



Freedom To Create. Spirit To Achieve.

Alberta Water Policy Update

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**Alberta Environment and Sustainable Resource
Development**

Water Technologies Symposium 2013

April 11, 2013

**Government
of Alberta** ■

Outline

- Organizational changes
- Water Conversation
- Hydraulic Fracturing
- Oil Sands
- Provincial Groundwater Inventory
- South Saskatchewan Regional Plan
- Groundwater Monitoring Directive
- the list goes on...



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Organizational Changes

Government
of Alberta ■

A busy year indeed !

- Merging of Alberta Environment and SRD
- Environmental Monitoring Agency announced
- Alberta Energy Regulator announced
- Integrated Management Resource System

2012-13 Highlights

Water Conversation

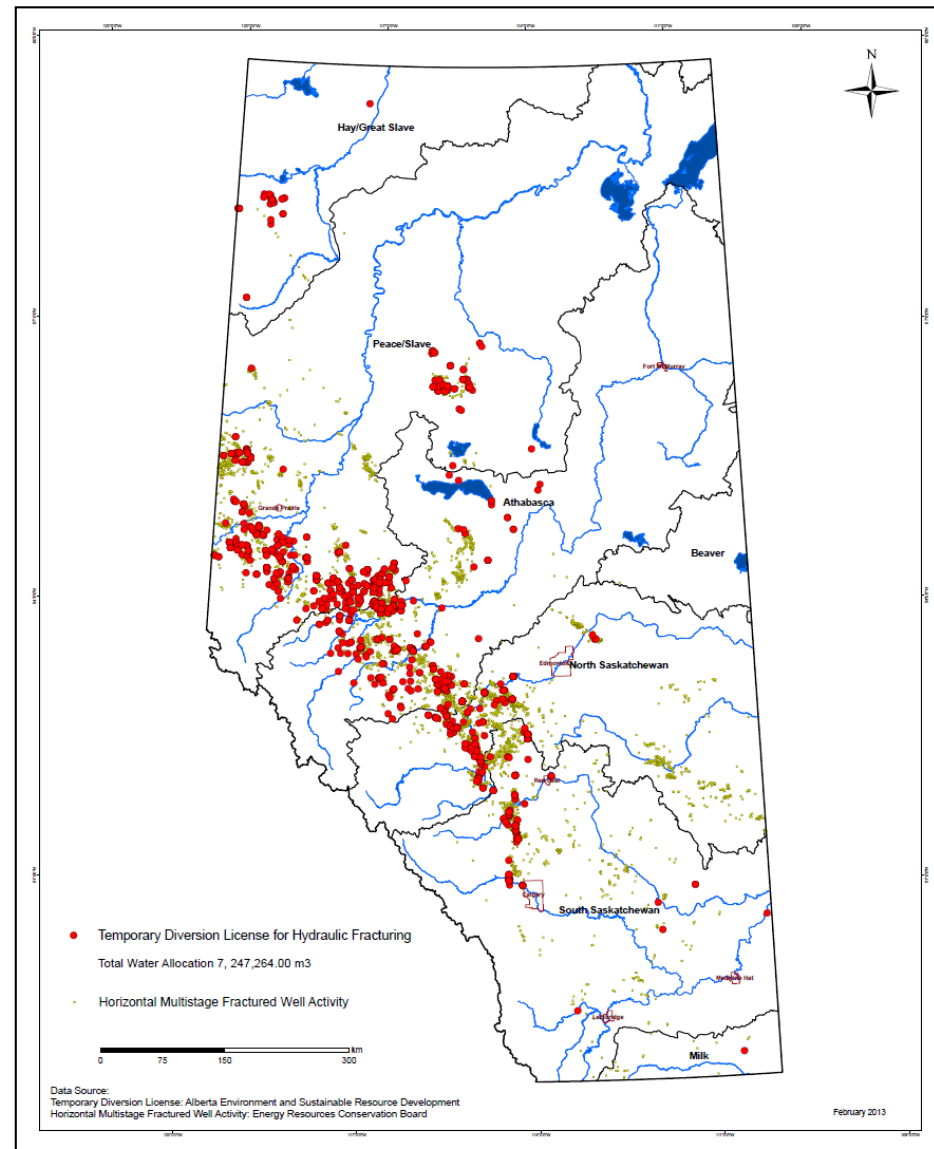
- Open discussion on the future of Alberta's water to help shape strategic direction
- Four key priority areas:
 - Healthy Lakes
 - Hydraulic Fracturing and Water
 - Drinking Water and Wastewater Systems
 - Water Management
- 20 community sessions held over February to March 2013
- Several First Nations and Metis sessions
- Feedback also through online workbook and social media
- “What We Heard” report expected June 2013

