

**Comments of the Canadian Water and Wastewater Association
on the
CCME Canada-wide Strategy for the Management of Municipal
Wastewater Effluent
and the
Proposed Regulatory Framework for Wastewater**

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Summary

The Canadian Water and Wastewater Association is pleased to see the evolution of the Strategy and that some of CWWA's earlier comments have been taken into account in the revised version.

We still have a number of issues that need to be addressed before we would feel confident that the strategy and regulatory framework will be effective and achieve their goals. The key issues include the need:

- to allow variation from the National Performance Standards and timelines where the results of environmental risk assessments indicate no observable negative effects;
- to clarify the starting date – is it from the time the Ministers signatures come into effect or when the federal regulations come into force?
- for the strategy to remain flexible and that greater emphasis should be placed on the outcomes of the first five-year period;
- for the timelines not to be fixed in law until after the outcomes of the first five-year period have been assessed;
- to assess the availability of human resources and their impact on the timelines – CWWA believes that this has been overlooked – the current shortage;
- for regulatory agencies in the jurisdictions to streamline their approvals processes to ensure timelines can be met – currently these process are a hinderance to timely completion of projects;
- for the strategy to treat municipalities as an equal partner in the process in many respects, and not simply an entity to be regulated;
- source control activities to be supported or legislated at senior levels of government and initiate on an urgent basis given the timelines for regulatory development at senior levels of government;
- to harmonize the Strategy with the EC Regulatory Framework, in particular to the timelines;
- to plan on greater nation-wide standardization and approaches – at the moment there still leaves too many areas to the discretion of the individual jurisdictions;
- for the biosolids initiative to get underway quickly, and depending on the outcome, to consider amendments to the wastewater strategy to ensure these two aspects of wastewater management are synchronized;
- for the stormwater aspects to be resolved quickly, and depending on the outcome, to consider amendments to the wastewater strategy to ensure these two aspects of wastewater management are synchronized;
- consider the impact of implementing the strategy on areas outside wastewater as such, there are environmental footprint issues (for example, increased energy consumption) that have not been considered – a holistic approach is still missing in the analysis to indicate that there are net environmental benefits to be obtained;
- to reconsider the issue of mixing zones which CWWA feel are too small and the discussion of them in the Strategy is confusing;

1. Introduction

The Canadian Water and Wastewater Association (CWWA) thanks CCME for the opportunity to comment once again on the proposed *Canada-wide Strategy for the Management of Municipal Wastewater Effluent* (the Strategy). We are pleased to see the Development Committee has made some additions to the Strategy, which respond to CWWA's recommendations, along with those of others.

Regardless of this submission, we have not had time to fully evaluate all of the technical details of the strategy, which will play an important role in the outcomes for municipalities and the successful outcome of the Strategy. Also, we are concerned that no concrete program to bring the recommendations into reality is included in either document. There are many issues that would benefit, if not require, coordination of federal, provincial and municipal governments if the proposed national strategy is to be a success. Many practical details remain unresolved in the Strategy and CWWA expects that years of work, likely a permanent ongoing effort will be required to properly manage municipal wastewater in Canada. Such refinements will help maintain the current support of our municipal membership and lead to increased cost effectiveness.

We have also had some practical feedback, which has caused us to modify our positions from those submitted in March of 2007 somewhat. Comments herein represent a combination of proposals with respect to the Strategy and Environment Canada's *Proposed Regulatory Framework for Wastewater, Consultation Document* (the Regulatory Framework).

This submission also includes some appendices:

Appendix A is a compilation of technical comments on the strategy or the proposed federal regulatory framework.

Appendix B comprises some suggestions for conditions that should be included in the inter-jurisdiction agreements.

Appendix C contains some notes for possible ongoing actions as the Strategy evolves or is implement.

2. National Performance Standards

The CWWA supports the NPS as proposed, but still feel that an environmental risk assessment (ERA) for the NPS substances should influence implementation, particular for municipalities who will see the largest impacts from the Strategy. We acknowledge that the points assigned to the Receiving Environment in Table 4 of the Proposed Regulatory Framework will partially address this matter. However, we propose that ERAs should be considered in adjusting the level of risk, in particular with respect to the

timeline for achieving the NPS. When studies conclusively show that there are no significant effects on the receiving environment, we feel that this could be considered in extending the time available for a respective municipality to achieve the standards. This applies to both the CBOD and TSS timelines as well as timelines related to toxicity due to ammonia and total reduced chlorine. The degree of extension would be related to economic impacts of all changes required, and would include consideration of the priority of reducing impacts from CSOs. Nevertheless, the end objective of all municipalities achieving the standards within a set timeline should stand.

3. Implementation and Timelines

We had suggested in our previous submission that it may be possible for all municipalities to achieve the NPS in a fifteen-year time frame. After considering a number of concerns about capacity to engage suitable consulting expertise, construction services, laboratory services, and qualified staff to operate facilities, it now seems to be more realistic to have a staged timeline such as that suggested in the 30-year scenario of Table 3 in the Regulatory Framework, with some key modifications.

There is some confusion about the relative roles of the Strategy, once endorsed by Ministers, cf. the Regulatory Framework. With regard to the timelines in particular, is the starting point the date of endorsement of the Strategy by the Ministers, or the date the Fisheries Act regulation comes into force.

Fundamental to the timelines element are the different “start times” for the Strategy, as defined by endorsement by Ministers, vs. the Regulatory Framework, as defined by the date the Regulation comes into force. This seems to have caused some inconsistency between the timing of similar actions in the two initiatives. We have contacted Environment Canada about this and await a reply.

Our proposals reflect the fact that our review to date has uncovered a number of technical difficulties with the Strategy that need to be addressed, and some, which we feel, may not be fully realised before implementation plans are actually developed (see Appendix A). As such, we propose that considerably more emphasis be placed on the 5-year review described in Table 1 of the Strategy and that assessment also be used to determine whether revisions are needed to the Fisheries Act Regulation, as well as the Strategy.

We suggest that there be no legal requirements in the initial Regulation beyond those suggested for the first years. We also suggest that additional information be collected and assessed in the first 5 years to assist in determining the implementation actions which will best achieve the ultimate goal of minimising wastewater impacts on the receiving aquatic environment. We feel this will actually lead to a quicker comprehensive response to a broader range of issues related to municipal wastewater, but still within a 30-year timeline.

