Alberta Water Policy Update

Water Technologies Symposium
April 10, 2014

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Environment and Sustainable Resource Development

Outline

- Integrated Resource Management System
- Water Conversation
- Water Conservation Policy for Upstream Oil and Gas Operations
- Baseline Water Well Testing
- Thermal In-situ groundwater policies
- Groundwater Monitoring Directive
- Other initiatives

Integrated Resource Management

- The IRM System is the means by which Alberta will achieve **responsible resource stewardship**.
- The System is broadly defined, incorporating the management, conservation and wise use of all resources.
- It is founded upon principles of cumulative effects management:
  - Knowledge based
  - Outcomes driven
  - Future focused
  - Comprehensive implementation
  - Place based flexibility
  - Collaboration
  - Adaptation and Continuous Improvement

Integrated Resource Management

THEN

- ❑ Project-by-project regulation and allocation
- ❑ Management of incremental effects
- ❑ Focus on preventing adverse impact

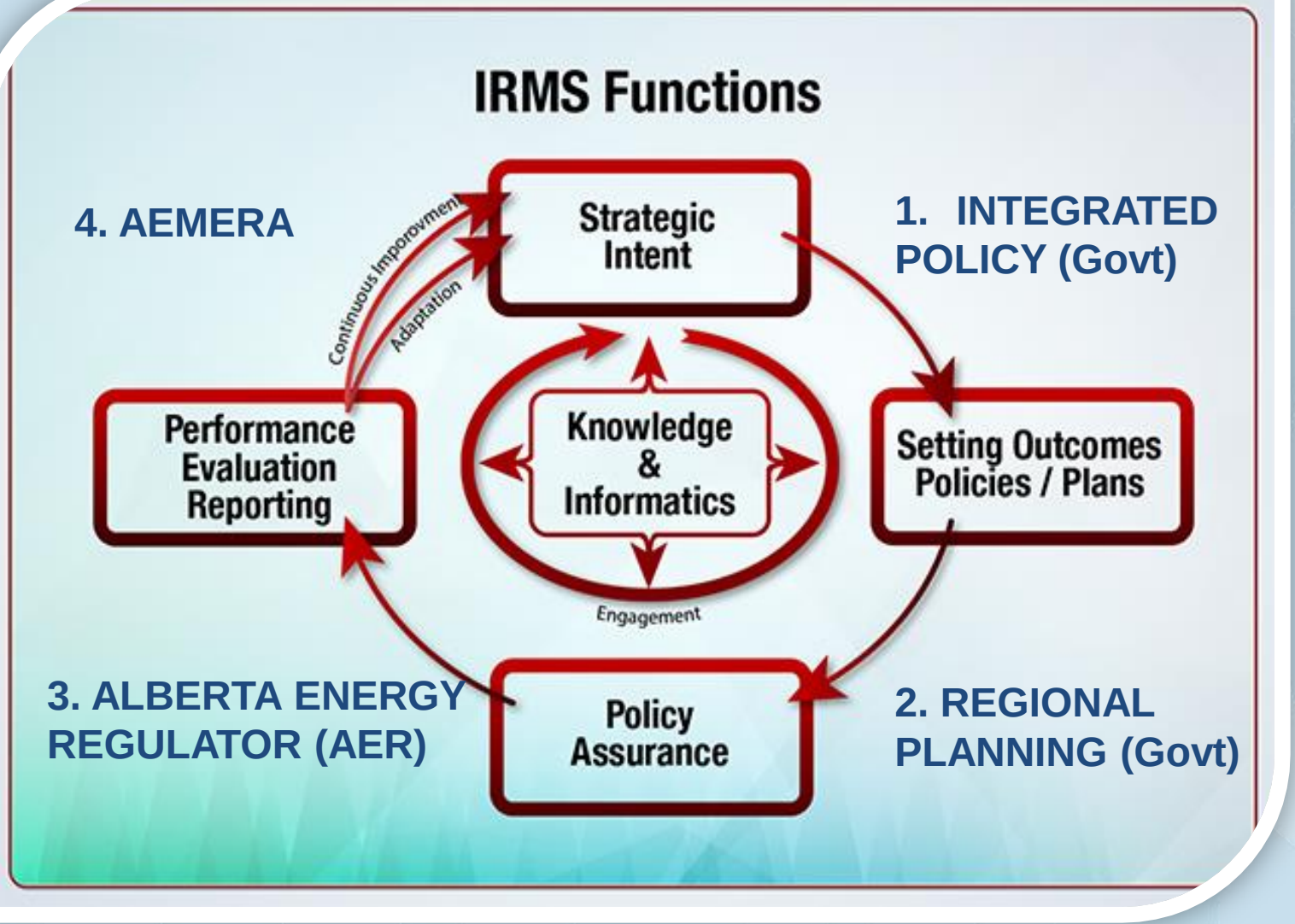
NOW

- ❑ Regulation and allocation considers overall capacity of air shed, watershed, land base
- ❑ Focus on achieving desired outcomes based on public input
- ❑ Establishment of limits for total impacts on water, air, land, wildlife

Why pursue an IRMS?

- ✓ Continued economic and population growth
- ✓ Need to manage cumulative effects
- ✓ Heightened need for integration and resource optimization
- ✓ Growing expectations of public and stakeholders

Integrated Resource Management System



1. Integrated Policy

Taking a systems-based approach to consideration of water needs and policy actions

Provincial Water Related Policies:

- **Legislation**
  - Water Act, EPEA, ALSA
- **Strategies**
  - Regional Sustainable Development Strategy for the Athabasca Oil Sands Area (1999), Water for Life Strategy (2003), Responsible Action: A Plan for Alberta's Oil Sands (2009)
- **Provincial Policies**
  - Industrial Release Limits Policy, Wetland Policy, Water Conservation and Allocation Policy for Oilfield Injection
- **Regional Policies and Plans**
  - Lower Athabasca Regional Plan
    - Surface Water Quality Framework, Groundwater Framework

2. Regional Planning

Applying provincial direction to regional circumstances

Land-use Framework

- Blueprint for land-use, natural resource management, and decision-making to manage growth
- Seven regions based on major watersheds
- Sustains growing economy balancing social and environmental goals

Management Frameworks

- Key approach to manage the long term cumulative effects of development on the environment at a regional level
