

SEPTEMBER 20, 1988

1. Call to Order and Roll Call:

The regular monthly meeting of the Metropolitan Sewerage District Board was held in the Boardroom of MSD's Administration Building at 2 p.m. on Tuesday, September 20, 1988. Chairman Smith called the meeting to order at 2:00 p.m.

Chairman Smith and the following members were present: Aceto, Batts, Boggs, Dent, Dyson, Edwards, Pope, Waddey and Williams. Others present were: W.H. Mull, Engineer-Manager, Dean Huber and Bill Morris, representatives of the Consulting Engineers, John S. Stevens, General Counsel for the District, and William Clarke, MSD Attorney.

2. Minutes of August 16, 1988:

Mr. Dyson moved that the Board minutes of August 16, 1988 be approved as written. Mr. Edwards seconded the motion, and voice vote was unanimous in favor of the motion.

3. REPORT OF ENGINEER-MANAGER:**a. Status of Phase III Plant Expansion Contracts:**

Mr. Mull reported that the District is not encountering any problems at this time regarding Phase III of the Main Plant Expansion.

b. Report on Effect of One Month Study of Dried Micro-Organisms Feed to Reduce Grease in Sewer System:

Mr. Mull reviewed a memorandum dated September 19, 1988, from Marc Fender concerning the Results of Experimental Grease Reduction Program Using Sybron Biosocks. This memorandum is attached hereto and made a part of these minutes. After discussion, Mr. Mull recommended that the Board authorize the District to enter into a 3 month test with Sybron at \$3,150 per month. Mr. Dyson moved that the Board authorize the District to enter into a 3 month test with the Biosocks from Sybron at a cost of \$3,150.00 per month. Mr. Waddey seconded the motion and roll call vote was unanimous in favor of the motion.

c. Proposed Sewer Use Ordinance Revisions:

Mr. Mull turned the floor over to Mr. William Clarke, Attorney for the MSD, to review the proposed amendments to the MSD Sewer Use Ordinance. After review of the proposed amendments, Mr. Aceto moved that the Board adopt the Resolution of "Intent to Amend." Mr. Waddey seconded the motion and roll call vote was unanimous in favor of the motion.

d. Proposed Budget Amendment for Industrial Waste Monitoring Assistant and New Van:

Mr. Mull recommended that the Board authorize the District to replace one of the District's Monitoring Crew Vans and hire one additional staff member which would be an Assistant for the Industrial Waste Pretreatment Program. After lengthy discussion, Mr. Dent moved authorization for the District to replace one of its' Monitoring Crew Vans and hire an additional staff member to assist with the Industrial Waste Pretreatment Program. Mr. Williams seconded the motion, and roll call vote was unanimous in favor of the motion.

e. Status of Proposed Sludge Disposal Facilities (Phase IV, Plant Expansion:

Mr. Mull reported that the District has received no word from the EPA to date concerning EPA's final decision on the sludge disposal facilities. The Board recommended that the Engineer-Manager write the EPA referencing the District and Board's concern over the grant funds. Mr. Mull stated he would take care of this.

f. South Buncombe Interceptor Sewer R/W - The Biltmore Company:

This item was postponed until later in the meeting.

g. South French Broad Relief Interceptor Sewer Project 721 - Easement Acquisition for Mr. Carl Ricker \$800.00:

Mr. Mull recommended that the Board approve payment to Mr. Carl Ricker in the amount of \$800.00 for easement compensation for 917.20 feet of interceptor sewer which crosses his property. Mr. Boggs moved that the Board authorize payment of \$800 for easement acquisition to Mr. Carl Ricker, and Mrs. Pope seconded. Roll call vote was unanimous in favor of the motion.

h. Annual User Charge Report:

Mr. Mull reported that the Sewer Service Charge and Sewer Rate Review Committees met on September 19, 1988 to review the proposed Annual User Charges with Mr. Dean Huber. At this time, Mr. Mull turned the floor over to Mr. Huber who reviewed the Annual User Charge Report with the Board.

Mr. Mull reported that the recommendation of the Sewer Service Charge Committee and the Sewer Rate Review Committee is that the domestic user charge rate for 1988-89 remain at \$1.00 per CCF and that the industry rates be approved as presented. Mr. Boggs moved that the domestic user charge remain at \$1.00 per CCF effective October 1, 1988, and that the industry rates be as follows: Flow = \$0.246/CCF, BOD = \$0.150/Lb., and SS = \$0.070/Lb. retroactive to July 1, 1988. Mr. Batts seconded the motion and roll call vote was unanimous in favor of the motion.

Mr. Mull reviewed a Waste Treatment Survey for the City of Greensboro with the Board. After discussion, Mr. Mull advised that he would contact the Municipalities listed in the survey, obtain formulae for calculating their rates, and prepare a chart comparing same.

4. Report of Officers:

None

5. Report of Committees:

a. Sewer Service Charge & Sewer Rate Review Committees/Mrs. Pope;

See Report of Engineer-Manager, 3h.

b. Hydro Committee - Mr. Dyson

Mr. Dyson reported that the Hydro Committee met September 19, 1988. The District's relationship with Voith was reviewed, and at this time, the final payment has been made to Voith and the District has taken ownership of the project. A copy of a letter from the Federal Energy Regulatory Commission received by the District on September 7, 1988, dealing with alleged non-compliance matters regarding the Craggy Dam Hydroelectric Project was reviewed by the Committee. Mr. Mull stated that a meeting has been scheduled with the U.S. Fish & Wildlife Service for Tuesday, September 27, 1988, in the MSD Boardroom, and encouraged all Board members to attend.

The Hydro Budget figures for a 7 month period, February thru August, were also discussed.

c. Sewer System Consolidation Committee - Mr. Aceto:

Mr. Aceto reported that during the last month he has been swapping drafts of the Sewer Consolidation Agreement with MSD General Counsel, and have tried to incorporate to some degree, the concerns of the City which have been discussed in past meetings with the City, in the hopes of coming up with an Agreement which can be presented to the City and County for discussion.

Mr. Aceto informed the Board of his intent to immediately distribute the draft agreement recently prepared by the Board's General Counsel to Board members and all interested parties, and to schedule meetings with the City, County, and other collector system owners at their earliest convenience.

6. Unfinished Business:

None.

7. New Business:

a. Reschedule November 15, 1988 Board Meeting

Mr. Mull recommended that the Board Meeting of November 15, 1988, be rescheduled to November 29, 1988, due to the AWWA/WPCF Conference in Durham, and that the December Board Meeting be cancelled. The Board agreed to this recommendation.

8. Date of Next Regular Meeting - October 18, 1988

3. Report of Engineer-Manager:

f. South Buncombe Interceptor Sewer R/W - The Biltmore Company;

At this time MSD General Counsel, Mr. John Stevens, excused himself from the meeting.

Mr. Mull reviewed events which have taken place to date on the right-of-way agreement for The Biltmore Company. No action was taken by the Board at this time; however, further negotiations were urged.

9. Adjournment:

There being no further business, the Board meeting was adjourned at 4:15 p.m.



Secretary

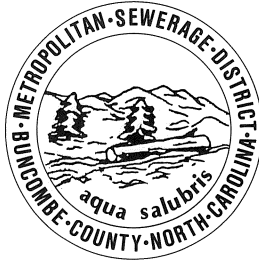
MSD

Metropolitan Sewerage District of Buncombe County, North Carolina

W. H. Mull, P.E., Engineer-Manager
P.O. Box 8969, Asheville, N.C. 28814
Telephone: Area Code 704-254-9646

Telecopier (704) 254-3299


John S. Stevens, General Counsel



Frank S. Smith III, Chairman
M. Leon Williams, Vice-Chairman
Steven T. Aceto
Walter T. Batts
Walter J. Boggs
Charles M. Dent
E. Charles Dyson
M. Wayne Edwards
George E. Ivey
Jackie W. Pope
Marvin E. Wadley

I, Charles M. Dent, Secretary to the District Board of the Metropolitan Sewerage District of Buncombe County, North Carolina, do hereby certify that the attached is a true and correct copy of the DECLARATION OF INTENT TO AMEND the Metropolitan Sewerage District Sewer Use Ordinance adopted by the Metropolitan Sewerage District Board at its regular meeting held September 20, 1938.