For example, EDOs have been removed from the Strategy timeline and will be left up to jurisdictions. We do not believe this serves municipalities’ ultimate responsibilities well.

It is expected that the toxicity process as related to ammonia and ERAs for some substances, nutrients and pathogens in particular, will identify additional treatment requirements for municipalities. It is best to know up front what all the issues are because of the long life of municipal wastewater infrastructure.

Thus, CWWA suggests that the implementation timelines related to design and implementation of infrastructure and/or programs not be fixed as legal requirements until a more comprehensive assessment has been conducted during the first five years. This review will include actions from the Strategy and some additional elements. Examples of actions can be found in Appendix C under the topics “Assessment and sharing of ‘initial characterisation’ and ERA data” and the sub-category to that task, “Full cost analysis”. In particular, the inclusion of a full cost analysis is important in determining the true affordability of the Strategy; however, as indicated in point two this would only be considered in the timing of an action within a maximum time limit of 30 years.

There is also a need to clarify the definition of “new” facilities. The NPS are to apply to new facilities immediately. CWWA would regard this to apply only facilities for which design and tendering process has not been commenced prior to the regulation coming into effect.

We suggest the implementation timelines not be set within the Regulation until the 5-year assessment is completed. However, we recognise the value of outlining an ultimate timeline for the Strategy. We propose the following timeline:

- 0-5 years: initial characterisation of effluent, ERAs conducted and EDOs calculated based on mass balance method and default mixing zone
- By end of 6th year: set timelines for implementation
- 6-16 years: high risk facilities meet NPS
- 13-23 years: medium risk facilities meet NPS
- 20-30 years: low risk facilities meet NPS (all facilities meet NPS within 30 years)

We agree CSO priority should be considered in the timelines as described in the Strategy.

4. Human Resource Capacity

As indicated in point 3, concerns have arisen about the ability to engage suitable consulting expertise, construction services, and qualified staff to operate facilities. We feel the staggered timeline will help to even out the consulting and construction conflicts, but there already is a shortage of qualified wastewater operators and professionals and it is felt this area will need a concerted effort to properly staff and operate wastewater treatment plants and programs.

We also suggest that there will be human resource issues related to incomplete tasks identified in Appendix 3.

5. Approval Processes

We also suggest that the existing approvals processes and requirements need to be reviewed because of the impacts they could have on the Strategy timelines. In addition, approval processes and requirements among different jurisdictions and departments within jurisdictions must be harmonised.

6. Costs and Funding

Regardless of the statement that biosolids have been included in the current estimates, CWWA feels the estimates of capital costs are low. Also, it is acknowledged that costs related to CSOs have not been included. Additionally, operating costs can be greater than amortised capital costs and cannot be ignored. Full costs are expected to be much greater than the figures stated and could affect public and political acceptability, and implementation timelines. As such, proposals have been included herein to include full cost estimates in the initial review period and be included in the 5-year assessment to better determine the cost-benefits to assist in qualifying the risk ratings of facilities.

The CWWA recognises that some grants may be required to make quick gains in achieving the NPS, and feels the federal government should facilitate the prioritisation of wastewater projects in the existing funding options as present in Technical Supplement 1. A dedicated grant program would clearly demonstrate the level of importance assigned to the Strategy. However, the CWWA believes that ultimately municipal wastewater treatment should be sustainably funded based on full cost recovery within respective municipalities, perhaps with some allowance for the lesser economies of scale smaller municipalities must face.

7. Roles and Responsibilities

We do not feel that the responsibilities of provinces, territories and the federal government have been adequately defined. We feel a co-operative effort among all jurisdictions is key to the success of the Strategy and is essential to achieve the standards in the most cost effective way for all. We do not believe that municipalities have been recognised as equal partners who wish to contribute to the success of the Strategy.

A number of tasks have been left to the discretion of jurisdictions in the Strategy which we still feel would be best addressed through a national effort, providing greater uniformity in the application of the national standards across Canada.

There a number of substances of concern that cannot be treated or are only partially treated or partitioned into biosolids by secondary wastewater processes. While substances discharged by ICI customers could be the subject of source control under a municipal sewer use by-law, the ideal solution would be enforcement of regulations at a higher jurisdiction based upon nationally developed sector-specific standards.

Substances of concern that originate in residential discharges are beyond the reasonable control of municipalities and must be controlled at a higher jurisdictional level, likely at the national level using instruments under CEPA which require reformulation of commercial products.

8. Harmonisation

It is unclear what the relative roles of the Strategy and the Regulatory Framework play in defining actions required of municipalities and technical standards like those for mixing zones. There are important differences in some cases.

There is also some concern that ERAs and other actions are being left up to municipalities. This seems inconsistent with a national program and may mean that the considerable technical detail in this document will have to be reviewed yet again at the jurisdictional level, reducing substantially the value of the effort that has been put into this to date.

There is concern that enforcement of the Fisheries Act, until such time as the Regulation comes into force and Environment Canada has started to implement their portion of the Strategy, could still potentially be an issue for municipalities and First Nations, federal house, and federal departments. There needs to be a mechanism in place to coordinate enforcement with the evolution of the Strategy.

9. Municipal Authority

We also feel that CCME must take a much stronger stand on providing municipalities with the authority necessary for the source control role they must play to achieve the goals. It is insufficient for the Strategy to simply make a recommendation for a review of municipal authorities. This should be a condition of implementing the Strategy and might be achieved by making it a requirement of bi-lateral federal-provincial and federal-territorial agreements. More detail is provided in Appendix B.

10. Model Sewer Use By-law – Reduction at Source

The model sewer use by-law will be a critical tool for municipalities. However, it is felt the present version needs considerable work before it is released generally. Major concerns include that there are some provisions in the by-law for which the rationale is still not clear. The most significant is that the limits for some restricted substances have been lowered substantially vs. values typically found in current by-laws. It is felt that these limits in the current model should be revised to more conventional values, but an initiative be launched to review industry, commercial and institutional (ICI) best management practices and best practicable technologies for pre-treatment (BPTs) and engage respective industrial sectors to arrive at suitable implementation timelines for sector-based limits and/or a general reduction in by-law limits wherever possible. It is also felt the administrative requirements need some work.

