Joint Review Panel

Established to review the Pierre River Mine Project

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Alberta Energy Regulator, 9915 Franklin Avenue, Provincial Building, 2nd Floor, Fort McMurray, AB, T9H 2K4, 780-742-7473

March 18, 2014

Mr. Donald Crowe
Manager, Regulatory Approvals
Shell Canada Energy
<contact information removed>

Dear Mr. Crowe:

The Joint Review Panel (the Panel) reviewing the proposed Pierre River Mine Project (the Project) has completed its review of the additional information provided October, 2013 by Shell Canada Energy (Shell), the comments received from the public, including Aboriginal persons and groups, government departments and non-government organizations, along with Shell's response to those comments.

The Panel indicated in its letter to Shell dated February 13, 2014, that it was still of the view that it did not have adequate information to proceed to hearing and was preparing supplementary information requests. You will find these information requests attached. The Panel would also like to reiterate that in light of the information contained in Shell's letter dated February 11, 2014 regarding Shell's plans to adjust the development timing for its Project, the Panel has requested that Shell update its Project Application and EIA accordingly and provide it to the Panel in a timely fashion.

The Panel has reviewed Shell's material and has determined that Shell did not respond to a number of the questions and did not respond adequately to certain questions. The Panel is disappointed in that it believes that Shell had adequate time to respond to the Panel's requests and had the additional benefit of reviewing the Joint Review Panel's Report for the Jackpine Mine Expansion Project. Shell's responses should have taken into account the concerns expressed by the Panel in that Report that are also relevant for the review of the Pierre River Project. The new information requests identify the deficiencies in Shell's October 2013 submission and contain more detailed questions/requests for information in order to better ensure that the Panel receives adequate responses.

The requested information is considered to be essential to the Panel's review of the Project. The Panel does not intend to schedule a hearing before it receives and reviews Shell's responses, and is satisfied with the information provided.

Once the additional information has been received, the Panel will make the information available to the public for review and comment for a period of at least 30 days. Based on the additional information provided by Shell and the public comments, the Panel will then determine if it has adequate information to proceed to a hearing.

If you have any questions or concerns please contact Jill Adams at 613-948-2674 or Amanda Black at <phone number removed> or via email at Shell.Reviews@ceaa-acee.gc.ca.

Regards,

<original signed by>

Alex Bolton
Joint Review Panel Chair

Lease Exchange

1) **JRP SIR Response, October 31, 2013, Section 1.4.1, Page 1-5.** Shell states, "Specifically, former Shell leases 309, 310, 351, 475, 476, 607, 608, 609 and the northeast portion of lease 352 have been exchanged for Teck's lease 14 which is located between Shell's lease 9 and 17 immediately adjacent to the PRM area. None of the bituminous resource involved in this exchange was proposed to be mined as part of the PRM application."

    a) Provide an update on any changes to the proposed Project including the Project boundary, as a result of the lease exchange agreement.

    b) Identify how Shell will ensure that no ore sterilization will occur due to mining along the lease boundary of Leases 009 and 014, specifically segments 8-9 and the upper portion of 1-2 as shown in **Figure 3-1 of May 2009 Supplemental Information.**

    c) Confirm the pit limits (particularly segments 8-9 and the upper portion of 1-2) and provide them in a dxf file. Provide the volumes of resource material and waste material that will be moved and update the mass balance to reflect the changes (tables 5-8 and 5-9 from the original application). Discuss the impacts of these changes on the tailings and mine plan.

    d) Due to the lease exchange, has Shell considered any alternate locations for the ETDA? If not, provide a justification for retaining the proposed location.

2) **JRP SIR Response, October 31, 2013, Page 70, Figure 3.3-4, 2013 Planned Development Case Activities in the Pierre River Mine Local Study Area- Year 2034.** This figure shows a stream diversion plan accounting for Teck's developments on lease 014.

    a) Since Shell now owns and does not intend to develop lease 014 at this time, explain the impacts to the stream diversion plan for Eymondson Creek, Asphalt Creek and Unnamed Creek 1.

    b) Identify any other implications for the Project resulting from not developing lease 014.

