

Directive 085: Fluid Tailings Management for Oil Sands Mining Projects

Stakeholder Feedback and AER Response



October 2017

Section numbers referenced in the Section column refer to the draft version of the directive released in January 2017. Some section numbers have been updated to align with the October 2017 version. Stakeholder comments in the feedback columns (i.e., Issue, Possible Solution or Recommendation, and Rationale to Support Solution or Recommendation) have not been edited. Names of individual respondents have been redacted for privacy.

Stakeholder	Section	Issue	Possible solution or recommendation	Rationale to support solution or recommendation	AER response
Section 1 Introduction					
Fort McKay First Nation	Section 1, Page 3; Section 4.8, pages 18 and 19	The risks to the community of Fort McKay, which is directly downstream of and surrounded by existing tailings pond, have not been fully considered during the development of either the Tailings Management Framework (TMF) or Directive 085. These include risks to life and property due to tailings pond failure, and the risk of impacts to health, well-being or ability to enjoy reserve lands due to tailings-associated air quality issues and/or seepages.	The AEP and AER work with Fort McKay to develop tailings-specific emergency management and safety guidelines to address dam breach, seepage, or air quality issues. Provision of an independent geotechnical consultant to review tailings pond design and operation on Fort McKay's behalf. The AER and AEP consider directions from the ongoing work between Fort McKay and the AER on implementing recommendations from the AER's report on odour issues in Fort McKay during approvals of tailings management plans, to begin to manage odours resulting from fugitive emissions from tailings impoundment.		The AER will provide the feedback to the Government of Alberta for consideration in their work to assess the need for additional policy direction. The AER will also provide the feedback to the internal groups responsible for implementing the recommendations from the AER's report on odour issues in Fort McKay.
Section 2 AER Approach					
CAPP	Section 2, Page 5	In Section 2, the third bullet states: Operators are required to report annually on the performance of their fluid tailings management plans, including fluid tailings inventories, continuous improvement, and development of technologies and environmental monitoring results (refer to section 5). Each year's actual volume of fluid tailings must be within an operator's approved fluid tailings volume profiles.	Industry recommends the last sentence be removed from this statement.	The requirement is to manage fluid tailings within the thresholds approved for each project, which may be above the profile for to various reasons (e.g. measurement error) and yet not be above a threshold.	The AER notes in the <i>What Was Heard Report: AER Multistakeholder Fluid Tailings Regulatory Management Technical Advisory Committee</i> (December 2015) that section 2 achieved consensus. No changes to section 2, other than administrative, were made as part of the update to <i>Directive 085</i> . The <i>TMF</i> (section 6.4) states: <i>"The AER will complete an annual review of the performance of operators to ensure they are within their approved profile or consider the appropriate management action(s)."</i> As described in the directive, the AER will initiate a regulatory response in cases where operators are found to consistently deviate from their profiles year-over-year but still remain below thresholds. The AER will consider site-specific circumstances to determine the need for any preventative response.
Pembina Institute	Section 2.1, Pages 6-7; Section 10, Page 31-32	As the Directive states, "the TMF identifies the fluid tailings volume profile will be managed by three types of thresholds, which demarcate four fluid tailings management levels." We contend there should be additional emphasis placed on Profile Deviation since the End Mine Life Volume Limit and Total Volume Trigger are less relevant in ensuring ongoing management of the profiles for older mines, as demonstrated in the TMPs submitted for the November 2016 deadline.	Recommended additions are in <i>italics</i> . Triggers and Limits* 1) Profile Deviation Trigger = Fluid Tailings volume has exceeded the approved profile by 20 per cent 2) Total Volume Trigger = 100 per cent of End of Mine Life Volume 3) <i>Profile Deviation Limit = Fluid Tailings volume has exceeded the approved profile by 40 per cent</i> 4) Total Volume Limit = 140 per cent of End of Mine Life	The TMF and D085 define two triggers and one limit with four levels of management action. These original parameters were developed assuming different tailings production and management profiles than what we are seeing in the actual plans. Specifically, when the TMF was written it was assumed that all FT profiles would adhere to a 'trapezoid' trajectory, and the End Mine Life (EML) volume was therefore to be used as a target. For the majority of operators this model still applies, however the fluid tailings profiles for some of the longer-operating mines are now on a downward trajectory. In such	The directive follows the <i>TMF</i> policy direction for defined thresholds for fluid tailings management. The AER will provide the feedback to the Government of Alberta for consideration in the government's review of the <i>TMF</i> .

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			<p>Volume</p> <p><i>*To be calculated based on one year's actual FT compared to the approved profile FT, using proven technologies only</i></p> <p>Four Management Levels</p> <ol style="list-style-type: none"> 1) Level 1 - Projects are operating in line with their approved fluid tailings profile. 2) Level 2 - Profile Deviation Trigger is exceeded 3) Level 3 - <i>Profile Deviation Trigger is exceeded for second year in a row, Profile Deviation Limit is exceeded, or Total Volume Trigger is exceeded</i> 4) Level 4 - Total Volume Limit is exceeded 	<p>cases, the EML volume is simply not a useful yardstick. Therefore, we contend that the EML volume may be one parameter to consider, but the Profile Deviation Trigger is far more critical.</p> <p>Subsequently, we suggest including an additional limit and redefining Level 3 to better reflect the submitted TMPs.</p> <p>We emphasize that all calculations should be based on one year's actual FT compared to the approved profile FT, as some TMPs have made these calculations on a rolling basis. Moreover, we advocate for the use of proven technologies only, in alignment with page 23 of the TMF where it states, "the End of Mine Target will not be different than targets set with proven technology."</p>	

