

ORDINANCE NO. 103

AN ORDINANCE ESTABLISHING THE PROCEDURE FOR DETERMINING EQUITABLE SERVICE CHARGES TO BE LEVIED ON ALL USERS WHICH DISCHARGE WASTEWATER TO THE WASTE-WATER SYSTEM OPERATED BY THE CITY OF WASHBURN, NORTH DAKOTA, AND PROVIDING CERTAIN PROHIBITIONS

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF WASHBURN :

SECTION 1. PURPOSE

The purpose of this ordinance shall be to generate sufficient revenue to pay all costs for the operation and maintenance of the complete wastewater system. The costs shall be distributed to all users of the wastewater system in proportion to each user's contribution to the total loading of the treatment works. Factors such as strength (BOD and SS), volume, and delivery flow rate characteristics shall be considered and included as the basis for the user's contribution to ensure a proportional distribution of operation and maintenance costs to each user (or user class).

SECTION 2. DETERMINING THE TOTAL ANNUAL COST OF OPERATION & MAINTENANCE

The City of Washburn, or its City Engineer, shall determine the total annual costs of operation and maintenance of the wastewater system which are necessary to maintain the capacity and performance, during the service life of the treatment works, for which such works were designed and constructed. The total annual cost of operation and maintenance shall include but need not be limited to, labor, repairs, equipment replacement, maintenance, necessary modifications, power, sampling, laboratory tests, and a reasonable contingency fund.

SECTION 3. DETERMINING EACH USER'S WASTEWATER CONTRIBUTION PERCENTAGE

The City of Washburn, or its City Engineer, shall determine each user's average daily volume of wastewater, which has been discharged to the wastewater system, which shall then be divided by the average daily volume of all wastewater discharged to the wastewater system, to determine each user's Volume Contribution Percentage. The amount used as the total average daily volume of wastewater shall exclude infiltration and inflow. The City of Washburn, or its City Engineer, shall determine each user's average daily poundage of 5-day 20 degree centigrade Biochemical Oxygen Demand which has been discharged to the wastewater system which shall then be divided by the average daily poundage of all 5-day 20 degree centigrade Biochemical Oxygen Demand discharged to the wastewater system to determine each user's Biochemical Oxygen Demand Contribution Percentage.

The City of Washburn, or its City Engineer, shall determine each user's average daily poundage of suspended solids which has been discharged to the wastewater system which shall then be

divided by the average daily poundage of all suspended solids discharged to the wastewater system, to determine the user's Suspended Solids Contribution Percentage. Each user's Volume Contribution Percentage, Biochemical Oxygen Demand Contribution Percentage, and Suspended Solids Contribution Percentage shall be multiplied by the annual operation and maintenance costs for the total volume, the total 5-day, 20 degree centigrade Biochemical Oxygen Demand, and the Suspended Solids, for the wastewater system, respectively.

SECTION 4. DETERMINING A SURCHARGE SYSTEM FOR USERS WITH ABOVE NORMAL VOLUME BOD AND SS

The City of Washburn, or its City Engineer, will determine the average Suspended Solids (SS) and Biochemical Oxygen Demand (BOD) daily loadings for the average residential user and residential user class. The City of Washburn will assess a surcharge rate for all non-residential users discharging wastes with volume, BOD, and SS strengths greater than the average residential user. Such users will be assessed a surcharge, sufficient to cover the costs of treating such users' above normal strength wastes and/or volume. Normal strength wastes are considered to be 210 mg/l BOD and 250 mg/l SS.

SURCHARGE RATE SCHEDULE FOR ABOVE NORMAL VOLUME OF WASTES

Residential users are considered to be one class of user and are hereby levied a charge of \$ 1.25 per month. Non-residential users with flows no greater than the average residential user's flow of 8,000 gallons per month and with BOD and SS no greater than the above residential users' strength will be levied the same charge of \$ 1.25 per month as the average residential user.

Non-residential users with volumes greater than the average residential user will pay an additional charge of 15.6 cents per 1,000 gallons per month for all flows greater than the average residential user's flow of 8,000 gallons per month.

SURCHARGE RATE SCHEDULE FOR ABOVE NORMAL STRENGTH WASTES

Any non-residential user with BOD and SS greater than the average residential user's strength will pay a surcharge in accordance with the rates determined by the City or its Engineer.

The City of Washburn, or its Engineer, may determine the suspended solids (SS) and 5-day biochemical oxygen demand (BOD) daily loadings for the average residential user and/or user class or in lieu of such a determination can consider the average residential strength wastes to be 210 mg/l BOD and 250 mg/l SS. The City of Washburn

will assess a surcharge rate for all non-residential users discharging wastes with BOD and SS strengths greater than the average residential user. The surcharge will be sufficient to cover the costs of treating such users' above normal strength wastes. Such users will pay an additional user charge of .6 cents per 1,000 gallons for each 25 mg/1 or fraction thereof over 210 mg/1 of BOD and .3 cents per 1,000 gallons for each 25 mg/1 or fraction thereof over 250 mg/1 SS.

