75	3.26	1.85	0.82	2.27	2.51	2.59	
19/12/91	115.52	1.61	3.66	3.20	1.85	0.60	2.33	2.77	2.53	
20/12/91	NM	NM	NM	NM	NM	NM	NM	NM	NM	
21/12/91	116.20	1.69	3.66	3.48	2.64	1.27	1.62	1.54	C	
22/12/91	116.52	1.61	3.59	3.16	2.31	0.76	2.18	1.41	C	
23/12/91	114.85	1.77	4.07	3.13	2.24	0.74	2.52	1.43	PC	
24/12/91	115.52	1.49	3.50	3.20	1.34	1.15	2.18	1.93	2.46	
25/12/91	NM	NM	NM	NM	NM	NM	NM	NM	NM	
26/12/91	92.12	0.84	3.34	3.07	1.57	1.33	1.69	1.43	2.19	
27/12/91	NM	NM	NM	NM	NM	NM	NM	NM	NM	
28/12/91	123.71	1.65	3.94	3.28	2.39	1.88	2.06	2.36	C	
29/12/91	95.90	1.56	2.71	2.89	1.88	1.21	1.93	0.81	1.93	
30/12/91	90.87	1.43	3.06	3.00	2.03	1.08	1.93	2.24	2.25	
31/12/91	100.37	1.18	2.37	C	1.37	1.18	2.01	C	2.33	
01/01/92	NM	NM	NM	NM	NM	NM	NM	NM	NM	
02/01/92	97.61	C	2.99	C	2.44	C	NM	2.65	NM	
03/01/92	NM	NM	NM	NM	NM	NM	NM	NM	NM	
04/01/92	102.95	C	3.27	C	C	0.62	C	C	C	
05/01/92	102.31	C	3.16	C	2.14	C	C	C	C	
06/01/92	101.66	C	3.30	C	C	C	C	C	C	
07/01/92	79.61	C	2.53	C	C	0.87	C	C	C	
08/01/92	79.31	1.13	2.40	2.67	0.93	0.25	C	C	C	
09/01/92	74.31	1.15	2.48	2.65	0.86	1.43	C	C	1.81	
10/01/92	NM	NM	NM	NM	NM	NM	NM	NM	NM	
11/01/92	70.56	1.10	2.31	C	0.66	0.65	1.74	1.65	1.85	
12/01/92	81.10	0.99	2.57	2.84	1.17	0.67	2.00	1.87	2.03	
13/01/92	115.52	1.57	3.68	3.17	1.99	1.06	NM	2.14	2.36	
14/01/92	114.18	1.35	3.16	3.22	1.56	1.15	2.18	1.97	2.33	
15/01/92	104.91	1.50	3.30	3.15	1.64	0.88	1.46	1.36	2.30	
16/01/92			Annual Closure							
to			Annual Closure							
25/02/92			Annual Closure							
26/02/92	65.75	C	C	2.96	1.97	0.48	C	C	2.02	
27/02/92	87.92	C	3.41	3.02	1.36	1.66	C	C	2.11	
28/02/92	NM	NM	NM	NM	NM	NM	NM	NM	NM	
29/02/92	74.74	C	3.39	2.58	C	1.31	0.30	1.59	1.90	

TABLE 2-3 (cont.)

Canal Q (Design)	Disty-3 113	570-L 1.29	690-R 2.44	6468-L 2.61	6468-R 1.87	10150-R 1.56	11920-L 1.17	14810-R 1.8	15382-R 2.83
DATE	Discharges in Cusecs								
01/03/92	59.02	2.83	3.26	2.80	3.61	1.15	2.72	C	1.92
02/03/92	84.27	1.63	3.34	2.78	3.61	1.21	2.03	1.24	1.98
03/03/92	101.34	1.84	4.05	3.22	3.67	1.60	2.20	1.45	2.17
04/03/92	80.95	1.80	3.59	3.41	3.79	1.48	2.35	1.49	2.40
05/03/92	96.06	1.68	3.39	3.37	3.91	1.62	2.11	1.60	2.19
06/03/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
07/03/92	132.26	2.10	4.03	3.78	4.32	2.48	2.66	1.81	2.71
08/03/92	120.11	1.70	3.84	3.65	C	1.79	2.57	1.59	2.41
09/03/92	130.15	1.73	4.22	3.68	4.06	2.06	2.42	1.69	2.42
10/03/92	124.92	1.67	4.01	3.67	4.07	1.86	2.53	2.14	2.53
11/03/92	119.08	1.68	3.94	3.67	4.18	2.10	2.41	1.89	2.50
12/03/92	120.79	C	3.70	3.69	2.33	2.36	2.46	2.52	PC
13/03/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
14/03/92	106.71	2.13	4.03	3.53	2.69	1.81	2.33	1.75	2.45
15/03/92	117.38	1.75	3.55	3.47	2.87	2.13	2.34	1.73	2.57
16/03/92	86.40	1.54	3.39	3.49	2.78	2.04	2.45	1.97	2.72
17/03/92	87.01	1.67	3.48	3.51	2.08	1.47	2.33	2.01	2.53
18/03/92	137.15	1.80	3.68	3.48	1.77	2.38	2.49	2.10	2.36
19/03/92	112.71	1.93	3.75	3.49	2.12	1.75	2.33	1.98	PC
20/03/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
21/03/92	121.47	1.74	3.81	3.52	2.61	C	PC	2.08	2.33
22/03/92	NM	NM	NM	NM	NM	NM	NM	C	C
23/03/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
24/03/92	103.54	C	4.07	3.82	C	C	PC	C	C
25/03/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
26/03/92	79.38	C	2.33	C	C	C	C	C	C
27/03/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
28/03/92	68.74	C	1.97	C	C	C	C	C	C
29/03/92	60.80	C	1.99	C	C	C	C	2.12	C
30/03/92	58.47	1.01	1.91	2.91	C	C	2.20	1.93	PC
31/03/92	60.57	1.13	1.81	2.87	C	C	1.95	1.97	C
01/04/92	58.34	1.59	2.63	C	C	C	C	1.37	1.84
02/04/92	54.77	1.34	2.80	C	C	1.38	C	1.34	1.76
03/04/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
04/04/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
05/04/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
06/04/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
07/04/92	53.85	C	C	C	C	C	C	C	C
08/04/92	44.82	C	C	C	C	C	C	C	C
09/04/92	42.85	1.35	C	C	C	C	C	C	C
10/04/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
11/04/92	40.22	C	C	C	C	C	C	C	C
12/04/92	40.29	PC	C	C	C	C	C	C	C
13/04/92	41.13	C	C	C	C	C	C	C	1.82
14/04/92	54.60	C	C	C	C	C	C	C	1.76
15/04/92	49.09	PC	C	2.58	C	C	C	C	C
16/04/92	NM	C	C	3.10	C	2.27	C	1.5	2.33
17/04/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
18/04/92	101.75	C	4.09	3.07	2.68	1.08	PC	C	1.91
19/04/92	60.09	C	3.85	3.05	C	C	2.45	C	C
20/04/92	88.87	C	PC	C	C	C	PC	C	C

TABLE 2-3 (cont.)

Canal Q (Design)	Disty-3 113	570-L 1.29	690-R 2.44	6468-L 2.61	6468-R 1.87	10150-R 1.56	11920-L 1.17	14810-R 1.8	15382-R 2.83
DATE	Discharges in Cusecs								
21/04/92	NM	C	PC	C	C	C	C	C	C
22/04/92	82.63	C	3.75	C	C	C	C	C	C
23/04/92	58.57	C	3.15	2.96	1.21	C	1.90	C	2.29
24/04/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
25/04/92	80.77	C	3.48	3.00	1.10	1.54	C	1.09	C
26/04/92	68.11	C	3.83	3.00	1.87	0.65	1.97	C	1.99
27/04/92	58.42	2.14	3.73	PC	C	1.03	1.92	C	C
28/04/92	58.87	PC	2.66	PC	C	1.14	2.05	C	C
29/04/92	50.91	C	PC	PC	C	C	1.86	C	PC
30/04/92	66.00	C	PC	C	C	C	2.03	1.46	1.99
01/05/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
02/05/92	57.47	C	C	PC	PC	C	2.00	1.46	1.97
03/05/92	56.15	C	C	3.08	C	1.44	2.18	1.66	2.04
04/05/92	57.20	C	C	3.07	C	1.46	PC	C	2.25
05/05/92	58.02	C	C	PC	1.76	0.78	C	C	2.27
06/05/92	56.34	PC	C	PC	1.69	1.15	1.90	C	2.20
07/05/92	55.86	C	C	3.14	0.98	0.67	2.07	C	2.15
08/05/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
09/05/92	55.30	C	PC	PC	1.50	1.06	2.01	C	2.30
10/05/92	57.37	C	C	PC	1.04	0.74	1.98	C	2.31
11/05/92	55.78	C	3.84	PC	0.98	1.51	1.91	C	2.23
12/05/92	55.83	C	3.83	C	PC	1.12	1.86	C	2.02
13/05/92	55.04	C	3.94	PC	0.47	0.65	1.89	C	1.98
14/05/92	90.10	C	PC	PC	PC	2.04	2.25	C	2.39
15/05/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
16/05/92	98.76	1.43	C	PC	2.02	2.27	2.33	1.78	2.47
17/05/92	99.28	PC	C	PC	2.09	2.31	2.39	PC	2.42
18/05/92	99.58	PC	C	PC	C	1.86	2.31	1.63	2.67
19/05/92	100.93	PC	C	PC	2.67	1.91	2.33	1.94	2.64
20/05/92	100.62	PC	C	C	PC	1.68	2.38	PC	2.64
21/05/92	100.10	PC	C	PC	C	1.40	2.35	PC	2.66
22/05/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
23/05/92	99.29	C	C	PC	2.40	2.06	2.29	C	2.60
24/05/92	99.29	C	PC	C	1.87	2.02	2.33	1.95	2.54
25/05/92	98.70	C	PC	C	PC	C	C	C	2.65
26/05/92	96.17	C	PC	PC	PC	C	2.40	C	2.54
27/05/92	99.21	C	3.68	PC	PC	1.43	C	1.93	2.53
28/05/92	101.78	C	PC	PC	PC	1.30	2.52	C	2.57
29/05/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
30/05/92	102.29	PC	3.72	PC	C	C	PC	PC	2.54
31/05/92	99.14	PC	C	C	C	1.86	PC	PC	2.47
01/06/92	99.08	PC	PC	PC	PC	1.98	1.85	2.32	2.92
02/06/92	96.30	PC	PC	PC	2.47	2.04	PC	2.38	2.70
03/06/92	97.91	PC	PC	PC	PC	2.15	PC	2.53	2.86
04/06/92	97.38	PC	PC	PC	PC	1.88	PC	PC	2.79
05/06/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
06/06/92	97.01	PC	PC	PC	C	1.94	2.31	PC	2.54
07/06/92	96.09	PC	PC	PC	C	C	PC	1.80	2.68
08/06/92	97.73	PC	PC	PC	C	1.75	2.47	C	2.73
09/06/92	96.68	PC	PC	PC	C	2.02	1.90	2.00	2.55
10/06/92	97.48	PC	PC	PC	PC	C	PC	C	C

TABLE 2-3 (cont.)

Canal Q (Design)	Disty-3 113	570-L 1.29	690-R 2.44	6468-L 2.61	6468-R 1.87	10150-R 1.58	11920-L 1.17	14810-R 1.8	15382-R 2.83
DATE	Discharges in Cusecs								
11/06/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
12/06/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
13/06/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
14/06/92	110.58	PC	PC	3.49	PC	2.21	2.28	1.36	2.57
15/06/92	100.16	PC	3.75	3.52	PC	2.19	2.37	1.70	2.52
16/06/92	119.37	PC	4.22	3.40	PC	1.98	2.37	1.70	2.54
17/06/92	125.27	PC	4.27	3.65	PC	1.94	2.43	1.91	2.63
18/06/92	132.56	PC	3.76	3.62	PC	2.38	2.78	2.10	2.88
19/06/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
20/06/92	132.00	PC	3.75	3.84	PC	2.65	2.80	2.00	2.93
21/06/92	162.05	1.79	4.03	3.92	PC	2.36	2.81	2.03	2.98
22/06/92	137.48	1.72	3.97	3.92	PC	2.57	2.88	2.07	3.01
23/06/92	NM	PC	2.52	3.93	PC	2.82	2.91	2.16	2.86
24/06/92	155.29	PC	3.97	3.67	C	2.61	2.96	2.12	2.97
25/06/92	163.49	PC	4.12	3.69	PC	2.47	3.00	1.79	3.03
26/06/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
27/06/92	184.97	PC	4.03	3.67	PC	2.97	2.90	1.78	3.05
28/06/92	176.54	1.93	4.80	4.01	PC	2.52	3.03	2.16	2.94
29/06/92	167.64	C	4.41	4.05	PC	2.53	3.13	C	3.10
30/06/92	169.75	PC	3.99	3.88	PC	2.12	3.01	2.19	2.93
01/07/92	138.04	PC	2.68	3.42	2.04	1.28	2.33	2.64	2.26
02/07/92	134.44	PC	2.45	3.80	2.62	C	3.48	C	2.81
03/07/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
04/07/92	159.53	PC	3.77	3.88	PC	2.94	2.95	2.57	3.09
05/07/92	185.73	PC	3.39	3.68	PC	2.25	2.76	C	2.54
06/07/92	190.80	PC	3.84	3.84	3.24	1.00	2.80	2.52	2.75
07/07/92	179.04	PC	4.01	3.94	3.22	2.16	3.03	C	C
08/07/92	169.40	1.71	4.01	3.89	3.18	2.88	2.93	2.34	3.25
09/07/92	157.00	C	3.94	3.84	3.10	2.27	2.95	2.37	3.26
10/07/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
11/07/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
12/07/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
13/07/92	NM	PC	3.46	PC	PC	C	2.64	2.52	C
14/07/92	NM	PC	3.34	C	2.84	2.39	2.59	2.49	2.59
15/07/92	166.17	PC	3.97	3.85	C	2.82	C	PC	2.65
16/07/92	182.57	PC	4.05	3.92	2.60	2.93	C	C	2.80
17/07/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
18/07/92	167.35	PC	PC	3.91	PC	2.68	2.98	PC	2.83
19/07/92	159.84	PC	4.09	PC	2.75	2.94	C	2.77	2.86
20/07/92	157.01	1.87	3.94	PC	PC	2.92	2.80	2.24	2.70
21/07/92	175.12	PC	5.00	PC	C	PC	2.86	2.30	2.86
22/07/92	166.10	PC	4.01	PC	PC	2.18	2.86	2.31	2.91
23/07/92	162.09	PC	4.14	3.93	2.73	2.46	2.88	PC	2.86
24/07/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
25/07/92	NM	PC	4.10	PC	C	2.97	2.90	2.30	2.83
26/07/92	117.09	PC	2.77	C	C	C	C	C	C
27/07/92	98.77	PC	2.94	C	C	C	C	C	C
28/07/92	102.81	PC	2.95	3.62	PC	PC	C	C	C
29/07/92	100.64	PC	2.94	3.92	C	PC	C	C	C
30/07/92	100.85	PC	2.84	C	C	C	C	C	C
31/07/92	NM	NM	NM	NM	NM	NM	NM	NM	NM

TABLE 2-3 (cont.)

Canal Q (Design)	Disty-3 113	570-L 1.29	690-R 2.44	6468-L 2.61	6468-R 1.87	10150-R 1.56	11920-L 1.17	14810-R 1.8	15382-R 2.83
DATE	Discharges in Cusecs								
01/08/92	105.75	1.56	PC	3.53	2.17	2.02	PC	2.37	PC
02/08/92	104.88	C	2.89	3.53	PC	PC	C	C	2.71
03/08/92	152.81	1.71	3.53	PC	2.21	2.07	PC	PC	2.94
04/08/92	137.78	C	3.50	3.79	PC	C	2.82	PC	2.90
05/08/92	137.73	C	3.91	3.87	3.42	2.43	2.98	2.85	PC
06/08/92	149.04	PC	3.79	3.88	PC	PC	2.86	C	3.27
07/08/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
08/08/92	155.82	PC	3.95	3.87	3.13	2.27	2.86	2.54	3.09
09/08/92	135.88	C	3.50	C	3.32	PC	2.83	2.63	2.06
10/08/92	141.27	C	3.72	3.86	2.46	C	2.83	PC	PC
11/08/92	156.33	PC	4.05	3.95	2.82	2.46	2.88	C	PC
12/08/92	150.17	PC	3.99	PC	3.11	2.56	2.86	2.51	PC
13/08/92	149.14	PC	PC	3.89	2.84	C	2.83	2.53	3.40
14/08/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
15/08/92	155.21	PC	3.83	3.89	3.47	2.27	2.66	2.33	3.03
16/08/92	151.98	PC	C	3.94	3.78	2.40	2.95	C	3.01
17/08/92	150.81	PC	4.01	3.93	2.74	2.40	2.94	2.63	2.26
18/08/92	148.56	PC	4.12	C	PC	PC	2.73	PC	PC
19/08/92	149.96	C	4.20	C	C	PC	2.92	C	PC
20/08/92	149.90	PC	PC	PC	PC	C	2.98	C	PC
21/08/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
22/08/92	145.07	PC	PC	PC	C	C	2.99	C	PC
23/08/92	26.55	PC	PC	C	C	2.56	C	2.53	3.51
24/08/92	142.81	1.77	PC	3.86	2.46	2.32	PC	2.58	PC
25/08/92	147.52	PC	PC	3.84	3.05	2.71	3.27	PC	PC
26/08/92	146.79	PC	PC	3.83	PC	PC	PC	2.20	PC
27/08/92	146.79	PC	4.12	3.93	2.92	2.66	PC	2.61	PC
28/08/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
29/08/92	150.46	PC	PC	PC	PC	C	PC	2.38	3.23
30/08/92	147.15	C	PC	3.95	2.60	PC	PC	2.52	3.24
31/08/92	149.70	PC	4.30	3.77	C	2.39	PC	2.50	3.18
01/09/92	155.56	PC	4.22	3.90	2.80	2.61	3.53	2.49	3.22
02/09/92	155.19	C	4.22	3.93	3.07	3.32	3.33	2.45	3.64
03/09/92	NM	C	PC	3.73	C	2.43	C	2.84	2.18
04/09/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
05/09/92	125.92	C	PC	3.78	3.04	2.31	PC	PC	C
06/09/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
07/09/92	136.86	C	3.77	C	C	3.03	3.73	PC	C
08/09/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
09/09/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
10/09/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
11/09/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
12/09/92	60.78	C	PC	C	C	C	C	C	C
13/09/92	55.19	C	PC	C	C	C	C	C	C
14/09/92	58.11	C	PC	C	C	C	PC	C	C
15/09/92	54.67	C	C	C	C	C	C	C	C
16/09/92	53.95	C	PC	C	C	C	C	C	PC
17/09/92	44.15	1.24	PC	C	C	C	C	C	PC
18/09/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
19/09/92	73.07	PC	3.70	C	C	C	C	C	PC
20/09/92	69.49	PC	3.66	C	C	C	C	C	C

TABLE 2-3 (cont.)

Canal Q (Design)	Disty-3 113	570-L 1.29	690-R 2.44	6468-L 2.61	6468-R 1.87	10150-R 1.56	11920-L 1.17	14810-R 1.8	15382-R 2.83
DATE	Discharges In Cusecs								
21/09/92	78.59	1.49	3.82	C	C	C	C	C	C
22/09/92	67.50	C	PC	C	C	C	C	C	C
23/09/92	70.42	C	3.62	C	C	C	C	PC	2.63
24/09/92	71.47	PC	3.57	C	C	C	C	C	C
25/09/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
26/09/92	55.77	0.88	PC	C	C	C	C	PC	C
27/09/92	55.24	1.06	PC	C	C	C	C	PC	C
28/09/92	78.06	1.68	PC	C	C	C	C	PC	C
29/09/92	69.76	C	PC	C	C	C	C	C	C
30/09/92	72.53	PC	C	C	C	C	C	1.45	2.75
01/10/92	64.93	PC	C	PC	1.97	C	C	1.19	C
02/10/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
03/10/92	70.77	C	PC	PC	2.11	2.07	PC	C	PC
04/10/92	70.49	PC	PC	PC	C	1.68	PC	C	2.87
05/10/92	64.67	PC	PC	PC	C	1.56	2.70	1.72	C
06/10/92	56.15	PC	C	PC	1.26	C	2.70	1.61	C
07/10/92	53.17	PC	PC	PC	C	C	C	1.74	C
08/10/92	47.44	PC	C	PC	C	C	C	PC	1.94
09/10/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
10/10/92	57.51	C	PC	PC	PC	C	C	C	2.18
11/10/92	57.42	PC	PC	PC	PC	C	C	1.05	1.83
12/10/92	54.42	PC	PC	PC	0.53	C	PC	C	2.15
13/10/92	56.81	PC	PC	PC	0.66	C	2.20	C	2.22
14/10/92	NM	PC	PC	PC	1.46	C	2.50	C	2.47
15/10/92	62.62	C	PC	PC	1.23	C	2.46	C	2.47
16/10/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
17/10/92	66.99	C	PC	PC	1.87	1.03	2.46	PC	C
18/10/92	75.29	PC	3.98	PC	2.12	1.31	2.37	C	2.52
19/10/92	63.80	1.85	PC	PC	1.63	C	PC	C	2.31
20/10/92	83.40	PC	PC	PC	1.96	C	2.38	C	2.47
21/10/92	80.36	PC	3.90	PC	PC	C	2.59	C	2.61
22/10/92	81.56	PC	PC	PC	C	C	PC	PC	2.31
23/10/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
24/10/92	84.38	2.02	C	C	2.18	0.60	C	1.21	2.48
25/10/92	93.06	PC	4.07	PC	1.53	0.65	C	1.19	2.44
26/10/92	90.78	PC	4.03	3.43	2.51	0.78	2.60	1.15	2.38
27/10/92	110.90	1.56	3.97	3.69	2.51	1.38	C	C	2.56
28/10/92	112.37	1.52	3.94	3.67	2.37	1.93	C	PC	PC
29/10/92	111.88	1.58	4.03	PC	2.29	2.29	C	1.36	PC
30/10/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
31/10/92	109.26	1.07	3.99	PC	PC	1.86	C	1.73	2.77
01/11/92	113.05	1.58	3.95	PC	PC	1.79	C	1.69	2.64
02/11/92	121.37	C	4.14	PC	2.78	1.93	C	C	2.71
03/11/92	104.86	PC	3.83	PC	2.57	1.73	PC	C	2.69
04/11/92	103.75	PC	PC	PC	2.21	1.91	PC	2.42	2.66
05/11/92	104.74	PC	3.81	C	2.03	PC	PC	2.48	2.30
06/11/92	NM	PC	3.48	C	C	C	PC	C	PC
07/11/92	93.91	PC	3.30	C	PC	C	C	C	PC
08/11/92	92.50	PC	3.30	C	1.84	C	PC	C	PC
09/11/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
10/11/92	87.59	PC	3.99	PC	PC	C	2.47	C	PC

TABLE 2-3 (cont.)

Canal Q (Design)	Disty-3 113	570-L 1.29	690-R 2.44	6468-L 2.61	6468-R 1.87	10150-R 1.56	11920-L 1.17	14810-R 1.8	15382-R 2.83
Discharges in Cusecs									
DATE									
11/11/92	71.29	1.26	3.03	C	PC	1.23	2.42	C	2.14
12/11/92	64.90	1.47	3.57	PC	1.44	0.82	2.25	C	1.83
13/11/92	62.45	1.25	3.39	PC	C	C	2.11	C	1.83
14/11/92	61.67	PC	2.86	C	1.91	1.43	1.76	C	C
15/11/92	64.31	PC	3.22	PC	C	0.60	2.29	1.42	PC
16/11/92	64.06	1.32	3.44	C	C	0.31	2.03	0.88	C
17/11/92	74.92	PC	3.12	PC	C	C	2.16	1.09	2.53
18/11/92	60.65	PC	2.92	PC	0.58	C	2.21	1.13	PC
19/11/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
20/11/92	54.22	C	3.05	C	C	0.31	2.04	C	1.99
21/11/92	53.92	C	3.07	C	C	C	C	C	2.26
22/11/92	59.02	1.19	3.05	C	C	0.48	2.02	C	2.40
23/11/92	55.19	C	3.19	C	C	C	C	C	C
24/11/92	46.59	C	2.81	C	PC	C	PC	1.46	C
25/11/92	60.44	C	C	PC	C	C	C	C	C
26/11/92	63.65	C	3.44	C	C	0.31	C	1.05	C
27/11/92	61.34	C	C	PC	C	C	PC	1.79	2.25
28/11/92	61.15	C	C	C	2.37	0.48	C	0.90	C
29/11/92	54.36	C	C	PC	3.06	0.93	PC	PC	PC
30/11/92	54.38	C	3.05	C	C	C	PC	C	C
01/12/92	55.27	C	C	PC	C	0.40	PC	C	1.94
02/12/92	55.44	PC	C	PC	2.12	0.48	C	C	PC
03/12/92	55.44	C	C	PC	C	0.40	C	C	PC
04/12/92	55.27	C	PC	PC	C	C	2.23	0.75	1.80
05/12/92	54.87	PC	3.17	C	C	1.18	1.99	0.75	1.63
06/12/92	54.78	C	3.19	C	C	C	1.99	C	C
07/12/92	53.26	1.25	3.07	C	2.06	C	1.98	C	C
08/12/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
09/12/92	53.20	1.42	C	C	1.66	C	C	C	1.87
10/12/92	58.16	PC	C	C	0.64	C	PC	C	C
11/12/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
12/12/92	56.23	C	C	C	1.91	C	1.99	C	1.83
13/12/92	57.20	1.76	C	C	1.26	PC	2.05	C	1.72
14/12/92	55.80	1.79	C	C	0.39	0.90	1.91	C	4.73
15/12/92	63.49	C	2.94	C	0.53	C	C	0.75	1.84
16/12/92	61.64	C	3.03	C	0.68	0.54	C	1.09	1.85
17/12/92	61.38	1.62	3.30	PC	C	0.65	C	C	2.00
18/12/92	62.91	1.65	C	3.00	1.92	0.65	C	C	C
19/12/92	61.38	1.61	C	3.00	2.31	0.54	C	0.55	1.85
20/12/92	70.17	1.70	3.46	3.02	0.81	C	C	0.90	1.97
21/12/92	63.59	PC	3.22	C	0.53	C	C	C	1.81
22/12/92	76.81	1.71	PC	PC	0.98	0.86	2.08	C	2.13
23/12/92	80.76	1.40	PC	3.23	1.03	0.60	C	PC	2.22
24/12/92	83.42	1.74	PC	3.22	1.51	0.65	2.01	0.80	2.10
25/12/92	NM	2.43	PC	3.20	1.10	1.09	PC	0.77	2.00
26/12/92	77.13	C	3.70	PC	2.24	1.51	PC	0.62	C
27/12/92	89.74	C	3.10	3.57	2.80	1.60	PC	1.31	C
28/12/92	87.03	1.63	3.36	3.47	2.32	1.15	2.38	1.83	2.40
29/12/92	111.76	1.61	3.43	3.64	2.29	1.45	2.50	PC	2.49
30/12/92	95.64	1.50	2.85	PC	2.18	1.06	PC	1.01	2.30
31/12/92	93.25	1.43	2.78	PC	1.86	C	C	C	2.28



TABLE 2-3. (cont.)

Canal Q (Design)	Disty-3 113	570-L 1.29	690-R 2.44	6468-L 2.61	6468-R 1.87	10150-R 1.56	11920-L 1.17	14810-R 1.8	15382-R 2.83
DATE	Discharges in Cusecs								
01/01/93	69.50	C	2.84	C	1.92	1.11	PC	C	2.38
02/01/93	80.86	1.66	2.66	PC	1.21	1.28	2.49	1.13	2.19
03/01/93	73.23	1.45	2.82	PC	0.95	0.74	1.97	C	2.04
04/01/93	73.61	C	2.87	PC	0.47	0.54	2.09	1.26	C
05/01/93	74.03	1.47	2.87	C	1.04	0.70	PC	C	C
06/01/93	66.68	C	2.67	PC	0.75	0.48	C	C	2.04
07/01/93	67.53	1.47	2.83	C	C	0.40	C	C	1.96
08/01/93	47.66	1.91	3.30	PC	C	0.54	2.37	C	2.09
09/01/93	46.57	1.72	3.22	PC	1.34	1.26	2.36	C	1.27
10/01/93	51.19	1.48	3.05	PC	1.23	0.90	2.09	C	1.69
11/01/93	51.93	1.26	3.30	PC	0.81	0.48	NM	C	1.86
12/01/93	50.53	PC	3.30	3.19	1.01	1.09	2.17	C	2.10
13/01/93	60.51	1.57	3.38	3.19	1.26	0.90	2.14	C	2.07
14/01/93	53.76	1.70	3.73	PC	1.77	1.62	2.16	0.77	2.39
15/01/93	Annual Closure								
to	Annual Closure								
19/02/93	Annual Closure								
20/02/93	39.71	0.84	0.87	3.09	2.47	1.31	2.39	2.28	1.75
21/02/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
22/02/93	62.88	1.68	3.30	3.41	2.70	1.38	2.62	2.08	2.73
23/02/93	62.70	1.70	3.39	3.44	1.82	1.49	2.97	2.09	2.96
24/02/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
25/02/93	63.00	1.68	3.44	PC	2.50	1.31	2.70	2.34	3.05
26/02/93	63.97	1.70	3.50	PC	2.25	1.54	2.70	2.17	3.01
27/02/93	63.37	1.96	3.12	PC	2.70	1.82	2.68	2.34	2.83
28/02/93	80.86	1.68	3.34	PC	2.57	1.71	2.72	2.30	2.68
01/03/93	60.57	1.84	3.39	PC	2.78	1.21	2.64	PC	2.73
02/03/93	72.31	1.83	5.50	PC	1.66	1.68	2.73	PC	2.81
03/03/93	60.65	1.68	3.39	PC	2.44	1.38	2.73	PC	2.68
04/03/93	70.04	1.79	3.81	PC	2.22	1.56	2.84	C	2.77
05/03/93	68.92	1.78	3.64	PC	2.52	1.56	PC	C	2.68
06/03/93	64.49	1.81	3.50	PC	2.50	1.82	C	C	2.73
07/03/93	64.67	1.72	3.48	PC	2.32	1.86	2.71	PC	2.61
08/03/93	66.97	1.93	3.50	PC	2.52	1.49	2.78	PC	2.66
09/03/93	60.71	C	3.50	PC	2.02	1.38	C	C	2.80
10/03/93	NM	C	3.15	PC	2.63	1.38	PC	C	PC
11/03/93	67.13	1.20	PC	3.25	1.96	1.12	PC	C	2.24
12/03/93	64.33	1.16	1.80	PC	1.75	2.47	C	C	PC
13/03/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
14/03/93	22.25	0.66	0.56	C	C	C	C	C	C
15/03/93	21.56	C	C	C	C	C	C	C	2.23
16/03/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
17/03/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
18/03/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
19/03/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
20/03/93	26.76	0.80	0.94	C	0.88	2.29	C	C	C
21/03/93	32.24	C	2.44	C	C	0.93	C	C	C
22/03/93	NM	C	C	NM	NM	NM	NM	C	C
23/03/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
24/03/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
25/03/93	NM	NM	NM	NM	NM	NM	NM	NM	NM

TABLE 2-3 (cont.)

Canal Q (Design)	Disty-3 113	570-L 1.29	690-R 2.44	6468-L 2.61	6468-R 1.87	10150-R 1.56	11920-L 1.17	14610-R 1.8	15382-R 2.83
DATE	Discharges in Cusecs								
26/03/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
27/03/93	25.98	1.20	2.11	PC	0.81	1.00	2.29	1.92	1.96
28/03/93	36.05	1.36	2.49	PC	1.77	1.12	2.38	1.92	2.17
29/03/93	36.67	C	2.63	PC	1.23	1.49	2.09	1.83	2.14
30/03/93	36.64	1.36	2.52	PC	1.55	1.06	PC	1.95	2.05
31/03/93	59.12	1.57	3.22	3.62	2.42	1.64	2.60	2.16	2.37
01/04/93	66.81	1.52	3.02	3.75	2.59	1.75	2.78	2.26	2.73
02/04/93	63.79	1.48	2.90	3.71	2.56	1.89	2.72	2.83	2.83
03/04/93	53.32	1.87	2.81	3.62	3.08	2.04	2.81	C	2.63
04/04/93	62.86	1.48	2.86	3.67	3.09	1.89	2.80	2.17	2.70
05/04/93	58.55	1.54	2.63	C	3.02	1.58	2.75	2.49	PC
06/04/93	58.75	1.59	2.62	PC	2.84	1.31	2.76	C	PC
07/04/93	55.40	1.47	2.83	PC	2.15	1.84	2.69	C	PC
08/04/93	65.97	1.54	3.05	PC	C	1.86	2.20	C	PC
09/04/93	51.92	1.30	2.33	3.55	C	1.31	2.75	C	PC
10/04/93	57.56	1.60	3.05	3.61	C	1.96	3.00	PC	2.52
11/04/93	54.31	1.63	3.03	3.56	2.62	1.50	PC	1.98	PC
12/04/93	36.50	1.33	2.36	C	C	1.73	2.75	2.01	2.59
13/04/93	37.30	1.28	2.34	3.31	3.02	0.97	2.77	PC	PC
14/04/93	30.98	1.14	2.13	3.33	C	C	2.83	C	PC
15/04/93	30.67	C	2.16	C	C	C	2.84	C	2.81
16/04/93	NM	C	1.33	C	C	0.82	C	C	PC
17/04/93	20.25	C	C	PC	C	C	PC	C	C
18/04/93	20.90	C	PC	PC	C	0.65	C	C	C
19/04/93	20.38	C	PC	PC	C	0.78	2.93	C	C
20/04/93	23.64	1.22	PC	PC	2.71	0.90	2.17	2.12	2.00
21/04/93	50.77	C	PC	PC	2.44	0.97	PC	2.11	2.43
22/04/93	51.40	C	PC	PC	2.71	C	C	2.10	PC
23/04/93	50.90	1.36	3.14	PC	2.94	2.07	PC	2.30	PC
24/04/93	66.81	PC	3.26	PC	C	PC	PC	PC	PC
25/04/93	69.02	C	3.31	PC	PC	1.82	2.91	C	2.98
26/04/93	65.99	C	3.36	PC	C	PC	PC	PC	PC
27/04/93	66.49	C	3.52	PC	2.33	2.89	C	C	C
28/04/93	67.30	C	3.70	PC	C	2.55	PC	C	C
29/04/93	50.08	C	2.96	PC	C	1.66	2.88	PC	3.55
30/04/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
01/05/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
02/05/93	54.78	1.36	2.86	PC	2.99	C	PC	C	PC
03/05/93	54.52	1.34	2.92	PC	2.44	PC	2.65	PC	C
04/05/93	53.98	C	PC	PC	2.25	1.18	PC	C	PC
05/05/93	53.64	C	PC	PC	1.83	1.45	2.64	C	PC
06/05/93	52.19	PC	PC	PC	C	1.43	2.63	C	3.24
07/05/93	54.24	PC	PC	3.32	C	PC	2.70	C	3.26
08/05/93	52.64	PC	PC	3.29	2.11	PC	2.65	PC	3.27
09/05/93	51.98	1.33	2.86	3.32	2.24	C	PC	C	3.16
10/05/93	52.75	1.30	C	3.29	2.49	1.31	PC	C	PC
11/05/93	53.23	C	PC	3.34	2.70	1.73	PC	C	2.89
12/05/93	54.65	C	PC	3.32	C	1.21	PC	2.19	PC
13/05/93	63.66	C	PC	3.47	PC	1.77	2.75	2.54	PC
14/05/93	61.89	1.13	PC	3.51	C	1.56	2.87	C	3.09
15/05/93	NM	1.61	PC	3.53	C	2.35	2.82	PC	3.07

TABLE 2-3 (cont.)

Canal Q (Design)	Disty-3 113	570-L 1.29	690-R 2.44	6468-L 2.61	6468-R 1.87	10150-R 1.56	11920-L 1.17	14810-R 1.8	15382-R 2.83
DATE	Discharges in Cusecs								
16/05/93	54.29	1.46	3.00	PC	2.44	1.47	2.78	PC	3.03
17/05/93	52.22	1.44	3.03	3.34	C	1.47	2.72	PC	3.13
18/05/93	53.17	1.56	PC	PC	C	1.26	2.73	PC	2.98
19/05/93	57.61	1.63	2.85	PC	2.26	1.03	2.61	C	PC
20/05/93	58.65	1.63	2.84	3.40	2.32	C	PC	C	PC
21/05/93	59.01	1.69	2.88	3.46	C	1.51	PC	2.70	3.29
22/05/93	59.83	1.57	PC	3.38	1.89	1.69	PC	PC	2.89
23/05/93	58.01	1.54	PC	PC	C	1.03	PC	C	2.71
24/05/93	57.84	1.48	PC	PC	C	1.49	2.59	C	2.45
25/05/93	58.94	1.37	PC	PC	2.41	1.47	2.58	1.96	2.35
26/05/93	51.16	1.38	PC	3.18	C	C	2.58	PC	2.36
27/05/93	57.35	1.58	3.31	PC	PC	1.45	2.51	PC	2.38
28/05/93	70.76	1.63	PC	PC	C	1.23	PC	PC	2.80
29/05/93	65.53	1.66	PC	3.34	C	1.82	2.81	C	2.83
30/05/93	66.73	1.58	PC	PC	2.21	1.28	2.79	PC	2.82
31/05/93	68.71	1.54	3.55	3.44	2.03	1.28	2.84	C	2.87
01/06/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
02/06/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
03/06/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
04/06/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
05/06/93	99.91	1.76	3.32	3.69	2.97	2.34	2.92	2.50	2.95
06/06/93	83.90	PC	2.95	3.71	3.14	2.02	3.06	2.86	3.09
07/06/93	89.84	PC	3.30	3.61	PC	1.88	3.01	PC	3.24
08/06/93	108.56	1.74	3.32	3.56	PC	2.04	3.08	PC	3.29
09/06/93	103.81	1.72	3.32	3.55	2.03	1.86	3.08	PC	3.17
10/06/93	105.05	1.70	3.23	3.55	PC	1.84	3.07	C	2.70
11/06/93	NM	2.06	3.94	3.84	C	2.07	2.73	C	3.78
12/06/93	100.60	2.22	4.03	3.86	PC	2.50	3.15	C	3.43
13/06/93	99.22	2.08	3.94	3.84	3.18	2.47	3.09	3.18	3.53
14/06/93	119.48	1.95	3.50	3.78	3.45	2.24	2.50	PC	3.34
15/06/93	134.81	1.71	3.72	3.86	3.48	2.24	2.51	3.19	3.36
16/06/93	142.57	1.87	PC	3.87	3.74	2.19	2.46	3.05	3.29
17/06/93	145.95	1.86	4.03	3.94	3.00	2.42	2.47	3.40	3.55
18/06/93	148.28	1.79	4.09	3.95	3.01	2.77	2.30	C	3.59
19/06/93	149.11	2.27	4.03	3.92	3.40	2.88	2.32	C	3.56
20/06/93	136.20	1.76	3.41	3.89	2.99	2.42	2.37	PC	2.97
21/06/93	146.33	1.87	3.42	3.94	3.45	2.29	2.70	PC	3.28
22/06/93	151.17	1.88	3.83	3.87	2.64	2.25	2.63	PC	3.33
23/06/93	151.99	2.03	3.94	3.95	3.27	2.40	2.68	3.07	3.33
24/06/93	139.88	1.71	3.59	3.90	2.94	2.19	2.58	PC	3.17
25/06/93	150.09	1.88	PC	3.92	3.15	2.15	2.47	2.89	3.69
26/06/93	156.14	2.16	3.86	3.92	PC	2.42	2.62	PC	3.57
27/06/93	146.52	1.89	PC	3.92	3.39	2.15	2.61	PC	3.38
28/06/93	146.11	1.95	3.99	3.92	3.57	C	2.59	PC	3.46
29/06/93	151.17	1.98	4.03	3.92	2.82	2.75	2.71	PC	2.01
30/06/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
01/07/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
02/07/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
03/07/93	149.03	1.93	3.92	3.92	3.39	C	2.58	PC	3.33
04/07/93	145.33	2.26	3.79	3.89	2.68	PC	C	C	3.47
05/07/93	141.03	1.68	3.30	3.89	3.38	2.34	C	C	C

TABLE 2-3 (cont.)

Canal Q (Design)	Disty-3 113	570-L 1.29	690-R 2.44	6468-L 2.61	6468-R 1.87	10150-R 1.56	11920-L 1.17	14810-R 1.8	15382-R 2.83
DATE	Discharges in Cusecs								
06/07/93	144.03	1.97	3.48	3.91	3.00	2.57	2.48	C	3.32
07/07/93	143.79	1.71	3.39	3.87	PC	2.29	2.41	PC	3.22
08/07/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
09/07/93	118.70	1.42	2.97	3.67	2.84	C	C	C	PC
10/07/93	115.82	1.86	2.71	PC	PC	C	C	C	C
11/07/93	119.15	1.40	2.65	PC	3.13	C	C	3.23	2.96
12/07/93	37.21	0.88	0.93	2.58	PC	PC	0.81	1.85	2.12
13/07/93	68.35	1.37	2.13	3.04	1.10	1.69	1.72	1.83	C
14/07/93	157.31	2.01	3.50	3.94	2.85	2.72	2.32	C	3.39
15/07/93	139.00	1.76	3.70	C	C	2.52	2.72	C	3.50
16/07/93	100.12	1.20	PC	PC	C	C	C	C	C
17/07/93	101.21	1.25	C	C	C	C	C	C	C
18/07/93	103.50	1.54	2.13	C	C	C	C	C	C
19/07/93	102.17	1.32	2.16	C	C	1.12	C	C	PC
20/07/93	123.87	1.59	3.02	PC	3.05	C	C	C	3.34
21/07/93	125.15	1.53	2.88	PC	C	2.88	C	2.83	C
22/07/93	28.27	C	0.45	3.10	C	NM	NM	NM	NM
23/07/93	NM	1.22	1.31	2.26	C	NM	NM	NM	NM
24/07/93	12.79	1.38	1.81	1.91	1.23	NM	NM	NM	NM
25/07/93	12.44	0.90	1.57	2.29	0.95	NM	NM	NM	NM
26/07/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
27/07/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
28/07/93	94.11	1.54	2.85	C	2.35	C	C	C	C
29/07/93	93.31	1.49	2.83	PC	C	1.58	C	C	C
30/07/93	94.71	1.86	2.71	3.64	2.86	1.82	C	C	2.96
31/07/93	92.97	1.81	2.90	PC	3.13	PC	C	PC	PC
01/08/93	106.61	1.82	3.50	PC	2.91	C	PC	3.21	3.16
02/08/93	103.96	1.77	3.34	3.79	3.34	2.12	PC	2.72	3.22
03/08/93	106.11	1.85	3.48	3.86	2.59	3.09	2.34	2.84	PC
04/08/93	117.93	1.58	3.03	3.30	2.15	0.90	1.38	PC	PC
05/08/93	110.02	1.46	3.00	3.57	2.50	1.49	1.68	2.36	PC
06/08/93	111.18	1.25	3.07	3.69	2.63	1.58	1.75	2.25	3.33
07/08/93	113.44	1.35	3.15	3.54	2.73	1.93	1.29	2.11	3.03
08/08/93	118.74	1.32	3.05	3.79	2.79	2.02	2.21	2.99	3.14
09/08/93	106.80	1.36	2.90	3.68	2.74	1.56	C	2.70	2.97
10/08/93	108.53	1.57	3.05	3.70	2.09	1.51	2.08	2.68	2.99
11/08/93	112.24	1.39	2.86	3.70	2.22	1.58	1.93	2.71	2.97
12/08/93	112.63	1.58	3.22	3.66	2.91	1.54	1.93	PC	2.86
13/08/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
14/08/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
15/08/93	111.73	1.45	3.08	3.67	2.71	2.27	1.89	2.39	3.18
16/08/93	109.08	1.50	3.32	3.69	2.99	2.16	2.29	2.48	3.21
17/08/93	111.96	1.39	3.14	3.70	2.97	1.79	2.15	2.71	3.13
18/08/93	112.34	1.14	2.93	3.70	2.79	3.64	2.24	2.60	3.09
19/08/93	111.96	1.09	2.88	3.70	PC	1.84	2.15	2.38	3.13
20/08/93	108.06	1.23	3.09	3.56	PC	C	1.91	2.53	3.33
21/08/93	112.46	1.82	PC	PC	3.23	2.27	2.02	PC	3.21
22/08/93	111.59	1.78	3.26	3.75	3.25	2.28	2.14	2.33	3.10
23/08/93	112.08	1.37	3.34	PC	3.06	1.82	2.23	2.50	3.05
24/08/93	112.75	1.57	3.22	C	2.42	1.91	2.15	PC	3.07
25/08/93	90.59	1.30	2.47	3.57	C	1.56	1.61	PC	2.76

TABLE 2-3 (cont.)