- Limits are clear boundaries in the system not to be exceeded, triggers are proactive warning signals
- Progressive action based on conditions found in the environment

Indicators, Triggers and Limits

- Indicators are chosen
- Triggers & limits are set

Monitoring and Modelling

- Ongoing monitoring and assessment of conditions relative to triggers & limits

Management Response and Reporting

- Management actions taken as needed at triggers & limits
- Results reported

3. Alberta Energy Regulator

Creating stronger policy assurance by decoupling operations (AER) from policy (gov't)

Alberta Regulatory Framework

- Albertans own the resource
- GoA sets policy
- AER translates policy into operational requirements

Water Act and EPEA – transferred to AER March 31, 2014

4. AEMERA

Creating a common approach to monitoring and strengthen assurance of data and reporting through independence

AEMERA will be accountable to the Minister of ESRD and responsible for coordination of:

- Baseline monitoring
- Cumulative effects monitoring
- Environmental Data
- Evaluation in collaboration with others
- Ongoing SoE and Regional Plan reporting in Alberta

Desired end outcome—credible data, evaluation and reporting to inform policy, regulatory and management decision making (and the public).

AEMERA

Alberta Environmental Monitoring, Evaluation and Reporting Agency

Welcome

Alberta Environmental Monitoring, Evaluation and Reporting Agency (AEMERA) is established with the purpose of leading the way in environmental monitoring, evaluation and reporting for the province of Alberta and internationally. The new agency is growing by the day. At the moment, this is an information portal for you to find out more on what AEMERA is all about. In the coming months, the site will continue to develop and become an interactive platform where you can find information and contribute information and data on Alberta's environment.

The Alberta Environmental Monitoring, Evaluation and Reporting Agency

AEMERA will coordinate and provide scientific expertise and oversight for monitoring planning and delivering monitoring, evaluation and reporting activities more effectually. This agency will deliver greater focus, coordination and integration of monitoring activities throughout the province. Another important function of the agency is to provide open and transparent access to credible and relevant scientific data and information on the condition of Alberta's environment to inform policymakers, regulators, planners, researchers, communities, stakeholder groups, industries, and the general public.