Section 3 Principles

Fort McKay First Nation	Section 3, Page 8; Section 4.1, Page 9	<p>Directive 085 is not sufficiently prescriptive, and incentivizes permissive tailings management plans. The Directive addresses only fluid tailings, not all tailings, does not require primary treatment of process water.</p> <p>The Directive acts as a disincentive to innovation to reduce tailings accumulation. Because it allows companies to design their own Tailings Management Plans, and stipulates strong penalties for deviating from these plans, companies have planned to do the bare minimum to meet the tailings management requirements. Effective policy should incentivize the effective and timely treatment of tailings.</p> <p>Tailings ponds have been and continue to be constructed on culturally important wetlands and muskeg, and their reclamation will change the landscape to one dominated by upland boreal forest, which does not support the same land use. It is important to note that approvals have been granted on the condition that the landscape is returned to a type that supports the exercise of rights; however, rights-based end points have not been defined for reclamation of tailings impoundments. The cumulative effects of tailings management and reclamation must be assessed for both environmental effects, and the ability of the resulting landscape to support the exercise of Constitutional Rights.</p>	<p>AER implement immediate modifications to Directive 085 to incentivize companies to proactively manage tailings, such as requiring security to cover the full cost of tailings treatment and abandonment.</p> <p>AER and AEP develop a mechanism to bring shorten tailings treatment timelines from decades to years, to restore First Nations access to reclaimed portions of mine sites for Traditional Use.</p> <p>The AER and AEP involve First Nations in the development of rights-based criteria for reclamation.</p>		<p>The AER will provide the feedback to the Government of Alberta for consideration in their review of the TMF, their design of regulatory financial tools under the MFSP and update of the MFSP, and their work to assess the need for additional policy direction on reclamation outcomes and criteria.</p>
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Section 4 Profile and Fluid Tailings Management Plan Application Requirements

CAPP	Section 4.2.2, Page 10	<p>Technical Requirements and Stage of Development: Industry supports the differentiation provided. However, the level of detail required to be provided should reflect the stage of development.</p>	<p>Industry recommends that this section be updated to clearly outline this important difference. Below is a recommended approach to this section:</p> <p>4.2.2 Application Process Requirements</p> <ol style="list-style-type: none"> 1) Operators' applications to amend an approved tailings management plan, or to amend an oil sands mining 	<p>In Section 4.2.2, the AER outlines the requirements for four different types of oil sands mining operations. These operations vary primarily by their stage of development. Again, Industry supports the differentiation provided, however, the level of detail required to be provided should reflect the stage of development.</p>	<p>Section 4.2.2 has been modified as follows to provide clarity:</p> <ol style="list-style-type: none"> 1. Applications for new oil sands mining projects and applications to amend approved tailings management plans or to amend existing oil sands mining project approvals must demonstrate that the requirements of
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			<p>project approval, must demonstrate the requirements of this directive have been met.</p> <p>2) Proponents of oil sands mining projects that are approved but not yet operating must submit an amendment application at least one year before bitumen production begins.</p> <p>3) Proponents of new oil sands mining projects under review by the AER must show alignment with this directive and the outcomes and objective of the TMF and, if approved, must submit an amendment application at least one year before bitumen production begins.</p>		<p>this directive have been met.</p> <ol style="list-style-type: none"> 2. Operators of oil sands mining projects that are approved but not yet operating must submit an amendment application at least one year before bitumen production begins. 3. Proponents of oil sands mining projects currently under review by the AER must demonstrate that the requirements of this directive have been met. <p>The directive is consistent with the identified need for the <i>TMF</i>:</p> <p><i>“... it considers the full life cycle of mining operations, as part of a holistic landscape management approach. It takes a long-term management focus on performance and results, but guides activities early in the development process and throughout the life of the project to manage liability and enable the achievement of desired long-term outcomes.”</i></p> <p>The AER understands that for proponents of new oil sands mining projects, certain details may not be available. The directive’s application requirements identify the areas applicants need to assess to demonstrate that their project is aligned with the outcome and objective of the <i>TMF</i>.</p>
CAPP	Section 4.4, Page 13	Section 4.4 states: Design operation: To achieve a relatively stable fluid inventory, it is expected that growth of fluid tailings will closely match the rate of treatment so that, on average, fines can be managed to a treated state as they are produced. This requires increases in fluid tailings treatment capacity as project expansions occur. Above statement is missing important context from the <i>TMF</i> .	Industry requests the last sentence in this statement be removed. Also, in the statement the word “fines” should be replaced with “fluid tailings” to properly reflect the objective of the <i>TMF</i> and the requirements of the Tailings Directive.	Although the current wording in the draft Directive is identical to the statement provided in the <i>TMF</i> (page 20), the important context and guidance provided in the <i>TMF</i> (pages 19 and 20) in relation to production changes (including expansions) is absent. It is industry’s view that the <i>TMF</i> addresses this important aspect in the full and complete manner necessary.	<p>The AER notes in the <i>What Was Heard Report: AER Multistakeholder Fluid Tailings Regulatory Management Technical Advisory Committee</i> (December 2015) that section 4.4 achieved consensus. No changes to section 4.4 were made as part of the update to <i>Directive 085</i>.</p> <p>The statement in the directive is a quotation from the <i>TMF</i>. The <i>TMF</i> requires the AER to report on fines capture.</p> <p>The directive considers the <i>TMF</i> guidance on profiles, including that “Considerable detail is required to justify the fluid tailings volume,” and it requires the applicant to justify variations in treatment and assess its proposed profile according to the guidance for setting the fluid tailings volume profile:</p> <p><i>“Fluid tailings accumulation must be managed and minimized through the life of the project, including during production expansion. As production increases, additional accumulation of fluid tailings must be managed, while ensuring long term closure and reclamation goals are met. With significant increases in production (e.g. expansions), increases in fluid tailings treatment capacity will be made to ensure managed accumulation of fluid tailings during expansion phases.”</i></p> <p><i>“As production expansions occur, it is expected that continuous treatment of tailings will not necessitate an allowance of volume accumulation seen at the Early Production Stage of a project (Phase 1).”</i></p>

