Appendix B

Technical Information Requests from the Athabasca Chipewyan First Nation

Shell Jackpine Mine Expansion Project

Technical Information Requests

From:

Athabasca Chipewyan First Nation
Industry Relations Corporation

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DS Environmental Consulting Inc.

1.0 Introduction

What follows is a summary list of the specific technical information requests for Shell based on the technical review of the Jackpine Mine Expansion Project application for the Athabasca Chipewyan First Nation (ACFN). The full description of the concerns is contained in the main report.

1.1 EIA Methodology

1. Athabasca Chipewyan First Nation's TK and TLU not used.

   Requests*:*

   i. *Re-assess the impacts of the proposed project using a pre-industrial baseline and fully integrating available TK and TLU information, including the updated Traditional Use Study.*

   ii. *Clearly identify all instances where TK and TLU changes the outcome of environmental consequence ratings.*

   iii. *Incorporate TK and TLU into the development of mitigation strategies, and identify all instances this changes the mitigation or the approach.*

2. Impact description criteria do not consider *confidence* in the final impact rating.

   Request*:*

   Provide confidence ratings in the final impact ratings, including in the summary table (Table 1.3-4).

3. Pre-industrial baselines not included.

   Requests*:*

   i. *Repeat key assessments within the EIA based on a pre-industrial baseline, incorporating the latest TLU information.*

   ii. *Update the PDC against the pre-industrial baseline, using currently available project data.*

   iii. *Provide documentation that Shell has obtained the ACFN's verification of Shell's interpretation of the ACFN's data.*

4. Regional Study Area too large.

Requests:

i. *Document the purpose and process for the sizing of an RSA, and explain how area-based key indicator resources (KIRs) could be significant in the RSA.*

ii. *Reassess the impacts on wildlife using LSAs and RSAs appropriate for each species.*

5. Assumptions that reclamation will be successful are unsupported.

Requests:

i. *Identify what timeframe is considered to be 'far future' for full reversibility of impacts of the project.*

ii. *Explain why ecosite phases are used in the assessment calculations and wildlife models even though Shell admits that it is not possible to predict the final community type.*

iii. *If Shell maintains that ecosite phases will be restored (including the dominant forbs), then provide specific targets (number of species, species composition, cover etc.) for each ecosite phase/wetland type to monitor and evaluate reclamation success.*

iv. *If Shell admits that ecosite phases will not be restored, then re-analyze the data using "ecosite analogues" or some other category that indicates the lack of similarity and unpredictability of the final landscape.*

v. *Explain how Shell overcomes the fact that the approval of end pit lakes has been subject to test and, as yet, no such test has been successfully completed.*

vi. *Explain how Shell plans to incorporate the objective expressed in the ERCB Directive 074 (to minimize and eventually eliminate long-term storage of fluid tailings in the reclamation landscape) with this application.*

6. Long-term monitoring and mitigation not fully addressed.

Requests:

i. *Address long-term monitoring and mitigation of impacts that may take years, even decades, to be detected.*

ii. *Provide preliminary monitoring plans or outlines of monitoring plans for each major environmental discipline (where not already provided in the application) for the JPME. Discuss Shell's commitment to provide the ACFN with the opportunity to review and make recommendations about these monitoring and research plans prior to a hearing.*

7. Environmental consequences ratings for high magnitude impact unclear.

Request:

Explain why Shell has chosen 20% as the cutoff for high magnitude impacts for many parameters, including the scientific basis for this number. Provide peer-reviewed references, documentation that the ACFN have had these peer-reviewed references provided to them, and that the ACFN have verified this assessment criterion.

8. Environmental consequences ratings for reversible impacts unclear.

Request:

Explain, in biological terms, how a reversible impact could be a positive force, rather than a neutral force, including the scientific basis for these numbers. Provide peer-reviewed references, and documentation that the ACFN have had these peer-reviewed references provided to them and that the ACFN have verified these assessment criteria.