There are a number of other details in the model by-law, which are worthy of closer consideration.

It is suggested that major concerns could be addressed prior to the Regulation coming into force, so that the 5-year assessment can consider impacts of by-law enforcement. CWWA would be pleased to assist in this. Further refinements of the model would be undertaken as part of a national ongoing effort to better management municipal wastewater (see point 16).

11. Liability of Municipalities

The CWWA welcomes the creation of a Fisheries Act Regulation, which clarifies what deleterious means in the context of the capabilities, and lack thereof, of municipal wastewater treatment.

However, as acknowledged by the ERA process in the Strategy and statements regarding “emerging substances”, there are numerous substances beyond those addressed in the regulation that may be of issue in municipal wastewater effluents. It is felt this leaves municipalities with liability for these other substances and does not recognise that municipalities are not the generators of these wastes, but rather involved in trying to control or treat them. With regard to control, municipalities will never be able to have more than a deterrent effect because of the extremely high number of entry points into a municipal wastewater system. When a deleterious substance is found in an effluent and a municipality is being duly diligent, any legal action should be taken against the discharger. A municipality should not be held responsible for clandestine discharges or societal (e.g., personal care products) or conventional systemic matters (e.g., copper leaching from water pipes).

CWWA recommends that the application of the proposed Fisheries Act Regulation be expanded to cover any person who discharges a deleterious substance into a municipal sewer system which causes the wastewater treatment plant to be out of compliance in regard to any statutes which apply to it.

It is suggested that an effluent not be deleterious provided it is meeting NPS in the timelines defined as stated above and it is also meeting or has action plans underway to meet EDOs.

It is also suggested that a municipality not be vulnerable to lawsuits initiated under CEPA or the Fisheries Act for substances that have not been specifically identified as a substance of concern in municipal wastewater and for which a plan for control has been developed under processes outlined in the Strategy.

We also suggest that information reported as a result of the initial characterisation, in support of the 5-year assessment process, and to monitor progress toward achieving the

goals of the Strategy not be eligible as a basis for prosecution, except in instance of negligence on the part of a municipality.

Having said this, CWWA municipal members commit to addressing such concerns under an ongoing national effort to continuously improve the management of municipal wastewater, described in section 8, below.

12. Watershed ERAs

Provinces/territories must require participation of all parties discharging to watershed when a watershed ERA is warranted by surface water background levels at or above EQOs,

CWWA laments the fact that the strategy still ignores the issue of non-point source pollution.

13. Biosolids

The CWWA is pleased with the apparent recognition that biosolids require urgent policy development, but request a clearer commitment from CCME that biosolids (not solids and residuals) will be addressed through them in a timely fashion, rather than leave it to each individual jurisdiction.

CWWA expects that, as the issue of biosolids is addressed by CCME, it must be possible to revise the Strategy so that the two major elements of wastewater management are optimised and harmonised.

14. Stormwater

A growing body of information continues to indicate that non-point sources of urban runoff can contribute significant loadings of pollutants. Thus, as with biosolids, the CWWA recommends a strong commitment to action on this topic to begin immediately. While it seems that biosolids may be the next focus of CCME efforts, the stormwater effort should not wait for the biosolids effort to be completed, but should be run in parallel.

CWWA expects that, as the issue of stormwater is addressed by CCME, it must be possible to revise the Strategy so that this major element impacting surface water quality is optimised and harmonised with wastewater management.

15. Holistic Approach

The CWWA is concerned that insufficient attention has been applied to recognising and incorporating external environmental impacts of the Strategy: e.g., impacts on greenhouse gas creation and the total environmental footprint.

16. Ongoing National Effort

The CWWA has identified a number of tasks above, and listed in Appendix C, which must be pursued if the Strategy is to achieve its ultimate goal of better management of municipal wastewater. There are also initiatives which have been delegated under the Strategy to the provinces and territories, which CWWA feels would be better addressed at a national level.

The Strategy and Regulatory Framework have made three references to national bodies for ongoing efforts:

- an “independent national wastewater research co-ordination committee” from Strategy (Table 1, p 11),
- a “national municipal wastewater effluent management committee” proposed in Technical Supplement 1, and
- a “Canadian wastewater research body or wastewater task group” proposed in the Regulatory Framework.

Of the possibilities above, the CWWA strongly supports the recommendation in Technical Supplement 1 for the national municipal wastewater management committee. It is suggested this body be comprised of significant stakeholders including, but not limited to:

- key government departments,
- jurisdictional representatives from the three levels of government,
- one or more representatives of ENGOs and First Nations,
- the wastewater consulting sector, and
- the academic research community.

It is suggested this body could co-ordinate the tasks listed in Appendix C, among others, and would receive reports and provide guidance to any research body(ies) that may be created. This body could also be assigned the task of monitoring and reporting on the progress of implementation of the strategy.

The CWWA sees an ongoing effort as critical to the success of the Strategy and would like to play an integral role in such a body. We will offer further explanation on the actions below, but would need more time to so.

It is felt to this effort is beyond the capabilities of a volunteer effort and will need funding for dedicated human resources and administrative support.

17. Arctic and Northern Regions, and First Nations

The research time frame outlined in the Strategy seems too optimistic.

The Strategy contains a suggestion to ensure that aboriginal traditional knowledge is worked into the ERA process in the north. This is true for the whole of the country where

discharges may impact on aboriginal traditional uses. Also, regional municipalities may be willing to share expertise with First Nations.

18. CSOs and SSOs

The Strategy states on p 55 of TS 2 that there should be, “no increase in CSO frequency due to development or redevelopment.” This is in conflict with current sustainable developments practices for land use of existing urban centres undergoing intensification. Other options are available under a holistic approach to ensure that impacts do not increase such as infiltration control and sewer separation in tributary areas.

19. Mixing Zones

There is a general feeling that the default mixing zone is too small. It is expected this will create considerable variability in mixing zone size because, as stated in section 5.3 of TS-3, “The mixing zone may be set by regulators.”