Witness my hand and seal of said District this 20th day of September, 1988.



SECRETARY
Metropolitan Sewerage District Board
of Buncombe County, North Carolina

(SEAL)

RESOLUTION

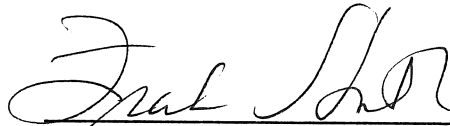
WHEREAS, the Metropolitan Sewerage District Sewer Use Ordinance was approved by the Office of the North Carolina Division of Environmental Management prior to its adoption by the District Board on December 8, 1987; and

WHEREAS, Division of Environmental Management has now indicated that certain "general conditions" applying to users of the System should be included in the Ordinance; and

WHEREAS, a number of those "general conditions" were not included in the MSD Sewer Use Ordinance.

BE IT THEREFORE RESOLVED that the Board of the Metropolitan Sewerage District hereby adopts a Declaration of Intent to Amend its Sewer Use Ordinance adopted December 8, 1987 and amended May 17, 1988, to in order to include certain general conditions as directed by the Division of Environmental Management of the North Carolina Department of Natural Resources and Community Development. This Intent to Adopt Amendment is made pursuant to North Carolina General Statutes, Chapter 162A-13(a).

Hereby adopted this 20th day of September, 1988.



Chairman, Metropolitan Sewerage District Board



Hendon Engineering Associates

INCORPORATED

TELEPHONE (704) 258-2123

ADDRESS REPLY TO P. O. BOX 7623

306 WEST HAYWOOD STREET • ASHEVILLE, NORTH CAROLINA 28802

HARRY H. HENDON

(1904-1973)

H. D. HUBER

P. L. BENTLEY

M. G. BUCKLEY, JR.

R. F. HOLBROOK

J. O. BREWER

W. L. MORRIS, JR.

H. E. BYAS, JR.

S. S. KANE

September 14, 1988

Mr. W. H. Mull, Engineer-Manager
Metropolitan Sewerage District of
Buncombe County, North Carolina
P. O. Box 8969
Asheville, North Carolina 28814

Subject: User Charge Analysis
Fiscal Year 1987-88

Dear Mr. Mull:

Transmitted herewith is our report on the Industrial and Domestic User Charges for FY 1987-88 and proposed user charges for FY 1988-89.

Based on actual year end data and calculations presented in this report the user charges for last fiscal year (FY 1987-88) are summarized as follows:

INDUSTRY RATES (FY 1987-88)

	<u>ADOPTED RATE</u>	<u>YEAR END CALCULATED ACTUALS</u>
Flow (Q)	\$ 0.224/CCF	\$ 0.2326/CCF
BOD	\$ 0.130/LB.	\$ 0.1462/LB.
SS	\$ 0.056/LB.	\$ 0.0668/LB.

DOMESTIC RATE (FY 1987-88)

Flow (Q)	\$ 1.00/CCF	\$ 0.9627/CCF
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The adopted industry rates resulted, on average, in billings to industry of approximately \$136,000 (approximately 9 percent) less than the calculated industry share of the actual costs. It is recommended that surcharges be applied to industry billings in the usual manner.

The estimated industry rates for FY 1987-88 based on the adopted budget, debt service obligations, and assuming no changes in industry flow and waste loads, are summarized as follows:

[REDACTED]

September 14, 1988

INDUSTRY RATES PROPOSED (FY 1988-89)

Flow (Q)	\$ 0.246/CCF
BOD	\$ 0.150/LB.
SS	\$ 0.070/LB.

This report recommends adoption of the above industry rates for FY 1988-89 and made retroactive to July 1, 1988 as done in previous years.

The FY 1987-88 adopted domestic rate of \$1.00 per CCF produced approximately \$132,216.00 more than the calculated domestic share of the actual cost when taking into account prior years excess collections. This amount is taken into account in calculating the recommended domestic user charge rate for FY 1988-89.

The recommended domestic user charge rate for FY 1988-89 is \$0.98 per CCF, starting October 1, 1988.

To be consistent with previously adopted policy, this report recommends that the minimum bill be \$2.94 per month (3 CCF x \$0.98/CCF) starting October 1, 1988 and until the domestic rate is changed further.

We would like to express our appreciation for the fine assistance of your staff in the preparation of this report.

Very truly yours,

HENDON ENGINEERING ASSOCIATES, INC.

By



H. Dean Huber

HDH:b
Enclosure
R927USER.TAB(5)

cc: Local Government Commission
Trustee

Table A Shows a summary of costs and revenue for FY 1987-88.

Table B shows a summary of projected costs for FY 1988-89 and the estimated rates necessary to produce revenue to meet these costs.

Table C shows the Industry unit charges from previous reports and the charges calculated in this report.

Table D shows Domestic users charge data from previous reports and the user charges calculated in this report.

Table E is a copy of a table from the official statement document for the Series 1986A Bond Issue that shows projected user charges through 1990.

4.0 Minimum User Charge

The District previously adopted a policy of increasing the minimum user charge based on the cost of 3 CCF flow at the current domestic rate. With the recommended new rate of \$0.98 per CCF, the minimum bill will be \$2.94.

Table A

User Charge Analysis
Metropolitan Sewerage District
FY 1987-88
(Actuals)

	<u>Total</u>	<u>Industry</u>	<u>Domestic</u>
O & M Costs (WWTP & Hydro)	\$1,315,112	\$ 267,711	\$1,047,401
Ind. Waste Monitoring	151,419	151,419	---
Debt Service (WWTP)	2,397,243	668,836	1,728,407
Debt Service (Hydro)	790,865	244,974	545,891
Debt Service Coverage and Scheduled Capital Improvements	800,000	223,202	576,798
Less Revenue (Sale of Power)	<u>(49,335)</u>	<u>(15,282)</u>	<u>(34,053)</u>
	\$5,405,304	\$1,540,860	\$3,864,444
LESS EXCESS DOMESTIC COLLECTIONS FROM PRIOR YEARS (FY 1985-86 & FY 1986-87)			<u>272,425</u>
			\$3,592,019
Billable Flow		2,410,743 CCF	3,949,348 CCF
Calculated Average Rate (\$/CCF)		0.6392(2)	0.9095(1)
Sewer Rent Revenue (Collected)	\$4,926,348	\$1,202,113	\$3,724,235
Industry Rebates (Credited)	<u>202,696</u>	<u>202,696</u>	<u>---</u>
Billed Sewer Rents Revenue	\$5,129,044	\$1,404,809	\$3,724,235
Calculated Industry Revenue Shortfall (To Be Surcharged in FY 1988-89)		\$ 136,051	
Calculated Excess Domestic Revenue			\$ 132,216

(1) Fiscal Year Domestic Average (\$0.9627/CCF if adjusted to compare with adopted rate effective for 9 months of FY 1987-88)

(2) Fiscal Year Industry Average

Table B

User Charge Analysis
Metropolitan Sewerage District
FY 1988-89
(Projected)

	<u>Total</u>	<u>Industry</u>	<u>Domestic</u>
O & M Costs (WWTP & Hydro Budget)	\$1,644,741	\$ 334,812	\$1,309,929
Ind. Waste Monitoring	189,371	189,371	---
Debt Service (WWTP)	2,400,204	669,662	1,730,542
Debt Service (Hydro)	791,703	245,234	546,469
Debt Service Coverage and Scheduled Capital Improvements	800,000	223,202	576,798
Less Revenue (Sale of Power)	<u>(200,000)</u>	<u>(61,951)</u>	<u>(138,049)</u>
	\$5,626,019	\$1,600,330	\$4,025,689
LESS EXCESS DOMESTIC COLLECTIONS FROM PRIOR YEAR			<u>132,216</u>
			\$3,893,473
Billable Flow (2)		2,410,743 CCF	3,949,348 CCF
Calculated Average Rate (\$/CCF)		0.664	0.986
Proposed Domestic Rate (1)		$\begin{array}{r} 0.664 \\ 0.6392 \\ \hline .0208 \\ .664 \end{array}$	$\begin{array}{r} 0.986 \\ + .039 \\ \hline 1.025 \\ \text{P100} \end{array}$

- (1) Adjusted to compensate for nine months at new rate and three months at \$1.00/CCF and rounded to the nearest cent.
- (2) Billable flow projection is same as calculated actual for FY 1987-88.

