CHAPTER-4

HYDROLOGIC ANALYSIS

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$(t_{ij}, t_{ij}, t_{ij}, t_{ij})$		
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4 HYDROLOGIC ANALYSIS

4.1 Hydrologic Database

All the hydrologic observation data dealt in this Study will be filed and analyzed with use of the following computer database systems. These systems run with P/C (TOSHIBA, J-3100 series, IBM compatible).

The database systems developed in Study are composed of 1) Filing System: consisting of 5 systems and 2) Analyzing System: consisting of 9 systems as shown in Fig.-4.1. The manual of database system is available in Supplement-4.1, and achievement of data input for each database system is listed in Supplement-4.7.

[Filing System]

(DB-01): FLOW MEASUREMENT DATA BY MEASUREMENT

To file flow measurement data and calculate discharge area, mean velocity & discharge and output table by measurement. (See Table-4.1)

(DB-02): FLOW MEASUREMENT DATA BY STATION

To file flow measurement data of each station and output tables by station.
(See Table-4.2)

(DB-05A): DAILY RIVER WATER LEVEL

To file the daily river water level observed at the hydrometric stations and output tables showing water level in feet and meter by station.
(See Table-4.3)

(DB-06A): HOURLY RIVER WATER LEVEL

To file the hourly water level recorded at the hydrometric stations and output tables in feet and meter by station. (See Table 4-4)

(DB-11): DAILY WELL WATER LEVEL

To file daily well water level observed at the observation well, calculate water level elevation in meters and output tables by station.
(See Table-4.5)

[Analyzing System]

(DB-03): DISCHARGE RATING CURVE METHOD

In case the volume of flow measurement data is small, this system prepares a discharge rating curve using the station's parametric data : cross section, water surface slope and roughness.

(See Table-4.6 and Fig.-4.2)

(DB-04): DISCHARGE RATING CURVE METHOD

In case the amount of flow measurement data is large, this system prepares a discharge rating curve using the data filed in DB-02.

(See Table-4.7 and Fig.-4.3)

(DB-05B): DAILY DISCHARGE

Using the discharge rating curve prepared by DB-03 or DB-04, this system convert the daily river water level filed in DB-05A to daily discharge, and output daily discharge tables.

(See Table-4.8)

(DB-06B): HOURLY DISCHARGE

Using the discharge rating curve prepared by DB-03 or DB-04, this system convert the hourly river water level filed in DB-06A to hourly discharge, and output hourly discharge tables.

(See Table-4.9)

(DB-07): DISCHARGE CORRELATION ANALYSIS

This system prepares the correlation curve(s) between two stations' discharge. The curve(s) will be used to fill the missing or not-available discharge data in the table output from DB-05B. The curve is expressed as "Y = aX + b ". Where,

X and Y: discharge, a and b: constants. (See Table-4.10 and Fig.-4.4)

(DB-08): FLOW REGIME TABLE

This system prepares a table of annual flow regime, showing high discharge (Q95day), normal discharge (Q185day), low discharge (Q275day), drought discharge (Q355day), compiling the data output in DB-05B. (See Table-4.11)

(DB-09): RIVER FLOW ANALYSIS

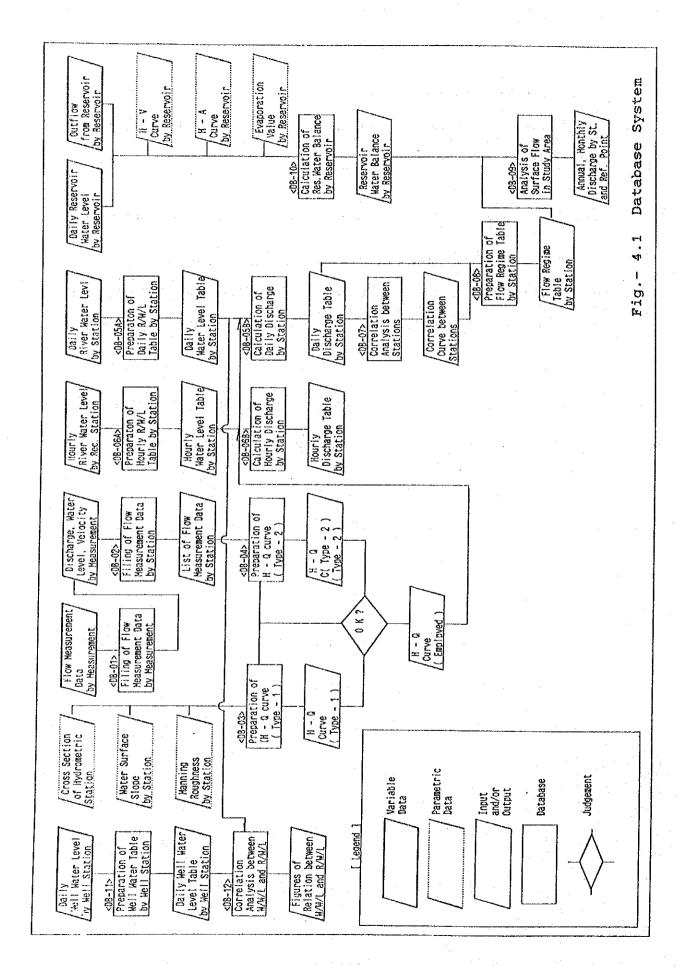
This system prepares the annual and monthly tables of river flow ,using the data obtained from DB-05B and DB-10. (See Table-4.12 and 4.13)

(DB-10): RESERVOIR WATER BALANCE

This system calculates the monthly reservoir water balance. (See Table-4.14 and 4.15)

(DB-12): CORRELATION BETWEEN RIVER AND WELL WATER LEVEL

This system analyzed the relationship between the river water level and well water level.
(See Fig.-4.5)

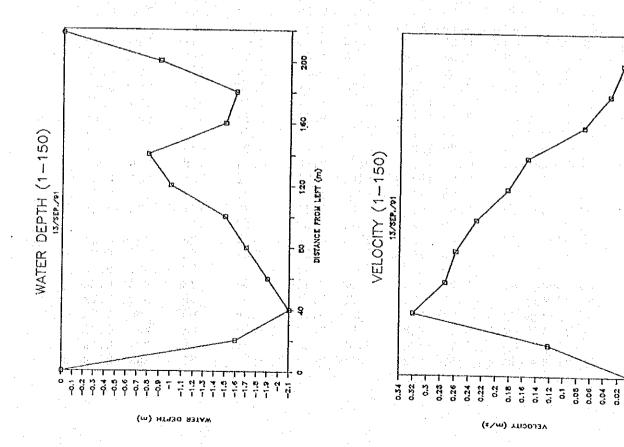


DB-01 : Flow Measurement Data by Measurement

FLOW MEASUREMENT	ST.	:	1-150	ZAMBEZI	PUMP HOUSE	13/SEP. /91
------------------	-----	---	-------	---------	------------	-------------

		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					-					
ITEMS	NO-L	NO~1	NO-2	NO-3	NO-4	NO-5	NO-6	NO-7	NO-8	NO-9	NO-10	NO-R
WATER DEPTH (m)	0.00	1.60	2.10	1.90	1.70						0.90	0.00
	0.00	20.00	20.00	20.00	20.00	20.00	20,00	20.00	20.00	20.00	20.00	18.00
TOTAL SE/MIDTH(m)		20.00	40.00	60.00	80.00	100,00	120.00	140.00	160.00	180.00	200.00	218,00
VELOCITY. 2-1(f/s)	0,00	0.60	1.20	1.10	1.00	0.90		0.60	0.40		0.00	0.00
VELOCITY.2-2(f/s)		0.60	1.20	1.10	1.00	0.90	0.70	0.60		~	0.00	0.00
MEAN VEL.2 (f/s)	0.00	0.60	1.20	1.10	1.00	0.90	0.70	0.60	0.40	0.10	0.00	0.00
VELOCITY,8-1(f/s)		0.20	0.90	0.60	0.70	0.60	0.50	0.40	0.05		0.10	0.00
VELOCITY.8-2(f/s)		0.20	0.90	0.80	0.70		0.50	0.40	0.05		0.05	0.00
MEAN VEL.8 (f/s)	0.00	0.20	0.90	0.70	0.70			0.40	0.05	0,10	0.08	0.00
MEAN VEL (f/s)	0.000	0.400	1.050	0.900		0.750			0.225	0.100	0.038	0.000
MEAN VEL (m/s)	0.000	0.122	0.320	0.274		0.229				0.030	0.011	0.000
L/MEAN DEPTH (m)	0.000	0.800	1.975	1.950		1.550	1.125	0.850	1.325	1.575	1.075	0.000
L/MEAN WIDTH (m)	0.00	20.00	10.00	10.00		10.00	10.00	10.00	10.00	10.00	10.00	0.000
L/SEC. AREA (m2)	0.00	16.00	19.75	19.50		15,50		8.50			10.75	
R/MEAN DEPTH (m)		1.725	2.050	1.850	1.650	1.375	0.950	0.975	1.525	1.425	0.450	
	0,00	10.00	10.00	10.00	10.00	10.00	10.00	10.00		10.00	18.00	
R/SEC. AREA (m2)	0.00		20.50	18,50	16.50	13.75	9.50	9.75	15.25			_
S/AREA (m2)	0.00	33.25	40.25	38.00	34.00	29.25	20.75	18.25		14.25	8.10	- .
	0.0	33.3	73.5	111.5	145.5	174.8	195.5		28.50	30.00	18.85	
S/DISCHARGE(m3/s)	0.00	4.05	12.88	10.42	8.81				242.3	272.3	291.1	-
TOTAL DIS. (m3/s)			16.94	27.36				2.78	1.95	0.91	0.22	· ***
(113737	,0.00	4.00	10.84	21.30	30.17	42.85	40.05	49,43	51.39	52,30	52.52	-

WATER LEVEL (f): 2.02 WATER LEVEL (m): TOTAL DISCHARGE (m3/s): 52.30 MEAN VELOCITY(m/s):



DISTANCE FROM LEFT (m)

Table-4.2 DB-02: Flow Measurement Data by Station

LIST OF FLOW MEASUREMENT

ST.: 1-950 WATOPA PONTOON

	T OF FLOW				ST.:	1-950	WATOPA I	PONTOON	
#==	- was done now need that they have been three from	had been sen or one for the cut to be			***************************************				
NO.	D.40019		Feet -				[Meter -		4+++[[
МО	. DATE	H	Q	A	V	Н	Q	A :	V
		(f)	(f3/s)	(f2)	(f/s)	(m)	(m3/s)	(m2)	(m/s)
#45						*******		e. High free dad and sales rate of a 1950 data have more may good to	
1	26-May-58	6.50	2970	3407	0.87	1.98	84	317	0.27
2	08-Aug-58	5.90	2358	3288	0.72	1.80	67	305	0.22
. 3	13-Sep-58	5.52	2047	3141	0.65	1.68	58	292	0.20
4	08-Nov-58	6.00	2604	3344	0.76	1.83		311	0.23
5	22-Nov-58	6.57	2801	3093	0.91	2.00		287	0.28
	03-Jan-59		8034	4686	1.71	2.88		435	0.52
	08-Jan-59			5067	2.06	3.16		471	0.63
	11-Feb-59			5850	2.38	3.66		543	0.73
	19-Feb-59			6310		3.96		586	0.77
	27-Feb-59			6796	2.68	4.31		631	0.82
	24-Mar-59			6700	2.77	4.34		622	0.84
	26-Mar-59			6430		4.15		597	1.17
	27-Mar-59		16413	6312	2.60	4.07		586	
	11-Apr-59		10374	5060	2.05	3.27			0.79
	16-Apr-59		9303				294	470	0.62
	18-Apr-59			4860	1.91	3.11	263	452	0.58
			8716	4745	1.84	3.02	247	441	0.56
	14-May-59 30-May-59		4720	3875	1.22	2.33	134	360	0.37
			3368	3574	0.94	2.09	95	332	0.29
	19-Jun-59		2920	3490	0.84	1.94	83	324	0.26
	30-Jun-59		2840	3420	0.83	1.91	80	318	0.25
	10-Jul-59		2705		0.80		77	315	0.24
	22-Jul-59		2425	3350	0.72	1.83	69	311	0.22
23	25-Jul-59		2415	3295	0.73	1.83	68	306	
	29-Sep-59		1643	3061	0.54	1.61	47	284	
	15-Oct-59		1580	3014	0.53	1.55	45	280	0.16
	17-Oct-59		1310	2965	0.44	1.55	37	275	0.13
	20-Nov-59	5.36	1690	3075	0.55	1.63	48	286	0.17
	28-Nov-59	5.76	2080	3320	0.65	1.76	. 59	308	0.20
29	20-Dec-59	6.83	3436	3655	0.94	2.08	97	340	0.29
	22-Jan-60		5699	4148	1.37	2.55	161	385	0.42
	27-Jan-60		5081	4095	1.24	2.46	144	380	0.38
32	16-Feb-60	9.90	8254	4818	1.71	3.02	234	448	0.52
33	24-Feb-60	11.71	12042	5631	2.14	3.57	341	523	0.65
34	29-Feb-60	12.20	13136	5854	2.24	3.72	372	544	0.68
35	09-Mar-60	14.45	18130	6810	2.77	4.40	513	633	0.84
36	18-Mar-60	16.20 2		8175	2.74	4.94	633	759	0.84
	31-Mar-60	18.83		9560	2.80	5.74	759	888	0.85
	22-Apr-60	10.90		5426	1.89	3.32	291	504	0.58
	29-Apr-60	9.85	8170	4723	1.73	3.00	231	439	0.53
	12-May-60	8.86	6391	4336	1.47	2.70	181	403	
	21-May-60	8.20	5222	4073	1.28	2.50	148		0.45
	02-Jul-60	6.80	3185	3588		2.07	90	378	0.39
	15-Jul-60	6.60		3482	0.85			333	0.27
	27-Jul-60	6.40	2536	3320	0.77	2.01	84	323	0.26
	29-Jul-60	6.36	2548	3402		1.95	72 72	308	0.23
	19-Aug-60	6.10	2295		0.75	1.94	72		0.23
	_			3228	0.71	1.86	65	300	0.22
	24-Aug-60	6.05	2322	3232	0.72	1.84	66	300	0.22
	21-Aug-60	5.90	2181	3199	0.68	1.80	62	297	0.21
	14-Sep-60		1951	3133	0.62	1.74	55	291	0.19
5U .	23-Sep-60	5.57	1827	3064	0.60	1.70	52	285	0.18
		are the second second second							