1.2 Groundwater

9. Impacts of ETDA on groundwater not assessed.

Requests:

i. *Identify the impact of ETDA on the discharge of tailings liquids into groundwater.*
ii. *Identify engineering methods available to reduce this discharge to zero.*
iii. *Explain why reclamation of the ETDA would require 40 years or more after filling is complete.*
iv. *Identify the time period estimates for full remediation of groundwater quality from ETDA seepages, and the basis for these estimates.*

10. Groundwater incident reporting to the ACFN unconfirmed.

Requests:

i. *Discuss how the ACFN would be advised of any groundwater incidents at the JPME that are reported to government agencies.*
ii. *Explain why Shell does not think that impacts on groundwater (and thus on present and future users of that groundwater) are not part of the ERCB's Public Interest Determination.*

11. Commitment to presenting groundwater monitoring data to the ACFN unclear.

Requests:

i. *Commit to presenting groundwater monitoring data to the ACFN in a form that will gain the ACFN's confidence by demonstrating that the groundwater monitoring is accurate and responsive to potential impacts. This should include comparisons with data from Shell's existing operations.*

ii. *Explain why Shell does not think that data on groundwater quantity and quality should not be held in the public domain when that resource is used (or may be used in the future) by Treaty and Aboriginal rights-bearing First Nations, including the ACFN.*

12. Groundwater contamination transport within the region poorly understood.

Requests:

i. *Assess the impact of solution transport of contaminated groundwater on surface water in the region using a 3-D solute transport model.*

ii. *Discuss Shell's plans to monitor and verify the results of the local scale solute transport modelling.*

iii. *Discuss Shell's commitment to regional groundwater modeling.*

iv. *Discuss Shell's commitment to a timely and coordinated management response if issues are identified in the local or regional monitoring.*

13. Access and use of traditional groundwater sources may be impacted.

Request:

Confirm that Shell has discussed the possible locations of groundwater sources used by ACFN members in a manner that ensures that ACFN members are aware that the water sources they use are in fact groundwater-dependent (e.g., fens) and may be affected by the project. Provide the documentation indicating both that this information exchange has occurred, and that the ACFN have verified this exchange.

1.3 Surface Water Quality

14. Impacts to Kearl Lake unclear.

Request*:*

Provide additional information on the predicted impacts on the water and sediment quality of Kearl Lake.

15. Regulatory guideline exceedances inappropriately used as impact thresholds.

Request*:*

Provide additional discussion on the impacts of absolute increases in parameters with guidelines, irrespective of whether guideline exceedances occurred.

16. Information in the water quality impact tables insufficient.

Request*:*

Provide the percentage change, as well as the absolute change, in the results tables for the water quality assessment to allow comparison with the ratings criteria.

17. Ratings system for constituents with guidelines unclear.

Request*:*

Provide additional rationale and clear criteria for the ratings system when guidelines are present. State whether the rating is provided against changes to the acute guideline, chronic guideline or both. Define "slightly", "marginal" and "substantial" exceedances.

18. Pit lakes littoral zones too small.

Request*:*

Ensure that littoral zones for pit lakes are within the range of 20 to 30% and not on the lower end of the expected range (i.e. 10-15%).

19. Impacts of pit lake discharge on traditional water use unclear.

Requests:

i. *Identify how the pit lake release criteria will consider potential impacts on traditional use of water downstream and the consequent effects on Treaty and Aboriginal rights.*

ii. *Discuss the role of Fisheries and Oceans Canada (DFO) and other federal regulators in the selection of relevant release parameters and the process of permitting the reconnection of pit lakes to the watershed drainage system of the Athabasca River.*

20. Pit lake sediment quality not modelled.

Requests:

i. *Describe characterization of pit lake sediment at closure.*

ii. *Describe how the storage of MFT in pit lakes corresponds to the performance requirements of ERCB Directive 074 and more generally how this unproven technology corresponds with the objective of minimizing the retention of fluid tailings in the reclamation landscape.*

iii. *Describe Shell's environmental and economic liabilities associated with the retention of mixed fluid-containing structures in a reclamation landscape.*