Click here for more info.

Latest News

Bill 31 Protecting Alberta's Environment

December 11, 2013

Bill 31 Protecting Alberta's Environment has yet to be

Board of Directors Recruitment (Board Chair...

December 10, 2013

AEMERA is recruiting a Chair, Vice

New regulation establishes Joint Oil Sands...

December 5, 2013

The Joint Oil Sands Monitoring plan is focused on regional ambient

Bill creates environmental monitoring agency

October 28, 2013

Bill creates environmental monitoring agency An arm's length

Water Conversation

What we heard….

- **Hydraulic fracturing**
  - Wanted more information but question of who is the best source of information
  - Agreed on need for updates to Water Conservation Policy and Baseline Water Well Testing
- **Drinking water/wastewater**
  - Saw need for a provincial approach but also wanted regional flexibility
  - Emphasized need for source water protection
- **Water Management**
  - Supported system optimization, including storage, and importance of conservation
- **Healthy Lakes**
  - Interested in provincial approach to lake management
  - Saw need for more clarity in roles and responsibilities

Water Conservation Policy

- Proposed expansion of 2006 policy
- Minimize the use of non-saline (fresh) water
- Continued non-saline water use reduction and elimination in water-short areas
- greater emphasis on the use of alternatives to non-saline sources such as municipal/industrial wastewater and impaired quality groundwater
- Assessment of environmental net effects in selecting different water sources described in more detail
- Stakeholder consultation on draft policy to be conducted over April – June 2014
- Energy sub-sector guidelines to be developed

Proposed Sub-sector Policy Direction

Oil Sands Mining Operations	Achieve improvements in water use productivity — based on the volumes of water diverted from the Athabasca River relative to volumes of bitumen produced. Achieve improvements in management of tailings ponds, including increases in water reuse and recycling of tailings pond water where feasible. Continue research on water treatment options and conduct demonstration projects. Exempt water diversion into end pit lakes from provisions of this policy. Enable the transfer of water from tailings ponds to other mining and thermal in situ projects.
Thermal In Situ Oil Sands Operations	Achieve increased non-saline water use productivity — based on the volumes of non-saline make-up water relative to volumes of bitumen produced. Focus on recovery of additional water from the disposal streams for all projects, together with considerations of environmental net effects and water use efficiency opportunities. Expand produced water treatment research and evaluate feasible limits of water recovery from disposal operations. Recognize the potential of water from oil sands mining tailings ponds as a preferred water source.

Proposed Sub-sector Policy Direction

Conventional ER and "Cold Bitumen" ER Operations	Achieve further incremental reductions in non-saline water use and allocations; reduce or eliminate allocations in water-short areas. Reduce ratios of non-saline to saline water used in "cold bitumen" ER operations, and develop technical innovations that reduce overall water use relative to bitumen production.
Multi-Stage Hydraulic Fracturing Operations in Horizontal Wells	Develop achievable water conservation measures for areas of intensive development, including use of alternative water sources and recycling. Work with the Alberta Energy Regulator (AER) to define unconventional resource "plays" within geographical areas, based on risks and achievable outcomes. Focus on results and practices in each "play" that optimize development outcomes and minimize cumulative impacts. Focus on water conservation objectives and water allocation within play-based water management plans. Focus on play-based development planning to minimize cumulative effects on the environment and local communities. Achieve cooperation and collaboration between industry operators and projects in each "play" to minimize development impacts. Enhance scientific knowledge of water resources and development impacts; including baseline monitoring, monitoring evaluation and reporting of all water use, and research to enhance low-water fracture technology. Ensure that the public and local communities are informed and engaged during development, including improved access to information about technology and activities.

