8-1-1992


Municipal Technical Advisory Service

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Managing Your Utility's Money
The Participant's Manual
Managing Your Utility's Money
The Participant's Manual
ABSTRACT

How can communities protect their multi-billion dollar water and wastewater treatment investments and give citizens clean, safe water? The key lies with municipal officials' ability to acquire sufficient operating revenues.

Sound financial management allows communities to acquire the necessary revenues to maintain financially self-sufficient water and wastewater operations.

The best source of revenue for paying water and wastewater treatment costs is user fees. Unfortunately, raising user fees is one of the most dreaded actions undertaken by local officials. If not done correctly, the resulting political backlash and public resistance can be harmful for water and wastewater operations.

This purpose of the workshop is to present financial management and user fee training for local officials. These seminars provide local officials with information they can understand and use in improving the financial health of water and wastewater treatment operations. The workshop will help participants establish sound financial management practices, assess the financial health of water and wastewater systems and raise revenues through increasing user fees.

ACKNOWLEDGEMENTS

This notebook was prepared by Haig Farmer of the United States Environmental Protection Agency and Sharon Rollins of The University of Tennessee Municipal Technical Advisory Service. This notebook is available as EPA Office of Water publication number EPA 430/09-91-015.
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**************************************************************************
I. INTRODUCTION

A. WELCOME

B. TRAINING TEAM INTRODUCTIONS

C. WORKSHOP OBJECTIVES

D. WORKSHOP AGENDA

E. PARTICIPANT INTRODUCTIONS
Notes:
I.B. TRAINING TEAM

Staff from The University of Tennessee Municipal Technical Advisory Service (MTAS) will lead this seminar. MTAS provides technical assistance to Tennessee cities and towns in the areas of finance and accounting, law, engineering and public works and municipal management.

MTAS provides field based assistance, sponsors and administers research projects, produces publications and houses a technical reference library.

Your participation in this course is vital. Please feel free to share your own experiences, comments and questions during the workshop.
I.C. WORKSHOP OBJECTIVES

(1) To emphasize that communities' abilities to protect their investment in water and wastewater infrastructure and to maintain sound operations depends on generating sufficient operating revenues.

(2) To emphasize that the best source of revenues is user fees.

(3) To demonstrate how to determine if a financial management system is healthy.

(4) To demonstrate how to evaluate a user service charge system.

(5) To demonstrate how to determine rates through use of a computer rate model.

(6) To demonstrate how to sell a rate increase.
I.D. WORKSHOP AGENDA

8:30 - 9:00 Registration

9:00 - 9:30 Introductions and Workshop Objectives

9:30 - 9:45 The Importance of Good Financial Management

9:45 - 10:30 Principals of Good Financial Management

10:30 - 10:45 Break

10:45 - 12:00 Evaluating User Service Charge Systems

12:00 - 1:15 Lunch

1:15 - 2:15 Determining User Service Charge Rates

2:15 - 2:30 Break

2:30 - 3:30 Selling a User Charge Increase to Customers

3:30 - 4:00 Summary
I.E. PARTICIPANT INTRODUCTIONS

Notes:
II. THE IMPORTANCE OF GOOD FINANCIAL MANAGEMENT

A. WHY COMMUNITIES MUST WORK HARDER AT FINANCIAL SELF-SUFFICIENCY

B. THE IMPACT OF FINANCIAL SELF-SUFFICIENCY ON COMMUNITIES

C. HELP FOR COMMUNITIES

D. WHAT COMMUNITIES MUST DO
II.A. WHY COMMUNITIES MUST WORK HARDER AT FINANCIAL SELF-SUFFICIENCY

* 1987 Clean Water Act Amendments
   Out with Grants
   In with SRF Loans

* $ Spent in the Wastewater Grants Program Since 1972
   Federal $53 Billion
   States  $20 Billion
   Local   $20 Billion

* $ in Needs for Wastewater Facilities
   Wastewater Needs $83 Billion
II.B. IMPACT OF FINANCIAL SELF-SUFFICIENCY ON COMMUNITIES

* $5 billion surplus in 1986 to $45 billion deficit in 1990

* 37% EPA wastewater funded systems experiencing shortfalls in wastewater revenue (user fees, hookup/impact fees)

* Water systems confront new monitoring costs
II.C. HELP FOR COMMUNITIES

* Small Communities Outreach and Education Program (SCORE)

Information Assistance

EPA Regional Office Coordinators

Networking other Federal and National Organizations

National Small Flows Clearing House

1-800-624-8301
II.D. WHAT COMMUNITIES MUST DO

* Implement Financial Self-Sufficiency

Improve Over-all Financial Management

Raise User Service Charges
III. PRINCIPALS OF GOOD FINANCIAL MANAGEMENT

A. CHECK FINANCIAL HEALTH

B. IMPROVE FINANCIAL HEALTH

C. BUILD FINANCIAL HEALTH

D. ADDITIONAL FACTORS THAT AFFECT FINANCIAL HEALTH
III.A. CHECK FINANCIAL HEALTH

* Introductions

* Ratios

* Definitions

Revenue Components

User Service Charge
Hookup/Impact Fee
Taxes/Assessments
Interest Earnings
Other

Operating Expense Components

Salaries and Benefits
Administrative Costs
Utility Costs
Chemical Costs
Supplies and Parts
Equipment Replacement Costs
Principal and Interest
Other

(Operating expenses do not include new capital facilities and depreciation)

