Manual **031**

Alberta Energy Regulator

Guidelines for Pilot Applications for New Technology or Processes

May 2025

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Published by
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1 Introduction

1.1 About This Manual

The manual provides clarity and guidance on the Alberta Energy Regulator's (AER's) processes for regulated sectors regarding how to apply and obtain approval for field-level pilots for new technology or processes. The manual applies to pilots for all energy and mineral development sectors under the AER's jurisdiction.

This manual applies to a person, which includes a corporation, holding a business associate (BA) code as outlined in *D067: Eligibility Requirement for Acquiring and Holding Energy Licences and Approvals*, which allows them to apply to the AER for a licence or approval under our legislation. This manual does not introduce new regulatory requirements but rather outlines existing requirements and processes for applying for a new technology or process pilot approval.

The AER can assess innovations and provide regulatory information and support for proponents who may not have a BA code and are working on early-stage concepts or as part of a product team preparing to commercialize tested technology. For more details, please visit the AER Innovation webpage.

1.2 Regulation and Innovation

The AER's mandate is to provide for the efficient, safe, orderly, and environmentally responsible development of energy and mineral resources in Alberta through our regulatory activities, including allocating and conserving water resources, managing public lands, and protecting the environment while providing economic benefits for all Albertans.

The AER acknowledges that regulatory frameworks permitting pilots for new technology or processes under site-specific conditions are essential for enabling technological innovation, process advancements, and operational optimization.

The AER is committed to engaging with regulated parties and stakeholders to identify opportunities within the legislative framework for accelerating the demonstration and deployment of new technologies and processes. In keeping with our mandate, we will evaluate and approve pilot applications as appropriate.

1.3 How to Use This Manual

This manual outlines the AER's processes for submitting, evaluating, and managing pilot applications and submissions for new technology or processes. It covers the following key aspects:

- defining a pilot (section 2)
- information for pilot evaluation (section 3.1)

- sector-specific submission processes (section 4)
- the AER's approach to confidentiality (section 5)
- the sharing of pilot learnings (section 7)

This manual consolidates and updates the AER's regulatory approach and criteria for pilots. The AER has rescinded the following information letters (ILs) and included the relevant regulatory information in this manual:

- *IL-OG 78-12: Policy on Experimental Schemes – Conventional Pools or Oil Sands*
- *IL 80-23: Experimental Schemes*
- *IL 81-30: Experimental Schemes Involving a Large Array of Wells and Close Well Spacing*
- *IL 87-12: Horizontal Wells Conventional Oil and Gas Pools*
- *IL 91-11 Coalbed Methane Regulation*
- *IL 92-11: Experimental Schemes – Release of Information*

2 What is a Pilot

2.1 Definition

In this manual, the AER defines a pilot as a field test of technology, process, or both that is untried or unproven in a particular application. Pilots are supported by evidence and have a defined scope. Pilots have predetermined objectives, duration, size, and scale and may not be expressly contemplated under the parameters of the current regulatory framework.

Some enactments define "experiment," "experimental wells," or "experimental scheme":

- Section 1(1)(g) of the *Oil Sands Conservation Act* (*OSCA*) defines an "experimental scheme."
- Section 1(1)(u) of the *Oil and Gas Conservation Act* defines "experiment" or an "experimental scheme," and section 1(1)(v) defines an "experimental well."
- Section 1(1)(h) of the *Mineral Resource Development Act* defines an "experimental scheme."
- Section 1(1)(e.3) of the *Coal Conservation Act* defines "experimental."

Although the AER will consider pilot projects in addition to those where the regulatory framework expressly contemplates pilots or experimental activities, where definitions and related regulatory requirements exist, applicants should ensure they have reviewed and are familiar with those that apply.

