

Oil Sands Environmental Coalition

22 June 2017

Alberta Energy Regulator
Authorizations Review and Coordination Team
Suite 1000, 250 – 5 Street SW
Calgary, Alberta T2P 0R4
E-mail: ARCTeam@aer.ca

Re: Enhanced Review Process Suncor Energy Inc. Application Nos. 1857270, 1857274 and 075-94

Dear Authorizations Review and Coordination Team:

I am writing on behalf of the Oil Sands Environmental Coalition (OSEC) regarding the Enhanced Review Process (ERP) for Suncor Energy Inc.'s (Suncor) Application Nos. 1857270, 1857274 and 075-94 (hereon 'the Applications'). Per the request in the ERP Participant letter OSEC received from Alberta Energy Regulator (AER) on 30 May 2017, this submission comprises OSEC's opening statements, questions and supplementary comments regarding AER's information request to Suncor regarding its Tailings Management Plan (TMP), and Suncor's subsequent response on 2 June 2017.

The quantity of accumulated fluid tailings in the Alberta oilsands exceeds 1 billion cubic meters.¹ Fluid tailings pond volumes have continued to grow for the last five decades, and the financial and environmental liability they now pose to Alberta citizens is substantial. As the longest operating oilsands mine with operations dating back to 1967, Suncor's Millennium Mine and NSE legacy tailings represent 25% of the total industry inventory. The liability associated with Suncor's accumulated fluid tailings reflects the costs of tailings treatment and reclamation, as well as the inherent risks associated with failure of infrastructures and/or treatment methods.

The Tailings Management Framework (TMF) "seeks to minimize the liability associated with the accumulation of fluid tailings to the Province and all Albertans by requiring progressive treatment and reclamation over the life of the project."² Similarly, it is OSEC's interest to see tailings management plans approved with binding, enforceable outcomes that demonstrate progressive treatment and reclamation of fluid tailings in the near future and reduce overall environmental and financial liability for Albertans.

OSEC is committed to working with AER and Suncor through these ERP proceedings to address all stakeholder concerns, to attempt to resolve matters of contention, and obtain supplementary information where necessary. The following nine areas of concern pertain to the two key topics delineated by AER in its 30 May 2017 ERP Participant letter, as well as several supplementary issue areas with the Applications that are maintained by OSEC to be critically important and necessitating further discussion.

¹ As reported in Tailings Management Plans, total volume of fluid tailings expected to reach 1.3 billion cubic meters by December 2016

² Government of Alberta. 2015. *Lower Athabasca Region Tailings Framework for the Mineable Oilsands (TMF)*, 8.

1. Lack of contingency planning

Directive 085 states that Suncor is required to provide a contingency plan for unproven tailings technologies. OSEC has consistently raised concerns that Suncor's proposed water capping of 524³ million cubic meters of fluid tailings in DDA3 lacks adequate contingency planning. In its initial decision letter dated 17 March 2017, AER similarly indicated that inadequate information was provided to ensure that the terrestrial capping alternative could achieve viable closure outcomes.

Suncor's assessment indicates that if fluid tailings treated to a suitable quality for water capping were to be terrestrially capped instead, the deposits would settle by 40 meters, and need to be managed for 150 years or more. This approach constitutes neither a realistic nor viable alternative to water capping.

Ultimately, the treatment of fluid tailings with Suncor's permanent aquatic storage system (PASS) technology and water capping is unproven and does not yet have regulatory approval in Alberta. A viable terrestrial alternative for managing the fluid tailings associated with DDA3 must therefore be presented with reasonable timelines and a high likelihood of success.

In addition to providing a viable contingency plan, OSEC maintains that Suncor must provide more details related to decision milestones that would ensure adequate time for treatment with alternative technology in preparation for terrestrial capping. It is not reasonable for Suncor to make a definitive decision regarding water versus terrestrial capping six years after end of mine life (EML) in 2039.