* Operating Ratio

* Coverage Ratio

* Budget Versus Actual Comparisons

* Capital Investment Ratio
III.A. CHECK FINANCIAL HEALTH

* Introductions

* Ratios

* Definitions

Revenue Components

User Service Charge
Hookup/Impact Fee
Taxes/Assessments
Interest Earnings
Other

Operating Expense Components

Salaries and Benefits
Administrative Costs
Utility Costs
Chemical Costs
Supplies and Parts
Equipment Replacement Costs
Principal and Interest
Other

(Operating expenses do not include new capital facilities and depreciation)

* Operating Ratio

* Coverage Ratio

* Budget Versus Actual Comparisons

* Capital Investment Ratio
# OPERATING RATIO WORKSHEET

**(Year to Date)**

## TOTAL REVENUE
- User service charges
- Hook-up/Impact Fees
- Taxes/Assessments
- Interest Earnings
- Other Revenue

*Total Revenue* $\underline{\ldots}$

## TOTAL OPERATING EXPENSES
- Administration
- Wages
- Benefits
- Electricity
- Chemicals
- Fuel & Utilities
- Parts
- Equipment Replacement Fund
- Principal and Interest Payments
- Other

*Total Operating Expenses* $\underline{\ldots}$

## OPERATING RATIO

Total Revenue \( \frac{\text{\$\underline{\ldots}}}{\text{\$\underline{\ldots}}} \) Total Operating Expenses

\[ \frac{\text{\$\underline{\ldots}}}{\text{\$\underline{\ldots}}} = \text{Operating Ratio} \]
COVERAGE RATIO WORKSHEET

Total Revenue $________________

minus

Non-Debt Expenses $____________

equals

Revenue Available for Debt Service $____________

divided by

Debt Service Expenses $____________

equals

Coverage Ratio ______________
## Revenue Budget vs. Actual

<table>
<thead>
<tr>
<th>% of Year Completed to Date: _____</th>
<th>$ Budget Total</th>
<th>$ Received Current Year To Date</th>
<th>% of Budget Received Current Year To Date</th>
<th>% of Budget Received Last Year To Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Charges</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taxes/Assessments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hook-up Fees</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impact Fees</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Revenue</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Revenue</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Expense
### Budget vs. Actual

<table>
<thead>
<tr>
<th>% of Year Completed to Date: ______</th>
<th>$ Budget Total</th>
<th>$ Spent Current Year To Date</th>
<th>% of Budget Spent Current Year To Date</th>
<th>% of Budget Spent Last Year To Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wages</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemicals</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel &amp; Utilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment Replacement Fund</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Principal &amp; Interest Payments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Operating Expenses</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FIGURE 4
CAPITAL INVESTMENT RATIO WORKSHEET

TOTAL CAPITAL OUTLAYS $________

divided by

TOTAL REVENUE $________

equals

CAPITAL INVESTMENT RATIO ________
III.B. IMPROVE FINANCIAL HEALTH

* Financial Reporting

Operation accounted for as a separate enterprise fund
Use accrual accounting methods
Monthly reports are a must
Report actual and budgeted figures
Receive reports by the 10th of the following month
Keep reports for at least 4 years

* Purchasing

The purpose is to receive goods and services (1) on time and (2) at the lowest price
Centralize purchasing
Develop good specifications for goods and services
Use a standard bid form
Use purchase orders
Develop emergency purchasing procedures
Inspect goods upon delivery
Develop inventory records/controls
* User Service Charge Systems

Largest revenue component - user charges account for 80 - 90% of total revenue

* User Service Charge Structures

Uniform Rate
Single Block Rate
Decreasing Block Rate
Increasing Block Rate

* Key Elements of a User Service Charge System for Wastewater

Account for the costs of transporting I/I
Add surcharges for high strength wastewater
Examine the user service charge yearly
Knowledge of federal, state and local requirements
# FINANCIAL REPORTING CHECKLIST

<table>
<thead>
<tr>
<th>Is this done at your utility?</th>
<th>Yes</th>
<th>No</th>
<th>Unsure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water and wastewater operations are accounted for in separate <em>enterprise funds</em>.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Each utility uses <em>accrual accounting</em> methods.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Each utility receives monthly reports of revenues and expenses.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reports show both budget and actual figures.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reports arrive by the 10th day of the following month.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The utility keeps its financial reports for at least four years.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PURCHASING CHECKLIST</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Is this done at your utility?</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Purchasing is centralized.</th>
<th>Yes</th>
<th>No</th>
<th>Unsure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major purchases are based on specifications that define requirements.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard quote/bid forms are used.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No purchases are made without a purchase order.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exceptions are specified for emergency purchases.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goods are inspected immediately for quality and damage.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stock quantities are specified for all inventory items.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### USER SERVICE CHARGES CHECKLIST

<table>
<thead>
<tr>
<th>Is this done at your utility?</th>
<th>Yes</th>
<th>No</th>
<th>Unsure</th>
</tr>
</thead>
<tbody>
<tr>
<td>All costs are identified.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Costs are allocated proportionately based on use.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow characteristics are known for each customer class.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Each customer's use is known or fairly estimated.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customers are billed proportionately to use.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Billing cycle provides timely revenues.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Established procedures assure collection of delinquent bills.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
III.C. BUILD FINANCIAL HEALTH

