Drinking Water Systems
Regulation 170/03

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Ontario Ministry of the Environment
Water Policy Branch

Introduction

- Safe Drinking Water Act (SDWA)
- Regulations Under SDWA
- Regulation 170/03 and Amendments
- Other Drinking Water Initiatives
- New Drinking Water Management Division

Safe Drinking Water Act

- Recommendation 67: "The provincial government should enact a Safe Drinking Water Act to deal with matters related to the treatment and distribution of drinking water."

- Addresses 50 of the 93 recommendations contained in Commissioner O'Connor's Part Two Report of the Walkerton Inquiry.

Safe Drinking Water Act
Highlights of the Act

- Chief Drinking Water Inspector
- Standards Advisory Council
- Eliminate operator "grandparenting" within 2 yrs.
- Duty to Report Adverse Results/Conditions
- Statutory Standard of Care
- Municipal Drinking Water System Licensing
- Accreditation of Operating Authorities
- Municipal consent for new/extended residential systems
- Mandatory Licensing of Laboratories
Regulations Under SDWA

- Ontario DW Quality Standards (Reg. 169/03)
  - amended by Reg. 268/03
- Drinking Water Systems (Reg. 170/03)
  - amended by Reg. 249/03 and 269/03
- Drinking Water Testing Services (Reg. 248/03)
- "Administrative" (Reg. 171/03, 172/03, 173/03)
- Six other regulations amending existing regulations under the OWRA and EPA

Regulation 170/03 - Overview

- System Categories
- GUDI
- Exemptions
- Treatment
- Testing and Operational Checks (general)
- Microbiological Testing
- Chemical Testing
- Operational Checks
- Adverse Conditions and Corrective Action
- Other

Drinking Water System Categories

- Municipal
  - large residential (> 100 private residences)
  - small residential (<6 PR > 2.9 l/s)
  - small non-residential (<6 PR < 2.9 l/s, serves DF/PF)
- Non-Municipal
  - year-round residential (subdivisions, mobile homes)
  - seasonal residential (trailer parks, communal cottages)
  - large non-residential (large resorts, industries)
  - small non-residential (serves PF/DF e.g. restaurant, resort, motel, gas station, designated facilities)

GUDI

- A GUDI system is deemed to be a surface water system for purposes of the regulation
- The regulation deems certain types of systems to be GUDI based on well characteristics, type of aquifer, distance from surface water etc.
- A deemed GUDI system can be "undeemed" if a report written by a professional engineer or hydrogeologist says so.
- Above report must be retained by owner for 15 years
Exemptions for Connected Systems

No Agreement

- Connected Municipal Residential Systems
  If municipal system (a) obtains water from regulated municipal system (b) that provides secondary disinfection:
  System (a) does not need to provide minimum treatment and is subject to reduced level of water quality and operational testing.

- Connected Non-Municipal Residential Systems
  If system (a) obtains water from regulated system (b) that provides secondary disinfection:
  System (a) does not need to provide minimum treatment and is subject to reduced level of water quality and operational testing.

Exemptions for Connected Systems

Agreement

- All Connected Residential and Non-Residential Systems
  System (a) obtains water from regulated system (b) that provides secondary disinfection:
  System (a) is exempt from the most of the regulation if system (b) agrees in writing to: ensure that their equipment is operated to provide proper secondary disinfection in system (a) and to take into account system (a) when setting up their distribution system testing program.

Exemption for Transported Water

- Non-Residential Systems Receiving Transported Water
  If they obtain all water from a regulated system that provides secondary disinfection, exempt from treatment, water quality and process testing if they test for chlorine residual daily or provide additional non-chlorine based disinfection such as UV.

Approval of Systems

- Municipal Residential Systems
  - SDWA approval required
  - C of A replaced in future by works permit/license
  - no approval required for routine alterations

- All Other Systems
  - C of A replaced by engineering evaluation report
  - certification statement sent to MOE Director
  - re-certification every 5 yr. (SW) or 10 yr. (GW)
  - existing OWRA approval can be deemed an EER
Treatment - Equipment

* Groundwater
  - primary disinfection capable of 99 percent R.I. of viruses

* Surface Water
  - chemically-assisted filtration and primary disinfection (or equivalent) capable of 99, 99.9, 99.99 percent R.I. of crypto, giardia, viruses respectively.

* Distribution System
  - chlorination or chloramination capable of achieving chlorine residuals of 0.2 mg/l (free) or 1.0 mg/l throughout the system, as case may be.