MFT Volume

3) **PRM Supplemental Information Response Round 2, April 2010, Section 4.1, Response 38a, Page 4-40**. Shell states, "The Pierre River Mine will produce 196 Mm^3 of recovered bitumen product. The estimated production of MFT is 251.1 Mm^3."

    a) Provide the calculation of estimated production of MFT volume. Include a fines mass balance table showing the tonnage of :

i) ore fines to extraction;

ii) fines captured for Directive 074 compliance;

iii) fines captured in dikes and beaches; and

iv) fines which are neither captured for Directive 074 compliance nor captured in dikes and beaches.

b) Justify the estimated production of MFT volume of 251.1 Mm^3.

Hydrology

4) **JRP SIR Response, October 31, 2013, Section 3, SIR 20 a)**, Shell states, "The PRM pit lakes containing MFT do not connect to a major watercourse such as the Muskeg River …" **Shell JPME and PRM Project Draft No Net Loss Plan September 2012, Page 17 [PDF 25],** Shell states, "Inflows to the Pierre North Pit Lake and surface runoff from within the PRM will be discharged to the Athabasca River through the Pierre South Pit Lake." **Shell JPME and PRM Project Draft No Net Loss Plan September 2012, Figure 7, Page 16 [PDF 24]**, and **JRP SIR Response, October 31, 2013, Appendix 2, Section 3, Figure 3.3-7, Page 74 [PDF 87]**, Shell shows that the Pierre River South Pit Lake discharges into the Athabasca River through a constructed outlet channel. **JRP SIR Response, October 31, 2013, Appendix 3.1, Section 2.8.1.3, Page 28 [PDF 32]**, Shell states, "Two pit lakes will be created during the Closure phase of PRM. These lakes are the North Pit Lake and the South Pit Lake. The South Pit Lake will be separated by a submerged dyke into an Upstream Cell and Downstream Cell. The downstream cell will contain no tailings and will provide final polishing of pit lake water prior to release to the receiving environment."; in **Table 2.8-6, Page 29 [PDF 33]**, Shell shows that the South Pit Lake Upstream Cell will contain MFT (approximately 163 Mm3).

The Panel understands that water from PRM South Pit Lake will discharge into the Athabasca River, a major watercourse. The Panel notes that a submerged dyke will separate the South Pit Lake Upstream Cell (which contains MFT) from the Downstream Cell (which does not contain MFT). The Panel understands that although there will be two cells in the South Pit Lake, it will still be a single lake discharging through an outlet channel directly into the Athabasca River. The Panel also understands that the water from the two cells will be connected, and that any adverse impact on the water quality in the Upstream Cell will also adversely impact the water quality in the Downstream Cell.

a) Confirm that waters from the South Pit Lake, which contains MFT in its upstream cell, will discharge into the Athabasca River.

b) Explain how the downstream cell will provide final polishing of pit lake water prior to release to the receiving environment.

c) If the final polishing proves to be ineffective, identify treatment options that are technically and economically feasible that Shell will use to meet release criteria and the expected time span required to achieve the release criteria.

5) **EIA Volume 4A, December 2007, Section 6.1.4.3; PRM Supplemental Information, May 2009, Section 13**, Shell stated that it will monitor EPLs water chemistry during the filling period prior to release. If monitoring indicates that releases will be toxic or cause adverse effects on receiving streams, passive treatment will be enhanced and outlets will be directed to treatment wetlands for further treatment and produce satisfactory water quality before being released to receiving streams. **AER Approval No. 9756E for the Shell JPME Project, December 2013, Clauses 26 and 27** require Shell to provide alternatives to passively treating water in EPLs, and a comprehensive economic assessment of feasible active water treatment options that Shell could implement to ensure that EPLs will meet water release criteria at closure. **PRM Supplemental Information, May 2009**, **Section 21.1,** Shell states, "Shell will monitor and apply adaptive management measures, if necessary, as the lakes fill."

   a) At what point in Shell's adaptive management plan does Shell intend to implement active treatment options to meet discharge criteria?

   b) There is uncertainty regarding the effectiveness of passive treatment to meet release criteria of the EPL waters. How will Shell incorporate advances in scientific knowledge and technology into its proposed adaptive management strategy?

   c) In the EIA, Shell did not provide details on how it would employ adaptive management to address potential issues with the performance of the EPLs. Provide a detailed plan as to how adaptive management practices will help Shell achieve the best possible outcomes, including (but not limited to) desired outcomes of environmental management; alternative ways of meeting the desired outcomes; feasible/implementable active mitigation options; appropriate indicators, criteria and thresholds for monitoring environmental change and performance; and actions/plans when outcome objectives are not being achieved.