The following are not considered to be pilots and are outside the scope of this manual:

- Enhancing an existing, proven technology.
- Applying proven technology to a different geographical location or geological horizon targeting a well-understood reservoir.
- Evaluating geological characteristics.
- Establishing site-specific design criteria, such as injectivity or surface facility sizing.
- Operations at a scale larger than necessary to test and prove the technology or process.
- Any activity not requiring AER authorization or approval to proceed (e.g., testing a new software application).

Contact the AER if uncertain whether the proposed technology or process fits the definition of a pilot.

2.2 Purpose and Benefits

The primary purpose of a pilot is to evaluate opportunities for improving an operation's ability to meet the AER's resource recovery, environmental, and public safety objectives before full-scale implementation. A pilot is a trial run to identify unforeseen challenges and risks, devise mitigation, and gather learnings before fully implementing the technology or process.

Pilots provide benefits to the AER, regulated parties, and stakeholders:

- Pilots are critical to fostering innovation within Alberta's energy and minerals industry by enabling the evaluation of novel approaches that may not be expressly contemplated within the existing regulatory framework.
- Pilots benefit the AER by informing changes to the regulatory framework design and administration, enabling us to meet our mandate effectively and support risk-informed regulatory decisions.
- Pilots provide regulated parties with opportunities to test new technologies, optimize processes, and enhance value-added learning, facilitating risk reduction in investments, strengthening stakeholder confidence, and supporting the successful implementation of full-scale operations.
- Pilots benefit stakeholders by enabling improvements in energy and mineral resource development by being transparent in how the AER reviews and oversees pilots; the manual is intended to support awareness of innovation efforts.

3 Pilot Submission and Evaluation

This section outlines the information typically provided to the AER for a review of the pilot application. The specifics for each pilot application type are outlined in section 4 of this manual.

Applications for pilots may be submitted to the AER as outlined in section 4 of this manual. Proponents must obtain the necessary approvals or authorizations pursuant to the energy resource and specified enactments.

Pilot applications are assessed against regulatory requirements—such as public safety, environmental protection, and resource conservation—while also considering the unique aspects of each submission.

Energy resource enactments are the acts, regulations, and rules governing energy resource development in Alberta that are administered by the AER. Specified enactments are the acts and regulations that the AER administers regarding energy resource activities. Alberta government departments administer specified enactments, acts, and regulations regarding activities other than energy resource development. A list of this legislation can be found on the AER's legislation and governing authority webpage.

As part of its regulatory mandate, the AER will make a statutory decision on pilot applications based on the information provided. Possible outcomes include the following:

- **Approval or authorization (whole or partial)**: The AER may approve or authorize the entire application or only specific aspects. Approvals or authorizations may contain specific conditions.
- **Denial**: A rationale for denial of the pilot application will be provided to the applicant.

The approval or authorization issued for a pilot typically has a time limit and is subject to reporting requirements and site-specific conditions for effective oversight. Recognizing that learnings occur as information is gathered throughout the pilot, approvals or authorizations related to pilots may be amended upon application as permitted under the relevant statutory requirements. AER pilot approvals or authorizations generally specify an outcome enabling approval holders to adapt and maximize learnings during the pilot.

3.1 Information for Pilot Applications

The AER acknowledges that each pilot has unique technical considerations, objectives, and expected outcomes. Regardless of the application type, applicants are encouraged to include the following information in their application to enable a timely and effective regulatory and technical review.

Although not exhaustive, the following list outlines the information typically provided to the AER to assist with its review:

- **Purpose, goals, and objectives**: Provide a clear description of the pilot's intent and the anticipated outcomes.