Table-4.3 DB-05A : Daily River Water Level

and the second of the second

*	ST.;	1-150	ZAMBEZI	PUMP I	HOUSE		YEAR :	1990/91			(WATER	LEVEL	(f)]
DAY	OCT	NOV	DEC	JAN	FEB .	MAR	APR	MAY	JUN	.1111	AHG	SED	AMMITAL
1	2.00	1.79	2.49	4.88	20.23	25.20	19,49	13.85	7,27	4.55	2.17	2.38	
: 2	2.00	1.79	2.53	4.91		24.70	19.34		7.13	4.48		2.38	
3	2.06	1.78		4.98	21.08	24,33	19.25	13.25	6.98	4.42		2.36	
4	2.09	1.78		5.00	21.48		19.16	13.05	6.88	4.35	2.08	2.31	
5 . 6	2.05	1.78		5.03	21.78	23,38	18.94			4.29	2.05	2.28	
7	2.03	1.77 1.81		5.66	22.18	22.90	18.91		6.55	4.24	2.50	2.28	
8	2.01	1.81		6.07	22.61	22.51 22.10	18.82	12.21	5.44	4.21	2.97	2.25	
9	2.03	1.81	3.28			21.70		11.93 11.70	6.26	4.15	2.94	2,25	
-10	2.05	1.81		7.14		21.32	20.49		6.18	4.03	2.90	2.23	
11.	2,06	1.80		7.83		20.90	20.67	11.08	6.12	4.01	2.87	2.00	
12	2.03	1.78	3.56	8.01	26.78	20.41	20.87	10.85	5.98		2.85	2.00	
. 13	2.01	1.77			27.07	19.73	20.88	10.53	5.90	3.93	2.84		
14	1.98	1.74		8.33	27.27		20.73		5.82	3.92	2.84	2.00	
15	1.95		3.80	8.60		19.28	20.40		5,74	3.88	2.79	1.98	
16 17	1.93	1.64	3.87 3.97		27.58	19.20		9.85	5.67	3.82	2.78	1.97	
18	1.87	1.04	4.09		27.60 27.63	19.28 19.41	19.00	9.65 9.45	5.54	3.78	2.68	1.96	
19	1.83	1.80		10.10	27.65	19.58		9.45		3.73 3.67	2.66 2.65	1.95	
	1.80	1.83				19.68	17.76		A CONTRACTOR OF THE PARTY OF TH	3.62	2.63	1.90 1.90	
2 i	1.80	1.76		11.45		19.88	17.35	8.86	5.32	3.57	2 62	1.85	
22	1.80		4.57	12.33		20.07	17.00		5.25		2.60	1.82	
	1.80	1.83	4.64			20.18	16.53	8.49		3.53	2.59	1.84	
-24		2.12			26.83	20.25	16.30		5.07	3.49	2.58	1.85	
25 26	1.80	2.14		14.30	26.57		16.06	8.14	4.99	3.45	2.58	1.83	
27	1.80	2.25	4.70 4.73		25.33	20.28	15.62		4.93	3.40	2.51	1.80	MAX.:
28	1.80	2.39	4.80	16.37	25.55	20.18 20.08	15.14 14.81	7.92	4.85	3.36		1.80	27.93
29	1.79	2.43	4.81	17.08	20.33	19.95	14.43	7.77 7.67		3.33	2.43	1.79	MIN
30	1.77	2.45		17.90			14.12	7 52	4.62	3.25		1.77 1.77	MIN.: 1.64
31	1.78	57 July 1	4.85	19.00		19.65		7.38	7.02	3.20	2.39		1,04
MEAN	1.92	1.89	3.86	10.06	25.35	20,95		10.16	5.78	3.83	2.58	2.02	8.89
MAX. MIN.	2.09	2.45 1.64	4.85	19.00	27.93 20,23	25.20		13.85	7.27	4.55	2.97	2.38	27.93
			********	4.00 ======	20,23	19.20	14.12	7.38	4.62	3.20	2.05	1.77	1.64
				18.0%									
!!M N====	ST.:	1-150	ZAMBEZI	PUMP H	OUSE	======	YEAR .	1990/91	-		[WATER	EVEL (m)]
N==== DAY	OCT	NOV	DEC	PUMP H	OUSE ====== FEB	MAR	YEAR :	1990/91 ======	HIN	1111	AUG	GED.	-
N==== PAY N====	OCT	NOV	DEC	PUMP H JAN	OUSE FEB	MAR	YEAR : ======= APR ========	1990/91 MAY	HIN	1111	AUG	GED.	-
N==== DAY N==== 1	OCT 0.61	NOV 	DEC ====================================	PUMP H JAN ===================================	OUSE FEB ==================================	MAR MAR ================================	YEAR : ======= APR ======= 19.49	1990/91 MAY 13.85	JUN 7.27	JUL Seenee	AUG	GED.	-
N==== DAY N==== 1 2	OCT 0.61 0.61	NOV 1.79 0.55	DEC 2.49	JAN JAN 4.88 1.50	OUSE FEB ==================================	MAR ======= 25.20 7.53	YEAR : APR 19.49 5.89	1990/91 MAY 13.85 4.14	JUN 7.27 2.17	JUL 4.55 1.37	AUG ====================================	SEP 2.38 0.73	-
N==== DAY N==== 1 2 3	OCT 0.61 0.61 0.63	NOV 1.79 0.55	DEC 2.49 0.77 0.78	JAN JAN 4.88 1.50 1.51	OUSE FE0 20.23 6.28 6.43	MAR ======= 25.20 7.53 7.42	YEAR : APR 19.49 5.89 5.87	1990/91 MAY 13.85 4.14 4.04	JUN 7.27 2.17 2.13	JUL 4.55 1.37 1.35	AUG ====================================	SEP 2.38 0.73 0.72	-
N==== DAY N==== 1 2 3 4	OCT 0.61 0.61 0.63 0.64	NOV 1.79 0.55 0.54 0.54	DEC 2.49 0.77 0.78 0.92	PUMP H JAN 4.88 1.50 1.51 1.52	OUSE FEB 20.23 6.28 6.43 6.55	MAR ======= 25.20 7.53 7.42 7.26	YEAR: APR 19.49 5.89 5.87 5.84	1990/91 MAY 13.85 4.14 4.04 3.98	JUN 7.27 2.17 2.13 2.10	JUL 4.55 1.37 1.35	AUG ====================================	SEP 2.38 0.73 0.72 0.70	-
N==== DAY N==== 1 2 3 4	OCT 0.61 0.61 0.63	NOV 1.79 0.55 0.54 0.54	DEC 2.49 0.77 0.78	PUMP H JAN 4.88 1.50 1.51 1.52 1.53	OUSE FEB 20.23 6.28 6.43 6.55 6.64	MAR 25.20 7.53 7.42 7.26 7.13	YEAR : APR =================================	1990/91 MAY 13.85 4.14 4.04 3.98 3.89	JUN 7.27 2.17 2.13 2.10 2.04	JUL 4.55 1.37 1.35 1.33	AUG ====================================	SEP 2.38 0.73 0.72 0.70 0.69	-
N==== DAY N==== 1 2 3 4 5	OCT 0.61 0.61 0.63 0.64 0.62	NOV 1.79 0.55 0.54 0.54	DEC 2.49 0.77 0.78 0.92 0.94	PUMP H JAN 4.88 1.50 1.51 1.52 1.53 1.66	OUSE FEB 20.23 6.28 6.43 6.55 6.64	MAR ======= 25.20 7.53 7.42 7.26	YEAR: APR ======= 19.49 5.89 5.87 5.84 5.77 5.76	MAY 13.85 4.14 4.04 3.98 3.89 3.79	JUN 7.27 2.17 2.13 2.10 2.04 2.00	JUL 4.55 1.37 1.35 1.33 1.31	AUG 2.17 0.65 0.64 0.63 0.62 0.76	SEP 2.38 0.73 0.72 0.70 0.69 0.69	-
N==== DAY N==== 1 2 3 4 5 6 7 8	OCT 0.61 0.63 0.64 0.62 0.62 0.62 0.62	NOV 1.79 0.55 0.54 0.54 0.54 0.55 0.55	DEC 2.48 0.77 0.78 0.92 0.94 0.94 0.97 0.98	PUMP H JAN 4.88 1.50 1.51 1.52 1.53 1.66 1.73 1.85	OUSE FEB 20.23 6.28 6.43 6.55 6.64 6.76 6.89 7.00	MAR 25.20 7.53 7.42 7.26 7.13 6.98	YEAR : APR =================================	MAY 13.85 4.14 4.04 3.98 3.89 3.79 3.72	JUN 7.27 2.17 2.13 2.10 2.04	JUL 4.55 1.37 1.35 1.33 1.31 1.29 1.28	AUG 2.17 0.65 0.64 0.63 0.62 0.76 0.91	SEP 2.38 0.73 0.72 0.70 0.69 0.69 0.69	-
N==== DAY N==== 1 2 3 4 5 6 7 8	OCT 0.61 0.63 0.64 0.62 0.62 0.62 0.61 0.62	NOV 1,79 0.55 0.54 0.54 0.54 0.55 0.55	DEC 2.49 0.77 0.78 0.92 0.94 0.94 0.97 0.98 1.00	PUMP H JAN 4.88 1.50 1.51 1.52 1.53 1.66 1.73 1.85 2.08	OUSE FEB 20.23 6.28 6.43 6.55 6.64 6.76 6.89 7.00 7.30	MAR 25.20 7.53 7.42 7.26 7.13 6.98 6.86 6.74 6.61	YEAR: APR 19.49 5.89 5.87 5.77 5.76	1990/91 MAY 13.85 4.14 4.04 3.98 3.89 3.79 3.72 3.64	JUN 7.27 2.17 2.13 2.10 2.04 2.00 1.96	JUL 4.55 1.37 1.35 1.33 1.31	AUG 2 17 0 65 0 64 0 63 0 62 0 76 0 91 0 90	SEP 2.38 0.73 0.72 0.70 0.69 0.69 0.69 0.69	-
N==== DAY N==== 1 2 3 4 5 6 7 8 9	OCT 0.61 0.63 0.64 0.62 0.62 0.62 0.62 0.62	NOV 1.79 0.55 0.54 0.54 0.54 0.55 0.55 0.55	DEC 2,49 0,77 0,78 0,92 0,94 0,94 0,97 0,98 1,00 1,01	PUMP H JAN 4.88 1.50 1.51 1.52 1.53 1.66 1.73 1.85 2.08 2.18	OUSE FEB 20.23 6.28 6.43 6.55 6.64 6.76 6.89 7.00 7.30 7.77	MAR 25.20 7.53 7.42 7.26 7.13 6.98 6.86 6.74 6.61 6.50	YEAR: APR 19.49 5.89 5.87 5.76 5.74 5.73 6.14 6.25	1990/91 MAY 13.85 4.14 4.04 3.98 3.89 3.79 3.72 3.64	JUN 7.27 2.17 2.13 2.10 2.04 2.00 1.96 1.93	JUL 4.55 1.37 1.35 1.33 1.31 1.29 1.28 1.26	AUG 2 17 0.65 0.64 0.63 0.62 0.76 0.91 0.90 0.89	SEP 2.38 0.73 0.72 0.70 0.69 0.69 0.69	-
N==== DAY N===== 1 2 3 4 5 6 7 8 9 10	OCT 0.61 0.63 0.64 0.62 0.62 0.62 0.61 0.62 0.63	NOV 1.79 0.55 0.54 0.54 0.54 0.55 0.55 0.55	DEC 2.49 0.77 0.78 0.92 0.94 0.97 0.98 1.00 1.01 1.04	PUMP H JAN 4.88 1.50 1.51 1.52 1.53 1.66 1.73 1.85 2.08 2.18 2.39	OUSE FEB 20.23 6.28 6.43 6.55 6.64 6.76 6.89 7.00 7.30 7.77 8.09	MAR 25.20 7.53 7.42 7.26 7.13 6.98 6.86 6.74 6.61 6.50 6.37	YEAR: APR 19.49 5.89 5.87 5.76 5.74 5.73 6.14 6.25 6.30	1990/91 MAY 13.85 4.14 4.04 3.98 3.89 3.79 3.72 3.64 3.57 3.46 3.38	JUN 7.27 2.17 2.13 2.10 2.04 2.00 1.96 1.93 1.91 1.88 1.87	JUL 4.55 1.37 1.35 1.33 1.31 1.29 1.28 1.26 1.25 1.24 1.22	AUG 2 17 0 .65 0 .64 0 .63 0 .62 0 .76 0 .91 0 .90 0 .89 0 .88 0 .87	SEP 2,38 0.73 0.72 0.70 0.69 0.69 0.69 0.69 0.69	-
N==== DAY N===== 1 2 3 4 5 6 7 8 9 10 11	OCT 0.61 0.63 0.64 0.62 0.62 0.62 0.61 0.62 0.63 0.63	NOV 1.79 0.55 0.54 0.54 0.54 0.55 0.55 0.55 0.55	DEC 2.48 0.77 0.78 0.92 0.94 0.97 0.98 1.00 1.01 1.04 1.09	PUMP H JAN 4.88 1.50 1.51 1.52 1.53 1.66 1.73 1.85 2.08 2.18 2.39 2.44	OUSE FEB 20.23 6.28 6.43 6.55 6.64 6.76 6.89 7.00 7.30 7.77 8.09 8.16	MAR 25.20 7.53 7.42 7.26 7.13 6.98 6.86 6.74 6.61 6.50 6.37 6.22	YEAR: APR 19.49 5.87 5.84 5.77 5.74 5.73 6.14 6.25 6.30 6.36	1990/91 MAY 13.85 4.14 4.04 3.98 3.89 3.79 3.72 3.64 3.57 3.46 3.38 3.31	JUN 7.27 2.17 2.13 2.10 2.04 2.00 1.96 1.93 1.91 1.88 1.87 1.82	JUL 4.55 1.37 1.35 1.33 1.31 1.29 1.28 1.26 1.25 1.24 1.22	AUG 2 17 0.65 0.64 0.63 0.62 0.76 0.91 0.90 0.89 0.88 0.87 0.87	SEP 2.38 0.73 0.72 0.70 0.69 0.69 0.69 0.69 0.68 0.68 0.61 0.61	-
N==== DAY N==== 1 2 3 4 5 6 7 8 9 10 11 12	OCT 0.61 0.63 0.64 0.62 0.62 0.62 0.61 0.62 0.63 0.64 0.65 0.65 0.65 0.65 0.65	NOV 1.79 0.55 0.54 0.54 0.54 0.55 0.55 0.55 0.55	DEC 2.49 0.77 0.78 0.92 0.94 0.97 0.98 1.00 1.01 1.04 1.09	PUMP H JAN 4.88 1.50 1.51 1.52 1.53 1.66 1.73 1.85 2.08 2.18 2.39 2.44 2.48	OUSE FEB 20.23 6.28 6.43 6.55 6.64 6.76 6.89 7.00 7.77 8.09 8.16 8.25	MAR 25.20 7.53 7.42 7.26 7.13 6.86 6.74 6.61 6.50 6.37 6.22 6.01	YEAR: APR 19.49 5.87 5.84 5.77 5.76 5.74 6.25 6.30 6.36	1990/91 MAY 13.85 4.14 4.04 3.98 3.89 3.79 3.72 3.64 3.57 3.46 3.38 3.31 3.21	JUN 7.27 2.17 2.13 2.10 2.04 2.00 1.96 1.93 1.91 1.88 1.87 1.82 1.80	JUL 4.55 1.37 1.35 1.33 1.31 1.29 1.26 1.26 1.25 1.24 1.22 1.20	AUG 2.17 0.65 0.64 0.63 0.62 0.76 0.91 0.90 0.89 0.88 0.87 0.87	SEP 2,38 0,73 0,72 0,70 0,69 0,69 0,69 0,68 0,68 0,61 0,61	-
N==== DAY N==== 1 2 3 4 5 6 7 8 9 10 11 12 13 14	OCT 0.61 0.63 0.64 0.52 0.62 0.62 0.62 0.62 0.63 0.62 0.63 0.62 0.63 0.63 0.63	NOV 1.79 0.55 0.54 0.54 0.54 0.55 0.55 0.55 0.55	DEC 2.49 0.77 0.78 0.92 0.94 0.94 0.97 0.98 1.00 1.01 1.04 1.09 1.11 1.15	PUMP H JAN 4.88 1.50 1.51 1.52 1.53 1.66 1.73 1.85 2.08 2.18 2.39 2.44 2.44 2.54	OUSE FEB 20.23 6.28 6.43 6.55 6.64 6.76 6.89 7.00 7.77 8.09 8.16 8.25 8.31	MAR 25.20 7.53 7.42 7.26 7.13 6.98 6.86 6.74 6.61 6.50 6.37 6.22 6.01 5.90	YEAR: APR 19.49 5.87 5.84 5.77 5.76 5.74 6.25 6.30 6.36 6.36 6.32	1990/91 	JUN 7.27 2.17 2.13 2.10 2.04 2.00 1.96 1.93 1.91 1.88 1.87 1.82 1.80 1.77	JUL 4.55 1.37 1.35 1.33 1.31 1.29 1.26 1.25 1.24 1.22 1.22 1.20 1.19	AUG 2.17 0.65 0.64 0.53 0.62 0.76 0.91 0.90 0.89 0.88 0.87 0.87 0.87	SEP 2,38 0,73 0,72 0,70 0,89 0,69 0,69 0,68 0,68 0,61 0,61 0,62 0,61	-
N==== DAY N==== 1 2 3 4 5 6 7 8 9 10 11 12	OCT 0.61 0.63 0.64 0.62 0.62 0.62 0.61 0.62 0.63 0.64 0.65 0.65 0.65 0.65 0.65	NOV 1.79 0.55 0.54 0.54 0.54 0.55 0.55 0.55 0.55	DEC 2.49 0.77 0.78 0.92 0.94 0.97 0.98 1.00 1.01 1.04 1.09 1.11 1.15 1.16	PUMP H JAN 4.88 1.50 1.51 1.52 1.53 1.66 1.73 1.85 2.08 2.18 2.39 2.44 2.48	OUSE FEB = 20.23 6.28 6.43 6.55 6.64 6.76 6.89 7.00 7.77 8.09 8.16 8.25 8.31 8.38	MAR 25.20 7.53 7.42 7.26 7.13 6.98 6.86 6.74 6.50 6.37 6.22 6.01 5.88	YEAR: APR 19.49 5.87 5.84 5.77 5.76 5.74 6.25 6.30 6.36 6.36 6.32 6.22	13.85 4.14 4.04 3.98 3.89 3.79 3.72 3.64 3.57 3.46 3.38 3.31 3.21 3.13 3.07	JUN 7.27 2.17 2.13 2.10 2.04 2.00 1.96 1.93 1.91 1.88 1.87 1.82 1.80 1.77	JUL 4.55 1.37 1.35 1.33 1.31 1.29 1.28 1.26 1.25 1.22 1.22 1.22 1.19 1.18	AUG 2.17 0.65 0.64 0.63 0.62 0.76 0.91 0.90 0.89 0.88 0.87 0.87 0.87 0.87	SEP 2,38 0,73 0,72 0,70 0,69 0,69 0,69 0,69 0,68 0,61 0,61 0,62 0,61 0,60	-
N==== DAY N==== 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	OCT 0.61 0.63 0.64 0.62 0.62 0.62 0.63 0.62 0.63 0.62 0.63 0.69 0.59	NOV 1.79 0.55 0.54 0.54 0.54 0.55 0.55 0.55 0.55	DEC 2.49 0.77 0.78 0.92 0.94 0.97 0.98 1.00 1.01 1.04 1.09 1.11 1.15 1.16 1.18	PUMP H JAN 4.85 1.50 1.51 1.52 1.53 1.66 1.73 1.85 2.08 2.18 2.39 2.44 2.48 2.54 2.54 2.74	OUSE FEB 20.23 6.28 6.43 6.55 6.64 6.89 7.00 7.30 7.77 8.09 8.16 8.25 8.31 8.38	MAR 25.20 7.53 7.42 7.26 7.13 6.98 6.86 6.74 6.61 6.50 6.37 6.22 6.01 5.98 5.88	YEAR: APR 19.49 5.89 5.87 5.76 5.74 5.73 6.14 6.30 6.36 6.36 6.36 6.32 6.04	1990/91 MAY 13.85 4.14 4.04 3.98 3.89 3.79 3.72 3.64 3.57 3.46 3.38 3.31 3.21 3.13 3.07 3.00	JUN 7.27 2.17 2.13 2.10 2.04 2.00 1.96 1.93 1.91 1.88 1.87 1.82 1.80 1.77 1.75	JUL 4.55 1.37 1.35 1.33 1.31 1.29 1.28 1.26 1.25 1.21 1.22 1.22 1.21 1.21	AUG 2 17 0 .65 0 .64 0 .63 0 .62 0 .76 0 .91 0 .90 0 .89 0 .87 0 .87 0 .87 0 .85 0 .85	SEP 2,38 0,73 0,72 0,70 0,69 0,69 0,69 0,69 0,68 0,61 0,61 0,62 0,61 0,60 0,60	-
N==== DAY N==== 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	OCT 0.61 0.63 0.64 0.62 0.62 0.62 0.62 0.63 0.65 0.65 0.65 0.55 0.59 0.58	NOV 1.79 0.55 0.54 0.54 0.54 0.55 0.55 0.55 0.55	DEC 2.49 0.77 0.78 0.92 0.94 0.97 0.98 1.00 1.01 1.04 1.09 1.11 1.15 1.16	PUMP H JAN 4.85 1.50 1.51 1.52 1.53 1.66 1.73 1.85 2.08 2.18 2.39 2.44 2.48 2.54 2.54 2.74	OUSE FEB 20.23 6.43 6.55 6.64 6.76 6.89 7.00 7.30 7.77 8.09 8.16 8.25 8.31 8.41	MAR 25.20 7.53 7.42 7.26 7.13 6.98 6.86 6.74 6.50 6.37 6.22 6.01 5.88	YEAR: APR 19.49 5.87 5.84 5.77 5.76 5.74 6.25 6.30 6.36 6.36 6.32 6.22	13.85 4.14 4.04 3.98 3.89 3.79 3.72 3.64 3.57 3.46 3.38 3.31 3.21 3.13 3.07	JUN 7.27 2.17 2.13 2.10 2.04 2.00 1.96 1.93 1.91 1.88 1.87 1.82 1.80 1.77 1.75 1.73 1.69	JUL 4.55 1.37 1.35 1.33 1.29 1.28 1.26 1.25 1.24 1.22 1.20 1.19 1.18 1.16 1.15	AUG 2 17 0.65 0.64 0.63 0.62 0.76 0.91 0.90 0.89 0.88 0.87 0.87 0.87 0.87 0.85 0.85	SEP 2,38 0,73 0,72 0,70 0,69 0,69 0,69 0,68 0,61 0,61 0,62 0,61 0,60 0,60	-
N==== DAY N==== 1 2 3 4 5 6 7 8 9 10 11 12 13 14 11 16 17 18	OCT 0.61 0.63 0.64 0.62 0.62 0.62 0.62 0.63 0.65 0.65 0.65 0.59 0.59 0.59	NOV 1.79 0.55 0.54 0.54 0.54 0.55 0.55 0.55 0.55	DEC 2.49 0.77 0.78 0.92 0.94 0.94 0.97 1.00 1.01 1.04 1.09 1.11 1.15 1.16 1.18 1.21 1.25 1.29	PUMP H JAN 4.88 1.50 1.51 1.52 1.66 1.73 1.85 2.08 2.39 2.44 2.48 2.62 2.74 2.87 2.95 3.08	OUSE FEB = 20.23 6.28 6.43 6.55 6.64 6.76 6.89 7.00 7.77 8.09 8.16 8.25 8.31 8.41 8.41 8.41 8.43	MAR 25.20 7.53 7.42 7.26 7.13 6.86 6.74 6.61 6.50 6.37 6.22 6.01 5.90 5.88 5.88	YEAR: APR 19.49 5.89 5.87 5.76 5.74 5.73 6.14 6.30 6.36 6.36 6.36 6.32 6.04	1990/91 MAY 13.85 4.14 4.04 3.98 3.79 3.72 3.64 3.57 3.46 3.38 3.31 3.21 3.13 3.07 3.00 2.94	JUN 7.27 2.17 2.13 2.10 2.04 2.00 1.96 1.93 1.91 1.88 1.87 1.82 1.80 1.77 1.75	JUL 4.55 1.37 1.35 1.33 1.31 1.29 1.28 1.26 1.25 1.21 1.22 1.22 1.21 1.21	AUG 2.17 0.65 0.64 0.63 0.62 0.76 0.91 0.90 0.89 0.88 0.87 0.87 0.87 0.87 0.85 0.85 0.82 0.81	SEP 2,38 0,73 0,72 0,70 0,69 0,69 0,69 0,68 0,61 0,61 0,60 0,60 0,59	-
N==== DAY N==== 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	OCT 0.61 0.63 0.64 0.62 0.62 0.62 0.63 0.62 0.63 0.62 0.59 0.59 0.59 0.56	NOV 1.79 0.55 0.54 0.54 0.55 0.55 0.55 0.55 0.55	DEC 2.49 0.77 0.78 0.92 0.94 0.97 1.01 1.04 1.09 1.11 1.15 1.16 1.18 1.21 1.25 1.32	PUMP H JAN 4.85 1.50 1.51 1.52 1.66 1.73 1.85 2.08 2.39 2.44 2.48 2.54 2.62 2.74 2.87 3.08 3.28	OUSE FEB 20.23 6.28 6.43 6.55 6.64 6.89 7.00 7.77 8.09 8.16 8.25 8.31 8.31 8.41 8.42 8.43 8.51	MAR 25.20 7.53 7.42 7.26 7.13 6.86 6.74 6.61 6.50 6.37 6.22 6.01 5.98 5.88 5.92 6.00	YEAR: APR 19.49 5.89 5.87 5.76 5.74 5.73 6.14 6.30 6.36 6.36 6.32 6.04 5.79	1990/91 MAY 13.85 4.14 4.04 3.98 3.89 3.79 3.72 3.64 3.57 3.46 3.38 3.31 3.21 3.13 3.07 3.00 2.94 2.88 2.82 2.76	JUN 7.27 2.17 2.13 2.10 2.04 2.00 1.96 1.93 1.91 1.88 1.87 1.82 1.80 1.77 1.75 1.75 1.73 1.69 1.66	JUL 4.55 1.37 1.35 1.33 1.31 1.29 1.26 1.25 1.24 1.22 1.20 1.19 1.18 1.16 1.15 1.14	AUG 2 17 0.65 0.64 0.63 0.62 0.76 0.91 0.90 0.89 0.88 0.87 0.87 0.87 0.87 0.85 0.85	SEP 2,38 0,73 0,72 0,70 0,69 0,69 0,69 0,68 0,61 0,61 0,62 0,61 0,60 0,60	-
N==== DAY N==== 1 2 3 4 5 6 7 8 9 10 11 12 13 14 16 17 18 10 20	OCT 0.61 0.63 0.64 0.62 0.62 0.62 0.63 0.62 0.63 0.65 0.59 0.59 0.57	NOV 1.79 0.55 0.54 0.54 0.55 0.55 0.55 0.55 0.55	DEC 2.49 0.77 0.78 0.92 0.94 0.97 0.98 1.00 1.01 1.04 1.09 1.11 1.15 1.16 1.18 1.21 1.25 1.36	PUMP H JAN 4.85 1.50 1.51 1.52 1.53 1.66 1.73 1.85 2.08 2.18 2.39 2.44 2.48 2.54 2.54 2.57 2.95 3.08 3.28 3.49	OUSE FEB = 20.23 6.28 6.43 6.55 6.64 6.89 7.00 7.30 7.77 8.09 8.16 8.25 8.31 8.41 8.42 8.43 8.43 8.43	MAR 25.20 7.53 7.42 7.26 7.13 6.98 6.86 6.74 6.61 6.50 6.37 6.22 6.01 5.98 5.88 5.92 5.97 6.00 6.06	YEAR: APR 19.49 5.89 5.87 5.76 5.74 5.73 6.14 6.30 6.36 6.32 6.22 6.04 5.79 5.41 5.29	1990/91 MAY 13.85 4.14 4.04 3.98 3.89 3.72 3.64 3.57 3.46 3.38 3.31 3.21 3.13 3.07 2.94 2.88 2.82 2.76 2.70	JUN 7.27 2.17 2.13 2.10 2.04 2.00 1.96 1.93 1.91 1.88 1.87 1.82 1.80 1.77 1.73 1.69 1.66 1.65 1.65 1.65	JUL 4.55 1.37 1.35 1.33 1.31 1.29 1.28 1.26 1.25 1.21 1.21 1.22 1.22 1.21 1.10 1.15 1.14 1.12 1.10 1.09	AUG 2 17 0.65 0.64 0.63 0.62 0.76 0.91 0.80 0.87 0.87 0.87 0.87 0.85 0.85 0.82 0.81 0.80	SEP 2,38 0,73 0,72 0,70 0,69 0,69 0,69 0,68 0,61 0,61 0,61 0,62 0,61 0,60 0,60 0,59 0,58	-
N==== DAY N==== 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	OCT 0.61 0.63 0.64 0.62 0.62 0.61 0.62 0.63 0.62 0.63 0.50 0.55 0.55 0.55	NOV 1.79 0.55 0.54 0.54 0.55 0.55 0.55 0.55 0.55	DEC 2.49 0.77 0.78 0.92 0.94 0.97 0.98 1.00 1.01 1.04 1.09 1.11 1.15 1.16 1.18 1.21 1.25 1.36 1.39	PUMP H JAN 4.88 1.50 1.51 1.52 1.53 1.66 1.73 1.85 2.08 2.18 2.39 2.44 2.48 2.54 2.62 2.74 2.95 3.08 3.49 3.76	OUSE FEB = 20.23 6.28 6.43 6.55 6.64 6.76 6.89 7.00 7.77 8.16 8.25 8.31 8.38 8.41 8.42 8.43 8.51 8.42 8.43 8.53	MAR 25.20 7.53 7.42 7.26 7.13 6.86 6.74 6.61 6.50 6.37 6.22 6.01 5.88 5.88 5.92 5.97 6.00 6.12	YEAR: APR 19.49 5.87 5.76 5.74 5.73 6.14 6.25 6.30 6.36 6.32 6.22 6.79 5.41 5.79 5.41 5.29 5.18	1990/91 MAY 13.85 4.14 4.04 3.98 3.79 3.72 3.64 3.57 3.46 3.38 3.31 3.21 3.13 3.07 3.00 2.94 2.88 2.82 2.76 2.70 2.64	JUN 7.27 2.17 2.13 2.10 2.04 2.00 1.96 1.93 1.91 1.88 1.87 1.82 1.80 1.77 1.75 1.69 1.66 1.65 1.64 1.62 1.60	JUL 4.55 1.37 1.35 1.33 1.29 1.28 1.26 1.25 1.24 1.22 1.20 1.19 1.18 1.16 1.15 1.14 1.10 1.09 1.09	AUG 2 17 0 65 0 64 0 53 0 62 0 76 0 91 0 90 0 89 0 87 0 87 0 87 0 87 0 87 0 88 0 81 0 81 0 80 0 79	SEP 2,38 0,73 0,72 0,70 0,69 0,69 0,68 0,61 0,61 0,61 0,60 0,59 0,58 0,58 0,58 0,58 0,59 0,58	-
N==== DAY N==== 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	OCT 0.61 0.63 0.64 0.62 0.62 0.62 0.62 0.63 0.65 0.55 0.55 0.55	NOV 1.79 0.55 0.54 0.54 0.55 0.55 0.55 0.55 0.55	DEC 2.49 0.77 0.78 0.92 0.94 0.94 0.97 0.98 1.00 1.01 1.04 1.15 1.16 1.18 1.21 1.25 1.29 1.32 1.36 1.39 1.41	PUMP H JAN 4.88 1.50 1.51 1.52 1.53 1.66 1.73 1.85 2.08 2.39 2.44 2.54 2.62 2.74 2.87 2.95 3.08 3.49 3.76 4.05	OUSE FEB = 20.23 6.28 6.43 6.55 6.64 6.76 6.89 7.00 7.77 8.09 8.16 8.25 8.31 8.41 8.42 8.43 8.51 8.43 8.51 8.43	MAR 25.20 7.53 7.42 7.26 7.13 6.98 6.86 6.74 6.50 6.37 6.22 6.01 5.88 5.85 5.88 5.85 5.97 6.00 6.12 6.15	YEAR: APR: 19.49 5.87 5.84 5.77 5.74 5.73 6.14 6.25 6.36 6.36 6.32 6.22 6.04 5.79 5.41 5.29 5.41 5.04	1990/91 MAY 13.85 4.14 4.04 3.98 3.79 3.72 3.64 3.57 3.46 3.38 3.31 3.13 3.07 3.00 2.88 2.82 2.76 2.70 2.64 2.59	JUN 7.27 2.17 2.13 2.10 2.04 2.00 1.96 1.93 1.91 1.88 1.87 1.82 1.80 1.77 1.75 1.75 1.66 1.65 1.66 1.65 1.60 1.58	JUL 4.55 1.37 1.35 1.33 1.31 1.29 1.26 1.25 1.24 1.22 1.20 1.19 1.18 1.16 1.15 1.14 1.12 1.10 1.09 1.08	AUG 2.17 0.65 0.64 0.63 0.62 0.76 0.91 0.90 0.89 0.87 0.87 0.87 0.87 0.87 0.81 0.81 0.80 0.79 0.79	SEP 2,38 0,73 0,72 0,70 0,69 0,69 0,69 0,68 0,61 0,61 0,60 0,50 0,58 0,58 0,58 0,58	-
N==== DAY N==== 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	OCT 0.61 0.63 0.62 0.62 0.62 0.63 0.62 0.63 0.62 0.63 0.59 0.59 0.55 0.55 0.55	NOV 1.79 0.55 0.54 0.54 0.55 0.55 0.55 0.55 0.55	DEC 2.49 0.77 0.78 0.92 0.94 0.97 0.98 1.00 1.01 1.04 1.09 1.11 1.15 1.16 1.18 1.21 1.25 1.36 1.39 1.41 1.43	PUMP H JAN 4.88 1.50 1.51 1.52 1.53 1.66 1.73 1.85 2.08 2.39 2.44 2.48 2.54 2.62 2.74 2.87 3.08 3.28 3.49 4.05 4.21	OUSE FEB 20.28 6.43 6.55 6.46 6.89 7.00 7.30 7.77 8.09 8.16 8.25 8.31 8.41 8.41 8.42 8.43 8.51 8.49 8.38 8.41 8.41	MAR 25.20 7.53 7.42 7.26 7.13 6.86 6.74 6.50 6.37 6.22 6.01 5.88 5.85 5.88 5.97 6.00 6.12 6.17	YEAR :====================================	1990/91 MAY =================================	JUN 7.27 2.17 2.13 2.10 2.04 2.00 1.96 1.93 1.91 1.88 1.87 1.82 1.80 1.77 1.75 1.75 1.73 1.66 1.65 1.64 1.62 1.65 1.55	JUL 4.55 1.37 1.35 1.33 1.31 1.29 1.28 1.26 1.25 1.21 1.20 1.19 1.18 1.16 1.15 1.14 1.12 1.10 1.09 1.09 1.08	AUG 2 17 0 .65 0 .64 0 .63 0 .62 0 .76 0 .91 0 .90 0 .89 0 .87 0 .87 0 .87 0 .85 0 .85 0 .82 0 .81 0 .80 0 .79 0 .79	SEP 2,38 0,73 0,72 0,70 0,69 0,69 0,69 0,68 0,61 0,61 0,60 0,60 0,50 0,58 0,58 0,56 0,56 0,56	-
N==== DAY N==== 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	OCT 0.61 0.63 0.64 0.62 0.62 0.63 0.62 0.63 0.62 0.55 0.55 0.55 0.55 0.55	NOV 1.79 0.55 0.54 0.54 0.55 0.55 0.55 0.55 0.55	DEC 2.49 0.77 0.78 0.92 0.94 0.97 0.98 1.00 1.01 1.04 1.09 1.11 1.15 1.16 1.18 1.21 1.25 1.36 1.39 1.41 1.43 1.43	PUMP H JAN 4.85 1.50 1.51 1.52 1.53 1.66 1.73 1.85 2.08 2.18 2.39 2.44 2.48 2.54 2.56 2.74 2.87 2.95 3.08 3.49 3.76 4.05 4.05 4.36	OUSE FEB 20.28 6.43 6.55 6.64 6.89 7.00 7.77 8.09 8.16 8.25 8.31 8.41 8.42 8.43 8.51 8.49 8.38 8.30 8.18	MAR 25.20 7.53 7.42 7.26 7.13 6.86 6.74 6.61 6.50 6.37 6.22 6.01 5.98 5.88 5.92 6.06 6.12 6.15 6.17 6.20	YEAR: APR: 19.49 5.89 5.87 5.76 5.74 5.73 6.14 6.30 6.36 6.32 6.04 5.79 5.41 5.29 5.18 5.04 4.90	1990/91 MAY 13.85 4.14 4.04 3.98 3.79 3.72 3.64 3.57 3.46 3.38 3.31 3.21 3.13 3.07 3.00 2.94 2.88 2.82 2.76 2.70 2.64 2.59 2.54 2.48	JUN 7.27 2.17 2.13 2.10 2.04 2.00 1.96 1.93 1.91 1.88 1.87 1.82 1.80 1.77 1.75 1.73 1.69 1.65 1.64 1.65 1.65 1.55 1.55	JUL 4.55 1.37 1.35 1.33 1.31 1.29 1.28 1.26 1.25 1.21 1.20 1.19 1.18 1.16 1.15 1.14 1.12 1.10 1.09 1.08 1.06 1.05	AUG 2 17 0 .65 0 .64 0 .63 0 .62 0 .91 0 .80 0 .87 0 .87 0 .87 0 .87 0 .85 0 .82 0 .81 0 .80 0 .79 0 .79 0 .79	SEP 2,38 0,73 0,72 0,70 0,69 0,69 0,69 0,69 0,61 0,61 0,60 0,60 0,59 0,58 0,56 0,56 0,56 0,56	ANNUAL
N==== DAY N==== 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 10 21 22 23 24 25	OCT 0.61 0.63 0.64 0.62 0.62 0.61 0.62 0.63 0.62 0.63 0.55 0.55 0.55 0.55 0.55 0.55	NOV 1.79 0.55 0.54 0.54 0.55 0.55 0.55 0.55 0.55	DEC 2.49 0.77 0.78 0.92 0.94 0.97 0.98 1.00 1.01 1.04 1.09 1.11 1.15 1.16 1.18 1.21 1.25 1.36 1.39 1.41 1.43	PUMP H JAN 4.85 1.50 1.51 1.52 1.53 1.66 1.73 1.85 2.08 2.18 2.39 2.44 2.48 2.54 2.62 2.74 2.95 3.08 3.49 3.76 4.05 4.21 4.36 4.55	OUSE FEB 20.28 6.43 6.55 6.64 6.89 7.00 7.30 7.77 8.09 8.16 8.25 8.31 8.41 8.42 8.43 8.51 8.49 8.38 8.30 8.18 8.10 8.03	MAR 25.20 7.53 7.42 7.26 7.13 6.86 6.74 6.61 6.50 6.37 6.22 6.01 5.98 5.88 5.92 6.00 6.06 6.12 6.15 6.17 6.20 6.18	YEAR: APR: 19.489 5.87 5.76 5.74 5.73 6.14 6.230 6.36 6.32 6.36 6.32 6.04 5.79 5.18 5.04 4.90 4.76	1990/91 MAY 13.85 4.14 4.04 3.98 3.79 3.72 3.64 3.57 3.46 3.38 3.31 3.21 3.13 3.07 2.94 2.88 2.82 2.76 2.70 2.64 2.59 2.54 2.48	JUN 7.27 2.17 2.13 2.10 2.04 2.00 1.96 1.93 1.91 1.88 1.87 1.82 1.80 1.77 1.73 1.69 1.65 1.65 1.65 1.65 1.65 1.55 1.50	JUL 4.55 1.37 1.35 1.33 1.31 1.29 1.28 1.26 1.25 1.24 1.22 1.20 1.19 1.18 1.16 1.15 1.14 1.12 1.10 1.09 1.09 1.08 1.06 1.05 1.04	AUG 2 17 0 .65 0 .64 0 .63 0 .62 0 .91 0 .90 0 .89 0 .87 0 .87 0 .87 0 .87 0 .85 0 .82 0 .81 0 .80 0 .79 0 .79 0 .79 0 .79	SEP 2,38 0,73 0,72 0,70 0,69 0,69 0,69 0,68 0,61 0,61 0,62 0,61 0,60 0,60 0,59 0,58 0,58 0,58 0,56 0,56 0,56 0,56 0,56 0,56	ANNUAL
N==== DAY N==== 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 25	OCT 0.61 0.63 0.64 0.62 0.62 0.61 0.62 0.63 0.62 0.63 0.55 0.55 0.55 0.55 0.55 0.55	NOV 1.79 0.55 0.54 0.54 0.55 0.55 0.55 0.55 0.55	DEC 2.48 0.77 0.78 0.92 0.94 0.97 0.98 1.00 1.01 1.04 1.09 1.11 1.15 1.16 1.18 1.21 1.25 1.29 1.36 1.39 1.41 1.43 1.43	PUMP H JAN 4.85 1.50 1.51 1.52 1.53 1.66 1.73 1.85 2.08 2.39 2.44 2.48 2.54 2.62 2.74 2.95 3.08 3.49 3.76 4.05 4.35 4.75	OUSE = FEB = 20.28 6.43 6.55 6.46 6.89 7.00 7.77 8.09 8.16 8.25 8.31 8.41 8.41 8.42 8.43 8.51 8.49 8.38 8.10 8.78 97.79	MAR 25.20 7.53 7.42 7.26 6.86 6.74 6.50 6.37 6.22 6.01 5.88 5.92 6.00 6.15 6.17 6.20 6.15 6.12	YEAR: APR: 19.499 5.87 5.76 5.74 5.76 6.36 6.32 6.32 6.32 6.32 6.32 6.32 6.3	1990/91 MAY 13.85 4.14 4.04 3.98 3.79 3.72 3.64 3.57 3.46 3.38 3.31 3.21 3.13 3.07 3.00 2.94 2.88 2.82 2.70 2.64 2.59 2.54 2.45 2.41	JUN 7.27 2.17 2.13 2.10 2.04 2.00 1.96 1.93 1.91 1.88 1.82 1.80 1.77 1.75 1.69 1.66 1.65 1.65 1.65 1.55 1.50 1.48	JUL 4.55 1.37 1.35 1.33 1.29 1.28 1.26 1.25 1.24 1.22 1.20 1.19 1.18 1.16 1.15 1.14 1.12 1.00 1.09 1.08 1.06 1.05 1.04 1.02	AUG 2 17 0 65 0 64 0 53 0 62 0 76 0 91 0 90 0 89 0 87 0 87 0 87 0 87 0 87 0 87 0 88 0 87 0 70 0 70	SEP 2,38 0,73 0,72 0,70 0,69 0,69 0,68 0,61 0,61 0,60 0,50 0,58 0,58 0,56 0,56 0,56 0,56 0,56 0,56 0,56 0,56	ANNUAL
N==== DAY N==== 1 2 3 4 5 6 7 8 10 11 12 13 14 15 16 17 18 10 21 22 23 24 25 26 27 28 29	OCT 0.61 0.62 0.62 0.63 0.62 0.63 0.62 0.63 0.62 0.63 0.55 0.55 0.55 0.55 0.55 0.55 0.55 0.55 0.55 0.55	NOV 1.79 0.55 0.54 0.54 0.55 0.55 0.55 0.55 0.55	DEC 2.49 0.77 0.78 0.92 0.94 0.97 0.98 1.00 1.01 1.04 1.09 1.11 1.15 1.18 1.21 1.25 1.36 1.39 1.41 1.43 1.43 1.43 1.44 1.46 1.47	PUMP H JAN 4.85 1.50 1.51 1.52 1.53 1.66 1.73 1.85 2.08 2.39 2.44 2.48 2.54 2.62 2.74 2.95 3.08 3.49 3.76 4.05 4.35 4.75	OUSE = FEB = 20.28 6.43 6.55 6.46 6.89 7.00 7.77 8.09 8.16 8.25 8.31 8.41 8.41 8.42 8.43 8.51 8.49 8.38 8.10 8.78 97.79	MAR 25.20 7.53 7.42 7.26 86.86 6.74 6.50 6.37 6.22 6.01 5.88 5.88 5.90 6.06 6.12 6.17 6.20 6.15 6.17	YEAR: APR: 19.499 5.87 5.76 5.74 5.73 6.14 6.25 6.36 6.36 6.32 6.22 6.79 5.18 5.04 4.97 4.97 4.96 4.61	1990/91 MAY 13.85 4.14 4.04 3.98 3.79 3.72 3.64 3.57 3.46 3.38 3.31 3.21 3.13 3.07 3.00 2.94 2.88 2.82 2.70 2.64 2.59 2.54 2.45 2.41	JUN 7.27 2.17 2.13 2.10 2.04 2.00 1.96 1.93 1.91 1.88 1.87 1.82 1.80 1.77 1.75 1.75 1.66 1.65 1.65 1.65 1.55 1.55 1.55 1.5	JUL 4.55 1.37 1.35 1.33 1.31 1.29 1.28 1.26 1.25 1.22 1.20 1.19 1.18 1.16 1.15 1.14 1.12 1.10 1.09 1.09 1.08 1.06 1.05 1.04	AUG 2.17 0.65 0.64 0.63 0.62 0.76 0.91 0.90 0.89 0.87 0.87 0.87 0.87 0.87 0.87 0.88 0.87 0.87	SEP 2,38 0,73 0,72 0,70 0,69 0,69 0,68 0,61 0,61 0,60 0,50 0,58 0,58 0,58 0,58 0,56 0,56 0,56 0,55 0,55	ANNUAL 25.20
N==== DAY N==== 1 2 3 4 5 6 7 8 9 10 11 12 13 14 16 17 18 20 21 22 23 24 25 27 28 29 30	OCT	NOV 1.79 0.55 0.54 0.54 0.55 0.55 0.55 0.55 0.55	DEC 2.49 0.77 0.78 0.92 0.94 0.97 0.98 1.00 1.01 1.04 1.09 1.11 1.15 1.16 1.18 1.21 1.25 1.36 1.39 1.41 1.43 1.43 1.43 1.43 1.43 1.44 1.46	PUMP H JAN = 4.85 1.51 1.52 1.566 1.73 1.85 2.08 2.44 2.48 2.562 2.74 2.87 2.95 3.08 3.49 3.76 4.55 4.75 4.95 5.46	OUSE = FEB = 20.28 6.43 6.55 6.46 6.89 7.00 7.77 8.09 8.16 8.25 8.31 8.41 8.41 8.42 8.43 8.51 8.49 8.38 8.10 8.78 97.79	MAR 25.20 7.53 7.42 7.26 6.86 6.74 6.50 6.37 6.22 6.01 5.88 5.92 6.00 6.15 6.17 6.20 6.15 6.12	YEAR :	1990/91 MAY 13.85 4.14 4.04 3.98 3.79 3.72 3.64 3.57 3.46 3.38 3.31 3.21 3.13 3.07 3.00 2.94 2.88 2.82 2.76 2.70 2.64 2.59 2.54 2.45 2.41 2.37	JUN 7.27 2.17 2.13 2.10 2.04 2.00 1.96 1.93 1.91 1.88 1.87 1.82 1.80 1.77 1.75 1.75 1.66 1.65 1.65 1.65 1.55 1.55 1.55 1.5	JUL 4.55 1.37 1.35 1.33 1.29 1.28 1.26 1.25 1.24 1.22 1.20 1.19 1.18 1.16 1.15 1.14 1.12 1.00 1.09 1.08 1.06 1.05 1.04 1.02	AUG 2 17 0 .65 0 .64 0 .63 0 .62 0 .76 0 .91 0 .90 0 .89 0 .87 0 .87 0 .87 0 .85 0 .85 0 .82 0 .81 0 .80 0 .79 0 .79 0 .79 0 .79 0 .79 0 .73	SEP 2,38 0,73 0,72 0,70 0,69 0,69 0,69 0,61 0,61 0,62 0,61 0,60 0,60 0,50 0,55 0,56 0,56 0,55 0,55	MAX.: 25.20 MIN.:
N==== DAY N==== 1 2 3 4 5 6 7 8 9 10 11 12 13 14 16 17 18 10 20 21 22 23 24 25 27 28 30 31	OCT	NOV 1.79 0.55 0.54 0.54 0.55 0.55 0.55 0.55 0.55	DEC 2.48 0.77 0.78 0.92 0.94 0.97 0.98 1.00 1.01 1.04 1.09 1.11 1.15 1.16 1.18 1.21 1.25 1.36 1.39 1.41 1.43 1.43 1.43 1.43 1.43 1.44 1.46 1.47 1.47	PUMP H JAN 4.850 1.51 1.52 1.566 1.73 1.85 2.08 2.44 2.48 2.54 2.44 2.54 2.74 2.95 3.28 3.49 3.76 4.21 4.36 4.55 4.75 9.5 5.49 5.79	OUSE FEB = 20.28 6.43 6.55 6.64 6.89 7.00 7.30 7.77 8.16 8.25 8.31 8.41 8.42 8.43 8.41 8.42 8.43 8.51 8.49 8.38 8.30 8.18 8.10 8.03 7.79	MAR 25.20 7.53 7.42 7.26 86.86 6.74 6.50 6.37 6.22 6.01 5.88 5.92 5.97 6.06 6.12 6.15 6.12 6.03 5.99	YEAR: APR: 19.489 55.87 5.76 5.74 55.73 6.36 6.36 6.32 6.36 6.36	1990/91 MAY 13.85 4.14 4.04 3.98 3.79 3.64 3.57 3.64 3.31 3.21 3.31 3.21 3.30 2.94 2.88 2.82 2.76 2.64 2.59 2.54 2.45 2.41 2.37 2.34 2.29 2.25	JUN 7.27 2.17 2.13 2.10 2.04 2.00 1.96 1.93 1.91 1.88 1.87 1.82 1.80 1.775 1.73 1.69 1.65 1.65 1.65 1.65 1.65 1.65 1.65 1.65	JUL 4.55 1.37 1.35 1.33 1.29 1.28 1.26 1.25 1.24 1.22 1.20 1.19 1.18 1.16 1.15 1.14 1.12 1.10 1.09 1.09 1.08 1.06 1.05 1.04 1.02 1.01 1.00 0.99 0.98	AUG 2 17 0 65 0 64 0 53 0 62 0 76 0 91 0 89 0 87 0 87 0 87 0 87 0 87 0 87 0 87 0 87	SEP 2,38 0,73 0,72 0,70 0,69 0,69 0,68 0,61 0,61 0,61 0,60 0,59 0,58 0,58 0,56 0,56 0,56 0,56 0,56 0,56 0,56 0,56	MAX.: 25.20 MIN.: 0.50
N==== DAY N==== 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 22 23 24 25 27 28 29 30 31	OCT 0.61 0.63 0.64 0.62 0.62 0.61 0.62 0.62 0.63 0.62 0.65 0.55 0.55 0.55 0.55 0.55 0.55 0.55 0.55	NOV 1.79 0.55 0.54 0.54 0.55 0.55 0.55 0.55 0.55	DEC 2.49 0.77 0.78 0.92 0.94 0.94 0.97 1.01 1.04 1.09 1.11 1.15 1.16 1.18 1.21 1.25 1.36 1.39 1.41 1.43 1.43 1.44 1.46 1.47 1.48	PUMP H JAN 4.80 1.51 1.52 1.53 1.66 1.73 1.858 2.39 2.44 2.52 2.74 2.87 2.95 3.28 3.49 4.26 4.36 4.75 4.21 4.36 4.55 4.79 5.46	OUSE FEB 20.23 6.28 6.43 6.55 6.64 6.76 6.89 7.00 7.77 8.16 8.25 8.31 8.38 8.41 8.42 8.43 8.51 8.42 8.43 8.51 8.77 9.79	MAR 25.20 7.53 7.42 7.13 6.98 6.86 6.74 6.50 6.37 6.22 6.01 5.88 5.89 5.97 6.00 6.12 6.17 6.20 6.15 6.17 6.20 6.15 6.17 6.20 6.15 6.19	YEAR: APR: 19.499 5.87 5.76 5.74 5.76 6.36 6.36 6.32 6.22 6.79 5.18 5.04 4.97 4.97 4.97 4.97 4.97 4.97 4.97 4.9	1990/91 MAY 13.85 4.14 4.04 3.98 3.79 3.64 3.57 3.64 3.37 3.00 2.94 2.88 2.82 2.70 2.64 2.59 2.54 2.45 2.41 2.37 2.29 2.25	JUN 7.27 2.17 2.13 2.10 2.04 2.00 1.96 1.93 1.88 1.87 1.82 1.80 1.77 1.75 1.75 1.66 1.65 1.65 1.65 1.65 1.65 1.65 1.6	JUL 4.55 1.37 1.35 1.33 1.29 1.28 1.26 1.25 1.24 1.22 1.20 1.19 1.18 1.16 1.15 1.14 1.12 1.00 1.09 1.08 1.06 1.05 1.04 1.02 1.01 1.09 0.99 0.98	AUG 2 17 0 65 0 64 0 53 0 62 0 76 0 91 0 90 0 88 0 87 0 87 0 87 0 87 0 87 0 88 0 87 0 87	SEP 2,38 0,73 0,72 0,70 0,69 0,69 0,68 0,61 0,61 0,61 0,60 0,50 0,58 0,58 0,58 0,56 0,56 0,56 0,56 0,56 0,56 0,56 0,56	MAX.: 25.20 MIN.: 0.50
N==== DAY N==== 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 10 20 21 22 23 24 25 26 27 28 30 31	OCT	NOV 1.79 0.55 0.54 0.54 0.55 0.55 0.55 0.55 0.55	DEC 2.49 0.77 0.78 0.92 0.94 0.97 0.98 1.00 1.01 1.04 1.09 1.11 1.15 1.16 1.18 1.21 1.25 1.36 1.39 1.41 1.43 1.43 1.43 1.43 1.43 1.44 1.46 1.47 1.47	PUMP H JAN 4.89 1.50 1.51 1.52 1.66 1.73 1.85 2.08 2.39 2.44 2.48 2.62 2.74 2.87 2.98 3.28 3.49 4.21 4.36 4.55 4.75 4.99 5.21 5.79 3.18	OUSE FEB 20.28 6.43 6.55 6.64 6.89 7.00 7.77 8.09 8.16 8.25 8.31 8.41 8.42 8.43 8.51 8.42 8.43 8.51 8.49 8.38 8.10 8.03 7.79	MAR 25.20 7.53 7.42 7.26 86 86 6.74 6.50 6.37 6.22 6.01 5.88 5.92 6.06 6.15 6.15 6.10 6.15 6.10 6.15 6.03 5.99 6.95	YEAR :	1990/91 MAY 13.85 4.14 4.04 3.98 3.79 3.72 3.64 3.56 3.38 3.31 3.21 3.13 3.07 3.00 2.94 2.88 2.82 2.76 2.70 2.64 2.59 2.48 2.45 2.41 2.37 2.34 2.29 2.25	JUN 7.27 2.17 2.13 2.10 2.04 2.00 1.96 1.93 1.91 1.88 1.87 1.82 1.80 1.77 1.75 1.75 1.75 1.66 1.65 1.65 1.65 1.65 1.64 1.62 1.60 1.58 1.55 1.55 1.55 1.51 1.48 1.43 1.41	JUL 4.55 1.37 1.35 1.33 1.31 1.29 1.28 1.26 1.25 1.21 1.20 1.19 1.18 1.16 1.15 1.14 1.12 1.10 1.09 1.09 1.08 1.06 1.05 1.04 1.09 1.09 1.09 0.98	AUG 2 17 0 .65 0 .64 0 .63 0 .62 0 .76 0 .91 0 .90 0 .89 0 .87 0 .87 0 .87 0 .85 0 .85 0 .85 0 .82 0 .81 0 .80 0 .79 0 .79 0 .79 0 .79 0 .79 0 .73 0 .73 0 .73 0 .73	SEP 2,38 0,73 0,72 0,70 0,69 0,69 0,69 0,69 0,61 0,61 0,62 0,61 0,60 0,60 0,50 0,50 0,56 0,56 0,56 0,56	MAX.: 25.20 MIN.: 0.50
N==== DAY N==== 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 27 28 29 30 31 M. MAX. MIN.	OCT	NOV 1.79 0.55 0.54 0.54 0.55 0.55 0.55 0.55 0.55	DEC 2.48 0.77 0.78 0.92 0.94 0.97 0.98 1.00 1.01 1.04 1.09 1.11 1.15 1.16 1.18 1.21 1.25 1.36 1.39 1.41 1.43 1.43 1.44 1.46 1.47 1.47 1.47 1.48	PUMP H JAN 4.850 1.51 1.52 1.53 1.66 1.73 1.85 2.08 2.34 2.48 2.54 2.48 2.54 2.67 2.95 3.28 3.46 4.05 4.21 4.35 4.25 4.25 4.75 4.99 5.46 5.79 3.18 5.75	OUSE = FEB = 20.23 6.28 6.43 6.55 6.64 6.76 6.89 7.00 7.77 8.16 8.25 8.31 8.41 8.42 8.43 8.51 8.42 8.43 8.51 8.49 8.38 8.10 8.18 8.20 8.18 8.20 8.18 8.20 8.18 8.20 8.20 8.20 8.20 8.20 8.20 8.20 8.2	MAR 25.20 7.42 7.13 6.86 6.74 6.50 6.37 6.00 6.35 5.88 5.97 6.00 6.15 6.17 6.20 6.15 6.17 6.20 6.15 6.12 6.08 5.99 6.25 25 25	YEAR :	1990/91 MAY 13.85 4.14 4.04 3.98 3.79 3.72 3.64 3.38 3.31 3.13 3.07 3.00 2.94 2.82 2.76 2.76 2.54 2.45 2.45 2.41 2.37 2.25 3.41 13.85	JUN 7.27 2.17 2.13 2.10 2.04 2.00 1.96 1.93 1.88 1.87 1.82 1.80 1.77 1.75 1.75 1.66 1.65 1.65 1.65 1.55 1.55 1.55 1.5	JUL 4.55 1.37 1.35 1.33 1.31 1.29 1.28 1.26 1.25 1.21 1.22 1.22 1.20 1.19 1.18 1.16 1.15 1.14 1.12 1.10 1.09 1.09 1.09 1.09 1.00 0.99 0.98	AUG 2 17 0 .65 0 .64 0 .63 0 .62 0 .76 0 .91 0 .90 0 .89 0 .87 0 .87 0 .87 0 .85 0 .82 0 .81 0 .80 0 .79 0 .79 0 .79 0 .79 0 .79 0 .73 0 .73 0 .73 0 .73	SEP 2,38 0,73 0,72 0,70 0,69 0,69 0,69 0,69 0,61 0,61 0,62 0,61 0,60 0,60 0,50 0,50 0,56 0,56 0,56 0,56	MAX.: 25.20 MIN.: 0.50
N==== DAY N==== 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 27 28 29 30 31 M. MAX. MIN.	OCT	NOV 1.79 0.55 0.54 0.54 0.55 0.55 0.55 0.55 0.55	DEC 2.49 0.77 0.78 0.92 0.94 0.97 0.98 1.00 1.01 1.04 1.09 1.11 1.15 1.16 1.18 1.21 1.25 1.36 1.39 1.41 1.43 1.43 1.43 1.44 1.45 1.47 1.47 1.48	PUMP H JAN 4.850 1.51 1.52 1.53 1.66 1.73 1.85 2.08 2.34 2.48 2.54 2.48 2.54 2.67 2.95 3.28 3.46 4.05 4.21 4.35 4.25 4.25 4.75 4.99 5.46 5.79 3.18 5.75	OUSE = FEB = 20.23 6.28 6.43 6.55 6.64 6.76 6.89 7.00 7.77 8.16 8.25 8.31 8.41 8.42 8.43 8.51 8.42 8.43 8.51 8.49 8.38 8.10 8.18 8.20 8.18 8.20 8.18 8.20 8.18 8.20 8.20 8.20 8.20 8.20 8.20 8.20 8.2	MAR 25.20 7.42 7.13 6.86 6.74 6.50 6.37 6.00 6.35 5.88 5.97 6.00 6.15 6.17 6.20 6.15 6.17 6.20 6.15 6.12 6.08 5.99 6.25 25 25	YEAR :	1990/91 MAY 13.85 4.14 4.04 3.98 3.79 3.72 3.64 3.38 3.31 3.13 3.07 3.00 2.94 2.82 2.76 2.76 2.54 2.45 2.45 2.41 2.37 2.25 3.41 13.85	JUN 7.27 2.17 2.13 2.10 2.04 2.00 1.96 1.93 1.88 1.87 1.82 1.80 1.77 1.75 1.75 1.66 1.65 1.65 1.65 1.55 1.55 1.55 1.5	JUL 4.55 1.37 1.35 1.33 1.31 1.29 1.28 1.26 1.25 1.21 1.22 1.22 1.20 1.19 1.18 1.16 1.15 1.14 1.12 1.10 1.09 1.09 1.09 1.09 1.00 0.99 0.98	AUG 2 17 0 .65 0 .64 0 .63 0 .62 0 .76 0 .91 0 .90 0 .89 0 .87 0 .87 0 .87 0 .85 0 .82 0 .81 0 .80 0 .79 0 .79 0 .79 0 .79 0 .79 0 .73 0 .73 0 .73 0 .73	SEP 2,38 0,73 0,72 0,70 0,69 0,69 0,69 0,69 0,61 0,61 0,62 0,61 0,60 0,60 0,50 0,50 0,56 0,56 0,56 0,56	MAX.: 25.20 MIN.: 0.50

