

# Surcharge Rates

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REGION 8 PRETREATMENT CONFERENCE  
2017 DEADWOOD SOUTH DAKOTA

JWO

Engineering

# Wastewater Surcharge

- A charge for compatible pollutants that are above domestic background concentrations or WWTP design capacity.
- These funds are necessary to fund sampling and monitoring activities for surcharge calculations and to cover cost of treatment of the excessive strength compatible waste.

# What are Surcharge Rates?

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A sanitary sewer surcharge is imposed on an industrial user for discharges containing concentrations of Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS) exceeding acceptable values.

# What are Surcharge Rates?

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When all customers contribute wastewater of comparable strength, a simple charge based on flow will result in equitable cost recovery. However, if a customer discharges a waste which, because of its characteristics, requires treatment which is more costly than that required by normal strength wastes, then that customer should bear the extra cost. For the purpose of this study, a normal strength waste is one which has the general characteristics of domestic wastewater.

Haverhill MA City Code

# What are Surcharge Rates?

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A Surcharge program is a procedure for recovering costs incurred while treating high strength waste discharged by industrial (*SIU Surcharge Program*) and commercial users (*Customer Classes*) into the wastewater system.

It is an additional charge made to a customer that discharges high strength wastewater that is amenable to treatment by the wastewater system but that exceeds the strength of normal wastewater.

# What are Surcharge Rates?

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Additional fees for treating wastewater above normal domestic strength.

Grand Forks City Code

# When Should Surcharge Rates Be Implemented?

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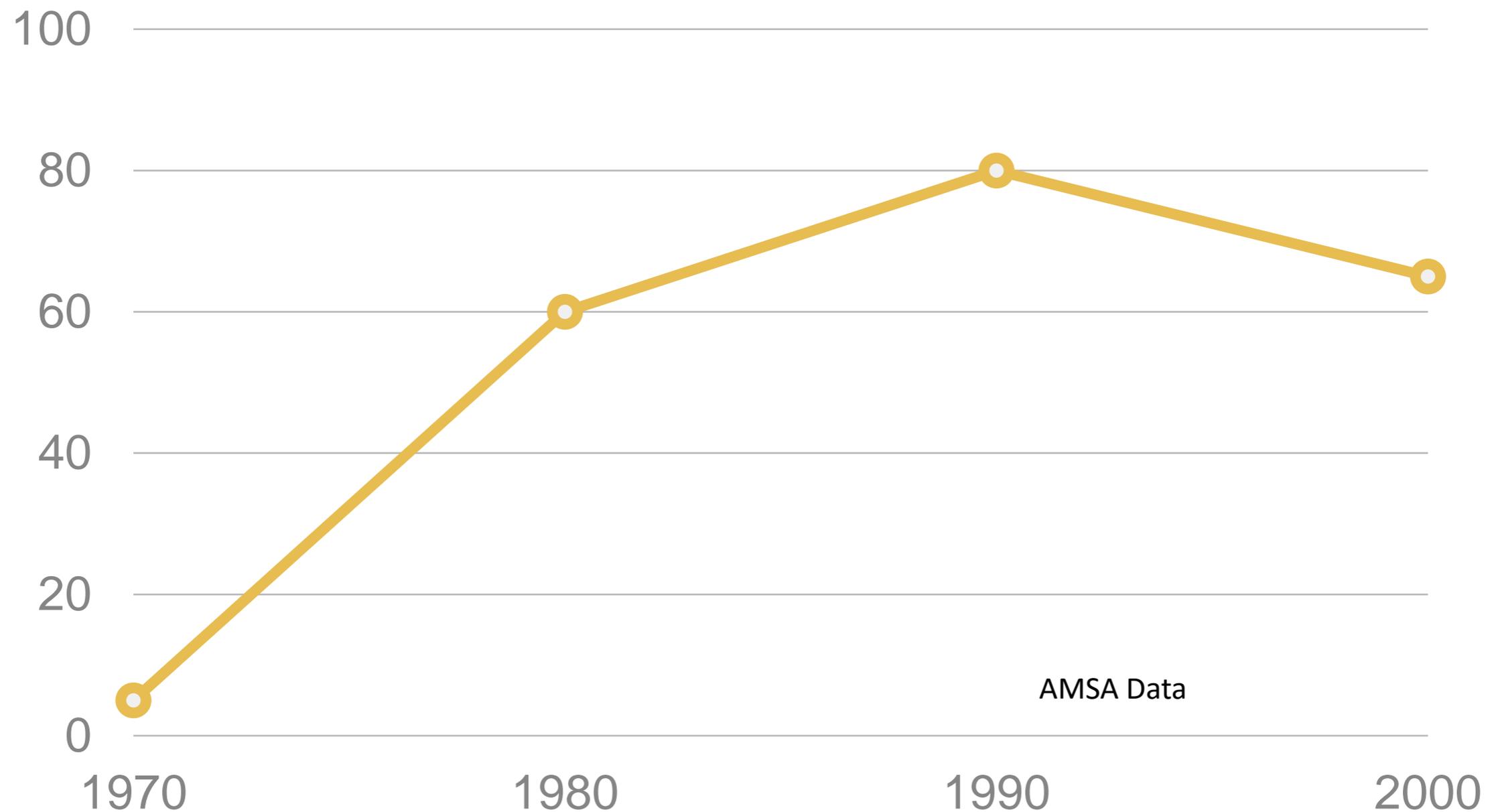
Clean Water Act Options