6) **JRP SIR Response, October 31, 2013, Appendix 3.1, Section 2.8.1.3, Page 28 [PDF 32]**, Shell states, "In the EIA, the pit lake models assumed that the lakes would be filled with inflows from Asphalt and Eymundson creeks, whereas in this submission, Athabasca River water is assumed to be used to fill the lakes."; in **Table 2.8-6, Page 29 [PDF 33]**, Shell shows the water sources and the annual inflow volumes during filling period and post-filling for the EPLs.

   As per **Table 2.8-6**, the South Pit Lake Upstream Cell will begin filling in 2043 and will begin discharging in 2052. The following are the inflow volumes from each source from 2043 to 2052 (inclusive):

Water Source	Volume (Mm^3)
Natural and reclaimed landscape runoff	14.70
Tailings sand seepage	0.66
CT flux/runoff from Cell 2	2.61
Precipitation	-13.00
North Pit Lake (discharge begins in 2044)	5.11
TOTAL	10.08

The South Pit Lake Upstream Cell will not use water from the Athabasca River.

As per **Table 2.8-6,** the required volume of water for the upstream cell is 131 Mm^3. Based on the source water volumes provided, the total volume of water in the upstream cell will be approximately 10.08 Mm^3 in 2052. There is an apparent water shortage of about 121 Mm^3 from 2043 to 2052.

a) What additional water source(s) will Shell use to fill the South Pit Lake Upstream Cell? Provide volumes for each source.

b) What is the estimated final inventory of process-affected water at the end of the PRM Project, and the plans for its final disposal?

c) What additional volume of process-affected water will Shell place in the upstream cell?

d) What will be the changes in the predicted water quality of the South Pit Lake (upstream and downstream cells) and the corresponding adverse impacts if Shell places the final inventory of process-affected water in the EPL?

e) Considering that the South Pit Lake discharges into the Athabasca River, a major watercourse, what would be the impacts on the water quality in the Athabasca River if additional process-affected water is placed in the EPL?

Effects of the Environment on the Project

7) In SIR 51(c), the Panel requested that Shell provide an assessment of the potential for drought in the area and whether the Project may be sensitive to drought. Shell's response to SIR 51(c) demonstrates that the Project is sensitive to drought; however, an assessment of the potential for drought in the area was not provided. Further, Shell's response concludes that given the proposed mitigation, drought conditions are predicted to have minimal effects on the Project. This response did not answer the Panel's information request (concerning drought potential) that called for an explanation regarding how Shell used the trends in air temperature and precipitation to estimate the expected range of future streamflows in the Athabasca River. Shell was also asked to provide a discussion of long-term, cumulative implications for water management of the Athabasca River; however, this was not included in Shell's response.

This deficiency was noted by Dr. Martin Carver on behalf of Athabasca Chipewyan First Nation in its submission dated January 17, 2014. Dr. Carver notes the first proposed mitigation measure refers to the determination of a mine water balance based on a 100-year "dry conditions" event; however, details are absent in regard to how this was carried out. Dr. Carver also highlights that the second mitigation measure involves designing on-site water storage to temporarily supplement water needs when there are periods of restricted Athabasca River water withdrawal. Shell does not state the extent of storage required in its response, rather it is stated that a final raw water storage needs assessment will be completed after Phase 2 of the Water Management Framework for the Lower Athabasca River has been approved.

a) Provide an assessment of the potential for drought in the area. Explain how Shell used the trends in air temperature and precipitation to estimate the expected range of future streamflows in the Athabasca River that will be used for the water requirements of the Project.

b) Provide a discussion of the long-term cumulative implications for water management of the lower Athabasca River.

c) With respect to the first mitigation described by Shell in response to SIR 51(c), elaborate on how climate information was used in developing a water balance for the Project

d) With respect to the second mitigation described by Shell in response to SIR 51(c), identify the storage needs for the Project under the Phase One Water Management Framework.

