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# **MCFN Technical Review Meeting Jackpine Mine Expansion & Pierre River Mine Projects**

January 27 – 28, 2010



# Introduction

- Welcome
- Safety Briefing
- Housekeeping Items
- Introductions
  - Name and role
  - Area of specialization



## Meeting Purpose & Approach

- Purpose
  - Part of continuing consultation on JPME and PRM
  - Provides a first level response to the issues raised in the MCFN Technical Review
  - To engage in dialogue and identify where further discussions will be required



## Meeting Purpose & Approach

- Agenda (handout)
- Organized by headings in MCFN Technical Review (themes)
  - Shell will present high level overview of each theme – no intent to have substantive discussion on these presentations
  - MCFN will lead Shell through questions in its Technical Review and Shell will provide its responses
- Time per theme limited given the number of questions
- Facilitators will keep us on track with time management



## Meeting Purpose & Approach

- Respect for different perspectives
- May need to take away questions and come back for more discussion
- May agree to move questions to be answered in the discussion of another theme and will keep track of these
- May agree to skip questions if we agree they have already been answered
- May agree to disagree or move a question aside if we agree are unlikely to reach agreement within time constraints
- May schedule subsequent meetings if we agree they are required
- Shell will provide a written response at a later date, when Technical review discussions are complete



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## Air Quality

Bill Kovach – EIA Coordinator, Shell  
Canada Energy

Candace Bell – Air Quality Meteorologist,  
Golder Associates Ltd.

Greg Unrau – Senior Meteorologist,  
Golder Associates Ltd.



# MCFN Technical Review of Air Quality

## Key MCFN Concerns:

- It appears ambient monitoring trends show increasing trends in several compounds that could potentially exceed AAAQO levels for the region
- It is unclear if the use of asphaltene as a fuel has been tested and used elsewhere, whether any direct emission testing has been done or what the emissions look like.
- Discussions on greenhouse gas management are lacking, as are discussions of contingency plans or mitigation of an increasing trend in odours.



## Shell's Response

- Shell is an active participant in regional air quality management initiatives:
  - AENV Regional Sustainable Development Strategy.
  - Cumulative Environmental Management Association (CEMA).
  - Wood Buffalo Environmental Association (WBEA).
- Shell will meet requirements of the Acidification Management Framework and the Trace Metals Management Framework, both of CEMA, as well as the Clean Air Strategic Alliance's (CASA) PM<sub>2.5</sub> management framework
- Shell has proposed a number of management systems and mitigation measures as part of the project to reduce air emissions
- Shell has programs in place to respond to external odour complaints



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## Water Quality

Bill Kovach – EIA Coordinator, Shell  
Canada Energy

Jerry Vandenberg – Water Quality  
Specialist, Golder Associates Ltd.



# MCFN Technical Review of Water Quality

## Key MCFN Concerns:

- Impact predictions are based on overstatements of some results, vague characterization of confidence in predictions, and unhelpful appeal to conservative assumptions and linkage analyses.
- References to monitoring are dominated by existing programs, but some parameters measured in 2007 in the Muskeg River Mine exceed guidelines.
- There are assumptions, but no demonstration that viable biological processes will be established.
- Given the unconvincing predictions and past monitoring results, the assurance that adverse effects will be alleviated is questionable.



## Shell's Response

- Assessment methods consistent with standard EIA approach
- Physical, biological and chemical processes were modelled at a level we believe is appropriate for assessing potential effects and appropriate for the level of available information
- Multiple conservative assumptions used in assessment to overestimate effects where uncertainty exists:
  - Modelled total metals instead of dissolved metals
  - Used slowest available decay rates and assumed no decay in watercourses
  - Applied instantaneous travel times for tailings release water
  - Overlapped timing of worst case events in models



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## Aquatic Health

Bill Kovach – Environmental Impact  
Assessment Coordinator, Shell Canada  
Energy

Jody Berry – Environmental Risk Assessor,  
Golder Associates Ltd.



# MCFN Technical Review of Aquatic Health

## Key MCFN Concerns:

- Both projects have the potential for significant effects on aquatic resources in the region because of their proximity to major watercourse systems.
- The level of sampling for the baseline data to establish benchmark data on fish tissue quality was inadequate.
- The EIA does not consider other non-lethal end-points that may have profound effects on fish communities.
- The monitoring program does not include a component to monitor fish health.
- The reliance on regional monitoring plans (e.g., RAMP) to address cumulative effects is insufficient to protect Treaty Rights.



