

# Industrial Surcharge Program Update

## ISSUE

Over the past 10 years, ammonia concentrations at the Wastewater Treatment Plant (WWTP) influent have increased by more than 65%, see Appendix 1.

The Water Security Agency (WSA), the provincial regulator for wastewater, has indicated that more stringent discharge limits for ammonia, a component of Total Kjeldahl Nitrogen (TKN), will be introduced soon. TKN is a standard measure of the total nitrogen content in wastewater in the form of ammonia. The imposition of stricter limits is intended to safeguard the South Saskatchewan River and its surrounding environment. Current ammonia limits in the WWTP Permit to Operate (PTO) are 17 mg/L from October 1<sup>st</sup> to June 30<sup>th</sup> and 6 mg/L from July 1<sup>st</sup> to September 30<sup>th</sup>. The Administration anticipates the new limit to be below 6 mg/L year-round. The monitoring of TKN is important for the WWTP because TKN is the standard measure in industry as it catches the full range of ammonia molecules.

The Administration hired a consultant in 2024, to perform a river study. This report confirmed that TKN and other parameters are exceeding Environmental Discharge Objectives and Environmental Quality Objectives levels, although the PTO requirements are still being achieved. These findings highlight growing regulatory and environmental concerns, as well as the need for proactive compliance measures before limits are set by the WSA.

The City of Saskatoon's (City) current commercial and industrial surcharge program, as established under *Bylaw No. 9466, The Sewer Use Bylaw, 2017* ("Bylaw"), does not include TKN in its surcharge formula. While TKN is listed as a restricted substance in the Bylaw, with a limit of 100 mg/L, no surcharge mechanism currently applies. This results in industries not paying an industrial surcharge when they exceed the limit in the Bylaw.

An update to the surcharge program is required to:

1. Ensure the City can achieve compliance with forthcoming regulatory limits on ammonia; and
2. Establish an equitable cost-recovery framework, ensuring that the additional costs associated with high ammonia loading from industrial sources are appropriately allocated and not borne by all rate payers.

## BACKGROUND

### History

The Bylaw came into effect on January 1, 2018, to provide for the regulation and use of the City's sanitary sewer system. The Bylaw regulates use of the public sewage works through source control management and establishes a framework for levying and

collecting charges. Source control management is a preventative approach that restricts or limits harmful substances from entering the sanitary sewer system at their source. It is far more effective to prevent pollutants from entering the system than to attempt removal once they are in the wastewater stream. This approach safeguards public health, protects infrastructure, reduces treatment costs, provides industry with more control and ownership over their costs compared to being charged by the surcharge program, and helps ensure protection of the environment.

### Current Status

In 2024, the Administration undertook an influent characterization study to better understand the characteristics of wastewater entering the WWTP and to inform future planning. The study was initiated in response to observed operational challenges and anticipation of regulatory changes. By analyzing influent conditions, the Administration was able to identify trends, assess treatment risks, and provide data to guide future WWTP upgrades.

The study involved sampling wastewater at the WWTP, as well as industrial users included in the City's surcharge program. The analysis focused on key parameters monitored under our Permit to Operate, including Biological Oxygen Demand (BOD), Total Phosphorus (TP), Total Suspended Solids (TSS), and Ammonia (NH<sub>3</sub>). Results showed that since 2013, ammonia concentrations in the influent have increased substantially. Data from on-going sampling of the six industries, currently on the City's industrial surcharge program, shows that two facilities exceed the 100 mg/L threshold. Current data suggests that implementing a TKN limit of 50 mg/L and surcharge would affect a limited number of users while helping meet more stringent upcoming regulations.

After the study, the Administration completed direct engagement with industrial stakeholders to communicate the study results, raise awareness of the issue, and encourage collaboration in reducing discharges. The stakeholders were generally receptive and willing to work with the City.

In addition to proactively meeting regulatory requirements, these efforts are critical as the treatment of ammonia in wastewater has a significant operating cost. Current costs are carried by all ratepayers; therefore, this initiative will ensure costs of treatment are allocated appropriately.

### Public Engagement

The Administration has several source control initiatives aimed at better managing industrial contributions to influent loading of the WWTP. These efforts include the implementation of an industrial sampling program, regular meetings with industry representatives, and ongoing communication. These efforts help the Administration to gain a clearer understanding of the wastewater characteristics from the various industries, provide appropriate support to reduce pollutant concentrations, and foster strong relationships.

