

**Attachment 4 – Letter to Randall Meades, Director General,
Public and Resources Sectors Directorate, Environment Canada,
from Joseph P. Pennachetti, City Manager, and Lou Di Gironimo,
General Manager, Toronto Water, dated May 19, 2010**



Joseph P. Pennachetti
City Manager

City Hall
11th Floor, East Tower
100 Queen Street West
Toronto, Ontario M5H 2N2

Tel: 416-392-3551
Fax: 416-392-1827
jpennac@toronto.ca
www.toronto.ca

May 19, 2010

Randall Meades
Director General
Public and Resources Sectors Directorate
Environment Canada
351 Saint-Joseph Boulevard, 13th Floor
Gatineau, Quebec K1A 0H3

Dear Mr. Meades:

**Re: Comments on Draft Wastewater Systems Effluent Regulations
Canada Gazette Vol. 144, No. 12 - March 20, 2010**

The City of Toronto appreciates this opportunity to comment on the Draft Wastewater Systems Effluent Regulations published March 20th.

We wholeheartedly support the objective of the draft regulations to improve the protection of the environment and public health. However, we have some serious concerns about the feasibility of some aspects of the proposed standards and their implementation. The two most significant are presented first. The first is related to acute lethality and un-ionized ammonia requirements; the second relates to the regulations' requirements for partial treatment bypasses.

Acute Lethality & Un-ionized Ammonia

The draft regulation contains a less stringent end-of-pipe requirement for un-ionized ammonia than envisioned in the CCME guidelines (1.25 mg/L as N at 15°C). However, the regulation will require that the undiluted effluent not be acutely lethal.

Toronto recently undertook some limited acute lethality testing. Although the results are encouraging, they are inconclusive in terms of whether Toronto plants could meet the requirement for no acute lethality year-round. We are concerned that acute lethality could be an issue, whether due to the presence of un-ionized ammonia or another yet unknown parameter.

The proposed regulation allows for only two types of authorizations:

- A **Transitional Authorization** can only be applied for if the annual average CBOD or TSS exceeds 25 mg/L in the year preceding the application. This will obviously not apply for Toronto and other municipalities with secondary treatment facilities
- A **Temporary Authorization** can only be applied for if:

- o End-of-pipe limit for un-ionized ammonia is not met,
- o Any acute lethality is due only to the presence of ammonia, and
- o The concentration of un-ionized ammonia at any point 100 m from the *Point of Entry* is equal to or less than 0.016 mg/L (as N), determined according to the formula provided in Section 29(1)(c). This must be true at four sample points, all 100 m from the *Point of Entry*.

The conditions on these transitional and temporary authorizations are such that they will be unavailable for many Canadian facilities. Here are some examples of types of facilities that will be unable to obtain relief from immediate (i.e. within two years) compliance with effluent standards:

Type 1

- CBOD & TSS limits are met
- Un-ionized ammonia limit is **not** met
- 100 m mixing zone limit is not met

Type 2

- CBOD & TSS limits are met
- Un-ionized ammonia is met, but nevertheless effluent is acutely lethal due to un-ionized ammonia

Type 3

- CBOD & TSS limits are met
- Un-ionized ammonia is met, but effluent is acutely lethal due to a parameter other than un-ionized ammonia

Type 1 facilities may be numerous. Because the proposed 100 m mixing zone limit for un-ionized ammonia (0.016 mg/L as N at 15°C) is much more stringent than the end-of-pipe limit (1.25 mg/L as N at 15°C), it is unlikely that any but the smallest plants who do not meet the end-of-pipe limit will meet the mixing zone limit.

Any facilities falling into the categories above are expected to initiate, fund, design and construct upgrades to their facility within two years of the regulation coming into force. Even if unlimited funding were somehow made immediately available for this purpose, constructing facility upgrades within two years would be an impossible endeavour for Toronto. A small trial project for nitrification is underway at our largest facility. This pilot trial is expected to cost \$8 Million, has been undergoing preliminary and detail design for the past three years, and will take a year to construct. In our previous comments on the CCME Strategy in 2008, we noted that upgrades to all of our plants for nitrification was expected to cost a half billion dollars. We still believe this to be a realistic estimate. If the upgrades were required within a limited timeframe, this cost estimate would be significantly higher. We would like to repeat our earlier comment on the Strategy that it appears that Toronto's cost for compliance has not been included in Environment Canada's estimate of the implementation costs for the draft regulation.

Partial Treatment Bypass Regulation

Like many wastewater treatment plants in Canada, Toronto's facilities accept wastewater from combined sewers. During wet weather events, influent flows to our plants sometimes peak to five times our average daily flow. Were we to allow these flows to pass through our secondary treatment process, our population of microorganisms would be washed out and we would temporarily lose our capacity for secondary treatment, degrading our final effluent quality for a period of days or weeks while the microorganism population regenerated. For this reason, our Certificates of Approval limit flows which can be introduced to secondary treatment. At times when plant flows significantly exceed our secondary treatment capacity, we are required to

bypass secondary treatment and discharge chlorinated primary effluent to receiving waters. This chlorinated "bypass flow" is blended back in with secondary system effluent so it can be discharged offshore via the outfall diffusers.