# Shell's Response

- Based on the proposed project design and mitigation, the Aquatic Health assessment predicted negligible effects on aquatic health in local watercourses and waterbodies, including the Athabasca River
- Baseline data sufficient for screening-level spatial and taxonomic coverage
- Weight of evidence approach to monitoring and assessment based on multiple lines of evidence
- Shell believes that monitoring conducted by Shell and RAMP is adequate for baseline characterization and long-term effects monitoring
- Indirect, sub-lethal effects are not anticipated based on composition of mine-related waters and nature of releases



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## **Fisheries**

Bill Kovach – EIA Coordinator, Shell  
Canada Energy

Rick Courtney – Environmental  
Coordinator, Shell Canada Energy



## MCFN Technical Review of Fisheries Impacts

- Water withdrawal impacts
  - Phase 1 in place. Phase 2 recommendation out soon. Regulators have to consult on recommendation and develop regulation.
  - Impacts of project are very small.
  - DFO is still working on their policy. Issue will be addressed further when that is resolved.
- Sampling methodology and uncertainty about impacts/compensation/mitigation success
  - Impacts/mitigation/compensation are well understood. Predictions defined by ESR sampling plus historical data, plus TEK plus professional judgement of Shell, regulators and FN consultants
  - All predictions are verified by future monitoring of fish and fish habitat in pre-development and compensation habitat.
  - Compensation requirements are adjusted as required to ensure there are no residual impacts.



## MCFN Technical Review of Fisheries Impacts

- Primarily lake compensation versus primarily stream impacts
  - Cannot physically provide required compensation quantities as self-sustaining stream habitat
  - Reservoirs are proven to produce high quality fish habitat, even when not managed for fish – e.g., hydro or irrigation reservoirs
  - Significant shallow wetland and stream fish habitat rebuilt on closure landscape, but doesn't count as compensation
- Decline in fish in Jackpine Creek/Pierre River/Muskeg River – Why?
  - Little development in Muskeg River watershed in 1990s and 2001 when smallest runs. Pierre River is not developed. Natural variability?
  - No clear relationship between fish run size and flow or development.
  - These are naturally variable systems and data are limited, even for the Muskeg River. Have not been able to sample the top half of flow years.
  - If it is determined there are unanticipated impacts, additional compensation will be provided to achieve No Net Loss of fish habitat.



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# Hydrology

Bill Kovach – EIA Coordinator, Shell  
Canada Energy

Getu Biftu – Senior Water Resources  
Engineer, Golder Associates Ltd.



# MCFN Technical Review of Hydrology

## Key MCFN Concerns:

- Justification of predicted impacts is possibly misconstrued because it is based on data from watersheds with different characteristics.
- Declining trends of streamflow in the Athabasca River are dismissed in the impacts predictions.
- An oil spill dispersion study was not carried out.
- The assumption that reconstructed soils and vegetation are identical to baseline watershed conditions was never demonstrated and is likely wrong.
- Mikisew Cree concerns about water have not been addressed.



## Shell's Response

- Shell is confident in the predictions presented in the EIA are appropriate
- Hydrologic parameters from calibrated watersheds were transferred to watersheds with similar hydrological characteristics not to watersheds that have different hydrological characteristics
- Trends of streamflow in the Athabasca River were included in the hydrology effects analysis
- The reconstructed soils and reclaimed vegetation were not assumed to be identical to baseline watershed conditions; these areas were parameterized based on professional judgement and a conceptual understanding of the hydrologic characteristics for these areas



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# Hydrogeology

Bill Kovach – EIA Coordinator, Shell  
Canada Energy

João Küpper – Water Resources Principal  
Hydrogeologist, WorleyParsons Canada



# MCFN Technical Review of Hydrogeology

## Key MCFN Concerns:

- The approach taken by the EIA did not involve regional and cumulative classification of hydrogeological impacts; this is not consistent with the EIA ToR.
- No solute transport modeling of regional groundwater flow was carried out to assess cumulative effects of the Project on regional groundwater quality.
- The peak impacts of degraded groundwater quality discharging to surface water systems potentially affecting Traditional Resources in the LSAs were not determined.



## Shell's Response

- The EIA complied with the ToR and identified Project impacts to hydrogeology including
  - the removal of a portion of the Kearsal Channel
  - water table drawdown
  - reduced baseflow to surface water features
  - reduced groundwater quality due to the operation of the ETDA and mine pit backfilling
- Groundwater solute transport model included at local-level only because Project influence on ground water quality not expected to extend to regional scale
- Maximum predicted impacts to surface water quality degradation were captured in the closure snapshot



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## Wildlife

Bill Kovach – EIA Coordinator, Shell  
Canada Energy

Martin Jalkotzy – Senior Wildlife  
Ecologist, Golder Associates Ltd.



