Manual **019**

Alberta Energy Regulator

Decommissioning, Closure, and Abandonment of Dams at Energy Projects

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1 Introduction

On December 11, 2018, Alberta Environment and Parks (AEP) updated the *Water (Ministerial) Regulation*. This update included the release of the new *Alberta Dam and Canal Safety Directive*, which contains requirements applicable to the entire life cycle of a dam. The directive outlines requirements for dam owners for dams, including

- the use of qualified professionals and qualified individuals;
- dam consequence classifications;
- the use of risk assessments;
- how to design, construct, and operate;
- required submissions for approval/authorization and dam safety reporting;
- dam safety and emergency management; and
- decommissioning, closure, and abandonment.

This manual should be read in conjunction with the regulation and the directive. This manual focuses exclusively on section 9 of the directive, which deals with the end of a dam's life (decommissioning, closure, and abandonment). It is intended to guide both dam owners and AER reviewers through the application of the directive's decommissioning, closure, and abandonment requirements to dams regulated by the AER. This manual and the directive do not address custodial transfer while managing hazards and risks to reasonably practicable levels.

This manual only supplements the regulation and directive. The reader should be familiar with any other legislation, rules, regulations, directives, codes, and directions that may apply to closure, decommissioning, reclamation, and abandonment.

When a dam that stores water (or water containing other substances) reaches the end of active service, in order to properly abandon it, the directive requires that it be breached or fully removed (decommissioned) and not be capable of storing water in the future.

The physical "closure" of a tailings facility with dams is a more complex process, and for tailings dams, the manual provides additional guidance.

The manual is organized as follows:

- Section 2 gives a brief description of decommissioning and abandonment for water dams.
- Section 3 provides guidance for tailings dams on reducing risk.
- Section 4 provides guidance for designing for closure and abandonment of tailings dams.

- Section 5 describes and illustrates the regulatory process for receiving and authorizing dam decommissioning, closure, and abandonment submissions.

2 Water Storage Dams

As defined in the directive, "decommissioning" a water storage dam means completely removing or breaching it such that it can no longer retain, store, or divert water.

When a water dam is completely removed or breached (decommissioned) the directive's consequence classification is no longer applied. There is no dam, no pond contents (nothing is retained), and therefore no risk of a dam failure with release of contents. The remaining structure is no longer regarded or regulated as a dam.

The directive indicates that dams classified as "low consequence" do not need to submit a decommissioning plan unless the dam owner's qualified professional indicates one should be prepared and submitted. Refer to section 9.6 of the directive for decommissioning of low-consequence dams.

3 Risk Management for Tailings Dams in Closure and Abandonment

The directive requires dam owners to undertake risk-based assessments to support decommissioning, closure, and abandonment plans (defined in section 9.6 of the directive, and referred to throughout this manual as DCA plans) and completion reports (defined in section 9.10 of the directive).

Unlike water dams, which can be breached when they are abandoned, tailings dams store contents for long periods of time. Tailings dams are most likely to fail during the construction and operation phases, but that's also when the mine operator has technical and operations resources available to manage the risk of failure. In the closure phase, a dam operator provides active care and may transition to passive care, depending on site-specific circumstances. As a result, the directive adopts a number of formal risk-management principles to ensure the long-term care and maintenance of tailings dams after the construction and operation phase has ended.

3.1 As Low As Reasonably Practicable

"As low as reasonably practicable" (ALARP) is a widely applied term in safety engineering and risk assessments. Satisfying this principle is a key component in in the directive and regulation. United Kingdom Health and Safety Executive (2001) provides a detailed technical description and layperson summaries of ALARP that can be viewed at their website at http://www.hse.gov.uk/risk/.

Determining what is "reasonably practicable" involves weighing a risk against the trouble, time, and money needed to control it. Thus, it describes the level to which we expect to see dam closure risks controlled.