Questions

OSEC seeks additional information from Suncor regarding the following questions related to contingency planning:

1. What options would Suncor consider in 2023 if Suncor's Demonstration Pit Lake Project does not meet expectations or the DDA3 is not performing as expected? What decision parameters will Suncor use to make this decision?
2. What contingency plans does Suncor have for any circumstances wherein the water quality of the end pit lake is not suitable for water return to the natural environment in 2080?
3. How will Suncor ensure sufficient financial resources are available after EML in 2033 to complete the substantial amount of fluid tailings treatment and reclamation it proposes from 2033 to 2085? Moreover, if the terrestrial option becomes necessary, what management and financial structures will Suncor put in place to monitor and manage the site for its proposed timeline of 120 years? Who will pay for monitoring and remediation after reclamation is complete?
4. How will Suncor manage the flushing phase if water treatment is required prior to returning water to the environment?
5. What actions could Suncor take now to ensure that DDA3 could be capped and reclaimed for terrestrial end land use on a similar timeline to DDA1-MD9 or sooner?

2. Consideration of alternative treatment technologies

Suncor has argued that a higher proportion of terrestrial closure of fluid tailings would require increased overall land disturbance and extended reclamation timelines.⁴ OSEC contends that there are

³ Suncor Energy Inc. 14 April 2016. Suncor Tailings Directive Application, 15

⁴ Suncor Energy Inc. 2 June 2017. Enhanced Review Process *Response to Clarification Request*, 5.

in fact technologies available, such as centrifuges, that would reduce the total landscape footprint required and shorten timelines. Suncor has previously cited higher energy requirements and greenhouse gas emissions as a reason for not using centrifuges; however, OSEC does not consider this argument to be sound. As greenhouse gas emissions are now capped for the oilsands sector, it is the responsibility of proponents to reduce their emissions in various components of their project cycle, and this should not be utilized as a rationale for achieving less-optimal reclamation outcomes.

Furthermore, Suncor stated in its 2 June 2017 ERP Submission to AER that the desired outcomes of the Applications consider the interest of Aboriginal communities and other stakeholders.⁵ OSEC is interested in further discussing the current and future trade-offs and risks associated with terrestrial versus aquatic final landscape outcomes. As a key component of this dialogue, OSEC seeks detailed information regarding the cost impacts of various tailings management strategies. It is simply not possible for stakeholders to have an informed discussion on the full suite of available alternatives without a transparent financial assessment of these treatment options and trajectories.

Questions

1. What are the costs associated with the tailings management strategies proposed by Suncor?

Suncor states in their April 2016 Tailings Directive Application that “solid–liquid separation systems will be considered as potential future improvements to be weighed against the increase in cost and the dewatering in the deposit.”⁶

1. What are the cost implications of solid–liquid separators compared to Suncor’s proposed approaches?
2. What kind of dewatering rate would cause Suncor to reconsider the use of a solid–liquid separator for fluid tailings treatment?

3. Ready to Reclaim (RTR) performance criteria

Suncor has proposed very limited RTR performance criteria for its six deposits: Clay to Water Ratio (CWR) for DDA1-MD9; no criteria for DDA2; CWR and Total Suspended Solids (TSS) for DDA3; and the “completion of mitigation measures” for Ponds 5, 6 and 7. These criteria leave significant uncertainty as to how the “treated” deposits will progress to be ready for reclamation.

The inadequacy of Suncor’s proposed RTR performance criteria reflects essential and persistent policy gaps. Principally, there has been a lack of clear expectation setting and/or guidance from the Government of Alberta in delineating acceptable ranges for RTR performance criteria. This has resulted in a condition wherein the RTR performance criteria proposed in *all* submitted TMPs are insufficient.

The Government of Alberta should provide immediate clear guidance to industry on acceptable ranges of RTR criteria for various end landscapes, ideally in the form of an official addendum to Directive 085. This would serve to maintain the flexibility of the Directive, while demarcating appropriate expectations around what degree of treatment and timescales are acceptable to obtain the RTR qualification and progress towards Ready for Reclamation (RFR).

⁵ Suncor Enhanced Review Process *Response to Clarification Request*, 6.

⁶ Suncor Tailings Directive Application, 50

In the absence of this policy direction, it is imperative that the AER be stringent in its review of the RTR criteria proposed in all submitted TMPs, including Suncor's. Directive 085 states "tailings deposits with higher uncertainty or more complexity, including with the surrounding environment, may have more indicators, measures and performance criteria associated with them."⁷ It is clear from Suncor's June 2 submission that the outcomes of their fluid tailings treatment are uncertain (pages 9, 41, 74, 87, 92 and 96). OSEC hopes that this ERP can be utilized as a forum in which all parties can comprehensively identify, review, and either accept or reject RTR criteria for each of Suncor's tailings deposits.