### Current Approach

The City's industrial surcharge program currently includes: Biochemical Oxygen Demand (BOD), Total Phosphorus (TP), Oil and Grease (O&G), and Total Suspended Solids (TSS). The intent of the surcharge program is for industries to manage and reduce pollutant discharge temporarily until they develop and implement effective pollution prevention or a pre-treatment facility. There are six industries that are part of the surcharge program and pay a yearly volumetric charge (per cubic meter) and an additional monthly surcharge using the formula described in the Bylaw. While TKN is listed as a restricted substance in the Bylaw and has a limit of 100 mg/L, there is currently no surcharge applied to industries discharging above the allowable limit.

### Approaches in Other Jurisdictions

A municipal scan of 13 major Canadian cities revealed that all currently include TKN limits in their sewer use bylaws and eight of those charge a surcharge for exceedance, while three additional municipalities are planning to incorporate TKN surcharge into their bylaws in the near future. Appendix 2, Municipal Scan Results, provides a list of these municipalities, their current or planned limits, and whether they apply surcharge fees for TKN exceedances. Among the municipalities surveyed, TKN limits range between 50 and 100 mg/L.

### Rate Calculation

The TKN surcharge rate provided in the Financial Implications of this report was developed using the current City methodology for rate calculation of the surcharge parameters. The proposed TKN rate uses only 2025 industrial TKN data. Unlike other surcharge parameters, which are based on a three-year industrial loading average, this rate reflects only one year of data and therefore carries greater uncertainty. As additional data is collected and analyzed, the rate will be refined to more accurately reflect treatment costs associated with high TKN wastewater coming into the WWTP and align with how rates for other parameters are currently calculated. The Administration is also reviewing and evaluating the current methodology and researching alternative rate methodologies, to establish a more accurate and equitable rate-setting approach for all system users. The Administration will report back on the methodology and a final recommended rate in 2027.

## **OPTIONS**

Several implementation options were considered to determine the most effective approach for recommending incorporating TKN into the City's surcharge program and reducing the limit. Each option reflects a different balance between regulatory compliance, industry adaptability, administrative complexity, and environmental benefits.

The intent of evaluating these options is to ensure the City adopts a strategy that supports compliance with Permit to Operate requirements, promotes fair cost recovery, and provides industries with a reasonable transition period to adapt to new requirements. The following outlines the three options identified through this review:

**Option 1 (Maintain Status Quo)**

- Under this option, TKN will remain excluded from the surcharge program. This approach could result in continued high influent concentrations, leading to potential permit exceedances, increased treatment and capital costs, and ultimately higher rates for all customers.

**Option 2 (Maintain Current Limit (100 mg/L) and Implement Rate in 2028)**

- This option would retain the existing TKN limit of 100 mg/L while introducing a surcharge rate effective January 2028. It provides industries with an almost two-year transition period before the full rate takes effect but does not address the long-term need to reduce TKN loadings entering the treatment system. Source control efforts by industry would be expected to be limited to 100 mg/L. However, in order to meet the anticipated lower limits from WSA, increased treatment capacity will be required at the WWTP. This results in high strength emitters of TKN in wastewater having the treatment costs for their effluent subsidized by other ratepayers.

**Option 3 Reduce Limit to 50 mg/L and Implement Rate in 2028**

- This option would establish a new TKN limit of 50 mg/L effective Q1 2026, with the surcharge rate coming into effect in January 2028. It provides industries with an almost two-year adjustment period to implement operational improvements or pre-treatment measures to meet the new limit. It also sets a limit that incentivizes industries to implement source control measures to bring their effluent strength down to levels that are typical of the average industrial wastewater rate payer.

**RECOMMENDATION**

That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

1. That the Administration be directed to implement Option 3;
2. That the Administration report back during the 2028-2029 budget deliberation process to set appropriate rates; and
3. That the City Solicitor be directed to amend Bylaw No. 9466 The Sewer Use Bylaw, 2017 to reduce the acceptable limit of TKN to 50 mg/L.

**RATIONALE**

The proposed options were compared to each other based on the following values:

- Helping the City meet anticipated WSA Permit requirements for ammonia discharge.
- Ensuring that industries contributing high ammonia loads bear a fair share of the increased treatment costs.
- Alignment with the Canadian Council of Ministers of the Environment recommended TKN limit of 50 mg/L. Appendix 3 provides additional rationale for recommending a TKN limit reduction from 100 to 50 mg/L.
- Providing industries time to adjust operational processes or implement pre-treatment solutions rather than requiring immediate changes.