21. Cumulative effects of the discharges from multiple end pit lakes into regional waterbodies not adequately assessed.

Requests:

i. *Discuss the current status of the testing of end pit lakes, as a provisionally approved mining feature, and prospective options to displace this as yet unproven technology.*

ii. *Assess the cumulative impact of the discharges of multiple pit lakes in the region on water quality in regional waterbodies and on downstream ecosystems.*

iii. *Identify how the cumulative impact of multiple pit lakes discharges in the region would affect the ACFN's Rights and traditional use of the regional waterbodies.*

22. Cumulative impacts on regional waterbodies from process-affected seepage not assessed.

Requests:

i. *Identify the impact of the cumulative effects of regional tailings seepage on groundwater and surface water quality and on downstream ecosystems against a pre-industrial baseline.*

ii. *Discuss how the cumulative impacts of regional tailings seepage will affect the ACFN's Rights and use of traditional resources.*

1.4 Aquatic Health and Fish / Fish Habitat

23. Benchmark exceedances of several aquatic health constituents dismissed.

Requests*:*

i. Provide appropriate and meaningful pre-industrial benchmarks for aquatic health constituents, such that compliance and non-compliance can be better assessed.

ii. Discuss the current utility of these benchmarks, how they may be improved in the future.

iii. Describe Shell's commitment to improve the science in this critical input to the ERCB's public interest determination.

24. Assessment on aquatic health for benchmark exceedances lacking.

Requests*:*

i. Discuss the potential effects of the predicted benchmark exceedances on aquatic health.

ii. Describe Shell's monitoring plan for predicted benchmark exceedances on aquatic health, both on lease and off lease.

iii. Discuss the methods available and their costs to reverse the impacts predicted.

iv. Discuss Shell's commitment to change its technical methods and associated emissions if actual contaminant levels exceed predicted values.

25. Effects on fish habitat are not extrapolated to fish abundance.

Requests:

i. Discuss the potential impacts of changes to fish habitat, on fish abundance, and local and regional fish populations.

ii. Assess the change in impacts if Shell fully adopts the intention of ERCB Directive 074 and commits to no residual fluid tailings (and thus no associated liabilities) in the reclamation landscape.

26. Productive capacity of fish habitat not determined.

Requests:

i. Provide details on the productive capacity of the habitat losses and compensation habitat.

ii. *Provide all information necessary to prove that the compensation habitat would provide at least a 2:1 compensation ratio.*

iii. *Provide species-specific habitat losses, and discuss these impacts on fish species currently experiencing stress and population declines in the region.*

iv. *Given the uncertainties with the ability of the Compensation Lake to adequately compensate for lost aquatic resources or traditional use, discuss how the NNL Compensation Lake will impact the ACFN's Treaty and Aboriginal rights.*

v. *Provide the ACFN with the draft No Net Loss Plan, when available, for review and comment.*

27. Compensation for riverine habitat lacking.

Requests:

i. *Discuss the lack of riverine habitat and the regional implications from this plan and other fisheries habitat compensation plans - which focus almost entirely on lacustrine habitat compensation.*

ii. *Discuss Shell's commitment to address this critical aspect of the impacts on the ACFN's Treaty and Aboriginal rights, and to provide the ERCB with information essential to the Public Interest determination.*

28. Compensation timing details unknown.

Request:

Provide details regarding the timing of the construction of compensation habitat, and when they will be capable of supporting fish and other aquatic organisms as part of a sustainable and diverse ecosystem. Discuss the local and regional implications of this and other compensation plans that will not provide compensation habitat at the same time as habitat losses.

29. Impacts of mercury releases from NNL compensation reservoir not considered**.**

Requests:

i. *Discuss the concentrations of mercury and methylmercury likely to be present within the aquatic ecosystem (including sediment, water column, aquatic plants, plankton, benthic invertebrates and fish), at a variety of time-scales (e.g. construction, 1 year post-construction, 5 years post-construction, far future, etc.)*

ii. *Discuss mitigations planned to minimize mercury mobilization (and conversion to methylmercury) and removal of mercury from the system.*

iii. *Discuss monitoring plans to document and track over time the presence of mercury and methylmercury within the aquatic ecosystem of the planned Compensation Lake.*

iv. *Describe the potential for the mobilization and conversion of mercury to methylmercury during the construction and operation of the NNL lake.*