RTR criteria recommendations

Specific to Suncor's Applications, OSEC recommends the following four additions to Suncor's proposed RTR performance criteria:

1. **Expression of pore water should be included in Suncor's RTR criteria for all deposits.**
Pore water expression represents a critical indicator of both settlement and strength in deposits. The future expression of Industrial Waste Water also represents an ongoing risk for groundwater contamination.
2. **Total settlement should be included in Suncor's RTR criteria for all deposits.**
For example, DDA1-MD9 should be required to reach 25m of settlement before being considered RFR. This will serve to address the risks posed by uncertain settlement rates.
3. **Strength should be included in Suncor's RTR criteria for all deposits.**
A measure of strength should be required to ensure sufficient safety for capping activities. Strength may be defined for certain elevations over time to account for evolution of the deposit.
4. **Suncor's RTR criteria should include clear and binding objectives plotting the trajectory from RTR to RFR.**

Suncor's Applications do not currently meet the stated intent of the TMF, which is "to manage long term liability and environmental risk to the province."⁸ Rather, Suncor proposes meeting relatively vague RTR criteria as a sole metric and benchmark for assessing fluid tailings treatment and reclamation, which simply repackages the associated environmental and financial liabilities. This is because the significant liabilities pertain to the process of bringing deposits from RTR to RFR, in order to actually achieve proposed reclamation outcomes. These pathways from RTR to RFR are not being measured, monitored, or managed in Suncor's proposed TMP, despite this phase of the process often being uncertain and time-intensive – as exemplified by Suncor's proposed timeline to reach RFR of 2025-2080 in DDA1-MD9.

Suncor's RTR criteria must therefore contain detailed criteria for measuring, monitoring, and managing progress from RTR to RFR over the lifetime of the all the deposits. In this vein, all criteria should be defined with specific dates, as well as spatial demarcations across each deposit. To provide some examples: (1) In DDA1-MD9 the CWR could be 0.5 at the outset, and thereafter forecast in annual increments until it is expected to reach 3 to be classified as RFR; (2) In all deposits the percentage of pore water expressed could be forecast over time in line with achieving 80% by RFR. These metrics must be clear and verifiable, for AER and stakeholders to ensure the deposits are in fact meeting performance expectations over time.

⁷ Alberta Energy Regulator. 2016. Directive 085 *Fluid Tailings Management for Oilsands Mining Projects*, 27.

⁸ *Lower Athabasca Region Tailings Management Framework for the Mineable Oilsands*, 3.

These milestones for RTR criteria should be distinct, with any deviations resulting in AER management actions and increased scrutiny of Suncor's mitigation plans until the deposit is back on track along the approved RTR to RFR trajectory. This would provide the AER with the tools to monitor both the treatment of fluid tailings as well as the trajectory to reclamation. As stated in Directive 085 "RTR performance criteria will be used to determine when treated tailings are successfully progressing on a clear trajectory, from short-and medium-term outcomes towards long-term outcomes in the mine reclamation plan and life of mine closure plan."⁹

Questions

OSEC seeks additional information from Suncor regarding the following questions related to RTR criteria:

1. How is CWR measured and how frequently?
2. Does CWR differ at depth?
3. How will depth and time impact RTR criteria for each deposit?
4. What are the RTR criteria for DDA2?
5. How has the inclusion of the PASS technology adjust Suncor's proposed RTR criteria?

4. Progressive reclamation

The stated objective of the TMF is for "fluid tailings accumulation to be minimized by ensuring fluid tailings are treated and reclaimed progressively during the life of a project."¹⁰ As Suncor's base mine has been in operation since 1967 and is expected to reach the end of its operating life in 2033, there is now little time left to manage the volume of fluid tailings that has accumulated over the last five decades.

In addition to this long history of fluid tailings accumulation, the Applications propose to defer reclamation activities until after Suncor's base mine concludes revenue generating operations. Suncor's proposed timelines for the six fluid tailings deposits in the Applications indicate that reclamation activities will not be concluded until 52 years after the end of mine life.¹¹ Furthermore, Suncor states that "the DDA1-MD9 deposit as planned may express water and settle for at least 100 years and as long as several hundred years before reclamation can start."¹²

The liability associated with Suncor's fluid tailings is thus not being minimized with progressive reclamation during the life of the project, per the aforementioned objective of the TMF. In their 2 June 2017 ERP Submission, Suncor states they will "[adapt their] approach over the next 26 years as [they] gain a better understanding of long-term hydrology and climate conditions."¹³ This continued deferral of responsibility represents liability for all Albertans in terms of ongoing monitoring and management, as well as a high degree of risk associated with the treatment and closure approaches for decades when the asset will no longer be generating revenue.

