

**Government of Alberta**

**Agency Report  
2023**



# Table of Contents

<b>WATER-RELATED LEGISLATION / POLICY / REGULATIONS / PLANNING</b> .....	<b>3</b>
REGULATORY TRANSFORMATION.....	3
REGULATORY COMPLIANCE ASSURANCE PROGRAM – ENVIRONMENT AND PROTECTED AREAS .....	3
INCIDENT REPORTING – ALBERTA ENVIRONMENT AND PROTECTED AREAS.....	4
COMPLIANCE, ENFORCEMENT, AND INCIDENTS – ALBERTA ENERGY REGULATOR .....	5
INCIDENT REPORTING – ALBERTA ENERGY REGULATOR.....	6
ENVIRONMENTAL PROTECTION ORDER IMPERIAL OIL – ALBERTA ENERGY REGULATOR .....	7
REGIONAL PLANNING AND ENVIRONMENTAL MANAGEMENT FRAMEWORKS.....	8
TAILINGS MANAGEMENT FRAMEWORK .....	10
STORMWATER USE – WATER (MINISTERIAL) REGULATION AMENDMENT.....	11
SURFACE WATER ALLOCATION AND LOW FLOW MANAGEMENT – ALBERTA ENERGY REGULATOR.....	12
SURFACE WATER ALLOCATION DIRECTIVE—ENVIRONMENT AND PROTECTED AREAS.....	12
2023 WATER SHORTAGE RESPONSE—ENVIRONMENT AND PROTECTED AREAS .....	13
WATER CONSERVATION POLICY FOR UPSTREAM OIL AND GAS OPERATIONS – ALBERTA ENERGY REGULATOR.....	13
<b>SCIENCE, MONITORING AND INFORMATION</b> .....	<b>15</b>
OILSANDS MONITORING PROGRAM.....	15
OFFICE OF THE CHIEF SCIENTIST – MANDATE AND CONDITION OF ENVIRONMENT REPORTING .....	15
PROVIDING IMPROVED ACCESS TO SURFACE WATER QUALITY DATA THROUGH AN ENHANCED ONLINE DATA PORTAL .....	16
ALBERTA FLOW ESTIMATION TOOL FOR UNGAUGED WATERSHEDS .....	17
ALBERTA RIVER FORECAST CENTRE .....	17
<b>MAJOR INITIATIVES</b> .....	<b>19</b>
IRRIGATION INFRASTRUCTURE INVESTMENT AND FEASIBILITY STUDY.....	19
WATER INFRASTRUCTURE AND OPERATIONS.....	19
ALBERTA INNOVATES WATER INNOVATION PROGRAM.....	20
ENVIRONMENTAL IMPACT ASSESSMENTS .....	22
SPRINGBANK OFF-STREAM RESERVOIR .....	23
ADAPTATION PROGRAMS: COMMUNITY RESILIENCE CAPACITY BUILDING AND ADAPTATION RESILIENCE TRAINING PROGRAMS .....	25
WATERSHED RESILIENCE.....	26
FLOOD HAZARD IDENTIFICATION PROGRAM .....	27
<b>OTHER</b> .....	<b>28</b>
WATERSHED PARTNERSHIPS – ALBERTA WATER COUNCIL.....	28
PARTNERSHIPS - WATERSHED PLANNING AND ADVISORY COUNCILS.....	29
PARTNERSHIPS – WATERSHED MANAGEMENT .....	31
FORT CHIPEWYAN WORKING GROUP .....	32
WOOD BUFFALO NATIONAL PARK ACTION PLAN.....	33
INTERNATIONAL ST. MARY AND MILK RIVERS STUDY.....	34

# Water-Related Legislation / Policy / Regulations / Planning

## Regulatory Transformation

### Background

Environment and Protected Areas (EPA) is modernizing its regulatory system to make the approvals review process more transparent and efficient, while maintaining high environmental standards.

### Status

- As part of our regulatory transformation program, Alberta continues to update and streamline its regulatory business processes, which focus on outcomes and risk managed decisions, and translate these business processes to a new digital system.
- The regulatory transformation process seeks to achieve higher levels of regulatory efficiency by:
  - implementing an enhanced regulatory assurance system,
  - increasing regulatory efficiency and leveraging technology, and
  - supporting and stimulating the economy by reducing regulatory burdens.
- A digital platform is being built for the management, conservation, and preservation of Alberta's natural resources through the administration of the *Water Act*, the *Environmental Protection and Enhancement Act* and the *Public Lands Act*.
- This platform, the Digital Regulatory Assurance System (DRAS) allows submitted applications to be reviewed and managed digitally, significantly improving approval decision timelines and transparency.
- DRAS takes into consideration the whole project lifecycle of an application, from its initial submission, monitoring considerations, compliance requirements, to closure and remediation needs.
- This user-friendly digital system will lead to consistent and transparent reviews, without compromising environmental outcomes, which results in timely decisions.
- For applicants, DRAS will provide:
  - The ability to apply for one project with multiple activities via an integrated application
  - Clear and up-front application standards and requirements
  - Clear and transparent decision-making process
  - The ability to track the status of their applications in real time
  - Clear compliance expectations and ownership of compliance infractions
  - Increased province-wide consistency in application processes

### Further Information

The first and second releases were launched in June and November 2021, and included the functionality to accept, review and track *Water Act* approvals, codes of practice notices and surface water and groundwater applications, amendments, amalgamations, transfers, and renewals for *Water Act* licences. The third release was in April 2022, and included *Water Act* temporary diversion licences (TDLs).

October 2023 is the next release, and it will include incident response management supporting reporting and compliance. Planned future releases include registrations, notifications and approvals under the *Environmental Enhancement and Protection Act* in addition to several additional modules supporting aggregates, quarries, and contaminated sites.

## Regulatory Compliance Assurance Program – Environment and Protected Areas

### Background

Environment and Protected Areas (EPA) is modernizing its regulatory compliance assurance program by implementing an enhanced regulatory assurance system—all while maintaining high environmental standards.

The basis for EPA, compliance assurance system will still be based on our three pillars: education, prevention, and enforcement.

- Through education we work with the regulated community and the public to raise awareness and ensure there is a clear understanding of the regulatory requirements of our legislation.
- Prevention focuses on risk management. There is an ongoing need to identify risk to the environment and to take the appropriate actions, prior to a contravention occurring.
- The enforcement component of our program compels compliance and helps deter future non-compliances.

### **Status**

- EPA compliance assurance program uses a balance of education, prevention, and enforcement to ensure overall compliance with Alberta’s environmental legislation.
- As part of our regulatory transformation program, Alberta continues to update and streamline its regulatory compliance business processes which focus on outcomes and risk-managed decisions and translate these business processes to a new digital system.
- This new digital platform, the Digital Regulatory Assurance System (DRAS) will allow a more effective and efficient compliance assurance program for the province.

### **Further Information**

The fourth release of DRAS will be launched in the Fall of 2023, covering our compliance assurance program with EPA. This will assist our compliance staff, to be more efficient with our incident management, with a portion of them being reported electronically.

Planned future releases include registrations, notifications and approvals under the *Environmental Enhancement and Protection Act* in addition to several additional modules supporting aggregates, quarries, and contaminated sites.

More information is available at:

<https://www.alberta.ca/compliance-assurance-program>

## **Incident Reporting – Alberta Environment and Protected Areas**

### **Background**

Alberta’s *Environmental Protection and Enhancement Act* requires a responsible party to report the release of a substance that may cause, is causing or has caused an adverse effect on the environment or is a contravention of a term or condition of an approval or registration. Notification of spills or releases to the environment are reported through the **Energy and Environmental Emergency 24-Hour Response Line** for reporting environmental emergencies and public complaints (1-800-222-6514), which is operated by Alberta EDGE (Environmental and Dangerous Goods Emergencies). Alberta EDGE is a cross-ministry emergency and reporting centre.

Alberta EDGE receives several different types of calls for Environment and Protected Areas (EPA). The calls are classified as:

- Public Complaints – complaints, concerns or reports filed by members of the public.
- Industry Reports – industry self-disclosing releases or other environmental infractions.
- Agency Notifications – third party reports made by government or municipalities.

- In House – reports filed by an EPA representative.

Calls that meet environmental emergency criteria are triaged to EPA's Support and Emergency Response Team (ASERT), which responds to emergencies 24/7/365, and works with industry, municipalities, first responders, other government departments, agencies, and the public to ensure appropriate outcomes are achieved during emergency incidents. If an incident occurs that may affect a neighbouring jurisdiction, ASERT will notify the appropriate emergency contact in that jurisdiction as per transboundary agreements.

ASERT provides oversight to ensure the responsible party is following its approved emergency response plan and that containment and clean-up is occurring efficiently and effectively. The department oversees all aspects of an environmental incident – from the initial emergency response, clean-up and containment phase to long-term monitoring and remediation activities. The responsible party is liable for all associated clean-up costs. The department is able to take control of a situation and bring in the required response if the responsible party is not capable or is unwilling to act. There is no specific legislation for cost recovery in Alberta, however court ordered reparation is possible. The department works jointly with other response agencies during emergencies, including the Alberta Energy Regulator when there are releases from the oil and gas industry.

In addition to the environmental emergencies and public complaints calls that are triaged to EPA, Alberta EDGE also receives calls on behalf of Transportation and Economic Corridors, the Alberta Energy Regulator, Environment and Climate Change Canada, and the Natural Resources Conservation Board.

#### **Further Information**

More information is available at:

[www.alberta.ca/energy-and-environmental-response-line](http://www.alberta.ca/energy-and-environmental-response-line)

## **Compliance, Enforcement, and Incidents – Alberta Energy Regulator**

### **Background**

The Alberta Energy Regulator (AER) regularly inspects, audits, and monitors energy sites, pipelines, and mines to ensure compliance with our requirements. Compliance and enforcement actions are an important aspect of the AER's role as a regulator, and are informed by its [compliance assurance program](#), which is guided by the [Integrated Compliance Assurance Framework](#). Under this framework, we focus on upholding compliance through education, prevention, and enforcement.

### **Inspections and Compliance Rate**

We regularly monitor and inspect thousands of wells, production and processing facilities, pipelines, and coal and oil sands mines annually to ensure that companies follow our requirements and safely develop energy resources in a manner that protects the environment. We do this by visiting energy sites to inspect a company's activities and auditing the information they provide. In 2022/23, we conducted 8128 inspections, of which 73% resulted in a satisfactory compliance finding. In addition, we audit all aspects of energy resource development to confirm that the industry follows specific operational and reporting requirements. In 2022/23, we performed 6535 audits and issued 1038 notices of noncompliance.

