(Published in the Russell County News on October 30, 2013)

ORDINANCE NO. B-537

AN ORDINANCE AMENDING ORDINANCE B-449 AS PASSED BY THE GOVERNING BODY OF THE CITY OF KANSAS ON MAY 21, 2001, BY AMENDING USER CHARGE RATES IN THE CITY OF VICTORIA, COUNTY OF ELLIS, STATE OF KANSAS, TO PROVIDE FUNDS NEEDED TO PAY FOR ALL EXPENSES ASSOCIATED WITH THE CITY'S WASTEWATER TREATMENT WORKS, AND BY AMENDING APPENDIXES "A" AND "B" TO ORDINANCE B-162.

BE IT ORDAINED BY THE GOVERNING BODY OF THE CITY OF VICTORIA, KANSAS:

<u>Section 1.</u> This Ordinance is to amend Article IV, Section 3 of Ordinance B-162 of the City of Victoria as follows:

Section 3 (reference is made to Amended Appendix "A" of Ordinance B-162). The minimum charge per month shall be \$4.93. In addition, each contributor shall pay a user charge rate for operation and maintenance including replacement and debt retirement of \$5.52 per 1,000 gallons of water as determined in Section 2 of Ordinance B-162.

<u>Section 2</u>. This Ordinance is to amend Article IV, Section 4 of Ordinance B-449 of the City of Victoria as follows:

Section 4 (reference is made to Amended Appendix "A" of Ordinance B-162). For those contributors who contribute wastewater, the strength of which is greater than normal domestic sewage, a surcharge in addition to the normal user charge will be collected. The surcharge for operation and maintenance including replacement and debt retirement shall be:

\$0.3805 per extra pound of BOD \$0.3805 per extra pound of SS

<u>Section 3</u>. All ordinances or parts of ordinances in conflict hereby are hereby repealed.

Section 4. This Ordinance shall take effect October 30, 2013, after its publication one time in the Russell County News, the official City newspaper.

PASSED by the Governing Body on the $21^{\frac{2}{2}}$ day of October, 2013.

Curtis B. Unrein - Mayor

ATTEST:

Mary Pferfer, Lity Clerk

AMENDED APPENDIX "A" TO USER CHARGE ORDINANCE NO. B-162 (Actual Use Rate Structure)

This appendix presents the methodology to be used in calculating user charge rates and surcharges, and illustrates the calculations followed in arriving at the year's user charges and surcharges. The unit costs established herein are based on estimates of expenses and loadings. The actual expenses and loadings that occur may differ from these estimates, and will certainly change as time passes. Therefore, the unit costs must be reestablished whenever necessary to reflect actual expenses and loadings. Once the treatment works are in use, actual expenses and loadings can be determined from operating records and user charges can be adjusted based on these figures of record.

1. Expenses: The total annual expenses associated with the treatment works (as defined in Article II, Section 8) are estimated as follows:

<u>Item</u>	Annual Expenses	
Billing and Collection	\$ 2,500,00	
Administration	\$ 2,500.00	
Power	\$ 4,300.00	
Labor (Including fringe benefits)	\$ 26,900.00	
Material Costs	\$ 4,000.00	
Replacement Costs (See Amended Appendix "B")	\$ 6,662.00	
Debt Service	\$ 76,977.00	
Other (Reserve)	\$ 2,538.00	
TOTAL ANNUAL EXPENSE	\$ 126,377.00	
TOTAL ANNUAL ADMINISTRATIVE EXPENSE	\$ 5,000.00	
TOTAL ANNUAL OMR&D* EXPENSE *operation, maintenance, replacement & debt service	\$ 121,377.00	
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2. Allocation of Expenses: The annual OMR&D (operation, maintenance, replacement and debt service) expense, which is the total annual expense minus the Administrative expense (billing, collection, and administrative), is allocated to the appropriate pollutants in the following manner:

Annual \$ to Treat Annual Flow:

= 80% of annual OMR&D expense

 $= 0.80 \times $121,377$

= \$97,101

Annual \$ to Treat Annual BOD:

= 10% of annual OMR&D expense

 $= 0.10 \times $121,377$

- \$12,138

Annual \$ to Treat Annual SS:

= 10% of annual OMR&D expense

 $= 0.10 \times $121,377$

= \$12,138

3. Loadings: The annual hydraulic loading is estimated to be 36,500,000 gal/year, based on an average flow rate of 100,000 gal/day recorded at the treatment plant. Based on billing records, customer contributions are estimated to be 30,600,000 gal/year, and the 5,900,000 gal/year difference is assumed to be I/I (infiltration/inflow).

The annual BOD loading is estimated to be 51,040 lbs/year, calculated as follows (I/I is clear water – no BOD or SS):

BOD lbs/year = wastewater flow x concentration of BOD

= 30,600,000 gal/year x 8.34 lbs/gal x (200 lbs BOD/1,000,000 lbs wastewater)*

*normal domestic sewage is assumed to contain 200 ppm of BOD

= 51,040 lbs/year

The annual SS loading is estimated to be 51,040 lbs/year, calculated in the same manner.

4. Unit Costs:

Unit Cost for Flow = (annual \$ to treat annual flow) / (estimated annual hydraulic loading)

= \$97,101 / 36,500,000 gal/year

= \$0.0026603 / gal / year

= \$2.6603 / 1,000 gal / year

Unit Cost for BOD = (annual \$ to treat annual BOD) / (estimated annual BOD loading)

= \$12,138 / 51,040 lbs / year

= \$0.2378 / lb/ year

Unit Cost for SS = (annual \$ to treat annual SS) / (estimated annual SS loading)

= \$12,138 / 51,040 lbs/ year

= \$0.2378 /lb / year

The unit costs for BOD and SS are to be inserted in Article IV, Section 4, of Ordinance B-162.