⁹ Directive 085 *Fluid Tailings Management for Oilsands Mining Projects*, 27.

¹⁰ *Lower Athabasca Region Tailings Management Framework for the Mineable Oilsands*, 8.

¹¹ Suncor Enhanced Review Process *Response to Clarification Request*, Table II, 8.

¹² Suncor Enhanced Review Process *Response to Clarification Request*, 96.

¹³ Suncor Enhanced Review Process *Response to Clarification Request*, 74.

Suncor should therefore revise their tailings performance criteria and timelines to significantly shorten the time required to reach a reclaimed state. OSEC recognizes that treating fluid tailings is both complex and difficult, but by aggressively approaching life cycle tailings management now, Suncor will have more resources at their disposal to satisfactorily respond and adapt to any unexpected developments and outcomes.

OSEC recommends that because of the inherent challenges represented by fluid tailings, the life cycle of these deposits warrant additional scrutiny and should be measured, monitored, and reported on separately from broader reclamation activities.¹⁴

Suncor suggested in its 2 June 2017 ERP Submission that the timelines will be reduced with the implementation of PASS.¹⁵ These changes in expectations for timelines need to be communicated and committed to, including how PASS will impact timelines for both aquatic and terrestrial final landscapes.

Questions

OSEC seeks additional information from Suncor regarding the following questions related to progressive reclamation:

1. What impact does the inclusion of the PASS technology have on timelines for DDA3?
2. What management and financial structures will Suncor put in place to manage the ongoing remediation and management activities to achieve RFR, to complete reclamation?
3. All fluid tailings deposits are associated with significant uncertainties; what factors has Suncor included to reflect these uncertainties in its cost estimates?
4. Who will monitor and manage these landscapes after reclamation is complete?
5. Which of the six deposits described are in pit versus out of pit? What is the risk of geotechnical failure of any containment structures?

5. Public liability

In July 2015 the Auditor General reported that “without [...] improvements [to the Mine Financial Security Program], if a mine operator cannot fulfill its reclamation obligations and no other private operator assumes the liability, the province is at risk of having to pay substantial amounts of public money”.¹⁶ In early 2017, AER released an estimate of total closure and reclamation liabilities for oilsands and coal mines of \$23.2 billion.¹⁷ However, there has been insufficient transparency in making the methodology and data behind this figure publicly available. OSEC continues to advocate that this information be made available for public access by Alberta taxpayers, and seeks to understand the scope of the liability currently comprised by tailings treatment and reclamation of Suncor’s base mine. It is unacceptable that stakeholders have not yet been given access to this information.

¹⁴ Suncor. Enhanced Review Process *Response to Clarification Request*, 129.

¹⁵ Suncor Enhanced Review Process *Response to Clarification Request*.

¹⁶ Alberta Auditor General. 2015. *Report of the Auditor General of Alberta*, 5

¹⁷ Alberta Energy Regulator. Mine Financial Security Program – Security and Liability. https://www.aer.ca/documents/liability/MFSP_Liability.pdf

The Mine Financial Security Program (MFSP) is “intended to operate as a long-term incentive to prevent approval holders from deferring reclamation to the end of a project.”¹⁸ Tailings treatment and reclamation represents a significant portion of the total closure liability for the oilsands sector. The heavily asset-based design of the MFSP is a high-risk approach to liability management in the 21st century, when there are many unknowns associated with energy futures at provincial, national, and international scales. OSEC therefore requests that the MFSP be comprehensively and formally reviewed to ensure Albertans are adequately protected.

Questions

OSEC seeks additional information from Suncor regarding the following questions related to progressive reclamation:

1. What are the undiscounted costs to suspend, abandon, remediate, reclaim and monitor Millennium and NSE mines?
2. What are the undiscounted costs to treat and reclaim the Suncor base mine fluid tailings?

6. Compliance and enforcement

The compliance and enforcement mechanisms of Directive 085 are currently insufficient. The consequences for non-compliance must be clear, predetermined, and sufficiently severe to correct the problem. These changes should be enacted prior to the approval of any TMPs, including Suncor’s Applications.

For more detailed recommendations on proposed penalties for non-compliance, please refer to the submission made by the Pembina Institute on 24 March 2017 as part of AER’s public comment period for Directive 085. For ease of reference, this submission is included as an annex.