# MCFN Technical Review of Wildlife

## Key MCFN Concerns:

- The sampling and analytical procedures do not allow for quantification and objective understanding of current conditions that are required to define the success of re-establishing wildlife resources.
- Site-specific mitigation plans are required, but are not apparent.
- There is no explicit link between the assessment of effects on wildlife and the resulting effects on Traditional Resource Use.
- Shell has not demonstrated that regional planning for wildlife is being done and that it works.



## Shell's Response

- Shell believes the baseline data collected between 2005 and 2007 combined with regional data used in the assessment is sufficient to define the success of re-establishing wildlife resources
- Mitigations discussed in the EIA are general examples that Shell will use at their sites, site-specific mitigation measures will be included in future detailed designs
- The linkage between wildlife assessment and traditional resources is discussed in the TLU Assessment of the EIA
- In addition to the wildlife monitoring Shell is doing on-site, Shell is also working with regional monitoring programs (i.e. ABMI, CONRAD) to assess wildlife resources in the region.



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## Vegetation

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Canada Energy

Ryan Ancelin – Terrestrial Ecologist,  
Golder Associates Ltd.

Martin Jalkotzy – Senior Wildlife  
Ecologist, Golder Associates Ltd.



# MCFN Technical Review of Vegetation

## Key MCFN Concerns:

- Some aspects of the baseline data may not be adequate to properly understand pre-disturbance conditions. This is problematic for impact predictions, particularly relating to wetlands and burns.
- The classification of some areas as “burn” indicates a misunderstanding of boreal forest dynamics.
- There is a lack of accuracy assessment of vegetation data sources for mapping.
- There is a lack of specific details, including targets, in the monitoring program.



## Shell's Response

- AVI datasheets contain uncertainties and have limitations, but combined with air photograph interpretation and ground-truthing vegetation surveys, appropriate adjustments to underlying data were made, allowing for an accurate characterization of the Base Case LSA landscape
- Vegetation species identified in burns area are diverse and variable because they are in a state of transition. It is acknowledged that burned areas will regenerate, and species composition will change over-time with an eventual return to the pre-burn, or similar, ecosite phase or wetlands type. EIA accounts for the removal of burned areas
- Because of their unique species compositions, ecosite phases, wetlands types and other vegetation categories (i.e., burned uplands and burned wetlands) are treated as unique categories
- Accuracy Assessment was completed for the Regional Study Area (RSA) classification



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## Biodiversity

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Canada Energy

Kristine Sare – Wildlife Ecologist, Golder  
Associates Ltd.

Martin Jalkotzy – Senior Wildlife  
Ecologist, Golder Associates Ltd.



# MCFN Technical Review of Biodiversity

## Key MCFN Concerns:

- No baseline information was gathered on genetic diversity for plant species.
- The results of the species diversity assessment are too general.
- Moreover, the calculations of biodiversity potential and the understanding of changes in landscape metrics make it impossible to interpret the significance of changes to species diversity and ecological functions.
- The biodiversity analyses are not useful foundations for impact predictions or benchmarks for monitoring biodiversity.



# Shell's Response

- Shell evaluated biodiversity at three of the four levels of biological organization which is appropriate for an EIA-level assessment of Project effects at local and regional scales
- Genetic diversity is not part of the ABMI suggesting that it is not currently a practical indicator of overall biodiversity
- Landscape metric predictions are based on well established theories of landscape ecology (e.g., species-area relationship).
- Shell does not believe verification of landscape metric predictions would add to the EIA because conclusions are drawn based on predicted *changes* in landscape metrics from baseline conditions. Mitigation measures are designed to avoid or minimize these changes.
- Protocols developed by the ABMI will be incorporated into Shell's monitoring programs.



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# Closure and Reclamation Planning

Vivienne Wilson – Reclamation Coordinator, Shell Canada Energy

Bill Kovach – EIA Coordinator, Shell Canada Energy

Jennifer Barker – Golder Associates Ltd.