Discussion of mixing zones in the Strategy is confusing. Different levels of discussion in different sections would seem to imply different levels of flexibility in setting a mixing zone. Important technical details are not always included in the others, which could lead to omission of important evaluation criteria by municipalities. The statement in TS 2 that mixing zones may vary with flow also confuses the issue. It is suggested the discussion of mixing zones be restricted to one section and other sections referring it with minimal discussion to avoid misinterpretation. With respect to the ammonia as described in the Regulatory Framework, the definition of the mixing zone must be flexible enough to address the options available for dry ditch discharges. The mixing zone must be applied at the point where the dry ditch enters natural receiving waters. This flexibility is shown in the Strategy, but is not clearly stated.

20. ERAs

The additive effects of margins of safety arising from using surface water quality guidelines as EQOs and the restricted size of a mixing zone (e.g., based on 1/3 of flow at 7Q10) may result in overly conservative EDOs.

21. Climate Change

Predictions of climate change indicate impacts will be greatest on the arctic in the northern hemisphere. Thus, we suggest it is critical to include consider climate change when defining and developing plans for the Arctic.

Similarly, there could be impacts on CSOS and capacity design standards based on return flow periods as more intense weather events are predicted.

A policy on the future impacts should be established to assist municipalities in their long term planning.

22. Total Reduced Chlorine

CWWA has consistently pointed out that there are technical difficulties with measuring chlorine residuals at the level of 0.02 mg/L yet the proposed regulation persists in using this level as the reference point. We still understand there are problems with obtaining accurate measurements at the regulatory level of 0.02 mg/L TRC. Amperometry or potentiometry is recommended and stated to have a detection limit of 0.01 mg/L. Good practice dictates you should use a method with a detection limit an order of magnitude below your level of detection. The stated methods for TRC would be prone to false positives.

In addition, CWWA has previously pointed out that there are circumstances that occasionally arise in operations necessary to protect public health (e.g., flushing of repaired water distribution lines) or to assure the successful operation of a treatment plant (control of filamentous bacteria) where chlorine must be used, that will result in occasional spikes in chlorine residuals above the proposed level. These operational needs must be allowed. An analogous example is that police and emergency vehicles are allowed under pursuit or emergency conditions to exceed speed limits and other traffic controls such as red lights – these provisions are stated in the regulations.

23. Toxicity

With regard to the toxicity process outlined in the Regulatory Framework, the timelines are overly idealistic. Toxicity testing is inexact and still has an element of research related to it when applied to a complex matrix like municipal wastewater. In the instance of a toxic response to the whole effluent toxicity test which is not related to ammonia, the toxicity identification evaluation can be very complex with results pointing only to general categories of compounds or perhaps with no clear indication if synergistic effects are in play. The 60 day timeline should be extended to six months and the timeline for correcting cause(s) be flexible with an explanation required in the six month report should it be expected to require longer than two years. There should also be a mechanism to extend these timelines further in a complex situation, but it would be reasonable to require annual reporting on progress. In any event, timelines triggered by acute toxicity test failures should be relative to the municipality receiving the test results from the testing laboratory.

Also, toxicity events may be transient. A second or subsequent sample may not have the same characteristics as the sample that triggered the toxic response. It is suggested that for follow up testing triggered by a toxic response the sample size be sufficient that there is enough in excess of the volume required for a toxicity test that a TIE can be performed once toxicity has been confirmed. Provisions must be made to preserve the sample, probably by simple refrigeration at 4°C until the TIE can be commenced, which should be as soon after toxicity is confirmed as possible. Once identified, it can also be a very complex process to determine the source of the toxin(s) because of the great number of

entry points into a wastewater collection system and possible multiple sources of the toxin(s).

Appendix A: Technical Comments

<p>The upper range for small systems to be changed to 5000 m3 to be consistent with CEPA threshold for ammonia and chlorinated effluents. Presumably a goal of the Strategy and a national standard in general is harmonisation among jurisdictions. Surely this should also be done among different federal regulations. This discrepancy could similarly be removed by changing the CEPA thresholds.</p>
<p>Eliminate population for sizing of municipal facilities. Base just on flow.</p>
<p>It would seem the criteria in Step 5-7 of TS 3 should follow Step 5-8. You have to determine the size of you mixing zone to determine whether the criteria in 5-7 will impinge upon it.</p>
<p>The "5% of dry weather flow" criterion for the proportion of industrial input, some guidance in how to determine this would be valuable</p>
<p>On page 7 the federal government is regulating Total Residual Chlorine to 0.02 mg/L. There are problems with accurately monitoring sewage effluent down to this point and there is little certainty of the results near the detection limits for drinking water let alone sewage effluent. Charges under Canadian Law have to have proof beyond a reasonable doubt and this limit would not pass this test in my opinion. In the CCME strategy they identify a limit of 0.05 mg/L.</p>
<p>On page 11, the Risk points for "Open Marine" are the minimum of 5. Why would the risk points not be the same as for Lakes at 20? The risk factor for open Marine looks ludicrous compared to the lakes factor and should be revised to 20.</p>
<p>The Strategy, as it is written, deals specifically with wastewater treatment and leaves collection more or less out of the picture and where it is mentioned is of a minor nature.</p>
<p>The strategy does not seem to address systems which do not officially have Combined Sewers (CSs) but which essentially act as combined systems due to high I/I.</p>
<p>On page 14, Control of Sanitary sewer overflows may take longer than the 5 years allocated due to the modeling and data collection required for existing old sewage lines. Municipalities will not want to make changes for storage in sewer lines if this would result in basement flooding and so monitoring and modeling maybe more extensive. It is suggested the time frame be extended to 8 years.</p>
<p>Combined and Sanitary Sewer Overflows – Emergencies and Extreme Weather CSOs/SSOs are often triggered by emergencies, such as extreme weather events. We suggest an Emergency Management Clause, that applies to all related aspects of the guidelines, including:</p> <ul style="list-style-type: none"> • Definition of criteria under which emergency conditions can be invoked • Proof of operator due diligence • Immediate notification to regulators • Suspension of performance standards during the emergency • Response activities to restore normal operation
<p>Some utilities are concerned about the casual comments regarding stormwater from highly urbanized areas and the suggestion to reconsider separation of combined sewers in this context. This sentence should be removed given the benefits of sewer separation in eliminating wastewater currently entering the receiving environment via the combined sewer overflows. Stormwater management is best addressed by stormwater source control to improve quality and reduce quantity of run-off.</p>
<p>The proposed minimum compliance monitoring frequencies for TSS and CBOD is daily for very large plants (with a footnote that says 5-7 days per week). This is excessive even at 5 days per week since large plants rarely see a significant change in influent characteristics or plant performance on a daily basis even with major storm events. Some utility's experience has shown that sampling every other day is more than sufficient to obtain representative data. The period for calculating periodic averages has been relaxed to a monthly average, which is reasonable.</p>
<p>Daily analysis of CBOD5 and TSS for very large plants would have a large and costly impact on laboratory operations. Since these would be compliance samples, the analyses would need to be completed in an accredited lab. We suggest that 4 times per week is more than sufficient and</p>