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Table C
Industrial User Charge Comparison

	Flow (\$/CCF)	BOD (\$/LB.)	SS (\$/LB.)
FY 1975-76 - Adopted Rate	0.090	0.041	0.021
Actual	0.078	0.048	0.030
FY 1976-77 - Adopted Rate	0.090	0.041	0.021
Actual	0.083	0.042	0.024
FY 1977-78 - Adopted Rate	0.090	0.049	0.027
Actual	0.1004	0.0485	0.0324
FY 1978-79 - Adopted Rate	0.105	0.055	0.036
Actual	0.0749	0.0513	0.0260
FY 1979-80 - Adopted Rate	0.084	0.059	0.030
Actual	0.0778	0.0510	0.0220
FY 1980-81 - Adopted Rate	0.082	0.056	0.024
Actual	0.0885	0.0523	0.0330
FY 1981-82 - Adopted Rate	0.102	0.063	0.038
Actual	0.1115	0.0728	0.0417
FY 1982-83 - Adopted Rate	0.090	0.064	0.035
Actual	0.0825	0.0624	0.0355
FY 1983-84 - Adopted Rate	0.092	0.071	0.040
Actual	0.0812	0.0566	0.0379
FY 1984-85 - Adopted Rate	0.089	0.063	0.042
Actual	0.1299	0.0500	0.0280
FY 1985-86 - Adopted Rate	0.123	0.074	0.037
Actual	0.1174	0.0698	0.0325
FY 1986-87 - Adopted Rate	0.180	0.113	0.052
Actual	0.1531	0.0937	0.0353
FY 1987-88 - Adopted Rate	0.224	0.130	0.056
Actual	0.2326	0.1462	0.0668
FY 1988-89 - Estimate (1)	0.246	0.150	0.070

(1) Based on FY 1988-89 Budget and FY 1987-88 Waste Loads and Flows

R927USER.TAB(1)

Table D
Domestic User Charge Rate Comparison

<u>MSD Fiscal Year</u>	<u>Domestic Billable Flow 100 Cu.Ft.</u>	<u>Cost Allo- cated to Domestic/User</u>	<u>Fiscal Year Average Rate Actual (\$/CCF)</u>	<u>Fiscal Year Average Rate Projected (\$/CCF)</u>	<u>Adopted Rate (\$/CCF)</u>
<u>FY 1975-76 (Actual)</u>	3,650,000	\$1,095,352	\$0.299		\$0.320
<u>FY 1976-77 (Actual)</u>	3,573,020	\$1,199,699	0.336	\$0.335	0.320
<u>FY 1977-78 (Actual)</u>	3,675,819	\$1,170,221	0.318	0.378	0.320
<u>FY 1978-79 (Actual)</u>	4,013,240	\$1,175,109	0.293	0.368	0.320
<u>FY 1979-80 (Actual)</u>	4,015,994	\$1,336,919	0.333	0.330	0.320
<u>FY 1980-81 (Actual)</u>	3,820,528	\$1,383,237	0.362	0.356	0.320
<u>FY 1981-82 (Actual)</u>	4,174,527	\$1,430,845	0.343	0.395	0.320
<u>FY 1982-83 (Actual)</u>	3,719,306	\$1,410,548	0.379	0.349	0.320
<u>FY 1983-84 (Actual)</u>	3,906,118	\$1,563,892	0.400	0.425	0.400
<u>FY 1984-85 (Actual)</u>	3,432,501	\$1,545,633	0.4671	0.454	0.460
<u>FY 1985-86 (Actual)</u>	4,152,579	\$1,836,702	0.4423	0.544	0.57(2)
<u>FY 1986-87 (Actual)</u>	3,837,282	\$2,657,376	0.6925	0.705	0.75(2)
<u>FY 1987-88 (Actual)</u>	3,949,348	\$3,592,019	0.9095	0.943	1.00(2)
<u>FY 1988-89 (Est.)(1)</u>	3,949,348	\$3,893,473		0.986	0.98(2)

(1) Based on FY 1988-89 O & M Budget - Allocated to User Groups at Same Ratio as Actuals for FY 1987-88.

(2) Rate Effective October 1. - Adjusted to compensate for 3 months of the fiscal year on previously adopted rate to produce the projected fiscal year average.

TABLE E

USER CHARGE HISTORY AND PROJECTIONS
(ASSUMING NO SEWER CONSOLIDATION)

	TOTAL O&M	DEBT SERVICE 1965 ISSUE AND SERIES 1985A BONDS	DEBT SERVICE SERIES 1986A BONDS AND FUTURE ISSUE	DEBT SERVICE COVERAGE AND CAPITAL IMPROVEMENTS ⁽¹⁾	TOTAL	LESS INCOME FROM POWER SALES	USER CHARGE INCOME REQUIRED	FROM INDUSTRY (\$)	%	INDUSTRY FLOW (CCF/YR)	AVERAGE RATE (\$/CCF)	FROM DOMESTIC (\$)	%	DOMESTIC FLOW (CCF/YR)	AVERAGE RATE (\$/CCF)
FY1979-80	942,735	430,385		653,451	2,026,571			367,973	23	1,944,459	.189	1,247,973	77	4,015,994	.320
FY1980-81	1,068,335	426,020		916,243	2,410,598			458,957	28	2,170,016	.211	1,161,523	72	3,820,528	.320
FY1981-82	1,138,408	438,345		1,221,158	2,797,911			658,476	37	2,420,953	.272	1,120,101	63	4,174,527	.320
FY1982-83	1,307,518	345,678		1,006,424	2,659,620			577,448	34	2,460,175	.235	1,126,242	66	3,719,306	.320
FY1983-84	1,342,252	401,460		1,241,020	2,984,732			514,608	26	2,151,672	.239	1,474,879	74	3,906,118	.400
FY1984-85	1,366,264	451,700		1,475,561	3,293,525			598,036	27	2,235,712	.267	1,618,908	73	3,432,501	.460
FY1985-86	1,575,177	500,000		1,395,500	3,470,677		3,470,677	724,623	28	2,289,000	.317	2,746,054	72	3,846,000	.570
FY1986-87	1,445,985	1,361,188		600,000	3,407,173	410,400	2,996,773	749,193	27	2,335,000	.321	2,247,580	73	3,885,000	.579
FY1987-88 ⁽²⁾	1,468,700	1,363,560	1,870,000	800,000	5,502,260	251,700	5,250,560	1,312,640	27	2,381,000	.551	3,937,920	73	3,923,000	1.004
FY1988-89	1,511,400	1,365,005	1,870,000	800,000	5,546,405	289,500	5,256,905	1,314,226	27	2,429,000	.541	3,942,679	73	3,963,000	.995
FY1989-90 ⁽³⁾	1,549,400	1,362,162	2,130,000	900,000	5,941,562	319,700	5,621,862	1,405,466	27	2,478,000	.567	4,216,397	73	4,002,000	1.054
FY1990-91	1,640,900	1,364,113	2,130,000	900,000	6,035,013	307,600	5,727,413	1,431,853	27	2,527,000	.567	4,295,560	73	4,042,000	1.063

(1) Includes miscellaneous and interest income through FY 1985-86

(2) Assumes the issuance of \$21,000,000 in aggregate principal amount of Series 1986A Bonds bearing interest at an average annual rate of 8.00% with interest capitalized through July 1, 1987 and the first principal payment due on serial bonds on July 1, 1988

(3) Assumes the issuance of \$3,000,000 in aggregate principal amount of additional bonds bearing interest at an average annual rate of 8.00% with interest capitalized through July 1, 1989 and the first principal payment due on serial bonds on July 1, 1990

APPENDIX A

TABLE 1 - SYSTEM LOADS

This table shows the total system loads in terms of Flow, BOD, and Suspended Solids (SS) as received and treated by the MSD treatment plants. This data is taken from plant operating records during the last complete fiscal year.