Hydraulic Fracturing

Hydraulic Fracturing Water Allocation

- ~ 7,000,000 m³ allocated through TDLs in 2012-13
- 917 TDLs issued
- 97 % surface water
- Average volume: ~ 7700 m³
- Average duration: 1-2 months

TDL – Temporary Diversion Licence



New Information Letter

- *Clarification of Authorization for Temporary Water Diversions in Non-settled Areas (Green Area)*
- Exemption under Schedule 4 (Sec 2) only applies if a surface disposition expressly permit the diversion and use of water
- ESRD will not issue any land use dispositions that expressly permit the diversion of water until appropriate regulatory and authorization systems are in place
- TDLs must be obtained in these cases
- Letter issued March 25, 2013 and available on website

Water Conservation Policy

- *2006 Water Conservation and Allocation Policy for Oilfield Injection* addresses non-saline water use in enhanced oil recovery operations
- Proposing to expand the policy to all upstream oil and gas sectors, including conventional waterflood, thermal in-situ, oilsands mining and hydraulic fracturing operations
- Draft policy to be finalized based on feedback received through the Water Conversation
- Stakeholder consultation on draft policy targeted for later this year
- Energy sub-sector guidelines to be developed under the Policy

Hydraulic Fracturing Sub-Sector

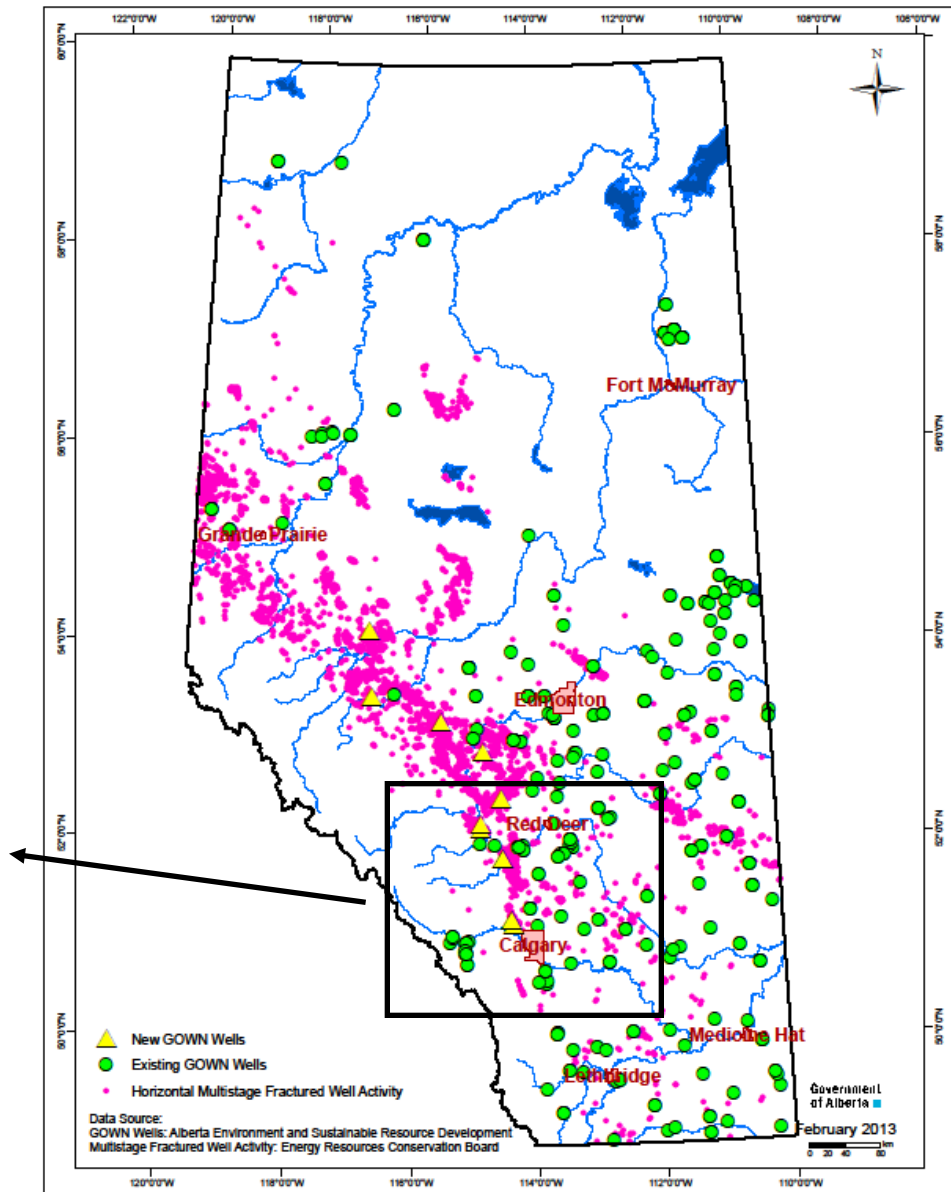
