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FLOOD CONTROL REGULATION OF MACHHU-II RESERVOIR



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PREFACE

Efficient utilisation of water resources requires that reservoirs must be operated in most judicious and scientific manner. Efficient regulation of the reservoirs can lead to increased benefits from the reservoir as well as significant reduction in damage due to floods. For this purpose, the Irrigation department, Govt. of Gujarat entered into an agreement with the National Institute of Hydrology, Roorkee for the preparation of Reservoir operation manual for the Machhu-II dam located in the Machhu river basin. The work has been taken up as a consultancy project.

The present report deals with the development of operation policies for flood control regulation of Machhu-II dam. Detailed basin description and data used in this study have been presented. Solution strategy adopted has been described and the simulation results using recommended policy have been detailed in tabular form. Finally, recommended release to be made through the main and additional spillway for different conditions is presented in tabular form.

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CHAPTER 1

1.1 INTRODUCTION

The Irrigation Department, Govt. of Gujarat, Gujarat has requested the National Institute of Hydrology, Roorkee to prepare Reservoir operation manual for Machhu-II dam. This work has been entrusted to NIH through an agreement signed between Irrigation Department, Govt. of Gujarat and the National Institute of Hydrology, Roorkee.

The scope of the project is preparation of reservoir operation manual and flood forecasting schemes for Machhu-II project with the following objectives:

- a) To develop reservoir operation manual for conservation as well as flood control (i.e. flood forecasting and flood warning).
- b) To develop spillway gate operation schedule for normal and emergency flood conditions including floods of different return periods 100, 200, 500, 1000 years as well as maximum observed flood SPF and PMF.
- c) To recommend establishment of comprehensive flood warning system and reservoir inflow/outflow monitoring.

This work has been subdivided into two parts, first dealing with development of operation policies for conservation purposes and second dealing with the development of policies for flood regulation.

The aim of this report is to develop operation policies for flood control regulation of Machhu-II reservoir. Detailed basin description and data used in this study have been presented along with the existing hydrometeorological network. Solution strategy adopted has been described and the simulation results have been

detailed in tabular form. Using the recommended policy, design flood and 1000-year flood have been regulated through the Machhu-II reservoir and results have been explained. The recommended release to be made through the main and additional spillways for different inflow conditions at different reservoir elevations have been presented in tabular form.

CHAPTER 2

BASIN DESCRIPTION AND DATA AVAILABILITY

2.1 MACHHU RIVER BASIN

Machhu is one of the major rivers of Saurashtra region of Gujarat. It rises near Bhadla in the Rajkot district of Gujarat at an elevation of 275 m at North latitude 22°11' and East longitude 71°6' and flows in a generally northern, north-western course and disappears in the little Runn of Kutch downstream of Malia. On the way, a few rivers and tributaries join it. Important among them are Jumbudi, Banaiya, Patalia Vonkala, Asoi, Maha and Matelio. The total length of the Machhu river is 161 km and its total catchment area is 2331 sq. km. Two important hydraulic structures located in the Machhu basin are the Machhu-I dam and the Machhu-II dam. An index map of the Machhu basin up to Morbi showing the major hydraulic structures, rain and discharge gauging stations is given in Fig. 1.

The purpose of Machhu-I dam is irrigation and water supply. This dam is ungated and can not be used for flood moderation purposes. Only Machhu-II dam has spillway gates and some provision of flood moderation. Some of the salient features of this dam are briefly discussed below.

2.2 MACHHU-II DAM

This dam is located on river Machhu near village Jodhpur in Morbi taluka of Rajkot district. It is 103 km from the source of the river. This dam was breached in 1979 floods. The dam has been rebuilt now. The total catchment area up to the dam site is 1928 sq. km. The gross and live storage capacities of this dam are 1699 and 1010 million cubic meter respectively. The Machhu-II dam

has been conceived as a reservoir impounding water for irrigation and municipal water supply and for flood control. The highest observed flood for this project is 13026 cumec (4.60 lakh cusec) while the peak of design flood hydrograph is 26420 cumec (9.33 lakh cusec).

The Machhu-II dam has two spillways, the main spillway and the additional spillway. The crest of the main spillway is at 51.22 m and of the additional spillway is at 49.08 m. The storage capacity of the reservoir between crest level of additional spillway and FRL (57.32 m) is 85.04 million cubic meter while that between FRL and HFL (59.25 m) is 61.5 million cubic meter. The safe carrying capacity of river channel downstream of the dam is 12742.6 cumec. It was specified by Gujarat Irrigation Department that for inflow rate up to 5144.53 cumec and reservoir level at or below FRL, only the main spillway should be operated.

The towns of Morbi and Malia, lie 9 km and 46 km downstream of Machhu-II dam respectively. The Morbi town is situated on the left bank of the river whereas the Malia town is situated about 1.5 km away from the left bank. The area under the command lies on the left bank of river Machhu. Geographically, the command lies between north latitudes of 22°46' and 22°57' and east longitudes of 70°52' and 70°40'. The area has more or less flat topography which is characteristic of the coastal low-lands.

2.3 EXISTING HYDROMETEOROLOGICAL NETWORK

The existing network of hydrological & meteorological stations located in/around the Machhu basin is as follows:

- i) Rain gauge stations are located at Malia, Morbi, Machhu-II,

Lunsar, Wankaner, Machhu-I, Beti, Kuvadva, Adiya, Anandpur, Rajkot, Chotila, Than, and Sardhar.

ii) River gauging sites are located on river Machhu at Beti, Machhu-I dam, Wankaner, Machhu-II dam and Morbi. In addition, the gauges are also located at Matel (Matelio river) and Dhuva (Maha river).

iii) Wireless stations (Police) are located at Malia, Morbi, Wankaner, Rajkot and Chotila. The proposed wireless stations are at Beti, Machhu-I, Machhu-II, Than and Maha. The existing police wireless stations are connected with Rajkot and Rajkot is connected with Ahmedabad wireless station.

2.4 DATA USED FOR FLOOD CONTROL REGULATION

The design flood hydrograph for the Machhu-II reservoir as provided by the Gujarat Irrigation Department (GID) is given in Table 1. The flood hydrographs of various return periods are given in Table 2. The elevation-area-capacity table for the reservoir as given in Table 3 was also supplied by GID. The plots for Elevation-Area and for Elevation-Capacity are presented in Fig. 2 and 3 respectively. The storage change curves showing inflow values for different rates of rise at different elevations have been presented in Table 4 and have been plotted in Figs 4(a to h). The normal values of monthly evaporation which have been used in this study are presented in Table 5. The spillway rating curves for the Main and the Additional spillways are presented in Fig. 5 and 6 respectively.

CHAPTER 3

FLOOD CONTROL REGULATION OF MACHHU-II RESERVOIR

3.1 THE SOLUTION STRATEGY ADOPTED

The Machhu-II dam has two spillways, the main spillway and the additional spillway. The crest of the main spillway is at 51.22 m and of additional spillway at 49.08 m. The total capacity of the reservoir between crest level of additional spillway and FRL (57.32 m) is 85.04 million cubic meter while that between FRL and HFL (59.25 m) is 61.5 million cubic meter. These capacities are quite small in comparison to total volume of design flood hydrograph (1790 million cubic meter) and even in comparison to one hour duration of flow at the design peak rate of 26425 cumec (95.13 million cubic meter). On the other hand, the safe capacity of downstream channel is 12742.6 cumec. This somewhat limits any possibility of significant flood control through regulation of this reservoir when any high flood impinges it. Therefore, it was realized that the main objective of the flood control regulation should be to provide maximum possible attenuation and at the same time keep the reservoir level high for minimum duration (as specified by Gujarat Irrigation Dept.). Further, this reservoir has provision of two gated spillways having crests at different levels. It was also specified by Gujarat Irrigation that for inflow rate up to 5144.53 cumec and reservoir level at or below FRL, only the main spillway should be operated.

The reservoir is to be operated for control of flooding in the downstream area when the reservoir level is above rule curve level. In the present study, the reservoir level and the inflows were classified in various classes and an operation strategy was

formulated in which releases were decided depending on the class of reservoir level and inflow. An exhaustive reservoir operation simulation study was undertaken and the limits of these classes were changed to accomplish the best results. Besides reservoir elevation at the beginning of time period under consideration and the inflow into the reservoir, the proposed strategy also includes consideration of rising or falling state of the inflow hydrograph.

The operation scenario was classified in two categories: Normal operation and Emergency operation.

3.1.1 Normal Operation

The normal operation policy is applicable for reservoir level up to 57.48 m and the inflow rates up to 17160 cumec. Only main spillway is to be operated till inflow rate is less than or equal to 5144.53 cumec and the reservoir level is below FRL. Through an exhaustive simulation study, it was found that if inflow rate is between 5144.53 cumec and channel capacity of 12742.6 cumec, it is possible and better to keep the reservoir level at FRL by releasing 5144.53 cumec from main spillway and the remaining through the additional spillway. It was also seen that up to reservoir level of 57.48 m, with inflow rate going up to 17160 cumec, it is possible to maintain outflow at the level of safe carrying capacity of the channel downstream, i.e. 12742.6 cumec.

3.1.2 Emergency Operation

The emergency operation policy becomes effective when either the inflow rate exceeds 17160 cumec or the reservoir level is higher than 57.48 m. The objective behind keeping the emergency

level at 57.48 m was to provide safety against the peak of 1000 year return period flood (17160 cumec) by making release @ 12743 cumec (channel capacity) till the inflow is below 17160 cumec and store excess water in the reservoir. However, it may not be possible to contain the reservoir level at or below 57.48 m if the hydrograph volume is large (in view of very small storage space between 57.32 m and 57.48 m). The objective is to moderate the floods by making best use of whatever small storage is available.

Under the emergency operation, the maximum capacity of both spillways at current reservoir level is an important variable, besides the inflow rate and whether the inflow is increasing or decreasing. In order to satisfy the requirement that reservoir level should not be kept high (above danger level of 59.25 m) for more than a few hours in any case, minimum release under emergency situation has been recommended as 12742.6 cumec.

Various scenarios based on reservoir level, inflow rate and increasing/decreasing trend of inflow that were considered while operating the reservoir under emergency condition are:

- a) Inflow exceeding 17160 cumec (with any reservoir level) and having increasing trend,
- b) Reservoir level exceeding 57.48 m (with any inflow) and inflow having increasing trend,
- c) Reservoir level exceeding 57.48 m with inflow above 17160 cumec and having decreasing trend,
- d) Reservoir level exceeding 57.48 m with inflow below 17160 cumec and having decreasing trend,
- e) Inflow exceeding 17160 cumec (with any reservoir level) and

having decreasing trend.

For the conditions (a), (b), and (c) , the policy is to release minimum of the current inflow rate and the combined release capacity of both spillways at the current reservoir level. For the conditions (d) and (e), the policy is to release at the value equal to the total release capacity of both spillways at the current reservoir level. However, the minimum release in all cases under emergency situation must be 12742.6 cumec.

CHAPTER 4

RECOMMENDED OPERATION POLICY

4.1 RECOMMENDED FLOOD CONTROL OPERATION POLICY FOR MACHHU-II

The operation policy developed based on this study is described through the following steps:

4.1.1 Normal Operation

- a) If the current reservoir level is between rule level and FRL (57.32 m), allow reservoir to fill up to FRL while operating only the main spillway, till the inflow rate is less than or equal to 5144.53 cumec.
- b) If the current inflow rate is between 5144.53 and 12742.6 cumec, operate both spillways and keep the reservoir level at FRL.
- c) If the current inflow rate is between 12742.6 and 17160 cumec and reservoir level is between FRL and 57.48 m, make release ●12742.6 cumec.

4.1.2 Emergency Operation

If the current inflow rate is more than 17160 cumec or the reservoir level is higher than 57.48 m, release at the rate of maximum capacity of both spillways at the current reservoir level subject to following:

- a) If inflow is increasing, release minimum of inflow rate and the spillway release capacity at the current reservoir level.
- b) If inflow is decreasing and is below 17160 cumec, release minimum of inflow and spillway release capacity.
- c) In all the cases under emergency situation, the minimum release should be 12742.6 cumec.

4.2 SIMULATION OF OPERATION OF DESIGN FLOOD USING RECOMMENDED PROCEDURE

The design flood hydrograph was routed through the reservoir using the operation policy given in section 3.2. The peak outflow was 24138.3 cumec against peak inflow of 26425.0 cumec. The reservoir level was in the danger zone (above 59.25 m) for only one hour. The safe carrying capacity of downstream channel exceeded for eleven hour. The working table for regulation of design flood operation is given in Table 6.

The operation of reservoir when design flood is inflow and only 90% gates are operational was also simulated. The peak outflow was 23621.7 cumec. The reservoir level was above 59.25 m for five hours and the safe carrying capacity of downstream channel exceeded for 11 hours. The reservoir working table for design flood regulation with 90% gates operational is given in Table 7.

As per the guidelines in IS:11223-1985, the portion of design flood corresponding to very high flows (exceeding 12780.0 cumec) was routed through the reservoir assuming that this portion impinges the reservoir when 50% of the flood control space is occupied, i.e. when the initial reservoir level was 58.31 m. In this case, the reservoir was in danger zone for three hours. The corresponding reservoir working table is given in Table 8.

4.3 SIMULATION OF OPERATION OF 1000-YEAR RETURN PERIOD FLOOD USING RECOMMENDED PROCEDURE

In addition to the design flood, the reservoir operation was also simulated for the flood hydrographs for various return periods. In case of the hydrograph of 1000-year return period

flood, the inflow peak of 17154.3 cumec is same as the outflow peak. The operation policy tries to keep reservoir level high for a minimum period as specified by GID. The safe carrying capacity of downstream channel exceeded for three hours. Further, when only 90% gates are operational, the inflow and outflow peaks are same at 17154.3 cumec and the safe carrying capacity of downstream channel exceeded for three hours. The reservoir working table with full and 90% gates operational is given in Tables 9 and 10 respectively.

The operation of reservoir using inflow forecasts was also simulated. The forecasted values of inflows were obtained using the previous ordinates. The forecasted flows have been obtained by

$$\text{INF}(I) = 2*\text{INF}(I-1) - \text{INF}(I-2)$$

where $\text{INF}(I) = \text{In low during hour } I$

The results of simulation for the design flood forecasting and for 1000 year flood forecasting are given in Tables 11 and 12 respectively. It is seen that one hour ahead forecasts using above equation do not help in any improvement in the results in terms of peak outflow of maximum reservoir level attained.

The recommended release to be made through the Main and the Additional spillways depending on reservoir elevation, inflow rate and inflow nature (increasing/decreasing) is given in Table 13. In these set of tables, in the first column, the reservoir elevation (meter) is given. Then corresponding to each inflow value in Cumec (for different reservoir elevations), values of release in cumec is given for the main spillway and the additional spillway.

CHAPTER 5

CONCLUSION

5.1 CONCLUSION

Two objectives have been kept in mind while developing operation policy for the flood regulation of Machhu-II reservoir. One is to keep the reservoir level above HFL for the least possible time and another is to release the water through the spillways above safe carrying capacity of the downstream channel for the least possible time. Limitation of reservoir capacity is the main constraint in flood moderation through the operation of spillways of Machhu-II. The recommended operation procedure is, therefore, the best possible policy in this situation. It will be helpful in avoiding the occurrence of high reservoir level for longer duration, even when design flood impinges. This policy enables computation of release required from main and additional spillway for given (i) reservoir elevation, (ii) inflow and (iii) information about the likely nature of inflow in current time interval (whether rising or falling).

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FIGURES

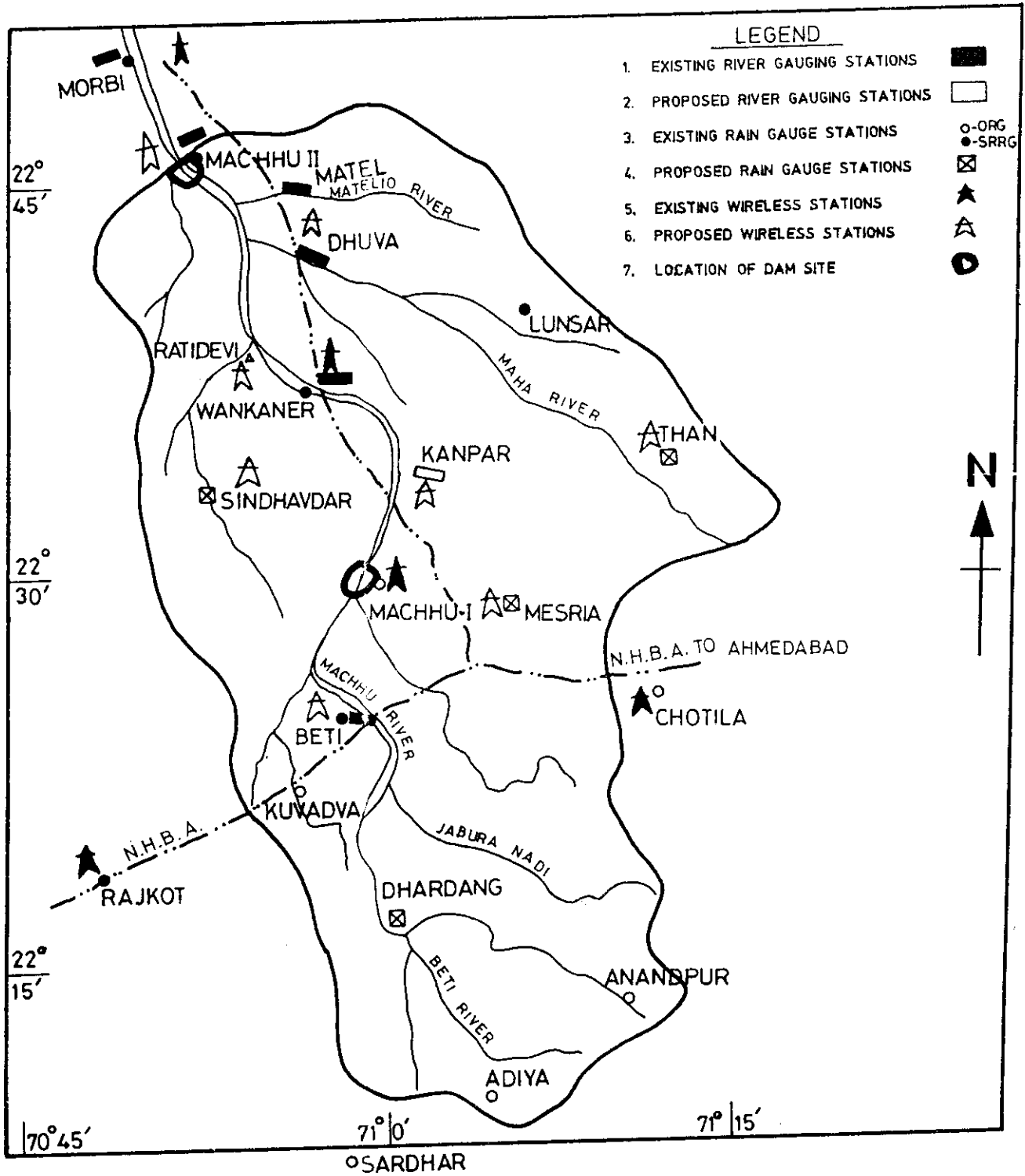
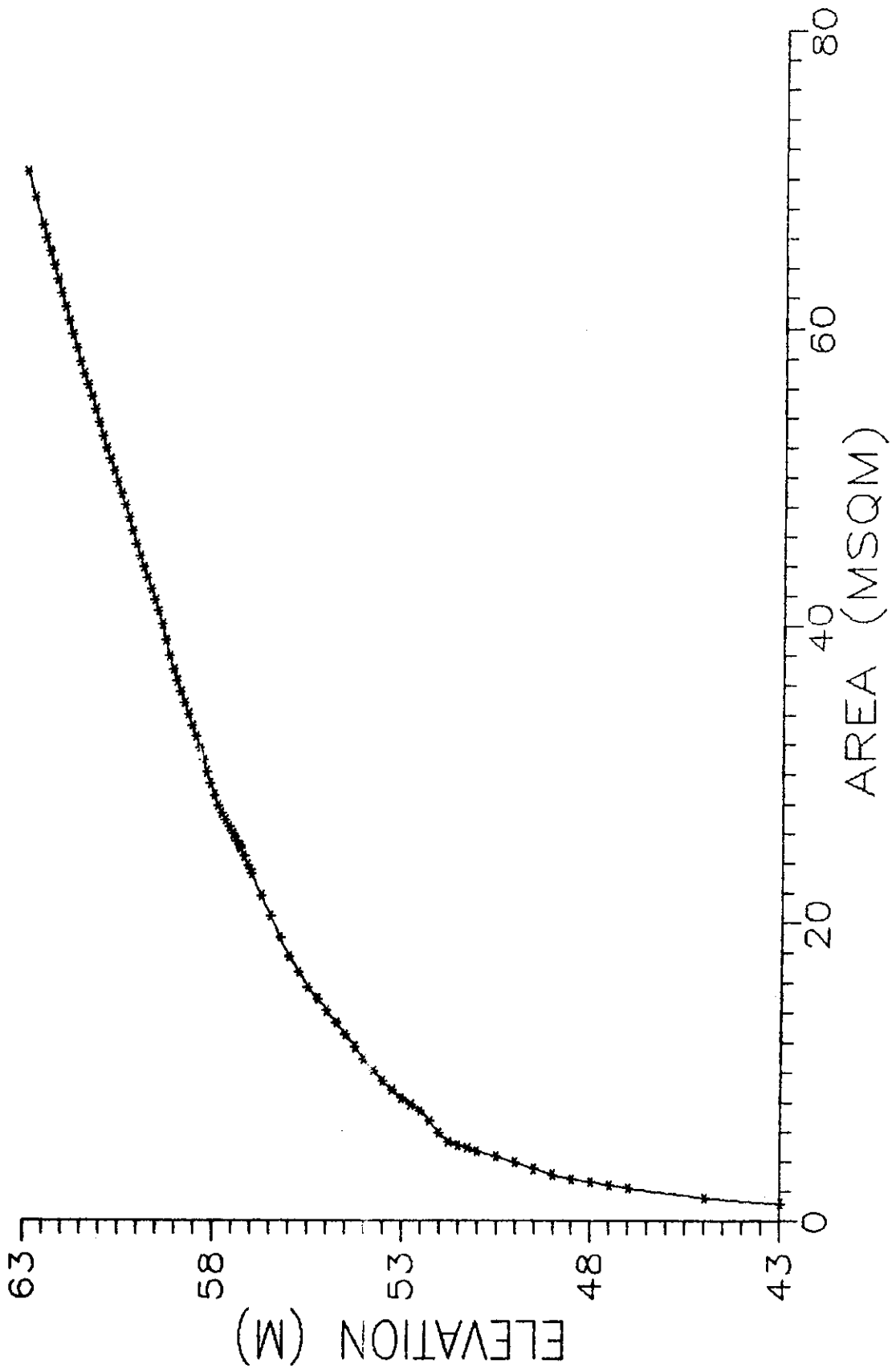
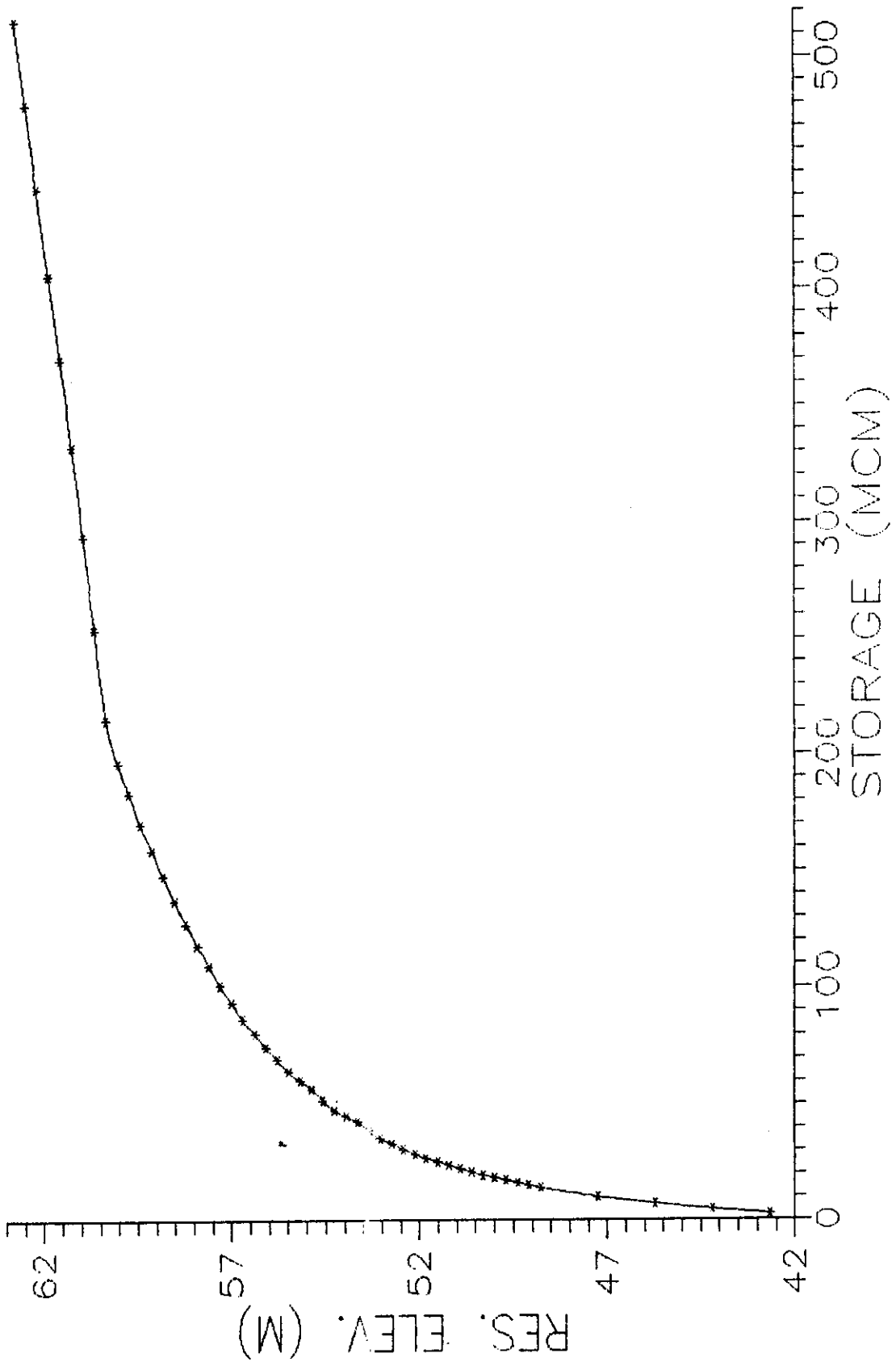