Reasonably practicable is achieved when any further expenditure (whether in money, time, or trouble) is grossly disproportionate to the benefit or increase in safety. The process is not one of balancing the costs and benefits of measures but, rather, of adopting measures except where they are ruled out because they involve grossly disproportionate sacrifices.

Independent qualified professionals, who review closure plans and dam performance, participate in risk assessments (or review the findings), and advise the dam owner on these, provide additional assurance to the dam owner, dam designer, and engineer of record that risk is appropriately managed.

3.2 Failure Mode and Effects Analysis

The directive requires that the DCA plan and completion report assess risk using failure mode and effects analysis (FMEA) or a similar method. A risk assessment involves

- identifying the hazards and potential failure modes,
- analyzing the hazards,
- assessing the consequences,
- evaluating the probabilities of occurrence,
- characterizing the overall acceptability of the residual risk, and
- if required, redesigning to further reduce the residual risk.

Section 9.6 of the directive requires the dam owner to assess the potential failure modes and to identify mitigations to address their risks. The risk assessment informs the dam owner and the regulator of risks that need to be mitigated during physical dam closure. In the risk-assessment process the dam owner should consider long-term physical failure modes, including failure modes that are not relevant during operation but become relevant for abandonment. Individual mitigations may require additional detailed engineering submissions to support the closure construction modifications to the dam.

Section 9.10 of directive requires the dam owner to document and assess closure modifications that were identified in the initial section DCA plan. The operator will have collected performance data on the closure configuration to demonstrate performance that meets the closure objectives. The risk assessment is repeated to assess whether the risks are acceptable, and then submitted with the completion report.

3.3 Consequence and Likelihood

AEP began using hazard potential classifications in 1979. Consequence classification was broadly adopted by the Canadian Dam Association (CDA) in 1999, and AEP made consequence classification a regulatory requirement in the directive. Consequence classification was developed for the design, construction, and operation phases of a dam. For abandonment of a tailings dam, the consequences and

likelihood of a dam failure are both reduced. Risk assessment has to consider the consequence and likelihood of dam failure during the closure phase to demonstrate that the residual risk is acceptable.

Consequence and likelihood of a tailings dams failing is reduced as dam closure works are completed. An operating tailings dam has a minimum stipulated consequence classification of "significant" (or higher) in the directive. DCA plans should demonstrate that a lower consequence classification will be achieved in the closure phase. The Oil Sands Tailings Dam Committee (2014) provides a guidance framework to reduce the consequence classification of a tailings dam during the closure phase. Ideally the lowest consequence achievable is that comparable to natural analogues, and the likelihood of dam failure becomes extremely unlikely (risk cannot be reduced to zero for oilsands tailings facilities, or any manmade structure for that matter).

4 Considerations for Closure and Abandonment of Tailings Dams

With few exceptions, tailings facilities, with or without dams, are permanent structures on the landscape. The expectation is that tailings facilities with dams will be modified to replicate natural landforms as much as possible to meet the directive requirements.

The physical closure of a tailings facility, formed by one or more dams, is the first step in the closure process to achieve physical, chemical, and ecological stability and social acceptance. Physical stability underpins the other factors. Hence physical stability closure requirements in the directive should be addressed first, and requirements for physical stability may take priority over other requirements for other factors, if they differ.

The life cycle of a tailings facility with dams is shown in table 1.

Table 1. Life cycle of a tailings facility with dams

Approximate timeframes	Phase	Regulator Activities
up to 3 years	site selection and design	approve/authorize
up to 2 years	starter dike construction	authorize, review performance and performs inspections
10 to 20 years	construction and operation	authorize, review performance and perform inspections
2 to 20 years	submit closure plan and conduct closure activities	authorize, review performance and perform inspections
2 to 20 years	monitor closure performance	review performance and perform inspections
up to a year	submit completion report	dam structure is no longer regulated as a dam
up to 1000 years	abandonment[1]	dam is permanently removed from service as a dam

1 Long term care and maintenance may be required.

There are three operating configurations of oil sand tailings facilities with dams where a failure could potentially lead to the release of flowable tailings to the environment and cause harm to people, environment, infrastructure, property, cultural values, and the economy:

1) External tailings facilities where perimeter containment is formed by perimeter dams and rising topography in some cases. The tailings are deposited entirely on natural topography above ground.
2) Tailings stored in pit but a full height dam separates the tailings from the receiving environment.
3) Tailings stored in pit but capacity of the pit container is increased by constructing a perimeter dam along a portion or the entire pit crest.

