

2. Allocating Costs of Sewer Services to Customer Classes

- **Residential and nonresidential sewer service customers are billed based upon wastewater volume and the expected concentration (or strength) of pollutants in their wastewater discharge. All residential customers are billed for a single domestic wastewater strength. Nonresidential customers are either billed (i) for their actual wastewater strength, if they discharge high volumes of wastewater or the wastewater discharge has high concentration of pollutants, or (ii) on the expected wastewater strength of their assigned Standard Industrial Classification code if they are minor industrial or commercial users.**
- **According to the Wastewater Rate Study, the measured amount (or loadings) of wastewater pollutants at the wastewater treatment plants do not match the calculated wastewater loadings, based on customer service billing records. The Public Utilities Commission is currently implementing work plans to (i) sample and test wastewater loadings at the treatment plants and (ii) identify correct nonresidential property uses from Tax Collector and other documents to ensure that nonresidential properties are assigned the correct Standard Industrial Classification codes and wastewater strength in the Customer Services billing system.**
- **The management audit review of Customer Services billing data found discrepancies between the Schedule of Sewer Service Charges and Customer Services billing records. For example, the Schedule of Sewer Service Charges lists 44 Standard Industrial Classification codes and the Customer Services billing system lists 83. Of the 44 Standard Industrial Classification codes listed in the Schedule of Sewer Service Charges, only 22 correspond with the Standard Industrial Classification codes listed in the Customer Services billing system. The Public Utilities Commission Business Services Division should streamline the list of Standard Industrial Classification codes and reconcile the Customer Services billing system with the Schedule of Sewer Service Charges.**

To ensure equity in establishing sewer service charges, the costs of providing sewer services to each class of customer should be reflected in the rates. Because different customers discharge different quantities of wastewater with different wastewater pollutant strength, or concentration of oil and grease, suspended solids, and oxygen demand from the break down of biological waste, the costs of sewer services vary among classes of customers.

In San Francisco, sewer service customers are divided into residential and nonresidential classes. The nonresidential classes include commercial, industrial, and municipal customers. Residential customers, which are grouped into single family and multiple family residence customer classes, are assigned a standard domestic wastewater strength.

Commercial, including municipal, and industrial customers are assigned to Standard Industrial Classification codes and the sewer service charges are based upon the wastewater pollutant strength associated with each code. Industrial customers who discharge high volumes of wastewater or have wastewater strength that differs from the Standard Industrial Classification codes are inspected, sampled, and assigned wastewater strength based on their individual activity. Sewer service charges for these customers are based on the actual strength of their wastewater discharge.

Identifying Costs of Service

Clean water customers pay for sewer services, based on the customer's metered water use, plus the flow factor,¹ and the pounds per gallon of oil and grease, suspended solids, and oxygen demand. Sewer service revenues must meet the costs of service. Before allocating the costs of service to the customers, components of service costs need to be identified. Sewer services consist of the collection and treatment of wastewater. The costs for wastewater collection and treatment derive from the volume, or flow, of the wastewater, and the concentration of oil and grease and suspended solids, and the oxygen demand from the breakdown of biological waste.

Allocating the Costs to the Component Parts of Sewer Collection and Wastewater Treatment

Wastewater collection and treatment costs include both capital investment in the physical plant and ongoing operating and maintenance expenses. The operating, maintenance, and capital costs of sewer collection and wastewater treatment are allocated to the wastewater components, which include volume, oil and grease, suspended solids, and oxygen demand from the breakdown of biological material.

Allocating the Costs of Capital Investment in Physical Plant

Different parts of the physical plant are involved in the collection and in the treatment processes and therefore, the costs of capital investment in the physical plant are attributed to different aspects of the collection and treatment processes. For example, the costs of capital investment in sewers is attributed almost entirely to costs associated with volume and in small part to oil and grease. The costs of capital investment in the wastewater treatment plants are divided among all the costs of treatment for component parts of

¹ One unit of service is equivalent to 100 cubic feet or approximately 748 gallons. Single family residential customers and most industrial and commercial customers have a 90 percent flow factor, which assumes that 90 percent of metered water use is returned to the sewer. Multiple family residential customers have a 95 percent flow factor.

wastewater treatment, including volume, oil and grease, total suspended solids, and oxygen demand.

Allocating Operating and Maintenance Expenses

Operating and maintenance expenses are also allocated to the component parts of the collection and treatment processes. Operating and maintenance costs for collection and treatment processes are allocated to the components, including volume, oil and grease, suspended solids, and oxygen demand, in the same percentages as the allocation of costs for capital investment. Operating and maintenance costs for the pretreatment of wastewater are allocated directly to the commercial and industrial customers that receive pretreatment services. Administrative overhead expenses are allocated in the same proportion as direct costs.