Table-4.4 DB-06A: Hourly River Water Level

	ver hat		VI.	ST.NO.	4-130	KLINS	'S 8811	Œ	AFR./	1991 						inemat.	-									-		L feet	
K\DATE		2		4	- 5	5	. 1	\$	9	10	. 11	12	13	14	15 [5 17	18	. 19	20	21	22	23	24	25	26	27	28	29	30
1	16.41	16.15	15:84	15.65	15.52	15.79	15,20	15.89	16,06	16,05	16.07	16.20	15.30 15	.30 15	5.30 15.3	0 15.30	15.30	15.30	15.30	15.39	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30
2	18,40	16.14	15.83	15.65	15.52	15.83	16.19	15.89	16.06	16.04	16.07	16.20	15.30 15	.30 15	5.30 15.3	0 15.30	15.30	15.30	15.30	15.30	15,30	15.30	15,30	15.30	15,30	15.30	15,30	15.30	15.30
3	115.39	15.13	15.82	15.64	15.52	15.87	16,17	15.89	16.66	15.04	16.07	16,20	15.30 15	.30 15	5.30 15.3	0 15.30	15,30	15.30	15.30	15,30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30
4	16.37	18.10	15.80	15.63	15.52	15.90	16.16	15.89	16.05	16.04	16.08	16.20	15.30 15	.30 15	5.30 15.3	0 15.30	15.30	15.30	15.30	15,30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30
5	15.36	15.08	15.79	15,63	15.51	15.94	16.14	15.89	16.05	16.64	15.03	17.49	15.30 15	.30 15	5.30 15.3	0 15.30	15.39	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30
8	115.35	15.07	15.79	15.62	15.51	15.97	16,13	15.89	16.05	16.04	16.10	15.30	15.30 15	.30 15	5.30 15.3	0 15,30	15.30	15.30	15.30	15.30	15,30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30
7	16,33	16.08	15.17	15.60	15.50	16,00	16.12	15.90	15.04	15.03	15.10	15.30	15.30 15	.30 15	5.30 15.3	0 15,30	15.30	15,30	15.30	15.30	15.30	15.30	15.30	15,30	15.30	15.30	15.30	15.30	15.30
8	16.32	16.04	15.76	15.60	15.50	16.04	16,10	15.91	16.04	16.03	16.10	15.30	15.30 15	.30 15	5.30 15.3	0 15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15,30	15.30	15.30	15.30
9	16.31	16.04	15.75	15.60	15.50	16.06	15.08	15,92	15.05	15.03	15.12	15.30	15.30 15	.30 1	5.30 15.3	U 15.30	15.30	15.40	15.30	15.50	15.30	10.56	10.30	10.30	10.50	15.30	15.30	15.30	15.30
10	16.30	16.93	15.75	15.60	15.50	16.10	10.00	15.94	16.00	10.04	16.13	15.30	15.30 13	.SU 13	5.30 15.3	V 13,5U ∆ 15 20	15.30	15.30	10,30	15.30	15.30	15.30	15.33	15.20	15.30	15.30	15.30	15 20	15.30
11	10.50	10.01	15.13	15.00	10.00	10.13	10,00	15.45	10.02	10.04	10.15	15.30	15,30 13 16 50 16	30 ja	5.30 15.3 5.30 15.3	0 15,30 11 20	15.30	15.30	15 30	15 30	15.30	15 20	15 30	15.30	15 30	15 30	15 76	15 30	15 30
															5.30 15.3														
14	115 20	15 00	15 73	15 57	15.50	16 19	15.99	15.96	16.06	16.05	16.17	15.30	15.30 15	.30 1	5.30 15.	0 15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15,30	15,30	15.30	15.30	15.30	15.30
15	116.27	15.98	15.72	15.58	15.52	15.20	15.97	15.98	18.05	16.05	16.17	15.30	15.30 15	.30 15	5.30 15.3	0 15.30	15.30	15.30	15.30	15.30	15.30	15.30	15,30	15.30	15.30	15.30	15.30	15.30	15.30
16	116.28	15.97	15.70	15.58	15.52	16.21	15.95	18.00	16.05	16.05	16.17	15.30	15.30 15	.30 1	5.30 15.3	0 15.30	15.3û	15,30	15.30	15.30	15.30	15.30	15.30	15.30	15, 10	15.30	15.30	15.30	15.30
17	116.25	15.95	15,70	15.56	15.54	16.23	15.94	16.03	16.05	16,05	16.18	15.30	15.30 15	.30 15	5.30 15.3	0 15.30	15.30	15,30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15,30	15.30	15.30
18	116.25	15.94	15.68	15.55	15.55	16.23	15.92	16.04	16.05	16.05	16.19	15.30	15.30 15	.30 1	5.30 15,.	0 15.30	15.30	15,30	15.30	15.30	15.30	15,30	15.30	15.30	15.30	15.30	15.30	15.30	15.30
13	116.23	15.91	15.67	15.55	15.58	16.23	15.90	16.05	15.05	15.05	16.13	15.30	15.30 15	.30 15	5.30 15.3	0 15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30
20	115.22	15.90	15.67	15.54	15,58	15.23	15,50	16.06	16.05	16.05	16,20	15.30	15.30 15	.30 1	5.30 15.3	0 15.30	15.30	15.30	15.30	15.3¢	15.30	15,30	15.30	15.30	15.30	15.30	15.30	15.30	15.30
51	16.20	15.89	15.67	15.54	15.83	16.23	15.90	16.06	16.05	16.05	16.20	15.30	15.30 15	.30 15	5,30 15,3	0 15.30	15.30	15.30	15.30	15.39	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15,30
55	116.19	15.87	15.66	15.54	15.66	15.23	15,90	16.07	18,05	16.06	15.20	15.30	15.30 15	.30 1	5.30 15.3	0 15.30	15.30	15.30	15,30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30
															5.30 15.3 5.30 15.3														
34 C=1				100000	<u> </u>																		***						*****
XI.	[16.29	18.00	15.73	15.58	15.55	16.10	16.03	15.97	16.05	16.05	16.14	15,54	15.30 15	.30 1	5.30 15.	0 15.30	15.30	15,30	15,30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30
X.	[16.41	18.15	15.84	15.65	15.75	16.23	15.20	16.07	16.06	15.06	16.20	17.49	15.30 15	.30 1	5.30 15.	0 15.30	15.30	15.30	15.30	15.30	15.30	15.30	15,30	15,30	15.30	15.30	15.30	15.30	15.30
	145 45	10 00									44.45	15 30	1K 2A 16		r 22 42 4		4F 50	15 20	15 30	15 30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30	15.30
IN.	[18.16	13.83	15.65	15.52	15.50	15.79	15.90	15.89	16.04	16.U3	16.01	13.30			3.30 13		13,30	13.39					:		30000				
LY R	iyer ha				.4~130		*****		16.04 APR./		16.01	13.30					15.50	13.30					:				er Lev		
LY R	iyer ha	TER LE	YEL	ST.NO	-	SMITHS	i's eri		MR./	1991	16.07	:							20					2\$	20010	[HAT	er Levi		
LY R	IYER WA	TER LE	VEL 3	ST.NO 4.77	.4~130 5	SMITH 6	i'S 881	00€ 8	APR./ 9	1991 10	11	12	13	14	15 4.66 4.1	6 4.66	18	19	20	21	2?	23	24	25	28	[HAT 27	28 4,55	EL m] 29	30
LY R	YSR WA	7 LER LE	VEL 3	ST.HO	.4~130 5 4.73 4.73	SMITH 6 4.81 4.82	1'S BRI	00€ 8 4.84	APR./ 9 4.90 4.90	1991 10 4.89 4.89	11 4.90 4.90	12 4.94 4.94	13 4.56 4.85	14 .66	15 4.55 4.4	6 17 6 4.66 6 4.66	18 4.65 4.65	19 4.68 4.66	20 4.56 4.66	21 4.66 4.86	2? 4.86 4.86	23 4.55 4.55	24 4.66 4.68	25 4.56 4.58	26 4.66 4.85	27 4.65 4.65	28 4.65 4.65	29 4.66 4.66	30 4.66 4.56
1 1 2 3 3	YSR WA 1 5.00 5.00	4.92 4.92 4.92	VEL 3 4.83 4.82 4.82	51.HO	.4~130 5 4.73 4.73 4.13	5MITH 6 4.81 4.82 4.84	i'S BRI 7 4.94 4.93 4.93	8 8 4.84 4.84 4.84	APR./ 9 4.90 4.90 4.90	1991 10 4.89 4.89	11 4.90 4.90 4.90	12 4.94 4.94 4.94	13 4.56 4.65 4.65	14 .66 .65	15 4.65 4.4 4.65 4.8	6 1.66 6 4.66 6 4.66 6 4.65	18 4.65 4.66 4.55	19 4.66 4.66	20 4.66 4.66 4.66	21 4.66 4.66 4.66	22 4.86 4.86 4.66	23 4.55 4.55 4.65	24 4.66 4.68 4.65	25 4.66 4.65 4.68	26 4.66 4.85 4.88	27 2.66 4.66 4.66	28 4.55 4.65 4.66	29 4.65 4.66 4.65	30 4.66 4.56 4.66
1 ?	YSR WA	4.92 4.92 4.92 4.92	VEL 3 4.83 4.82 4.82 4.82	51.HO 4.77 4.77 4.77	.4~130 5 4.73 4.73 4.13 4.73	5MITH 6 4.81 4.82 4.84 4.85	1'S BRI 4.94 4.93 4.93 4.93	8 8 4.84 4.84 4.84	AFR./ 9 4.90 4.90 4.90	1991 10 4.89 4.89 4.89	11 4.90 4.90 4.90	12 4.94 4.94 4.94 4.94	13 4.56 4.65 4.65 4.66	14 .66 .65	15 4.65 4.4 4.66 4.8 4.66 4.8	6 4.66 6 4.66 6 4.65 6 4.65 6 4.65	18 4.65 4.66 4.55 4.55	19 4.66 4.65 4.65	20 4.55 4.56 4.56 4.66	21 4.56 4.56 4.66 4.66	22 4.86 4.86 4.66 4.88	23 4.55 4.55 4.65 4.66	24 4.66 4.68 4.65 4.66	25 4.66 4.65 4.66 4.66	28 4.66 4.85 4.68 4.68	27 4.66 4.66 4.66	28 4.55 4.65 4.66 4.86	29 4.65 4.65 4.65 4.65	30 4.66 4.56 4.66 4.86
1 2 3 4 5 5	YER HA 1 5.00 5.00 5.00 4.99	4.92 4.92 4.92 4.91 4.90	YEL 3 4.82 4.82 4.82 4.82	\$1.NO 4.77 4.71 4.77 4.76 4.76	.4~130 5 4.73 4.73 4.73 4.73 4.73	5MITH 6 4.81 4.82 4.84 4.85	1'S ERI 4.94 4.93 4.93 4.93	8 4.84 4.84 4.84 4.84	4.90 4.90 4.90 4.90 4.89	1991 10 4.89 4.89 4.89 4.89	11 4.90 4.90 4.90 4.90 4.90	12 4.94 4.94 4.94 5.33	13 4.56 4.65 4.66 4.66 4.66	14 .66 .65 .55	15 4.65 4.4 4.65 4.4 4.66 4.4 4.65 4.4	6 1.66 6 4.66 6 4.65 6 4.65 6 4.65	18 4.65 4.65 4.65 4.66	19 4.66 4.65 4.65 4.65 4.65	20 4.56 4.56 4.56 4.56	21 4.66 4.66 4.66 4.66	22 4.86 4.86 4.66 4.66 4.65	23 4.55 4.55 4.65 4.66	24 4.66 4.65 4.65 4.66	25 4.66 4.65 4.66 4.66 4.66	26 4.66 4.85 4.68 4.65 4.65	27 4.66 4.66 4.66 4.66 4.66	28 4.55 4.66 4.66 4.66	29 4.66 4.66 4.66 4.66 4.66	30 4.66 4.56 4.66 4.56 4.55
1 ? 3 4 5 6	YER HA 1 5.00 5.00 5.00 4.99 4.99	4.92 4.92 4.92 4.91 4.90 4.90	VEL 3 4.83 4.82 4.82 4.81 4.81	\$1.NO 4.77 4.77 4.76 4.76 4.76	.4~130 5 4.73 4.73 4.73 4.73 4.73 4.73	5MITH 6 4.81 4.84 4.85 4.86 4.87	1'S BRI 7 4.94 4.93 4.93 4.93 4.92	884 4.84 4.84 4.84 4.84	AFR./ 9 4.90 4.90 4.90 4.89 4.89	1991 10 4.89 4.89 4.89 4.89 4.89	11 4.90 4.90 4.90 4.90 4.90	12 4.94 4.94 4.94 4.94 5.33 4.66	13 4.56 4.55 4.66 4.66 4.66 4.66	14 .66 .65 .65 .66	15 4.65 4.4 4.65 4.4 4.65 4.4 4.65 4.4 4.66 4.4	6 4.66 6 4.66 6 4.66 6 4.66 6 4.66 5 4.66	18 4.65 4.65 4.65 4.66 4.66	19 4.66 4.65 4.65 4.65 4.66	20 4.66 4.66 4.66 4.66 4.66	21 4.66 4.66 4.66 4.66 4.66	4.86 4.86 4.66 4.66 4.66 4.68	23 4.55 4.55 4.66 4.66 4.66 4.66	24 4.66 4.66 4.66 4.66 4.66	25 4.66 4.66 4.66 4.66 4.66 4.66	28 4.66 4.66 4.66 4.66 4.66 4.66	27 4.66 4.66 4.66 4.66 4.65 4.65	28 4.65 4.66 4.66 4.66 4.66 4.66	29 4 66 4 65 4 66 4 66 4 66 4 66 4 66 4 66	30 4.65 4.56 4.65 4.55 4.55
1 2 3 4 5 6 7	YER HA 1 5.00 5.00 5.00 4.99 4.99 4.98	4.92 4.92 4.92 4.91 4.90 4.90	YEL 3 4.83 4.82 4.82 4.81 4.81	\$1.NO 4.77 4.77 4.76 4.76 4.76 4.76	.4~130 5 4.73 4.73 4.73 4.73 4.73 4.73 4.73	5MITH 6 4.81 4.84 4.85 4.86 4.87 4.88	1'S ERI 7 4.94 4.93 4.93 4.93 4.92 4.92	84 4.84 4.84 4.84 4.84 4.84	4.90 4.90 4.90 4.90 4.89 4.89	1991 10 4.89 4.89 4.89 4.89 4.89	4.90 4.90 4.90 4.90 4.90 4.91	12 4.94 4.94 4.94 5.33 4.66 4.66	13 4.56 4.55 4.66 4.66 4.66 4.66 4.66	14 .65 .65 .66 .66	15 4.65 4.4 4.66 4.8 4.66 4.8 4.66 4.8 4.66 4.4 4.66 4.4	6 17 66 4.66 8 4.66 66 4.65 66 4.66 65 4.66 66 4.66	18 4.65 4.65 4.65 4.66 4.66 4.66	19 4.66 4.66 4.65 4.65 4.66 4.66	20 4.66 4.66 4.66 4.66 4.66 4.66	21 4.66 4.66 4.66 4.66 4.66 4.66	22 4.86 4.86 4.66 4.66 4.68 4.68	23 4.55 4.55 4.66 4.66 4.66 4.66	24 4.66 4.66 4.66 4.66 4.66 4.66	25 4.66 4.65 4.66 4.66 4.66 4.65	28 4.66 4.85 4.68 4.65 4.65 4.65	27 4.65 4.66 4.66 4.66 4.65 4.65	28 4.55 4.65 4.66 4.66 4.66 4.65	29 4 66 4 65 4 65 4 66 4 66 4 66 4 66 4 66	30 4.66 4.56 4.66 4.65 4.65 4.65
1 3 4 5 6 7 8	YSR WA 1 5.00 5.00 5.00 14.99 14.98 14.98	4.92 4.92 4.92 4.91 4.90 4.90 4.89	4.83 4.82 4.82 4.81 4.81 4.81 4.81	\$1.00 4.77 4.77 4.76 4.76 4.76 4.75	.4~130 5 4.73 4.73 4.73 4.73 4.73 4.72 4.72	5MI1H 6 4.81 4.82 4.84 4.85 4.86 4.87 4.88	1'S BRI 4.94 4.93 4.93 4.93 4.92 4.92 4.92	00E 8 4.84 4.84 4.84 4.84 4.85 4.85	4.90 4.90 4.90 4.90 4.89 4.89 4.89	1991 10 4.89 4.89 4.89 4.89 4.89 4.89	11 4.90 4.90 4.90 4.90 4.91 4.91 4.91	12 4.94 4.94 4.94 5.33 4.66 4.88 4.68	13 4.55 4.65 4.65 4.66 4.66 4.66 4.66 4.65	14 1.66 1.66 1.66 1.66 1.66 1.66	15 4.65 4.6 4.66 4.6 4.66 4.6 4.65 4.6 4.66 4.1 4.66 4.1	6 17 66 4.66 66 4.66 66 4.65 66 4.66 65 4.66 65 4.66 65 4.66	18 4.65 4.65 4.65 4.66 4.66 4.66	19 4.66 4.65 4.65 4.66 4.66 4.66 4.66	20 4.66 4.66 4.66 4.66 4.66 4.65 4.65	21 4.66 4.66 4.66 4.66 4.66 4.65 4.65	22 4.86 4.86 4.86 4.86 4.66 4.68 4.68	23 4.65 4.65 4.65 4.66 4.66 4.66 4.66	24 4.66 4.68 4.65 4.66 4.66 4.65 4.65	25 4.66 4.66 4.66 4.66 4.66 4.65 4.65	28 4.66 4.85 4.68 4.65 4.65 4.65 4.65	27 4.66 4.66 4.66 4.65 4.65 4.66 4.66	28 4,65 4,66 4,66 4,66 4,66 4,66 4,65	29 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	30 4.66 4.66 4.66 4.65 4.65 4.65 4.65
1 ? 3 4 5 6 7 8 8	YSR WA 1 5.00 5.00 4.99 4.98 4.98 4.98	4,92 4,92 4,92 4,91 4,90 4,90 4,80 4,80 4,80	4.83 4.82 4.82 4.81 4.81 4.81 4.81	51.HO 4.77 4.77 4.76 4.76 4.76 4.75 4.75	.4~130 5 4.73 4.73 4.73 4.73 4.73 4.72 4.72	5MI1H 6 4.81 4.82 4.84 4.85 4.86 4.87 4.89	1'S ERI 7 4.94 4.93 4.93 4.92 4.92 4.91 4.91 4.91	884 4.84 4.84 4.84 4.84 4.84 4.85 4.85 4	4.90 4.90 4.90 4.90 4.89 4.89 4.89 4.89	1091 10 4.89 4.89 4.89 4.89 4.89 4.89 4.89	11 4.90 4.90 4.90 4.90 4.91 4.91 4.91	12 4.94 4.94 4.94 5.33 4.66 4.68 4.66	13 4.56 4.65 4.66 4.66 4.66 4.66 4.66 4.66	14 1.66 1.55 1.55 1.66 1.65 1.65	15 4.65 4.4 4.66 4.4 4.65 4.4 4.66 4.4 4.66 4.4 4.66 4.4 4.66 4.4	6 17 6 4.66 6 4.66 6 4.66 6 4.66 6 4.66 6 4.66 5 4.66 5 4.66 6 4.66	18 4.65 4.66 4.65 4.66 4.66 4.66 4.66	19 4.68 4.65 4.65 4.65 4.66 4.66 4.66 4.66	20 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	21 4.66 4.66 4.66 4.66 4.66 4.66 4.65 4.65	22 4.86 4.86 4.65 4.65 4.65 4.65 4.66 4.66	23 4.65 4.65 4.65 4.66 4.66 4.66 4.66 4.66	24 4.66 4.65 4.66 4.65 4.66 4.65 4.65 4.6	25 4.66 4.65 4.66 4.66 4.65 4.65 4.66 4.65	28 4.66 4.65 4.65 4.65 4.65 4.65 4.65	27 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	28 4.65 4.66 4.66 4.66 4.66 4.65 4.65	29 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	30 4.66 4.56 4.65 4.65 4.65 4.65 4.65
1 2 3 4 5 5 6 7 8 9 10	YER HA 1 5.00 5.00 4.99 4.98 4.98 4.98 4.98 4.97 4.97	4.92 4.92 4.92 4.93 4.90 4.90 4.89 4.89	YEL 4.83 4.82 4.81 4.81 4.81 4.81 4.81 4.81 4.81 4.81	ST.NO 4.77 4.77 4.76 4.76 4.76 4.75 4.75 4.75	4.73 4.73 4.73 4.73 4.73 4.73 4.73 4.72 4.72 4.72	5MITH 6 4.81 4.82 4.84 4.85 4.86 4.87 4.89 4.90 4.91	1'S BRI 4.94 4.93 4.93 4.93 4.92 4.92 4.91 4.91 4.90 4.90	8 8 4 84 4 84 4 84 4 84 4 85 4 85 4 85	APR./ 9 4.90 4.90 4.90 4.89 4.89 4.89 4.89 4.89	1091 10 4.89 4.89 4.89 4.89 4.89 4.89 4.89 4.89	11 4.90 4.90 4.90 4.90 4.91 4.91 4.91 4.91	12 4.94 4.94 4.94 5.33 4.65 4.68 4.66 4.66	13 4.56 4.65 4.66 4.66 4.66 4.66 4.65 4.65	14 1.66 .66 .55 .66 .66 .66 .66	15 4.65 4.4 4.65 4.4 4.65 4.4 4.65 4.4 4.66 4.4 4.65 4.4 4.66 4.4	6 17 6 4.66 6 4.66 6 4.66 6 4.66 6 4.66 6 4.66 5 4.66 5 4.66 6 4.66	18 4.65 4.66 4.65 4.65 4.66 4.66 4.66 4.66	19 4.68 4.65 4.65 4.65 4.66 4.66 4.66 4.66 4.66	20 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	21 4.66 4.66 4.66 4.66 4.66 4.65 4.65 4.65	22 4.86 4.86 4.66 4.65 4.65 4.65 4.65 4.65	23 4.55 4.55 4.65 4.65 4.66 4.66 4.66 4.66	24 4.66 4.65 4.65 4.65 4.65 4.65 4.65 4.6	25 4.66 4.65 4.66 4.66 4.66 4.65 4.66 4.65 4.66	26 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.	27 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	28 4,55 4,65 4,66 4,66 4,66 4,66 4,65 4,66 4,66	29 4.65 4.65 4.65 4.65 4.65 4.66 4.66 4.66	30 4.66 4.66 4.66 4.65 4.65 4.65 4.65 4.65
1 2 3 4 5 6 7 8 9 10 11	YER HA 1 5.00 5.00 4.99 4.99 4.94 4.97 4.97 4.97	4.92 4.92 4.92 4.93 4.90 4.90 4.89 4.89 4.89	4.83 4.82 4.82 4.82 4.81 4.81 4.81 4.81 4.80 4.80 4.80	ST.NO 4.77 4.77 4.76 4.76 4.76 4.75 4.75 4.75 4.75	4.73 4.73 4.73 4.73 4.73 4.73 4.72 4.72 4.72 4.72 4.72	5MITH 6 4.81 4.82 4.84 4.85 4.86 4.87 4.89 4.90 4.91	4'S BRI 7 4.94 4.93 4.93 4.93 4.93 4.93 4.91	8 8 4 84 4 84 4 84 4 85 4 85 4 85 4 85	APR./ 9 4.90 4.90 4.89 4.89 4.89 4.89 4.89 4.89	1091 10 4.89 4.89 4.89 4.89 4.89 4.89 4.89 4.89	11 4.90 4.90 4.90 4.90 4.91 4.91 4.91 4.91	12 4.94 4.94 4.94 5.33 4.65 4.66 4.66 4.66	13 4.56 4.65 4.66 4.66 4.66 4.66 4.65 4.65	14 .66 .65 .	15 4.65 4.4 4.66 4.4 4.65 4.4 4.65 4.4 4.66 4.4 4.66 4.4 4.66 4.4	6 17 6 4.66 6 4.65 6 4.65 6 4.66 6 4.66 6 4.66 5 4.66 6 4.66 6 4.66 6 4.66	18 4.65 4.66 4.65 4.65 4.66 4.66 4.66 4.66	19 4.66 4.65 4.65 4.65 4.66 4.66 4.66 4.66	20 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	21 4.66 4.66 4.66 4.66 4.66 4.65 4.65 4.65	22 4.86 4.86 4.66 4.65 4.65 4.65 4.65 4.66 4.66 4.6	23 4.55 4.55 4.65 4.66 4.65 4.66 4.66 4.66	24 4.66 4.65 4.65 4.66 4.65 4.65 4.65 4.6	25 4.66 4.65 4.66 4.66 4.66 4.65 4.66 4.65 4.66 4.65	28 4.66 4.65 4.65 4.65 4.65 4.65 4.65 4.65	27 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	28 4.55 4.65 4.66 4.66 4.66 4.65 4.65 4.65	29 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	30 4.66 4.66 4.66 4.65 4.65 4.65 4.65 4.66 4.66
1 2 3 4 5 6 7 8 9 10 11 12	1 1 5.00 1 5.00 1 5.00 1 4.99 1 4.99 1 4.97 1 4.97 1 4.97 1 4.97	4.92 4.92 4.92 4.91 4.90 4.90 4.89 4.89 4.89	4.83 4.82 4.82 4.82 4.81 4.81 4.81 4.80 4.80 4.80 4.80	ST.NO 4.77 4.71 4.76 4.76 4.76 4.75 4.75 4.75 4.75	4.73 4.73 4.73 4.73 4.73 4.73 4.72 4.72 4.72 4.72 4.72 4.72	54.11H 6 4.81 4.82 4.84 4.85 4.86 4.87 4.89 4.90 4.91 4.92 4.92	4'S BRI 4.94 4.93 4.93 4.93 4.93 4.92 4.91 4.91 4.91 4.91 4.91 4.91 4.93 4.9	8 6 84 84 84 84 84 84 84 85 8 8 8 8 8 8 8 8	4.90 4.90 4.90 4.90 4.89 4.89 4.89 4.89 4.89 4.89	1091 10 4.89 4.69 4.69 4.89 4.89 4.89 4.89 4.89 4.89 4.89	11 4.90 4.90 4.90 4.90 4.91 4.91 4.91 4.92 4.92 4.92 4.92	12 4.94 4.94 4.94 5.33 4.66 4.66 4.66 4.66 4.66	13 4.66 4.65 4.66 4.66 4.66 4.65 4.65 4.65	14 1.66 .55 .56 .66 .66 .66	15 4.65 4.4 4.66 4.4 4.65 4.4 4.65 4.4 4.65 4.4 4.65 4.4 4.66 4.4 4.66 4.4	16 4.66 4.66 4.66 4.65 4.66 4.66 5.4.66 5.4.66 5.4.66 5.4.66 5.4.66 6.4.66	18 4.65 4.66 4.65 4.65 4.66 4.66 4.66 4.66	13 4.66 4.65 4.65 4.65 4.66 4.66 4.66 4.66	20 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	21 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	22 4.66 4.66 4.65 4.65 4.65 4.65 4.66 4.66	23 4.55 4.55 4.65 4.66 4.66 4.66 4.66 4.66	24 4.66 4.65 4.65 4.66 4.65 4.65 4.65 4.6	25 4.66 4.65 4.66 4.66 4.65 4.66 4.66 4.6	28 4.66 4.65 4.68 4.66 4.66 4.66 4.66 4.66 4.66 4.66	27 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	28 4.55 4.65 4.66 4.66 4.66 4.65 4.65 4.65	29 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	30 4.66 4.56 4.66 4.65 4.65 4.65 4.65 4.66 4.56 4.66
1 1 2 13 14 15 15 16 17 17 17 17 17 17 17 17 17 17 17 17 17	1 5.00 1 5.00 1 5.00 1 4.99 1 4.99 1 4.97 1 4.97 1 4.97 1 4.97 1 4.97 1 4.97 1 4.97	4.92 4.92 4.92 4.91 4.90 4.89 4.89 4.88 4.88 4.88 4.88	4.83 4.82 4.82 4.82 4.81 4.81 4.81 4.80 4.80 4.80 4.80 4.80	\$1.00 4.77 4.76 4.76 4.76 4.75 4.75 4.75 4.75 4.75 4.75 4.75	4.73 4.73 4.73 4.73 4.73 4.73 4.72 4.72 4.72 4.72 4.72 4.72 4.72	5MITH 64.81 4.85 4.86 4.85 4.86 4.87 4.89 4.91 4.92 4.93 4.93 4.93	4'S BRI 4.94 4.93 4.93 4.93 4.91 4.91 4.91 4.90 4.89 4.89 4.89	8 4 .84 4 .84 4 .84 4 .85 6 8 6 8 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	APR./ 9 4.90 4.90 4.89 4.89 4.89 4.89 4.89 4.89 4.89 4.89	1991 10 4.89 4.89 4.89 4.89 4.89 4.89 4.89 4.89	11 4,90 4,90 4,90 4,90 4,91 4,91 4,91 4,92 4,92 4,92 4,92 4,93	12 4.94 4.94 4.94 5.33 4.66 4.66 4.66 4.66 4.66 4.66	13 4.55 4 4.55 4 4.66 4 4.66 4 4.65 4 4.65 4 4.65 4 4.65 4 4.65 4 4.65 4	14 1.66 1.65 1.65 1.65 1.66 1.66 1.66 1.66	15 4.55 4.4 4.55 4.4 4.55 4.4 4.55 4.4 4.56 4.4 4.56 4.4 4.56 4.4 4.56 4.4 4.56 4.4 4.56 4.4	6 17 6 4.66 6 4.66 6 4.65 6 4.66 6 4.66 6 4.66 6 4.66 6 4.66 6 4.66 6 4.66 6 4.66 6 4.66 6 4.66	18 4.65 4.66 4.65 4.66 4.66 4.66 4.66 4.66	19 4.68 4.65 4.65 4.65 4.65 4.65 4.65 4.65 4.65	20 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	21 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	22 4.66 4.66 4.65 4.65 4.65 4.65 4.65 4.66 4.66	23 4.55 4.55 4.65 4.65 4.66 4.65 4.66 4.65 4.65	24 4.66 4.65 4.65 4.65 4.65 4.65 4.65 4.6	25 4.66 4.65 4.66 4.66 4.66 4.66 4.66 4.6	28 4.66 4.65 4.65 4.65 4.65 4.65 4.65 4.65	27 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	28 4,65 4,65 4,66 4,66 4,66 4,66 4,66 4,66	23 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	30 4.66 4.56 4.56 4.55 4.65 4.65 4.65 4.65