All equipment to be designed in accordance with "Procedure for Disinfection of Drinking Water in Ontario".

Treatment - Relief

* Only available for groundwater-based systems

* Consult with local MOH

* Study by professional hydrogeologist required for municipal residential systems

* Site assessment/management plan by P. Eng. required for all other systems

* Must re-apply every five years

Treatment - Notices

* Notice to MOE stating owner’s intent to:
  (1) install treatment equipment
  (2) apply for relief, if eligible
  (3) post notices, if eligible

* Does not apply to municipal residential systems, or systems that serve DF’s

* Due July 1/04

* Due Dec 31/04 for small non-mun. non-res.

Testing/Operational Checks - General

* Sampling point is where treated water enters DS or plumbing, unless noted otherwise (e.g. distribution)

* Grab sampling, unless continuous monitoring required

* Continuous monitoring allowed for turbidity, Cl₂ residual, fluoride if not required

* Section 6.5 contains all the requirements for continuous monitoring equipment and its operation

* Microbiological samples other than raw require corresponding chlorine residual test
Testing/Operational Checks - Labs

- All samples sent to a lab for testing must be collected and handled in accordance with the lab's instructions (e.g. labelling, cooling, containers, transport)
- Owner must use a licensed lab, with exception of testing by continuous monitoring, tests for operational parameters done by qualified staff, or for certain parameters not in ODWS
- Owner must notify MOE of the identity of their lab(s)

Microbiological Testing

- Municipal (L-R)
  - raw and treated weekly
  - distribution at least 9/mo. (increases with population)
- Municipal (S-R, L-NR) + Non-Mun. (YR-R, L-NR)
  - raw monthly
  - distribution weekly (if Cl₂), twice weekly if not
  - reduction in frequency after 24 “clean” months
- Municipal (S-NR) + Non-Municipal (S-R, S-NR)
  - raw monthly
  - distribution bi-weekly (if Cl₂), weekly if not
  - reduction in frequency after 24 “clean” months

Microbiological Testing

- Other Requirements
  - for systems other than large municipal residential, no tests if system shut down 7 or more consecutive days;
  - shut down means entire system not operating;
  - test result must be received prior to startup of system

Chemical Testing

- Municipal (L-R, S-R, L-NR)
- Non-Municipal (YR-R, L-NR)
  - organics/inorganics: annual for SW; tri-annual for GW
  - nitrate/THM: quarterly; lead: annual
  - sodium/fluoride: every 5 yrs

If an organic/inorganic parameter or lead are > ½ MAC, frequency increases to quarterly until levels drop below ½ MAC
Chemical Testing

- Municipal (S-NR) + Non-Municipal (S-R)
  - organics/inorganics/lead/sodium/fluoride: every 5 yrs
  - nitrate/THM: quarterly

- Non-Municipal (S-NR)
  - lead/sodium/fluoride: every 5 yrs
  - nitrate: quarterly

Other Requirements

- no testing for THMs, NO₃, parameters exceeding ½ MAC when system shut down for 60 or more days

Operational Checks

- For equipment checks, Cl₂ residual, turbidity and fluoride (if fluoridating)
- To be done by certified operator or trained person, unless using continuous monitoring
- For all non-residential systems, checks not required on day when all DFs and PFs are not open
- Requirements vary (e.g. frequency) depending on system category

Adverse Conditions

- Schedule 16 of the Regulation
  - defines which results are adverse
  - defines other observations that are adverse
  - defines manner of making immediate report
  - defines manner/content of followup written notice
  - defines manner/content of notice of issue resolution
Corrective Action

- Schedules 17 and 18 of the Regulation
  - for each adverse condition described in schedule 16, there is a corresponding set of actions that a system owner must take in order to correct the problem.

Other Requirements

- Sign Posting
- Annual Reports
- Information Availability / Record Retention
- Summary Report for Municipalities

Other MOE Drinking Water Initiatives

- Source Protection
- Operator Training and Certification Regulation
- Compliance Regulation
- Standard of Care Guidance
- Municipal Drinking Water System Licensing
  - drinking water quality management standard
  - accreditation/auditing body for AOA’s
  - model operational plans
  - financial plans

New MOE Drinking Water Management Division

Chief Inspector (ADM Level)
Office of Chief Drinking Water Inspector
Comprised of Four Branches

Safe Drinking Water Branch
Drinking Water Program Management Branch
Education and Outreach Branch
Watershed Planning Branch (future)