* Improve Budgeting

  Develop a Financial Road-map

  Plan Early

  Estimate Revenues

  Estimate Expenses

* Long Range Budgeting

  Capital Planning
III.D. ADDITIONAL FACTORS THAT AFFECT FINANCIAL HEALTH

* Organizational Structure

* Staff Training

* Personnel Turnover

* Operating Procedures and Policies

* Customer Relations
IV. EVALUATING USER SERVICE CHARGE SYSTEMS FOR WASTEWATER

A. EVALUATING REVENUES

B. EVALUATING EXPENSES

C. A STEP-BY-STEP EVALUATION PROCESS

D. USER SERVICE CHARGE WORKSHEETS

E. REPORT ON FINDINGS
IV. A. EVALUATING REVENUES

* User Service Charges
* Hookup/Impact Fees
* Taxes/Assessments
* Interest Earnings
* Other
IV. B. EVALUATING EXPENSES

* Salaries & Benefits
* Utilities
* Chemicals
* Equipment Replacement Costs
* Administrative
* Other Expenses
## WASTEWATER EXPENSE BUDGET 199____

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>$__________</td>
</tr>
<tr>
<td>Wages</td>
<td>$__________</td>
</tr>
<tr>
<td>Benefits</td>
<td>$__________</td>
</tr>
<tr>
<td>Electricity</td>
<td>$__________</td>
</tr>
<tr>
<td>Chemicals</td>
<td>$__________</td>
</tr>
<tr>
<td>Fuel and Utilities</td>
<td>$__________</td>
</tr>
<tr>
<td>Parts</td>
<td>$__________</td>
</tr>
<tr>
<td>Equipment Replacement Fund</td>
<td>$__________</td>
</tr>
<tr>
<td>Principal and Interest Payments</td>
<td>$__________</td>
</tr>
<tr>
<td>Other</td>
<td>$__________</td>
</tr>
<tr>
<td><strong>Total Operating Expenses</strong></td>
<td>$__________</td>
</tr>
<tr>
<td>Revenue Source</td>
<td>Amount</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>USER SERVICE CHARGES</td>
<td>$_____</td>
</tr>
<tr>
<td>HOOK-UP/IMPACT FEES</td>
<td>$_____</td>
</tr>
<tr>
<td>TAXES/ASSESSMENTS</td>
<td>$_____</td>
</tr>
<tr>
<td>INTEREST EARNINGS</td>
<td>$_____</td>
</tr>
<tr>
<td>OTHER</td>
<td>$_____</td>
</tr>
<tr>
<td>TOTAL REVENUE</td>
<td>$_____</td>
</tr>
</tbody>
</table>
IV.C. A STEP-BY-STEP EVALUATION PROCESS

1. Understand Why the Evaluation of the Community’s User Service Charge System is Important

2. Recognize the Components of the User Service Charge System

3. Prepare for Appointment with Financial Management Staff

4. Accomplishments of the Review

5. Clearly Understand the Problems

6. The Report

7. Follow-up on the Report
LIST THE DOCUMENTS YOU’LL NEED:

Most recent audit

Current budget

Current year-to-date revenues and expenses

Rate schedule

Sewer use ordinance

Contracts with other utilities

Debt service schedules
**IV.D. USER SERVICE CHARGE WORKSHEETS**

* Management/Operating Policies/Compliance
  
  Worksheet 1

* Financial Information
  
  Worksheets 2-4

* User Service Charge System
  
  Worksheets 5-6

* Wastewater Facility Tour
  
  Worksheet 7
# User Service Charge Worksheet

## Management/Operating Policies/Compliance

1. Describe any NPDES permit violation(s) which occurred within the last 12 months and the reason(s) for the violation(s).

2. Did insufficient operating revenues contribute to the NPDES violation(s)?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

3. Does the utility receive monthly accounting reports for wastewater revenues and expenses?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

4. Does the utility have a pretreatment ordinance?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

5. Does the organizational structure of the wastewater utility present any operational problems?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

6. What is the annual personnel turnover rate?

7. Are the procedures for collecting delinquent wastewater bills adequate?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>
**Financial Information**

1. Does the wastewater budget show revenues and expenses by line item? (Note: The wastewater budget should be separate from other governmental utility budgets like water, garbage disposal, etc.)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

2. What are the total annual budgeted revenues for the wastewater operation?

<table>
<thead>
<tr>
<th>TOTAL BUDGETED REVENUES</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>User service charges</td>
<td>$</td>
</tr>
<tr>
<td>Hookup/impact fees</td>
<td></td>
</tr>
<tr>
<td>Taxes/assessments</td>
<td></td>
</tr>
<tr>
<td>Interest earnings</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>Total Budgeted Revenues</td>
<td></td>
</tr>
</tbody>
</table>

3. What are the total annual budgeted expenses for the wastewater operation?

<table>
<thead>
<tr>
<th>TOTAL BUDGETED OPERATING EXPENSES</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries and benefits</td>
<td>$</td>
</tr>
<tr>
<td>Utilities</td>
<td></td>
</tr>
<tr>
<td>Equipment replacement fund</td>
<td></td>
</tr>
<tr>
<td>Chemicals</td>
<td></td>
</tr>
<tr>
<td>Supplies and parts</td>
<td></td>
</tr>
<tr>
<td>Contract services</td>
<td></td>
</tr>
<tr>
<td>Administration</td>
<td></td>
</tr>
<tr>
<td>Principal and interest payments</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>Total Budgeted Operating Expenses</td>
<td></td>
</tr>
</tbody>
</table>
4. What are actual revenues to date? How do they compare with budgeted revenues to date?