30. Regional and cumulative effects on fish populations and habitat productivity not assessed.

Requests:

i. *Assess the regional and cumulative effects on fish populations (including species richness) and habitat productivity of multiple NNL fish habitat compensation projects. Include impacts on:*

   a. *regional fish population and species richness;*

   b. *total effective habitat units (by fish species);*

   c. *productivity of habitat;*

   d. *form of habitat – change from riverine to lacustrine;*

   e. *mercury levels in fish and aquatic systems from NNL projects.*

ii. *Identify the impact of the cumulative effects noted above on the ACFN's traditional resource use and their Rights. Specifically, identify how the shifts in species and habitat types, along with the time lags and mercury contamination of fish, would affect the ACFN's traditional use and ability to exercise their Rights. Provide documentation to the regulators that these predicted effects have been submitted to the ACFN for verification. Provide documentation that the ACFN have provided this verification.*

iii. *Commit to work with the ACFN to develop a contingency plan in the possible case that the NNL plan(s) does not meet regulatory expectations and/or commitments Shell has made to the ACFN, other Rights holders, and other land users.*

31. Inadequate assessment of impacts from losses of multiple streams in the region.

Requests:

i. *Assess the cumulative effects of the loss of the region's many smaller tributary streams on aquatics and hydrology.*

ii. *Document changes in species richness and quality of habitat, range and populations of affected species, and predicted timeframe(s) to replace these losses in quality and quantity of habitat.*

1.5 Hydrology

32. Water withdrawal plans not detailed.

Requests:

i. *Describe Shell's plans for water storage and use during times when restrictions are imposed (within and beyond 30 days planned storage).*

ii. *Commit to abide by the lower Athabasca River WMF restrictions, notably during low flow periods.*

33. ACFN not included in development of monitoring program and research plans.

Request:

Discuss Shell's commitment to provide the ACFN with the opportunity to review and make recommendations about these monitoring and research plans.

34. Additional NNL compensation lake water details required.

Request:

Clarify whether water from the Athabasca River required to fill Redclay Lake is included in the requested 55 M m^3/yr. If not, provide details of the timing and quantity of water withdrawals for this purpose

35. Cumulative impacts to the Athabasca Delta not assessed.

Request:

i. *Extend the Regional Study Area (RSA) for surface water hydrology from Embarras Portage to the inflow of Lake Athabasca (i.e. encompass the Athabasca Delta).*

ii. *Re-calculate the impacts, including those on the Athabasca Delta.*

i. *Given the significance of the Delta to the ACFN, commit to provide the predictive results to the ACFN and to seek the ACFN's verification of these predictions based on the TK of the ACFN.*

1.6 Air Quality

36. Removal of industrial areas from the assessment is misleading.

Requests:

i. Provide the results of the re-evaluation of the 24-hour and annual averages including the eight highest values previously excluded.

ii. Engage the ACFN to confirm the veracity of the air quality model(s) by comparison with the ACFN's TK.

iii. Commit to submitting the outcome(s) of the above dialogue to regulators.

37. Magnitude classification levels not reflective of air guidelines and standards.

Request:

Reassess the environmental consequences using the higher magnitude ratings for exceedances of the AAAQO to better identify which issues are approaching the environmental limits.

38. Assessment of secondary pollutants and their impacts deficient.

Request:

Discuss how and what role Shell will play in further research into secondary air pollutants and their impacts on environmental receptors, including health risks.

39. Potential Acid Input ranking inadequate.

Requests:

i. Describe the current state-of-knowledge with respect to acid deposition and trends in the region.

ii. Explain why a 12% increase above Base Case in the area predicted to exceed the 1.0 keq/ha/yr Potential Acid Input is ranked as negligible. Describe the environmental impact and Shell's assessment of the significance of this predicted increase.

40. Additional details in odour assessment of ACFN locations required.

Request:

Provide additional information including predicted frequency, duration and odour species on the predicted impacts of increased foul odour experiences at the Poplar Point Reserve, and on the ACFN's traditional use.

41. Ground-level ozone poorly assessed.

Request:

Include a rigorous evaluation of the oxidizing potential of the regional air shed, including causal factors, synergistic effects, transport mechanisms and fates, by odour species.