Major investigations are formal evidence-collection processes that must follow established legal procedures to ensure the integrity of the investigation. Investigations can take anywhere from three months to two years to complete. When noncompliance is deemed serious, it is triaged for investigation. When an investigation is completed and if there is a finding of noncompliance, an appropriate enforcement action is selected. Enforcement tools range from warning letters to prosecution. The tools we use vary depending on the significance of the non-compliance.

In 2022/23, fines from creative sentences and penalties totaled \$ 307,200.

Regardless of the compliance and enforcement action we take, our goal is to work with companies to bring them back into compliance. We publicly report on energy incidents and enforcement actions through our Compliance Dashboard on aer.ca.

### **Emergency Management**

We maintain a 24-hour, 7-days-a-week, 365 days-a-year on-call schedule to support incident response. We rank emergencies as an alert or level 1, 2, or 3 based on the risk level to members of the public or the environment. In 2022/23, 93 energy-related incidents were reported to the AER: 66 alerts, 16 level 1, 10 level 2, and 1 level 3. Emergency response staff are deployed to some level 1 emergencies but to all level 2 and 3 emergencies. Emergency response staff were deployed to 19 emergencies in 2022/23. Also, in 2022/23, we evaluated 38 emergency response plan exercises and completed 66 emergency response plan audits, resulting in 34 notices of noncompliance.

## **Incident Reporting – Alberta Energy Regulator**

### **Background**

The Alberta Energy Regulator's (AER's) response to industry incidents and emergencies continues to be based on information collected by the Government of Alberta's energy and environmental emergency 24-Hour Response Line ([Energy and Environmental Response Line | Alberta.ca](https://www.aer.ca/energy-environmental-emergency-response-line)).

### **Status**

There have been no major changes to the AER's standard operating procedures in the incident reporting space. When an incident is reported by industry via a phone call to the Energy and Environmental Emergency 24-Hour Response Line, the phone call is received by the AER, it is triaged, and an appropriate response activated.

Members of the general public are encouraged to call the Energy and Environmental Emergency 24-Hour Response Line if they see an energy or environmental incident or emergency, or if they wish to file a complaint about an operation (such as odour or noise).

The AER's Emergency Management (EM) Team is on standby to help companies manage all types of hazards and incidents. When an incident happens, our role is to protect the health, safety, and welfare of people and wildlife and limit damage to property and the environment.

AER's trained staff coordinate with the company responsible for the incident. The AER will mobilize to ensure industry responses meet the regulatory requirements and expectations, which ensures that the response is efficient and effective.

The AER coordinates its response with other municipal, provincial, and federal agencies, and the AER follows the Energy Resources Industry Emergency Support Plan (ERIESP) during emergencies of large consequence or that require joint response from multiple government agencies.

To keep Albertans informed, the AER publishes details about incidents as they happen on the AER's Compliance Dashboard. After the emergency is over, the AER will continue to monitor the company's clean-up activities to ensure that the AER's requirements are met.

### **Further Information**

On average, the AER will receive between 350 to 450 incidents reported via phone call to the Energy and Environmental Emergency 24-Hour Response Line per calendar month.

## Environmental Protection Order Imperial Oil – Alberta Energy Regulator

### **Background**

An environmental protection order (EPO) was issued February 6, 2023, by the Alberta Energy Regulator (AER) to Imperial Oil in response to two separate wastewater release incidents at the Kearl Oil Sands Project. Kearl is an Imperial owned and operated oil sands operation in the Athabasca Oil Sands Region of Alberta, 45 kilometres northeast of Fort McKay.

### **Status**

An [environmental protection order \(EPO\) was issued February 6, 2023](#), by the Alberta Energy Regulator to Imperial Oil in response to two separate wastewater release incidents at the Kearl Oil Sands Project.

**Incident 1:** The first incident, reported earlier in 2022, involves industrial wastewater seeping from the External Tailings Area in four locations both on and outside the boundaries of the Kearl site.

**Incident 2:** In a separate incident, also at the Kearl site, Imperial reported an uncontrolled release of industrial wastewater from an overflow drainage pond, that occurred on Saturday, February 4, 2023. The estimated volume is approximately 5300 m<sup>3</sup> (5.3 million litres; 1.4 million gallons).

Although a separate incident, provisions in the EPO also address measures for this cleanup effort and requires Imperial to submit plans for wildlife protection, environmental remediation, and public notification to mitigate this second release.

AER has also commissioned ongoing third-party water quality testing at the Imperial Oil Kearl oil sands site. This is in addition to ongoing monitoring and reviewing the water testing data provided by Imperial to ensure compliance with the environmental protection order (EPO) issued on February 6, 2023. All data can be found here: <https://www.aer.ca/protecting-what-matters/holding-industry-accountable/investigations/ongoing-investigations/imperial-oil-kearl-oil-sands>

Both incidents are under investigation.

### **Deloitte Review**

Following the issuance of the environmental protection order (EPO) in February 2023, there was considerable concern expressed by the public and community regarding the AER's actions, including communications to Indigenous communities and the Regional Municipality of Wood Buffalo, regarding potential impacts to lands and water quality.

The AER board of directors commissioned Deloitte LLP to conduct an independent review of the AER's actions in response to the Kearl releases. Deloitte was asked to review, assess, and provide recommendations on the AER's current policies, standards, procedures, and communication processes for emergency response, incident reporting, and investigation regarding actions taken during the Kearl incidents.

On September 27, 2023, the AER board of directors accepted the final report in which Deloitte determined that the AER followed existing policies, standards, procedures, and processes with no areas of noncompliance noted. A number of opportunities for policy and process updates and improvements were identified along with a need for increased and enhanced notifications to First Nations communities and key stakeholders. Deloitte also identified opportunities for improvements in risk assessment, incident escalation, and management communication to the board.

Recommendations for improvement include highlighting the need for more detailed processes and clearer communication protocols with First Nations and external stakeholders with collaborative input to better respond to their needs and concerns. There was also a recommendation to establish formal documented procedures for internal escalation to management and the board for incidents and emergencies.

The board and AER management are fully committed to swiftly implementing Deloitte's recommendations. AER management has been directed by the board to develop a detailed action plan to address the findings identified.

The AER's investigation into the incidents at Kearl is ongoing. Details on mitigation, cleanup, and more can be found in the AER's EPO and Imperial's public updates.

The AER is committed to sharing updates and information with stakeholders, Indigenous communities, and the public, within the parameters of the investigation. As regulator, the AER will continue to provide compliance monitoring and oversight of all activities pertaining to the terms of the EPO. The AER continues to investigate the two events defined in the EPO and will share findings as it can while ensuring the integrity of the investigations.

#### **Further Information**

The AER is committed to ensuring that energy development is safe and environmentally responsible. Compliance and enforcement actions are an important aspect of the regulator's role and are informed by its [compliance assurance program](#), which is guided by the [Integrated Compliance Assurance Framework](#). Members of the AER senior leadership team have also reached out to stakeholders, including visiting the work underway on site at Imperial Kearl and meeting directly with Indigenous communities to answer questions and actively listen to concerns. The AER will continue to provide updates to potentially affected communities and is actively monitoring the situation at the Kearl site to ensure Imperial is taking the necessary actions to comply with the EPO.

The AER continues to oversee Imperial's compliance with the EPO to ensure the regulator's top priorities of public safety and the protection of the environment.

## **Regional Planning and Environmental Management Frameworks**

### **Background**

The Government of Alberta's Land-use Framework (LUF) sets an approach to managing the province's land and natural resources to achieve Alberta's long-term integrated economic, environmental and social goals. The LUF includes establishing regional plans for seven land-use regions, which are given legislative authority through the *Alberta Land Stewardship Act (ALSA)*. ALSA includes provision for advancing regional, sub-regional and issue specific integrated land-use plans as well as stewardship tools. Environmental management frameworks (EMFs) are a strategy to achieve the environmental outcomes established in a regional plan.

### **Status**

The Government of Alberta remains focused on commitments and priorities of implementing the LUF, *ALSA*, and its various elements such as integrated land-use plans and land stewardship tools.

The Lower Athabasca Regional Plan (LARP) was released in 2012 and its associated EMFs for air quality, surface water quality, surface water quantity and tailings continue to be implemented. The Government of Alberta remains committed to implementation of the plan by working together with stakeholders and



Indigenous peoples. Government launched the LARP 10-year review on August 26, 2022, to assess the ongoing relevancy and effectiveness of the plan in supporting the long-term vision for economic, social and environmental needs in the region.

The South Saskatchewan Regional Plan (SSRP) was released in 2014 and its associated EMFs for air and surface water quality continue to be implemented. A 10-year review of the SSRP is required to be initiated in 2024. The SSRP recognizes the Approved Water Management Plan for the South Saskatchewan River Basin continues to provide important guidance for water management in the region.

The development of the North Saskatchewan Regional Plan (NSRP) was initiated in 2014; however, the plan has not been completed. The timing of the NSRP and sequencing of the remaining regional plans in the province has not been determined.

Two new surface water quality management frameworks for the North Saskatchewan and Upper Athabasca regions were recently completed. These frameworks establish a system of indicators, management thresholds, evaluation, reporting, and management responses for the main stem upper Athabasca, North Saskatchewan and Battle rivers. Alberta Environment and Protected Areas (EPA) is also looking to advance similar surface water quality management frameworks for the Peace and Red Deer regions.

Alberta EPA continues to advance the development of biodiversity indicators. Data layers showing the evaluation of the Stream Connectivity and Interior Habitat indicators across the province are available on Open.Alberta and GeoDiscover, along with supporting methodology. Data and information for additional indicators such as Landscape Connectivity and Native Cover are anticipated to be published in the coming months.

A guidance document for the development of groundwater management frameworks is also being advanced to support the assessment and management of cumulative impacts to groundwater quality and quantity across the province.