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Fort McKay First Nation	Section 4.6, Page 16; Section 8.8.2, Page 30	The Directive... does not provide enough direction on the use of unproven technologies, such as end pit lakes. End pit lake have never been endorsed by Fort McKay. Syncrude's Base Mine Lake is not settling as planned and it remains unclear what criteria would define a viable end pit lake ecosystem, thus it is still uncertain whether end pit lakes will be a viable long term disposal option. Though the AER and AEP are moving forward with a study of end pit lakes to define these parameters, it is unclear how AER can approve tailings management plans that rely on end pit lakes before the study is complete and has demonstrated that end pit lakes can form viable and culturally useful aquatic ecosystems. With more than 30 end pit lakes proposed in the combined Tailings Management Plans, this is a major concern. We are pleased to hear that the AER is considering the use of end pit lakes carefully, but we suggest that a more effective Directive would provide clarity on their use.	Opportunity for Fort McKay to help guide final landscape design, including a proportion and mixture of uplands, wetlands and lake forms, and informed consent of proposals during design planning. Opportunities to be appraised of research into new treatment technologies.		The AER will provide the feedback to the Government of Alberta for consideration in their work to assess the need for additional policy direction on reclamation outcomes and criteria and their assessment of water capping technology. The directive outlines the expectations for transparent and accessible information on tailings, including research plans and results.
CAPP		Flexibility of Choices Industry strongly believes that all choice within tailings management plan technologies should be treated on a level playing field with other choices and this is not the case due to requirement 12. This unsubstantiated position against water-capped tailings is contrary to the research and development on this approach under this section.	Industry needs flexibility in their plans in order to provide the best outcomes while balancing environmental, social and economic considerations.	Development has been ongoing for decades within the oil sands industry and in other sectors. It is important to acknowledge that all existing mining projects were approved on the understanding and acceptance that end pit lakes (EPLs) would be part of the closure landscape. Project approvals, that included EPLs, were based on the clear expectation of the regulators that further research was required. Industry notes that, throughout the mining industry, there is a large body of scientific evidence and experience to suggest that viable pit lakes are achievable. EPLs utilizing water-capped tailings form one of many critical elements of the closure drainage plans during operation and for final site closure. Accordingly, EPLs are required to achieve the key outcome of a self-sustaining closure landscape integrated within the boreal forest ecosystem. To be successful, Industry needs flexibility in their plans in order to provide the best outcomes while balancing environmental, social and economic considerations.	The AER notes in the <i>What Was Heard Report: AER Multistakeholder Fluid Tailings Regulatory Management Technical Advisory Committee</i> (December 2015) that section 4.6 achieved consensus. No changes to section 4.6 were made as part of the update to <i>Directive 085</i> . The AER also notes that the directive shares principles identified in the <i>TMF</i> to support technological innovation, to consider flexibility and adaptability, and to manage and decrease risk. The directive incorporates the following <i>TMF</i> policy direction: "All plans should be based on the most advanced and demonstrated technologies. Where there are uncertainties within the chosen tailings technologies, the plan will identify contingency plans to manage risk." "...until it is determined whether or not the technology is a successful treatment method, plans will be required to consider alternatives. To be considered viable, such technologies (including, for example, water-capped fluid tailings..." The AER will provide the feedback to the Government of Alberta for consideration in its assessment of water capping technology.
CAPP	Sections 4.5 9f and 5.2 Pages 15 & 21-24	Section 4.6, Page 16	Unless additional oversight is deemed necessary as a response to non-compliance, submissions and associated reporting should focus on the outcome outlined in the <i>TMF</i> , namely fluid tailings volumes and deposit specific Ready-to-Reclaim (RTR) criteria. For example, per Sections 4.5 9 f and 5.2, the Tailings Directive currently includes requirements to provide detailed tailings/water chemistry both in tailings plan submissions and compliance reporting. Industry notes that water chemistry predictions and measurement provide value only for the specific tailings deposits in which	Improves clarity in demonstrating alignment with key objectives, simplify processing, and likely facilitate meaningful engagement with stakeholders.	The directive supports the achievement of the <i>TMF</i> outcomes and principles, namely that environmental effects are managed, that a sustainable ecosystem can be achieved, and that net environmental effects of tailings management are considered. The <i>TMF</i> also recognizes the relationship between water and fluid tailings management and provides specific policy direction on water management in section 6.6 and monitoring and reporting requirements related to water in section 7.2. The AER is committed to continuing work to reduce