\*Quantity/Quality Approach

\*Surcharge Limit Approach

# When Have Surcharge Rates Been Implemented?

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# What are Typical Surcharge Rates?

MTAS (14 WWTPs)	Ave	Range	Ave Baseline Concentration	Baseline Range
BOD	0.24	.06-.68	305	240-450
TSS	0.19	.072-.68	336	250-500
O&G	0.26	.045-.68	94	50-100
NH3	0.47	.35-2.0	40	15-45
TKN		2	45	30-60
P		2	10	10
COD		0.05	800	800

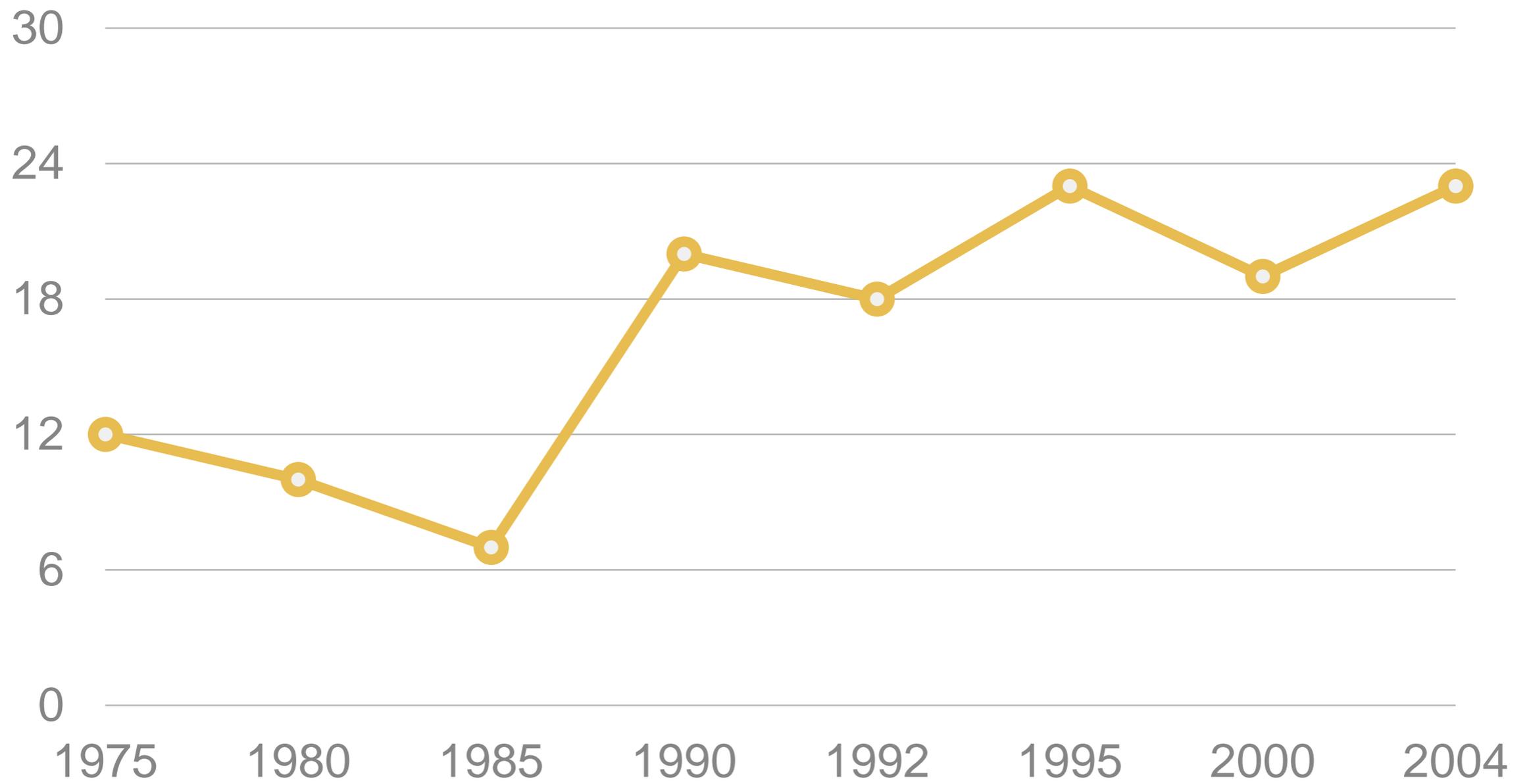
# What are Typical Surcharge Rates?