Canal Q (Design)	Disty-3 113	570-L 1.29	690-R 2.44	6468-L 2.61	6468-R 1.87	10150-R 1.56	11920-L 1.17	14810-R 1.8	15382-R 2.83
DATE	Discharges in Cusecs								
26/08/93	89.96	1.31	PC	3.52	C	1.12	1.97	PC	3.02
27/08/93	90.35	1.27	2.54	3.46	2.50	1.60	2.08	2.61	3.29
28/08/93	89.37	1.69	PC	PC	2.77	2.09	1.68	C	3.00
29/08/93	89.96	1.38	PC	PC	2.24	1.88	1.72	2.57	3.04
30/08/93	89.37	1.50	2.74	3.55	2.50	1.26	1.07	C	2.96
31/08/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
01/09/93	101.54	1.54	PC	PC	2.84	1.56	2.15	2.31	3.20
02/09/93	101.88	1.56	3.57	3.62	2.88	1.58	2.16	2.47	3.10
03/09/93	104.87	1.57	C	3.67	2.08	1.56	1.93	2.56	3.37
04/09/93	100.82	2.07	C	3.64	3.04	C	PC	2.69	PC
05/09/93	102.51	1.77	3.75	C	2.31	C	C	2.61	3.02
06/09/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
07/09/93	93.28	1.65	3.30	3.65	3.06	1.60	C	C	2.99
08/09/93	92.00	1.53	3.32	PC	PC	C	C	2.21	2.83
09/09/93	61.26	1.46	2.78	PC	C	C	1.23	PC	2.44
10/09/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
11/09/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
12/09/93	61.85	1.48	2.85	C	C	1.49	C	C	2.90
13/09/93	NM	NM	NM	NM	NM	C	C	C	C
14/09/93	60.90	1.38	2.85	C	C	C	C	C	2.74
15/09/93	62.27	1.38	2.81	C	C	C	C	C	C
16/09/93	59.50	1.38	2.85	C	C	1.79	C	C	2.69
17/09/93	40.25	1.17	2.16	2.94	C	C	C	C	C
18/09/93	39.73	1.16	2.11	C	C	1.12	C	PC	2.25
19/09/93	38.96	1.14	2.16	C	C	C	C	PC	2.26
20/09/93	40.05	1.13	2.14	C	C	C	1.17	PC	2.13
21/09/93	39.47	1.14	2.16	2.88	C	0.65	C	PC	2.12
22/09/93	38.37	1.13	2.13	2.88	C	0.48	0.93	PC	2.08
23/09/93	38.67	1.17	2.16	C	C	C	1.09	1.67	C
24/09/93	38.83	1.09	2.11	C	C	C	C	C	2.95
25/09/93	38.61	1.14	2.16	C	C	1.12	C	C	2.96
26/09/93	38.72	1.09	2.17	PC	C	0.74	C	C	C
27/09/93	38.67	1.07	PC	C	1.89	0.70	C	C	2.73
28/09/93	38.77	1.11	2.16	2.88	1.33	1.00	C	C	2.60
29/09/93	38.67	1.08	PC	2.91	1.46	0.86	1.25	C	2.34
30/09/93	38.56	1.06	PC	2.91	1.21	C	1.33	C	C
01/10/93	40.00	1.08	PC	2.93	1.46	C	C	C	C
02/10/93	39.21	1.06	2.20	2.81	1.35	C	C	PC	2.44
03/10/93	39.21	1.14	PC	2.81	0.64	0.97	1.67	PC	2.34
04/10/93	38.75	0.91	PC	2.80	0.73	0.48	1.98	PC	2.22
05/10/93	38.65	1.03	PC	C	C	0.97	C	C	2.12
06/10/93	36.15	1.25	2.97	2.73	1.28	0.65	PC	PC	2.05
07/10/93	39.35	0.99	2.20	2.81	1.74	0.70	2.01	C	2.11
08/10/93	38.91	0.99	2.13	2.78	1.04	0.65	1.62	C	2.26
09/10/93	39.40	0.98	2.19	PC	1.57	0.65	2.15	C	2.08
10/10/93	40.01	0.99	2.16	2.73	1.70	0.54	1.56	PC	C
11/10/93	38.67	1.02	2.16	2.71	C	0.70	1.31	FF	2.00
12/10/93	66.68	1.39	PC	3.41	1.55	1.26	0.96	PC	2.56
13/10/93	67.95	1.38	3.31	3.27	1.21	1.18	1.79	2.25	2.77
14/10/93	77.15	1.39	C	3.35	1.35	1.03	1.72	2.25	2.57
15/10/93	75.14	1.40	3.46	3.30	1.64	1.51	1.97	PC	PC

TABLE 2-3 (cont.)

Canal Q (Design)	Disty-3 113	570-L 1.29	690-R 2.44	6468-L 2.61	6468-R 1.87	10150-R 1.56	11920-L 1.17	14810-R 1.8	15382-R 2.83
DATE	Discharges in Cusecs								
16/10/93	75.29	1.44	3.58	3.33	1.66	1.45	PC	1.95	2.66
17/10/93	75.55	1.34	3.39	3.29	1.79	1.38	1.94	2.17	2.73
18/10/93	71.81	1.34	3.39	3.27	1.61	0.90	1.80	1.94	2.70
19/10/93	74.88	1.37	3.48	3.33	1.23	1.38	1.55	2.20	2.61
20/10/93	76.31	1.36	3.07	3.34	1.32	1.26	PC	PC	PC
21/10/93	76.62	1.34	3.30	3.37	2.18	1.36	C	C	PC
22/10/93	75.68	1.37	3.44	3.33	2.26	1.09	C	C	PC
23/10/93	75.55	1.59	3.44	3.33	2.32	1.38	1.76	1.79	PC
24/10/93	75.81	1.48	3.39	3.30	2.12	1.36	2.04	PC	PC
25/10/93	75.68	1.50	3.44	3.30	1.99	0.93	2.06	C	PC
26/10/93	75.55	1.39	3.49	3.33	1.35	1.03	1.90	1.65	2.36
27/10/93	75.55	1.34	PC	3.34	1.61	1.03	1.83	1.67	2.45
28/10/93	75.02	1.39	3.48	3.33	1.66	0.97	C	2.03	PC
29/10/93	74.75	1.38	3.57	3.34	1.81	0.74	1.86	C	PC
30/10/93	74.88	1.33	3.46	PC	2.11	1.28	1.52	C	2.52
31/10/93	76.64	1.61	3.66	C	1.79	0.97	1.67	1.86	C

Terminology Used:

NM = Not Measured (Mainly Fridays & Holidays)

C = Closed

PC = Partially Closed

**TABLE 2-4 DAILY DISCHARGES DISTRIBUTARY # 4 & ITS SAMPLE WATERCOURSES (CUSECS)**

Canal Q (Design)	Disty-4 210	1860-R 1.02	4030-L 1.58	8980-L 3.29	12880-R 0.88	16512-L 1.62	20752-R 2.02	24495-L 1.26	28448-R 2.52
DATE	Discharge in Cusecs								
01/03/92		0.92					C		0.00
02/03/92		1.40					C		3.02
03/03/92		1.53				1.10			3.58
04/03/92		1.84				1.96			2.90
05/03/92		3.12				1.77			2.89
06/03/92		NM					NM		NM
07/03/92		4.02				2.65			3.14
08/03/92		C				1.93			3.20
09/03/92		C				1.92			3.15
10/03/92		1.05				1.76			3.22
11/03/92		1.05				1.71			3.28
12/03/92		C				1.83			3.21
13/03/92		NM					NM		NM
14/03/92	172.17	0.89				1.68			3.30
15/03/92	157.11	0.41				1.70			3.27
16/03/92	149.58	C				1.81			3.37
17/03/92	147.42	2.08				1.81			3.27
18/03/92	151.36	C					C		3.22
19/03/92	141.95	C					C		3.22
20/03/92	NM	NM					NM		NM
21/03/92	146.90	C					PC		C
22/03/92	147.83	C					C		C
23/03/92	NM	NM					NM		NM
24/03/92	169.58	C					C		PC
25/03/92	NM	NM					NM		NM
26/03/92	147.59	C					C		PC
27/03/92	NM	NM					NM		NM
28/03/92	162.83	C					C		C
29/03/92	135.55	3.00					C		C
30/03/92	130.04	C					C		3.27
31/03/92	127.97	C					C		3.25
01/04/92	136.05	C					C		PC
02/04/92	137.94	C					C		C
03/04/92	NM	NM					NM		NM
04/04/92	NM	NM					NM		NM
05/04/92	NM	NM					NM		NM
06/04/92	NM	NM					NM		NM
07/04/92	NM	C					C		C
08/04/92	145.51	C					C		C
09/04/92	142.57	C					C		PC
10/04/92	NM	NM					NM		NM
11/04/92	96.45	C					C		C
12/04/92	123.78	C					C		C
13/04/92	143.49	C					C		PC
14/04/92	127.64	C					PC		C
15/04/92	NM	C					C		PC
16/04/92	91.17	C					C		C
17/04/92	NM	NM					NM		NM
18/04/92	129.11	3.02					C		PC
19/04/92	126.61	C					C		PC
20/04/92	116.37	C					C		PC
21/04/92	106.28	C					C		C

TABLE 2-4 (cont.)

Canal Q (Design)	Disty-4 210	1860-R 1.02	4030-L 1.58	8980-L 3.29	12860-R 0.88	16512-L 1.62	20752-R 2.02	24495-L 1.26	28448-R 2.52
DATE	Discharge in Cusecs								
22/04/92	94.63	C					C		C
23/04/92	72.59	C					C		C
24/04/92	NM	NM					NM		NM
25/04/92	123.21	C					C		C
26/04/92	124.83	C					C		C
27/04/92	123.00	C					C		2.99
28/04/92	127.40	3.31					C		PC
29/04/92	105.19	1.66					C		C
30/04/92	113.93	C					C		C
01/05/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
02/05/92	NM	C	0.47	3.93	1.46	C	C	PC	2.99
03/05/92	125.73	1.67	0.42	3.84	1.14	C	2.49	PC	C
04/05/92	128.83	0.17	0.58	3.79	1.07	PC	0.42	PC	PC
05/05/92	131.59	0.11	0.64	3.89	1.03	PC	0.87	PC	PC
06/05/92	135.82	1.03	0.64	3.93	1.25	C	0.94	PC	PC
07/05/92	135.86	0.41	0.62	3.53	1.03	C	0.68	PC	PC
08/05/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
09/05/92	138.85	2.90	0.60	C	1.03	C	0.68	PC	3.05
10/05/92	130.82	C	0.58	0.71	1.43	C	0.80	PC	PC
11/05/92	130.17	C	0.50	2.63	1.46	C	0.59	PC	PC
12/05/92	126.56	C	0.50	2.54	1.07	PC	0.59	PC	2.98
13/05/92	132.33	3.06	0.53	0.66	1.11	PC	0.48	PC	PC
14/05/92	140.53	2.96	0.55	0.66	1.18	PC	0.64	4.48	PC
15/05/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
16/05/92	145.82	C	0.34	5.15	1.11	PC	0.64	PC	C
17/05/92	142.38	C	0.52	5.13	1.07	PC	0.59	PC	C
18/05/92	140.55	0.46	0.46	5.14	1.31	PC	0.54	4.56	C
19/05/92	141.78	0.44	1.18	5.09	0.99	C	0.54	4.51	PC
20/05/92	150.42	C	0.52	5.18	0.95	C	0.54	4.59	C
21/05/92	147.68	0.39	0.47	5.13	1.21	PC	C	4.51	3.06
22/05/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
23/05/92	156.79	3.03	0.44	3.22	1.51	1.52	1.30	4.83	3.15
24/05/92	154.17	3.00	0.58	3.24	1.28	1.66	1.11	4.71	3.17
25/05/92	152.83	2.77	0.56	4.40	1.43	C	1.47	4.66	PC
26/05/92	156.91	1.90	C	4.34	1.14	C	1.26	4.65	C
27/05/92	147.74	1.12	0.47	4.37	1.34	PC	1.23	4.66	PC
28/05/92	153.47	C	0.49	4.40	0.99	PC	0.91	4.65	PC
29/05/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
30/05/92	152.83	C	0.47	4.31	0.90	PC	0.73	4.60	C
31/05/92	148.27	C	0.68	4.39	0.95	2.34	1.41	4.63	PC
01/06/92	147.92	2.31	0.76	4.41	1.94	1.51	PC	4.63	PC
02/06/92	148.84	1.56	0.77	2.30	PC	1.60	PC	4.67	3.13
03/06/92	150.53	4.33	0.81	2.12	C	1.52	PC	4.60	3.10
04/06/92	148.17	C	0.82	2.14	1.40	1.65	1.35	4.63	PC
05/06/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
06/06/92	153.39	C	0.77	5.36	1.34	1.50	1.26	PC	PC
07/06/92	154.68	4.15	0.84	5.29	C	C	1.35	PC	3.06
08/06/92	157.83	4.61	0.84	5.34	1.62	PC	PC	PC	PC
09/06/92	147.74	0.80	0.79	5.30	1.28	PC	PC	PC	3.14
10/06/92	149.61	4.27	0.84	5.41	1.28	1.53	1.47	4.62	PC
11/06/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
12/06/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
13/06/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
14/06/92	163.39	C	0.85	1.08	1.67	1.69	1.21	4.63	3.08
15/06/92	145.81	4.45	1.01	1.07	1.83	C	0.64	4.34	2.99



TABLE 2-4 (cont.)

Canal Q (Design)	Disty-4 210	1860-R 1.02	4030-L 1.58	8980-L 3.29	12860-R 0.88	16512-L 1.62	20752-R 2.02	24495-L 1.26	28448-R 2.52
DATE	Discharge in Cusecs								
16/06/92	212.79	5.59	0.87	5.43	1.67	1.82	1.73	4.66	3.10
17/06/92	187.99	4.00	0.96	5.55	1.46	PC	1.70	4.80	3.20
18/06/92	176.47	4.16	0.96	5.55	1.76	PC	2.21	4.87	3.26
19/06/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
20/06/92	150.61	5.05	0.99	5.78	1.62	1.76	1.80	4.77	3.17
21/06/92	188.52	1.97	1.05	5.83	1.40	1.83	1.92	4.82	3.22
22/06/92	152.05	5.70	1.05	5.84	1.81	2.00	2.04	4.84	3.25
23/06/92	168.01	2.19	1.07	5.81	1.89	1.68	2.21	4.85	3.27
24/06/92	192.93	3.82	1.04	5.72	1.28	1.74	1.89	4.79	3.21
25/06/92	193.05	5.04	1.06	5.84	1.46	1.70	2.12	4.84	3.22
26/06/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
27/06/92	185.85	2.56	0.97	5.71	1.28	1.67	2.01	4.84	3.25
28/06/92	195.31	2.19	1.07	5.66	1.62	PC	1.45	4.69	3.14
29/06/92	205.63	4.95	0.97	5.65	1.62	PC	1.62	4.68	3.10
30/06/92	212.54	4.79	1.01	5.68	1.71	1.81	1.66	4.77	3.20
01/07/92	202.90	0.83	0.96	5.67	1.71	C	1.62	C	C
02/07/92	212.54	4.79	0.99	5.68	1.51	C	1.51	4.82	3.29
03/07/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
04/07/92	176.16	2.65	0.53	5.62	1.21	1.66	1.00	4.70	3.21
05/07/92	186.06	1.97	0.95	5.68	0.99	1.51	0.42	4.63	3.12
06/07/92	185.61	2.18	1.06	5.71	1.34	1.62	1.59	4.79	3.19
07/07/92	188.41	4.85	1.05	5.67	1.21	1.53	1.16	4.73	3.14
08/07/92	187.01	4.12	1.04	5.59	1.40	1.84	1.26	4.79	3.21
09/07/92	188.23	4.73	0.98	5.51	1.51	1.82	1.06	4.69	3.16
10/07/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
11/07/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
12/07/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
13/07/92	184.06	4.73	1.01	5.94	1.40	PC	1.41	4.74	3.22
14/07/92	184.64	1.53	0.87	5.89	1.25	PC	1.21	4.72	3.20
15/07/92	226.44	3.43	0.96	5.80	1.46	C	1.11	4.71	3.19
16/07/92	224.23	1.80	0.95	5.88	1.46	PC	1.26	4.72	3.17
17/07/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
18/07/92	222.49	1.13	0.78	5.79	1.71	PC	0.68	4.70	3.16
19/07/92	224.08	4.31	0.76	5.58	1.76	1.72	1.76	4.74	3.17
20/07/92	226.48	2.67	0.74	5.52	1.67	1.73	1.47	4.71	3.06
21/07/92	222.74	2.71	0.67	5.47	0.90	1.66	0.54	4.58	3.06
22/07/92	222.36	NM	0.64	5.47	0.70	1.66	0.42	4.58	3.05
23/07/92	221.46	4.05	0.70	5.50	1.51	1.62	1.80	4.65	3.11
24/07/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
25/07/92	223.48	1.38	0.54	5.46	0.57	1.71	1.08	C	3.02
26/07/92	222.63	1.38	0.70	1.43	1.56	C	1.11	C	3.18
27/07/92	210.18	1.73	0.81	1.34	1.67	C	2.36	C	C
28/07/92	193.99	1.71	0.98	1.36	1.78	C	PC	C	C
29/07/92	187.30	1.67	0.98	1.36	C	C	PC	5.14	C
30/07/92	197.37	C	C	2.81	C	1.86	PC	4.91	PC
31/07/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
01/08/92	190.27	4.33	C	1.23	1.78	1.87	0.94	4.71	3.18
02/08/92	187.95	3.79	PC	5.46	C	2.52	1.59	C	3.15
03/08/92	189.24	3.55	PC	4.20	1.25	1.80	1.73	4.69	3.10
04/08/92	192.35	4.12	PC	4.28	1.34	1.58	2.31	4.82	3.21
05/08/92	193.53	2.10	C	5.01	1.69	1.76	2.04	4.84	3.18
06/08/92	188.16	1.88	PC	5.14	1.34	1.66	2.07	4.79	3.14
07/08/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
08/08/92	194.23	3.84	C	4.98	1.63	1.74	1.73	4.82	3.14
09/08/92	197.82	C	C	4.95	C	1.73	2.07	C	C

TABLE 2-4 (cont.)

Canal Q (Design)	Disty-4 210	1860-R 1.02	4030-L 1.58	8980-L 3.29	12860-R 0.88	16512-L 1.62	20752-R 2.02	24495-L 1.26	28448-R 2.52
DATE	Discharge in Cusecs								
10/08/92	199.15	C	C	4.92	1.69	PC	PC	4.91	3.23
11/08/92	201.12	C	C	C	1.43	C	2.01	4.87	3.17
12/08/92	190.88	1.99	C	1.08	1.40	C	1.86	4.63	3.06
13/08/92	189.11	3.63	PC	1.67	1.62	0.89	PC	4.75	3.12
14/08/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
15/08/92	185.47	1.73	PC	5.54	C	PC	1.80	4.91	3.23
16/08/92	185.47	1.71	C	5.48	C	1.79	1.59	C	3.11
17/08/92	180.74	1.62	PC	5.47	1.67	1.74	1.92	PC	3.20
18/08/92	184.15	C	PC	5.49	1.67	1.66	1.66	4.87	3.22
19/08/92	187.14	2.94	PC	C	1.51	1.81	1.73	4.90	3.23
20/08/92	186.49	1.55	PC	C	1.78	PC	C	4.94	3.26
21/08/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
22/08/92	178.37	1.78	C	5.73	1.83	C	1.95	C	3.20
23/08/92	179.23	1.77	PC	5.66	1.21	1.79	PC	4.87	3.21
24/08/92	192.85	C	0.49	5.66	1.56	1.85	1.59	4.82	PC
25/08/92	193.61	C	C	5.85	1.51	1.90	PC	4.96	PC
26/08/92	182.33	C	C	5.61	1.34	PC	1.86	4.93	PC
27/08/92	178.58	C	C	5.84	1.14	PC	1.83	4.97	3.31
28/08/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
29/08/92	184.23	1.19	PC	5.59	1.71	2.86	1.55	4.91	3.27
30/08/92	183.38	2.48	PC	5.57	0.81	2.88	PC	4.91	3.24
31/08/92	194.08	3.67	0.49	5.62	1.48	2.05	1.85	5.02	3.35
01/09/92	201.30	1.35	PC	5.68	1.40	1.99	2.12	5.04	3.39
02/09/92	198.98	1.24	C	5.70	1.67	3.29	1.59	5.02	3.38
03/09/92	183.70	1.10	C	5.68	1.43	PC	1.75	PC	PC
04/09/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
05/09/92	173.12	C	PC	C	1.81	PC	C	5.07	PC
06/09/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
07/09/92	188.34	1.82	PC	C	1.56	1.79	1.66	5.31	C
08/09/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
09/09/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
10/09/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
11/09/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
12/09/92	78.07	C	C	C	C	C	C	C	C
13/09/92	75.64	0.12	C	C	C	C	C	C	C
14/09/92	80.37	0.11	PC	C	C	C	C	C	C
15/09/92	75.92	C	0.49	C	C	C	C	C	PC
16/09/92	76.41	C	0.49	C	C	PC	C	3.89	PC
17/09/92	109.87	C	PC	C	C	0.49	C	3.84	PC
18/09/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
19/09/92	207.53	0.28	PC	C	C	0.92	C	C	PC
20/09/92	107.11	0.13	PC	C	C	0.87	C	C	PC
21/09/92	125.95	0.00	9.53	C	C	C	C	C	PC
22/09/92	108.48	C	C	C	C	C	C	C	C
23/09/92	95.20	C	PC	C	C	C	C	C	C
24/09/92	130.68	1.10	C	C	C	1.09	C	C	C
25/09/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
26/09/92	112.21	0.38	PC	C	C	PC	0.80	4.50	PC
27/09/92	119.93	C	PC	C	C	PC	0.54	4.48	PC
28/09/92	121.31	C	PC	C	C	C	C	C	PC
29/09/92	117.60	C	PC	C	C	C	C	C	PC
30/09/92	138.44	C	PC	C	C	PC	1.08	PC	C
01/10/92	114.90	C	C	C	C	PC	0.80	C	C
02/10/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
03/10/92	142.20	C	PC	3.15	1.14	PC	C	C	C

**TABLE 2-4 (cont.)**

<b>Canal Q (Design)</b>	<b>Disty-4 210</b>	<b>1880-R 1.02</b>	<b>4030-L 1.58</b>	<b>8980-L 3.29</b>	<b>12880-R 0.88</b>	<b>16512-L 1.82</b>	<b>20752-R 2.02</b>	<b>24495-L 1.26</b>	<b>28448-R 2.52</b>
<b>DATE</b>	<b>Discharge in Cusecs</b>								
04/10/92	137.58	C	C	C	C	PC	C	C	C
05/10/92	218.97	C	C	1.66	PC	C	PC	C	PC
06/10/92	119.85	C	C	2.42	PC	PC	PC	C	PC
07/10/92	130.81	C	C	3.83	PC	PC	C	C	C
08/10/92	118.63	C	C	3.68	C	PC	C	C	C
09/10/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
10/10/92	147.59	C	C	3.65	PC	C	PC	C	C
11/10/92	142.99	C	C	1.25	PC	C	PC	C	C
12/10/92	199.99	C	C	1.27	PC	PC	C	C	PC
13/10/92	132.89	C	C	5.59	PC	C	C	C	PC
14/10/92	133.32	C	C	5.83	PC	PC	PC	PC	PC
15/10/92	126.33	C	C	5.53	C	PC	PC	PC	PC
16/10/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
17/10/92	143.70	C	C	5.54	PC	C	PC	PC	PC
18/10/92	144.55	C	C	5.64	PC	C	1.00	PC	PC
19/10/92	127.17	C	C	5.48	C	1.37	C	PC	3.04
20/10/92	142.05	C	C	6.14	1.40	1.55	1.11	4.97	PC
21/10/92	137.90	1.86	C	1.06	1.14	1.43	1.06	4.92	PC
22/10/92	138.47	1.93	C	1.05	1.28	1.42	0.94	4.84	3.22
23/10/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
24/10/92	143.58	1.47	C	5.22	1.28	1.32	1.06	4.94	C
25/10/92	138.34	1.69	C	5.08	PC	C	C	4.81	PC
26/10/92	148.54	1.46	2.73	5.11	PC	1.24	PC	4.74	PC
27/10/92	144.80	NM	PC	5.11	1.46	1.42	0.80	4.69	3.12
28/10/92	145.34	C	C	5.38	1.40	1.25	C	4.78	PC
29/10/92	139.56	1.60	PC	5.29	1.56	1.43	1.35	4.81	C
30/10/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
31/10/92	146.30	C	C	5.22	1.71	1.44	2.25	4.91	PC
01/11/92	147.67	1.03	2.75	3.65	0.90	1.68	0.24	4.75	3.18
02/11/92	138.04	0.77	PC	1.79	1.07	1.62	1.35	4.74	3.18
03/11/92	129.51	1.86	2.70	5.93	1.21	1.58	1.39	4.81	3.25
04/11/92	131.87	3.77	2.70	4.19	1.28	1.77	1.62	PC	PC
05/11/92	135.10	1.16	2.68	1.57	0.99	1.73	PC	4.81	C
06/11/92	129.31	0.70	2.66	C	0.29	1.53	1.95	4.89	PC
07/11/92	130.95	2.06	2.63	C	0.99	1.43	1.26	4.91	PC
08/11/92	133.97	1.99	C	1.78	1.34	1.45	1.39	4.96	PC
09/11/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
10/11/92	134.96	3.55	2.72	C	1.28	1.46	C	C	PC
11/11/92	135.56	3.62	C	3.47	1.25	1.47	1.43	PC	PC
12/11/92	128.63	C	C	C	1.67	C	PC	PC	C
13/11/92	121.17	C	C	C	1.14	1.46	C	PC	C
14/11/92	142.99	C	C	C	1.21	1.49	C	PC	PC
15/11/92	136.55	C	C	C	1.34	C	C	5.08	C
16/11/92	140.08	C	C	1.70	1.40	1.76	C	5.11	C
17/11/92	129.71	C	C	0.74	1.21	C	C	5.07	C
18/11/92	135.15	C	C	1.72	C	PC	C	5.05	C
19/11/92	126.28	C	C	0.31	C	PC	C	NM	NM
20/11/92	116.58	C	C	0.31	C	C	C	PC	C
21/11/92	117.49	C	C	C	C	C	C	4.91	C
22/11/92	131.43	C	C	C	C	C	C	PC	C
23/11/92	120.40	C	C	C	C	C	C	PC	C
24/11/92	101.56	C	C	2.25	C	C	C	PC	C
25/11/92	116.68	C	C	2.23	C	C	C	4.74	C
26/11/92	119.55	C	PC	2.25	1.21	C	1.89	4.87	PC
27/11/92	120.03	C	PC	3.31	1.21	C	C	4.81	PC

TABLE 2-4 (cont.)

Canal Q (Design)	Disty-4 210	1860-R 1.02	4030-L 1.58	8980-L 3.29	12860-R 0.88	16512-L 1.62	20752-R 2.02	24495-L 1.26	28448-R 2.52
DATE	Discharge in Cusecs								
28/11/92	120.03	C	C	C	C	C	C	4.82	C
29/11/92	115.40	C	C	C	C	C	C	4.91	C
30/11/92	109.11	2.04	C	5.21	C	C	PC	4.71	C
01/12/92	109.26	1.37	C	C	1.11	C	C	4.74	C
02/12/92	109.26	0.86	C	C	PC	PC	1.47	4.72	3.04
03/12/92	110.04	C	C	3.83	PC	C	0.94	PC	2.95
04/12/92	111.95	C	C	C	C	C	1.62	PC	2.94
05/12/92	107.58	C	C	0.00	C	C	1.47	4.61	2.95
06/12/92	110.19	C	C	0.58	1.07	C	0.73	PC	C
07/12/92	108.13	C	C	C	0.99	C	C	PC	C
08/12/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
09/12/92	111.36	0.89	C	C	C	C	C	PC	PC
10/12/92	113.73	C	C	C	0.81	1.57	C	PC	PC
11/12/92	NM	NM	NM	NM	NM	NM	NM	NM	NM
12/12/92	103.01	1.99	C	0.77	0.66	C	C	PC	PC
13/12/92	100.41	C	C	C	C	1.51	C	4.53	C
14/12/92	98.64	C	C	C	C	1.45	1.26	PC	C
15/12/92	108.30	C	2.41	C	C	C	C	PC	C
16/12/92	105.56	C	C	C	C	C	1.06	4.59	C
17/12/92	102.20	0.79	C	C	C	PC	1.76	4.70	C
18/12/92	110.77	1.33	2.48	0.74	0.64	C	0.64	PC	2.93
19/12/92	106.11	C	2.47	0.74	0.76	PC	1.21	PC	2.93
20/12/92	111.09	C	2.64	0.76	0.81	PC	2.01	PC	3.23
21/12/92	103.18	C	2.56	3.43	0.40	PC	0.80	PC	PC
22/12/92	118.40	C	C	C	C	2.08	C	4.65	C
23/12/92	115.43	C	PC	C	0.64	1.67	C	4.78	3.07
24/12/92	121.66	C	C	C	0.90	C	1.47	4.89	PC
25/12/92	123.27	C	C	C	0.64	C	0.60	6.03	3.06
26/12/92	116.47	2.65	PC	0.71	0.90	1.65	1.39	4.66	C
27/12/92	123.14	C	2.59	2.95	0.64	C	0.42	4.56	C
28/12/92	124.53	2.69	C	2.98	0.76	PC	0.24	4.56	C
29/12/92	121.97	2.71	2.60	4.65	0.40	C	1.59	4.74	3.07
30/12/92	116.64	0.41	PC	4.36	0.57	1.96	1.30	4.58	PC
31/12/92	127.89	C	PC	4.47	0.81	C	C	4.77	C
01/01/93	146.54	C	C	3.29	0.99	C	1.55	C	3.12
02/01/93	142.86	1.87	C	2.01	1.71	1.62	0.80	C	PC
03/01/93	141.69	2.05	PC	1.98	0.70	1.52	1.16	PC	PC
04/01/93	143.97	1.40	C	0.62	0.90	1.60	1.26	4.54	PC
05/01/93	141.19	C	C	C	1.34	1.55	PC	PC	PC
06/01/93	134.39	1.26	C	4.33	0.81	1.34	1.30	PC	PC
07/01/93	136.18	C	PC	2.16	1.67	1.36	1.41	4.55	PC
08/01/93	131.77	C	C	4.85	0.70	1.64	1.16	PC	3.07
09/01/93	145.83	C	C	1.69	0.90	1.62	PC	4.55	3.04
10/01/93	138.06	3.82	C	1.68	0.81	1.58	0.94	4.53	3.04
11/01/93	132.84	2.84	C	3.25	0.70	1.35	0.94	PC	3.06
12/01/93	121.03	C	C	3.58	0.81	1.34	0.94	PC	3.03
13/01/93	122.40	0.41	C	3.34	0.70	1.51	0.64	PC	2.98
14/01/93	125.10	1.10	C	3.31	0.90	1.20	0.42	PC	2.80
15/01/93				ANNUAL CLOSURE					
to				ANNUAL CLOSURE					
19/02/93				ANNUAL CLOSURE					
20/02/93	53.91	0.31	2.66	3.19	0.00	0.00	0.00	0.00	0.00
21/02/93	134.33	3.08	PC	5.49	1.31	2.04	1.00	4.30	2.80
22/02/93	113.87	2.79	4.13	4.74	1.28	0.90	0.24	3.81	2.37
23/02/93	126.46	3.04	4.44	4.89	1.40	1.52	1.06	4.21	2.74

TABLE 2-4 (cont.)

Canal Q (Design)	Disty-4 210	1860-R 1.02	4030-L 1.58	8980-L 3.29	12860-R 0.88	16512-L 1.62	20752-R 2.02	24495-L 1.26	28448-R 2.52
DATE	Discharge in Cusecs								
24/02/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
25/02/93	138.19	1.45	4.81	5.17	1.51	PC	1.86	4.54	3.02
26/02/93	141.40	3.96	4.84	5.30	1.56	2.44	1.83	4.51	2.93
27/02/93	139.65	1.75	4.81	4.47	2.02	1.65	1.73	4.46	2.88
28/02/93	140.73	2.08	4.75	4.87	1.37	1.67	1.16	4.58	3.02
01/03/93	145.27	C	PC	5.47	1.62	1.55	PC	4.54	3.00
02/03/93	144.92	C	PC	4.34	1.76	1.74	1.83	4.69	3.11
03/03/93	139.13	C	PC	4.42	1.74	1.73	2.66	C	3.25
04/03/93	153.06	C	PC	4.02	2.10	1.85	2.73	4.91	3.43
05/03/93	156.04	C	PC	4.03	C	1.81	2.53	4.82	3.33
06/03/93	159.56	C	PC	4.33	2.02	1.88	2.73	4.96	3.47
07/03/93	151.25	C	PC	2.30	2.02	1.96	C	4.98	C
08/03/93	159.25	C	C	5.41	1.85	1.93	C	5.03	C
09/03/93	145.58	C	PC	5.55	C	1.86	C	4.92	C
10/03/93	132.63	C	C	5.63	1.89	C	2.75	4.91	PC
11/03/93	129.72	C	C	5.48	C	C	C	PC	C
12/03/93	145.78	C	C	2.00	C	C	PC	PC	PC
13/03/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
14/03/93	96.98	C	C	C	C	C	C	PC	PC
15/03/93	96.11	C	C	C	C	C	C	C	PC
16/03/93	NM	NM	C	C	C	C	C	C	C
17/03/93	NM	NM	C	C	C	C	C	C	C
18/03/93	NM	NM	C	C	C	C	C	C	C
19/03/93	NM	NM	C	C	C	C	C	C	C
20/03/93	101.92	C	C	C	C	C	PC	C	C
21/03/93	96.15	C	PC	C	1.56	PC	C	C	C
22/03/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
23/03/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
24/03/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
25/03/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
26/03/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
27/03/93	103.36	1.08	C	5.78	C	C	C	C	C
28/03/93	101.45	C	C	3.63	1.56	C	0.80	C	2.85
29/03/93	98.73	1.29	PC	3.88	1.28	C	1.35	PC	2.74
30/03/93	138.98	3.10	PC	3.77	1.76	1.77	1.59	PC	3.08
31/03/93	132.95	3.14	PC	3.82	1.51	2.58	1.11	PC	2.99
01/04/93	143.69	2.57	PC	4.61	1.62	1.86	0.73	4.43	3.00
02/04/93	144.26	8.01	C	4.64	1.56	2.56	0.97	4.45	3.00
03/04/93	144.56	C	PC	4.64	1.07	1.59	0.94	PC	3.02
04/04/93	153.39	C	PC	4.95	1.67	2.00	2.26	PC	PC
05/04/93	156.14	C	PC	5.01	1.76	2.00	PC	4.89	3.43
06/04/93	150.88	C	PC	4.81	PC	1.84	2.15	PC	PC
07/04/93	154.99	C	C	4.85	1.67	1.72	1.92	4.88	C
08/04/93	155.76	C	PC	1.77	1.71	1.74	2.60	PC	PC
09/04/93	159.75	C	C	3.21	PC	1.80	2.23	4.89	3.40
10/04/93	159.18	C	C	5.76	1.94	1.81	PC	5.02	PC
11/04/93	170.05	C	C	4.72	1.67	C	C	4.98	C
12/04/93	145.27	C	C	4.73	1.56	C	1.43	PC	C
13/04/93	148.10	0.88	C	3.51	C	C	1.59	4.83	C
14/04/93	138.04	C	C	1.57	C	C	C	PC	C
15/04/93	135.39	C	C	1.46	1.81	C	C	PC	C
16/04/93	139.81	C	C	1.46	C	C	C	PC	C
17/04/93	135.46	C	C	C	C	C	PC	PC	C
18/04/93	141.68	C	C	C	C	C	C	PC	C
19/04/93	137.68	C	C	1.08	1.89	C	C	C	PC

TABLE 2-4 (cont.)

Canal Q (Design)	Disty-4 210	1860-R 1.02	4030-L 1.58	8980-L 3.29	12860-R 0.88	16512-L 1.62	20752-R 2.02	24495-L 1.26	28448-R 2.52
DATE	Discharge in Cusecs								
20/04/93	138.13	C	4.53	1.08	C	PC	PC	C	3.40
21/04/93	133.21	C	C	2.16	PC	PC	1.70	PC	PC
22/04/93	136.41	C	C	0.37	C	PC	1.73	PC	C
23/04/93	132.54	0.60	C	4.58	0.90	PC	0.54	C	C
24/04/93	139.52	1.03	C	4.62	PC	PC	PC	4.77	3.29
25/04/93	159.56	C	C	4.51	PC	PC	PC	4.73	3.27
26/04/93	131.51	C	PC	3.17	PC	C	1.30	PC	3.25
27/04/93	134.74	C	4.45	2.10	C	PC	1.95	PC	3.39
28/04/93	139.44	C	C	3.84	PC	1.68	1.47	PC	PC
29/04/93	124.03	C	C	3.90	1.07	1.84	2.01	PC	C
30/04/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
01/05/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
02/05/93	137.05	C	C	3.20	PC	PC	C	PC	C
03/05/93	140.71	1.55	C	0.64	1.51	PC	PC	4.66	PC
04/05/93	136.75	1.28	4.48	0.75	0.99	PC	PC	PC	C
05/05/93	137.28	C	4.47	1.16	C	PC	PC	PC	C
06/05/93	135.26	C	4.48	3.52	1.56	PC	1.39	PC	C
07/05/93	138.56	C	PC	3.75	1.56	PC	1.26	PC	PC
08/05/93	133.48	C	4.55	3.64	PC	PC	1.30	PC	C
09/05/93	133.98	1.40	4.53	3.62	0.81	2.65	C	PC	PC
10/05/93	134.79	C	4.34	3.76	1.46	PC	PC	PC	3.25
11/05/93	132.29	C	4.30	3.72	1.34	1.50	1.21	PC	C
12/05/93	135.59	C	4.35	3.77	1.56	PC	0.87	PC	C
13/05/93	132.79	2.19	4.30	3.73	1.21	PC	1.55	PC	C
14/05/93	137.25	1.60	4.30	3.64	PC	1.63	C	PC	PC
15/05/93	135.35	C	4.40	3.70	PC	1.54	1.26	PC	3.25
16/05/93	44.85	0.19	2.98	3.15	C	C	C	PC	PC
17/05/93	79.24	2.10	3.52	2.23	1.14	PC	C	C	2.90
18/05/93	102.99	2.94	3.88	2.93	C	C	0.73	PC	2.69
19/05/93	127.75	3.59	4.25	3.44	C	PC	0.73	PC	PC
20/05/93	147.52	3.77	C	3.47	1.51	C	3.11	PC	3.42
21/05/93	149.02	C	C	3.48	0.90	2.38	PC	PC	C
22/05/93	145.58	2.38	C	C	1.21	1.55	PC	PC	PC
23/05/93	149.14	3.64	4.45	3.30	1.07	2.13	C	PC	C
24/05/93	143.02	2.65	4.46	4.12	C	1.73	2.41	PC	PC
25/05/93	160.48	3.88	4.39	4.45	0.95	2.01	PC	PC	3.38
26/05/93	162.19	0.70	4.12	4.38	1.14	PC	PC	PC	PC
27/05/93	161.08	3.61	PC	4.50	1.21	1.72	1.00	PC	PC
28/05/93	161.08	C	PC	4.50	1.40	PC	1.26	PC	3.11
29/05/93	164.64	C	PC	4.80	1.85	PC	1.21	PC	3.24
30/05/93	195.66	C	PC	4.28	C	1.66	2.12	PC	PC
31/05/93	200.32	C	4.37	2.59	0.81	PC	PC	PC	3.30
01/06/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
02/06/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
03/06/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
04/06/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
05/06/93	191.75	C	PC	5.37	2.14	PC	1.66	PC	3.18
06/06/93	199.06	C	4.12	5.36	1.76	PC	1.66	PC	3.23
07/06/93	191.89	4.20	4.25	4.78	1.46	1.55	1.55	4.77	2.99
08/06/93	204.19	C	4.32	2.92	PC	1.66	1.73	4.67	3.08
09/06/93	196.94	C	C	5.47	1.25	2.46	1.55	4.62	3.06
10/06/93	205.54	3.71	4.19	5.63	1.56	1.85	1.86	4.80	3.21
11/06/93	228.07	3.65	PC	5.72	1.34	PC	1.73	4.84	3.22
12/06/93	238.30	3.94	4.38	5.62	1.67	2.00	1.66	4.80	3.22
13/06/93	233.98	3.75	3.76	5.64	1.46	1.85	1.98	4.90	3.30

TABLE 2-4 (cont.)

Canal Q (Design)	Disty-4 210	1860-R 1.02	4030-L 1.58	8980-L 3.29	12860-R 0.88	16512-L 1.62	20752-R 2.02	24495-L 1.26	28448-R 2.52
DATE	Discharge in Cusecs								
14/06/93	234.06	3.69	4.04	5.83	1.71	1.76	2.85	4.96	3.31
15/06/93	243.63	3.73	4.16	5.75	1.40	2.03	2.98	4.94	3.32
16/06/93	232.01	3.81	3.88	5.78	1.40	2.06	2.79	4.87	3.32
17/06/93	229.81	2.94	PC	5.78	1.40	1.99	1.86	4.90	3.34
18/06/93	240.78	3.31	4.06	5.71	1.34	1.96	1.83	4.85	3.23
19/06/93	248.37	3.67	4.02	5.68	PC	2.98	1.82	4.80	3.27
20/06/93	242.03	4.04	4.21	5.81	1.81	2.01	1.76	4.93	3.35
21/06/93	230.16	3.41	4.17	5.77	1.67	1.75	2.88	4.91	3.32
22/06/93	245.91	3.75	4.30	5.81	1.78	3.49	2.07	4.98	3.42
23/06/93	236.72	3.67	4.22	5.88	1.40	2.20	2.15	4.94	3.41
24/06/93	228.01	3.31	4.10	5.81	1.51	2.02	1.86	4.90	3.37
25/06/93	228.84	3.39	4.18	5.81	1.48	1.98	1.98	4.89	3.29
26/06/93	240.11	3.51	4.29	5.88	2.02	4.15	3.78	5.08	3.40
27/06/93	229.09	3.29	4.17	5.82	1.94	2.05	2.23	PC	3.47
28/06/93	216.07	3.86	4.16	5.73	1.81	1.89	3.28	PC	3.42
29/06/93	228.15	2.04	4.25	5.79	1.81	1.72	2.01	PC	3.45
30/06/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
01/07/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
02/07/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
03/07/93	216.43	3.39	C	5.89	2.10	3.19	1.59	PC	3.30
04/07/93	213.97	3.19	4.19	5.77	1.62	1.95	1.73	PC	3.38
05/07/93	227.51	3.15	PC	5.80	1.81	1.87	1.95	C	3.34
06/07/93	239.36	3.65	PC	5.84	2.14	1.74	1.66	PC	3.43
07/07/93	226.87	3.79	4.08	5.78	2.08	1.68	1.86	4.98	3.45
08/07/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
09/07/93	197.09	3.04	3.77	C	1.67	PC	C	PC	PC
10/07/93	193.10	2.96	C	C	1.81	1.73	2.04	5.13	3.59
11/07/93	200.49	2.92	C	5.67	1.34	2.03	C	5.02	3.51
12/07/93	183.59	2.83	3.80	5.48	1.25	1.27	C	3.66	2.08
13/07/93	180.33	2.44	3.50	5.28	1.21	1.26	C	4.26	2.73
14/07/93	184.12	3.63	4.02	2.97	1.48	1.68	4.39	4.67	3.32
15/07/93	238.98	3.39	4.19	3.00	1.34	1.61	1.43	4.87	3.29
16/07/93	240.32	3.39	C	5.60	1.51	1.75	2.01	5.11	3.53
17/07/93	234.48	3.39	C	5.49	2.14	2.21	2.21	PC	PC
18/07/93	243.13	3.31	PC	5.56	1.71	PC	1.92	PC	3.50
19/07/93	214.42	2.94	4.08	1.00	1.56	1.69	1.35	4.82	3.32
20/07/93	214.77	2.86	3.98	4.96	0.81	PC	1.26	4.79	3.26
21/07/93	209.69	2.84	3.98	C	1.21	1.73	1.00	4.69	3.16
22/07/93	227.18	3.23	C	4.16	1.14	1.80	1.43	C	3.46
23/07/93	217.38	3.02	C	4.41	1.07	C	1.51	C	C
24/07/93	190.49	2.46	C	C	C	C	1.26	C	C
25/07/93	169.54	2.08	C	C	C	C	C	C	C
26/07/93	177.50	2.18	PC	C	0.70	1.87	PC	C	PC
27/07/93	173.68	3.75	4.22	C	0.90	C	0.68	4.61	3.06
28/07/93	192.99	3.55	PC	C	0.81	C	0.80	4.61	3.00
29/07/93	187.19	3.43	4.27	1.70	0.57	1.49	C	4.50	2.92
30/07/93	190.54	3.42	4.35	5.21	0.81	1.63	1.11	4.62	3.03
31/07/93	189.51	3.63	C	3.24	1.07	1.92	C	4.46	2.85
01/08/93	230.81	2.46	4.38	3.42	0.90	1.86	0.73	4.79	3.13
02/08/93	220.99	1.80	4.16	3.34	1.21	1.70	0.73	4.76	3.01
03/08/93	230.81	3.29	PC	3.43	1.40	1.80	0.80	4.71	3.08
04/08/93	226.75	2.59	C	5.78	0.81	1.93	0.94	PC	3.25
05/08/93	222.11	2.59	3.97	5.74	1.46	2.02	1.00	PC	3.22
06/08/93	226.33	2.94	PC	5.05	1.98	2.01	0.87	PC	3.25
07/08/93	239.23	2.81	C	5.24	1.85	2.34	C	4.94	3.29

TABLE 2-4 (cont.)