1 1 2 13 14 15	1 5.00 5.00 1 4.99 1 4.99 1 4.99 1 4.97 1 4.97 1 4.97 1 4.97	4.92 4.92 4.92 4.93 4.93 4.93 4.83 4.83 4.83 4.83 4.83 4.83 4.83	4.83 4.82 4.82 4.81 4.81 4.81 4.80 4.80 4.80 4.79	ST.NO 4.77 4.77 4.76 4.76 4.76 4.75 4.75 4.75 4.75 4.75 4.74 4.74 4.74 4.74 4.74	4-130 5 4.73 4.73 4.73 4.73 4.73 4.72 4.72 4.72 4.72 4.72 4.72 4.72 4.72 4.72 4.72	5MITH 64.81 4.85 4.86 4.85 4.86 4.89 4.99 4.92 4.92 4.93 4.93 4.93	4'S BRI 4.94 4.93 4.93 4.93 4.93 4.93 4.93 4.83 4.83 4.83 4.84 4.84 4.84 4.84 4.8	8 4 .84 4 .84 4 .84 4 .85 4 .85 4 .85 4 .85 4 .85 4 .85 4 .86 4 .8	4.90 4.90 4.90 4.90 4.89 4.89 4.89 4.89 4.89 4.89 4.89	1091 100 4.89 4.69 4.69 4.89 4.89 4.89 4.89 4.89 4.89 4.89 4.8	11 4,90 4,90 4,90 4,90 4,91 4,91 4,91 4,92 4,92 4,92 4,93 4,93 4,93 4,93	12 4.94 4.94 4.94 5.33 4.65 4.66 4.66 4.66 4.66 4.66 4.66	13 4.56 4 4.65 4 4.66 4 4.66 4 4.65 4 4.65 4 4.65 4 4.66 4 4.66 4 4.66 4	14 	15 4.66 4.4 4.66 4.4	6 17 6 4.66 5 4.65 6 4.65 6 4.65 5 4.66 6 4.65 6 4.65 6 4.65 6 4.65 6 4.65 6 4.65 6 4.65	18 4.65 4.66 4.65 4.66 4.66 4.66 4.66 4.66	19 4.66 4.65 4.65 4.65 4.66 4.66 4.66 4.66	20 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	21 4.66 4.68 4.68 4.66 4.66 4.66 4.66 4.66	22 4.66 4.66 4.65 4.65 4.65 4.65 4.65 4.66 4.66	23 4.65 4.65 4.65 4.65 4.66 4.66 4.66 4.66	24 4.66 4.65 4.65 4.65 4.65 4.65 4.65 4.6	25 4.66 4.65 4.65 4.65 4.65 4.65 4.65 4.6	28 4.66 4.68 4.68 4.65 4.65 4.65 4.66 4.66 4.66 4.66 4.66	27 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	28 4.65 4.65 4.66 4.66 4.66 4.66 4.66 4.66	29 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	30 4.66 4.56 4.66 4.65 4.65 4.65 4.65 4.65
1 1 2 3 15 15 15 15 15 15 15 15 15 15 15 15 15	YER MA 1 5.00 5.00 5.00 4.99 4.93 4.93 4.97 4.97 4.97 4.97 4.97 4.97	4.92 4.92 4.92 4.91 4.90 4.90 4.83 4.83 4.83 4.83 4.83 4.84	4.83 4.82 4.82 4.81 4.81 4.81 4.80 4.80 4.80 4.73 4.73	ST.MO 4.77 4.77 4.76 4.76 4.76 4.76 4.76 4.76	4-130 5 4.73 4.73 4.73 4.73 4.72 4.72 4.72 4.72 4.72 4.72 4.72 4.72 4.73 4.73 4.73	5MI1H 6 4.81 4.82 4.84 4.85 4.86 4.89 4.90 4.91 4.92 4.93 4.94 4.94 4.94	4'S BRI 4.94 4.93 4.93 4.93 4.93 4.93 4.93 4.83 4.83 4.83 4.84 4.84 4.85 4.86 4.86 4.86 4.86	8 4 84 4 84 4 84 4 84 4 85 4 85 4 85 4	4.90 4.90 4.90 4.99 4.89 4.89 4.89 4.89 4.89 4.89 4.89	1091 10 4.89 4.69 4.69 4.89 4.89 4.89 4.89 4.89 4.89 4.89 4.8	11 4.90 4.90 4.90 4.91 4.91 4.91 4.92 4.92 4.93 4.93 4.93	12 4.94 4.94 4.94 5.33 4.65 4.66 4.66 4.66 4.66 4.66 4.66	13 4.66 4 4.66 4	14 	15 4.65 4.4 4.66 4.4	6 17 6 4.66 6 4.66	18 4.65 4.66 4.65 4.65 4.66 4.66 4.66 4.66	19 4.66 4.65 4.65 4.65 4.66 4.66 4.66 4.66	20 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	21 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	22 4.86 4.86 4.66 4.65 4.65 4.66 4.66 4.66 4.66 4.6	23 4.65 4.65 4.65 4.66 4.66 4.66 4.66 4.66	24 4.66 4.65 4.65 4.65 4.65 4.65 4.65 4.6	25 4.66 4.65 4.65 4.65 4.65 4.65 4.65 4.6	28 4.66 4.65 4.65 4.65 4.65 4.65 4.66 4.66	27 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	28 4.65 4.66 4.66 4.66 4.66 4.66 4.66 4.66	29 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.66	30 4.66 4.56 4.65 4.65 4.65 4.65 4.65 4.65
1 2 3 3 4 5 6 7 8 9 10 11 12 13 14 15 15 15 17	YER MA 1 1 5.00 1 5.00 1 5.00 1 4.99 1 4.98 1 4.98 1 4.98 1 4.97 1 4.97 1 4.97 1 4.97 1 4.97	4.92 4.92 4.92 4.91 4.90 4.90 4.83 4.83 4.83 4.83 4.83 4.83 4.83	YEL 3 4.83 4.82 4.81 4.81 4.81 4.81 4.80 4.80 4.73 4.79 4.73	ST.NO 4.77 4.71 4.76 4.76 4.75 4.75 4.75 4.75 4.75 4.75 4.74 4.74	4-130 5 4.73 4.73 4.73 4.73 4.73 4.72 4.72 4.72 4.72 4.72 4.72 4.72 4.72 4.73 4.74 4.74 4.75 4.76 4.76 4.77 4.76 4.77 4.78 4.79 4.79 4.79 4.70 4.7	5MI1H 6 4.81 4.82 4.84 4.85 4.86 4.87 4.89 4.91 4.92 4.93 4.93 4.94 4.94	1'S BRI 7 1 4.94 4.93 4.93 4.93 4.93 4.92 4.92 4.92 4.92 4.89 4.89 4.89 4.88 4.87 4.87 4.87	8 84 84 84 84 84 84 85 8 8 8 8 8 8 8 8 8	4.90 4.90 4.89 4.89 4.89 4.89 4.89 4.89 4.89 4.89	1001 4.893 4.893 4.893 4.893 4.894 4.894 4.894 4.894 4.894 4.894 4.894 4.894 4.894 4.894 4.894 4.894 4.894 4.894 4.894 4.894 4.894 4.895 4.8	11 4.90 4.90 4.90 4.90 4.91 4.91 4.91 4.92 4.92 4.92 4.93 4.93 4.93	12 4.94 4.94 4.94 5.33 4.65 4.66 4.66 4.66 4.66 4.66 4.66 4.66	13 4.65 4 4.65 4	14 	15 4.65 4.4 4.65 4.4 4.65 4.4 4.65 4.4 4.65 4.4 4.65 4.4 4.65 4.4 4.65 4.4 4.6 4.6 4.6 4.4 6.6 6.4 4.6 6 4.4 6.4 6	6 17 6 4.66 6 4.66	18 4.65 4.65 4.65 4.65 4.66 4.66 4.66 4.66	19 4.66 4.66 4.65 4.65 4.65 4.65 4.66 4.66	20 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	21 4.66 4.66 4.66 4.66 4.65 4.65 4.65 4.65	22 4.66 4.66 4.65 4.65 4.65 4.66 4.65 4.66 4.66	23 4.55 4.55 4.65 4.65 4.65 4.65 4.65 4.65	24 4.66 4.66 4.65 4.65 4.65 4.65 4.65 4.6	25 4.66 4.65 4.65 4.65 4.65 4.65 4.65 4.6	28 4.66 4.65 4.65 4.65 4.65 4.65 4.66 4.66	27 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	28 LEV/ 28 4.65 4.65 4.66 4.66 4.66 4.65 4.65 4.65	29 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	30 4.66 4.66 4.66 4.65 4.65 4.65 4.65 4.66 4.66
1	1VER HA 1 5.00 1 5.00 1 5.00 1 4.99 1 4.98 1 4.97 1 5.97 1 5.97 1 6.97 1 7 8 9 8 9 8 9 8 9 8 9 8 9 8 9 8 9 8 9 8	4.92 4.92 4.92 4.91 4.90 4.83 4.83 4.83 4.83 4.83 4.83 4.83 4.83	4.83 4.82 4.82 4.81 4.81 4.81 4.80 4.80 4.73 4.79 4.79 4.79	51.NO 4.77 4.77 4.76 4.76 4.75 4.75 4.75 4.75 4.75 4.75 4.75 4.75	4-130 5 4.73 4.73 4.73 4.73 4.73 4.72 4.72 4.72 4.72 4.72 4.72 4.73 4.73 4.73 4.73 4.74 4.74 4.72 4.72 4.72 4.73 4.73 4.73 4.73 4.73 4.73 4.73 4.73 4.73 4.72 4.72 4.72 4.72 4.72 4.72 4.72 4.72 4.73 4.73 4.73 4.73 4.73 4.73 4.73 4.73 4.72 4.74	5MITH 6 4.81 4.82 4.85 4.86 4.87 4.89 4.92 4.93 4.93 4.93 4.94 4.94 4.94 4.95	4'S BRI 7 4.94 4.93 4.93 4.93 4.93 4.92 4.92 4.92 4.99 4.89 4.89 4.89 4.89 4.89 4.89 4.89	8 8 4 84 4 84 4 84 4 85 4 85 4 85 4 86 4 87 4 88 4 88 4 88 4 88 4 88 4 88	APR./ 9 4.90 4.90 4.89 4.89 4.89 4.89 4.90 4.89 4.89 4.89 4.89	1991 10 4.89 4.89 4.89 4.89 4.89 4.89 4.89 4.89	11 4.90 4.90 4.90 4.91 4.91 4.91 4.92 4.92 4.92 4.93 4.93 4.93 4.93	12 4.94 4.94 4.94 5.33 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4	13 4.56 4.65 4.66 4.66 4.66 4.66 4.66 4.66	14 	15 4.66 4.4 4.66 4.4 4.66 4.4 4.66 4.4 4.66 4.4 4.66 6.4 4.66 4.4 4.66 4.4	6 177 6 4.66 6 4.65	18 4.65 4.65 4.65 4.65 4.65 4.65 4.65 4.65	19 4.66 4.65 4.65 4.65 4.65 4.65 4.66 4.66	20 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	21 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	222 4.66 4.66 4.66 4.65 4.65 4.66 4.66 4.66	23 4.55 4.65 4.65 4.66 4.66 4.66 4.66 4.66	24 4.66 4.66 4.66 4.66 4.65 4.65 4.65 4.6	25 4.66 4.65 4.66 4.66 4.66 4.66 4.66 4.6	28 4.66 4.65 4.65 4.65 4.65 4.65 4.66 4.66	27 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	28 LEV/ 28 4.65 4.65 4.65 4.66 4.65 4.65 4.65 4.65	29 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	30 4.66 4.56 4.66 4.65 4.65 4.65 4.65 4.65
1 2 3 4 4 5 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 19	1 1 5.00 5.00 1 5.00 1 4.99 4.99 4.99 4.97 4.97 4.97 4.97 4.97 4.97 4.97 4.97 4.97 4.97 4.97 4.95 4	4.92 4.92 4.92 4.91 4.90 4.90 4.83 4.83 4.83 4.87 4.87 4.87 4.87 4.87 4.87 4.87 4.87	4.83 4.82 4.82 4.82 4.81 4.81 4.80 4.80 4.73 4.79 4.79 4.79 4.79 4.79	ST.NO 4.77 4.77 4.76 4.76 4.75 4.75 4.75 4.75 4.75 4.74 4.74 4.74 4.74	4-130 5 4.73 4.73 4.73 4.73 4.73 4.73 4.72 4.72 4.72 4.72 4.72 4.72 4.72 4.72 4.72 4.72 4.72 4.72 4.72 4.72 4.72 4.72 4.73 4.73 4.74 4.74 4.74 4.74 4.74 4.74 4.74 4.75 4.76 4.77 4.78 4.79 4.	5MITH 6 4.81 4.82 4.85 4.85 4.86 4.87 4.89 4.90 4.93 4.93 4.93 4.94 4.95 4.95 4.95	4.94 4.93 4.93 4.93 4.93 4.92 4.92 4.92 4.91 4.80 4.80 4.81 4.81 4.81 4.81 4.81 4.81 4.81 4.81	8 4 84 4 84 4 84 4 85 4 86 4 86 4 86 4 8	APR./ 9 4.90 4.90 4.69 4.69 4.69 4.89 4.89 4.90 4.89 4.89 4.89 4.89 4.89	1991 10 4.89 4.89 4.89 4.89 4.89 4.89 4.89 4.89	11 4.90 4.90 4.90 4.91 4.91 4.91 4.92 4.92 4.93 4.93 4.93 4.93 4.93	12 4.94 4.94 4.94 4.94 4.66 4.66 4.66 4.66	13 4.66 4 4.65 4 4.66 4 4.66 4 4.66 4 4.65 6 4.65 4 4.65 6 4.65 6 6 4.65 6 6 4.65 6 6 4.65 6 6 4.65 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	14 .56 .55 .55 .56 .56 .56 .56 .56	15 4.66 4.4 6.66 4.4 4.6 6.4 4.4 6.6 4.4 4.6 6.4 4.4 6.6 4.4 4.6 6.4 4.4 6.6 4.4 4.6 6.4 4.4 6.6 4.4 4.6 6.4 4.4 6.6 4.4 4.6 6.4 4.4 6.6 4.4 4.6 6.4 4.4 6.6 4.4 4.6 6.4 4.4 6.6 4.4 4.6 6.4 4.4 6.4 6	6 17 6 4.66 5 4.66 6 4.65 6 4.65 6 4.66 6 4.66	18 4.65 4.66 4.66 4.66 4.66 4.66 4.66 4.66	19 4.66 4.65 4.65 4.65 4.65 4.65 4.66 4.66	20 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	21 4,66 4,66 4,66 4,66 4,66 4,66 4,66 4,6	22 4.66 4.66 4.65 4.65 4.65 4.65 4.66 4.66	23 4.65 4.65 4.66 4.66 4.66 4.66 4.66 4.66	24 4.66 4.66 4.66 4.66 4.66 4.65 4.65 4.6	25 4.66 4.65 4.65 4.65 4.65 4.65 4.66 4.66	28 4.66 4.65 4.65 4.65 4.65 4.65 4.66 4.66	27 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	28 LEV 28 4.65 4.65 4.65 4.65 4.65 4.65 4.65 4.65	29 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	30 4.66 4.56 4.66 4.65 4.65 4.65 4.65 4.65
1 2 3 4 5 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 20	1 1 5 .00	4.92 4.92 4.92 4.92 4.91 4.90 4.83 4.83 4.83 4.83 4.83 4.83 4.83 4.83	4.83 4.82 4.82 4.82 4.81 4.80 4.80 4.80 4.73 4.79 4.79 4.79 4.78 4.78	\$1.00 4.77 4.77 4.76 4.76 4.76 4.75 4.75 4.75 4.75 4.74 4.74 4.74 4.74	4-130 5 4.73 4.73 4.73 4.73 4.72 4.72 4.72 4.72 4.72 4.72 4.73 4.73 4.74 4.74 4.74 4.74 4.74 4.74	5MITH 6 4.81 4.82 4.84 4.85 4.86 4.87 4.93 4.93 4.93 4.94 4.95 4.95 4.95 4.95	4'S BRI 7 4.94 4.93 4.93 4.93 4.93 4.93 4.93 4.93 4.93 4.93 4.89	8 4 84 4 84 4 84 4 84 4 85 4 85 4 85 4	4.90 4.90 4.90 4.90 4.89 4.89 4.89 4.89 4.89 4.89 4.89 4.89	1991 10 4.89 4.89 4.89 4.89 4.89 4.89 4.89 4.89	11 4.90 4.90 4.90 4.91 4.91 4.91 4.91 4.92 4.92 4.93 4.93 4.93 4.93 4.94	12 4.94 4.94 4.94 5.33 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4	13 4.66 4 4.66 4 4.66 4 4.65 4 4.65 4 4.65 4 4.65 4 4.66 4	14 .56 .55 .55 .56 .56 .56 .56 .56	15 4.55 4.4 4.65 4.4	16 17 16 4.66 16 4.66	18 4.65 4.66 4.66 4.66 4.66 4.66 4.66 4.66	19 4.66 4.65 4.65 4.65 4.65 4.65 4.65 4.66 4.66	20 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	21 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	22 4.66 4.66 4.66 4.66 4.65 4.66 4.66 4.66	23 4.65 4.65 4.65 4.66 4.66 4.66 4.66 4.66	24 4.66 4.68 4.66 4.66 4.66 4.66 4.66 4.6	25 4.66 4.65 4.66 4.65 4.66 4.65 4.66 4.66	26 4.66 4.65 4.65 4.65 4.65 4.65 4.66 4.66	27 4.68 4.66 4.66 4.66 4.66 4.65 4.66 4.65 4.66 4.65 4.66 4.65 4.66 4.65 4.66 4.65 4.66 4.65	28 LEVV 28 4.55 4.65 4.65 4.65 4.65 4.65 4.65 4.65	29 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	30 4.66 4.56 4.56 4.55 4.65 4.65 4.65 4.65
1 1 2 3 3 4 4 5 5 6 7 7 8 8 9 10 11 12 13 14 15 16 17 18 19 27 21 21 21 21 21 21 21 21 21 21 21 21 21	1 1 5.00 1 5.00 1 5.00 1 4.99 1 4.99 1 4.99 1 4.99 1 4.99 1 4.99 1 4.97 1 4.97 1 4.97 1 4.97 1 4.97 1 4.95 1 4.95 1 4.95 1 4.95 1 4.95 1 4.95 1 4.95 1 4.95	4.92 4.92 4.92 4.93 4.90 4.89 4.89 4.88 4.88 4.88 4.88 4.88 4.88	YEL 4.83 4.82 4.82 4.83 4.81 4.81 4.80 4.80 4.79 4.79 4.79 4.78 4.78 4.78 4.78	\$1.00 4.77 4.76 4.76 4.76 4.76 4.75 4.75 4.75 4.75 4.75 4.74 4.74 4.74	4-130 5 4.73 4.73 4.73 4.73 4.72 4.72 4.72 4.72 4.72 4.72 4.72 4.73 4.74 4.74 4.74 4.74 4.74 4.74 4.74 4.74 4.74 4.74 4.74 4.74 4.74 4.74 4.74 4.74 4.74 4.74 4.74 4.75 4.76 4.76 4.77 4.78 4.79 4.	5MITH 66 4.81 4.82 4.84 4.85 4.85 4.86 4.89 4.91 4.92 4.92 4.93 4.94 4.95 4.95 4.95 4.95 4.95 4.95 4.95	4'S BRI 4.94 4.93 4.93 4.93 4.93 4.93 4.93 4.93 4.93 4.93 4.83 4.85 4.85 4.85 4.85 4.85	00€ 8 4 84 4 84 4 84 4 84 4 84 4 85 4 85 4	4.90 4.90 4.90 4.89 4.89 4.89 4.89 4.90 4.89 4.90 4.89 4.89 4.89 4.89 4.89	1991 10 4.89 4.89 4.89 4.89 4.89 4.89 4.89 4.89	11 4.90 4.90 4.90 4.91 4.91 4.91 4.92 4.92 4.93 4.93 4.93 4.94 4.94	12 4.94 4.94 4.94 5.33 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4	13 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	14 . 666 . 656 . 6	15 4.55 4.4 4.5 5.4 4.4 5.5 4.4 4.5 5.4 4.4 5.5 4.4 4.5 5.4 4.4 5.5 4.4 4.5 5.4 4.4 5.5 4.4 4.5 5.4 4.4 5.5 4.4 4.5 5.4 4.4 5.5 4.4 4.5 5.4 4.4 5.5 4.4 4.5 5.4 4.4 5.5 4.4 4.5 5.4 4.4 5.5 4.4 4.5 5.4 4.4 5.5 4.4 4.5 5	16 177 16 4.66 16 4.66	18 4.65 4.65 4.65 4.66 4.66 4.66 4.66 4.66	19 4.68 4.65 4.65 4.65 4.65 4.66 4.66 4.66 4.66	20 4.56 4.56 4.66 4.66 4.66 4.66 4.66 4.66	21 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	22 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.	23 4.55 4.55 4.65 4.65 4.65 4.66 4.65 4.66 4.66	24 4.66 4.66 4.65 4.65 4.65 4.65 4.65 4.6	25 4.66 4.65 4.66 4.65 4.65 4.66 4.66 4.6	26 4.66 4.65 4.65 4.65 4.65 4.65 4.66 4.66	27 4.66 4.66 4.66 4.65 4.65 4.65 4.65 4.65	28 LEV/2 28 4.65 4.65 4.66 4.66 4.66 4.66 4.66 4.66	29 4.66 4.65 4.66 4.66 4.66 4.66 4.66 4.66	30 4 66 4 56 4 66 4 66 4 66 4 66 4 66 4 66
1 2 3 4 4 5 5 6 7 7 8 8 9 10 11 12 13 14 15 16 17 18 19 27 12 22 22 22	1 1 5.00 5.00 5.00 1.99	4.92 4.92 4.92 4.93 4.90 4.83 4.83 4.83 4.83 4.83 4.87 4.87 4.87 4.87 4.87 4.87 4.87 4.87	YEL 3 4.83 4.82 4.83 4.81 4.81 4.80 4.80 4.80 4.79 4.79 4.79 4.78 4.78 4.78 4.78	\$1.00 4.77 4.77 4.76 4.76 4.75 4.75 4.75 4.75 4.75 4.75 4.74 4.74	4.73 4.73 4.73 4.73 4.73 4.73 4.72 4.72 4.72 4.72 4.72 4.72 4.72 4.73 4.74 4.74 4.74 4.74 4.74 4.74 4.74	5MITH 64.81 4.82 4.84 4.85 4.85 4.87 4.89 4.91 4.92 4.92 4.92 4.93 4.94 4.95 4.95 4.95 4.95 4.95 4.95 4.95	4'S 881 4.93 4.93 4.93 4.93 4.93 4.93 4.90 4.89 4.89 4.88 4.85 4.85 4.85	00€ 8 4 84 4 84 4 84 4 84 4 84 4 84 4 85 4 8	4.90 4.90 4.90 4.89 4.89 4.89 4.89 4.90 4.89 4.89 4.89 4.89 4.89 4.89 4.89 4.89	1991 10 4.89 4.89 4.89 4.89 4.89 4.89 4.89 4.89	11 4.90 4.90 4.90 4.91 4.91 4.91 4.92 4.92 4.93 4.93 4.93 4.93 4.93 4.94 4.94 4.94	12 4.94 4.94 4.94 5.33 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4	13 4.56 4 4.65 4 4.66 4 4.66 4 4.65 4 4.65 4 4.65 4 4.65 4 4.65 4 4.66 6 4.66 6 6 4.66 6 6 4.66 6 6 4.66 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	14 1.66 .56 .56 .56 .56 .56 .56 .56 .66 .66	15 4.65 4.4 4.65 4.4	6 177 6 4.66 6 4.65 6 6 6 4.65 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	18 4.65 4.66 4.66 4.66 4.66 4.66 4.66 4.66	19 4.66 4.65 4.65 4.65 4.66 4.66 4.66 4.66	20 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	21 4.66 4.65 4.65 4.65 4.65 4.65 4.65 4.65	22 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.	23 4.65 4.65 4.65 4.66 4.66 4.66 4.66 4.66	24 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.	25 4.66 4.65 4.65 4.65 4.65 4.66 4.66 4.6	26 4.66 4.65 4.65 4.65 4.65 4.65 4.66 4.66	27 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	28 4.65 4.65 4.66 4.66 4.66 4.66 4.66 4.66	29 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	30 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6
1	YER MA 1 1 5.00 1 5.00 1 5.00 1 4.99 1 4.97 1 4.97 1 4.97 1 4.97 1 4.97 1 4.97 1 4.97 1 4.97 1 4.97 1 4.98 1 4.99 1 5.99 1 5.	1 4.92 4.92 4.92 4.92 4.93 4.93 4.93 4.83 4.83 4.83 4.83 4.83 4.83 4.83 4.8	4.83 4.82 4.82 4.81 4.81 4.81 4.80 4.80 4.79 4.79 4.79 4.79 4.78 4.78 4.78 4.78 4.78 4.78 4.78 4.78	ST.MO 4.77 4.77 4.76 4.76 4.76 4.75 4.75 4.75 4.75 4.74 4.74 4.74 4.74	4-130 5 4.73 4.73 4.73 4.73 4.72 4.72 4.72 4.72 4.72 4.72 4.72 4.72 4.73 4.74	5MITH 64.81 4.82 4.85 4.85 4.85 4.87 4.92 4.93 4.93 4.94 4.95 4.95 4.95 4.95 4.95 4.95	4'S 881 7 4.94 4.93 4.93 4.93 4.93 4.91 4.91 4.91 4.91 4.91 4.91 4.91 4.91 4.93	00€ 8 8 4 84 4 84 4 84 4 85 4 85 4 85 4 85 4 86 4 86 4 86 4 87 4 89 4	4.90 4.90 4.90 4.89 4.89 4.89 4.89 4.89 4.89 4.89 4.89	1991 10 4.89 4.89 4.89 4.89 4.89 4.89 4.89 4.89	11 4.90 4.90 4.90 4.91 4.91 4.91 4.92 4.92 4.93 4.93 4.93 4.93 4.94 4.94 4.94 4.94	12 4.94 4.94 4.94 4.94 4.66 4.66 4.66 4.66	13 4.66 4 4.66 6 4.66 6 6 4.66 6 6 4.66 6 6 4.66 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	14 	15 4.55 4.4 4.5 5.4 4.5 5.4 4.4 5.5 4.4 4.5 5.4 4.4 5.5 4.4 4.5 5.4 4.4 5.5 4.4 4.5 5.4 4.4 5.5 4.4 4.5 5.4 4.4 5.5 4.4 4.5 5.4 4.4 5.5 4.4 4.5 5.4 4.5 5.4 4.4 5.5 4.4 4.5 5.4 4.5 5.4 4.4 5.5 4.5 5.4 5.4	16 4.66 6 6 4.66	18 4.65 4.65 4.66 4.66 4.66 4.66 4.66 4.66	19 4.66 4.65 4.65 4.66 4.66 4.66 4.66 4.66	20 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	21 4.66 4.65 4.65 4.65 4.65 4.65 4.65 4.65	22 4.86 4.86 4.66 4.65 4.66 4.66 4.66 4.66 4.66 4.6	23 4.65 4.55 4.66 4.66 4.66 4.66 4.66 4.66	24 4.66 4.65 4.65 4.65 4.65 4.65 4.65 4.6	25 4.66 4.65 4.66 4.66 4.66 4.66 4.66 4.6	28 4.66 4.58 4.65 4.65 4.65 4.66 4.66 4.66 4.66 4.66	27 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	28 LEVY 28 4.65 4.66 4.66 4.66 4.66 4.66 4.66 4.66	29 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	30 4.66 4.56 4.65 4.65 4.65 4.65 4.65 4.65
1	1	4.92 4.92 4.92 4.91 4.90 4.89 4.89 4.88 4.88 4.87 4.87 4.85 4.87 4.85 4.86 4.83 4.83 4.83 4.83 4.83 4.83 4.83 4.83	4.83 4.82 4.82 4.81 4.81 4.81 4.80 4.80 4.70 4.70 4.73 4.78 4.78 4.78 4.78 4.78 4.78 4.78 4.78	51.NO 4.77 4.77 4.76 4.76 4.75 4.75 4.75 4.75 4.75 4.75 4.74 4.74	4.73 4.73 4.73 4.73 4.73 4.73 4.72 4.72 4.72 4.72 4.72 4.72 4.73 4.74 4.75 4.73 4.74 4.74 4.75 4.74 4.74 4.75 4.74 4.74	5MITH 6 4.81 4.82 4.85 4.86 4.87 4.89 4.92 4.92 4.92 4.93 4.94 4.95 4.95 4.95 4.95 4.95	4'S BRI 4.94 4.93 4.93 4.93 4.93 4.91 4.91 4.90 4.89 4.89 4.89 4.86 4.85 4.85 4.85 4.85 4.85 4.85 4.85 4.85	00E 8 8 4 84 4 84 4 84 4 85 4 85 4 85 4 85	APR./ 9 4.90 4.90 4.89 4.89 4.89 4.89 4.89 4.89 4.89 4.89	1991 10 4.89 4.	111 4.90 4.90 4.90 4.91 4.91 4.91 4.92 4.93 4.93 4.93 4.93 4.94 4.94 4.94 4.94	12 4.94 4.94 4.94 4.66 4.66 4.66 4.66 4.66	13 4.66 4.	14 	15 4.65 4.4 4.65 6.4 4.4 6.6 6.4 4.4 6.6 6.4 4.6 6.6 4.4 6.6 6.4 4.4 6.6 6.4 6.4 6.4 6.4 6.4 6.4 6.4 6.4 6.4 6.4	16 17 16 4.66 16 4.66	18 4.65 4.66 4.66 4.66 4.66 4.66 4.66 4.66	19 4.66 4.65 4.65 4.65 4.65 4.66 4.66 4.66	20 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.6	21 4.66 4.68 4.68 4.66 4.65 4.65 4.65 4.65 4.65 4.66 4.66	22 4.66 4.66 4.66 4.65 4.65 4.65 4.66 4.66	23 4.65 4.65 4.65 4.65 4.66 4.66 4.66 4.66	24 4.66 4.66 4.66 4.66 4.66 4.65 4.65 4.6	25 4.66 4.65 4.66 4.65 4.65 4.66 4.66 4.6	26 4.66 4.65 4.65 4.65 4.65 4.66 4.66 4.6	27 4.66 4.66 4.66 4.66 4.65 4.66 4.65 4.66 4.66	28 4.65 4.66 4.66 4.66 4.66 4.66 4.66 4.66	29 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.66	30 4.66 4.56 4.66 4.65 4.65 4.65 4.65 4.66 4.65 4.66 4.65 4.66 4.66
11 2 3 3 4 4 5 5 6 7 8 9 10 111 122 133 14 15 15 16 17 18 19 27 22 23 24 AN	YER MA 1 5.00 5.00 5.00 5.00 4.99 4.98 4.97 4.97 4.97 4.97 4.97 4.95 4.94 4.94 4.93 4.93	4.92 4.92 4.92 4.93 4.90 4.90 4.89 4.89 4.89 4.83 4.87 4.87 4.85 4.85 4.85 4.83 4.83 4.83 4.83 4.83 4.83 4.83 4.83	YEL 3 4 82 4 82 4 82 4 82 4 82 4 82 4 82 4	51.NO 4.77 4.77 4.76 4.76 4.75 4.75 4.75 4.75 4.75 4.75 4.74 4.74	4.73 4.73 4.73 4.73 4.73 4.73 4.73 4.72 4.72 4.72 4.72 4.72 4.72 4.72 4.72	5MITH 6 4.81 4.82 4.84 4.85 4.86 4.89 4.91 4.91 4.92 4.93 4.94 4.95 4.95 4.95 4.95 4.94	4'S 881 4.94 4.93 4.93 4.93 4.93 4.92 4.92 4.91 4.91 4.91 4.86 4.86 4.85 4.8	00€ 8 4.84 4.84 4.84 4.84 4.85 4.85 4.85 4.85	APR./ 9 4.90 4.90 4.89 4.89 4.89 4.89 4.89 4.89 4.89 4.89	1991 10 4.89 4.69 4.89 4.89 4.89 4.89 4.89 4.89 4.89 4.8	11 4.90 4.90 4.90 4.91 4.91 4.91 4.92 4.92 4.92 4.93 4.93 4.93 4.93 4.94 4.94 4.94 4.94	12 4.94 4.94 4.94 4.94 4.65 4.66 4.66 4.66 4.66 4.66 4.66 4.6	13 4.66 4.65 4.66	14 .66 .55 .55 .55 .55 .55 .55 .55	15 4.65 4.4 6.6 4.4 6.	6 17 6 4.66 6 6 6 4.66 6 6 4.66 6 6 4.66 6 6 4.66 6 6 6 4.66 6 6 6 4.66 6 6 6 4.66 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	18 4.65 4.66 4.66 4.66 4.66 4.66 4.66 4.66	19 4.66 4.65 4.65 4.65 4.65 4.65 4.66 4.66	20 4.66 4.66 4.65 4.65 4.65 4.66 4.66 4.66	21 4.66 4.65 4.65 4.65 4.65 4.65 4.65 4.65	22 4.66 4.66 4.66 4.66 4.66 4.66 4.66 4.	23 4.65 4.65 4.65 4.65 4.65 4.65 4.66 4.66	24 4.66 4.66 4.66 4.65 4.65 4.65 4.65 4.6	25 4.66 4.65 4.65 4.66 4.65 4.66 4.65 4.66 4.66	26 4.66 4.65 4.65 4.65 4.65 4.65 4.66 4.66	[HAT 27 4.66 4.66 4.66 4.65 4.66 4.65 4.66 4.65 4.66 4.65 4.65	28 4.65 4.65 4.66 4.66 4.66 4.66 4.66 4.66	29 4.66 4.66 4.66 4.66 4.66 4.66 4.65 4.65	30 4.66 4.56 4.65 4.65 4.65 4.65 4.65 4.65