During mining, the operator has a full-time site presence and a comprehensive dam safety management system to respond to abnormal behaviour of a tailings dam. In the closure phase, the active management continues until the regulator accepts the completion report. Passive care may be appropriate later in closure or early in the abandonment phase. After acceptance of a completion report, ideally the operator is no longer required to actively manage and report on the structure as a dam (section 9.11 of the directive), and the dam is removed from the dam owner's inventory of dams (and the AER's inventory of active dams).

There can be exceptions where a tailings dam may require active management over the long term despite closure works having been completed. If the residual risk is judged to be too high, we may not accept a completion report. The reasons for this will be determined on a case-by-case basis and in line with the directive's requirements.

4.1 Best Practices for Tailings Dams

AEP regulatory instruments and policy do not go into technical details such as dam design and analysis, dam safety reviews, flood mapping, and surveillance and dam safety management. We expect dam owners to follow Mining Association of Canada (MAC) guidelines and to apply guidance provided by the Canadian Dam Association (CDA) and the International Commission on Large Dams (ICOLD) that are applicable to tailings dams. We consider CDA, ICOLD, and MAC guidelines and bulletins to represent best practices.

The CDA produces a technical guideline for dam safety (dam design and analysis, dam safety reviews, flood mapping, surveillance, etc.) and provides further technical details in bulletins to support the guideline. ICOLD *Bulletin 153: Sustainable Design and Post-Closure Performance of Tailings Dams* (ICOLD 2013) discusses the life phases of mining dams and identifies the condition whereby a structure may not be considered a dam if "in the opinion of the authorities, [the dam] is considered to be physically, chemically, ecologically, and socially stable and no longer poses a risk to life or the environment."

ICOLD (2013) identifies the physical stability of the tailings dam as a first priority over other stability requirements since other forms of stability will be ineffective if the dam is physically unstable. By

physical stability, the bulletin refers to geotechnical and hydrotechnical stability and consideration of certain site-specific geohazards depending on the geological, climatic, environmental, and social settings.

The MAC guideline on management of tailings facilities provides guidance for dam safety management through the dam life cycle phases from the accountable executive right down to the dam technologist reading instruments in the dam. MAC also has a guideline for preparing operation, maintenance and surveillance manuals (https://mining.ca/resources/guides-manuals/).

4.2 Design Lifespan for Abandonment Phase

The design life of a component or product is the finite time period over which the component or product is expected to be fully functional. Once the design life is reached, the component or product would typically be reassessed, retired, replaced, or upgraded. The application of design life to tailings dams is discussed in a CDA technical bulletin (CDA 2014). For mine tailings dams or the resulting landforms (after abandonment and reclamation certification), the finite design life of the structure should be developed in alignment with a risk profile consistent with uncertainties in predicting the future (climate change as one example) by using appropriately selected design input parameters based on serviceability or ultimate states depending on the specific site conditions and failure modes being considered.

For example, using a design life of 1000 years and a design storm event with a 10% probability of exceedance results in design storm return period of 1:10 000. If a 5% probability of exceedance is desired based on risk criteria, then the design storm return period would be 1:20 000. The choice of which one to use depends on the site-specific conditions and foreseeable factors at risk downstream of the tailings dam. The selection of abandonment design lifespan and design criteria by the dam owner is to be included in the DCA plan submission. See section 9.8 of the directive for further details.