FIG.1 INDEX MAP OF MACHHU BASIN UPTO MACHHU II DAM

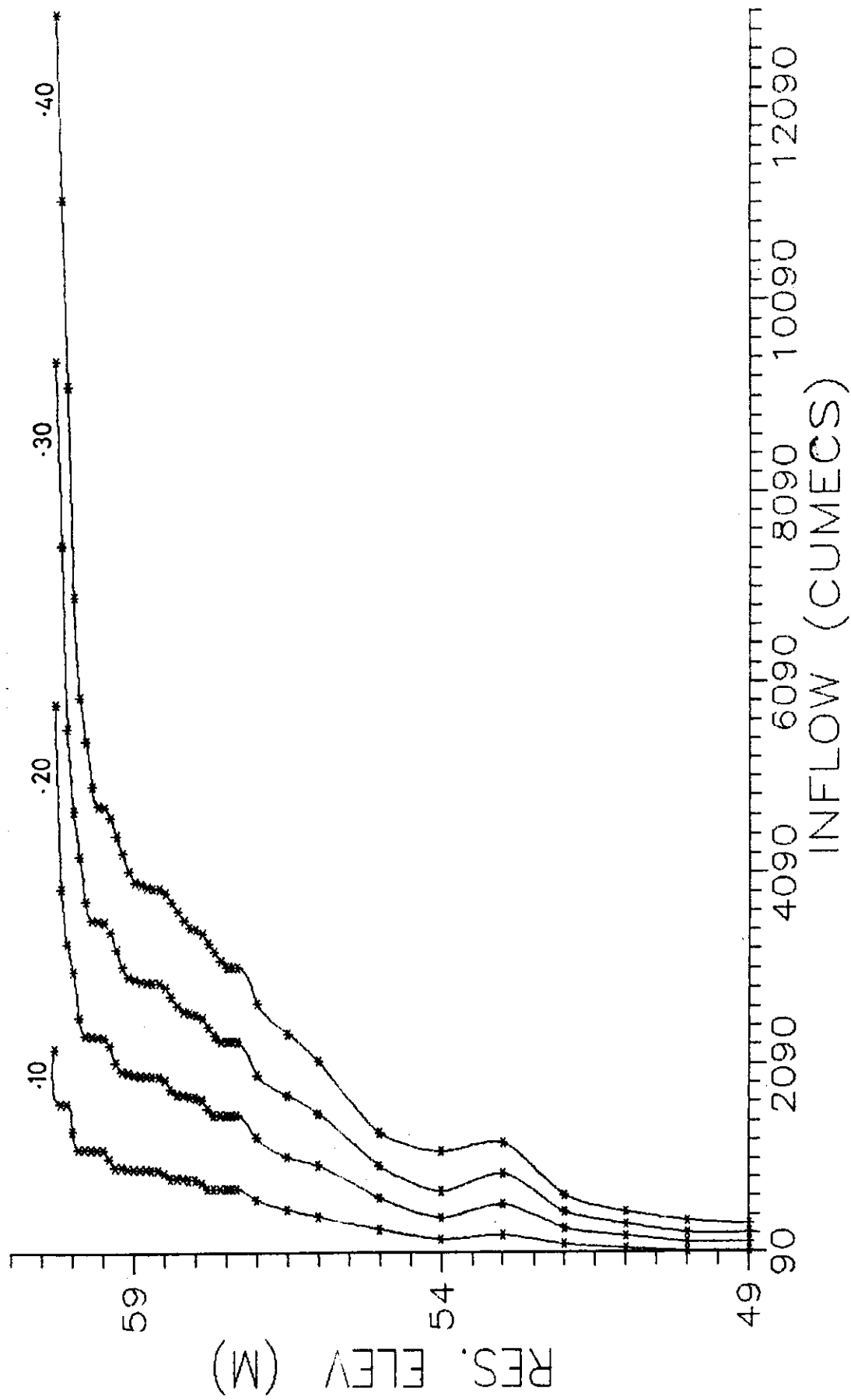


ELEVATION AREA CURVE

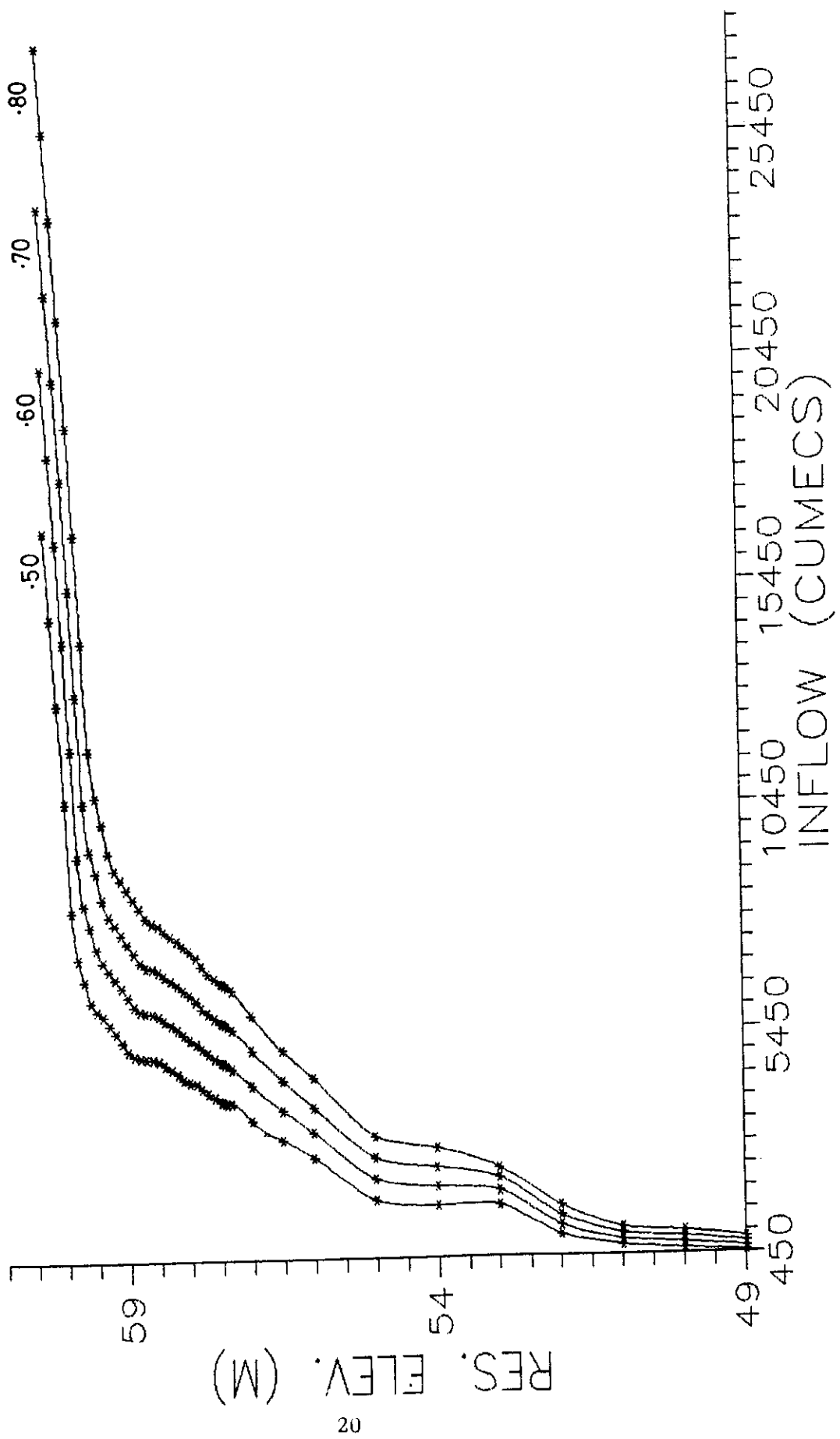
(FIG. 2)



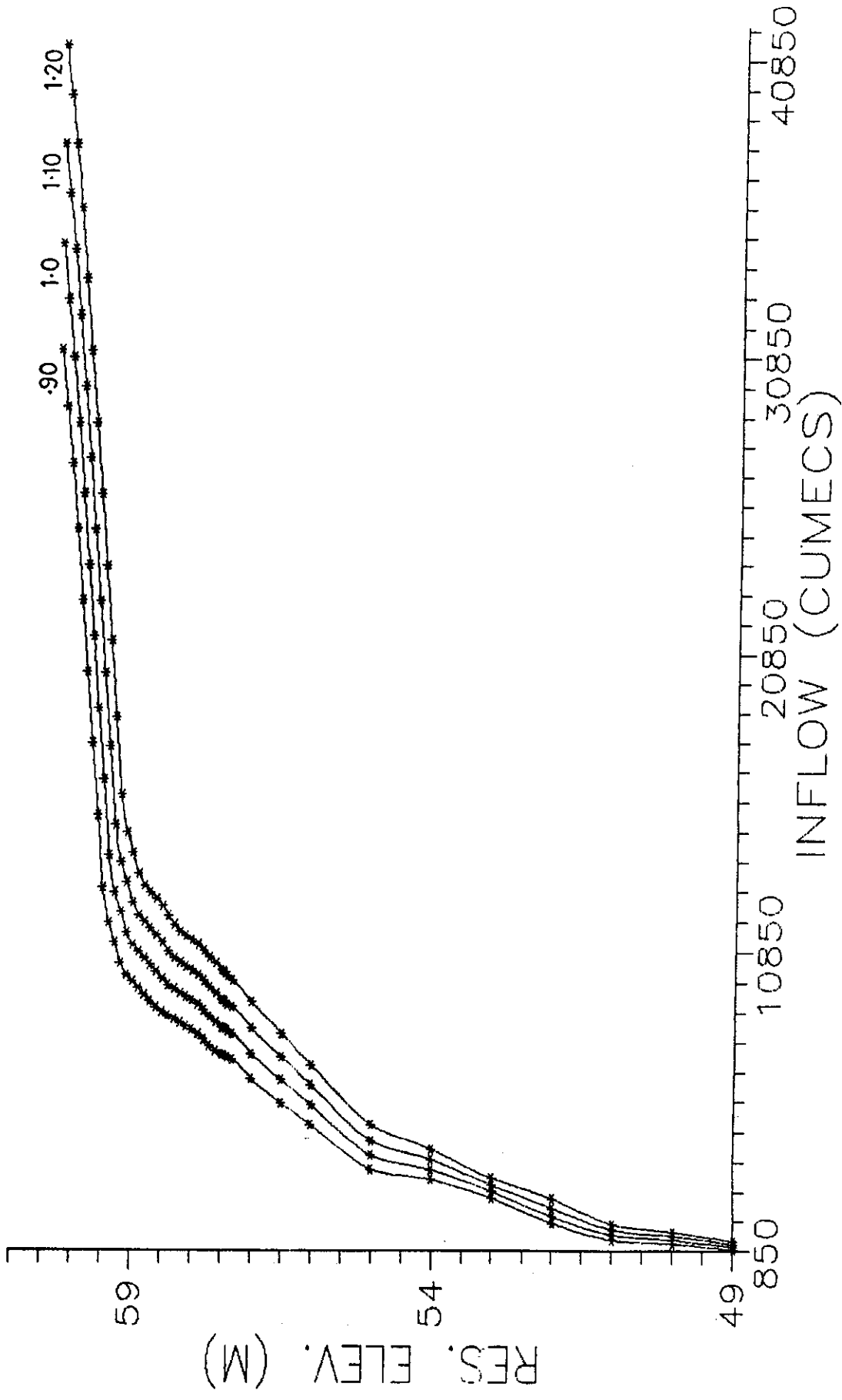
86 STORAGE ELEVATION CURVE (FIG. 3)



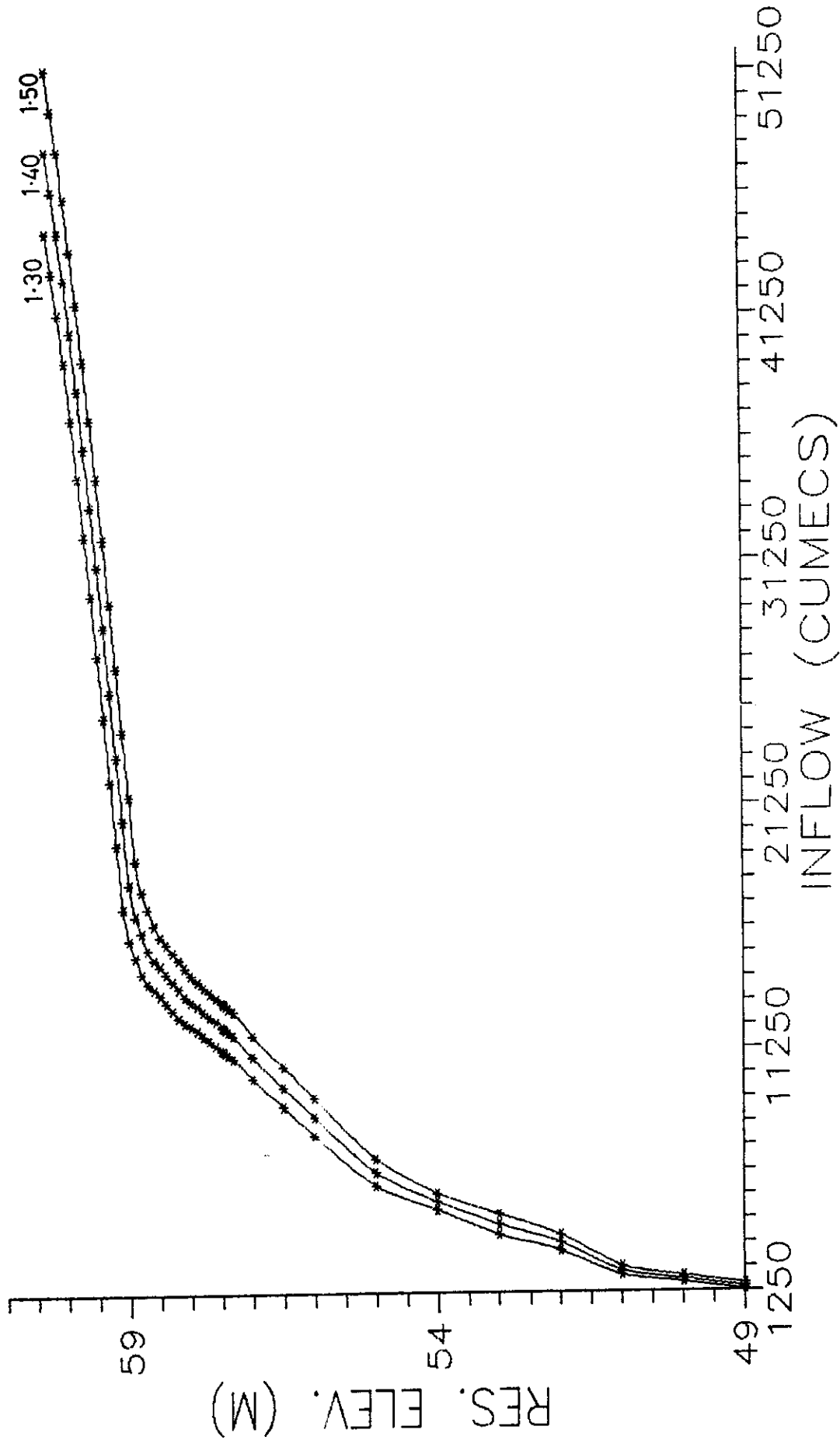
STORAGE CHANGE CURVES
(FIG. 4a)



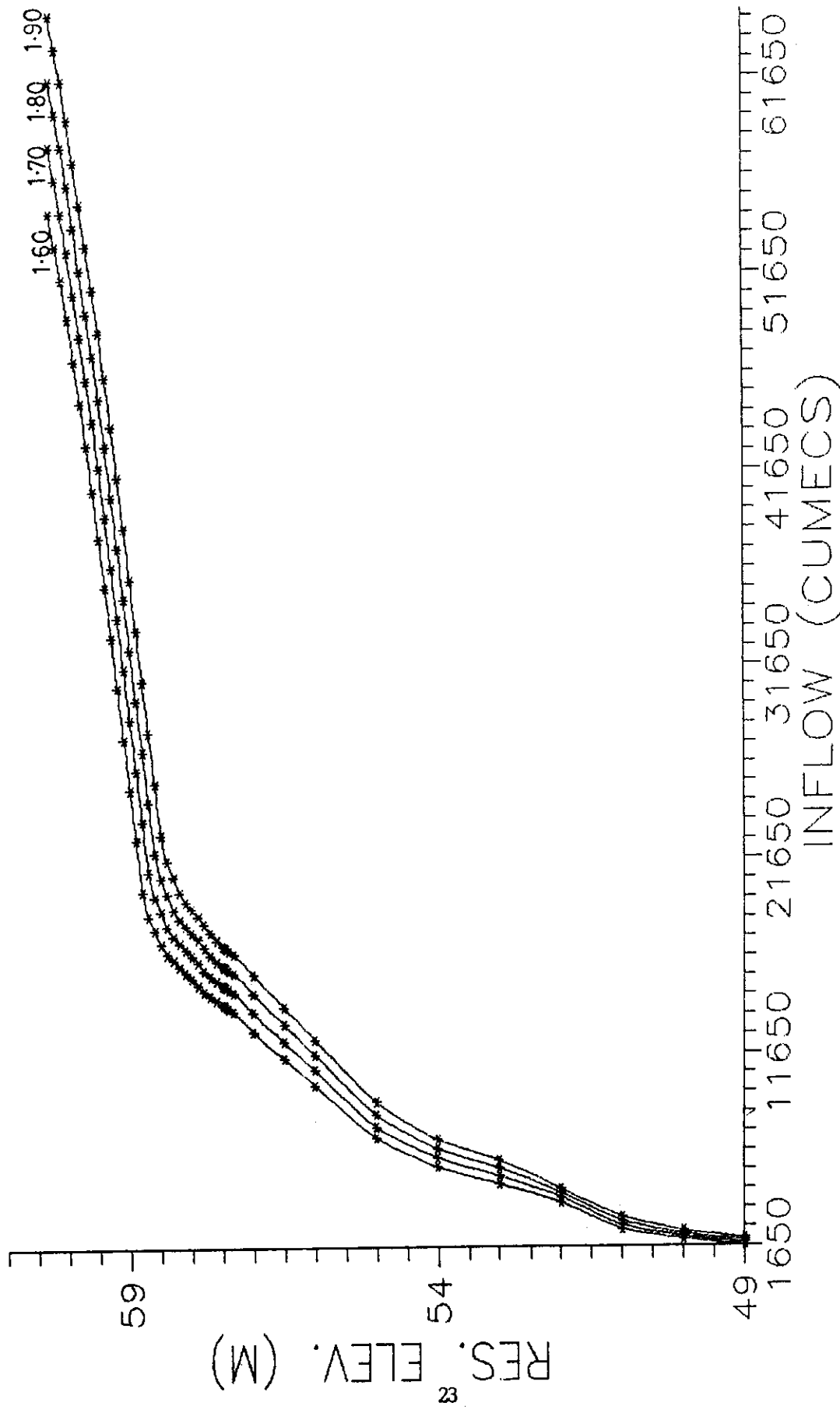
STORAGE CHANGE CURVES
(FIG. 4b)