Canal Q (Design)	Diety-4 210	1880-R 1.02	4030-L 1.58	8980-L 3.29	12880-R 0.88	16512-L 1.62	20752-R 2.02	24495-L 1.26	28448-R 2.52
DATE	Discharge in Cusecs								
08/08/93	242.11	2.82	PC	4.09	1.81	1.94	1.92	PC	3.32
09/08/93	227.18	2.71	PC	4.10	2.06	1.73	2.34	PC	3.33
10/08/93	239.83	2.56	4.12	3.92	2.06	1.69	2.26	PC	3.05
11/08/93	245.81	2.69	4.08	3.92	2.06	1.74	2.36	PC	3.32
12/08/93	246.23	2.84	4.91	3.82	1.51	C	2.21	PC	3.38
13/08/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
14/08/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
15/08/93	235.83	2.98	4.92	4.58	1.46	1.94	2.04	PC	3.28
16/08/93	209.98	3.04	C	4.81	1.81	1.86	1.76	PC	PC
17/08/93	203.28	2.57	4.16	4.81	1.56	1.81	2.69	5.04	3.43
18/08/93	204.97	2.52	4.13	4.72	1.78	1.71	2.55	PC	3.39
19/08/93	214.71	2.77	PC	4.67	1.71	PC	2.28	PC	3.44
20/08/93	208.94	1.75	4.14	4.67	1.58	1.73	C	PC	PC
21/08/93	208.76	2.46	4.18	4.61	C	2.11	2.28	PC	3.49
22/08/93	205.58	2.34	4.15	4.84	1.71	PC	2.41	PC	3.52
23/08/93	213.31	2.85	4.25	4.87	1.81	1.87	2.79	PC	3.47
24/08/93	210.58	2.84	4.19	4.72	1.34	C	PC	PC	PC
25/08/93	208.88	2.77	4.14	4.81	1.51	1.87	2.41	PC	PC
26/08/93	205.22	3.84	4.10	4.55	1.34	1.86	PC	C	3.33
27/08/93	204.88	1.19	4.07	4.52	1.07	1.91	PC	C	3.35
28/08/93	200.01	2.06	4.10	4.80	1.28	PC	2.34	C	PC
29/08/93	203.29	2.23	4.12	3.80	0.90	1.75	PC	PC	PC
30/08/93	230.04	2.08	4.09	3.91	0.76	1.34	PC	PC	3.39
31/08/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
01/09/93	198.52	0.84	4.24	3.58	0.40	C	2.26	PC	3.45
02/09/93	204.97	2.22	PC	3.82	1.40	C	C	PC	PC
03/09/93	208.85	C	PC	3.81	1.07	1.91	2.31	PC	3.59
04/09/93	203.15	C	4.12	3.57	1.67	1.82	PC	C	3.64
05/09/93	202.70	2.81	4.23	3.82	1.28	C	C	C	C
06/09/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
07/09/93	197.44	C	4.08	3.53	1.14	1.72	1.95	PC	3.52
08/09/93	205.76	C	4.04	3.53	1.87	PC	PC	PC	PC
09/09/93	194.49	0.57	4.09	3.55	1.48	C	C	C	C
10/09/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
11/09/93	NM	NM	NM	NM	NM	NM	NM	NM	NM
12/09/93	177.31	C	3.89	3.82	C	C	1.35	C	3.44
13/09/93	182.85	C	C	3.82	PC	C	C	C	PC
14/09/93	179.50	C	C	3.82	0.99	C	C	C	3.62
15/09/93	185.74	C	4.02	0.86	0.99	C	1.98	C	C
16/09/93	188.75	C	C	0.86	C	C	C	C	C
17/09/93	179.14	C	PC	C	C	C	C	C	3.58
18/09/93	178.33	C	3.76	C	0.70	PC	C	C	PC
19/09/93	171.02	C	3.70	C	0.70	PC	1.80	C	PC
20/09/93	180.33	C	3.76	C	0.80	C	1.86	C	C
21/09/93	175.77	C	3.77	3.26	C	C	PC	C	C
22/09/93	171.02	C	PC	3.15	1.07	C	C	C	3.46
23/09/93	175.72	C	C	3.18	1.21	C	C	PC	PC
24/09/93	183.53	C	C	3.32	0.70	C	C	PC	3.39
25/09/93	150.28	C	C	3.17	0.57	C	1.76	PC	C
26/09/93	158.72	C	C	3.03	0.90	PC	C	C	C
27/09/93	148.17	C	C	2.47	0.90	C	C	C	3.59
28/09/93	149.37	C	PC	1.29	1.14	C	1.59	C	3.50
29/09/93	152.77	C	C	C	0.99	C	PC	C	PC
30/09/93	152.77	C	C	4.03	0.49	C	C	C	PC
01/10/93	155.41	3.53	PC	4.31	C	C	C	C	3.50



TABLE 2-4 (cont.)

Canal Q (Design)	Disty-4 210	1860-R 1.02	4030-L 1.58	8980-L 3.29	12860-R 0.88	16512-L 1.62	20752-R 2.02	24495-L 1.26	28448-R 2.52
DATE	Discharge in Cusecs								
02/10/93	153.01	3.27	C	4.29	0.81	C	2.23	PC	3.47
03/10/93	153.79	4.02	C	4.28	C	1.84	C	C	3.35
04/10/93	151.20	3.17	PC	4.24	C	C	PC	C	C
05/10/93	144.65	C	C	1.57	C	C	C	PC	3.33
06/10/93	150.41	C	PC	2.03	PC	C	C	PC	C
07/10/93	153.26	C	PC	2.16	C	C	2.69	4.85	C
08/10/93	150.81	C	C	2.02	PC	C	1.06	4.82	3.35
09/10/93	152.87	C	C	1.76	1.07	C	C	4.85	3.35
10/10/93	151.99	3.21	3.95	3.03	0.70	C	PC	4.79	C
11/10/93	147.11	4.02	C	2.94	C	C	2.83	4.76	3.29
12/10/93	150.81	3.23	C	2.95	0.81	C	1.11	PC	3.20
13/10/93	164.74	3.14	C	3.15	0.64	1.71	1.62	PC	3.23
14/10/93	152.83	1.99	PC	3.10	0.78	PC	PC	PC	3.16
15/10/93	160.07	2.46	C	3.04	0.78	PC	1.66	PC	PC
16/10/93	165.39	1.22	C	2.90	0.90	1.61	0.80	PC	3.25
17/10/93	161.40	C	C	2.97	0.70	1.45	0.87	4.74	3.20
18/10/93	155.47	C	PC	3.00	0.90	1.51	1.26	PC	PC
19/10/93	161.23	C	PC	2.74	0.90	1.45	1.30	4.79	3.22
20/10/93	158.63	C	PC	2.75	0.90	1.23	1.70	4.83	3.27
21/10/93	171.87	1.71	PC	2.15	0.40	C	1.47	PC	PC
22/10/93	172.03	2.29	3.55	2.63	0.57	PC	1.47	PC	3.29
23/10/93	173.52	1.53	3.85	2.40	1.81	1.76	0.64	PC	3.26
24/10/93	173.77	C	3.92	2.58	0.40	1.76	C	PC	3.25
25/10/93	168.70	C	PC	5.95	0.90	PC	1.35	4.71	3.22
26/10/93	169.80	C	PC	3.72	1.14	PC	1.43	4.79	3.32
27/10/93	168.70	C	PC	2.89	0.70	PC	1.39	PC	3.32
28/10/93	169.54	C	PC	4.12	0.57	C	1.55	C	3.25
29/10/93	169.80	C	C	3.13	1.07	1.61	1.43	C	3.24
30/10/93	163.04	C	PC	3.20	1.94	C	1.70	C	3.36
31/10/93	173.36	C	PC	3.22	0.90	C	1.66	C	3.36

Terminology Used:

NM = Not Measured (Mainly Fridays & Holidays)

C = Closed

PC = Partially Closed

**TABLE 2-5 DAILY DISCHARGES GIRSAL MINOR & ITS SAMPLE WATERCOURSES (CUSECS)**

Canal Q (Design)	Girsal Minor 38	5767-L 0.94	13526-R 2.22	21516-L 0.87	29850-TAIL 1.32
DATE	Discharges in Cusecs				
01/01/92	NM	NM	NM	NM	NM
02/01/92	31.6	NM	NM	NM	0.79
03/01/92	NM	NM	NM	NM	NM
04/01/92	20.8	NM	NM	NM	NM
05/01/92	20.8	NM	NM	NM	0.37
06/01/92	20.1	NM	NM	NM	0.65
07/01/92	17.9	NM	NM	NM	0.35
08/01/92	16.4	NM	NM	NM	0.26
09/01/92	14.6	NM	NM	NM	0.52
10/01/92	NM	NM	NM	NM	NM
11/01/92	13.2	NM	NM	NM	C
12/01/92	17.3	1.58	4.10	C	C
13/01/92	22.9	1.72	5.10	C	C
14/01/92	24.1	1.40	4.97	2.14	0.64
15/01/92	28.8	3.09	5.08	C	1.15
16/01/92	13.2	1.39	3.13	1.83	0.71
17/01/92	An-C	An-C	An-C	An-C	An-C
18/01/92	An-C	An-C	An-C	An-C	An-C
19/01/92	An-C	An-C	An-C	An-C	An-C
20/01/92	An-C	An-C	An-C	An-C	An-C
21/01/92	An-C	An-C	An-C	An-C	An-C
22/01/92	An-C	An-C	An-C	An-C	An-C
23/01/92	An-C	An-C	An-C	An-C	An-C
24/01/92	An-C	An-C	An-C	An-C	An-C
25/01/92	An-C	An-C	An-C	An-C	An-C
26/01/92	An-C	An-C	An-C	An-C	An-C
27/01/92	An-C	An-C	An-C	An-C	An-C
28/01/92	An-C	An-C	An-C	An-C	An-C
29/01/92	An-C	An-C	An-C	An-C	An-C
30/01/92	An-C	An-C	An-C	An-C	An-C
31/01/92	An-C	An-C	An-C	An-C	An-C
01/02/92	An-C	An-C	An-C	An-C	An-C
02/02/92	An-C	An-C	An-C	An-C	An-C
03/02/92	An-C	An-C	An-C	An-C	An-C
04/02/92	An-C	An-C	An-C	An-C	An-C
05/02/92	An-C	An-C	An-C	An-C	An-C
06/02/92	An-C	An-C	An-C	An-C	An-C
07/02/92	An-C	An-C	An-C	An-C	An-C
08/02/92	An-C	An-C	An-C	An-C	An-C
09/02/92	An-C	An-C	An-C	An-C	An-C
10/02/92	An-C	An-C	An-C	An-C	An-C
11/02/92	An-C	An-C	An-C	An-C	An-C
12/02/92	An-C	An-C	An-C	An-C	An-C
13/02/92	An-C	An-C	An-C	An-C	An-C
14/02/92	An-C	An-C	An-C	An-C	An-C
15/02/92	An-C	An-C	An-C	An-C	An-C
16/02/92	An-C	An-C	An-C	An-C	An-C
17/02/92	An-C	An-C	An-C	An-C	An-C
18/02/92	An-C	An-C	An-C	An-C	An-C
19/02/92	An-C	An-C	An-C	An-C	An-C
20/02/92	An-C	An-C	An-C	An-C	An-C

**TABLE 2-5 (cont.)**

<b>Canal Q (Design)</b>	<b>Girsa Minor 36</b>	<b>5747-L 0.94</b>	<b>13526-R 2.22</b>	<b>21516-L 0.87</b>	<b>29650-TAIL 1.32</b>
<b>DATE</b>					
<b>Discharges in Cusecs</b>					
21/02/92	An-C	An-C	An-C	An-C	An-C
22/02/92	An-C	An-C	An-C	An-C	An-C
23/02/92	An-C	An-C	An-C	An-C	An-C
24/02/92	An-C	An-C	An-C	An-C	An-C
25/02/92	An-C	An-C	An-C	An-C	An-C
26/02/92	An-C	An-C	An-C	An-C	An-C
27/02/92	0.0	An-C	An-C	An-C	An-C
28/02/92	0.0	An-C	An-C	An-C	An-C
29/02/92	17.3	1.29	2.57	C	0.18
01/03/92	15.9	1.46	2.33	C	C
02/03/92	19.4	1.35	2.21	1.26	0.14
03/03/92	18.7	1.17	2.51	0.97	0.14
04/03/92	23.5	1.27	3.11	1.36	0.46
05/03/92	23.6	1.25	3.17	1.74	0.13
06/03/92	NM	NM	NM	NM	NM
07/03/92	31.2	2.24	3.98	1.79	0.34
08/03/92	33.0	1.79	4.46	2.20	0.28
09/03/92	33.2	2.74	4.30	2.11	0.22
10/03/92	27.6	1.67	3.96	1.88	0.08
11/03/92	16.8	1.19	2.53	1.09	0.07
12/03/92	16.7	1.17	2.45	1.27	C
13/03/92	NM	NM	NM	NM	NM
14/03/92	28.8	1.59	4.12	C	0.73
15/03/92	29.0	1.85	4.20	2.17	0.14
16/03/92	33.6	1.88	4.32	2.40	1.00
17/03/92	35.0	1.77	4.69	2.57	C
18/03/92	24.1	1.44	3.33	1.82	C
19/03/92	22.1	1.31	3.31	1.67	0.31
20/03/92	NM	NM	NM	NM	NM
21/03/92	27.6	1.85	3.96	C	C
22/03/92	26.2	C	PC	C	0.59
23/03/92	NM	NM	NM	NM	NM
24/03/92	17.8	1.24	C	C	C
25/03/92	NM	NM	NM	NM	NM
26/03/92	14.9	C	PC	C	C
27/03/92	NM	NM	NM	NM	NM
28/03/92	13.7	C	PC	C	C
29/03/92	10.9	C	C	C	C
30/03/92	13.6	C	2.39	C	C
31/03/92	12.8	0.91	C	C	C
01/04/92	11.3	0.84	1.86	1.08	C
02/04/92	9.6	1.00	PC	0.74	C
03/04/92	NM	NM	NM	NM	NM
04/04/92	NM	NM	NM	NM	NM
05/04/92	NM	NM	NM	NM	NM
06/04/92	NM	NM	NM	NM	NM
07/04/92	12.1	C	C	C	C
08/04/92	8.9	C	C	C	C
09/04/92	8.2	C	PC	C	C
10/04/92	NM	NM	NM	NM	NM
11/04/92	9.3	C	C	C	C
12/04/92	7.9	PC	C	C	C
13/04/92	7.0	2.68	PC	C	C
14/04/92	12.0	C	2.21	C	C
15/04/92	13.0	1.06	2.08	C	C

TABLE 2-5 (cont.)

Canal Q (Design)	Girsal Minor 38	5767-L 0.94	13526-R 2.22	21516-L 0.87	29650-TAIL 1.32
DATE	Discharges in Cusecs				
16/04/92	15.3	0.91	2.25	1.15	C
17/04/92	NM	NM	NM	NM	NM
18/04/92	16.0	1.05	2.87	C	C
19/04/92	16.4	1.30	2.72	C	1.49
20/04/92	14.8	1.56	3.00	C	C
21/04/92	12.8	C	C	C	C
22/04/92	13.4	C	C	C	C
23/04/92	7.9	C	1.61	C	C
24/04/92	NM	NM	NM	NM	NM
25/04/92	13.0	1.09	2.25	C	0.27
26/04/92	20.1	2.00	2.27	1.36	C
27/04/92	19.4	1.88	2.23	1.08	C
28/04/92	20.3	1.86	3.15	1.78	0.16
29/04/92	23.3	1.80	3.76	2.17	0.19
30/04/92	21.5	1.88	3.89	C	0.65
01/05/92	NM	NM	NM	NM	NM
02/05/92	17.1	1.76	2.87	1.57	0.18
03/05/92	17.8	1.24	2.38	1.08	C
04/05/92	14.1	1.94	2.47	1.37	C
05/05/92	20.3	1.42	2.94	1.33	C
06/05/92	13.8	1.00	2.24	1.03	C
07/05/92	16.8	1.20	2.71	1.04	C
08/05/92	NM	NM	NM	NM	NM
09/05/92	22.9	1.51	3.32	1.64	0.15
10/05/92	21.1	1.65	3.02	1.31	C
11/05/92	23.6	1.47	3.51	0.95	0.43
12/05/92	22.2	1.95	3.31	1.52	0.14
13/05/92	15.9	1.74	2.44	1.21	C
14/05/92	19.5	1.81	2.95	1.45	0.54
15/05/92	NM	NM	NM	NM	NM
16/05/92	21.6	1.52	3.30	PC	0.56
17/05/92	21.7	1.42	3.34	1.60	0.11
18/05/92	20.9	1.37	3.60	C	0.26
19/05/92	22.3	2.13	3.52	PC	C
20/05/92	29.9	1.91	4.32	2.34	0.19
21/05/92	28.6	2.55	4.53	2.48	0.14
22/05/92	NM	NM	NM	NM	NM
23/05/92	29.2	1.88	4.23	PC	0.09
24/05/92	29.3	1.77	4.52	2.48	C
25/05/92	29.9	2.81	3.21	PC	0.36
26/05/92	29.1	2.09	5.03	3.16	0.28
27/05/92	28.5	1.85	4.20	2.38	C
28/05/92	29.1	C	4.34	2.57	C
29/05/92	NM	NM	NM	NM	NM
30/05/92	31.1	1.94	4.72	C	0.21
31/05/92	30.8	2.50	4.47	PC	0.24
01/06/92	31.7	2.32	4.34	PC	0.31
02/06/92	29.6	1.94	4.42	PC	C
03/06/92	29.5	1.79	4.25	3.06	C
04/06/92	27.2	1.65	4.00	2.56	C
05/06/92	NM	NM	NM	NM	NM
06/06/92	27.5	1.56	3.98	PC	0.22
07/06/92	26.7	2.43	3.91	1.95	0.95
08/06/92	31.5	1.99	4.63	2.21	0.72
09/06/92	24.7	1.97	3.58	1.71	0.16

TABLE 2-5 (cont.)

Canal Q (Design)	Gisral Minor 38	5767-L 0.94	13526-R 2.22	21516-L 0.87	29850-TAIL 1.32
DATE	Discharges in Cusecs				
10/06/92	23.2	1.94	3.47	1.64	0.58
11/06/92	NM	NM	NM	NM	NM
12/06/92	NM	NM	NM	NM	NM
13/06/92	NM	NM	NM	NM	NM
14/06/92	18.7	2.21	2.95	1.41	C
15/06/92	17.7	1.06	3.04	0.75	C
16/06/92	17.1	1.67	2.63	0.73	C
17/06/92	29.7	1.97	3.00	1.02	0.26
18/06/92	30.0	1.91	3.15	1.41	0.33
19/06/92	NM	NM	NM	NM	NM
20/06/92	32.0	1.90	3.96	0.20	0.48
21/06/92	32.0	2.42	3.96	1.46	0.41
22/06/92	38.8	2.87	4.87	1.98	1.07
23/06/92	43.5	2.20	5.10	2.09	1.29
24/06/92	44.0	2.28	5.29	2.20	1.27
25/06/92	46.0	2.32	5.58	2.37	0.87
26/06/92	NM	NM	NM	NM	NM
27/06/92	40.1	2.09	5.03	1.95	1.28
28/06/92	40.4	2.59	4.74	1.88	0.53
29/06/92	44.6	3.08	5.31	2.15	2.77
30/06/92	48.0	2.41	5.61	2.40	1.32
01/07/92	36.4	2.09	4.87	1.81	0.31
02/07/92	37.0	1.67	4.47	2.18	1.39
03/07/92	NM	NM	NM	NM	NM
04/07/92	45.6	2.13	5.45	2.41	0.33
05/07/92	42.1	2.62	5.16	2.02	0.24
06/07/92	41.4	2.28	5.09	1.96	0.31
07/07/92	45.2	2.48	5.34	2.32	0.34
08/07/92	45.0	2.42	5.42	2.41	1.97
09/07/92	45.0	2.42	5.39	2.38	1.80
10/07/92	NM	NM	NM	NM	NM
11/07/92	NM	NM	NM	NM	NM
12/07/92	NM	NM	NM	NM	NM
13/07/92	42.1	2.31	5.26	2.09	1.39
14/07/92	45.2	2.17	5.42	2.26	0.71
15/07/92	41.0	2.20	5.21	2.34	1.15
16/07/92	38.0	2.09	4.47	1.82	0.96
17/07/92	NM	NM	NM	NM	NM
18/07/92	39.5	2.08	4.59	1.93	0.20
19/07/92	42.3	2.59	5.21	2.26	0.14
20/07/92	39.8	2.64	4.69	1.81	0.05
21/07/92	38.6	2.62	4.42	1.74	0.34
22/07/92	37.7	2.47	4.30	1.68	0.26
23/07/92	41.8	2.09	4.80	2.05	0.80
24/07/92	NM	NM	NM	NM	NM
25/07/92	41.6	2.14	4.77	2.01	0.69
26/07/92	40.6	3.21	4.52	2.43	0.11
27/07/92	38.1	2.19	5.26	2.89	0.91
28/07/92	38.8	2.62	4.28	1.81	1.39
29/07/92	37.0	2.29	4.15	1.82	1.21
30/07/92	33.4	1.87	4.64	2.20	0.41
31/07/92	NM	NM	NM	NM	NM
01/08/92	31.0	1.75	4.05	1.87	C
02/08/92	29.8	1.96	3.53	1.60	C
03/08/92	30.8	1.91	3.74	1.89	C

TABLE 2-5 (cont.)

Canal Q (Design)	Girsal Minor 38	5767-L 0.94	13526-R 2.22	21516-L 0.87	29650-TAIL 1.32
DATE	Discharges in Cusecs				
04/08/92	29.8	1.82	3.70	1.75	C
05/08/92	29.5	2.53	3.81	1.93	0.12
06/08/92	37.0	1.91	4.03	1.46	0.17
07/08/92	NM	NM	NM	NM	NM
08/08/92	32.0	1.72	3.93	1.65	0.44
09/08/92	33.4	1.99	3.65	1.49	0.32
10/08/92	31.0	2.00	3.42	1.52	C
11/08/92	31.7	1.85	3.47	1.41	0.12
12/08/92	40.3	1.63	4.80	2.04	0.49
13/08/92	41.9	2.09	4.80	2.18	0.57
14/08/92	NM	NM	NM	NM	NM
15/08/92	44.0	2.13	5.26	2.11	0.39
16/08/92	43.5	2.43	4.87	2.18	0.41
17/08/92	45.0	2.32	5.31	2.41	0.80
18/08/92	40.3	1.99	4.92	2.34	0.80
19/08/92	46.4	2.25	5.58	2.57	C
20/08/92	44.8	2.05	5.34	2.41	C
21/08/92	NM	NM	NM	NM	NM
22/08/92	44.4	2.03	5.45	2.44	C
23/08/92	44.6	2.33	5.29	2.38	0.26
24/08/92	45.4	2.48	5.53	2.60	1.28
25/08/92	43.5	2.13	5.50	2.41	1.06
26/08/92	43.1	2.15	5.31	2.29	0.85
27/08/92	43.3	2.09	5.13	2.34	1.12
28/08/92	NM	NM	NM	NM	NM
29/08/92	40.6	1.97	4.97	2.44	1.13
30/08/92	42.1	2.20	5.03	2.34	0.34
31/08/92	42.5	2.42	5.49	2.60	0.26
01/09/92	43.5	2.10	5.80	2.54	C
02/09/92	43.7	2.16	5.93	2.73	2.12
03/09/92	43.5	1.99	5.50	2.60	0.29
04/09/92	NM	NM	NM	NM	NM
05/09/92	33.4	1.72	4.12	2.07	0.80
06/09/92	NM	NM	NM	NM	NM
07/09/92	32.5	1.83	4.27	NM	NM
08/09/92	NM	NM	NM	NM	NM
09/09/92	NM	NM	NM	NM	NM
10/09/92	NM	NM	NM	NM	NM
11/09/92	NM	NM	NM	NM	NM
12/09/92	15.5	PC	PC	C	2.58
13/09/92	16.8	1.24	PC	C	0.16
14/09/92	17.0	1.17	PC	C	0.66
15/09/92	16.7	1.17	PC	C	0.09
16/09/92	NM	NM	NM	NM	C
17/09/92	NM	NM	NM	NM	C
18/09/92	NM	NM	NM	NM	NM
19/09/92	25.4	1.48	C	NM	C
20/09/92	21.5	1.61	C	C	0.16
21/09/92	25.2	1.76	PC	PC	0.26
22/09/92	22.2	1.35	C	C	0.21
23/09/92	24.1	1.33	3.91	C	0.37
24/09/92	27.1	1.48	C	C	0.33
25/09/92	NM	NM	NM	NM	NM
26/09/92	17.4	1.11	PC	C	0.19
27/09/92	17.7	1.17	C	C	0.19

TABLE 2-5 (cont.)

Canal Q (Design)	Girsal Minor 38	5767-L 0.94	13526-R 2.22	21516-L 0.87	29650-TAIL 1.32
DATE	Discharges in Cusecs				
28/09/92	26.5	1.68	C	C	0.28
29/09/92	22.4	1.33	C	PC	0.50
30/09/92	17.8	1.13	2.76	C	C
01/10/92	14.3	0.94	2.49	C	C
02/10/92	NM	NM	NM	NM	NM
03/10/92	13.4	0.94	2.49	1.10	C
04/10/92	13.0	1.24	2.45	1.53	C
05/10/92	19.3	1.22	3.13	PC	C
06/10/92	20.0	1.24	3.06	C	C
07/10/92	22.9	1.17	C	PC	C
08/10/92	23.4	1.44	C	PC	0.25
09/10/92	NM	NM	NM	NM	NM
10/10/92	29.6	1.44	PC	C	0.57
11/10/92	15.3	1.22	2.80	C	C
12/10/92	14.3	1.24	2.61	C	C
13/10/92	17.5	1.14	2.98	C	C
14/10/92	16.4	1.02	2.89	C	C
15/10/92	20.4	0.79	2.95	C	C
16/10/92	NM	NM	NM	NM	NM
17/10/92	18.0	1.03	3.13	C	0.24
18/10/92	19.0	1.79	3.33	1.68	0.20
19/10/92	23.8	1.50	PC	2.07	0.31
20/10/92	19.0	1.19	PC	1.54	C
21/10/92	23.5	1.31	PC	1.61	C
22/10/92	29.6	1.58	PC	C	0.71
23/10/92	NM	NM	NM	NM	NM
24/10/92	32.9	1.58	5.05	2.11	0.17
25/10/92	32.0	1.85	4.52	1.99	1.17
26/10/92	25.7	C	3.72	1.79	0.45
27/10/92	30.8	2.13	4.12	1.99	0.43
28/10/92	30.6	1.87	4.30	1.89	C
29/10/92	29.8	1.84	3.84	1.56	0.37
30/10/92	NM	NM	NM	NM	NM
31/10/92	32.2	2.00	4.34	2.08	C
01/11/92	32.4	1.99	4.25	1.85	0.96
02/11/92	37.0	2.36	4.77	2.38	0.85
03/11/92	34.6	2.05	5.16	PC	1.13
04/11/92	32.1	1.94	4.47	C	0.51
05/11/92	40.4	2.29	5.66	PC	0.91
06/11/92	20.8	1.61	3.24	C	0.11
07/11/92	24.6	C	3.79	PC	0.84
08/11/92	31.1	1.91	PC	PC	0.41
09/11/92	NM	NM	NM	NM	NM
10/11/92	28.5	2.32	2.23	C	0.59
11/11/92	19.4	2.10	C	C	0.25
12/11/92	17.2	C	3.65	C	C
13/11/92	17.4	C	PC	PC	C
14/11/92	15.1	C	3.02	C	C
15/11/92	15.9	2.13	3.06	C	C
16/11/92	15.2	C	3.42	1.78	0.66
17/11/92	14.8	1.79	C	C	0.51
18/11/92	14.8	1.77	C	C	0.74
19/11/92	NM	NM	NM	NM	NM
20/11/92	14.1	C	C	C	0.40
21/11/92	14.3	C	C	C	0.34

TABLE 2-5 (cont.)

Canal Q (Design)	Girsal Minor 38	5767-L 0.94	13526-R 2.22	21516-L 0.87	29850-TAIL 1.32
DATE	Discharges in Cusecs				
22/11/92	12.7	C	C	C	0.31
23/11/92	12.0	C	C	C	C
24/11/92	12.5	C	C	C	0.16
25/11/92	13.0	C	C	C	C
26/11/92	17.4	C	C	PC	C
27/11/92	14.1	C	C	C	C
28/11/92	13.9	1.97	3.81	PC	0.19
29/11/92	14.9	C	C	C	C
30/11/92	13.9	C	C	C	2.02
01/12/92	13.4	C	3.31	C	C
02/12/92	12.0	1.96	C	C	0.62
03/12/92	12.8	C	C	C	C
04/12/92	14.7	C	C	C	C
05/12/92	13.9	C	C	C	C
06/12/92	12.5	C	C	C	C
07/12/92	12.1	C	C	C	C
08/12/92	NM	NM	NM	NM	NM
09/12/92	12.1	C	2.55	C	CC
10/12/92	12.1	C	C	1.54	C
11/12/92	NM	NM	NM	C	NM
12/12/92	9.9	C	C	C	C
13/12/92	20.7	C	C	C	C
14/12/92	26.3	C	C	C	1.32
15/12/92	24.6	1.44	C	3.11	1.02
16/12/92	24.4	1.31	C	2.48	C
17/12/92	26.8	C	4.80	PC	C
18/12/92	27.0	2.37	C	C	0.53
19/12/92	26.3	1.61	4.82	C	C
20/12/92	15.6	1.85	3.04	1.88	C
21/12/92	14.5	1.37	2.61	1.41	C
22/12/92	15.5	1.46	1.22	1.61	C
23/12/92	15.7	1.35	2.76	1.16	C
24/12/92	15.6	1.90	2.70	1.16	C
25/12/92	12.0	2.34	2.57	1.04	C
26/12/92	14.5	1.75	2.49	0.98	C
27/12/92	15.1	1.06	2.49	0.73	C
28/12/92	15.2	1.03	2.09	C	C
29/12/92	17.1	1.54	2.70	0.93	C
30/12/92	18.3	1.36	2.68	1.16	C
31/12/92	15.3	1.56	C	C	C
01/01/93	15.9	1.59	2.66	1.50	C
02/01/93	17.5	1.26	3.08	1.61	C
03/01/93	14.3	0.91	PC	1.21	C
04/01/93	15.5	C	2.70	1.48	C
05/01/93	16.1	1.58	C	C	C
06/01/93	18.8	C	PC	C	C
07/01/93	18.5	C	C	2.37	0.39
08/01/93	19.7	C	3.93	C	C
09/01/93	19.1	C	C	2.17	0.37
10/01/93	15.6	0.69	C	PC	0.87
11/01/93	NM	NM	NM	NM	NM
12/01/93	13.7	C	2.37	1.12	C
13/01/93	12.3	0.91	2.11	1.05	C
14/01/93	13.1	1.44	1.90	0.71	C
15/01/93	An-C	An-C	An-C	An-C	An-C



TABLE 2-5 (cont.)

Canal Q (Design)	Girsal Minor 38	5767-L 0.94	13528-R 2.22	21516-L 0.87	29650-TAIL 1.32
DATE	Discharges in Cusecs				
16/01/93	An-C	An-C	An-C	An-C	An-C
17/01/93	An-C	An-C	An-C	An-C	An-C
18/01/93	An-C	An-C	An-C	An-C	An-C
19/01/93	An-C	An-C	An-C	An-C	An-C
20/01/93	An-C	An-C	An-C	An-C	An-C
21/01/93	An-C	An-C	An-C	An-C	An-C
22/01/93	An-C	An-C	An-C	An-C	An-C
23/01/93	An-C	An-C	An-C	An-C	An-C
24/01/93	An-C	An-C	An-C	An-C	An-C
25/01/93	An-C	An-C	An-C	An-C	An-C
26/01/93	An-C	An-C	An-C	An-C	An-C
27/01/93	An-C	An-C	An-C	An-C	An-C
28/01/93	An-C	An-C	An-C	An-C	An-C
29/01/93	An-C	An-C	An-C	An-C	An-C
30/01/93	An-C	An-C	An-C	An-C	An-C
31/01/93	An-C	An-C	An-C	An-C	An-C
01/02/93	An-C	An-C	An-C	An-C	An-C
02/02/93	An-C	An-C	An-C	An-C	An-C
03/02/93	An-C	An-C	An-C	An-C	An-C
04/02/93	An-C	An-C	An-C	An-C	An-C
05/02/93	An-C	An-C	An-C	An-C	An-C
06/02/93	An-C	An-C	An-C	An-C	An-C
07/02/93	An-C	An-C	An-C	An-C	An-C
08/02/93	An-C	An-C	An-C	An-C	An-C
09/02/93	An-C	An-C	An-C	An-C	An-C
10/02/93	An-C	An-C	An-C	An-C	An-C
11/02/93	An-C	An-C	An-C	An-C	An-C
12/02/93	An-C	An-C	An-C	An-C	An-C
13/02/93	An-C	An-C	An-C	An-C	An-C
14/02/93	An-C	An-C	An-C	An-C	An-C
15/02/93	An-C	An-C	An-C	An-C	An-C
16/02/93	An-C	An-C	An-C	An-C	An-C
17/02/93	An-C	An-C	An-C	An-C	An-C
18/02/93	An-C	An-C	An-C	An-C	An-C
19/02/93	An-C	An-C	An-C	An-C	An-C
20/02/93	An-C	An-C	An-C	An-C	An-C
21/02/93	An-C	An-C	An-C	An-C	An-C
22/02/93	7.5	1.33	An-C	An-C	An-C
23/02/93	15.1	2.20	1.72	0.87	C
24/02/93	16.4	NM	NM	NM	NM
25/02/93	17.5	1.99	2.21	0.93	C
26/02/93	20.6	1.85	2.63	1.21	C
27/02/93	29.0	2.12	3.28	1.40	C
28/02/93	34.1	2.76	3.83	1.48	0.42
01/03/93	30.3	2.12	3.47	1.54	0.64
02/03/93	28.8	2.49	3.26	1.37	0.15
03/03/93	39.0	2.20	3.86	1.63	0.28
04/03/93	38.8	2.19	4.32	1.88	0.54
05/03/93	29.1	2.37	3.42	1.48	0.21
06/03/93	32.9	2.32	3.91	1.69	0.80
07/03/93	32.5	2.34	3.81	1.61	0.76
08/03/93	34.3	2.33	4.00	1.68	1.02
09/03/93	37.0	2.05	4.47	C	0.17
10/03/93	37.5	2.08	C	2.94	0.31
11/03/93	27.1	C	PC	C	0.22

TABLE 2-5 (cont.)

Canal Q (Design)	Girsal Minor 38	5767-L 0.94	13528-R 2.22	21516-L 0.87	29650-TAIL 1.32
DATE	Discharges in Cusecs				
12/03/93	23.2	C	C	C	C
13/03/93	NM	NM	NM	NM	NM
14/03/93	80.5	NM	C	C	C
15/03/93	82.8	NM	C	C	C
16/03/93	NM	NM	C	C	C
17/03/93	NM	NM	C	C	C
18/03/93	NM	NM	C	C	C
19/03/93	NM	NM	C	C	C
20/03/93	17.1	C	C	C	C
21/03/93	20.1	2.45	C	C	C
22/03/93	8.8	NM	NM	NM	NM
23/03/93	NM	NM	NM	NM	NM
24/03/93	NM	NM	NM	NM	NM
25/03/93	NM	NM	NM	NM	NM
26/03/93	NM	NM	NM	NM	NM
27/03/93	4.5	1.35	0.86	C	0.07
28/03/93	7.8	2.00	C	C	C
29/03/93	15.5	1.09	1.90	1.10	0.09
30/03/93	15.1	1.42	1.81	C	C
31/03/93	10.3	1.61	1.16	C	C
01/04/93	21.3	1.40	2.11	0.86	C
02/04/93	31.5	1.58	3.00	1.48	0.26
03/04/93	29.1	1.59	C	2.04	C
04/04/93	31.0	2.72	3.17	1.36	C
05/04/93	33.1	2.37	3.04	1.10	C
06/04/93	33.4	1.54	3.37	PC	C
07/04/93	33.4	1.63	3.47	1.04	0.38
08/04/93	37.9	1.77	3.89	1.75	0.12
09/04/93	35.7	1.61	3.60	1.60	C
10/04/93	37.0	1.70	4.15	1.83	C
11/04/93	38.0	2.25	4.25	C	0.12
12/04/93	27.1	1.26	2.89	C	0.26
13/04/93	32.1	1.65	C	C	0.24
14/04/93	26.6	C	3.86	C	0.28
15/04/93	24.9	1.50	3.20	C	C
16/04/93	18.7	C	3.08	C	0.34
17/04/93	18.3	C	2.87	C	C
18/04/93	18.3	1.96	2.45	C	0.95
19/04/93	15.1	1.59	1.86	0.76	C
20/04/93	12.8	2.02	1.59	0.71	C
21/04/93	15.7	1.19	1.83	1.16	C
22/04/93	27.0	1.52	2.91	PC	0.30
23/04/93	27.3	1.69	3.28	C	0.73
24/04/93	27.0	1.48	PC	PC	C
25/04/93	33.4	1.90	PC	2.23	0.07
26/04/93	36.8	1.97	5.05	2.91	1.02
27/04/93	34.5	1.93	4.90	2.65	0.29
28/04/93	26.7	1.68	3.26	1.65	C
29/04/93	26.3	1.68	3.60	1.82	0.37
30/04/93	NM	NM	NM	NM	NM
01/05/93	NM	NM	NM	NM	NM
02/05/93	21.2	1.93	2.80	1.28	0.42
03/05/93	20.7	2.24	2.63	1.16	C
04/05/93	20.4	1.77	2.70	1.16	C
05/05/93	19.0	2.03	2.49	1.10	0.12

TABLE 2-5 (cont.)

Canal Q (Design)	GirsaI Minor 38	5767-L 0.94	13528-R 2.22	21516-L 0.87	29850-TAIL 1.32
DATE					
Discharges in Cusecs					
06/05/93	23.0	1.54	2.70	1.16	C
07/05/93	23.1	1.72	3.24	1.71	0.65
08/05/93	23.8	2.00	3.02	1.41	C
09/05/93	25.0	1.93	3.28	C	0.16
10/05/93	24.4	1.94	3.13	C	C
11/05/93	25.5	2.02	3.44	1.82	C
12/05/93	22.7	1.67	2.98	1.48	C
13/05/93	25.0	1.56	3.44	PC	C
14/05/93	25.7	1.90	3.47	PC	C
15/05/93	29.6	2.62	4.67	2.55	0.49
16/05/93	31.7	2.10	4.15	2.41	0.41
17/05/93	27.5	C	4.34	C	C
18/05/93	26.3	1.66	3.89	C	C
19/05/93	28.1	1.83	3.93	2.35	C
20/05/93	27.6	2.48	3.63	2.04	C
21/05/93	32.2	1.96	4.17	C	C
22/05/93	27.8	2.58	4.15	C	C
23/05/93	23.5	2.42	3.24	1.69	C
24/05/93	25.8	1.72	3.49	C	C
25/05/93	26.5	1.70	3.32	C	C
26/05/93	21.5	1.68	3.11	1.66	C
27/05/93	16.8	1.19	2.41	0.99	C
28/05/93	21.3	1.42	2.93	1.28	C
29/05/93	28.5	1.61	3.96	PC	C
30/05/93	31.3	1.91	4.27	1.78	C
31/05/93	28.3	2.29	3.96	1.78	C
01/06/93	NM	NM	NM	NM	NM
02/06/93	NM	NM	NM	NM	NM
03/06/93	NM	NM	NM	NM	NM
04/06/93	NM	NM	NM	NM	NM
05/06/93	25.4	1.75	3.58	1.31	C
06/06/93	30.7	2.37	3.60	1.53	C
07/06/93	31.8	2.29	3.67	1.81	C
08/06/93	30.6	1.96	3.74	1.68	0.57
09/06/93	28.8	1.87	3.56	1.52	0.57
10/06/93	35.3	2.08	4.37	1.89	0.84
11/06/93	43.8	2.21	5.16	2.11	0.79
12/06/93	42.3	2.08	5.18	2.31	1.16
13/06/93	40.3	2.65	5.13	2.32	0.70
14/06/93	41.6	2.89	4.97	1.80	0.83
15/06/93	45.4	2.31	5.45	2.27	0.62
16/06/93	42.9	2.08	5.21	2.18	0.69
17/06/93	45.8	2.28	5.45	2.41	0.49
18/06/93	45.6	2.24	5.26	2.37	0.38
19/06/93	44.0	2.15	5.18	2.12	0.84
20/06/93	39.9	2.64	4.52	1.98	0.56
21/06/93	41.2	2.82	4.56	1.92	0.68
22/06/93	46.2	2.34	5.23	2.26	0.71
23/06/93	46.2	2.33	5.18	2.26	0.64
24/06/93	46.0	2.31	5.34	2.02	1.15
25/06/93	44.0	2.38	5.05	2.18	0.74
26/06/93	47.1	2.38	5.31	2.48	1.16
27/06/93	49.9	2.75	5.47	2.48	1.36
28/06/93	50.3	2.97	5.74	2.67	1.54
29/06/93	54.0	2.58	6.07	2.89	0.69

TABLE 2-5 (cont.)