ICOLD (2013) suggests that an international trend towards a design life “in excess of 1000 years” is not unreasonable or impractical given that structures that are 600 to 800 years old are still being monitored. Monitoring a structure for 800 years is not the same as having a design life of 800 years, but this example demonstrates that structures can be constructed to last many centuries.

The desirability and practicality of adopting a particular design life is site specific; a particular facility’s design life is based on the performance requirements and observed performance during operation and closure. It is reasonable to establish an initial design life based on practicality, expected risk criteria, and the time needed to achieve sustainability. With an initial design life selected, potential hazards and failure modes over the life of the structure can be addressed through facility-specific risk assessments and the assignment of input parameters such as appropriately applied factors of safety, probability and consequence inputs, contingencies, mitigations, and monitoring.

Useful references for an appropriate design life can be found in the requirements for landfills and hazardous waste facilities. These facilities, in many ways, are analogous to tailings dams and their

contained tailings, depending on the strategies being used to manage fluids and seepage. A review of provincially legislated design functionality requirements (Government of Alberta 2010, Government of British Columbia 2016, Government of Ontario 2012) for landfill liners, seepage collection systems, and other components resulted in a design lifespan range of 350 to 1000 years.

We expect operators to provide information indicating an initial design life of 1000 years.

4.3 When a Tailings Dam is No Longer a Dam

The CDA is revising their 2014 mining dams bulletin that addresses when a tailings dam is no longer a dam, or when it can be considered a solid mine waste structure. Below are the four criteria laid out in the draft bulletin, each followed by a discussion of how it relates to the directive.

> Ponded water is not available and cannot accumulate to propagate a failure or uncontrolled release of contents.

The directive indicates that, after closure, a tailings dam has to pass a design storm event without restricting the flow of water and without backing up water. During a major flood there is always a rise in water levels and discharge flows. Practically speaking, a tailings dam will need to safely pass floods. After closure modifications, the tailings plateau should not allow any permanent ponding of water. Temporary ponding of water is acceptable during a flood event provided that the surface drainage system design can pass floods and not put the structure at increased risk. Wetlands may be acceptable depending on their location, size, design, and environmental factors.

> Contents do not and cannot flow (i.e., are not fluid like) and do not rely on a barrier structure to prevent an uncontrolled release.

The directive also requires flowable tailings to be removed or mitigated. We recognize that even with a sound geotechnical definition, some flowable tailings will remain in most tailings facilities with dams. Flowable tailings that may remain after closure works should be located such they do not pose unacceptable risk to the safety of the dam. The operator is expected to remove or mitigate flowable tailings to an extent that is as low as reasonably practicable.

> Contents do not and cannot migrate or pipe through the structure or foundation.

Migration of fines or piping failure (internal erosion of the dam) should be a failure mode that is included and mitigated in the risk assessments. Typically, migration of fines or indication of piping failure develop during the operating phase when large volumes of water are present and the dam is concurrently raised and operated. The operator is expected to mitigate the risk of piping failure in closure.

> Conditions will not develop in the future that could violate the previous three criteria.

To the extent possible, future conditions and failure modes are to be identified and mitigated. The DCA plan will mitigate risk such that the modified tailings structure will not revert to a tailings dam in the future. In the completion report, the risk assessment should also identify future knowable hazards that need mitigation. The future mitigations may be beyond the control of the dam owner but need to be brought to our attention. However, when we accept a completion report for a dam, the dam is permanently removed from service and is no longer a regulated dam under the regulation and directive.

The CDA suggests that a very wide perimeter structure may be considered to no longer be a dam. This approach may be feasible in some cases; regardless, the risks have to be reduced as low as reasonably practicable. The definition of a dam in the regulation does not consider the width of the dam structure. The definition of a dam is for the purpose of regulating operating dams. In decommissioning, closure, and abandonment, a very wide tailings dam aids with lowering risk of a dam failure and release of flowable tailings. A tailings dam modified by widening to a point where the risk of release of tailings is negligible may be considered as not a dam.