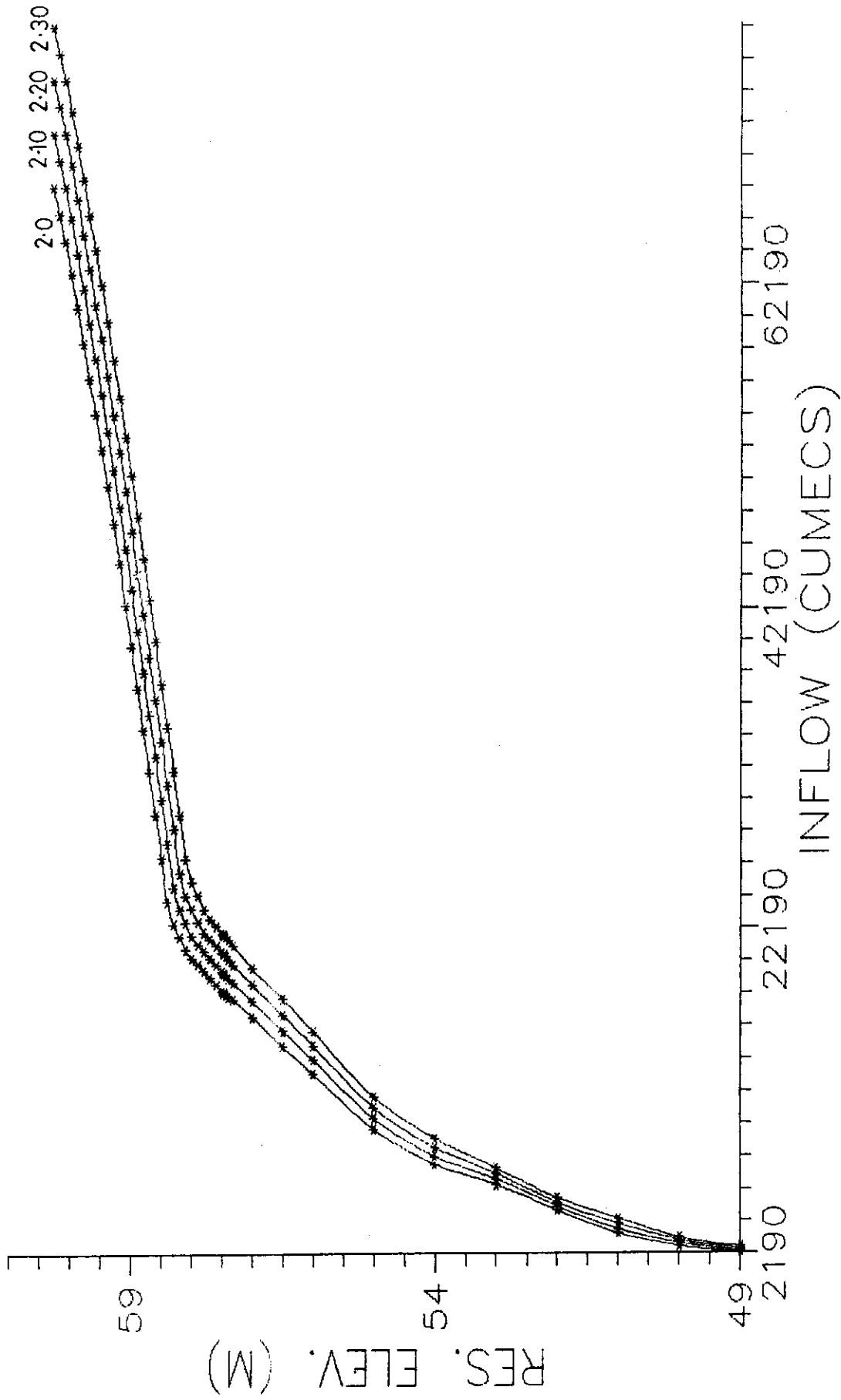
STORAGE CHANGE CURVES
(FIG. 4c)



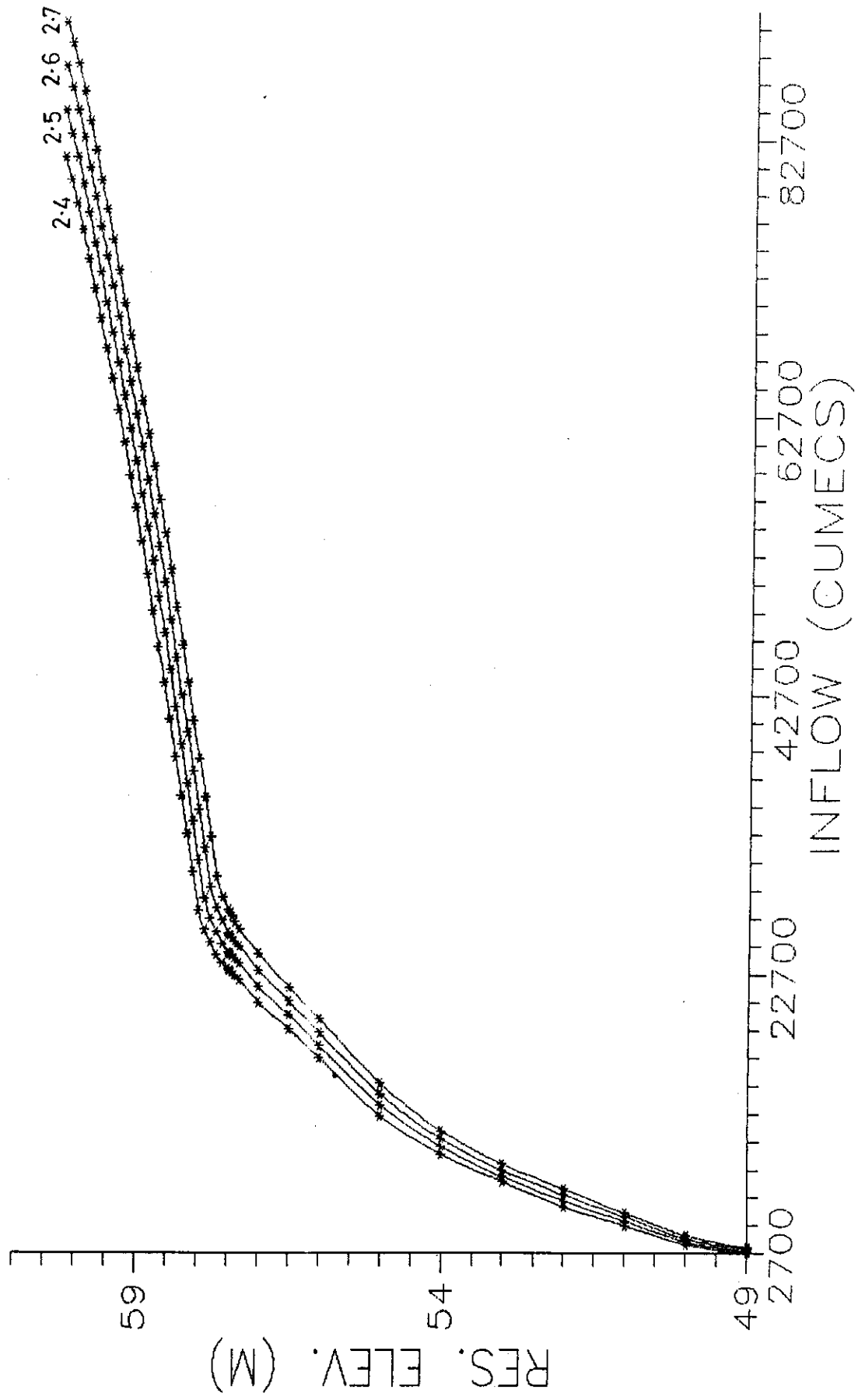
STORAGE CHANGE CURVES
(FIG 4d)



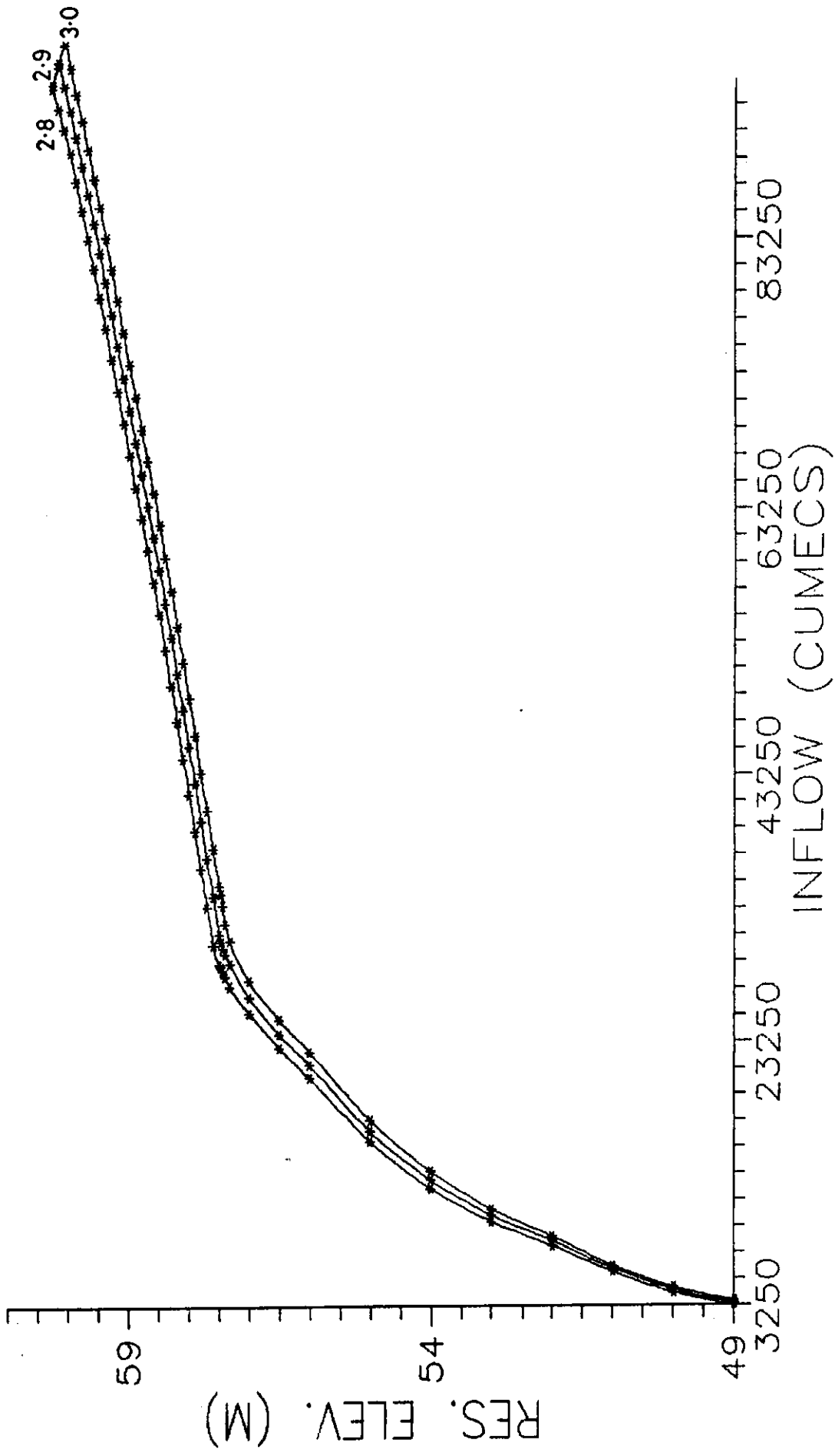
STORAGE CHANGE CURVES
(FIG. 4e)



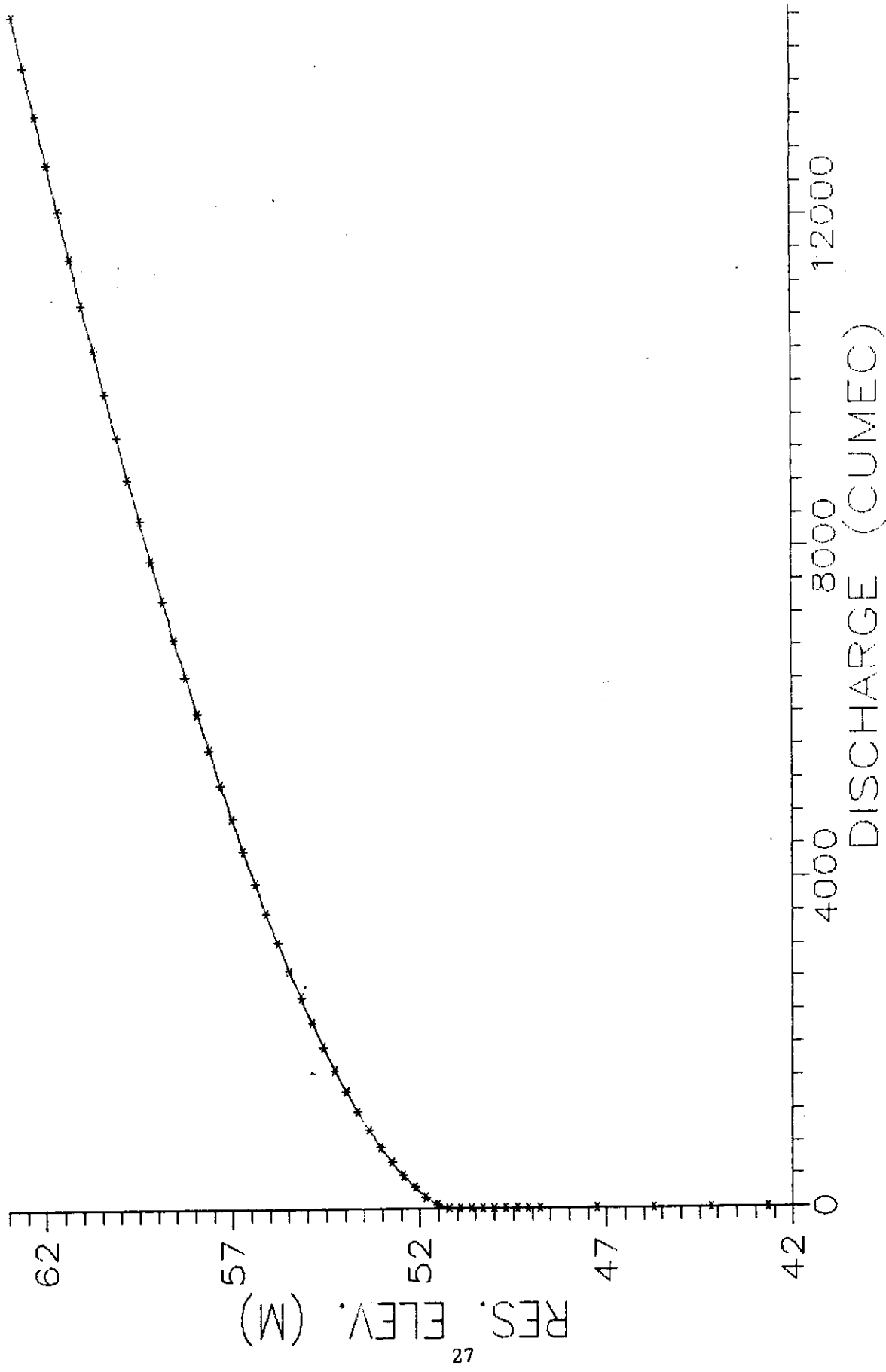
STORAGE CHANGE CURVES
(FIG 4f)



STORAGE CHANGE CURVES
(FIG. 4g)

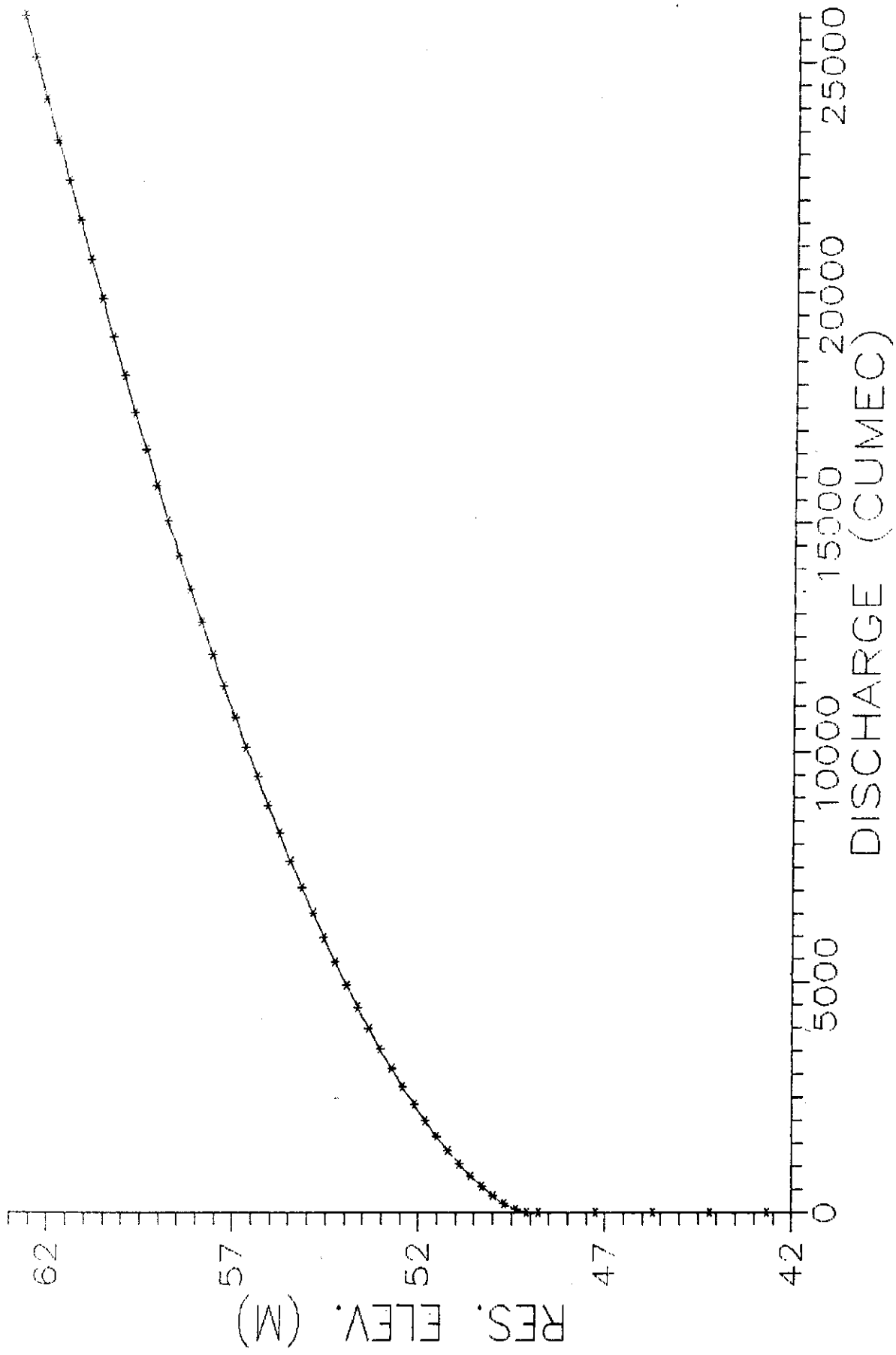


STORAGE CHANGE CURVES
(FIG. 4h)



SPILLWAY RATING CURVE FOR MAIN SPILLWAY

(FIG. 5)



SPILLWAY RATING CURVE FOR ADDITIONAL SPILLWAY
 (FIG. 6)

TABLES

Table - 1

Design Flood Hydrograph for Machhu II

Time dd-hh	Ordinate (m ³ /s)	Time dd-hh	Ordinate (m ³ /s)
01-03	130.5	02-19	12783.1
01-04	149.8	02-20	14447.2
01-05	176.7	02-21	16416.4
01-06	276.4	02-22	18442.2
01-07	420.5	02-23	20493.7
01-08	570.9	02-24	23074.5
01-09	733.4	03-01	25912.7
01-10	853.5	03-02	26425.0
01-11	984.3	03-03	25630.4
01-12	1225.0	03-04	22856.8
01-13	1507.3	03-05	20140.3
01-14	1725.3	03-06	17560.7
01-15	1940.0	03-07	14494.2
01-16	2227.7	03-08	11783.5
01-17	2440.1	03-09	8999.1
01-18	2715.3	03-10	7025.4
01-19	3108.1	03-11	5382.2
01-20	3548.1	03-12	4307.8
01-21	3981.3	03-13	3402.8
01-22	4243.0	03-14	2116.7
01-23	4761.8	03-15	1873.4
01-24	5088.5	03-16	1525.1
02-01	5394.9	03-17	1055.1
02-02	5610.7	03-18	869.6
02-03	5846.0	03-19	603.1
02-04	6034.9	03-20	425.3
02-05	6215.3	03-21	406.6
02-06	6491.1		
02-07	6783.0		
02-08	7190.8		
02-09	7630.8		
02-10	8045.4		
02-11	8390.0		
02-12	8798.9		
02-13	9176.6		
02-14	9614.7		
02-15	10094.1		
02-16	10627.9		
02-17	11042.7		
02-18	11750.3		