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			chemistry is required as a Ready-to-Reclaim (RTR) indicator. Site-wide water volumes and chemistry provisions are included under the Environmental Protection and Enhancement Act (EPEA) approvals and associated reporting.		duplication. Operators may reference other reports submitted to the AER.
Section 5 Fluid Tailings Management Reporting					
CAPP	Section 5	Compliance reporting requirements should directly relate to demonstrating fluid tailings management performance.	Industry recommends that while an operator remains compliant with the approved fluid tailings (FT) volume profile and deposits performance per RTR criteria, compliance reporting should be streamlined to these principal measures only.	Industry believes the compliance reporting requirements should directly relate to demonstrating fluid tailings management performance.	The purpose of the reports is articulated in section 6.1, which extends beyond compliance with the approved fluid tailings volume profile and RTR performance criteria. The AER notes in the <i>What Was Heard Report: AER Multistakeholder Fluid Tailings Regulatory Management Technical Advisory Committee</i> (December 2015) that section 5 (now section 6) was previously discussed and achieved a mix of consensus and nonconsensus. Administrative changes were made to section 5 (now section 6) as part of the update to <i>Directive 085</i> to improve the clarity of the introduction and to include the role of reports in performance evaluation and compliance processes.
CAPP	Section 5.2, Page 24	Environmental Reporting: Section 5.2 states: <i>To ascertain that environmental benefits and risk trade-offs anticipated by operators for their tailings technology justification continue to be accurate, and to assess operator performance in managing and minimizing environmental effects and implications associated with fluid tailings management activities, the annual management report must provide a summary of the results from environmental performance monitoring reports related to fluid tailings management activities.</i> This level of reporting is not supported by the TMF, as per Section 7.2 Monitoring and Reporting.	Additionally, requirement 13g (i) and (ii), and 14) and 16) of the Tailings Directive requests that Industry report on uncertainties including the nature and magnitude associated with the deposit on impacts to the surrounding environment. This duplication should also be removed to better focus reporting requirements. If this requirement is still deemed necessary, Industry would like to clarify per the multistakeholder review discussions that this summary will be concise and focused solely on the environmental net effects justifications submitted within the Tailings Management Plans.	Industry suggests that this information is already provided to the AER in annual reports, including several Conservation and Reclamation (C&R) reports, annual groundwater monitoring reports, industrial surface water monitoring reports, and fish and wildlife monitoring reports. The AER should be able to review tailings-related information on environmental monitoring within these reports. This level of reporting is not supported by the TMF, as per Section 7.2 Monitoring and Reporting.	The directive supports the achievement of the <i>TMF</i> outcomes and principles, namely that environmental effects are managed and that net environmental effects of tailings management are considered. The AER is committed to continuing work to reduce duplication. Operators may reference other reports submitted to the AER as part of the summary of results from environmental performance monitoring reports related to fluid tailings management activities.
CAPP	Section 5.3 Page 24	Duplicate Reporting Requirements: Section 5.3 states: Consolidation and format of AER reporting will be considered by the AER on an ongoing basis. Where reporting requirements are consolidated or format requirements change, operators will be notified by the AER. Industry supports a reduction of duplicate reporting.	As instances of duplicate reporting are identified, Industry is willing to work with the AER to align reporting requirements. By way of an example: Industry recognizes there should be a connection to reclamation and closure planning, however, the current expectation requires duplicative reporting that is better captured in closure and reclamation reports. Furthermore, we recommend the removal of the use of the term 'ecosites' from the directive as this is reclamation and closure planning terminology not required for the fluid tailings management plans.	Industry supports a reduction of duplicate reporting in order to improve overall efficiency and specifically to improve the ease of information navigation for all parties.	The directive supports the achievement of the outcomes identified in the <i>TMF</i> . The AER notes that, as per the <i>What Was Heard Report: AER Multistakeholder Fluid Tailings Regulatory Management Technical Advisory Committee</i> (December 2015), for existing deposits a targeted range of ecosites is required to demonstrate alignment to reclamation plans. For proposed deposits, the level of detail required is less (site type and moisture regime). The directive incorporates "ecosites" in an outcomes-based approach for applicants to demonstrate that they meet the guidance for setting the fluid tailings volume profile identified in the TMF: <i>"Thresholds will be established with consideration for the end landscape and associated reclamation plan."</i> <i>"Tailings management plans will steward toward a safe, stable, and sustainable final landscape."</i> The directive incorporates "ecosites" in an outcomes-based

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<p>approach for applicants to assess the appropriateness of the proposed RTR criteria trajectory's targeted long-term outcomes as identified in <i>TMF</i> sections 7.5.3.1 and 7.5.3.2.</p> <p><i>“Outcomes-based performance measures will be used to evaluate the appropriateness of tailings technologies in meeting long-term reclamation outcomes.”</i></p> <p><i>“Criteria and performance measurement systems are required to evaluate success in getting tailings ready for reclamation. Criteria should support the meeting of reclamation outcomes”</i></p> <p>The AER acknowledges industry's willingness to work with the AER. The AER is committed to continuing work to reduce duplication. Operators may reference other reports submitted to the AER.</p>					
<p>Section 6 Definition and Determination of Fluid Tailings Volume</p>					
Advisian	Section 6, Page 24	Section 6 prescribes that “The volume of fluid tailings is measured as outlined in the Canada’s Oil Sands Innovation Alliance’s (COSIA) Guidelines for Determining Oil Sands Fluid Tailings Volumes (June 2015, appendix 4)”. This guideline was developed to promote the standardization of the FFT measurement for D074. Many of the suggested measurement types are either indirect measurements, seasonally or surface condition resolution limited, or limited in their ability to provide reliable information to support RTR status. These measurements often come at a large financial cost to the operator, without necessarily adding equivalent value to achieving reclamation outcomes.	Recommend generalizing section 6 to include innovative measurement methods not covered in the COSIA guideline so long as those measurements can be demonstrated as reliable for the determination of Mudline and Hard Bottom as defined in the guideline.	Recent and anticipated advancements in drone technologies, near-surface geophysical techniques, and autonomous/unmanned measurement platforms will provide the oil sands industry the opportunity to collect more informed, data-rich, spatially relevant, and timely data to support tailing performance measurements.	The use of a consistent measurement guideline provides greater confidence in the reported volumes. The AER could consider alternative measurement approaches in future versions of the directive.
<p>Section 7 End of Mine Life</p>					
CAPP	Section 7, Page 25	Section 7 states: When a project’s production rate decreases significantly or approved expansions are delayed, the end-of mine-life date may be changed. Factors in the decision to approve the change include... All required scenarios are covered by the remaining content within Section 7.	Industry recommends this statement and the subsequent bullets be removed.	Industry supports many of the components in this section and appreciates the recognition of variation that may occur. However, Industry recommends this statement and the subsequent bullets be removed as all required scenarios are covered by the remaining content within Section 7.	End of mine life was discussed thoroughly at TAC during version 1 of the directive. The AER notes in the <i>What Was Heard Report: AER Multistakeholder Fluid Tailings Regulatory Management Technical Advisory Committee</i> (December 2015) that there was a recommendation to include additional examples related to changing end of mine life and potential considerations, including production rate decreases.
<p>Section 8 Ready to Reclaim</p>					
Pembina Institute	Section 8.8.2, Page 30	Contingency plans All but one proponent proposed water-capped tailings in their TMPs as submitted for the November 1, 2016 deadline, with profoundly insufficient contingency plans. Proposing water-capped fluid tailings without adequate contingency plans directly contradicts the following requirements of Directive 085: <ul style="list-style-type: none"> Requirement 11 in Section 4.6: Applications must describe uncertainties, mitigation measures and contingency plans 	We support the AER's March 17 decision on the Suncor Millennium Mine application. This was an encouraging step in demonstrating the AER's commitment to implementing the Directive as written, with appropriate caution paid to unproven technologies. We recommend that the letter of the law, as per the TMF and Directive 085, continue to be stringently upheld in the review of all subsequent applications. Namely, we expect to see that adequate contingency plans are equally required from all other operators. The problems the AER cited with Suncor's plan were neither unique nor worst-in-	Plans must be adequately realistic to ensure FT are dealt with in reasonable timelines to establish self-sustaining, locally common boreal ecosites. Until end pit lakes are proven or disproven we need confidence that we can reach final closure outcomes. Rationale for profiles based on proven Technologies: Individual proponents' tailings profiles will form the backdrop against which their performance will be evaluated. Therefore, these tailings profiles must be sufficiently realistic. The key to ensuring strong management of FT in Alberta under Directive 085 is: (1)	The AER notes in the <i>What Was Heard Report: AER Multistakeholder Fluid Tailings Regulatory Management Technical Advisory Committee</i> (December 2015) that section 4.6, achieved consensus. No changes to section 4.6 were made as part of the update to <i>Directive 085</i> . The AER also notes that the directive shares principles identified in the <i>TMF</i> to support technological innovation, to consider flexibility and adaptability, and to manage and decrease risk. The directive incorporates the following <i>TMF</i> policy direction: <i>“All plans should be based on the most advanced and</i>