<p>this allows for a make-up day if one sample is missed or lost, etc.</p>
<p>The initiatives toward reduction at source or "source control" may have implications upon resources allocated towards upstream monitoring, collection systems and specific customer discharge monitoring. However, these requirements may well be offsetting by the benefit they provide to the efficiency of the plants operation as well as mitigating the concerns for our biosolids disposal options.</p>
<p>Would like to see provision requiring that all municipalities that discharge to a treatment facility be required to implement effective source control measures regardless of whether they own the facility or not. Perhaps the definition of facility owner should include all municipal jurisdictions that contribute wastewater volumes to a treatment facility. There need to be a provision addressing cross-jurisdictional transfer of wastewater</p>
<p>Mandatory reporting should be limited to Permit to Operate criteria. Additional data may, and certainly will, be made available to the public, but the mandatory requirement to report all analyses is one that may put the City in violation merely because the magnitude of the samples and their related analysis. This relates to the uncertainty of the scope of the requirements of upstream, collection system and point source sampling.</p>
<p>The manner in which biosolids has (not) been dealt with in the strategy is very confusing. The strategy claims that costs for biosolids management are included in the economic plan (presumably based solely on projections of increased quantities, which itself has uncertainty), but then acknowledges that biosolids quality will likely change and does not present the potential effect on costs due to those changes.</p> <p>In Technical Supplement 1, the strategy stresses that the preferred approach for controlling the majority of substances is source control, but recognizes that for specific harmful substances treatment is the only viable option for reducing levels in effluent. Treatment is likely to result in increased levels of contamination of biosolids referred to in Technical Supplement 2, Section 6, and may in fact preclude land application of biosolids. Disposal and energy recovery options, which also have quality criteria, may also be compromised. Monitoring and sampling costs will also increase in order to characterize the biosolids and ensure protection of the environment. (Note the costs for all (not just biosolids) monitoring – listed in the order of \$70,000 - are likely understated if monitoring is to include sampling for persistent organic contaminants.)</p>
<p>A mixing zone will not be allowed for toxic, persistent and bioaccumulative substances, but only a few examples have been provided in various locations throughout the Strategy. These substances must be defined for the purposes of EDO determination.</p>
<p>Step 5-7 in TS 3 states, "Changes to the nutrient status of the water body as a result of an effluent discharge should be avoided; eutrophication or the presence of toxic blooms of algae are unacceptable impacts." However is nutrient status to be determined? Can you provide a reference to the technical criteria for different eutrophic states and what defines a toxic algae bloom. We do not believe there are CCME standards for nutrients in surface water.</p>
<p>Would the application of the nutrient status and aesthetic quality criteria in Step 5-7 of TS 3 be limited to a mixing zone?</p>
<p>The requirement for analyses to be performed by an <u>Accredited</u> lab should be replaced by a requirement for <u>demonstrated proficiency</u>. Resources spent on achieving accreditation and carrying out lab work consistent with accreditation would be far more productively allocated towards other activities, including more manpower and equipment for carrying out more comprehensive sampling programs</p>
<p>At the end of TS2-1.1, the ultimate timeline for a "long-term goal" to achieve EDOs is unclear. Is it the 30 years? Suggested that something should be specified.</p>
<p>TS2-3.2.2: Some qualification of the sentence of paragraph 2 in TS2-3.2.2 is required, "For all approaches, at no time should an EQO be established that will result in degradation of water quality." Existing treatment systems that meet and will continue to meet NPS concentration limits may increase loadings of pollutants as flows increase due to population growth. This arguably will always lead to some degradation of water quality, but this may not be unacceptable provided in-stream concentrations remain below protective levels. The statement as it is could be taken to mean that in-stream concentration below guidelines or site-specific objectives would have to be</p>