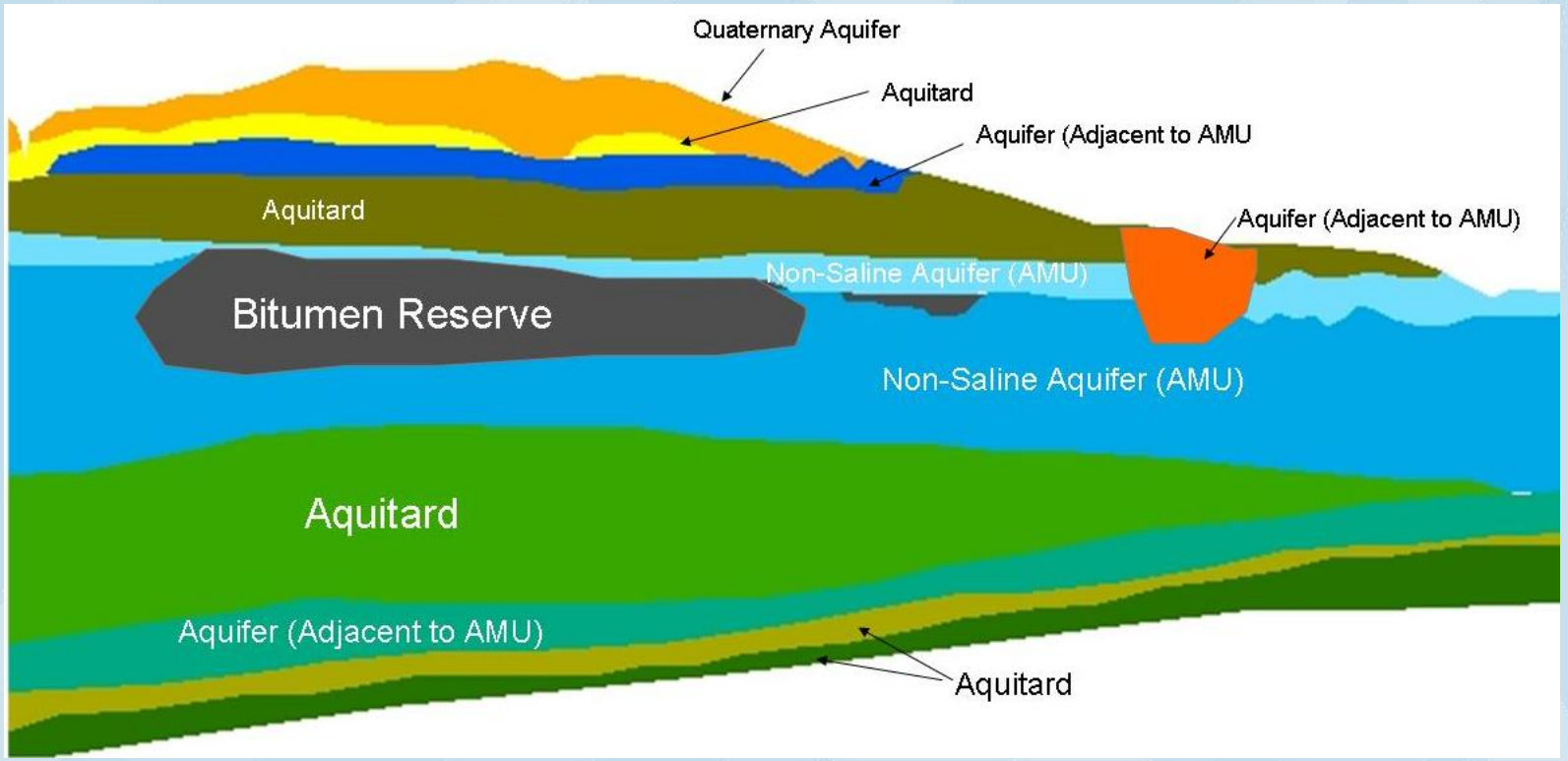
Baseline Water Well Testing

- Current requirement for coalbed methane operations (2006)
- Proposing expansion to hydraulic fracturing operations
- Expert Review Group (ERG) assembled to review and make recommendations for both CBM and hydraulic fracturing operations
  - **Dr. Maurice Dusseault (University of Waterloo)**
  - **Dr. Bernhard Mayer (University of Calgary)**
  - **Dr. Ernie Perkins (Alberta Innovates Technology Futures)**
  - **Dr. Leslie Smith (University British Columbia)**
- ERG report nearly finalized
- Update BWWT Standard for stakeholder review