Assessment of effects north of the RSA

8) The Panel requested in SIR 5 that Shell determine the effects of only the PRM Project, without the inclusion of the JPME. The Panel also requested in SIR 8 that Shell update its cumulative effects assessment for the PRM Project. The Panel is aware that the RSA for the PRM was initially provided by Shell to include both the PRM and JPME projects.

In the Joint Review Panel Report for the JPME Project, the Panel stated that Shell's RSA size was inappropriate for the JPME Project alone. The Panel stated that "The large proportional difference in the ratio of the LSA to RSA causes a 'dilution effect', whereby the effects of the Project essentially get lost in the very large RSA…"

The Panel believes that the location of the RSA in relation to the location of the PRM Project is also problematic for the environmental assessment. The Panel notes that the north boundary of the RSA is approximately 10km north of the northern LSA boundary for the PRM Project. The southern boundary of the RSA is approximately 80km south of the southern LSA boundary. The Panel is concerned about the potential for project and cumulative effects in the area north of the RSA boundary as it is relatively close to the Project but was not considered in Shell's assessment. The

Panel further notes that Shell has indicated that the MCFN, Fort McKay (CSE), ACFN, Métis Local #125 use the area to the north of the RSA for traditional land use.

a) The Panel requests that Shell assess the project and cumulative effects north of the RSA boundary to satisfactorily take account the following:

i) Moose, woodland caribou and wood bison (if not already included in response to SIR 1) habitat and movement
ii) Aboriginal Rights and Interest (which include but is not limited to traditional land use, Aboriginal treaty and Rights, and cultural heritage) for each Aboriginal group.
iii) Peatlands and patterned fens
iv) Old-growth forests
v) Migratory birds and their habitat

b) For this additional analysis, Shell should assess an area that is ecologically relevant and in which direct or indirect effects of the Project are possible but not so large as to result in unreasonable dilution of predicted effects.

9) The Panel notes that Shell conducted a cumulative noise analysis and considered noise in its assessment of effects on traditional land use as a factor that can influence traditional harvesting activities however the Noise Impact Assessment (NIA) did not include the Teck Frontier application.

a) Update the NIA to include the Teck Frontier project, and assess the effects of noise on traditional land use for the area north of the RSA boundary.

Redclay Compensation Lake

10) The Panel understands that the 2012 Draft No Net Loss Plan is to compensate for fish habitat alteration, disruption or destruction for both the PRM and JPME projects. The Panel notes that the PRM will affect 4,955,115 fish habitat units and that Shell plans to provide the south Redclay Compensation Lake and associated stream compensation works representing 20,426,449 habitat units.

In SIR 30 (a) the Panel requested that Shell provide the specific criteria used to choose the proposed option of the Redclay Compensation Lake as its preferred option, including how Shell weighted the criteria. The Panel believes that Shell's response to this SIR is not sufficient because Shell did not provide the potential effects that this option and the other options could have on the environment such as effects to wildlife KIRs in the Project area.

a) The Panel requests that Shell provide an assessment of the environmental effects, including the effects to terrestrial wildlife and vegetation KIRs as well as to Aboriginal rights and interests including traditional land use and cultural practices, of the Redclay Compensation Lake and the other feasible fish compensation options considered.

Wood Bison

11) In SIR 41 the Panel requested Shell to quantify the effects of the Project and other cumulative effects on wood bison within their current core range as identified through TEK. Shell provided some information, however it did not assess the effects within the bison core range but instead assessed the effects within Shell's RSA. The Panel acknowledges that Environment Canada as well as ACFN also had concerns with Shell's assessment regarding wood bison.

In its response to the Panel's IR Shell concluded that the Ronald Lake herd is unlikely to be limited by habitat availability but rather by the effects of unregulated hunting, predation and disease. Shell stated that an examination of telemetry collar data collected between March and July 2013 shows that the home range of the Ronald Lake herd overlaps with Wood Buffalo National Park (WBNP) and therefore bison of the Ronald Lake herd are likely to interact with diseased bison herds that occur in and around WBNP. The Panel would like to understand this overlap more fully.