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		<p>for unproven technologies.</p> <ul style="list-style-type: none"> Requirement 12 in Section 4.6: Where water-capped tailings technology is proposed, the application must identify an alternative treatment technology. <p>Profiles based on proven technologies: Page 30 of the Draft Directive states that until the AER receives policy direction from the Government of Alberta of Alberta to develop a regulatory approach to water-capped fluid tailings, this technology "may be used to generate the inventory forecast in the profiles" provided the fluid tailings management plan includes an alternative technology option, including timeframes for implementation." This approach is highly problematic and high risk. We contend that designing profiles based on technically unproven, unregulated, and experimental technologies (such as water capping) should not be permitted.</p>	<p>class relative to the sum of other operators, but rather representative of problematic industry-wide trends seen in all submitted TMPs to date.</p> <p>Recommendation for profiles based on proven technologies: Further, in contrast to the direction provided in Directive 085 (relevant excerpt highlighted in left column), we argue that any approved FT profiles should NOT be based on water capping or any other unproven technologies. Instead, we submit that only treatment options that are commercially proven and approved by the AER should be the basis of profiles.</p> <p>Essentially, we recommend that the comprehensive contingency plans required from proponents per Directive 085 stipulations should be used to develop the profiles in any cases where water capping or other experimental technologies are proposed.</p>	<p>defining strong RTR criteria, and (2) basing the profiles on proven technologies.</p> <p>Water capping is not an acceptable technology to base decades long fluid tailings profiles on. The intent of the TMF was to ensure there would be no more than five years of tailings at EML, so that all tailings could meet RTR criteria within ten years. The integrity of this design is entirely reliant on profiles being based on viable technologies.</p>	<p><i>demonstrated technologies. Where there are uncertainties within the chosen tailings technologies, the plan will identify contingency plans to manage risk.</i> <i>"...until it is determined whether or not the technology is a successful treatment method, plans will be required to consider alternatives. To be considered viable, such technologies (including, for example, water-capped fluid tailings..."</i></p> <p>The AER will provide the feedback to the Government of Alberta for consideration in its assessment of water capping technology.</p>
Pembina Institute	Section 8.4, Page 27	<p>Ready to Reclaim (RTR) criteria are a critical component of the Directive, yet in applications submitted to date the criteria proposed have been largely weak and absent.</p> <p>Moreover, there is a significant degree of variation in the quality of fluid tailings being proposed for removal from inventories as RTR by various proponents.</p> <p>Stakeholders want confidence that the criteria being agreed to is transparent, stringent, and consistent across industry. The current approach where the onus is on operators to develop and justify their criteria is not resulting in desired outcomes, as demonstrated in the recently submitted TMPs.</p>	<p>We suggest a formal re-evaluation of how RTR criteria are being developed, with more guidance solicited from policymakers.</p> <p>Specifically, we recommend that the Government of Alberta and AER develop a suite of Ready-To-Reclaim measures for each type of end-landscape (terrestrial, aquatic and wetland). For each of those measures, a range of acceptable values to get from RTR to RFR should also be defined, recognizing that each deposit may start out at different points within the range and may progress along the trajectory at different rates. This exercise must be done urgently, before any TMPs are approved by the AER.</p> <p>Additionally, we propose an enhanced review process or joint hearing on all the TMPs submitted to date, to ensure all RTR criteria are reviewed and agreed to collectively.</p>	<p>We contend that the inadequate RTR criteria demonstrated in the majority of TMPs submitted for the November 2016 deadline may be indicative of the AER's approach to RTR criteria failing. Setting prescribed parameters for various end-landscape ecosites would help to address this problem.</p> <p>More clear prescriptions for acceptable RTR criteria could additionally address the problem of the extreme variation of fluid tailings treatment and reclamation timelines, as seen in the submitted TMPs. If parameters for RTR criteria were more clearly delineated, progressive reclamation could be better ensured by preventing the removal of fluid tailings from inventories sooner only to reach reclamation stages much later.</p> <p>Moreover, criteria for each type of deposit should be the most stringent possible and be applied consistently and transparently across industry. A joint review process is one mechanism to ensure this. This could additionally provide an inclusive forum to evaluate cumulative tailings management, and assess whether the intent and objectives of the TMF are being sufficiently met by the sum of all Directive 085 applications.</p>	<p>The AER notes in the <i>What Was Heard Report: AER Multistakeholder Fluid Tailings Regulatory Management Technical Advisory Committee</i> (December 2015) that ready to reclaim was thoroughly discussed but consensus could not be achieved. No changes to section 8 (now section 9) were made as part of the update to <i>Directive 085</i>.</p> <p>The directive shares the principles identified in the <i>TMF</i>, namely a holistic approach to tailings management and incorporation of flexibility and adaptability. Ready to reclaim is part of the <i>TMF</i>, which will be reviewed in accordance with the <i>TMF</i>'s review cycle.</p> <p>The AER will provide the feedback to the Government of Alberta for consideration in its work to assess the need for additional policy direction on RTR criteria.</p>
Pembina Institute	Section 8.4, Page 27	<p>The regulatory approval and monitoring process for Ready-For-Reclamation (RFR) is neither sufficiently defined nor transparent at this juncture.</p> <p>There have been highly variable interpretations of what constitute 'reasonable' timelines to get from RTR to RFR by proponents in their TMPs, as submitted for the November 2016 deadline. This suggests that clearer parameters need to be delineated.</p> <p>To ensure progressive management of FT and</p>	<p>It states in Appendix 2, "where a progression of values is required in order to progress towards the next stages of reclamation, identify the trajectory of the values and identify the timeframe in which the values are to be met to meet the trajectory."</p> <p>We argue that this should be mandatory for all TMPs, and that a form of compliance and enforcement should be applied here as well.</p> <p>Additionally, we suggest that the AER might consider requiring proponents to submit profiles for their RTR to RFR, and RFR to reclamation trajectories (similar to the</p>	<p>While we understand that the policy gaps regarding reclamation and liability are meant to be addressed in separate policymaking processes to come, it is unreasonable for there to be no existing guiding principles for these critical components of the plans.</p> <p>We advocate for the Government of Alberta of Alberta to provide more adequate policy direction to the AER to address this gap, so that general parameters can be delineated for this extremely important phase of the mining operation.</p>	<p>The AER notes in the <i>What Was Heard Report: AER Multistakeholder Fluid Tailings Regulatory Management Technical Advisory Committee</i> (December 2015) that ready to reclaim was thoroughly discussed but consensus could not be achieved. No changes to section 8 (now section 9) were made as part of the update to <i>Directive 085</i>.</p> <p>The directive requires applicants to support proposed criteria, including how the deposit's physical properties are on a trajectory to support future stages of activity, how the effects the deposit have on the surrounding environment will not compromise the ability to reclaim, how the proposed</p>