5. Minimum Charge:

Annual billing, collection and administrative expenses

\$ 5,000.00

Annual cost to treat infiltration /inflow:

(= unit cost to treat flow x annual I/I or

 $0.0026603 \times 5,900,000 \text{ gal/year}$

\$15,696.00

TOTAL Annual Minimum Cost

\$20,696.00

Number of Users

= 560

Total monthly charge to extra strength user =

Minimum Charge + User Flow Charge + BOD surcharge (if any) + SS surcharge (if any)

Where:

Minimum charge is calculated as in paragraph 5
User Flow Charge is calculated as in paragraph 6
BOD surcharge = (volume in 1000 gal) + (unit cost for BOD) \times (BOD_{ES} - BOD_{ND} \times (.00834)
SS surcharge = (volume in 1000 gal) \times (unit cost for SS) \times (SS_{ES} - SS_{ND}) \times (.00834)
unit cost for BOD is calculated as in paragraph 4
unit cost for SS is calculated as in paragraph 4

BOD_{ES} is the average BOD concentration in ppm (or mg/l) contributed by the extra strength user during the month

 SS_{ES} is the average SS concentration in ppm (or mg/l) contributed by the extra strength user during the month

 $\mathrm{BOD}_{\mathrm{ND}}$ & $\mathrm{SS}_{\mathrm{ND}}$ are the normal domestic strength defined in Article II, Section 2, of Ordinance B-162 and .00834 is a conversion factor.

An example user charge calculation for an extra strength user follows:

Assume: monthly meter reading of 20,000 gallons
BOD concentration of 300 ppm (or mg/l)
SS concentration of 400 ppm (or mg/l)

Minimum Charge:	\$ 3.08
User Flow Charge (\$3.45/1000 gal)	\$ 69.00
BOD Surcharge:	
(20) x ($$0.2378/lb$) x ($300-200$) x ($.00834$)	\$ 3.97
SS Surcharge:	
$(20) \times (\$0.2378/1b) \times (400 - 200) \times (.00834)$	\$ 7.93
Monthly Bill	\$83.98

This minimum charge per user per monthly billing period is to be inserted in Article IV, Section 3 of Ordinance B-162.

User Flow Charge: The residential user flow charge is calculated as follows using the pollutant concentrations for normal domestic wastewater defined in Article II. Section 2 of Ordinance B-162 (200 ppm or 200 mg/l for both BOD and SS):

unit flow charge

= \$2.6603/1000 gal

unit BOD charge = unit cost for BOD x (lbs BOD_{ND} /1000 gal)

 $= $0.2378/16 \times (200ppm \times 1000 \text{ gal } \times .00834 \text{ lbs}/1000 \text{ gal})$

= \$0.3967/1000 gal

unit SS charge

= unit cost for SS x (lbs SS_{ND} /1000 gal)

 $= $0.2378/lb \times (200 ppm \times 1000 gal \times .00834lbs/1000 gal)$

= \$0.3967/1000 gal

TOTAL User Flow Charge

= \$3.45/1000 gal

Where:

Unit flow charge is in \$/1000 gal from paragraph 4

Unit cost for BOD is in \$/lb from paragraph 4

Unit cost for SS is in \$/lb from paragraph 4

BOD_{ND} & SS_{ND} are the normal strength for domestic sewage defined in Article II, Section 2 of Ordinance B-162

and .00834 is a conversion factor.

This user flow charge is to be inserted in Article IV, Section 3, of Ordinance B-162.

An example residential charge calculation for a resident of the City of Victoria follows:

Assume: Average Monthly meter reading 5000 gallons

Standard Strength Wastewater (200 ppm BOD, 200 ppm SS)

Minimum Charge \$ 3.08 User Flow Charge \$17.25

(\$3.45/1000 gal)

Monthly Bill

\$20,33

Extra Strength User: For users who contribute wastewater that has greater strength than normal domestic wastewater (defined in Article II, Section 2 of Ordinance B-162 as 200 ppm or 200 mg/l for both BOD and SS), the user charge will be calculated as follows:

CALCULATION OF ANNUAL REPLACEMENT REVENUE

I.	Today's Replacement Cost	5 Years	10 Years	15 Years	20 Years
	Plant Pump Station Upgrade		-		\$30,000
	Chemical Injection System		\$5,000		\$ 5,000
	Town Lift Station Replacement				\$30,000
	Force Main Air Valves		\$4,000		\$ 4,000
	Lagoon Gate Valves	· · · · · · · · · · · · · · · · · · ·	·		\$ 4,500
		\$0.00	\$9,000	\$0.00	\$73,500
II.	Future Replacement Cost Interest Factor using 5% inflation	<u>5 Years</u> 1.276	10 Years 1.629	15 Years 2.079	20 Years 2.653
	\$0 (5 Year Equipment Cycle)	N/A	N/A	N/A	N/A
	\$9,000 (10 Year Equipment Cycle)	N/A	\$14,661	N/A	\$23,877
	\$0 (15 Year Equipment Cycle)	N/A	N/A	N/A	N/A
	\$73,500 (20 Year Equipment Cycle)	N/A	N/A	N/A	\$194,996
Ш.	Annual Replacement Revenue Need	ed:			
	Future Replacement Costs:	\$0.00	\$14,661	\$0.00	\$218,873
	SFF-10 years/6%: (.07587)x(\$14,66) = \$1,112	1)	<u>-14.661</u> \$ 0.00		<u>-14,661</u> \$204,212
	SFF-20 years/6%: (.02718)x(\$204,2) = \$5,550	12)			<u>-204,212</u> \$0.00

Total Annual Replacement Revenue to be Collected = \$1,112 + \$5,550 = \$6,662