Table - 2

Design Flood Hydrograph of Various Return Period
Floods for Machhu II

Time dd-hh	Ordinates of Floods of Return Period			
	100 yr (m3/s)	200yr (m3/s)	500yr (m3/s)	1000yr (m3/s)
01-04	175.0	178.0	181.0	241.4
01-06	455.0	488.0	535.0	627.3
01-08	1084.0	1190.0	1339.0	1497.3
01-10	1904.0	2103.0	2381.0	2623.9
01-12	2923.0	3256.0	3717.0	4079.9
01-14	4003.0	4456.0	5087.0	5577.6
01-16	4891.0	5452.0	6235.0	6816.3
01-18	5775.0	6433.0	7343.0	7992.0
01-20	7603.0	8445.0	9600.0	10401.0
01-22	9789.0	10842.0	12300.0	13298.2
01-24	11467.0	12685.0	14372.0	15511.9
02-02	12707.0	14037.0	15905.0	17154.3
02-04	12439.0	13745.0	15557.0	16779.3
02-06	10695.0	11835.0	13362.0	14418.3
02-08	8340.0	9437.0	10661.0	11511.7
02-10	6435.0	7132.0	8004.0	8650.3
02-12	4501.0	4969.0	5349.0	6007.2
02-14	3011.0	3304.0	3680.0	3989.2
02-16	2049.0	2227.0	2463.0	2675.0
02-18	1470.0	1582.0	1737.0	1893.7
02-20	1091.0	1164.0	1267.0	1389.4
02-22	838.0	881.0	952.0	1051.8
02-24	636.0	667.0	735.0	820.9
03-02	130.0	130.0	130.0	188.3

Table - 3

Elevation-Area-Capacity-Discharge Table for Machhu II

Elevation (m)	Area (Million m ²)	Capacity (Million m ³)	Rel-Add (cumec)	Rel-Main (cumec)	Rel-Tot (cumec)
43.000	1.175	2.934	0.00	0.00	0.00
45.000	1.536	5.651	0.00	0.00	0.00
47.000	2.212	9.295	0.00	0.00	0.00
47.500	2.418	10.45	0.00	0.00	0.00
48.000	2.620	11.75	0.00	0.00	0.00
48.500	2.823	13.06	0.00	0.00	0.00
49.000	3.119	14.58	0.00	0.00	0.00
49.500	3.524	16.35	114.17	0.00	114.17
50.000	3.931	18.11	364.81	0.00	364.81
50.500	4.325	20.12	716.60	0.00	716.60
51.000	4.703	22.49	1142.46	0.00	1142.46
51.250	4.893	23.67	1376.63	4.79	1381.42
51.500	5.082	24.86	1634.94	44.70	1679.64
51.750	5.297	26.05	1903.20	114.45	2017.65
52.000	5.918	27.50	2191.44	204.90	2396.34
52.250	6.722	29.08	2492.40	312.02	2804.42
52.500	7.427	30.76	2804.16	433.27	3237.43
52.750	7.847	32.71	3137.61	571.81	3709.42
53.000	8.275	34.71	3477.20	722.02	4199.22
53.250	8.830	37.48	3839.16	889.20	4728.36
53.500	9.422	40.40	4209.28	1066.40	5275.68
53.750	10.10	42.98	4591.58	1254.99	5846.57
54.000	10.91	44.98	4992.99	1458.21	6451.20
54.250	11.72	47.05	5396.95	1667.77	7064.73
54.500	12.55	50.74	5828.37	1897.10	7725.47
54.750	13.37	54.53	6263.42	2132.71	8396.13
55.000	14.18	57.96	6713.53	2380.26	9093.78
55.250	14.96	61.02	7178.53	2639.79	9818.32
55.500	15.75	64.18	7642.39	2902.74	10545.14
55.750	16.77	68.40	8135.79	3186.13	11321.91
56.000	17.80	72.66	8628.22	3470.75	12098.97
56.250	19.05	77.34	9137.16	3768.84	12906.00
56.500	20.45	82.31	9655.66	4076.62	13732.28
56.750	21.86	87.47	10176.84	4389.30	14566.14
57.000	23.33	93.39	10724.47	4720.89	15445.36
57.050	23.62	94.58	10833.39	4787.11	15620.50
57.100	23.91	95.77	10942.17	4853.31	15795.47
57.200	24.49	98.15	11159.70	4985.70	16145.40
57.300	25.06	100.5	11377.24	5118.09	16495.33
57.320	25.18	101.0	11420.75	5144.57	16565.32
57.400	25.55	103.2	11605.13	5257.84	16862.97
57.500	26.01	106.0	11835.60	5399.43	17235.03
57.600	26.48	108.8	12066.07	5541.02	17607.09
57.700	26.95	111.6	12294.95	5681.16	17976.12
57.800	27.44	114.5	12523.44	5820.95	18344.38
57.900	27.92	117.3	12751.93	5960.74	18712.66
58.000	28.61	120.3	12989.61	6106.92	19096.53

Elevation (m)	Area (Million m ²)	Capacity (Million m ³)	Rel-Add (cumec)	Rel-Main (cumec)	Rel-Tot (cumec)
58.100	29.40	123.4	13231.24	6255.86	19487.10
58.200	30.19	126.6	13472.86	6404.79	19877.65
58.300	30.98	129.7	13711.92	6553.36	20265.28
58.400	31.77	132.9	13949.91	6701.77	20651.68
58.500	32.56	136.1	14187.89	6850.18	21038.07
58.600	33.32	139.5	14433.90	7004.24	21438.13
58.700	34.07	143.1	14685.25	7162.04	21847.29
58.800	34.82	146.6	14936.60	7319.85	22256.44
58.900	35.58	150.1	15186.25	7476.02	22662.27
59.000	36.35	153.7	15434.76	7631.09	23065.85
59.100	37.12	157.2	15683.28	7786.17	23469.45
59.200	38.03	160.8	15937.35	7945.67	23883.02
59.300	39.10	164.4	16197.00	8109.59	24306.58
59.400	40.17	168.1	16456.65	8273.51	24730.16
59.500	41.07	172.0	16714.22	8436.76	25150.98
59.600	41.80	176.3	16969.74	8599.34	25569.09
59.700	42.53	180.6	17225.25	8761.92	25987.17
59.800	43.27	184.9	17486.21	8928.29	26414.50
59.900	44.01	189.3	17755.36	9100.33	26855.69
60.000	44.75	193.6	18024.49	9272.37	27296.87
60.100	45.55	198.6	18292.12	9443.42	27735.54
60.200	46.45	204.6	18557.46	9612.97	28170.43
60.300	47.36	210.7	18822.80	9782.52	28605.32
60.400	48.22	218.8	19092.31	9954.77	29047.08
60.500	48.98	231.8	19371.52	10133.28	29504.80
60.600	49.75	244.8	19650.74	10311.79	29962.53
60.700	50.51	257.8	19928.70	10489.45	30418.15
60.800	51.28	270.8	20203.75	10665.12	30868.87
60.900	52.05	283.9	20478.80	10840.80	31319.61
61.000	52.85	296.9	20756.58	11018.23	31774.81
61.100	53.76	309.8	21045.30	11202.67	32247.98
61.200	54.66	322.8	21334.02	11387.11	32721.13
61.300	55.54	335.5	21621.08	11570.93	33192.01
61.400	56.32	347.6	21901.61	11752.26	33653.87
61.500	57.09	359.7	22182.12	11933.59	34115.71
61.600	57.88	371.8	22464.04	12115.78	34579.82
61.700	58.79	383.9	22758.58	12305.62	35064.20
61.800	59.71	395.9	23053.11	12495.45	35548.57
61.900	60.62	408.0	23347.15	12685.02	36032.18
62.000	61.53	420.1	23636.60	12872.11	36508.71
62.100	62.45	432.2	23926.05	13059.20	36985.26
62.200	63.36	444.3	24215.50	13246.29	37461.79
62.300	64.28	456.4	24519.30	13443.04	37962.34
62.400	65.19	468.4	24823.12	13639.80	38462.91
62.500	66.11	480.5	25126.92	13836.55	38963.47
62.600	67.02	492.6	25435.31	14036.72	39472.03
62.800	68.85	516.7	26052.07	14437.05	40489.12
63.000	70.59	539.6	26657.88	14831.04	41488.91

Note : Rel-Add -- Release capacity of additional spillway,
Rel-Main -- Release capacity of main spillway,
Rel-Tot -- Release capacity of both spillways.

TABLE - 4
INFLCW RATE FOR DIFFERENT RATE OF RISE
(Units: Cumecs)

Reser. Level (m)	Rate of Rise (m/hr)														
	.10	.20	.30	.40	.50	.60	.70	.80	.90	1.00	1.10	1.20	1.30	1.40	1.50
49.000	98.	196.	294.	392.	490.	588.	686.	784.	882.	980.	1079.	1178.	1277.	1408.	1539.
50.000	99.	198.	297.	396.	495.	594.	693.	792.	891.	990.	1090.	1190.	1290.	1422.	1554.
51.000	132.	263.	395.	526.	658.	790.	923.	1056.	1218.	1393.	1568.	1744.	1920.	2097.	2298.
52.000	175.	351.	528.	704.	880.	1121.	1338.	1558.	1780.	2003.	2278.	2607.	2935.	3261.	3584.
53.000	275.	504.	733.	962.	1191.	1420.	1649.	1878.	2107.	2336.	2605.	2943.	3281.	3619.	3957.
54.000	230.	461.	692.	923.	1154.	1385.	1616.	1847.	2078.	2309.	2580.	2918.	3256.	3594.	3932.
55.000	335.	670.	1005.	1340.	1675.	2010.	2345.	2680.	3015.	3350.	3735.	4120.	4505.	4890.	5275.
56.000	474.	948.	1422.	1896.	2370.	2844.	3318.	3792.	4266.	4740.	5214.	5688.	6162.	6636.	7110.
56.500	555.	1113.	1669.	2225.	2781.	3337.	3893.	4449.	5005.	5561.	6117.	6673.	7229.	7785.	8341.
57.000	660.	1321.	1981.	2641.	3301.	3961.	4621.	5281.	5941.	6601.	7261.	7921.	8581.	9241.	9901.
57.320	778.	1556.	2335.	3114.	3893.	4672.	5451.	6230.	7009.	7788.	8567.	9346.	10125.	10904.	11683.
57.400	778.	1556.	2335.	3114.	3893.	4672.	5451.	6230.	7009.	7788.	8567.	9346.	10125.	10904.	11683.
57.450	778.	1556.	2335.	3114.	3893.	4672.	5451.	6230.	7009.	7788.	8567.	9346.	10125.	10904.	11683.
57.480	778.	1557.	2336.	3116.	3941.	4811.	5681.	6551.	7421.	8291.	9161.	10031.	10901.	11771.	12641.
57.500	778.	1557.	2337.	3116.	3959.	4930.	5700.	6470.	7240.	8010.	8780.	9550.	10320.	11090.	11860.
57.600	778.	1559.	2338.	3116.	4052.	4922.	5804.	6691.	7578.	8465.	9352.	10239.	11126.	12013.	12900.
57.700	780.	1559.	2402.	3273.	4143.	5025.	5912.	6799.	7686.	8573.	9460.	10347.	11234.	12121.	13008.
57.800	780.	1523.	2493.	3363.	4246.	5133.	6020.	6907.	7794.	8681.	9568.	10455.	11342.	12229.	13116.
57.900	843.	1714.	2584.	3456.	4353.	5240.	6148.	7065.	7982.	8900.	9817.	10734.	11651.	12568.	13485.
58.000	870.	1741.	2623.	3510.	4397.	5341.	6322.	7304.	8298.	9273.	10259.	11256.	12256.	13256.	14256.
58.100	870.	1752.	2640.	3527.	4470.	5452.	6433.	7417.	8403.	9389.	10386.	11395.	12405.	13405.	14405.
58.200	882.	1769.	2656.	3600.	4581.	5563.	6547.	7533.	8519.	9516.	10525.	11534.	12535.	13537.	14539.
58.300	887.	1774.	2718.	3699.	4681.	5665.	6651.	7638.	8624.	9613.	10612.	11611.	12611.	13611.	14611.
58.400	887.	1831.	2812.	3794.	4778.	5763.	6749.	7737.	8724.	9713.	10702.	11691.	12680.	13669.	14658.
58.500	824.	1925.	2907.	3891.	4876.	5862.	6859.	7859.	8878.	9899.	10920.	11941.	12962.	13983.	15004.
58.600	991.	1963.	2947.	3933.	4918.	5916.	6925.	7934.	8945.	9956.	10967.	11978.	12989.	13999.	15009.
58.700	981.	1955.	2951.	3937.	4934.	5943.	6953.	8053.	9245.	10437.	11633.	12837.	14041.	15245.	16449.
58.800	984.	1970.	2955.	3953.	4952.	5971.	7072.	8264.	9455.	10652.	11855.	13059.	14262.	15465.	16668.
58.900	986.	1971.	2959.	3975.	4987.	6008.	7280.	8471.	9669.	10872.	12075.	13278.	14481.	15684.	16887.
59.000	986.	1983.	2992.	4002.	5102.	6294.	7486.	8682.	9886.	11090.	12282.	13474.	14666.	15858.	17050.
59.100	997.	2007.	3016.	4117.	5309.	6500.	7697.	8900.	10104.	11495.	13172.	14948.	16724.	18500.	20276.
59.200	1009.	2019.	3119.	4311.	5503.	6699.	7903.	9106.	10499.	12175.	13850.	15617.	17384.	19151.	20918.
59.300	1009.	2110.	3302.	4493.	5690.	6894.	8097.	9490.	11165.	12841.	15097.	17308.	19519.	21730.	23941.
59.400	1100.	2232.	3484.	4691.	5984.	7088.	8480.	10156.	11832.	14088.	16699.	19310.	21921.	24532.	27143.
59.500	1192.	2384.	3580.	4784.	5987.	7380.	8956.	10731.	12988.	16599.	20210.	23824.	27444.	31064.	34678.
59.600	1192.	2388.	3592.	4796.	6198.	7854.	9539.	11796.	15407.	19018.	22632.	26252.	29872.	33486.	37079.
59.700	1197.	2400.	3604.	4996.	6672.	8348.	10604.	14215.	17826.	21440.	25060.	28680.	32295.	35917.	39480.
59.800	1204.	2437.	3800.	5476.	7151.	8407.	10019.	12630.	15244.	17864.	21484.	25104.	28724.	32344.	35964.
59.900	1204.	2536.	4272.	5947.	8204.	11915.	15426.	19040.	22660.	26280.	29894.	33487.	37080.	40673.	44266.
60.000	1392.	3069.	4744.	7000.	10611.	14222.	17836.	21456.	25076.	28691.	32283.	35976.	39422.	42782.	46142.
60.100	1675.	3351.	5608.	9219.	12930.	16444.	20064.	23694.	27298.	30891.	34483.	38030.	41390.	44750.	48109.
60.200	1676.	3922.	7543.	11154.	14768.	18389.	22008.	25623.	29215.	32808.	36354.	39714.	43074.	46434.	49786.
60.300	2256.	5857.	9479.	13092.	16712.	20332.	23947.	27540.	31132.	34678.	38038.	41399.	44758.	48110.	51462.

INFLOW RATE FOR DIFFERENT RATE OF RISE
(Units: Cumecs)

Reser. Level (m)	Rate of Rise (m/hr)														
	1.50	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00
49.000	1670.	1901.	1933.	2064.	2196.	2327.	2459.	2591.	2722.	2954.	2996.	3119.	3251.	3414.	3599.
50.000	2006.	2139.	2271.	2434.	2609.	2784.	2960.	3136.	3313.	3513.	3730.	3947.	4167.	4399.	4611.
51.000	2514.	2731.	2951.	3173.	3395.	3671.	4000.	4328.	4654.	4976.	5299.	5591.	5902.	6024.	6249.
52.000	3906.	4188.	4410.	4631.	4855.	5086.	5316.	5505.	6030.	6455.	6979.	7299.	7719.	8123.	8461.
53.000	4876.	5296.	5717.	6120.	6459.	6796.	7136.	7492.	7929.	8186.	8655.	9125.	9595.	10069.	10543.
54.000	5932.	6271.	6741.	7215.	7589.	8163.	8713.	9263.	9813.	10370.	10926.	11493.	12131.	12789.	13448.
55.000	7321.	7878.	8526.	9194.	9843.	10503.	11163.	11823.	12579.	13356.	14133.	14913.	15692.	16472.	17315.
56.000	10049.	10828.	11603.	12387.	13230.	14101.	14971.	15853.	16749.	17629.	18571.	19553.	20534.	21519.	22504.
56.500	11420.	12291.	13173.	14069.	14947.	15891.	16872.	17954.	18939.	19823.	20809.	21807.	22816.	23825.	24926.
57.000	12813.	13795.	14776.	15760.	16746.	17731.	18729.	19739.	20747.	21848.	23040.	24231.	25429.	26632.	27835.
57.320	13944.	14950.	15915.	16918.	17927.	18936.	19973.	21165.	22357.	23556.	24759.	25963.	27450.	29125.	30801.
57.400	14010.	14996.	15993.	17003.	18012.	19113.	20304.	21496.	22693.	23896.	25100.	26492.	28168.	29944.	32100.
57.450	14114.	15100.	16109.	17119.	18128.	19320.	20511.	21703.	22906.	24109.	25313.	26941.	28617.	30293.	33517.
57.480	14177.	15162.	16173.	17183.	18252.	19444.	20636.	21930.	23033.	24237.	25535.	27211.	28886.	30755.	34367.
57.500	14219.	15216.	16225.	17234.	18335.	19527.	20718.	21915.	23119.	24322.	25715.	27390.	29066.	31322.	34933.
57.600	14438.	15447.	16456.	17557.	18749.	19940.	21137.	22341.	23544.	24937.	26612.	28289.	30544.	34155.	37767.
57.700	14658.	15677.	16778.	17970.	19161.	20359.	21562.	22765.	24158.	25833.	27509.	29265.	33376.	36987.	40601.
57.800	14899.	15909.	17190.	18392.	19579.	20782.	21986.	23379.	25054.	26729.	28986.	32597.	36208.	39822.	43442.
57.900	15219.	16410.	17602.	18799.	20002.	21206.	22599.	24274.	25950.	28206.	31917.	35428.	39042.	42662.	46282.
58.000	15557.	16759.	17956.	19159.	20363.	21755.	23431.	25107.	27363.	29974.	34585.	39199.	41819.	45439.	49054.
58.100	15889.	17095.	18299.	19493.	20885.	22561.	24236.	26493.	30104.	33715.	37329.	40943.	44569.	48183.	51776.
58.200	16215.	17419.	18622.	20015.	21690.	23366.	25222.	29233.	32844.	36458.	40079.	43699.	47313.	50906.	54498.
58.300	16536.	17740.	19133.	20808.	22484.	24470.	28351.	31962.	35576.	39196.	42816.	46431.	50023.	53616.	57162.
58.400	16953.	18246.	19921.	21597.	23853.	27464.	31075.	34689.	38309.	41929.	45544.	49136.	52729.	56275.	59635.
58.500	17352.	19034.	20710.	22966.	26577.	30188.	33802.	37422.	41042.	44657.	48249.	51842.	55388.	58748.	62108.
58.600	18090.	19766.	22022.	25633.	29244.	32858.	36478.	40098.	43713.	47306.	50898.	54444.	57804.	61165.	64524.
58.700	18784.	21041.	24652.	28263.	31877.	35497.	39117.	42731.	46324.	49917.	53463.	56923.	60183.	63543.	66894.
58.800	20059.	23670.	27281.	30895.	34515.	38135.	41750.	45343.	48935.	52481.	55841.	59202.	62561.	65913.	69265.
58.900	22696.	26298.	29911.	33532.	37152.	40766.	44359.	47951.	51497.	54858.	58218.	61577.	64929.	68281.	71634.
59.000	25312.	29926.	32546.	36166.	39780.	43373.	46966.	50512.	53872.	57232.	60591.	63943.	67295.	70648.	74008.
59.100	27940.	31560.	35180.	38795.	42387.	45980.	49526.	52986.	56246.	59606.	62958.	66310.	69662.	73022.	76383.
59.200	30563.	34183.	37797.	41390.	44982.	48529.	51889.	55249.	58609.	61960.	65312.	68665.	72025.	75385.	78745.
59.300	33173.	36798.	40391.	43973.	47519.	50879.	54240.	57599.	60951.	64303.	67655.	71016.	74376.	77736.	81088.
59.400	35779.	39371.	42964.	46510.	49970.	53230.	56590.	59942.	63294.	66646.	70006.	73367.	76727.	80079.	83431.
59.500	38271.	41863.	45410.	48770.	52130.	55489.	58841.	62193.	65546.	68906.	72266.	75626.	78978.	82330.	85682.
59.600	40672.	44218.	47578.	50938.	54298.	57649.	61001.	64354.	67714.	71074.	74434.	77786.	81138.	84490.	87842.
59.700	43026.	46396.	49746.	53106.	56459.	59809.	63162.	66522.	69883.	73243.	76595.	79947.	83298.	86650.	90002.
59.800	45190.	48550.	51909.	55261.	58613.	61966.	65326.	68686.	72046.	75398.	78750.	82102.	85454.	88805.	92157.
59.900	47345.	50706.	54057.	57409.	60762.	64122.	67482.	70843.	74195.	77546.	80898.	84250.	87602.	90954.	94135.
60.000	49592.	52954.	56295.	59558.	62918.	66279.	69639.	72991.	76343.	79694.	83046.	86398.	89750.	92931.	96112.
60.100	51461.	54813.	58166.	61526.	64886.	68246.	71598.	74950.	78302.	81654.	85006.	88358.	91539.	94713.	97901.
60.200	53137.	56490.	59850.	63211.	66571.	69923.	73275.	76626.	79978.	83330.	86682.	89963.	93044.	96225.	99543.
60.300	54914.	58175.	61535.	64895.	68247.	71599.	74951.	78303.	81654.	85006.	88187.	91368.	94549.	94867.	94867.