- **Regulatory fit**: Identify the applicable legislation or regulatory instruments under which the pilot application is being submitted. Contact the AER regarding the legislative authority under which the proposed pilot application can be made.
- **Risk and mitigation**: Identify the potential risks and corresponding mitigation strategies.
- **Technology and process overview**: Describe the innovative technology, process, or both and why it is considered untried or unproven in a particular application.
- **Site selection considerations**: Justify the chosen location of the pilot.
- **Scale and duration**: Justify the pilot's size, scope, and timeframe. The scale and duration of the pilot should not be larger and longer than necessary to test the technology, process, or both. The pilot should be small relative to a normal commercial operation.
- **Anticipated benefits**: Identify and describe the expected benefits of the pilot, which may include economic, environmental, recovery, and operational improvements.
- **Success criteria**: Identify the metrics to evaluate technology performance or process effectiveness.
- **Stakeholder engagement**:
  - Identify notified stakeholders and if and how their feedback concerning the proposed pilot was incorporated, as applicable.
  - Provide the plan for ongoing stakeholder engagement or involvement, as applicable.
- **Monitoring and reporting**: Describe how progress will be monitored and results reported, including the reporting frequency.
- **Confidentiality considerations**: Submit a request for information to be held confidential, including specific data types and duration, with a justification. Provisions for confidentiality are made in accordance with existing AER legislation.
- **Knowledge sharing**: Describe the approach for disseminating pilot learnings (successes and challenges) to the AER and stakeholders throughout the pilot.
- **Information sharing**: Identify whether the information gathered for the pilot will be published by the company or a third party.
- **Additional information**: The AER may request additional information to support its statutory decision.

3.2 Preapplication Meeting

A person seeking to apply for a pilot is encouraged to meet with the AER before submitting their application for a pilot. A preapplication meeting

- provides the AER with notice of an upcoming pilot application;
- provides the AER with an overview of the type, complexity, and uniqueness of the pilot; and
- provides the parties an opportunity to ask any questions, identify issues, and receive clarification about requirements so the applicant can submit a complete application and have it reviewed in a timely and efficient manner.

See section 4 for contact emails for industry sectors and activities. If there is uncertainty about the sector or activity the planned pilot relates to, complete the online form on the AER Innovation webpage.

4 Sector-Specific Pilot Applications

There are specific business processes for submitting a request for a pilot to the AER, depending on the sector and activity type. Section 3 of this manual outlines the expectations applicable to all pilot applications.

4.1 In Situ Oil Sands Production

4.1.1 *OSCA* Application Process for Standalone In Situ Oil Sands Pilots

A standalone scheme or operation located within one of the designated oil sands areas, which is not associated with an existing commercial scheme, that is testing a recovery technology or processing of oil sands or crude bitumen using methods that may be untried or unproven in a particular application is known as an experimental scheme.

The AER will register the pilot application in the Integrated Application Registry (IAR) under the application type “Exper Oil Snd: New” for new experimental schemes or “Exper Oil Snd: Amend” for modifications to an existing experimental scheme.

Refer to *Directive 023: Oil Sands Applications*, as applicable, for guidance on information to include in an application for the recovery of oil sands or crude bitumen. If applicable, applicants may also request confidentiality.

4.1.2 *OSCA* Application Process for In Situ Oil Sands Pilots Within an Existing Commercial Scheme

Approval holders may request that a portion of their existing commercial scheme be designated or “carved out” as an experimental scheme and request confidentiality as applicable. Alternatively, approval holders wanting to conduct a pilot within an existing commercial scheme may not require a separate

experimental scheme approval. The pilot can be addressed as a commercial scheme amendment following the application process under *Directive 023*.

4.1.3 Experimental Scheme Confidentiality

Confidential status only applies to experimental schemes described in sections 4.1.1 and 4.1.2 above. If the AER grants confidentiality for an experimental scheme, the AER will establish reporting conditions to ensure that production or injection activities associated with the experimental component are attributed to the designated experimental scheme. Confidentiality is granted for a specified period.

One of the following outcomes occurs upon completion of the experimental scheme for wells or facilities:

- Reintegration into the commercial scheme if operations are continued; a commercial scheme amendment application would be required.
- Submission of a new commercial scheme application if ongoing operations require separate approval.
- Cessation of operations once the experimental scheme expires if there is no desire to continue operations at the associated wells and facilities.
- Submission of a new experimental scheme application as installed infrastructure may be used for testing other new technologies or processes.