42. Climate change impact classification lacking.

Request:

Provide a comparison of the relative emission intensities (per unit of production) of this project, including off-site upgrading, with other oil sands projects.

43. Cumulative effect of multiple projects on regional air quality inadequately assessed.

Requests:

i. *Assess and provide an analysis on the cumulative effects of the growth of air emissions in the region using a pre-industrial baseline and projecting this out by 100 years – (i.e. from 1965 to 2065).*

i. *Provide a summary table of the projects included in the various assessment cases with their projected emissions listed over the same time frame as above*

1.7 Wildlife

44. Waterfowl species not selected as KIRs.

Request:

Provide an assessment of the impacts to at least one species of waterfowl, such as the mallard.

45. Gaps in wildlife baseline surveys.

Request:

Address the wildlife baseline survey gaps identified in the discussion above. Given the significance of the wildlife to the ACFN's traditional resource use and Treaty and Aboriginal rights, commit to provide the predictive results to the ACFN and to seek the ACFN's verification of these predictions based on the TK of the ACFN.

46. PVA and TK information conflicting.

Request:

Address why Shell has disregarded the TK data that contradicts its modelled predictions.

47. Validity of habitat models questionable.

Requests:

i. *Discuss the potential repercussions of ignoring TK and field data and relying on inaccurate wildlife habitat modelling on traditional use and Treaty and Aboriginal rights.*

ii. *Consider modelling calving/post-calving habitats for moose.*

48. Loss of riparian habitat may be underestimated.

Requests:

i. *Reassess riparian habitat losses based on accepted scientific criteria (not just the 100 meter mapping offset).*

ii. *Discuss additional mitigation and compensation measures that could offset permanent riparian habitat losses.*

49. Regionally significant riparian corridor will be eliminated.

Request:

Discuss how the "remnant corridor" proposed by Shell would maintain a connection between the Athabasca River and the eastern area of undisturbed habitat when the expanded Jackpine Mine is in place. Include a discussion of how dead-ending the corridor would affected the predation risk of wildlife currently using the lower reaches of the Muskeg River valley.

50. Research and data directly applicable to wildlife lacking.

Requests:

i. *Discuss how the lack of field research and toxicity reference data on wildlife may affect the validity of the wildlife health assessment.*

ii. *Discuss how Shell considered the potential long-term residual effects on wildlife exposure to contaminants in process-affected wetlands and pit lakes when conducting the wildlife health assessment.*

iii. *Discuss the impacts of uncertainty and possible contamination of meat from wildlife health effects on traditional use and on the ACFN's Rights.*

iv. *Given the significance of the wildlife to the ACFN's traditional use and Aboriginal and Treaty rights, commit to provide the predictive results to the ACFN and to seek the ACFN's verification of these predictions based on the TK of the ACFN.*

51. Habitat modeling unclear.

Request:

Provide references (for response to SIR AENV 456c) and detailed descriptions of reclamation outcomes for re-evaluating wildlife habitat values on reclaimed lands.

52. Cumulative effects of tailings ponds on migratory bird populations not assessed.

Requests:

i. *Provide the results of a comprehensive assessment of the cumulative effects of oil sands tailings ponds on migratory bird populations and health – based on a pre-industrial baseline.*

ii. *Discuss the effects of these changes on traditional use and on the ACFN's Rights.*

iii. *Commit to provide these findings to the regulators as a key input to the public interest determination.*

53. Cumulative effect of multiple projects on wildlife inadequately assessed.

Requests:

i. Provide estimates of wildlife populations, habitat availability, and vegetation communities (including wetlands) under pre-industrial conditions, and compare these to the present day and 'Base Case' scenarios.

ii. Identify the expected area of land from which wildlife and vegetation would migrate back into the reclaimed land, taking into consideration any nearby operations which would be also be cleared.

iii. Discuss and assess the impacts of the changes in wildlife in the region on traditional use and on the Rights of the ACFN.

i. Given the significance of the wildlife to the ACFN's traditional use and Treaty and Aboriginal rights, commit to provide the predictive results to the ACFN and to seek the ACFN's verification of these predictions based on the TK of the ACFN.