Discrepancies in the Wastewater Strength, the Schedule of Sewer Service Charges and the Billing System

Sewer service charges for nonresidential customers are based on either (i) the actual wastewater of the industrial customer, based on sampling, or (ii) the assigned Standard Industrial Classification code. The Schedule of Sewer Service Charges adopted by the Public Utilities Commission, effective July 15, 2004, has three schedules. Schedule A sets the sewer service charges for all residential customers. Schedules B and C set the sewer service charges for all nonresidential customers.

Schedule B and Schedule C Nonresidential Customers

Schedule B Nonresidential Customers

Schedule B sets the sewer service charges for nonresidential customers whose wastewater loadings, or the concentration of oil and grease, suspended solids, and oxygen demand in the customer's wastewater discharge, are periodically sampled by the Bureau of Environmental and Regulatory Management Pretreatment, Pollution Prevention, and Storm Water Program staff. The customer pays for sewer and wastewater treatment services based on the customer's measured wastewater strength.

The Bureau of Environmental and Regulatory Management Pretreatment, Pollution Prevention, and Storm Water Program classifies industrial customers into three industrial categories:

- Federal categorical industrial users are industrial users subject to the Federal Environmental Protection Agency pretreatment standards. In calendar year 2003, the Pretreatment, Pollution Prevention, and Storm Water Program classified five individual businesses as federal categorical industrial users under three categories: electroplating common metals, steam electric power generating, and metal finishing.
- Significant industrial users are individual businesses that discharge more than 25,000 gallons of waste water per day or have high concentrations of pollutants in the

wastewater discharge. The Pretreatment, Pollution Prevention, and Storm Water Program has classified 25 individual businesses as significant industrial users, including several major hospitals, San Francisco State University, linen supply companies, and microbreweries.

- Minor industrial users are all other industrial users that are not classified as “significant”. In calendar year 2003, the Pretreatment, Pollution Prevention, and Storm Water Program identified 593 minor industrial users, which includes veterinary hospitals, wholesale bakeries, commercial printing, and other miscellaneous industrial uses.

The Pretreatment, Pollution Prevention, and Storm Water Program regularly inspects federal categorical and significant industrial users, samples the wastewater discharge, and assigns wastewater strength based on the specific strength of their wastewater discharge. Of the minor industrial users, only a small number are sampled during the course of the year. The Pretreatment, Pollution Prevention, and Storm Water Program samples fewer than 100 industrial users each year to determine wastewater strength for purposes of establishing sewer service charges.

Schedule B in the Customer Services billing system contains approximately 2,970 customer accounts, compared to the approximately 100 industrial users who are sampled annually. According to the Director of Customer Services, all nonresidential customers whose wastewater discharge has been sampled for purposes of assigning wastewater strength and setting sewer service charges are included in Schedule B. The Pretreatment, Pollution Control, and Storm Water Program staff do not sample minor industrial users annually but only sample and assign wastewater strength upon change of property use.

Discrepancies between the Schedule of Sewer Services Schedule C and the Customer Services Billing System

Under Schedule C of the Schedule of Sewer Service Charges, nonresidential customers who are not sampled for purposes of rate setting under Schedule B are assigned to Standard Industrial Classification codes and billed for sewer services according to the Standard Industrial Classification code rates listed in Schedule C. Schedule C contains 44 Standard Industrial Classification codes for nonresidential customers, such as wholesale bakery, fish and seafood wholesale distribution, hotel, restaurant, and other classifications. Clean water customers who fall within one of these Standard Industrial Classification codes pay for sewer and treatment services based on the standard wastewater strength for the commercial or industrial class.

The Customer Services billing system contains 83 Standard Industrial Classification codes under which Schedule C nonresidential customers are billed. Of the 44 Standard Industrial Classification codes in the Schedule of Sewer Service Charges and the 83 Standard Industrial Classification codes under which Schedule C customers are actually billed, only 22 Standard Industrial Classification codes correspond. Further, approximately 6 percent of Schedule C customer accounts in the Customer Services

billing system do not correspond to Standard Industrial Classification codes listed in Schedule C of the Schedule of Sewer Service Charges.