Table - 5

Normal Monthly Evaporation Depths for Machhu II
in meter/month

Month	Evap_Depth(m)	Month	Evap_Depth(m)
Jan	0.127	Jul	0.229
Feb	0.127	Aug	0.203
Mar	0.203	Sep	0.203
Apr	0.229	Oct	0.178
May	0.254	Nov	0.152
Jun	0.229	Dec	0.127

Table - 6

Flood Control Operation of Machhu II Design Flood
Reservoir Working Table

Time	Init-Stor (10**3 m3)	Init_lev (m)	Inflow (m3/s)	Evapr (m3)	Rel_main (m3/s)	Rel_add (m3/s)	Tot_Rel (m3/s)	End stor (10**3 m3)	End_lev (m)	Rule_lev (m)	
01-03	101000.0	57.320	130.5	6870.	128.6	0.0	128.6	101000.0	57.320	57.320	BFRL
01-04	101000.0	57.320	149.8	6870.	147.9	0.0	147.9	101000.0	57.320	57.320	BFRL
01-05	101000.0	57.320	176.7	6870.	174.8	0.0	174.8	101000.0	57.320	57.320	BFRL
01-06	101000.0	57.320	276.4	6870.	274.5	0.0	274.5	101000.0	57.320	57.320	BFRL
01-07	101000.0	57.320	420.5	6870.	418.6	0.0	418.6	101000.0	57.320	57.320	BFRL
01-08	101000.0	57.320	570.9	6870.	569.0	0.0	569.0	101000.0	57.320	57.320	BFRL
01-09	101000.0	57.320	733.4	6870.	731.5	0.0	731.5	101000.0	57.320	57.320	BFRL
01-10	101000.0	57.320	853.5	6870.	851.6	0.0	851.6	101000.0	57.320	57.320	BFRL
01-11	101000.0	57.320	984.3	6870.	982.4	0.0	982.4	101000.0	57.320	57.320	BFRL
01-12	101000.0	57.320	1225.0	6870.	1223.1	0.0	1223.1	101000.0	57.320	57.320	BFRL
01-13	101000.0	57.320	1507.3	6870.	1505.4	0.0	1505.4	101000.0	57.320	57.320	BFRL
01-14	101000.0	57.320	1725.3	6870.	1723.4	0.0	1723.4	101000.0	57.320	57.320	BFRL
01-15	101000.0	57.320	1940.0	6870.	1938.1	0.0	1938.1	101000.0	57.320	57.320	BFRL
01-16	101000.0	57.320	2227.7	6870.	2225.8	0.0	2225.8	101000.0	57.320	57.320	BFRL
01-17	101000.0	57.320	2440.1	6870.	2438.1	0.0	2438.1	101000.0	57.320	57.320	BFRL
01-18	101000.0	57.320	2715.3	6870.	2713.4	0.0	2713.4	101000.0	57.320	57.320	BFRL
01-19	101000.0	57.320	3108.1	6870.	3106.1	0.0	3106.1	101000.0	57.320	57.320	BFRL
01-20	101000.0	57.320	3548.1	6870.	3546.2	0.0	3546.2	101000.0	57.320	57.320	BFRL
01-21	101000.0	57.320	3981.3	6870.	3979.4	0.0	3979.4	101000.0	57.320	57.320	BFRL
01-22	101000.0	57.320	4243.0	6870.	4241.1	0.0	4241.1	101000.0	57.320	57.320	BFRL
01-23	101000.0	57.320	4761.8	6870.	4759.8	0.0	4759.8	101000.0	57.320	57.320	BFRL
01-24	101000.0	57.320	5088.5	6870.	5086.6	0.0	5086.6	101000.0	57.320	57.320	BFRL
02-01	101000.0	57.320	5394.9	6870.	5144.5	248.5	5393.0	101000.0	57.320	57.320	BFRL
02-02	101000.0	57.320	5610.7	6870.	5144.5	464.3	5608.8	101000.0	57.320	57.320	BFRL
02-03	101000.0	57.320	5846.0	6870.	5144.5	699.6	5844.1	101000.0	57.320	57.320	BFRL
02-04	101000.0	57.320	6034.9	6870.	5144.5	888.4	6033.0	101000.0	57.320	57.320	BFRL
02-05	101000.0	57.320	6215.3	6870.	5144.5	1068.8	6213.3	101000.0	57.320	57.320	BFRL
02-06	101000.0	57.320	6491.1	6870.	5144.5	1344.6	6489.2	101000.0	57.320	57.320	BFRL
02-07	101000.0	57.320	6783.0	6870.	5144.5	1636.6	6781.1	101000.0	57.320	57.320	BFRL
02-08	101000.0	57.320	7190.8	6870.	5144.5	2044.3	7188.9	101000.0	57.320	57.320	BFRL
02-09	101000.0	57.320	7630.8	6870.	5144.5	2484.4	7628.9	101000.0	57.320	57.320	BFRL
02-10	101000.0	57.320	8045.4	6870.	5144.5	2898.9	8043.5	101000.0	57.320	57.320	BFRL
02-11	101000.0	57.320	8390.0	6870.	5144.5	3243.5	8388.1	101000.0	57.320	57.320	BFRL
02-12	101000.0	57.320	8798.9	6870.	5144.5	3652.4	8797.0	101000.0	57.320	57.320	BFRL
02-13	101000.0	57.320	9176.6	6870.	5144.5	4030.2	9174.7	101000.0	57.320	57.320	BFRL
02-14	101000.0	57.320	9614.7	6870.	5144.5	4468.2	9612.8	101000.0	57.320	57.320	BFRL
02-15	101000.0	57.320	10094.1	6870.	5144.5	4947.7	10092.2	101000.0	57.320	57.320	BFRL
02-16	101000.0	57.320	10627.9	6870.	5144.5	5481.4	10626.0	101000.0	57.320	57.320	BFRL
02-17	101000.0	57.320	11042.7	6870.	5144.5	5896.3	11040.8	101000.0	57.320	57.320	BFRL

... Contd.

Time	Init-Stor (10**3 m3)	Init_lev (m)	Inflow (m3/s)	Evapr (m3)	Rel_main (m3/s)	Rel_add (m3/s)	Tot_Rel (m3/s)	End stor (10**3 m3)	End_lev (m)	Rule_lev (m)	
02-18	101000.0	57.320	11750.3	6870.	5144.5	6603.9	11748.4	101000.0	57.320	57.320	BFRL
02-19	101000.0	57.320	12783.1	6870.	5144.5	7598.1	12742.6	101138.8	57.325	57.320	ExFr
02-20	101138.8	57.325	14447.2	6877.	5306.6	7436.0	12742.6	107268.6	57.544	57.320	ExFr
02-21	107268.6	57.544	16416.4	7153.	5461.6	10954.8	16416.4	107261.4	57.544	57.320	Emer
02-22	107261.4	57.544	18442.2	7153.	5533.4	12053.7	17587.1	110332.7	57.653	57.320	Emer
02-23	110332.7	57.653	20493.7	7293.	5801.0	12490.9	18291.9	118252.0	57.935	57.320	Emer
02-24	118252.0	57.935	23074.5	7667.	6307.5	13315.0	19622.4	130671.7	58.329	57.320	Emer
03-01	130671.7	58.329	25912.7	8516.	6964.8	14371.1	21335.9	147139.7	58.816	57.320	Emer
03-02	147139.7	58.816	26425.0	9533.	7602.1	15388.3	22990.4	159494.7	59.164	57.320	Emer
03-03	159494.7	59.164	25630.4	10271.	8007.9	16035.9	24043.7	165196.5	59.321	57.320	Emer
***** Attention - reservoir level too high - FLOOD EMERGENCY *****											
03-04	165196.5	59.321	22856.8	10728.	8044.5	16093.8	24138.3	160572.2	59.193	57.320	Emer
03-05	160572.2	59.193	20140.3	10358.	7699.6	15544.5	23244.1	149388.1	58.879	57.320	Emer
03-06	149388.1	58.879	17560.7	9664.	7100.8	14587.7	21688.5	134518.1	58.450	57.320	Emer
03-07	134518.1	58.450	14494.2	8775.	6775.6	7718.6	14494.2	134509.4	58.449	57.320	Emer
03-08	134509.4	58.449	11783.5	8774.	6694.8	6047.8	12742.6	131047.7	58.341	57.320	Emer
03-09	131047.7	58.341	8999.1	8541.	6294.5	6448.1	12742.6	117562.5	57.911	57.320	Emer
03-10	117562.5	57.911	7025.4	7631.	5562.9	6061.1	11624.0	101000.0	57.320	57.320	Emer
03-11	101000.0	57.320	5382.2	6870.	5144.5	235.7	5380.3	101000.0	57.320	57.320	BFRL
03-12	101000.0	57.320	4307.8	6870.	4305.9	0.0	4305.9	101000.0	57.320	57.320	BFRL
03-13	101000.0	57.320	3402.8	6870.	3400.9	0.0	3400.9	101000.0	57.320	57.320	BFRL
03-14	101000.0	57.320	2116.7	6870.	2114.8	0.0	2114.8	101000.0	57.320	57.320	BFRL
03-15	101000.0	57.320	1873.4	6870.	1871.5	0.0	1871.5	101000.0	57.320	57.320	BFRL
03-16	101000.0	57.320	1525.1	6870.	1523.2	0.0	1523.2	101000.0	57.320	57.320	BFRL
03-17	101000.0	57.320	1055.1	6870.	1053.2	0.0	1053.2	101000.0	57.320	57.320	BFRL
03-18	101000.0	57.320	869.6	6870.	867.7	0.0	867.7	101000.0	57.320	57.320	BFRL
03-19	101000.0	57.320	603.1	6870.	601.2	0.0	601.2	101000.0	57.320	57.320	BFRL
03-20	101000.0	57.320	425.3	6870.	423.4	0.0	423.4	101000.0	57.320	57.320	BFRL
03-21	101000.0	57.320	406.6	6870.	404.7	0.0	404.7	101000.0	57.320	57.320	BFRL

Note : BFRL - Reservoir level at/below rule level,
ExFr - Reservoir level above FRL,
Emer - Reservoir operated according to emergency operation procedure.

Table - 7

Flood control operation of Machhu II Design Flood - 90% Gates Operational
Reservoir Working Table

Time	Init-Stor (10**3 m3)	Init_lev (m)	Inflow (m3/s)	Evapr (m3)	Rel_main (m3/s)	Rel_add (m3/s)	Tot_Rel (m3/s)	End stor (10**3 m3)	End_lev (m)	Rule_lev (m)	
08-10-11	101000.0	57.320	130.5	6870.	128.6	.0	128.6	101000.0	57.320	57.320	BFRL
08-10-12	101000.0	57.320	149.8	6870.	147.9	.0	147.9	101000.0	57.320	57.320	BFRL
08-10-13	101000.0	57.320	176.7	6870.	174.8	.0	174.8	101000.0	57.320	57.320	BFRL
08-10-14	101000.0	57.320	276.4	6870.	274.5	.0	274.5	101000.0	57.320	57.320	BFRL
08-10-15	101000.0	57.320	420.5	6870.	418.6	.0	418.6	101000.0	57.320	57.320	BFRL
08-10-16	101000.0	57.320	570.9	6870.	569.0	.0	569.0	101000.0	57.320	57.320	BFRL
08-10-17	101000.0	57.320	733.4	6870.	731.5	.0	731.5	101000.0	57.320	57.320	BFRL
08-10-18	101000.0	57.320	853.5	6870.	851.6	.0	851.6	101000.0	57.320	57.320	BFRL
08-10-19	101000.0	57.320	984.3	6870.	982.4	.0	982.4	101000.0	57.320	57.320	BFRL
08-10-20	101000.0	57.320	1225.0	6870.	1223.1	.0	1223.1	101000.0	57.320	57.320	BFRL
08-10-21	101000.0	57.320	1507.3	6870.	1505.4	.0	1505.4	101000.0	57.320	57.320	BFRL
08-10-22	101000.0	57.320	1725.3	6870.	1723.4	.0	1723.4	101000.0	57.320	57.320	BFRL
08-10-23	101000.0	57.320	1940.0	6870.	1938.1	.0	1938.1	101000.0	57.320	57.320	BFRL
08-10-24	101000.0	57.320	2227.7	6870.	2225.8	.0	2225.8	101000.0	57.320	57.320	BFRL
08-11-01	101000.0	57.320	2440.1	6870.	2438.2	.0	2438.2	101000.0	57.320	57.320	BFRL
08-11-02	101000.0	57.320	2715.3	6870.	2713.4	.0	2713.4	101000.0	57.320	57.320	BFRL
08-11-03	101000.0	57.320	3108.1	6870.	3106.1	.0	3106.1	101000.0	57.320	57.320	BFRL
08-11-04	101000.0	57.320	3548.1	6870.	3546.2	.0	3546.2	101000.0	57.320	57.320	BFRL
08-11-05	101000.0	57.320	3981.3	6870.	3979.4	.0	3979.4	101000.0	57.320	57.320	BFRL
08-11-06	101000.0	57.320	4243.0	6870.	4241.1	.0	4241.1	101000.0	57.320	57.320	BFRL
08-11-07	101000.0	57.320	4761.8	6870.	4630.1	129.7	4759.8	101000.0	57.320	57.320	BFRL
08-11-08	101000.0	57.320	5088.5	6870.	4630.1	456.5	5086.6	101000.0	57.320	57.320	BFRL
08-11-09	101000.0	57.320	5394.9	6870.	4630.1	762.9	5393.0	101000.0	57.320	57.320	BFRL
08-11-10	101000.0	57.320	5610.7	6870.	4630.1	978.7	5608.8	101000.0	57.320	57.320	BFRL
08-11-11	101000.0	57.320	5846.0	6870.	4630.1	1214.0	5844.1	101000.0	57.320	57.320	BFRL
08-11-12	101000.0	57.320	6034.9	6870.	4630.1	1402.9	6033.0	101000.0	57.320	57.320	BFRL
08-11-13	101000.0	57.320	6215.3	6870.	4630.1	1583.2	6213.3	101000.0	57.320	57.320	BFRL
08-11-14	101000.0	57.320	6491.1	6870.	4630.1	1859.0	6489.2	101000.0	57.320	57.320	BFRL
08-11-15	101000.0	57.320	6783.0	6870.	4630.1	2151.0	6781.1	101000.0	57.320	57.320	BFRL
08-11-16	101000.0	57.320	7190.8	6870.	4630.1	2558.7	7188.9	101000.0	57.320	57.320	BFRL
08-11-17	101000.0	57.320	7630.8	6870.	4630.1	2998.8	7628.9	101000.0	57.320	57.320	BFRL
08-11-18	101000.0	57.320	8045.4	6870.	4630.1	3413.3	8043.5	101000.0	57.320	57.320	BFRL
08-11-19	101000.0	57.320	8390.0	6870.	4630.1	3758.0	8388.1	101000.0	57.320	57.320	BFRL
08-11-20	101000.0	57.320	8798.9	6870.	4630.1	4166.9	8797.0	101000.0	57.320	57.320	BFRL
08-11-21	101000.0	57.320	9176.6	6870.	4630.1	4544.6	9174.7	101000.0	57.320	57.320	BFRL
08-11-22	101000.0	57.320	9614.7	6870.	4630.1	4982.7	9612.8	101000.0	57.320	57.320	BFRL
08-11-23	101000.0	57.320	10094.1	6870.	4630.1	5462.1	10092.2	101000.0	57.320	57.320	BFRL
08-11-24	101000.0	57.320	10627.9	6870.	4630.1	5995.8	10626.0	101000.0	57.320	57.320	BFRL
08-12-01	101000.0	57.320	11042.7	6870.	4630.1	6410.7	11040.8	101000.0	57.320	57.320	BFRL

...Contd.

Time	Init-Stor (10**3 m3)	Init_lev (m)	Inflow (m3/s)	Evapr (m3)	Rel_main (m3/s)	Rel_add (m3/s)	Tot_Rel (m3/s)	End stor (10**3 m3)	End_lev (m)	Rule_lev (m)	
08-12-02	101000.0	57.320	11750.3	6870.	4630.1	7118.3	11748.4	101000.0	57.320	57.320	BFRL
08-12-03	101000.0	57.320	12783.1	6870.	4630.1	8112.9	12743.0	101137.3	57.325	57.320	ExFr
08-12-04	101137.3	57.325	14447.2	6877.	4775.8	7967.2	12743.0	107265.7	57.544	57.320	ExFr
08-12-05	107265.7	57.544	16416.4	7153.	4963.9	10822.0	15785.9	109528.4	57.625	57.320	Emer
08-12-06	109528.4	57.625	18442.2	7256.	5178.0	11171.6	16349.5	117054.5	57.893	57.320	Emer
08-12-07	117054.5	57.893	20493.7	7807.	5581.1	11828.3	17409.4	128150.4	58.250	57.320	Emer
08-12-08	128150.4	58.250	23074.5	8347.	6127.3	12708.4	18835.8	143401.6	58.710	57.320	Emer
08-12-09	143401.6	58.710	25912.7	9316.	6835.2	13838.8	20674.0	162251.8	59.239	57.320	Emer
	***** Attention Reservoir Level Too High - FLOOD EMERGENCY *****										
08-12-10	162251.8	59.239	26425.0	10492.	7477.7	14861.0	22338.7	176951.6	59.614	57.320	Emer
	***** Attention Reservoir Level Too High - FLOOD EMERGENCY *****										
08-12-11	176951.6	59.614	25830.4	11433.	7892.6	15513.6	23406.2	184947.2	59.800	57.320	Emer
	***** Attention Reservoir Level Too High - FLOOD EMERGENCY *****										
08-12-12	184947.2	59.800	22856.8	11806.	7976.4	15645.3	23621.7	182181.5	59.736	57.320	Emer
	***** Attention Reservoir Level Too High - FLOOD EMERGENCY *****										
08-12-13	182181.5	59.736	20140.3	11677.	7763.6	15310.8	23074.5	171606.8	59.490	57.320	Emer
	***** Attention Reservoir Level Too High - FLOOD EMERGENCY *****										
08-12-14	171606.8	59.490	17560.7	11184.	7283.5	14553.3	21836.7	156201.8	59.071	57.320	Emer
08-12-15	156201.8	59.071	14494.2	10067.	6967.3	7527.0	14494.2	156191.8	59.071	57.320	Emer
08-12-16	156191.8	59.071	11783.5	10066.	6898.8	5844.2	12743.0	152727.4	58.973	57.320	Emer
08-12-17	152727.4	58.973	8999.1	9862.	6563.2	6179.8	12743.0	139239.4	58.592	57.320	Emer
08-12-18	139239.4	58.592	7025.4	9075.	5857.6	6885.4	12743.0	118647.0	57.947	57.320	Emer
08-12-19	118647.0	57.947	5382.2	7694.	5029.7	5252.3	10282.0	101000.0	57.320	57.320	Emer
08-12-20	101000.0	57.320	4307.8	6870.	4305.9	.0	4305.9	101000.0	57.320	57.320	BFRL
08-12-21	101000.0	57.320	3402.8	6870.	3400.9	.0	3400.9	101000.0	57.320	57.320	BFRL
08-12-22	101000.0	57.320	2116.7	6870.	2114.8	.0	2114.8	101000.0	57.320	57.320	BFRL
08-12-23	101000.0	57.320	1873.4	6870.	1871.5	.0	1871.5	101000.0	57.320	57.320	BFRL
08-12-24	101000.0	57.320	1525.1	6870.	1523.2	.0	1523.2	101000.0	57.320	57.320	BFRL
08-13-01	101000.0	57.320	1055.1	6870.	1053.2	.0	1053.2	101000.0	57.320	57.320	BFRL
08-13-02	101000.0	57.320	869.6	6870.	867.7	.0	867.7	101000.0	57.320	57.320	BFRL
08-13-03	101000.0	57.320	603.1	6870.	601.2	.0	601.2	101000.0	57.320	57.320	BFRL
08-13-04	101000.0	57.320	425.3	6870.	423.4	.0	423.4	101000.0	57.320	57.320	BFRL
08-13-05	101000.0	57.320	406.6	6870.	404.7	.0	404.7	101000.0	57.320	57.320	BFRL

Table - 8

Flood Control Operation of Machhu II Design Flood - Ordinate of High Flows
Reservoir Working Table

Time	Init-Stor (10**3 m3)	Init_lev (m)	Inflow (m3/s)	Evapr (m3)	Rel_main (m3/s)	Rel_add (m3/s)	Tot_Rel (m3/s)	End stor (10**3 m3)	End_lev (m)	Rule_lev (m)	
01-03	130054.9	58.310	12783.1	8475.	6568.2	6214.8	12783.1	130046.4	58.310	57.320	Emer
01-04	130046.4	58.310	14447.2	8474.	6567.8	7879.4	14447.2	130037.9	58.309	57.320	Emer
01-05	130037.9	58.309	16416.4	8473.	6567.4	9849.0	16416.4	130029.5	58.309	57.320	Emer
01-06	130029.5	58.309	18442.2	8473.	6567.0	11875.1	18442.2	130021.0	58.309	57.320	Emer
01-07	130021.0	58.309	20493.7	8472.	6562.7	13758.9	20341.5	130560.3	58.326	57.320	Emer
01-08	130560.3	58.326	23074.5	8509.	6768.4	14056.7	20825.0	138650.0	58.575	57.320	Emer
01-09	138650.0	58.575	25912.7	9041.	7272.0	14860.3	22132.3	152250.4	58.960	57.320	Emer
01-10	152250.4	58.960	26425.0	9833.	7787.8	15685.8	23473.6	162865.4	59.256	57.320	Emer
	***** Attention - reservoir level too high - FLOOD EMERGENCY *****										
01-11	162865.4	59.256	25630.4	10541.	8134.7	16236.8	24371.5	167386.9	59.381	57.320	Emer
	***** Attention - reservoir level too high - FLOOD EMERGENCY *****										
01-12	167386.9	59.381	22856.8	10904.	8126.9	16224.4	24351.3	161995.6	59.232	57.320	Emer
	***** Attention - reservoir level too high - FLOOD EMERGENCY *****										
01-13	161995.6	59.232	20140.3	10472.	7751.2	15627.2	23378.3	150328.4	58.906	57.320	Emer
01-14	150328.4	58.906	17560.7	9720.	7136.6	14644.7	21781.4	135124.2	58.469	57.320	Emer
01-15	135124.2	58.469	14494.2	8816.	6803.8	7690.4	14494.2	135115.4	58.468	57.320	Emer
01-16	135115.4	58.468	11783.5	8815.	6722.9	6019.7	12742.6	131653.7	59.360	57.320	Emer