The Panel is aware that new information exists and that further telemetry studies will be conducted by Alberta regarding the Ronald Lake bison herd which the Panel believes will be important in determining the effects to wood bison. The Panel requests that Shell use the most recent information available, including TEK, provincial and industry surveys, recent peer-reviewed literature and ongoing telemetry work in its assessment and use it to validate or update its habitat suitability model for wood bison.

a) The Panel requests that Shell comply with the Panel's initial request and assess the effects of the Project including the Redclay compensation lake and any cumulative effects within the bison core range for the Ronald Lake herd and provide its significance determination for both project and cumulative effects. In its assessment the Panel requests that Shell:

    i) Provide range maps for all assessment cases for annual and seasonal ranges for both male and female bison for the Ronald Lake herd to the extent this is feasible based on the most current information available.

    ii) Provide information on the carrying capacity of the Ronald Lake herd range for both annual and seasonal ranges.

    iii) Summarize all known information on mortality factors and mortality rate of Ronald Lake wood bison (including unregulated hunting and predation); identify how mortality factors and rate may change during Project construction and operations and as a result of cumulative developments, and implications of these changes to herd viability and significance of effects.

    iv) Evaluate the distribution of bison in southern WBNP, using the most current information available, to determine the degree of overlap of diseased WBNP bison with the Ronald Lake range and whether

displaced bison from the Ronald Lake herd would be at increased risk of contact with diseased bison.

v) Provide the most recent information on disease prevalence for the Ronald Lake herd, and discuss how this compares to the disease rate in the WBNP herds and what implications this has for interaction between the herds and future management of the Ronald Lake herd.

vi) Evaluate the response of Ronald Lake wood bison to winter exploration activities and other disturbances in the herd's range to quantitatively determine responses to ongoing disturbances, including displacement distances.

vii) Include all potential direct and indirect effects to bison habitat, abundance and movement and include any information available regarding predation, noise, etc. for the Ronald Lake herd. The Panel requests that Shell use the results of this analysis to determine potential effects of displacement of bison on traditional resource use of the Ronald Lake herd.

Reclamation

12) **JRP SIR Response, October 31, 2013, Section 1.4.2, Page 1-5.** Shell states "…in December 2007 with an expectation that regulatory approval could be achieved by 2010, construction started in 2012 and first oil in 2018. This timing is no longer feasible and Shell has revised the timing of the PRM development to reflect a more realistic start up of 2021. This delay has resulted in changes to…and mine planning schedules."

a) Given that development and reclamation schedules have been updated, including mine planning schedules, provide a new set of PRM development sequence maps. In 5 year intervals from start of construction to closure, these high resolution maps should identify the proposed Project approval boundary, pit limits, plant site, tailings (fluid, DDA, and sand), storage or disposal structures (overburden, RMS, coke, sulphur), emergency ponds, dykes, water intake infrastructure (intake point and storage pond), end pit lakes, river diversions with timelines, sedimentation pond, compensation lake, camp, bridge, main access road, and reclaimed areas.

b) Provide individual shapefiles (shp NAD83) for the each of the development features listed in a) for each sequence map.

13) **JRP SIR Response, October 31, 2013, Appendix 1, Table 4.3-1, Pages 106-107.** Shell evaluates ecosite phases and wetland types to be cleared and reclaimed in the LSA. Shell states "Closure scenario includes reclamation of the PRM development areas. Values presented in this table do not include indirect effects due to surficial

aquifer drawdown, as drawdown will occur primarily during the life of PRM. Drawdown effects on wetland types surrounding pit lakes may extend to Closure. At Closure combined direct and indirect effects are predicted to cause an additional loss of 978 ha (22% of wetlands), 899 ha (16% of resource) of peatlands and 67 ha (100% of resource) of patterned fens." **JRP SIR Response, October 31, 2013, Appendix 1, Page 118.** Shell states "The 13 ha of patterned fen present at Closure that was absent during construction and operations is considered recovered due to the dissipation of effects of surficial aquifer drawdown. At Closure, marsh and swamp wetland types are expected to be reclaimed."

a) If the additional losses due to direct and indirect effects are predicted to occur, explain why they were not included in the closure column calculations?

b) For each individual wetland type and miscellaneous vegetation type presented in Table 4.3-1 (17 in total), provide a breakdown for the closure area (in ha) attributed to:

   i) altered wetland during life of PRM due to drawdown but expected to recover at closure,

   ii) area was cleared during PRM operations and reclaimed as this wetland type, and

   iii) unaltered wetland that remains within the LSA.

c) Provide the same breakdown requested in b) for each wetland type and miscellaneous vegetation type for the PRM development area only, as opposed to the LSA.

d) Identify and discuss examples that Shell is aware of where wetlands potentially altered during operations recovered at Closure due to the dissipation of effects of drawdown.