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		<p>concrete steps are taken towards reclamation, some oversight is required for this stage of tailings management. Directive 085 provides essential expectations for timing in getting to the RTR stage, but supplementary direction is required for the processes of getting from RTR to RFR and reclaimed landscapes.</p> <p>Treating tailings is absolutely critical, but this is only the first part of the process required to achieve self-sustaining, locally common boreal ecosites. The Mine Financial Security Program provides oversight over the reclamation phase. However, there is a major gap in monitoring the process of transitioning from RTR to RFR.</p>	<p>FT to RTR profiles).</p> <p>Proponents need to provide more detailed RTR criteria and the progressive measurements they expect over time to get to RFR (as reflected in our comments on pages 4 and 5 of this submission). These values need to be monitored and, if found to be in noncompliance, penalties should be incurred.</p>		<p>criteria align with the targeted final landforms, and identification of the critical milestones for each deposit.</p> <p>The AER will provide the feedback to the Government of Alberta for consideration in its work to assess the need for additional policy direction on reclamation outcomes and criteria.</p>
Pembina Institute	Section 8.6, Page 28	<p>Section 8.6 of the Directive states, “if the treated tailings are meeting the RTR performance criteria, they can be removed from the fluid tailings inventory because they are on a clear trajectory to meeting long-term reclamation outcomes. In circumstances where performance criteria are no longer met or there is a deviation from the expected trajectory, operators must identify the volume not meeting the performance criteria and the degree of nonperformance.”</p> <p>We contend that this description is insufficient, and should be elaborated upon further in an Appendix, to delineate the details the AER expects to receive in applications as well as in annual reports.</p>	<p>Appendix 3 contains a table for managing FT. We suggest that another table be included for managing performance of treated tailings from each deposit. This should include proposed RTR criteria by year compared to actual performance.</p>	<p>More detailed descriptions of RTR performance criteria would better ensure that Sub-objective 1 is met (i.e. the deposits physical properties are on a trajectory to support future stages of activity). This relates to our broader concerns about the insufficient RTR criteria demonstrated in the TMPs submitted for the November 2016 deadline, as described on page 4 of this submission.</p>	<p>The directive requires annual reporting on RTR criteria. If the AER determines that format requirements should change, the directive provides the AER with flexibility to provide additional guidance to operators.</p>
Section 9 Measurement Outcomes					
CAPP	Section 9, Page 31	<p>In section 9, requirement 22 indicates: Operators must submit their measurement system plan to the AER within six months of the approval of the tailings management plan. To properly complete this report a six month submission deadline may not be adequate for all operations.</p>	<p>Industry recommends that 12 months be allotted to fulfill requirement 22.</p>	<p>Industry recommends that in order to properly complete this report a six-month submission deadline may not be adequate for all operations.</p>	<p>The AER notes that operators have been using fluid tailings measurement systems since 2015 and that the AER issued version 1 of the directive, which provides accepted methods for determining oil sands fluid tailings volumes, in July 2016.</p> <p>The AER also notes that measuring of certain ready-to-reclaim criteria may not be required within six months of a tailings management plan approval and would consider a request, with justification, to extend the submission of RTR measurement plans.</p>
Section 10 Performance Evaluation, Compliance, and Enforcement					
CAPP	Section 10, Page 35	<p>Third-Party Review Expertise: In Section 10 third-party involvement is referred to a number of times, in most instances using a third party in an auditing capacity. In only one occurrence is the third party required to be a “credible third-party.”</p>	<p>Industry recommends that the AER leverage other regulations (e.g. Specified Gas Emitters) that have third-party review to incorporate appropriate criteria for credible and competent third-party engagement in the review of tailings performance.</p>	<p>Industry supports the concept of competent and credible third-party review when appropriate as this can be a valuable mechanism for helping to continue to build trust in the regulatory system and industry operating performance in addition to making the system and operations more robust. However, because tailings management is a complex, diverse and critical part of all mineable oil sands operations, it is important that the third parties have relevant expertise in the specific area being reviewed.</p>	<p>References to third party have been condensed in Table 1, which is reflective of the <i>TMF</i>.</p> <p>The AER has not determined the criteria applicable to a third-party audit. This does not preclude the AER’s use of considerations similar to those identified in the <i>Specified Gas Emitters Regulations</i>, such as the following:</p> <ul style="list-style-type: none"> • Professional training and membership • Technical knowledge