<table>
<thead>
<tr>
<th>BUDGETED REVENUES VS. ACTUAL</th>
<th>$ Budgeted</th>
<th>$ Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Revenues</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. What are actual expenses to date? How do they compare with budgeted expenses to date?

<table>
<thead>
<tr>
<th>BUDGETED EXPENSES VS. ACTUAL</th>
<th>$ Budgeted</th>
<th>$ Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Operating Expenses</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Does the wastewater utility show a cash flow problem?

<table>
<thead>
<tr>
<th>ACTUAL REVENUES &amp; EXPENSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Revenues</td>
</tr>
<tr>
<td>Total Operating Expenses (-)</td>
</tr>
<tr>
<td>Cash Available</td>
</tr>
</tbody>
</table>

7. How does the utility cover a revenue deficit?
8. Does the utility review user service charges and adjust them annually to reflect budgeted or actual expenses?  

   Yes  No

9. Does the utility have an equipment replacement fund (ERF)?  

   Yes  No

10. What percentage of operation, maintenance and equipment replacement funds are set aside for equipment replacement?

    \[
    \text{Equipment Replacement Fund (ERF) (\%)} = \frac{\text{ERF Costs}}{(\text{Total Operating Expenses}) - (\text{P&I Payments})} \times 100\%
    \]

    \[
    \text{ERF (\%)} = \hphantom{0}0.00\hphantom{0}0
    \]

11. Does a certified public accounting firm review the utility accounts?  

   Yes  No
# User Service Charge System

1. Does the utility distribute the wastewater collection and treatment costs proportionally to each user, user class or political jurisdiction?  
   - Yes  
   - No

2. Does the utility use a sewer use ordinance that incorporates a proportionate wastewater rate schedule? (Attach a copy.)  
   - Yes  
   - No

3. Does the utility distribute the I/I costs proportionally to each user, user class or political jurisdiction?  
   - Yes  
   - No

4. Does the rate schedule specify a uniform rate for wastewater treatment based on the volume of usage?  
   - Yes  
   - No

   Rate = \$ \underline{\text{ }} /1000 \text{ gal}

5. Does the rate schedule provide for a minimum charge?  
   - Yes  
   - No

6. What is the minimum charge?  
   \$ \underline{\text{ }}

7. Are customers notified annually of the wastewater rates?  
   - Yes  
   - No

8. What is the actual total operation, maintenance, equipment replacement and debt service costs per 1000 gallons of wastewater treated by the utility?  
   \[ \text{Treatment Rate} = \frac{\text{OM&R + Debt Service Costs}}{\text{Total Flow}} = \$ \underline{\text{ }} /1000 \text{ gal} \]
9. How does the utility determine wastewater user fees? (Check one)
   - Water meter readings? [ ]
   - Equivalent dwelling unit? [ ]
   - Other? (Specify) [ ]

10. Does the rate schedule specify surcharges for high-strength wastes?
   [ ] Yes [ ] No

11. How does the utility determine surcharges?

12. What is the average annual wastewater bill for a typical residential user? $ [ ]

13. Are users billed separately for wastewater services?
   [ ] Yes [ ] No

14. Do all political jurisdictions served by the utility have a sewer use ordinance which incorporates a proportional wastewater rate schedule?
   [ ] Yes [ ] No

15. Do users outside the utility's political boundary pay the same rate as inside users?
   [ ] Yes [ ] No

16. Do all serviced political jurisdictions meet the same user service charge system conditions as the wastewater treating utility? (If No, describe.)
   [ ] Yes [ ] No
## Wastewater Facility Tour

1. What is the current average flow treated at the facility (gallons per day)?

2. Does the facility appear to operate normally?

3. Is any equipment out of service? (Specify)

4. Does maintenance appear satisfactory?

5. Is good housekeeping evident?

6. Is the laboratory clean and well-organized?

7. Are adequate chemicals, supplies and parts on hand?

8. Is staffing adequate for the operation?

9. Are operators certified?

10. Does the staff receive formal training?

11. Do operational and compliance records appear adequate?

12. Note other comments or problems:
IV.E. DRAFT A REPORT OF FINDINGS

Follow-up the evaluation by writing a report:

* Cite Problems

* Recommend Solutions

* Establish Response Deadline

* Follow-up
Follow-up letter after a user charge evaluation

(Date)

Mr. James Sullivan
Finance Director
City of Anytown
100 S. Main St.
Anytown, USA

Dear Mr. Sullivan:

It was a pleasure to meet with you and your staff on (date) to discuss your wastewater utility’s financial operations. As a result of our discussions and the tour of the wastewater treatment facility, I noted the following concerns.

1. The wastewater and water accounting systems are not separate. The water and wastewater operations need to be financially independent and self-sufficient. The Anytown wastewater treatment facility was partially financed by a grant from the U.S. Environmental Protection Agency. This means Anytown must establish a financial management system which separately accounts for wastewater revenues and expenditures. The system must also identify the basis for determining operation, maintenance, equipment replacement, debt service costs and user service charges.

2. The wastewater utility does not collect surcharges from users discharging high-strength waste although the city’s wastewater system’s sewer use ordinance requires a surcharge on those users whose wastes increase operation and maintenance costs. This ordinance must be enforced as a condition of your EPA grant.

FIGURE 19

IV-17
3. The actual wastewater expenses to date at the half-way point in this fiscal year are $125,000. The total budgeted amount for the fiscal year is $200,000. This results in a projected deficit of $50,000 for the year. User service charges must be increased to provide the needed operating revenue since collection of surcharge revenues will not be sufficient to eliminate the deficit.