4.4 In-Pit Tailings Dams

Several scenarios for in-pit tailings dams are described here. The scenarios considered occur after tailings deposition is completed in the mine pit. During construction and operation, in-pit tailings dams are regulated as dams because they are typically very high-consequence structures with the potential for loss of life (workers in the active pit).

- The in-pit dam is a temporary structure and is submerged beneath tailings during operations. In this case, the closure plan should address the safe dam submergence, and the completion report should confirm that the dam has been submerged and no longer functions as a dam.
- The in-pit dam is a temporary structure and is filled with tailings on both sides to the dam crest; there is no significant elevation difference of flowable tailings across the dam crest, and the dam does not have potential to adversely influence or control the closure surface draining system. In some cases, a closure or decommissioning modification may be required so the configuration no longer acts as a dam. In some cases the dam owner can submit a completion report confirming that the remaining structure no longer functions as a dam. A presubmission discussion with the regulator will clarify the submission process for these structures.
- The in-pit tailings dam has an elevation differential across the dam crest and retains flowable tailings at a higher elevation on one side, or the surface drainage system crosses the dam and requires an engineered hydraulic channel, outlet, or spillway structure. In this case, the dam operator must submit a DCA plan and later a completion report confirming that the remaining structure no longer functions as a dam as required by the directive. Long-term care and maintenance might be needed.

- The in-pit tailings dam separates flowable tailings from an end-pit lake. The dam may be a permanent dam if flowable tailings are stored behind the dam. In this case the dam operator must address the requirements of sections 9.6 and 9.10 of the directive and confirm that the modified structure's risk is as low as reasonably practicable. Long-term care and maintenance might be needed.

4.5 Use of Independent Qualified Professionals

Sections 33(2)(b) and 33(3)(b) of the regulation authorize us to request independent expert advice on dam safety matters, including DCA plans and completion reports. The advice of independent qualified professionals (IQPs) in review boards or as individual advisors to a mining operator is important. This section describes how a mine operator can provide IQP advice to us in DCA plans and completion reports without affecting IQP reporting commitments to senior management at the mine.

The primary purpose of IQPs is to provide independent third-party expert assessment and guidance to mine operators on matters relating to geotechnical engineering, hydrogeology, mine tailings and closure plans, and risks at existing and future mining operations. The IQPs have contractual terms to provide recommendations that are for internal consideration and implementation, as appropriate, by the operators; ultimate responsibility for engineering, planning, and operation resides with the operators.

The dam operator submissions for physical closure plans and completion reports for tailings facilities with dams should clearly describe

- The dam owner's review process and independent opinions and guidance;
- the abandonment phase design lifespan, selection of design events, design criteria, and design methodology;
- any failure modes and engineering solutions for each;
- any future failure modes beyond control of the dam owner; and
- any residual risks.

The following general process for developing, reviewing, and submitting closure plans and designs for implementation is recommended:

1) Dam owner retains a qualified professional to prepare the closure plans and designs:
   - Incorporates own design, review, and quality-control processes.
   - Closure plan and designs are discussed with IQPs for comments in focused sessions with designers, reviewers, and dam owner. IQPs' comments are considered and addressed by design team and owner.
   - Regulatory engagement can commence during this stage.

2) Owner makes a submission to the AER for authorization to start implementing the physical decommissioning or closure plans and designs:
   - Discussions and comments with/from IQPs are included in the DCA plan submission.
   - Structural modifications with active care commence upon authorization by the AER.
   - Ongoing focused sessions with IQPs, designers, reviewers, and owner. Comments from IQPs are addressed by design team and owner.
3) Owner applies for physical abandonment:
   - Completion report and other supporting documents, including IQPs comments and resolutions, are submitted to the AER.
   - Physical abandonment status is achieved upon acceptance of the completion report by the AER; if the completion report is rejected by the AER, the dam owner will be provided with a list of deficiencies to address.