Surcharge Survey Results- U. S. EPA Region 4 (38 WWTPs)

	Average \$ per lb.	Range of \$ per lb		Average Concentration for start of surcharge (mg/L)	Concentration Range for start of surcharge (mg/L)
BOD5	\$ 0.232	\$0.030	\$ 0.68	281	200 - 450
TSS	\$ 0.186	\$0.035	\$ 0.68	301	200 - 500
O & G	\$ 0.291	\$0.030	\$ 1.05	94	50 - 200
Ammonia	\$ 0.561	\$0.040	\$ 1.55	25	12 - 45
TKN	\$ 1.170	\$0.14	\$ 2.00	39	30 - 60
Phosphorus	\$ 1.320	\$0.64	\$ 2.00	10	10
COD	\$ 0.107	\$0.05	\$ 0.15	672	450 - 800

# Surcharge Rate Trends

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# Will rates go up?

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Commodity price increases

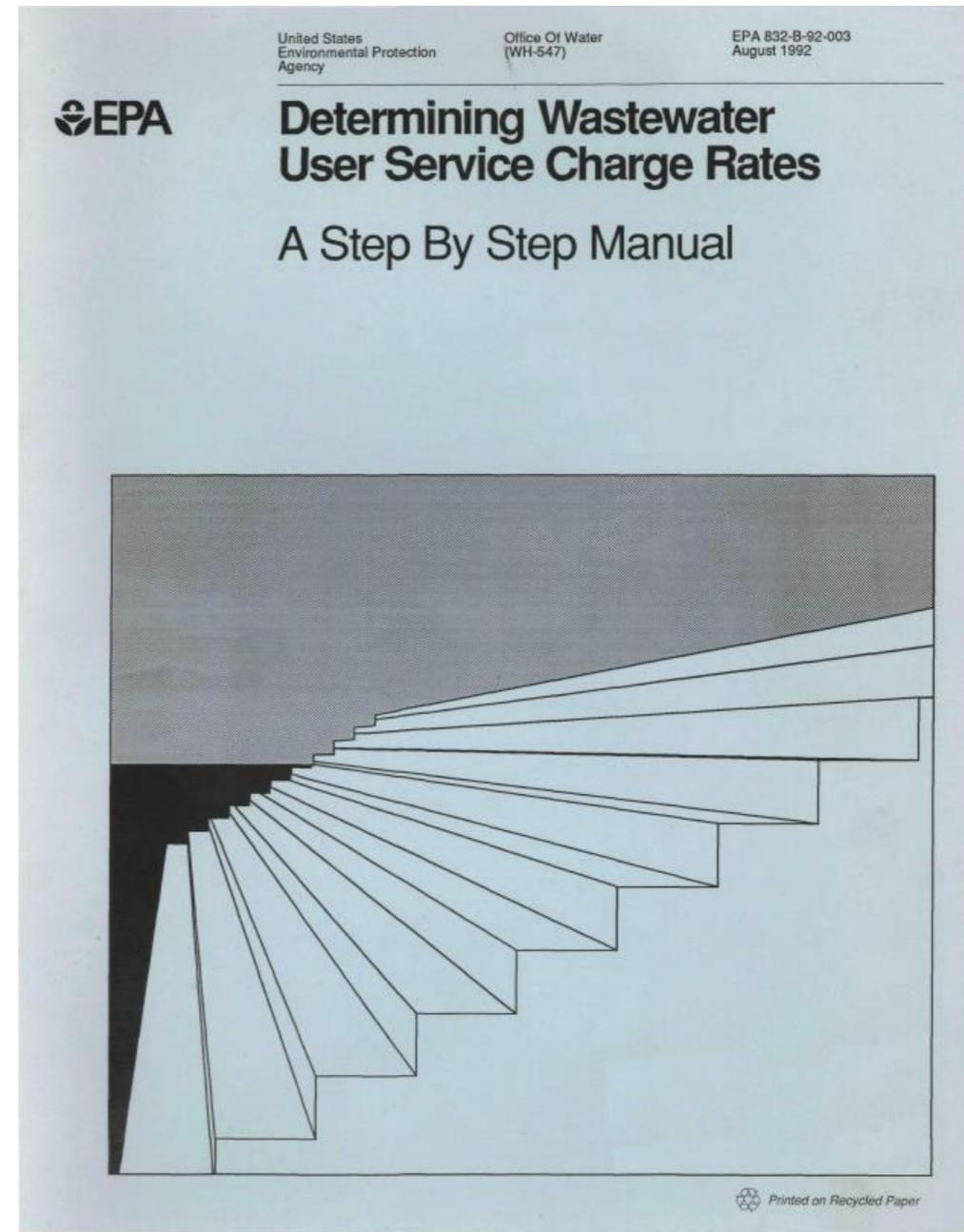
Conservation

Aging Infrastructure

AMSA data indicate rates are re-evaluated and reset every 4 years on average

# How Should Surcharge Rates Be Determined?

By a State of the Art  
Lotus 123 Computer  
Program  
(1992)