4.1.4 *Environmental Protection and Enhancement Act* Application Process for In Situ Oil Sands Pilots

Experimental schemes require approval under the *Environmental Protection and Enhancement Act* (*EPEA*), reflecting the pilot scope, scale, and duration. Alternatively, where an *EPEA* approval already exists and covers the area where the pilot will operate, proponents may seek confirmation from the AER that *EPEA* section 67(3) applies by providing sufficient information respecting how the conditions of 67(3) are being met. Confirmation under section 67(3) is not considered an application process nor a decision of the AER.

4.1.5 Submission

Contact for questions and preapplication meeting	• Insitu.Inbox@aer.ca for preapplication meetings
Application or submission types	• *Directive 023 Comm Scheme New or Amend* • *OSCA* Exper Oil Snd: New • *OSCA* Exper Oil Snd: Amend • *EPEA* section 67(3)

How to submit	• Insitu.Applications@aer.ca for *OSCA* application submissions • EPEA.WA.Applications@aer.ca for *EPEA* application and 67(3) confirmation • pilot applications under *OSCA* are registered and processed in IAR • pilot applications and 67(3) requests under *EPEA* are processed in the Government of Alberta EMS system

4.2 Measurement of Multiphase Flow for Conventional Operations

Conventional oil and gas operators can request a pilot to test multiphase flow meters (MPFM) to support meeting *Directive 017: Measurement Requirements for Oil and Gas Operations* and the API *Manual of Petroleum Measurement Standards (MPMS) 20.3*, *Measurement of Multiphase Flow*. MPFMs can be used for any oil or gas battery as defined in sections 6 and 7 of *Directive 017*. If the operator can prove that the MPFM meets or exceeds the uncertainty requirements specified in section 1 of *Directive 017*, the MPFM may be used to replace existing measurement systems. MPFMs cannot be used for delivery point or custody transfer where single-phase measurement is required. Applicants should refer to section 5 of *Directive 017* for the expectations regarding site-specific deviations from base measurement requirements.

Contact for questions and preapplication meeting	Directive017Applications@aer.ca
Application type	Directive 017 application
How to submit	Directive017Applications@aer.ca

4.3 In Situ Measurement

In situ operators can request a pilot to test new measurement technologies to support meeting *Directive 017* requirements. These pilot applications are typically submitted as a *Directive 023* category 1 amendment to an existing commercial scheme approval, where a testing plan is proposed to trial new technologies adjacent to currently accepted ones. If the operator can prove the new technology meets or exceeds the requirements and current standards of accepted measurement methodologies, as proposed in a subsequent application, the new technology may replace existing ones once authorized and incorporated into the operator's measurement, accounting and reporting plan under *Directive 042: Measurement, Accounting and Reporting Plan (MARP) Requirements for Thermal Bitumen Schemes*. Applicants should refer to section 5 of *Directive 017* for the expectations regarding site-specific deviations from base measurement requirements.

Contact for questions and preapplication meeting	Insitu.Inbox@aer.ca
Application type	Directive 023 category 1 amendment
How to submit	Insitu.Applications@aer.ca

4.4 Oil Sands Mining

Oil sands mining pilots are unique in size, scale, duration, and variability and are evaluated under OSCA in accordance with the requirements outlined in *Directive 023* and *EPEA*.

4.4.1 *OSCA* Application Process for Oil Sands Mining and Processing Pilots on an Approved Commercial Scheme

Under *OSCA*, pilots can be approved or authorized depending on the proposed activity, the scope, scale, and duration of the activity and the commercial scheme approval conditions.

Pilots requiring approval will require the operator to submit an amendment application in accordance with *Directive 023* and, if involving tailings, in accordance with *Directive 085: Fluid Tailings Management for Oil Sands Mining Projects*.