14) **JPME & PRM Submission of Information to the JRP, May 2011, Environment Canada Request 3, Page 80.** Shell states "Shell is not able to commit to acquiring habitat offsets…The mitigation measures, insofar as they relate to the reclamation of habitat for the species at risk in the assessment, are not uncertain, and will be readily applied at the necessary time. Accordingly, further mitigation through the acquisition of habitat offsets is unnecessary." **JPME Hearing Transcipt, November 2012, Volume 16, Page 3956.** Shell states "In terms of conservation offsets, the witnesses explained that the Project itself is not likely to result in any significant adverse effects and therefore Project-specific offsets are not necessary." **JRP SIR Response, October 31, 2013, Section 1.5.5, Page 1-8.** Shell states "Shell also agrees with the JRP's finding that conservation offsets are one mitigation option that should be considered to minimize effects given the long disturbance period inherent with any open pit mining activity. Shell is also committed to working with the relevant regulators on

various mitigation options for JPME and PRM (see Appendix 2 4.3.7) including conservation offsets."

a) Confirm Shell's position on conservation offsets as a mitigation option for environmental effects including whether Shell will pursue offsets as a mitigation measure for PRM. If no, explain why. If yes, describe the process Shell would follow to identify and implement offset options.

15) **EIA Volume 5, December 2007 PRM CCR, Table 7, Page 56.** Table 7 shows ecosite phases and wetland types to be cleared and reclaimed in the Pierre River Mining Area, including net change from pre-development to closure in the development area. **JRP SIR Response, October 31, 2013, Appendix 1, Table 4.3-1, Page 106.** Table 4.3-1 shows ecosite phases and wetland types to be cleared and reclaimed in the LSA, including net change due to the PRM calculated as the difference between 2013 Base Case and Closure. The table also shows burn upland and burn wetlands included in the miscellaneous vegetation types.
A number of differences are noted for ecosite phases and wetland types to be cleared and reclaimed between the older (2007 for development area) and more recent (2013 for LSA) PRM submissions including a change from loss of central mixedwood to an increase, and a smaller area of wetland lost.

a) Explain why burn upland and burn wetlands were included in the miscellaneous vegetation type as opposed to upland and wetland classes.

b) Create a table, similar to Table 4.3-1 with burn upland included in the upland phases and burn wetlands in the wetland types.

c) Create a table, similar to Table 4.3-1 for the PRM development area only as opposed to the LSA to show the updated predictions for ecosite phases and wetlands types to be cleared and reclaimed in the PRM development area.

d) Describe the reclamation plan factors that are responsible for any differences between the table updated for c) and Table 7 which was included with the original 2007 submission.

Aboriginal Rights and Interests

16) The Panel agrees with ACFN's concerns about the fact that Shell recommended in Appendix 3.8 that the Panel and other readers "further examine the referenced source material in its entirety to have a fulsome perspective of the TLU information provided in those documents". The Panel's expectations are that Shell should have reviewed the referenced source materials and integrated all relevant information into its assessment.

a) The Panel requests that Shell clarify whether or not Shell integrated all relevant information from its referenced source material into its TLU assessment.

b) If Shell has not integrated all relevant information in its TLU assessment, the Panel requests that Shell update its TLU assessment to address this issue.

17) Shell provided an assessment of cumulative effects on Aboriginal traditional land use for the PIC to Application Case and PIC to PDC. The Panel noted that Shell mentioned in **JRP SIR Response, October 31, 2013, Appendix 2, Section 3.5.1.1.1, Page 139)** that information provided for Fort McMurray Métis Local #1935 was based on the book *Mark of the Métis*. Shell indicated that because of the single source information and its general nature, its level of confidence in its assessment for Fort McMurray Métis Local #1935 was low. Shell indicated that it has not assessed the effects on trapping by Fort McMurray Métis Local #1935 because there was not enough information to assess the effects of the 2013 PDC on trapping by Fort McMurray Métis.