### **Further Information**

Information about the ongoing implementation of the LAR and SSR air and surface water management frameworks, including annual reporting on ambient condition and status of management response, can be found at:

- LUS LARP and SSRP progress reports:
- <https://landuse.alberta.ca/ResultsResources/ResultsReporting/Pages/default.aspx>
- LUS LARP 10-year review:  
<https://landuse.alberta.ca/RegionalPlans/LowerAthabascaRegion/10YearReview/Pages/default.aspx>
- EPA LARP EMF implementation: <https://www.alberta.ca/lower-athabasca-regional-planning.aspx>
- EPA SSRP EMF implementation: <https://www.alberta.ca/south-saskatchewan-regional-planning.aspx>
- EPA Biodiversity indicator:  
<https://geodiscover.alberta.ca/geoportal/rest/metadata/item/7025fe90840a4680b4011b7100c21644/html>

#### *Information on EPA's Biodiversity indicator*

Data layers and supporting methodology for biodiversity indicators can be found at:

- [Stream connectivity indicator for Alberta – Open Government](#)
- [Interior Habitat Indicator for Alberta – Open Government](#)

Information on the two new surface water quality management frameworks:

- [North Saskatchewan Region surface water quality management framework for the North Saskatchewan and Battle rivers – Open Government \(alberta.ca\)](#)
- [Upper Athabasca Region surface water quality management framework for the Upper Athabasca River – Open Government \(alberta.ca\)](#)

## Tailings Management Framework

### *Alberta Environment and Protected Areas*

#### **Background**

The Tailings Management Framework for the Mineable Athabasca Oil Sands (TMF) was released in 2015 as a commitment under the Lower Athabasca Regional Plan. This framework provides direction to manage fluid tailings volumes during and after mine operations to manage and decrease liability and environmental risk resulting from the accumulation of fluid tailings. A major goal of the framework is to have all tailings ready to reclaim within 10 years of the end of mine life.

#### **Status**

As committed in the Tailings Management Framework, the provincial regulatory system will provide guidance on the submission and review of regulatory applications for managing oil sands mine water. The Oil Sands Mine Water Science Team (OSMW-ST) was formed in August 2020 to provide credible scientific information to inform government regulatory bodies regarding the potential release of treated oil sands mine water to the lower Athabasca River by oil sands surface mining companies. The OSMW-ST is providing technical expertise and input that will be used to inform the development of the regulatory guidance for the safe release of treated oil sands mine water. Six technical information gaps were identified with work plans published in 2022. Technical work outlined in the published work plans is anticipated to be completed in 2023.

#### **Further Information**

TMF: [Lower Athabasca Region : tailings management framework for the mineable Athabasca oil sands – Open Government \(alberta.ca\)](#)

OSMW-ST work plans: [A compendium of work plans to fill information gaps to inform the development of regulatory guidance documents for the safe release of treated oil sands mine waters to the Lower Athabasca River – Open Government \(alberta.ca\)](#)

### *Alberta Energy Regulator*

#### **Background**

The Alberta Energy Regulator (AER) works to ensure that the oil sands are developed within government policy and in an environmentally responsible way. We are committed to protecting what matters to Albertans—public safety and the environment—ensuring the rules are followed at every stage of energy development.

Under the Government of Alberta’s Tailings Management Framework (TMF), operators must progressively treat and reclaim their tailings so that they are ready to reclaim within 10 years after mining has stopped.

Under the TMF and the AER’s *Directive 085: Fluid Tailings Management for Oil Sands Mining Projects*, operators are required to submit tailings management plans to the AER. These plans list the actions that operators will take over the next several decades to ensure their tailings are progressively reclaimed when the life of the mine ends.

To ensure an operator's tailings management activities remain on track, the AER has set thresholds for fluid tailings volumes that operators must maintain (i.e., limits and triggers). These thresholds will remain in place for the approved life of a mine.

The TMF and Directive 085 do not address waterfowl protection, dam safety, or emissions from tailings ponds. These issues are addressed through other AER regulatory requirements.

The AER continues to work with all stakeholders, including industry, environmental groups, and indigenous groups to ensure all tailings management and operational plans meet Government of Alberta policy and AER requirements.

#### **Status**

The AER has approved tailings management plans for all eight of Alberta's oil sands mines. Decision reports are posted to the Tailings Notices and Decisions page on [aer.ca](https://www.aer.ca).

Each year, the AER reports on the volume of fluid tailings. The 2021 State of Fluid Tailings Management for Mineable Oil Sands report shows tailings ponds from oil sands continue to grow but remain within allowable limits and triggers. The amount of fluid tailings in Alberta's mineable oil sands decreased by 0.4 per cent in 2021 compared to 2020, while bitumen production increased by seven per cent." The 2022 State of Fluid Tailings Management for Mineable Oil Sands is set to be released in October 2023.

Oil sands mining projects use a combination of river water, groundwater, surface runoff, and recycled water from tailings and storage ponds. Companies are using more recycled water from tailings and storage ponds than water from other sources as seen in the [AER Water Use Report](#).

#### **Further Information**

Additional information about the AER's approach to tailings management is available at [aer.ca](https://www.aer.ca).

## **Stormwater Use – Water (Ministerial) Regulation Amendment**

### **Background**

To improve access to alternative water sources, Alberta has made it easier to access and use stormwater by removing the *Water Act* licencing requirement for projects that meet specific conditions. These conditions include, but are not limited to, those related to volume, regulatory approval, water quality, permissions, and the absence of adverse impacts.

Benefits of stormwater use include offsetting freshwater withdrawals from rivers and lakes, increasing resilience of the water supply, and localized drought mitigation.

### **Status**

The *Water (Ministerial) Regulation* was amended in April 2023 to remove the requirement for a *Water Act* licence for use of smaller volumes of stormwater, under specific conditions.

### **Further Information**

An online factsheet outlining the changes in more detail can be found at: [Stormwater use regulation amendment : removing barriers to stormwater use - Open Government \(alberta.ca\)](#).

## Surface Water Allocation and Low Flow Management – Alberta Energy Regulator

### **Background**

Alberta has regional water management plans that establish water management objectives in the South Saskatchewan River Basin, Cold Lake-Beaver River Basin, Battle River Basin, and the Lower Athabasca and Wapiti River mainstems. Water bodies that are not covered by these regional plans and are not regulated by significant water management structures are managed by the 2019 Surface Water Allocation Directive (SWAD). The Directive uses a sustainable watershed approach to balance ecological needs and economic considerations.

During periods of low flow, the Alberta Energy Regulator (AER) co-ordinates with Environment and Protected Areas (EPA) to ensure the water management objectives outlined in the regional water management plans, SWAD, and transboundary agreements are met.

### **Status**

The AER and EPA continue to implement the SWAD by issuing new *Water Act* licences with diversion schedules that set operational diversion limits based on real-time flow conditions at Water Survey of Canada hydrometric stations. The limits are set based on the ecological thresholds identified in the SWAD and the level of water demand required by senior priority water licence holders. The diversion schedules include conditions requiring a user to stop diverting when all the remaining flow is required to meet ecological and senior priority needs.

For regions covered by an established water management plan, the AER and EPA continue to implement these plans by following the guidance in the appropriate plan.

To prepare for potential flood and water shortage conditions within the province, the provincial Flood and Water Shortage Team (FAWST) has been activated since April 2023. In July 2023, EPA established a Department Coordination Center (DCC), of which the AER is an active participant, to monitor and take proactive steps to respond to specific water shortage conditions within the province. This has involved AER staff completing compliance education and verification activities with licenced water users to ensure they are complying with their authorizations under the Water Act. AER contacted approval holders of facilities releasing discharge to flowing waterbodies to ensure discharged wastewater meets the conditions and limits of Environmental Protection and Enhancement Act (EPEA).

## Surface Water Allocation Directive—Environment and Protected Areas

### **Background**

The Surface Water Allocation Directive (SWAD) applies to only new licences from unregulated waterbodies that do not have a watershed management plan or Instream Flow Objective. The SWAD implementation guidelines have been prepared by an Environment and Protected Areas (EPA)/Alberta Energy Regulator (AER) joint task team and are being executed by both regulators (EPA and AER).

Regional Hydrologists at EPA and Hydrologists at AER are responsible for implementing the SWAD and provide recommendations to the Approvals staff.

### **Status**

- A reasonable methodology and tools (for both rivers and lakes) to determine the effective cumulative diversion rate for existing licence allocation and licence schedules are being developed.
- Licence schedules developed within EPA and AER are being shared through a file sharing system for consistency.

- A tool has been developed to estimate key flow statistics during winter season for seasonal hydromet stations.
- Alberta Flow Estimation Tool for Ungauged Watershed (AFETUW) has been developed to support:
  - Query existing licenced allocation in a watershed
  - Initial watershed assessment to determine the ability of the watershed to support the allocation in an ungauged watershed.
  - Generate environmental flow report at an ungauged site implementing SWAD criteria.
  - Winter flow estimation module has been added to AFETUW to help estimate the flow during the winter season at an ungauged stream location.
- Water shortage advisories are being issued on the Alberta River Basins website and App based on SWAD criteria and water management actions are being taken accordingly.

### **Further Information**

For more information on SWAD, please visit: [Surface water allocation directive - Open Government \(alberta.ca\)](https://open.alberta.ca/surface-water-allocation-directive)

## **2023 Water Shortage Response—Environment and Protected Areas**

### **Background**

Southern Alberta and small parts of northern Alberta have been experiencing water shortage in 2023. Below average snowmelt in spring 2023 and hot dry conditions this growing season have led to challenging conditions for Alberta’s farmers, municipalities and many industries that use water.

Alberta is actively managing water supplies, where possible, and working directly with impacted municipalities, industry, and agricultural producers in hard-hit areas to find alternative sources of water. The water shortage situation is expected to continue for at least the next several months and Alberta will continue to effectively manage the challenges as required this winter.

Currently, long range forecasts from Environment Canada are predicting a relatively warm and dry winter. This forecast has significant uncertainty, but it does indicate the potential for a more serious water shortage in 2024.

Alberta’s government is monitoring the situation closely and working with water users and local governments to help manage and conserve water where possible.

### **Further Information**

More information is available at: [www.alberta.ca/drought](https://www.alberta.ca/drought)

Water Shortage Advisories issued for Alberta are posted online at: [rivers.alberta.ca/](https://rivers.alberta.ca/)

## **Water Conservation Policy for Upstream Oil and Gas Operations – Alberta Energy Regulator**

### **Background**

The Water Conservation Policy for Upstream Oil and Gas Operations (WCP) was released in December 2020. It provides policy direction to minimize freshwater use in major upstream oil and gas operations by encouraging the use of alternative sources such as wastewater, saline groundwater and non-water technologies.