Table - 9

Flood Control Operation of Machhu II 1000 YR Flood
Reservoir Working Table

Time Dy-Hr	Init-Stor (10**3 m3)	Init_lev (m)	Inflow (m3/s)	Evapr (m3)	Rel_main (m3/s)	Rel_add (m3/s)	Tot_Rel (m3/s)	End stor (10**3 m3)	End_lev (m)	Rule_lev (m)	
01-04	101000.0	57.320	241.4	13741.	239.5	0.0	239.5	101000.0	57.320	57.320	BFRL
01-06	101000.0	57.320	627.3	13741.	625.4	0.0	625.4	101000.0	57.320	57.320	BFRL
01-08	101000.0	57.320	1497.3	13741.	1495.4	0.0	1495.4	101000.0	57.320	57.320	BFRL
01-10	101000.0	57.320	2623.9	13741.	2622.0	0.0	2622.0	101000.0	57.320	57.320	BFRL
01-12	101000.0	57.320	4079.9	13741.	4078.0	0.0	4078.0	101000.0	57.320	57.320	BFRL
01-14	101000.0	57.320	5577.6	13741.	5144.5	431.2	5575.7	101000.0	57.320	57.320	BFRL
01-16	101000.0	57.320	6816.3	13741.	5144.5	1669.8	6814.3	101000.0	57.320	57.320	BFRL
01-18	101000.0	57.320	7992.0	13741.	5144.5	2845.5	7990.1	101000.0	57.320	57.320	BFRL
01-20	101000.0	57.320	10401.0	13741.	5144.5	5254.5	10399.1	101000.0	57.320	57.320	BFRL
01-22	101000.0	57.320	13298.2	13741.	5144.5	7598.1	12742.6	104986.8	57.462	57.320	ExFr
01-24	104986.8	57.462	15511.9	14101.	5827.8	6914.8	12742.6	124911.5	58.147	57.320	ExFr
02-02	124911.5	58.147	17154.3	16249.	6326.4	10827.9	17154.3	124895.3	58.147	57.320	Emer
02-04	124895.3	58.147	16779.3	16247.	6325.7	10453.6	16779.3	124879.0	58.146	57.320	Emer
02-06	124879.0	58.146	14418.3	16245.	6324.9	8093.5	14418.3	124862.8	58.146	57.320	Emer
02-08	124862.8	58.146	11511.7	16243.	6107.3	6635.3	12742.6	115984.2	57.855	57.320	Emer
02-10	115984.2	57.855	8650.3	15115.	5523.0	5206.3	10729.3	101000.0	57.320	57.320	Emer
02-12	101000.0	57.320	6007.2	13741.	5144.5	860.7	6005.3	101000.0	57.320	57.320	BFRL
02-14	101000.0	57.320	3989.2	13741.	3987.3	0.0	3987.3	101000.0	57.320	57.320	BFRL
02-16	101000.0	57.320	2675.0	13741.	2673.1	0.0	2673.1	101000.0	57.320	57.320	BFRL
02-18	101000.0	57.320	1893.7	13741.	1891.8	0.0	1891.8	101000.0	57.320	57.320	BFRL
02-20	101000.0	57.320	1389.4	13741.	1387.5	0.0	1387.5	101000.0	57.320	57.320	BFRL
02-22	101000.0	57.320	1051.8	13741.	1049.9	0.0	1049.9	101000.0	57.320	57.320	BFRL
02-24	101000.0	57.320	820.9	13741.	819.0	0.0	819.0	101000.0	57.320	57.320	BFRL
03-02	101000.0	57.320	188.3	13741.	186.4	0.0	186.4	101000.0	57.320	57.320	BFRL

Table - 10

Flood control operation of Machhu II 1000 YR Flood - 90% Gates Operational
Reservoir Working Table

Time	Init-Stor (10**3 m3)	Init_lev (m)	Inflow (m3/s)	Evapr (m3)	Rel_main (m3/s)	Rel_add (m3/s)	Tot_Rel (m3/s)	End stor (10**3 m3)	End_lev (m)	Rule_lev (m)	
08-01-06	101000.0	57.320	241.4	13741.	239.5	.0	239.5	101000.0	57.320	57.320	BFRL
08-01-08	101000.0	57.320	627.3	13741.	625.4	.0	625.4	101000.0	57.320	57.320	BFRL
08-01-10	101000.0	57.320	1497.3	13741.	1495.4	.0	1495.4	101000.0	57.320	57.320	BFRL
08-01-12	101000.0	57.320	2623.9	13741.	2622.0	.0	2622.0	101000.0	57.320	57.320	BFRL
08-01-14	101000.0	57.320	4079.9	13741.	4078.0	.0	4078.0	101000.0	57.320	57.320	BFRL
08-01-16	101000.0	57.320	5577.6	13741.	4630.1	945.6	5575.7	101000.0	57.320	57.320	BFRL
08-01-18	101000.0	57.320	6816.3	13741.	4630.1	2184.3	6814.4	101000.0	57.320	57.320	BFRL
08-01-20	101000.0	57.320	7992.0	13741.	4630.1	3360.0	7990.1	101000.0	57.320	57.320	BFRL
08-01-22	101000.0	57.320	10401.0	13741.	4630.1	5769.0	10399.1	101000.0	57.320	57.320	BFRL
08-01-24	101000.0	57.320	13298.2	13741.	4720.8	8022.2	12743.0	104983.7	57.462	57.320	ExFr
08-02-02	104983.7	57.462	15511.9	14100.	5244.8	7488.2	12743.0	124905.7	58.147	57.320	ExFr
08-02-04	124905.7	58.147	17154.3	16249.	5693.5	11460.8	17154.3	124889.4	58.147	57.320	Emer
08-02-06	124889.4	58.146	16779.3	16246.	5692.8	11086.5	16779.3	124873.2	58.146	57.320	Emer
08-02-08	124873.2	58.146	14418.3	16244.	5692.1	8726.2	14418.3	124856.9	58.146	57.320	Emer
08-02-10	124856.9	58.146	11511.7	16242.	5496.2	7246.8	12743.0	115975.3	57.854	57.320	Emer
08-02-12	115975.3	57.854	8650.3	15114.	4970.5	5757.6	10728.1	101000.0	57.320	57.320	Emer
08-02-14	101000.0	57.320	6007.2	13741.	4630.1	1375.2	6005.3	101000.0	57.320	57.320	BFRL
08-02-16	101000.0	57.320	3989.2	13741.	3987.3	.0	3987.3	101000.0	57.320	57.320	BFRL
08-02-18	101000.0	57.320	2675.0	13741.	2673.1	.0	2673.1	101000.0	57.320	57.320	BFRL
08-02-20	101000.0	57.320	1893.7	13741.	1891.8	.0	1891.8	101000.0	57.320	57.320	BFRL
08-02-22	101000.0	57.320	1389.4	13741.	1387.5	.0	1387.5	101000.0	57.320	57.320	BFRL
08-02-24	101000.0	57.320	1051.8	13741.	1049.9	.0	1049.9	101000.0	57.320	57.320	BFRL
08-03-02	101000.0	57.320	820.9	13741.	819.0	.0	819.0	101000.0	57.320	57.320	BFRL
08-03-04	101000.0	57.320	188.3	13741.	186.4	.0	186.4	101000.0	57.320	57.320	BFRL

Table - 11

Flood Control Operation of Machhu II Design Flood - Forecasting
Reservoir Working Table

Time Dy-Hr	Init-Stor (10**3 m3)	Init_lev (m)	Inf-fore (m3/s)	Evapr (m3)	Rel_main (m3/s)	Rel_add (m3/s)	Tot_Rel (m3/s)	Inflow (m3/s)	End stor (10**3 m3)	End_lev (m)	Rule_lev (m)	
01-03	101000.0	57.320	130.5	6870.	128.6	0.0	128.6	130.5	101000.0	57.320	57.320	Norm
01-04	101000.0	57.320	149.8	6870.	147.9	0.0	147.9	149.8	101000.0	57.320	57.320	Norm
01-05	101000.0	57.320	169.1	6870.	167.1	0.0	167.1	176.7	101027.5	57.321	57.320	Norm
01-06	101027.5	57.321	203.6	6872.	209.3	0.0	209.3	276.4	101262.0	57.329	57.320	Norm
01-07	101262.0	57.329	376.0	6882.	446.9	0.0	446.9	420.5	101160.0	57.326	57.320	Norm
01-08	101160.0	57.326	564.6	6878.	607.2	0.0	607.2	570.9	101022.4	57.321	57.320	Norm
01-09	101022.4	57.321	721.2	6871.	725.5	0.0	725.5	733.4	101043.8	57.322	57.320	Norm
01-10	101043.8	57.322	895.9	6872.	906.2	0.0	906.2	853.5	100847.1	57.314	57.320	Norm
01-11	100847.1	57.314	973.5	6860.	929.1	0.0	929.1	984.3	101038.7	57.321	57.320	BFRL
01-12	101038.7	57.321	1115.1	6872.	1124.0	0.0	1124.0	1225.0	101395.5	57.334	57.320	Norm
01-13	101395.5	57.334	1465.7	6888.	1573.6	0.0	1573.6	1507.3	101149.9	57.325	57.320	Norm
01-14	101149.9	57.325	1789.6	6877.	1829.3	0.0	1829.3	1725.3	100768.6	57.310	57.320	Norm
01-15	100768.6	57.310	1943.4	6855.	1877.2	0.0	1877.2	1940.0	100987.8	57.319	57.320	BFRL
01-16	100987.8	57.319	2154.6	6870.	2149.3	0.0	2149.3	2227.7	101263.0	57.329	57.320	BFRL
01-17	101263.0	57.329	2515.4	6882.	2586.5	0.0	2586.5	2440.1	100728.8	57.309	57.320	Norm
01-18	100728.8	57.309	2652.4	6852.	2575.2	0.0	2575.2	2715.3	101226.3	57.328	57.320	BFRL
01-19	101226.3	57.328	2990.5	6881.	3051.5	0.0	3051.5	3108.1	101423.1	57.335	57.320	Norm
01-20	101423.1	57.335	3500.8	6889.	3616.4	0.0	3616.4	3548.1	101170.2	57.326	57.320	Norm
01-21	101170.2	57.326	3988.1	6878.	4033.5	0.0	4033.5	3981.3	100975.5	57.319	57.320	Norm
01-22	100975.5	57.319	4414.6	6869.	4405.9	0.0	4405.9	4243.0	100382.2	57.294	57.320	BFRL
01-23	100382.2	57.294	4504.6	6829.	4331.1	0.0	4331.1	4761.8	101925.6	57.353	57.320	BFRL
01-24	101925.6	57.353	5280.5	6912.	5147.4	388.3	5535.7	5088.5	100308.9	57.291	57.320	Norm
02-01	100308.9	57.291	5415.3	6825.	5144.5	76.9	5221.4	5394.9	100926.6	57.317	57.320	BFRL
02-02	100926.6	57.317	5701.3	6865.	5144.5	534.5	5679.0	5610.7	100673.8	57.306	57.320	BFRL
02-03	100673.8	57.306	5826.5	6849.	5144.5	589.4	5733.9	5846.0	101070.3	57.323	57.320	BFRL
02-04	101070.3	57.323	6081.3	6874.	5148.1	950.8	6098.9	6034.9	100832.8	57.313	57.320	Norm
02-05	100832.8	57.313	6223.7	6859.	5144.5	1030.9	6175.4	6215.3	100969.4	57.319	57.320	BFRL
02-06	100969.4	57.319	6395.6	6858.	5144.5	1240.7	6385.2	6491.1	101343.5	57.332	57.320	BFRL
02-07	101343.5	57.332	6766.9	6886.	5161.9	1698.4	6860.4	6783.0	101058.1	57.322	57.320	Norm
02-08	101058.1	57.322	7075.0	6873.	5147.5	1941.7	7089.2	7190.8	101416.9	57.335	57.320	Norm
02-09	101416.9	57.335	7598.5	6889.	5165.7	2546.8	7712.4	7630.8	101116.2	57.324	57.320	Norm
02-10	101116.2	57.324	8070.9	6876.	5150.4	2950.8	8101.2	8045.4	100908.3	57.316	57.320	Norm
02-11	100908.3	57.316	8459.9	6864.	5144.5	3288.0	8432.5	8390.0	100748.2	57.309	57.320	BFRL
02-12	100748.2	57.309	8734.6	6854.	5144.5	3518.2	8662.8	8798.9	101231.4	57.328	57.320	BFRL
02-13	101231.4	57.328	9207.8	6881.	5156.3	4113.9	9270.1	9176.6	100887.9	57.315	57.320	Norm
02-14	100887.9	57.315	9554.4	6863.	5144.5	4376.8	9521.3	9614.7	101217.1	57.328	57.320	BFRL

... Contd.

Time Dy-Hr	Init-Stor (10**3 m3)	Init_lev (m)	Inf-fore (m3/s)	Evapr (m3)	Rel_main (m3/s)	Rel_add (m3/s)	Tot_Rel (m3/s)	Inflow (m3/s)	End stor (10**3 m3)	End_lev (m)	Rule_lev (m)	
02-15	101217.1	57.328	10052.7	6880.	5155.6	4955.6	10111.1	10094.1	101148.8	57.325	57.320	Norm
02-16	101148.8	57.325	10573.5	6877.	5152.1	5460.8	10612.9	10627.9	101195.7	57.327	57.320	Norm
02-17	101195.7	57.327	11161.6	6879.	5137.3	6076.8	11214.1	11042.7	100571.9	57.302	57.320	Norm
02-18	100571.9	57.302	11457.5	6842.	5144.5	6192.2	11336.7	11750.3	102054.1	57.358	57.320	BFRL
02-19	102054.1	57.358	12458.0	6918.	5197.9	7551.0	12748.9	12783.1	102170.3	57.362	57.320	Norm
02-20	102170.3	57.362	13815.8	6923.	5358.7	7383.9	12742.6	14447.2	108300.0	57.581	57.320	ExFr
02-21	108300.0	57.581	16111.4	7200.	5541.3	10570.1	16111.4	16416.4	109390.7	57.620	57.320	Emer
02-22	109390.7	57.620	18385.5	7249.	5620.9	12196.5	17817.4	18442.2	111632.7	57.700	57.320	Emer
02-23	111632.7	57.700	20467.9	7354.	5853.2	12576.1	18429.3	20493.7	119057.4	57.961	57.320	Emer
02-24	119057.4	57.961	22545.3	7722.	6338.5	13365.3	19703.8	23074.5	131184.5	58.345	57.320	Emer
03-01	131184.5	58.345	25655.3	8551.	6984.7	14402.8	21387.5	25912.7	147466.5	58.825	57.320	Emer
03-02	147466.5	58.825	28750.9	9552.	7614.0	15407.4	23021.5	26425.0	159709.4	59.170	57.320	Emer
03-03	159709.4	59.170	26937.2	10289.	8015.9	16048.7	24064.6	25630.4	165336.0	59.324	57.320	Emer
***** Attention - reservoir level too high - FLOOD EMERGENCY *****												
03-04	165336.0	59.324	24835.8	10739.	8049.7	16102.2	24151.9	22856.8	160662.8	59.196	57.320	Emer
03-05	160662.8	59.196	20083.1	10365.	7702.9	15549.8	23252.7	20140.3	149447.9	58.881	57.320	Emer
03-06	149447.9	58.881	17423.9	9668.	7103.1	14591.3	21694.4	17560.7	134556.7	58.451	57.320	Emer
03-07	134556.7	58.451	14981.0	8777.	6736.5	8244.5	14981.0	14494.2	132795.5	58.396	57.320	Emer
03-08	132795.5	58.396	11427.8	8659.	6615.1	6127.5	12742.6	11783.5	129334.0	58.287	57.320	Emer
03-09	129334.0	58.287	9072.7	8426.	6209.1	6533.5	12742.6	8999.1	115848.9	57.850	57.320	Emer
03-10	115848.9	57.850	6214.7	7551.	5593.1	4744.2	10337.3	7025.4	103918.6	57.424	57.320	Emer
03-11	103918.6	57.424	5051.7	7002.	5248.4	612.0	5860.5	5382.2	102189.6	57.362	57.320	Norm
03-12	102189.6	57.362	3738.9	6924.	4067.5	0.0	4067.5	4307.8	103048.0	57.393	57.320	Norm
03-13	103048.0	57.393	3233.5	6963.	3800.4	0.0	3800.4	3402.8	101609.6	57.342	57.320	Norm
03-14	101609.6	57.342	2497.8	6898.	2665.2	0.0	2665.2	2116.7	99627.9	57.262	57.320	Norm
03-15	99627.9	57.262	830.5	6779.	447.5	0.0	447.5	1873.4	104754.5	57.454	57.320	BFRL
03-16	104754.5	57.454	1630.2	7040.	2671.2	0.0	2671.2	1525.1	100621.8	57.304	57.320	Norm
03-17	100621.8	57.304	1176.8	6845.	1069.9	0.0	1069.9	1055.1	100561.7	57.302	57.320	BFRL
03-18	100561.7	57.302	585.0	6841.	461.4	0.0	461.4	869.6	102024.5	57.357	57.320	BFRL
03-19	102024.5	57.357	684.1	6917.	966.8	0.0	966.8	603.1	100708.4	57.308	57.320	Norm
03-20	100708.4	57.308	336.7	6851.	253.8	0.0	253.8	425.3	101319.1	57.331	57.320	BFRL
03-21	101319.1	57.331	247.5	6885.	334.2	0.0	-334.2	406.6	101572.9	57.340	57.320	Norm

Table - 12

Flood Control Operation of Machhu II 1000 YR Flood - Forecasting
Reservoir Working Table

Time Dy-Hr	Init-Stor (10**3 m3)	Init_lev (m)	Inf-fore (m3/s)	Evapr (m3)	Rel_main (m3/s)	Rel_add (m3/s)	Tot_Rel (m3/s)	Inflow (m3/s)	End stor (10**3 m3)	End_lev (m)	Rule_lev (m)	
01-04	101000.0	57.320	241.4	13741.	239.5	0.0	239.5	241.4	101000.0	57.320	57.320	Norm
01-06	101000.0	57.320	627.3	13741.	625.4	0.0	625.4	627.3	101000.0	57.320	57.320	Norm
01-08	101000.0	57.320	1013.1	13741.	1011.2	0.0	1011.2	1497.3	104486.0	57.444	57.320	Norm
01-10	104486.0	57.444	2367.3	14055.	2849.5	0.0	2849.5	2623.9	102847.5	57.386	57.320	Norm
01-12	102847.5	57.386	3750.5	13908.	4005.2	0.0	4005.2	4079.9	103371.5	57.405	57.320	Norm
01-14	103371.5	57.405	5535.9	13955.	5212.1	651.2	5863.3	5577.6	101300.5	57.331	57.320	Norm
01-16	101300.5	57.331	7075.3	13768.	5099.7	2015.4	7115.1	6816.3	99134.8	57.242	57.320	Norm
01-18	99134.8	57.242	8054.9	13493.	5144.5	2649.5	7794.0	7992.0	100546.7	57.301	57.320	BFRL
01-20	100546.7	57.301	9167.7	13681.	5144.5	3958.3	9102.8	10401.0	109879.9	57.637	57.320	BFRL
01-22	109879.9	57.637	12810.0	14544.	5680.4	7129.6	12810.0	13298.2	113380.5	57.762	57.320	Emer
01-24	113380.5	57.762	16195.5	14871.	5644.6	10550.9	16195.5	15511.9	108443.8	57.586	57.320	Emer
02-02	108443.8	57.586	17725.5	14413.	5466.0	11944.0	17410.1	17154.3	106587.8	57.520	57.320	Emer
02-04	106587.8	57.520	18796.7	14245.	5354.7	11762.7	17117.4	16779.3	104139.3	57.432	57.320	Emer
02-06	104139.3	57.432	16404.3	14024.	5607.1	7135.5	12742.6	14418.3	116190.6	57.862	57.320	ExFr
02-08	116190.6	57.862	12057.4	15134.	5686.4	7056.2	12742.6	11511.7	107313.1	57.545	57.320	Emer
02-10	107313.1	57.545	8605.1	14311.	5312.4	4167.5	9479.9	8650.3	101325.4	57.332	57.320	Emer
02-12	101325.4	57.332	5788.9	13770.	5192.5	639.6	5832.1	6007.2	102572.0	57.376	57.320	Norm
02-14	102572.0	57.376	3364.1	13833.	3580.5	0.0	3580.5	3989.2	105500.8	57.481	57.320	Norm
02-16	105500.8	57.481	1971.2	14147.	2594.3	0.0	2594.3	2675.0	106067.4	57.501	57.320	Emer
02-18	106067.4	57.501	1360.8	14198.	2062.7	0.0	2062.7	1893.7	104836.4	57.457	57.320	Emer
02-20	104836.4	57.457	1112.3	14087.	1643.2	0.0	1643.2	1389.4	102995.1	57.391	57.320	Norm
02-22	102995.1	57.391	885.2	13921.	1160.3	0.0	1160.3	1051.8	102199.8	57.363	57.320	Norm
02-24	102199.8	57.363	714.2	13849.	878.9	0.0	878.9	820.9	101768.3	57.347	57.320	Norm
03-02	101768.3	57.347	590.0	13810.	694.8	0.0	694.8	188.3	98107.6	57.198	57.320	Norm

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Release To Be Made Through Main And Additional Spillways
Depending On Reservoir Elevation And Inflow Rate