These primary treatment bypasses are reported as spills to the Ontario Ministry of the Environment. Frequency varies widely from year to year based on weather, but on a wet year an average of two bypass events a month is not unheard of. Bypass flows are not considered part of final effluent for the purpose of effluent compliance, and final effluent sampling stations are located upstream of the point where bypass flows are blended into secondary effluent flows.

The City has been working for years to improve the quality of secondary treatment bypasses. This is being done through wet weather treatment initiatives including Chemically Enhanced Primary Treatment, split flow treatment and more long term plans for potential high rate treatment units. The treatment objective that has been adopted for bypass flow quality is based on guidance from the Ontario Ministry of the Environment. MOE Guideline F5-5 calls for 50% removal of total suspended solids and 30% removal of CBOD.

The draft Wastewater Systems Effluent Regulation does not explicitly address partial treatment bypasses. However, final effluent sampling points under the regulation must be located at a point "...beyond which the Owner no longer exercises control over the quality of the wastewater before its deposit as effluent..." This would most likely be interpreted to mean a point downstream of where secondary bypass flows are blended with secondary effluent.

The approach the draft regulation appears to take is to regulate blended effluent according to one final effluent standard. This would be a paradigm shift in Ontario and would be a departure from the direction the Ontario government has so far taken with respect to this issue.

We recognize that secondary treatment bypasses are an undesirable legacy of the combined sewer systems we have inherited, and we support the concept of reducing and treating these discharges. But it is impractical at this time to provide equivalent treatment for our average flows and our peak flows. Imposing a common standard on blended effluent may mean that many secondary treatment plants will be unable to consistently meet the new standards proposed for un-ionized ammonia, acute lethality and even TSS and CBOD. This aspect of the regulation is unreasonable in its current form and requires further discussion and consultation.

Combined Sewer Overflows

The draft regulations are confusing with respect to regulating CSO's. Our interpretation is that these draft regulations contain no requirements for CSO control or treatment. Mention of CSO's in the regulation appears to be limited to a requirement to indicate their location, and a condition for obtaining a Transitional Authorization (if the CSO's score worse than the treatment plant in the regulation's scoring system, the plant is given more time to comply with the effluent regulations but the Owner must provide a plan to eliminate CSO's in addition to plans to modify the treatment plant).

The definition for "overflow points" for Section 16 (1) (f) should be clarified, i.e., whether the overflow points refer to location of all regulators/spillovers or the location of outfall points. If "overflow points" refer to location of combined sewer outfalls, requirements for Section 16 (1) (f) (i) can be accomplished. However, if "overflow points" refer to location of all internal regulators/spillovers and overflow outfalls, this information is not currently available and the City will require additional time to identify the locations of all the regulators/spillovers. In addition, it is not clear what specific information is required for Section 16 (1) (f) (ii) which stipulates "indication of the geophysical characteristics, and any use that is made, of the water or place where effluent is deposited via

the overflow point". Is it referring to those listed under Item #3 of Schedule 4? The specific information required for geophysical characteristics and use should be clarified.

Flow Metering

The draft regulation states that Owners must measure "the rate of flow of effluent at the final discharge point". This is an issue since all of our plants currently have regulated influent monitoring, and to implement and maintain accurate effluent monitoring would require a significant expenditure. The regulation should be changed to allow influent monitoring as well as effluent monitoring. Since the reportable piece of information is the daily total plant flow, influent and effluent flows should be equally acceptable.

Conditions on Transitional Authorizations

For owners who are granted transitional authorizations, monthly averages (for TSS and CBOD) and monthly maximum concentrations for un-ionized ammonia for the duration of the authorization can never exceed the maximum month over the one year preceding the application. This is an unnecessarily stringent requirement. If exceedances were due to partial treatment bypass events, they could be highly variable from year to year. The effect of this requirement will be to encourage plants to produce as poor quality effluent as possible during the year preceding the application, since poor results in that year will provide more leeway in future years.

Regular Sampling Provisions

The draft regulation requires that any final effluent sample taken for any reason be analyzed for CBOD, TSS and un-ionized ammonia, to "provide added certainty". Although the specified sampling frequency is only three times per week, Toronto plants would continue with the daily sampling required under plant Certificates of Approval and un-ionized ammonia would have to be added to regular daily analyses. While analyzing regular daily samples for all regulated parameters seems reasonable, the requirement for any final effluent sample is unreasonable and should be changed. Under the current wording, any final effluent sample taken for other purposes (e.g. special studies, plant optimization, pre-design) would have to be analyzed for the regulatory parameters. This would be redundant and unnecessarily costly.

Acute Lethality Coming into Effect

It is unclear in the regulation when the requirement for "no acute lethality" comes into effect. Environment Canada staff have noted in telephone correspondence that this is already law under the Fisheries Act and so is already in effect. However, the regulation should clarify when this requirement comes into force.