4.6 Estimates for Long-Term Care and Maintenance

Mine operators are accountable for the long-term safety and performance of tailings facilities with dams that remain on the landscape. But one cannot assume a mine operator will exist long after mining is completed. Section 9.10(2)(g) of the directive recognizes that short- and long-term care and maintenance are likely required for tailings dams that are modified in closure. Short term should consider the timeframe when closure activities are implemented up to the submission of the completion report. During this phase the dam structure is a regulated dam, operated and maintained by the dam owner. Long term is the timeframe after acceptance of the completion report and could extend for the full design life.

In the long-term maintenance phase, except when a completion report is rejected, the structure is no longer regulated as a tailings dam under the regulation and directive; however, the dam owner still has compliance requirements under other legislation, rules, and regulation until a reclamation certificate is issued and custodial transfer occurs.

Long-term care and maintenance should consider known natural processes or possible anthropogenic hazards that are relevant for the long-term performance and sustainability of the remaining structure (or landform), including the following:

- flood
- earthquake
- multiple consecutive wet or dry years
- seepage conditions
- surface settlement of the tailings plateau

- erosion of dam slopes
- anthropogenic activities
- animal activities

5 Regulatory Process

This section describes at a high level the AER regulatory review and approval process of a DCA plan. The process begins with a dam owner submitting a DCA plan. If the plan is authorized, and we accept the dam owner's final completion report, the structure will no longer regulated as a dam. High-level process maps are in appendix 1.

5.1 Authorization or Approval

The *Responsible Energy Development Act* (*REDA*) stipulates that an application for a new dam project must be accompanied by public notice to provide stakeholders the opportunity to comment on the application. Once a dam project is approved under the *Water Act*, subsequent dam submissions (changes to cross section/zonation, to raise the dam, to operate, changes in operation, to decommission or to close, etc.) are treated as submissions and not applications. The public notice process typically does not apply to a dam submission for an already approved dam.

When a tailings dam DCA plan submission departs significantly from the tailings dam landform proposed in the life of mine closure plan (LMCP), or the most recent mine reclamation plan (MRP) or in a tailings management plan (TMP), the plan may be treated as an application under *REDA*, and public notice required.

Oil sand mines start tailings deposition into an external tailings facility and then move to multiple in-pit dams and tailings storage cells. An in-pit dike footprint may change due to mine or dam optimization. In-pit dike footprint changes are typically not considered significant changes to the LMCP, MRP, or TMP because the footprint is in-pit and has no environmental impact. An exception might be if a relocated in-pit dike also required the in-pit closure surface drainage system to discharge to a completely different outlet location. In this situation the submission would not be aligned with the LMCP, MRP or TMP and could be treated as an application, which would trigger public notification.

5.2 Submission Steps

The AER regulatory steps are as follows for DCA plans and completion reports:

- Receive DCA plan.
- Check alignment with the LMCP, MRP, and TMP to decide if this should be considered an application requiring public notice.
- Check for completeness with the requirements in section 9.6 of the directive.

- If required, post the public notice of application.
- AER review of plan submission may necessitate that dam owner provide clarifications and additional information.
- AER issues authorization or approval of the DCA plan, potentially with conditions.
- Monitor progress and performance (annual reporting to AER) and perform inspections.
- AER receives completion report from the dam owner.
- Check for completeness with the requirements in section 9.10 of the directive.
- AER to review and obtain clarifications and additional information, as required, from the dam owner.
- Accept completion report and indicate to the dam owner that directive requirements no longer apply to the modified structure; it is no longer a regulated dam under the regulation or the directive. OR Reject the completion report and indicate deficiencies to the dam owner that need to be addressed. Until those deficiencies are addressed, the structure will remain a regulated dam.
- Change status in AER dams database to "inactive." OR Dam status remains "active."
- For a closed tailings dam, the structure is now considered a solid waste structure and may be reclassified and regulated as a mine waste dump under the *Oil Sands Conservation Act* or the *Coal Conservation Act*. The structure owner can proceed to apply for reclamation certification under the *Environmental Protection and Enhancement Act* (*EPEA*) when chemical, ecological, and social concerns are addressed.
- For a decommissioned water dam, the remaining dam fill and or relocated dam fill may have to satisfy *EPEA* reclamation requirements.