## **Status**

To implement the Government of Alberta's WCP, the Alberta Energy Regulator (AER) has been developing and enhancing its regulatory instruments to enable improved water storage and conveyance options for poor-quality water within Alberta's oil and gas industry. This has resulted in the release of *Manual 025: Applications Under the Water Conservation Policy for Upstream Oil and Gas Operations* (October 2022) and updates to *Directive 055: Storage Requirements for the Upstream Petroleum Industry* (March 2022).

The AER is also poised to release a revised *Directive 077: Pipelines — Requirements and Reference Tools* by year end 2023 to allow for conveyance of a variety of waters through temporary surface pipelines. This is part of the broader Pipeline Rules project that will:

- Modernize and align the *Pipeline Rules* with CSA Z662
- Enable temporary surface pipelines for water conveyance
- Mandate safety loss management and integrity management plans
- Improve clarity and processes
- Allow for flexibility in meeting requirements
- Provide transparent regulatory process and structure for temporary surface pipelines
- Help industry achieve goals of the Water Conservation Policy for Upstream Oil and Gas Operations – i.e., reduce the use of high-quality nonsaline water, while making high-quality nonsaline water still available where/when appropriate
- Provide storage and conveyance options for poor-quality water, thereby encouraging recycling and reuse of those waters.

Benefits include:

- increased water-security for operators, as poor-quality waters can still be available during times of water restrictions due to low flow (e.g., drought, winter conditions)
- reduced regulatory burden as transparent, consistent regulatory processes are available
- reduced waste disposal costs as water can be reused before disposing
- extended lifespan of deep disposal reservoirs by reducing injection volumes and rate (as water can be reused several times before disposal)
- improved nonsaline water use intensity, a metric used to evaluate water use and available in AER's Water Performance Report. This publicly-available information demonstrates efforts made by Alberta's energy industry to conserve fresh water.

Water conveyance through temporary surface pipelines can reduce reliance on trucking of poor-quality water, which can reduce costs, traffic and congestion, noise, dust, road damage/maintenance, vehicle emissions, and improve road safety. Additionally, such temporary infrastructure can reduce the environmental and landscape footprint of water conveyance, as these pipelines can be laid on the surface with minimal preparation/disturbance and can be deployed and removed quickly.

## **Further Information**

Further information can be found here: <https://static.aer.ca/prd/documents/manuals/Manual025.pdf>

# Science, Monitoring and Information

## Oilsands Monitoring Program

### **Background**

The Oil Sands Monitoring Program (OSMP), launched in 2012, is one of the largest environmental monitoring programs in the world, and is co-managed by the Government of Alberta (Environment and Protected Areas (EPA)) and the Government of Canada (Environment and Climate Change Canada (ECCC)) under a 2017 Memorandum of Understanding.

The OSMP is the primary source of scientifically credible ambient environmental monitoring information collected across multiple stakeholders to assess and report on the effects (or otherwise) of oil sands development on the environment in the oil sands region of Alberta. The OSMP includes monitoring, evaluation and reporting on air, deposition, water, groundwater, wildlife, biodiversity, wetlands and community-based monitoring.

Open and transparent data management and integrated reporting on environmental condition are key deliverables of the program that also inform regulatory assurance, industry improvement, trans-boundary commitments and regional plans.

The OSMP is governed and operationalized through a multi-stakeholder, consensus-based process that includes industry, Indigenous communities, governments, and Environmental Non-Government Organizations under an Operational Framework Agreement (OFA) signed in 2018. Each fiscal year, work plans are approved via the OSMP Governance structure for a scope of work that considers the full program budget and alignment with priorities.

Monitoring, evaluation, and reporting is delivered under the OSM program by EPA and ECCC and more than 50 internal and external partnerships with monitoring organizations, agencies, Indigenous communities, ENGOs and universities.

### **Status**

- More than 500 products have been generated by the program including peer-reviewed papers, technical reports, program reports, presentations, and workshop materials.
- Environmental data generated by the OSM Program for multiple theme areas (for example, surface water quality, air, wetlands) are publicly available (some in real time) on the [OSM Program Portal](#) and the [Alberta Air Data Warehouse](#) as well as through program delivery partners such as [Environment and Climate Change Canada \(ECCC\)](#), the [Wood Buffalo Environmental Association \(WBEA\)](#), and the [ABMI](#).

### **Further Information**

Information on the OSMP, including scientific and technical reports, can be found on the Oil Sands Monitoring Program website at : [Oil Sands Monitoring Program | Alberta.ca](#)

## Office of the Chief Scientist – Mandate and Condition of Environment Reporting

### **Background**

The Office of the Chief Scientist (OCS) is legislated under Section 15.1 of the *Environmental Protection and Enhancement Act* to develop and implement an environmental science program to monitor, evaluate, and report on the condition of Alberta's ambient environment. To this end, the work of the OCS focuses on six key departmental priorities, including:

1. championing science, research and the role of evidence;



2. providing scientific advice to address complex environmental challenges and opportunities facing the province;
3. promoting scientific excellence through research partnerships with universities and other credible scientific organizations;
4. establishing and upholding a process for Condition of Environment reporting to inform the Government of Alberta and Albertans;
5. providing strategic advice and guidance for the environmental science program through consultation with the Science Advisory Panel and Indigenous Wisdom Advisory Panel; and,
6. providing and facilitating environmental science communication to the Government of Alberta and Albertans.

Alberta's Environmental Science Program (AESP) website provides the primary venue for provincial scale reporting on condition of Alberta's environment.

The AESP website also includes sections describing:

- the legislation, strategies and processes that guide Alberta Environment and Parks in its environmental monitoring activities;
- environmental indicators and reporting on the state of Alberta's air, water, plant, land, wetlands, wildlife and climate; and
- the Office of the Chief Scientist and its role in coordinating delivery of Alberta's Environmental Science Program to provide data and reporting on the condition of Alberta's environment.

The AESP website also offers articles about the environmental science work and results being delivered by the department and its partners, and the people delivering it. Publications, articles and event notices related to environmental science in Alberta are also shown throughout the website.

An update on water-related Condition of Environment reporting (priority 4) through the AESP that may be of interest to PPWB and MRBB members is provided below.

### **Status**

Alberta's Environmental Science Program provides the public with information on the condition of Alberta's air, climate, fish, wildlife, plants, land, wetlands and water. Condition of the environment reporting in these areas outlines a framework for delivering information to the public in a plain-language, easy-to-access online format, and help us to better understand current provincial-scale conditions and long-term changes over space and time. Currently, three condition of environment water indicators, including chloride, lake trophic status, and water yield, are presented on Alberta's Environmental Science Program [website](#).

### **Further Information**

Detailed information on the Condition of Environment indicators can be found at <https://www.alberta.ca/condition-of-the-environment-water-indicators>.

## **Providing Improved Access to Surface Water Quality Data through an Enhanced Online Data Portal**

### **Background**

Alberta Environment and Protected Areas (EPA), and its partners, monitor surface water quality in waterbodies across the province. This data is used to support policy development, condition of the environment reporting, and government decision-making.



The Water Quality Data Portal (WQDP) is the primary mechanism for publicly distributing Alberta's provincial surface water quality monitoring results. The WQDP is a spatial tool used to search, view, and download data for:

- The surface water quality stations that form EPA's provincial monitoring program
- Environment Protection and Enhancement Act (EPEA)-regulated activities in Alberta.

### **Status**

- EPA prioritizes improving data access and availability for users, and several systems enhancement projects were recently completed to improve services for staff, partners and citizens.
- Data stewards provide essential data services on behalf of the ministry ensuring regulatory requirements are met, data is properly controlled throughout its lifecycle, and data producers and stakeholders have access to quality data.
- In August 2022, additional data was added to the WQDP and the system was enhanced to improve the user experience when viewing, customizing and downloading data.
- Additional data will be added to the portal including industrial and municipal wastewater, pesticides, drinking water, groundwater chemistry, snowpack, and enhanced sampling results.

### **Further Information**

Water Quality Data Portal online access: <https://www.alberta.ca/surface-water-quality-data>

## **Alberta Flow Estimation Tool for Ungauged Watersheds**

### **Background**

Alberta Environment and Protected Areas has developed a provincial web-based application, namely Alberta Flow Estimation Tool for Ungauged Watersheds (AFETUW), for both government and external stakeholders. To support decisions on new water licence applications and compliance with licence conditions, this user-friendly tool allows:

- (1) watershed delineation at any point along a stream in the province,
- (2) querying water licences issued under the Water Act in any user specified watershed, and
- (3) estimation of stream flows in ungauged watersheds in the province

AFETUW automates many computational and time intensive processes and provides a practical province-wide approach for management of water resources in Alberta.

### **Status**

The AFETUW is available to the general public since May 2021.

### **Further Information**

AFETUW can be accessed online at <https://afetuw.alberta.ca>. A comprehensive user's guide is also available on the website.

## **Alberta River Forecast Centre**

### **Water Supply Model Update**

The Alberta River Forecast Centre (RFC) publishes monthly Water Supply Outlooks between February and August for use across the Government of Alberta, transboundary partners, infrastructure operators, irrigation districts, municipalities, and industry users. The Water Supply Outlook contains March to September natural flow volume forecasts at twenty locations in the Milk, Oldman, Bow, Red Deer and North Saskatchewan river basins. This information is used for decision-making related to efficient water

management, reservoir operation, spring seeding, water allocation, and providing early drought and flood warnings.

The RFC is implementing PyForecast to update the existing Principal Component Analysis (PCA) based water supply models. PyForecast is a statistical modelling tool developed by the US Bureau of Reclamation Great Plains Region to train, build and run seasonal streamflow forecast models.

The RFC has also partnered with the University of Alberta to use machine learning (ML) techniques, a subset of Artificial Intelligence, to test new models that could improve the water supply forecast accuracy. In 2024, the newly developed ML-based models will be compared with the results from the PCA-based water supply models to validate the ML model results, to find the most suitable forecasts and meet stakeholder needs.

### **River Forecast Centre Status**

The Alberta River Forecast System (ARFS-FEWS), a customized version of the Deltares Delft-FEWS (Flood Early Warning System) system, was instrumental in flood forecast operations for multiple events over the summer. The efficiency and value of using a common FEWS platform across multiple forecasting agencies are being realized now as configuration code, tools and lessons learned are being shared between river forecasting agencies across Canada.

<https://rivers.alberta.ca/> and Alberta Rivers mobile app were used extensively during this spring's flood events and water shortages through the summer and fall. Over the last year a number of backend upgrades were made to increase the system's resilience to IT failures. The RFC is also developing a geospatial service to automate the sharing of flood advisories with other organizations.