1.8 Vegetation, Wetlands, and Biodiversity

54. KIR frequency ratings between LSA and RSA differ.

Request:

Assuming that each piece of land will be cleared once, explain the relevancy of rating the frequency of clearing for different events, in different locations.

55. Regional vegetation data lacking.

Requests:

i. Discuss how the lack of refined scale maps (i.e., lack of current and accurate regional vegetation data) affects the impact assessment for this project.

ii. Discuss Shell's commitment to fill this gap.

iii. Commit to standardize and share vegetation data sets (e.g., through CEMA's database) with other operators and government agencies.

56. Groundwater-dependent traditional plants may be impacted.

Request:

Explain in detail, using an appropriate set of time sequences, how the loss of groundwater-dependent traditional plant areas in the active mining area and in the surrounding area would be mitigated, offset, or compensated.

57. Peatlands loss unclear.

Requests:

i. *Present data showing the area of peatlands in the RSA and assess the loss of peatlands due to the JPME relative to this number.*

ii. *Assess the cumulative loss in the RSA due to other projects in the RSA, the anticipated drawdown in the JPME area, and the levee at Kearl Lake.*

58. Project-related and regional loss of wetlands inadequately assessed.

Requests:

i. *Explain the lack of compensation for the irreversible loss of a significant area of wetlands in the JMPE project area.*

ii. *Discuss and assess the cumulative impacts arising from the JPME's predicted permanent wetland loss, the Kearl Lake Levee, the increased drawdown area, as well as the total loss of wetlands in the entire Oil Sands Region on biodiversity, habitat loss, wildlife, traditional users, groundwater, surface water, and vegetation. Use a pre-industrial baseline for all assessments.*

iii. *Identify what biodiversity offsets Shell would plan or be willing to commit to as a means of lessening the consequences of the inevitable loss of natural biodiversity from the JPME Project or for the losses from regional oil sands industrial activities.*

iv. *Discuss the impact of the loss of wetlands on traditional use and on the Rights of the ACFN.*

59. Wetland ecological equivalency assumption unsupported.

Request:

Provide research supporting the assumption that reclaimed non-treed wetlands are ecologically equivalent to peatlands, or revise the assessment to reflect the true significance of the full loss of the wetlands in this project area.

60. Loss of old growth forests inadequately assessed.

Requests:

i. *Support the use of 80-year fire cycle and a burn rate of 0.4% per year over other research. Support the estimate that 16% of the regional study area is old growth forest, explaining also why there is only 5% or 6% old growth in the LSA.*

ii. *Explain why "Magnitude of Impact" in the local study area for loss of old growth forest is not ranked as high (>20%), and therefore the environmental consequence also not ranked as high (+17) in Table 7.5-34 (EIA Section 7.5). Explain why using a 2% loss of the local study area is more biologically relevant than using a 40% loss of the actual feature being assessed.*

iii. *Repeat the assessment using the 'high' ranking, as noted above.*

61. Information on burn areas unclear.

Requests:

i. *Classify the burn areas to ecosite phase, or justify why they should not be classified as such.*

ii. *Explain why burns are considered a disturbance in Table 3.5-15, but not in Table 3.5-1.*

62. Additional information for weeds and non-native invasive species required.

Requests:

i. *Explain how Shell would control the introduction and spread of invasive non-native species during construction and reclamation.*

ii. *Clarify whether the access to the construction site and subsequent plant site will be fully paved, or if not, how contractors would ensure that their vehicles are clean upon entering the site.*

63. Impacts to traditionally-used plants not adequately assessed.

Requests:

i. *Describe which plant species are considered important by the Aboriginal communities, and assess the impacts on those species.*

ii. *Identify thresholds/criteria used by Shell to assess potential impacts on traditional users from loss of traditionally-used plants.*

64. Rare plants assumption unsupported.

Request:

Provide scientific evidence, using multiple species of rare plants with different habitat requirements and rarity classes, that rare plants would move into reclaimed habitats in the Oil Sands Region.