Thermal In-situ Projects

- ***Guidance for the Assessment and Management of Non-Saline Groundwater in Direct Contact with Bitumen for In-Situ Oil Sands Operations***
- 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
- Recently distributed for external technical feedback

Non-saline GW in Contact with Bitumen

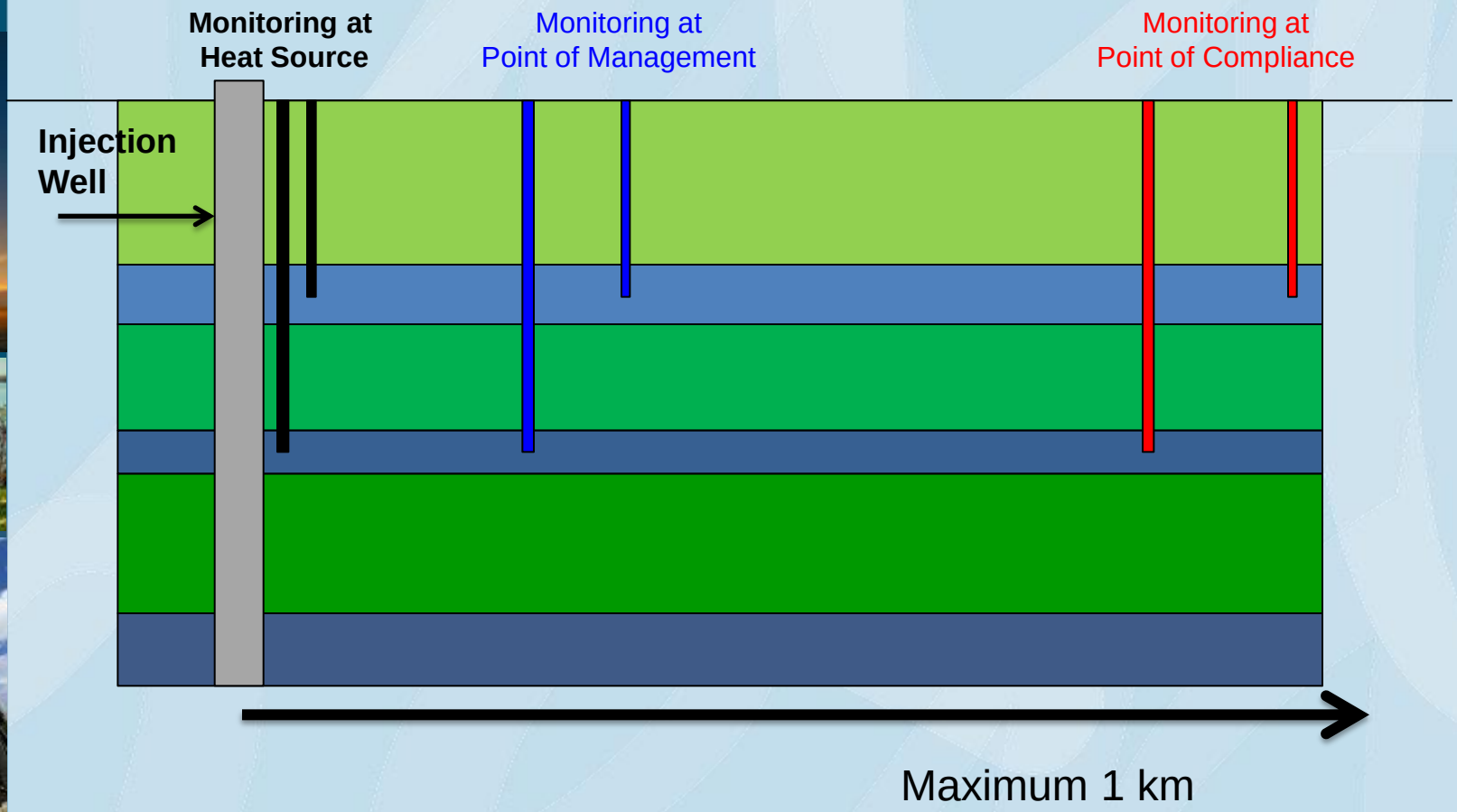


Thermal In-situ Projects

- ***Guidance for Groundwater Management Plans for In Situ Operations: Assessing Thermally-Mobilized Constituents***
- 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
- Recently distributed for external technical feedback