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					<ul style="list-style-type: none"> • Conflict-of-interest eligibility • Support, by evidence, of qualifications and eligibility
Pembina Institute	Section 10.1, Page 32	We are very supportive of the initiatives described in this section, and would like to commend the AER for undertaking a proactive role in ensuring all the listed information will be publically available.			The AER has removed the information that is duplicative of <i>ICAF</i> and <i>Manual 013</i> . The AER's commitment to ensuring transparency and the public availability of documentation is captured in sections 2, 4.2.4, 5, 6.1, 6.4, 10.4, and 12.
Pembina Institute	Section 10.2.2, Page 34	Section 10.2.2 of the Directive states, "the AER will work with the operator to prevent undesirable trends above the fluid tailings volume profile and deposit RTR timelines and identify any increased risk of: (a) exceeding thresholds; (b) noncompliance with approval conditions; (c) not meeting reclamation milestones, and (d) noncompliance resulting from deficiencies in their fluid tailings management system or deviations from their fluid tailings management plan." We contend that this is insufficient, and that RTR criteria should be more clearly emphasized.	We recommend that this list include noncompliance with RTR criteria on an annual basis.	The lynchpin of Directive 085 is RTR criteria, and for it to be efficacious more clear emphasis on compliance and enforcement is imperative. Incorporating our suggestion would better ensure that the treated tailings are on a trajectory to RFR.	Section 10.3 now includes the following to clarify that increased risk to achieving RTR criteria is a consideration in the AER's performance evaluation, compliance, and enforcement processes: <ul style="list-style-type: none"> • "not meeting RTR criteria" has been added • The original lettering (e.g., (a), (b), (c)) has been removed
CAPP	Section 10.3 Page 37-38	Section 10.3 states, "the TMF's management actions escalate as the volume of fluid tailings accumulate, thresholds are exceeded, and levels increase." As written this statement is not applicable or valid in the circumstance where fluid tailings inventories are below thresholds but increasing as expected.	Industry suggests the following phrase replace the one stated as an excerpt from the TMF page 33: As project fluid tailings increase over time, thresholds will provide an indication that management responses may be required.	Management actions should be more related to the magnitude of deviation above a threshold to be more consistent with the TMF.	The <i>TMF</i> states that, "the management action will increase in severity as the volume of fluid tailings increases." The <i>TMF</i> also identifies the need to initiate regulatory or management responses where operators are found to be consistently deviating year-over-year above the profile, but remain below thresholds. The directive considers this under section 10.3. The directive will follow the AER compliance program.
Pembina Institute	Section 10.3, Pages 37-38	The Draft Directive states that ICAF and Manual 013 will guide the AER for compliance and enforcement. The Directive states, "the AER will employ the procedure described in Manual 013 when a noncompliance is identified" and, in addition, "the TMF provides a range of management actions for each type of threshold exceedance as described in sections 6.1 and 6.2 of the TMF." Further, as "each site's circumstance differs, the AER will consider a number of factors in considering its management response to threshold exceedance." The AER has defended this as one component	Recommended prescribed management actions for each level of non-compliance are in BOLD . Four Management Levels 1) Level 1 • Projects are operating in line with their approved fluid tailings profile. 2) Level 2 • Profile Deviation Trigger is exceeded • Recommended penalty: a security of \$300/m³ of FT that exceeds the profile posted to the Mine Financial Security Program (MFSP). 3) Level 3 • <i>Profile Deviation Trigger is exceeded for a second</i>	We advocate for clear, universal, predetermined, and stringent consequences aligned with the Directive's four management levels. Penalties should be sufficiently severe to: (1) incent proponent performance; and, (2) ensure the province collects sufficient security to ensure Albertans do not incur the liability. The Directive was designed for TMPs to be based on proponents' site-specific proposals. Subsequently, there is significant flexibility built in to the essential criteria against which compliance will be measured. Additionally providing flexibility in enforcement is both excessive and unreasonable. The public, industry, and the AER expect the plans to be sufficiently realistic, ambitious and effective. Strong consequences for noncompliance will act as a deterrent, and provide a significant communications tool to build public trust.	The directive will follow the AER's compliance program. The directive is consistent with the policy direction currently provided by the <i>TMF</i> . The AER will provide the feedback to the Government of Alberta for consideration in its design of regulatory financial tools under the MFSP.