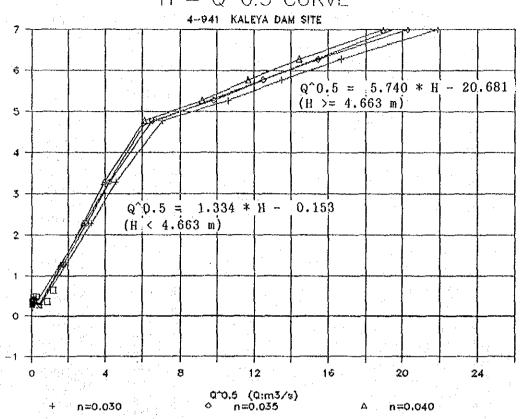
Table-4.5 DB-11 : Daily Well Water Level

annu Janna	SEP	AUG	JUL	JUN	MAY	APR	MAR			DEC	EBBEBBBB VOV	OCT	DAY
											HOY HOY		
	7.73	7.16	6.43	5.82	5.26	4.76	4.97	7.14	9.70	9.37	9.05	8.61	1
	7.75	7.16	6.47	5.86	5.25	4.79	4.94	7.08	9.64	9.39	9.06	8:62	2
	7.77	7.17	6.49	5.88	5.23	4.79	4 94	7.05		9.39	9.09	8.62	3
	7.80	7.20	6.50	5.86	5.29	4.81	4.95	7.06	9.70	9.41	9.10	8.65 8.64	4 5
	7.81	7.22	5.53	5.89	5.32	4.82	4.95	7.02	9.67	9,43	9.09	8.64	6
	7.82		6.57	5.93	5.36	4.81	4.95	6.85	9.72	9.41	9.08	8.67	7
	7.81	7.25	6.61	5.95	5.32	4.83	4.96	6.55	9.68	9.45	9.09 9.11	8.66	8
	7.86	7.24	6.64	5.94	5.37 5.38	4.79 4.81	4.97 4.99	6.33 6.08	9.59	9.47	9.13	8.75	9
	7.87	7.29 7.31	6.67	5.96 5.98	5.41	4.82	4.98	6.00		9.47	9.12	8.72	10
	7.91	7.36	6.69	5.96	5.41		4.98	5.85		9.47	9.19	8.73	11
	7.93	7.36	6.70	5.94	5.44	4 87	5.01	5.78	9.51		9.21	8.75	12
	7.91	7.38	6.70	6.00	5.45	4.92	5.00	5.67	9.49		9.21	8.75	13
	7.96	7.39	6.69	6.07	5.48	4.93	5.02	5.56	9.52	9.52	9.20	8.78	14
	7.98	7,40	6.80	6.09	5.50	4.94	5.04	5.31	9.49	9.53	9.17	8.78	15
	8.00	7.46	6.82	6.12	. 5.50		5.02	5.17	9.54	9.56	9.22	8.80	16
	8.00	7.44	6.84		5.52	4.93	5.04	5,09		9.52		8.82	17
	8.02	7.45	6.86	6.13	5.54	5.01	5.05	5.06	9.66	9.40	9.27	8.84	18
	8.05	7.48	6.86	6.16	5.56	5.06	5.03	5.05	9.56	9.57	9 31	8.84	19
	8.07	7.56	6.87	6.19	5.58	5.05	5.09	4.99	9.58	9.55	9.25	8.85	20
	8.08	7.55	6.86	6.22	5.60	5.03	5.07	4.99	9.32	9.53	9.34	8.87	21
	8.10	7.57	6.89	6.24	5.55	5.07	5.12	4.98	8.80	9.56	9.27	8.89	22
	8.11	7.58	6.92	6.25	5.66	5.09	5.09	4.97	8.37		9.28	8.91	23
	8.13	7.60		6.28	5.62		5.13	5.00		9.57	9.29	8.91	24
	8.15	7.62	6.98	6.33	5.67	5.14	5.10	4.98		9.65	9.31	8.90	25
	8.17	7.63	7.01	6.36	5.70	5.14	5.11	4.95	7.72	9.64	9.29	8.95	26
	8.21	7.65	7.03		5.72	5.16	4.92	4.94	7.69	9.68		8,95	27
	8.24	7.66	7.06		5.72	5 17	4.82	4.97	7.71	9.66	9.34	8.95	28
	8.26	7 68	7.08	6.41	5.75	5.21	4.80		7.68	9.66	9.35	8.97	29
	8.25	7.70	7.11	6.40	5.78	5.21	4.78		7.57		9.34	9.00	30
		7.76	7.14	Ů.	5.80		4.77	44,3	7.25	9.67		3.02	31
7,1	7.99	7.44	6.76	6.11	5.51	4.96	4.99	5.73	9.03	9.52	9.21	8.80	AN
9.7		7.76	7.14	6.41	5.80		5.13		9.72	9,68	9.35	9.02	١X.
4.7	7.73	7.16		5,82	5.23		4.77	4.94		9.37	9.05	8.61	N.
:====					=======	======	* # # # # # # # # # # # # # # # # # # #		========	=====		======	===
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1)1			19 cm (WWLe
	Level ([Water		Evening	1990/91		.**		Kanyilal		Well No1		
***		******		Evening	1990/91 ======	.====							==N=
ANNU	SEP	AUG	JUL	Evening ====== JUN	1990/91 ####### MAY	APR	MAR	FE8	JAN	DEC	NOV	OCT	==N≃ CAY
ANNU	SEP	AUG	JUL	Evening JUN 6.08	1990/91 ######## MAY ######## 5.45	APR 4.93	MAR 5.08	FE8 7.50	JAN 	DEC ====== 9.83	NOV 9,50	OCT	==N= DAY ==== 1
ANNU	SEP	AUG 7.63	JUL	Evening JUN 	1990/91 MAY 5.45	APR 4.93 4.95	MAR 5.08 4.99	FE8 7.50 7.29	JAN 9.86 9.80	DEC 9.83	NOV 9.50 9.57	OCT ====== 8.99 8.96	==N= DAY ===== 1 2
ANNU	SEP 8.12	AUG 7.63	JUL 6.85	Evening JUN 6.08	1990/91 MAY 5.45 5.39 5.52	APR 4.93 4.95 4.96	MAR 5.08 4.99 5.12	FEB 7.50 7.29 7.31	JAN 9.86 9.80 9.87	DEC 9.83 9.87 9.85	NOV 9.50 9.57 9.48	OCT 8.99 8.96 9.23	==N= DAY ==== 1 2 3
ANNU	SEP ====== 8.12 8.22	AUG 7.63 7.61	JUL 6.85 6.81 6.84 6.89	Evening JUN 6.08 6.15 6.12 6.13	1990/91 MAY 5.45 5.39 5.52 5.51	APR 4.93 4.95 4.96 4.99	MAR 5.08 4.99 5.12 5.07	FE8 7.50 7.29 7.31 7.21	JAN 9.86 9.80 9.87 9.82	DEC 9.83 9.87 9.85 9.86	NOV 9.50 9.57 9.48 9.54	OCT 8.99 8.96 9.23 9.06	==N= DAY ==== 1 2 3 4
ANNU	SEP 8.12 8.22 8.27	AUG 7.63 7.61 7.67	JUL 6.85 6.81 6.84	Evening JUN 6.08 6.15 6.12 6.13 6.17	1990/91 MAY 5.45 5.39 5.52 5.51 5.49	APR 4.93 4.95 4.96 4.99 4.88	MAR 5.08 4.99 5.12 5.07 5.05	7.50 7.29 7.31 7.21 7.13	JAN 9.86 9.80 9.87 9.82 9.76	DEC 9.83 9.87 9.85	NOV 9.50 9.57 9.48 9.54 9.65	OCT 8.99 8.96 9.23 9.06 8.66	==N= DAY ==== 1 2 3 4
ANNU	SEP 8.12 8.22 8.27 8.32	AUG 7.63 7.61 7.67 7.71	JUL 6.85 6.81 6.84 6.89	JUN 6.08 6.15 6.12 6.13 6.17 6.15	MAY 5.45 5.39 5.52 5.51 5.49 5.58	APR 4.93 4.95 4.96 4.99 4.88 5.01	MAR 5.08 4.99 5.12 5.07 5.05 5.04	FEB 7.50 7.29 7.31 7.21 7.13 6.99	JAN 9.86 9.80 9.87 9.82 9.76 9.86	DEC 9.83 9.87 9.85 9.86	NOV 9.50 9.57 9.48 9.54 9.65 9.58	OCT 8.99 8.96 9.23 9.06 8.66 9.09	N= 0AY 1 2 3 4 5
ANNU	SEP 8.12 8.22 8.27 8.32 8.25 8.46	AUG 7.63 7.61 7.67 7.71 7.69 7.68 7.73	JUL 6.85 6.81 6.84 6.89 6.95 6.91 6.89	Evening JUN 6.08 6.15 6.12 6.13 6.17 6.15 6.21	MAY 5.45 5.39 5.52 5.51 5.49 5.58	APR 4.93 4.95 4.96 4.99 4.88 5.01 5.03	MAR 5.08 4.99 5.12 5.07 5.05 5.04 5.09	FE8 7.50 7.29 7.31 7.21 7.13 6.99 6.60	JAN 9.86 9.80 9.87 9.82 9.76 9.86 9.83	DEC 9.83 9.87 9.85 9.86	NOV 9.50 9.57 9.48 9.54 9.65 9.58 9.59	OCT 8.99 8.96 9.23 9.06 8.66 9.09 9.13	=N= AY 1 2 3 4 5 6
ANNU	SEP 8.12 8.22 8.27 8.32 8.50 8.46 8.50	AUG 7.63 7.61 7.67 7.71 7.69 7.68 7.73 7.77	JUL 6.85 6.81 6.84 6.89 6.95 6.91 6.89 7.07	JUN 6.08 6.15 6.12 6.13 6.17 6.15 6.21 6.19	1990/91 MAY 5.45 5.39 5.52 5.51 5.49 5.58 5.57 5.55	APR 4.93 4.95 4.96 4.99 4.88 5.01 5.03 5.04	MAR 5.08 4.99 5.12 5.07 6.05 5.04 5.09 5.08	FE8 7.50 7.29 7.31 7.21 7.13 6.99 6.60 6.37	JAN 9.86 9.80 9.87 9.82 9.76 9.86 9.83 9.80	DEC 9.83 9.87 9.85 9.86	NOV 9.50 9.57 9.48 9.54 9.65 9.58 9.59	OCT 8.99 8.96 9.23 9.06 8.66 9.09 9.13 8.87	=N= AY 1 2 3 4 5 6 7 8
ANNU	SEP 8.12 8.22 8.27 8.32 8.32 8.46 8.50 8.54	AUG 7.63 7.61 7.67 7.71 7.69 7.68 7.73 7.77 7.70	JUL 6.85 6.81 6.84 6.89 6.95 6.91 6.89 7.07	JUN 6.08 6.15 6.12 6.13 6.17 6.15 6.21 6.32	MAY 5.45 5.39 5.52 5.51 5.49 5.58 5.57 5.55	APR 4.93 4.95 4.96 4.99 4.88 5.01 5.03 5.04 5.03	5.08 4.99 5.12 5.07 5.05 5.04 5.09 5.08 5.10	FE8 7.50 7.29 7.31 7.21 7.13 6.99 6.60 6.37 6.25	JAN 9.86 9.80 9.87 9.82 9.76 9.86 9.83 9.80 9.78	DEC 9.83 9.87 9.85 9.86	NOV 9.50 9.57 9.48 9.54 9.65 9.58 9.59 9.56 9.55	OCT 8.99 8.96 9.23 9.06 8.66 9.09 9.13 8.87 9.00	=N= AY 1 2 3 4 5 6 7 8 9
ANNU	SEP 8.12 8.22 8.27 8.32 8.25 8.50 8.46 8.54 8.45	AUG 7.63 7.61 7.67 7.71 7.69 7.68 7.73 7.77 7.70 7.69	JUL 6.85 6.81 6.84 6.89 6.95 6.91 6.89 7.07 7.10	JUN 6.08 6.15 6.12 6.13 6.17 6.15 6.21 6.19 6.32 6.35	1990/91 MAY 5.45 5.39 5.52 5.51 5.58 5.57 5.59 5.59 5.57	APR 4.93 4.95 4.96 4.99 4.88 5.01 5.03 5.04 5.03	MAR 5.08 4.99 5.12 5.07 5.05 5.04 5.09 5.06 5.10	FE8 7.50 7.29 7.31 7.21 7.13 6.99 6.60 6.37 6.25 6.03	JAN 9.86 9.80 9.87 9.82 9.76 9.88 9.83 9.83 9.73	DEC 9.83 9.87 9.85 9.86	NOV 9.50 9.57 9.48 9.54 9.65 9.58 9.59 9.56 9.55	OCT 8.99 8.96 9.23 9.06 8.66 9.09 9.13 8.87 9.00 8.97	=N= AY 1 2 3 4 5 6 7 8 9 C
ANNU	SEP 8.12 8.22 8.27 8.32 8.25 8.50 8.46 8.50 8.54 8.51	AUG 7.63 7.61 7.67 7.71 7.69 7.68 7.73 7.77 7.70 7.69 7.69	JUL 6.85 6.81 6.89 6.95 6.91 6.89 7.07 7.10 7.14 7.16	UN 6.08 6.15 6.12 6.17 6.17 6.15 6.21 6.32 6.35 6.33	1990/91 MAY 5.45 5.39 5.52 5.51 5.58 5.57 5.55 5.57 5.61	APR 4.93 4.95 4.96 4.99 4.88 5.01 5.03 5.04 5.03 5.01 5.01	MAR 5.08 4.99 5.12 5.07 5.05 5.04 5.09 5.10 5.10 5.11	FEB 7.50 7.29 7.31 7.21 7.13 6.99 6.60 6.37 6.25 6.03 6.01	JAN 9.86 9.80 9.87 9.82 9.76 9.83 9.80 9.78 9.73 9:76	DEC 9.83 9.87 9.85 9.86	NOV 9.50 9.57 9.48 9.54 9.65 9.58 9.59 9.56 9.55	OCT 8.99 8.96 9.23 9.06 8.66 9.09 9.13 8.87 9.00 8.97	=N= 1 2 3 4 5 6 7 8 9 C 1
ANNU	SEP 8.12 8.22 8.27 8.32 8.50 8.46 8.50 8.45 8.53	AUG 7.63 7.61 7.67 7.71 7.69 7.68 7.70 7.69 7.69 7.67	JUL 6.85 6.81 6.84 6.95 6.91 6.89 7.07 7.10 7.14 7.16 7.19	Evening JUN 6.08 6.15 6.12 6.13 6.17 6.15 6.21 6.32 6.32 6.35 6.33 6.35	1990/91 MAY 5.45 5.39 5.52 5.51 5.49 5.57 5.55 5.57 5.55 5.61 5.65	APR 4.93 4.95 4.96 4.99 5.03 5.04 5.03 5.01 5.01	MAR 5.08 4.99 5.12 5.07 5.05 5.04 5.09 5.08 5.10 5.17 5.18 5.12	FE8 7.50 7.29 7.31 7.21 7.13 6.99 6.60 6.37 6.25 6.03 6.01 5.85	JAN 9.86 9.80 9.87 9.82 9.76 9.83 9.80 9.78 9.73 9.76 9.87	DEC 9.83 9.87 9.85 9.86	NOV 9.50 9.57 9.48 9.54 9.65 9.58 9.59 9.56 9.55 9.65 9.65 9.65 9.65	OCT 8.99 8.96 9.23 9.06 8.66 9.09 9.13 8.87 9.00 9.02 9.18	=N= AY === 1 2 3 4 5 6 7 8 9 0 1 2
ANNU	SEP 8 12 8 27 8 32 8 25 8 50 8 54 8 54 8 45 8 53 8 53 8 27	AUG 7.63 7.61 7.67 7.71 7.69 7.68 7.77 7.70 7.69 7.67 7.77	JUL 6.85 6.81 6.84 6.89 6.95 6.91 6.89 7.10 7.10 7.14 7.16 7.19	JUN 6.08 6.15 6.12 6.13 6.17 6.15 6.21 6.32 6.35 6.35 6.38	1990/91 MAY 5.45 5.39 5.52 5.51 5.49 5.57 5.55 5.57 5.61 5.65 5.61	APR 4.93 4.95 4.96 4.99 4.88 5.03 5.04 5.03 5.01 5.01 5.02 5.07	MAR 5.08 4.99 5.12 5.07 5.05 5.04 5.09 5.10 5.17 5.18 5.18	FEB 7.50 7.29 7.31 7.21 7.13 6.99 6.37 6.25 6.03 6.01 5.85 5.73	JAN 9.86 9.80 9.87 9.82 9.76 9.88 9.80 9.78 9.73 9.78	DEC 9.83 9.87 9.85 9.86	NOV 9.507 9.57 9.48 9.54 9.65 9.59 9.56 9.55 9.65 9.65	OCT 8.99 8.96 9.23 9.06 8.66 9.09 9.13 8.87 9.00 8.97 9.02 9.18 9.16	=N= AY= 1 2 3 4 5 6 7 8 9 0 1 2 3
ANNU	SEP 8.12 8.27 8.32 8.25 8.50 8.46 8.50 8.54 8.45 8.51 8.53 8.27 8.40	AUG 7.63 7.61 7.67 7.71 7.69 7.70 7.69 7.76 7.77 7.70 7.89 7.77 7.70 7.89	JUL 6.85 6.81 6.84 6.95 6.91 6.89 7.07 7.10 7.14 7.16 7.19 7.11	JUN 6.08 6.15 6.12 6.13 6.17 6.15 6.21 6.32 6.35 6.35 6.35 6.38 6.37	1990/91 MAY 5.45 5.39 5.51 5.49 5.58 5.57 5.59 5.57 5.61 5.59	APR 4.93 4.95 4.99 4.88 5.01 5.03 5.04 5.01 5.07 5.07	MAR 5.08 4.99 5.12 5.07 6.05 5.04 5.09 5.08 5.10 5.17 5.18 5.14	FEB 7.50 7.29 7.31 7.21 7.13 6.99 6.37 6.25 6.03 6.01 5.85 5.73 5.57	JAN 9.86 9.80 9.87 9.82 9.76 9.88 9.78 9.73 9.78 9.73	DEC 9.83 9.87 9.85 9.86	NOV 9.50 9.57 9.48 9.54 9.65 9.58 9.56 9.55 9.66 9.65 9.65	OCT 8.99 8.96 9.23 9.06 8.66 9.09 9.18 8.87 9.00 8.97 9.18 9.18 9.25	= N = 1
ANNU	SEP 8.12 8.22 8.27 8.32 8.25 8.50 8.46 8.50 8.45 8.45 8.45 8.51 8.53 8.27 8.46	AUG 7.63 7.61 7.67 7.71 7.69 7.68 7.73 7.77 7.70 7.69 7.67 7.76 7.76 7.79 7.83 7.78	JUL 6.85 6.81 6.84 6.95 6.91 6.89 7.07 7.10 7.14 7.16 7.19 7.23	JUN 6.08 6.15 6.12 6.13 6.17 6.15 6.21 6.32 6.35 6.33 6.35 6.33 6.35 6.37 6.32	1990/91 MAY 5.45 5.39 5.51 5.58 5.57 5.59 5.57 5.61 5.61 5.65 5.61	APR 4.93 4.95 4.96 4.99 4.88 5.01 5.03 5.04 5.01 5.02 5.07 5.01 5.02	MAR 5.08 4.99 5.12 5.07 6.05 5.04 5.08 5.10 5.10 5.12 5.14 5.14	FEB 7.50 7.29 7.31 7.21 7.21 6.60 6.37 6.60 6.37 6.03 6.01 5.85 5.75 5.31	JAN 9.86 9.80 9.87 9.82 9.76 9.85 9.83 9.80 9.78 9.73 9.75	9.83 9.87 9.85 9.86	NOV 9.50 9.57 9.48 9.54 9.65 9.65 9.59 9.56 9.65 9.65 9.65 9.65	OCT 8.99 8.96 9.23 9.06 8.66 9.09 9.18 9.00 8.97 9.02 9.18 9.16 9.25 9.24	=N= AY= 1 2 3 4 5 6 7 8 9 C 1 2 3 4 5
ANNU	SEP 8.12 8.27 8.32 8.25 8.46 8.50 8.54 8.45 8.45 8.45 8.45 8.45 8.45 8.46 8.43	AUG 7.63 7.61 7.67 7.71 7.69 7.69 7.69 7.69 7.76 7.79 7.83 7.77 7.78 7.78	JUL 6.85 6.81 6.89 6.95 6.91 6.89 7.07 7.10 7.14 7.16 7.19 7.23 7.23	JUN 6.08 6.15 6.12 6.13 6.17 6.15 6.21 6.32 6.35 6.33 6.35 6.38 6.37 6.32 6.39	1990/91 MAY 5.45 5.39 5.52 5.52 5.59 5.55 5.57 5.61 5.65 5.61 5.66 5.70	APR 4.93 4.95 4.96 4.99 5.01 5.03 5.04 5.01 5.01 5.02 5.07 5.02 5.12	MAR 5.08 4.99 5.12 5.07 5.04 5.09 5.08 5.10 5.11 5.12 5.18 5.12 5.18 5.12 5.18	FE8 7.50 7.29 7.31 7.21 7.13 6.60 6.37 6.25 6.01 5.85 5.73 5.57 5.13	JAN 9.86 9.80 9.87 9.82 9.76 9.83 9.78 9.73 9.75 9.87	DEC 9.83 9.87 9.85 9.86	NOV 9.50 9.57 9.48 9.54 9.65 9.59 9.56 9.56 9.65 9.65 9.65 9.65 9.65	OCT 8.99 8.96 9.23 9.06 8.66 9.09 9.13 8.87 9.00 8.97 9.16 9.25 9.25	==N= 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 5 5
ANNU	SEP 8.12 8.27 8.32 8.25 8.50 8.54 8.50 8.54 8.53 8.27 8.40 8.56 8.43 8.53	AUG 7.63 7.61 7.67 7.71 7.69 7.69 7.69 7.76 7.70 7.69 7.83 7.77 7.78 7.83 7.78 7.85	JUL 6.85 6.81 6.84 6.89 6.95 6.91 7.07 7.10 7.14 7.16 7.19 7.23 7.26 7.28	JUN 6.08 6.15 6.12 6.13 6.17 6.15 6.21 6.32 6.35 6.33 6.35 6.38 6.37 6.39 6.41	1990/91 MAY 5.45 5.39 5.52 5.51 5.58 5.57 5.55 5.61 5.65 5.65 5.66 5.70 5.68	APR 4.93 4.95 4.99 4.88 5.01 5.03 5.04 5.03 5.01 5.01 5.02 5.11 5.13	MAR 5.08 4.99 5.12 5.07 5.05 5.04 5.09 5.10 5.17 5.18 5.14 5.20 5.19 5.21	FE8 7.50 7.29 7.31 7.21 7.13 6.60 6.37 6.25 6.03 6.85 5.73 5.57 5.13 5.17	JAN 9.86 9.80 9.87 9.82 9.76 9.83 9.78 9.73 9.75 9.78 9.75 9.85	DEC 9.83 9.87 9.85 9.86	NOV 9.50 9.57 9.48 9.54 9.65 9.59 9.56 9.55 9.64 9.65 9.65 9.67 9.64 9.65 9.67 9.64	OCT 8.99 8.96 9.23 9.06 8.66 9.03 8.87 9.00 8.97 9.18 9.16 9.25 9.25 9.25 9.27	=N= A== 1 2 3 4 5 6 7 8 9 C 1 2 3 4 5 6 7
ANNU	SEP 8 12 8 27 8 32 8 25 8 50 8 54 8 54 8 45 8 53 8 27 8 40 8 56 8 43 8 54 8 66	AUG 7.63 7.61 7.67 7.71 7.69 7.68 7.77 7.70 7.69 7.67 7.76 7.79 7.83 7.78 7.81 7.81	JUL 6.85 6.85 6.89 6.95 6.91 6.89 7.10 7.14 7.15 7.23 7.26 7.29 7.29 7.22	UN 6.08 6.15 6.12 6.13 6.17 6.15 6.21 6.32 6.35 6.38 6.37 6.39 6.41 6.44	1990/91 MAY 5.45 5.59 5.51 5.58 5.55 5.55 5.57 5.65 5.66 5.70 5.66 5.70	APR 4.93 4.95 4.99 4.88 5.01 5.03 5.01 5.02 5.01 5.02 5.07 5.06 5.12 5.17	MAR 5.08 4.99 5.12 5.07 6.05 5.04 5.09 5.10 5.10 5.12 5.18 5.14 5.20 5.19 5.21	FEB 7.50 7.29 7.31 7.21 7.21 6.60 6.37 6.03 6.01 5.75 5.31 5.13 5.12	JAN 9.86 9.80 9.87 9.82 9.76 9.86 9.73 9.73 9.75 9.87 9.73 9.75	9.83 9.87 9.85 9.86	NOV 9.50 9.57 9.48 9.54 9.65 9.59 9.56 9.55 9.65 9.65 9.67 9.62	OCT 8.99 8.99 9.23 9.06 8.66 9.09 8.87 9.00 8.97 9.02 9.18 9.16 9.25 9.24 9.25 9.27 9.23	
ANNU	SEP 8 12 8 27 8 32 8 27 8 32 8 50 8 46 8 50 8 54 8 45 8 51 8 53 8 27 8 40 8 56 8 68 8 68	AUG 7.63 7.61 7.69 7.71 7.69 7.70 7.69 7.67 7.77 7.70 7.69 7.67 7.78 7.78 7.83 7.78 7.81 7.84	JUL 6.85 6.84 6.89 6.95 6.91 6.89 7.10 7.14 7.16 7.19 7.23 7.26 7.29 7.28 7.29	JUN 6.08 6.15 6.12 6.13 6.17 6.15 6.21 6.32 6.35 6.33 6.35 6.38 6.37 6.32 6.39 6.41 6.44	1990/91 MAY 5.45 5.39 5.51 5.58 5.57 5.59 5.57 5.61 5.65 5.70 5.66 5.70 5.68 5.73 5.81	APR 4.93 4.95 4.95 4.98 5.01 5.03 5.04 5.01 5.02 5.07 5.07 5.12 5.13 5.13	MAR 5.08 4.99 5.12 5.07 6.05 5.04 5.09 5.10 5.10 5.11 5.12 5.18 5.14 5.20 5.21 5.21 5.21	FEB 7.50 7.29 7.31 7.21 7.21 6.60 6.37 6.02 6.01 5.85 5.57 5.13 5.12 5.14	JAN 9.86 9.80 9.87 9.82 9.76 9.85 9.73 9.75 9.87 9.75 9.87	9.83 9.87 9.85 9.86	NOV 9.50 9.57 9.48 9.54 9.65 9.58 9.59 9.56 9.65 9.65 9.67 9.67 9.62 9.67	OCT 8.99 8.96 9.23 9.06 8.66 9.23 9.13 8.87 9.02 9.18 9.16 9.25 9.24 9.25 9.27 9.23 9.28	
ANNU	SEP 8.12 8.27 8.32 8.50 8.46 8.50 8.545 8.51 8.53 8.27 8.46 8.43 8.54 8.66 8.70	AUG 7.63 7.61 7.69 7.68 7.73 7.77 7.70 7.69 7.69 7.78 7.79 7.83 7.77 7.79 7.83 7.81 7.85 7.91 7.86	JUL 6.85 6.81 6.89 6.95 6.91 6.89 7.10 7.14 7.16 7.19 7.29 7.29 7.29 7.22 7.22	UN 6.08 6.15 6.12 6.17 6.15 6.21 6.32 6.35 6.33 6.35 6.37 6.32 6.37 6.32 6.39 6.41	1990/91 MAY 5.45 5.39 5.51 5.59 5.57 5.61 5.66 5.70 5.66 5.70 5.68 5.70 5.68 5.70 5.68 5.70 5.68 5.70 5.73 5.73	APR 4.93 4.95 4.96 4.99 4.88 5.01 5.03 5.04 5.01 5.02 5.07 5.12 5.11 5.13 5.12 5.21	MAR 5.08 4.99 5.12 5.07 6.05 5.04 5.09 5.10 5.10 5.12 5.18 5.12 5.18 5.20 5.21 5.21 5.27	FEB 7.50 7.29 7.31 7.21 7.21 6.60 6.37 6.00 6.37 6.00 5.73 5.11 5.17 5.12 5.14	JAN 9.86 9.80 9.87 9.82 9.78 9.78 9.73 9.76 9.87 9.78 9.73 9.75 9.82 9.85 9.71 9.73	9.83 9.87 9.85 9.86	NOV 9.50 9.57 9.48 9.54 9.65 9.58 9.59 9.56 9.55 9.64 9.65 9.65 9.67 9.67 9.62 9.77 9.62 9.77	OCT 8.99 8.96 9.23 9.06 8.66 9.23 8.87 9.00 8.97 9.18 9.16 9.25 9.27 9.23 9.31	=N=12345678901234567890
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ANNU	SEP 8.12 8.27 8.32 8.25 8.46 8.50 8.54 8.54 8.45 8.53 8.27 8.40 8.56 8.43 8.54 8.66 8.73 8.71	AUG 7.63 7.61 7.67 7.71 7.69 7.68 7.77 7.70 7.69 7.67 7.79 7.83 7.79 7.83 7.85 7.81 7.85 7.91 7.86	JUL 6.85 6.85 6.84 6.89 6.95 6.91 7.07 7.10 7.14 7.19 7.23 7.26 7.22 7.31 7.33 7.33	5.08 6.15 6.12 6.13 6.17 6.15 6.21 6.32 6.35 6.35 6.35 6.37 6.39 6.41 6.44 6.44 6.44 6.47 6.51	1990/91 MAY 5.45 5.52 5.51 5.55 5.57 5.65 5.55 5.65 5.70 5.73 5.79 5.79 5.81	APR 4.93 4.95 4.99 4.88 5.01 5.03 5.01 5.02 5.07 5.06 5.12 5.13 5.17 5.12 5.23	MAR 5.08 4.99 5.07 5.05 5.09 5.08 5.10 5.10 5.12 5.18 5.14 5.20 5.21 5.20 5.21 5.20 5.31	FEB 7.29 7.31 7.21 7.21 7.31 6.60 6.37 6.25 6.01 5.73 5.17 5.12 5.14 5.19 6.19	JAN 9.86 9.80 9.87 9.82 9.76 9.83 9.78 9.73 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75	DEC 9.83 9.87 9.85 9.86	NOV 9.50 9.57 9.48 9.54 9.65 9.58 9.56 9.55 9.64 9.65 9.65 9.67 9.62 9.77 9.62 9.77 9.62 9.77 9.75	OCT 8.99 8.96 9.23 9.06 8.66 9.09 8.97 9.00 8.97 9.16 9.25 9.24 9.27 9.23 9.28 9.31 9.29	==N= 1 2 3 4 5 6 7 8 9 10 1 1 2 3 1 4 1 5 5 1 7 8 9 10 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
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ANNU	SEP 8.12 8.27 8.32 8.50 8.46 8.50 8.54 8.45 8.45 8.51 8.53 8.27 8.46 8.68 8.70 8.73 8.71 8.82 8.76	AUG 7.63 7.61 7.69 7.68 7.73 7.77 7.70 7.69 7.69 7.78 7.78 7.78 7.81 7.85 7.91 7.86 7.93 7.93	JUL 6.85 6.85 6.89 6.95 6.91 6.89 7.10 7.14 7.15 7.26 7.29 7.22 7.31 7.23 7.33 7.33 7.33	UN 6.08 6.15 6.12 6.13 6.17 6.15 6.21 6.32 6.35 6.33 6.35 6.36 6.37 6.32 6.41 6.44 6.48 6.41 6.47 6.51 6.50 6.69	1990/91 MAY 5.439 5.551 5.59 5.57 5.66 5.66 5.70 5.68 5.70 5.82 5.82 5.82 5.82	APR 4.93 4.95 4.95 4.98 5.01 5.03 5.04 5.01 5.02 5.07 5.12 5.11 5.12 5.21 5.21 5.23 5.24	MAR 5.08 4.99 5.07 5.05 5.09 5.09 5.10 5.10 5.18 5.14 5.20 5.21 5.27 5.31 5.27 5.31 5.29	FEB 7.50 7.29 7.31 7.13 6.60 6.37 6.00 6.37 6.00 6.37 6.00 6.37 6.00 6.37 6.00 6.37 6.00 6.37 6.00 6.37 6.00 6.37 6.00 6.37 6.00 6.37 6.00 6.37 6.00 6.37 6.00 6.37 6.00 6.37 6.00 6.37 6.00 6.00 6.37 6.00 6.00 6.00 6.00 6.00 6.00 6.00 6.0	JAN 9.86 9.80 9.87 9.82 9.76 9.83 9.80 9.78 9.73 9.75 9.87 9.73 9.75 9.82 9.85 9.71 9.66 9.35 9.39 8.65	DEC 9.83 9.87 9.85 9.86	NOV 9.50 9.57 9.48 9.54 9.65 9.58 9.59 9.64 9.65 9.67 9.67 9.62 9.77 9.62 9.77 9.62 9.77 9.62 9.77 9.62	OCT 8.99 8.96 9.23 9.06 8.66 9.23 9.06 8.67 9.02 9.18 9.16 9.25 9.27 9.28 9.31 9.22 9.29	=N = 1
ANNU	SEP 8.12 8.27 8.32 8.25 8.46 8.50 8.54 8.45 8.45 8.46 8.68 8.70 8.71 8.82 8.71 8.82 8.76 8.80	AUG 7.63 7.61 7.69 7.68 7.70 7.69 7.69 7.70 7.69 7.70 7.83 7.77 7.79 7.83 7.79 7.85 7.91 7.85 7.91 7.89 7.99 7.97	JUL 6.85 6.84 6.89 6.95 6.95 7.07 7.10 7.14 7.19 7.23 7.29 7.22 7.22 7.33 7.33 7.33 7.33 7.33 7.33	Evening JUN 6.08 6.15 6.12 6.13 6.17 6.15 6.21 6.32 6.33 6.35 6.33 6.35 6.39 6.41 6.44 6.47 6.51 6.60 6.73	1990/91 MAY 5.459 5.551 5.559 5.557 5.661 5.661 5.661 5.661 5.70 5.70 5.79 5.82 5.87 5.82 5.87	APR 4.93 4.95 4.99 4.99 5.01 5.03 5.04 5.01 5.02 5.07 5.12 5.11 5.13 5.12 5.21 5.21 5.23 5.24 5.26	MAR 5.08 4.99 5.12 5.07 5.04 5.09 5.08 5.10 5.18 5.12 5.18 5.20 5.21 5.21 5.21 5.22 5.35 5.29 5.29	FEB 7.29 7.21 7.21 7.21 7.21 7.21 6.60 6.37 6.00 6.37 6.01 5.77 5.11 5.11 5.11 5.10 7.99	JAN 9.86 9.80 9.87 9.82 9.78 9.78 9.78 9.78 9.73 9.76 9.87 9.78 9.73 9.75 9.85 9.73 9.75 9.85 9.73	DEC 9.83 9.87 9.85 9.86	NOV 9.50 9.57 9.48 9.54 9.65 9.58 9.59 9.56 9.65 9.65 9.67 9.62 9.77 9.62 9.77 9.67 9.75 9.75 9.75 9.77	OCT 8.99 8.96 9.23 9.06 8.66 9.13 8.87 9.00 8.97 9.16 9.25 9.27 9.23 9.23 9.22 9.27 9.23 9.31	==N = 1 2 3 4 5 6 7 8 9 0
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ANNU	SEP 8.12 8.27 8.32 8.27 8.36 8.50 8.46 8.50 8.45 8.51 8.53 8.27 8.40 8.56 8.70 8.70 8.77 8.80 8.77 8.80	AUG 7.63 7.61 7.69 7.68 7.73 7.77 7.70 7.69 7.69 7.78 7.78 7.81 7.85 7.91 7.84 7.86 7.95 7.93 7.89 7.99 7.97	JUL 6.851 6.881 6.895 6.995 6.997 7.10 7.114 7.116 7.226 7.228 7.227 7.33 7.39 7.37 7.37 7.37 7.37	UN 6.08 6.15 6.12 6.13 6.17 6.15 6.21 6.32 6.35 6.35 6.37 6.32 6.39 6.41 6.44 6.48 6.41 6.47 6.51 6.60 6.69 6.73 6.78 6.79	1990/91 MAY	APR 4.93 4.95 4.99 4.88 5.01 5.03 5.04 5.01 5.07 5.12 5.12 5.12 5.21 5.21 5.23 5.24 5.30 5.41	MAR 5.08 4.99 5.07 5.05 5.09 5.09 5.10 5.12 5.18 5.14 5.20 5.21 5.21 5.21 5.22 5.23 4.96	FEB 7.29 7.31 7.21 6.66.37 6.36 6.37 5.31 7.22 6.66.37 5.31 7.24 6.67 6.37 6.37 6.37 6.37 6.37 6.37 6.37	JAN 9.86 9.80 9.87 9.86 9.88 9.76 9.88 9.73 9.76 9.87 9.73 9.75 9.87 9.73 9.66 9.35 9.39 8.40 8.33 8.17 8.89 8.05	DEC 9.83 9.87 9.85 9.86	NOV 9.50 9.57 9.48 9.54 9.65 9.56 9.55 9.65 9.65 9.67 9.62 9.67 9.62 9.77 9.62 9.77 9.62 9.77 9.62 9.77 9.81 9.78 9.81 9.83	OCT 8.96 8.96 9.23 9.06 8.66 9.23 9.06 8.87 9.02 9.18 9.25 9.24 9.25 9.22 9.23 9.22 9.22 9.22 9.23 9.36 9.41	==NA = 1
ANNU	SEP 8.12 8.27 8.32 8.50 8.46 8.50 8.545 8.53 8.27 8.466 8.70 8.73 8.71 8.82 8.76 8.70 8.70 8.70 8.70	AUG 7.63 7.61 7.69 7.68 7.73 7.77 7.70 7.69 7.69 7.76 7.79 7.83 7.77 7.79 7.88 7.81 7.85 7.91 7.86 7.95 7.93 7.93 7.93 7.93 7.93	JUL 6.851 6.891 6.895 6.991 6.897 7.10 7.114 7.123 7.26 7.29 7.22 7.31 7.29 7.33 7.33 7.43 7.47 7.47	Evening JUN 6.08 6.15 6.12 6.13 6.17 6.15 6.21 6.32 6.33 6.35 6.33 6.35 6.37 6.32 6.37 6.32 6.37 6.37 6.37 6.39 6.41 6.44 6.41 6.47 6.51 6.60 6.73 6.76 6.81	1990/91 	APR 4.93 4.95 4.99 4.99 5.01 5.03 5.04 5.01 5.02 5.07 5.12 5.11 5.13 5.12 5.21 5.21 5.23 5.24 5.30 5.31 5.41 5.42	MAR 5.08 5.09 5.07 5.05 5.09 5.09 5.10 5.18 5.14 5.19 5.21 5.21 5.22 5.23 6.23 6.23 6.23 6.23	FEB 7.29 7.31 7.21 6.66.37 6.06.37 6.06.37 5.11 6.66.37 5.12 5.12 6.13 6.13 6.13 6.13 6.13 6.13 6.13 6.13	JAN 9.86 9.80 9.87 9.82 9.78 9.78 9.73 9.75 9.87 9.73 9.75 9.85 9.71 9.73 9.66 9.35 9.39 8.65 8.40 8.33 8.17 7.89 8.05 7.79	DEC 9.83 9.87 9.85 9.86	NOV 9.50 9.57 9.48 9.54 9.65 9.55 9.65 9.65 9.65 9.67 9.62 9.77 9.62 9.77 9.62 9.77 9.67 9.81 9.78 9.83 9.79	OCT 8.99 9.29 9.06 8.66 9.13 8.97 9.08 97 9.18 9.25 9.27 9.28 9.27 9.28 9.36 9.29 9.27 9.28 9.33 9.33 9.33 9.33 9.33 9.33	==AY == 1 2 3 4 5 6 7 8 9 0 1 1 2 3 4 4 5 6 7 8 9 0 1 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 7 8 9 0 1 2 2
ANNU	SEP 8.12 8.27 8.32 8.27 8.36 8.50 8.46 8.50 8.45 8.51 8.53 8.27 8.40 8.56 8.70 8.70 8.77 8.80 8.77 8.80	AUG 7.63 7.61 7.69 7.68 7.70 7.69 7.69 7.70 7.69 7.70 7.83 7.77 7.769 7.85 7.91 7.85 7.91 7.85 7.91 7.86 7.95 8.06 7.99 8.06 7.99 8.06 7.99 8.06 7.99 8.05	JUL 6.851 6.881 6.895 6.895 7.07 7.10 7.10 7.11 7.23 7.29 7.22 7.33 7.33 7.33 7.33 7.47 7.51 7.55	Evening JUN 6.08 6.15 6.17 6.15 6.17 6.32 6.33 6.35 6.33 6.35 6.39 6.41 6.44 6.47 6.51 6.69 6.73 6.76 6.81 6.78 6.88	1990/91 	APR 4.93 4.95 4.99 4.88 5.01 5.03 5.04 5.01 5.07 5.12 5.12 5.12 5.21 5.21 5.23 5.24 5.30 5.41	MAR 5.08 5.09 5.07 5.05 5.09 5.09 5.10 5.18 5.14 5.19 5.21 5.21 5.22 5.23 6.23 6.23 6.23 6.23	FEB 7.29 7.31 7.21 6.66.37 6.06.37 6.06.37 5.11 6.66.37 5.12 5.12 6.13 6.13 6.13 6.13 6.13 6.13 6.13 6.13	JAN 9.86 9.80 9.87 9.82 9.78 9.78 9.73 9.75 9.87 9.73 9.75 9.85 9.71 9.73 9.66 9.35 9.39 8.65 8.40 8.33 8.17 7.89 8.05 7.79	DEC 9.83 9.87 9.85 9.86	NOV 9.50 9.57 9.48 9.54 9.65 9.55 9.65 9.65 9.65 9.67 9.62 9.77 9.62 9.77 9.62 9.77 9.67 9.81 9.78 9.83 9.79	OCT 8.99 9.29 9.06 8.66 9.13 8.97 9.08 97 9.18 9.25 9.27 9.28 9.27 9.28 9.36 9.29 9.27 9.28 9.33 9.33 9.33 9.33 9.33 9.33	==AY == 1 2 3 4 5 6 7 8 9 0 1 1 2 3 4 4 5 6 7 8 9 0 1 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 6 7 8 9 0 1 2 2 3 4 5 6 7 8 9 0 1 2 2
ANNU	SEP 8. 12 8. 27 8. 32 8. 25 8. 54 8. 50 8. 54 8. 53 8. 27 8. 40 8. 56 8. 68 8. 73 8. 47 8. 82 8. 76 8. 87 8. 89 8. 89	AUG 7.63 7.61 7.67 7.71 7.69 7.70 7.69 7.70 7.69 7.79 7.83 7.78 7.85 7.81 7.85 7.91 7.86 7.95 7.99 8.06 7.99 8.06 8.54	JUL 6.851 6.881 6.895 6.91 6.897 7.10 7.11 7.12 7.12 7.26 7.27 7.28 7.29 7.33 7.33 7.33 7.47 7.47 7.45 7.45 7.56	Evening JUN 6.08 6.15 6.12 6.13 6.17 6.15 6.21 6.32 6.33 6.35 6.37 6.32 6.39 6.44 6.48 6.41 6.47 6.60 6.60 6.73 6.76 6.81 6.79 6.88	1990/91 MAY	APR 4.93 4.95 4.99 4.88 5.01 5.03 5.01 5.02 5.12 5.11 5.12 5.12 5.21 5.21 5.23 5.24 5.30 5.41 5.42 5.45	MAR 5.09 5.09 5.07 5.09 5.09 5.10 5.10 5.11 5.12 5.12 5.12 5.12 5.12 5.12 5.12	FEB 7.29 7.31 7.21 6.66.37 7.21 6.66.37 7.21 7.21 7.31 7.31 7.31 7.31 7.31 7.31 7.31 7.3	JAN 9.86 9.80 9.87 9.82 9.78 9.78 9.73 9.76 9.87 9.78 9.73 9.75 9.85 9.71 9.73 9.66 9.35 9.39 8.65 9.39 8.67 9.78 9.78 9.78 9.78 9.78 9.78 9.78 9.7	DEC 9.83 9.87 9.85 9.86	NOV 9.50 9.57 9.48 9.54 9.65 9.58 9.59 9.56 9.55 9.64 9.65 9.67 9.67 9.67 9.67 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.7	OCT 8.99 9.06 8.99 9.06 8.97 9.08 8.97 9.18 8.97 9.16 9.25 9.25 9.27 9.23 9.26 9.27 9.28 9.36 9.36 9.36	==A=123456789012345678901
ANNU	SEP 8. 12 8. 27 8. 32 8. 25 8. 546 8. 50 8. 54 8. 53 8. 27 8. 40 8. 56 8. 68 8. 73 8. 47 8. 82 8. 76 8. 87 8. 89 8. 89	AUG 7.63 7.61 7.69 7.68 7.73 7.77 7.70 7.69 7.69 7.78 7.78 7.81 7.85 7.81 7.85 7.93 7.84 7.86 7.95 7.99 7.83 7.84 8.00 8.00 8.05 8.48	JUL 6.85 6.85 6.89 6.95 6.97 7.10 7.14 7.15 7.26 7.29 7.27 7.37 7.37 7.37 7.37 7.37 7.37 7.37	Evening JUN 6.08 6.15 6.12 6.17 6.15 6.21 6.32 6.35 6.33 6.35 6.37 6.32 6.39 6.41 6.48 6.41 6.47 6.51 6.60 6.73 6.60 6.73 6.78 6.81 6.79 6.81 6.43	1990/91 	APR 4.93 4.95 4.99 4.88 5.01 5.03 5.04 5.01 5.02 5.07 5.12 5.12 5.12 5.12 5.21 5.23 5.24 5.24 5.30 5.45 5.45	MAR 5.08 4.99 5.12 5.07 5.04 5.08 5.10 5.18 5.12 5.18 5.12 5.19 5.21 5.21 5.22 5.19 5.22 5.29 5.29 5.29 5.29 5.29 5.29 5.2	FEB 7.29 7.21 7.21 7.21 7.21 7.21 7.21 7.21 7.21	JAN 9.86 9.80 9.87 9.85 9.88 9.88 9.78 9.78 9.78 9.78 9.73 9.75 9.82 9.85 9.71 9.73 9.66 9.35 9.39 8.67 9.73 9.73 9.66 9.35 9.39 8.67 9.73	9.83 9.87 9.85 9.86	NOV 9.50 9.57 9.48 9.54 9.65 9.58 9.59 9.56 9.55 9.64 9.65 9.67 9.67 9.67 9.67 9.75 9.75 9.75 9.77 9.81 9.73 9.78 9.81 9.75 9.77	OCT 898.969.2399.068.6699.138.979.099.188.9799.25799.2599.2799.2899.2799.2899.2999.2899.3699.2899.3699.3699.3699.36	=NY = 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
ANNU	SEP 8. 12 8. 27 8. 32 8. 25 8. 546 8. 50 8. 54 8. 53 8. 27 8. 40 8. 56 8. 68 8. 73 8. 47 8. 82 8. 76 8. 87 8. 89 8. 89	AUG 7.63 7.61 7.69 7.68 7.77 7.70 7.69 7.69 7.76 7.77 7.78 7.85 7.81 7.85 7.91 7.85 7.91 7.89 7.99 7.97 8.00 8.06 7.99 8.06 7.99 8.06 7.99 8.06 7.99 8.06 7.99 8.06 7.99 8.06	JUL 6.85 6.85 6.89 6.95 6.97 7.10 7.14 7.15 7.26 7.29 7.27 7.37 7.37 7.37 7.37 7.37 7.37 7.37	UN 6.08 6.15 6.12 6.13 6.17 6.15 6.21 6.32 6.35 6.38 6.37 6.32 6.39 6.41 6.44 6.48 6.41 6.47 6.51 6.60 6.69 6.73 6.76 6.81 6.79 6.84 6.88	1990/91 	APR 4.93 4.95 4.99 4.88 5.01 5.03 5.04 5.01 5.02 5.07 5.12 5.11 5.12 5.12 5.21 5.21 5.21 5.24 5.23 5.24 5.24 5.30 5.45	MAR 5.08 4.99 5.12 5.07 5.04 5.08 5.10 5.18 5.12 5.18 5.12 5.19 5.21 5.21 5.22 5.19 5.22 5.29 5.29 5.29 5.29 5.29 5.29 5.2	FEB 7.29 7.21 7.21 7.21 7.21 7.21 7.21 7.21 7.21	JAN 9.86 9.80 9.87 9.85 9.88 9.78 9.78 9.78 9.78 9.78 9.77 9.78 9.75 9.85 9.77 9.78 9.77 9.78 9.77 9.78 9.77 9.78 9.77 9.78 9.78	9.83 9.87 9.85 9.86	NOV 9.50 9.57 9.48 9.54 9.65 9.55 9.65 9.65 9.65 9.67 9.62 9.67 9.62 9.77 9.62 9.77 9.62 9.77 9.81 9.78 9.83 9.79	OCT 8.96 8.96 9.23 9.06 8.66 9.23 9.13 8.87 9.00 9.13 8.97 9.16 9.25 9.27 9.23 9.21 9.22 9.23 9.31 9.22 9.23 9.36 9.36 9.36 9.38	==AY = 123456789012345678901

Table-4.6 DB-03 : Discharge Rating Curve (Type-1)

h(m) H(m) A(m2) S(m) R(m) V(m/s) Q(m3/s) Q^0.5 1,243.00
h(m) H(m) A(m2) S(m) R(m) V(m/s) Q(m3/s) Q^0.5 1,243.00
1,243.00
1,243.00
1,244.00
1,245.00
1,246.00 3.28 22.06 12.94 1.70 0.95 20.99 4.58 1,247.50 4.78 91.30 123.35 0.74 0.55 49.80 7.06 1,248.00 5.28 152.14 129.26 1.18 0.74 113.07 10.63 1,248.50 5.78 215.20 149.61 1.44 0.85 182.82 13.52 1,249.00 6.28 293.57 173.36 1.69 0.95 278.05 16.67 1,249.72 7.00 430.46 199.81 2.15 1.11 478.68 21.88
1,247.50
1,248.00 5.28 152.14 129.26 1.18 0.74 113.07 10.63 1,248.50 5.78 215.20 149.61 1.44 0.85 182.82 13.52 1,249.00 6.28 293.57 173.36 1.69 0.95 278.05 16.67 1,249.72 7.00 430.46 199.81 2.15 1.11 478.68 21.88
1,249.00 6.28 293.57 173.36 1.69 0.95 278.05 16.67 1,249.72 7.00 430.46 199.81 2.15 1.11 478.68 21.88
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
$\begin{array}{cccccccccccccccccccccccccccccccccccc$
$\begin{array}{cccccccccccccccccccccccccccccccccccc$
h(m) H(m) A(m2) S(m) R(m) V(m/s) Q(m3/s) Q^0.5 1,243.00 0.28 0.94 4.06 0.23 0.22 0.20 0.45 1,244.00 1.28 5.76 6.85 0.84 0.51 2.93 1.71 1,245.00 2.28 13.35 10.24 1.30 0.68 9.10 3.02 1,246.00 3.28 22.06 12.94 1.70 0.82 17.99 4.24 1,247.50 4.78 91.30 123.35 0.74 0.47 42.69 6.53 1,248.00 5.28 152.14 129.26 1.18 0.64 96.92 9.84
h(m) H(m) A(m2) S(m) R(m) V(m/s) Q(m3/s) Q^0.5 1,243.00 0.28 0.94 4.06 0.23 0.22 0.20 0.45 1,244.00 1.28 5.76 6.85 0.84 0.51 2.93 1.71 1,245.00 2.28 13.35 10.24 1.30 0.68 9.10 3.02 1,246.00 3.28 22.06 12.94 1.70 0.82 17.99 4.24 1,247.50 4.78 91.30 123.35 0.74 0.47 42.69 6.53 1,248.00 5.28 152.14 129.26 1.18 0.64 96.92 9.84
h(m) H(m) A(m2) S(m) R(m) V(m/s) Q(m3/s) Q^0.5 1,243.00 0.28 0.94 4.06 0.23 0.22 0.20 0.45 1,244.00 1.28 5.76 6.85 0.84 0.51 2.93 1.71 1,245.00 2.28 13.35 10.24 1.30 0.68 9.10 3.02 1,246.00 3.28 22.06 12.94 1.70 0.82 17.99 4.24 1,247.50 4.78 91.30 123.35 0.74 0.47 42.69 6.53 1,248.00 5.28 152.14 129.26 1.18 0.64 96.92 9.84
1,243.00 0.28 0.94 4.06 0.23 0.22 0.20 0.45 1,244.00 1.28 5.76 6.85 0.84 0.51 2.93 1.71 1,245.00 2.28 13.35 10.24 1.30 0.68 9.10 3.02 1,246.00 3.28 22.06 12.94 1.70 0.82 17.99 4.24 1,247.50 4.78 91.30 123.35 0.74 0.47 42.69 6.53 1,248.00 5.28 152.14 129.26 1.18 0.64 96.92 9.84
1,243.00 0.28 0.94 4.06 0.23 0.22 0.20 0.45 1,244.00 1.28 5.76 6.85 0.84 0.51 2.93 1.71 1,245.00 2.28 13.35 10.24 1.30 0.68 9.10 3.02 1,246.00 3.28 22.06 12.94 1.70 0.82 17.99 4.24 1,247.50 4.78 91.30 123.35 0.74 0.47 42.69 6.53 1,248.00 5.28 152.14 129.26 1.18 0.64 96.92 9.84
1,244.00 1.28 5.76 6.85 0.84 0.51 2.93 1.71 1,245.00 2.28 13.35 10.24 1.30 0.68 9.10 3.02 1,246.00 3.28 22.06 12.94 1.70 0.82 17.99 4.24 1,247.50 4.78 91.30 123.35 0.74 0.47 42.69 6.53 1,248.00 5.28 152.14 129.26 1.18 0.64 96.92 9.84
1,245.00 2.28 13.35 10.24 1.30 0.68 9.10 3.02 1,246.00 3.28 22.06 12.94 1.70 0.82 17.99 4.24 1,247.50 4.78 91.30 123.35 0.74 0.47 42.69 6.53 1,248.00 5.28 152.14 129.26 1.18 0.64 96.92 9.84
1,246.00 3.28 22.06 12.94 1.70 0.82 17.99 4.24 1,247.50 4.78 91.30 123.35 0.74 0.47 42.69 6.53 1,248.00 5.28 152.14 129.26 1.18 0.64 96.92 9.84
1,247.50 4.78 91.30 123.35 0.74 0.47 42.69 6.53 1,248.00 5.28 152.14 129.26 1.18 0.64 96.92 9.84
1,248.00 5.28 152.14 129.26 1.18 0.64 96.92 9.84
1,249.00 6.28 293.57 173.36 1.69 0.81 238.33 15.44
1,249.72 7.00 430.46 199.81 2.15 0.95 410.29 20.26
0 04000
n = 0.04000 i = 1/2500
$h(m)$ $H(m)$ $A(m2)$ $S(m)$ $R(m)$ $V(m/s)$ $Q(m3/s)$ $Q^0.5$
1,243.00 0.28 0.94 4.06 0.23 0.19 0.18 0.42
1,244.00 1.28 5.76 6.85 0.84 0.45 2.56 1.60
1,245.00 2.28 13.35 10.24 1.30 0.60 7.97 2.82
1,246.00 3.28 22.06 12.94 1.70 0.71 15.74 3.97
1,247.50 4.78 91.30 123.35 0.74 0.41 37.35 6.11
1,248.00 5.28 152.14 129.26 1.18 0.56 84.80 9.21
1,248.50 5.78 215.20 149.61 1.44 0.64 137.11 11.71
1,249.00 6.28 293.57 173.36 1.69 0.71 208.54 14.44
1,249.72 7.00 430.46 199.81 2.15 0.83 359.01 18.95





DISCHARGE RATING CURVE

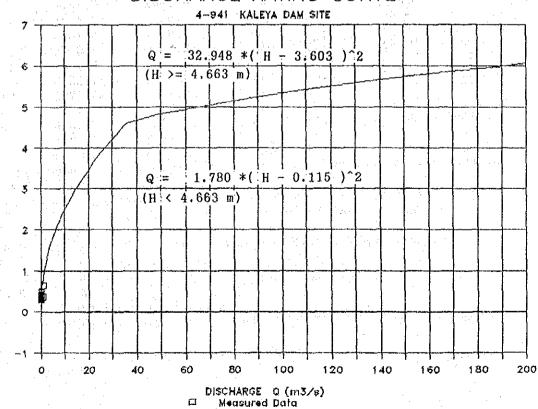
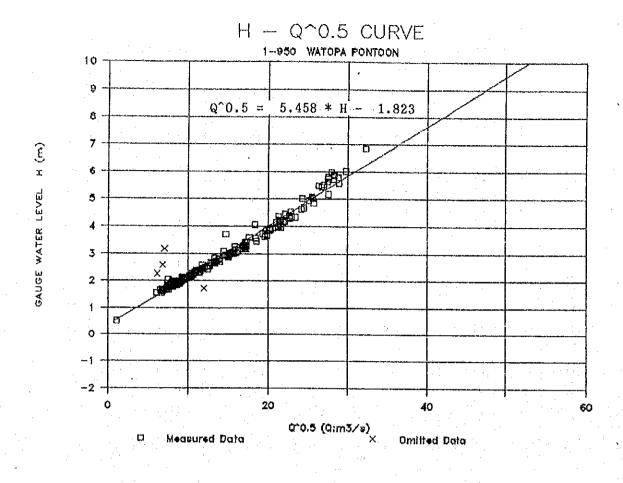