Within many commercial scheme approvals, certain conditions allow the approval holder to conduct pilots under the authority of their existing approvals. These conditions are specific to the type of activity that can be piloted (i.e., tailings pilots within tailings designated disposal areas). However, these pilots have limits based on scope, scale, location, and duration. The AER reviews the pilot submissions to ensure they meet the required conditions. If everything is in order, the AER will send the operator a letter of authorization.

Pilots in the mining sector are generally not classified as experimental schemes and do not automatically qualify for confidentiality. However, due to the sensitivity of certain information, operators may request confidentiality in accordance with the *Alberta Energy Regulator Rules of Practice* or the *Oil Sands Conservation Rules*.

4.4.2 *EPEA* Application Process for Oil Sands Mining and Processing Pilots on a Mine or Processing Plant Site with an *EPEA* Approval

A pilot may require an *EPEA* approval amendment depending on the scope, scale, location, and duration of the pilot operations. Other considerations to determine if an amendment application is required relate to emissions management, water, or waste arising from the pilot and the location of nearby receptors. If a pilot is in an area that has never been designated or assessed for the proposed pilot activity, has a possibility of a release of a substance that may adversely affect the environment, is large scale with long durations (i.e., generally more than two years), an *EPEA* approval amendment application may be required.

Within many *EPEA* approvals, certain conditions allow the operator to conduct certain types of pilots. These conditions are specific to the type of activity being proposed. However, these pilots have limits based on scope, scale, location, and duration. The AER reviews the pilot submissions to ensure they meet the required conditions. If everything is in order, the AER will issue a letter of authorization to the operator. Where an *EPEA* approval stipulates that a pilot may occur without requiring authorization, the approval holder should follow the direction of the *EPEA* approval.

Where applicable, and where *EPEA* approval already exists and covers the area where the pilot will operate, proponents may seek confirmation from the AER that *EPEA* section 67(3) applies by providing sufficient information respecting how the conditions of section 67(3) are being met (i.e., a tailings pilot being proposed within a designated disposal area or a short-term trial of a different flocculant). The AER reviews the request to ensure it meets the requirements of section 67(3). If everything is in order, the AER will send the operator a letter confirming that the pilot aligns with section 67(3). Confirmation under section 67(3) is not considered an application process nor a decision of the AER.

4.4.3 Submission

Contact for questions and preapplication meeting	• OSMining.Applications@aer.ca for *OSCA* amendment • EPEA.WA.Applications@aer.ca for *EPEA* applications • EPEA.WA.Plans.Authorizations@aer.ca for *EPEA* section 67(3) confirmation
Application or submission type	• *Directive 023* Comm Scheme New or Amend • *Directive 085* MOS – Tailings Plan • *EPEA* application • *EPEA* section 67(3) confirmation request
How to submit	• OSMining.Applications@aer.ca for *OSCA* application submissions • EPEA.WA.Applications@aer.ca for *EPEA* approval applications • EPEA.WA.Plans.Authorizations@aer.ca for section 67(3) confirmation

4.5 Oil and Gas Production

The *Oil and Gas Conservation Act* defines an experimental scheme as a scheme or operation for the recovery or processing of oil and gas using methods that are untried and unproven in that particular application.

Pilots related to oil and gas production can be registered in the IAR as an "Enhanced Recovery (ER) New" or "Amendment" application type. Upon confirmation of being considered as an experimental scheme, the AER will change the application type to an "Experimental Scheme." An experimental scheme approval for this activity would be granted under section 39 of the *Oil and Gas Conservation Act*.

Contact for questions and preapplication meeting	Resources.Applications@aer.ca
Application type	• ER Scheme: New (changed to Experimental Scheme Oil/Gas: New after registration) • ER Scheme: Amend (changed to Experimental Scheme Oil/Gas: Amend after registration)
How to submit	Via the IAR

4.6 Coal Mining

All applications for coal mining pilots are registered in various systems, including the IAR, EMS, and the Electronic Records, and Knowledge System.

Under the regulatory framework for coal development, a pilot is classified as an experimental project designed to use methods that are untried or unproven.

