



Position Paper on the Lower Athabasca Regional Plan Frameworks

Prepared by the Fort McKay Sustainability Department

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EXECUTIVE SUMMARY

The Lower Athabasca Regional Plan (LARP) and its management frameworks present issues of interest and importance to Fort McKay. The absence of meaningful consultation with First Nations throughout the development of the LARP and supporting management frameworks has resulted in incomplete and inadequate environmental management tools that do not inform strong public policy or support for Aboriginal and Treaty rights.

The LARP could be a key tool through which the Crown and its stakeholders engage in regional-focused policy development. Despite representing the major umbrella under which new policies impacting the Fort McKay First Nation are developed, the LARP was developed without due consideration to Aboriginal and Treaty rights holders in the lower Athabasca region.

Sound public interest decisions on industrial development in the Lower Athabasca Region cannot be made without explicit acknowledgement and protection for Aboriginal and Treaty rights, adequate and meaningful consultation, and an understanding and application of sound western science and traditional knowledge.

Life in Lower Athabasca Region

Fort McKay's way of life, cultural heritage and identity is inextricably connected to the natural resources and lands surrounding and connecting its Reserves, and patterns of harvesting and land use that have become integral to its identity through the generations. More and more of Fort McKay's traditional territory is being taken up and transformed by industrial development. Opportunities to practice constitutionally protected Aboriginal and Treaty rights are being impacted on a daily basis. With nine oil sands mines within a 20km radius, daily life in the community of Fort McKay is impacted by industrial noise and traffic, odours, air pollution, and dust. These are punctuated with periodic industrial spills, blasting, fires, flaring, unauthorized contaminate releases and other mishaps.

Access to hunting, fishing, trapping, and culturally significant places and natural resources is increasingly challenging and limited. Moose and Caribou, for example, are predicted to be extirpated in two-thirds of Fort McKay's Traditional Territory by 2030. Fort McKay continues to lose trap lines, culturally important harvesting areas, and accessible harvesting areas. Members must travel further and longer to circumvent and avoid industrial sites, which causes increased costs, and inhibits the exercise of treaty rights. This in turn is eroding the cultural identity and values of the community. The right to use and enjoy reserve land and engage in traditional land use activities within Fort McKay's traditional territory recognizes historical and cultural connections to specific land. Attempting to transfer those cultural practices to another territory to accommodate industrial development has significant negative impacts to culture, language, ecological knowledge and rights.

The Lower Athabasca Regional Plan, according to Alberta, is intended to manage these effects. Yet, projects continue to be approved without systems in place to manage the cumulative effects of these approvals. There are no existing or contemplated management systems in LARP to ensure a sustainable and healthy supply of fish and game and an accessible and sufficient land and resource

base. Air and water resources continue to be degraded causing further limitations on the exercise of treaty rights.

The implementation plan for LARP included completion of a biodiversity framework in 2013. A draft framework was circulated in 2014, intended for completion in “early 2015” but it is not yet completed. Fort McKay identified major deficiencies in the draft framework, particularly in the inability of the draft plan to support the protection of traditional land uses or manage impacts to these uses and associated rights. The draft framework does not include an objective to maintain biodiversity at sufficient levels to ensure aboriginal communities are able to continue to exercise Constitutional rights, and as a result, also does not include indicators, thresholds, or monitoring to demonstrate that this objective is being achieved. None of the currently proposed indicators are relevant to assessing maintenance of biodiversity in the context of Fort McKay’s rights. The framework is also reactive in that it does not monitor stressors (loss of habitat, for example), which severely limits its use as a planning or preventative tool and limits potential management responses. There is no linkage between the framework and the project assessment and approval process. It also does not address the fact that thresholds for some species (e.g. caribou) have already been exceeded.

The other framework contemplated in LARP to address terrestrial effects, is the Landscape Management Plan. This was also to be completed by 2013 but is in its early stages of development.

With respect to air pollution, regulatory approvals made in the absence of quality baseline data or appropriate methodologies, and anticipated regulatory decisions made before a comprehensive management framework is developed and generating quality data are suspect. Increasing industrial development has degraded Fort McKay’s air quality, and the community is routinely exposed to levels of pollution that have health impacts. Serious air pollution exposure events occur that directly impact the quality of life of Fort McKay members. The annual average limit under LARP’s air management plans provides an indication of the “normal” exposure to pollutants. Fort McKay’s air quality issues tend to be viewed as temporary events, for which there is no limit under LARP, and the Air Quality Management Framework does not track odours or particulate matter. More development on Fort McKay’s traditional, without comprehensive and cumulative effects management creates an environment for increased air pollution events that directly impact Fort McKay.