TABLE 2 - INDUSTRY LOADS

This table shows the total waste loads in terms of Flow, BOD, and SS received from industry for treatment by the MSD plants. This data is taken from MSD industrial billing records during the last complete fiscal year.

TABLE 3 - DISTRIBUTION OF O & M COSTS

This table shows how the last completed fiscal years total Operation and Maintenance (O & M) cost was expended by line item account and by Flow, BOD, SS, Customers, and Industrial Waste Monitoring (IWM). The total line item costs should be consistent with the fiscal year audit report. The distributions among Flow, BOD, SS, Customers and IWM is from a special accounting system maintained by MSD during the year that allocates all costs as they are incurred. The table also shows the current adopted O & M Budget with the projected distribution to Flow, BOD, SS, Customers and IWM. This distribution is based on the previous year actual percentage distribution. (Adjustments were made to take into account the fact that decreases in purchased power (Account Number 530) has no effect on the customer and industrial waste monitoring parameters.)

TABLE 4 - INPUT PARAMETERS

From Tables 1, 2, & 3 and other basic data a complete list of parameters are summarized. This is a complete listing of the raw data necessary to calculate user charges in accordance with the MSD adopted procedures. (ACTUALS FOR LAST COMPLETED FISCAL YEAR)

TABLE 5 - ALLOCATION OF LOADS TO USER GROUPS

This table shows the percentage use of the treatment system parameters between Industry customers and Domestic customers during the most recent completed fiscal year plus four years of historical data.

TABLE 6 - DISTRIBUTION OF TOTAL ANNUAL COSTS

This table divides all costs between the two user groups (Industrial & Domestic) by parameters Flow, BOD, SS, and Customers. (ACTUALS FOR LAST COMPLETED FISCAL YEAR)

TABLE 7 - UNIT COST DISTRIBUTION OF ANNUAL COSTS

This table divides costs, which were previously divided among parameters and user groups (Table 6), by annual quantities which results in the unit user charges. (ACTUALS FOR LAST COMPLETED FISCAL YEAR)

TABLE 8 - INPUT PARAMETERS

This table is a revised version of Table 4 showing input parameters for calculation of projected user charges for the current fiscal year. Usually, the only parameter changes are the current adopted O & M budget and the debt service requirement for the current fiscal year. Unless unusual circumstances dictate all other parameters are assumed unchanged. (ESTIMATES FOR CURRENT FISCAL YEAR)

TABLE 9 - DISTRIBUTION OF TOTAL ANNUAL COSTS

Same as Table 6 except calculations are based on Table 8 input parameters.
(ESTIMATES FOR CURRENT FISCAL YEAR)

TABLE 10 - UNIT COST DISTRIBUTION OF ANNUAL COSTS

Same as Table 7 except calculations are based on Table 8 input parameters.
(ESTIMATES FOR CURRENT FISCAL YEAR)

TABLE 11 - SERIES 1985 BOND ISSUE SCHEDULE \$14,420,000

This table is provided to show the schedule of principal and interest payments for the Series 1985 Bond Issue and the allocation between the Hydro Project and the Wastewater Treatment Plant Expansion.

TABLE 11A - SERIES 1986 BOND ISSUE SCHEDULE \$20,700,000

This table is provided to show the schedule of principal and interest payments for the Series 1986 Bond Issue.

TABLE 12 - DISTRIBUTION OF CAPITAL PROGRAM COST TO PARAMETERS

This table takes the MSD capital program cost estimate and allocates these costs to Parameters Flow, BOD, SS, Customers, and Industrial Waste Monitoring (IWM) for the purpose of allocating the present debt service and debt service coverage to the billable parameters.

RPT23/Y5

TABLE 1 - SYSTEM LOADS - (FROM PLANT OPERATING RECORDS)

YEAR: FY 1987-88

File: A927-87-88

METROPOLITAN PLANT					
MONTH	Q (MGD)	BOD (MG/L)	BOD (LBS/DAY)	SS (MG/L)	SS (LBS/DAY)
JULY, 1987	24.5	226	46,179	298	60,890
AUGUST	24.2	232	46,824	184	37,136
SEPTEMBER	25.8	227	48,844	184	39,592
OCTOBER	23.8	247	49,028	205	40,691
NOVEMBER	23.9	247	49,234	228	45,446
DECEMBER	24.0	213	42,634	188	37,630
JANUARY, 1988	25.2	208	43,715	166	34,888
FEBRUARY	24.7	192	39,552	130	26,780
MARCH	24.5	218	44,544	133	27,176
APRIL	24.2	207	41,778	174	35,118
MAY	23.4	267	52,107	180	35,128
JUNE	23.8	231	45,852	161	31,957
TOTAL	292.0	2715	550,289	2231	452,432
AVERAGE	24.33	226	45,857	186	37,703
ADJUSTED AVERAGE	24.33	226	45,857	236	47,900

YEAR TOTALS

FLOW (CCF)	11,842,222
BOD (LBS)	16,737,805
SS (LBS)	17,483,500

NOTE: Q is Flow or Quantity
 SS is Suspended Solids
 BOD is Biochemical Oxygen Demand

TABLE 2 - INDUSTRY LOADS (FROM INDUSTRIAL BILLING RECORDS)
YEAR: FY 1987-88

INDUSTRY NAME =====	TOTAL ANNUAL QUANTITIES				ANNUAL AVERAGE QUANTITIES					
	Q (100 Cu.Ft.)	Q (M.G.)	BOD (LBS.)	SS (LBS.)	Q (MGD)	BOD (Mg./L)	BOD (LB./Day)	SS (Mg./L)	SS (LB./Da	
Arcadia Dairy	3,860	2.895	16,107	2,275	::	.008	667	44	94	6
Ash. By-Prod.	52,706	39.530	121,221	115,918	::	.108	368	332	352	318
Ashville Indus.	2,136	1.602	7,288	7,338	::	.004	545	20	549	20
Asheville Metal	24,229	18.172	5,607	13,791	::	.050	37	15	91	38
Ball Corporation	36,936	27.702	21,747	36,073	::	.076	94	60	156	99
Beacon Mfg. Corp.	125,264	93.948	127,688	28,648	::	.257	163	350	37	78
Blue Ridge Plat.	317	.238	379	379	::	.001	191	1	191	1
Champion Finish.	392,814	294.611	1,040,629	196,325	::	.807	424	2,851	80	538
Chemtronics	20,093	15.070	52,793	10,056	::	.041	420	145	80	28
Dia Compe	23	.017	86	140	::		598		973	
Dotson Metal	15,493	11.620	775	2,807	::	.032	8	2	29	8
Eaton Corp.	12,609	9.457	7,093	6,320	::	.026	90	19	80	17
Eaton-Marshall	9,364	7.023	12,089	11,760	::	.019	206	33	201	32
Estate Wine	72	.054	271	43	::		602	1	95	
Flynt Knit	266,326	199.745	325,895	85,945	::	.547	196	893	52	235
G & H Industries	7,298	5.474	43,367	913	::	.015	950	119	20	3
Gerber Products	131,690	98.768	1,035,540	361,758	::	.271	1,257	2,837	439	991
Girmes of America	90,153	67.615	93,969	49,312	::	.185	167	257	87	135
Memorial Mission	66,750	50.063	98,036	63,878	::	.137	235	269	153	175
Milkco	35,740	26.805	424,427	174,388	::	.073	1,899	1,163	780	478
Mountain Rug Mill	1,186	.890	481	176	::	.002	65	1	24	
National Linen	26,023	19.517	113,245	56,769	::	.053	696	310	349	156
Owen Mfg. Co.	100,851	75.638	233,456	35,838	::	.207	370	640	57	98
Owen Dyeing	3,736	2.802	4,836	2,359	::	.008	207	13	101	6
Rheem Mfg. Co.	2,875	2.156	3,429	4,415	::	.006	191	9	246	12
Royal Crown	8,471	6.353	42,389	5,299	::	.017	800	116	100	15
St. Joseph	31,978	23.984	75,447	71,363	::	.066	377	207	357	196
Sayles Bleach.	392,401	294.301	1,132,888	261,132	::	.806	462	3,104	106	715
Schwitzer	3,872	2.904	17,822	14,077	::	.008	736	49	581	39
Singer Kearfott	22,470	16.853	43,108	51,243	::	.046	307	118	365	140
Southern Railway	1,790	1.343	493	392	::	.004	44	1	35	1
Square D Co.	61,961	46.471	15,324	29,896	::	.127	40	42	77	82
Steelcase	4,035	3.026	2,852	2,675	::	.008	113	8	106	7
Swannonoa Laundry	7,342	5.507	14,962	8,799	::	.015	326	41	192	24
Strawberry Hill	1,488	1.116	1,701	1,643	::	.003	183	5	177	5
Taylor Sybron	12,219	9.164	14,522	28,279	::	.025	190	40	370	77
Uniform Rental	12,703	9.527	21,635	22,733	::	.026	272	59	286	62
VA Medical Center	61,758	46.319	87,238	63,323	::	.127	226	239	164	173
WNC Center BlkMtn	22,096	16.572	37,566	28,813	::	.045	272	103	208	79
Wilson Plastics	7,528	5.646	10,371	16,852	::	.015	220	28	358	46
Winston Dyeing	330,087	247.565	498,836	83,577	::	.678	242	1,367	40	229
TOTALS	2,410,743	1,808.057	5,807,608	1,957,720		4.954		15,911		5,364
DAILY AVG.	6,605	4.954	15,911	5,364						

