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Proposed Wastewater Systems Effluent Regulations

Water Environment
Association of Ontario
London, Ontario
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Outline

- Introduction
- Proposed *Wastewater Systems Effluent Regulations*
- Implementation
- Benefits and Costs
- Public Comment Period
- Next Steps



Introduction

- Proposed *Wastewater Systems Effluent Regulations* (WSER) were published in *Canada Gazette, Part I* on March 20, 2010
- Comments must be submitted in writing by May 19, 2010
- The purpose of this presentation is to provide you with a better understanding of the proposed WSER
- In the event of any inconsistency between this presentation, or any related discussions to provide general guidance on the proposed WSER, the Regulations prevail



Structure of the Proposed WSER

- **Interpretation**
- **Application**
- **Part 1**
 - Authorization to Deposit
 - Monitoring
 - Record Keeping
 - Reporting
- **Part 2**
 - Transitional and Temporary Authorizations to Deposit
- **Part 3**
 - Deposit out of the Normal Course of Events
 - Coming into Force
 - WSER come into force upon registration
 - Phased coming into force for some provisions
- **Schedules**



Interpretation (Section 1)

- Effluent
 - Wastewater deposited from a wastewater system
- Wastewater
 - blackwater
 - industrial, commercial or institutional wastewater (other than blackwater) (see Application section)
 - surface runoff if mixed with blackwater
- Wastewater system
 - Work or site used for the collection and deposit of wastewater, whether or not the wastewater is treated



Interpretation (Section 1)

- Final discharge point
 - The point of a wastewater system, other than an overflow point, beyond which an owner or operator no longer exercises control over the quality of wastewater before its deposit
- Overflow point
 - A point of a wastewater system via which excess wastewater may be deposited in water or a place and beyond which the owner or operator no longer exercises control over the quality of wastewater before its deposit
- Point of entry
 - The point where effluent is deposited in the water or any point where the effluent enters the water from the place it was deposited



Application (Section 2)

- Wastewater system that
 - Has the capacity to deposit 10 m³/d or more of effluent via its final discharge point
 - Deposits a prescribed deleterious substance (Section 3) in any water or place referred to in subsection 36(3) of the *Fisheries Act*
- Non-application:
 - Wastewater systems located in the Northwest Territories, Nunavut and regions north of the 54th parallel in Québec and Newfoundland and Labrador
 - Industrial, commercial or institutional on-site wastewater systems for which ≤ 25% of the effluent is comprised of sewage (blackwater)



Part 1: Deleterious Substances & Authorization to Deposit (Sections 3 & 4)

- Effluent must meet the following deleterious substance standards:
 - Carbonaceous biochemical oxygen demand due to BOD matter (CBOD): average ≤ 25 mg/L
 - Suspended solids (SS): average ≤ 25 mg/L
 - Total residual chlorine (TRC): average ≤ 0.02 mg/L
 - Un-ionized ammonia (NH_3): maximum < 1.25 mg/L, expressed as nitrogen, at $15^\circ\text{C} \pm 1^\circ\text{C}$



Part 1: Deleterious Substances & Authorization to Deposit (Sections 3 & 4)

- Averages based on annual average daily volume of effluent deposited in the previous calendar year:
 - Quarterly if $\leq 17\,500\text{ m}^3$
 - Monthly if $> 17\,500\text{ m}^3$
- Averages must be met in the previous quarter or month in order to be authorized to deposit effluent during the following quarter or month
- Effluent must not be acutely lethal



Part 1: Conditions to Deposit (Subsection 4(4))

- The owner or operator of a wastewater system is authorized to deposit effluent if the effluent meets the deleterious substance standards, is not acutely lethal and if the owner or operator:
 - Installs, maintains and calibrates monitoring equipment for the measure or estimate of the volume of effluent (Section 6)
 - Ensures effluent monitoring and submission of reports (Sections 7, 8 and 17)
 - Undertakes Environmental Effects Monitoring studies, if applicable (Section 14 and Schedule 2)
 - Records information (Section 15)
 - Provides an identification report (Section 16)
 - Prepares, makes available, updates and tests a response plan (Section 42)