Fig. - 4.2 DB-03 : Discharge Rating Curve (Type-1)

Table-4.7 DB-04 : Discharge Rating Curve (Type-2)

DISCHARGE RATIN	G CURVE			1-950 WATOPA	
NO. DATE	H(m)	Q(m3/s)	H^2.0	Q^0.5	H*Q^0.5
1 1 58/ 5/26	1.98	84.1	3.9252 3.2340	9.1707 8.1714	18.1689 14.6947
2 2 8/8	1.80	66.8	2,8308	7.6134	12.8096
3 3 9/13	1.68			8.5870	15.7040
4 4 11/8	1.83	73.7	3.3445	8.9059	17.8344
5 5 11/22	2.00		4.0102		
6 6 59/ 1/ 3	2.88		8.2965		43.4445
7 7 1/8	3.16	295.5	10.0098	17.1889	54.3826
8 8 2/11	3,66	394.4	13.4227	19.8601	72.7615
9 9 2/19	3.96	448.5	15.6523	21.1787	83.7895
10 10 2/27	4.31	515.1	18.5750	22.6961	97.8172
		· · · · · · · · · · · · · · · · · · ·			
160 162 82/10/22	1.98	73.0	3.9252	8.5441	16.9275
161 163 12/13	2.96	223.0	8,7412	14.9340	44.1532
162 164 83/ 3/21	3.85	393.0	14.7961	19.8252	76.2591
163 165 3/22	3.93	410.1	15.4840	20,2498	79.6825
164 167 84/ 2/26	3.27	286.0	10.7161	16.9124	55.3635
165 168 3/ 2	3.44	298.0	11.7999	17.2637	59.3024
166 170 85/ 3/12	3.92	424.0	15.3643	20,5923	80.7164
					85.5426
167 171 4/23	3.96	466.1	15.7006	21.5886	
168 172 86/ 8/ 8	2.18	107.0	4.7494	10.3445	22.5440
169 173 9/8	1.95	78.0		8.8325	17.2297
170 174 89/10/ 6	0.51	1.3	0.2622		0.5835
171 175 90/ 2/ 9	3.03	257.3	9.1809		48.6029
172 176 3/8	3,26	251.3	10.6276	15.8531	51.6810
173 177 5/8	3.03	257.3	9.1809		48.6029
174 178 6/26	2.13	87.0	4.5369	9.3247	19.8616
175 179 7/29	2.01	65.6	4.0401	8.1019	16.2847
176 180 8/22	1.92	55.3	3.6864	7.4351	14.2753
177 181 9/26	1.71	46.0	2.9241	6.7853	11.6028
178 182 10/25	1.70	49.9	2.8900	7.0626	12.0064
179 183 12/6	1.88	66.9	3.5344	8.1786	15.3758
180 184 91/ 1/12	3.08	211.7	9.4864	14.5509	44.8169
181 185 2/4	4.29	514.1	18.4041	22.6740	97.2714
OMIT157 79/11/12	2.27	37.9	5.1564	6,1553	13.9773
OMIT157 79/11/12 OMIT158 80/ 5/23	3.18	50.0	10.1064		22.4747
OMIT169 6/7	2,59	46.4	6.7122	6.8084	17.6393
OMIT166 4/9	1.73	145.0	2.9973		20.8479
=M====================================					=======================================
TOTAL	548.97	46401	1895.2297	2666.2666	9343.3469
DISCHARGE -					
(where, Oh	IIT : Omi	tted data)		a' =	5.458147
				b ' =	-1.823601
		•		a =	29.791368
					-0.261824
		C	orrelation	Coefficient	0.981



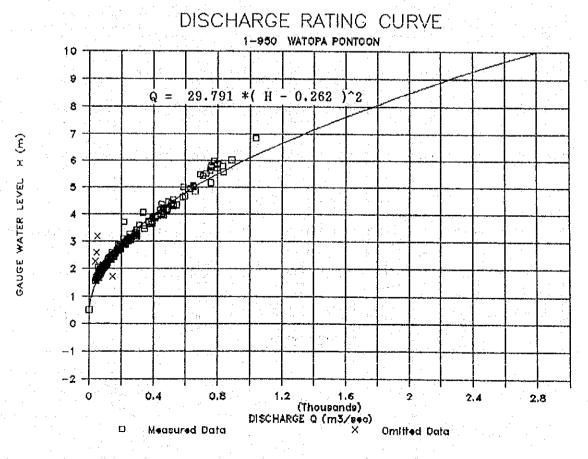


Fig. - 4.3 DB-04 : Discharge Rating Curve (Type-2)

Table-4.8 DB-05B : Daily Discharge

<<< M/C | ROGRAM for DB-05(Normal Year); Daily River W/L & Discharge >>>

								1990/91		1111	AUA OUA	. CEO	
AY ===	OCT	NOV	DEC	JAN :=====	FEB	MAR	APR	MAY	JUN	JUL	AUG		ANNUA
1	0.61	0.55	0.76	1.49	6.17	7.68	5.94	4.22	2.22	1.39	0.66	0.73	
2	0.61	0.55	0.77	1.50	6.28	7.53	5.89	4.14	2.17	1.37	0.65	0.73	
3	0.63	0.54	0.78	1.51	6.43	7.42	5.87	4.04	2.13		0.64	0.72	
A	0.54	0.54	0.92	1.52	6.55	7.26	5.84	3.98	2,10	1.33	0.63	0.70	
5	0.62	0.54	0.94	1,53	6.64	7.13	5.77	3.89	2.04	1.31	0.62	0,69	
6	0.62	0.54	0.94	1.66	8.76	6.98	5.76	3.79	2.00	1.29	0.76	0.69	
7	0.62	0.55	0.97	.1.73	6.89	6.88	5.74	3.72	1.96	1.28	0.91	0.69	4.
ชิ	0.61	0.55	0.98	1.85	7,00	6.74	5.73	3,64	1.93	1.26	0.90		
9	0.62	0.55	1.00	2.08	7.30	6.61	6.14	3.57	1.91	1.25	0.89	0,68	
0	0.62	0.55	1.01	2.18	7.77	6.50	6,25	3.46	1.88	1.24	88.0	0.68	
1	0.63	0.55	1.04	2.39	8.09	6.37	6.30	3.38	1.87	1.22	0.87		
2	0.262	0.54	1.09	2.44	8.16	6.22	6.36	3.31	1.82	1.22	0.87	0.61	
13	0 6 1	0.54	1,11	2.48	8.25	6.01	6.36	3.21	1.80	1.20	0.87	0.62	
4	0.60	0.53	1.15	2.54	8.31	5.90	6.32	3.13	1.77	1.19	0.87	0.61	
5	0.59	0.52	1.16	2.62	8.38	5.88	6.22	3.07	1.75	1.18	0.85 0.85		
16	0.59	0.50	1.18	2.74	8.41	5.85			1.73		0.82	0.60	
7	0.58	0.50	1.21	2.87	8.41	5.88		2.94	1,69			0.59	
8	0.57	0.52	1.25	2.95	8.42	5.92	5.66	2.88	1.66	1.14	0.81 0.81	0.58	
9	0.56	0.55		3.08	8.43		5.54	2.B2	1.65		0.80	0.58	
0	0.55	0.56	1.32	3.28	8.51	6.00	5.41	2.76	1.64		0.80	0.56	
1	0.55	0.54	1.36	3.49	8.49		5.29	2.70	1.62				
2	0.55	0.54	1.39	3.76	8.38	6.12	5.18	2.64	1.60		0.79	0.55	
3	0.55	0.56	1.41	4.05	8.30	6.15	5.04	2.59	1.58	1.08	0.79		
4	0.55	0.65	1.43	4.21	8.18	6.17	4.97	2.54	1.55	1.06	0.79	0.55	
5	0.55	0.65	1.43	4.36	8.10	6,20	4.90	2.48	1.52		0.79	0.56	
6	9.55	0.69	1.43	4.55			4.76	2.45	1.50		0.77	111	
7	0.55	0.69	1.44	4.75		6.15	4.61	2.41	1.48		0.76	0.55	
8	0.55	0.73	1.46	4.99	7.79	6.12	4.51	2.37	1.45		0.74 0.73	0.55	
9	0.55	0.74	1.47	5.21		6.08	4.40	2.34	1.43			0.54	•
0	0.54	0.75	1.47			6.03 5.99	4.30	2.29 2.25	1.41	0.98	0.73 0.73	0.54	
1 .	0.54		1.48	5.79				2.20					
AN	0.58	0.58	1.18	3.07	7.73	6.39	5.56	3.10	1.76	- 1.17	0.79	0.82	2.6
	0.64	0.75	1.48	5.79	8.51	7.68	6.36	4.22	2.22	1.39	0.91	0.73	8 - 5
Ν.	0.54	0.50	0.76	1.49	6.17	5.85	4.30	2.25	1.41	0.98		0.54	0.5
								1990/91					
AY ===	OCT	00V ==≠ ≠ ==	DEC	MAL	FEB	MAR	APR	MAY WEERERE	JUN ======	JUL	AUG	SEP	ANNU
AY === 1	OCT 73.6	NOV ======= 68.1	DEC ======= 87.1	JAN 169.6	FE8 ====================================	MAR ====== 1969.2	APR ====================================	MAY 721.6	JUN ====== 279.2	JUL ====== 156.6	AUG 78.2	SEP ====== 84.0	ANNU
AY === 1' 2	OCT 73.6 73.6	NOV ======= 68.1 68.1	DEC 87.1 88.3	JAN 169.6 170.8	FEB 1347.4 1389.6	MAR 1969.2 1901.3	APR 1264.9 1248.4	MAY 721.6	JUN ====== 279.2 272.0	JUL ====================================	AUG 78.2 77.1	SEP ====== 84.0 84.0	ANNU
AY === 1' 2 3	OCT 73.6 73.6 75.2	NOV 68.1 68.1 67.9	DEC 87.1 88.3 89.5	JAN 169.6 170.8 172.8	FEB 1347.4 1389.6 1445.4	MAR 1969.2 1901.3 1851.8	APR 1264.9 1248.4 1238.7	MAY 721.6 698.6 672.7	JUN ====== 279.2 272.0 264.5	JUL 156.6 153.9 151.6	AUG 78.2 77.1 76.3	SEP 84.0 84.0 83.4	ANNU
AY === 1' 2 3	OCT 73.6 73.6 75.2 76.0	NOV 68.1 68.1 67.9 67.9	DEC 87.1 88.3 89.5 103.1	JAN 169.6 170.8 172.8 174.4	FEB 1347.4 1389.6 1445.4 1492.7	MAR 1969.2 1901.3 1851.8 1786.0	APR 1264.9 1248.4 1238.7 1228.9	MAY 721.6 698.6 672.7 656.8	JUN 279.2 272.0 264.5 259.5	JUL 156.6 153.9 151.6 148.9	AUG 78.2 77.1 76.3 75.7	SEP ======= 84.0 84.0 83.4 82.0	ANNU
AY 1' 2 3 4 5	OCT 73.6 73.6 75.2 76.0 74.9	NOV 68.1 68.1 67.9 67.9 67.9	DEC 87.1 88.3 89.5 103.1 105.0	JAN 169.6 170.8 172.8 174.4 175.7	FEB 1347.4 1389.6 1445.4 1492.7 1528.7	MAR 1969.2 1901.3 1851.8 1786.0 1727.8	APR 1264.9 1248.4 1238.7 1228.9 1205.2	MAY 721.6 698.6 672.7 656.8 633.3	JUN 279.2 272.0 264.5 259.5 249.6	JUL 156.6 153.9 151.6 148.9 146.7	AUG 78.2 77.1 76.3 75.7 74.9	SEP 84.0 84.0 83.4 82.0 81.2	ANNU
AY 1' 2 3 4 5	OCT 73.6 73.6 75.2 76.0 74.9 74.4	NOV 58.1 68.1 67.9 67.9 67.9	DEC 87.1 88.3 89.5 103.1 105.0	JAN 169.6 170.8 172.8 174.4 175.7 193.7	FEB 1347.4 1389.6 1445.4 1492.7 1528.7	MAR 1969.2 1901.3 1851.8 1786.0 1727.8 1666.8	APR 1264.9 1248.4 1238.7 1228.9 1205.2 1202.0	MAY 721.6 698.6 672.7 656.8 633.3 610.2	JUN 279.2 272.0 264.5 259.5 249.6 243.3	JUL 156.6 153.9 151.6 148.9 146.7	78.2 77.1 76.3 75.7 74.9 87.4	SEP 84.0 84.0 83.4 82.0 81.2 81.2	ANNU
AY 1' 2 3 4 5 6 7	73.6 73.6 75.2 76.0 74.9 74.4 74.1	NOV 68.1 68.1 67.9 67.9 67.6 68.6	DEC 87.1 88.3 89.5 103.1 105.0 105.6	JAN 169.6 170.8 172.8 174.4 175.7 193.7 202.4	FEB 1347.4 1389.6 1445.4 1492.7 1528.7 1577.3 1630.5	MAR 1969.2 1901.3 1851.8 1786.0 1727.8 1666.8 1618.0	APR 1264.9 1248.4 1238.7 1228.9 1205.2 1202.0 1192.4	MAY 721.6 698.6 672.7 656.8 633.3 610.2 592.0	JUN 279.2 272.0 264.5 259.5 249.6 243.3 238.1	JUL 156.6 153.9 151.6 148.9 146.7 144.8	78.2 77.1 76.3 75.7 74.9 87.4	SEP 84.0 84.0 83.4 82.0 81.2 81.2 80.4	ANNU
AY ==== 1 2 3 4 5 6 7 9	OCT 73.6 73.6 75.2 76.0 74.9 74.4 74.1	NOV 68.1 68.1 67.9 67.9 67.6 68.6	PEC 87.1 88.3 89.5 103.1 105.0 105.6 108.1	JAN 169.6 170.8 172.8 174.4 175.7 193.7 202.4 220.8	FEB 1347.4 1389.6 1445.4 1492.7 1528.7 1577.3 1630.5	MAR 1969.2 1901.3 1851.8 1786.0 1727.8 1666.8 1618.0 1567.5	APR 1264.9 1248.4 1238.7 1228.9 1205.2 1202.0 1192.4 1191.3	MAY 721.6 698.6 672.7 656.8 633.3 610.2 592.0 571.2	JUN 279.2 272.0 264.5 259.5 249.6 243.3 238.1 233.3	JUL 156.6 153.9 151.6 148.9 146.7 144.8 143.7	78.2 77.1 76.3 75.7 74.9 87.4 101.5	SEP 84.0 84.0 83.4 82.0 81.2 81.2	ANNU
AY === 1 2 3 4 5 6 7 9	OCT 73.6 73.6 75.2 76.0 74.9 74.4 74.1 73.9 74.4	NOV 68.1 68.1 67.9 67.9 67.9 67.6 68.6	87.1 88.3 89.5 103.1 105.0 105.6 108.1 109.8 111.4	JAN 169.6 170.8 172.8 174.4 175.7 193.7 202.4 220.8 257.0	FEB 1347.4 1389.6 1445.4 1492.7 1528.7 1528.7 1630.5 1676.9 1801.7	MAR 1969.2 1901.3 1851.8 1786.0 1727.8 1666.8 1668.0 1567.5 1519.0	APR 1264.9 1248.4 1238.7 1228.9 1205.2 1202.0 1192.4 1191.3 1336.1	721.6 698.6 672.7 656.8 633.3 610.2 592.0 571.2	JUN 279.2 272.0 264.5 259.5 249.6 243.3 238.1 233.3 229.6	JUL 156.6 153.9 151.6 148.9 146.7 144.8 145.7 141.5 139.3	78.2 77.1 76.3 75.7 74.9 87.4 101.5 100.6	SEP 84.0 84.0 83.4 82.0 81.2 81.2 80.4 79.8	ANNU
AY === 1 2 3 4 5 6 7 9	OCT 73.6 73.6 75.2 76.0 74.9 74.4 74.1	NOV 68.1 68.1 67.9 67.9 67.9 67.6 68.6	B7.1 88.3 89.5 103.1 105.0 105.6 108.1 109.8 111.4	JAN 169.6 170.8 172.8 174.4 175.7 193.7 202.4 220.8 257.0 272.6	FEB 1347.4 1389.6 1445.4 1492.7 1528.7 1577.3 1630.5 1676.9 1801.7 2010.5	MAR 1969.2 1901.3 1851.8 1786.0 1727.8 1666.8 1618.0 1567.5 1519.0 1473.7	APR 1264.9 1248.4 1238.7 1228.9 1205.2 1202.0 1192.4 1191.3 1336.1 1377.0	MAY 721.6 698.6 672.7 656.8 633.3 610.2 592.0 571.2	JUN 279.2 272.0 264.5 259.5 249.6 243.3 233.3 229.6 225.8	JUL 156.6 153.9 151.6 148.9 146.7 144.8 145.7 141.5 139.3	78.2 77.1 76.3 75.7 74.9 87.4 101.5 100.6	SEP 84.0 84.0 83.4 82.0 81.2 81.2 80.4 79.8	ANNU
AY = 1 2 3 4 5 6 7 9 0	OCT 73.6 73.6 75.2 76.0 74.9 74.4 73.9 74.4 74.9	NOV 68.1 68.1 67.9 67.9 67.6 68.6 68.6 68.6	PEC 87.1 88.3 89.5 103.1 105.0 105.6 108.1 109.8 111.4 112.7 115.6	JAN 169.6 170.8 172.8 174.4 175.7 193.7 202.4 220.8 257.0 272.6 308.8	FEB 1347.4 1389.6 1445.4 1492.7 1528.7 1577.3 1630.5 1676.9 1801.7 2010.5 2158.4	MAR 1969.2 1901.3 1851.8 1786.0 1727.8 1666.8 1618.0 1567.5 1519.0 1473.7 1424.3	APR 1248.4 1238.7 1228.9 1205.2 1202.0 1192.4 1191.3 1336.1 1377.0 1397.7	721.6 698.6 672.7 656.8 633.3 610.2 592.0 571.2 554.4 528.5	JUN 279.2 272.0 264.5 259.5 249.6 243.3 238.3 238.3 229.6 225.8 223.1	JUL 156.6 153.9 151.6 148.9 146.7 144.8 143.7 141.5 139.3 138.6 136.4	AUG 78.2 77.1 76.3 75.7 74.9 87.4 101.5 100.6 100.0 99.3	SEP 84.0 84.0 83.4 82.0 81.2 81.2 80.4 79.8 79.5 73.6	ANNU
AY === 12 34 55 67 99 01 2	OCT 73.6 73.6 75.2 76.0 74.9 74.4 74.1 73.9 74.4 74.9 75.2	NOV 68.1 68.1 67.9 67.9 67.6 68.6 68.6 68.6	87.1 88.3 89.5 103.1 105.0 108.1 109.8 111.4 112.7 115.6 120.7 123.4	JAN 169.6 170.8 172.8 174.4 175.7 193.7 202.4 257.0 272.6 308.8 318.7	FEB 1347.4 1389.6 1445.4 1492.7 1577.3 1630.9 1601.7 2010.5 2158.4 2233.6	MAR 1969.2 1901.3 1851.8 1786.0 1727.8 1666.8 16187.5 1519.0 1473.7 1424.3 1367.8	APR 1264.9 1248.4 1238.7 1228.9 1205.2 1205.2 1205.2 1207.0 1191.3 1336.1 1377.0 1397.7 1420.8	MAY 721.6 698.6 672.7 656.8 633.3 610.2 592.0 571.2 554.4 528.5 510.2 494.3 472.6	JUN 279.2 272.0 264.5 259.5 249.6 243.3 238.1 233.3 229.6 225.8 225.8 221.0	JUL 156.6 153.9 151.6 148.9 146.7 144.8 143.7 141.5 139.3 138.6 136.4	AUG 78.2 77.1 76.3 75.7 74.9 87.4 101.5 100.6 100.0 99.3 98.4 97.8	SEP 84.0 84.0 83.4 82.0 81.2 81.2 80.4 79.8 79.5 73.6	ANNU
AY = 12 3 4 5 6 7 8 9 0 1 2 3	73.6 73.6 73.6 75.2 76.0 74.9 74.4 74.1 73.9 74.4 75.2 74.4	NOV 68.1 68.1 67.9 67.9 67.6 68.6 68.6 68.6	87.1 88.3 89.5 103.1 105.0 108.1 109.8 111.4 112.7 115.6 120.7 123.4	JAN 169.6 170.8 172.8 174.4 175.7 193.7 202.4 257.0 272.6 308.8 318.7	FEB 1347.4 1389.6 1445.4 1492.7 1577.3 1630.9 1601.7 2010.5 2158.4 2233.6	MAR 1969.2 1901.3 1851.8 1786.0 1727.8 1666.8 16187.5 1519.0 1473.7 1424.3 1367.8	APR 1264.9 1248.4 1238.7 1228.9 1205.2 1205.2 1205.2 1207.0 1191.3 1336.1 1377.0 1397.7 1420.8	MAY 721.6 698.6 672.7 656.8 633.3 610.2 592.0 571.2 554.4 528.5 510.2 494.3	JUN 279.2 272.0 264.5 259.5 249.6 243.3 238.1 233.3 229.6 225.8 225.8 221.0	JUL 156.6 153.9 151.6 148.9 146.7 144.8 143.7 141.5 139.3 138.6 136.4	AUG 78.2 77.1 76.3 75.7 74.9 87.4 101.5 100.6 100.0 99.3 98.4 97.8	SEP 84.0 84.0 83.4 82.0 81.2 81.2 80.4 79.5 73.6 73.6	ANNU
AY = 12 3 4 5 6 7 8 9 0 1 2 3 4	OCT 73.6 73.6 73.6 75.2 76.0 74.9 74.1 74.1 74.9 74.4 74.9 75.2 74,4 74.9 73.9	NOV 68.1 68.1 67.9 67.9 67.6 68.6 68.6 68.6 68.6	B7.1 88.3 89.5 103.1 105.0 108.6 108.1 111.4 112.7 115.6 120.7 123.4 127.6	JAN 169.6 170.8 172.8 174.4 175.7 193.7 202.4 257.0 272.6 308.8 318.7 336.6	FEB 1347.4 1389.6 1445.4 1492.7 1528.7 1577.3 1630.5 1630.5 1630.5 2010.5 2158.4 2191.5 2233.6 2262.8	MAR 1969.2 1901.3 1851.8 1786.0 1727.8 1666.8 1618.0 1473.7 1424.3 1367.8 1291.3	APR 1264.9 1248.4 1238.7 1228.9 1205.2 1205.2 1202.0 1192.4 1377.0 1377.0 1397.7 1420.8 1422.0 1404.6	MAY 721.6 698.6 672.7 656.8 633.3 610.2 592.0 571.2 554.4 528.5 510.2 494.3 472.6	JUN 279.2 272.0 264.5 259.5 249.6 243.3 238.1 238.1 229.6 225.8 223.1 216.7 213.0	JUL 156.6 153.9 151.6 148.9 146.7 144.8 143.7 141.5 139.3 138.6 136.4 136.4 136.3	AUG 78.2 77.1 76.3 75.7 74.9 87.4 101.5 100.6 100.0 99.3 98.3 97.5	SEP 84.0 84.0 83.4 82.2 81.2 80.4 79.8 79.8 73.6 73.6 74.1	ANNU
AY = 1 2 3 4 5 6 7 9 9 0 1 2 3 4 5	OCT 73.6 73.6 73.6 75.2 76.0 74.9 74.1 74.1 74.9 74.4 74.9 75.2 74,4 74.9 73.9	NOV 68.1 68.1 67.9 67.6 68.6 68.6 68.6 67.9 67.9 67.9 67.9	87.1 88.3 89.5 103.1 105.0 105.6 108.1 109.8 111.4 112.7 115.6 120.7 123.4 127.6 129.0 131.4	JAN 169.6 170.8 172.8 174.4 175.7 193.7 202.4 220.8 257.0 272.6 308.8 318.7 326.4 336.6 352.6	FEB 1347.4 1389.6 1445.4 1492.7 1577.3 1630.5 1676.9 1801.7 2010.5 2010.5 22158.4 2191.5 2233.6 2262.8 2293.8 2308.6	MAR 1969.2 1901.3 1851.8 1786.0 1727.8 1668.0 1567.5 1519.0 1473.7 1424.3 1367.8 1291.3 1250.6 1241.9	APR 1264.9 1248.9 1228.9 1205.2 1205.2 1202.0 1192.4 1191.3 1336.1 1377.0 1397.7 1420.8 1422.0 1404.6 1302.4	MAY 721.6 698.6 672.7 656.3 633.3 610.2 592.0 571.2 554.4 528.5 510.2 494.3 472.6 454.7 442.9	JUN 279.2 272.0 264.5 259.5 249.6 243.3 233.3 229.6 225.8 223.1 216.7 213.0 209.5 205.9 202.8	JUL 156.6 153.9 151.6 148.9 146.7 144.8 143.7 141.5 139.3 136.4 136.1 133.5 131.8 129.7	AUG 78.2 77.1 76.3 75.7 74.9 87.4 101.5 100.6 100.0 99.3 97.8 97.8 97.5 97.5	SEP	ANNU
AY = 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6	OCT 73.6 73.6 75.2 76.0 74.9 74.4 74.1 73.9 74.4 74.9 75.2 74.4 73.9 75.2 74.3	NOV 68.1 68.1 67.9 67.9 67.6 68.6 68.6 68.4 67.9 67.9 67.9	87.1 88.3 89.5 103.1 105.0 105.6 108.1 109.8 111.4 112.7 115.6 120.7 123.4 127.6 129.0 131.4	JAN 169.6 170.8 174.4 175.7 193.7 202.4 257.0 272.6 308.7 326.4 336.6 352.0 399.9	FEB 1347.4 1389.6 14492.7 1577.3 1577.3 1630.5 1676.9 1801.7 2010.5 2158.4 2191.5 2233.6 2262.8 2293.8 2311.5	MAR 1969.2 1901.3 1851.8 1786.0 1727.8 1666.8 1618.0 1567.5 1519.0 1473.7 1424.3 1367.8 1291.3 1250.6 1241.9	APR 1264.9 1248.9 1228.9 1205.2 1205.2 1202.0 1192.4 1191.3 1336.1 1377.0 1397.7 1420.8 1422.0 1404.6 1366.7 1302.4	MAY 721.6 698.6 672.7 656.8 633.3 610.2 592.0 571.2 554.4 528.5 510.2 494.3 472.6 454.7 442.9 428.1 415.4	JUN 279.2 272.0 264.5 259.5 249.6 243.3 238.1 233.3 229.6 225.8 225.8 223.1 216.7 213.0 209.5 205.9 202.8 197.1	JUL 156.6 153.9 151.6 148.9 146.7 144.8 143.7 141.5 139.3 136.4 136.1 133.5 131.8 139.7 128.3	AUG 78.2 77.1 76.3 75.7 74.9 87.4 101.5 100.6 100.0 99.3 98.4 97.8 97.5 96.0	SEP 84.0 84.0 83.4 92.0 81.2 81.2 90.4 79.8 79.5 73.6 73.6 73.1	ANNU
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Table-4.9 DB-06B : Hourly Discharge

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17 1-4.5	S\$ 6.	.85	4.79	4.74	4.74	4.95	4.85	4.89	4,89	4.89	4.93	4.66	4.65	4.66	4.65	4.65	4.65	4.88	4.65	4.88	4.55	4.86	4.55	4.68	4.68	4.65	4.68	4.66	4.68	4.65
:8 4.9																														
19 4.5																														
20 4.5	ge 4. Na a	. 63. 	4.78	4.74	4.75	4.95	4.85	4.90	4.89	1.89	4.94	4.65	1.65	4.88	4.55	4.65	4,65	4,88	4.66	4.65	4.65	4.65	4.65	4.66	€.55	4.85	4.65	4.55	4.85	4.66
22 4.5	27 A	. 64 ·	1 77	1 14	4.10	1 06	1.00	4.00	4.00	4 00	101	4.00	4.00	23.1	4.00	23.1	4.00	1.00	4.00	4.00	4.60	4.00	4.60	4.00	4.00	4.00	4.00	4.00	22.1	4 66
23 4																														
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. 5.0	<i>.</i>	36	4.63	4,22	4.80	4.50	1.54	4,30	\$,50	4,30	4,94	5.53	4.00	4.00	4.00	4.00	4.00	4.88	6.65	4.00	4,64	4.65	4.85	4.56	4.65	4.00	4.66	4.65	1.55	4.66
1 4.5				4.73	4.72	4.81	4.85	4.84	4.89	4.83	4.90	4.66	4.66	4.66	4.6ô	4.68	4.65	4.66	4.88	4.66	4.68	4.65	4.56	4.65	4.66	4.68	4.88	4.65	1.65	4.66
elver i	Marki	IDOF		ST IN	4-130	ewink.	102 P	nor	100 /1	icat	in it	ad Even	rtion .	n – £	nìo x	r u k	A 181	\^9`	, i								f nico	vince	-2/2-	
- F								1-2 7 .12		~		ed Eque		<u></u>	``	 -	<u></u>		4							·	-		m3/sec	-
EATE;	1	5	3	4	5	6	7	8	\$	- 10	11	12	13	14	15	16	<u>17</u>	18	19			22	23	24	25	26	-			30
A(E)	1 .5 158	2	3 52.7	149.2	5 145.8	6 151.8	7 159.4	8 153.6	§ 156.8	10 156.6	11 157.0	12 159.4	13 142.8	14 142.8	15 142.8	16 142.8	17 142.8	18 142.8	19 142.8	142.8	142,8	142.8	142.8	142.8	142.8	26 142.8	27 142.8	28 142.8	29 142,8	30 142.8
ATE; 1 [163] 2 [163]	1 5 158 3 158	2 3.5 15 3.3 15	3 52.7 52.5	4 149.2 149.2	5 146.8 146.8	6 151.8 152.5	7 159.4 159.3	8 153.6 153.5	\$ 156.8 155.8	10 156.6 156.4	11 157.0 157.0	12 159.4 159.4	13 142.8 142.8	14 142.8 142.8	15 142.8 142.8	16 142.8 142.8	17 142.8 142.8	18 142.8 142.8	19 142.8 142.8	142.8 142.8	162,8 142.8	142.8 142.8	142.8 142.8	142.8 142.8	142.8 142.8	26 142.8 142.8	27 142.8 142.8	28 142.8 142.8	29 142.8 162.8	30 142.8 142.8
ATE; 1 [163: 2 [163: 3 [163:	1 .5 158 .3 158 .1 158	2 3.5 15 3.3 15 3.1 15	3 52.7 52.5 52.3	4 149.2 149.2 149.0	5 146.8 146.8 146.8	6 151.8 152.5 153.2	7 159.4 159.3 158.9	153.6 153.5 153.8	\$ 156.8 155.8 156.8	156.6 156.4 156.4	11 157.0 157.0 157.0	159.4 159.4 159.4	13 142.8 142.8 142.8	142.8 142.8 142.8	15 142.8 142.8 142.8	16 142.8 142.8 142.8	17 142.8 142.8 142.8	18 142.8 142.8 142.8	19 142.8 142.8 142.8	142.8 142.8 142.8	142.8 142.8 142.8	142.8 142.8 142.8	142.8 142.8 142.8	142.8 142.8 142.8	142.8 142.8 142.8	26 142.8 142.8 142.8	27 142.8 142.8 142.8	28 142.8 142.8 142.8	29 142.8 162.8 142.8	30 142.8 142.8 142.8
ATE; 1 [163] 2 [163] 3 [163] 4 [162]	1 5 158 3 158 1 158 7 157	2 3.5 15 3.3 15 3.1 15 7.5 15	3 52.7 52.5 52.3 51.9	4 149.2 149.2 149.0 148.8	5 145.8 145.8 145.8 146.8	6 151.8 152.5 153.2 153.8	7 159.4 159.3 158.9 158.7	8 153.6 153.6 153.6 153.6	\$ 156.8 156.8 156.8 156.8	156.6 156.4 156.4 156.4	157.0 157.0 157.0 157.0 157.2	159.4 159.4 159.4 159.4	13 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8	15 142.8 142.8 142.8 142.8	16 142.8 142.8 142.8 142.8	17 142.8 142.8 142.8 142.8	18 142.8 142.8 142.8 142.8	19 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8	26 142.8 142.8 142.8 142.8	27 142.8 142.8 142.8 142.8	28 142.8 142.8 142.8 142.8	29 142.8 162.8 142.8 142.8	30 142.8 142.8 142.8 142.8
1 [163] 2 [163] 3 [163] 4 [162] 5 [162]	1 .5 158 .3 158 .1 158 .7 157 .5 157	2 3.5 15 3.3 15 3.1 15 1.5 15	3 52.7 52.5 52.3 51.9 51.8	4 149.2 149.2 149.0 148.8 148.8	5 145.8 145.8 145.8 146.8 146.8	6 151.8 152.5 153.2 153.8 154.5	7 159.4 159.3 158.9 158.7 158.3	8 153.6 153.6 153.6 153.6 153.6	\$ 156.8 156.8 156.8 156.8 156.8	10 156.6 156.4 156.4 156.4	11 157.0 157.0 157.0 157.2 157.4	159.4 159.4 159.4 159.4 159.4	13 142.8 142.8 142.8 142.8	14 142.8 142.8 142.8 142.8 142.8	15 142.8 142.8 142.8 142.8 142.8	16 142.8 142.8 142.8 142.8	17 142.8 142.8 142.8 142.8 142.8	18 142.8 142.8 142.8 142.8 142.8	19 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8	26 142.8 142.8 142.8 142.8 142.8	27 142.8 142.8 142.8 142.8 142.8	28 142.8 142.8 142.8 142.8 142.8	29 142.8 142.8 142.8 142.8 142.8	30 142.8 142.8 142.8 142.8
1 163, 2 163, 3 163, 4 162, 5 162, 5 152,	5 158 3 158 3 158 7 157 5 157 3 157	2 3.5 15 3.3 15 3.1 15 7.5 15 7.2 15	3 52.7 52.5 52.3 51.9 51.8 51.8	149.2 149.2 149.0 148.8 148.8	5 146.8 146.8 146.8 146.8 146.8	6 151.8 152.5 153.2 153.8 154.5 155.1	7 159.4 159.3 158.9 158.7 158.3 158.1	8 153.6 133.6 153.6 153.6 153.6 153.6	\$ 156.8 156.8 156.8 156.8 156.6	10 156.6 156.4 156.4 156.4 156.4	11 157.0 157.0 157.0 157.2 157.4 157.5	12 159.4 159.4 159.4 159.4 184.9 142.8	13 142.8 142.8 142.8 142.8 142.8	14 142.8 142.8 142.8 142.8 142.8 142.8	15 142.8 142.8 142.8 142.8 142.8 142.8	16 142.8 142.8 142.8 142.8 142.8 142.8	17 142.8 142.8 142.8 142.8 142.8 142.8	18 142.8 142.8 142.8 142.8 142.8 142.8	19 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8	26 142.8 142.8 142.8 142.8 142.8 142.8	27 142.8 142.8 142.8 142.8 142.8 142.8	28 142.8 142.8 142.8 142.8 142.8	29 142.8 142.8 142.8 142.8 142.8	30 142.8 142.8 142.8 142.8 142.8
CATE: 1 163. 2 163. 3 163. 4 162. 5 162. 7 161.	1 .5 158 .3 158 .1 158 .7 157 .5 157 .3 157	2 3.5 15 3.3 15 3.1 15 7.5 15 7.2 15 7.0 15 5.8 15	3 52.7 52.5 52.3 51.9 51.8 51.8	149.2 149.2 149.0 148.8 148.8 148.6 148.3	5 145.8 145.8 145.8 146.8 146.8 145.6	6 151.8 152.5 153.2 153.8 154.5 155.1	7 159.4 159.3 158.9 158.7 158.3 158.1	153.6 153.6 153.6 153.6 153.6 153.6 153.8	\$ 156.8 156.8 156.8 156.8 156.6 156.6	10 156.6 156.4 156.4 156.4 156.4 156.2	11 157.0 157.0 157.0 157.2 157.4 157.5	12 159.4 159.4 159.4 159.4 184.9 142.8	13 142.8 142.8 142.8 142.8 142.8 142.8	14 142.8 142.8 142.8 142.8 142.8 142.8	15 142.8 142.8 142.8 142.8 142.8 142.8 142.8	16 142.8 142.8 142.8 142.6 142.8 142.8 142.8	17 142.8 142.8 142.8 142.8 142.8 142.8 142.8	18 142.8 142.8 142.8 142.8 142.8 142.8	19 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8	26 142.8 142.8 142.8 142.8 142.8 142.8 142.8	27 142.8 142.8 142.8 142.8 142.8 142.8	28 142.8 142.8 142.8 142.8 142.8 142.8	29 142.8 142.8 142.8 142.8 142.8 142.8	30 142.8 142.8 142.8 142.8 142.8 142.8
CATE 1 163 2 163 3 163 4 162 5 162 5 162 7 161 9 161	1 .5 158 .3 158 .1 158 .7 157 .5 157 .3 157 .9 158 .7 155	2 3.5 15 3.3 15 3.1 15 1.5 15 1.2 15 1.0 15 5.8 15	3 52.7 52.5 52.3 51.9 51.8 51.8 51.4	149.2 149.2 149.0 148.8 148.8 148.6 148.3	5 145.8 145.8 145.8 145.8 145.5 145.6 145.4	6 151.8 152.5 153.2 153.8 154.5 155.1 155.7	7 159.4 159.3 158.9 158.7 158.3 158.1 157.9	153.6 153.6 153.6 153.6 153.6 153.6 153.6 153.8 154.0	\$ 156.8 156.8 156.8 156.8 156.6 156.6 156.4 156.4	10 156.6 156.4 156.4 156.4 156.4 156.2 156.2	11 157.0 157.0 157.2 157.4 157.5 157.5	12 159.4 159.4 159.4 159.4 184.9 142.8 142.8	13 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	14 142.8 142.8 142.8 142.8 142.8 142.8 142.8	15 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	16 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	17 142.8 142.8 142.8 142.8 142.8 142.8 142.8	18 142.8 142.8 142.8 142.8 142.8 142.8 142.8	19 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8	26 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	27 142.8 142.8 142.8 142.8 142.8 142.8 142.8	28 142.8 142.8 142.8 142.8 142.8 142.8 142.8	29 142.8 142.8 142.8 142.8 142.8 142.8 142.8	30 142.8 142.8 142.8 142.8 142.8 142.8 142.8
ATE; 1 [163, 2 [163, 3 [163, 4 [162, 5 [162, 5 [152, 7 [161, 9 [161,	1 .5 158 .3 158 .1 158 .7 157 .5 157 .3 157 .9 155 .7 155 .5 155	2 3.5 15 3.3 15 3.1 15 7.5 15 7.2 15 7.0 15 5.8 15 5.4 15	3 52.7 52.5 52.3 51.9 51.8 51.8 51.8 51.2	149.2 149.2 149.0 148.8 148.8 148.6 148.3 148.3	5 146.8 146.8 146.8 146.6 146.6 146.4 146.4	6 151.8 152.5 153.2 153.8 154.5 155.1 155.7 155.4 156.4	7 159.4 159.3 158.9 158.7 158.3 158.1 157.9 157.5	8 153.6 153.6 153.6 153.6 153.6 153.6 153.8 154.0 154.2	\$ 156.8 156.8 156.8 156.8 156.6 156.6 156.4 156.4	10 156.6 156.4 156.4 156.4 156.4 156.2 156.2	11 157.0 157.0 157.0 157.2 157.4 157.5 157.5 157.5	12 159.4 159.4 159.4 159.4 184.9 142.8 142.8 142.8	13 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	14 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	15 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	16 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	17 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	18 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	19 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	162,8 162,8 162,8 162,8 162,8 162,8 162,8 162,8 162,8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	26 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	27 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	28 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	29 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	30 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8
CATE; 1 163, 2 163, 3 163, 4 162, 5 162, 6 154, 9 151, 9 151, 10 161, 11 161,	5 158 3 158 3 158 7 157 5 157 3 157 9 158 7 156 5 156 3 156 3 155	2 3.3 15 3.3 15 1.5 15 1.5 15 1.0 15 3.8 15 3.8 15 3.8 15 3.8 15 3.8 15 3.8 15	3 52.7 52.5 52.3 51.9 51.8 51.8 51.4 51.2 51.0 51.0	149.2 149.2 149.0 148.8 148.6 148.3 148.3 148.3 148.3	5 145.8 145.8 145.8 145.5 145.5 145.4 146.4 146.4	6 151.8 152.5 153.2 153.8 154.5 155.1 155.7 156.4 156.8 157.5 158.1	7 159.4 159.3 158.9 158.7 158.3 158.1 157.9 157.5 157.2 156.8 156.8	8 153.6 153.6 153.6 153.6 153.6 153.6 154.0 154.2 154.2 154.5	\$ 156.8 156.8 156.8 156.8 156.6 156.6 156.4 156.4 156.4 156.8 156.8	10 156.6 156.4 156.4 156.4 156.4 156.2 156.2 156.2 156.2 156.2	11 157.0 157.0 157.0 157.2 157.4 157.5 157.5 157.5 157.9 158.1 158.3	159.4 159.4 159.4 159.4 159.4 184.9 142.8 142.8 142.8 142.8 142.8	13 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	14 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	15 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	16 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	17 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	18 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	19 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	26 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	27 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	28 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	29 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	30 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8
2 163, 2 163, 3 163, 4 162, 5 162, 5 163, 7 161, 9 161, 10 161, 11 161, 12 161,	1 5 158 3 158 1 158 7 157 5 157 9 155 5 155 5 155 3 155 3 155 3 155	2 3.5 15 3.3 15 1.5 15 1.2 15 1.2 15 1.2 15 5.4 15 5.4 15 5.5 15 5.7 15	3 52.7 52.5 52.3 51.9 51.8 51.8 51.2 51.0 51.0 51.0 51.0	149.2 149.2 149.0 148.8 148.6 148.3 148.3 148.3 148.3 148.3	5 145.8 145.8 145.8 145.5 145.5 145.4 146.4 146.4 146.4	6 151.8 152.5 153.2 153.8 154.5 155.1 155.7 156.4 156.8 157.5 158.1 158.5	7 159.4 159.3 158.9 158.7 158.3 158.1 157.9 157.5 157.2 156.8 156.6	8 153.6 153.6 153.6 153.6 153.6 153.6 154.0 154.2 154.2 154.7	\$ 156.8 156.8 156.8 156.6 156.6 156.6 156.4 156.4 156.8 156.8	10 156.6 156.4 156.4 156.4 156.4 156.2 156.2 156.2 156.2 156.4 156.4	11 157.0 157.0 157.0 157.2 157.4 157.5 157.5 157.5 157.9 158.1 158.3 158.3	12 159.4 159.4 159.4 159.4 184.9 142.8 142.8 142.8 142.8 142.8 142.8	13 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	14 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	15 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	16 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	17 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	18 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	19 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	26 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	27 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	28 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	29 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	30 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8
2 163 2 163 3 163 4 162 5 162 5 163 7 161 9 161 10 161 11 169 12 161	1 5 158 3 158 3 158 5 157 157 157 157 157 157 157 157 157 1	2 3.3 15 1.5 15 1.2 15 1.0 15 5.4 15 5.4 15 5.4 15 5.7 15	3 52.7 52.5 52.3 51.9 51.8 51.4 51.2 51.0 51.0 50.8 50.8	149.2 149.2 149.0 148.8 148.6 148.3 148.3 148.3 148.3 148.3 148.3	5 145.8 145.8 145.8 145.6 145.6 145.4 146.4 146.4 146.4 146.4	6 151.8 152.5 153.2 153.8 154.5 155.1 155.7 156.4 157.5 158.1 158.5 158.1	77 159.4 159.3 158.9 158.7 158.3 158.1 157.9 157.5 156.6 156.6	8 153.6 153.6 153.6 153.6 153.6 153.6 154.0 154.2 154.5 154.7 154.7	\$ 156.8 156.8 156.8 156.8 156.6 156.6 156.4 156.4 156.6 156.8 156.6	10 156.6 156.4 156.4 156.4 156.4 156.2 156.2 156.2 156.2 156.4 156.4	11 157.0 157.0 157.0 157.2 157.5 157.5 157.5 157.5 157.5 158.1 158.3 158.5	12 159.4 159.4 159.4 159.4 184.9 142.8 142.8 142.8 142.8 142.8 142.8	13 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	14 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	15 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	16 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	17 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	18 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	19 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	26 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	27 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	28 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	29 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8	30 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8 142.8
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Table-4.10 DB-07 : Discharge Correlation Curve