4. The wastewater unit volume rate is insufficient to cover the operational costs of the utility. A rough calculation showed that the OM&R costs are $1.20/1,000 gallons and debt service costs are $0.60 for a total rate of $1.80/1,000 gallons.

5. The accounting system does not budget for an equipment replacement fund. You need an equipment replacement fund to pay for equipment and accessories that wear out during the life of the treatment facility. The fund is not to be used for expanding the capacity or enhancing the treatment facility's performance. It must be used to keep the facility operating at the level for which it was designed and constructed. This is an EPA requirement.

6. At the treatment facility, the secondary clarifier sludge return pump was inoperable and a backup pump was not available. The sludge return pump is essential to proper operation. As we discussed during the visit, you should install a temporary pump as soon as possible and repair or replace the inoperable sludge pump. You need a backup pump to prevent this circumstance from reoccurring.

7. The treatment plant grounds were poorly maintained. The grass needed mowing; discarded equipment was lying around; spillage from the sludge hauling operation created a nuisance. The appearance of a wastewater treatment facility is usually a good indicator of the level of professionalism, motivation and training of the staff. It also may be an indicator of inadequate funding/staffing of the treatment facility. As a result of our discussions and tour of the facilities, it appears that additional staff is needed to achieve proper operation and maintenance.

FIGURE 19A

IV-18
8. At the treatment facility, there was only a two-day supply of chlorine and a limited supply of laboratory reagents and chemicals on hand. Good management practice requires an adequate supply of essential chemicals and reagents on hand to operate and maintain the facility properly. From our discussion, it appears the Anytown utility should revise its purchasing procedure to allow the superintendent to order routine supplies directly without waiting for governing body approval.

9. This system had exceeded its monthly average BOD NPDES permit limit for two consecutive months. The major cause of this violation appears to be inadequate sludge return. The pump outage discussed above should be rectified immediately.

Many of the above concerns are consistent with the conclusion that Anytown’s wastewater treatment facility needs more financial resources for proper operation and maintenance. I have enclosed a copy of EPA’s publication Building Support for Increasing User Fees that tells how to increase the facility’s revenue base.

Please develop a corrective action plan with compliance dates to address the above findings, and submit the plan to this office no later than (date).

Our office will be glad to work with the City of Anytown to protect its water quality and improve its wastewater financial operations. If you have questions about this report, please feel free to call me.

Sincerely,

Anne Taylor
Utility Board Manager

enclosure

FIGURE 19B
V. DETERMINING USER SERVICE CHARGE RATES

A. GETTING STARTED

B. UNDERSTAND THE THEORY

C. CALCULATE USER CHARGES
V.A. GETTING STARTED

* Financial Statements
  - Expenses
  - Revenues Other Than User Charges

* Current User Service Charge Rate Schedule
  - Residential
  - Commercial
  - Industrial

* Data on Total Wastewater Collected and Treated
  - Total Annual Plant Flow
  - Biochemical Oxygen Demand (pounds/yr.)
  - Suspended Solids (pounds/yr.)
V.B. UNDERSTAND THE THEORY

* Balance Revenues and Expenses by Adjusting the User Charge
V.C.  CALCULATE USER CHARGES

*  Use EPA's Computer Program
   -  Assumptions Can Be Easily Changed

*  Or, Calculate User Charges Manually
   -  Step 1 - Gather Information
      Financial Records
      User Charge Schedules
      Sewage Treatment Data

   -  Step 2 - Delineate User Charges, Expenses, Revenues, BOD and SS
      List All Expenses
      List All Revenue Other Than User Charges
      Determine the Basis for User Charges - Metered?
      Un-metered?
      List Theoretical and Actual Annual Plant Flow
      List Theoretical and Actual BOD (pounds/yr.)
      List Theoretical and Actual SS (pounds/yr.)

   -  Step 3 - Calculate Rates
      Calculate Excess Flow
      Calculate Excess BOD and SS
      Calculate Current and Proposed Basic User Service Charge Rate
      Calculate Current and Proposed Basic Industrial Surcharge Rate
WASTEWATER COLLECTION AND TREATMENT EXPENSES FY 1990

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries and Fringe Benefits</td>
<td>$450,000</td>
</tr>
<tr>
<td>Utilities</td>
<td>175,000</td>
</tr>
<tr>
<td>Equipment Replacement Fund</td>
<td>200,000</td>
</tr>
<tr>
<td>Chemicals, Supplies and Parts</td>
<td>50,000</td>
</tr>
<tr>
<td>Contract Services</td>
<td>0</td>
</tr>
<tr>
<td>Administrative Costs &amp; Office Supplies</td>
<td>125,000</td>
</tr>
<tr>
<td>Principal and Interest Payments</td>
<td>450,000</td>
</tr>
<tr>
<td>Other Costs</td>
<td>25,000</td>
</tr>
<tr>
<td><strong>TOTAL EXPENSES:</strong></td>
<td><strong>$1,475,000</strong></td>
</tr>
</tbody>
</table>
DETERMINING USER SERVICE CHARGE RATES
OTHER WASTEWATER REVENUES

Connection Fees $15,000
Special Assessments 10,000
Transfers from Other Funds 0
Interest on Investments 50,000
Other Revenues 15,000
Minimum Service Fee 20,000

TOTAL, OTHER REVENUES: $110,000
FROM STP RECORDS . . .