Proponents can apply for a permit for an experimental project under the *CCA* and *Coal Conservation Rules* (*CCR*).

Data and information related to an experimental scheme will remain confidential for the period specified in the *CCR*.

Where applicable, and where an *EPEA* approval already exists and covers the area where the pilot will operate, proponents may seek confirmation from the AER that *EPEA* section 67(3) applies to the proposed pilot by providing sufficient information respecting how the conditions of section 67(3) are being met. The AER will review the request to ensure the pilot fits within section 67(3). If it does, the AER will issue a letter to the operator confirming that an *EPEA* approval amendment is not required for the proposed pilot. Confirmation under section 67(3) is not considered an application process nor a decision of the AER.

Contact for questions and preapplication meeting	• Coal.Applications@aer.ca for *CCA* applications • EPEA.WA.Applications@aer.ca for *EPEA* applications • EPEA.WA.Plans.Authorizations@aer.ca for *EPEA* section 67(3) confirmation • AERSurfaceActivityApplication@aer.ca for WA application or authorization
Application or submission type	• Exper Coal: New under *CCA* Exper Coal: Amend under *CCA* • *EPEA* application • *EPEA* section 67(3) confirmation • *Water Act* application or authorization • temporary diversion licence • *Public Lands Act*
How to submit	• Coal.Applications@aer.ca for *CCA* applications • EPEA.WA.Applications@aer.ca for *EPEA* applications • EPEA.WA.Plans.Authorizations@aer.ca for *EPEA* section 67(3) confirmation • AERSurfaceActivityApplication@aer.ca for WA application or authorization

4.7 Rock-Hosted Mineral Development

Applicants seeking to recover, extract, or process mineral resources using untried and unproven methods should contact MRDAMine.Application@aer.ca.

Contact for questions and preapplication meeting	MRDAMine.Application@aer.ca
Application or submission type	As directed by AER during the preapplication meeting
How to submit	MRDAMine.Application@aer.ca

4.8 Brine-Hosted Mineral Development

Applicants seeking to recover, extract, or process brine-hosted mineral resources using untried and unproven methods should contact MineralApplications@aer.ca.

Applications should follow section 7.4 of *Directive 090: Brine-Hosted Mineral Development*. Applicants submit applications for experimental schemes via email to MineralApplications@aer.ca.

Where applicable, and where an *EPEA* approval already exists and covers the area where the pilot will operate, proponents may seek confirmation from the AER that *EPEA* section 67(3) applies to the proposed pilot by providing sufficient information respecting how the conditions of section 67(3) are being met. The AER will review the request to ensure the pilot fits within section 67(3). If it does, the AER will issue a letter to the operator confirming that an *EPEA* approval amendment is not required for the proposed pilot. Confirmation under section 67(3) is not considered an application process nor a decision of the AER.

Contact for questions and preapplication meeting	MineralApplications@aer.ca
Application or submission type	• Exper Scheme Oil/Gas: New • Exper Scheme Oil/Gas: Amend • *EPEA* section 67(3) confirmation
How to submit	MineralApplications@aer.ca

4.9 Geothermal

Pursuant to the requirements for geothermal development set out in *Directive 089: Geothermal Resource Development*, applicants proposing to implement new technology may contact GeothermalApplications@aer.ca to seek guidance before submitting their application.

The application must provide sufficient information and any variances previously obtained for the AER to verify that the pilot would achieve an equivalent level of environmental protection and public safety to meet the requirements in *Directive 089*.

Contact for questions and preapplication meeting	GeothermalApplications@aer.ca
Application type	• Well Licence – Geothermal Other • Facility Licence – B091
How to submit	OneStop, IAR

4.10 Waste Management

Submit a pilot application for approval when considering testing a new waste management process or technology or testing an existing waste management process or technology with an untried waste stream where the process or technology is unproven.

For further guidance, see section 12 of *Directive 058: Oilfield Waste Management Requirements for the Upstream Petroleum Industry* or section 15 of *Directive 050: Drilling Waste Management*.