TABLE 3 - DISTRIBUTION OF O & M COSTS

YEAR: FY 1987-88 (ACTUAL)

FY 1988-89 (BUDGET)

ACCT. NO.	ACCOUNT NAME	TOTAL COSTS	FLOW Q	BOD	SS	CUSTOMERS	IND. WASTE MONITORING
<hr/>							
ADMINISTRATION							
200	Admin. Salaries	153,454.08					
210	Billing & Collection	61,640.40					
220	T & T	6,174.15					
230	Travel & Conventions	2,902.59					
240	Office Supplies	6,530.97					
251	Power and Water	3,878.35					
260	Director Expense	9,662.23					
270	Insurance	83,884.21					
280	Dues & Subscription	1,642.39					
290	Accounting	6,058.78					
300	Consulting Engineers	14,953.26					
310	Legal	25,530.41					
320	Trustee Fee	11,474.98					
330	Auditor	11,000.00					
340	Postage & Cash	2,941.30					
350	Repairs	651.00					
360	Social Security	41,843.50					
370	Retirement	50,845.13					
380	Vehicle Expense	6,096.00					
390	Capital	4,834.41					
400	Contingency	5,897.36					
SUB-TOTAL		511,895.50					
<hr/>							
PLANT OPERATIONS							
500	Salaries	439,324.07					
510	Chemicals	76,150.88					
520	T & T	6,995.71					
530	Power & Lights	240,591.87					
540	Maintenance Supplies	14,242.96					
550	Water & Garbage	6,912.96					
560	Vehicle Expense	8,834.87					
571	Lab Supplies	7,882.72					
580	Uniform Service	4,917.61					
591	Schools	2,346.92					
600	B & G Maintenance	26,499.27					
610	Pipe & Line Maint.	2,565.54					
620	Maintenance Equip.	38,197.43					
630	Capital	15,327.99					
640	Equip.Replacement	62,761.77					
650	Contingency	1,082.32					
SUB-TOTAL		954,634.89					
ADMINISTRATIVE		511,895.50					
<hr/>							
TOTAL O & M COST (FY1987-88)		1,466,530.39	396,630.83	371,230.25	188,241.60	359,008.96	151,418.75
<hr/>							
PERCENT DISTRIBUTION (FY1987-88)			27.0	25.3	12.8	24.5	10.3
<hr/>							
BUDGET DISTRIBUTION (FY88-89)		1,834,112.00	496,045.20	464,278.04	235,423.81	448,993.52	189,371.42

EACH EXPENDITURE WITHIN EACH BUDGET LINE ITEM IS
DISTRIBUTED TO THE APPROPRIATE PARAMETER BY MSD STAFF
AS EACH EXPENDITURE IS RECORDED EACH MONTH.
(BOTTOM LINE ONLY IS SHOWN)

TABLE 4 - INPUT PARAMETERS (Page 1 of 2)

YEAR: FY 1987-88

SYSTEM LOADS				
Flow (Q) - Year average	24.33			
Total Flow for Year (CCF)	11,842,222			
BOD Yearly average	45,857			
Total BOD for year (lbs.)	16,737,805			
SS Yearly average	47,900			
Total SS for year (lbs.)	17,483,500			
Customers (average no.)	**	30,700		

INDUSTRIAL LOADS		TOTAL	PER DAY	
Flow including infiltration (CCF)				
Flow billable (CCF)	2,410,743			
BOD for year (lbs.)	5,807,608	15,911		
SS for year (lbs.)	1,957,720	5,364		
Customers (average no.)	**	41		

DOMESTIC LOADS				
Flow including infiltration (CCF)				
Flow billable (CCF)	3,949,348			
BOD for year Total minus industry (lbs.)	10,930,197			
SS for year Total minus industry (lbs.)	15,525,780			
Customers Total minus industry (average no.)	30,659			

TOTAL BILLABLE LOADS				
Flow - excluding infiltration (CCF)	6,360,091			
BOD - Ind. load plus domestic loads (lbs.)	16,737,805			
SS - Ind. load plus domestic loads (lbs.)	17,483,500			

ALLOCATIONS TO USER GROUPS	Q (%)	BOD (%)	SS (%)	Customers (%)
Domestic	70.38	65.30	88.80	99.9
Industry	29.62	34.70	11.20	.1
Total	100.0	100.0	100.0	100.0

INDUSTRY INCOME DISTRIBUTION				TOTAL
Quantities (CCF)(lbs)(lbs)	2,410,743	5,807,608	1,957,720	
User charge (\$/CCF)(\$/lb)(\$/lb.)	**	.224	.130	.056
Calculated Revenue from gross qtys. (\$)	540,006.43	754,989.04	109,632.32	1,404,627.79
Percent distribution	38.44	53.75	7.81	100.00

O & M DISTRIBUTION		ACTUAL	EST. NEXT FY	
Total O & M cost	1,466,530.39	1,834,112.00		
Flow	396,630.83	496,045.20		
BOD	371,230.25	464,278.04		
Suspended solids	188,241.60	235,423.81		
Customers	359,008.96	448,993.52		
Industrial waste monitoring	151,418.75	189,371.42		

NON-BILLABLE FLOW				
Total Non-Billable Flow (MGD)	11.26			
Domestic Non-Billable Flow (MGD) (80%)	9.01			
Industry Non-Billable Flow (MGD) (20%)	2.25			

TABLE 4 - INPUT PARAMETERS (Page 2 of 2)
 YEAR: FY1987-88

DEBT SERVICE COST DISTRIBUTION (WWTP)			%
Total debt service (\$)	**	2,397,243.00	100.0
Flow (\$)		743,145.33	31.0
BOD (\$)		1,030,814.49	43.0
Suspended Solids (\$)		599,310.75	25.0
Customers (\$)		.0	.0
Industrial Waste Monitoring (\$)		23,972.4	1.0
DEBT SERVICE COST DISTRIBUTION (HYDRO)			
Total debt service (\$)	**	790,865.00	100.0
Flow (\$)		213,533.55	27.0
BOD (\$)		498,244.95	63.0
Suspended Solids (\$)		79,086.50	10.0
Customers (\$)		.0	.0
Industrial Waste Monitoring (\$)		.0	.0
DEBT COV. & SCH. CAPITAL IMPROVEMENTS			
Total (\$)	**	800,000.00	100.0
Flow (\$)		248,000.00	31.0
BOD (\$)		344,000.00	43.0
Suspended Solids (\$)		200,000.00	25.0
Customers (\$)			.0
Industrial Waste Monitoring (\$)		8,000.0	1.0
REVENUE DATA			
Total sewer rents revenue (\$)	**	4,926,348.52	
Industry billings (\$)	**	1,404,808.82	
Rebate /(Surcharge) (\$)	**	202,695.58	
Domestic waste income (\$)		3,724,235.28	
Domestic user charge rate (\$/CCF)(Yr.Avg.)	**	.9430	Actual rate \$1.00 starting Oct.1,1987, average rate for year \$.9430/CCF
Domestic billable flow (CCF)		3,949,348	
Domestic billable flow (MGD)		8.12	
Income From Power Sales	**	49,335.25	3 Mo. @ \$.75 AND 9 Mo. @ \$1.00 = \$.9430 Fiscal Year Average
FLOW (Q), AVERAGE INDUSTRY FLOW (MGD)		4.954	