TOTAL ANNUAL FLOW = 700,000,000 GALLONS
TOTAL ANNUAL BOD = 2,200,000 POUNDS
TOTAL ANNUAL SS = 2,200,000 POUNDS
DETERMINING USER SERVICE CHARGE RATES

NUMBER OF USERS BY TYPE - UNMETERED WATER

<table>
<thead>
<tr>
<th>TYPE OF CUSTOMER</th>
<th>NUMBER OF CUSTOMERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-Family Residences</td>
<td>8,000</td>
</tr>
<tr>
<td>Apartments (1-2 bedroom)</td>
<td>1,500</td>
</tr>
<tr>
<td>Apartments (3 or more bedrooms)</td>
<td>1,000</td>
</tr>
<tr>
<td>Commercial/Institutional</td>
<td>900</td>
</tr>
<tr>
<td>Restaurants and Taverns</td>
<td>100</td>
</tr>
<tr>
<td>Industrial</td>
<td>100</td>
</tr>
</tbody>
</table>
DETERMINING USER SERVICE CHARGE RATES
METERED WATER

Minimum Bill = $2.50
Current Wastewater Services Billing Schedule Monthly Rates

<table>
<thead>
<tr>
<th>Total Gallons Treated</th>
<th>Rate per 1,000 gallons</th>
</tr>
</thead>
<tbody>
<tr>
<td>From . . .</td>
<td>To . . .</td>
</tr>
<tr>
<td>0</td>
<td>2,000</td>
</tr>
<tr>
<td>2,001</td>
<td>5,000</td>
</tr>
<tr>
<td>5,001</td>
<td>10,000</td>
</tr>
<tr>
<td>10,001</td>
<td>25,000</td>
</tr>
<tr>
<td>25,001</td>
<td>Over</td>
</tr>
</tbody>
</table>
ANNUAL METERED WATER FLOW

Residential  250,000,000 gallons
Commercial   100,000,000 gallons
Industrial   150,000,000 gallons

TOTAL        500,000,000 gallons
(WORKSHEET 8, LINE 4)

Annual Total Wastewater Flow  700,000,000 gallons
(WORKSHEET 8, LINE 4a)
WORKSHEET 8

If you meter fresh water, fill in items 1 through 4. If you don't meter fresh water, enter only item 4a.

Annual Residential Metered Water Flow (gallons) 1
Annual Commercial/Institutional Metered Water Flow (gallons) 2
Annual Industrial Metered Water Flow (gallons) 3
Total Annual Metered Water Flow (1+2+3) 4
Total Annual Wastewater Flow 4a

If you don't meter fresh water, fill in Items 5 - 11a.

<table>
<thead>
<tr>
<th>Type of Unit</th>
<th>Number of Units</th>
<th>EDUs per unit</th>
<th>Total EDUs (Units x EDUs per)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single family residences</td>
<td>_________</td>
<td>1.00</td>
<td>_________</td>
</tr>
<tr>
<td>Apartments (1-2 bedrooms)</td>
<td>_________</td>
<td>0.75</td>
<td>_________</td>
</tr>
<tr>
<td>Apartments (3+ bedrooms)</td>
<td>_________</td>
<td>1.00</td>
<td>_________</td>
</tr>
<tr>
<td>Commercial/Institutional</td>
<td>_________</td>
<td>2.50</td>
<td>_________</td>
</tr>
<tr>
<td>Restaurants and taverns</td>
<td>_________</td>
<td>10.00</td>
<td>_________</td>
</tr>
<tr>
<td>Industries</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Grand Total EDUs (5+6+7+8+9)</strong></td>
<td></td>
<td></td>
<td><strong>___________</strong></td>
</tr>
</tbody>
</table>

V-11

FIGURE 26
WORKSHEET 9

Theoretical Non-Industrial Wastewater Flow
[Item 10 \times 2.6 \text{ people} \times 100 \text{ gallons per day} \times 365 \text{ days}]  

Theoretical Industrial Wastewater Flow
[Item 4 \minus Item 11]  

For both metered and unmetered systems, fill in Items 12 - 19, and 20 - 23 or 26 - 32.

Total Annual Influent BOD (pounds)  

Calculate Normal Annual Influent BOD (pounds)
[Item 4a \times .002294 \text{ pounds per gallon}]  

Calculate Excess BOD
[Item 12 \minus Item 13] If Item 12 is less than Item 13, enter 0.  

Percentage Excess BOD
[(Item 14 \div Item 13) \times 100]  

Total Annual Influent SS (pounds)  

Calculate Normal Annual Influent SS (pounds)
[Item 4a \times .002294 \text{ pounds per gallon}]  

Calculate Excess SS
[Item 16 \minus Item 17] If Item 16 is less than Item 17, enter 0.  

Percentage Excess SS
[(Item 18 \div Item 17) \times 100]  

If both Items 15 and 19 equal zero, then complete Items 20 through 23 and the appropriate metered item (24) or unmetered items (25 through 25e).