Thermal Mobilization

Simplified Management Area



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
- 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, draft has been revised
- Second round of external technical review in Spring 2014
- Anticipate implementation in early 2015, external workshops to precede implementation
- Propose that facilities to adopt requirements upon approval renewal or within 5 years of implementation date

Regional Planning - Water

Lower Athabasca Regional Plan

- Surface Water Quality MF (implemented)
- Groundwater MF (implementation continues for NAOS and SAOS)
- Surface Water Quantity MF (drafting based on external input)
- SAOS Regional Strategic Assessment (Phase 1 engagement done)

South Saskatchewan Regional Plan

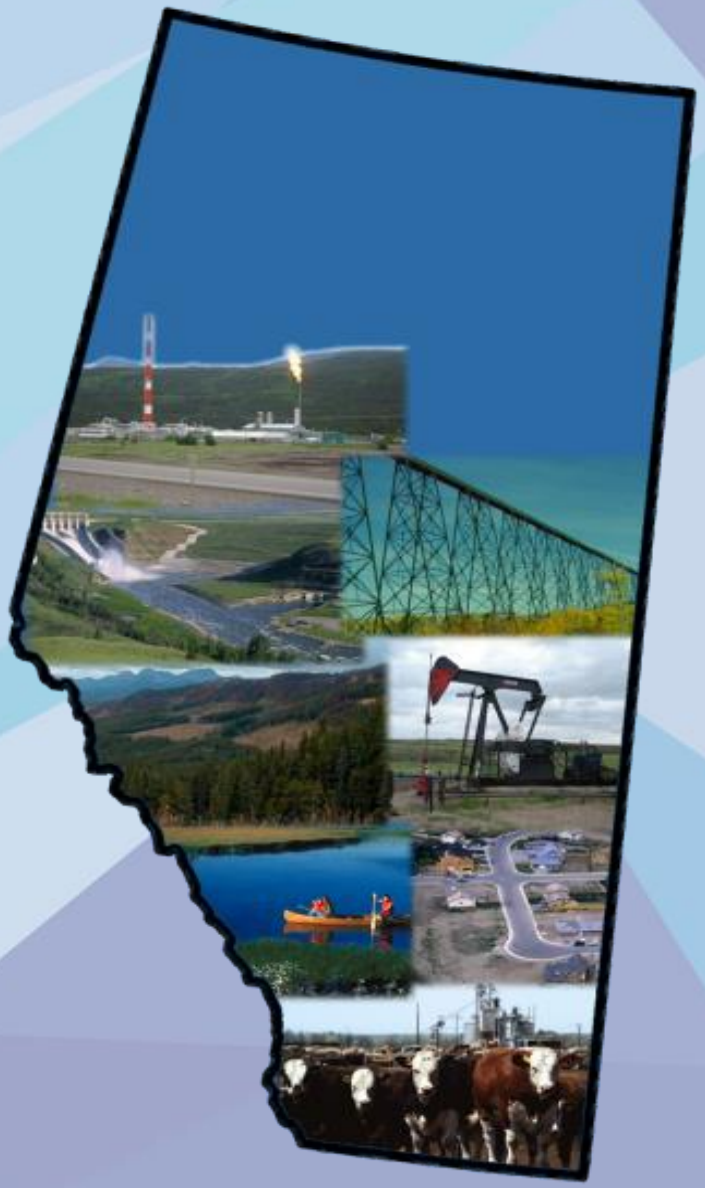
- Public Consultation over fall 2013 (final plan summer 2014)
- Surface Water Quality MF (to be released with final plan)
- Groundwater - Calgary-Lethbridge Corridor identified as priority area, enhanced mapping (PGIP) and monitoring
- exploring groundwater management approach options

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
- Updated draft guideline nearly completed, changes include:
  - more detailed well construction screening criteria
  - extended monitoring period(s) to assess water quality
  - revised role for microscopic particulate analysis (MPA)
  - Modified MPA methodology (EPA Method 1623)

Alberta

Freedom To Create. Spirit To Achieve.



Questions?