Contact for questions and preapplication meeting	Directive058@aer.ca, Directive050@aer.ca
Application or submission type	• Dir58 – Waste Pilot • Dir50 – Waste Pilot
How to submit	IAR

4.11 Drilling and Completion (Conventional Wells)

Drilling and completion pilots that involve new drilling or well servicing equipment and technology require a variance from the requirements of *Directive 008: Surface Casing Depth Requirements*, *Directive 009: Casing Cementing Minimum Requirements*, *Directive 010: Minimum Casing Design Requirements*, *Directive 036: Drilling Blowout Prevention Requirements and Procedures*, or *Directive 037: Well Servicing Operations* (e.g., reduced spacing for alternate rig layouts).

Contact for questions and preapplication meeting	innovation@aer.ca
Application or submission type	Request (nonroutine)
How to submit	Online form on the AER Innovation webpage

4.12 Well Integrity Management and Abandonment

Applicants seeking to use alternative materials, new technologies, or both for the repair of surface casing vent flow, gas migration, casing failures, or well abandonments may follow the nonroutine submission process outlined in *Directive 087: Well Integrity Management* or *Directive 020: Well Abandonment*, as applicable.

Contact for questions and preapplication meeting	innovation@aer.ca or online form on the AER Innovation webpage
Application type	Request (nonroutine repair or abandonment)
How to submit	Online form on the AER Innovation webpage

4.13 Alternative Fugitive Emissions

Under section 8 of *Directive 060: Upstream Petroleum Industry Flaring, Incinerating, and Venting*, proponents can submit proposals for an Alternative Fugitive Emissions Management Program (Alt-FEMP). For more information on the submission process, see the Alt-FEMP application webpage.

Contact for questions and preapplication meeting	Directive060Inbox@aer.ca
Submission type	Proposal
How to submit	Directive060Inbox@aer.ca

4.14 Remediation

AER oversight of remediation is outcome based; there are no prescribed remediation techniques. There are various approaches to managing released substances, and industry has a degree of flexibility in choosing contamination management techniques. Pilots are often conducted to assess the feasibility and efficacy of remediation technologies for successful deployment at contaminated sites.

The duty to take remedial measures to prevent or address adverse effects (section 112 of *EPEA*) applies as soon as a person responsible for the substance "becomes aware of or ought to have become aware of the release," including while pilots and trials are underway. Although specific approval is not required before undertaking timely and reasonable remedial measures, licensees must ensure they do not inadvertently exacerbate the situation while assessing whether a site is amenable to certain, sometimes novel, remedial and exposure control techniques.

Confirmation of successful remediation is evaluated using information generated per the Government of Alberta's *Environmental Site Assessment Standard* and compared against the *Alberta Tier 1 & 2 Soil and Groundwater Remediation Guidelines*. The AER evaluates the outcome of remediation efforts as part of its remediation certificate and reclamation certificate application review.

Contact for questions and presubmission meeting	CSUsubmissions@aer.ca
Submission type	Remediation regulation – Remedial action plans
How to submit	OneStop – Record of Site Condition (via email for Mining Sector)

4.15 Reclamation

Reclamation is mandatory for the closure of all energy and mineral resource extraction locations in Alberta, regardless of whether they occur on private or public lands. As outlined in section 137(1) of *EPEA*, an operator has a duty to conserve and reclaim specified land.

For conventional oil and gas operations, reclamation activities are required to achieve equivalent land capability, which is assessed using the *2010 Reclamation Criteria for Wellsites and Associated Facilities*.

For activities authorized under an *EPEA* approval (e.g., in situ projects, coal mines, oil sands or mineral mines), equivalent land capability is assessed against *EPEA* approval terms and conditions, applicable regulatory guidelines, and the conservation and reclamation plans (CRP) or mine reclamation plans (MRP) developed by the operator. These reclamation plans outline the proposed reclamation standards, end land use, and how equivalent land capability will be achieved (i.e., methods, monitoring, mitigations, sequence, and schedule). These reclamation plans must be submitted and approved by the AER. Once approved, these reclamation plans establish standards that must be met to obtain a reclamation certificate.