# Lotus 123 Directions

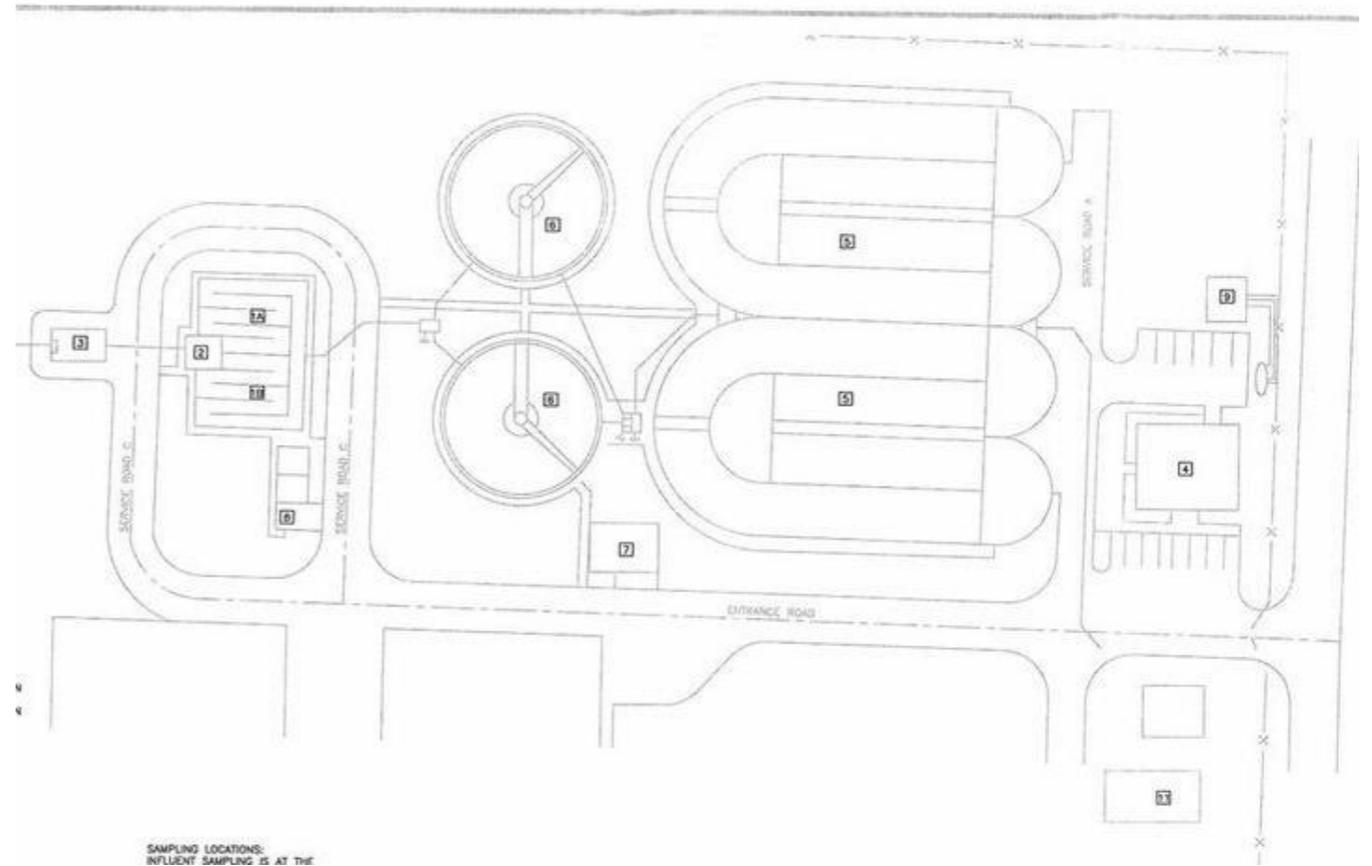
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If you follow the directions, you shouldn't have any difficulty. However, if you become completely lost or enter the wrong information the program can be stopped by holding down the CTRL key and pressing BREAK once. After pressing this key sequence an error message will flash on the screen; just press ENTER once and then re-load the program from the disk to re-start. This is usually not necessary; even if the information entered is incorrect, the program will still run through to completion.

# How Should Surcharge Rates Be Determined?

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Design Basis –  
What is the principal parameter for which a treatment process is included in a treatment plant



# Design Basis

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- \*Allocation based on engineering design criteria
- \*Less administrative burden

# How Should Surcharge Rates Be Determined?

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Functional Basis -  
- What effect does the treatment process have on a constituent