Part 1: Effluent Monitoring (Sections 5 to 13)

Annual average daily volume	Daily volume monitoring (s. 5)	Deleterious substances monitoring (s. 7)		Acute lethality monitoring (s. 8)	
		Frequency	Sample type	Frequency	Sample type
$\leq 2\,500\text{ m}^3$	Estimate or continuous	Once a month	Grab or composite	None required	
$> 2\,500$ to $17\,500\text{ m}^3$	Continuous	Once every 2 weeks	Composite	Once every quarter	Grab
$> 17\,500$ to $\leq 50\,000\text{ m}^3$		Once a week	Composite		
$> 50\,000\text{ m}^3$		3 times a week	Composite	Once a month	Grab



Part 1: Environmental Effects Monitoring (Section 14 & Schedule 2)

- Applicable only to systems that meet the standards when the standards come into force (24 months after registration)
- Requirements triggered when the water at 100 m from the point of entry of the effluent in the water is comprised of $\geq 10\%$ of effluent
 - Percentage determined in August or September 2013
 - Notify authorization officer by December 31, 2013 of the result
- Will include
 - Water quality monitoring
 - Biological monitoring (benthic invertebrates and, if required, fish)
- Stop after 2 cycles if no effects observed
- Maximum of 4 cycles
- Study design and monitoring reports to be provided to the authorization officer



Part 1: Recording and Reporting (Sections 15 to 19)

- Recording of information is required without delay
- Identification report on the wastewater system submitted by February 15, 2011
- Each quarter, must submit data on:
 - Deleterious substances and pH
 - Effluent volume deposited
 - Numbers of days during which effluent was deposited
- Effluent monitoring report required 45 days within the end of the quarter for which the report is made
- All records and reports must be kept for 5 years



Part 2: Transitional and Temporary Authorizations (Sections 20 to 41)

- Transitional and temporary authorizations may be issued to owners or operators of a wastewater system to deposit effluent that contains any of the prescribed deleterious substances (Section 20)
- Transitional Authorizations (Sections 21 to 28)
 - BOD and SS
 - NH₃, BOD and SS
- Temporary Authorizations (Sections 29 to 39)
 - Un-ionized Ammonia (receiving environment considerations)
 - Bypass
- Authorization applications to be submitted electronically (Section 40)
- A registry of authorizations to be maintained and made publically available (Section 41)



Part 2: Transitional Authorizations

(Sections 21 to 28, Schedules 3 to 5)

- Transitional authorization (TA) to deposit effluent that does not meet the standards for CBOD or SS at the final discharge point
 - Trigger: the average CBOD and/or SS during the 12-month period preceding the application exceeded 25 mg/L
 - Modifications to the system are not technically or economically feasible by the coming into force of the standards
- Application must be made within 18 months of the coming into force of the Regulations
- Conditions and compliance requirements will apply over the duration of the TA
- Duration based on a point system
 - Upon expiration of a TA, the standards have to be met at the final discharge point



Part 2: Point System (Schedules 3 & 4)

- Schedule 3 – Calculated for the final discharge point based on:
 - Annual average daily volume
 - CBOD, SS, TRC and NH₃
 - Nature of receiving waters
- Option: Schedule 4 – Calculated for each combined sewer overflow point based on:
 - % of the cross-sectional area of the combined sewer that contains wastewater in dry weather
 - Number of overflows in a year
 - Nature of receiving waters



Part 2: Duration of Transitional Authorization (Subsection 23(2))

- Final Discharge Point

Points	Risk	Expiration of TA
≥ 70	High	Dec 31, 2019
≥ 50 to < 70	Medium	Dec 31, 2029
< 50	Low	Dec 31, 2039

- If consideration given to combined sewer overflow points, duration of TA may be extended for high and medium risk systems
 - Point total for each overflow point is compared with the point total for the final discharge point
 - If one combined sewer overflow point is allotted more points than the final discharge point, the system has until Dec 31, 2039 to comply with the standards at the final discharge point



Part 2: Temporary Authorizations (Sections 29 to 39, Schedules 6 and 7)