# Planning for Closure and Reclamation

- **Shell applies a systems approach to considering key issues for closure and reclamation planning:**
  - **What are the key issues for ecological function conditions?**
    - Drainage planning at watershed and landscape levels
    - Landform and reclamation material availability
    - Ecosite types suitable in ecoregion
  - **What are the ecological design issues?**
    - Appropriate successional stage and species addition order
    - Best functional combination of soil and vegetation
    - Traditional ecological knowledge and land use – what is most appropriate and desirable in the closure landscape?
  - **What do Guidelines and Checklists advise?**
    - Current documents – but are there best management practices or site/local information that modify how this advice is applied?
    - Future documents – revegetation manual, wetlands compensation, landform design
    - End land use and biodiversity frameworks



# MCFN Technical Review of Reclamation

## Key MCFN Concerns and Shell Response:

- **Equivalent land capability as a goal:** how will Treaty Rights be re-established?
  - Shell believes that it has used the goals and targets provided by regulators to date in an appropriate way for closure and reclamation planning. Shell looks forward to receiving Traditional Ecological Knowledge and Traditional Land Use information from MCFN that will allow us to address this question more directly. We anticipate that First Nations will be able to practice the same types of traditional activities as they do today – hunting fishing, trapping, berry picking – thus Treaty Rights are ultimately re-established through the reclamation process.
  - **Areas of traditional plant potential:** how will these be included in reclamation planning?
    - Shell plans for specific ecosites as a broad approach which reflects an appropriate level of planning effort for an EIA – planting prescriptions include traditional plants that are referred to in the EIA. Shell wants and expects traditional plants to be established on the landscape, and welcomes the opportunity to include MCFN traditional ecological knowledge.



# MCFN Technical Review of Reclamation (cont'd)

## Key MCFN Concerns and Shell Response:

- **Ecosites planned for the reclamation landscape:** why are only a few ecosites represented?
  - Because not all successional phases of ecosites are used in planning, it may be perceived that there are fewer ecosite types used in the closure landscape. Shell has used all uplands ecosite types that are present in the Natural Subregions, and has been conservative in wetlands type definition at this early stage of understanding how wetlands and peatlands can be re-established on the reclamation landscape.
- **Natural establishment of native plant species:** how will successional processes support this?
  - The focus for reclamation is establishing a functioning ecosite, capable of successional processes. Not all species are suitable for early reclamation – late successional species require specialized conditions that can only be met during maturation of the reclamation area. Over time, conditions that support natural establishment of species are expected to develop.



# MCFN Technical Review of Reclamation (cont'd)

## Key MCFN Concerns and Shell Response:

- **Monitoring against targets and benchmarks:** what kind of targets are being used, and what others may be available?
  - At the moment, Shell uses measurable targets and goals that are provided in regulatory guidelines to plan for closure and reclamation. These include the Land Capability Classification System and Forest Productivity curves. Shell will be applying Reclamation Certification Framework requirements and the upcoming Revegetation Manual as reclamation planning tools, when they become available. Benchmarks and targets need to be industry-wide to be meaningful at the landscape level, and Shell will follow the targets provided.
  - The conceptual Closure, Conservation and Reclamation Plan (CC&R) in the project application will be modified to reflect new regulatory targets and it is this evolving CC&R that we will track progress against.



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## Monitoring & Follow Up

Bill Kovach – Environmental Coordinator,  
Shell Canada Energy

Wayne Speller – Senior Project Manager,  
Golder Associates Ltd.



# MCFN Technical Review of Monitoring and Follow Up

## Key MCFN Concerns:

- The input provided by the Mikisew Cree to date is not meaningfully integrated in any part of the approval process. Consequently, the Mikisew Cree has not been allowed to contribute to the process of designing the operations, environmental and reclamation plans of the two projects.
- Neither the Approval 20809-01-00 nor the Monitoring programs and reports submitted thus far provide the necessary detail to evaluate the effectiveness of mitigating the impacts on TLU.



# Shell's Response

- FNs are consulted by proponents and the regulators as part of the development of approval conditions, which happens roughly every 10 years. There is opportunity for input as part of this process. Shell is also willing to discuss mitigations to potential impacts to MCFN aboriginal rights, as part of a negotiated agreement.
- Monitoring programs are conceptual during the application process to maintain flexibility and to allow input from regulators.
  - Conceptual monitoring programs are based on experience with Shell and other regional operators.
  - Conceptual monitoring programs will be modified to address site specific conditions during the detailed design and development of the Project.



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# Traditional Land Use & Socioeconomic Impact Assessment (SEIA)

Sue Whitley - Coordinator Social Performance, Shell Canada Energy

Mitch Goodjohn – Aboriginal Affairs and Traditional Studies, Golder Associates Ltd.