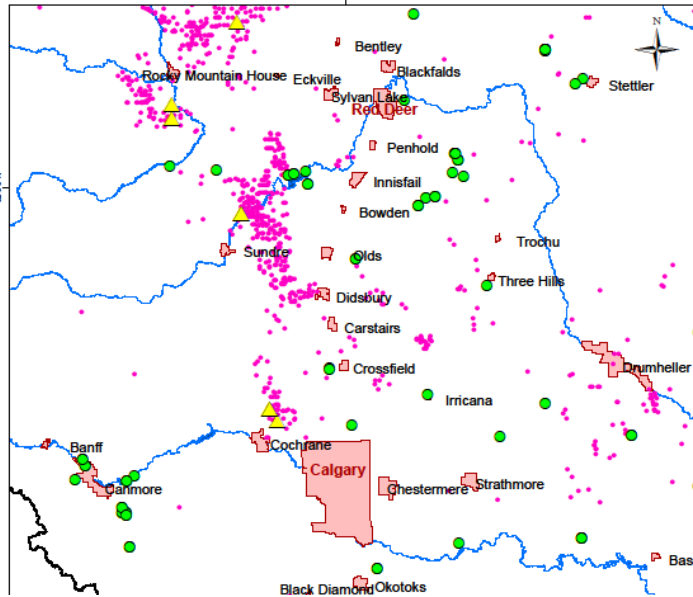
Key concepts for policy/guideline development:

- Develop achievable water conservation targets
- Define unconventional resource plays
- Optimize development outcomes and minimize cumulative impacts
- Escalating requirements proportional to level of development
- Play-based water management plans
- Collaboration and coordination between operators in a play
- Enhance scientific knowledge of water resources
- Coordinated community engagement

Baseline Water Well Testing

- Current requirement for coalbed operations (2006)
- Considering expansion to hydraulic fracturing operations
- Expert Review Group (ERG) assembled to review and make recommendations on both types of development:
 - **Dr. Maurice Dusseault (University of Waterloo)**
 - **Dr. Bernhard Mayer (University of Calgary)**
 - **Dr. Ernie Perkins (Alberta Innovates)**
 - **Dr. Leslie Smith (University British Columbia)**
- ERG recommendations expected later this month
- CAPP operating practices includes baseline groundwater testing

Groundwater Observation Well Network Expansion



Support to ERCB Initiatives

- Unconventional Regulatory Framework (URF)
 - Approach to managing unconventional development
 - Discussion paper
- Directive 59 – Chemicals and water use reporting
 - www.fracfocus.ca
 - Total water use reporting system
- Draft Hydraulic Fracturing Directive

