

Alberta Reclaimed Water Working Group

Alberta Health Inspectors Workshop
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Reclaimed Water

- Sources of reclaimed water include household and municipal wastewater, storm water, and rain water
- The need for and extent of treatment required to “reclaim” this water depends on its proposed use
- Reclaimed water can be used in various ways:
 - **domestic applications** (e.g. toilet flushing, landscape irrigation, fire suppression)
 - industrial applications (process water, cooling)
 - horticultural purposes applications (irrigation of food crops or golf courses)

Reclaimed Water

- Use of reclaimed water is **not** new as other jurisdictions, such as the U.S. and Australia, have long relied on reclaimed water to help address the scarcity of potable water.
- Water scarcity driver not so apparent in Canada, but greater attention is now being given to long-term sustainability of freshwater supplies.
 - E.g. Water licenses for the Bow River are fully allocated, which limits further development

Government Priorities and Policy

- Water reclamation is supported by current government policy and could contribute to other initiatives.
- “Resourceful. Responsible.”
 - One of the government’s five overarching priorities is to manage resources responsibly and maintain the environment.
- Alberta Water for Life Strategy
 - Establishes a goal of improving water productivity and efficiency by 30% from 2005 levels by 2015
 - Consultations for renewal of the strategy found that there was public support for water reuse
- Climate Change Adaptation Strategy
 - Water reclamation could help address potential water shortages resulting from climate change
- Land Use-Planning Framework
 - Water reclamation could help lessen the cumulative impact of human activity on the environment

Public Health and Safety

- Health Risks
 - Reclaimed water is not the same quality as potable water
- Operational Risks
 - E.g. Scale of reclaimed water system (onsite, decentralized, centralized)
- Public Perception Risks
 - “Yuck Factor”

Current regulations and codes

- Due to safety risks, current regulations and codes limit the use of reclaimed water in Alberta and other provinces in Canada
 - The Alberta Building and Plumbing Codes do not allow for reclaimed wastewater to be used for domestic applications
 - Alberta Environment issues site-specific approvals for systems that reuse municipally treated wastewater for industrial uses and large-scale irrigation (golf courses, agriculture), but these regulations do not allow water reclamation for domestic applications
- Plumbing code provides some instruction on piping for non-potable systems, but currently no nationally accepted water quality standards or treatment technologies

Public and Industry Interest

- Current regulatory and code requirements make it difficult to address increasing public interest in domestic applications of reclaimed water (especially wastewater).
- Industry is moving to meet public demand
 - Green Developers and Homebuilders
 - Environmentally sustainable development and building practices promoted through programs, such as Leadership in Energy and Environmental Design (LEED)

Public and Industry Interest

– Technology and Equipment

- General Electric is exploring opportunities for water reuse in Alberta's oilsands projects (up to 4.5 barrels of fresh water to produce 1 barrel of oil)
- Already "greywater" treatment technologies being marketed for installation individual households with varying levels of robustness and effectiveness

Working Group Goals and Scope

- Participating departments approved the project in May 2008.
- WG was established to find ways to help the province achieve its water conservation objectives and address growing public and industry interest in using reclaimed water for **domestic applications** while protecting public safety and health.
- In particular, the WG has the task of developing a management framework to meet this goal. This management framework must include:
 - water quality standards
 - technical standards, and
 - administrative requirements (e.g. approval processes, maintenance requirements)
- Consultation is key – help mitigate some of the public perception issues that have been identified elsewhere.

Working Group Structure

- The four departments represented on the WG are each responsible for regulating particular components of the provincial water and wastewater system:
 - Municipal Affairs (building and plumbing codes, onsite sewage)
 - Environment (wastewater treatment, collection disposal outside of private properties)
 - Health and Wellness (water quality monitoring in Alberta)
 - Transportation (funds municipal water and wastewater treatment infrastructure)
 - Canada Mortgage and Housing Corporation has provided support to the project team.

Project Status

- Primary focus is currently information collection and analysis, which includes:
 - Communication
 - Risk-Benefit Analysis
 - Literature Review
- Rainwater harvesting guidelines
- CSA standard

Current Activities and Initiatives

- Public Communications
 - Project web page on the Municipal Affairs website to provide information about current regulations and code requirements
 - Meetings with municipalities, developers and equipment manufacturers who are interested in implementing reclaimed water projects
 - Meetings with subject area experts and other jurisdictions

Current Initiatives and Activities

- Research and Analysis
 - Risk-Benefit Analysis
 - Identifies potential domestic applications, risks, benefits, of reclaimed water
 - Makes recommendations that the WG should consider as it develops the management framework
 - Literature Review
 - CMHC is preparing a review of how reclaimed water is used in other jurisdictions, and how reclaimed water usage is managed in these jurisdictions.

Current Initiatives and Activities

- University of Guelph Rainwater Harvesting Guidelines
 - Multi-partner venture supported by federal, provincial and municipal governments
 - Municipal Affairs is providing both financial and technical support for this project
 - Guidelines will provide best practices for the design, operation and maintenance of residential rainwater harvesting systems
 - Course materials as well

Canadian Standards Association

- CSA is developing a standard for residential non-potable water treatment systems
- The standard will specify requirements for the design, installation, operation and maintenance of such systems
- CMHC is principal funding organization
- Municipal Affairs is contributing financial and technical support

Next Steps

- Continue meeting with municipalities, developers, homebuilders, subject area experts
- Review research, analysis, and recommendations submitted by consultant and CMHC
- Based on this information, the working group will prepare a discussion document that proposes priorities and outlines a management framework
- Document will be the basis for consultation in Spring 2010