The Public Utilities Commission Business Services Division should review all existing Standard Industrial Classification codes in the Customer Services billing system, determine which Standard Industrial Classification codes correspond to nonresidential property uses in San Francisco, eliminate unneeded Standard Industrial Classification codes, and reconcile Standard Industrial Classification codes in Schedule C of the Schedule of Sewer Service Charges and in the Customer Services billing system.

Discrepancies in Actual Compared to Calculated Wastewater Strength and the Public Utilities Commission Work Plan

In the Wastewater Rate Study, Black and Veatch found discrepancies between the measured amount, or “loadings” of oil and grease, suspended solids, and oxygen demand that were measured at the Clean Water Enterprise wastewater treatment plants and the calculated loadings, or expected wastewater loadings, based on residential and nonresidential customer billing data.. According to the Black and Veatch Wastewater Rate Study, the measured wastewater loadings at the wastewater treatment plants were higher than the calculated loadings using Customer Services billing data.

The Public Utilities Commission staff are in the process of preparing a work plan to address the issues raised in the Wastewater Rate Study. The Public Utilities Commission staff are implementing work plans to (i) sample wastewater strengths at the treatment plants, and (ii) match Customer Services nonresidential sewer service accounts with Tax Collector and other documents to determine property use and assign the accounts to the correct Standard Industrial Classification code.

Wastewater Sampling and Residential and Nonresidential Class Wastewater Strength Assignment

According to the staff of the Bureau of Environmental and Regulatory Management, the proposed work plan is expected to include the re-sampling of residential and major commercial and industrial classification wastewater strength and revise wastewater strength assignments to residential, commercial and industrial classifications as needed. Residential and nonresidential class wastewater strength was last reviewed in the 1970s and 1980s. Although there are no industry standards regarding the frequency of sampling and assigning wastewater strength to residential and nonresidential customers, the State Water Resources Control Board, which has oversight over wastewater strength assignment for the purpose of allocating costs to residential and nonresidential customers, suggests that wastewater strength sampling and assignment should be conducted at least every ten years. The Public Utilities Commission should adopt a formal, written policy to sample residential and nonresidential class wastewater strength every ten years and assign new wastewater strength as appropriate.

Identification and Assignment of Accurate Standard Industrial Classification Codes to Existing Customers

Currently, the majority of nonresidential customers who are billed under Schedule C of the Schedule of Sewer Service Charges are grouped into miscellaneous classifications. The Public Utilities Commission Business Services Division staff are putting together a work plan that includes hiring an outside consultant to match nonresidential customers billed under miscellaneous Standard Industrial Classification codes against the Tax Collector's and Assessor's records to identify correct property use. As a second step, the Bureau of Environmental and Regulatory Management will be responsible for preparing a schedule to spot check the identified accounts. Identifying the correct property use of nonresidential customers, and reassigning nonresidential customers from miscellaneous Standard Industrial Classification codes to the specific Standard Industrial Classification codes contained in Schedule C should more accurately assign wastewater strength to nonresidential customers.

Identifying Commercial and Industrial Users in Mixed Use Buildings

Many commercial and industrial users do not have a sewer services customer account if their business is in a mixed use building. Mixed use buildings may only have one or a few meter connections with corresponding service accounts, although the building may have multiple tenants. This results in certain commercial and industrial customers discharging wastewater strengths into the sewer system that are greater than the wastewater strengths listed on the service account.

The work program to identify the correct property use of current nonresidential customer accounts through Tax Collector and Assessor records does not extend to identifying property use of commercial and industrial users who do not have customer accounts. The Public Utilities Commission could identify the commercial or industrial use of properties through the Tax Collector's business records. The Public Utilities Commission should establish a protocol that (a) identifies which commercial and industrial property uses are high risk for discharging pollutants into the sewer system and (b) establishes a periodic schedule for reviewing Tax Collector and other documents to identify high risk commercial and industrial users who do not have customer accounts.

Correctly Classifying New Customers and Identifying When Property Use Has Changed

The Customer Services Section is responsible for setting up new sewer service customer accounts. When a commercial account is closed, the Customer Service Division carries forward the Standard Industrial Classification codes, the revenue class, the meter number, and the last date and number of the meter reading. Flow factors are converted in the billing system to the standard industrial and commercial flow factor of 90 percent.

Customer Service staff can not make changes to the Standard Industrial Classification codes in the billing system. Staff from the Pretreatment, Pollution Prevention, and Storm Water Program have direct access to the billing system information and are responsible

for entering Standard Industrial Classification code information into the system. Although Customer Services staff will notify the Pretreatment, Pollution Prevention, and Storm Water Program of suspected changes in the property use, the Pretreatment, Pollution Prevention, and Storm Water Program determines which properties are inspected and revises wastewater strength data directly into the billing system.