SECTION 5. DETERMINING EACH USER'S WASTEWATER SERVICE CHARGE

Each non-residential user's wastewater cost contributions, as determined in Sections 3 and 4, shall be added together to determine such user's annual wastewater service charge. Residential users may be considered to be one class of user and an equitable service charge may be determined for each user based upon an estimate of the total wastewater contribution of this class of user. The governing body may classify industrial, commercial, and other non-residential establishments as a residential user, provided that the wastes from these establishments are equivalent to the wastes from the average residential user with respect to volume, Suspended Solids, and 5-day 20 degree centigrade Biochemical Oxygen Demand.

SECTION 6. PAYMENT OF THE USER'S WASTEWATER SERVICE CHARGE AND PENALTIES

The City may submit an annual statement to the user for the user's annual wastewater service charge or one-twelfth of the user's annual wastewater service charge may be included with the monthly water and/or wastewater utility billing. The City shall add a penalty of 10 percent per month if the payment is not received by the City within 10 days. Should any user fail to pay the user wastewater service charge and penalty within 3 months of the due date, the City may stop the wastewater service to the property.

SECTION 7. REVIEW OF EACH USER'S WASTEWATER SERVICE CHARGE

The City shall review the total annual cost of operation and maintenance as well as each user's Wastewater Contribution Percentage not less often than every two years, and will revise the system as necessary to assure equity of the service charge system established herein and to assure that sufficient funds are obtained to adequately operate and maintain the wastewater system. If a significant user, such as an industry, has completed in-plant modifications which would change that user's Wastewater Contribution Percentages, the user can present at a regularly scheduled meeting of the governing body such factual information and the City shall then determine if the user's Wastewater Contribution Percentages are to be changed. The City shall notify the user of its findings as soon as possible.

SECTION 8. NOTIFICATION

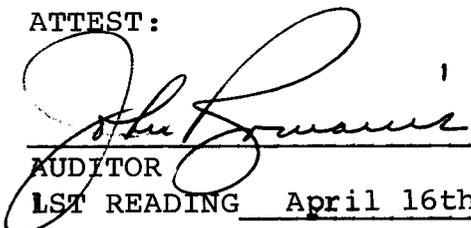
Each user will be notified, at least annually, in conjunction with a regular bill, of the rate and that portion of the user charges which are attributable to wastewater treatment services.

SECTION 9. WASTES PROHIBITED FROM BEING DISCHARGED TO THE WASTEWATER SYSTEM

The discharge of any waters containing toxic or poisonous solids, liquids or gases in sufficient quantity, either singly or by interaction with other wastes, to contaminate the sludge of any municipal systems, to injure or interfere with any wastewater treatment process, constitute a hazard to humans or animals, create a public nuisance, or create any hazard in or have an adverse effect on the waters receiving any discharge from the treatment works is hereby prohibited.

APPROVED:

ATTEST:



AUDITOR

LST READING April 16th, 1979

2ND READING May 21st, 1979

FINAL PASSAGE May 21st, 1979



PRESIDENT

CALCULATIONS AND METHODOLOGY USED FOR DETERMINING EQUITABLE SERVICE CHARGES TO BE LEVIED ON ALL USERS WHICH DISCHARGE WASTEWATER TO THE WASTEWATER SYSTEM OPERATED BY THE CITY OF WASHBURN, NORTH DAKOTA. THE PROCEDURE FOR DETERMINING THESE USER RATES BEING ESTABLISHED BY ORDINANCE NO. 103.

A. ESTIMATED ANNUAL OPERATION AND MAINTENANCE COSTS

| | |
|--|---------------|
| Administrative (billing, etc.) | |
| 658 Users X \$0.25/month X 12 months | \$1,974.00 |
| Labor (part-time) | |
| 260 manhours @ \$6.00/hr. | 1,560.00 |
| Electrical Power | |
| (communitor, aerator and lift station) | 3,300.00 |
| Sampling, monitoring, etc. | 300.00 |
| Equipment and materials | |
| (\$15,000 X 15%) | 2,250.00 |
| Contingencies | <u>861.00</u> |
| Total Estimated Annual Cost | \$10,245.00 |
| or Monthly Cost | 853.75 |

B. CURRENT AVERAGE FLOW PER RESIDENCE

69 gallons per capita per day, 30 days per month,
 3.865 persons per residence
 $69 \times 30 \times 3.865 = 8,000$ gallons per month = 1 unit = R