Operators should arrange a presubmission meeting if interested in incorporating a pilot project within their CRP (contact RecRemQuestions@aer.ca) or MRP (contact EPEA.WA.Plans.Authorizations@aer.ca).

5 Confidentiality

The AER's approach to pilot projects balances the operator's need for confidentiality against information accessibility:

- **Confidentiality protections**: Ensure operators have a reasonable opportunity to benefit from the pilot before others.
- **Information accessibility**: Promote timely and effective access to data that may support the broader commercial deployment of technological advancements.

Decisions regarding the confidentiality of specific data beyond standard AER requirements, including the duration of confidentiality, are made on a case-by-case basis in accordance with governing legislation. Generally, only data that directly indicates the success of a pilot (e.g., production volumes and operational hours) is held confidential.

Confidentiality requests: Confidentiality requests are generally granted for proprietary data and intellectual property and are generally not required to be disclosed in the public application process.

Applicants seeking confidentiality for any part of a pilot application must submit a request in accordance with section 49 of the *Alberta Energy Regulator Rules of Practice* before filing the pilot application.

6 Public Notice of Application and Decision

For those pilots requiring an application, the AER will place all applications and pilot summaries on the public record. A public notice of application and public notice of decision will be published on the AER's website.

Interested parties may submit concerns on applications through the AER's statement of concern process.

All potentially affected parties are notified of the decision as prescribed in the *Alberta Energy Regulator Rules of Practice*.

7 Pilot Findings and Reporting

7.1 Findings

The AER strongly encourages operators to publicly share key findings and learnings from pilots to help inform regulatory changes and foster innovation in energy and mineral resource development. Pilot projects offer several potential benefits to the proponents and the AER:

- **Risk mitigation**: Identify and address potential operational challenges before full-scale commercial implementation.
- **Pilot concept validation**: Confirm the validity of the pilot project concept, assumptions, and potential outcomes.
- **Cost-effectiveness assessment**: Evaluate economic viability and optimize investment decisions.
- **Stakeholder engagement**: Incorporate feedback and address potential concerns that may arise from large-scale deployment.
- **Training opportunities**: Provide operational experience for the proponent's staff to support operational readiness.
- **Operational best practices**: Identify more efficient and responsible approaches to resource development.

7.2 Reporting

Pilot proponents may report on pilot outcomes, including whether objectives were met, to support industry innovation and regulatory improvements. Additionally, there are applicable regulatory requirements and specific approval conditions that make reporting mandatory:

- Pilot results for in situ oil sands are required for the following:
  - performance reports submitted as part of *Directive 054: Performance Reporting and Surveillance of In Situ Oil Sands Schemes*
  - *EPEA* reports on pilots (specific approval conditions)
  - specific *OSCA* approval conditions on progress reports
- Pilot results for oil sands mining are required for the following:
  - annual report of mining operations (required by the *Oil Sands Conservation Rules*)
  - *EPEA* reports on pilots (specific approval conditions)
  - annual operating criteria reports under *Directive 082: Operating Criteria: Resource Recovery Requirements for Oil Sands Mine and Processing Plant Operations*

  - annual tailings management reports under *Directive 085: Fluid Tailings Management for Oil Sands Projects*
  - specific *OSCA* approval conditions on progress and final report
- Within 60 days of the expiry of the alt-FEMP approval or as part of the renewal process, the operator must submit a final alt-FEMP performance report to the AER. The AER will review the report to determine whether the program was successful and, if not, determine the extent of any required future study.

All nonconfidential performance reports submitted for pilot projects are publicly available on request.

For pilots granted confidentiality, reports are submitted to the appropriate inbox as identified in the associated approval document and are held confidential for the duration of the approved confidentiality period.