<<< MASTER PROGRAM FOR DB-7:REGRESSION CURVE >>>

MONTHLY DISCHARGE CORELATION BETWEEN STATIONS X and Y X: NO.04 2-030 LUKULU

Y: NO.01 1-150		· · · · · · · · · · · · · · · · · · ·		OTSCHARGE UNIT	
NO YEAR-MONTH	ST:X	ST:Y	Х∗ү	X^2	Y^2
1 (59/60-10)	260.1	61.0	15865.25	67644.73	3721.00

2	11	280.9	72.1	20251.81	78896.42	5198.41
3	12	349.4	120.8	42210.26	122096.21	14592.64
4	1.	587.2	330.0	193774.43	344798.27	108900.00
5	2	1,097.0	996.0	1092582.24	1203343.44	992016.00
308	(88/89-10)	278.6	70.4	19611.58	77603.26	4956.16
- 309	11	331.1	104.3	34536.66	109645.81	10878.49
310	12	421.9	183.9	77591.11	178016.61	33819.21
- 311	1	689.8	614.7	423993.65	475764.76	377856.09
312	. 2	1,135.3	1.354.5	1537739.77	1288865.72	1834670.25
313	8	403.9	168.1	67887.20	163094.90	28257.61
314	9	345.1	115.1	39715.97	119063.79	13248.01

			and the second second second	 	
					372021945
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Y ≍	a + b*X	-	* 1 to 1		-499.38835

X = a' + b'*Y (a'=-a/b, b'=1/b) b= 1.47001 a'= 339.71716 b'= 0.68027 Corelation Coefficient c= 0.97100

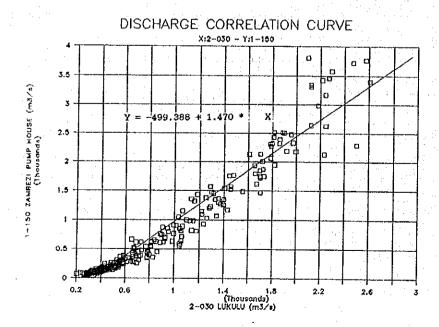


Fig.-4.4 DB-07 : Discharge Correlation Curve

Table-4.11 DB-08 : Flow Regime Table

ST.: 1-150 ZAMBEZI PUMP HOUSE FLOW REGIME (m3/s)

NO	YEAR	Q(95days)	Q(185day)	Q(275day)	Q(355day)	MEAN
1	1959/60	828.9	222.1	102.4	56.2	735.7
2	1960/61	901.5	265.5	125.5	65.9	886.4
3	1961/62	1604.4	363.7	158.5	87.4	1077.4
4	1962/63	2010.5	363.7	139.7	96.3	1119.5
5	1963/64	828.9	270.5	132.5	93.3	573.8
6	1964/65	864.9	217.6	108.8	73.6	663.4
7	1965/66	684.8	245.7	112.0	71.0	607.6
8	1966/67	977.2	204.1	99.3	79.0	657.9
9	1967/68	2617.8	418.6	157.7	71.0	1300.9
10	1968/69	1231.1	381.6	173.6	92.7	1180.3
11	1969/70	1040.9	336.0	175.7	106.5	978.4
12	1970/71	1023.1	304.5	139.7	99.3	705.8
13	1971/72	513.7	241.9	130.4	86.6	422.2
14	1972/73	512.3	196.7	107.8	71.7	412.0
15	1973/74	988.8	208.1	97.8	68.1	578.5
16	1974/75	1495.1	307.2	119.7	68.1	828.0
17	1975/76	1333.8	254.5	115.6	73.3	850.1
18	1976/77	1156.4	281.8	149.3	106.2	695.1
19	1977/78	874.9	322.5	121.7	80.9	865.9
20	1978/79	1132.4	360.2	170.4	94.2	908.1
21	1979/80	1650.1	350.9	149.3	95.4	889.6
22	1980/81	748.5	215.3	119.7	86.0	572.9
23	1981/82	401.7	174.0	103.1	72.5	338.3
24	1982/83	405.4	188.1	96.9	64.9	280.8
25	1983/84	636.4	121.7	71.2	49.1	469.4
26	1984/85	572.7	198.4	91.2	57.4	453.5
27	1985/86	574.2	152.0	74.4	55.8	490.3
28	1986/87	752.6	292.3	129.0	69.2	571.2
29	1987/88	633,3	155.4	90.6	71.0	439.8
30	1988/89	1153.3	300.2	131.1	68.4	816.4
31	1989/90	393.1	179.8	98.1	78.4	277.
32	1990/91	759.4	162.4	83.4	67.6	525.
	mean	978.2	258.0	121.1	77.4	692.9

Table-4.12 DB-09 : Annual Mean Discharge

Annual Mean Discharge (12 Years : 1979/80 - 1990/91)

								::::::::::::::::::::::::::::::::::::::				=====			-			22222
areas	BAS1NS	No.	ST.	POINT & STATION NAME	AREA(kn2)	79/80	80/81	81/82	82/83	83/84	84/85	85/86	86/87	87/88	88/89	89/90	90/91	MEAN
upper	ZAMBEZI	(1)		Cholose	73,512	749	483	285	237	395	382	413	481	370	688	234	443	430
F		•	1-150	St. Zambezi Pump House		890	573	338	281	469	453	490	571	440	816	278	526	510
		(3)		Zambezi R. Portion	90,353	921	593	350	291	486	469	508	. 591	455	845	288	544	528
*	ø	• •	1-650	St. Kabompo Boma	42,740	293	240	109	201	. 124	153	181	243	208	153	140	. 172	. 185
•		(5)		Kabompo R. Portion	45,029	296	247	118	201	126	157	184	241	207	155	141	175	187
•	k	(6)		Dangwe R. Portion	20,568	28	62	74	. 1	15	35	25	-17	-6	20	10	27	23
,	• .	(7)		Confluence	65,597	325	309	191	201	141	192	210	224	201	176	151	201	210
,		(8)	1-950	***	66,449	326	312	194	201	142	193	211	223	201	177	152	202	211
	•	(9)		Kabompo R. Portion	72,347	334	329	216	201	146	203	218	218	199	182	154	210	218
		(10)		Confluence	162,700	1255	922	566	492	632	673	726	810	654	1028	442	754	746
	•		2-030		205,531	1003	795	578	637	594	626	628	708	671	871	514	670	691
		(12)		Zambezi R. Portion	228,076	1031	833	629	645	639	700	674	780	722	896	566	690	734
		• •	2-250	the control of the co	34,621	76	78	32	40	38	51	47	38	65		34	39	60
*		(14)	2 200	Luanginga R. Portion	41,233	85	89	48	43	51	73	61	.61	80	183	50	46	73
		(15)	: -	Confluence	269,309	1115	922	677	688	691	773	735	840	802	3.5	617	736	. 806
•	3	-	2-400		278,298	1127	938	699	692	709	804	754	870	823		638	745	824
2	KAFUE			St. Raglan Farm	4,999	57	35	21	29	21	30	43	37	26	28	15		30
,	WTUC.		4-010	Kafue R. Portion	7,730	92	64	46	63	49	75	97	74	55	68	71		69
		(22)	4 120		869	32	10	5	6	43	9	13	7	. 6	,	. ,	5	7
			4-120	St. Mwambashi	8,599	100	74	50	69	53	84	110	82	61		74	74	76
				St. Smith's Bridge			109	58	76		121	176	so 80			54	79	92
			4~200	the state of the s	11,655	123					178				134	74	106	130
	· ·	•	4-280	St. Machiya Ferry	22,920	196	174	90	103	79		196	117	114				
		(27)		Kafue R. Portion	24,582	207	183	95	107	83	185	203	120			77	109	136
•	-	(28)		Luswishi R. Portion	8,866	58	49	26	20	20	34	.38	21	25		16	14	29
•	-	(29)		Confluence	33,448	265	233	121	127	103	219	241	141	143	1.5	93		165
•				St. Chilenga	34,152	270	237	123	129	104	222	244	143	145		4		167
•	•	•		St. Lubungu	54,442	279	269	128	125	111	212	237	148	139		93		168
			4-550	St. Chifumpa Pontoon	21,445	145	125	56	44	51	90	105	74	89		54	68	81
*	-	(33)	1	Lunga R. Portion	24,416	147	135	62	48	55	91	102	72	* **		57		83
•	•	(34)		Confluence	78,858	426	405	190	173	166	303	340	220	231		150		
	•		4-669	St. Kafue Hook Bridge	95,053	440	451	221	193	190	310	324	209	245		163		
LONER	ZAM8EZ I	(17)		Livingstone	466,324	1486	1325	791	816	815	898	899	977	936	1468	701	917	1003
•	*	(18)		In (Kariba Dam)	608,634	1772	1972	844	902	919	1312	1240	1053					1259
•	*.	(18E)		Evaporation		285	303	331	305	294	282	247	278	262	260	296	277	285
R	•	(185)		Storage		14	13	-456	-434	-342	57	82	-64	216	510	~382	-118	-15
	•	(19)		Out (Kariba Dam)		1473	1657	969	1031	967	972	911	839	755	1057	1055	906	1049
R	,	(50)		Zambezi R. Portion	612,724	1481	1676	971	1033	970	984	921	841	764		1063		
,	KAFUE	(36)		In (Itezhi-tezhi Dam)	105,672	466	469	193	171	158	329	319	199	242		164	182	261
Ħ	. *	(36E)		Evaporation	 .	18	19	18	17	14	15	18	18	18	17	17	16	17
•	*	(368)		Storage		3	-5	-33	-24	-48	79	21	-20	0		-25		-4
*	,	(37)		Out (Itezhi-tezhi Dam)	*****	444	452	208	178	193	238	281	201	224	219	171	168	248
•	F	(38)		In (Kafue Gorge Dam)	151,576	520	661	216	182	178	203	312	214	197	328	213	162	232
8		(38E)		Evaporation		31	38	. 35	19	12	25	39	36	- 31	27	31	24	29
•	•	(38S)		Storage		18	1	-10	-5	2	11	2	1	-2	-7	-5	-2	0
•	•	(39)		Out (Kafue Gorga Dam)		471	622	191	169	164	168	271	177	168	308	187	140	253
	•	(40)		Kafue R. Portion	154,882	477	637	192	170	166	178	279	178	175		193		259
η -	ZAMBEZI			Confluence	767,606	1959	2313	1163	1204	1136	1161		1020	938				
•		(42)		Zambezi R. Portion	786,686	1997	2399	1170	1215		1217	1246	1030	978				1350
	UANGWA		5-040	St. Luangwa Bridge	143,781	722	563	407	363	342	707	962		582		1505		652
,		(44)	· 470	Luangwa R. Portion	150,586	755	590	426	380	359	740	1008	492	510			390	683
		-		•	937,272	2753		1596	1595	1509	1957	2253				2869		2033
1	ZAMBEZ I	(45)		Confluence	331,616	2133	7202	1940	1393	เลนร	1331	2233 2233	1366	1308			14Q4 =====	

Table-4.13 DB-09 : Monthly Mean Discharge

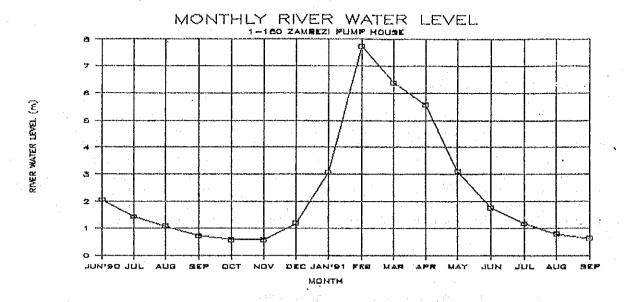
NOIT	al Year)	:	1990,	/91 ====================================		2017222								******			1990/	91
AREAS	BASINS	No.	ST.	POINT & STATION NAME	AREA(km2)	OCT	NOV	DEC	JAN	FE8	MAR	APR	MAY	JUN	JUL	AUG	SEP	(MEM)
JPPER	ZAMBEZI			Cholose	73,512	60	60	112	408	1688	1211	965	385	176	110	76	63	430
	. •	(2)	1~150	St. Zambezi Pump House	87,275	71	71	133	485	2005	1437	1145	457	209	130	90	74	518
•	•	(3)		Zambezi R. Portion	90,353	74	73	138	502	2075	1488	1186	473	216	135	93	77	
	•	(4)	1-650	St. Kabompo Doma	42,740	51	46	91	230	415	400	330	147	108	95	84	64	170
9	•	(5)		Kabompo R. Portion	45,029	53	47	91	236	431	401	333	147	111	98	84	65	173
•	•	(6)		Dongwe R. Portion	20,568	11	12	5	55	144	14	24	5	22	22	1	5	26
•		(7)		Confluence	65,597	64	59	96	291	575	415	357	153	132	119	85	69	199
•	*	(8)	1-950	St. Watopa Pontoon	66,449	64	60	98	293	580	416	358	153	133	120	85	70	200
•		(9)	•	Kabompo R. Portion	72,347	67	63	97	309	622	420	365	154	139	126	85	71	20
•	• .	(10)		Confluence	162,700	141	137	235	810	2697	1908	1551	628	356	261	178	148	74
R		(11)	2-030	St. Lukulu	206,531	282	280	361	700	1619	1415	1185	111	498	342	305	273	66
•	•	(12)	. 41	Zambezi R. Portion	228,076	283	278	360	579	1311	1247	1422	1132	661	392	332	289	68
2	•	(13)	2-250	St. Kalabo	34,621	11	8	8	- 11	84	103	87	58	41	28	19	13	3
X		(14)		Luanginga R. Portion	41,233	11	- 1	8	-26	-11	52	159	167	91	43	28	18	4
*	•	(15)		Conf luence	269,309	294	285	368	553	1300	1299	1581	1299	752	435	360	307	73
•	• .	(16)	2-400	St. Senanga	278,298	294	284	367	502	1171	1229	1680	1447	819	455	371	314	74
•	KAFUE			St. Ragian Farm	4,999	2	2	3	14	58	66	58	27	12	7	5	3	2
3		(22)		Kafue R. Portion	7,730	6	6	11	76	137	151	122	64	31	20	15	و	5
# ,	•		4-120	St. Mwambashi	869	1	1	2	12	15	14	9	4	2	2	2	1	
•				St. Smith's Bridge	8,599	7	7	13	87	152	164	131	67	33	22	16	- 11	5
•	` p			St. Mpatamato	11,655	11	10	27	144	246	192	144	70	40	27	21	15	7
•	•			St. Machiya Ferry	22,920	13	12	26	141	342	262	227	98	52	39	32	26	10
•	a	(27)		Kafue R. Portion	24,582	14	13	26	139	341	273	237	106	55	40	33	26	10
	•	(28)		Luswishi R. Portion	8,866	5	3	. 0	-6	-4	59	237 51	41	14	6	. 33	20	
		(29)	e est	Confilience	33,448	19	16	26	134	337	332	288	147	69	46	37	_	10
			4-350	St. Chilenga	34,162	19	17	26	133	336	337	292	150	70	46	37	26 26	12
				St. Lubungu	54,442	19	18	24	115	290	326	240	142	75				12
				St. Chifumpa Pontoon	21,445	23	21	28	89	221	146	103	52	39	53	38	26	11
		(33)	7 000	Lunga R. Portion	24,416	23	20	32	102	216			56		34	30	26	6
•		(34)		Confluence	78,858	42	38	56			147	110		42	35	32	27	6
				St. Kafue Hook Bridge	95,053	41	34		217	506	473	350	197	117	88	70	53	18
aco i		(33) (17)	4-003					74	286	480	477	391	219	133	90	76	60	19
e Eriv	LAPICEL	(18)		the state of the s	466,324	265	244	341	582	950	1994	2237	1914	1228	570	403	292	91
					608,634	630	673	693	1121	1428	2470	2217	1765	1103	525	475	547	113
ı		(18E)		Evaporation		577	584	375	268	147	334	335	275	253	257	317	425	34
		(185)		Storage	,—	-768 .	-885	-490	. 0	422	1258	947	552	-152	-735	-751	-773	-11
•		(19)		Out (Kariba Dam)	C10. 701	821	974	808	853	859	878	936	938	1002	1004	909	896	90
		(20)	٠.		612,724	831	986	818	868	873	892	935	934	998	1003	911	903	91
		(36)		In (Itezhi-tezhi Dam)	105,012	10	-11	29	123	458	550	596	228	139	74	61	-53	18
		(36E)		Evaporation	· 	24	15	14	11	- 11	17	18	17	13	16	18	22	1
		(365)		Storage		-187	-178	-137	-1	341	423	280	11	-36	-98	-115	-305	_
		(37)		Out (Itezhi-tezhi Dam)		173	152	152	113	106	110	298	201	162	156	157	231	16
		(38)		In (Kafue Gorge Dam)	151,576	172.	156	153	172	200	143	136	160	185	167	173	136	16
		(38E)		Evaporation		29	20	19	18	22	30	26	22	19	26	28	27	2
		(385)		Storage		3	-7	0	37	47	-16	-19	8	22	-4	-22	-64	-
		(39)		Out (Kafue Gorge Dam)	. (140	143	134	117	131	129	129	129	144	145	168	174	14
٠.		(40)			154,882	140	142	138	131	126	130	137	133	147	146	169	175	14
7	ZAMBEZ I				767,606	971	1128	956	1000	998	1022	1073	1067	1146	1148	1080	. 1079	105
		(42)			786,686	1020	1186	1003	1072	1062	1085	1070	1047	1129	1142	1090	1113	108
l			5-940	St. Luangwa Bridge	143,781	46	52	77	981	1139	598	783	298	185	133	114	66	3(
		(44)			150,586	48	54	81	1028	1193	626	820	312	193	139	119	69	38
	ZAMBEZ I			- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	937,272	1068	1240	1084	2099	2255	1712	1890	1359	1322	1281		1182	

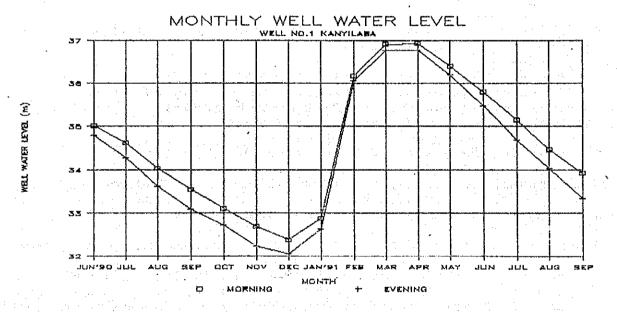
Table-4.14 DB-10 : Annual Reservoir Water Balance

[RESERVI	OIR OPERA	TION]	PERIOD	: 1979	/80 ~ 1	990/91 (1	Z YEARS)		DAM: IT	EZHI-TEZHI	
Year	N/Level	Volume Volume	R.Area A(Km2)			Change/V dV(m3/s)				Kafue H/B Qf(m3/s)	Qi-Qf (m3/s)
1978/79	1029.17	6026	367	Yang Fall of Ya							
L1979/80	1029.42	6126	371	859	1620	3.1	466.8	18.0	445.6	441.1	25.6
1080/81	1020.26	6065	369	1013	1620	-2.0	465.8	18.7	449.1	458,5	7.4
1981/82	1026.48	5025	325	496	1620	-32.9	192.3	18.3	206.9	219.3	-26,9
1982/83	1024.22	4275	291	705	1620	-23.8	171.4	16.7	178.5	193.0	-21.6
1.1983/84	1018.64	2752	216	533	1620	-48.2	158.6	13.6	193.2	190.2	-31.5
1984/85	1027.06	5280	334	.520	1620	78.6	328.8	15.1	235.2	1.206	26.7
1985/86	1028.80	5881	361	523	1620	20.6	318.8	17.6	280.6	322.3	~3.5
1986/87	1027.13	5256	335	644	1620	-19.8	199.3	18.1	201.1	208.8	-9.5
L1987/88	1027.14	5259	335	518	1620	0.1	242.6	17.6	224.9	246.5	-3.9
1988/89	1027.63	5438	343	608	1620	5.7	240.3	17.4	217.2	227.9	12.4
1989/90	1025.82	4797	315	771	1620	-20.3	168.2	17.1	171.4	150.9	17.3
	1025.60	4723	312	640	1620	-2.4	181.6	16.3	167.6	181.9	-0.3
MEAN(mm				653	1620	-3.4 -107	261.2 8237	17.0 536	247.6 7808		-0.7 -22

Table-4.15 DB-10 : Monthly Reservoir Water Balance

79/80 Ionth	W/Leve1 II(m)	Volume V(mcm)	R.Area A(Km2)	Rain R(mm)	P.Evap Eo(mm)	Change/V dV(m3/s)	Inflow Qi(m3/s)			Kafue H/B Qf(m3/s)	Q1-Qf (p3/s)
sep	1029.17	6026	367	388888		==			- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1		
OCT	1028.64	5819	359	14	210	-77.3	151.2	28.5	200.0	137.0	14.2
NOV	1028.32	5697	354	202	140	- 47.3	175.9	19.2	204.0	161.0	14.9
DEC	1028.78	5873	361	293	140	66.0	631.2	18.7	546.5	366.0	265.2
JAN	1025.18	4583	305	39	120	-481.6	436.7	14.9	903.4	551.0	-114.3
FEO	1025.19	.4587	305	500	100	1.3	778.3	12.2	764.8	722 0	56.3
MAR	1025.82	4797	315	103	140	78.6	1035.8	16.2	941.0	961.0	74.8
APR	1027.71	5467	344	6	130	258.6	809.0	16.5	534.8	808.0	3.9
 Yay	1028.75	5862	360	0	120	147.2	657.4	15.8	494.4	647.0	10.4
JUN	1029.30	6078	369	0	90	83.3	371.8	12.7	275.8	364.0	7 8
 JUI,	1029.59	6194	374	0	120	43.3	234.2	16.7	174.2	237.0	-2.8
 AUG	1029.56	6182	374	n	140	-4.5	179.6	7.01	164.6	101.0	-11.4
sep	1029.42	6126	371	5	170	-21.6	132.0	24.4	129.2	145.0	-13.0
	mm & m3/s) (mm & mcm)			72 859	135 1620	3.2 99	466.8 14720		445.6 14052	441.1 13911	25.6 809





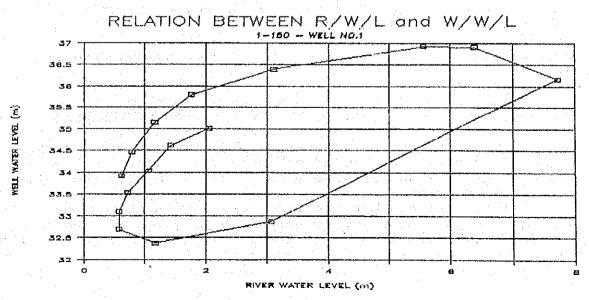


Fig.-4.5 DB-12 : Correlation between River and well Water Level

4.2 Discharge Rating Curve

To know the continuous river discharge at a given point of on the river, daily or periodic observation of the river water level is done, because it is very hard to measure discharge continuously. To concert these observed data of water level to discharge, the discharge rating curve is essential. The discharge rating curve (relation curve between discharge: Q and water level: H is generally chosen from the following equations. In this Study, a second degree curve is employed as it is widely used around the world.

1) Second-degree Curve

 $Q = a \times (H + b)^2$ a, b : Constant

2) n-degree Curve

 $Q = a \times (H + b)^n$ a,b,n : Constant, n = 1.5 - 2.5

3) Curve based on Manning Formula

 $Q = A \times V = \{(1/n) \times I^{(1/2)}\} \times A \times R^{(2/3)}$ A: Discharge area, V: Velocity, n: manning roughness I: Water surface slope, R: Hydraulic radius

4) Method based on H-A Curve and H-V Curve

Q is got from H-A & H-V curve established previously.

The discharge rating curve of the selected 19 hydrometric stations for the Study were prepared by either method shown below according to the number of flow measurement data.

<Method-1>: in case of a small amount of measurement data (DB-03)

By the Manning's Formula, some rating curves are obtained on the basis of the river cross section, water surface slope and roughness. Comparing these curves with some measurement data, the most appropriate curve is selected. This job is done using Database System (DB-03).

<Method-2>: in case of a large amount of measurement data (DB-04)

Firstly, water level (H) - square root discharge (Q^0.5) graph is prepared. Secondly, according to this H-Q^0.5 curve, the most approximate curve(s) is(are) obtained. In the case data is distributed approximately around a line on H-Q^0.5 graph, one rating curve is determined. In the case data is distributed around a broken line, plural curves are obtained. This job is done using Database System (DB-04).

In Table-4.16, the discharge rating curves by stations thus obtained are shown. These curves are established on the basis of the existing flow measurement data and new data obtained in this Study. Details are referred to Supplement-4.2.

Table-4.16 Discharge Rating Curve

						-		
and the second s	drometric St.			ng Curve		=======================================	====== Range	
	Zambezi Pump House							
2 1-650	Kabompo Boma	Q =	66.342	*(H - 0.71	15) 2			
3 1-950	Watopa Pontoon	Q =	29.791	*(H - 0.26	32)^2	<u> </u>		~
4 2-030	Lukulu	Q =	28.448	*(H + 2.56	37)^2			
5 2-250	Kalabo	Q = Q =		*(H + 0.65 *(H - 2.27				
6 2-400	Senanga	Q =	50.805	*(H + 1.74	17)^2			
7 4-050	Raglam Farm	Q =	5.677	*(H + 0.16	37)^2			
	Mwambashi	Q = Q =		*(H - 1.26 *(H - 0.01	-			
÷		Q =	6.078	*(H + 0.18	34)^2			
10 4-200	Mpatamato	Q =	7.269	*(H + 0.6	76)^2	·		
11 4-280	Machiya Ferry	Q =	10.964	*(H - 1.0	12)^2			
12 4-350	Chilenga			*(H + 0.45 *(H - 2.52			.134 m	· · · · · · · · · · · · · · · · · · ·
13 4-450	Lubungu	Q =	31.695	*(H - 0.4	76)^2			
14 4-560	Chifumpa pontoon	Q =	25.326	*(H + 0.50	32) 2			
15 4-669	Kafue Hook Bridge	Q =	110.511	*(H - 0.9	37)^2			
16 4-941	Kaleya Dam Site			*(H - 0.13 *(H - 3.6)			.663 m	
17 4-958	Uruaff Farm	Q =	8.421	*(H - 0.0	09)^2			
18 5-030	Exchange Farm	Q = Q = Q =	1.684 9.681 21.059	*(H + 0.0 *(H - 0.3 *(H - 0.7	84)^2 86)^2 29)^2	H < 0 0.720п H >= 1	720 m 1 <= H < .640 m	1.640r
	Luangwa Bridge					and the second second		
[Note]	RANGE · Applicabl	٠,			======		:=== = ====	

RANGE: Applicable range of water level

4.3 Discharge Correlation Analysis

The correlation curve(s) will be used to fill the missing or not-available discharge data in the table output from DB-05B. The correlation curve for variable target station's daily discharge: x charge: y versus variable nearest station's daily discharge: x is defined by a straight line which gives the best estimate of y for a given value of x.

The equation of the lines are: y = ax + b

where, a is the regression coefficient of y versus x, b is the regression constant of x versus y.

The correlation coefficient (:f) is used statistical parameter for measuring the degree of association of two linearly dependent variables. It is determined as:

$$f = \frac{\sum xi \ Yi - (\sum xi)(\sum Yi)/N}{\sqrt{\sum x \ i - (\sum xi)^2/N} \cdot (\sum Y \ i - (\sum Yi)^2/N}}$$

The result of discharge correlation analysis by stations is summarized in Table-4.17 as illustrated below (Details refer to Supplement-4.3)

Table-4.17 Monthly Discharge correlation Results

No.	Nearest St. X:	Υ:	Correlation Y= a	+ b * X f

0401	Lukulu	Zambezi P/H		+ 1.470 * X 0.971
0302	Watopa	Kabompo B.	Y = 46.512	+ 0.652 * X 0.961
0403	Lukulu	Watopa	Y = -94.735	+ 0.452 * X 0.919
0304	Watopa	Lukulu	Y= 305.506	+ 1.866 * X 0.919
0405	Lukulu	Kalabo		+ 0.151 * X 0.806
0406	Lukulu	Senanga		+ 1.054 * X 0.890
0907	Smith's B.	Raglam F.		+ 0.607 * X 0.958
0908	Smith's B.	Mwambashi	Y=0.126	+ 0.097 * X 0.922
1009	Mpatamato	Smith's B.	Y= 10.245	+ 0.711 * X 0.930
1110	Machiya F.	Mpatamato	Y= 9.614	+ 0.601 * X 0.967
1011	Mpatamato	Machiya F.	Y = -4.920	+ 1.556 * X 0.967
1112	Machiya F.	Chilenga	Y = 0.657	+ 1.309 * X 0.980
1213	Chilenga	Lubungu	Y= 11.831	+ 0.967 * X 0.976
1314	Lubungu	Chifumpa P.	Y = 8.263	+ 0.471 * X 0.773
1315	Lubungu	Kafue H/B	Y= 34.396	+ 1.519 * X 0.940
1816	Exchange F.	Kaleya D/S	Y = 0.189	+ 0.389 * X 0.577
1617	Kaleya D/S	Uruaff F.	Y = -0.353	+ 2.282 * X 0.538
1618	Kaleya D/S	Exchange F.	Y = -0.036	+ 0.855 * X 0.577
1019	Mpatamato	Luangwa	Y = -79.628	+ 6.559 * X 0.873
=====				

4.4 Reservoir Water Balance

To comprehend the factors of reservoir water balance and evaluate reservoir operation, the simulation of reservoir water balance is done regarding the following 3 main dams existing in Study area.

- 1) Itezhi-Tezhi Dam and Reservoir
- 2) Kafue Gorge Dam and Reservoir
- 3) Kariba Dam and Reservoir

(1) Simulation Model

Generally, dam and reservoir balance is expressed as the following equation. Refer to Fig.-4.6.

$$Qo = Qi + dV + R - E + Qgi - Qgo$$

where,

Qo : Outflow to reservoir Qi : Inflow from reservoir dV : Change of storage volume R : Rainfall to reservoir

E : Evaporation from reservoir Qgi: Groundwater inflow to reservoir

Qgo: Leakage from reservoir

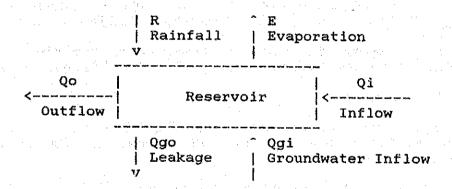


Fig. - 4.6 Reservoir Water Balance

In this Study, two factors: Qgi and Ggo are neglected as these parameters do not greatly affect the balance and the data are not available. The inflow (Qi) is calculated on a monthly basis as an unknown variable. The above equation can be rewritten as follow:

$$Qi = Qo - dV - R + E$$

< Outflow : Qo >

The outflow from reservoir (Qo) is available as a given variable, because the data of outflow through spillway and turbine conduit are recorded daily.

< Change of storage volume : dV >
The change of storage volume (dV) is obtained by 2 water levels (starting water level of calculation period, ending water level of calculation period) and water level (H) - storage volume curve (V). The daily reservoir water level is recorded at each dam. The H-V curve of each reservoir is given as shown in Supplement-4.4.

< Rainfall : R and Evaporation : E >
The rainfall amount to the reservoir (R) and evaporation amount
from reservoir (E) are calculated as follows:

 $R = r \times (A1 + A2)/2$, $E = Eo \times (A1 + A2)/2$ where,

R : Rainfall to reservoir

E : Evaporation from reservoir

A1: Starting reservoir area of calculation period

A2: Ending reservoir area of calculation period

r : Rainfall height

Eo: Potential free water evaporation height

Data for R, E, r and Eo were obtained as follows:

- 1) r for Itezhi-tezhi and Kafue Gorge dam is data observed at the rainfall station Namwala and Kafue Polder respectively.
- 2) Eo is for Itezhi-tezhi and Kafue Gorge dam is a value obtained by Penman method (quoted from "SIMULATION OF THE KAFUE GORGE POWER PLANT OPERATION, Draft Final Report, Hydroelectric Hydrological Assistance Project - Phase 1, SADCC 3.0.4)
- 3) R and E for Kariba dam are data observed at the dam site. In the simulation for Kariba dam, (R + E) is obtained as E.

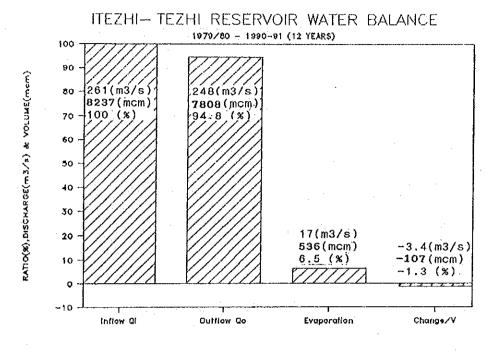
(2) Simulation Results

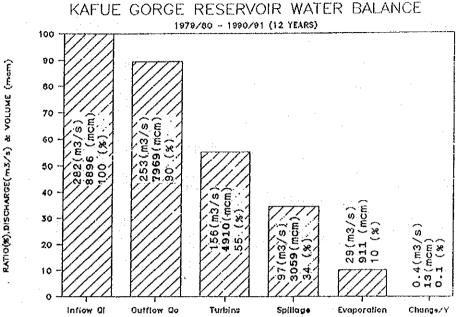
The simulation results of reservoir water balance for the 3 main dams are shown in Table-4.18, Fig.-4.7 as summary. Details are referred to Supplement-4.4.

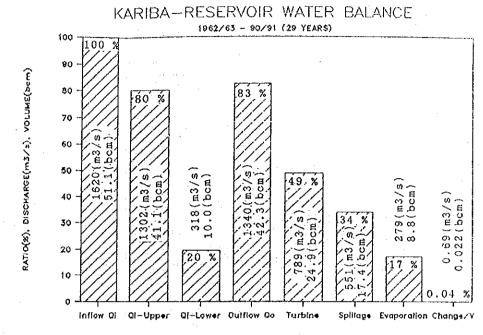
Table-4.18 Summary of Reservoir Water Balance

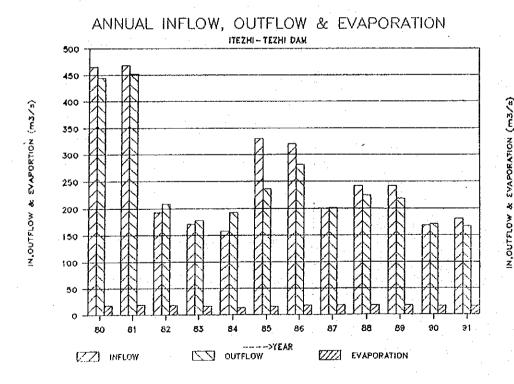
Items		Itezh	itezhi	Kafue Gorge	Kariba
Simulation Period	i	12ys(1	980-91)	12ys(1980-91)	29ys(1963-91)
Inflow	(m3/s) (mcm/y)		(100%)	282.1 (100%) 8.896	1,620 (100%) 51,088
Outflow	(m3/s) (mcm/y)	247.6	(95%)	- · · · · · · · · · · · · · · · · · · ·	1,340 (83%) 42,258
- Water Power - Spillway	(m3/s) (m3/s)	247.6	(95%)	155.7 (55%)	789 (49%) 551 (34%)
Evaporation		17.0	(7%)	28.9 (10%)	
Change of Volume		•	(-1%)	0.4 (0.2%)	0.7(0.04%)

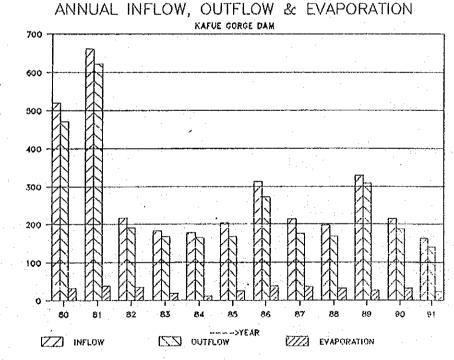
[Note] Total inflow is including rainfall.