Total Expenses (see pages 11-16)  

Other Revenue (see pages 17-18)  

Net Expenses [Item 20 \minus Item 21]  

1,000s of Gallons Wastewater [Item 4a \div 1,000]
WORKSHEET 10

Metered Water

Actual Wastewater Rate (per 1,000 gallons)
[Item 22 divided by Item 23] 24

New User Service Charge Rate (per 1,000 gallons)
[Item 24 times (Item 4a divided by Item 4)] 24a

Unmetered Water

New User Service Charge Rate (per 1,000 gallons)
[Item 22 divided by Item 23] 25

Residential, per month
[Item 25 times 7.8 thousand gallons/month] 25a

Apartments, 1-2 bedroom, per month
[Item 25a times 0.75] 25b

Apartments, 3+ bedrooms, per month)
[Item 25a times 1.00] 25c

Commercial/Institutional, per month
[Item 25a times 2.50] 25d

Restaurants/Taverns, per month
[Item 25a times 10.00] 25e

If either item 15 or 19 is greater than zero, then complete Items 26 through 32 and the appropriate metered items (33 and 34) or unmetered items (35 through 36).

Total Expenses (see pages 11-16) 26

Other Revenue (see pages 17-18) 27

Net Expenses [Item 26 minus Item 27] 28

1,000s of Gallons Wastewater [Item 4a divided by 1,000] 29

Enter Item 15 or 19, whichever is greater 30

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FIGURE 28
**WORKSHEET 10**

**Metered Water**

- Actual Wastewater Rate (per 1,000 gallons)
  \[ \text{Item 22 divided by Item 23} \]  
  \[ 24 \]

- New User Service Charge Rate (per 1,000 gallons)
  \[ \text{Item 24 times (Item 4a divided by Item 4)} \]  
  \[ 24a \]

**Unmetered Water**

- New User Service Charge Rate (per 1,000 gallons)
  \[ \text{Item 22 divided by Item 23} \]  
  \[ 25 \]

  - Residential, per month
    \[ \text{Item 25 times 7.8 thousand gallons/month} \]  
    \[ 25a \]

  - Apartments, 1-2 bedroom, per month
    \[ \text{Item 25a times 0.75} \]  
    \[ 25b \]

  - Apartments, 3+ bedrooms, per month
    \[ \text{Item 25a times 1.00} \]  
    \[ 25c \]

  - Commercial/Institutional, per month
    \[ \text{Item 25a times 2.50} \]  
    \[ 25d \]

  - Restaurants/Taverns, per month
    \[ \text{Item 25a times 10.00} \]  
    \[ 25e \]

If either item 15 or 19 is greater than zero, then complete Items 26 through 32 and the appropriate metered items (33 and 34) or unmetered items (35 through 36).

- Total Expenses (see pages 11-16)  
  \[ 26 \]

- Other Revenue (see pages 17-18)  
  \[ 27 \]

- Net Expenses [Item 26 minus Item 27]  
  \[ 28 \]

- 1,000s of Gallons Wastewater [Item 4a divided by 1,000]  
  \[ 29 \]

- Enter Item 15 or 19, whichever is greater  
  \[ \% 30 \]
WORKSHEET 11

Portion of Treatment Costs Attributable to Normal Strength Wastewater \[\frac{100}{100 + \text{Item 30}}\] \[\text{31}\]

Portion of Treatment Costs Attributable to Excess BOD or SS \[\frac{\text{Item 30}}{100 + \text{Item 30}}\] \[\text{32}\]

**Metered Water**

Actual Wastewater Rate (per 1,000 gallons) \[\frac{\text{Item 28} \times \text{Item 31}}{\text{Item 29}}\] \[\text{33}\]

New User Service Charge Rate (per 1,000 gallons) \[\frac{\text{Item 33} \times \frac{\text{Item 4a}}{\text{Item 4}}}{\text{33a}}\]

Actual Industrial Wastewater Surcharge Rate (per 1,000 gallons) \[\frac{\text{Item 28} \times \text{Item 32}}{\text{Item 3 divided by 1,000}}\] \[\text{34}\]

New Industrial Wastewater Surcharge Rate (per 1,000 gallons) \[\frac{\text{Item 34} \times \frac{\text{Item 4a}}{\text{Item 4}}}{\text{34a}}\]

Total New Industrial User Service Charge Rate (per 1,000 gallons) \[\text{Item 33a plus Item 34a}\] \[\text{34b}\]
WORKSHEET 12

Unmetered Water

New User Service Charge Rate (per 1,000 gallons)

\[ \text{[(Item 28 times Item 31) divided by Item 29]} \]

- Residential, per month
  \[ \text{[Item 35 times (7.8 thousand gallons/month)]} \]

- Apartments, 1-2 bedroom, per month
  \[ \text{[Item 35a times 0.75]} \]

- Apartments, 3+ bedrooms, per month
  \[ \text{[Item 35a times 1.00]} \]

- Commercial/Institutional, per month
  \[ \text{[Item 35a times 2.50]} \]

- Restaurants/Taverns, per month
  \[ \text{[Item 35a times 10.00]} \]

New Industrial Wastewater Surcharge Rate (per 1,000 gallons)

\[ \text{[(Item 28 times Item 32) divided by (Item 11a divided by 1,000)]} \]

Total New Industrial User Service Charge Rate

(per 1,000 gallons) [Item 35 plus Item 36]
Normal BOD and SS loadings
0.229 lbs./100 gallons of wastewater

0.229 lbs./100 gallons x 500,000,000 gallons = 1,147,000 lbs. BOD or SS
(WORKSHEET 9, LINES 13 AND 17)

Actual BOD or SS = 2,200,000 lbs.
(WORKSHEET 9, LINES 12 AND 16)
Excess BOD and SS

\[
2,200,000 \text{ lbs.} - 1,147,000 \text{ lbs.} = 1,053,000 \text{ lbs.}
\]

\[
\% \text{ Excess} = \frac{1,053,000}{1,147,000} \times 100\% = 91.8\%
\]