The Public Utilities Commission Business Services Division is assessing the role of Customer Services in verifying the property use of new accounts. The Business Services Division needs to establish formal, written policies and procedures in conjunction with the Bureau of Environmental and Regulatory Management, which includes the Pretreatment, Pollution Prevention, and Storm Water Program, defining the role of Customer Services in identifying the use of new accounts and notifying the Pretreatment, Pollution Prevention, and Storm Water Program of new accounts.

The Pretreatment, Pollution Prevention, and Storm Water Program needs to develop formal, written policies and procedures regarding identification and inspection of properties with new sewer service accounts. Although an audit by the California Regional Water Quality Control Board found that the Pretreatment, Pollution Prevention, and Storm Water Program's methods for locating and identifying industrial users was sufficient, Pretreatment, Pollution Prevention, and Storm Water Program acknowledge that their approach to locating and identifying commercial and industrial users is based on "experience" rather than formal procedures.

Conclusion

The Black and Veatch Wastewater Rate Study identified a discrepancy between the measured wastewater loading and calculated wastewater loading at the wastewater treatment plants. The Bureau of Environmental and Regulatory Management is currently sampling and testing wastewater loadings to identify the sources of the discrepancy. At the same time the Business Services Division is implementing a work plan to identify nonresidential customers' correct property uses from Tax Collector and other documents to ensure that nonresidential customers, for whom the majority are billed under miscellaneous Standard Industrial Classification codes rather than specific codes, are entered into the Customer Services billing system under the correct code. By entering nonresidential customers into the billing system under the Standard Industrial Classification code with the assigned wastewater strength that matches the property uses, the discrepancy between measured wastewater loadings at the treatment plants and calculated wastewater loadings from the billing system should be reduced.

The management audit review of Customer Services billing data found discrepancies between the Schedule of Sewer Service Charges and Customer Services billing records. For example, the Schedule of Sewer Service Charges lists 44 Standard Industrial Classification codes and the Customer Services billing system lists 83. Of the 44 Standard Industrial Classification codes listed in the Schedule of Sewer Service Charges, only 22 correspond with the Standard Industrial Classification codes listed in the Customer Services billing system. The Public Utilities Commission Business Services

Division should streamline the list of Standard Industrial Classification codes and reconcile the Customer Services billing system with the Schedule of Sewer Service Charges.

Recommendations

The Public Utilities Commission General Manager should:

- 2.1 Adopt a formal, written policy to sample wastewater strength for residential and nonresidential customer classes every ten years and assign new wastewater strength as appropriate.
- 2.2 Direct the Business Services Division to reconcile Customer Services billing system data for nonresidential customers with the Schedule of Sewer Service Charges, including:
 - (a) Clearly defining the categories of nonresidential customers who are sampled for purposes of setting sewer service charges under Schedule B;
 - (b) Clearly defining criteria for assigning nonresidential customers to Standard Industrial Classification codes under Schedule C; and
 - (c) Reviewing all existing Standard Industrial Classification codes in the Customer Services billing system, to determine which Standard Industrial Classification codes correspond to nonresidential property uses in San Francisco, eliminate unneeded Standard Industrial Classification codes, and reconcile Standard Industrial Classification codes in Schedule C of the Schedule of Sewer Service Charges and in the Customer Services billing system.
- 2.3 Continue implementation of the proposed work plan to sample the wastewater strengths of residential and nonresidential customers to determine the source of the discrepancy between expected and actual wastewater strength.
- 2.4 Continue implementation of the proposed work plan to test existing customer accounts against Tax Collector and Assessor records to verify the correct use of properties.
- 2.5 Establish a protocol to (a) identify which commercial and industrial property uses are high risk for discharging pollutants into the sewer system, and (b) establish a periodic review of Tax Collector and other documents to identify high risk commercial and industrial users who do not have customer accounts.
- 2.6 Direct the Business Services Division, in conjunction with the Bureau of Environmental and Regulatory Management, to develop formal, written policies defining the role of Customer Services in identifying the property use of new

accounts and notifying the Pretreatment, Pollution Prevention, and Storm Water Program of new accounts.

- 2.7 Direct the Bureau of Environmental and Regulatory Management to develop formal, written policies regarding identification and inspection of properties with new sewer service accounts or changes in use for existing accounts.

Costs and Benefits

Implementation of these recommendations would allow the Public Utilities Commission to correctly identify and bill for residential and nonresidential customers wastewater strengths.