

PHILADELPHIA WATER DEPARTMENT



The Surcharge Program:

What You Should Know

What is the Surcharge Program?

The Surcharge Program is a program developed for the Philadelphia Water Department (PWD) to recover the costs from treating wastewater that exceeds the characteristics of a normal residential customer. The characteristics of concern in the surcharge program are Total Suspended Solids (TSS) and Five-day Biochemical Oxygen Demand (BOD₅). When either or both of these factors are in excess of the normal levels for residential wastewater a surcharge is assessed

Key Terms

BOD₅ = 5-day Biochemical Oxygen Demand

The quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedure for five days at 20 degrees centigrade, expressed in terms of concentration (milligrams per liter) and determined via sampling conducted by the PWD—IWBC.

TSS = Total Suspended Solids

The total suspended matter that floats on the surface, or is suspended in water, wastewater, or other liquids, and is removable by laboratory filtering, expressed in terms of concentration (milligrams per liter) and determined via sampling conducted by the PWD—IWBC.

Threshold Values

The limits of TSS and BOD₅ above which a surcharge is applied that are acceptable in wastewater flowing to Philadelphia's wastewater treatment plants. The threshold values are 350 mg/l for TSS and 250 mg/l for BOD₅. These values are defined in the City of Philadelphia Water Department Regulations Appendix for Rates and Charges, Section 3.1-Sewer Charges, and are based on accepted concentrations of TSS and BOD₅ in predominantly residential areas.

How is Surcharge Sampling Done?

Surcharge sampling is performed by the Philadelphia Water Department's Industrial Waste & Backflow Compliance (IWBC) on a quarterly basis. The sampling quarters are identified in the first column of the table below. IWBC takes three samples from each surchargeable industrial user for the purposes of estimating the average daily loadings of BOD₅ and TSS discharged from the facility. These three samples are averaged together and this average is used to calculate the surcharge amount (\$) for each month of the associated billing quarter. The billing months associated with each sampling quarter are listed in the second column of the table below.

| Sample Months | Months Billed |
|-----------------------------|-----------------------------|
| October, November, December | February, March, April |
| January, February, March | May, June, July |
| April, May, June | August, September, October |
| July, August, September | November, December, January |

In certain instances, deviations from this sampling and billing schedule are required to ensure that a user's bills are being calculated in a fair and representative manner. In these instances, the sampling and billing protocol will be developed in consultation with the user.

How to Calculate Your Surcharge Bill

The surcharge is calculated using the BOD and TSS concentration levels found during sampling. Use the following equations to determine your total surcharge bill for any month:

$$\begin{array}{rcl}
 \text{TSS Concentration Sampled}^1 & \underline{\hspace{2cm}} & \text{mg/L} \\
 \text{TSS Concentration Threshold}^2 & - \quad 350 & \text{mg/L} \\
 & = \underline{\hspace{2cm}} & \text{mg/L} \\
 \text{TSS Billing Rate}^2 & \times \quad 0.432 & \$/\text{lb} \\
 \text{UNIT CONVERSION FACTOR}^3 & \times \quad 0.00624 & \\
 \text{TSS Factor} & = \underline{\hspace{2cm}} & \$/\text{ccf}
 \end{array}$$

$$\begin{array}{rcl}
 \text{BOD}_5 \text{ Concentration Sampled}^1 & \underline{\hspace{2cm}} & \text{mg/L} \\
 \text{BOD}_5 \text{ Concentration Threshold}^2 & - \quad 250 & \text{mg/L} \\
 & = \underline{\hspace{2cm}} & \text{mg/L} \\
 \text{BOD}_5 \text{ Billing Rate}^2 & \times \quad 0.426 & \$/\text{lb} \\
 \text{UNIT CONVERSION FACTOR}^3 & \times \quad 0.00624 & \\
 \text{BOD}_5 \text{ Factor} & = \underline{\hspace{2cm}} & \$/\text{ccf}
 \end{array}$$

To calculate your total surcharge bill, take the surcharge factors generated above and perform the following calculations

$$\begin{array}{rcl}
 \text{TSS Factor} & \underline{\hspace{2cm}} & \$/\text{ccf} \\
 \text{BOD}_5 \text{ Factor} & + \underline{\hspace{2cm}} & \$/\text{ccf} \\
 & = \underline{\hspace{2cm}} & \$/\text{ccf} \\
 \text{Flow during billing month:} & \times \underline{\hspace{2cm}} & \text{ccf} \\
 \text{Sewer Rental Factor (if applicable)} & \times \underline{\hspace{2cm}} & \\
 \text{\$ Surcharge} & = \underline{\hspace{2cm}} & \$
 \end{array}$$

¹See table on previous page to determine which months' TSS and BOD₅ concentrations apply to the billing month in question

²Concentration thresholds and billing rates for surchargeable TSS and BOD₅ can be found in section 3.4 of the PWDR and are subject to change

³The unit conversion factor converts (mg/L)x(\$/lb) to \$/ccf using the following conversion factors:

$$\frac{2830 \text{ L}}{1 \text{ ccf}} \times \frac{1 \text{ lb}}{453.6 \text{ mg}} = 0.00624 \frac{\text{L} \times \text{lbs}}{\text{ccf} \times \text{mg}}$$

If you would like to contact the Philadelphia Water Department's Industrial Waste & Backflow Compliance Unit, or have any additional questions, please call us at 215-685-6236



To obtain a copy of the current surcharge regulations visit our webpage at:
<http://water.phila.gov>

Visit Industrial Waste online at
<http://water.phila.gov/industrial-waste>

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