(WORKSHEET 9, LINES 15 AND 19)
Excess BOD and SS

\[ \text{2,200,000 lbs.} - \text{1,147,000 lbs.} = \text{1,053,000 lbs.} \]

\[ \% \text{ Excess} = \left( \frac{1,053,000}{1,147,000} \right) \times 100\% = 91.8\% \]

(WORKSHEET 9, LINES 15 AND 19)
Excess BOD and SS

\[
\begin{align*}
2,200,000 \text{ lbs.} & \quad - \quad 1,147,000 \text{ lbs.} \\
& \quad = \quad 1,053,000 \text{ lbs.}
\end{align*}
\]

% Excess = \( \frac{1,053,000}{1,147,000} \times 100\% = 91.8\% \)

(WORKSHEET 9, LINES 15 AND 19)
Portion of treatment cost attributable to normal strength wastewater

\[
\frac{100}{100 + 91.8} = 0.521 \text{ or } 52.1\% \\
\text{(WORKSHEET 11, LINE 31)}
\]

Portion attributable to excess BOD or SS

\[
100.0\% - 52.1\% = 47.9\% \\
\text{(WORKSHEET 11, LINE 32)}
\]
ACTUAL WASTEWATER RATE/1,000 GALLONS =

Net expenses x portion attributable to normal BOD or SS

\[
\frac{\$1,365,000 \times 0.521}{700,000 \text{ gallons}} = \$1.02
\]

(WORKSHEET 11, LINE 33)
NEW USER
SERVICE CHARGE RATE

\[
\frac{\$1.02}{1,000 \text{ gals.}} \times \frac{700,000,000 \text{ gals.}}{500,000,000 \text{ gals.}} = \frac{\$1.43}{1,000 \text{ gals}}
\]

(WORKSHEET 11, LINE 33a)
Actual Industrial Surcharge Rate/1,000 gals.

Net expenses \times \text{portion attributable to excess BOD or SS} \times 1,000 \text{s of gallons treated industrial wastewater}

\[
\frac{1,365,000 \times .479}{150,000 \text{ gallons}} = \$4.36/1,000 \text{ gallons}
\]

(Worksheet 11, Line 34)
NEW INDUSTRIAL WASTEWATER SURCHARGE RATE

\[
\begin{align*}
\frac{4.36}{1,000 \text{ gals.}} \times \frac{700,000,000 \text{ gals.}}{500,000,000 \text{ gals.}} &= \frac{6.10}{1,000 \text{ gals}} \\
\text{(WORKSHEET 11, LINE 34a)}
\end{align*}
\]

TOTAL INDUSTRIAL USER SERVICE CHARGE RATE:

\[
\begin{align*}
$1.43/1,000 \text{ gals.} & + \frac{6.10}{1,000 \text{ gals}} \hfill \\
\hline
$7.53/1,000 \text{ gals.} & \\
\text{(WORKSHEET 11, LINE 34b)}
\end{align*}
\]
VI. SELLING A USER CHARGE INCREASE TO CUSTOMERS

A. A GOOD PUBLIC EDUCATION PROGRAM IS THE KEY TO SUCCESS

B. HOW DO YOU CONDUCT A PUBLIC EDUCATION CAMPAIGN?

C. ONCE YOU'VE INCREASED USER CHARGES, HOW DO YOU KEEP ON TRACK?
VI.A. A GOOD PUBLIC EDUCATION PROGRAM IS THE KEY TO SUCCESS

* Many Water and Wastewater Operations Are Facing Very Serious Financial Problems

* Improving Overall Financial Management Is a Way Out of Those Problems

   An Important Component of Good Financial Management Is Adequate User Service Charges

* Increasing User Service Charges Can Equate to Political Suicide

   Just Ask West Carolina Regional Sewer Authority in Greenville, S.C.

* Or Local Government Officials Can Raise Rates and Live to Tell About It

   Kokomo Knows ----- How to Do It

* The Difference Between Suicide and Success Is PUBLIC EDUCATION!
VI.B. HOW DO YOU CONDUCT A PUBLIC EDUCATION CAMPAIGN?

* Plan Ahead
  Think Through What You’ve Been Doing and Why
  Decide on Other Steps to Take
  Get Ready to Meet the Public

* Budget for the Public Education Program
  Staff
  Materials and Services
  Overhead

* Shape the Message
  What Do You Want To Say?
  What Methods Will be Used?

* Choose Spokesperson(s)
  Who are
  - Organized
  - Enthusiastic
  - Great Communicators
  - Natural Leaders
  - Familiar with the Subject
* Get the Message Out

Target Audiences

- Start with the Workplace
- Local Government Officials
- Community Groups
- Media
- Youth
- General Public

* Evaluate and Document
VI.C. ONCE YOU'VE INCREASED USER CHARGES, HOW DO YOU KEEP ON TRACK?

* Make Small Annual Adjustments
* Move the Utility Operations Out of the Political Realm
* Use Monthly Billing
* Bill Separately for Water, Wastewater, Trash Disposal, Etc.
* Continue PUBLIC EDUCATION
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Inquiries concerning Title IX, Section 504 and the Americans With Disabilities Act of 1990 should be directed to Mr. Gary W. Baskette, Director of Business Services, 109 Student Services Building, Knoxville, Tennessee 37996-0212, (615) 974-6622. Charges of violation of the above policy should also be directed to Mr. Baskette.

Authorization Number R14-1050-22-001-92