65. Evaluation of Rare Plant Potential inadequate.

Request:

Evaluate the impacts on actual rare plant occurrences using Alberta Natural Heritage Information Centre (ANHIC) records (Government of Alberta, 2009).

66. Additional details about rare plants in Kearl Lake area required.

Request:

Estimate the impacts of the loss of the Kearl Lake area rare plant locations on a provincial level, using the NatureServe definition of Occurrence.

67. Rare plant surveyors not identified.

Request:

Identify the botanists used for the rare plant surveys in the assessment, as well as their qualifications. Clarify whether these botanists were on all the detailed inventory surveys as well as the rare plant surveys.

68. Additional details about the accuracy of vegetation maps required.

Request:

Identify whether the accuracy of RSA vegetation maps was determined by ground data or from air photo interpretation.

69. Negligible rating for special plant community unclear.

Request:

Explain why impacts to a special plant community that may be provincially rare, is considered negligible.

70. Proposed monitoring vague.

Request:

Describe in greater detail the vegetation reclamation, biodiversity, and wetland monitoring programs.

71. Impacts of combined air emissions on vegetation key indicator resources unclear.

Request:

Provide a qualitative description of how air emissions (PAI, SO_2, NO_2, and eutrophication) might cumulatively affect plants around the mine during operations and reclamation, taking synergistic effects into consideration.

1.9 Reclamation, Soils, and Landforms

72. Direct placement of soil strategy unclear.

Requests:

i. *Estimate the area that would have topsoil placed directly upon it, rather than stored in the reclamation material sites.*

ii. *Explain how biodiversity would be enhanced in the areas where direct placement is not possible.*

iii. *Explain how species richness would be enhanced with the direct placement of the topsoil and the lack of seeding forbs (other than in two shrublands).*

iv. *Describe Shell's willingness to prepare contingency plans, including sufficient reserve funds, in the event that the reclamation strategies described in the Application do not meet their intended outcomes.*

v. *Describe Shell's willingness to use the ACFN and other regional Aboriginal communities as monitors of Shell's success in this matter (and others associated with the Rights held by these communities).*

73. Reliance on LCCS for meeting replacement of equivalent land capability inadequate.

Request:

Explain why Shell relies solely on the LCCS system to predict equivalent land capability.

74. Reclamation of wetlands as upland forest inadequately assessed and planned.

Requests:

i. *Discuss the use of the CEMA Guideline for Wetland Establishment on Reclaimed Oil Sands Leases recommendation of a watershed:wetlands ratio of 2:1 for the creation of sustainable ecosystems in the Oil Sands Region.*

ii. *Present the area of wetlands in the region that would be converted into uplands.*

iii. *Describe the decisions and cost necessary to implement the 2:1 watershed:wetlands ratio.*

75. Closure landscape water quality details required.

Requests:

i. *Discuss how Shell plans to estimate the location of the long-term water table and seepage areas in an area when groundwater is being affected by other mines and climate change is likely but unpredictable.*

ii. *Discuss how surface water would be separated from process-affected water (in the fine tailings) in the final landscape.*

76. Large reclamation knowledge gaps and complex issues related to tailings management inadequately assessed.

Requests:

i. *Clearly identify the limits of demonstrated reclamation technology replace equivalent capability.*

ii. *Provide examples in the mineable oil sands region where restoration (rather than mere reclamation) is possible, including an order of magnitude estimate of the cost compared to current methods.*

iii. *Discuss the issues specific to stabilization and reclamation of non-segregating tailings.*

iv. *Review impact assessments and confidence ratings based on demonstrated reclamation success.*

v. *Discuss how Shell will manage tailings to develop strength to allow timely capping and meet reclamation and closure requirements.*

vi. *Discuss how Shell will meet the requirement of having tailings with low compressibility so as to minimize settlement and not disrupt the closure landscape.*

vii. *Discuss how water quality and salt load from the de-watering tailings will be managed to not create large areas of saline soils in the reclaimed landscapes.*

viii. *Discuss uncertainties regarding tailings reclamation, including the risk of failure with tailings pond dikes and the risk that reclaimed tailings will not support ecosite phases.*

ix. *Compare and contrast the use of dry tailings technologies versus thickened tailings for the JPME. Include reclamation success in the discussion.*

x. *Identify any changes Shell is considering that would eliminate external tailings ponds and the long-term storage of wet tailings in the reclaimed landscape and in end pit lakes.*

1.10 Traditional Land Use and Traditional Knowledge

77. Traditional land assessment does not meet the Terms of Reference.

Request*:*

Discuss how Shell intends to comply with the Terms of Reference with regards to consultation with the ACFN on traditional use and impacts of the JPME.