<p>frozen at current levels. Similarly, statements in TS2-3.2.2 Biological EQOs indicate somewhat impractically that, "Whenever impacts are observed, even though EDOs are being achieved, an ERA should be undertaken to establish new EDOs that will better protect the receiving environment." These statements should be made relative to conditions that are deemed to have "unacceptable impacts" rather than relative to overly idealistic reference locations. Having said that, rest of the discussions in these two sections do refer to unacceptable impacts</p>
<p>Part B, Section 2.1 of the Strategy dealing with Governance states that, "As part of this approach, regulatory requirements for source controls (sewer use bylaw and other instruments) and releases to surface waters (National Performance Standards, Effluent Discharge Objectives) will be harmonized." Will this not be difficult if, as stated in Part B, Section 1.3, "Jurisdictions will manage their own Effluent Discharge Objectives"?</p>
<p>TS2-3.3.2: "Accumulation of toxic substances in sediment to toxic levels should not occur in the mixing zone." This and all the points in TS2-3.3.2 will have to be considered in detail and some guidance will be needed because some of these matters are not well defined. (e.g., is this only with respect to substances for which there are sediment guidelines?)</p>
<p>TS2-Figure 8: It is not clear from looking at TS2-Figure 8 on its own that the focus is setting EDOs using a watershed approach. Suggest that the caption for the figure be changed to reflect this. Suggest that "when the assimilative capacity of the receiving water has been reached" be included as a bullet in the "When best to use:" box in Figure 8. This should also be a bullet in TS2-4.3, and could be used more generally than just when "one MWWE discharge ... has not dissipated before the next water intake". I.e., watershed management is broader than just consideration of MWWE.</p>
<p>TS2-5.2.1: A point of note: dechlorination substances are often oxygen scavengers. Excessive levels may have adverse effects on DO levels in receiving waters.</p>
<p>Merge reporting with NPRI, as has been done with other provincial programs.</p>
<p>With regards to the table on page 37 - There should also be a note limiting the pathogen analysis to the disinfection period of the facility. There is no use in collecting pathogen data for periods when disinfection is not being done. Testing for "Very Large" facilities should be weekly for CBOD, TSS, pathogens and nutrients. The regulators have years of data for these parameters in databases. Weekly data would provide 52 results that could be reviewed statistically. It is recommended that facilities that have supplied this data to the regulators be exempted from this monitoring requirement and "Very large" facilities that have not done so in the past be required to monitor weekly.</p>
<p>On page 40 it states, "Toxicity test samples must be collected at the end-of-pipe as either composite samples or as grab samples. Samples must be taken at least three weeks apart for monthly testing and at least two months apart for quarterly testing." In the past toxicity testing has been done on grab samples. If composite samples are being taken they will have to be extended for more than one day to accommodate the volume required. In the strategy it has been suggested that sampling for all parameters be done over the same period and this could then extend to four days if composite samples are required. This may also have an impact on the chemical parameters since they will have to be sampled over the same four-day period. If 50 L of sample were required this would require sampling for 2.5 days and then the samples could be biased for a portion of the day. It is recommended that whole effluent sampling be done as a grab sample due to the size of samples required.</p>
<p>On page 11, Table 3.3 starts the quarterly monitoring in the fourth quarter of the year. Since budgets are approved for a calendar year, the monitoring should start in the first quarter of the year. The notification of monitoring requirements should consider the duration required to get the money in the municipal budgets.</p>
<p>There is an inconsistency between TS3 Tables 2.1 and 2.2. The group names and composition differ a bit from those used in Table 3-4. For example, "Nutrients" in Table 3-4, which applies to facilities of all sizes, includes TKN according to the footnote, but is not included in either Tables 2.1 or 2.2. Suggest you just standardise the grouping names and composition. Then footnote 2 is not included.</p>
<p>Re: the model bylaw, TS4: Definition of Uncontaminated Water refers to "Schedule C - Limits for Storm Sewer Discharge of this bylaw", which does not exist.</p>

<p>Re: the model bylaw, TS4: There are still complete prohibitions of substances in any amount: e.g., Schedule A, (3)(k) for pesticides. This is not practical.</p>
<p>Metals should be measured as filtered and not total. It is the dissolved portion that causes issues with fish and biota. Adding acid to a sample to preserve it (especially with high suspended solids) will leach out metals that would not occur in the natural environment.</p>
<p>Figure 1-2, Effluent Monitoring & Risk Assessment Decision Making (TS 3, p. 7): Why are there dashed arrows pointing to the box for “Environmental Monitoring”? In particular, why should there be any outgoing arrow from the box for Receiving Environment, if the receiving environment is considered protected when the effluent discharge is achieving its EDOs?</p>
<p>National Performance Standard for TRC & Apparent Inconsistencies in the Numerical Standard for TRC (Strategy Document, TS 2 & TS 3): The draft document cites a maximum value of 0.02 mg/L for TRC based on a periodic average, while elsewhere in the document a different value (0.05 mg/L) for TRC is implied (see TS 2, Section 5.2.1, p.39). Which one of these values is the correct one?</p>
<p>Clarification of Monitoring Frequencies for Substances Requiring Daily Monitoring at Facilities Classified as Very Large (TS 3, Table 4, P37): Under the column heading “CBOD5, TSS, Pathogens & Nutrients” the corresponding sampling frequency for a very large facility is listed as daily (5-7 day/week). Does this mean monitoring 5 times per week for some of the substances, and 7 times per week for the remaining substances? Please clarify.</p>
<p>Clarification of Appendix A, Sample Preservation & Storage (TS 3, pp 42-50):</p> <ol style="list-style-type: none"> Generally, the table showing sample preservation and storage conditions needs to be streamlined and standardized to follow convention practiced by recognized authorities such as Environment Canada, USEPA and Standard Methods (APHA, AWWA, WEF) for the examination of wastewater. Consider adding a new column that specifies the type of sample, grab or composite, to be collected for the determination of a given substance. Entry under the column heading “Field QC” does not seem to be consistent for all substances. Duplicate samples are required for most substances, but not for all of them. For example, ‘n/a’ (not applicable?) is shown for certain substances: CBOD, PCBs/OCs/CBs, acid/base neutrals/PAHs/, and VOCs. Why are there field QC requirements for some substances, but not for others? An appropriate column footnote needs to be added to explain that the field QC requirements are on a laboratory sample batch basis, since without such a footnote it would suggest that every sample would need a corresponding duplicate for analysis. The aforementioned comments would also apply to the field QC requirement for an Optional Travel Blank. If it is optional, why even list it? Either it is needed or not. Under column headings “Precautions / Notes” for the substances Fluoride and Nitrate+Nitrite, an odd note appears: if more than 5% organic solvent is present use a glass or Teflon container. This precautionary note is listed for a few substances, but not all of them. If this is a real concern, why not list it for all parameters? More importantly, such a composition of solvent would not be representative of the quality of municipal wastewater effluent. So why would this note appear in a MWWE document? It is far too confusing to list five different temperature conditions during sample collection: $5 \pm 4^{\circ}\text{C}$; $2^{\circ}\text{-}10^{\circ}\text{C}$; $4 \pm 3^{\circ}\text{C}$; $<10^{\circ}\text{C}$; and $5 \pm 3^{\circ}\text{C}$. As well, these temperature conditions do not follow convention outlined by the USEPA or Standard Methods (APHA, AWWA, WEF). Need to streamline instructions for temperature storage conditions; for example, why not simply say ‘keep all samples cold (4°C), but avoid freezing unless otherwise instructed’. It is incorrect to show “Nitrate + Nitrite” as having no storage conditions (i.e., n/a), as refrigeration is required for nutrients. Holding times would also vary depending whether or not a chemical preservation was used. The holding time for metals is shown as 60 days, while convention by the USEPA and Standard Methods is six months. The holding time (7 days) for phosphorus is far too long if no chemical preservation is used. Without chemical preservation, samples should be analyzed within 48 hours. If chemical preservation is used, the sample holding time can be 28 days.