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		of a 'flexible and proactive' approach to tailings management. We argue that flexibility and adaptive management are good tools prior to non-compliance. However, in the event of non-compliance, consequences should be clear, universal, pre-determined, and stringent.	<p><i>year in a row, Profile Deviation Limit is exceeded, or Total Volume Trigger is exceeded.</i></p> <ul style="list-style-type: none"> • Recommended penalty: security of \$300/m³ of FT that exceeds the profile posted to MFSP. Production curtailment until tailings are back in alignment with approved profile. <p>4) Level 4</p> <ul style="list-style-type: none"> • Total Volume Limit is exceeded • Recommended penalty: security of \$300/m³ of FT that exceeds the profile posted to MFSP. Production curtailment until tailings are back in alignment with approved profile. Compliance levy of \$100/m³. <p>*If profile is exceeded consistently for three or more years in a row but remains below 20 per cent threshold, proponent should be subject to Level 2 management actions.</p>	Transparency and trust building are especially relevant due to the failure of the AER to enforce Directive 074. We selected the metric of \$300/m ³ of FT by multiplying the average cost to treat a cubic meter of FT (i.e. \$30/m ³) by a factor of 10. This is based on the precedent set by SGER, wherein non-compliance penalties are determined as 10 times the average cost of compliance. We additionally recommend that these compliance details and mandatory requirements be included in the Regulatory Details Plan of the Lower Athabasca Regional Plan. This would render compliance enforceable under the Alberta Land Stewardship Act as well as the Oil Sands Conservation Act.	
Section 12 Five Year Review					
CAPP	Section 12 Pages 39-40	<p>Five-Year Review Section 12 is dedicated to a review related to the Tailings Directive. There are also reviews for the Lower Athabasca Regional Plan and the TMF policies. The TMF only reflects the following on page 25 related to the AER's review:</p> <p>Over the course of the mine life, these plans will be reviewed every five years, or as necessary, to ensure that the profiles and thresholds are in line with projections and reflecting current technology and new knowledge.</p>	<p>Industry would like to suggest this section be renamed, "Review Cycle." Further, Industry suggests any remaining paragraphs after this section be updated to reflect this updated wording by using "this review" in place for the instances of "five-year review." Per the comments above, Industry recommends this section be updated to reflect the following paragraphs in quotations:</p> <p>"Over the course of the mine life, these plans will be reviewed every five years, or as necessary, to ensure the profiles and thresholds are in line with projections and reflecting current technology and new knowledge."</p> <p>"This review is not a scheduled opportunity to significantly change or amend approved tailings management plans and associated approval conditions."</p> <p>"The AER will engage stakeholders, including Aboriginal communities and operators, as a part of this review as necessary."</p> <p>"In order to promote transparency the results of this review will be made publicly available, including on the AER website."</p>	<p>This is suggested to align with the TMF's section "Framework Review Cycle" and to reflect the above excerpt of the TMF as the timing is "as necessary."</p> <p>Industry also suggests the remaining content is not reflective of the TMF policy's direction specific to this review or is redundant to other portions of this directive or other policies and regulations for oil sands operations.</p>	<p>Section 12 has been modified as follows to provide clarity:</p> <ul style="list-style-type: none"> • The section title has changed to "Review Cycle." • The section has been modified to adopt the new title and provide greater clarity that the AER is reviewing approved tailings management plans. • The following phrase has been deleted, as it duplicates section 4.2.5 and 4.2.6: <ul style="list-style-type: none"> – "Modifications to mine operations and the fluid tailings management plan may require applications to amend <i>EPEA</i>, <i>OSCA</i>, and <i>Water Act</i> approvals to manage risks more thoroughly and establish appropriate new requirements. The approval of the fluid tailings management plan will not constrain the AER's decision-making on future applications. When an AER management response is necessary and management actions include an operator modifying its fluid tailings management plan, an amendment application may be required. An amendment of the tailings management plan describing detailed plans for reduction of remaining fluid tailings after end of mine life will be submitted closer to the end of end of mine life."
Pembina Institute	Section 12, Page 39	We are supportive of the five-year review, per the requirements of the TMF. However, the wording "every five years or as necessary" is ambiguous. We are concerned that this might imply the review could be interpreted as optional.	We suggest the amended wording, "every five years, or more frequently as necessary."	Our recommended rewording should provide more clarity in the interpretation of the five year review protocol moving forward.	<p>The AER will meet the <i>TMF</i> expectations, and the directive reflects the <i>TMF</i>.</p> <p>The AER will provide the feedback to the Government of Alberta for consideration in its review of the <i>TMF</i>.</p>
Not section specific					

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Fort McKay First Nation	n/a	At present, the AER is not willing to discuss any application with First Nations. This needs to change to make full engagement a reality.	Full partnership with the AER during review of all tailings management plans submitted to the AER. This partnership should follow the British Columbia model where a Reclamation Advisory Committee chaired by the Ministry of Energy and Mines is made up of representatives of other provincial and federal agencies, local governments and affected First Nations who provide advice.		The AER's application process includes public notice of application and the ability to provide a written submission that outlines specific concerns about a company's activities or development. All statements of concern are considered during decision making.
Fort McKay First Nation	n/a	The impacts of tailings management on Constitutional Rights are not due to one particular facility, but rather the cumulative effects of a multitude of tailings impoundments, water accumulation and management on all sites, and the wholesale transformation of the regional landscape to an upland boreal system with multiple end pit lakes.	The AER and AEP work with Fort McKay to devise a cumulative effects assessment plan for tailings management plans.		The AER will provide the feedback to the Government of Alberta for consideration in their work to assess the need for additional policy direction on cumulative effects, reclamation outcomes and criteria, and integrated water management.
Fort McKay First Nation			Opportunity to review all reports submitted to government including annual geotechnical reports, monitoring reports and data		The directive outlines the expectations for transparent and accessible information on tailings, including monitoring reports and data.
Fort McKay First Nation			Instituting a review of the Tailings Management Framework, coincident with the 5-year review of the Lower Athabasca Regional Plan		The AER will provide the feedback to the Government of Alberta for consideration in their review of the TMF.
Fort McKay First Nation			Inspection report prepared by the government, consultants to be submitted directly to Fort McKay		The directive outlines the expectations for transparent and accessible information on tailings, including inspection results.