6 References

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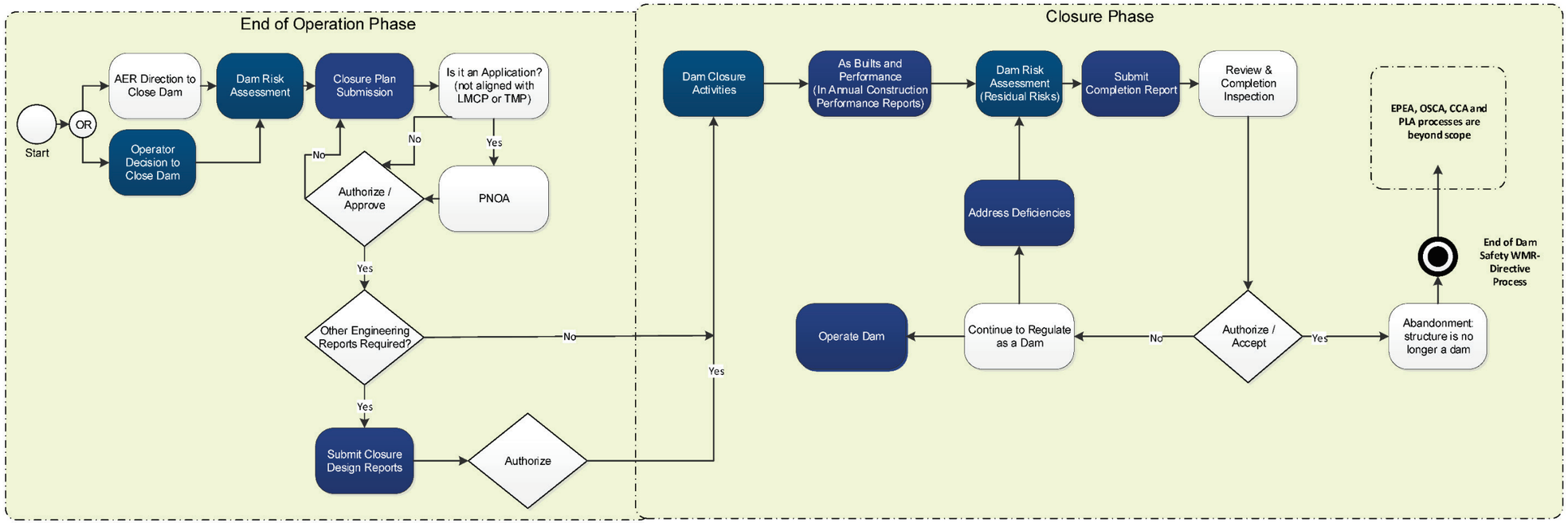
Appendix 1 Regulatory Review Process Maps

TAILINGS DAM CLOSURE PROCESS: OVERVIEW (which are not breached or removed)

Version: 1.2
Create Date: November 12, 2019
Authors: Tim Eaton, André Bachteram
Process Owner: C&L Dam Safety

Alberta Energy Regulator



LEGEND

- Phase
- In-Scope Business Process
- Out-of-Scope Business Process
- Industry Activity
- Decision or Gateway
- End

Desktop Surveillance

Field Surveillance

Emergency, Hazardous Conditions, Incidents, Complaints

This dam safety process map is based on the requirements of Water (Ministerial) Regulation (WMR) 34(1) and the Dam Safety Directive (Directive) from Alberta Environment and Parks.

Dam safety physical closure work according to WMR 34(1) and Directive may occur concurrently with Mine Reclamation Plan submissions under *EPEA*.