The Surface Water Quality Framework only addresses water quality in one river in the region, the mainstem of the Athabasca River. It includes only one monitoring location, at Old Fort, which is 150 km downstream of Fort McKay and most industrial development. This is insufficient to detect cumulative effects for much of the lower Athabasca River including tributaries that support aboriginal fisheries. Two key oil sands-related groups of compounds, naphthenic acids (NAs) and polycyclic aromatic hydrocarbons and compounds (PAHs, PACs), are not monitored and no triggers or thresholds are included for them. Monitoring frequency is too low to detect spills and reporting of monitoring data has so far lagged collection by 2 years. Therefore, the Framework cannot provide an early warning system as intended, or provide timely management responses.

The Tailings Management Framework addresses only two risks, financial and the accumulation of tailings. There are a number of other risks associated with tailings accumulation: the risks to local communities in tailing pond failure, tailings-associated air quality issues, and loss of traditional territory (including culturally important muskeg areas) that are critical to Fort McKay. Increased tailings accumulations have the potential to impair Constitutional rights by reducing lands available for the pursuit of rights, impacting travel on the land, and impacting the wildlife and fish which

support the pursuit of rights. In addition, the siting of tailings ponds has the potential to impact the community's right to enjoyment of reserve lands, as odours and dust associated with tailings treatment are reaching the community. Siting of tailings facilities is not addressed in the framework. The majority of tailings impoundments are and have been constructed on peat accumulating wetlands, an important cultural resource. While reclamation of tailings ponds is planned, the landscape will be transformed into upland boreal forest, a land type that does not have the same cultural importance. The permanent alteration of lands due to tailings ponds poses a major impact to Fort McKay's ability to pursue their Constitutional rights. The location of existing tailings ponds adjacent to a major river, increases the risks to fresh water and a fishing resource for Fort McKay.

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1 REVIEW OF THE LOWER ATHABASCA REGIONAL PLAN AND ITS ABILITY TO PROTECT CONSTITUTIONAL RIGHTS

1.1 Introduction

The Lower Athabasca Regional Plan (LARP), proclaimed in 2012, represents the Government of Alberta's ten-year plan for development in the Lower Athabasca Region. The Lower Athabasca region is home to the Athabasca Oil Sands, which houses approximately 1.8 trillion barrels of oil (LARP 2012). The LARP, enabled under the Alberta Land Stewardship Act (ALSA), aims to manage development of these and other resources by managing environmental impacts through a series of Management Frameworks and sub-regional plans. Thresholds within the Frameworks might have the force of law, and thus establish regionally enforceable ambient environmental thresholds. As such, they represent a significant regulatory tool to manage oil sands development.

The Fort McKay First Nation's Traditional Territory encompasses most of the northern Athabasca Oil Sands area portion of the LARP. As a signatory to Treaty 8, members of the Fort McKay First Nation (FMFN or 'Fort McKay') possess both Constitutional rights and rights pursuant to section 12 the National Resources Transfer Agreement (1930). Section 35 guarantees First Nations and Aboriginal peoples the rights to pursue their traditional activities.

The bulk of industrial development in the LARP region is within Fort McKay's Traditional Territory, and the community of Fort McKay is located almost in the center of the mineable zone. The intensity and scale of this development has resulted in a situation where the cumulative environmental effects are severely affecting community members' ability to pursue their traditional activities. Oil sands extraction, processing and transportation challenge community members' ability to travel on the land, has reduced air quality in Fort McKay, and has resulted in alarming reductions in moose, caribou, and fur-bearing mammal populations, on which the community rely to exercise their Constitutional rights. The community has seen changes to berry quantity and quality, increasingly frequent experiences with noise and dust, declining fresh water quality and quantity, and has lost accessible and culturally important areas. Even in areas that are not directly under the footprint of development, opportunities for traditional activities are significantly diminished, and the health and cultural and social wellbeing of the community is threatened.

While Alberta is increasingly aware of the need to manage cumulative effects, it has not created any management frameworks or policies that directly implement Alberta's duty to respect Constitutional rights and implement Treaty 8 rights or its obligation to ensure the supply of fish and game for First Nations' domestic use.