# Functional Basis

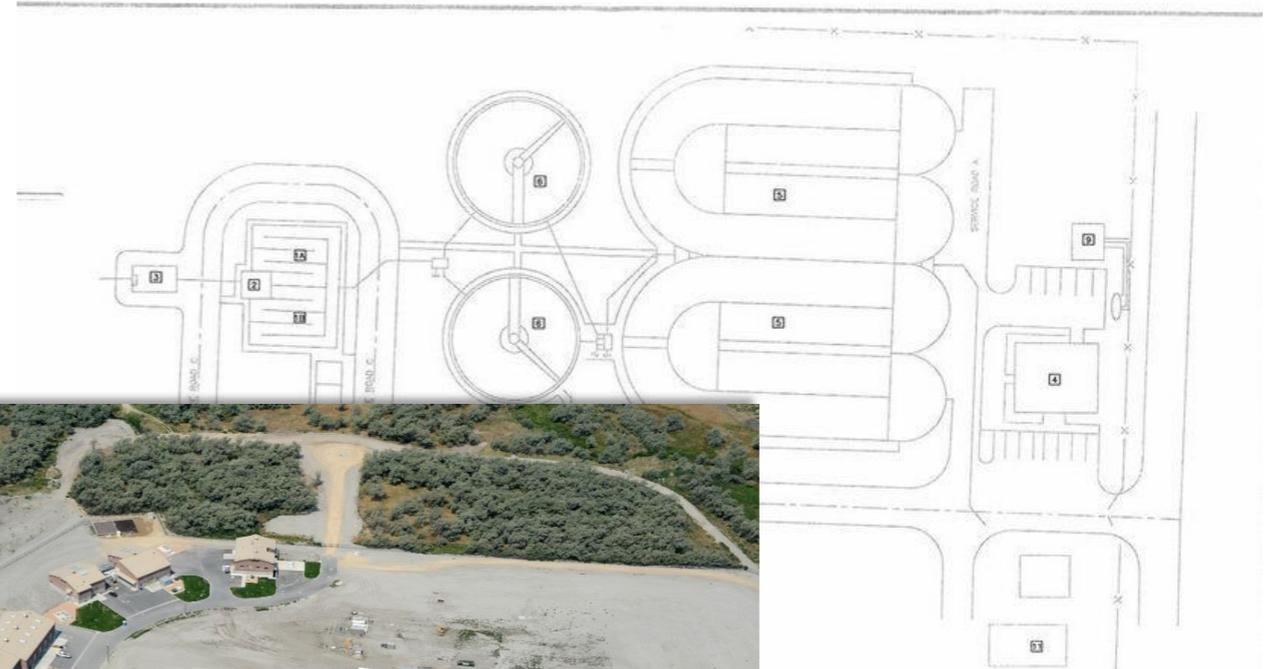
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- \* Allocation based on process efficiency
- \* Requires operational data to determine

# How Should Surcharge Rates Be Determined?

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**Hybrid Basis --  
May treat capital  
and O&M costs  
differently**



# Hybrid Basis

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- \* Capital costs may be allocated based on design while O&M allocation may be based on function