Oil Sands

Water Conservation Policy/Guideline - Thermal In-Situ Projects

- 2006 *Water Conservation and Allocation Policy* under review
- Sub-sector guidelines being developed under revised policy
- To provide guidance and clarity on information requirements for assessment of *Water Act* applications for thermal in-situ projects
- Maintains the intent of the policy while detailing specific water source requirements for proponents of thermal in-situ oil sands projects
- Key components
 - **Staged licences with allocations variable in time**
 - **Details guidance on selecting the best water source**
 - **Requires a Quantitative Environmental Net Effects assessment**
 - **Clarifies required level of economic review of the project**

Guidance for the Assessment of Bitumen in Direct Contact with Non-saline Groundwater

- Applies to thermal in-situ oil sands projects to address potential impacts of extraction of bitumen in direct contact with non-saline groundwater
- To ensure operators have appropriate measures in place to address potential impacts prior to receiving project approval
- Guidance will outline information needed to decide how development should proceed to minimize the risk to non-saline groundwater resource
- Groundwater Management Plans proposed vehicle for implementation
- Applies to existing and new in situ oil sands operations using enhanced bitumen recovery
- Guidance to be finalized in 2013

Guidance for Assessment of Thermal Mobilization Effects

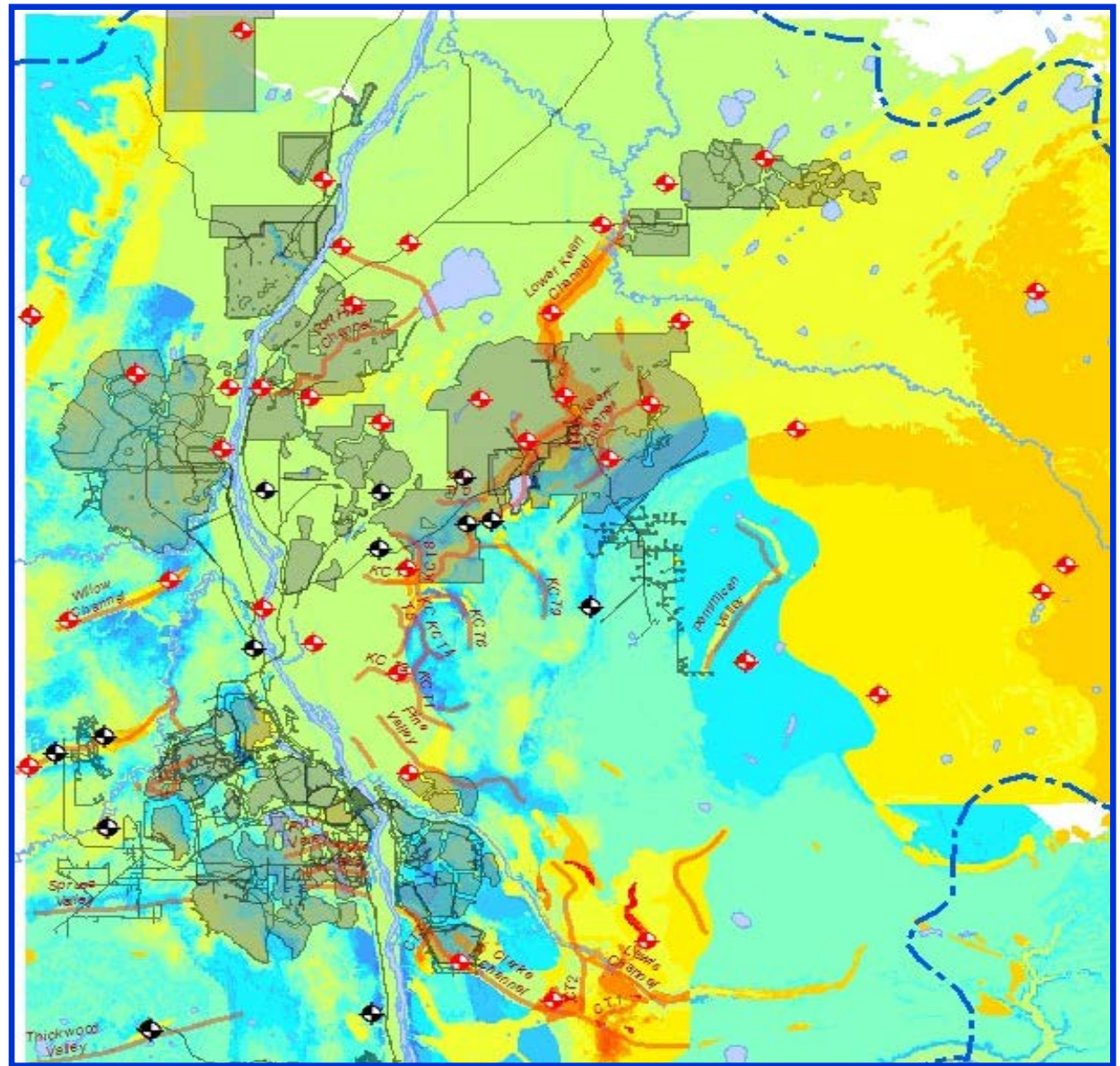
- Mobilization of elements (eg. As) into groundwater may occur due to heating of aquifers during in situ steaming
- Additional monitoring, assessment and mitigation is required to manage these potential effects
- Commitment to the development of a guidance document was made in Lower Athabasca Regional Plan
- The guidance document is intended to set out requirements that must be met in approval holder's Groundwater Management Plan
- Guidance to be finalized in 2013