Canal Q (Design)	Girsal Minor 38	5767-L 0.94	13526-R 2.22	21516-L 0.87	29650-TAIL 1.32
DATE	Discharges in Cusecs				
30/06/93	NM	NM	NM	NM	NM
01/07/93	NM	NM	NM	NM	NM
02/07/93	NM	NM	NM	NM	NM
03/07/93	49.9	2.83	5.71	2.76	0.16
04/07/93	50.3	3.05	5.80	2.71	0.08
05/07/93	47.1	2.63	5.53	2.65	0.66
06/07/93	44.4	2.28	5.31	2.51	0.97
07/07/93	43.5	2.20	5.21	2.43	0.96
08/07/93	NM	NM	NM	NM	NM
09/07/93	43.8	2.21	5.58	2.83	0.53
10/07/93	37.9	3.14	4.82	C	0.37
11/07/93	29.1	2.38	3.81	2.25	0.46
12/07/93	26.0	2.42	3.94	1.28	C
13/07/93	NM	NM	NM	NM	NM
14/07/93	35.2	2.00	4.17	1.82	0.22
15/07/93	35.9	2.08	4.12	1.79	C
16/07/93	42.5	1.61	5.00	2.26	0.84
17/07/93	31.0	2.25	3.74	1.82	C
18/07/93	26.7	2.15	3.47	1.43	C
19/07/93	22.4	1.54	2.98	2.04	0.30
20/07/93	27.6	1.75	3.47	1.68	0.18
21/07/93	32.0	1.96	3.93	1.82	C
22/07/93	21.6	1.50	3.24	C	C
23/07/93	47.3	C	6.07	C	C
24/07/93	9.5	C	C	C	0.01
25/07/93	NM	NM	NM	NM	NM
26/07/93	NM	NM	NM	NM	NM
27/07/93	NM	NM	NM	NM	NM
28/07/93	21.5	1.50	2.62	1.52	C
29/07/93	27.8	1.67	3.63	1.89	0.26
30/07/93	26.0	1.61	3.24	1.35	0.05
31/07/93	27.1	2.37	3.31	1.54	0.15
01/08/93	25.8	1.67	3.11	1.54	C
02/08/93	31.1	2.77	3.72	1.75	0.11
03/08/93	30.6	1.63	3.58	1.75	0.37
04/08/93	25.0	1.46	3.24	1.41	C
05/08/93	28.3	1.44	3.53	1.75	0.33
06/08/93	21.9	1.17	3.35	1.20	C
07/08/93	16.1	2.25	2.31	1.60	C
08/08/93	28.3	1.68	3.17	1.41	C
09/08/93	26.3	1.72	3.24	1.48	C
10/08/93	34.3	2.28	3.93	1.93	0.22
11/08/93	37.0	2.08	4.59	2.27	0.57
12/08/93	41.6	2.28	4.92	2.55	0.81
13/08/93	NM	NM	NM	NM	NM
14/08/93	NM	NM	NM	NM	NM
15/08/93	36.6	2.68	4.22	2.17	0.36
16/08/93	36.6	2.61	4.67	2.11	0.49
17/08/93	40.8	2.15	4.64	2.18	0.49
18/08/93	35.1	1.96	4.33	2.20	0.60
19/08/93	40.6	2.08	4.74	2.26	1.01
20/08/93	43.5	2.35	5.05	2.29	0.42
21/08/93	44.0	3.15	5.18	2.40	0.51
22/08/93	43.3	2.73	5.08	2.27	0.36
23/08/93	40.3	2.63	4.69	2.27	0.80

TABLE 2-5 (cont.)

Canal Q (Design)	Girsal Minor 38	5767-L 0.94	13526-R 2.22	21516-L 0.87	29650-TAIL 1.32
DATE	Discharges in Cusecs				
24/08/93	41.8	2.20	4.90	2.38	0.54
25/08/93	44.6	2.19	5.37	2.60	0.87
26/08/93	43.5	2.29	5.16	2.67	0.39
27/08/93	39.9	2.10	4.92	2.60	1.03
28/08/93	39.3	2.96	5.00	2.52	0.69
29/08/93	34.6	2.54	4.58	2.35	0.64
30/08/93	39.5	2.68	4.95	2.59	1.00
31/08/93	NM	NM	NM	NM	NM
01/09/93	35.3	1.96	4.61	2.32	1.00
02/09/93	36.2	2.05	4.62	2.17	C
03/09/93	41.4	2.21	5.78	3.06	0.69
04/09/93	43.8	3.19	5.63	C	0.64
05/09/93	45.6	2.72	PC	PC	C
06/09/93	NM	NM	NM	NM	NM
07/09/93	34.8	2.00	5.23	3.33	0.40
08/09/93	37.7	2.10	C	C	C
09/09/93	26.7	1.79	C	C	C
10/09/93	NM	NM	NM	NM	NM
11/09/93	NM	NM	NM	NM	NM
12/09/93	26.7	2.71	PC	PC	C
13/09/93	29.3	2.28	PC	C	0.22
14/09/93	33.4	2.08	PC	C	C
15/09/93	29.1	1.90	PC	3.49	C
16/09/93	28.3	1.79	PC	3.20	C
17/09/93	27.5	1.72	C	C	C
18/09/93	26.8	2.44	PC	PC	C
19/09/93	28.6	C	PC	3.94	C
20/09/93	27.0	2.16	PC	PC	0.33
21/09/93	27.8	1.77	PC	C	0.22
22/09/93	26.3	1.79	4.42	C	0.14
23/09/93	26.5	1.77	PC	C	C
24/09/93	25.8	1.65	4.37	C	C
25/09/93	28.5	C	C	C	C
26/09/93	26.7	C	4.47	1.82	C
27/09/93	23.8	1.80	C	C	C
28/09/93	9.2	1.59	3.26	C	0.49
29/09/93	20.4	1.40	2.59	0.93	C
30/09/93	15.9	2.41	C	C	0.37
01/10/93	20.4	1.46	3.20	C	C
02/10/93	18.5	2.34	3.24	PC	0.49
03/10/93	19.3	1.93	2.91	PC	C
04/10/93	22.1	1.78	3.13	2.08	C
05/10/93	20.6	1.46	3.22	PC	C
06/10/93	16.1	1.24	2.61	C	C
07/10/93	17.3	1.46	2.91	PC	C
08/10/93	14.1	1.22	2.31	C	C
09/10/93	13.2	1.85	2.13	C	C
10/10/93	15.7	2.15	2.66	1.93	C
11/10/93	8.7	C	1.81	1.10	C
12/10/93	12.2	1.03	2.09	1.04	0.14
13/10/93	10.4	2.34	2.02	0.87	C
14/10/93	22.7	1.72	3.35	1.75	0.69
15/10/93	23.4	1.60	3.45	1.76	C
16/10/93	23.6	2.45	3.72	PC	C
17/10/93	30.0	2.28	3.63	C	C

**TABLE 2-5 (cont.)**

<b>Canal Q (Design)</b>	<b>Girsal Minor 38</b>	<b>5767-L 0.94</b>	<b>13526-R 2.22</b>	<b>21516-L 0.87</b>	<b>29650-TAIL 1.32</b>
<b>DATE</b>	<b>Discharges in Cusecs</b>				
18/10/93	27.6	1.75	3.72	1.75	C
19/10/93	29.1	1.63	4.30	1.96	C
20/10/93	26.7	1.59	PC	1.96	0.26
21/10/93	31.0	1.59	4.37	2.49	C
22/10/93	35.2	1.79	5.31	2.73	C
23/10/93	29.5	2.03	4.30	2.18	C
24/10/93	27.5	1.85	3.96	1.82	0.80
25/10/93	29.1	1.96	4.17	PC	0.67
26/10/93	24.7	1.50	3.56	1.61	C
27/10/93	30.3	1.67	5.18	3.32	0.64
28/10/93	33.7	1.72	5.05	2.73	C
29/10/93	32.4	1.77	5.10	2.63	1.01
30/10/93	34.8	2.36	5.18	2.44	C
31/10/93	32.5	2.08	PC	PC	0.80

Terminology Used:

NM = Not Measured (Mainly Fridays & Holidays)

C = Closed

PC = Partially Closed

## Chapter 3

### MANAGEMENT OF OUTLETS

#### 3.1. Procedures

At the start of the Crop-based Irrigation Operations Study in the CRBC during October, 1991 some sample outlets were frequently observed as being closed while taking daily staff gauge readings in Distributary # 3. It was an unusual scenario to see that farmers were refusing water by closing their outlets either completely or partially. Because of the potential importance and relevance of this activity, where farmers were, in a sense, operating the system below the outlet, in a crop-based mode, IIMI decided to establish data collection procedures for monitoring when outlets are open or closed. The work that had been initiated in the sample outlets only, was extended to 100 percent of the outlets served by Distributary # 3 from November, 1991. Similarly, monitoring of all of the outlets served by Distributary # 4 and Girsal Minor was begun in March, 1992.

During the lining of these watercourses by the On Farm Water Management Program, most of the watercourse in the sample area were provided with a check structure at their head. This box-type check structure became the de-facto control point for these pipe outlets. Concrete lids (*nakka*) were provided at these control points which facilitated regulation of flows into the watercourses. The check structure proved very useful, because when they were not available, farmers had to use wooden material and mud for closing of the watercourse taken from the upstream end of the pipe outlet.

In the beginning, readings were taken on working days only, but later weekends and other holidays were included so that this important factor could be monitored more thoroughly. In the same way, in order to know if any change had taken place in the status of outlets after readings were taken in the morning, weekly evening observations were started in October, 1992 and were continued for one year. These weekly evening readings were also aimed at understanding the farmers behavior towards night irrigation under conditions of an ample water supply.

These data were collected daily at the time of taking flow readings at selected points along Distributary # 3, 4 and Girsal Minor. The status of each outlet was being checked and recorded in the field book separately for sample channels. Weekly evening readings were taken independent of the flow readings. Different codes were developed to describe the condition of the outlet; these were:

O = outlet open,

C = outlet closed,

PC = partially closed/open

An outlet was considered open when there was no hinderance in its flow either at the upstream or downstream end; while it was considered closed when there was no flow in the watercourse except small leakages. If there was some obstruction causing reduced flow into the watercourse, it was recorded as partially closed/open.

All of these data presented in the following tables. The first three tables (3.1.1, 3.1.2 and 3.1.3) show the data regarding the number of days an outlet remained open, closed or partially closed/open, respectively, per month for outlets served by Distributary # 3. The next three tables numbered 3.2.1, 3.2.2 and 3.2.3 provide the same information for the Distributary # 4 watercourses. The information for Girsal Minor watercourses is given in tables numbered 3.3.1 to 3.3.3. Finally, in tables 3.4.1, 3.4.2 and 3.4.3, a comparison between the weekly morning and evening observations for a period of one year for the outlets served by Distributary # 3, Distributary # 4 and the Girsal Minor, respectively, are given.



## **3.2 Data Sets**

TABLE 3-1 OPEN / CLOSURE FOR DISTRIBUTARY # 3 WATERCOURSES

TABLE 3-1.1 DISTRIBUTARY # 3 WATERCOURSES - OPEN RECORD (NO. OF DAYS)

O/L NO	RABI 1991/92												KHARIF 1992												RABI 1992/93												KHARIF 1993			
	Nov91	Dec91	Jan92	Feb92	Mar92	Apr92	May92	Jun92	Jul92	Aug92	Sep92	Oct92	Nov92	Dec92	Jan93	Feb93	Mar93	Apr93	May93	Jun93	Jul93	Aug93	Sep93	Oct93																
	18	24	11	1	13	5	7	19	17	18	2	12	3	8	10	7	11	14	15	19	24	22	4	18																
000-R	18	24	11	1	13	5	7	19	17	18	2	12	3	8	10	7	11	14	15	19	24	22	4	18																
000-L	0	0	12	2	21	11	24	19	18	22	16	23	28	27	14	6	15	25	26	25	25	27	22	31																
260-R	19	15	7	1	15	2	5	14	20	17	2	8	2	7	7	6	14	13	8	16	24	27	24	24																
570-L	21	23	7	1	19	4	2	4	6	3	6	6	6	16	11	7	19	16	22	23	26	28	26	31																
690-R	22	0	12	2	24	10	6	14	17	15	8	8	23	15	14	7	23	23	13	22	24	24	20	24																
700-R	19	15	4	2	18	2	16	24	24	27	5	9	10	8	10	7	18	20	22	24	23	25	18	23																
2970-R	15	21	7	2	10	8	13	21	10	26	5	8	3	11	11	7	17	18	19	24	22	28	13	24																
3080-R	22	19	8	2	23	10	13	22	22	24	13	22	18	14	13	7	17	20	22	25	22	25	20	27																
4796-L	15	20	7	1	16	8	12	20	20	20	5	14	9	16	12	6	13	19	20	23	19	24	10	26																
6468-L	16	21	6	2	20	8	3	12	15	18	4	3	0	9	2	4	10	9	16	24	13	22	11	27																
6468-R	13	24	9	1	17	5	12	3	11	17	3	17	10	25	12	7	22	14	15	19	13	24	11	29																
8270-L	21	14	8	1	17	8	4	19	13	15	2	5	3	9	7	7	11	14	9	20	10	22	2	14																
8660-R	16	18	2	0	14	7	16	22	12	15	2	5	3	7	9	7	14	13	23	20	11	24	6	15																
10150-R	17	23	10	2	18	6	23	23	16	14	5	12	18	18	14	7	22	23	23	24	11	24	14	30																
11910-R	20	12	4	1	13	4	9	15	1	5	4	3	4	2	1	3	10	4	6	11	1	13	5	9																
11920-L	16	22	5	1	19	7	20	20	17	17	5	10	10	11	9	7	14	18	19	25	8	23	9	23																
12570-R	17	20	2	1	13	3	22	23	19	18	2	10	20	22	9	7	13	14	25	23	16	28	17	28																
14100-R	18	22	6	1	18	5	11	23	17	15	1	5	17	9	10	7	12	13	25	24	12	26	16	25																
14810-R	7	16	5	1	20	5	7	18	12	15	4	10	11	12	2	7	9	10	4	8	4	20	8	13																
15382-R	15	20	6	2	15	10	26	23	18	14	5	18	13	22	11	7	20	11	21	24	10	25	20	19																

TABLE 3-1.2 DISTRIBUTARY # 3 WATERCOURSES - CLOSURE RECORD (NO. OF DAYS)

O/L NO	RABI 1991/92												KHARIF 1992												RABI 1992/93												KHARIF 1993											
	Nov91	Dec91	Jan92	Feb92	Mar92	Apr92	May92	Jun92	Jul92	Aug92	Sep92	Oct92	Nov92	Dec92	Jan93	Feb93	Mar93	Apr93	May93	Jun93	Jul93	Aug93	Sep93	Oct93	Nov91	Dec91	Jan92	Feb92	Mar92	Apr92	May92	Jun92	Jul92	Aug92	Sep92	Oct92	Nov92	Dec92	Jan93	Feb93	Mar93	Apr93	May93	Jun93	Jul93	Aug93	Sep93	Oct93
000-R	6	2	1	1	8	18	12	2	4	0	16	2	14	8	2	1	18	11	8	4	4	2	13	9	6	2	1	1	8	18	12	2	4	0	16	2	14	8	2	1	18	11	8	4	4	2	13	9
000-L	0	0	0	0	3	8	2	2	2	3	6	2	0	0	0	1	10	3	1	0	3	1	3	0	0	0	0	0	3	8	2	2	2	3	6	2	0	0	1	10	3	1	0	3	1	3	0	
260-R	5	11	5	1	9	21	16	4	4	4	16	15	17	16	2	1	15	15	16	9	2	0	1	6	5	11	5	1	9	21	16	4	4	4	16	15	17	16	2	1	15	15	16	9	2	0	1	6
570-L	3	3	5	1	5	16	17	0	0	7	11	3	10	9	2	1	9	12	5	0	2	0	0	0	3	3	5	1	5	16	17	0	0	7	11	3	10	9	2	1	9	12	5	0	2	0	0	0
690-R	2	0	0	0	0	7	15	0	0	1	1	3	4	9	0	1	5	1	1	0	3	0	2	1	2	0	0	0	0	7	15	0	0	1	1	5	1	1	0	3	0	2	0	2	1	1	1	
700-R	5	11	8	0	6	20	9	0	0	0	17	9	14	19	4	1	9	8	3	0	4	2	8	5	5	11	8	0	6	20	9	0	0	0	17	9	14	19	4	1	9	8	3	0	4	2	8	5
2970-R	9	5	5	0	9	13	8	2	14	1	17	13	24	13	3	1	11	10	8	1	5	0	12	5	9	5	5	0	9	13	8	2	14	1	17	13	24	13	3	1	11	10	8	1	5	0	12	5
3080-R	2	7	4	0	1	11	4	0	2	0	9	3	9	11	0	1	10	5	5	0	5	1	4	3	2	7	4	0	1	11	4	0	2	0	9	3	9	11	0	1	10	5	5	0	5	1	4	3
4796-L	9	6	5	1	8	13	10	0	3	3	7	8	11	9	2	2	14	5	5	2	6	2	11	3	9	6	5	1	8	13	10	0	3	3	7	8	11	9	2	2	14	5	5	2	6	2	11	3
6468-L	8	5	6	0	4	13	6	0	4	3	17	1	15	12	4	1	8	4	0	1	7	1	12	2	8	5	6	0	4	13	6	0	4	3	17	1	15	12	4	1	8	4	0	1	7	1	12	2
6468-R	11	2	3	1	7	18	6	5	7	4	18	5	13	4	2	1	7	14	13	1	13	2	15	2	11	2	3	1	7	18	6	5	7	4	18	5	13	4	2	1	7	14	13	1	13	2	15	2
8270-L	3	12	4	1	6	13	14	5	11	9	18	19	20	18	6	1	17	12	11	2	15	4	21	17	3	12	4	1	6	13	14	5	11	9	18	19	20	18	6	1	17	12	11	2	15	4	21	17
8660-R	8	8	10	2	10	15	5	2	12	12	19	20	22	21	5	1	14	15	6	3	16	2	19	13	8	8	10	2	10	15	5	2	12	12	19	20	22	21	5	1	14	15	6	3	16	2	19	13
10150-R	7	3	2	0	6	17	3	1	5	6	17	14	9	9	0	1	6	4	4	1	15	2	13	1	7	3	2	0	6	17	3	1	5	6	17	14	9	9	0	1	6	4	4	1	15	2	13	1
11910-R	4	14	8	1	11	19	17	5	20	19	17	19	21	27	13	5	19	22	22	13	24	10	21	21	4	14	8	1	11	19	17	5	20	19	17	19	21	27	13	5	19	22	22	13	24	10	21	21
11920-L	8	4	7	1	3	14	3	0	7	3	16	11	8	12	2	1	11	4	0	0	18	1	16	6	8	4	7	1	3	14	3	0	7	3	16	11	8	12	2	1	11	4	0	0	18	1	16	6
12570-R	7	6	10	1	10	19	3	1	5	3	20	12	6	6	5	1	16	13	2	2	12	0	10	3	7	6	10	1	10	19	3	1	5	3	20	12	6	6	5	1	16	13	2	2	12	0	10	3
14100-R	6	4	6	1	6	17	11	0	7	7	17	17	8	19	4	1	17	15	4	1	14	2	11	6	6	4	6	1	6	17	11	0	7	7	17	17	8	19	4	1	17	15	4	1	14	2	11	6
14810-R	17	10	7	1	4	18	14	3	9	9	12	12	16	15	10	1	15	14	15	5	22	2	13	10	17	10	7	1	4	18	14	3	9	9	12	12	16	15	10	1	15	14	15	5	22	2	13	10
15382-R	9	6	6	0	6	12	0	1	6	0	14	5	8	4	2	1	7	5	1	1	15	0	6	3	9	6	6	0	6	12	0	1	6	0	14	5	8	4	2	1	7	5	1	1	15	0	6	3



TABLE 3-2 OPEN / CLOSURE FOR DISTRIBUTARY # 4 WATERCOURSES

TABLE 3-2.1 DISTRIBUTARY # 4 WATERCOURSES - OPEN RECORD (NO. OF DAYS)

O/L NO	KHARIF 1992												RABI 1992/93												KHARIF 1993				
	Mar92	Apr92	May92	Jun92	Jul92	Aug92	Sep92	Oct92	Nov92	Dec92	Jan93	Feb93	Mar93	Apr93	May93	Jun93	Jul93	Aug93	Sep93	Oct93									
000-R	1	8	18	7	11	8	0	0	5	9	5	2	3	12	16	23	19	23	10	23									
000-L	1	12	25	22	15	22	18	11	12	18	11	6	16	18	26	23	21	27	22	27									
800-R	1	12	14	20	21	27	6	11	7	12	6	7	6	7	16	24	26	28	24	26									
1860-R	23	3	7	13	6	8	0	0	4	3	2	6	2	1	7	21	28	25	2	12									
3168-L	0	14	21	23	23	25	11	22	13	15	13	8	16	23	30	24	28	28	25	30									
4030-L	26	14	25	24	22	2	3	1	7	8	0	7	5	2	20	21	13	21	13	5									
4040-L	1	12	18	20	11	19	3	9	10	8	14	7	5	16	30	22	12	25	15	25									
4135-R	0	4	21	17	22	20	4	12	17	12	12	8	8	13	22	24	26	28	18	26									
4135-L	1	15	23	23	19	22	7	25	27	18	14	8	9	16	24	25	19	28	14	28									
4752-R	0	9	26	24	24	24	6	15	11	12	9	7	6	5	10	21	18	28	16	21									
5910-L	0	12	15	21	15	14	5	7	9	4	7	7	5	6	28	25	14	26	4	17									
7030-L	1	12	22	22	17	17	4	4	10	4	4	7	3	4	9	19	12	12	7	12									
7670-L	1	15	15	16	15	14	7	4	8	2	5	6	8	8	15	18	16	12	1	7									
8960-L	26	5	17	19	14	18	3	18	7	8	6	7	14	18	25	25	16	28	19	26									
8990-L	0	7	23	24	19	23	3	7	12	4	10	7	9	13	20	22	20	23	7	17									
9400-R	0	8	21	24	19	25	5	22	17	16	13	7	12	14	16	20	12	27	8	27									
12290-L	0	10	17	22	19	25	4	18	16	5	8	7	5	11	12	22	20	25	5	22									
12860-R	19	14	26	21	22	21	5	9	18	17	14	7	13	14	20	23	26	27	20	23									
14367-L	0	19	10	19	13	12	9	10	8	3	8	7	9	2	7	22	18	13	1	12									
15490-R	0	13	17	22	23	24	7	13	9	9	8	5	9	12	14	22	19	23	10	15									
15490-L	0	12	14	21	16	21	9	13	7	8	7	7	9	8	12	21	15	20	6	13									
16512-L	19	1	3	17	13	17	7	9	13	7	13	6	11	12	11	20	20	24	3	10									
17600-R	1	5	12	13	16	15	6	6	5	5	3	7	7	7	8	17	13	22	5	14									
19240-L	1	6	22	21	18	7	6	8	8	9	7	7	13	8	10	24	18	24	6	21									
19248-L	0	0	14	18	14	12	3	5	4	7	4	6	2	7	6	20	12	14	3	15									
19250-R	0	0	5	13	14	15	3	7	7	3	5	7	8	10	6	18	12	22	9	11									
20750-R	17	0	25	19	21	21	7	9	9	18	12	7	10	17	15	25	24	20	9	23									
22455-L	2	0	19	21	18	15	2	2	5	6	9	7	9	13	8	20	17	21	0	15									
24495-R	0	0	15	7	12	20	1	3	6	6	1	4	5	4	0	19	13	12	1	5									
24495-L	27	0	13	21	19	22	8	11	18	16	4	7	9	10	2	20	16	9	0	10									
26238-R	1	0	2	17	15	21	4	12	4	10	8	7	14	12	15	24	13	15	1	11									
26238-L	1	0	17	23	18	21	5	10	5	8	9	7	13	13	15	23	10	23	17	21									
26248-L	1	0	0	19	15	19	2	11	2	11	4	7	7	5	5	25	16	20	6	22									
27240-L	0	0	8	16	13	16	4	10	4	2	8	7	7	11	14	22	13	20	4	15									
28448-R	25	0	6	19	20	25	2	3	3	9	8	7	10	10	8	25	22	25	10	24									
28995-L	0	0	11	21	13	14	4	14	5	6	4	7	3	11	2	23	15	20	6	23									

TABLE 3-2.2 DISTRIBUTARY # 4 WATERCOURSES - CLOSURE RECORD (NO. OF DAYS)

O/L NO	KHARIF 1992												RABI 1992/93					KHARIF 1993				
	Mar92	Apr92	May92	Jun92	Jul92	Aug92	Sep92	Oct92	Nov92	Dec92	Jan93	Feb93	Mar93	Apr93	May93	Jun93	Jul93	Aug93	Sep93	Oct93		
000-R	4	22	7	13	6	19	22	24	24	17	7	4	22	17	14	2	8	5	17	7		
000-L	4	17	1	2	9	3	2	7	9	6	2	1	9	7	4	1	7	0	5	4		
800-R	4	18	12	1	1	0	15	14	17	17	6	1	17	16	10	1	2	0	1	3		
1860-L	14	26	10	3	1	8	11	20	17	19	6	0	21	24	14	4	0	0	23	14		
3168-L	0	15	3	0	1	2	5	2	10	12	0	0	6	6	0	1	0	0	1	1		
4030-L	11	15	1	0	2	12	6	22	20	17	12	0	12	20	5	1	10	3	9	13		
4040-L	4	15	4	2	6	5	18	8	15	20	0	1	19	9	0	1	13	3	11	5		
4135-R	5	25	3	1	0	7	18	9	10	14	2	0	14	9	8	1	2	0	8	5		
4135-L	4	14	3	1	3	5	14	1	2	11	0	0	15	10	5	0	8	0	12	2		
4752-R	5	20	0	0	0	3	16	6	17	15	5	1	17	22	17	2	8	0	11	10		
5910-L	5	17	3	1	5	9	14	13	15	23	5	1	18	14	1	0	11	2	20	12		
7030-L	4	18	0	0	1	3	13	20	7	23	7	1	19	20	13	0	13	11	15	12		
7670-L	4	14	2	4	6	6	11	16	18	24	8	1	17	18	10	2	9	6	17	15		
8980-L	10	20	1	0	0	3	17	2	12	14	2	1	9	2	1	0	8	0	5	0		
8990-L	5	22	1	0	5	3	19	12	14	22	1	1	14	13	8	2	5	3	16	13		
9400-R	5	22	4	0	4	1	16	3	12	13	1	1	13	15	13	2	13	1	19	4		
12290-L	5	20	5	1	5	2	17	5	10	20	6	1	17	12	13	1	6	2	18	8		
12860-R	17	16	0	2	1	6	17	5	11	10	0	1	12	8	6	0	2	1	6	6		
14367-L	5	8	4	1	7	8	7	8	14	19	3	1	13	19	11	0	9	4	21	14		
15490-R	5	15	4	1	1	2	12	9	20	12	5	1	14	12	8	1	5	1	15	13		
15490-L	5	18	7	3	7	4	6	7	16	14	3	1	13	11	6	2	7	6	16	16		
16512-L	15	27	11	2	7	3	9	7	14	16	1	1	13	9	3	1	5	2	20	15		
17600-R	4	24	9	6	5	8	10	14	21	16	8	1	18	18	13	4	11	2	19	14		
19240-L	4	21	1	0	3	5	12	5	12	11	2	1	11	14	12	1	8	1	17	8		
19248-L	5	0	11	3	5	5	17	16	19	19	4	2	23	18	22	2	10	10	22	12		
19250-R	5	0	17	7	3	4	13	12	16	13	4	1	17	14	16	5	10	5	13	14		
20752-R	20	0	1	0	0	1	13	10	17	10	0	1	12	5	6	0	3	4	14	5		
22465-L	2	0	1	1	2	2	16	8	11	7	5	1	15	5	4	2	7	5	14	5		
24495-R	5	0	9	0	4	5	17	18	18	14	9	1	18	16	13	0	11	5	26	19		
24495-L	8	0	0	0	4	4	12	10	2	1	2	1	11	3	1	0	6	2	18	6		
26238-R	4	0	17	7	5	5	12	6	23	15	5	1	11	14	13	0	10	12	25	20		
26238-L	4	0	3	0	5	0	14	13	20	19	4	1	11	10	5	0	11	4	4	3		
26248-L	3	0	19	4	5	1	17	9	25	16	10	1	16	17	13	0	4	4	18	7		
27240-L	5	0	11	8	7	11	17	10	24	27	5	1	18	16	9	0	12	4	22	15		
28448-R	9	0	8	0	3	1	8	9	16	13	0	1	11	12	12	0	3	1	9	3		
28995-L	5	0	5	1	4	1	10	3	14	14	3	1	13	11	7	0	5	0	14	4		

TABLE 3-2.3 DISTRIBUTARY # 4 WATERCOURSES - PARTIAL CLOSURE RECORD (NO. OF DAYS)

O/L NO	KHARIF 1992												RABI 1992/93												KHARIF 1993				
	Mar92	Apr92	May92	Jun92	Jul92	Aug92	Sep92	Oct92	Nov92	Dec92	Jan93	Feb93	Mar93	Apr93	May93	Jun93	Jul93	Aug93	Sep93	Oct93									
000-R	0	0	1	4	7	0	0	2	2	3	2	2	0	0	0	0	1	0	0	1									
000-L	0	1	0	0	0	2	3	8	8	5	1	1	0	4	0	1	0	1	0	1									
800-R	0	0	0	3	2	0	2	1	5	0	2	0	2	6	4	0	0	0	2	2									
1860-L	0	1	9	8	17	11	12	6	8	7	6	2	2	4	9	0	0	3	2	5									
3168-L	0	1	2	1	0	0	6	2	6	2	1	0	1	0	0	0	0	0	1	0									
4030-L	0	1	0	0	0	13	14	3	2	4	2	1	8	7	5	3	5	4	5	14									
4040-L	0	3	4	2	7	3	1	9	4	1	0	0	1	4	0	2	3	0	1	1									
4135-R	0	1	2	6	2	0	0	5	2	3	0	0	3	7	0	0	0	0	1	0									
4135-L	0	1	0	0	2	0	2	0	0	0	0	0	1	3	1	0	1	0	1	1									
4752-R	0	1	0	0	0	0	0	5	1	2	0	0	2	2	3	2	2	0	0	0									
5910-L	0	1	8	2	4	4	4	6	5	2	2	0	2	9	1	0	3	0	3	2									
7030-L	0	0	4	2	6	7	5	2	12	2	3	0	3	5	8	6	3	5	5	7									
7670-L	0	1	9	4	3	7	4	6	3	3	1	1	0	3	5	3	3	10	9	9									
8980-L	1	5	8	5	10	6	3	6	10	7	6	0	2	9	4	0	4	0	3	5									
8990-L	0	1	2	0	0	1	1	7	3	3	3	0	2	3	2	1	3	2	4	1									
9400-R	0	0	1	0	1	1	2	1	0	0	0	0	0	0	1	3	3	0	0	0									
12290-L	0	0	4	1	0	0	1	3	3	4	0	0	3	6	5	2	2	1	4	1									
12860-R	2	0	0	1	1	0	0	12	0	2	0	0	0	7	4	2	0	0	1	2									
14367-L	0	3	12	4	4	7	7	8	7	7	3	0	3	8	12	3	1	11	5	5									
15490-R	0	2	5	1	0	1	4	4	0	8	1	2	2	5	8	2	4	4	2	3									
15490-L	0	0	5	0	1	2	8	6	6	7	4	0	3	10	12	2	6	2	5	2									
16512-L	3	2	12	5	4	7	7	10	2	6	0	1	1	8	16	4	3	2	4	6									
17600-R	0	1	5	5	3	4	7	6	3	8	3	0	0	4	9	4	4	4	3	3									
19240-L	0	3	3	3	3	15	5	13	9	9	5	0	1	7	8	0	2	3	4	2									
19248-L	0	0	1	3	5	10	3	5	6	3	6	0	0	4	2	3	6	4	2	4									
19250-R	0	0	4	4	7	8	7	7	6	13	5	0	0	5	8	2	6	1	5	6									
20752-R	8	0	0	5	3	5	3	7	3	1	2	0	3	7	9	0	1	4	4	3									
22465-L	1	0	6	2	4	10	5	16	13	16	0	0	1	11	18	3	4	2	13	11									
24495-R	0	0	2	17	8	2	5	5	4	9	4	3	2	9	17	6	4	11	0	7									
24495-L	2	0	13	3	1	1	3	5	8	12	8	0	5	16	27	5	6	17	9	15									
26238-R	0	0	7	0	4	1	7	8	1	4	1	0	0	3	2	1	5	1	1	0									
26238-L	0	0	6	1	1	6	4	3	3	2	1	0	1	6	10	2	7	1	6	7									
26248-L	1	0	7	1	4	7	4	6	1	2	0	0	2	7	12	0	8	4	3	2									
27240-L	0	0	7	0	4	0	2	6	0	0	1	0	0	2	7	3	3	4	1	1									
28448-R	3	0	12	5	1	1	13	14	9	7	6	0	4	7	10	0	3	2	8	4									
28995-L	0	0	10	2	7	12	9	9	9	9	7	0	9	7	21	2	8	8	7	4									

TABLE 3-3 OPEN / CLOSURE FOR GIRSAL MINOR WATERCOURSES

TABLE 3-3.1 GIRSAL MINOR WATERCOURSES - OPEN RECORD (NO. OF DAYS)

O/L NO	RABI 1991/92												KHARIF 1992												RABI 1992/93												KHARIF 1993																										
	Feb92			Mar92			Apr92			May92			Jun92			Jul92			Aug92			Sep92			Oct92			Nov92			Dec92			Jan93			Feb93			Mar93			Apr93			May93			Jun93			Jul93			Aug93			Sep93			Oct93		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
5767-R	1	21	13	24	24	24	24	24	24	27	12	22	15	22	10	6	18	26	29	25	23	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28									
5767-L	1	20	13	24	24	24	24	24	27	20	25	13	17	17	7	6	17	26	30	25	22	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28									
7630-L	1	21	18	25	22	24	24	24	27	18	25	27	28	28	13	6	16	27	30	25	22	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28						
8935-L	1	24	21	25	24	24	24	24	27	16	26	18	27	13	6	6	19	27	30	25	22	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28						
10150-R	1	19	13	25	20	23	27	9	24	11	24	12	6	17	21	27	25	22	27	25	22	27	25	22	27	25	22	27	25	22	27	25	22	27	25	22	27	25	22	27	25	22	27	25	22	27	25	22	27	25	22	27	25	22	27	25	22						
11000-R	1	13	4	15	17	20	21	9	16	6	14	8	6	14	8	6	14	15	22	25	20	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28						
10193-L	1	22	12	24	21	21	26	8	22	25	26	13	6	15	25	27	25	22	27	25	22	27	25	22	27	25	22	27	25	22	27	25	22	27	25	22	27	25	22	27	25	22	27	25	22	27	25	22	27	25	22	27	25	22	27	25	22						
11800-L	1	22	15	25	24	23	25	10	17	11	11	11	5	14	23	29	25	22	29	25	22	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28						
12540-L	1	23	13	15	21	21	25	11	19	20	26	11	4	14	24	26	25	22	26	25	22	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28						
13526-R	1	20	14	26	24	24	24	7	19	14	16	8	5	14	24	30	25	22	30	25	22	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28						
14962-L	1	23	14	26	24	23	27	13	24	18	20	12	5	15	23	29	25	22	29	25	22	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28						
17500-R	0	17	10	25	24	24	24	3	11	16	14	10	5	13	20	29	25	22	29	25	22	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28						
20220-L1	1	20	12	25	24	23	27	12	18	26	20	13	5	13	19	23	25	22	23	25	22	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28						
20220-L2	0	0	0	22	20	24	26	4	18	5	10	7	5	11	13	21	25	22	21	25	22	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28						
21516-L	0	16	7	21	20	24	27	4	13	3	13	7	5	10	7	5	10	18	19	25	20	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28						
23520-L	1	18	7	16	19	20	26	4	12	6	14	10	5	13	20	19	25	22	19	25	22	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28						
24046-L	0	14	6	22	19	19	27	5	12	8	14	9	5	11	19	19	24	20	19	24	20	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28						
26900-L	1	18	9	19	22	22	27	5	12	6	9	2	5	13	12	12	24	12	12	24	12	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28						
27370-L	1	15	11	20	19	16	20	5	8	7	6	7	4	12	24	19	25	22	19	25	22	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28						
28100-L	0	16	7	18	20	21	23	5	8	12	10	7	3	11	23	21	23	21	21	23	21	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28						
28912-L	1	16	8	8	15	12	13	3	1	6	2	3	2	10	6	7	19	6	7	19	6	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28						
29650-T	1	8	5	16	17	22	18	8	4	9	3	2	1	12	13	3	19	12	3	19	12	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28						



TABLE 3-3.2 GIRSAL MINOR WATERCOURSES - CLOSURE RECORD (NO. OF DAYS)

O/L NO	RABI 1991/92												KHARIF 1993											
	RABI 1991/92						KHARIF 1992						RABI 1992/93						KHARIF 1993					
	Feb92	Mar92	Apr92	May92	Jun92	Jul92	Aug92	Sep92	Oct92	Nov92	Dec92	Jan93	Feb93	Mar93	Apr93	May93	Jun93	Jul93	Aug93	Sep93	Oct93			
5767-R	0	4	9	2	0	0	0	8	4	12	7	3	0	3	2	0	0	0	5	0	4	1		
5767-L	0	5	8	1	0	0	0	0	1	15	12	6	0	4	3	0	0	6	0	3	1	1		
7630-L	0	4	4	0	0	0	0	2	1	0	0	0	0	3	1	0	0	6	0	1	0	0		
8935-L	0	1	1	0	0	0	0	3	0	0	0	0	0	2	0	0	0	6	0	0	0	0		
10150-R	0	6	9	1	1	0	0	11	1	15	5	1	0	4	5	1	0	6	1	11	2	2		
11000-R	0	12	18	11	2	3	2	7	9	22	15	4	0	6	13	5	0	8	0	16	8	8		
10193-L	0	2	8	2	1	2	0	10	3	1	1	0	0	5	3	3	0	5	0	1	0	0		
11800-L	0	2	4	0	0	0	1	8	8	9	15	2	1	6	3	1	0	5	0	1	2	2		
12540-L	0	2	8	1	1	2	1	9	3	8	1	2	1	4	1	1	0	5	0	1	0	0		
13526-R	0	2	5	0	0	0	0	7	2	12	10	4	1	4	3	0	0	6	0	6	0	0		
14962-L	0	2	8	0	0	0	0	4	0	7	8	1	1	5	5	1	0	8	0	4	1	1		
17500-R	1	7	12	1	0	0	0	15	14	9	15	3	1	7	8	1	0	6	0	4	8	8		
20220-L1	0	4	9	0	0	1	0	2	5	1	4	0	1	5	3	5	0	7	0	3	4	4		
20220-L2	0	0	0	1	0	0	0	11	3	15	15	6	1	7	6	5	0	8	0	13	7	7		
21516-L	1	8	15	2	1	0	0	12	10	18	14	4	1	10	9	8	0	8	0	14	5	5		
23520-L	0	6	15	4	0	3	0	12	11	17	15	2	1	6	6	9	0	10	0	7	12	12		
24046-L	1	10	16	3	1	5	0	12	10	16	14	2	1	8	8	9	1	9	0	9	9	9		
26900-L	0	7	11	5	1	1	0	12	14	22	18	10	1	7	15	18	1	9	0	16	18	18		
27370-L	0	9	11	4	2	3	5	9	16	18	20	5	2	8	4	4	0	10	0	12	11	11		
28100-L	0	8	15	4	0	1	4	12	16	12	18	6	3	9	5	5	2	7	3	10	8	8		
28912-L	0	8	14	6	1	3	11	11	22	22	26	10	4	11	21	21	6	15	9	20	24	24		
29650-L	0	12	0	0	0	0	8	7	15	4	25	10	5	9	16	27	3	17	6	18	22	22		



**TABLE 3-4 WEEKLY MORNING & EVENING OPEN / CLOSURE DATA**

**TABLE 3-4.1 DISTRIBUTARY # 3**

O/I NO	OPEN		PARTIALLY CLOSED		CLOSED	
	MORNING	EVENING	MORNING	EVENING	MORNING	EVENING
000-R	28	27	11	9	15	18
000-I	50	47	0	4	4	3
260-R	34	29	4	7	16	18
570-I	32	31	15	10	7	13
690-R	38	38	12	12	4	4
700-R	40	29	3	7	11	18
2970-R	38	30	1	1	15	23
3080-R	46	38	0	3	8	13
4796-I	30	36	6	5	18	13
6468-I	28	25	18	18	8	11
6468-R	39	32	8	7	7	15
8270-I	30	22	4	10	20	22
8660-R	26	22	3	4	25	28
10150-R	40	35	2	2	12	17
11910-R	16	10	3	8	35	36
11920-I	32	27	10	7	12	20
12570-R	40	33	1	5	13	16
14100-R	34	35	3	4	17	15
14810-R	19	16	13	10	22	28
15382-R	40	33	8	0	6	10

TABLE 3-4.2 Distributary # 4

O/I NO	OPEN		PARTIALLY OPEN		CLOSE	
	MORNING	EVENING	MORNING	EVENING	MORNING	EVENING
000-R	26	6	0	4	28	28
000-L	41	43	6	6	7	5
800-R	32	36	6	7	16	11
1860-R	22	27	8	9	24	24
3168-L	46	43	2	4	6	7
4030-L	29	26	10	6	15	22
4040-L	33	35	8	3	13	16
4135-R	40	36	3	4	11	14
4135-L	43	45	1	1	10	8
4752-R	39	29	4	4	11	21
5910-L	31	28	3	3	20	23
7030-L	21	16	9	11	24	27
7670-L	17	19	10	11	27	24
8980-L	36	34	9	8	9	12
8990-L	33	26	5	9	16	19
9400-R	38	33	1	3	15	18
12290-L	33	28	6	8	15	18
12860-R	38	35	4	6	12	13
14367-L	24	22	12	11	18	21
15490-L	34	31	7	11	13	12
15490-R	32	33	4	9	18	12
16512-L	32	25	7	8	15	21
17600-R	26	22	6	6	22	27
19240-L	29	26	12	13	13	16
19248-L	18	19	8	9	28	27
19250-R	19	24	11	4	24	27
20752-R	33	33	10	3	11	18
22465-L	23	27	19	14	12	13
24495-R	25	21	11	10	18	24
24495-L	26	28	21	19	7	7
26238-R	31	30	6	6	17	19
26238-L	35	27	6	8	13	19
26248-L	29	25	4	5	21	24
27240-L	19	16	6	6	29	33
28448-R	35	30	8	14	11	10
28995-L	25	21	19	23	10	10

TABLE 3-4.3 GIRSAL MINOR

O/L NO	OPEN		PARTIALLY CLOSED		CLOSED	
	MORNING	EVENING	MORNING	EVENING	MORNING	EVENING
5767-R	43	44	0	1	7	9
5767-L	49	50	0	0	5	4
8935-L	51	53	2	2	3	1
10150-R	49	51	1	1	9	11
11000-R	44	42	2	1	12	18
10193-L	40	35	2	4	4	2
11800-L	48	48	1	5	11	8
12540-L	42	41	1	5	6	7
13526-R	47	42	4	5	6	7
14962-L	44	42	1	2	2	5
17500-R	51	47	1	1	13	16
20220-L1	40	37	3	6	6	4
20220-L2	45	44	5	5	14	19
21516-L	35	30	2	5	18	20
23520-L	34	29	2	2	17	20
24046-L	35	32	1	5	11	14
26900-L	42	35	0	1	17	23
27370-L	37	30	3	3	18	17
28100-L	33	34	4	3	17	24
28912-L	35	27	2	1	31	37
29650-TAIL	23	16	6	4	26	28

## Chapter 4

### AGRICULTURAL PRODUCTION

#### 4.1. Procedures

To monitor changes in farming systems and estimate the impact of irrigation water supplies on the agricultural production, three variables (or groups of variables) were selected: the cropping intensity, the cropping pattern, and the yields of the major crops - wheat for the Rabi seasons and rice for the Kharif seasons.

The information on land use required for the analysis of the cropping intensity and cropping pattern has been collected through a comprehensive crop census undertaken in the entire area for sample watercourses. Cropping intensity and cropping pattern were obtained for the 8 sample watercourses under Distributary # 3 for the Rabi 1991/92 season, and for the 8 sample watercourses of Distributary # 3 and # 4 sample watercourses of Distributary # 4 for the seasons of Kharif 1992, Rabi 1992/93 and Kharif 1993. The percentages of command area under each crop and for each season are presented for sample watercourse in Tables 4.1.1 to 4.1.7 labeled under *Cropping pattern and cropping intensities*.

Wheat and rice yields have been collected for sample farmers only, selected from quartiles from the head to the tail of the sample watercourse command areas. The collection of wheat yields was first limited to a small number of farmers (24 farmers for the Rabi 1991/92 season) of the command areas of 4 watercourses off-taking from Distributary # 3. The number of farmers was increased to 72 (48 from 8 watercourses of the Distributary # 3 and 24 from 4 watercourses under Distributary # 4) for the collection of rice yields in the Kharif 1992 season. For the collection of wheat and rice yields of the Rabi 1992/93 and Kharif 1993 seasons, 24 farmers from the Girsal Minor watercourse command areas were also included in the sample, in order to compare the performance of farmers from the newly irrigated area with farmers from the Old Paharpur remodelled irrigation system.

Five fields were selected for each farmer and three crop cuts (1 meter square each) were made for each sample field. The spike lengths were measured, the number of tillers per square meter and the number of grains per panicle were counted. Finally, grains were weighed for each meter square sampled. While recognizing that this agronomic-type of information is relatively less important for purposes of system operation, nevertheless it is deemed important enough to be included as a possible orientation for agricultural extension purposes in the area. This type of data is helpful in determining the potential for yield improvement in the vicinity of D.I.Khan. The results of the crop-cuts are presented for each field and for the 4 seasons monitored (Rabi 1991/92, Kharif 1992, Rabi 1992/93, Kharif 1993) in Tables 4.2.1 to 4.2.4 for Wheat and Tables 4.2.5 to 4.2.9 for rice yields.