Based on the RFC's flood forecasting model evaluation, the Raven Hydrologic Framework was identified as the top ranked forecasting tool based on the assessment criteria. Work is now underway to update two existing models (upper Red Deer River and Smoky River) and incorporate them into ARFS-FEWS for operation testing in the 2024 flood season.

### **Further Information**

Further information can be provided by the Prairie Provinces Water Board Committee on Flow Forecasting, and the Community of Practice for Operational Hydrology Prediction in Canada.

River and lake levels, river flows, precipitation, snowpack, flood and water shortage advisories and the Water Supply Outlook are available on <https://rivers.alberta.ca/>.

## Major Initiatives

### Irrigation Infrastructure Investment and Feasibility Study

#### **Background**

Alberta Irrigation Modernization – In 2020-2021, the Government of Alberta, the Canada Infrastructure Bank, and a consortium of nine irrigation districts announced their combined investment of \$932.7 million to modernize irrigation district infrastructure and increase water storage capacity in the South Saskatchewan River Basin. This investment will support the construction or enlargement of up to four off-stream irrigation storage reservoirs and support over 90 infrastructure rehabilitation projects, including converting open canals to underground pipeline systems, thereby eliminating evaporation, seepage and spill. Projects will be delivered by the irrigation districts and the increased water conveyance efficiency will allow more acres to be irrigated with the same water allocation.

Irrigation Feasibility study in east-central Alberta – Starting in early 2021, Agriculture and Irrigation, the Canada Infrastructure Bank, the Special Areas Board, and the Municipal District of Acadia, began assessing the technical and financial feasibility of developing a large scale irrigation project in east-central Alberta in the Red Deer River Basin.

#### **Status**

Alberta Irrigation Modernization – Thirty-four of the infrastructure modernization projects have been completed to date, and 31 are currently active. An additional 27 infrastructure modernization projects have been scheduled but are not yet started. The four off-stream reservoir projects are in the early stages of project development. All projects under the investment are scheduled to be completed by 2028.

Irrigation Feasibility study in east-central Alberta - Phase 1 of the east-central Alberta feasibility study, completed in summer 2022, included a high-level assessment of previously cultivated land suitable for irrigation, availability of water, potential financial, economic, social and environmental benefits, capital and operational costs as well as environment and permitting risks. The report indicated 108,000 acres of previously cultivated land in the Municipal District of Acadia and Special Areas region could be developed for an irrigation project and recommended the next phase of work move forward. Phase 2, a more detailed assessment of the project's feasibility, is now underway and is expected to conclude in early 2025.

#### **Further Information**

Alberta Irrigation Modernization - Further information for specific projects being completed by the participating irrigation districts can be found at the following external link:

<https://www.albertawater.com/topics/irrigation>

Irrigation Feasibility study in east-central Alberta – Further information on this project, including the summary report for Phase 1, is available online: [MD Acadia & Special Areas Irrigation - Special Areas Board](#)

### Water Infrastructure and Operations

#### **Background**

Water Infrastructure and Operations Branch (WIOB) within Alberta Agriculture and Irrigation is responsible for the operation, maintenance and surveillance of approximately \$10.5 billion of provincially owned water management infrastructure. A significant portion of that infrastructure is managed to provide assured water supply for irrigation and municipal, industrial, and recreational uses that benefit Albertans, and also to support meeting inter-provincial water apportionment requirements.

To meet Dam Safety Regulatory requirements, WIOB undertakes regular inspection and surveillance of this infrastructure to track performance and to document changes and deficiencies that may impact the operability and long-term sustainability of the infrastructure.

WIOB also undertakes technical assessments and evaluations performed by independent qualified professionals. These assessments ensure infrastructure is performing as intended and identify changes or improvements required in light of changing climate conditions.

Using the information collected, WIOB delivers a maintenance program that resolves smaller issues directly related to the operational readiness of the infrastructure. WIOB also identifies and initiates capital rehabilitation projects that are delivered by Alberta Transportation and Economic Corridors. Capital rehabilitation projects include major repairs to and replacement of infrastructure components, which have been damaged in floods or other events, are beyond their design life or are no longer able to meet their designed operational outcomes.

### **Status**

The capital rehabilitation program is \$30 million annually, with an additional \$2.5 million for maintenance activities. The following is a list of capital rehabilitation projects currently being delivered as part of WIOB's capital rehabilitation program for 2023/24:

- Control systems upgrades - Waterton Dam Irrigation Outlet, Western Headworks, Carseland Bow Headworks, Waterton-St. Mary Headworks
- Kleskun Hills Flood Control Rehabilitation
- Lethbridge Northern Headworks Main Canal Liner Replacement
- Dickson Dam Spillway Upgrades
- Jaydot Dam Decommissioning
- McGregor Shoreline Erosion Mitigation
- Gregg Lake Weir Rehabilitation

### **Further Information**

WIOB works constantly with both internal and external stakeholders to manage the infrastructure to meet the competing needs of the full spectrum of water users and the environment. WIOB also works extensively with downstream stakeholders to ensure they have information that will assist them with developing and testing their own emergency response plans related to flood events that could occur as part of the operation of this infrastructure. This includes working with the Saskatchewan Water Security Agency on operational and dam safety issues.

## **Alberta Innovates Water Innovation Program**

### **Background**

Alberta Innovates is a provincially funded corporation that invests in research, innovation and entrepreneurship to drive provincial economic growth and diversity. Alberta Innovates provides technical expertise, entrepreneurial advice and support, opportunities for partnerships and funding to advance the best ideas. Programming supports a broad range of research and innovation activity – from discovery to use. Collaboration is at the heart of what Alberta Innovates does, bringing together bright minds and great ideas.

The Alberta Innovates Water Innovation Program (WIP) is designed to help the Government of Alberta (GoA) achieve the outcomes of the Alberta Water Research and Innovation Strategy (2014): A Renewal (AWRIS) and the goals of the Water for Life (WFL) Strategy: (1) safe, secure drinking water; (2) healthy aquatic ecosystems; and (3) reliable, quality water supplies for a sustainable economy. The priority is to make certain Alberta has the quality and quantity of water, when and where it's needed into the future.

The program builds on a history of world class research and innovation, and helps create and apply relevant, reliable, and credible knowledge and information that will lead to a high-performing, innovative and responsive water system for the province of Alberta, as called for in AWRIS.

The WIP research portfolio supports investments that advance knowledge and innovation in four key themes: (1) future water supply and watershed management; (2) healthy aquatic ecosystems; (3) water use conservation, efficiency, and productivity; and (4) water quality protection.

The WIP grant offers funding through continuous intake and competitive, time-limited calls to support the creation and application of relevant scientific knowledge and innovative technology solutions needed to address the goals of WFL/AWRIS strategies. Recipients include post-secondary institutions, government organizations, private sector companies, and not-for-profit organizations.

### **Status**

Highlights from 2022/23 include:

- 66 ongoing water projects and 20 recently completed water projects.
- >520 highly qualified professionals supported by projects to date with >200 jobs created and >170 collaborations.
- Program leverage of 2.9:1 with other funding sources.
- Approval of 18 new projects through the 2022 WIP Call for Proposals and 5 new projects through continuous intake.
- Release of the first edition of Alberta Innovates water magazine, Making Waves ([https://albertainnovates.ca/wp-content/uploads/2023/06/AI\\_MakingWaves\\_digital.pdf](https://albertainnovates.ca/wp-content/uploads/2023/06/AI_MakingWaves_digital.pdf)).

To date, Alberta Innovates has held four WIP call for proposals. Continuous intake is ongoing. Brief summaries for funded projects are available online at: <https://albertainnovates.ca/impact/funded-projects/>.

An annual WIP Forum is normally held in May each year but was cancelled from 2020 to 2023 due to the COVID-19 pandemic. Water Innovation webinars were established to continue efforts to share outcomes of projects funded through the WIP and maintain a network of water stakeholders in the province. Recordings of the sessions can be found at:

<https://www.youtube.com/playlist?list=PLByiXNJDs9JgE2dseQYAh4I3Z1KVkwP71>.

Four ongoing or recently completed projects are highlighted below.

### **Water Return Demonstration Project**

Syncrude's Water Return Demonstration Project was commissioned in 2019 and is a novel application of water treatment based on the principles of adsorption, filtration, and biodegradation. The purpose of the technology is to reduce constituents present in oil sands process water (OSPW) to ensure the treated water can be returned in a manner protective of human and ecological health.

Pilot testing results showed that individual substances in the treated OSPW are present at concentrations less than their respective acute guidance values. Importantly, the requirement of no lethality to rainbow trout and daphnia magna, is also met at the exit of Stage 3 which would be representative of end-of-pipe water quality. Additionally, most substances in the treated OSPW are present at concentrations less than their respective chronic guidance value for the protection of aquatic life. The next step of commercialization would be a pilot scale return to the Athabasca River. Further development of government regulations is required for this step and all activities related to the pilot system have been paused until this is completed.

### **Low Energy Ammonia Reduction from Ammonia-Rich Sludge Thickening Lagoon Supernatant in Canada: Pilot-Scale Demonstration**

Discharge of insufficiently treated municipal wastewater into natural water bodies can cause eutrophication in the receiving water bodies. Digested sludge liquor separated from the solids through dewatering commonly contains high concentrations of ammonia and requires further treatment to reduce the ammonia content.

Led by EPCOR, and partnering with the University of Alberta, this project employed single-reactor nitrification/denitrification and single-reactor nitrification/anammox processes at the pilot-scale to develop the operation and control strategies for ammonia-rich sludge liquor treatment. The pilot-scale reactor operation showed promising results for lagoon supernatant treatment with ~100% ammonia removal.

### **Assessing Water Connectivity in Rural and Urban Watersheds for Improved Water Management**

Led by the University of Calgary, this project will improve our understanding of the connectivity of surface water and groundwater to support sustainable water management in water-stressed urbanizing areas of Alberta. The hydrologic function of undeveloped natural systems is being compared to innovative low impact development (LID) systems for managing stormwater in urbanizing areas. Knowledge of pre- and post-development water flow and water treatment performance in the specific geologic and climatic setting of Alberta will be used to optimize the design of LID systems and guide strategies for improved management of water quantity and quality.

The knowledge generated from this project will assist a variety of end users involved in surface water, groundwater and stormwater management. The data and tools generated will benefit municipalities and have policy relevance for Alberta regulatory agencies assessing and mitigating impact of development on hydrologic systems. Results will also be used by water-focused community groups in need of relevant information to support development and implementation of sustainable water management plans.