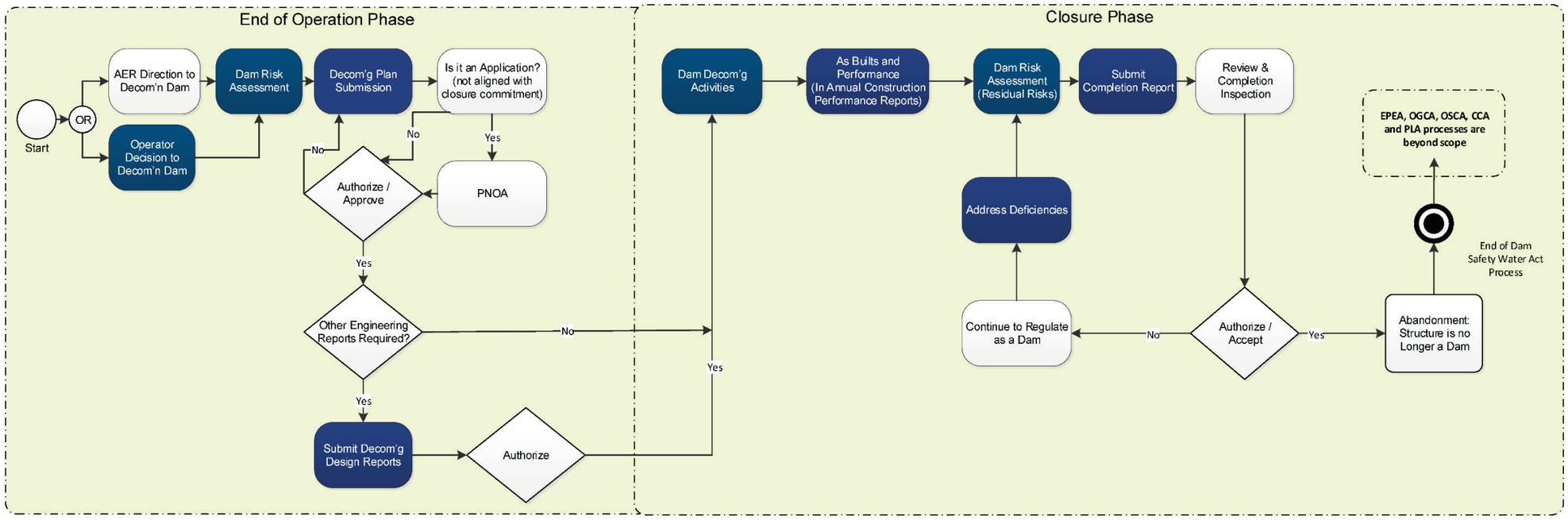
For abandonment the completion report under Directive Part 9.10 needs to accepted by the AER and then the structure may be authorized under *OSCA* or *CCA* as a waste dump.

To be eligible for a reclamation certificate the structure needs to satisfy physical, chemical, ecological and social requirements under *EPEA*, PLA, *OSCA* or *CCA*.

WATER DAM DECOMMISSIONING PROCESS: OVERVIEW

Version: 1.2
Create Date: November 12, 2019
Authors: Tim Eaton, André Bachteram
Process Owner: C&L Dam Safety

Alberta Energy Regulator



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Emergency, Hazardous Conditions, Incidents, Complaints

This dam safety process map is based on the requirements of Water (Ministerial) Regulation (WMR) 34(1) and the Dam Safety Directive (Directive) from Alberta Environment and Parks.

Dam safety decommissioning work according to WMR 34(1) and Directive may occur concurrently with Mine Reclamation Plan work under *EPEA*.

For abandonment the completion report under Directive Part 9.10 needs to accepted by the AER and the structure is permanently removed from service.

To be eligible for a reclamation certificate the remaining structure and or relocated dam fill needs to satisfy physical, chemical, ecological and social requirements under *EPEA*, OGCA or *OSCA* or *CCA* and the Water Act.