TABLE 5 - ALLOCATION OF LOADS TO USER GROUPS

	AVERAGE ANNUAL QUANTITIES						
	1983-84 (ACTUAL)	1984-85 (ACTUAL)	1985-86 (ACTUAL)	1986-87 (ACTUAL)	1987-88 (ACTUAL)	1988-89 (ESTIMATE)	PERCENT 1987-88

FLOW - MGD							
DOMESTIC BILLABLE	8.03	7.05	8.53	7.88	8.12		
DOMESTIC NON-BILLABLE	13.54	9.89	8.52	9.96	9.01		

TOTAL DOMESTIC	21.57	16.94	17.05	17.85	17.13	SAME	70.38
INDUSTRY BILLABLE	4.42	4.59	4.81	5.11	4.95		
INDUSTRY NON-BILLABLE		2.480	2.13	2.49	2.25		

TOTAL INDUSTRY	4.42	7.07	6.95	7.60	7.21		29.62
=====							
GRAND TOTAL	25.99	24.01	24.00	25.45	24.33		100.00
BOD - LBS. PER DAY							
DOMESTIC	21,901	29,636	31,159	35,432	29,946	SAME	65.30
INDUSTRY	13,217	14,410	13,841	14,993	15,911		34.70

TOTAL	35,118	44,046	45,000	50,425	45,857		100.00
SS - LBS. PER DAY							
DOMESTIC	32,327	43,776	45,752	54,369	42,536	SAME	88.80
INDUSTRY	4,817	4,380	4,248	5,141	5,364		11.20

TOTAL	37,144	48,156	50,000	59,510	47,900		100.00
CUSTOMERS							
DOMESTIC							99.90
INDUSTRY					NO SIGNIFICANT		.10

TOTAL					CHANGE		100.00

(1) Minor discrepancies are due to computer rounding.

TABLE 6 - DISTRIBUTION OF TOTAL ANNUAL COSTS TO BILLING PARAMETERS
YEAR: FY 1987-88

	FLOW (Q) (Dollars)	BOD (Dollars)	SS (Dollars)	CUSTOMERS (Dollars)	IND. WASTE MONITORING (Dollars)	TOTALS (Dollars)

ALLOCATION TO PARAMETERS						
O & M (WWTP & Hydro)	396,631	371,230	188,242	359,009		1,315,112
Industrial Waste Monitoring					151,419	151,419
Debt Service (WWTP)	743,145	1,030,814	599,311		23,972	2,397,243
Debt Service (Hydro)	213,534	498,245	79,087			790,865
Debt Coverage & Scheduled Capital Improvements	248,000	344,000	200,000		8,000	800,000
Less Revenue(Sale of Power) (	13,321)	(31,081)	(4,934)			(49,335)
Total	1,587,989	2,213,208	1,061,705	359,009	183,391	5,405,303
=====						
ALLOCATION TO USER GROUPS						
O & M (WWTP & Hydro)						
Domestic	279,165	242,422	167,163	358,650		1,047,401
Industry	117,465	128,808	21,078	359		267,711
Total	396,631	371,230	188,242	359,009		1,315,112
Industrial Waste Monitoring						
Industry	58,213	81,388	11,818			151,419
Debt Service (WWTP)						
Domestic	523,057	673,147	532,203			1,728,407
Industry	220,088	357,667	67,108		23,972	668,836
Total	743,145	1,030,814	599,311		23,972	2,397,243
Debt Service (Hydro)						
Domestic	150,294	325,366	70,231			545,891
Industry	63,240	172,879	8,856			244,974
Total	213,534	498,245	79,087			790,865
Debt Coverage & Scheduled Capital Improvements						
Domestic	174,553	224,640	177,605			576,798
Industry	73,447	119,360	22,395		8,000	223,202
Total	248,000	344,000	200,000		8,000	800,000
LESS POWER SALES REVENUE						
Domestic	(9,376)	(20,297)	(4,381)			(34,053)
Industry	(3,945)	(10,784)	(552)			(15,282)
Total	(13,321)	(31,081)	(4,934)			(49,335)
TOTAL ANNUAL						
Domestic	1,117,693	1,445,279	942,821	358,650		3,864,443
Industry	528,508	849,317	130,703	359	31,972	1,540,860
Total	1,646,202	2,294,596	1,073,524	359,009	31,972	5,405,303
=====						
ALLOCATIONS TO USER GROUPS (%)	FLOW %	BOD %	SS %	CUST. %		
	-----	-----	-----	-----		
Domestic	70.38	65.30	88.80	99.9		
Industry	29.62	34.70	11.20	.1		
	-----	-----	-----	-----		
TOTAL	100.00	100.00	100.00	100.00		

TABLE 7 - UNIT COST DISTRIBUTION OF ANNUAL COSTS & RESULTING USER CHARGE RATES
YEAR: FY 1987-88

	FLOW CCF/YR	BOD Lbs/YR.	S.SOLIDS Lbs/YR.	CUSTOMERS	

Annual Loads at Treatment Plant					
Domestic	8,335,053	10,930,197	15,525,780	30,659	
Industry	3,507,169	5,807,608	1,957,720	41	

Total	11,842,222	16,737,805	17,483,500	30,700	

Unit Costs - Gross Quantities (2)					TOTAL
Domestic	.13410	.13223	.06073	11.69803	.46364
Industry	.15991	.14624	.06676	8.75632	.43935

Total	.14171	.13709	.06140	11.69410	.45644

Unit Costs - Billable Quantities					
Domestic	.37382	.13223	.06073		.97850
Industry	.23264	.14624	.06676		.63916

Total	.32031	.13709	.06140		.84988

ANNUAL QUANTITIES SUMMARY					

Total Domestic Flow- Includes infiltration (CCF)	8,335,053		INDUSTRY		USER CHARGE
Total Industry Flow - Includes Infiltration(CCF)	3,507,169		-----		=====
Domestic Billable Flow (CCF)	3,949,348				
Industry Billable Flow (CCF)	2,410,743		FLOW (\$/CCF)		.2326
Total Billable Flow (CCF)	6,360,091				
BOD - Industry (lbs)	5,807,608		BOD (\$/lb.)		.1462
BOD - Domestic (lbs)	10,930,197				
BOD - Total (lbs)	16,737,805		SS (\$/lb.)		.0668
Suspended solids (SS) - Industry (lbs)	1,957,720				
Suspended solids (SS) - Domestic (lbs)	15,525,780		DOMESTIC		
Suspended solids (SS) - Total (lbs)	17,483,500		-----		
Customers - Industry	41		RATE (\$/CCF)		.9785
Customers - Domestic	30,659		(Fiscal Year Average)		