The Panel acknowledges that the Métis Nation of Alberta Region 1 has concerns about the fact that Shell only identified the Métis Locals #1935, #125 and #63 in its assessment of the potential Project effects on the Métis groups, as it believes that other Métis groups could potentially be affected by the Project and cumulative effects. The Panel also acknowledges concerns expressed by the Métis Nation of Alberta Region 1 and the Métis Local #1935 regarding the additional sources of information available but not used by Shell in its assessment.

The Panel requests Shell to:

a) Update the analysis of the PRM Project effects as well as the cumulative effects on Aboriginal rights and interests (which include traditional land use, cultural heritage, historical or archaeological sites and Aboriginal rights as per the Joint Review Panel's Terms of Reference), to include information on each Métis group that could potentially be affected by the PRM Project at the LSA and RSA level, and in the region north of the RSA (see SIR 8).

i) In updating the assessment, Shell must ensure it has made use of all existing and available information on Métis use and made reasonable efforts to gather additional information from the potentially affected Métis groups. In addition, Shell must integrate the information it considers relevant into its analysis.

18) **JRP SIR Response, October 31, 2013**, Shell indicated:

- **Page 3 of Appendix 7** (Cultural Effects Review): "This section [Section 3.0] then summarizes the 2013 PRM Application Case (Appendix 1, Section 5.2) and 2013

Planned Development Case (PDC) (Appendix 2, Section 3.5.1) assessed effects on TLU";

- **Page 30 of Appendix 7** (Cultural Effects Review): "The sections that follow summarize effects on TLU that have been assessed as part of the responses to JPR SIR 5 and SIR 8 provided in Appendix 1, Section 5.1 and Appendix 2, Section 2.5.1 and 3.5.1"; and
- **Page 321 of Appendix 2**: "The following sections summarize the significance of cumulative effects on Traditional Land Use (TLU) during Construction and Operations prior to Closure for the 2013 PRM Application Case."

The Panel cannot locate the section in Appendix 1 that includes the effects assessment of the 2013 PRM Application Case for traditional land use.

a) Provide the Application Case Assessment (including cumulative effects assessment) of the PRM Project on traditional land use for each Aboriginal group.

19) In SIR 7 the Panel requested that Shell provide the environmental consequences for Aboriginal rights and interests (amongst other things). According to the Joint Review Panel Terms of Reference, Aboriginal rights and interests include any effects (including the effects related to increased access and fragmentation of habitat) on hunting, fishing, trapping, cultural and other traditional uses of the land (e.g. collection of medicinal plants, use of sacred sites), as well as related effects on lifestyle, culture, health and quality of life of Aboriginal persons. In its response to SIR 7, Shell indicated that the vast majority of Aboriginal rights and interests are based on access to and use of biological and environmental KIRs, and that the environmental consequences to a particular Aboriginal right or interest will be closely tied or directly related to the environmental consequences of the supporting environmental or biological KIR. However, Shell did not provide the project effects or environmental consequences on Aboriginal culture and heritage.

The Panel notes that in its Cultural Effects Review (provided in response to the Panel's SIR 69 requesting that Shell provide a cumulative assessment of the Project's effects on Aboriginal culture, lifestyle and quality of life of Aboriginal persons), Shell indicated: "When describing regional cultural effects, it is not feasible to assess the relative contribution of one project in isolation. It is also not practical or realistic to consider the effects of one project separately from the cumulative effects experienced by each Aboriginal group." Shell further indicated that "the report focuses on the effects of oil sands development as a major driver of change in the region due to its direct and indirect observed and assessed effects on tangible elements of culture (i.e., the physical environment)."

According to the Joint Review Panel Terms of Reference, the Panel should consider the environmental effects of the Project, as well as the cumulative effects, as described in the *Canadian Environmental Assessment Act, 2012* (CEAA 2012), which

includes notably the effects of any change to the environment on Aboriginal culture and heritage, and historical or archaeological structure, site or thing.

The Panel requests Shell to:

a) Provide the assessment of the PRM Project effects on Aboriginal culture and heritage as well as historical or archaeological sites.

   i) Include in the assessment any effects of a change to the environment caused by the PRM Project on Aboriginal physical and cultural heritage (including loss of connectivity to the land), as well as on historical and archaeological sites. Shell should provide the methods used in assessing these effects, provide any mitigation measures and determine the significance of the effects.

   ii) In its assessment, Shell must ensure it has made use of all available and relevant information on Aboriginal culture, and made reasonable efforts to gather additional information from the potentially affected Aboriginal groups. In addition, Shell must integrate the information it considers relevant into its analysis.