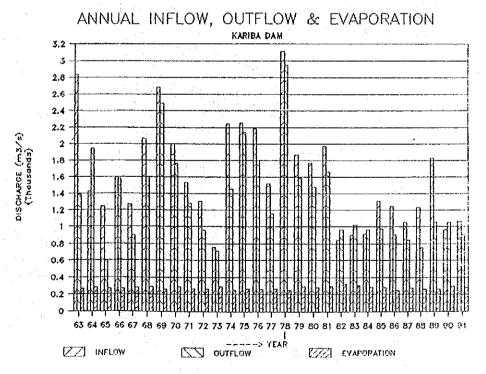


Fig. -4.7 Summary of Reservoir Water Balance

4.5 River Flow Analysis

(1) Simulation Model

<Division of Area>

The area for simulation is divided into 34 units (Zambezi River: 17 units, Kafue River: 15 units, Luangwa River 2 units) as illustrated in Fig. - 4.8 and Fig. -4.9 to analyze the river flow balance, 45 points are set to obtain discharge. The whole area is divided into the following two (2) areas.

1) Upper Area

- Zambezi River: St. Senanga (2-400) and upstream area

- Kafue River : St. Kafue Hook Bridge (4-66) and

upstream area

- Luangwa River: Up to the confluence with Zambezi R.

2) Lower Area

- Zambezi River: Downstream area from St. Senanga (2-400)

and up to the confluence with Luangwa R.

- Kafue River : Downstream area from St.Kafue Hook

Bridge (4-669) and up to the confluence with Zambezi R.

5 (68) A. Str

This division was made due to the data availability of each area. The Upper Area has some hydrometric stations and long-term data for more than 30 years. While the Lower Area has no working hydrometric station but three (3) operating dams. Data common to each dam's operation is available from 1979.

< Model Upper Area >

For Upper Area: (Zambezi River: point 1-16, Kafue River: point 21-35 and Luangwa River: point 43-44), the surface flow simulation is done as follows: Refer to Table-4.19.

- 1) The discharge at hydrometric station is obtained through Database DB-05 on the basis of the observed water level and the discharge rating curve.
- 2) The discharge at the other point is calculated in proportion to the catchment area considering the values of discharge at both the hydrometric stations in upper and lower reaches. For example, the discharge at the point 5,6 and 7 can be obtained as follows:

```
\begin{array}{lll} Q(5) &=& Q(4) + \{Q(8) - Q(4)\} \times [\{A(5) - A(4)\} / \{A(8) - A(4)\}] \\ Q(6) &=& \{Q(8) - Q(4)\} \times [A(6) / \{a(8) - A(4)\}] \\ Q(7) &=& Q(5) + Q(6) \\ \text{where,} \\ & Q(4), Q(5), Q(6), Q(7), Q(8): \\ & \text{Discharge at point 4, 5, 6, 7, 8} \\ & A(4), A(5), A(6), A(8): \end{array}
```

3) Simulation period: 32 years (1959/60 - 1990/91)

Catchment area at point 4, 5, 6, 8

< Model for Lower Area >

For Lower Area : (Zambezi River : point 17 - 20, 41 - 42 and 45, Kafue River : point 36 - 40), the surface flow simulation is done as follows: Refer to Table-4.19.

- 1) The input discharge to the reservoir and output discharge from the reservoir are obtained from the reservoir simulation results through Database DB-10. The extraction from the rservoir (evaporation etc.) and variation of storage volume are also obtained through Database DB-10.
- 2) The discharge at Livingstone (point 17) observed by ZRA is employed as the Livingstone discharge Q(17).
- 3) From the difference between Livingstone discharge Q(17) and Kariba dam inflow Q(18) obtained through the simulation, the specific discharge q(m3/s/km2) of unit area AZ-15 is obtained. As shown below, this specific discharge is applied to the calculation of discharge from unit area AZ-16, AZ-17 and AK-15.

```
Q(20) = Q(19) + {A(20) - A(19)} x q(AZ15)

Q(40) = Q(39) + {A(40) - A(39)} x q(AZ15)

Q(42) = Q(41) + {A(42) - A(41)} x q(AZ15)

where,

Q(20), Q(40), Q(42):

Discharge at point 20, 40, 42

A(19), A(20), A(39), A(40), A(41), A(42):

Catchment area at point 19, 20, 39, 40, 41, 42

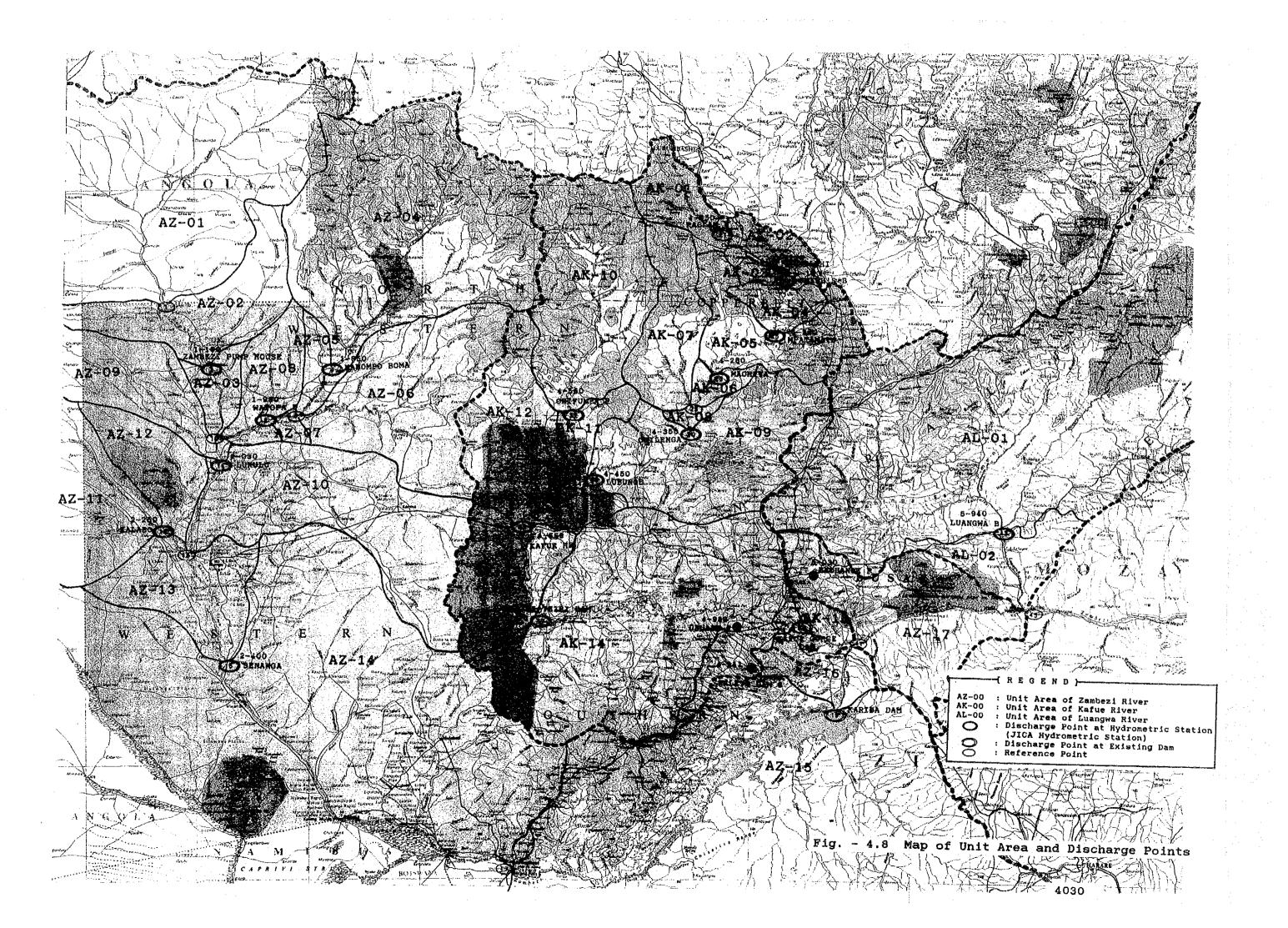
q(AZ15):

Specific discharge (m3/s/km2) of unit AZ15
```

4) The discharge at the point 44 (mouth of Luangwa River) is obtained as follows.

```
Q(44) = Q(43) + \{A(44) - A(43)\} \times q(AL02)
where,
 Q(43), Q(44): Discharge at point 43, 44
 A(43), A(44): Catchment area at point 43, 44
 q(AZ15):
 Specific discharge (m3/s/km2) of unit AL02
```

5) Simulation period: 12 years (1979/80 - 1990/91).
For this period, a set of reservoir operation data of the main 3 dams is available.



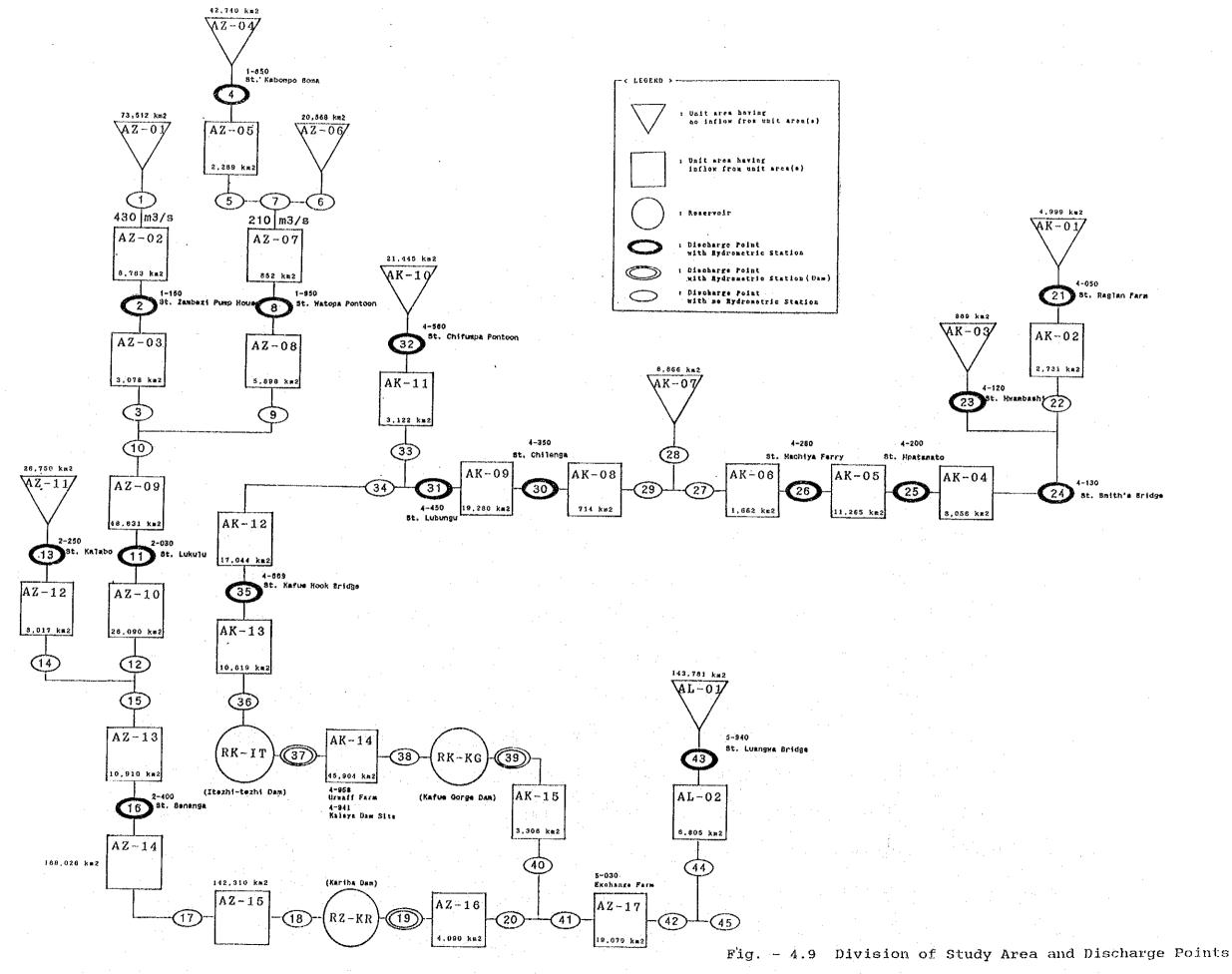


Table-4.19 Method of Discharge Simulation

No.	Area(km2)	Description	Hethod to Obtain Discharge Q(x)
1	73,521	Most upstream point of Zambezi main river	$Q(1) = Q(2) \times (73,512/87,275)$
2	82,275	Hydro. St. (1-150 Zambezi Pump House)	Q(2) : Observation Data
. 3	90,353	Hain river portion for Conf.(Zambezi x Kabompo)	$Q(3) = Q(2) \times (90.353/87,275)$
4	42,740	Hydro. St. (1-650 Kabompo Boma)	Q(4): Observation Data
5	45,029	Kabompo R portion for Conf.(Kabompo x Dongwe)	Q(5) = Q(4) + (Q(8)-Q(4))x(2,289/23,709)
6	20,568	Area of Dongwe R	$Q(6) = {Q(8)-Q(4)}x(20,568/23,709)$
7	65,597	Confluence (Kabompo x Bongwe)	Q(7) = Q(5) + Q(6)
8	66,449	Hydro. St. (1-950 Watopa Pontoon)	Q(8) : Observation Data
9	72,347	Kabompo R portion for Conf. (Zambezi x Kabompo)	Q(9) = Q(8) + (Q(8)-Q(4))x(5,898/23,709)
10	162,700	Confluence (Zambezi x Kabompo)	Q(10) = Q(8) + Q(14)
11	206,531	Hydro. St. (2-030 Lukulu)	Q(11) : Observation Data
12	228,076	Zambezi R portion for Conf. (Zambezi x Luanginga)	$Q(12) = Q(11) + (Q(16) - Q(11) - Q(13)) \times (21,545/37,147)$
13		Hydro, St. (2-250 Kalabo)	Q(13) : Observation Data
14	41,233	Luanginga R portion for Conf.(Zambezi x Luanginga)	Q(14) = Q(13) + (Q(16)-Q(11)-Q(13))x(6,612/37,147)
15		Confluence (Zambezi x Luanginga)	Q(15) = Q(12) + Q(14)
16		Hydro, St. (2-400 Senanga)	Q(16) : Observation Data
17		tivingstone (Victoria Falls)	Q(17) : Observation Data
18		Catchment area for Kariba Reservoir (In-flow)	Q(18) : Simulation Result
18E		Evaporation :	Q(18E): Simulation Result
188		Storage	Q(18S); Simulation Result
19	608 634	Kariba Dam (Out-flow)	Q(19) : Gate Operation Data
20		Zambezi R portion for Conf. (Zambezi x Kafue)	$Q(20) = Q(19) + 4,090 \times {(Q(18)-Q(17))/142,310}$
21		Hydro, St. (4-050 Ragiam Farm)	Q(21) : Observation Data
22	7,730		Q(22) = Q(24) - Q(23)
23		Hydro. St. (4-120 Hwambashi)	Q(23): Observation Data
24		Hydro, St. (4-130 Smith's Bridge)	Q(24) : Observation Data
25		Hydro. St. (4-200 Hpatamato)	Q(25) : Observation Data
26		Hydro, St. (4-280 Hachiya Ferry)	Q(26) : Observation Data
27	24,582		$Q(27) = Q(26) + {Q(30)-Q(26)}x(1,662/11,242)$
23	8,866		$Q(28) = \{Q(30) - Q(26)\} \times \{8,866/11,242\}$
29	33,448		Q(29) = Q(27) + Q(28)
30		Hydro. St. (4-350 Chilenga)	Q(30) : Observation Data
31			
\vdash		Hydro, St. (4-450 Lubungu)	Q(31) : Observation Data
32		Hydro, St. (4-560 Chifumpa Pontoon) Lunga R portion for Conf. (Kafue x Lunga)	0(32) : Observation Data
33			$0(33) = 0(32) + (0(35) - 0(31) - 0(32)) \times (2,971/19,166)$
34	78,858	Confluence (Kafue x Lunga)	Q(34) = Q(31) + Q(33)
35		Hydro. St. (4-669 Kafue Hook Bridge)	Q(35) : Observation Data
36	105,672		
36[:	Evaporation	Q(36E): Simulation Result
365		Storage	Q(36S): Simulation Result
37	105,672	· · · · · · · · · · · · · · · · · · ·	Q(37) : Gate Operation Data
38	151,576		La Caracteria de la Car
38E		Evaporation	Q(38E): Simulation Result
388		Storage	Q(385): Simulation Result
39	151,576	Kafue Gorge Dam (Out-flow)	Q(39) : Gate Operation Data
40	154,882	Kafue R portion for Conf. (Zambezi x Kafue)	$Q(40) = Q(39) + 3,306 \times {(Q(18)-Q(17))/142,310}$
41	767,608	Confluence (Zambezi x Kafue)	Q(41) = Q(20) + Q(40)
42	786,686	Zambezi R portion for Conf.(Zambezi x Luangwa)	$Q(42) = Q(41) + 19,080 \times {(Q(18)-Q(17))/142,310}$
43	143,781	Hydro. St. (5-940 Luangwa Bridge)	Q(43) : Observation Data
44	150,586	Luangwa R portion for Conf.(Zambezi x Luangwa)	$Q(44) = Q(43) \times (150.586/143.781)$
45	937,272	Confluence (Zambozi x Luangwa)	Q(45) = Q(42) + Q(44)

(2) Simulation Results

<River Flow for Upper Area>

The summary of river water analysis of the upper area for 32 years (1959/60 - 1990/91) is as follows: (Details are referred to Table-4.20, Fig.-4.10 and Supplement-4.5)

		:		<dis< th=""><th>scharge></th></dis<>	scharge>
	Main River Basin**			(m3/s)	(bcm/yr)
(point-2)	Zambezi Pump House	(1-150)	:	693	21.9
(point-11)		(2-030)	:	808	25.5
(point-16)	Senanga	(2-400)	:	986	31.1
Kafue R	iver Basin	•			~~~
	Raglam Farm	(4-050)	:	37	1.2
	Smith's Bridge	(4-130)	•	79	2.5
(point-25)		(4-200)	. :	98	3.1
	Machiya Ferry	(4-280)	:	145	4.6
(point-31)		(4-450)	:	199	6.3
	Kafue Hook Bridge	(4-669)	•	336	10.6
	River Basin***				
(point-43)	Luangwa Bridge	(5-949)	:	626	19.7

<River Flow for Whole Area>

The summary of river water analysis of the upper area for the latest 12 years (1979/80 - 1990/91) is as follows: (Details are referred to Table-4.21, Fig.-4.11 and Supplement-4.5)

>

<< <upper area="">>></upper>	<discharge< th=""></discharge<>				
Zambezi Main River Basin	•		bcm/yr)		
(point- 2) Zambezi Pump House (1	-150) :	510	16.1		
	-030) :	691	21.8		
(point-16) Senanga (2	-400) :	824	26.0		
Kafue River Basin		the state of the s			
	~050) :	30	0.96		
	-130) :	76	2.4		
	-200) :	92	2.9		
	-280) :	130	4.1		
(point-31) Lubungu (4-	-450) :	168	5.3		
(point-35) Kafue Hook Bridge (4-	-669) :	266	8.4		
Luangwa River Basin					
(point-43) Luangwa Bridge (5-	-949) :	652	20.6		
<< <lower area="">>></lower>					
(point-17) Livingstone	:	1003	31.6		
(point-18) Kariba Inflow	:	1259	39.7		
(point-19) Kariba Outflow	•	1049	33.1		
(point-36) Itezhi-tezhi Inflow	· * * * * * * * * * * * * * * * * * * *	261	8.2		
(point-37) Itezhi-tezhi Outflow	:	248	7.8		
(point-38) Kafue Gorge Inflow	•	282	8.9		
(point-39) Kafue Gorge Outflow	:	253	8.0		
(point-41) Confluence (Zambezi x K		1316	41.5		
(point-45) Confluence(Zambezi x L	uangwa):	2033	64.1		

Table-4.20 River Flow for Upper Area Period: 32 Years: (1959/60 - 1990/91)

areas	BASINS :	No. S	r. I	POINT & STATION NAME	AREA(km2)	DIS	IEAN SCHARGE (bcm/yr)	SPECIFIC DISCHARGE (m3/s/1000 km2
UPPER	ZAMBEZI	(1)	C	Cholose	73,512	584	18.4	7.94
11	11	(2)1-1	150 5	St. Zambezi Pump House	87,275	693	21.9	7.94
11	11	(3)	2	Zambezi R. Portion	90,353	718	22.6	7.94
11	17	(4)1-6	550 S	St. Kabompo Boma	42,740	219	6.90	5.12
11	H .	(5)	k	Kabompo R. Portion	45,029	223	7.0	4.96
ij	B .	(6)	I	Dongwe R. Portion	20,568	39	1.2	1.92
11	11	(7)	C	Confluence	65,597	263	8.3	4.00
EE.	и	(8)1-9	950 \$	St. Watopa Pontoon	66,449	264	8.3	3.98
1!	11	(9)	k	Kabompo R. Portion	72,347	275	8.7	3.81
11	Ħ	(10)	C	Confluence	162,700	993	31.3	6.10
Ħ	Ħ	(11)2-0)30 S	St. Lukulu	206,531	808	25.5	3.91
l#	11	(12)	2	Zambezi R. Portion	228,076	868	27.4	3.81
21	. 13	(13)2-2	250 S	St. Kalabo	34,621	74	2.3	2.13
- 11	n .	(14)	I	Luanginga R. Portion	41,233	93	2.92	2.24
17	#1	(15)	C	Confluence	269,309	961	30.3	1 30年 新 3.57
11	11	(16)2-4	100 S	St. Senanga	278,298	986	31.1	3.54
11	KAFUE	(21)4-0)50 S	St. Raglan Farm	4,999	37	1.2	19.14.19 7.33
ti	11	(22)	K	Kafue R. Portion	7,730	72	2.3	9.27
41	11	(23)4-1	120 5	St. Mwambashi	869	8	0.25	8.99
Ð	11	(24)4-1	130 5	St. Smith's Bridge	8,599	79	2.5	9.24
11	11	(25)4-2	200 5	St. Mpatamato	11,655	98	3.1	8.40
11	11	(26)4-2	280 S	St. Machiya Ferry	22,920	145	4.6	6.31
13	Hi .	(27)	K	Kafue R. Portion	24,582	151	4.8	6.15
ti	11	(28)	I	luswishi R. Portion	8,866	35	1.1	3.97
11	11	(29)		Confluence	33,448	186	5.88	1199-9-5.57
11	11	(30)4-3	350 S	St. Chilenga	34,162	189	6.0	5.54
11	. 11	(31)4-4	150 S	St. Lubungu	54,442	199	6.3	3.66
13				St. Chifumpa Pontoon	21,445	99	3.1	4.63
11		(33)		unga R. Portion	24,416	105	3.3	4.30
11		(34)		Confluence	78,858	304	9.6	3.86
11				St. Kafue Hook Bridge	95,053	336	10.6	3.54
17				St. Luangwa Bridge	143,781	626		4.36
11		(44)		Luangwa R. Portion	150,586		20.7	4.36

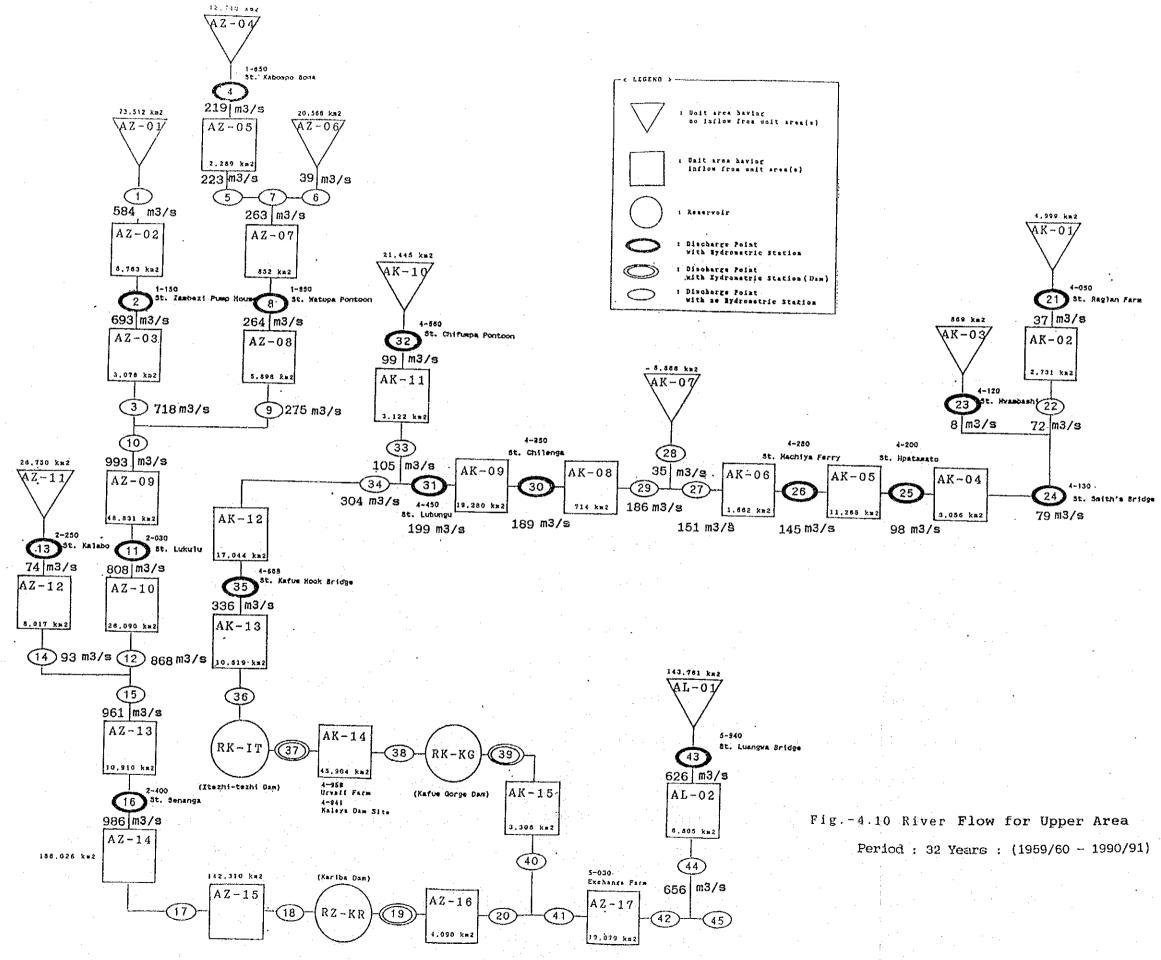
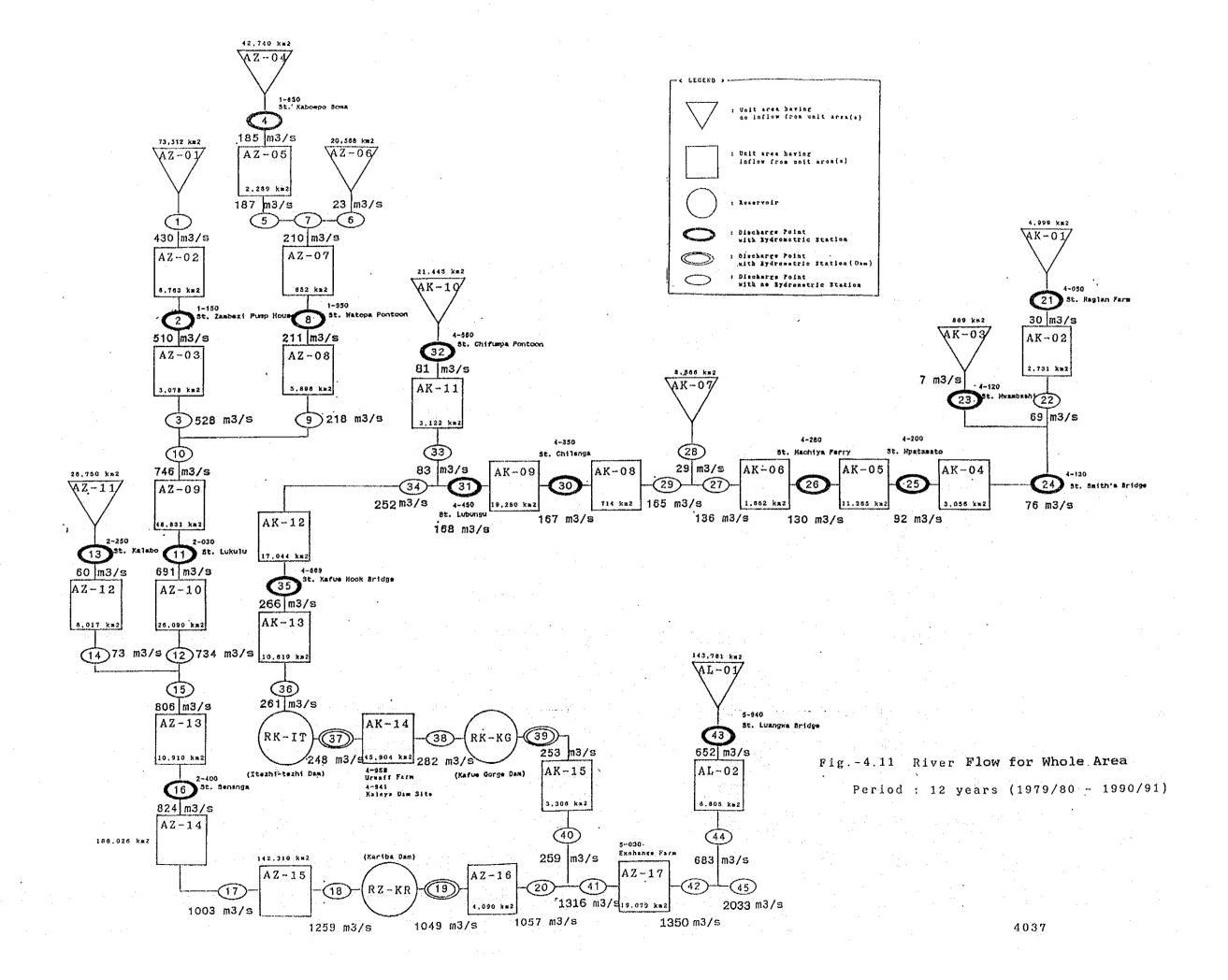


Table-4.21 River Flow for Whole Area Period: 12 Years: (1979/80 - 1990/91)

AREAS	BASINS	No.	ST.	POINT & STATION NAME	AREA(km2)	DIS	EAN CHARGE	SPECIFIC DISCHARGE
-						(m3/s)	(bcm/yr)	(m3/s/1000 km)
JPPER	ZAMBEZI	(1)	Cholose	73,512	430	13.6	5.8
11	11	(2	1-150	St. Zambezi Pump House	87,275	510	16.1	5.8
11	11	(3)		Zambezi R. Portion	90,353	528	16.7	5,89
11	ti	(4)	1-650	St. Kabompo Boma	42,740	185	5.8	4.3
13	11	(5)		Kabompo R. Portion	45,029	187	5.9	4.16
18	11	(6		Dongwe R. Portion	20,568	23	0.72	1.1
31	E3	(7		Confluence	65,597	210	6.6	3.20
11	11			St. Watopa Pontoon	66,449	211	6.7	3.18
11	11	(9)		Kabompo R. Portion	72,347		6.9	3.0
Ħ	11	(10	•	Confluence	162,700	746	23.5	
31	17		•	St. Lukulu	206,531	691		
11	112	(12)		Zambezi R. Portion			21.8	3.3
n	11			St. Kalabo	228,076	734	23.1	3.22
11	71	(14)			34,621	60	1.9	1.72
31	13	(15)		Luanginga R. Portion	41,233	73	2.3	1.76
11	11			Confluence	269,309	806	25.4	2.99
19				St. Senanga	278,298	824	26.0	2.96
8	KAFUE			St. Raglan Farm	4,999	30	0.96	6.08
		(22)		Kafue R. Portion	7,730	69	2.2	8.88
11	11			St. Mwambashi	869	7	0.22	7.99
- 11	11			St. Smith's Bridge	8,599	76	2.4	8.79
ij	11			St. Mpatamato	11,655	92	2.9	7.90
ĮT.	11			St. Machiya Ferry	22,920	130	4.1	5.6
ii	11	(27))	Kafue R. Portion	24,582	136	4.3	5.5
11	B	(28)		Luswishi R. Portion	8,866	29	0.92	3.28
33	0.0	(29)		Confluence	33,448	165	5.2	4.92
11	11			St. Chilenga	34,162		5.3	4.89
13	Ħ			St. Lubungu	54,442	168	5.3	
11	U			St. Chifumpa Pontoon	21,445	81	2.6	3.77
11	n	(33)		Lunga R. Portion	24,416	83	2.6	
18	11	(34)		Confluence	78,858	252		3.42
Ħ	11			St. Kafue Hook Bridge	95,053	266		3.19
OMED	ZAMBEZI	1171	4 000	Livingstone			8.4	2.79
II Carit					466,324	1003	31.6	100.000.2.15
u U	11	(18)		In (Kariba Dam)	608,634	1259	39.7	2.07
11		(18E		Evaporation		285	9.0	
11		(185		Storage		-75	-2.4	-
	. H	(19)		Out (Kariba Dam)		1049	33.1	1.73
\$1 		(20)		Zambezi R. Portion	612,724	1057	33.3	1.73
It	KAFUE	(36)		In (Itezhi-tezhi Dam)	105,672	261	8.2	2.4
ii.		(36E	•	Evaporation	-	17	0.54	
11		(365	3)	Storage	-	4	-0.12	:
. 11	11	(37)		Out (Itezhi-tezhi Dam)		248	7.8	2.35
T	11	(38)		In (Kafue Gorge Dam)	151,576	282	8.9	1.80
11	11	(38E	2)	Evaporation	tera men santi	29	0.91	
11	TÎ	(388)	-	Storage		0	0.01	· .
11	93	(39)		Out (Kafue Gorge Dam)	\$500 mar (ma)	253	8.0	1.6
u .		(40)		Kafue R. Portion	154,882	259	8.2	The second secon
11	ZAMBEZI			Confluence		1316	and the second s	1.6
11		(42)			767,606		41.5	1.7
				Zambezi R. Portion	786,686	1350	42.6	1.7
11	* 44	_		St. Luangwa Bridge	143,781	652	20.6	4.5
		(44)		Luangwa R. Portion	150,586	683	21.5	4.5
n	ZAMBEZI	(45)		Confluence	937,272	2033	64.1	2.1



4.6 Characteristics of River Flow

(1) Monthly Discharge

Using the simulation results mentioned in Section 4.4, the average monthly flow patterns for the 32 years periods is given as Table-4.22.

Table-4.22 Average Monthly Flow Pattern at Hydrometric Station

(Simulation Period: 32years, 1959/60-90/91) (Unit:m3/s) St.Nos. St. Names OCT NOV ŒC JAN AUG SEP 707.7 1474.3 2161.4 1955.3 806.0 338.8 205.0 139.7 100.5 1 1-150 Zanbezi P/H 84.7 106.3 240.2 1-650 Kalamana Rang 74.2 94.0 175.6 257.4 377.2 497.0 460.3 223.7 153.1 125.7 103.9 82.8 218.7 1-950 Watopa Pontroin 78.5 98.3 184.4 311.0 502.6 691.6 590.9 244.9 151.2 125.0 104.7 86.8 Lukulu 333.8 369.8 532.8 899.6 1342.0 1749.3 1646.5 985.7 609.2 470.7 399.4 351.9 2-000 807.6 2-250 Kalabo 11.8 10.1 14.2 45.7 134.2 229.4 190.5 99.6 64.2 43.2 26.8 16.7 73.9 6 2-400 Sananga 357.2 387.0 523.8 798.3 1231.7 1803.1 2086.0 1777.4 1195.5 739.0 522.4 411.8 986.1 4-050 Ragilam Farm 3.4 4.3 14.0 37.1 75.6 107.3 99.4 48.4 21.6 13.4 9.4 36.6 5.8 8 4-120 Membeshi 1.6 .2.3 6.1 11.8 17.7 21.0 13.6 6.8 4.4 3.6 2.8 2.0 Smith's Bridge 15.0 19.0 48.5 110.6 172.5 9 4-130 200.1 162.3 92.1 53.9 36.4 27 n 79.7 18 Q 10 4-200 Mpatamato 18,1 23.3 60.9 134.9 225.2 255.9 197.7 102.0 60.4 41.7 31.7 97.9 11 4-280 Machiya Ferry 24.6 29.5 76.8 189.5 319.7 385.6 321,3 164.2 84.6 59.4 45.7 144.5 33.5 12 4--350 Chilenga 29.4 34.6 83.7 216.3 379.1 509.0 454.6 261.2 122.4 79.7 58.8 41.3 189.2 13 4-450 Lubinai 35.9 37.8 85.3 216.7 378.0 498.1 472.6 309.4 148.1 90.2 199.2 66.8 51.3 4-500 Chifumpa Pon. 25.6 29.5 64.5 119.2 209.2 262.1 200.4 91.5 57.9 46.6 39.5 31.3 15 4--669 83.8 162.1 365.0 Kafue Hook B. 80.1 638.9 805.7 752.7 475.6 262.0 170.3 133.9 104.8 336.2 16 4-941 Kaleya 0/S 0.14 0.19 0.36 0.40 0.47 0.26 0.20 0.18 0.18 0.18 0.17 0.16 17 4-958 Uruaff Farm $0.16 \cdot 0.24$ 0.500.66 1.10 0.23 0.320.10 0.10 0.09 0.10 0.11 0.3 18 5-030 Exchange Farm 0.04 0.09 0.30 0.41 0.81 0.49 0.18 0.09 0.07 0.06 0.05 0.05 0.2 19 5-940 Luangwa Bridge 45.3 53.2 383.8 1238.7 1961.6 1904.2 975.3 404.8 226.4 143.7 105.0 72.3

(2) Annual Flow Regime

The annual flow regime of each station selected in the Study shows the following discharge.

- 1) High Discharge (95-day discharge)
- 2) Normal Discharge (185-day discharge)
- 3) Low Discharge (275-day discharge)
- 4) Drought Discharge (355-day discharge)
- 5) Annual Mean Discharge

The results of annual flow regime tables and flow regime charts of 1990/91 year are refferd to Supplement-4.6.