- i. The holding time for Total Suspended Solids is shown as 14 days, while convention by USEPA and Standard Methods is 7 days.
- j. The holding time for cBOD is shown as 7 days, while convention by Standard Methods is as soon as possible or a maximum holding time of 48 hours.
- k. The holding time for COD is shown as 4 days, while convention by Standard Methods is as soon as possible for an unpreserved sample. For preserved samples, a longer storage time (28 days) would be available.
- l. For cyanide the holding time for preserved but un-refrigerated samples is listed as 7 days, while convention by Standard Methods is 14 days AND samples should be refrigerated.
- m. The holding time for pH is listed as 4 days, while convention by Standard Methods considers pH to be an immediate analysis (i.e., within 15 minutes).
- n. No chemical preservations are listed for VOCs (other than for sodium thiosulphate is residual chlorine is present). However, convention by Standard Methods requires some type of chemical preservation (e.g., CuSO₄, H₂SO₄) depending on the substances of interest. For volatile substances, the storage temperature (<10°C) is very unconventional.
- o. Dioxins and Furans as well as Total Kjeldahl Nitrogen (TKN) is listed in Appendix A, but reference to these substances does not appear elsewhere in the draft document (i.e., not included in the List of Substances of Potential Concern for MWWE). As well, no chemical preservative is listed for TKN in Appendix A, but convention by Standard Methods requires addition of acid and refrigeration is also recommended. The conventional holding time for preserved samples is 28 days, rather than 7 days.
- p. The preservation method listed for mercury is an old one that is generally not practiced today.
- q. The storage conditions for Phenolic Compounds should include refrigeration.
- r. The holding time for Total Residual Chlorine is listed as less than one hour, while convention by Standard Methods is as soon as possible (within 15 minutes).
- s. The holding time for Arsenic is listed as 30 days, but no distinction is made by Standard Methods for arsenic. Arsenic is treated as a general metal with a holding time of 6 months.

Clarification of Appendix B, Analytical Requirements (TS 3, pp 51-60):

- a. Generally the levels for method detection limits shown for the substances listed in Appendix B are obtainable for municipal wastewater samples, with a few notable exceptions: cBOD, Cyanide, Phenolics (colorimetric method), residual chlorine and E. coli. The MDL levels for these exception substances are too stringent for a wastewater matrix; rather the detection limit levels are primarily used for the analysis of potable water.
- b. The membrane filtration method for E. coli may not be feasible for all types of treated effluent, particularly disinfected primary-treated effluent. It would not be possible to filter 100 mL of primary effluent using a membrane filter. The number of media that would work for E. coli in sewage is limited. So it would be useful to allow alternate procedures for E. coli, such as MPN-defined substrates.
- c. The method principle for Total Suspended Solids requires the use of an analytical balance having 10 micrograms readability or better. Allowance should be given for analytical balances with 0.1 milligram readability when used in conjunction with large volume sample processing. Further, the 10 microgram readability balances require special balance rooms with controlled environmental conditions, while the 0.1 milligram readability balances do not. In a wastewater treatment plant setting, it would be easier to work with the 0.1 milligram readability balances, rather than the 10 microgram ones.
- d. The target list of metals for monitoring has expanded from the traditional list of metals of environmental concern. Are all of the new metals listed in the draft CCME document of environmental concern (e.g., titanium)?
- e. Under the column heading "Performance", all references to Table C should read Table B. As well, the table that would correspond to Table C-5 for dioxins and furans is missing from Appendix B.
- f. The method detection limit (MDL) for cBOD is listed as 2 mg/L. This is not a realistic MDL for wastewater as the only way this is technically possible is with full strength sample

<p>(i.e., no dilution).</p> <p>g. The principle method and method detection limit level (0.1 mg/L) for mercury appear to be out of date.</p> <p>h. The method detection limit (0.01 mg/L) for Total Residual Chlorine is not a practical detection limit for this highly reactive substance in a wastewater sample matrix.</p>
<p>Agree that each municipality should adopt and implement a sewer use bylaw that addresses their specific needs. Based on Metro some utility's experience in developing, implementing and reviewing its Sewer Use Bylaw, the following comments are intended to help CCME and other municipalities in their bylaw development process.</p>
<p>Very poor discussion of Waste Discharge Permits in the Model Sewer Use Bylaw</p> <ul style="list-style-type: none"> • The only reference to Permits is in Module 1 which is for primarily residential communities • There is no reference in Module 2 • The only reference is that industrial dischargers must obtain "Form 3 – Waste Discharge Permit" • There is much more discussion on Codes of Practice and Pollution Prevention Planning than the use of Permits • Therefore, need to improve the discussion of Permits (when to use them)
<p>The format of splitting it into modules makes it very difficult to use and follow</p> <ul style="list-style-type: none"> • It would be easier to use if the Model Bylaw was one coherent document that would include all scenarios but would have comments on specific sections of the document that will help the municipality to choose the sections that best represent their needs <p>The document feels like it is made up of sections "cut-and-pasted" from other documents</p>
<p>Section 2 of the document is quite confusing with respect to "industrial/commercial/institutional" (ICI) dischargers</p> <ul style="list-style-type: none"> ○ Subsection 6 states that all industrial dischargers must obtain a Waste Discharge Permit however definition for Industrial is "of or pertaining to manufacturing, commerce, trade, business or institutions as distinguished from domestic or residential" <ul style="list-style-type: none"> ▪ Based on this section and the definition, all businesses, no matter the size, that discharges to sewer must obtain a Waste Discharge Permit ○ Therefore, there needs to be a method to deal with only the significant dischargers <ul style="list-style-type: none"> ▪ some utilities use a criteria for "high volume dischargers" to determine if a permit is required ○ Section 2 requires that the discharge must comply with the requirements of this bylaw – no Prohibited or Restricted substance <ul style="list-style-type: none"> ▪ There are no provisions for discharge above the Restricted Waste limits based on the wording of Section 2 ▪ There needs to be wording in this section that states something like the following ▪ no person shall discharge or allow or cause the discharge into a Sewer or a Sewage Facility any of the following: <ul style="list-style-type: none"> □ a High Volume Discharge, □ Restricted Waste, □ Storm Water, □ Uncontaminated Water, or □ Groundwater, • Nothing prohibits the discharge of Waste specified in section XXX providing it is in compliance with an applicable Waste Discharge Permit, Trucked Waste Authorization, Order, or Code of Practice. • A Sewage Control Manager may issue a Waste Discharge Permit to allow the discharge of Non-Domestic Waste into a Sewer upon such terms and conditions as the Sewage Control Manager considers appropriate and, without limiting the generality of the foregoing, may in the Waste Discharge Permit: <ul style="list-style-type: none"> ○ place limits and restrictions on the quantity, composition, frequency and nature of the Waste permitted to be discharged; ○ require the holder of a Waste Discharge Permit to repair, alter, remove, or add to works or construct new works;