## **4.2 Data Sets**

**TABLE 4-1 CROPPING PATTERN AND CROPPING INTENSITIES**

**TABLE 4-1.1 DISTRIBUTARY # 3; RABI SEASON 1991/92**

	DESIGN	570L	690R	6468R	6468L	10150R	11920L	14810R	15382R	DISTY AVERAGE
GCA (HA)		82.66	168.8 <sup>3</sup>	89.88	115.0 <sup>4</sup>	59.19	82.42	82.41	110.93	791.36
BARREN (HA)		11.98	13.68	1.82	4.18	5.85	0.62	1.44	0.00	39.58
CCA (HA)										
CROPS	CROPPING INTENSITIES (% OF CCA)									
WHEAT	45.00	61.70	66.30	58.44	34.66	57.20	54.50	64.80	49.40	55.70
GRAM/PULSE S	5.00	10.30	11.70	25.34	33.26	22.20	25.16	19.10	26.90	21.60
SUGARCANE	15.00	11.30	4.80	5.15	0.10	8.90	0.15	0.80	8.20	4.61
FODDER	10.00	4.00	7.00	8.24	17.84	0.90	11.27	2.40	5.80	7.82
OILSEEDS	5.00	1.20	1.50	-	0.85	1.40	-	-	-	0.65
GARDENS	5.00	-	-	-	-	-	-	-	-	0.00
MISC (VEGE)	5.00	-	0.60	0.30	0.61	-	0.08	0.70	3.10	0.79
CI	90.00	88.50	91.90	97.47	87.32	90.60	91.16	87.80	93.40	91.17
FALLOW	10.00	11.50	8.10	2.53	12.68	9.40	8.84	12.20	6.60	8.83
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0



TABLE 4.1.2 DISTRIBUTARY # 3; KHARIF SEASON 1992

	DESIGN	570L	690R	6468R	6468L	10150R	11920L	14810R	15382R	DISTY AVERAGE
GCA (HA)		82.7	168.8	89.9	127.5	59.2	82.4	45.6	110.9	767.0
BARREN (HA)		12.0	13.7	1.8	5.1	5.9	0.6	0.5	0.0	39.6
CCA (HA)		70.7	155.1	88.1	122.4	53.3	81.8	45.1	110.9	727.4
CROPS	CROPPING INTENSITIES (% OF CCA)									
RICE	2.0	2.9	7.7	28.5	28.3	39.5	48.8	35.7	20.2	23.78
SUGARCANE	15.0	9.9	6.3	4.4	1.7	0.3	1.0	14.8	9.1	5.53
FODDER	10.0	17.7	10.7	11.5	11.5	7.1	7.8	0.6	4.5	9.50
MAIZE	10.0	-	-	-	-	-	0.1	2.6	2.6	0.54
MILLET	3.0	-	-	2.7	-	-	-	-	0.4	0.39
COTTON	10.0	-	-	-	0.3	-	-	-	-	0.04
GARDEN	5.0	-	-	-	-	-	-	-	0.6	0.10
MISC(VEGE)	5.0	4.1	2.4	6.4	0.4	-	0.3	0.7	0.2	1.85
CI	60.0	34.6	27.1	53.5	42.2	46.9	58.0	54.4	37.6	41.7
FALLOW	40.0	65.4	72.9	46.5	57.8	53.1	42.0	45.6	62.4	58.3
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 4-1.3 DISTRIBUTARY # 3; RABI SEASON 1992/93

	DESIGN	570L	690R	6468R	6468L	10150R	11920L	14810R	15382R	DISTY AVERAGE
GCA (HA)	-	82.66	168.83	89.88	127.48	59.19	82.42	45.58	110.93	766.97
BARREN (HA)	-	9.30	10.16	1.62	5.07	2.64	0.00	0.47	0.00	29.26
CCA (HA)	-	73.36	158.67	88.26	122.41	56.55	82.42	45.11	110.93	737.71
CROPS	CROPPING INTENSITIES (% OF CCA)									
WHEAT	45.00	72.29	70.92	67.63	44.00	71.91	54.80	58.60	51.48	60.8
GRAM/PLUSE	5.00	9.02	9.08	10.19	26.00	14.76	28.80	17.80	19.28	16.72
SUGARCANE	15.00	9.11	8.38	7.02	0.30	0.18	1.00	14.80	17.79	7.3
FODDER	10.00	2.76	4.75	6.47	19.30	5.29	6.60	3.10	4.88	7.34
OILSEEDS	5.00	-	-	-	-	-	-	-	-	-
GARDENS	5.00	-	-	-	-	-	-	-	-	-
MISC (VEGE)	5.00	-	-	0.26	1.60	-	0.30	0.20	-	0.34
CI	90.00	93.18	93.13	91.57	91.20	92.14	91.50	94.50	93.43	92.50
FALLOW	10.00	6.82	6.87	8.43	8.80	7.86	8.50	5.50	6.57	7.50
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 4.1.4 DISTRIBUTARY # 3; KHARIF SEASON 1993

	DESIGN	570L	690R	6468R	6468L	10150R	11920L	14810R	15382R	DISTY AVERAGE
GCA (HA)		82.66	168.83	89.88	127.48	59.19	82.42	45.58	110.93	766.97
BARREN (HA)		9.30	10.16	1.62	5.07	2.64	0.00	0.47	0.00	29.26
CCA (HA)		73.36	158.67	88.26	122.41	56.55	82.42	45.11	110.93	737.71
CROPS	CROPPING INTENSITIES (% OF CCA)									
RICE	2.00	21.65	9.47	29.45	34.20	35.42	52.80	23.82	26.15	26.04
SUGARCANE	15.00	9.12	6.89	8.11	0.80	0.00	1.60	18.70	18.48	8.94
FODDER	10.00	2.41	6.76	3.84	8.00	8.93	5.30	3.40	1.83	4.69
MAIZE	10.00	-	-	-	-	-	-	-	-	-
MILLET	3.00	-	-	-	-	-	-	-	-	-
COTTON	10.00	-	-	-	-	-	-	-	-	-
GARDEN	5.00	-	-	-	-	2.37	-	-	-	0.22
MISC(VEGE)	5.00	-	-	-	0.30	-	1.00	0.85	0.16	0.23
CI	60.00	33.18	23.12	41.40	43.30	46.72	60.70	46.77	46.62	40.12
FALLOW	40.00	66.82	76.88	58.60	56.70	53.28	39.30	53.23	53.38	59.88
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 4.1.5 DISTRIBUTARY # 4; KHARIF SEASON 1992

	DESIGN	1860-R	8980-L	16512-L	28448-R	DISTY AVERAGE
GCA (HA)		38.11	160.74	64.72	136.53	400.10
BARREN (HA)		0.00	3.64	0.47	7.84	11.95
CCA (HA)		38.11	157.10	64.25	128.69	388.15
CROPS	CROPPING INTENSITIES (% OF CCA)					
RICE	2.00	43.91	14.52	22.41	26.62	22.72
SUGARCANE	15.00	0.00	19.81	2.63	12.08	12.46
FODDER	10.00	3.62	6.60	2.66	9.39	6.58
MAIZE	10.00	0.00	0.00	0.00	0.00	0.00
MILLET	3.00	0.00	0.00	0.00	0.00	0.00
COTTON	10.00	0.00	0.00	0.00	0.15	0.00
GARDEN	5.00	0.00	0.00	0.00	0.00	0.14
MISC (VEGE)	5.00	7.34	0.22	0.00	0.153	0.72
CI	60.00	54.87	41.15	27.70	48.24	42.62
FALLOW	40.00	45.13	58.85	72.30	51.76	57.38
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 4.1.6 DISTRIBUTARY # 4; RABI SEASON 1992/93

	DESIGN	1860-R	8980-L	16512-L	28448-R	DISTY AVERAGE
GCA (HA)		38.11	160.74	64.72	136.53	400.10
BARREN (HA)		0.00	0.00	0.47	7.84	8.31
CCA (HA)		38.11	160.74	64.25	128.69	391.79
CROPS	CROPPING INTENSITIES (% OF CCA)					
WHEAT	45.00	69.12	38.24	71.63	65.82	55.78
GRAM/PLUSES	5.00	9.74	18.48	10.78	7.39	12.72
SUGARCANE	15.00	0.00	20.82	8.60	8.03	12.59
FODDER	10.00	4.28	5.72	2.53	7.62	5.68
OILSEEDS	5.00	0.00	0.00	0.00	0.00	0.00
GARDENS	5.00	0.00	1.94	0.00	0.15	0.85
MISC (VEGE)	5.00	1.83	0.25	0.00	0.25	0.36
CI	90.00	85.00	85.45	93.54	89.26	87.98
FALLOW	10.00	15.03	14.55	6.46	10.74	12.02
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 4-1.7 DISTRIBUTARY # 4; KHARIF SEASON 1993

	DESIGN	1860-R	8980-L	16512-L	28448-R	DISTY AVERAGE
GCA (HA)		38.11	160.74	64.72	136.53	400.10
BARREN (HA)		0.00	0.00	0.08	3.87	3.95
CCA (HA)		38.11	160.74	64.64	132.66	396.15
CROPS	CROPPING INTENSITIES (% OF CCA)					
RICE	2.00	51.80	20.52	52.41	28.64	31.45
SUGARCANE	15.00	0.00	21.28	9.25	10.40	13.63
FODDER	10.00	6.70	6.48	3.74	4.47	5.38
MAIZE	10.00	0.00	0.00	0.00	0.00	0.00
MILLET	3.00	0.00	0.00	0.00	0.00	0.00
COTTON	10.00	0.00	0.42	0.00	0.00	0.17
GARDEN	5.00	0.00	1.94	0.00	0.15	0.84
MISC (VEGE)	5.00	1.30	0.20	0.00	0.46	0.36
CI	60.00	59.80	50.84	65.40	44.12	51.83
FALLOW	40.00	40.20	49.16	34.60	55.88	48.17
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00

# TABLE 4-2 WHEAT AND RICE YIELDS

TABLE 4-2.1 WHEAT CROP - CUT DATA, DISTRIBUTARY # 3 RABI 1991 - 92

FARMER'S NAME	PLOT NO	SAMPLE:1					SAMPLE:2					SAMPLE:3																
		HARVEST DATE	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD		
MATEE ULLAH KHAN	PLT1	26/04/92	10.3	8.8	9.8	8.5	9.8	258	38	206	9	8.5	7.5	7.5	6	7.5	302	41	325	9.5	10	10	9	9	7	378	43	351
MATEE ULLAH KHAN	PLT2	25/04/92	6.5	7.5	10	7	10	107	21	94	9.5	10	10	10	9	8.5	277	39	213	10	5	5.5	7.5	7.5	8	360	41	362
MATEE ULLAH KHAN	PLT3	25/04/92	10	11	8.5	11.5	8.5	369	43	394	7.8	9.8	10.6	10.6	8	8.3	254	29	259	7.5	8	8	9.5	9.5	8	151	39	337
MATEE ULLAH KHAN	PLT4	25/04/92	9.5	8	8	7.5	11	220	45	263	9.8	9.8	10.6	10.6	8	8.2	244	38	332	9	6.5	7.5	9.5	9.5	8	102	30	213
M ANWAR	PLT1	25/04/92	8.2	9	7.5	8.5	6.5	178	34	188	8	7	8.5	8	8	8.2	244	38	332	8.5	8.5	9	9.5	9.5	9	185	26	238
M ANWAR	PLT2	25/04/92	8	11.5	10	11	11	215	37	562	11	10	11	10	10	8.2	301	36	487	7.5	8.5	10	8.5	8.5	9	225	40	362
M ANWAR	PLT3	25/04/92	9	8.5	7.5	8.5	7	137	31	225	9.5	8.5	7.5	7.5	7	10.5	215	31	184	9.5	8.5	8	6.5	8	368	57	252	
M ANWAR	PLT4	25/04/92	10	9	10	11	9.5	249	38	437	10.5	7	8.5	7.5	8	5.5	263	41	429	8.5	9	6.5	9	8	257	47	489	
M ANWAR	PLT5	25/04/92	9.5	7	8	11	8.5	228	43	334	7	8	8.5	8	8	8	259	29	435	8.5	9	9	9.8	9	320	34	379	
WARI KHAN	PLT1	24/04/92	9	4.6	7	5.9	8	137	33	135	7	8	8	8	4	205	23	138	8	8	8.2	9	6	6	256	39	168	
WARI KHAN	PLT2	24/04/92	9	4.6	7	5.9	8	154	20	71	10	6.5	6.3	7	7.5	139	32	111	9	10	9	6.8	6.8	8.7	232	42	189	
WARI KHAN	PLT3	24/04/92	9	4.7	6	6	6	208	24	81	6	5.5	6.2	4.5	4.5	300	27	219	9	6.8	6.8	7	5.5	6.1	313	27	141	
WARI KHAN	PLT4	24/04/92	5	11	6.5	8	6.5	145	45	60	6.9	7.8	8.9	8.2	8.2	128	29	73	10	8.8	8.1	8.5	8.5	8.5	184	47	139	
WARI KHAN	PLT5	16/04/92	6.5	8.5	5.4	12	9.4	288	66	232	7.7	8.5	4.7	10.5	9.6	304	50	307	8.3	5.4	11	11.9	9	7	206	51	260	
SHARI KHAN	PLT1	23/04/92	11.9	12.1	10.6	7	12.6	180	52	275	9.2	10.8	9.6	11.6	11.6	232	58	320	7.5	9.8	11.2	11.9	11.1	10.8	287	56	380	
SHARI KHAN	PLT2	23/04/92	11.4	10	6.6	8	12.2	179	61	235	8.4	10.2	9.5	10.4	7.5	277	56	362	7.7	11.2	9.4	11.1	11.1	10.8	300	33	300	
SHARI KHAN	PLT3	24/04/92	8	7.5	11.5	6	9	421	41	249	9	8	8.5	5.5	5.5	339	39	383	8	11.5	9.6	10	8.3	234	47	234		
SHARI KHAN	PLT4	24/04/92	7	8.6	7.4	12.4	12	383	38	285	9.4	4	6.7	5.9	5	529	39	329	8	10	8	6	6	5	347	28	189	
SHARI KHAN	PLT5	24/04/92	8.6	7	9	9	10	266	36	318	12	12.5	8	7.3	8	125	24	204	10	7	11	10.5	8.9	8.9	145	43	218	
ABBAS KHAN	PLT1	24/04/92	5	6.5	5.8	6	7	170	11	117	8.1	10.4	7	6	11	134	46	185	10	11.5	8	9	11	11	207	49	362	
ABBAS KHAN	PLT2	24/04/92	10	12	8	10	7.6	249	54	304	11	10	7	10	9.5	170	45	225	11	6	7	9.5	9	9	112	35	94	
ABBAS KHAN	PLT3	24/04/92	11	8.5	9	5	7	143	46	142	7	9	11	12	10	111	48	107	11.3	8.8	10	10	9.5	9.5	156	39	215	
ABBAS KHAN	PLT4	24/04/92	9.2	10.2	11.9	10.3	10.5	230	43	173	8	8.5	8.4	9	11.8	205	40	232	10	11	10	10	9.5	8.4	115	55	230	
ABBAS KHAN	PLT5	24/04/92	9.2	10.2	11.9	10.3	10.5	230	43	173	8	8.5	8.4	9	11.8	205	40	232	10	11	10	10	9.5	8.4	115	55	230	
HABIB ULLAH	PLT1	24/04/92	9	10.5	9.9	11.5	11	215	49	380	8	8.3	10	12	10.1	138	58	300	12	11.3	10	11	11	11	11	222	58	530
HABIB ULLAH	PLT2	24/04/92	10.3	10.5	10.3	10.7	10.6	214	53	258	6	11	8.6	8.5	8.7	229	58	400	9	12	7	5	10	10	236	56	280	
HABIB ULLAH	PLT3	24/04/92	11.2	8.2	10	10.2	9.8	249	58	470	8.4	10.5	6	12	10	195	59	451	9.4	11	10	4	10	10	170	56	286	
HABIB ULLAH	PLT4	24/04/92	11.5	12	11	10.5	10	333	43	552	12.6	11.8	8.9	12.4	12	311	49	602	11	10	11.2	8.5	11.5	11.5	259	47	427	

FARMER'S NAME	PLOT NO	SAMPLE:1					SAMPLE:2					SAMPLE:3															
		HARVEST DATE	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	
GHULAM SARWAR	PLT1	26/04/92	8	9.4	8.7	9.4	8.4	199	33	210	9.6	8.6	11.5	9.6	8.5	147	39	249	11.5	8	10	13	10	10	130	40	244
GHULAM SARWAR	PLT2	26/04/92	7.5	7	7.9	6	10.3	187	27	328	12	8.4	11.5	9.8	11	174	51	270	6.4	10.5	7	12	6.8	6.8	310310	48	259
GHULAM SARWAR	PLT3	26/04/92	6.5	7	7.9	6	8.5	275	36	187	6.5	9	8	10.5	6.5	105	25	239	8.5	8.5	9	8.5	10	10	147	31	191
GHULAM SARWAR	PLT4	26/04/92	7.8	9.2	9.1	11.2	10.2	368	38	357	10	10.2	10.2	11	10.4	367	48	345	8	8.5	8.5	10	8.5	10	239	41	131
GHULAM SARWAR	PLT5	26/04/92	9.6	7.5	11	9	8.2	280	50	318	9	8.5	10.5	7.5	8	215	33	251	9	8	9	7	6	248	25	254	
GHULAM MUHAMMAD	PLT1	26/04/92	10	10.5	9	8.5	13.5	186	33	356	10.2	10.2	10.9	10.2	7	384	31	514	8	8	8.5	10	10	10	205	29	178
GHULAM MUHAMMAD	PLT2	26/04/92	8	8.9	8.9	8.5	7	317	34	458	8.2	9.8	9.8	8.6	6.5	222	39	241	8.5	7.5	7.9	8	7.5	8	205	31	274
GHULAM MUHAMMAD	PLT3	26/04/92	9	7	8.5	8.5	3.5	211	36	357	9	8.5	8.5	5.5	7	185	40	360	8.5	8.5	8.1	8	8.1	8	231	26	284
GHULAM MUHAMMAD	PLT4	26/04/92	3	9.5	6.5	7	10.5	228	37	429	12	9	9.9	8	8.5	311	39	236	8.8	9	8.5	11	8	7.5	325	39	510
GHULAM MUHAMMAD	PLT5	26/04/92	9.8	9.6	9	10.6	9.5	160	41	360	11	11.5	10.5	7.5	9.8	333	42	504	10.7	9.5	8.2	8.5	9.5	10.2	400	42	538
QADIR BAKHSH	PLT1	26/04/91	8	11.5	8	9	5	260	22	248	9.5	8	8.5	9	8.5	236	32	302	10	10.2	10	10	10	10	350	42	538
QADIR BAKHSH	PLT2	26/04/91	8	10.5	8.5	9.6	10	229	47	254	10.5	10.5	10.5	9.5	11	263	41	273	10	8	11.5	8.5	8.5	8.5	222	44	335
QADIR BAKHSH	PLT3	26/04/91	8	8	8.5	10.5	10	314	38	403	10.5	15	11.5	9.5	10	212	45	315	12	12.5	11.5	12	10.5	12	233	49	383
QADIR BAKHSH	PLT4	26/04/91	8	6	6	6	6	261	27	344	7.9	8.5	10.5	6.6	10	251	32	415	9	6	10	8	6	6	227	42	262
QADIR BAKHSH	PLT5	26/04/91	9.5	9	10.5	11.5	7.5	338	34	439	11.5	8	9	10	11	353	30	439	11.5	12	11	10.5	10.5	10.5	275	37	422
MOULA DAD	PLT1	26/04/92	10.1	6.9	9.4	10.5	5	241	96	427	5.5	6	9	8.5	6	167	30	150	8	8	10.5	11	6	6	161	41	196
MOULA DAD	PLT2	26/04/92	10.2	10	7.5	9	11	221	38	398	8.4	10	10.6	8.6	10.6	232	54	345	9.5	9.5	10	6.5	7.9	7.9	166	32	280
MOULA DAD	PLT3	26/04/92	9	10.5	7	9.5	9	225	41	248	9.5	9.5	9.9	7.5	11	249	46	277									

TABLE 4-2.1 (cont.)

WC NO. 0150/P

FARMER'S NAME	PLOT NO.	SAMPLE-1					SAMPLE-2					SAMPLE-3															
		DATE	HARVESTI	SL1	S.2	SL3	SL4	SL5	TL	GR	YLD	SL1	S.2	SL3	SL4	SL5	TL	GR	YLD	SL1	S.2	SL3	SL4	SL5	TL	GR	YLD
SARFAZ	PLT1	18/04/92	6	5	8	10.5	7.5	206	54	340	5	9	11	9	11.5	134	35	218	6	6	7	11	6	9.5	276	64	410
SARFAZ	PLT2	18/04/92	9.5	11.5	6.5	10	9	245	68	355	11	11	245	9	7.5	214	75	518	9	9	10	6.5	8.2	349	51	512	
SARFAZ	PLT3	18/04/92	7.5	12	8	8	11.5	284	56	443	11	10	8	8	7.2	231	62	387	8.3	10	10	9.5	7.1	302	46	300	
SARFAZ	PLT4	25/04/92	11	9.5	10	9.6	11.3	224	41	325	8.9	8.8	7.4	41	10.3	219	41	421	10	10	8	10	10	232	45	361	
SARFAZ	PLT5	25/04/92	7.8	9	7	10.5	10.2	273	36	522	6	10	7.5	10.4	11.5	377	48	658	12	14	12	12	11.5	258	45	570	
M FAREED	PLT1	25/04/92	8.8	9.7	8.6	8.6	15.1	30	189	9.4	10.3	9.4	8	10	208	46	279	10	8	8.5	10.5	8.3	8.9	180	51	240	
M FAREED	PLT2	25/04/92	6	7	5	8	3.5	232	30	198	8.5	9.5	8	7.5	275	32	191	8	8	8.5	10.5	7.2	7.2	228	35	161	
M FAREED	PLT3	25/04/92	6	12.5	10.5	10.5	10.4	203	33	333	11	10	11	11.5	151	47	298	9.8	8	8	5.8	7.2	10	120	37	162	
M FAREED	PLT4	25/04/92	11.3	10.8	10.4	10.8	10.4	200	58	427	8	8	10.5	9	6	212	64	317	10	10	6.5	10	12	11	255	56	392
M FAREED	PLT5	25/04/92	5	11.5	7	8	8.5	259	36	338	8	8.9	10	6	7.5	268	33	369	10	10	8.5	9.5	9.5	288	41	524	
M NAWAZ	PLT1	25/04/92	8	8.9	10	5.5	6.5	172	29	138	11	12	10	11	10	154	50	215	11	11	11	9.8	11.2	301	48	104	
M NAWAZ	PLT2	25/04/92	7	9	8.5	6.5	8	306	72	174	7.3	5	8.5	7	5.5	289	23	113	8	8	9.5	8	10	8	225	27	275
M NAWAZ	PLT3	25/04/92	6	8.5	7.5	6	7.5	172	25	70	7	6.5	8	8	7.5	108	20	77	9	9	10	7	9	9.5	89	32	
M NAWAZ	PLT4	25/04/92	7.1	5.7	8.4	7.6	6.5	105	22	107	7.5	7	7	7	8.4	148	26	103	10.4	8.8	8.8	8.5	8.4	85	30	98	
M NAWAZ	PLT5	25/04/92	7.5	9	11	6.6	8	199	39	154	7	8.8	6.3	6.8	9.5	201	19	176	8.5	7	10	7.4	8.1	254	33	386	
GHULAM HUSSAIN	PLT1	26/04/92	10	8	10.5	7	10.4	187	30	195	11	9.5	11	9.6	10.5	196	30	214	9	10	8.8	10.6	9.8	174	38	156	
GHULAM HUSSAIN	PLT2	26/04/92	8.4	10	9	9.2	7	182	33	165	8.5	10	9	7	8	365	45	237	10	10	8.8	10.6	9.8	209	36	237	
GHULAM HUSSAIN	PLT3	26/04/92	6	9.5	9.4	7	9.2	111	35	126	9	8.3	8	8	7.6	81	32	154	8.5	5	6	6	7	123	31	98	
GHULAM HUSSAIN	PLT4	26/04/92	10	7.5	11.4	9.8	11	110	60	182	8.8	9	8.8	11.2	205	74	234	9.2	9	6.7	8.5	5	6.7	150	59	270	
GHULAM HUSSAIN	PLT5	26/04/92	10	9.5	10	10.8	11.2	282	53	500	5.5	9	8	8.5	9.2	230	35	350	5.9	9	9.9	9.9	11.5	180	28	253	
MIR WALI KHAN	PLT1	25/04/92	8	6	9.5	8.3	7.9	159	40	174	9.1	8.5	10	8	5	61	31	115	6	6	7.5	9	5.5	7.5	145	25	152
MIR WALI KHAN	PLT2	25/04/92	6.8	7.7	7.5	6.8	203	23	147	10.5	12	9.5	7.6	10	253	35	377	8.2	9.8	9	9	8.2	10	239	49	200	
MIR WALI KHAN	PLT3	25/04/92	10	7.5	9.5	10	8.5	105	37	148	5.6	6	8	8.5	135	32	159	8.4	9.5	9	11.5	10	9	8.5	130	34	262
MIR WALI KHAN	PLT4	25/04/92	7.2	9.5	7.6	5	10	174	30	154	10.5	10	10	10	6	287	36	228	12	9.5	10	9.5	10	9	180	29	145
MIR WALI KHAN	PLT5	25/04/92	10	11.5	6.5	6	7	70	30	31	9	8.5	9	9	6	61	33	30	6.9	7	8	8	7.5	69	31	43	
MIR WALI KHAN	PLT6	25/04/92	7.5	6	6	7	8.5	120	27	108	10	7	10	6.5	8.5	258	37	184	7.5	8.5	8.5	9.5	10.4	176	32	178	

WC NO 14810/P

FARMER'S NAME	PLOT NO.	SAMPLE-1					SAMPLE-2					SAMPLE-3															
		DATE	HARVESTI	SL1	S.2	SL3	SL4	SL5	TL	GR	YLD	SL1	S.2	SL3	SL4	SL5	TL	GR	YLD	SL1	S.2	SL3	SL4	SL5	TL	GR	YLD
SIMAT KHAN	PLT1	25/04/92	9	7.5	10	8.5	9.5	237	42	427	9	9	10	8	8.5	213	37	262	8.8	11.3	9	9	10	12	220	51	344
SIMAT KHAN	PLT2	25/04/92	9.5	8	7.5	11	9.5	218	34	375	9.5	9.5	8.5	8	8.5	145	38	179	12	12	12	9	9.2	5	219	29	374
SIMAT KHAN	PLT3	25/04/92	10.4	10.3	8.9	8.8	11	280	47	385	9.5	11	10	10	8.5	232	37	274	10.5	9.5	9.5	9	11.5	6.5	308	41	373
SIMAT KHAN	PLT4	25/04/92	9	9	9	5	5.6	189	40	160	6	7.5	12.5	7.5	10	175	34	263	9.5	10	11.5	11	6.5	188	49	212	
SIMAT KHAN	PLT5	25/04/92	10	7.3	7	7.1	8.6	580	25	327	10	9.8	10.1	8.3	6.5	128	38	300	5.2	11.5	8.5	10	10	131	48	130	
PALQAS KHAN	PLT1	23/04/92	13	11.5	12.5	11.2	10.3	256	66	516	11.2	8	11.2	9.8	10.8	304	38	300	7.3	9.4	10.2	8.9	7.4	356	41	345	
PALQAS KHAN	PLT2	23/04/92	5	6	6	8	10	256	43	287	8	10	7.7	8.4	9.2	210	46	201	9	11.6	10.5	9.6	8.5	8.8	176	37	237
PALQAS KHAN	PLT3	23/04/92	7	7.5	10	8.5	7.5	259	29	374	11	11	9.4	11.5	10.5	281	31	530	11.5	10.5	9.5	9.5	10.4	228	43	423	
PALQAS KHAN	PLT4	23/04/92	10	8.5	8.5	8	8.5	239	36	351	9.8	9	10.5	7.6	9.2	342	41	310	8	11	9.9	10	7.5	112	33	186	
PALQAS KHAN	PLT5	23/04/92	9.9	9.5	10.5	9	8.6	236	29	256	6.7	10.7	11.5	11.5	10.8	248	49	472	8.9	10.1	9.9	10.5	9.6	268	44	465	
MIR WALI KHAN	PLT1	26/04/92	10	8.5	8.5	8	8.5	246	59	648	12	10	8.3	11.9	7	205	56	360	11	9.9	11.5	10.5	10.5	10	149	37	250
MIR WALI KHAN	PLT2	26/04/92	11.5	12	11.9	10.9	7.4	187	34	377	7	8.5	10.5	10.5	7	259	29	236	9	10.5	8	8	7.5	9	208	35	336
MIR WALI KHAN	PLT3	26/04/92	11.5	11.5	11	10.5	10	187	49	300	10	10	8.5	9	8.5	205	38	326	8.5	10.5	9.5	8	8	168	25	362	
MIR WALI KHAN	PLT4	27/04/92	7.5	9	9.8	9.5	6.8	189	36	407	7.5	8	9.2	8.5	10	246	40	438	9.5	8	9.5	8	8	280	45	334	
MIR WALI KHAN	PLT5	27/04/92	8	8.5	10	9	9.5	243	44	367	7.7	8.8	8.4	10.2	7.8	246	28	310	9.3	9.8	9.5	7.8	8	370	45	370	
AYAZ KHAN	PLT1	27/04/92	7	8.1	9.3	8.6	6.4	224	51	364	10.3	9.5	9.2	11.3	9.6	185	48	266	8.8	9.8	10	9.5	10.5	258	62	401	
AYAZ KHAN	PLT2	27/04/92	9.5	8.5	7	8.5	8.5	182	57	364	8	8	9.2	10	9.2	185	49	339	6	7.5	5.5	10	7	115	32	210	
AYAZ KHAN	PLT3	26/04/92	5.5	7.5	9	8	9.5	178	29	182	10	10.5	10	7.6	9.9	187	45	335	6	6	6	6	6	153	34	125	
AYAZ KHAN	PLT4	25/04/92	7.5	5	9.5	7	5.5	165	37	213	8	8.5	10.5	8.5	8	160	30	204	9.5	8.5	12	11.5	8.5	10	133	34	218
AYAZ KHAN	PLT5	28/04/92	7.5	6	6	7	6	137	25	107	10.5	10	8	8.5	4.5	120	36	124	7	6	7.5	6	4	5	201	23	90
GHULAM RASOOL	PLT1	28/04/92	9	6	7.5	9	6.5	158	25	144	6	6.9	9	7	10.8	165	31	179	6.5	5.5	5.5	6	9	10.5	120	36	76



TABLE 4-2.2 WHEAT CROP - CUT DATA, DISTRIBUTARY # 3 RABI 1992-93

FARMERS NAME	PLOT NO.	SAMPLE 1										SAMPLE 2										SAMPLE 3									
		DATE	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD					
Ghuam Sarwar	PLT1	24/04/93	9	8	11	10	6	188	42	227	10	9.7	8.4	9	8.4	114	48	140	6.7	7.3	8.4	8.3	8.9	131	38	116					
Ghuam Sarwar	PLT2	24/04/93	9.5	8.5	10	12	11	141	35	147	8	9.5	7.5	9	8.5	148	35	196	8.5	9	7.5	10	5.5	207	50	226					
Ghuam Sarwar	PLT3	24/04/93	10	9	9	7.5	6	190	35	301	10	9.5	10	8	7.5	125	42	148	5.8	6	10	9	8	184	49	150					
Wali Khan	PLT1	24/04/93	8.5	9	8.3	7.9	9.9	175	45	265	6.5	6	8.5	9	8.5	177	47	171	6.7	7.3	8.4	8.3	8.9	131	38	116					
Wali Khan	PLT2	24/04/93	11	6.5	8	7	5	143	46	166	8	9	9.5	8	9.5	101	44	242	8.5	9	7.5	6	6	280	25	191					
Wali Khan	PLT3	24/04/93	10.5	10	6.5	8	9.8	140	57	251	8	6.5	6.8	7.1	7	301	31	117	8.7	8	7.5	9.7	6.8	164	40	140					
Shah Khan	PLT1	27/04/93	7	5	7	5.5	4.5	330	15	263	8	9.5	6.8	7.1	7	301	31	117	8.7	8	7.5	9.7	6.8	164	40	140					
Shah Khan	PLT2	27/04/93	9.5	9.5	7.2	8.2	8	134	36	135	6.5	5.5	6	5.5	8	246	33	129	7.5	6	5	8	5	320	23	175					
Shahi Khan	PLT3	27/04/93	6.8	7	9	7	6.5	272	45	169	6	7.5	11	10.5	7.5	210	43	203	6.8	7	9	7	6.5	272	45	189					
M Anwar	PLT1	24/04/93	12	11.5	9.5	10	8.5	193	47	319	10.5	10.2	9.5	9	8.5	251	52	363	10	9.5	8.5	9	8.5	91	48	162					
M Anwar	PLT2	24/04/93	10.5	11	7.5	8	5.6	125	36	198	8	8.5	10	8.5	9	10	11	9	10	11	9	8	180	44	121						
M Anwar	PLT3	24/04/93	9	8.5	10	7	8	115	44	140	10	9	8.8	7.5	6	227	45	352	8.5	7.5	9.5	8	8.5	165	58	180					
Mateenullah	PLT1	25/04/93	11	10	9.5	7.5	6.5	259	57	262	8	7.5	4.1	8	8	179	35	221	8.6	8.1	8	6.7	7.3	149	37	215					
Mateenullah	PLT2	25/04/93	8	7	8.5	9	6	139	39	106	10	11	8	7	5.5	101	42	191	10.3	10.3	9	8.5	5.5	136	48	247					
Mateenullah	PLT3	25/04/93	10.3	9.8	8.3	9	6.5	112	36	200	9.5	11	9.5	9.6	10.8	166	45	227	10	8.5	9	7.5	7	161	38	158					
Abbas Khan	PLT1	24/04/93	8	9	7	9.5	7.5	117	37	142	10	12	10.5	9.5	7	166	48	330	11.5	10	10.2	10.5	6	247	42	226					
Abbas Khan	PLT2	24/04/93	8.5	9	7	9.5	8	120	50	128	8	7.5	6	9	7	69	38	115	10	10	8.7	8.4	8.5	148	42	148					
Abbas Khan	PLT3	24/04/93	11	6	9	7	10	156	40	93	6.5	6	8	7.5	8	220	28	136	10.5	9	7.5	8	7	145	42	100					

W/C NO. 690 R

FARMERS NAME	PLOT NO.	SAMPLE 1										SAMPLE 2										SAMPLE 3									
		DATE	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD					
M Bashir	PLT1	26/04/93	8.9	9	10	10.1	8.2	98	36	163	7.5	9.5	8.4	9.5	7.9	62	44	255	9	8	3.6	5.9	7.6	228	38	212					
M Bashir	PLT2	26/04/93	11.1	9.5	8.1	10	7.5	104	46	189	8.5	6.5	7.5	5.5	8.8	11	20	110	11.5	9	12.3	9.5	8.5	155	52	263					
M Bashir	PLT3	26/04/93	11	8	10	8	7.5	210	46	204	8	6.5	7	7.5	5	118	39	72	8	6.7	6.1	5.5	5.5	189	36	189					
Hussain Khan	PLT1	26/04/93	8.5	7.5	6	10	6.8	135	40	123	8	6	8.3	7.5	8.2	121	44	130	9.5	9.2	9.4	10.5	9.9	142	62	167					
Hussain Khan	PLT2	26/04/93	8.5	8.5	9.5	6.5	8	228	41	271	8	9.5	9.2	9	8.7	192	48	187	7	6.5	7.8	8	9	178	37	165					
Hussain Khan	PLT3	26/04/93	9	8.1	5	8	10	155	55	199	10	8	8.5	8.5	8.5	208	45	246	4.5	5	10.5	9.5	9	124	36	126					
Hashim Khan	PLT1	25/04/93	8.5	9	9.6	8	7.8	133	48	108	11.5	11.4	9.4	8.2	6	83	56	127	11	8	5	9	8.7	141	43	162					
Hashim Khan	PLT2	25/04/93	10	7.5	9	12	9.5	277	46	434	11	9	6	9.5	7	134	44	204	9	8	7.5	9.8	7.5	127	47	83					
Hashim Khan	PLT3	25/04/93	11	8	5	9	8.7	141	43	162	10	8	9	8.5	10	146	50	247	5	5.5	7.5	6	6.5	198	17	104					
Sikandar Khan	PLT1	25/04/93	10	8.5	10	7.5	7	211	57	274	12.5	10.5	10	9	8	207	47	208	8.5	9	9.5	8	6	183	45	209					
Sikandar Khan	PLT2	25/04/93	9.5	8.5	6.5	4.5	5.5	167	33	76	11.5	8	10	10	8	344	51	469	10	8.5	8	11	8	190	32	242					
Sikandar Khan	PLT3	25/04/93	9.8	10.2	8.2	8.2	11.2	159	42	230	10	6	8	9	5.5	208	45	276	11.5	6.5	9	10.5	7	168	35	228					
Falak Sher	PLT1	22/04/93	8	8.3	8	7.5	8.5	101	37	110	7.5	7	8	6.5	7.8	135	45	279	7	4.8	5.5	7.5	8	230	37	96					
Falak Sher	PLT2	22/04/93	9.2	8	8.5	8.2	9	163	51	215	8	8.7	10.5	7	9	104	41	133	9.5	8	8	8	8	221	42	257					
Falak Sher	PLT3	22/04/93	10	9.5	8.5	7.5	7	145	60	194	8	8.5	8	8	8	212	41	269	11.5	9	8.5	7.8	7	254	43	362					
M Afzal	PLT1	22/04/93	8.5	8.5	6	9.1	9	186	34	157	7.8	6.5	9	8	7.8	122	34	76	9	6.5	10.4	6.7	8	167	37	177					
M Afzal	PLT2	22/04/93	8	8	10	8.5	8	145	34	142	9.5	9	8.5	7	5.8	119	35	136	10	9.7	8.5	8.3	8.1	374	49	443					

W/C NO. 6468-L

FARMERS NAME	PLOT NO.	SAMPLE 1										SAMPLE 2										SAMPLE 3									
		DATE	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD					
Shah Jahan	PLT1	21/04/93	12	8	10.5	11.8	9.5	183	67	335	10.5	9.4	8.3	10.5	8.5	157	46	185	10	7.5	11	6.8	8	166	35	221					
Shah Jahan	PLT2	21/04/93	10	9.8	8.1	9.5	11.5	255	57	291	11	10.8	7	10	9	175	52	277	10.2	11.7	10	10.4	7.3	207	53	313					
Shah Jahan	PLT3	21/04/93	10	12.5	8	7.5	11.8	260	54	285	8	10	14	10	14	231	45	318	11	10	9.8	9	10.5	200	53	152					
Saleem	PLT1	24/04/93	7.5	11.3	10.5	8	7	224	63	279	10	9	9.3	9.5	8	255	42	405	9.2	7.3	10	8	8	247	47	263					
Saleem	PLT2	24/04/93	12.5	11	10	12	9	293	44	465	11	10.5	10	10.5	10.5	222	46	356	10.5	10.5	11	8	10	269	54	263					
Saleem	PLT3	24/04/93	6.5	7.5	9	9.5	7.5	174	64	235	8	7	6	10	11.5	310	40	338	9.5	9	16	11.5	8.5	194	54	269					
Gadir Baksh	PLT1	20/04/93	7.5	10.5	7.5	8.5	11.5	255	47	368	10	11	10.5	9.5	11	315	38	236	10	8	10	9.3	5.5	251	47	273					
Gadir Baksh	PLT2	20/04/93	11	10.5	9.2	9	7	298	41	169	8	9	7	6	8	146	22	79	6.5	9	9.5	10.4	8	260	50	262					
Gadir Baksh	PLT3	20/04/93	7	7.8	8.5	8.1	9.3	138	34	484	10	9.5	6.5	9	9.3	164	40	203	10.5	8.5	9.4	8.2	8.7	268	52	252					
Gul Piyam	PLT1	20/04/93	7.3	10.7	8.5	9.5	6.5	187	45	339	9.5	10	8	8.5	11	181	55	269	12	10	6.5	8	5	291	50	369					
Gul Piyam	PLT2	20/04/93	6.5	8.5	10.5	9	10	195	43	373	9.5	11.5	182	7	134	11.5	10.5	10.5	9.2	9.1	9	9.7	195	42	192						
Gul Piyam	PLT3	20/04/93	12	11	8.5	9	9.5	121	48	179	12.5	13.5	12	11	8	227	52	381	10	11	10.5	8.5	9	157	41	184					
Umar Hayat	PLT1	20/04/93	10	8.5	10.5	10	8	182	42	192	11	10.5	9.5	11	6.8	233	48	331	11	10	9.3	8	8	204	44	214					
Umar Hayat	PLT2	20/04/93	10.5	9	10.5	9.5	8	217	38	238	9	9	9	9	9	206	28	138	8	11	11.5	7	8.5	201	41	214					
Umar Hayat	PLT3	20/04/93	9.5	8.7	7.7	5.5	9	292	30	274	9	8.7	9.2	8.7	8.1	341	31	344	10	7	9.5	8.5	8	325	34	363					
Moaaddad	PLT1	24/04/93	10	9.5	6	9.5	8.5	230	42	237	11.4	10.5	12	10.2	8.5	391	45	552	10	10	8.5	11	8	260	54	263					
Moaaddad	PLT2	24/04/93	10.8	8.7	9	7	8	192	40	245	8	7	9	9.5</																	

TABLE 4-2.2 (cont.)