Inflow	-- 1000.---	-- 1500.---	-- 2000.---	-- 2500.---	-- 3000.---	-- 3500.---	-- 4000.---	-- 4500.---
57.32	1000.+ 0.	1500.+ 0.	2000.+ 0.	2500.+ 0.	3000.+ 0.	3500.+ 0.	4000.+ 0.	4500.+ 0.
57.35	1820.+ 1382.	2226.+ 1382.	2832.+ 1382.	3038.+ 1382.	3445.+ 1382.	3851.+ 1382.	4257.+ 1382.	4663.+ 1382.
57.40	3186.+ 3686.	3436.+ 3686.	3686.+ 3686.	3936.+ 3686.	4186.+ 3686.	4436.+ 3686.	4686.+ 3686.	4936.+ 3686.
57.45	4552.+ 5990.	4845.+ 5990.	4739.+ 5990.	4833.+ 5990.	4927.+ 5990.	5020.+ 5990.	5114.+ 5990.	5208.+ 5990.
57.48	5371.+ 7372.	5371.+ 7372.	5371.+ 7372.	5371.+ 7372.	5371.+ 7372.	5371.+ 7372.	5371.+ 7372.	5371.+ 7372.
57.50	5399.+ 7344.	5399.+ 7344.	5399.+ 7344.	5399.+ 7344.	5399.+ 7344.	5399.+ 7344.	5399.+ 7344.	5399.+ 7344.
57.55	5470.+ 7273.	5470.+ 7273.	5470.+ 7273.	5470.+ 7273.	5470.+ 7273.	5470.+ 7273.	5470.+ 7273.	5470.+ 7273.
57.60	5541.+ 7202.	5541.+ 7202.	5541.+ 7202.	5541.+ 7202.	5541.+ 7202.	5541.+ 7202.	5541.+ 7202.	5541.+ 7202.
57.65	5611.+ 7132.	5611.+ 7132.	5611.+ 7132.	5611.+ 7132.	5611.+ 7132.	5611.+ 7132.	5611.+ 7132.	5611.+ 7132.
57.70	5681.+ 7062.	5681.+ 7062.	5681.+ 7062.	5681.+ 7062.	5681.+ 7062.	5681.+ 7062.	5681.+ 7062.	5681.+ 7062.
57.75	5751.+ 6992.	5751.+ 6992.	5751.+ 6992.	5751.+ 6992.	5751.+ 6992.	5751.+ 6992.	5751.+ 6992.	5751.+ 6992.
57.80	5821.+ 6922.	5821.+ 6922.	5821.+ 6922.	5821.+ 6922.	5821.+ 6922.	5821.+ 6922.	5821.+ 6922.	5821.+ 6922.
57.85	5891.+ 6852.	5891.+ 6852.	5891.+ 6852.	5891.+ 6852.	5891.+ 6852.	5891.+ 6852.	5891.+ 6852.	5891.+ 6852.
57.90	5961.+ 6782.	5961.+ 6782.	5961.+ 6782.	5961.+ 6782.	5961.+ 6782.	5961.+ 6782.	5961.+ 6782.	5961.+ 6782.
57.95	6032.+ 6711.	6032.+ 6711.	6032.+ 6711.	6032.+ 6711.	6032.+ 6711.	6032.+ 6711.	6032.+ 6711.	6032.+ 6711.
58.00	6107.+ 6636.	6107.+ 6636.	6107.+ 6636.	6107.+ 6636.	6107.+ 6636.	6107.+ 6636.	6107.+ 6636.	6107.+ 6636.
58.05	6181.+ 6562.	6181.+ 6562.	6181.+ 6562.	6181.+ 6562.	6181.+ 6562.	6181.+ 6562.	6181.+ 6562.	6181.+ 6562.
58.10	6256.+ 6487.	6256.+ 6487.	6256.+ 6487.	6256.+ 6487.	6256.+ 6487.	6256.+ 6487.	6256.+ 6487.	6256.+ 6487.
58.15	6330.+ 6413.	6330.+ 6413.	6330.+ 6413.	6330.+ 6413.	6330.+ 6413.	6330.+ 6413.	6330.+ 6413.	6330.+ 6413.
58.20	6405.+ 6338.	6405.+ 6338.	6405.+ 6338.	6405.+ 6338.	6405.+ 6338.	6405.+ 6338.	6405.+ 6338.	6405.+ 6338.
58.25	6479.+ 6264.	6479.+ 6264.	6479.+ 6264.	6479.+ 6264.	6479.+ 6264.	6479.+ 6264.	6479.+ 6264.	6479.+ 6264.
58.30	6553.+ 6190.	6553.+ 6190.	6553.+ 6190.	6553.+ 6190.	6553.+ 6190.	6553.+ 6190.	6553.+ 6190.	6553.+ 6190.
58.35	6628.+ 6115.	6628.+ 6115.	6628.+ 6115.	6628.+ 6115.	6628.+ 6115.	6628.+ 6115.	6628.+ 6115.	6628.+ 6115.
58.40	6702.+ 6041.	6702.+ 6041.	6702.+ 6041.	6702.+ 6041.	6702.+ 6041.	6702.+ 6041.	6702.+ 6041.	6702.+ 6041.
58.45	6776.+ 5967.	6776.+ 5967.	6776.+ 5967.	6776.+ 5967.	6776.+ 5967.	6776.+ 5967.	6776.+ 5967.	6776.+ 5967.
58.50	6850.+ 5893.	6850.+ 5893.	6850.+ 5893.	6850.+ 5893.	6850.+ 5893.	6850.+ 5893.	6850.+ 5893.	6850.+ 5893.
58.55	6925.+ 5818.	6925.+ 5818.	6925.+ 5818.	6925.+ 5818.	6925.+ 5818.	6925.+ 5818.	6925.+ 5818.	6925.+ 5818.
58.60	7004.+ 5739.	7004.+ 5739.	7004.+ 5739.	7004.+ 5739.	7004.+ 5739.	7004.+ 5739.	7004.+ 5739.	7004.+ 5739.
58.65	7083.+ 5660.	7083.+ 5660.	7083.+ 5660.	7083.+ 5660.	7083.+ 5660.	7083.+ 5660.	7083.+ 5660.	7083.+ 5660.
58.70	7162.+ 5581.	7162.+ 5581.	7162.+ 5581.	7162.+ 5581.	7162.+ 5581.	7162.+ 5581.	7162.+ 5581.	7162.+ 5581.
58.75	7241.+ 5502.	7241.+ 5502.	7241.+ 5502.	7241.+ 5502.	7241.+ 5502.	7241.+ 5502.	7241.+ 5502.	7241.+ 5502.
58.80	7320.+ 5423.	7320.+ 5423.	7320.+ 5423.	7320.+ 5423.	7320.+ 5423.	7320.+ 5423.	7320.+ 5423.	7320.+ 5423.
58.85	7398.+ 5345.	7398.+ 5345.	7398.+ 5345.	7398.+ 5345.	7398.+ 5345.	7398.+ 5345.	7398.+ 5345.	7398.+ 5345.
58.90	7476.+ 5267.	7476.+ 5267.	7476.+ 5267.	7476.+ 5267.	7476.+ 5267.	7476.+ 5267.	7476.+ 5267.	7476.+ 5267.
58.95	7554.+ 5189.	7554.+ 5189.	7554.+ 5189.	7554.+ 5189.	7554.+ 5189.	7554.+ 5189.	7554.+ 5189.	7554.+ 5189.
59.00	7631.+ 5112.	7631.+ 5112.	7631.+ 5112.	7631.+ 5112.	7631.+ 5112.	7631.+ 5112.	7631.+ 5112.	7631.+ 5112.
59.05	7709.+ 5034.	7709.+ 5034.	7709.+ 5034.	7709.+ 5034.	7709.+ 5034.	7709.+ 5034.	7709.+ 5034.	7709.+ 5034.
59.10	7786.+ 4957.	7786.+ 4957.	7786.+ 4957.	7786.+ 4957.	7786.+ 4957.	7786.+ 4957.	7786.+ 4957.	7786.+ 4957.
59.15	7864.+ 4879.	7864.+ 4879.	7864.+ 4879.	7864.+ 4879.	7864.+ 4879.	7864.+ 4879.	7864.+ 4879.	7864.+ 4879.
59.20	7946.+ 4797.	7946.+ 4797.	7946.+ 4797.	7946.+ 4797.	7946.+ 4797.	7946.+ 4797.	7946.+ 4797.	7946.+ 4797.
59.25	8028.+ 4715.	8028.+ 4715.	8028.+ 4715.	8028.+ 4715.	8028.+ 4715.	8028.+ 4715.	8028.+ 4715.	8028.+ 4715.
59.30	8110.+ 4633.	8110.+ 4633.	8110.+ 4633.	8110.+ 4633.	8110.+ 4633.	8110.+ 4633.	8110.+ 4633.	8110.+ 4633.
59.35	8192.+ 4551.	8192.+ 4551.	8192.+ 4551.	8192.+ 4551.	8192.+ 4551.	8192.+ 4551.	8192.+ 4551.	8192.+ 4551.

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Inflow	-- 5000.---	-- 5500.---	-- 6000.---	-- 6500.---	-- 7000.---	-- 7500.---	-- 8000.---	-- 8500.---
57.32	5000.+ 0.	5145.+ 355.	5145.+ 855.	5145.+ 1355.	5145.+ 1855.	5145.+ 2355.	5145.+ 2855.	5145.+ 3355.
57.35	5070.+ 1382.	5187.+ 1671.	5187.+ 2077.	5187.+ 2483.	5187.+ 2890.	5187.+ 3296.	5187.+ 3702.	5187.+ 4109.
57.40	5186.+ 3686.	5258.+ 3864.	5258.+ 4114.	5258.+ 4364.	5258.+ 4614.	5258.+ 4864.	5258.+ 5114.	5258.+ 5364.
57.45	5302.+ 5990.	5329.+ 6056.	5329.+ 6150.	5329.+ 6244.	5329.+ 6338.	5329.+ 6431.	5329.+ 6525.	5329.+ 6619.
57.48	5371.+ 7372.	5371.+ 7372.	5371.+ 7372.	5371.+ 7372.	5371.+ 7372.	5371.+ 7372.	5371.+ 7372.	5371.+ 7372.
57.50	5399.+ 7344.	5399.+ 7344.	5399.+ 7344.	5399.+ 7344.	5399.+ 7344.	5399.+ 7344.	5399.+ 7344.	5399.+ 7344.
57.55	5470.+ 7273.	5470.+ 7273.	5470.+ 7273.	5470.+ 7273.	5470.+ 7273.	5470.+ 7273.	5470.+ 7273.	5470.+ 7273.
57.60	5541.+ 7202.	5541.+ 7202.	5541.+ 7202.	5541.+ 7202.	5541.+ 7202.	5541.+ 7202.	5541.+ 7202.	5541.+ 7202.
57.65	5611.+ 7132.	5611.+ 7132.	5611.+ 7132.	5611.+ 7132.	5611.+ 7132.	5611.+ 7132.	5611.+ 7132.	5611.+ 7132.
57.70	5681.+ 7062.	5681.+ 7062.	5681.+ 7062.	5681.+ 7062.	5681.+ 7062.	5681.+ 7062.	5681.+ 7062.	5681.+ 7062.
57.75	5751.+ 6992.	5751.+ 6992.	5751.+ 6992.	5751.+ 6992.	5751.+ 6992.	5751.+ 6992.	5751.+ 6992.	5751.+ 6992.
57.80	5821.+ 6922.	5821.+ 6922.	5821.+ 6922.	5821.+ 6922.	5821.+ 6922.	5821.+ 6922.	5821.+ 6922.	5821.+ 6922.
57.85	5891.+ 6852.	5891.+ 6852.	5891.+ 6852.	5891.+ 6852.	5891.+ 6852.	5891.+ 6852.	5891.+ 6852.	5891.+ 6852.
57.90	5961.+ 6782.	5961.+ 6782.	5961.+ 6782.	5961.+ 6782.	5961.+ 6782.	5961.+ 6782.	5961.+ 6782.	5961.+ 6782.
57.95	6032.+ 6711.	6032.+ 6711.	6032.+ 6711.	6032.+ 6711.	6032.+ 6711.	6032.+ 6711.	6032.+ 6711.	6032.+ 6711.
58.00	6107.+ 6636.	6107.+ 6636.	6107.+ 6636.	6107.+ 6636.	6107.+ 6636.	6107.+ 6636.	6107.+ 6636.	6107.+ 6636.
58.05	6181.+ 6562.	6181.+ 6562.	6181.+ 6562.	6181.+ 6562.	6181.+ 6562.	6181.+ 6562.	6181.+ 6562.	6181.+ 6562.
58.10	6256.+ 6487.	6256.+ 6487.	6256.+ 6487.	6256.+ 6487.	6256.+ 6487.	6256.+ 6487.	6256.+ 6487.	6256.+ 6487.
58.15	6330.+ 6413.	6330.+ 6413.	6330.+ 6413.	6330.+ 6413.	6330.+ 6413.	6330.+ 6413.	6330.+ 6413.	6330.+ 6413.
58.20	6405.+ 6338.	6405.+ 6338.	6405.+ 6338.	6405.+ 6338.	6405.+ 6338.	6405.+ 6338.	6405.+ 6338.	6405.+ 6338.
58.25	6479.+ 6264.	6479.+ 6264.	6479.+ 6264.	6479.+ 6264.	6479.+ 6264.	6479.+ 6264.	6479.+ 6264.	6479.+ 6264.
58.30	6553.+ 6190.	6553.+ 6190.	6553.+ 6190.	6553.+ 6190.	6553.+ 6190.	6553.+ 6190.	6553.+ 6190.	6553.+ 6190.
58.35	6628.+ 6115.	6628.+ 6115.	6628.+ 6115.	6628.+ 6115.	6628.+ 6115.	6628.+ 6115.	6628.+ 6115.	6628.+ 6115.
58.40	6702.+ 6041.	6702.+ 6041.	6702.+ 6041.	6702.+ 6041.	6702.+ 6041.	6702.+ 6041.	6702.+ 6041.	6702.+ 6041.
58.45	6776.+ 5967.	6776.+ 5967.	6776.+ 5967.	6776.+ 5967.	6776.+ 5967.	6776.+ 5967.	6776.+ 5967.	6776.+ 5967.
58.50	6850.+ 5893.	6850.+ 5893.	6850.+ 5893.	6850.+ 5893.	6850.+ 5893.	6850.+ 5893.	6850.+ 5893.	6850.+ 5893.
58.55	6925.+ 5818.	6925.+ 5818.	6925.+ 5818.	6925.+ 5818.	6925.+ 5818.	6925.+ 5818.	6925.+ 5818.	6925.+ 5818.
58.60	7004.+ 5739.	7004.+ 5739.	7004.+ 5739.	7004.+ 5739.	7004.+ 5739.	7004.+ 5739.	7004.+ 5739.	7004.+ 5739.
58.65	7083.+ 5660.	7083.+ 5660.	7083.+ 5660.	7083.+ 5660.	7083.+ 5660.	7083.+ 5660.	7083.+ 5660.	7083.+ 5660.
58.70	7162.+ 5581.	7162.+ 5581.	7162.+ 5581.	7162.+ 5581.	7162.+ 5581.	7162.+ 5581.	7162.+ 5581.	7162.+ 5581.
58.75	7241.+ 5502.	7241.+ 5502.	7241.+ 5502.	7241.+ 5502.	7241.+ 5502.	7241.+ 5502.	7241.+ 5502.	7241.+ 5502.
58.80	7320.+ 5423.	7320.+ 5423.	7320.+ 5423.	7320.+ 5423.	7320.+ 5423.	7320.+ 5423.	7320.+ 5423.	7320.+ 5423.
58.85	7398.+ 5345.	7398.+ 5345.	7398.+ 5345.	7398.+ 5345.	7398.+ 5345.	7398.+ 5345.	7398.+ 5345.	7398.+ 5345.
58.90	7476.+ 5267.	7476.+ 5267.	7476.+ 5267.	7476.+ 5267.	7476.+ 5267.	7476.+ 5267.	7476.+ 5267.	7476.+ 5267.
58.95	7554.+ 5189.	7554.+ 5189.	7554.+ 5189.	7554.+ 5189.	7554.+ 5189.	7554.+ 5189.	7554.+ 5189.	7554.+ 5189.
59.00	7631.+ 5112.	7631.+ 5112.	7631.+ 5112.	7631.+ 5112.	7631.+ 5112.	7631.+ 5112.	7631.+ 5112.	7631.+ 5112.
59.05	7709.+ 5034.	7709.+ 5034.	7709.+ 5034.	7709.+ 5034.	7709.+ 5034.	7709.+ 5034.	7709.+ 5034.	7709.+ 5034.
59.10	7786.+ 4957.	7786.+ 4957.	7786.+ 4957.	7786.+ 4957.	7786.+ 4957.	7786.+ 4957.	7786.+ 4957.	7786.+ 4957.
59.15	7864.+ 4879.	7864.+ 4879.	7864.+ 4879.	7864.+ 4879.	7864.+ 4879.	7864.+ 4879.	7864.+ 4879.	7864.+ 4879.
59.20	7946.+ 4797.	7946.+ 4797.	7946.+ 4797.	7946.+ 4797.	7946.+ 4797.	7946.+ 4797.	7946.+ 4797.	7946.+ 4797.
59.25	8028.+ 4715.	8028.+ 4715.	8028.+ 4715.	8028.+ 4715.	8028.+ 4715.	8028.+ 4715.	8028.+ 4715.	8028.+ 4715.
59.30	8110.+ 4633.	8110.+ 4633.	8110.+ 4633.	8110.+ 4633.	8110.+ 4633.	8110.+ 4633.	8110.+ 4633.	8110.+ 4633.
59.35	8192.+ 4551.	8192.+ 4551.	8192.+ 4551.	8192.+ 4551.	8192.+ 4551.	8192.+ 4551.	8192.+ 4551.	8192.+ 4551.

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Inflow	-- 9000.---	-- 9500.---	-- 10000.---	-- 10500.---	-- 11000.---	-- 11500.---	-- 12000.---	-- 12500.---
57.32	5145.+ 3855.	5145.+ 4355.	5145.+ 4855.	5145.+ 5355.	5145.+ 5855.	5145.+ 6355.	5145.+ 6855.	5145.+ 7355.
57.35	5187.+ 4515.	5187.+ 4921.	5187.+ 5327.	5187.+ 5734.	5187.+ 6140.	5187.+ 6546.	5187.+ 6952.	5187.+ 7359.
57.40	5258.+ 5614.	5258.+ 5864.	5258.+ 6114.	5258.+ 6364.	5258.+ 6614.	5258.+ 6864.	5258.+ 7114.	5258.+ 7364.
57.45	5329.+ 6713.	5329.+ 6806.	5329.+ 6900.	5329.+ 6994.	5329.+ 7088.	5329.+ 7181.	5329.+ 7275.	5329.+ 7369.
57.48	5371.+ 7372.	5371.+ 7372.	5371.+ 7372.	5371.+ 7372.	5371.+ 7372.	5371.+ 7372.	5371.+ 7372.	5371.+ 7372.
57.50	5399.+ 7344.	5399.+ 7344.	5399.+ 7344.	5399.+ 7344.	5399.+ 7344.	5399.+ 7344.	5399.+ 7344.	5399.+ 7344.
57.55	5470.+ 7273.	5470.+ 7273.	5470.+ 7273.	5470.+ 7273.	5470.+ 7273.	5470.+ 7273.	5470.+ 7273.	5470.+ 7273.
57.60	5541.+ 7202.	5541.+ 7202.	5541.+ 7202.	5541.+ 7202.	5541.+ 7202.	5541.+ 7202.	5541.+ 7202.	5541.+ 7202.
57.65	5611.+ 7132.	5611.+ 7132.	5611.+ 7132.	5611.+ 7132.	5611.+ 7132.	5611.+ 7132.	5611.+ 7132.	5611.+ 7132.
57.70	5681.+ 7062.	5681.+ 7062.	5681.+ 7062.	5681.+ 7062.	5681.+ 7062.	5681.+ 7062.	5681.+ 7062.	5681.+ 7062.
57.75	5751.+ 6992.	5751.+ 6992.	5751.+ 6992.	5751.+ 6992.	5751.+ 6992.	5751.+ 6992.	5751.+ 6992.	5751.+ 6992.
57.80	5821.+ 6922.	5821.+ 6922.	5821.+ 6922.	5821.+ 6922.	5821.+ 6922.	5821.+ 6922.	5821.+ 6922.	5821.+ 6922.
57.85	5891.+ 6852.	5891.+ 6852.	5891.+ 6852.	5891.+ 6852.	5891.+ 6852.	5891.+ 6852.	5891.+ 6852.	5891.+ 6852.
57.90	5961.+ 6782.	5961.+ 6782.	5961.+ 6782.	5961.+ 6782.	5961.+ 6782.	5961.+ 6782.	5961.+ 6782.	5961.+ 6782.
57.95	6032.+ 6711.	6032.+ 6711.	6032.+ 6711.	6032.+ 6711.	6032.+ 6711.	6032.+ 6711.	6032.+ 6711.	6032.+ 6711.
58.00	6107.+ 6636.	6107.+ 6636.	6107.+ 6636.	6107.+ 6636.	6107.+ 6636.	6107.+ 6636.	6107.+ 6636.	6107.+ 6636.
58.05	6181.+ 6562.	6181.+ 6562.	6181.+ 6562.	6181.+ 6562.	6181.+ 6562.	6181.+ 6562.	6181.+ 6562.	6181.+ 6562.
58.10	6256.+ 6487.	6256.+ 6487.	6256.+ 6487.	6256.+ 6487.	6256.+ 6487.	6256.+ 6487.	6256.+ 6487.	6256.+ 6487.
58.15	6330.+ 6413.	6330.+ 6413.	6330.+ 6413.	6330.+ 6413.	6330.+ 6413.	6330.+ 6413.	6330.+ 6413.	6330.+ 6413.
58.20	6405.+ 6338.	6405.+ 6338.	6405.+ 6338.	6405.+ 6338.	6405.+ 6338.	6405.+ 6338.	6405.+ 6338.	6405.+ 6338.
58.25	6479.+ 6264.	6479.+ 6264.	6479.+ 6264.	6479.+ 6264.	6479.+ 6264.	6479.+ 6264.	6479.+ 6264.	6479.+ 6264.
58.30	6553.+ 6190.	6553.+ 6190.	6553.+ 6190.	6553.+ 6190.	6553.+ 6190.	6553.+ 6190.	6553.+ 6190.	6553.+ 6190.
58.35	6628.+ 6115.	6628.+ 6115.	6628.+ 6115.	6628.+ 6115.	6628.+ 6115.	6628.+ 6115.	6628.+ 6115.	6628.+ 6115.
58.40	6702.+ 6041.	6702.+ 6041.	6702.+ 6041.	6702.+ 6041.	6702.+ 6041.	6702.+ 6041.	6702.+ 6041.	6702.+ 6041.
58.45	6776.+ 5967.	6776.+ 5967.	6776.+ 5967.	6776.+ 5967.	6776.+ 5967.	6776.+ 5967.	6776.+ 5967.	6776.+ 5967.
58.50	6850.+ 5893.	6850.+ 5893.	6850.+ 5893.	6850.+ 5893.	6850.+ 5893.	6850.+ 5893.	6850.+ 5893.	6850.+ 5893.
58.55	6925.+ 5818.	6925.+ 5818.	6925.+ 5818.	6925.+ 5818.	6925.+ 5818.	6925.+ 5818.	6925.+ 5818.	6925.+ 5818.
58.60	7004.+ 5739.	7004.+ 5739.	7004.+ 5739.	7004.+ 5739.	7004.+ 5739.	7004.+ 5739.	7004.+ 5739.	7004.+ 5739.
58.65	7083.+ 5660.	7083.+ 5660.	7083.+ 5660.	7083.+ 5660.	7083.+ 5660.	7083.+ 5660.	7083.+ 5660.	7083.+ 5660.
58.70	7162.+ 5581.	7162.+ 5581.	7162.+ 5581.	7162.+ 5581.	7162.+ 5581.	7162.+ 5581.	7162.+ 5581.	7162.+ 5581.
58.75	7241.+ 5502.	7241.+ 5502.	7241.+ 5502.	7241.+ 5502.	7241.+ 5502.	7241.+ 5502.	7241.+ 5502.	7241.+ 5502.
58.80	7320.+ 5423.	7320.+ 5423.	7320.+ 5423.	7320.+ 5423.	7320.+ 5423.	7320.+ 5423.	7320.+ 5423.	7320.+ 5423.
58.85	7398.+ 5345.	7398.+ 5345.	7398.+ 5345.	7398.+ 5345.	7398.+ 5345.	7398.+ 5345.	7398.+ 5345.	7398.+ 5345.
58.90	7478.+ 5267.	7478.+ 5267.	7478.+ 5267.	7478.+ 5267.	7478.+ 5267.	7478.+ 5267.	7478.+ 5267.	7478.+ 5267.
58.95	7554.+ 5189.	7554.+ 5189.	7554.+ 5189.	7554.+ 5189.	7554.+ 5189.	7554.+ 5189.	7554.+ 5189.	7554.+ 5189.
59.00	7631.+ 5112.	7631.+ 5112.	7631.+ 5112.	7631.+ 5112.	7631.+ 5112.	7631.+ 5112.	7631.+ 5112.	7631.+ 5112.
59.05	7709.+ 5034.	7709.+ 5034.	7709.+ 5034.	7709.+ 5034.	7709.+ 5034.	7709.+ 5034.	7709.+ 5034.	7709.+ 5034.
59.10	7786.+ 4957.	7786.+ 4957.	7786.+ 4957.	7786.+ 4957.	7786.+ 4957.	7786.+ 4957.	7786.+ 4957.	7786.+ 4957.
59.15	7864.+ 4879.	7864.+ 4879.	7864.+ 4879.	7864.+ 4879.	7864.+ 4879.	7864.+ 4879.	7864.+ 4879.	7864.+ 4879.
59.20	7946.+ 4797.	7946.+ 4797.	7946.+ 4797.	7946.+ 4797.	7946.+ 4797.	7946.+ 4797.	7946.+ 4797.	7946.+ 4797.
59.25	8028.+ 4715.	8028.+ 4715.	8028.+ 4715.	8028.+ 4715.	8028.+ 4715.	8028.+ 4715.	8028.+ 4715.	8028.+ 4715.
59.30	8110.+ 4633.	8110.+ 4633.	8110.+ 4633.	8110.+ 4633.	8110.+ 4633.	8110.+ 4633.	8110.+ 4633.	8110.+ 4633.
59.35	8192.+ 4551.	8192.+ 4551.	8192.+ 4551.	8192.+ 4551.	8192.+ 4551.	8192.+ 4551.	8192.+ 4551.	8192.+ 4551.