Lower Athabasca Regional Plan

- Monitoring under LARP Groundwater Monitoring Framework continues
- Key goals:
 1. Gain a better understanding of natural variability of groundwater conditions in the region
 2. Provide good adequate baseline coverage (*in areas of no anthropogenic effects*) in key regional aquifers
 3. Assess long-term water quality and water level trends
- NAOS
 - network established (51 wells at 12 sites)
 - Further expansion planned (112 wells total)
- SAOS
 - Network under development
 - Drilled 19 wells at 5 sites in 2012-13, more expansion in 2013-14

NAOS

Current and Proposed Locations



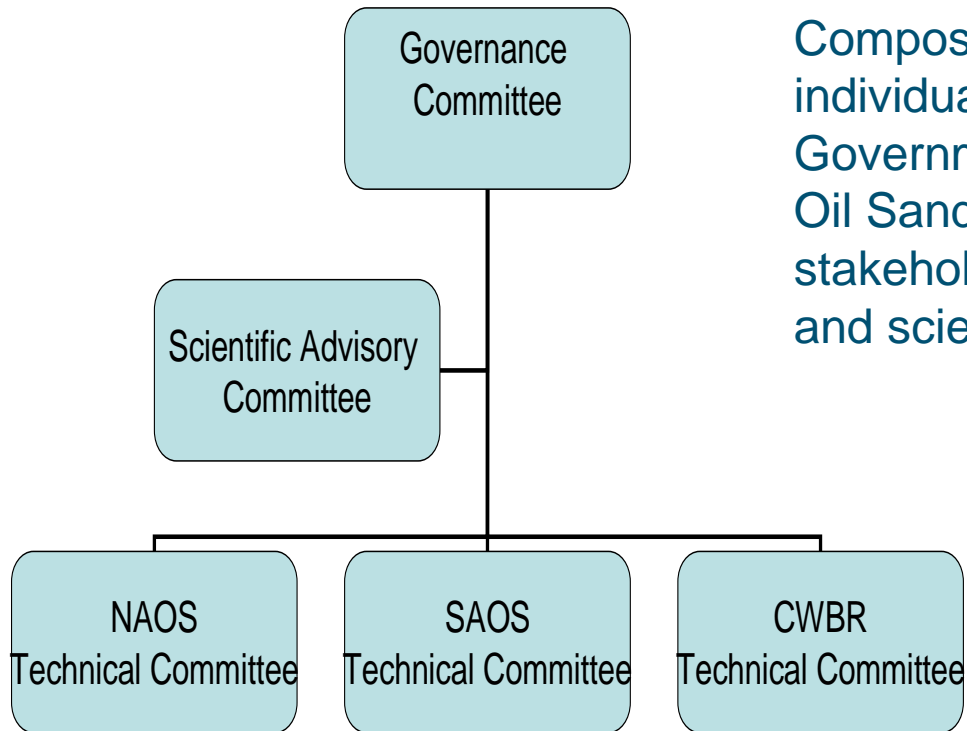
SAOS

New locations drilled 2012-13



LARP Groundwater Monitoring

Regional Groundwater Monitoring Group for the Athabasca
Oil Sands



Composed of selected individuals from the Government of Alberta, Oil Sands industry, other stakeholder associations, and scientists.