W/C NO. 6466 R

FARMERS NAME	PLOT NO.	: HARVESTING : SAMPLE 1 :										: SAMPLE 2 :										: SAMPLE 3 :									
		DATE	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD					
Amrullah	PLT1	: 22/04/93	: 9.5	: 8.5	: 10	: 6.5	: 7	: 137	: 42	: 136	: 9.5	: 10	: 6.5	: 7	: 55	: 154	: 38	: 77	: 9	: 8	: 8.5	: 6	: 7	: 142	: 52	: 101					
Amrullah	PLT2	: 22/04/93	: 9	: 6.5	: 8.5	: 10.5	: 11	: 114	: 36	: 148	: 10.5	: 10	: 8	: 11.5	: 6.5	: 171	: 67	: 317	: 9	: 7	: 7.5	: 9	: 6.7	: 117	: 29	: 77					
Amrullah	PLT3	: 22/04/93	: 11.5	: 8	: 8.5	: 10.5	: 7.8	: 114	: 52	: 172	: 8	: 9.7	: 8.7	: 8	: 9.2	: 96	: 33	: 60	: 10	: 8.5	: 6.7	: 9.5	: 9.1	: 123	: 60	: 186					
Allah Wisaya	PLT1	: 24/04/93	: 10	: 10.5	: 9.6	: 7.5	: 8.9	: 180	: 52	: 254	: 10	: 6	: 8	: 7	: 9	: 98	: 40	: 103	: 6.5	: 5	: 6.9	: 8.2	: 9.1	: 174	: 29	: 141					
Allah Wisaya	PLT2	: 24/04/93	: 8.5	: 6	: 8	: 9.3	: 7.1	: 228	: 42	: 158	: 7.2	: 10	: 9	: 10	: 9	: 188	: 47	: 245	: 11.5	: 8.5	: 7.5	: 6.5	: 10	: 154	: 31	: 137					
Allah Wisaya	PLT3	: 24/04/93	: 10.5	: 10	: 11	: 8	: 7.5	: 137	: 35	: 203	: 8	: 8.3	: 7.5	: 9	: 9	: 102	: 50	: 127	: 7	: 8.5	: 8.2	: 7	: 7.8	: 133	: 39	: 354					
Sher Zaman	PLT1	: 22/04/93	: 10	: 9	: 7	: 10	: 9.5	: 264	: 47	: 431	: 11.5	: 12	: 10	: 7	: 9	: 157	: 46	: 244	: 9	: 10	: 8	: 8	: 9	: 253	: 41	: 372					
Sher Zaman	PLT2	: 22/04/93	: 10.5	: 8	: 9	: 9	: 7.5	: 134	: 39	: 147	: 10.5	: 10.2	: 9.7	: 9	: 9.4	: 158	: 37	: 76	: 9	: 10	: 7	: 10.5	: 6	: 104	: 37	: 136					
Sher Zaman	PLT3	: 22/04/93	: 9	: 5	: 8	: 5	: 4	: 498	: 25	: 165	: 8.3	: 8.2	: 7	: 5.2	: 8.8	: 159	: 42	: 174	: 6.5	: 7.5	: 8	: 5	: 5	: 141	: 36	: 98					
Annan Ullah	PLT1	: 22/04/93	: 10	: 11	: 6	: 7.5	: 119	: 32	: 146	: 9.5	: 10	: 9.7	: 11.3	: 10.7	: 194	: 48	: 145	: 8.5	: 8	: 7.3	: 9.2	: 8	: 11.0	: 26	: 81						
Annan Ullah	PLT2	: 22/04/93	: 9.5	: 10	: 6.5	: 7	: 5.5	: 154	: 38	: 77	: 11	: 11.5	: 12	: 11	: 10	: 67	: 54	: 156	: 7.2	: 8	: 7.5	: 6.4	: 9	: 186	: 38	: 232					
Annan Ullah	PLT3	: 22/04/93	: 10	: 8	: 9.5	: 11	: 9	: 118	: 39	: 153	: 9	: 9.2	: 10	: 4.9	: 8	: 77	: 24	: 77	: 11	: 7.5	: 10	: 10.3	: 9.9	: 191	: 44	: 267					
Juma Khan	PLT1	: 22/04/93	: 10	: 9.8	: 9.5	: 8.5	: 11	: 156	: 45	: 257	: 10	: 10.5	: 7.5	: 9.3	: 158	: 59	: 183	: 8.5	: 9.5	: 9	: 9.5	: 10.5	: 148	: 47	: 216						
Juma Khan	PLT2	: 22/04/93	: 9.5	: 10.5	: 10	: 10	: 9	: 157	: 47	: 139	: 9	: 9.5	: 10	: 8	: 133	: 51	: 133	: 11	: 8	: 9.5	: 11	: 7	: 107	: 36	: 185						
Juma Khan	PLT3	: 22/04/93	: 9	: 9	: 8	: 8.5	: 7	: 288	: 37	: 125	: 7	: 6	: 8.8	: 6.1	: 8	: 196	: 32	: 238	: 9	: 10.5	: 8	: 9.5	: 8	: 176	: 26	: 184					
Ghulam Rasool	PLT1	: 22/04/93	: 7	: 8.5	: 8.5	: 6.5	: 6	: 145	: 35	: 283	: 9	: 7	: 4.5	: 6.3	: 9.2	: 126	: 34	: 137	: 9.1	: 8.5	: 8.6	: 8	: 7.8	: 31	: 37	: 251					
Ghulam Rasool	PLT2	: 22/04/93	: 9	: 8.5	: 10.5	: 9	: 8.5	: 170	: 34	: 329	: 8.5	: 8	: 9.5	: 7.5	: 8	: 86	: 45	: 267	: 8.1	: 6.1	: 5.8	: 8	: 8.14	: 125	: 41	: 167					

W/C NO. 10150 R

FARMERS NAME	PLOT NO.	: HARVESTING : SAMPLE 1 :										: SAMPLE 2 :										: SAMPLE 3 :									
		DATE	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD					
Shah Jehan	PLT1	: 30/04/93	: 10.5	: 8.5	: 10.5	: 8	: 10	: 151	: 67	: 255	: 8.5	: 9	: 8.5	: 7	: 10.5	: 199	: 56	: 206	: 6.5	: 9	: 8.9	: 9	: 9.2	: 284	: 38	: 225					
Shah Jehan	PLT2	: 22/04/93	: 10.8	: 7.5	: 6.9	: 7.5	: 8.2	: 106	: 37	: 283	: 8	: 9	: 10	: 8	: 8.5	: 152	: 50	: 98	: 10.5	: 8.5	: 11.5	: 9.5	: 6.3	: 200	: 47	: 236					
Shah Jehan	PLT3	: 22/04/93	: 10	: 11.5	: 11	: 11	: 8.5	: 169	: 49	: 346	: 8	: 8.2	: 5.5	: 7	: 7.3	: 86	: 40	: 96	: 10.5	: 9.5	: 9	: 7.5	: 6	: 291	: 43	: 222					
Khan Zaman	PLT1	: 26/04/92	: 6.5	: 8.5	: 7	: 9	: 11	: 171	: 43	: 190	: 7	: 8	: 9	: 8	: 8.5	: 188	: 40	: 265	: 8	: 4.5	: 7.5	: 6.5	: 9	: 124	: 34	: 53					
Khan Zaman	PLT2	: 26/04/92	: 12	: 10.5	: 10	: 8	: 5.5	: 240	: 48	: 363	: 12.5	: 8	: 10	: 9.5	: 5	: 124	: 63	: 148	: 9.3	: 8.5	: 7.9	: 10.1	: 11.7	: 182	: 56	: 234					
Khan Zaman	PLT3	: 26/04/92	: 7.1	: 6.9	: 6.4	: 6.2	: 12	: 208	: 51	: 215	: 10	: 9.2	: 9	: 7	: 6.3	: 183	: 40	: 154	: 8.9	: 8.6	: 7	: 5	: 8.5	: 201	: 45	: 265					
Mirza Khan	PLT1	: 24/04/93	: 10	: 9.5	: 8.5	: 10.5	: 10	: 178	: 50	: 298	: 9	: 8.5	: 8.3	: 6.5	: 6	: 135	: 45	: 152	: 8.5	: 7.5	: 9.5	: 7	: 9	: 120	: 46	: 124					
Mirza Khan	PLT2	: 24/04/93	: 6.5	: 6	: 5	: 7	: 8.5	: 147	: 19	: 82	: 7	: 8	: 6	: 6	: 7	: 92	: 45	: 69	: 10	: 9	: 8	: 8	: 10.8	: 152	: 40	: 216					
Mirza Khan	PLT3	: 24/04/93	: 8	: 6.5	: 6.5	: 8	: 7.5	: 213	: 37	: 183	: 6.3	: 8.2	: 9.5	: 5.9	: 8	: 139	: 37	: 78	: 9	: 8.5	: 6.8	: 7.5	: 8	: 150	: 35	: 183					
Ghulam Farid	PLT1	: 24/04/93	: 8	: 6	: 6.3	: 6.5	: 8	: 133	: 24	: 92	: 8.5	: 9	: 8	: 8	: 8.5	: 240	: 46	: 274	: 8	: 8	: 6	: 6	: 4	: 163	: 21	: 279					
Ghulam Farid	PLT2	: 24/04/93	: 6	: 5.8	: 7.5	: 8	: 7	: 212	: 43	: 139	: 8.5	: 8	: 7.5	: 7	: 4.5	: 271	: 42	: 156	: 8	: 9	: 8.4	: 8	: 8.5	: 214	: 43	: 201					
Ghulam Farid	PLT3	: 18/04/93	: 7	: 7	: 7	: 8	: 10	: 184	: 36	: 174	: 7	: 6.2	: 10	: 9.5	: 10	: 115	: 49	: 134	: 11.8	: 11	: 8	: 10	: 8.5	: 132	: 36	: 241					
M. Nawaz	PLT1	: 18/04/93	: 11	: 10.5	: 7.5	: 10.5	: 9.5	: 172	: 46	: 241	: 8	: 9.5	: 10	: 8	: 12	: 82	: 41	: 70	: 8.5	: 8.1	: 9.1	: 9.2	: 8.7	: 140	: 43	: 152					
M. Nawaz	PLT2	: 18/04/93	: 11	: 7	: 7.8	: 9	: 8.3	: 169	: 44	: 237	: 11.5	: 12.5	: 8	: 9	: 7	: 228	: 59	: 253	: 6	: 9	: 8.2	: 9.5	: 11	: 185	: 48	: 252					
Haji Nabi Sheik	PLT1	: 26/04/93	: 3.5	: 10.5	: 5	: 4.5	: 3.8	: 138	: 20	: 60	: 7	: 5	: 5.8	: 7.8	: 8.1	: 61	: 61	: 48	: 3.5	: 6	: 4	: 4.5	: 5	: 175	: 18	: 67					
Haji Nabi Sheik	PLT2	: 26/04/93	: 15	: 4.6	: 4	: 4	: 4.2	: 72	: 22	: 25	: 10	: 9	: 8.5	: 6.5	: 7	: 192	: 56	: 229	: 6	: 4.3	: 5	: 5.2	: 6.5	: 109	: 27	: 43					
Haji Nabi Sheik	PLT3	: 26/04/93	: 8.2	: 9.7	: 9.5	: 8	: 8	: 98	: 33	: 87	: 8	: 9	: 6	: 5	: 4.5	: 76	: 20	: 33	: 7.2	: 6.3	: 6.6	: 7.1	: 7.1	: 279	: 32	: 32					

W/C NO. 11950-L

FARMERS NAME	PLOT NO.	: HARVESTING : SAMPLE 1 :										: SAMPLE 2 :										: SAMPLE 3 :									
		DATE	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD					
Saleem s/o Khalilqad	PLT1	: 28/04/93	: 9.5	: 10.5	: 8.5	: 9	: 7	: 210	: 33	: 208	: 11	: 8	: 9	: 9	: 7.8	: 152	: 59	: 123	: 8	: 8.5	: 6	: 6	: 9	: 74	: 39	: 84					
Saleem s/o Khalilqad	PLT2	: 29/04/93	: 8.5	: 9	: 9.2	: 9	: 9.9	: 146	: 43	: 155	: 8	: 9	: 11	: 7.5	: 8	: 137	: 36	: 117	: 10	: 9	: 10	: 9.5	: 8.5	: 142	: 50	: 202					
Saleem s/o Khalilqad	PLT3	: 23/04/93	: 9.4	: 8.5	: 8	: 8	: 114	: 37	: 93	: 9	: 8	: 12	: 11	: 6	: 140	: 48	: 164	: 7.8	: 9	: 9.8	: 8	: 8.4	: 175	: 40	: 137						
Abdul Latif	PLT1	: 29/04/93	: 8	: 6.5	: 6.2	: 8.8	: 5.8	: 150	: 44	: 94	: 4	: 5	: 3.5	: 4.5	: 3.5	: 353	: 21	: 76	: 8	: 8.5	: 6	: 6	: 9	: 39	: 84	: 34					
Abdul Latif	PLT2	: 29/04/93	: 6	: 6	: 5.5	: 8	: 7	: 59	: 35	: 34	: 5	: 9	: 8.5	: 10	: 5	: 88	: 32	: 90	: 8	: 6	: 7	: 6.5	: 6	: 53	: 23	: 34					
Abdul Latif	PLT3	: 29/04/93	: 4.1	: 5.5	: 6	: 5	: 5.8	: 106	: 19	: 224	: 5	: 7.8	: 4	: 4.5	: 6	: 74	: 17	: 45	: 8.6	: 8	: 6.5	: 8.2	: 9	: 77	: 38	: 84					
Gul Zaman	PLT1	: 23/04/93	: 8	: 7.5	: 7.5	: 10	: 9.5	: 176	: 26	: 175	: 7	: 6.5	: 8	: 6.5	: 8	: 152	: 33	: 224	: 9	: 9	: 9.5	: 9.2	: 8	: 152	: 139	: 147					
Gul Zaman	PLT2	: 23/04/93	: 11.1	: 9.5	: 7.5	: 10	: 9.5	: 144	: 45	: 200	: 10	: 9.5	: 9.5	: 8.4	: 11.5	: 222	: 49	: 208	: 7.6	: 9	: 8.4	: 7	: 6.9	: 137	: 43	: 176					
Gul Zaman	PLT3	: 23/04/93	: 9	: 7	: 7.5	: 7.5	: 9	: 399	: 18	: 244	: 7	: 7.8	: 7.5	: 8	: 7.5	: 349	: 28	: 165	: 9	: 7	: 8	: 8	: 7.5	: 219	: 39	: 207					
H. Abdul Ghafoor Khatak	PLT1	: 23/04/93	: 8	: 6	: 7.5	: 8.1	: 8.5	: 245	: 42	: 235	: 8.5	: 8	: 7.5	: 6	: 9.5	: 212	: 48	: 172	: 8	: 9	: 7.7	: 9.3	: 6.1	: 96	: 37	: 85					
H. Abdul Ghafoor Khatak	PLT2	: 23/04/93	: 6	: 8	: 7.1	: 8.5	: 8	: 310	: 32	: 226	: 10.5	: 8.7	: 9.5	: 6.5	: 7.2	: 454	: 32	: 200	: 8.5	: 7.3	: 8	: 8.5	: 9.5	: 306	: 51	: 345					
H. Abdul Ghafoor Khatak	PLT3	: 23/04/93	: 11	: 8	: 6.5	: 8	: 8.5	: 217	: 31	: 508	: 9	: 8	: 7.3	: 10.5	: 6.7	: 175	: 41	: 178	: 11	: 10	: 12.5	: 11	: 10	: 156	: 55	: 101					
Dawar s/o Behadar	PLT1	: 27/04/93	: 6.5	: 5	: 9	: 5.5	: 7.5	: 147	: 35	: 104	: 12	: 9	: 8	: 10	: 7.5	: 155	: 40	: 179	: 7.5	: 7	: 8.1	: 9	: 9.5	: 35	: 75	: 101					
Dawar s/o Behadar	PLT2	: 27/04/93	: 8	: 8.5	: 9	: 5	: 6.8	: 140	: 38	: 113	: 8	: 10	: 8.1	: 9	: 196	: 45	: 255	: 10	: 9.2	: 9.1	: 7	: 7.9	: 181	: 34	: 207						
Dawar s/o Behadar	PLT3	:																													

TABLE 4-2.2 (cont.)

FARMERS NAME	PLOT NO.	SAMPLE 1										SAMPLE 2										SAMPLE 3									
		DATE	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD					
Mir Wali Khan	PLT1	24/04/93	9	8	7	9.5	7.5	185	53	328	6	6.5	8	9.5	5	163	33	117	12	9.5	8	7.5	8	9.5	8	227	49	273			
Mir Wali Khan	PLT2	24/04/93	11	7.5	10.5	7	152	55	248	7.5	7	8	8.3	6	236	49	186	6	9.5	10	10	8	9	9	335	50	271				
Mir Wali Khan	PLT3	24/04/93	9.5	10.2	10.2	9.8	10.1	151	36	204	9	9.4	9.6	10.5	9.5	222	46	186	10.5	9.7	8.4	8.4	8.4	8.4	208	45	316				
Palos Khan	PLT1	24/04/93	6.5	7.5	9	9	11	289	44	125	6	6.5	6	9.5	5	163	33	117	11	10	9.5	7	8.5	259	43	343					
Palos Khan	PLT2	24/04/93	9.2	7.2	8.5	10	10	252	36	196	7.5	9	7	8.9	9.3	190	38	159	8.5	9	9.5	6	10	415	48	295					
Palos Khan	PLT3	24/04/93	9	8	7.5	6.5	8.5	309	37	145	8	6	6	8.5	6.8	355	40	191	8.5	9	9.5	8	10	415	48	295					
Usman Khan	PLT1	02/05/93	4.5	5	6	7	5.5	33	17	19	4	7	7	8	146	31	98	8.5	8.5	8.5	8.5	8.5	8.5	8.5	92	39	86				
Usman Khan	PLT2	02/05/93	4.5	7	6	5	5.4	84	18	38	7.9	6.8	7.1	8.4	7.3	67	32	69	10.5	10	11	9.5	10.6	106	46	141					
Usman Khan	PLT3	02/05/93	9	7.5	8	8.5	8.5	54	30	45	7	8	7	7	8	97	34	69	9.5	7	5.5	8	9	119	33	126					
Khuda Baksh	PLT1	24/04/93	10.5	10	7	11.5	9.5	200	56	267	9.5	8.5	8.5	8	6	218	37	166	10	7.5	8	8.1	8.6	188	41	270					
Khuda Baksh	PLT2	24/04/93	8.8	7.5	9.6	9	9.5	185	37	228	9.9	10.2	9.2	8	7	185	29	273	10.5	8.5	6	7.5	9	250	45	181					
Khuda Baksh	PLT3	24/04/93	8	8	7	6	6	132	33	132	7	8	7	7	8	97	34	69	9.5	9	7	6	8.5	172	48	150					
Anwar	PLT1	24/04/93	9	10	8.5	7	9.5	344	37	365	8.5	7.5	8.5	6	7.5	346	34	255	9.4	9.6	8.5	10	10.2	244	49	343					
Anwar	PLT2	24/04/93	10.2	8	8.6	8.5	10.2	194	33	177	7.5	7.5	9	7.5	8.5	208	37	181	11.2	11	8	10.2	9	218	49	370					
Anwar	PLT3	24/04/93	9	9	10	8	10	280	47	332	9	12	11.5	10.5	8.5	315	38	165	7.8	8	8.5	5	7.5	415	22	278					
Khuda Baksh s/o Akbar	PLT1	24/04/93	9.5	10.5	11.5	14	11.5	190	45	264	11.2	10.7	10.9	10	9.5	191	55	256	10	12	10.5	9	10	216	56	358					
Khuda Baksh s/o Akbar	PLT2	24/04/93	7	9	11	10	9.5	345	46	345	8.9	8.8	9.3	9.5	9	221	49	321	10	12	10.5	9	10	216	58	358					
Khuda Baksh s/o Akbar	PLT3	24/04/93	10	11	6	7	9	128	47	178	6.7	7	7.1	9	9.2	165	47	227	9	7.2	7.9	7	9.8	217	55	245					

FARMERS NAME	PLOT NO.	SAMPLE 1										SAMPLE 2										SAMPLE 3									
		DATE	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD					
Said Khan	PLT1	18/04/93	10.5	10	8.5	10	100	39	121	10	11	11.5	10	10	164	52	374	10	11.5	10.5	10	9.8	10	179	55	349					
Said Khan	PLT2	18/04/93	9.5	9.5	9.5	8.3	6	108	41	111	10	9.5	7.5	8.5	9	128	45	310	11	10	7	11	9	137	51	207					
Said Khan	PLT3	18/04/93	11.5	10.5	10.5	9	9	224	49	355	10	12	7.5	11.1	7.2	145	36	238	10	9	8.5	10.8	10	120	39	136					
Gaggary Khan	PLT1	23/04/93	10	9	11	7	11.5	227	58	341	8	7	12	9	7.2	159	38	146	11	11.5	10.5	7	6.8	245	55	412					
Gaggary Khan	PLT2	18/04/93	11.5	9.5	9.5	9.8	8.5	177	48	298	11.5	11	10.3	10	4.5	194	48	256	10.9	9	8.9	9.7	6	220	31	307					
Gaggary Khan	PLT3	18/04/93	9.5	9.2	9	8.5	8.4	345	45	376	10	10.3	9	9.5	6.5	197	50	322	7.6	9.7	9.3	8.8	7.8	174	46	189					
Sarifraz Khan	PLT1	23/04/93	8.8	8.2	9	10.2	11	270	46	277	9.9	8.3	9.5	8.4	6.5	197	42	260	12.2	11.2	10.3	8.8	8.9	137	51	202					
Sarifraz Khan	PLT2	23/04/93	6	5.1	9	7	4.2	350	33	207	10.5	11	8.5	9.3	7.5	163	42	260	12.2	11.2	10.3	8.8	8.9	137	51	202					
Sarifraz Khan	PLT3	23/04/93	9	11	8.5	10	7.5	275	45	330	11.5	13	12.5	7.8	9.8	230	42	194	9.5	11.6	9.5	9.8	8.5	136	42	200					
Aliak Nawaz	PLT1	21/04/93	10	9.5	10	9	9.1	148	56	216	11.2	11	8.5	8.5	8.3	316	52	515	11.6	9.5	9.8	7.8	8.5	136	42	200					
Aliak Nawaz	PLT2	21/04/93	11	11	11	10	6.3	7	214	39	486	10.5	9.8	8.5	11	223	62	440	10.5	11	9	9	8.5	205	41	288					
Aliak Nawaz	PLT3	21/04/93	11.5	10	7	9.5	10	211	52	344	11	12	11.5	8.5	7.5	235	60	406	10	8	8.5	8.7	7.5	189	42	341					
Ramzan	PLT1	24/04/93	6.5	11.5	7.5	9	9.5	135	39	141	11	10	9	9	6	171	64	303	10	9.5	7.5	9.5	7	184	41	225					
Ramzan	PLT2	24/04/93	11	10.5	10.5	10.2	11.5	215	51	391	8.5	4.5	5	9.5	9	228	32	250	10	10.5	10.2	9	7.5	287	47	233					
Ramzan	PLT3	24/04/93	9.2	8.9	8.1	7.5	8.6	196	35	262	10.5	9.5	8.5	8.5	6.5	263	53	369	9.2	9	7	8.5	219	25	153						
Sher Ali	PLT1	24/04/93	11	9.5	9.5	8	10	39	40	69	10.5	11	9.5	9.5	7	206	41	288	7	9	11	8.5	3	226	48	254					
Sher Ali	PLT2	24/04/93	10	9.5	11	8	8	130	48	136	9	10.2	11	9.4	10	108	59	145	7	11	9	8.5	3	228	48	254					

TABLE 4-2.3 WHEAT CROP - CUT DATA, DISTRIBUTARY # 4, RABI 1992 - 93

FARMERS NAME	PLOT NO.	: HARVESTING : SAMPLE:1.										: SAMPLE:2.										: SAMPLE:3.									
		DATE	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD					
Haji Nawaz	PLT1	26/04/93	5	8	8.1	6.6	8.3	65	41	68	9.8	10	8	7	5	87	40	90	8	5.5	6.5	6.5	6	80	35	72					
Haji Nawaz	PLT2	26/04/93	6	7.5	10	6.5	8	87	29	80	7.5	8.9	5.5	6.7	8.5	115	42	106	9	8	8.5	9	10.5	159	34	268					
Haji Nawaz	PLT3	26/04/93	7.1	8.5	6.2	6.7	6	94	34	152	8.1	6.7	6	8.5	7	175	41	203	6.2	5.8	7	7	120	32	145						
H. Sarfraz	PLT1	28/04/93	7	6	7.2	4	4	165	29	106	8	8.5	7	6	5	185	26	166	8	8.5	7	6.5	290	38	257						
H. Sarfraz	PLT2	28/04/93	9	8	8	5.5	8	146	40	134	9	9.5	8	8	4.5	172	38	116	6	5	6	4.2	303	36	206						
H. Sarfraz	PLT3	28/04/93	7	7.2	6	7	6	159	33	90	7.5	8.5	5.6	7.7	6	225	41	190	6	9.7	7.5	9	166	55	121						
Ramzan	PLT1	26/04/93	9	9	6.5	8	7	166	43	145	10	6.5	9	8	9.5	222	60	346	8.5	8.2	8	7	85	70	35						
Ramzan	PLT2	26/04/93	5.5	7.5	7.7	4.9	5	273	47	207	7.5	8.5	9	9	10	159	52	185	9.5	9.5	9	7.5	180	41	106						
Ramzan	PLT3	26/04/93	8	8	8	8.5	6	234	38	190	8	5.1	5	8.2	8	189	36	168	6.5	8	5.5	9	8.5	147	45						
Sher Zaman	PLT1	22/04/93	9.2	9.2	8.5	7	6.5	196	35	218	9	9.5	7	5	8.5	142	41	196	9.1	9.4	9	8.1	211	40	271						
Sher Zaman	PLT2	22/04/93	9.5	9	7.7	7	12	222	47	359	10.5	9.2	9	8.5	8	218	52	269	7.9	7.5	9	9.3	177	38	249						
Sher Zaman	PLT3	22/04/93	9	6.7	7.2	8	8.8	171	52	234	10	11	9	9.5	10.1	67	31	111	5.3	4.9	6	6	169	25	227						
Umar Hayat	PLT1	26/04/93	8	9	9.5	8.5	12	185	50	230	9.5	8	10.5	8	7	277	55	494	9.8	8.2	8.7	9.7	8	270	42	479					
Umar Hayat	PLT2	26/04/93	8.3	9	9	8	7	161	40	229	10	9	8	9.8	10	178	52	268	8	10	10.5	10	6.5	129	34	174					
Umar Hayat	PLT3	26/04/93	9	9.2	9.5	9.7	8.7	139	37	141	8	8	7	6	5	194	42	241	9.9	9.1	9.7	6.3	8	263	49	473					
Saddu	PLT1	22/04/93	8	8.5	9	10	10	119	48	43	8	7.3	8.2	11	6.9	132	31	73	5	6	3.5	5	4	415	17	137					
Saddu	PLT2	22/04/93	5	7.3	6.5	4	5.5	106	29	51	7	7.2	6.2	6.1	5.2	152	39	168	5	4	6.5	6	4.5	293	30	110					
Saddu	PLT3	22/04/93	7.5	5.5	6	7	6.8	242	28	128	9.7	8.2	9.6	9	6.4	205	45	210	6.5	7.8	6.5	9	10	157	29	186					

FARMERS NAME	PLOT NO.	: HARVESTING : SAMPLE:1.										: SAMPLE:2.										: SAMPLE:3.									
		DATE	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD					
Idress Khan	PLT1	19/04/93	8.9	9	10	8.5	9.7	158	47	116	11	8	10	7.3	11	187	49	282	8	10	12	8.5	6.8	164	31	143					
Idress Khan	PLT2	19/04/93	10	7.2	11.2	8.9	9.5	135	40	219	10	11	10.5	9.5	9	167	41	335	8.2	9.5	9.5	9	9.5	93	41	114					
Idress Khan	PLT3	19/04/93	7	5.5	7	5.5	8	254	30	199	9	10	11	9.5	8.5	178	38	306	8.8	10.3	11	11	9	88	50	139					
Ahmad Zai	PLT1	26/04/93	13	10.5	9	7	6.5	27	43	38	7.5	9	8.2	7	7.9	186	29	128	6.5	7	9	4.5	7.5	124	32	94					
Ahmad Zai	PLT2	26/04/93	8	7.8	7.5	7	7.5	105	47	111	8.5	8	8.7	7.5	7.3	169	29	122	8	7.2	8.5	8.9	7.2	100	30	109					
Ahmad Zai	PLT3	26/04/93	6	7	7.5	8	7.9	227	26	138	6.2	5	6.8	5.5	6.5	234	22	202	9	6	7.5	7	6	190	32	168					
Sona Khan	PLT1	19/04/93	8.5	9	10	7.5	6.2	190	42	124	6.9	8.1	10	8.1	7	159	46	125	6.8	7	6.5	10	8	176	32	218					
Sona Khan	PLT2	21/04/93	8	10	9.5	8	7	181	38	182	9	9.5	8	9	7	201	49	230	9.5	9	9.5	8.7	10	232	42	278					
Sona Khan	PLT3	19/04/93	9	8.3	8	9	7	186	46	195	8	10	9	8	7.3	122	48	177	9.8	9	8	9.5	8	185	42	250					
Ahmadoo	PLT1	19/04/93	8.5	9	8	7.8	10.2	151	32	160	9	9.5	9	8	8.5	198	68	257	9	7	11	8	7.5	130	32	151					
Ahmadoo	PLT2	19/04/93	12	8.5	9	10	9	138	60	216	8.5	9	9	9	8.2	141	43	179	9.5	9	11.5	8.5	8	133	43	203					
Ahmadoo	PLT3	25/04/93	6	7	7.5	7.1	8	85	18	39	8.5	9.3	9	9.5	7.9	82	30	86	9.2	11	8.5	8.5	7.5	94	36	72					
Ahmadoo	PLT1	25/04/93	6	7	8.5	9	5.5	341	37	253	7.5	8	8	7.5	5.5	294	41	237	10	11	9.2	8.5	6.4	240	30	191					
Shabir Kanju	PLT2	25/04/93	8	10	5.6	7.4	8.4	218	48	281	10	6.3	9	8.6	10.4	157	41	187	8	6	7.5	10	9	287	39	308					
Shabir Kanju	PLT3	25/04/93	9.8	11	9.5	8.5	7.5	107	44	180	12	12	10	9.5	9	90	54	139	9	8	8.5	10	5	80	45	119					
Meela Khan	PLT1	19/04/93	9.5	10.5	9.5	11.5	7	208	44	379	9.5	9.4	8	7	8	220	43	280	9.2	9	9	8.5	10	38	251						
Meela Khan	PLT2	24/04/93	12	10.5	9	9.3	8.9	188	47	44	10.5	9.5	11	12	8	161	59	195	11.5	9	8	10	102	50	129						
Meela Khan	PLT3	19/04/93	9.8	7	9	10.5	6	209	47	217	10	9	10	8.5	8.5	106	43	126	8.6	7	8	6.5	7	143	31	104					

TABLE 4-2.3 (cont.)

FARMERS NAME	PLOT NO	HARVESTING : SAMPLE:1										SAMPLE:2										SAMPLE:3									
		DATE	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD					
Khadim Hussain	PLT1	: 04/05/83	: 9.5	: 9.5	: 8.5	: 7.5	: 6	: 188	: 47	: 140	: 10.5	: 10	: 9.5	: 7.5	: 6	: 191	: 63	: 217	: 8	: 7.5	: 7	: 8.8	: 6	: 265	: 59	: 270					
Khadim Hussain	PLT2	: 04/05/80	: 5.5	: 7	: 8	: 10	: 9	: 235	: 26	: 109	: 7	: 8.5	: 9	: 10.3	: 9.2	: 138	: 56	: 152	: 8.1	: 7	: 5	: 6	: 5.5	: 277	: 41	: 234					
Khadim Hussain	PLT3	: 04/05/80	: 6.7	: 7	: 7.3	: 7.3	: 6.9	: 173	: 35	: 108	: 8	: 6.5	: 8	: 9	: 9.5	: 96	: 47	: 66	: 7	: 9	: 9.5	: 7	: 6.5	: 100	: 41	: 105					
Sarifaz	PLT1	: 19/04/83	: 7	: 5.5	: 8.9	: 8.3	: 8	: 178	: 45	: 229	: 8	: 8.5	: 7	: 6	: 9.5	: 159	: 40	: 161	: 10.2	: 8	: 8.7	: 8.1	: 9	: 206	: 40	: 267					
Sarifaz	PLT2	: 19/04/83	: 9	: 9.5	: 8	: 8.5	: 8	: 124	: 41	: 161	: 8.3	: 8.6	: 7.9	: 10.1	: 7	: 253	: 56	: 271	: 9	: 8.5	: 8.4	: 7	: 8.1	: 75	: 33	: 79					
Sarifaz	PLT3	: 19/04/83	: 10	: 9.3	: 8	: 8.4	: 9.9	: 85	: 37	: 114	: 12	: 10.2	: 10	: 9.5	: 9	: 145	: 55	: 247	: 9	: 9	: 9	: 8	: 8.3	: 189	: 53	: 271					
Farid	PLT1	: 25/04/83	: 10	: 8	: 6	: 8	: 5.5	: 148	: 28	: 110	: 10	: 6	: 11	: 8	: 9.5	: 95	: 50	: 156	: 8.3	: 7.3	: 8.5	: 10	: 7.2	: 116	: 36	: 114					
Farid	PLT2	: 25/04/83	: 10	: 9.5	: 8.5	: 8	: 7.5	: 121	: 50	: 208	: 7	: 8	: 7.5	: 9	: 5.6	: 74	: 31	: 313	: 12	: 7.5	: 6.5	: 9	: 8	: 10.5	: 121	: 33	: 253				
Farid	PLT3	: 25/04/83	: 9.2	: 7.5	: 8	: 7.3	: 173	: 33	: 112	: 8.5	: 8.7	: 8	: 8	: 6.5	: 165	: 36	: 85	: 15	: 7	: 9	: 8.5	: 9.5	: 177	: 74	: 302	: 202					
Hej Ahmad Pashe	PLT1	: 22/04/83	: 9	: 8.5	: 7	: 9	: 10	: 177	: 53	: 175	: 10	: 9.6	: 10.2	: 9.5	: 8.6	: 146	: 47	: 255	: 8.9	: 10	: 7	: 6.1	: 9.1	: 155	: 38	: 202					
Hej Ahmad Pashe	PLT2	: 22/04/83	: 8.4	: 8.3	: 7.5	: 9	: 9.4	: 176	: 48	: 228	: 10	: 9	: 11	: 9	: 9.5	: 198	: 37	: 302	: 4.2	: 5.2	: 7.3	: 5.8	: 5	: 258	: 28	: 234					
Hej Ahmad Pashe	PLT3	: 22/04/83	: 10.5	: 11.5	: 9.5	: 9.5	: 8	: 146	: 46	: 189	: 6.7	: 6.2	: 6.5	: 7.7	: 9	: 346	: 44	: 221	: 8	: 6.9	: 10.5	: 9.7	: 9.5	: 217	: 47	: 285					
Hej Juma	PLT1	: 25/04/83	: 8.2	: 7.5	: 7.9	: 8.1	: 8.7	: 233	: 53	: 286	: 9	: 11	: 7	: 6.5	: 8.3	: 115	: 44	: 136	: 9.5	: 10.5	: 9	: 8.5	: 8	: 180	: 57	: 263					
Hej Juma	PLT2	: 25/04/83	: 9.5	: 9.5	: 8	: 6.5	: 8.5	: 154	: 43	: 134	: 10	: 8	: 6	: 7	: 10	: 130	: 37	: 128	: 10	: 9.5	: 9.8	: 9.4	: 8.2	: 171	: 48	: 172					
Hej Juma	PLT3	: 25/04/83	: 7.7	: 7	: 8	: 8.1	: 7	: 148	: 38	: 129	: 10	: 9.5	: 7	: 8	: 8	: 139	: 31	: 128	: 7.1	: 10	: 7.5	: 8.5	: 6.7	: 131	: 31	: 147					
Ramzan	PLT1	: 28/04/83	: 7	: 8	: 7.5	: 8	: 7.5	: 164	: 40	: 164	: 4.1	: 8.7	: 6	: 5.9	: 4.1	: 310	: 16	: 123	: 8.5	: 8.5	: 9	: 8	: 7.5	: 286	: 32	: 159					
Ramzan	PLT2	: 28/04/83	: 5	: 5	: 6	: 6.5	: 6.8	: 108	: 13	: 97	: 9	: 9.5	: 10	: 8	: 10	: 217	: 44	: 310	: 8.5	: 9.5	: 7.5	: 10	: 5.3	: 208	: 28	: 191					
Ramzan	PLT3	: 28/04/83	: 11.2	: 10	: 10.5	: 10.3	: 10.5	: 372	: 51	: 547	: 9	: 9.5	: 10	: 8	: 10	: 217	: 44	: 310	: 6	: 5.7	: 8	: 6	: 6.5	: 141	: 23	: 150					

FARMERS NAME	PLOT NO	HARVESTING : SAMPLE:1										SAMPLE:2										SAMPLE:3									
		DATE	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD					
Ghulam Hussain	PLT1	: 22/04/83	: 10	: 10	: 10.2	: 10.5	: 10	: 211	: 45	: 338	: 10	: 10	: 11	: 10.5	: 9.5	: 219	: 47	: 357	: 10	: 8.5	: 6.5	: 11.5	: 7	: 201	: 44	: 347					
Ghulam Hussain	PLT2	: 22/04/83	: 11	: 7.9	: 9.8	: 10.5	: 8.9	: 131	: 43	: 127	: 10.5	: 9.5	: 8.5	: 8.5	: 11	: 202	: 57	: 308	: 9.5	: 8	: 6.2	: 10	: 7	: 144	: 40	: 212					
Ghulam Hussain	PLT3	: 29/04/83	: 9.8	: 7	: 8.5	: 7.9	: 6.9	: 162	: 34	: 208	: 6.5	: 7	: 8.6	: 8.1	: 6.5	: 172	: 44	: 224	: 6	: 10	: 9	: 8	: 11	: 220	: 50	: 289					
Fazal Hussain Deyal	PLT1	: 22/04/83	: 10	: 8.2	: 9.7	: 10.2	: 8.9	: 231	: 37	: 287	: 10	: 11	: 12	: 9	: 9.5	: 278	: 48	: 590	: 13	: 10.5	: 9	: 13	: 9	: 254	: 52	: 303					
Fazal Hussain Deyal	PLT2	: 22/04/83	: 12	: 8.5	: 8.5	: 10	: 8.5	: 185	: 37	: 188	: 8	: 11	: 9.5	: 10	: 9	: 286	: 23	: 306	: 10.5	: 9.4	: 10.7	: 9.4	: 8.8	: 334	: 56	: 365					
Fazal Hussain Deyal	PLT3	: 22/04/83	: 9	: 9.5	: 10.5	: 10	: 8	: 230	: 43	: 363	: 9	: 11	: 9.5	: 10	: 9	: 286	: 23	: 306	: 10.5	: 9.4	: 10.7	: 9.4	: 6.8	: 165	: 54	: 193					
Fazal Hussain	PLT1	: 22/04/83	: 4.8	: 8.8	: 10	: 7.5	: 10.2	: 102	: 43	: 143	: 10	: 5	: 8	: 7	: 9	: 212	: 42	: 153	: 10	: 7	: 9.5	: 7	: 10	: 151	: 50	: 236					
Fazal Hussain	PLT2	: 22/04/83	: 10	: 10	: 7	: 7	: 5	: 114	: 36	: 107	: 11.5	: 12	: 9	: 8	: 8.5	: 128	: 57	: 215	: 10	: 7.5	: 11	: 11.4	: 12	: 117	: 58	: 251					
Fazal Hussain	PLT3	: 22/04/83	: 10.5	: 10	: 10	: 8	: 7	: 148	: 40	: 173	: 10.2	: 9	: 7.9	: 6.5	: 7.1	: 104	: 31	: 115	: 11	: 8.5	: 10	: 8.5	: 11.5	: 164	: 54	: 256					
Caryum Nawaz	PLT1	: 22/04/83	: 11	: 10.5	: 8.5	: 6.5	: 11	: 147	: 40	: 218	: 11	: 10.5	: 10.5	: 7	: 8	: 186	: 52	: 115	: 9	: 6	: 10.5	: 5	: 6.8	: 135	: 43	: 124					
Caryum Nawaz	PLT2	: 22/04/83	: 12.2	: 9	: 12	: 11	: 11	: 162	: 69	: 361	: 8	: 7.6	: 7.7	: 9.1	: 9.4	: 126	: 48	: 154	: 11	: 10.5	: 11.5	: 9	: 8.5	: 142	: 52	: 211					
Caryum Nawaz	PLT3	: 22/04/83	: 7.5	: 5.8	: 6	: 7.8	: 6.5	: 76	: 31	: 53	: 8.5	: 6.8	: 8	: 8.2	: 5.7	: 198	: 50	: 174	: 12.5	: 7.5	: 7	: 9.8	: 10	: 90	: 46	: 93					
Hussain Bakhtsh	PLT1	: 25/04/83	: 10	: 7	: 6	: 7.5	: 8.5	: 102	: 26	: 74	: 8	: 7.5	: 6	: 9	: 6.5	: 172	: 21	: 37	: 10	: 10.5	: 9.5	: 10	: 9	: 138	: 43	: 151					
Hussain Bakhtsh	PLT2	: 25/04/83	: 7	: 8.5	: 8	: 7	: 7.3	: 145	: 32	: 83	: 10	: 10.5	: 9.5	: 10	: 9	: 139	: 43	: 151	: 7	: 8	: 6	: 10	: 10.5	: 148	: 24	: 125					
Hussain Bakhtsh	PLT3	: 25/04/83	: 10	: 10.3	: 10	: 8.5	: 9	: 102	: 52	: 176	: 10	: 11	: 7.5	: 7	: 10.2	: 248	: 53	: 320	: 10	: 10.1	: 8.5	: 9	: 11.5	: 245	: 28	: 258					
Zulfqar Shah	PLT1	: 25/04/83	: 11	: 9.1	: 10	: 6	: 6.5	: 183	: 57	: 220	: 9	: 8	: 7.2	: 5.8	: 7.5	: 160	: 34	: 93	: 11	: 9.5	: 8	: 7.5	: 11	: 153	: 46	: 118					
Zulfqar Shah	PLT2	: 25/04/83	: 5.5	: 9.2	: 6	: 8.5	: 8.4	: 115	: 55	: 97	: 8	: 8	: 6.7	: 6.2	: 5.3	: 127	: 18	: 127	: 9	: 9.2	: 9.9	: 10	: 6.3	: 186	: 42	: 164					



TABLE 4-2.4 (cont.)

W/C NO. 21516-L

FARMERS NAME	PLOT NO.	HARVESTING SAMPLE 1:										SAMPLE 2:										SAMPLE 3:									
		DATE	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD					
Rab Nawaz	PLT1	25/04/93	6	7	5.1	4	7.1	268	32	209	10	11	10	8	165	45	256	6	9.5	8	9.5	8	9.5	9	123	34	144				
Rab Nawaz	PLT2	25/04/93	8	11	8.5	7	8	184	42	188	10	9.5	11	11	8	158	46	238	9.5	8.7	9.1	11	10.9	206	51	195					
Rab Nawaz	PLT3	25/04/93	10.5	11	11.5	10	13	126	53	131	11	10	6.5	7	8	170	55	216	10	12.5	6	7.5	6	248	43	290					
Ibraheem	PLT1	25/04/93	8	10	6	5.5	9	220	31	198	13	8	11	10.5	7	171	54	275	6	6.5	9	5	6	180	23	154					
Ibraheem	PLT2	25/04/93	7.5	9.2	10.7	5.6	4.8	198	27	227	8.4	10.2	10.4	10.5	7.5	179	45	233	13	8	11	10.5	5.4	171	54	275					
Ibraheem	PLT3	25/04/93	8.4	7.2	8.4	7.2	7.8	99	35	125	10	7.8	9	8.5	6.7	233	28	280	4.5	7	7.5	8	9.5	307	25	236					
M Ijaz	PLT1	25/04/93	11	11	10.7	9.5	10.5	125	52	202	11.5	12	10.5	11	10	163	53	302	9	12	9.2	10	9.9	123	45	174					
M Ijaz	PLT2	25/04/93	7	9.5	9.3	10	10	123	42	166	11.3	9.5	5.2	9.1	8	125	36	180	9	9.5	7	9.5	9	125	43	135					
M Ijaz	PLT3	25/04/93	7.5	10	8	9	10.5	168	41	191	10	10	9.5	9	8	105	47	243	8	9	9	7.3	8	155	49	130					
Malik Akbar	PLT1	25/04/93	9.5	8.5	9	7	6.5	136	57	193	8	9	9	9	10	167	42	142	7.5	8.5	9	7	8	193	53	202					
Malik Akbar	PLT2	25/04/93	5.5	7	8	8	9.5	119	58	138	5.5	9	8	9.5	9.5	119	46	104	5.5	9	8	9.5	9.5	119	46	104					
Malik Akbar	PLT3	25/04/93	10.4	10.2	9	11	11	189	74	321	8.5	8	8.5	6	7	209	28	154	9.4	9.1	8.5	11.2	7	193	46	263					
Allah Ditta	PLT1	25/04/93	10.6	10.5	8.6	11	12	187	43	208	11.2	11	9.5	10.8	8	122	51	128	10	10.1	8	10	9	214	41	329					
Allah Ditta	PLT2	25/04/93	8	11.5	9.5	8.5	9	181	46	186	8	8.5	8	9	12	201	38	322	9.5	10.5	10	9	6.5	275	48	121					
Allah Ditta	PLT3	25/04/93	9.2	8.5	10.5	9.2	8	197	36	170	10.5	9.5	6	7	8	180	51	369	6.4	7	7.7	9	9.2	263	48	135					
Ghulam Hussain	PLT1	25/04/93	9.5	9	7	7	5.5	110	28	104	12	10	8.5	7	8.5	112	53	285	10	12	9	8	7	84	52	272					
Ghulam Hussain	PLT2	25/04/93	7.8	9.1	9.4	8.8	6.5	188	39	64	8	6.5	6.5	10	8	175	40	140	11.5	7.5	8	7	9.5	61	55	76					
Ghulam Hussain	PLT3	25/04/93	9.3	8.3	5	6.1	7.5	104	19	107	7.5	7	8.5	5.5	6	73	46	136	8	8.5	6	6.5	4.5	63	-32	61					

W/C NO. 29650-TL

FARMERS NAME	PLOT NO.	HARVESTING SAMPLE 1:										SAMPLE 2:										SAMPLE 3:									
		DATE	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD					
Ghulam Rasool	PLT1	26/04/93	7	7	6.8	10	8.5	64	39	106	6.5	9.5	5	9	7	98	24	87	9	8	5.5	9.5	8.5	122	35	178					
Ghulam Rasool	PLT2	26/04/93	7	7.2	5	3.5	6.5	108	31	62	9	9	8	7	8	103	50	102	9.3	11	9	8.8	7.7	84	43	93					
Ghulam Rasool	PLT3	26/04/93	7.5	8	9.9	7	8	58	22	64	6.5	7	6	7.5	5	93	31	79	11	10.7	10	9.8	8.5	118	35	137					
G. Yasir	PLT1	26/04/93	10	9.4	9.6	8	8.4	170	49	202	7.8	10.7	8.7	9.2	6.2	144	44	153	10.3	10.9	8.1	10.3	11.3	188	41	246					
G. Yasir	PLT2	26/04/93	10	9.5	11.3	7.3	8	196	54	285	9.2	10.2	10.5	10	11.2	146	49	183	7	10	9	10.5	11	153	60	188					
G. Yasir	PLT3	26/04/93	6	7.9	8.5	6.3	6.6	54	29	185	9	7.5	8.5	9	8	56	36	51	8	4.5	7	7.5	6.5	118	24	71					
Ghulam Rasool	PLT1	26/04/93	12	10	8	8.5	6.8	85	25	83	10.5	8.5	8	8.5	7.5	152	43	172	12	10	10.5	10	10.5	195	52	205					
Ghulam Rasool	PLT2	26/04/93	10	8	6	10	7	100	43	105	5.5	8	8.5	4.5	7.7	14	23	8	9	9.5	7.5	8.5	7.5	73	33	91					
Ghulam Rasool	PLT3	26/04/93	10	8	6	10	7	100	43	105	10	10	9	9.5	8	111	47	143	11	9	11.5	11	9.5	127	49	308					
M Ramzan	PLT1	26/04/93	9	8.5	9.5	7.5	9	123	32	78	8.5	9	11	8	7	94	40	108	8	8.5	7	7.8	7.5	136	36	88					
M Ramzan	PLT2	26/04/93	8.9	10.2	10.1	8.2	7.7	192	50	228	11	10	10.5	10.5	10.5	152	39	148	6.5	7.4	11	9.5	8	133	42	151					





TABLE 4-2.5 (cont.)