- \* Requires use of Best Professional Judgement (BPJ)

# What are the implementation risks?

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- \* Implementation requires legal authority
- \* How reasonable are the rates
- \* Can the methodology be documented
- \* Is the surcharge equitable

# Impacts of Surcharge Rates

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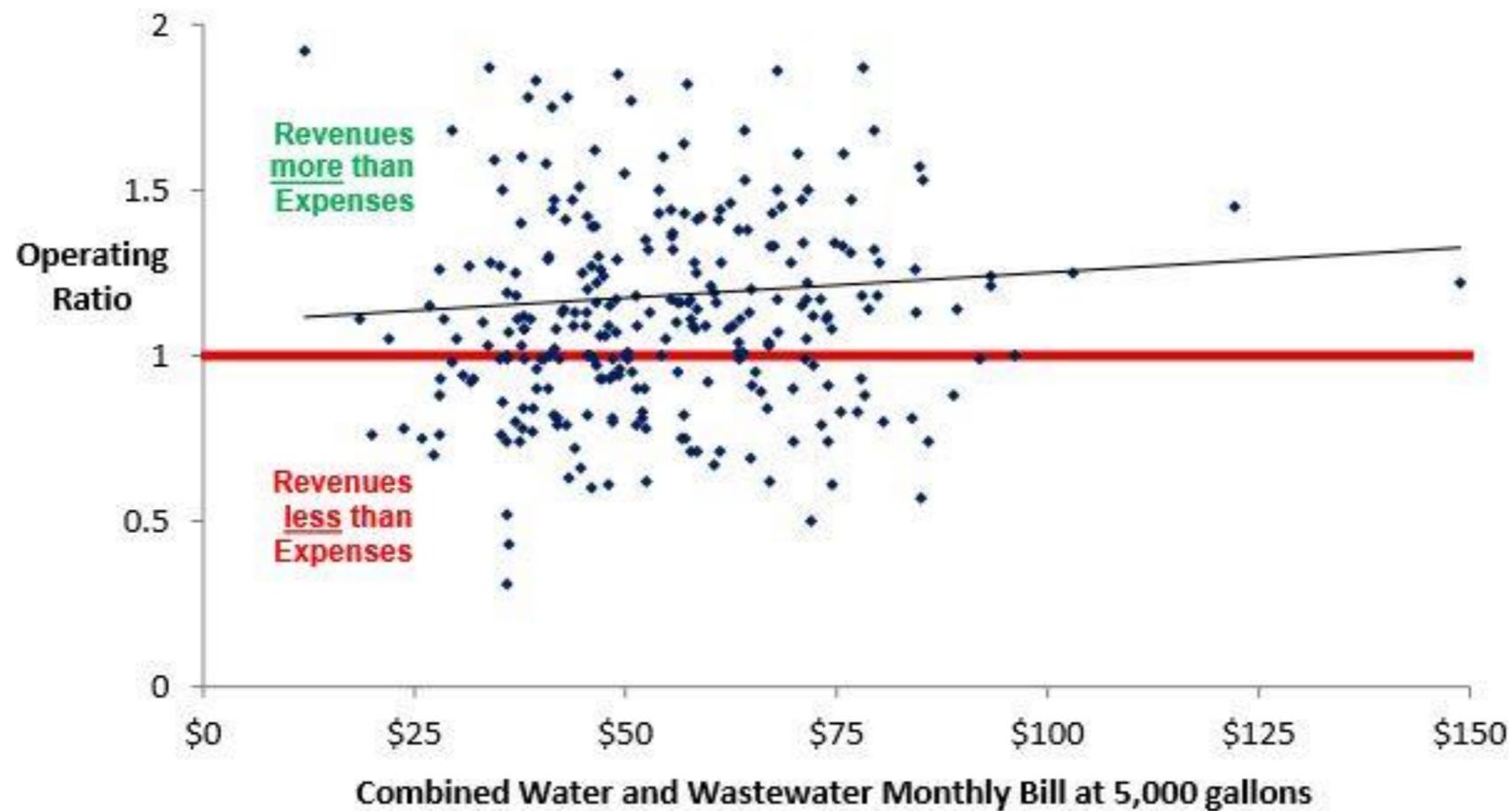
- \*Elected or Appointed Board Members
- \*WWTP Personnel and Managers
- \*Industries