- For un-ionized ammonia (NH_3) (Sections 29 to 35)
 - Quarterly or monthly CBOD and SS average is ≤ 25 mg/L
 - Maximum NH_3 concentration for 2 consecutive quarters or months is ≥ 1.25 mg/L, expressed as nitrogen, at $15^\circ\text{C} \pm 1^\circ\text{C}$
 - NH_3 concentration in the receiving environment at any point that is 100 m from the point of entry is ≤ 0.016 mg/L, expressed as nitrogen
- For bypass (planned) (Sections 36 to 39)
 - To allow for construction or maintenance activities
 - Bypass must be designed to minimize the volume of effluent deposited
 - Must be requested at least 45 days before the construction or maintenance



Part 3: Deposit Out of the Normal Course of Events (DONCE) (Sections 42 and 43, Schedules 8 & 9)

- Response plan required 24 months after the coming into force of the Regulations
 - Identify measures to be taken to prevent DONCEs and mitigate or remedy their effects
 - Must be made available for inspection
- Any person required by subsection 38(4) of the *Fisheries Act* to report the occurrence of a DONCE must
 - Immediately notify an inspector or the person identified in Schedule 8
 - Send a report to an inspector or the person identified in Schedule 9 within 45 days after the notification



Part 3: Coming into Force (Section 44)

- Immediately
 - Effluent monitoring and reporting
 - Submission of identification report by February 15, 2011
- Within 18 months
 - Applications for transitional authorizations and temporary authorizations for un-ionized ammonia are made
- 18 months to 24 months
 - Issuance of authorizations
- 24 months
 - Standards and system-specific limits in authorizations
 - Environmental effects monitoring program starts
 - Response plan ready within 45 days
 - By-pass authorizations
- January 1, 2014
 - Total residual chlorine standard for systems < 5 000 m³/d



Administration

- Electronic reporting tool to be developed by Environment Canada for submission of reports and applications for authorizations
 - Paper copies may be submitted if not feasible to submit electronically
- Authorization officers (Schedule 1)
 - Receive identification, monitoring and environmental effects monitoring reports
 - Receive applications for and issue transitional and temporary authorizations



Implementation

- Bilateral administrative agreements between federal government and provinces, and Yukon
 - Regulatory reporting, data exchange, compliance promotion, and inspection and enforcement activities
- Environment Canada will administer the Regulations for wastewater systems under federal government operation, and located on federal land and on Aboriginal land



Benefits and Costs

- Quantified benefits \$17.6 billion
 - Include healthier fish and aquatic ecosystems; increased recreational use; higher property values; reduced health risks from recreational contact and consumption of fish; increased commercial fisheries use
- Costs \$5.9 billion
 - Include capital and operating costs for systems that need upgrading to meet the standards
 - Non-capital costs include monitoring and reporting costs, and in some cases environmental monitoring costs
 - Majority of costs would be borne by municipalities as they own/operate most of the wastewater systems



Public Comment Period

- Ends on May 19, 2010
- Proposed Regulations are available on-line at www.gazette.gc.ca/rp-pr/p1/2010/2010-03-20/html/reg1-eng.html
- Comments may be sent to the attention of Randall Meades, Director General, Public and Resources Sectors
 - by mail to Environment Canada, Gatineau QC K1A 0H3
 - by fax to 819-953-7253
 - by e-mail to ww-eu@ec.gc.ca



Next Steps

- Comments will be taken into consideration in finalizing the Regulations
- Publication of the final Regulations in *Canada Gazette*, Part II
 - Aiming for late 2010
- Negotiation of bilateral administrative agreements with provinces & Yukon
 - Aiming for signed agreements by publication of the final regulations in *Canada Gazette*, Part II



Regional Contact Information

For questions on the proposed Regulations, please contact:

Tom Tseng, Shawn Michajluk
Environment Canada, Ontario Region

Tom.Tseng@ec.gc.ca;

Shawn.Michajluk@ec.gc.ca

416-739-5853, 416-739-5888

**Additional information may also be
obtained at EC's website:**

www.ec.gc.ca/eu-ww





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Thank you!