C. CURRENT FLOW FROM OTHER USERS

(Small commercial establishments whose wastes are equivalent to those of a residential user are classified with the residential users class.)

| | | | |
|-------------------|--------|---------------------|----|
| High School | 48,000 | gallons per month = | 6R |
| Elementary School | 16,000 | gallons per month = | 2R |
| Speed Wash | 64,000 | gallons per month = | 8R |
| Scott Wood Motel | 32,000 | gallons per month = | 4R |
| Grand Motel | 16,000 | gallons per month = | 2R |
| Court House | 32,000 | gallons per month = | 4R |
| Captain's Cabin | 24,000 | gallons per month = | 3R |
| Red Fox Cafe | 32,000 | gallons per month = | 4R |

D. PROPORTIONAL COSTS

| | | |
|-------------------|------------|-----------|
| Residential Users | 1R X 650 = | 650R |
| High School | 6R X 1 = | 6R |
| Elementary School | 2R X 1 = | 2R |
| Speed Wash | 8R X 1 = | 8R |
| Scott Wood Motel | 4R X 1 = | 4R |
| Grand Motel | 2R X 1 = | 2R |
| Court House | 4R X 1 = | 4R |
| Captain's Cabin | 3R X 1 = | 3R |
| Red Fox Cafe | 4R X 1 = | <u>4R</u> |
| Total | | 683R |

E. RATE SCHEDULE

\$10,245.00/year = \$853.75/month

\$853.75/month divided by 683R, therefore the monthly rate per R would be \$1.25 or

| | | |
|-------------------|-------|--------------|
| Residential Users | (650) | \$1.25/month |
| High School | (1) | 7.50/month |
| Elementary School | (1) | 2.50/month |
| Speed Wash | (1) | 10.00/month |
| Scott Wood Motel | (1) | 5.00/month |
| Grand Motel | (1) | 2.50/month |
| Court House | (1) | 5.00/month |
| Captain's Cabin | (1) | 3.75/month |
| Red Fox Cafe | (1) | 5.00/month |

F. BREAKDOWN OF ANNUAL REVENUE

| | | | | |
|-------------------|-----|---------|---|-------------|
| Residential Users | 650 | @\$1.25 | = | \$812.50 |
| High School | 1 | @ 7.50 | = | 7.50 |
| Elementary School | 1 | @ 2.50 | = | 2.50 |
| Speed Wash | 1 | @10.00 | = | 10.00 |
| Scott Wood Motel | 1 | @ 5.00 | = | 5.00 |
| Grand Motel | 1 | @ 2.50 | = | 2.50 |
| Court House | 1 | @ 5.00 | = | 5.00 |
| Captain's Cabin | 1 | @ 3.75 | = | 3.75 |
| Red Fox Cafe | 1 | @ 5.00 | = | <u>5.00</u> |

Total Monthly Revenue \$853.75

or Annual Revenue \$10,245.00

G. DETERMINATION OF THE BOD AND SS SURCHARGE RATE FOR ABOVE NORMAL STRENGTH WASTES

1R = \$1.25/month for treating 8,000 gallons/month = \$.156/1,000 gal./month

Estimated allocation of the costs for the operation and maintenance of the city's wastewater treatment works are as follows:

Q (flow) = 50% of the O&M costs
 BOD = 30% of the O&M costs
 SS = 20% of the O&M costs

The strength of the average residential users' wastes are:

BOD = 210 mg/l
 SS = 250 mg/l

1,000 gallons of such wastes would contain 1.75 pounds of BOD and 2.08 pounds of SS. The cost of treating 1,000 gallons of such wastes is 15.6 cents. The 15.6 cents is broken down as follows:

Q = 50% X 15.6 cents = 7.8 cents/1,000 gallons. (The 7.8 cent figure does not include the costs of treating the 1.75 pounds of BOD and 2.08 pounds of SS contained in the 1,000 gallons.)

BOD = 30% X 15.6 cents = 4.7 cents for treatment of the BOD (at 210 mg/l) contained in 1,000 gallons of the waste.

SS = 20% X 15.6 cents = 3.1 cents for treatment of the SS
(at 250 mg/l) contained in 1,000 gallons of the waste.

25 mg/l of BOD per 1,000 gallons is equivalent to 4.7 cents X $\frac{25 \text{ mg/l}}{210 \text{ mg/l}} =$
0.6 cents per 25 mg/l per 1,000 gallons.

25 mg/l of SS per 1,000 gallons is equivalent to 3.1 cents X $\frac{25 \text{ mg/l}}{250 \text{ mg/l}} =$
0.3 cents per 25 mg/l per 1,000 gallons.