## Industrial Surcharge Program Update

- Offers financial predictability by giving the time to industries to plan and invest with greater confidence.
- Presenting a clear business choice: industries can pay for treatment through surcharges or reduce their TKN concentrations through their own efforts.
- Supporting a fair and transparent framework that encourages shared responsibility between the City and industrial users.

### ADDITIONAL IMPLICATIONS/CONSIDERATIONS

It is anticipated that a commercial surcharge rate increase, which City Council may approve for 2028, may impact the overall cost to the industries if they do not reduce the TKN discharge concentration by January 1, 2028. Industries that implement appropriate pre-treatment may be able to lower their TKN discharge concentration, thereby either reducing the amount they would have paid in surcharge or avoid any financial impact if their influent TKN concentration remains within the thresholds stipulated under the Bylaw.

### COMMUNICATION ACTIVITIES

If City Council approves the recommendation, a communication strategy for industrial users will be developed. The Administration will outline the nature of the surcharge, the rationale for its introduction, and the criteria for its application. The Administration will also provide educational resources on alternative disposal methods, best practices for reducing TKN levels, and potential cost-saving strategies to help industries minimize financial impacts.

### FINANCIAL IMPLICATIONS

The estimated financial impacts analysis for the current six industries in the industrial surcharge program, of each option, are presented in Appendix 4 and summarized below. In the table, 2028 shows two scenarios, one where the rate is derived from TKN limit of 100mg/L and one from TKN limit of 50mg/L, 10.0¢/m<sup>3</sup>, 9.9 ¢/m<sup>3</sup>, respectively. The financial impact on industries presented below are an estimate based on the current rate methodology and are subject to change when the Administration reports back in 2027.

Description		2026/2027	2028
<b>Option 1</b> - No Changes to TKN Limit or TKN rate	TKN Limit	100 mg/L	100 mg/L
	TKN Rate (¢/m <sup>3</sup> )	0	0
	Forecasted Increase in Surcharge Cost	\$0	\$0
<b>Option 2</b> - No limit change, Rate Addition in 2028	TKN Limit	100 mg/L	100 mg/L
	TKN Rate (¢/m <sup>3</sup> )	0	10.0
	Forecasted Increase in Surcharge Cost	\$0.0	\$72,000
<b>Option 3</b> - Limit Change and Rate Addition in 2028	TKN Limit	50 mg/L	50 mg/L
	TKN Rate (¢/m <sup>3</sup> )	0	9.9
	Forecasted Increase in Surcharge Cost	\$0.0	\$189,000

## Industrial Surcharge Program Update

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- The cost for the WWTP Lab to secure accreditation for TKN testing is \$25,000, which includes external testing costs during the transition period.
- The financial estimates provided here are based on the available historical flow and discharge data. This may change in 2027, depending on the parameters used in calculating the new rate. Total flow and concentration of TKN from industries may also be affected by the new limit. A follow-up report will be presented to City Council to consolidate a final surcharge rate for TKN in 2027.
- TKN treatment cost in the past four-years has increased, as presented in the table below. The cost is currently paid by all rate payers.

Year	Operation Cost
2021	\$410,000
2022	\$485,000
2023	\$641,000
2024	\$726,000

### NEXT STEPS

If City Council approves either Option 2 or Option 3, the Administration will be communicating with industries in February 2026. It will be done in collaboration with multiple departments and will outline the reasons for the changes, potential impacts, and explore options for providing guidance and support to help industries reduce TKN levels within the two-year transition period before the new surcharge takes effect.

Concurrently, Saskatoon Water will continue to work with Sustainability on their bylaw review project, which includes a review of Bylaw No. 9466. This effort will identify opportunities to strengthen source control, enhance compliance tools, and establish a framework for ongoing collaboration with industries, to promote long-term environmental performance.

### APPENDICES

1. Ammonia Concentrations in Wastewater Treatment Plant Influent (2013-2024)
2. Municipal Scan Results
3. Evaluation of TKN Limit Reduction from 100 to 50 mg/L
4. Financial Analysis of TKN Inclusion to Surcharge Program

### Report Approval

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