Socio-Economics

20) **EIA Update, May 2008, Section 5.5.1.2, Page 142.** Shell states, "At full production, the operating expenditures of PRM are estimated at $594 million per year for a total Project operations expenditures, inclusive of sustaining capital and plant turnarounds, of $855 million."

a) Update the total Project operations expenditures (Table 5.5-4) and the annual operations expenditure, inclusive of sustaining capital and plant turnarounds estimate.

21) **EIA Update, May 2008, Section 5.8, Page 151.** Shell states, "Assuming JME only, the Application Case housing demand is estimated at 1,230 dwellings in the 2008 to 2021 period. The corresponding number for the PRM only Application Case is an estimated 230 dwellings. The PRM will create an additional demand for 710 dwellings during the construction of the PRM. This construction-related housing demand is expected to be temporary and subside once the construction of the PRM is completed." **JRP SIR Response, October 31, 2013, Appendix 8, Section 4.1.2.1, Page 23.** Shell states, "Much of the Project's population impact will be mitigated by the Project's: ….use of a camp-based model for housing workers during both construction and operations;"

a) Provide updated housing numbers for the construction and operations phases based on its planned camp-based strategy. The update should identify in which communities this housing demand will be met.

b) Confirm whether Shell is committed to constructing new camps for construction and operations or whether Shell plans to use existing camps.

c) Provide the estimated capacities and locations of the construction and operations camps to be utilized for PRM.

d) Provide information to demonstrate that the new and or existing camps will have sufficient capacity to handle peak employment.

22) **PRM Supplemental Information Response Round 1, May 2009, Section 6.2, Page 6-9.** Shell states, "The project's capital costs are now estimated between $14 to $22 billion (2008 $)….Based on published multipliers (Alberta Finance 2007), the project's impact on provincial GDP is now estimated at between $12 and $19 billion."

a) Update the capital cost estimate.

b) Update the estimate of the Project's impact on provincial GDP.

23) **PRM Supplemental Information Response Round 1, May 2009, Section 6.2, Page 6-10 & 6-11.** Shell states, "Initial property tax payments for the project, now estimated at between $22 to $33 million annually, are set to begin after the projected start-up of operations in 2018. After all phases and components associated with the project are fully operational, which is expected to occur in 2021, total property tax payments for the project are estimated at between $46 to $70 million annually…. Revenues to government for the Pierre River Mine as a stand-alone project are presented in Table 6-2."

a) Update the Project's annual property tax payments estimate.

b) Update Table 6-2.

24) **PRM Supplemental Information Response Round 1, May 2009, Section 6.2, Page 6-8.** Shell states, "In particular:

- on-site employment has increased from about 11,730 to 17,800 person-years
- off-site employment has increased from about 3,910 to 5,560 person-years."

a) Confirm that the estimates for on-site and off-site employment in the May 2009 SIR Responses remain valid, or provide updated estimates where employment estimates have changed due to changes in Project design or implementation,.

b) Update Figure 6-1: On-Site Workforce (PRM Supplemental Information Response Round 1, May 2009, Volume 1, Section 6.2, Page 6-8.) that reflects the updated Project timeline.

c) Update the total direct, indirect and induced employment impacts estimate given on page 6-9.

25) **JRP SIR Response, October 31, 2013, Appendix 8, Section 4.1.2.1, Page 23.** Shell states, “Much of the Project’s population impact will be mitigated by the Project’s:…. use of a fly-in/fly-out approach to transporting workers in and out of the region.”

    a) Provide details on Shell’s transportation plan to support the fly-in/fly-out approach. Include:

        i) The airport Shell intends to use,

        ii) The capacity of the airport for flights associated with the Project, and

        iii) How the workers will be transported to and from the airport.

26) **Responses to the Joint Review Panel's Supplemental Information Requests, Oct 2013, Appendix 8, Section, 4.7.1, Page 87.** Shell states, “Many industrial developers attempt to directly manage, mitigate or compensate for the effects of development on traditional land use by: …facilitating access across development areas for trappers and traditional users;”

    a) Discuss Shell’s commitments for facilitating and providing access across the PRM development area for Aboriginals in the region.