### **Saddle Ridge Stormwater Kidney™ Retrofit**

A Stormwater Kidney™ treatment system was constructed to demonstrate how effectively low power recirculation flow through a treatment wetland can manage human pathogenic organisms and nutrients within a stormpond. An industry gap exists for producing safe water for irrigation and other community uses from a stormpond without requiring an expensive to build and operate mechanical water treatment plant. The built system closes that gap using simple and low-cost water recirculation through a self-maintaining treatment wetland that also serves to add beauty and habitat diversity to a community.

Triovest, Source2Source and the IDEA Group, constructed, tested and operated the Stormwater Kidney™. Performance of the facility surpassed expectations. The project served as a pilot for application of the Alberta Public Health Guidelines for Water Reuse and Stormwater Use.

### **Further Information**

Water Innovation Program (WIP): <https://albertainnovates.ca/funding/water-innovation-program/>

## **Environmental Impact Assessments**

### **Background**

An Environmental Impact Assessment (EIA) report is required where a proposed industrial project could result in significant adverse environmental effects. The environmental assessment process allows companies and government decision makers to examine the effects that the proposed project may have on the environment and determine if the project is of public interest.

The *Environmental Protection and Enhancement Act*, Environmental Assessment (Mandatory and Exempted Activities) Regulation and the Environmental Assessment Regulation are the statutes applicable to environmental assessment. These outline the environmental assessment process, which projects trigger an environmental impact assessment, and procedural steps such as public notices and which information must be available on the public register.

In Alberta, projects related to upstream oil and gas, as well as coal and oilsands mining are regulated by the Alberta Energy Regulator.

Environment and Protected Areas regulate projects such as water management projects, fertilizer plants, chemical manufacturing, refineries, and hydroelectric power plants.

**Status**

<b>Project Name</b>	<b>Regulator</b>	<b>Status: High Level</b>
Bow River Irrigation District Deadhorse Reservoir	EPA	Terms of Reference Stage
Coalspur Mines (Operations) Ltd. Vista Coal Mine Phase II Project	AER	Awaiting submission of the EIA report
Eastern Irrigation District Snake Lake Reservoir Expansion	EPA	Terms of Reference Stage
MD of Acadia & Special Areas East Central Irrigation Project	EPA	Terms of Reference Stage
Montem Resources Alberta Operations Ltd. Tent Mountain Mine Redevelopment Project	AER	Project has been withdrawn from the regulatory process.
St. Mary River Irrigation District Chin Reservoir Expansion Project	EPA	Terms of Reference Stage
Stone Creek Resorts Inc. Gondola Project	EPA	Terms of Reference Stage
Suncor Energy Inc. Base Mine Extension Project	AER	Awaiting submission of the EIA report
Value Chain Solutions Inc. VCS Heartland Complex Expansion	AER	Value Chain Solutions Inc. has withdrawn the final terms of reference for the proposed project.

AER = Alberta Energy Regulator

EIA = environmental impact assessment

EPA = Environment and Protected Areas

**Further Information**

Project summary information and status can be found on the department’s website:

<https://www.alberta.ca/environmental-impact-assessments-current-projects>

Information about Alberta’s environmental assessment process, including pertinent legislation, is available on the department’s website: <https://www.alberta.ca/environmental-assessment-process>

**Springbank Off-Stream Reservoir**

**Background**



In 2013, southern Alberta and the City of Calgary were impacted by flooding from the Elbow and Bow Rivers caused by rainfall. The floods caused more than \$5 billion in damages and recovery costs. Five people died, 100,000 people had to be evacuated, 4,000 businesses were impacted, and 3,000 buildings were flooded.

Following the flood, Alberta began implementing a systems approach to provide flood mitigation for southern Alberta, including Calgary. This approach includes structures along both the Bow and Elbow Rivers. The Springbank Off-Stream Reservoir (SR1) is a critical component of Alberta's flood mitigation objectives along the Elbow River.

SR1 will be a dry reservoir that temporarily stores floodwater. In conjunction with the capacity of the permanent Glenmore Reservoir in Calgary, SR1 is expected to accommodate floodwaters equivalent to the 2013 flood.

SR1 covers more than 3,600 acres and is located 15 kilometres west of Calgary (near Springbank Road, north of the Elbow River, and predominantly east of Highway 22). SR1 will be completely filled during a 1:200-year flood event and will release the water back into the river in a controlled manner once the flood subsides. No water will be held in the reservoir on a permanent basis. Although it is not possible to predict future floods, historical flood events indicate SR1 could be expected to operate approximately once every eight to 10 years.

Without flood mitigation every spring, Calgary is at risk of another flood on the Elbow River like the one experienced in 2013. In September 2014, after reviewing various flood mitigation options, SR1 was announced as the project that government would advance through the regulatory process as the preferred flood mitigation infrastructure along the Elbow River.

To proceed, federal and provincial regulatory approval was required. The Impact Assessment Agency of Canada (IAAC) reviewed SR1 under the *Canadian Environmental Assessment Act, 2012*.

- The SR1 underwent regulatory reviews starting in 2014, which concluded with approval by regulators as well as Cabinet endorsement in 2021.

### **Status**

In February 2022, the construction contract for SR1 was awarded to Vinci Infrastructure Canada. Site clearing commenced in February 2022 and project activities began in April 2022. Significant progress has been made during the construction phase.

Key construction activities that have been completed include: the relocation of all major utilities; modifications to Springbank Road and Highway 22; and construction of the bridges on Highway 22 and Township Road 242 to accommodate the canal crossings.

Work continues on the diversion structure, diversion canal, dam, and low-level outlet. Environmental monitoring programs are in place along with Indigenous monitors to monitor construction activities and identify items of cultural significance.

### **Further Information**

Transportation and Economic Corridors provides updates on SR1 through the project website and regular email updates to stakeholders who have registered for the email distribution list. For more information, interested stakeholders can contact the project team through the SR1 community liaison at [SR1.communityliaison@gov.ab.ca](mailto:SR1.communityliaison@gov.ab.ca), or by visiting the government project website at [Springbank Off-stream Reservoir | Alberta.ca](https://springbank-off-stream-reservoir.alberta.ca).

### **Contact**

Yvonne Carignan



## Adaptation Programs: Community Resilience Capacity Building and Adaptation Resilience Training Programs

### **Background**

#### CRCB Program

The Community Resilience Capacity Building (CRCB) program was funded by the Government of Alberta and delivered by the Municipal Climate Change Action Centre (MCCAC) to support Alberta communities in planning and preparing for the risks and impacts of a changing climate.

The CRCB provides funding, resources, and networking opportunities to municipalities and Indigenous communities to conduct climate change risk and vulnerability assessments, develop climate adaptation plans, prioritize adaptation approaches (for example, to address increased flooding and wildfire risks), and to implement priority adaptation measures to build climate resilience within the communities.

The \$4.5 million CRCB was launched in February 2022, and was fully subscribed in just over a year, ahead of the application deadline of March 31, 2023.

- This initial round of funding has supported 49 planning projects in 66 communities and has been very well-received by participants.
- Several additional communities expressed interest in the program before learning that all funding had been allocated. There is high demand for the CRCB within Alberta, from communities new to adaptation planning as well as those moving from planning to implementation.

An example of a project funded through the CRCB related to water management is the Town of Coaldale and Lethbridge County's completion of a Climate Change Resilience Assessment and Stormwater Master Plan.

- This area has experienced flooding during significant rainfall and snow melt events in 2002, 2005, 2010, and 2014.
- The many irrigation canals within the Malloy Drainage Basin, which send water to surrounding region and play a critical role in the local agri-food economy, are susceptible to damage from flood events.

Other examples of projects funded through the CRCB can be found online here: [Climate Resilience Capacity Building | Municipal Climate Change Action Centre \(mccac.ca\)](https://mccac.ca)

#### ART Program

The Adaptation Resilience Training (ART) Program began in 2019 with funding from both Natural Resources Canada (NRCan) and the Government of Alberta (GoA), although it is now funded solely through the GoA. Since its launch, the GoA has contributed \$3.5 million over four years to the ART Program.

The program includes two key aspects:

1. online climate adaptation training modules designed for practitioners from all sectors including municipalities, professional associations, and industry; and
2. work experience to current post secondary students and recent graduates in the adaptation field through eight-month internship placements.

The ART internship program is delivered by the University of Alberta (UofA), and hosted 21 interns, known as Project Assistants (PAs), in the first cohort, 32 in the second cohort and 26 in the third cohort. It is currently entering its fourth cohort with approximately 33 PAs expected to begin their work placements in September 2023. Examples of past projects undertaken through the internship program related to watershed health and management include:

- North Saskatchewan River Adaptation to Climate Variability Project, which was focused on studying changes in river patterns near the Town of Drayton Valley's water intake source and potential solutions to maintain water levels.
- Reflecting Operations and Demands: The South Saskatchewan River Operational Model, which was a project with environmental consulting company WaterSMART Solutions Ltd., aimed at updating tools available for collaborative watershed management and planning in the South Saskatchewan River Basin.

Past project information is available online here: [Completed Internships | Sustainability Council \(ualberta.ca\)](#).

### **Status**

#### CRCB Program

- Program is currently fully subscribed and closed to new applications.

#### ART Program

- Program is preparing to welcome a fourth cohort of Project Assistants to begin work placements in September 2023.

### **Further Information**

#### CRCB Program

<https://mccac.ca/programs/climate-resilience-capacity-building-program/>

#### ART Program

<https://www.ualberta.ca/sustainability/experiential/adaptation-resilience/index.html>

## **Watershed Resilience**

### **Background**

Alberta Environment and Protected Areas (EPA) enables community resilience through support of flood and drought mitigation efforts. Community-based Provincial Flood Damage Assessment (PFDA) studies provide municipal authorities of flood prone communities information to increase their awareness of the potential economic risk their community faces if a flood event were to occur.

- The province is assessing options to mitigate the impacts of both flood and drought on the Bow River through the Bow River Reservoir Options initiative.

### **Status**

Community-based Provincial Flood Damage Assessment (PFDA) studies are designed to provide standardized flood damage estimates for different flood frequencies, generating annualized risk values for that community. Conducted on a cyclical basis for flood prone communities, these standardized flood damage and risk estimates can then be used by the municipal authority to identify and prioritize risks due to flooding, and to assess the effectiveness of their mitigation plans.