7. Cumulative effects and regional management

The TMF was originally sold to stakeholders and Albertans as a new direction that would approach tailings management at a regional level for the first time. However, there has been a lack of effective mechanisms for managing tailings accumulation, treatment, and reclamation at a regional landscape level. OSEC has consistently communicated that a cumulative cap to tailings volumes should be enacted through Directive 085, so as to ensure that the objectives of the TMF are sufficiently met. OSEC seeks to understand how the tailings volumes presented in Suncor’s Applications will fit within AER’s understanding of permissible total cumulative fluid tailings volumes, and whether the approval of the Applications will conceivably impact the review processes of plans submitted by other operators.

Relatedly, there is currently no formal regulatory process for reviewing and approving landscape planning at a regional scale. OSEC is concerned about the final landscapes that would be generated by the sum of all submitted TMPs, and whether the regional landscape will be able to sustain the number of open water bodies that have been proposed from both ecological sustainability and cultural standpoints. As the approval of Suncor’s Applications would ultimately lock in trajectories for reclamation and closure, OSEC is extremely concerned by this absence of regional landscape analysis. These final landscapes will impact future generations of local stakeholders for hundreds of years, and the fact that there has been no regulatory oversight to date needs to be immediately rectified.

¹⁸ Alberta Energy Regulator. February 2017. *Guide to the Mine Financial Security Program*, 25.
https://www.aer.ca/documents/liability/MFSP_Guide.pdf

Questions

OSEC seeks additional information from the AER regarding the following questions related to cumulative management:

1. How do the fluid tailings volumes presented by Suncor fit into the cumulative limits of the TMF?
2. Will the approval of Suncor's plan impact the approval of other TMPs?
3. How are the final closure outcomes proposed in these Applications being evaluated against closure outcomes for the region?
4. How will future regional planning impact Suncor's Applications?

8. Water return and water quality

In the Applications, Suncor assumes that water release will be a key component of its tailings management strategy. OSEC submits that this plan cannot be approved in this absence of policy direction on water return.

9. Information access

OSEC appreciates Suncor's general transparency and candor in its 2 June 2017 ERP Submission. However the volume of information that has been provided by Suncor to date is very large, and it has been challenging for OSEC to navigate, discern, and assess.

A summary document to delineate all amendments to the Applications that have been made in response to AER, Statement of Concern filer concerns and the inclusion of the PASS technology is needed. Moreover, if an approval decision is made by AER, conditions of approval must be comprehensive to ensure the commitments Suncor is agreeing to are clear and provide a strong basis for the AER and stakeholders to evaluate compliance.

Conclusions

OSEC maintains its position that Suncor's Applications do not meet the intent of the TMF or the requirements of Directive 085. This document presents questions that need to be addressed and suggested improvements that would narrow the gap we see between the plan as submitted and the intent of the TMF. OSEC is interested in continuing to work with AER, Suncor, and other ERP participants to attempt to close these gaps. However, OSEC is concerned that the current ERP schedule allows for a review and discussion of several discrete issues, but does not provide sufficient opportunity to discuss other highly relevant issues that must be addressed in relation to Suncor's TMP. Furthermore, OSEC reserves the right to continue reviewing all available information and to raise additional concerns in the future, both during the ERP or a future regulatory setting.

More broadly, while OSEC has been repeatedly advised that systemic concerns are out of scope and will be addressed through other processes, the state of all TMPs under review — including Suncor's Applications — has made it clear that they remain unresolved. This has resulted in a condition where all TMPs that have been submitted to date are largely insufficient for similar reasons that were cited in AER's original Decision Letter to Suncor. The Directive 085 applications do not, either individually or in aggregate, meet the stated intent and objectives of the TMF. OSEC therefore emphasizes the need for significant procedural changes to the review process to jointly address major issues that are common to the various applications. The current state of affairs has been, per OSEC's contention,

created by a lack of clear expectation setting, prescribed criteria, and fundamental policy direction from the Government of Alberta. It is imperative that this lack of direction be corrected immediately, as it has generated an ambiguous condition that has been unfair and onerous to both proponents and stakeholders.

Sincerely,

A handwritten signature in black ink that reads "Jodi McNeill". The signature is written in a cursive, flowing style.

Jodi McNeill
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On behalf of the Oil Sands Environmental Coalition

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