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Inflow	-- 13000.---	-- 13500.---	-- 14000.---	-- 14500.---	-- 15000.---	-- 15500.---	-- 16000.---	-- 16500.---
57.32	5145.+ 7598.	5145.+ 7598.	5145.+ 7598.	5145.+ 7598.	5145.+ 7598.	5145.+ 7598.	5145.+ 7598.	5145.+ 7598.
57.35	5187.+ 7556.	5187.+ 7556.	5187.+ 7556.	5187.+ 7556.	5187.+ 7556.	5187.+ 7556.	5187.+ 7556.	5187.+ 7556.
57.40	5258.+ 7485.	5258.+ 7485.	5258.+ 7485.	5258.+ 7485.	5258.+ 7485.	5258.+ 7485.	5258.+ 7485.	5258.+ 7485.
57.45	5329.+ 7414.	5329.+ 7414.	5329.+ 7414.	5329.+ 7414.	5329.+ 7414.	5329.+ 7414.	5329.+ 7414.	5329.+ 7414.
57.48	5371.+ 7629.	5371.+ 8129.	5371.+ 8629.	5371.+ 9129.	5371.+ 9629.	5371.+ 10129.	5371.+ 10629.	5371.+ 11129.
57.50	5399.+ 7601.	5399.+ 8101.	5399.+ 8601.	5399.+ 9101.	5399.+ 9601.	5399.+ 10101.	5399.+ 10601.	5399.+ 11101.
57.55	5470.+ 7530.	5470.+ 8030.	5470.+ 8530.	5470.+ 9030.	5470.+ 9530.	5470.+ 10030.	5470.+ 10530.	5470.+ 11030.
57.60	5541.+ 7459.	5541.+ 7959.	5541.+ 8459.	5541.+ 8959.	5541.+ 9459.	5541.+ 9959.	5541.+ 10459.	5541.+ 10959.
57.65	5611.+ 7389.	5611.+ 7889.	5611.+ 8389.	5611.+ 8889.	5611.+ 9389.	5611.+ 9889.	5611.+ 10389.	5611.+ 10889.
57.70	5681.+ 7319.	5681.+ 7819.	5681.+ 8319.	5681.+ 8819.	5681.+ 9319.	5681.+ 9819.	5681.+ 10319.	5681.+ 10819.
57.75	5751.+ 7249.	5751.+ 7749.	5751.+ 8249.	5751.+ 8749.	5751.+ 9249.	5751.+ 9749.	5751.+ 10249.	5751.+ 10749.
57.80	5821.+ 7179.	5821.+ 7679.	5821.+ 8179.	5821.+ 8679.	5821.+ 9179.	5821.+ 9679.	5821.+ 10179.	5821.+ 10679.
57.85	5891.+ 7109.	5891.+ 7609.	5891.+ 8109.	5891.+ 8609.	5891.+ 9109.	5891.+ 9609.	5891.+ 10109.	5891.+ 10609.
57.90	5961.+ 7039.	5961.+ 7539.	5961.+ 8039.	5961.+ 8539.	5961.+ 9039.	5961.+ 9539.	5961.+ 10039.	5961.+ 10539.
57.95	6032.+ 6968.	6032.+ 7468.	6032.+ 7968.	6032.+ 8468.	6032.+ 8968.	6032.+ 9468.	6032.+ 9968.	6032.+ 10468.
58.00	6107.+ 6893.	6107.+ 7393.	6107.+ 7893.	6107.+ 8393.	6107.+ 8893.	6107.+ 9393.	6107.+ 9893.	6107.+ 10393.
58.05	6181.+ 6819.	6181.+ 7319.	6181.+ 7819.	6181.+ 8319.	6181.+ 8819.	6181.+ 9319.	6181.+ 9819.	6181.+ 10319.
58.10	6256.+ 6744.	6256.+ 7244.	6256.+ 7744.	6256.+ 8244.	6256.+ 8744.	6256.+ 9244.	6256.+ 9744.	6256.+ 10244.
58.15	6330.+ 6670.	6330.+ 7170.	6330.+ 7670.	6330.+ 8170.	6330.+ 8670.	6330.+ 9170.	6330.+ 9670.	6330.+ 10170.
58.20	6405.+ 6595.	6405.+ 7095.	6405.+ 7595.	6405.+ 8095.	6405.+ 8595.	6405.+ 9095.	6405.+ 9595.	6405.+ 10095.
58.25	6479.+ 6521.	6479.+ 7021.	6479.+ 7521.	6479.+ 8021.	6479.+ 8521.	6479.+ 9021.	6479.+ 9521.	6479.+ 10021.
58.30	6553.+ 6447.	6553.+ 6947.	6553.+ 7447.	6553.+ 7947.	6553.+ 8447.	6553.+ 8947.	6553.+ 9447.	6553.+ 9947.
58.35	6628.+ 6372.	6628.+ 6872.	6628.+ 7372.	6628.+ 7872.	6628.+ 8372.	6628.+ 8872.	6628.+ 9372.	6628.+ 9872.
58.40	6702.+ 6298.	6702.+ 6798.	6702.+ 7298.	6702.+ 7798.	6702.+ 8298.	6702.+ 8798.	6702.+ 9298.	6702.+ 9798.
58.45	6776.+ 6224.	6776.+ 6724.	6776.+ 7224.	6776.+ 7724.	6776.+ 8224.	6776.+ 8724.	6776.+ 9224.	6776.+ 9724.
58.50	6850.+ 6150.	6850.+ 6650.	6850.+ 7150.	6850.+ 7650.	6850.+ 8150.	6850.+ 8650.	6850.+ 9150.	6850.+ 9650.
58.55	6925.+ 6075.	6925.+ 6575.	6925.+ 7075.	6925.+ 7575.	6925.+ 8075.	6925.+ 8575.	6925.+ 9075.	6925.+ 9575.
58.60	7004.+ 5996.	7004.+ 6496.	7004.+ 6996.	7004.+ 7496.	7004.+ 7996.	7004.+ 8496.	7004.+ 8996.	7004.+ 9496.
58.65	7083.+ 5917.	7083.+ 6417.	7083.+ 6917.	7083.+ 7417.	7083.+ 7917.	7083.+ 8417.	7083.+ 8917.	7083.+ 9417.
58.70	7162.+ 5838.	7162.+ 6338.	7162.+ 6838.	7162.+ 7338.	7162.+ 7838.	7162.+ 8338.	7162.+ 8838.	7162.+ 9338.
58.75	7241.+ 5759.	7241.+ 6259.	7241.+ 6759.	7241.+ 7259.	7241.+ 7759.	7241.+ 8259.	7241.+ 8759.	7241.+ 9259.
58.80	7320.+ 5680.	7320.+ 6180.	7320.+ 6680.	7320.+ 7180.	7320.+ 7680.	7320.+ 8180.	7320.+ 8680.	7320.+ 9180.
58.85	7398.+ 5602.	7398.+ 6102.	7398.+ 6602.	7398.+ 7102.	7398.+ 7602.	7398.+ 8102.	7398.+ 8602.	7398.+ 9102.
58.90	7476.+ 5524.	7476.+ 6024.	7476.+ 6524.	7476.+ 7024.	7476.+ 7524.	7476.+ 8024.	7476.+ 8524.	7476.+ 9024.
58.95	7554.+ 5446.	7554.+ 5946.	7554.+ 6446.	7554.+ 6946.	7554.+ 7446.	7554.+ 7946.	7554.+ 8446.	7554.+ 8946.
59.00	7631.+ 5369.	7631.+ 5869.	7631.+ 6369.	7631.+ 6869.	7631.+ 7369.	7631.+ 7869.	7631.+ 8369.	7631.+ 8869.
59.05	7709.+ 5291.	7709.+ 5791.	7709.+ 6291.	7709.+ 6791.	7709.+ 7291.	7709.+ 7791.	7709.+ 8291.	7709.+ 8791.
59.10	7788.+ 5214.	7788.+ 5714.	7788.+ 6214.	7788.+ 6714.	7788.+ 7214.	7788.+ 7714.	7788.+ 8214.	7788.+ 8714.
59.15	7864.+ 5136.	7864.+ 5636.	7864.+ 6136.	7864.+ 6636.	7864.+ 7136.	7864.+ 7636.	7864.+ 8136.	7864.+ 8636.
59.20	7946.+ 5054.	7946.+ 5554.	7946.+ 6054.	7946.+ 6554.	7946.+ 7054.	7946.+ 7554.	7946.+ 8054.	7946.+ 8554.
59.25	8028.+ 4972.	8028.+ 5472.	8028.+ 5972.	8028.+ 6472.	8028.+ 6972.	8028.+ 7472.	8028.+ 7972.	8028.+ 8472.
59.30	8110.+ 4890.	8110.+ 5390.	8110.+ 5890.	8110.+ 6390.	8110.+ 6890.	8110.+ 7390.	8110.+ 7890.	8110.+ 8390.
59.35	8192.+ 4808.	8192.+ 5308.	8192.+ 5808.	8192.+ 6308.	8192.+ 6808.	8192.+ 7308.	8192.+ 7808.	8192.+ 8308.

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Inflow	-- 17000.---	-- 17500.---	-- 18000.---	-- 18500.---	-- 19000.---	-- 19500.---	-- 20000.---	-- 20500.---
57.32	5145.+ 7598.	5145.+ 11421.	5145.+ 11421.	5145.+ 11421.	5145.+ 11421.	5145.+ 11421.	5145.+ 11421.	5145.+ 11421.
57.35	5187.+ 7558.	5187.+ 11490.	5187.+ 11490.	5187.+ 11490.	5187.+ 11490.	5187.+ 11490.	5187.+ 11490.	5187.+ 11490.
57.40	5258.+ 7485.	5258.+ 11605.	5258.+ 11605.	5258.+ 11605.	5258.+ 11605.	5258.+ 11605.	5258.+ 11605.	5258.+ 11605.
57.45	5329.+ 7414.	5329.+ 11720.	5329.+ 11720.	5329.+ 11720.	5329.+ 11720.	5329.+ 11720.	5329.+ 11720.	5329.+ 11720.
57.48	5371.+ 11829.	5371.+ 11790.	5371.+ 11790.	5371.+ 11790.	5371.+ 11790.	5371.+ 11790.	5371.+ 11790.	5371.+ 11790.
57.50	5399.+ 11601.	5399.+ 11836.	5399.+ 11836.	5399.+ 11836.	5399.+ 11836.	5399.+ 11836.	5399.+ 11836.	5399.+ 11836.
57.55	5470.+ 11530.	5470.+ 11951.	5470.+ 11951.	5470.+ 11951.	5470.+ 11951.	5470.+ 11951.	5470.+ 11951.	5470.+ 11951.
57.60	5541.+ 11459.	5541.+ 11959.	5541.+ 12066.	5541.+ 12066.	5541.+ 12066.	5541.+ 12066.	5541.+ 12066.	5541.+ 12066.
57.65	5611.+ 11389.	5611.+ 11869.	5611.+ 12181.	5611.+ 12181.	5611.+ 12181.	5611.+ 12181.	5611.+ 12181.	5611.+ 12181.
57.70	5681.+ 11319.	5681.+ 11819.	5681.+ 12295.	5681.+ 12295.	5681.+ 12295.	5681.+ 12295.	5681.+ 12295.	5681.+ 12295.
57.75	5751.+ 11249.	5751.+ 11749.	5751.+ 12249.	5751.+ 12409.	5751.+ 12409.	5751.+ 12409.	5751.+ 12409.	5751.+ 12409.
57.80	5821.+ 11179.	5821.+ 11679.	5821.+ 12179.	5821.+ 12523.	5821.+ 12523.	5821.+ 12523.	5821.+ 12523.	5821.+ 12523.
57.85	5891.+ 11109.	5891.+ 11609.	5891.+ 12109.	5891.+ 12609.	5891.+ 12638.	5891.+ 12638.	5891.+ 12638.	5891.+ 12638.
57.90	5961.+ 11039.	5961.+ 11539.	5961.+ 12039.	5961.+ 12539.	5961.+ 12752.	5961.+ 12752.	5961.+ 12752.	5961.+ 12752.
57.95	6032.+ 10968.	6032.+ 11468.	6032.+ 11968.	6032.+ 12468.	6032.+ 12869.	6032.+ 12869.	6032.+ 12869.	6032.+ 12869.
58.00	6107.+ 10893.	6107.+ 11393.	6107.+ 11893.	6107.+ 12393.	6107.+ 12893.	6107.+ 12990.	6107.+ 12990.	6107.+ 12990.
58.05	6181.+ 10819.	6181.+ 11319.	6181.+ 11819.	6181.+ 12319.	6181.+ 12819.	6181.+ 13110.	6181.+ 13110.	6181.+ 13110.
58.10	6256.+ 10744.	6256.+ 11244.	6256.+ 11744.	6256.+ 12244.	6256.+ 12744.	6256.+ 13231.	6256.+ 13231.	6256.+ 13231.
58.15	6330.+ 10670.	6330.+ 11170.	6330.+ 11670.	6330.+ 12170.	6330.+ 12670.	6330.+ 13170.	6330.+ 13352.	6330.+ 13352.
58.20	6405.+ 10595.	6405.+ 11095.	6405.+ 11595.	6405.+ 12095.	6405.+ 12595.	6405.+ 13095.	6405.+ 13473.	6405.+ 13473.
58.25	6479.+ 10521.	6479.+ 11021.	6479.+ 11521.	6479.+ 12021.	6479.+ 12521.	6479.+ 13021.	6479.+ 13521.	6479.+ 13593.
58.30	6553.+ 10447.	6553.+ 10947.	6553.+ 11447.	6553.+ 11947.	6553.+ 12447.	6553.+ 12947.	6553.+ 13447.	6553.+ 13712.
58.35	6628.+ 10372.	6628.+ 10872.	6628.+ 11372.	6628.+ 11872.	6628.+ 12372.	6628.+ 12872.	6628.+ 13372.	6628.+ 13831.
58.40	6702.+ 10298.	6702.+ 10798.	6702.+ 11298.	6702.+ 11798.	6702.+ 12298.	6702.+ 12798.	6702.+ 13298.	6702.+ 13798.
58.45	6776.+ 10224.	6776.+ 10724.	6776.+ 11224.	6776.+ 11724.	6776.+ 12224.	6776.+ 12724.	6776.+ 13224.	6776.+ 13724.
58.50	6850.+ 10150.	6850.+ 10650.	6850.+ 11150.	6850.+ 11650.	6850.+ 12150.	6850.+ 12650.	6850.+ 13150.	6850.+ 13650.
58.55	6925.+ 10075.	6925.+ 10575.	6925.+ 11075.	6925.+ 11575.	6925.+ 12075.	6925.+ 12575.	6925.+ 13075.	6925.+ 13575.
58.60	7004.+ 9996.	7004.+ 10496.	7004.+ 10996.	7004.+ 11496.	7004.+ 11996.	7004.+ 12496.	7004.+ 12996.	7004.+ 13496.
58.65	7083.+ 9917.	7083.+ 10417.	7083.+ 10917.	7083.+ 11417.	7083.+ 11917.	7083.+ 12417.	7083.+ 12917.	7083.+ 13417.
58.70	7162.+ 9838.	7162.+ 10338.	7162.+ 10838.	7162.+ 11338.	7162.+ 11838.	7162.+ 12338.	7162.+ 12838.	7162.+ 13338.
58.75	7241.+ 9759.	7241.+ 10259.	7241.+ 10759.	7241.+ 11259.	7241.+ 11759.	7241.+ 12259.	7241.+ 12759.	7241.+ 13259.
58.80	7320.+ 9680.	7320.+ 10180.	7320.+ 10680.	7320.+ 11180.	7320.+ 11680.	7320.+ 12180.	7320.+ 12680.	7320.+ 13180.
58.85	7398.+ 9602.	7398.+ 10102.	7398.+ 10602.	7398.+ 11102.	7398.+ 11602.	7398.+ 12102.	7398.+ 12602.	7398.+ 13102.
58.90	7476.+ 9524.	7476.+ 10024.	7476.+ 10524.	7476.+ 11024.	7476.+ 11524.	7476.+ 12024.	7476.+ 12524.	7476.+ 13024.
58.95	7554.+ 9446.	7554.+ 9946.	7554.+ 10446.	7554.+ 10946.	7554.+ 11446.	7554.+ 11946.	7554.+ 12446.	7554.+ 12946.
59.00	7631.+ 9369.	7631.+ 9869.	7631.+ 10369.	7631.+ 10869.	7631.+ 11369.	7631.+ 11869.	7631.+ 12369.	7631.+ 12869.
59.05	7709.+ 9291.	7709.+ 9791.	7709.+ 10291.	7709.+ 10791.	7709.+ 11291.	7709.+ 11791.	7709.+ 12291.	7709.+ 12791.
59.10	7786.+ 9214.	7786.+ 9714.	7786.+ 10214.	7786.+ 10714.	7786.+ 11214.	7786.+ 11714.	7786.+ 12214.	7786.+ 12714.
59.15	7864.+ 9136.	7864.+ 9636.	7864.+ 10136.	7864.+ 10636.	7864.+ 11136.	7864.+ 11636.	7864.+ 12136.	7864.+ 12636.
59.20	7946.+ 9054.	7946.+ 9554.	7946.+ 10054.	7946.+ 10554.	7946.+ 11054.	7946.+ 11554.	7946.+ 12054.	7946.+ 12554.
59.25	8028.+ 8972.	8028.+ 9472.	8028.+ 9972.	8028.+ 10472.	8028.+ 10972.	8028.+ 11472.	8028.+ 11972.	8028.+ 12472.
59.30	8110.+ 8890.	8110.+ 9390.	8110.+ 9890.	8110.+ 10390.	8110.+ 10890.	8110.+ 11390.	8110.+ 11890.	8110.+ 12390.
59.35	8192.+ 8808.	8192.+ 9308.	8192.+ 9808.	8192.+ 10308.	8192.+ 10808.	8192.+ 11308.	8192.+ 11808.	8192.+ 12308.

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