FARMERS NAME	PLOT NO.	HARVESTIN										SAMPLE: 1										SAMPLE: 2										SAMPLE: 3																								
		DATE		SL1		SL2		SL3		SL4		SL5		TL		GR		YLD		SL1		SL2		SL3		SL4		SL5		TL		GR		YLD		SL1		SL2		SL3		SL4		SL5		TL		GR		YLD						
		DATE	DATE	SL1	SL2	SL1	SL2	SL1	SL2	SL1	SL2	SL1	SL2	SL1	SL2	TL	GR	YLD	YLD	SL1	SL2	SL1	SL2	SL1	SL2	SL1	SL2	SL1	SL2	TL	GR	YLD	YLD	SL1	SL2	SL1	SL2	SL1	SL2	SL1	SL2	SL1	SL2	TL	GR	YLD										
Shah Jehan	PLT1	28/09/92		24	26	25.5	25	30	176	148	484	27	27	22.5	22.5	22.5	22.5	195	145	378	27	26	28	28	20	26	217	78	526																											
Shah Jehan	PLT2	28/09/92		25	27	22	26	23	285	112	828	21	23.5	21.5	24.5	21.5	27.5	80	608	28	27	27	27	25	25.5	242	170	666																												
Muhammad Nawaz	PLT1	03/10/92		20	22.5	22	25	23	312	90	490	25	25.5	24.5	25	19	184	103	334	23	22	24.5	26	24	26	24	285	71	386																											
Muhammad Nawaz	PLT2	30/09/92		26	25	19	26	26	306	98	450	24	26	26	27	23.5	252	105	387	26	29	24	24	22	23.5	235	116	584																												
Ghulam Faird	PLT1	05/10/92		28	28.5	24	25	27	151	81	231	19.5	16	24.5	26	24	281	82	344	28	24	26	24	26	24	26	258	95	447																											
Ghulam Faird	PLT2	05/10/92		22	23	23.3	23	32	322	75	564	26.5	26	25	22.5	20	255	87	522	25	26.8	26.5	29.5	25	28.8	255	155	476																												
Ghulam Hussain	PLT1	10/10/92		21	29	26.5	26	23	23.5	171	464	26	23	23.5	28	24.5	291	103	598	25	26	21.5	22.5	22	177	108	307																													
Ghulam Hussain	PLT2	10/10/92		24.5	26	23	26	20.5	257	127	378	27.5	22	28	25	23	165	138	410	25.5	26	26.5	26	26.5	26	25.5	265	160	608																											
H.Nabi Shekh	PLT1	11/10/92		25	23.7	28.6	16.7	30	155	127	250	24.7	20	21	22.1	22.5	145	77	147	26	20	23.5	17	21	190	63	296																													
H.Nabi Shekh	PLT2	11/10/92		18.2	18.2	17.9	20	20	213	87	184	18	18.5	19	18.5	19	84	48	161	20	20.5	18	20	20	20	34.3	90	81																												
Gul Nawaz	PLT1	25/10/92		17	22.5	18.4	17.5	17.5	285	55	161	17.5	18.7	18	18	15.9	287	55	221	13.3	19.7	15	15	12.8	20.7	130	84	115																												
Gul Nawaz	PLT2	25/10/92																																																						

TABLE 4-2.6 RICE CROP - CUT DATA, DISTRIBUTARY # 3, KHARIF 1993

W/C NO	FARMERS NAME	PLOT NO	HARVESTING DATE	SAMPLE 1							SAMPLE 2							SAMPLE 3										
				SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	
W/C NO 570L	M Anwar	PLT1	27/09/93	27	24.5	22.5	24	26	126	132	204	24	20.5	18.5	21	24	148	98	195	22	21	25	22	19.5	173	74	208	
	M Anwar	PLT2	27/09/93	28	29	24.5	27	23.5	163	154	263	25	27	23	24.5	21.5	145	86	332	20	21.2	23.2	22	22	210	112	253	
	H Mubarek	PLT1	23/09/93	22	20	23	19.5	24	127	106	271	24	20	23	24.5	22	140	98	203	25	28	24	23	22.5	100	200	254	
	H Mubarek	PLT2	23/09/93	10.5	23	23	22	22	100	107	128	22	23	23	20	21	112	93	160	26	25.5	24.5	27	26.5	96	143	163	
	Shah Khan	PLT1	02/10/93	24	19	25	25	23	131	87	136	20	23	21	23	20	119	91	148	25.5	25	25.4	24	25	117	115	110	
	Shah Khan	PLT2	02/10/93	25.7	25.5	25	26	18	194	94	430	24	22.5	23.7	23	18.4	103	68	125	21	20	21	21	23	90	89	54	
W/C NO 590-R	M Bashir	PLT1	27/09/93	26.5	24.5	23	19	27	180	130	312	27	29	26	25	33	136	134	259	22	23	22	22	22	135	110	290	
	M Bashir	PLT2	27/09/93	20	20	23	21	22	137	110	118	23	23	19	21	22	239	102	284	26	24.5	27.5	26	25.5	180	143	212	
	Hussain Khan	PLT1	28/09/93	24	26.5	25	25.5	25.5	150	93	225	24	25	26	24	23	122	90	213	27	25.5	25	20	25	136	143	227	
	Hussain Khan	PLT2	28/09/93	24	26	27	25	23.7	146	104	205	24.5	24	28	26	27.7	190	173	436	26	29	29	29	26	193	151	411	
	Hashim Khan	PLT1	26/09/93	25	26	27	23	26	207	123	411	25.3	22	24.1	23.5	26	227	88	353	23	24	25.3	21.8	18.6	228	94	346	
	Hashim Khan	PLT2	26/09/93	28	27	23	26.7	26	117	190	295	27	26	21	24	25	161	122	300	24	24	27	25	23	172	177	263	
Sikandar Khan	PLT1	23/09/93	26	24	20.5	22.5	25	260	136	384	24	26	27	28.5	27	218	115	286	19	21.5	27.7	23	24	191	99	186		
Sikandar Khan	PLT2	23/09/93	22	25	26	23	27	160	143	393	20	20.5	24	19	23	206	106	438	25.2	27	21.9	22	26	215	141	412		
W/C NO 646R-L	M Nazir	PLT1	22/09/93	26	24.5	23	25.5	27	270	146	508	23	25.3	27.2	21.8	27	159	126	374	25	20	24	22	26	173	173	440	
	M Nazir	PLT2	22/09/93	26	24	23	27.5	28	285	135	502	25	26	27	24	24	219	130	532	27	27.5	32	29	30	223	249	608	
	Shah Jahan	PLT1	22/09/93	27	23	27	27	22	188	189	312	26	24	27	24.5	28	182	120	390	26	25	27	23	27	246	146	480	
	Shah Jahan	PLT2	22/09/93	25	28	29	27	26	240	166	478	26	26	25	27	27	145	148	363	24	27	28	26	30	243	192	440	
	Qadir Baluch	PLT1	28/09/93	24	26	28	22	28	168	162	319	26	25	26.5	27	27	140	156	298	26	27	25.5	24	26.5	315	136	336	
	Qadir Baluch	PLT2	28/09/93	25	26	26	22	25	138	166	254	26	27.5	26	25	28	122	148	248	23.5	27	19	24.7	26	194	165	336	
Saleem	PLT1	28/09/93	26	29	24	24	27	160	135	193	26.7	26.4	28.5	23	19	112	205	137	25.5	26	27	26	27	207	149	199		
Saleem	PLT2	22/09/93	24	25.5	26.5	27	26.5	178	129	265	23	25	24	27	21.9	218	155	219	17	20	16	14.5	13	155	45	123		
Maula Dad	PLT1	23/09/93	26.5	25	26.5	24	29	211	190	417	25	27.3	23.9	21	24.9	194	113	347	19	24	28	20	22	357	115	462		
Maula Dad	PLT2	23/09/93	23	24	27	28	28	166	141	403	28	26	27	21	26	165	113	275	23	26	28	28	27.9	21.5	156	341		
Umar Hayat	PLT1	28/09/93	27.4	25	29	27.3	26.7	231	103	480	25	24	28	23	27	160	154	347	26	24.5	26.5	27	26.5	142	157	291		
Umar Hayat	PLT2	28/09/93	27	26.5	26	26	25	220	128	393	21.2	27	25.6	27.2	21.9	254	121	664	26	24	25.5	27.5	26	280	141	323		
W/C NO 646R-R	Falk Sher	PLT1	02/10/93	24	25	23	26.7	19	245	118	425	28	25	25	27	24.7	205	108	306	26	27	28	30	27.5	207	190	300	
	Falk Sher	PLT2	02/10/93	26	27	24	23	25	215	130	424	24.5	24.5	23.5	26.5	26	210	151	298	23.7	24.4	23	20.5	23	196	153	249	
	Amanullah	PLT1	23/09/93	24.3	27.2	27.2	20.1	28.3	185	141	431	25	28	31	26	30	180	120	467	25.5	27	24	27	24.5	180	160	341	
	Amanullah	PLT2	23/09/93	26	22.5	24	26.5	27	200	108	304	22	23.2	27	21.9	19.7	245	117	416	29	27	26	25	25	25	142	120	304
	Sher Zaman	PLT1	23/09/93	24.5	27.5	22.1	27.3	29	231	115	534	25	26.2	21.9	27	20.9	241	121	590	28	24	25	26	27	27.8	118	514	
	Sher Zaman	PLT2	23/09/93	27.5	20	26	25	21.4	193	518	27	24.5	26	22	25	252	102	514	26	26	22	21.2	22	27	121	86	434	
Amanullah s/o Khalid Dad	PLT1	28/09/93	26	24.5	27.5	26	27	231	170	573	26	27	29	28	31	185	277	416	28	26	29	20	22.5	26	176	144	370	
Amanullah s/o Khalid Dad	PLT2	28/09/93	23	25.5	24	24.7	25	203	107	307	28.4	27	28	26	27.7	167	200	440	25	27	20	22.5	26	176	144	370		
Juma Khan	PLT1	23/09/93	26.7	26.5	26.2	27.5	26	154	103	118	26	27	26	29	29	94	136	107	26	25.5	25	26	27	95	153	165		
Juma Khan	PLT2	23/09/93	24.3	25	26	16.5	24.6	121	123	158	26.5	26	29	26	26	134	136	107	27	26	24	25	24	81	185	120		
G. Razaq	PLT1	23/09/93	27	28	24	23	118	150	118	363	28	27	24.5	22.5	24	235	120	294	26	27	27.4	25	24	26	235	121	378	
G. Razaq	PLT2	23/09/93	23	25	27	29	23.5	139	164	262	25	27	21	23	25	247	113	470	20	25	24	23	26	180	120	306		

TABLE 4-26 (cont.)

W/C NO. 10150-R

FARMERS NAME	PLOT NO.	HARVESTING DATE	SAMPLE 1					SAMPLE 2					SAMPLE 3													
			SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD
M Nawaz	PLT1	22/09/93	29	26	26.5	22.5	25	317	110	448	26	24	24	26	25.5	277	180	440	15.5	22.5	20	26	22	163	86	225
M Nawaz	PLT2	22/09/93	25	24.3	26.1	27.1	21.9	134	363	22	23.5	27	21	25.2	186	89	354	22.5	21.9	26	26	27.1	24.3	25.1	141	404
Ali Wasaya	PLT1	22/09/93	25	24	23	20	26.5	132	100	170	26	26	21	28.4	25	143	128	274	25	25	27	22.9	24.9	168	109	350
Ali Wasaya	PLT2	22/09/93	27	27.7	26	26	24	286	103	456	26	24	25	22	26	200	111	408	24	26	27	24	24	250	84	367
Khan Zaman	PLT1	26/09/93	21	23	21	25	19.9	180	117	205	22	27	29	22.9	21.8	270	122	414	21	24	21	18	21	197	92	365
Khan Zaman	PLT2	26/09/93	25	24	18	20	27	163	121	353	22	25.5	23	17	24	120	93	209	30.5	26	27.1	25	25	159	194	379
Gul Jan	PLT1	22/09/93	21	27	29	24	22.3	140	121	257	23	25	27	22	23.5	197	119	302	22	26	29	27.5	27	216	182	438
Gul Jan	PLT2	22/09/93	26	26	26	28	28	210	171	311	26	27	26	26.5	27	146	128	303	22	24	25	29	27	23.5	130	281
Gul Nawaz	PLT1	26/09/93	24	26	23.5	24.5	27	210	140	260	27	28	29	24	23.5	140	140	223	18.5	16	25	24.8	17	147	296	
Gul Nawaz	PLT2	26/09/93	26	28	25	27.5	27.4	175	158	352	25	16	21.5	18	19	156	73	200	25	16	25	24.8	17	147	296	
Haji Nabo Sheikh	PLT1	06/10/93	24	22.5	27	26	23	175	82	341	29	26.5	25.5	29	27	82	135	287	21	28	30	27	27	85	105	
Haji Nabo Sheikh	PLT2	06/10/93	24	27	23.5	30	28	100	148	312	29	26.5	25.5	29	27	82	135	287	21	28	30	27	27	85	105	

W/C NO. 11920-L

FARMERS NAME	PLOT NO.	HARVESTING DATE	SAMPLE 1					SAMPLE 2					SAMPLE 3													
			SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD
Fareh Khan	PLT1	26/09/93	20	22	22	13.5	19	153	58	107	25	24	25.5	23	23	136	124	132	24	23	19	22	22	137	122	92
Fareh Khan	PLT2	26/09/93	19	20	23	26	22	124	50	165	24	20.5	20	21	23	146	105	155	24	23.5	22	21	18	111	107	106
Saleem	PLT1	23/09/93	20	23.5	18.5	19.7	23	108	134	168	26	21	25	26	20	134	142	217	24	24.5	21	25	25	173	137	334
Abdul Ghafoor	PLT2	23/09/93	27	28	28	27	26	175	132	430	26.5	26	26	29	29	163	73	442	26	23	21	24	25	149	123	224
Abdul Ghafoor	PLT1	23/09/93	26	29	24.5	26	26.5	273	158	300	28	25.5	28	27	29	281	135	334	25	22.5	23.5	24	15	180	86	352
Muhammad Jan	PLT1	23/09/93	30	25.5	27.5	26	29	204	190	382	26	26.5	27	22.2	23.5	256	169	408	25.2	19	22	21.3	26.1	111	94	443
Muhammad Jan	PLT2	23/09/93	26.5	22.5	23	25	24.5	170	124	254	21	22	23.9	21.3	25	146	111	212	26	27	25.5	26	24	174	229	328
Gul Zaman	PLT1	26/09/93	23.5	24	24	24	26	177	92	80	26	24.5	27.5	28	24	180	135	15	22	19.5	20	21.5	19	170	65	146
Gul Zaman	PLT2	26/09/93	21	23	19.2	27	22.2	205	119	719	24	24	22	25	20	192	115	262	26	23	24	25	26	210	180	355
H. Ali Khan	PLT1	26/09/93	22	21.3	27	25.2	25.9	273	132	447	25	24.2	17	25.3	24	253	121	388	26	24	23.5	26	27	218	109	284
H. Ali Khan	PLT2	26/09/93	25	23	24	26	24	475	105	255	26	28	28	26	25	233	133	529	28	26.5	24	27	25.5	331	165	513

W/C NO. 14810-R

FARMERS NAME	PLOT NO.	HARVESTING DATE	SAMPLE 1					SAMPLE 2					SAMPLE 3													
			SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD
Palos Khan	PLT1	26/09/93	24	25.2	27.3	21.9	25.7	238	91	415	24	20	21.5	22	21.5	290	111	354	27	23	24	22.5	23	337	90	341
Palos Khan	PLT2	26/09/93	27	24.5	26	24.5	27	243	110	420	26	26	26	24	24	291	99	389	22	23	24	28	27.5	168	88	442
Mir Waj Khan	PLT1	26/09/93	25	24	23	21	21	105	84	77	28	23	21.9	24	21.9	274	121	464	22	25	23.7	18	21	566	96	407
Mir Waj Khan	PLT2	26/09/93	21	22	24	27	25	166	64	180	21	31	23	23.7	25	140	141	361	26	22	24.5	23	21.5	165	133	204
Usman Khan	PLT1	19/09/93	26	24	20	21	25	184	94	194	24	25	23	24	26	129	205	211	25	25	27.5	25	26	118	122	136
Usman Khan	PLT2	19/09/93	26	24	20	21	25	184	94	194	25	24.5	25	24	26	150	118	253	25.5	24	26	24	28	158	109	162
Khuda Bakhsh	PLT1	22/09/93	23	24	26	28	22	180	148	248	27	25.5	26	29	24.5	200	135	290	27	24	28	28	28	216	136	340
Khuda Bakhsh	PLT2	22/09/93	28	27	29	27	24	189	157	311	24	23.5	27.1	26.2	24.3	213	83	617	22.5	25.5	22.5	25	27	167	87	297
M Anwar	PLT1	26/09/93	20	20	24	27	26	320	114	482	28	26.7	26.5	24	24	320	117	407	24	23	24.5	23	24	203	124	324
M Anwar	PLT2	26/09/93	26	25.5	23	29	24.5	290	90	312	24.5	22	23	26.5	25.5	206	130	298	22	23.1	21.9	19	22.4	171	114	263
Maik Akbar	PLT1	22/09/93	28	25	19	27	24	315	194	707	26	26	25	25	24	333	154	714	25.5	23.6	26.5	25.3	27.1	237	138	684
Maik Akbar	PLT2	22/09/93	27	22	20.5	24	28	255	110	842	24	24	24	23.5	25	27	262	119	30	29	28	22.5	29	342	149	748

W/C NO. 15382-R

FARMERS NAME	PLOT NO.	HARVESTING DATE	SAMPLE 1					SAMPLE 2					SAMPLE 3													
			SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD	SL1	SL2	SL3	SL4	SL5	TL	GR	YLD
Gogary Khan	PLT1	19/09/93	23	30	26	27	26	20	125	319	27	27	26	26	26	188	185	365	28	26.5	27	29	21.5	165	110	284
Gogary Khan	PLT2	19/09/93	23.2	20	21.9	25	27	141	142	289	22	25	26	27	21.9	188	147	267	25	26	27	27	25	146	170	290
Sad Khan	PLT1	26/09/93	21.5	22	22.5	27	23	188	106	143	21	22	24.5	21.5	18	187	88	100	20.1	19	21.5	23	21	186	71	351
Sad Khan	PLT2	26/09/93	26	24	23	22.5	21	145	109	149	20	21	20	22	18	114	70	50	23.5	21.2	25	27	21.9	164	131	361
Sarifaz Khan	PLT1	23/09/93	18	23.5	27.6	24	24	190	87	319	24	23	25	21.7	20	198	109	372	25	26	25	24	173	101	291	
Sarifaz Khan	PLT2	23/09/93	26	24	23	26	26	130	109	205	18.5	20	20	19	17	367	36	295	24.5	28	25	27	26	177	194	267
Alah Nawaz	PLT1	26/09/93	21.5	25	14	25	28.9	315	98	481	26	28	27.5	26	27	159	200	191	24.7	25	25.6	24.5	25	193	96	361
Alah Nawaz	PLT2	26/09/93	26	24	23.5	27.5	21	118	190	300	20	25	25	27.5	30	146	113	305	24.7	25	25.6	24.5	25	190	112	273
Master Sarfraz	PLT1	26/09/93	27	26.5	27	28	26	281	131	364	21	29	31	22.4	25.3	126	129	261	27	28	29	22.4	25.3	142	126	270
Master Sarfraz	PL																									

TABLE 4-2.7 RICE CROP - CUT DATA, DISTRIBUTARY # 4, KHARIF 1992

W/C NO. 1860-R	FARMERS NAME	PLOT NO	HARVESTING SAMPLE: 1.			SAMPLE: 2.			SAMPLE: 3.			GR	YLD	TL	GR	YLD	TL	GR	YLD	TL	GR	YLD				
			SL1	SL2	SL3	SL1	SL2	SL3	SL1	SL2	SL3															
	Haji Nawaz	PLT1	27	23	22.5	27	24	184	103	382	26	25	27	22	26.5	330	132	435	27	27	28	28	23	212	104	347
	Haji Nawaz	PLT2	28	26	28	25	28	144	84	302	26	27	27	22	23	216	125	278	20.5	23	20.8	24.5	25.5	211	99	278
	Haji Sarfaraz	PLT1	25.5	28.8	20.2	28	24	128	103	204	29	27	31.2	28	26	358	124	672	26.5	27	28	26.3	25.3	153	482	
	Haji Sarfaraz	PLT2	27.5	27.5	25.5	23.5	24	216	92	375	21.5	25	25	25	24.2	180	148	246	23	25.5	22	21	23.5	197	98	312
	Sher Zaman	PLT1	21.2	22.5	21.7	18	16	484	41	481	29	27	28.5	25.5	27	238	136	528	24	21.1	28.8	24	24.5	147	101	341
	Sher Zaman	PLT2	22.5	19	23.2	27.1	28	213	93	475	27	28	23.5	26.5	28	182	175	483	27	28	26	25.5	26	290	143	675
	Ramzan	PLT1	24	27	26.5	27	26.3	260	145	498	24	26.5	27.5	26.5	25.5	181	167	502	20	24	20	22.5	28.5	117	79	265
	Ramzan	PLT2	26.5	25	27	27.8	25.5	227	123	461	30	28	28	25	27	151	136	391	25.5	25.9	20	23.5	27.2	142	150	630
	Umer Hayat	PLT1	26	28	26	25	25	190	134	471	24	23	28	21	18	74	39	209	24	24	25	26	22.5	158	110	185
	Umer Hayat	PLT2	24	21	25.5	25	24.7	319	103	492	24	22	24.5	25.5	23.5	353	90	524	25	26	24	25	22	236	87	409
	Sadiq (Saddo)	PLT1	21.3	20.3	19	21	18	180	72	157	17.5	19	19	19	18	20	47	110	17.5	21	21.3	21	19.5	227	110	192
	Sadiq (Saddo)	PLT2	23	18	23.5	23.5	23.2	253	92	373	24	21	25.5	24.7	25	319	103	492	24	21.5	24	22	22.9	227	66	281

W/C NO. 8980-L	FARMERS NAME	PLOT NO	HARVESTING SAMPLE: 1			SAMPLE: 2.			SAMPLE: 3.			GR	YLD	TL	GR	YLD	TL	GR	YLD	TL	GR	YLD				
			SL1	SL2	SL3	SL1	SL2	SL3	SL1	SL2	SL3															
	Hakam Khan	PLT1	26	25.5	28	21	26	249	171	418	27	27.5	28	24	28	128	139	260	26	24.5	25	26.5	27.5	181	81	320
	Hakam Khan	PLT2	24	20	25	20	17	106	105	159	25	27	28	27	21	194	61	310	24.7	23.5	22	24	22.5	243	66	23.7
	Ahmad Zai	PLT1	28	26	26.5	27	26.5	148	104	323	24	25.5	24.5	20	23	164	96	263	23.5	21.5	26.5	23	21.5	198	92	248
	Ahmad Zai	PLT2	23	24	23	18.5	26	188	90	311	26.8	28	27.8	24	24	191	61	380	27.2	25.2	25.1	28	26.7	185	116	473
	Sona Khan	PLT1	17	18	19.5	21	16.5	561	29	425	23	27	27.5	27	21.5	208	108	264	22.5	25	24.5	25	26	204	114	288
	Sona Khan	PLT2	19	27	22	22.5	20	182	99	234	24	23.5	26	28.2	24.5	200	122	205	22	24.5	22	22	25.5	156	110	167
	Shabir Kanju	PLT1	26	26	28	28	23	240	102	672	27.5	27.8	29.3	24.1	20.5	207	166	504	23	23.5	29	29	27	224	180	472
	Shabir Kanju	PLT2	23.5	27	22	26.5	26	186	83	369	25	29	27	24	28	202	142	346	25	26.5	28	27.2	26.2	151	120	283

W/C NO. 18512-L	FARMERS NAME	PLOT NO	HARVESTING SAMPLE: 1.			SAMPLE: 2.			SAMPLE: 3.			GR	YLD	TL	GR	YLD	TL	GR	YLD	TL	GR	YLD				
			SL1	SL2	SL3	SL1	SL2	SL3	SL1	SL2	SL3															
	Khadim Hussain	PLT1	23.5	27	25.5	25	30.5	241	104	642	21.5	27	23.5	28.4	25	304	144	834	25	28.5	29	26.5	27.5	331	152	910
	Khadim Hussain	PLT2	28	28.5	28	27	27	204	141	550	26	27.5	25	28	26.5	213	131	448	27.5	28	28	28	25.5	224	165	165
	Haji Juma	PLT1	22.5	23	26	29	26.5	152	118	189	29	28	20	28	28	156	133	162	29	25	24	27.8	21.5	123	109	187
	Haji Juma	PLT2	25	26.5	24	24	23.5	198	101	213	24	25.5	27	20	25	145	79	163	28	26	26	28	26	186	189	377
	Gui Zaman	PLT1	22.5	27	28	24.5	27.5	196	115	282	27	28	28	27	25	180	144	304	26	22	28	25.5	26	208	128	337
	Gui Zaman	PLT2	29.5	26.5	25	26	25.25	161	135	367	28.6	27.5	26.5	21.7	19.8	188	108	268	25	24.2	25	24	26	217	129	429
	Khan Zaman	PLT1	22	28	22.3	23.5	19.5	181	104	122	27	24	27	22	23.3	165	149	225	24	22	20.5	25.5	19.5	171	122	101
	Khan Zaman	PLT2	22	25	24.5	23	25	91	61	160	25	23	22	26	24	159	123	233	24	22	20	24	22.5	206	98	228
	Ramzan	PLT1	21	22	19	19.8	20.3	210	91	244	20	19.5	23	23.5	20	170	67	142	19.5	18	21	19	23	281	67	249
	Ramzan	PLT2	20	21.4	22.5	20.3	21	420	75	430	21	19.5	21.3	18	20.2	277	83	332	20	25	20.5	24	21	350	67	526

W/C NO. 28448-R	FARMERS NAME	PLOT NO	HARVESTING SAMPLE: 1.			SAMPLE: 2.			SAMPLE: 3.			GR	YLD	TL	GR	YLD	TL	GR	YLD	TL	GR	YLD				
			SL1	SL2	SL3	SL1	SL2	SL3	SL1	SL2	SL3															
	Ghulam Hussain	PLT1	26	25	24	25	24	128	78	253	26	25.7	23	23.5	24	235	143	550	21.5	24.5	21	23	22.5	253	179	670
	Ghulam Hussain	PLT2	24.5	25	26	24.5	27	247	154	477	29	25	28	25.5	217	201	153	374	22.5	23.5	26	26	17	220	114	411
	Qayyum Nawaz	PLT1	25	22.5	26.5	23.5	21.5	162	76	208	25	21.5	25	27	25	182	102	416	24	26	25.5	22	24	219	133	336
	Qayyum Nawaz	PLT2	27	28	26	27	26.5	178	74	426	23.5	29	28	25	28.5	233	131	516	27.8	25	28	23	27.5	183	205	369
	Fazal Hussain	PLT1	27	28	25	24	22.5	223	110	302	29	28	26.5	25	28	184	97	316	27	29	29	26	27.5	239	90	234
	Fazal Hussain	PLT2	24	26	24.3	22.5	27	196	115	354	26.5	26.5	27.5	27	25.5	221	132	457	22	28	24	24.3	27	295	98	546
	Zulfiqar Ali Shah	PLT1	25.5	27.5	27.5	27.5	20	217	138	289	25	25.5	27.5	30	21.4	29.7	111	149	26	27	22	26	25	265	120	384
	Zulfiqar Ali Shah	PLT2	28.5	28	26	28	21.5	259	78	508	22.5	25.5	25	24	25.5	122	61	153	26.6	26.5	22.5	23.5	29	122	128	176
	Hussain Bukhish	PLT1	20	25	23	20	23	123	86	149	17	25	24	24	24	127	73	242	23.5	24.5	25.5	25	26	195	118	343
	Hussain Bukhish	PLT2	24	26.5	24	20	22	165	70	305	25	25	24	23	26.5	168	73	262	25	26	25	24	19	194	121	338
	Ashiq Shah	PLT1	26	28.5	26	25.5	26	170	125	355	24	24	23	26.5	23	170	102	371	18.5	26	26	24	26	25	101	405
	Ashiq Shah	PLT2	23.5	27	25.5	28	23	118	117	207	23	26	25.5	25	24	190	102	371	18.5	26	26	24	26	25.5	230	101





TABLE 4-3 CROP WATER REQUIREMENTS

TABLE 4-3.1 CROP WATER REQUIREMENTS DISTRIBUTARY # 3 COMMAND

Month	Period	Disty-3	570-L	690-R	6468-R	6468-L	10150-R	11920-L	14810-R	15382-R
Oct-91	1	7.3	9.9	6.4	8.4	6.6	5.7		6.7	8.2
	2	6.7	6.4	5.2	7.4	8.2	4.5	5.9	6.2	8.3
	3	7.9	6.6	6.0	8.7	11.0	5.7	7.6	6.6	9.4
Nov-91	1	8.4	7.3	7.0	8.8	11.0	6.4	8.3	7.3	9.5
	2	9.5	8.5	8.5	10.0	11.0	8.0	9.4	8.9	10.2
	3	11.4	10.4	10.7	12.1	12.3	10.2	11.4	11.2	11.9
Dec-91	1	12.6	11.6	12.2	13.3	12.8	11.6	12.6	12.7	13.1
	2	12.8	12.0	12.7	13.5	12.4	12.1	12.8	13.1	13.1
	3	14.8	14.0	14.9	15.7	14.1	14.1	14.8	15.3	14.9
Jan-92	1	16.2	15.3	16.3	17.1	15.4	15.4	16.3	16.7	16.4
	2	16.9	15.9	17.0	17.9	16.1	16.0	17.0	17.4	17.1
	3	19.3	18.1	19.5	20.5	18.5	18.4	19.5	19.9	19.6
Feb-92	1	21.7	20.3	21.8	23.0	20.8	20.6	21.9	22.3	22.0
	2	24.1	22.5	24.3	25.5	23.2	22.9	24.4	24.8	24.4
	3	27.7	25.7	27.9	29.4	26.7	26.3	26.2	26.5	26.1
Mar-92	1	30.4	27.9	30.8	32.4	29.4	28.8	31.4	31.2	30.4
	2	31.0	28.8	31.4	33.6	29.7	28.7	31.9	31.7	30.9
	3	31.1	29.9	31.4	34.2	29.6	27.8	30.9	31.5	31.3
Apr-92	1	23.2	25.2	25.9	25.3	19.5	19.1	21.9	23.6	22.2
	2	14.4	18.2	15.6	16.7	13.1	10.1	12.0	12.0	13.7
	3	7.9	15.0	8.6	10.8	5.7	5.3	3.9	4.4	6.8
May-92	1	10.0	19.1	11.0	13.6	7.6	6.8	5.2	5.1	8.0
	2	11.7	22.1	12.7	15.8	9.0	8.1	6.2	6.0	9.3
	3	11.6	22.0	12.6	15.6	8.8	8.1	6.0	6.3	9.5
Jun-92	1	16.7	23.0	14.4	21.5	14.7	16.5	16.2	14.0	14.1
	2	21.6	21.8	15.2	24.7	21.4	26.1	27.7	22.4	19.2
	3	34.0	22.7	18.9	39.6	36.1	47.0	53.4	41.5	29.9
Jul-92	1	30.4	23.5	18.3	37.7	31.0	39.8	44.8	35.3	26.2
	2	30.5	22.8	18.0	37.9	31.3	40.2	45.5	35.9	26.4
	3	30.9	22.5	18.0	38.8	31.7	40.9	46.5	37.0	27.0
Aug-92	1	30.3	22.1	17.6	36.5	30.8	39.7	45.2	36.6	26.8
	2	29.6	21.6	17.1	37.6	29.9	38.5	43.9	35.9	26.5
	3	27.0	20.6	16.0	34.7	26.9	34.5	39.0	32.3	24.3
Sep-92	1	24.6	19.9	15.0	31.8	24.2	30.7	34.5	28.9	22.3
	2	23.2	19.1	14.3	29.9	22.7	28.7	32.2	27.1	21.0
	3	20.7	15.6	12.2	25.6	20.8	26.7	29.9	25.1	19.2
Oct-92	1	7.3	9.9	6.4	8.4	6.6	5.7	5.6	6.7	8.2
	2	6.8	5.9	5.1	6.8	8.0	4.2	5.6	8.2	9.4
	3	7.6	5.5	5.3	6.4	10.1	4.6	7.3	10.4	11.1
Nov-92	1	8.2	6.5	6.3	7.2	10.4	5.9	7.9	10.4	10.9
	2	9.4	8.2	8.0	8.7	10.7	7.9	9.2	11.1	11.2
	3	11.3	10.5	10.4	10.8	12.1	10.5	11.4	12.7	12.6
Dec-92	1	12.5	12.1	11.9	12.2	12.9	12.3	12.7	13.5	13.1
	2	12.8	12.7	12.5	12.7	12.7	13.0	12.9	13.5	13.0
	3	14.9	15.0	14.8	14.9	14.6	15.4	15.0	15.5	14.8
Jan-93	1	16.3	16.4	16.2	16.2	16.0	16.8	16.4	16.9	16.1
	2	16.9	17.0	16.8	16.9	16.7	17.6	17.1	17.5	16.6
	3	19.4	19.5	19.2	19.3	19.2	20.2	19.7	19.9	18.9
Feb-93	1	21.7	21.8	21.6	21.6	21.6	22.7	22.1	22.1	21.1
	2	24.1	24.2	23.9	24.0	24.1	25.3	24.6	24.4	23.2
	3	27.7	27.8	27.5	27.6	27.8	29.2	28.4	28.0	26.6
Mar-93	1	30.4	30.5	30.4	30.4	31.0	32.8	31.4	29.6	28.0
	2	31.0	31.2	31.1	31.1	31.7	33.4	31.8	30.3	28.6
	3	31.1	31.0	30.7	31.1	31.6	31.9	30.9	32.1	30.5
Apr-93	1	24.4	25.8	25.5	25.9	23.2	24.7	20.6	25.7	24.1
	2	13.9	13.3	13.8	14.1	14.2	12.8	10.7	16.5	15.5
	3	6.2	5.5	6.3	5.6	4.2	5.1	3.6	11.0	9.8
May-93	1	7.7	6.6	7.9	6.9	5.4	6.7	4.7	13.1	11.6
	2	9.0	7.7	9.2	8.0	6.4	7.8	5.6	15.2	13.5
	3	9.1	7.9	9.3	8.2	6.2	7.6	5.5	15.8	14.1
Jun-93	1	15.1	12.8	11.6	14.7	13.4	15.0	16.5	21.5	20.3
	2	21.9	18.4	14.2	22.1	21.4	23.5	26.6	27.5	27.3
	3	36.4	29.9	19.1	37.7	39.4	42.1	56.5	40.1	41.2
Jul-93	1	31.4	25.8	17.1	32.3	33.3	35.5	47.5	35.9	36.3
	2	31.6	28.0	16.9	32.5	33.8	35.9	48.4	35.8	36.2
	3	31.9	26.2	16.8	32.9	34.4	36.5	49.5	35.9	36.4
Aug-93	1	31.0	25.4	16.3	32.0	33.4	35.4	48.2	34.8	35.3
	2	30.1	24.6	15.8	31.0	32.4	34.4	46.8	33.6	34.2
	3	27.1	22.3	14.6	27.9	28.9	30.8	41.5	31.0	31.2
Sep-93	1	24.5	20.2	13.6	25.1	25.7	27.4	36.7	28.5	28.5
	2	23.0	19.0	12.9	23.5	24.0	25.6	34.1	26.9	26.9
	3	21.1	17.5	11.6	21.8	22.2	23.8	31.7	24.4	24.7
Oct-93	1	6.9	6.1	5.8	6.7	6.0	5.2	5.1	10.9	10.7
	2	6.8	5.4	4.9	6.1	7.8	3.8	5.4	10.1	10.6
	3	7.6	5.5	5.3	6.4	10.1	4.6	7.3	10.4	11.1

TABLE 4-3.2 CROP WATER REQUIREMENTS DISTRIBUTARY # 4 COMMAND AREA

Month	Period	Disty-4	1860-R	8980-L	16512-L	28448-R
Apr-92	1	4.6	2.6	6.9	0.9	4.2
	2	6.9	4.0	9.7	1.6	7.0
	3	9.3	5.5	12.6	2.4	10.0
May-92	1	11.5	6.8	15.2	3.1	12.5
	2	13.3	7.8	17.6	3.6	14.6
	3	13.6	7.8	18.2	3.7	14.7
Jun-92	1	18.8	16.5	22.0	8.4	20.8
	2	24.4	22.6	26.4	13.9	27.8
	3	36.4	45.5	34.1	25.8	41.7
Jul-92	1	32.3	41.2	31.0	21.7	36.5
	2	32.2	42.1	30.5	22.0	36.5
	3	32.4	43.4	30.3	22.4	36.7
Aug-92	1	31.4	42.7	29.3	21.7	35.5
	2	30.5	41.7	28.4	21.1	34.5
	3	27.9	37.2	26.4	18.8	31.4
Sep-92	1	25.5	33.1	24.7	16.7	28.7
	2	24.1	30.9	23.5	15.6	27.1
	3	21.9	26.8	21.2	14.6	24.8
Oct-92	1	9.3	3.6	12.7	5.4	8.7
	2	8.7	2.6	12.6	5.9	7.1
	3	8.8	2.8	12.8	5.8	7.1
Nov-92	1	8.9	4.2	11.9	6.7	7.8
	2	9.6	6.3	11.5	8.4	8.9
	3	11.2	8.8	12.2	10.8	10.9
Dec-92	1	12.0	10.8	12.3	12.3	12.0
	2	12.2	11.6	11.7	12.9	12.5
	3	14.0	13.8	13.2	15.2	14.6
Jan-93	1	15.3	15.2	14.3	16.6	15.9
	2	15.9	15.9	14.8	17.2	16.5
	3	18.1	18.3	16.8	19.7	18.9
Feb-93	1	20.2	20.6	18.6	22.0	21.1
	2	22.3	23.0	20.5	24.4	23.4
	3	25.6	26.5	23.4	28.1	26.9
Mar-93	1	27.5	29.9	24.1	30.8	29.4
	2	28.3	30.6	24.8	31.4	30.3
	3	29.5	29.4	27.7	31.2	30.9
Apr-93	1	24.5	23.7	22.4	25.5	26.8
	2	15.6	11.9	17.4	13.5	15.6
	3	9.6	3.8	14.2	6.1	7.3
May-93	1	11.6	4.8	17.0	7.4	8.9
	2	13.4	5.8	19.7	8.8	10.4
	3	13.8	5.6	20.3	9.0	10.6
Jun-93	1	20.9	16.3	25.5	20.3	17.0
	2	28.9	27.9	31.4	33.2	24.0
	3	45.5	55.2	42.2	61.1	39.2
Jul-93	1	39.7	46.5	38.1	51.5	34.0
	2	39.8	47.4	37.7	52.2	34.2
	3	40.2	48.6	37.6	53.2	34.6
Aug-93	1	39.0	47.2	36.4	51.6	33.6
	2	37.8	45.9	35.3	50.0	32.6
	3	34.3	40.7	32.6	44.7	29.5
Sep-93	1	31.2	36.0	30.3	39.8	26.6
	2	29.4	33.5	28.8	37.2	25.0
	3	26.9	31.0	26.1	34.7	23.0
Oct-93	1	10.0	4.4	13.8	7.8	8.1
	2	8.7	2.6	12.6	5.9	7.1
	3	8.8	2.8	12.8	5.8	7.1



## Chapter 5

### CLIMATIC DATA FOR THE D.I.KHAN AREA

#### 5.1. Procedures

The data regarding different meteorological variables -- wind speed, sunshine hours, maximum and minimum temperature, relative humidity and rainfall -- was collected from the Meteorological Station at D. I. Khan. The availability of data ranged during different periods for different variables, as follows. Because the Anemometer had been out of order since April 1984, data for wind speed covers from 1961 to 1983 only. Similarly, the data for sunshine hours was not available before 1968; hence, it is presented from 1968 to 1990. Information beyond 1990 was not available to the project. For all other parameters, such as rainfall, temperatures and relative humidity, the data available is from 1961 to 1992.

This above data was subsequently utilized in the calculation of the Reference Evapotranspiration (ET<sub>o</sub>) for the CBO command area. A computer package CROPWAT developed by FAO was used for these calculations. The CROPWAT package is based on the Modified Penman Method (also known as Penman-Monteith). The computer package is an interactive one which requires relatively low computing capacity and can be utilized by persons who do not have a specialized computer training. The software is readily available from FAO and guidance can be provided by IIMI upon request.

To cross-check these calculated values of ET<sub>o</sub> from CROPWAT, it was decided to use the Pan-Evaporation method as well. Since the D. I. Khan Meteorological Station did not have an evaporation pan, a Class A type of pan was purchased by the project and installed at the Meteorological Station of D.I.Khan. Likewise, in order to assess the variation in the rainfall as recorded by the Meteorological Station, a rain gage was installed by IIMI in its field office. Both sets of data show a very good match with each other as is shown in the attached graphs 5.1 (ET<sub>o</sub>) and 5.2 (rainfall).

The meteorological data is presented in Tables 5.1 to 5.6 for rainfall, temperature, wind speed, pan evaporation data, relative humidity and sunshine hours, respectively.