TABLE 8 - INPUT PARAMETERS (Page 1 of 2)
 YEAR: FY 1988-89 PROJECTED

SYSTEM LOADS				
Flow (Q) - Year average	24.33			
Total Flow for Year (CCF)	11,842,222			
BOD Yearly average	45,857			
Total BOD for year (lbs.)	16,737,805			
SS Yearly average	47,900			
Total SS for year (lbs.)	17,483,500			
Customers (average no.)	**	30,700		
INDUSTRIAL LOADS				
	TOTAL	PER DAY		
Flow including infiltration (CCF)				
Flow billable (CCF)	2,410,743			
BOD for year (lbs.)	5,807,608	15,911		
SS for year (lbs.)	1,957,720	5,364		
Customers (average no.)	**	41		
DOMESTIC LOADS				
Flow including infiltration (CCF)				
Flow billable (CCF)	3,949,348			
BOD for year Total minus industry (lbs.)	10,930,197			
SS for year Total minus industry (lbs.)	15,525,780			
Customers Total minus industry (average no.)	30,659			
TOTAL BILLABLE LOADS				
Flow - excluding infiltration (CCF)	6,360,091			
BOD - Ind. load plus domestic loads (lbs.)	16,737,805			
SS - Ind. load plus domestic loads (lbs.)	17,483,500			
ALLOCATIONS TO USER GROUPS				
	Q (%)	BOD (%)	SS (%)	Customers (%)
Domestic	70.38	65.30	88.80	99.9
Industry	29.62	34.70	11.20	.1
Total	100.0	100.0	100.0	100.0
INDUSTRY INCOME DISTRIBUTION				
				TOTAL
Quantities (CCF)(lbs)(lbs)	2,410,743	5,807,608	1,957,720	
User charge (\$/CCF)(\$/lb)(\$/lb.)	**	.224	.130	.056
Calculated Revenue from gross qtys. (\$)	540,006.43	754,989.04	109,632.32	1,404,627.79
Percent distribution	38.44	53.75	7.81	100.00
O & M DISTRIBUTION				
	BUDGET			
Total O & M cost	1,834,112.00			
Flow	496,045.20			
BOD	464,278.04			
Suspended solids	235,423.81			
Customers	448,993.52			
Industrial waste monitoring	189,371.42			
NON-BILLABLE FLOW				
Total Non-Billable Flow (MGD)	11.26			
Domestic Non-Billable Flow (MGD) (80%)	9.01			
Industry Non-Billable Flow (MGD) (20%)	2.25			

TABLE 8 - INPUT PARAMETERS (Page 2 of 2)
 YEAR: FY1988-89 PROJECTED

DEBT SERVICE COST DISTRIBUTION (WWTP)			%
Total debt service (\$)	**	2,400,204.00	100.0
Flow (\$)		744,063.24	31.0
BOD (\$)		1,032,087.72	43.0
Suspended Solids (\$)		600,051.00	25.0
Customers (\$)		.0	.0
Industrial Waste Monitoring (\$)		24,002.0	1.0
DEBT SERVICE COST DISTRIBUTION (HYDRO)			
Total debt service (\$)	**	791,703.00	100.0
Flow (\$)		213,759.81	27.0
BOD (\$)		498,772.89	63.0
Suspended Solids (\$)		79,170.30	10.0
Customers (\$)		.0	.0
Industrial Waste Monitoring (\$)		.0	.0
DEBT COV. & SCH. CAPITAL IMPROVEMENTS			
Total (\$)	**	800,000.00	100.0
Flow (\$)		248,000.00	31.0
BOD (\$)		344,000.00	43.0
Suspended Solids (\$)		200,000.00	25.0
Customers (\$)		.0	.0
Industrial Waste Monitoring (\$)		8,000.0	1.0
REVENUE DATA			
Total sewer rents revenue (\$)	**	4,926,348.52	
Industry billings (\$)	**	1,404,808.82	
Rebate /(Surcharge) (\$)	**	202,695.58	
Domestic waste income (\$)		3,724,235.28	
Domestic user charge rate (\$/CCF)(Yr.Avg.)	**	.9430	Actual rate \$1.00 starting Oct.1,1987, average rate for year \$.9430/CCF
Domestic billable flow (CCF)		3,949,348	
Domestic billable flow (MGD)		8.12	
Income From Power Sales	**	200,000.00	3 Mo. @ \$.75 AND 9 Mo. @ \$1.00 = \$.9430 Fiscal Year Average
FLOW (Q), AVERAGE INDUSTRY FLOW (MGD)		4.954	

TABLE 9 - DISTRIBUTION OF TOTAL ANNUAL COSTS TO BILLING PARAMETERS
YEAR: FY 1988-89 PROJECTED

	FLOW (Q) (Dollars)	BOD (Dollars)	SS (Dollars)	CUSTOMERS (Dollars)	IND. WASTE MONITORING (Dollars)	TOTALS (Dollars)

ALLOCATION TO PARAMETERS						
O & M (WWTP & Hydro)	496,045	464,278	235,424	448,994		1,644,741
Industrial Waste Monitoring					189,371	189,371
Debt Service (WWTP)	744,063	1,032,088	600,051		24,002	2,400,204
Debt Service (Hydro)	213,760	498,773	79,170			791,703
Debt Coverage & Scheduled Capital Improvements	248,000	344,000	200,000		8,000	800,000
Less Revenue(Sale of Power) (	54,000) (	126,000) (	20,000)			(200,000)
Total	1,647,868	2,213,139	1,094,645	448,994	221,373	5,626,019
=====						
ALLOCATION TO USER GROUPS						
O & M (WWTP & Hydro)						
Domestic	349,137	303,185	209,062	448,545		1,309,929
Industry	146,908	161,093	26,362	449		334,812
Total	496,045	464,278	235,424	448,994		1,644,741
Industrial Waste Monitoring						
Industry	72,803	101,787	14,781			189,371
Debt Service (WWTP)						
Domestic	523,703	673,979	532,860			1,730,542
Industry	220,360	358,109	67,191		24,002	669,662
Total	744,063	1,032,088	600,051		24,002	2,400,204
Debt Service (Hydro)						
Domestic	150,453	325,711	70,305			546,469
Industry	63,307	173,062	8,865			245,234
Total	213,760	498,773	79,170			791,703
Debt Coverage & Scheduled Capital Improvements						
Domestic	174,553	224,640	177,605			576,798
Industry	73,447	119,360	22,395		8,000	223,202
Total	248,000	344,000	200,000		8,000	800,000
LESS POWER SALES REVENUE						
Domestic	(38,007) (	82,281) (	17,760)			(138,049)
Industry	(15,993) (	43,719) (	2,240)			(61,951)
Total	(54,000) (	126,000) (	20,000)			(200,000)
TOTAL ANNUAL						
Domestic	1,159,839	1,445,234	972,072	448,545		4,025,689
Industry	560,833	869,692	137,354	449	32,002	1,600,330
Total	1,720,672	2,314,926	1,109,426	448,994	32,002	5,626,019
=====						
ALLOCATIONS TO USER GROUPS (%)	FLOW %	BOD %	SS %	CUST. %		
	-----	-----	-----	-----		
Domestic	70.38	65.30	88.80	99.9		
Industry	29.62	34.70	11.20	.1		
	-----	-----	-----	-----		
TOTAL	100.00	100.00	100.00	100.00		

TABLE 10 - UNIT COST DISTRIBUTION OF ANNUAL COSTS & RESULTING USER CHARGE RATES
YEAR: FY 1988-89 PROJECTED

	FLOW CCF/YR	BOD Lbs/YR.	S.SOLIDS Lbs/YR.	CUSTOMERS	

Annual Loads at Treatment Plant					
Domestic	8,335,053	10,930,197	15,525,780	30,659	
Industry	3,507,169	5,807,608	1,957,720	41	

Total	11,842,222	16,737,805	17,483,500	30,700	
Unit Costs - Gross					TOTAL
Quantities (2)					
Domestic	.13915	.13222	.06261	14.63011	.48298
Industry	.16916	.14975	.07016	10.95106	.45630

Total	.14800	.13831	.06346	14.62520	.47508
Unit Costs - Billable					
Quantities					
Domestic	.40725	.13222	.06261		1.01933
Industry	.24610	.14975	.07016		.66383