78. TK and TLU not seriously considered in the assessment.

Requests*:*

i. *Conclude the work on TK / TLU and incorporate into the EIA before proceeding with the application.*

ii. *Clarify how the TLU and TK information has been considered in the project planning.*

iii. *Clarify how the TLU and TK information provided by the ACFN will be considered in the project operation.*

iv. *Clarify whether the TLU and TK work is complete.*

v. *Identify the specific instances where the TK information provided both corresponds and does not correspond with scientific information in the EIA.*

vi. *Identify how Shell will address ACFN concerns about TLU in the project area.*

vii. *After reconsidering the ACFN's TK submission, re-evaluate how the project would impact the ACFN's ability to exercise their Rights.*

79. Details on the loss of traditional territory required.

Request*:*

Clarify whether any identified sites of traditional significance will be avoided or impacts upon them mitigated.

80. Cumulative impacts to traditional users not fully addressed.

Requests:

i. *Address the impact of the loss of traditional land use of the JPME on traditional uses by the ACFN and their ability to exercise their Rights.*

ii. *Re-assess the cumulative impacts from the JPME and nearby operations, using actual data from reclamation efforts from these neighbouring operations. After identifying the gaps between what was promised and what was delivered, identify what mitigations Shell would consider. Use a pre-industrial baseline for the assessment.*

iii. *Identify how Shell will address the potential liabilities if the planned reclamation measures fail to meet regulatory requirements and the needs of Rights-bearing Aboriginal communities.*

iv. *Assess how the ACFN's ability to exercise their Rights would be impacted by having to carry out their traditional practices in a reclaimed landscape that is vastly different than the pre-industrialization landscape.*

81. Industrial activities directly and indirectly impact on TLU and practice of Aboriginal and Treaty rights.

Requests:

i. *Assess the direct and indirect effects of the JPME in combination with all other regional projects on the well-being and culture of the ACFN. Take into consideration the incremental and cumulative effects of industry and other activities in the region.*

v. *Assess the direct and indirect effects of the JPME in combination with all other regional projects (in the past, present, and future) on the ability of the ACFN to practice their Aboriginal and Treaty rights.*

1.11 Human Health

82. HHRA conclusion unclear, with details lacking.

Requests:

i. Identify who decides what is a 'noticeable increase' in health risks (or lack thereof), and how a 'noticeable increase' is defined.

ii. Identify who, if anyone, is monitoring the overall health risks and health risks to specific groups of people in the region including First Nation communities, and what is being done to address the existing and potential health risks.

83. Conservative assumptions not fully incorporated into the HHRA.

Request:

Re-assess the uncertainties in the HHRA, specifically in those areas where conservatism has not been applied in the HHRA.

84. Acrolein assessment flawed.

Requests*:*

i. Discuss and address the inaccuracies in the airborne acrolein concentrations in the 2005 Golder report and re-evaluate the HHRA for acrolein.

ii. Discuss and address the potential for similar flawed analysis in the HHRA and elsewhere in the EIA.

iii. Re-assess the significance of this analysis on the Rights of the ACFN.

85. Realistic and comprehensive views of individual and community health not addressed.

Requests:

i. Discuss the indirect impacts on the individual and community health of the ACFN from this project and other industrial activities in the region.

ii. Discuss potential mitigations to address these impacts.

86. Acute inhalation health risks may not be protective of the most sensitive individuals.

Request:

Provide a discussion on the use of the Canada-Wide Standards for particulate matter and ozone in the assessment of health risks from emissions. Consider

incorporating CASA's Fine Particulate Matter and Ozone Management tiered Framework, or the World Health Organization's Air Quality Guidelines.