Currently in the feasibility study phase, the Bow River Reservoir Options (BRRO) initiative is a multi-phased initiative that is expected to take at least 16 years. It includes:

- Phase 1: conceptual assessment (2018-2020, completed);
- Phase 2: feasibility study and alternative mitigation assessment (current project);
- Phase 3: engineering and regulatory approval process; and
- Phase 4: procurement, construction, and commissioning.

The feasibility study continues to examine the flood and drought mitigation reservoir options identified in the conceptual assessment, with a focus on determining the technical feasibility of the three options as well as identifying the potential impacts and associated benefits, implementation requirements and costs of each

reservoir option. If any of the options are feasible, a government decision will be made of whether to proceed to Phase 3 with one of the options.

The three reservoir options being explored in the Bow River basin, upstream of Calgary, includes the following:

- Morley option: A new reservoir between Seebe and Morley, on Stoney Nakoda Nations reserve lands
- Relocated Ghost Dam option: An expansion of the existing Ghost Reservoir
- Glenbow East option: A new reservoir between Cochrane and the Bears paw Dam at the western edge of Calgary

Completion of the feasibility study is scheduled for December 2024.

### **Further Information**

Completed Provincial Flood Damage Assessments can be found in Open Alberta:

<https://open.alberta.ca/publications>

For more information on the Bow River Reservoir Options initiative, see: <https://www.alberta.ca/bow-river-reservoir-options>

## **Flood Hazard Identification Program**

### **Flood Hazard Identification Program**

Alberta continues to provide new and updated flood maps to communities across the province to help support the development of safe, resilient communities over the long term.

Work on 11 new flood mapping studies is currently underway. Communities covered by these studies include Hinton, Grande Prairie, Lacombe, Lamont, Manning, Paddle Prairie, Ponoka, Markerville, Stettler, Vegreville and Watino.

Engagement plans are being finalized that will allow Albertans to learn more about new flood hazard maps and provide their feedback as part of the study finalization process. The scope of this engagement includes new flood hazard maps from 27 flood studies that cover multiple communities in Alberta and follows the same process as previous engagements on flood mapping products. The flood hazard maps will be finalized following this public engagement period and after any necessary adjustments to mapping products are made.

Flood hazard maps show the area flooded for a 1:100 flood, divided into floodway and flood fringe zones to support local decision-making and land use planning. Flood inundation maps that show multiple sized floods were publicly released for most new studies between July 2020 and August 2022.

Matching co-funding for new flood mapping is available to Alberta through the federal Flood Hazard Identification and Mapping Program, which began in 2021 and was recently extended through March 2028. The standard flood mapping study finalization process includes a technical review by municipalities and Indigenous communities, followed by public engagement. Draft flood inundation maps from all 27 new flood studies were shared with affected municipalities and First Nations. Revisions were made in several communities to address local feedback.

### **Further Information**

Provincial flood maps can be viewed at [Alberta Floods Portal](#).

## Other

### Watershed Partnerships – Alberta Water Council

#### **Background**

Established in 2004 to oversee the implementation of the Water for Life Strategy and to serve an advisory function to government on issues of water management, the Alberta Water Council continues to be a key partnership identified in Alberta's Water for Life Strategy.

Comprised of 24 members representing the Government of Alberta; other governments; industry, and non-government organizations, the AWC is a collaborative partnership that provides policy advice to government, investigates and reports on existing and emerging water issues, sets priorities for water research, and consults with Albertans on water issues and opportunities. Its leadership, expertise, sector knowledge and perspectives help to advance the outcomes of Water for Life and other water management priorities.

Core business of the AWC is to: (1) advance the outcomes of Water for Life; (2) provide advice that informs policy, practices and tools; (3) provide a forum to discuss water perspectives. AWC core operations is funded via a grant from Environment and Protected Areas.

#### **Status**

Project teams, working groups, or committees are established by the Council to investigate, provide information, and make recommendations on key water management challenges and opportunities.

Current projects include:

- Drought Resistance Simulation Exercise – The project enables the use of an appropriately scaled and scoped simulation that allows communities to test in a workshop environment proposed drought management structures, communications channels, tools, and resources. The learnings from the simulation will assist the Government of Alberta, municipalities, Indigenous communities, and other groups (e.g., WPACs, Alberta Irrigation Districts Association) to better understand and plan for drought preparation and response, including mitigation, monitoring, decision-making, and communication before, during, and after a drought event. The project is scheduled for completion in October 2023.
- Source Water Protection Phase I: Risk Assessment Tools and Data – The goal of the project is to develop and enhance access to an online centralized inventory of tools and data, as well as a suite of associated educational resources to assist drinking water providers and local decision-makers in Alberta to understand and assess risks to their drinking water sources. The project is scheduled for completion in June 2024.
- Renewal of Water for Life Action Plan - In collaboration with Alberta Environment and Protected Areas, AWC is leading the renewal of Alberta's Water for Life Action Plan intended to set out clear short (1-3 years), medium (4-7 years) and long-term (7-10 years) actions for advancing the implementation of the Water for Life goals and key directions. The project's multi-sector approach enables partners to identify actions their community or sector is committed to undertaking to address risks and opportunities to sustainable water management. The action plan is scheduled for completion in June 2024.

#### **Further Information**

For further information on the Alberta Water Council, see <https://www.awchome.ca/>

## Partnerships - Watershed Planning and Advisory Councils

### **Background**

Watershed Planning and Advisory Councils (WPAC) are non-government, multi-stakeholder organizations designated by the province under Water for Life - Alberta's Strategy for Sustainability (2003), renewed in 2008. Their precise membership varies, but they generally include regional industries, environmental non-government organizations, provincial government departments, agricultural interests, municipal and federal government representatives, First Nations, and Métis. Their roles include watershed assessment and state of the watershed reporting, integrated watershed management planning and implementation and education and outreach. They bring interested parties together to address watershed issues and encourage collaboration.

There are eleven WPACs in Alberta with one designated for each of Alberta's major river basins (North to South):

- Mighty Peace Watershed Alliance (MPWA), Mackenzie River basin
- Athabasca Watershed Council (AWC), Mackenzie River basin
- Lesser Slave Watershed Council (LSWC), Mackenzie River basin
  - This is the only lake based WPAC. Lesser Slave Lake is in the Athabasca River basin.
- Lakeland Industry and Community Association (LICA) (Beaver River Watershed), Cold Lake-Beaver River basin
- North Saskatchewan Watershed Alliance (NSWA)
- Battle River Watershed Alliance (BRWA)
- Red Deer River Watershed Alliance (RDRWA)
- Bow River Basin Council (BRBC)
- Oldman Watershed Council (OWC)
- South East Alberta Watershed Alliance (SEAWA)
- Milk River Watershed Council Canada (MRWCC), Boundary Waters Treaty

The Alberta Government provides funding for the 11 Councils' core operations (\$3.53 million in 2023 -24 – an increase of \$700K from previous year) and has representatives on their boards of directors. The government also provides funding, staff resources and information to support specific WPAC projects. There is considerable collaboration between the government and its WPAC partners and there is ongoing communication to encourage alignment with current government objectives.

### **Status**

The following provides some highlights from the past year for the WPACs, as reported by the WPACs; which includes activities associated with their signed Mandate and Roles documents; state of watershed assessments and reporting, planning, Literacy and education, and convening/collaborating. WPAC representatives participate on the Alberta Water Council which in turn provided policy advice on wetland policy implementation, future water management issues, source water protection and drought planning.

- All WPACs continued to grow their social media presence, increasing memberships, online interactions and follower counts.
- The Athabasca Watershed Council updated their 4 Year Strategic plan and continued to implement their Integrated Watershed Management Plan; leveraging their efforts with several sub-watershed groups (e.g., Berland-Wildhay Watershed Connectivity Remediation Planning, Upper Athabasca River Watershed Biomonitoring, and the Athabasca Healthy Shorelines Initiative (riparian restoration)).
- Bow River Basin Council (BRBC) activities had a theme of supporting Watershed Stewardship Groups; in aquatic monitoring, planning and on the ground activities like fencing.
- The Battle River Watershed Alliance as part of their Riparian Conservation and Restoration initiative conducted 18 Shoreline and Riparian Condition Assessments for counties, towns, and cities within their watershed. The assessments were shared/made public.

- South East Alberta Watershed Alliance implemented for their part, recommendation (4.7) for WPACs under the South Saskatchewan Regional Plan 2020-2024 (conducting source water protection planning). The project, “Characterization of Drinking Water Source Area for the City of Medicine Hat and the Town of Redcliff”, has been completed.
- Lesser Slave Watershed Council continues to implement their Lesser Slave Integrated Watershed Management Plan through resiliency work, water quality monitoring and education/outreach activities. They were a participant in the development of the Upper Athabasca Surface Water Quality framework.
- The Mighty Peace Watershed Alliance has been supporting Watershed stewardship Group activities within their watershed (Wapiti River Bank Stabilization project, Redwillow Watershed Restoration Project), and implementing 2 Source Water Protection Plans (Wapiti River Watershed & Grimshaw Gravels Aquifer).
- The RDRWA focused on 3 major sub-watershed projects as recommended in their integrated watershed management plan (IWMP) that cover Riparian Conservation and Restoration (these on the ground projects were funded mainly through Alberta Environment and Protected Area’s Watershed Resiliency and Restoration Program).
- The North Saskatchewan Watershed Alliance began their update of both their State of Watershed report and their Integrated Watershed Management Plan. Like many other WPACs, the NSWA contributed to and supported Watershed Stewardship Groups within their boundaries.
- The Oldman Watershed Council through their Watershed Legacy Program and through their program support to the Stewardship groups within their watershed; engaged in riparian enhancement projects, aquatic bio-monitoring assessments ([CABIN protocol](#)), and they engaged the public within their watershed in a “Uniting Rural Producers and Urban Consumers” land stewardship outreach program.
- The Milk River Watershed Council Canada continued the development of the 2023 Transboundary State of the Watershed Report in partnership with sister organizations in Montana and Saskatchewan. Continued collaborative work with the Milk River Water Users Association and the International Joint Commission on the “St Mary’s/Milk River Transboundary Study Project.”
- LICA is the community-based not-for-profit association that is a Synergy Group, the Watershed Planning and Advisory Council (WPAC) for the Beaver River Watershed, and an Airshed Zone. They have completed their Integrated Watershed Management Plan for the Beaver River Watershed and have begun to implement it.