Un-ionized Ammonia Analysis

The calculation of un-ionized ammonia according to the CCME draft regulation is a cause for concern. The draft regulations stipulate that a pH reading is to be taken on an aliquot of the sample to be analyzed for ammonia, after adjusting the sample to 15 ± 1 C. This indicates a separate (on-site) accredited pH test, performed daily. An accredited pH test should be done within 24 hours due to changes that can occur to the pH value: this represents a substantial workload and cost issue for our labs. We propose that the draft regulation be changed to accept the PWQO procedure of determining un-ionized ammonia. This will eliminate the need for daily pH testing of a portion of each total ammonia sample at 15 ± 1 °C and the need for an accredited pH test for these samples. Verification records of on-line temperature and pH meters should be used in lieu of an accredited pH test.

Total Chlorine Residual Analysis

The proposed requirement is for the "average concentration of total residual chlorine in the effluent not to exceed 0.02 mg/L". There is no indication how this is to be monitored (frequency, on-line monitor vs. titration of grab sample, etc.).

Minor Corrections

- 22(i)- "highest number of points" should be "applicable number of points"
- 22(r)(iv)- clause is unreadable and should be re-written.

Funding

The City of Toronto is committed to addressing the impacts of non-point sources as a way to significantly improve environmental conditions in local receiving waters, through the implementation of our Wet Weather Flow Master Plan which is estimated at \$1 billion. Upgrades to our facilities to meet acute lethality requirements would effectively redirect funds from our broader program to achieve environmental improvements. The proposed weighting system for CSO's in the draft regulation appears to be an attempt to address this concern, but is an overly simplistic assessment and is only available for facilities which do not meet annual averages for CBOS and TSS.

From a municipal perspective, the main problem with the proposed regulations is that they appear to have been developed largely as a theoretical exercise, characterized by underestimated implementation costs and hypothetical funding strategies. The reality is that these regulations, if implemented without due consideration to appropriate funding mechanisms, will add billions to an already unmanageable national infrastructure backlog.

A 2007 Federation of Canadian Municipalities (FCM) study set the national municipal infrastructure deficit at \$123 billion. The study also probed deeper, revealing "sub-deficits" in various classes of infrastructure, with water and wastewater systems needing \$31 billion, even before these new regulations.

The cost estimates provided in the Regulatory Impact Analysis Statement (RIAS) suggest that upgrading to meet the regulations would cost approximately \$6 billion. This appears to be a gross underestimation of real costs. Recent media reports suggest that, taken together, just a handful of projects in communities across the country will surpass that amount. Yet, Minister Prentice's March 19 announcement of the regulations did not include any new cost-sharing program or plan to assist municipalities and property taxpayers. On the contrary, the minister suggested that the federal government would be supporting upgrades through its existing Green Infrastructure Fund and Building Canada Fund. However, heavy draws have been made on both to pay for infrastructure projects as part of the government's Economic Action Plan. Both funds are now virtually fully committed. So where will the money come from to upgrade thousands of municipal wastewater systems? Unless a new funding mechanism is developed, the answer is: from the pockets of our property taxpayers.

We also have concerns about the capacity (human resources of owners & consultants, construction industry, etc.) to meet the requirements of the regulations within the proposed timelines. The level of activity within this industry remains high and skilled resources are scarce at all levels. Competition for the limited skilled resources, equipment and raw materials will drive up both capital and operating costs. This will put an additional burden on municipalities with limited capital resources.

Conclusion

Despite seven years of discussion by the Canadian Council of Ministers of the Environment, and another three years of study by Environment Canada, the proposed regulations fail to address fundamental issues. They severely underestimate the true cost of upgrading wastewater systems to meet the new standards, and contain no cost-shared funding strategy. There are also important questions to answer about the technical requirements of the regulations. As we suggested previously, we recommend pilot implementation of certain parts of the

regulations at select plants of various sizes prior to full-scale applicability. Pilot implementation might clarify some of the requirements and alleviate some of municipalities' concerns with respect to feasibility.

While we understand the normal Canada Gazette process, it is important to note that the 60-day comment period has not allowed for a complete discussion of these issues or the development of any intergovernmental strategy to address them.

We urge the Minister of the Environment to develop an appropriate cost-sharing plan to support implementation of these regulations in a manner that doesn't unfairly shift the full burden to property taxpayers; and that, as a first step, he commit to consult and work in partnership with municipalities to establish a thorough and objective estimation of the front-line costs of meeting the regulations and to resolve outstanding technical and implementation issues. It seems clear that the full financial implications of the Strategy have not been fully assessed. Timelines must also be more realistic in order to allow all municipalities, regardless of their size and resources, to reasonably and economically meet the requirements.

Thank you for the opportunity to voice our concerns on the draft regulations.

Sincerely,


Joseph P. Pennachetti
City Manager


Lou Di Gironimo
General Manager, Toronto Water

cc. Kara Parisien, Canadian Wastewater Association