**Figure 5.1**  
**Monthly ETo for D.I. Khan Area**  
**Comparison of Two Types of Data Sets**

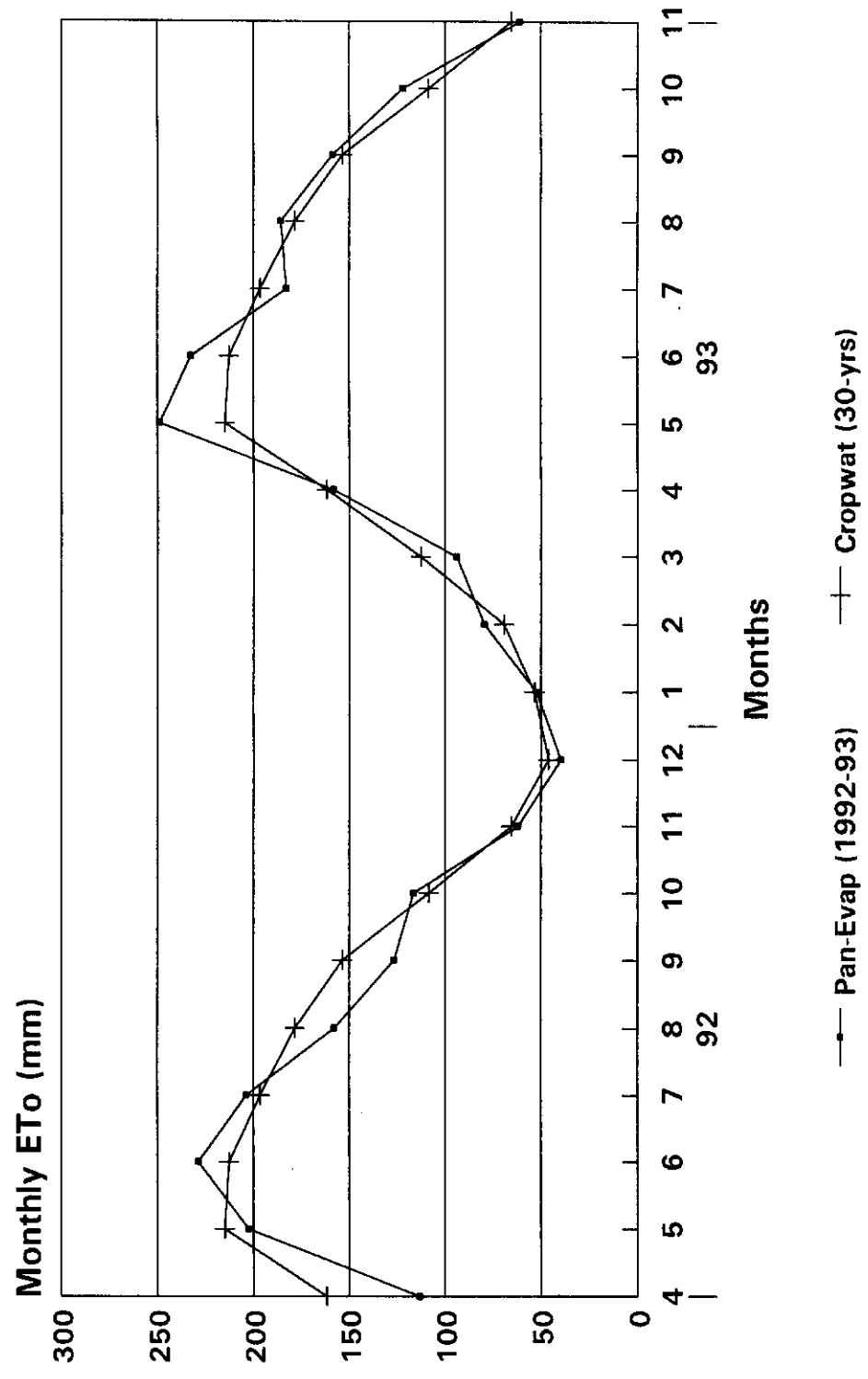
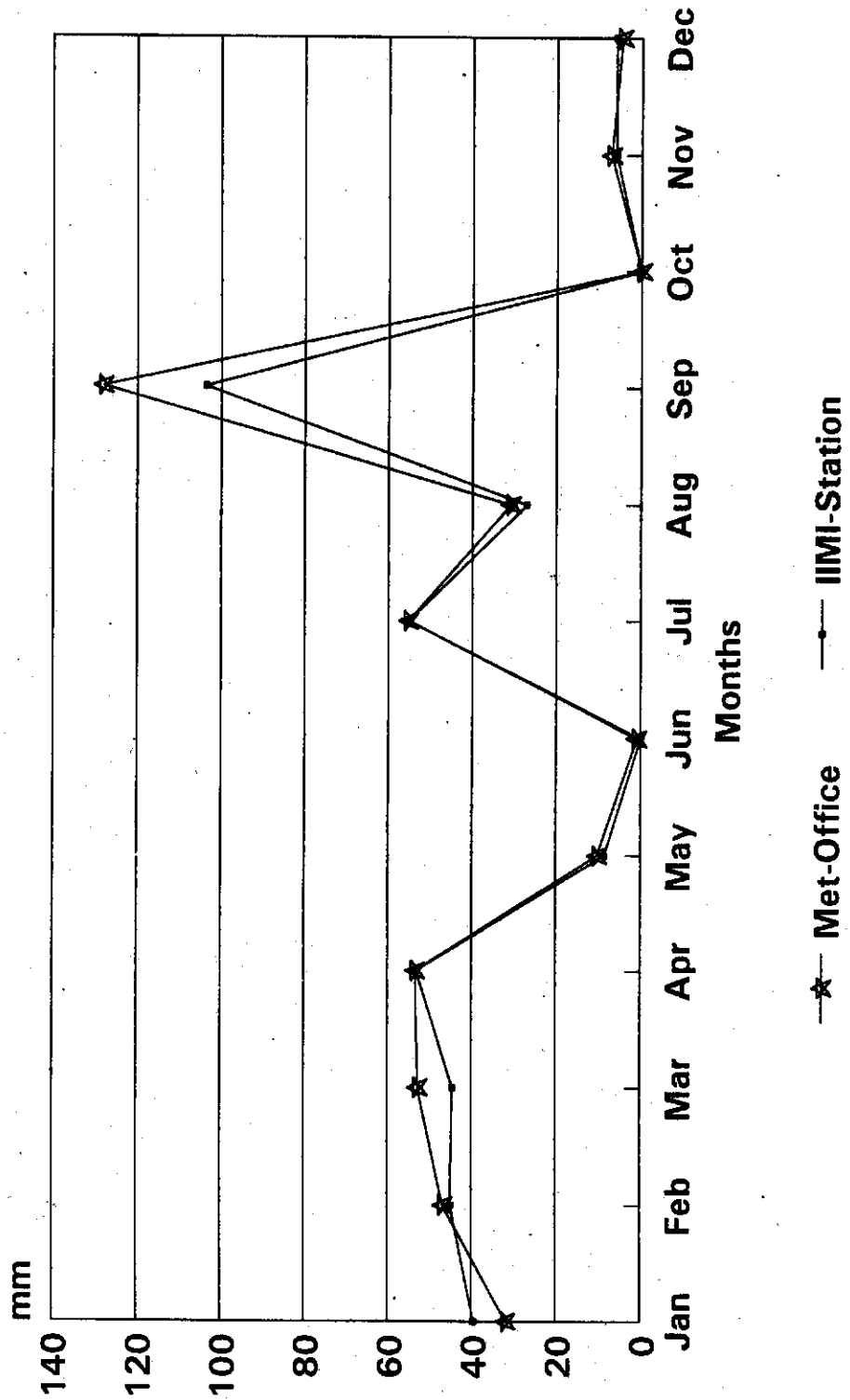


Figure 5-2  
 Rainfall Data 1992  
 Comparison of Two Types of Data Sets



## **5.2 Data Sets**

**TABLE 5-1 RAINFALL (IN MM / MONTH)**

Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1961	4.6	6.6	25.4	15.5	2	4.8	144	6.6	1.3	26.2	0	0
1962	1.8	29.7	27.9	0	17.3	2.5	20.1	105.7	18.5	29.2	0.8	11.9
1963	0	10.4	26.9	34.8	30	0	32	15.7	0.5	0	1	1
1964	17.3	4.6	25.9	0	0	0	143	51.3	26.7	0	0	1
1965	1	4.1	18.3	66	20.8	12.4	34.5	8.4	0.3	0	0.8	0.5
1966	0	31	3	67.8	6.9	2.5	89.7	32.5	5.3	0.3	0.3	0
1967	0	8.1	77	21.6	5.3	0	53.8	134.1	27.4	9.9	5.6	63.8
1968	20.6	38.1	37.8	1	19	26.7	20.8	24.1	0	2.8	0	3
1969	1	18.3	2	7.9	14	2.8	26.4	61.2	48.3	0	0	0
1970	10.4	53.8	34	2.8	4.3	1.3	100	18	0	0	0	0
1971	0	1.8	12.4	0.5	54.6	4.1	17.3	26.9	33.8	0	1	0
1972	26.2	12.4	4.3	40.9	7.4	42.2	10.9	51.8	24.9	0	5.1	43.2
1973	4.3	10.9	21.1	3.6	61.7	0	181	47.2	21.1	0	0	0
1974	6.8	34.3	5.9	27.2	5.1	59	109	44.7	2.8	0	0	13
1975	3.3	13.7	27.7	37.6	4.3	77.9	87.1	49.3	11.9	0	0	5.7
1976	8	23	24.7	15	12.7	63.5	3.5	161.4	39.4	0	0	0
1977	20.6	0.5	1.8	30.5	2.5	17.7	45.1	86.6	11	0	7	0.2
1978	19.4	0.6	102	20.1	0	0	93.4	19.6	31.6	0	0	0.8
1979	56.3	42	61	13.7	10	2.3	52	16.5	23	8.2	13.2	15.2
1980	23.9	23.3	68.1	8.2	1	20	26.5	14	44.1	2.3	5	2.9
1981	14.2	26	66.2	1.3	9.8	6	138	131.7	0	9.3	0	0
1982	25.5	12.8	70.2	33.3	107	0	31.7	77.4	4	33.1	15.8	16.8
1983	0	14.3	20.5	107	11.1	16.9	55.1	178.6	42.2	0	0	0.1
1984	4.3	7.6	23.8	14.7	0	26	16.5	33.5	10.2	0	1	3.2
1985	11.1	5.8	4.5	26.2	0	5.6	0	55.9	0	7.4	0	23
1986	0	20.5	56.4	32.6	64.3	0	85.1	56.5	0	12.4	5.3	1.4
1987	0	50	67	4.6	11.2	7.4	15.4	3.2	0	0	0	0
1988	2.5	0	48.5	0	6.3	1.6	75.8	8.3	16.6	2	0	28.8
1989	4.4		46.6	0.7	3.8	15.7	73.5	132.1	0	0	1.4	51
1990	13.1	21.2	32.2	15.3	24.7	13.2	42.6	72.7	83.6	0	0	24.9
1991	0.0	30.3	34.5	50.4	11.7	0.7	29.0	134.1	7.6	8.5	2.8	11.1
1992	31.9	46.8	52.8	53.4	10.3	0.9	55.2	30.8	128	0	7.2	4.6

## TABLE 5-2 TEMPERATURE

### TABLE 5-2.1 MAXIMUM TEMPERATURE (C)

Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1961	20.7	20	28.6	32.3	40.8	42.3	38.8	38.1	37.9	33.5	25.4	21.4
1962	20.6	22.6	27.1	33.9	38.9	42	40.1	38.1	35.2	32.4	26.5	20.8
1963	21.9	25.6	26.9	31.9	35.7	42.3	40.1	38.2	37.1	34.9	27.1	22.6
1964	17.3	23.3	30.6	35	39.1	41.6	37.5	37.7	36.4	34.1	27.2	20.6
1965	21.7	22.3	28	28.8	36.3	41.9	38.6	36.8	37.8	34.9	28.6	17.7
1965	22.3	23.1	27.4	31.3	39.3	41.7	38.7	38	36.3	33.1	27.8	21.1
1967	20.4	24.7	26.6	32.8	39.8	43.2	39.1	37.1	36.2	31	25.2	19
1968	17.6	18.8	26.4	33.3	34.2	41.5	38.4	37.4	38.7	32.3	27.6	22.1
1969	21.3	21.7	31.2	33.3	37.2	42.2	38.7	37.6	36.3	33.4	28.7	24.1
1970	20.6	22.9	25.7	36.4	40.9	41.9	38.9	38.3	36.7	34.5	27.8	23.9
1971	20.7	23.7	29.5	36.1	38.8	40.2	37.7	36.8	35.6	33.9	28.3	23.8
1972	20.3	19.1	27.4	32.2	38.1	40.8	38.4	37.1	36.1	32.1	27.8	20.3
1973	18.9	23	26	35.1	38.7	41.1	36.4	35.1	36.5	32.7	27.4	21.1
1974	19.8	19.8	29.2	35.6	38.8	39.8	38.6	38.4	36.7	33.4	27.9	19.9
1975	19.6	20.2	26	32.7	38.7	39.9	36.5	36.9	35.6	34.5	27.1	22.4
1976	19.7	20.5	25	32.7	39.1	39.6	38.4	34.1	35	33.4	28.8	22.1
1977	18.9	24.3	31.4	33.2	37.4	40.3	38.7	37.5	35.9	33.7	28.1	22.6
1978	19.2	21.6	24.5	33.7	42.2	42.4	34.9	37.1	36	33.9	27.3	23.8
1979	20.3	20.8	24.5	34.6	36.4	42.3	39.3	37.4	36.2	33.7	27.9	22
1980	19.5	21.8	24.1	36	40.9	41.3	38.4	36	36.5	33.9	28.3	24
1981	20.2	22.5	28.5	35	39.6	42.2	37.3	36.9	37.1	32.7	27.4	22.9
1982	20.8	19.8	22.8	33	36.2	41.7	41.3	37.7	37.6	32.9	27	20.2
1983	20.2	21.7	25.7	28.8	36.9	40.1	39.4	36.4	36.2	32.5	28.5	22.1
1984	20.4	21	30.1	33.2	42.6	43.2	37.7	37	35.1	33.7	27	21.5
1985	19.7	25.2	30.2	34.4	41	43	40.4	40.1	39.2	33.3	28.4	21.8
1986	21.2	22	24.9	33	37.8	41.2	38	36.6	37	32.5	27.1	21.1
1987	21.9	23.1	25.3	34	34.5	41	40.2	40.3	39.1	33.3	29.8	24.2
1988	21.8	24.7	26.2	36.5	42	42.3	38.5	36.9	36.5	33.2	28.6	22.5
1989	19.7	21.7	25	32.1	39.4	40.7	38.1	36.5	37	34.6	27.8	21.7
1990	21.2	21.2	25.2	32.7	41.1	41.7	39.2	36.5	36.6	32.5	29	21.3
1991	20.0	21.2	25.8	30.1	36.9	41.2	39.8	37.4	36.1	32.8	27.5	22.5
1992	19.6	21	25.6	29.7	36.4	40.9	37.9	37.1	34.1	32.9	27.3	32.2

TABLE 5-2.2 MINIMUM TEMPERATURE (C)

Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1961	5.8	5.9	13.2	17.7	24.5	27.4	28	27.4	26.2	17.2	9.6	4.7
1962	3.9	8.8	13.8	20	23.1	27.1	28.1	27.3	23.9	16.4	10.1	4.7
1963	2.8	9.7	13.3	18.8	21.8	28.1	28.3	27.5	24.5	19.1	12.2	4.8
1964	2.6	7.4	14.6	20.1	22.9	27.6	27.2	27.6	24.4	15.8	8.1	4.6
1965	3.9	10.5	13.2	17.8	22.9	28	26.8	27.1	23.6	18.1	7.7	2.4
1965	6.7	7.2	13.1	16.7	21.7	27.1	27	25.6	23.3	19.5	12.9	3.6
1967	2.4	8.8	12.3	NA	NA	27.3	28	26.8	24.8	17.9	12	6.3
1968	2.3	5.9	12.9	18.1	21.4	26.9	26.9	27.7	23.1	16.9	10.2	5.3
1969	4.7	7.3	15.5	17.7	22.1	27.1	27	26.2	24.1	20.2	11.9	5.2
1970	5.7	7.1	13.1	20	24.8	27.6	27.2	27.8	24.9	18.8	8.8	5.1
1971	2.1	6.8	12.9	20.5	24.8	28.4	27.2	27.1	22.6	16.7	11.9	5.7
1972	4.4	5.3	13.7	17.8	23.1	26.6	27.2	26.2	22.6	16.2	11.8	7.7
1973	4.8	9.1	12.2	19.2	23.8	27.7	26.9	26.4	25.5	16.9	9.2	4.3
1974	4.7	6.4	14.6	20.4	23.9	26.3	26.9	27.1	24.2	14.8	8.7	5.5
1975	4.6	6.4	11.7	18.3	23.4	25.1	26.4	27.1	25.2	17.5	8.7	6.8
1976	5.2	8.7	12	18.2	23.5	25.6	27.7	25.7	24.5	19.2	10.3	4.9
1977	4	7.3	13.9	19.3	22.6	26.6	27.8	26.5	24.6	20.5	13.4	7.4
1978	3.6	7.7	12.4	18.8	25.3	27.8	26	27	24.5	17.9	11.6	4.9
1979	4.8	8.4	12.3	19.6	20.9	25.5	27.1	26.1	22.2	17.5	10.1	4.6
1980	2.9	5.8	11.6	19.5	24.7	27.2	27.5	27.2	24	19	10.8	6.4
1981	4.9	8.4	13.8	19.6	23.7	26.2	26.2	25.4	23.4	15.6	8.8	4.5
1982	4.7	5.8	11.1	17.5	21.2	24.6	26.3	25.1	21.6	16.9	9.8	5.7
1983	3.9	6.3	11.5	16.3	22.6	25.6	25.8	25.3	23.8	16.6	8.9	4.7
1984	2	4.9	14	19	25	28	26.6	25.4	21.3	13.7	8.9	3.4
1985	3.3	5.7	11.4	17.1	21.5	24.5	24.7	23.6	20.8	13.1	7.8	2.7
1986	NA	3	9.2	16.9	21.8	26.4	25.9	25.7	23.4	18.4	12.2	5.7
1987	5.4	9.2	14.6	19	21.5	25.8	26.1	26.7	24.2	17.4	11.4	5.1
1988	6.2	8.7	12.8	19.1	25.2	27.4	27.2	25.5	23.7	17.7	12.2	7.5
1989	4.6	6.9	12.7	16.5	21.9	26.1	26.2	25.4	23.5	17.3	11.9	7.8
1990	8.4	9.3	12.5	17.9	25.5	27.2	27.4	26.5	25.5	17.6	12.1	6.2
1991	4.9	8.3	13.5	17.5	22.8	26.3	26.6	26.7	24.6	16.8	11.7	8.2
1992	6.3	8.3	12.5	17.9	21.9	25.9	26.1	26.4	23.2	17.6	11.3	8.1

**TABLE 5-3 WIND SPEED (KM/DAY)**

Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1961	17.8	49	44.5	62.3	80.1	93.5	84.6	62.3	49	26.7	13.4	4.45
1962	26.7	22.3	40.1	53.4	62.3	80.1	80.1	66.8	80.1	17.8	8.9	8.9
1963	8.9	13.4	44.5	35.6	22.3	8.9	8.9	8.9	4.45	NA	NA	13.4
1964	75.7	53.4	80.1	62.3	97.9	120	80.1	44.5	31.2	17.8	17.8	35.6
1965	44.5	62.3	71.2	44.5	84.6	44.5	89	49	31.2	22.3	26.7	17.8
1966	4.45	17.8	75.7	66.8	62.3	49	156	93.5	49	75.7	31.2	22.3
1967	40.1	49	66.8	40.1	97.9	66.8	NA	NA	75.7	26.7	4.45	NA
1968	151	151	169	200	205	231	258	276	165	89	116	107
1969	125	125	174	240	209	209	236	223	174	147	125	75.7
1970	111	156	178	178	218	249	227	231	178	147	66.8	93.5
1971	84.6	138	147	214	231	254	245	227	165	102	71.2	62.3
1972	156	267	160	196	196	178	227	182	169	71.2	80.1	134
1973	151	107	178	156	160	205	187	196	169	120	80.1	107
1974	174	205	142	182	205	196	178	191	165	129	97.9	111
1975	129	165	169	182	196	200	209	178	156	129	84.6	111
1976	93.5	116	169	165	200	205	200	218	129	97.9	57.9	89
1977	142	111	125	174	209	205	236	182	142	116	102	97.9
1978	134	147	169	165	151	182	178	165	134	102	116	66.8
1979	84.6	134	134	156	196	165	209	129	134	97.9	89	84.6
1980	111	134	134	129	156	178	191	169	129	107	71.2	75.7
1981	97.9	66.8	125	138	187	151	169	138	120	93.5	80.1	66.8
1982	93.5	134	116	147	169	169	165	191	129	97.9	80.1	93.5
1983	120	84.6	138	138	156	156	160	111	116	89	31.2	71.2
1984	66.8	120	80.1	151	NA	NA	NA	NA	NA	NA	NA	NA



**TABLE 5-4 PAN EVAPORATION DATA (CLASS A PAN) (MM/DAY)**

1992

Date	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	3.92	4	6.84	7.32	5.28	5.12	6.33	2.3	0.77
2	2.96	5.31	6.73	6.29	7.45	6.93	4.59	2.46	2.43
3	4.04	3.8	7.41	7.79	6.18	7.06	4.87	2.28	1.58
4	4.09	7.49	8.08	5.9	5.73	2.87	6.31	2.6	0.20
5	1.9	4.48	7.6	7.01	4.62	5.98	3.99	3.98	0.93
6	1	7.24	8.9	7.36	5.54	4.25	6.43	2.92	0.89
7	3.99	5.85	7.07	5.37	5.16	6.14	3.12	3.87	0.38
8	1.8	6.49	9.67	7.6	6.67	1.11	2.33	2.47	1.28
9	3.07	5.85	8.22	9.71	3.33	0.15	4.88	2.26	1.55
10	0.9	6.16	7.13	7.2	3.08	2.56	4.47	2.18	1.73
11	3.46	5.08	6.87	11.03	4.99	2.15	4.54	1.5	0.76
12	2.68	8.04	7.24	5.4	4.86	3.51	3.93	3.14	0.45
13	3.56	7.06	9.14	6.36	7.45	4.2	4.45	1.65	1.21
14	4.99	3.8	7.57	6.74	4.47	4.06	3.03	1.88	1.57
15	4.69	8.6	8.13	5.29	4.98	4	2.42	1.41	1.79
16	4.76	4.9	9.27	5.67	4.8	4.71	3.86	1.28	1.31
17	4.87	9.55	9.02	7.56	5.04	5.78	3.44	1.05	0.83
18	4.42	7.91	9.17	4.54	5.44	2.95	2.32	1.28	1.27
19	3.62	7.72	8.56	5.46	3.57	5.02	3.94	2.39	0.24
20	3.53	7.84	7.09	6.1	4.04	4.11	2.58	1.57	1.67
21	3.43	7.29	6.91	6.86	4.38	4.16	2.58	2.57	1.52
22	1.34	7.17	8.77	6.56	4.29	4.02	3.9	2.84	1.13
23	4.12	7.16	6.15	6.1	3.53	4.38	5.02	1.08	1.42
24	4.32	7.44	7.45	6.2	4.53	4.99	3.06	2.5	1.21
25	4.49	7.92	6.77	6.12	4.43	4.08	2.98	0.61	1.42
26	4.49	9.42	6.92	6.62	5.1	4.34	2.56	1.22	1.57
27	6.55	8.69	5.72	5.88	5.3	4.59	4.24	2.16	2.99
28	6.79	8.02	7.95	5.94	5.1	4.36	2.42	1.2	1.45
29	4.37	0.07	4.77	5.75	5.85	4.15	2.62	1.91	1.25
30	4.97	5.71	7.65	5.06	6.63	4.86	2.8	1.41	1.47
31		6.31		6.98	6		2.38		1.43

TABLE 5-4 (cont.)

1993

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1	1.32	2.86	2.47	4.13	8.56	4.91	9.65	6.61	5.87	4.8	2.6
2	0.77	1.8	1.71	4.19	8.20	5.12	6.62	6.97	6.89	4.92	1.6
3	1.15	0.8	3.87	4.60	7.67	7.27	5.19	6.81	5	4.72	3.72
4	0.93	2.42	3.14	4.58	7.60	6.18	6.42	5.38	5.23	4.59	2.38
5	1.91	1.79	2.5	5.60	7.66	5.56	6.17	6.01	4.84	4.08	1.84
6	1.29	1.8	3.56	3.26	8.99	7.60	5.8	5.91	5.21	5.61	3.41
7	0.34	1.45	3.55	4.68	8.32	7.22	7.1	4.85	4.65	4.83	3.14
8	3.16	3.62	3.4	5.31	9.93	9.70	9.34	6.99	5.07	4.83	2.88
9	1.11	3.54	3.12	3.45	8.37	10.00	7.68	6.52	5.1	4	1.6
10	1.78	1.91	3.3	4.73	9.07	7.66	6.78	8.58	5.33	5.91	1.58
11	1.67	2.55	2.97	4.82	9.20	8.27	5.3	5.99	5.88	6.43	1.16
12	1.1	1.88	0.67	4.81	6.73	10.03	5.68	4.96	5.42	4.64	2.25
13	1.9	2.78	0.59	5.60	8.67	8.59	5.74	5.67	6.02	4.57	2.84
14	0.23	2.38	0.38	1.00	7.68	9.66	7.16	6.5	5.09	3.96	2.18
15	1.53	2.07	3.49	4.08	9.00	9.64	5.32	7.13	4.2	2.3	1.98
16	1.06	3.66	3.19	4.90	6.94	5.91	3.59	5.82	4.69	3.99	1.81
17	1.18	5.83	3.02	3.09	6.94	6.72	5.93	8.29	6.31	4.05	1.67
18	1.76	6.34	4.31	5.17	7.57	8.49	5.58	4.29	6.52	2.68	1.66
19	1.32	6.06	2.49	7.00	8.00	8.63	4.98	6.49	4.24	3.87	1.93
20	3.04	5.36	2.68	5.24	7.55	5.95	6.45	5.61	6.33	4.05	1.64
21	2.8	2.84	4.13	6.21	8.04	7.49	11.47	3.26	5.77	4.03	2.96
22	2	2.7	3.2	5.75	8.38	8.42	3.66	3.73	5.01	2.85	1.34
23	2.2	2.8	1.71	6.54	6.90	8.45	5.34	6.01	5.06	2.14	0.9
24	2.03	2.05	3.09	5.62	9.23	8.15	2.57	6.53	4.51	1.74	2.27
25	0.97	1.45	6	7.49	9.01	7.86	3.56	5.52	4.65	4.82	2.25
26	1.19	1.96	3.06	6.76	7.99	8.36	4.1	5.87	5.88	2.8	2.21
27	2.76	1.72	2.85	7.12	9.57	6.27	4.04	4.06	4.86	2.57	2.01
28	2.85	3.02	3.61	7.81	6.68	6.47	4.88	6.37	6.08	3.31	1.16
29	2.12		3.39	8.23	7.34	8.96	4.95	7.05	4.14	2.89	0.31
30	2.1		5.05	6.54	7.24	9.08	6.65	5.92	4.88	3.1	1.78
31	2.68		3.34		5.80		5.11	6.1		2.72	

**TABLE 5-5 RELATIVE HUMIDITY (PERCENT)**

Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1961	69	63	NA	49	NA	44	66	63	NA	NA	64	62
1962	60	NA	64	43	33	41	51	62	61	59	62	65
1963	58	NA	56	54	54	NA	NA	NA	52	54	64	56
1964	58	55	NA	54	43	NA	63	67	60	50	56	64
1965	65	57	50	61	NA	NA	60	NA	52	49	52	57
1966	57	67	52	48	32	39	54	59	53	47	41	42
1967	33	44	50	43	30	36	60	NA	61	NA	60	NA
1968	70	59	58	40	35	41	58	75	48	51	48	52
1969	47	54	48	40	41	37	60	68	58	54	53	59
1970	70	60	58	38	32	44	58	62	59	49	59	53
1971	58	49	43	37	37	53	60	65	55	50	61	65
1972	55	43	50	48	35	41	62	62	55	52	63	70
1973	56	60	57	45	42	53	68	72	64	61	60	66
1974	55	55	56	46	43	45	64	67	61	47	56	69
1975	62	57	56	50	43	45	65	67	66	49	58	64
1976	67	66	55	50	37	50	61	72	64	56	49	58
1977	52	46	43	49	38	42	60	61	59	56	61	66
1978	58	56	61	47	33	44	72	66	61	54	56	60
1979	70	66	62	46	38	38	60	63	54	58	59	65
1980	62	59	68	43	31	43	63	62	57	55	61	65
1981	68	61	61	43	38	35	66	65	56	52	59	65
1982	68	62	69	48	47	39	48	66	52	43	62	62
1983	57	57	50	59	46	42	56	71	65	54	58	59
1984	54	40	47	42	24	41	61	67	59	47	61	58
1985	60	45	41	44	30	37	54	59	53	54	61	64
1986	52	59	61	43	35	44	60	65	55	58	62	61
1987	59	58	70	42	43	39	49	57	53	48	53	54
1988	62	47	57	40	30	40	65	66	63	57	65	65
1989	59	42	59	39	27	41	57	65	58	53	62	75
1990	63	66	59	45	38	41	60	71	66	58	61	71
1991	56	58	63	56	41	42	61	67	65	59	67	69
1992	65	66	55	60	43	42	63	67	72	61	70	74

**TABLE 5-6 MEAN DAILY SUNSHINE (HRS.)**

Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1968	NA	NA	NA	NA	10.14	9.74	8.58	8.87	10.11	9.05	8.58	8.22
1969	7.04	6.45	8.33	8.18	8.62	7.02	6.89	8.58	9.23	8.73	8.69	8.26
1970	6.96	7.55	8.70	9.93	7.95	8.48	8.34	9.31	9.57	9.59	8.98	8.25
1971	7.77	7.69	9.03	7.57	5.25	5.61	6.57	6.85	8.96	9.44	8.53	7.95
1972	5.90	8.43	7.43	8.72	8.37	6.82	7.58	8.89	9.23	9.18	8.23	7.21
1973	7.61	6.80	7.12	9.28	8.02	4.08	6.74	7.74	8.56	9.51	8.53	7.54
1974	7.01	7.54	7.61	8.59	9.40	7.73	8.43	8.66	8.74	9.44	8.58	6.10
1975	7.03	7.82	8.06	8.90	9.31	8.07	8.25	8.14	9.32	10.07	8.85	7.29
1976	6.55	6.28	7.92	8.98	9.71	NA	NA	8.40	8.54	9.13	9.33	7.79
1977	6.34	9.35	9.02	7.72	9.30	8.59	8.56	8.15	9.38	8.81	8.00	6.72
1978	7.16	6.07	8.10	9.23	10.68	7.35	6.94	9.34	9.86	9.28	8.25	7.59
1979	7.44	6.63	7.67	10.10	12.13	8.19	8.31	9.25	9.10	8.75	8.59	6.10
1980	8.02	7.37	6.73	9.53	9.65	9.73	7.97	8.03	8.24	8.33	8.40	7.11
1981	6.83	7.28	7.25	8.74	9.30	9.43	7.77	NA	9.05	9.11	8.23	7.21
1982	7.13	NA	7.09	9.05	9.95	9.73	8.74	8.24	9.36	8.31	7.91	6.38
1983	6.93	6.82	8.58	7.26	9.10	10.08	9.89	8.14	8.56	8.36	7.78	7.13
1984	7.29	7.78	7.57	8.39	10.57	8.07	7.54	7.85	8.78	9.55	NA	NA
1985	7.14	8.33	7.43	9.15	9.79	7.79	8.03	9.40	9.57	9.34	8.19	6.66
1986	8.69	7.78	7.87	9.04	10.07	9.21	8.78	8.97	9.11	9.30	8.21	7.59
1987	8.11	7.10	5.81	9.65	8.92	9.86	7.64	7.99	9.16	8.69	8.84	7.57
1988	6.53	7.75	7.79	7.86	9.76	5.17	8.62	7.15	8.64	9.63	8.44	7.01
1989	7.72	7.99	6.51	9.29	10.64	8.50	8.14	9.35	10.00	9.26	8.12	7.07
1990	7.06	6.55	8.04	9.23	9.86	9.97	9.02	8.38	8.76	9.04	8.57	6.64

## Chapter 6

### WATER SUPPLY AND DEMAND RELATIONSHIP : RELATIVE WATER SUPPLY

#### 6.1 Procedure

The main thrust of the crop-based irrigation operations concept is that there is a need to seek a better match between the supply and the demand for irrigation water. The available supply should be tied in as much as possible ---within operational constraints--- to the demand dictated by the crop's water requirements. It is a very useful indicator, because it includes all the important variables that determine the success or failure of crops in the field.

IMI, as part of its field-oriented research activities, very often utilizes a parameter that links the adequacy of the supply-demand relationship; it is known as the Relative Water Supply (RWS), which is defined as the ratio between the amount of water supplied (irrigation plus rainfall) and the amount required (crop water requirement plus losses). In mathematical terms, the RWS equation is defined as:

$$RWS = \frac{\text{Irrigation} + \text{Effective Rainfall}}{\text{Crop Water Requirement} + \text{losses (conveyance} + \text{seepage)}}$$

After calculation of the RWS values, these were used in the context of both the hydraulic performance and managerial capabilities, to determine the performance of the irrigation system. RWS is such a versatile parameter that it can be calculated for different time periods (daily, 10-day, monthly, etc) and for different levels of the system (outlet, distributary and main canal, etc). Thus, as has been shown in Volume II of the Final Report, the RWS is a concept that can readily be utilized as a powerful "indicator" of the system performance.

RWS was calculated on a 10-day basis and each one of the intervening parameters in the equation were obtained as follows:

Irrigation Supplies: Data was compiled for 10-day periods using the daily flows presented in Chapter 2 above. It was calculated for each distributary and for each watercourse.

Rainfall: Rainfall data has been taken from the Meteorological Station of the area as has been explained in the earlier chapter on climatic data. Because the rainfall pattern in this area of Pakistan, where both the intensities and amount varies considerably, not all of the rainfall becomes available to the plant. Therefore, a value of 80% has been taken as EFFECTIVE RAINFALL, a value consistent with much of the literature for climatic condition similar to the study area.

Crop Water Requirement (ETc): The crop water requirements were calculated for the sample watercourses based on a detailed survey of both cropping intensities and cropping patterns. The values of ETc were calculated by using the ETo values (explained earlier) and multiplied by appropriate crop factors (coefficients) as given by FAO and/or from the pertinent reports dealing with the crops of the area. This relationship in equation form is given below.

$$ETc = Kc \cdot ETo$$

Where

ETc	=	crop water requirement (mm/period)
Kc	=	crop coefficient (dimensionless)
ETo	=	reference evapotranspiration (mm/period)

Water losses: i) Conveyance; The values include the losses from the canal as well as operational losses (over topping, leakages from structures, etc). Measurement included the inflow-outflow and the ponding methods in both lined and unlined reaches of watercourses and distributaries, according to the level desired. On the average, the total values was taken as 20% for the combined effect of main canal, distributary and watercourse conveyance.

ii) Seepage/percolation; This value includes only field related losses, and was measured by the ring infiltrometer method; the values vary between 1 mm/day for heavy soils to 10 mm/day for coarser soils. An average value of 1.5 mm/day was used in the calculations.

## **6.2 Data Sets**

**TABLE 6-1 RELATIVE WATER SUPPLY WITHIN DISTRIBUTARY # 3 COMMAND AREA**

Month	Period	Disty-3	570-L	690-R	6468-R	6468-L	10150-R	11920-L	14810-R	15382-R
Oct-91	1								2.6	0.7
	2		1.0		1.0	1.0	1.2	1.9	2.6	1.5
	3		1.7	1.3	1.5	1.7	1.7	2	2.3	1.6
Nov-91	1		1.9	1.6	1.4	1.6	2.0	1.6	2.5	1.4
	2		1.6	1.5	0.9	1.3	1.3	1.6	0.1	0.8
	3		1.7	1.3	0.8	0.4	1.0	1.2	1.3	1.4
Dec-91	1	1.3	1.3	1.4	1.1	1.4	1.6	1.4	1.1	1.1
	2	1.4	1.5	1.5	1.3	1.5	1.2	1.5	1.9	1.4
	3	1.3	1.4	1.4	1.4	1.6	1.5	1.6	1.9	1.1
Jan-92	1	1.2	0.8	1.3	1.0	0.9	0.9	0.6	1.3	0.8
	2	1.1	1.1	1.1	1.0	1.2	1.0	1.0	1.7	1.1
	3	0.5	0.5	0.5	0.5	0.5	0.5	0.2	0.5	0.5
Feb-92	1	0.5	0.6	0.5	0.5	0.5	0.5	0.2	0.5	0.5
	2	0.5	0.6	0.5	0.5	0.5	0.5	0.2	0.5	0.5
	3	0.7	0.5	0.8	0.7	1.0	1.0	0.2	0.7	0.8
Mar-92	1	1.1	1.4	1.3	1.7	1.4	1.6	1.3	1.5	1.2
	2	1.2	1.3	1.3	1.4	1.4	1.7	1.3	1.8	1.1
	3	1.0	0.7	1.1	0.6	1.2	0.5	0.8	1.3	0.6
Apr-92	1	0.9	1.0	0.9	0.6	0.8	1.2	0.3	1.2	1.0
	2	1.2	0.9	1.3	1.2	1.7	2.0	0.7	1.6	1.5
	3	1.4	1.1	1.7	1.3	1.9	2.0	1.7	2.3	1.6
May-92	1	1.1	0.5	0.7	1.1	1.5	1.7	1.7	2.1	1.7
	2	1.2	0.5	1.0	0.9	1.0	2.1	1.5	1.9	1.6
	3	1.3	0.4	1.0	0.9	1.0	1.9	1.3	1.8	1.7
Jun-92	1	1.1	0.6	0.8	0.6	0.9	1.7	1.0	1.9	1.4
	2	1.1	0.6	1.2	0.7	1.3	1.5	1.3	1.5	1.2
	3	1.2	1.0	1.5	0.5	1.2	1.4	1.4	1.4	1.2
Jul-92	1	1.4	1.0	1.5	1.2	1.4	1.4	1.6	1.6	1.3
	2	1.5	1.1	1.6	1.1	1.3	1.6	1.3	1.7	1.3
	3	1.3	1.0	1.6	0.7	1.1	1.3	1.3	1.3	1.1
Aug-92	1	1.2	0.8	1.4	1.1	1.3	1.1	1.5	1.4	1.2
	2	1.3	0.8	1.3	1.1	1.1	1.2	1.6	1.3	1.0
	3	1.5	1.1	1.4	1.1	1.4	1.5	1.3	1.9	1.4
Sep-92	1	1.7	1.5	1.9	1.4	1.7	2.0	1.4	1.9	1.6
	2	1.6	2.0	2.2	1.4	1.9	1.5	0.4	1.6	1.8
	3	1.4	1.7	1.9	1.1	1.4	1.1	0.2	1.4	1.6
Oct-92	1	1.4	1.2	1.3	1.5	1.6	2.2	2.0	2.1	1.5
	2	1.1	1.1	1.3	1.3	1.1	1.1	1.9	0.7	1.4
	3	1.4	1.5	1.7	1.6	1.3	1.8	1.2	1.6	1.4
Nov-92	1	1.5	1.1	1.7	1.5	0.9	1.8	1.3	1.7	1.2
	2	1.0	1.1	1.5	0.9	0.9	1.0	1.8	1.2	1.1
	3	0.9	0.4	1.2	1.1	0.7	0.6	0.9	1.2	0.9
Dec-92	1	0.8	0.9	0.9	1.0	0.7	0.6	1.2	0.5	0.8
	2	0.9	1.2	0.9	1.0	1.0	0.7	1.0	0.8	1.1
	3	1.2	1.4	1.2	1.3	1.4	1.2	1.3	1.3	1.3
Jan-93	1	0.8	1.1	1.1	0.8	0.8	0.9	1.3	0.6	1.0
	2	0.4	0.8	0.8	0.6	0.8	0.7	0.9	0.9	0.8
	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Feb-93	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	2	0.2	0.2	0.1	0.3	0.3	0.3	0.3	0.5	0.2
	3	0.7	1.0	1.0	1.2	0.9	1.1	1.3	1.7	1.1
Mar-93	1	0.9	1.2	1.3	1.4	0.9	1.3	1.3	1.1	1.3
	2	0.7	0.9	0.7	0.9	0.8	1.1	0.7	0.7	0.9
	3	0.6	0.9	1.0	0.9	0.9	1.2	1.2	1.6	1.0
Apr-93	1	0.8	1.2	1.1	1.4	1.4	1.6	1.8	1.5	1.1
	2	0.6	1.1	0.9	1.2	1.2	1.2	1.8	1.4	1.0
	3	1.1	1.0	1.6	1.8	1.4	2.2	2.0	1.9	1.5
May-93	1	1.0	1.3	1.1	1.9	1.6	1.4	1.9	0.8	1.4
	2	0.9	1.4	1.0	1.4	1.8	1.8	2.0	1.5	1.4
	3	1.0	1.6	1.1	1.3	1.6	1.8	2.0	1.5	1.5
Jun-93	1	1.1	1.3	1.4	1.5	1.7	1.8	1.8	1.7	1.4
	2	1.2	1.4	1.4	1.6	1.5	1.8	1.3	1.6	1.3
	3	1.2	1.3	1.4	1.3	1.2	1.3	1.0	1.4	1.1
Jul-93	1	1.5	1.6	1.8	1.2	1.2	0.9	0.6	1.2	1.3
	2	1.5	1.7	1.9	0.7	0.5	0.8	0.4	1.5	1.4
	3	1.1	1.5	1.6	0.7	0.7	1.1	0.0	1.7	0.9
Aug-93	1	1.2	1.3	1.6	1.2	1.1	1.1	0.6	2.0	1.2
	2	1.1	1.1	1.4	1.2	1.2	1.3	0.8	1.8	1.2
	3	1.0	1.2	1.1	1.2	1.0	1.3	0.9	1.5	1.3
Sep-93	1	0.9	1.2	1.2	1.2	1.0	0.7	0.5	1.7	1.2
	2	0.6	1.0	1.1	0.0	0.2	0.7	0.1	0.4	0.9
	3	0.5	0.9	0.9	0.5	0.8	0.6	0.3	0.6	0.9
Oct-93	1	0.7	1.3	1.1	1.2	1.6	1.1	1.6	1.1	1.3
	2	1.1	1.5	1.6	1.4	1.8	1.8	1.5	2.1	1.4
	3	1.2	1.6	1.7	1.7	1.7	1.7	1.6	1.8	1.1



**TABLE 6-2 RELATIVE WATER SUPPLY WITHIN DISTRIBUTARY # 4 COMMAND AREA**

Month	Period	Disty-4	1860-R	8980-L	16512-L	28448-R
Apr-92	1					
	2	1.6	3.5		4.9	1.7
	3	1.3	2.9		4.6	1.3
May-92	1	1.2	2.1	1.3	1.7	1.2
	2	1.0	2.1	1.3	1.2	0.7
	3	1.1	2.5	1.5	1.8	1.1
Jun-92	1	0.9	2.6	1.3	1.5	0.9
	2	0.9	2.8	1.2	1.3	1.0
	3	0.8	2.2	1.4	1.2	0.9
Jul-92	1	1.0	2.3	1.6	1.4	1.1
	2	1.2	2.2	1.7	1.3	1.2
	3	1.2	1.9	1.2	1.4	1.0
Aug-92	1	1.0	2.0	1.4	1.5	1.0
	2	0.9	1.6	1.0	1.1	1.1
	3	1.2	1.5	1.7	1.7	1.2
Sep-92	1	1.5	1.7	1.6	2.1	1.3
	2	1.5	1.2	1.8	2.1	1.5
	3	1.3	1.2	1.3	1.7	1.2
Oct-92	1	1.4	2.8	1.5	1.3	1.2
	2	1.1	0.0	1.7	1.0	1.1
	3	1.2	2.6	1.6	1.7	1.1
Nov-92	1	1.1	2.9	1.1	1.8	1.3
	2	1.1	2.0	0.6	1.4	0.6
	3	1.0	1.1	1.0	0.2	0.5
Dec-92	1	0.9	1.1	0.5	0.6	1.1
	2	0.8	1.4	0.3	1.0	1.0
	3	1.0	1.9	1.3	1.2	1.0
Jan-93	1	1.0	1.9	1.0	1.3	1.0
	2	0.6	1.1	0.9	0.8	0.9
	3	0.1	0.1	0.1	0.1	0.1
Feb-93	1	0.1	0.1	0.1	0.1	0.1
	2	0.1	0.2	0.3	0.1	0.1
	3	0.8	2.1	1.4	1.1	1.0
Mar-93	1	1.0	0.5	1.6	1.4	1.1
	2	1.0	0.7	1.1	0.7	0.9
	3	0.9	1.6	1.4	1.0	0.9
Apr-93	1	1.0	0.9	1.5	1.5	1.1
	2	1.1	0.7	1.0	0.5	0.7
	3	1.2	1.6	1.4	1.6	1.5
May-93	1	1.1	2.0	1.1	1.6	0.9
	2	0.8	2.8	1.1	1.2	1.2
	3	1.1	3.0	1.3	1.7	1.3
Jun-93	1	1.1	1.7	1.3	1.0	1.3
	2	1.0	2.6	1.4	1.2	1.2
	3	0.9	1.9	1.3	1.0	1.1
Jul-93	1	1.2	2.3	1.4	1.2	1.4
	2	1.3	2.3	1.6	1.2	1.5
	3	1.2	2.2	1.1	0.9	1.3
Aug-93	1	1.1	1.9	1.3	1.1	1.3
	2	1.0	1.9	1.2	0.8	1.1
	3	1.0	1.9	1.2	0.9	1.1
Sep-93	1	0.9	1.0	1.0	0.6	0.9
	2	0.8	0.0	0.6	0.2	0.9
	3	0.8	0.0	0.9	0.1	0.9
Oct-93	1	1.2	3.3	1.2	0.7	1.5
	2	1.2	3.2	1.2	1.6	1.6
	3	1.3	2.5	1.4	1.4	1.8

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**A. International Staff**

1. Carlos Garces, Irrigation Engineer and Project Team Leader
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6. Mahmood Ahmad, Field Assistant
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9. Habibullah Baloch, Field Assistant
10. Mohammad Iqbal, Driver

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