**Further Information (WPAC URLs)**

[Watershed Planning and Advisory Councils](#)

[AWC](#)

[BRBC](#)

[BRWA](#)

[SEAWA](#)

[LSWC](#)

[MPWA](#)

[RDRWA](#)

[NSWA](#)

[OWC](#)

[MRWCC](#)

[LICA \(Beaver River\)](#)

## Partnerships – Watershed Management

### **Background**

Partnerships form a key part of the Water for Life Strategy. Partnerships help to effectively tackle the challenges of watershed management in Alberta, providing proactive approaches that help guide stewardship and prevent crisis situations. Our partners also provide an education component that helps to build awareness about positive behaviours, best practices and how the environment is an integral part of everyone's lives.

Partnerships under the Water for Life strategy empower Albertans to become engaged in local water management.

**Watershed Stewardship Groups (WSGs)** – Recognized as one of the key levels of partnerships under Water for Life, WSGs are community-based watershed stewardship groups comprised of volunteer citizens taking initiative at the local level. WSGs are often supported by Alberta Environment and Protected Areas, municipal government, and local business and industry. They proactively develop community-based solutions to protect local lakes, creeks or streams.

**Alberta Lake Management Society (ALMS)** – With support from Alberta Environment and Protected Areas and a variety of other support organizations, ALMS strives to build understanding and awareness among Albertans for responsible management of aquatic ecosystems through programs, partnerships, and information sharing. Since its establishment in 1991, ALMS aims to provide resources and expertise that supports Albertans in developing and ensuring sustainable healthy lake and aquatic ecosystems.

Programs offered by ALMS inspire and empower Albertans to actively contribute to the management, conservation, and stewardship of lakes, watersheds, and the biodiversity found within these ecosystems. Programs include:

- LakeWatch – seasonal citizen science lake water quality monitoring program.
- LakeKeepers - citizen science lake water quality monitoring program.
- Recreational Water Monitoring – cyanobacteria and enterococcus public beach monitoring.
- Lake Stewardship Community of Practice – online peer engagement platform.

**Land Stewardship Centre (LSC)** – Since 1996, Land Stewardship Centre of Canada (LSC) has been bringing together diverse stakeholders to work on common priorities for achieving sustainability on the landscape. First launched in 2006, Land Stewardship Centre has delivered the annual Watershed Stewardship Grant Program to the province's stewardship community with funding provided through the Government of Alberta's Water for Life Strategy. Funds received through the Grant Program have enabled stewardship groups to engage in an ambitious assortment of local programs, projects, presentations and initiatives that have meaningful impact within their respective watersheds, and contribute significantly to the stewardship of Alberta's precious water resources.

**Cows & Fish** – Cows & Fish empowers people who live, work, and play in Alberta's riparian areas to take action to care for riparian areas. Since its creation in 1992, the Alberta Riparian Habitat Management Society, also known as "Cows & Fish" has worked to foster a better understanding of how improvements in grazing and other management of riparian areas can enhance landscape health and productivity, for the benefit of landowners, agricultural producers, communities and others who use and value riparian areas.

**Municipalities** – One of the most important ways we can effectively manage our water is to consider the way we manage our land. Municipalities are key land use decision-makers in the settled region of the province. Through land use planning, zoning, bylaws, and educational programs, municipalities play an important role in watershed management. Management of recreational lake communities, riparian area setbacks, wetland



protection, and services such as agricultural extension programs or stormwater management, enable municipalities to meet local needs and priorities while aligning with provincial Water for Life goals.

Municipal programs and projects include:

- Assisting farmers and ranchers to build nature-based solutions on their land. (e.g., the Alternative Land Use Services (ALUS) program is delivered by eighteen municipalities across Alberta.
- Leading collaborative sub-basin (lake, aquifer, creek) watershed management plans across Alberta (e.g., Lac La Biche County, Grimshaw, Mountain View County, Sunrise County).
- Integrating natural infrastructure, such as wetlands, into municipal asset management (e.g., Parkland County, Okotoks).
- Promoting the cultural and heritage value of our rivers. (e.g., Smoky Lake County is leading nomination of the North Saskatchewan River to the Canadian Heritage Rivers System).

### **Status**

Alberta's watershed management partnerships continue to deliver programming and projects in alignment with the direction of Alberta's Water for Life Strategy and the Government of Alberta's priorities.

### **Further Information**

For further information, see:

- Watershed management partnerships - <https://www.alberta.ca/watershed-management-overview>
- Alberta Lake Management Society - <https://alms.ca/>
- Land Stewardship Centre - <https://www.landstewardship.org/>

## **Fort Chipewyan Working Group**

### **Background**

On February 6, 2023, the Alberta Energy Regulator issued an Environmental Protection Order to Imperial Oil in response to 2 separate wastewater release incidents at the Kearl Oil Sands Project:

- Incident 1 – industrial wastewater seeping from the external tailings area in 4 locations on and outside the boundaries of the Kearl sites.
- Incident 2 – an uncontrolled release of industrial wastewater from an overflow drainage pond.

The operator, Imperial Oil and the Alberta Energy Regulator were responsible for the initial response to the incidents, including incident-specific monitoring requirements.

The Fort Chipewyan Working Group was established to bring government and representatives of the community together following the unauthorized releases from the Kearl oil sands mine. This group is providing a forum for sharing information on government activities in response to the releases and helping ensure community perspectives are reflected in government's additional monitoring in areas downstream of the Kearl Oil Sands Project site. The focus is firmly on keeping drinking water safe and secure for communities.

Safe and secure drinking water for all Albertans is a top priority and we are committed to working with the Regional Municipality of Wood Buffalo and Indigenous communities to ensure the continued safety of their drinking water supply.

### **Status**

Government is conducting independent monitoring in high priority areas to provide an additional level of assurance in response to concerns voiced by communities near the Kearl oil sands site.



During the spring melt, the Alberta government completed high frequency monitoring of up to 4 times per week near the Kearl oil sands operation and along the Firebag and Muskeg Rivers, as well as additional sampling in wetlands near Kearl Lake, to assure communities that environmental conditions are well understood.

During the summer of 2023, government continues to support the communities involved. This includes targeted water monitoring, which is in addition to the significant environmental monitoring already in place for the oil sands region, and helps to assess if there are ambient impacts to water quality, drinking water or fish and wildlife. Results of water monitoring continue to be released through the information below. This is additional monitoring and does not replace other monitoring already in place for the oil sands region or specific monitoring actions performed by Imperial Oil as required in the Alberta Energy Regulator's environmental protection order.

Maps showing surface water quality monitoring locations are below.

- [June to September 2023 monitoring locations](#) (PDF, 655 KB)
- [April and May 2023 high frequency monitoring locations](#) (PDF, 890 KB)
- [March 2023 monitoring locations](#) (PDF, 344 KB)

Government continues to closely monitor the water in the surrounding area. Monthly sampling of surface water quality both upstream and downstream of the Kearl oil sands site is ongoing and will continue through September 2023.

#### **Further Information**

<https://www.alberta.ca/fort-chipewyan-working-group>

<https://www.alberta.ca/oil-sands-monitoring-program>

<https://www.aer.ca/protecting-what-matters/holding-industry-accountable/investigations/ongoing-investigations/imperial-oil-kearl-oil-sands>

<https://www.imperialoil.ca/en-ca/company/operations/kearl/kearl-epo>

## **Wood Buffalo National Park Action Plan**

### **Background**

Alberta is an in-demand destination for those seeking to explore the great outdoors, and we are honoured to be home to six UNESCO World Heritage Sites, including Wood Buffalo National Park. We have protocols and practices in place to monitor potential issues, find solutions and collaborate effectively to protect our wild spaces and preserve them for generations to come. From expanding the world's largest boreal forest to protecting the Ronald Lake Bison Herd to exploring cooperative management agreements with Indigenous communities and organizations, Alberta has a proud legacy of environmental management that we are dedicated to preserving and strengthening.

In August 2022, UNESCO's World Heritage Centre (WHC) and the International Union for the Conservation of Nature (IUCN) conducted a second joint Reactive Monitoring Mission at Wood Buffalo National Park. Alberta participated in the Reactive Monitoring Mission by sharing information on the advances the province is making to support achievement of outcomes.

### **Status**

We will continue to work into the future with our Indigenous, industry, government and community partners as we address the environmental needs of the park through the implementation of the 2019 Action Plan.

### **Further Information**

<https://parks.canada.ca/pn-np/nt/woodbuffalo/info/action>

## International St. Mary and Milk Rivers Study

### **Background**

The Canada - United States (US) *Boundary Waters Treaty*, article six, specifies separate entitlements for each country for the St. Mary River, and for the Milk River during the irrigation season. It also assigns Canadian and US appointees (the Accredited Officers) to manage the apportionment of the St. Mary and Milk rivers, at the direction of the International Joint Commission (IJC).

The US Bureau of Reclamation operates water infrastructure in Montana that stores and diverts water from the St. Mary River to the Milk River, which significantly supplements its flow. At times, all water in the Milk River is from the US diversion. Alberta has water storage infrastructure on the St. Mary River downstream of the US diversion. Alberta does not have any infrastructure in the Milk River basin, but does have irrigation use directly from the river. Over the years, the Accredited Officers have adapted procedures for deficit trading between the two rivers to allow each country to better access their annual water entitlements. There have been other past studies, such as the Montana-Alberta St. Mary and Milk Rivers Water Management Initiative, that further looked at how to improve both countries access to their entitlements.

In 2021, after receiving support from both the US and Canadian federal governments, the IJC launched a study and established the International St. Mary and Milk Rivers Study (ISMMS) Board to assist in conducting it. The ISMMRS Board is to provide a final report, on its findings, conclusions, and recommendations, to the IJC by June 13, 2025. Options and recommendations are to be structural or procedural or a combination of both, and be mutually beneficial to the two countries. GOA staff are supporting with technical working group co-leads and members on four of the six technical working groups. The technical working groups are to be non-jurisdictional. The GOA also has a representative on the Government Forum, where government interests will be considered by the study board.

### **Status**

An initial set of structural and procedural options are currently being prepared for water management modelling, which distributes flows to storage reservoirs and various users. In parallel, a hydrology team is working on future flow scenarios under climate change. As well, performance metrics are being developed. The water management model will eventually be run for both historical flows and future flows, to assess performance of the various options.

The ISMMRS Board is holding meetings with its Public Advisory Group, Indigenous Advisory Group and Government Forum from Oct. 31-Nov. 1, 2023. The Government of Alberta will receive an update on technical working groups that it is not participating at the Government Forum meeting.

### **Further Information**

<https://ijc.org/en/smmr>