Total	.34617	.13831	.06346		.88458

ANNUAL QUANTITIES SUMMARY

Total Domestic Flow- Includes infiltration (CCF)	8,335,053	INDUSTRY	USER CHARGE
Total Industry Flow - Includes Infiltration(CCF)	3,507,169	-----	=====
Domestic Billable Flow (CCF)	3,949,348	FLOW (\$/CCF)	.2461
Industry Billable Flow (CCF)	2,410,743		
Total Billable Flow (CCF)	6,360,091	BOD (\$/lb.)	.1498
BOD - Industry (lbs)	5,807,608		
BOD - Domestic (lbs)	10,930,197	SS (\$/lb.)	.0702
BOD - Total (lbs)	16,737,805		
Suspended solids (SS) - Industry (lbs)	1,957,720	DOMESTIC	
Suspended solids (SS) - Domestic (lbs)	15,525,780	-----	
Suspended solids (SS) - Total (lbs)	17,483,500	RATE (\$/CCF)	1.0193
Customers - Industry	41	(Fiscal Year Average)	
Customers - Domestic	30,659		

DOMESTIC REVENUE DATA

FY 1987-88 Adopted Domestic Rate (\$/CCF)	1.00	Fiscal Years Average With Prior Years Excess Collections	0.986
		(9MO @ X)+(3MO @ 1.00) = \$3,893,473	
Excess Domestic Revenue Carried Forward from Prior Year	\$132,216	PROPOSED RATE (X) (\$/CCF)	0.98

TABLE 11A - SERIES 1986A BOND ISSUE SCHEDULE \$20,700,000.

File: BONDSCHEDULE

Date Due	Principal	Interest	Total	User Charge Fiscal Year	Total P & I Required	Debt Service Coverage (20 % Min.)	WW Plant P & I Plus Total Coverage
Jan.1,87		794,774	794,774	Capitalized		\$ 500,000	
Jul.1,87		794,774	794,774	Capitalized		Min. Recom.	
Jan.1,88		794,774	794,774	FY87-88		-----	
Jul.1,88	235,000	794,774	1,029,774	FY87-88	1,824,548	500,000	2,324,548
Jan.1,89		788,899	788,899	FY88-89			
Jul.1,89	250,000	788,003	1,038,003	FY88-89	1,826,902	500,000	2,326,902
Jan.1,90		782,024	782,024	FY89-90			
Jul.1,90	260,000	782,024	1,042,024	FY89-90	1,824,048	500,000	2,324,048
Jan.1,91		774,224	774,224	FY90-91			
Jul.1,91	275,000	774,224	1,049,224	FY90-91	1,823,448	500,000	2,323,448
Jan.1,92		765,630	765,630	FY91-92			
Jul.1,92	295,000	765,630	1,060,630	FY91-92	1,826,260	500,000	2,326,260
Jan.1,93		756,043	756,043	FY92-93			
Jul.1,93	315,000	756,043	1,071,043	FY92-93	1,827,086	500,000	2,327,086
Jan.1,94		745,412	745,412	FY93-94			
Jul.1,94	335,000	745,412	1,080,412	FY93-94	1,825,824	500,000	2,325,824
Jan.1,95		733,854	733,854	FY94-95			
Jul.1,95	355,000	733,854	1,088,854	FY94-95	1,822,708	500,000	2,322,708
Jan.1,96		721,252	721,252	FY95-96			
Jul.1,96	380,000	721,252	1,101,252	FY95-96	1,822,504	500,000	2,322,504
Jan.1,97		707,572	707,572	FY96-97			
Jul.1,97	410,000	707,572	1,117,572	FY96-97	1,825,144	500,000	2,325,144
Jan.1,98		692,607	692,607	FY97-98			
Jul.1,98	440,000	692,607	1,132,607	FY97-98	1,825,214	500,000	2,325,214
Jan.1,99		675,282	675,282	FY98-99			
Jul.1,99	475,000	675,282	1,150,282	FY98-99	1,825,564	500,000	2,325,564
Jan.1,00		656,578	656,578	FY99-00			
Jul.1,00	510,000	656,578	1,166,578	FY99-00	1,823,156	500,000	2,323,156
Jan.1,01		636,497	636,497	FY00-01			
Jul.1,01	550,000	636,497	1,186,497	FY00-01	1,822,994		1,822,994

PAYMENTS EXTEND ON TO JULY 1, 2016 - NOT SHOWN

TABLE 12 - DISTRIBUTION OF CAPITAL PROGRAM COSTS TO PARAMETERS
 File: DEBTDIST (FOR DEBT SERVICE ALLOCATION PURPOSES)

	Est. Total Cost	FLOW %	BOD %	SS %	CUST %	IWM %	FLOW DOLLARS	BOD DOLLARS	SS DOLLARS	CUST DOLLARS	IWM DOLLARS

METRO PLANT EXPANSION											
PHASE I											
=====											
Plans & Specs	520,000	40	30	30			208,000	156,000	156,000	0	0
Prelim.Treatment	1,176,700	40	20	40			470,680	235,340	470,680	0	0
Prim.Micro Strainers	1,800,000	30	10	60			540,000	180,000	1,080,000	0	0
Final Micro Screens	2,400,000	40	40	20			960,000	960,000	480,000	0	0
Thickeners	1,500,000	20	30	50			300,000	450,000	750,000	0	0
Sludge Pumping	271,100	20	40	40			54,220	108,440	108,440	0	0
Yard Work & Excav.	3,200,000	40	30	30			1,280,000	960,000	960,000	0	0
Cont.,Engr.,Insp.,etc.	880,000	40	30	30			352,000	264,000	264,000	0	0
SUBTOTAL(Ph I)	11,747,800						4,164,900	3,313,780	4,269,120	0	0
PHASE II											
=====											
Plans & Specs	420,900	30	60	5		5	126,270	252,540	21,045	0	21,045
Raw Waste Pumping	1,678,100	100	0	0			1,678,100	0	0	0	0
RBCs in Finals	1,800,000	25	75	0			450,000	1,350,000	0	0	0
RBCs in Primary	1,900,000	25	75	0			475,000	1,425,000	0	0	0
Aeration	250,000	25	75	0			62,500	187,500	0	0	0
Chlorination	150,000	75	25	0			112,500	37,500	0	0	0
Recirculation Pumping	326,600	25	75	0			81,650	244,950	0	0	0
Adm.& Lab Facilities	1,200,000	35	25	25		15	420,000	300,000	300,000	0	180,000
Yard Work & Misc.	1,100,000	35	45	15		5	385,000	495,000	165,000	0	55,000
Cont.,Engr.,Insp.,etc.	945,300	30	60	5		5	283,590	567,180	47,265	0	47,265
SUBTOTAL(Ph II)	9,770,900						4,074,610	4,859,670	533,310	0	303,310
PHASE III											
=====											
Plans & Specs	408,000	30	50	20			122,400	204,000	81,600	0	0
RBCs in Aeration Basins	5,600,000	25	75	0			1,400,000	4,200,000	0	0	0
Aeration	600,000	25	75	0			150,000	450,000	0	0	0
Sludge Pumping	271,100	20	40	40			54,220	108,440	108,440	0	0
Garage & Shop Fac.	180,000	40	30	30			72,000	54,000	54,000	0	0
Yard Work & Misc.	1,600,000	40	30	30			640,000	480,000	480,000	0	0
Cont.,Engr.,Insp.,etc.	1,098,900	30	50	20			329,670	549,450	219,780	0	0
SUBTOTAL(Ph III)	9,758,000						2,768,290	6,045,890	943,820	0	0
PHASE IV											
=====											
Sludge Dewatering & Disp.	12,911,100	0	50	50			0	6,455,550	6,455,550	0	0
SUBTOTAL TREATMENT PLANT	44,187,800						11,007,800	20,674,890	12,201,800	0	303,310
SO. FRENCH BROAD INT.	3,102,000	100					3,102,000	0	0	0	0
CARRIER BRIDGE P.S.	454,000	100					454,000	0	0	0	0
FLOW MON.& SYP. GR.	541,000	85				15	459,850	0	0	0	81,150
MISCELLANEOUS	1,000,000	40	30	30			400,000	300,000	300,000	0	0
GRAND TOTAL	49,284,800						15,423,650	20,974,890	12,501,800	0	384,460
Percent Distribution							31	43	25	0	1