David Schaaf - Manager, Nichols Applied Management

Maarten Ingen-Housz, Principal, Nichols Applied Management



# MCFN Technical Review of Traditional Land Use

## Key MCFN Concerns:

- Until a direct assessment of Project effects on the Mikisew Cree is carried out, it is impossible to evaluate if the Project impacts to the Mikisew Cree in terms of the deprivation of Treaty Rights.
- The Project impacts on the Mikisew Cree's Treaty Rights cannot be minimized if Project impacts are not understood.



# Shell's Response

- TEK/TLU information has been collected from trappers (Aboriginal and non-Aboriginal) and other First Nations (e.g. ACFN and FMFN)
- MCFN TLU information available to us for use in the EIA included:
  - The MCFN traditional territory identified in the Suncor Voyageur hearing (2006).
  - The “Fort Chipewyan Community Profile and Attitudes and Perceptions 1995-1996” survey identified Fort Chipewyan Concerns, including MCFN.
  - During studies for the CNRL Horizon Project EIA (2002). MCFN participants indicated most of their TLU activity was in the Fort Chipewyan area and Wood Buffalo National Park and provided other information.
  - In the CNRL Horizon Project EIA (2002), MCFN members identified various concerns related to the potential for increased development.



# MCFN Technical Review of SEIA Impacts

## Key MCFN Concerns:

- **Health/medical services:** how reducing Shell's impact on the local hospital and services benefits rural health
  - Shell provides in-kind and financial contributions to organizations in the RMWB (urban and rural) as a good neighbour and responsible operator in the region. Providing land for housing, municipal infrastructure, education, and health care services are the responsibility of the appropriate public sector agencies.
- **Emergency, health and education services:** adequacy in rural communities
  - Shell has paid over \$75 million in municipal property taxes since 2003, to enable the municipal government to build and provide services to the residents of the RMWB.



# MCFN Technical Review of SEIA Impacts (cont'd)

## Key MCFN Concerns:

- **Income and social inequity:** the causes of disparity
  - The adequacy of access, coverage, eligibility and distribution of government services and infrastructure on members in a society are not questions for Shell to resolve. Similarly, Shell does not determine how income is shared or spent in society.
- **Project socioeconomic impacts:** how will MCFN members benefit
  - The benefits that the MCFN may access from this project are documented in the SEIA, and include: employment, contracts, trades training. Shell recognizes that there are barriers for Aboriginal peoples in accessing education and employment opportunities, and already works with others in the region to help identify and remove these barriers.
- **Government initiatives to address regional growth pressures:** how will MCFN members benefit
  - The adequacy of access, coverage, eligibility and distribution of government services and infrastructure on members in a society are not questions for Shell to resolve. Similarly, Shell does not determine how income is shared or spent in society.



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# TEK, Public Consultation and Community Based Monitoring

Jeremy Hrdlicka & Linda Jefferson –  
Aboriginal and Community Relations,  
Shell Canada Energy



# MCFN Technical Review of TEK & Public Consultation

## Key MCFN Concerns:

- MCFN believe that there is a lack of consultation, and have concerns with the timing of consultation that has taken place and will take place.
- MCFN don't believe that Treaty Rights are being considered, and do not believe that the EIA allows for a consideration of impacts to Treaty Rights.
- MCFN question whether the environmental impacts of more oil sands mining can be reconciled with the exercise of MCFN's Treaty Rights.



## Shell's Response

- Shell has been carrying out the procedural aspects of consultation with MCFN, with both direct and indirect Crown participation.
  - Funding technical reviews, funding offers for TEK and TLU studies, ongoing IRC and community meetings, pre EIA meetings, NNLP meetings, etc.
- Consultation is not a discrete event. Consultation is an ongoing process, encompassing the entire spectrum of the regulatory process, including EIA review, public hearings and post-hearing processes.



## Shell Response cont'd

- Consideration of Treaty Rights is a process involving Shell, MCFN and the Crown.
  - The EIA contains detailed information on potential environmental impacts. The exercise of majority of Treaty Rights is directly or indirectly related to environmental components. (i.e. the right to fish is related to impacts to aquatic resources and fish habitat).
  - Using the information in the EIA, combined with MCFN-held TEK and TLU, information on potential impacts to Treaty Rights is being provided to the Crown.



## Shell Response cont'd

- Whether socio-economic and environmental impacts are acceptable is determined by the regulators (both provincial and federal)
  - based on considering and balancing the various components of the public interest.
  - A component of this determination involves examining the potential impacts of an approved Project on the exercise of Treaty and Aboriginal Rights.
- Where there are potential impacts on the exercise of Treaty or Aboriginal Rights, it then must be determined whether or not those impacts can be justified in a manner that is consistent with the honour of the Crown, having regard to any other impacts and benefits that might arise from the project.