Other Initiatives

Wetland Policy

Provincial Ground Inventory Program

South Saskatchewan Regional Plan

Groundwater Monitoring Directive

Analysis of Metals in Groundwater

Groundwater Under the Direct Influence (GUDI)

Wetland Policy

- **Target to complete policy in 2013**
- **Goal:** To conserve, restore, protect, and manage Alberta's wetlands to sustain the benefits they provide to the environment, society, and the economy.
- **Outcomes:**
 1. Wetlands of the highest value are protected for the long-term benefit of all Albertans.
 2. Wetlands and their benefits are conserved and restored in areas where losses have been high.
 3. Wetlands are managed by avoiding, minimizing and, if necessary, compensating for impacts.
 4. Wetland management considers regional context.
- **Key Supporting Products:**
 - Alberta Wetland Classification System (nearing completion)
 - Alberta Wetland Inventory (available on GeoDiscover)
 - Wetland Value Assessment System and Value Inventory (under development)

Provincial Groundwater Inventory Program

- Airborne geophysical reports released on Alberta Geological Survey (AGS) website
- Edmonton-Calgary Corridor technical reports to be released by AGS in fall 2013
 - hydrology, hydrogeology, hydrogeochemistry
- Cold Lake-Beaver River groundwater atlas – release by AGS in early 2014
- Southern Alberta Regional Groundwater Simulation (SARGS) calibrated and optimization scenarios being run. AGS writing report.
- Prototype sub-basin model (Sylvan Lake) built and being calibrated by AGS
- AGS/ESRD collaboration with Deltares (Dutch research institute) and UK Environment Agency to explore integration of models into regulatory processes
 - Enabled through Alberta Innovates – Energy and Environment Solutions and the Netherlands Soil Partnership
- Mapping work continues in Southern Alberta in alignment with SSRP

South Saskatchewan Regional Plan

- The South Saskatchewan Regional Plan is the second regional plan being advanced under the Land-use Framework
- Draft plan is expected to be released for public consultation in summer 2013
- Commitment in the Terms of Reference for the regional plan to develop a groundwater management framework
- Areas being discussed:
 - Confirm priority issues and areas of concern
 - Enhance regional monitoring
 - Continue groundwater mapping under the Provincial Groundwater Inventory Program

Groundwater Monitoring Directive

- Applies to EPEA-approved facilities where groundwater monitoring is required under their approval
- Specifies required information to be included in facility Groundwater Management Plans:
 - design, parameters, monitoring schedule, QA/QC requirements
 - Statistical method to be used for data analysis
 - Response plan to be implemented upon exceedance of trigger values
- Increased emphasis on a facility's early response to a possible substance release into groundwater and to maintain quality within natural variability
- Directive defines control chart and trend analysis process
- Technical feedback solicited in fall 2012
- Implementation plan currently being developed

Analysis of Metals in Groundwater

- The project was initiated in response to a need identified by departmental staff involved with contaminated sites
- The purpose is to identify a consistent, science-based approach for measuring mobile metals in groundwater
- Methodology will also apply to other areas (eg. EPEA approvals, GoA provincial monitoring network)
- Required analysis:
 - Total metals where a domestic use aquifer (DUA) may be impacted
 - Dissolved metals in fine-grained media
- External technical feedback received, letter is being finalized
- Implementation currently planned for January 1, 2014

Groundwater Under the Direct Influence

- To assess potential impact from pathogenic micro-organisms on municipal drinking water groundwater sources
- Current GWUDI guideline falls under Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems
- Current guideline under revision, considerations include:
 - extended monitoring period to assess water quality
 - revised microscopic particulate analysis (MPA) and/or revised role for MPA
 - more detailed well construction screening criteria
- Looking at guideline updates in other provinces (BC, Ontario)
- Draft revised guideline targeted for June 2013

Questions?