# Impacts of Rates

GEFA and EFC

Water and Wastewater Rates and Rate Structures in Georgia, 2016

**Figure 32: Combined Residential Bill in FY2013-14 for 5,000 gallons/month for Utilities with Reported DCA Data on Total Operating Revenues and Total Operating Expenses in FY2013-14 (n=278)**



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# Pretreatment Surcharge Rate Case Study



# Purpose

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Establish a technical basis for the surcharge rates assessed by the SVWRF

# Key Issues

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Two tiered rate structure

Commercial and Industrial

No data on how existing rates were determined

Discussions on nutrient limitation proposals

# Wastewater Constituents Evaluated

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- Biochemical oxygen demand (BOD)
- Total suspended solids (TSS)
- Ammonia ( $\text{NH}_3$ )\*
- Phosphorous ( $\text{PO}_4$ )\*
- Oil and grease

\*No current surcharge fee

# Baseline Concentrations

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Based on typical plant influent concentrations rather than design data

	new	previous
■ BOD:	200 mg/l	300 mg/l
■ TSS:	230 mg/l	300 mg/l
■ NH <sub>3</sub> :	35 mg/l	n/a
■ PO <sub>4</sub> :	4.0 mg/l	n/a

# Evaluate Treatment Unit Processes

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- Contaminant removal rate based on sampling
- Capital cost
- Operation and maintenance (O&M) cost
- Allocation of costs
- Develop cost per pound to remove the contaminant

# Calculated Surcharge Rates

Contaminant	Surcharge Rate (\$/lb)
BOD	\$0.19
TSS	\$0.15
NH <sub>3</sub>	\$0.32
PO <sub>4</sub>	\$0.67

# Oil and Grease

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- Difficult to evaluate costs of impacts with available data
- Current surcharge:
  - Baseline: 200 mg/l
  - Surcharge fee: \$0.260/lb

# Recommendations

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- Adopt proposed baseline levels and calculated surcharge rates for BOD and TSS.
- Because there is no current surcharge fee for  $\text{NH}_3$  and  $\text{PO}_4$ , evaluate the impact of the calculated rates on users.
- Continue current surcharge fee for oil and grease, but reduce baseline to 100 mg/l.
- Review surcharge rates every five years at permit renewal or when there are significant changes to treatment process.

# Questions?

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