- require the holder of a Waste Discharge Permit to monitor, in the way specified by the Sewage Control Manager, the Waste being discharged under the Waste Discharge Permit and to keep records and provide information concerning the discharge and associated waste sources, treatment works and measures; and
- provide that the Waste Discharge Permit will expire on a specified date, or upon the occurrence of a specified event.
- There are concerns with specifying limits within a Model Sewer Use Bylaw without a thorough discussion of how those limits were derived as well as discussion on how to calculate the limits for a municipality's specific requirements. Municipalities may use the limits specified in the Bylaw without a thorough understanding of their receiving environment, water quality criteria, biosolids limits, as well as treatment system constraints.
- It is better to describe a methodology that can be used to calculate site specific limits than to prescribe limits

Appendix B: Conditions for Bi-lateral Federal-Provincial and Federal-Territorial Agreements

- 1) Municipalities are given appropriate authorities to be able to enforce a sewer use by-law such as:
 - Sufficiently large fines – even better, have province or Federal government prosecute.
 - Need to enter a premise to inspect technology-based standard and check related maintenance records – unannounced visits are required
 - Should be able to apply by-law limits to “discreet wastewater streams” within premises which would “benefit” re: by-law compliance only by dilution of substances of concern by mixing with other wastewater streams
 - Unimpeded access to sampling locations located on private property
 - Need to be able to respond with no delay if something detected by, e.g., inspection or on-line monitoring.

- 2) When a watershed ERA is warranted by surface water background levels found to be at or above EQOs, the provinces/territories must require participation of all parties discharging to watershed.

Appendix C: Possible Action Items for Ongoing Effort

Standardisation of sampling procedures, laboratory protocols and accreditation. From the number and detail of our technical comments, one would have to wonder if we've caught all the inconsistencies.

Guidance on ICI characterisation

- What ICIs? (likely will be guidance in “Data base”)
- How to find them?
- What size?

Assessment and sharing of “initial characterisation” and ERA data:

- It will be necessary to develop a full assessment format as soon as possible to define the information that must be collected.
- It would be useful to develop a guidance document on determining full costs (e.g., specify a standard amortisation period for capital costs, even if hypothetical for some, to make costs more comparable)
- Suggested info:
 - Effluent and influent characteristics (include ICI characterisation)
 - EDOs vs. existing effluent characteristics
 - Approaches and costs to meet (operational and capital)
 - Influent characteristics (include ICI characterisation, ideally broad spectrum screening analyses compared with ICI characterisation)
- Full cost analysis
 - Cost to meet NPS per capita, capital and operating costs, grants included and identified
 - Summary of infrastructure and programs required
 - Current rates
 - Current cost per capita
 - Expected full cost per capita for NPS (instead of “rates”, because rates often not based on actual costs)
 - Dollar value increase to cost per capita (factored out by infrastructure, infrastructure operating, source control equipment and operating)
 - Cost to meet EDOs, capital and operating costs, grants included and identified – increase in cost for processes related to NPS + costs of processes or program related specifically to EDOs
 - Summary of approach: infrastructure or source control
 - Expected full cost per capita for EDOs (extra costs cf. meeting NPS)
 - Dollar value increase to cost per capita (factored out by infrastructure, infrastructure operating, source control equipment and operating)

Guidance to smaller municipalities to gain cost effectiveness through sharing of resources

A guide to plant operation optimisation

Emerging compounds of concern (as per Table 1, Strategy, p. 10)

Directory of regulations/codes of practice/ whatever which apply to industries discharging directly to surface waters (for adoption or reference or reference in bylaws)

- Remove any exemption related to discharge to municipal sewer systems or require approval by municipal wastewater authority

Biosolids management

Finalisation of interim model bylaw and ongoing review

- Revision of restricted substance table
- ICI BMPs and pretreatment – new limits and rationale for restricted substances
- Guides for monitoring
- ICI education

Education of municipalities, particularly small municipalities

Public education

Determination of best means for substance control and then expedite implementation

- Investigate sources
- Review US treatability manuals
- Control under CEPA
- Product reformulation
- Chemical design
- ICI BMPs
- ICI pretreatment
- Sewer use bylaw
- Municipal treatment
- Other environmental impacts of “improved” municipal wastewater treatment processes

Create registry for wastewater research (like Citation index for chemistry)

Evaluation of new treatment technologies

- Holistic approach including impacts, other environmental issues such as green house gas emissions

Definition of “arctic”

Review of and policy on impacts of climate change

Monitoring of Strategy implementation

- Cataloguing and acting on needs to revision identified during initial characterisation
- Provision of authority to municipalities
- Progress on timelines

Certification and training

Licensing of operators

Policy on collection systems which essentially act as combined systems due to high inflow and infiltration (I/I).

Stormwater and total loading management (in combination with watershed ERA)

Staffing capacity

- Recruiting in schools
- Advanced courses in universities

Laboratory capacity

- Evaluation of whether laboratory tests will meet the needs of the Strategy (protocols such as those for chromatographic analyses have been developed for regulations applying to specific industries and do not necessarily include all the substance included in the Strategy groupings)
- Regional availability of accredited laboratories

Co-ordination of research

- Create a directory to wastewater-related research
- Produce and annual review of new developments and related research related to Municipal wastewater
- Identify priority areas for research
- Obtain and provide funding for research