FMFN has submitted a number of requests, reviews, and letters regarding the LARP during its development, starting with a joint submission with Athabasca Tribal Council to Alberta Environment in 2007 on the Land Use Framework. FMFN continues to be engaged in development of management frameworks, and has requested a formal review of the plan itself. From its earliest submissions, FMFN outlined how the plan does not protect Constitutional rights. For example, in Fort McKay's Submission Regarding the Draft Lower Athabasca Integrated Regional Plan, 2011-2021 of June 2011, FMFN stated that the proposed plan did not protect and maintain opportunities for meaningful traditional land use and exercise of rights because:

- *All proposed conservation areas in the Plan are located at great distances (> 70 km) from Fort McKay with access impeded by current*

development sites, and therefore have little accessibility for traditional land use by Fort McKay Community members.

- *The draft LARP proposed conservation areas only overlap with Fort McKay's proposed conservation areas by 5% (see map in Appendix O, which overlays the LARP proposed protected areas with Fort McKay's proposed protected areas).*
- *The collective size of the conservation areas (22% target) proposed falls significantly short of Fort McKay's recommendation 40% protection within their Traditional Territory and the TEMFs recommended 20 to 40% protected area within the RMWB.*
- *Conservation areas proposed in the plan are not actually "protected reserves" from an ecological perspective; existing petroleum and natural gas tenure and recreational leases area allowed as are other uses such as motorized recreation and multi-use corridors.*
- *There is no analysis in the Plan that shows how these conservation areas will meet ecological objectives.*
- *More than 85% of the area that Fort McKay proposes to protect for traditional use is in the Green Area, which is designated for mixed-use and there is no limit or cap to industrial development for this area included in the Plan nor are there proposed management strategies.*
- *There is very limited discussion in the Plan regarding how traditional land-use activities will be managed and maintained.*

These comments apply equally to the approved version of LARP, which did not change materially from the draft for which the above comments were prepared.

Despite this, Alberta still assumes that the pursuit of Constitutional rights will naturally follow from the protection of the environment¹. Therefore, we submit this review and recommendations outlining FMFN's concerns surrounding LARP's ability to support Constitutional rights. In this first section, we will outline our concerns regarding the LARP in the broader regulatory context. This will be followed with reviews of the major Management Frameworks, with analyses of how or whether they protect Constitutional rights, and if not, how they can be expanded to do so more effectively.

FMFN's concerns regarding LARP involves five major issues:

1. Constitutional rights are not limited to hunting, fishing and trapping, but include access to lands to support culturally important activities, and the right to enjoy reserve lands.
2. The protection of Constitutional rights is not secured by general environmental management.
3. The LARP and its management frameworks do not protect the resources needed to exercise Constitutional rights or locations that are culturally relevant. Enabling development to occur up to the borders of reserves is further evidence that the LARP and its management frameworks

¹ June 6th, 2014 Correspondence from Scott Milligan, Executive Director, LUF Regional Planning Branch, to Alvaro Pinto, Director FMFN Sustainability Department. "Setting measurable regional targets and objectives that aim to protect water quality, air quality and biodiversity, where there were no such targets previously, helps support continued hunting, fishing and trapping for food, as does effective reclamation of disturbed land and the creation of conservation areas. While traditional activities might not be expressly mentioned in a particular portion of the LARP, that does not mean they cannot occur to the extent permitted by law, depending on the nature of the activity."

do not support opportunities to pursue Constitutional rights in reasonable proximity to Fort McKay.

4. The triggers and limits within the Management Frameworks are not intended to be criteria to be incorporated into the project approval process, but instead tools to manage environmental impacts after development has occurred. In practice they are being interpreted as planning tools.
5. The consultation process for development is limited to inviting submissions on policies and frameworks already designed by government staff, rather than meaningful consultation and intent to accommodate of Constitutional rights in land management decisions.
6. The existence of LARP is being used as surrogate for assessing, consulting and mitigating the impacts of development on Fort McKay's Constitutional rights or a project's contribution to cumulative effects. Its existence is used as a rationale for not considering the cumulative effects of new projects in project approvals or consulting on impacts to treaty rights.
7. There is no traditional land use framework or management strategies planned with the objective and tools necessary to preserve reasonable opportunities for the exercise of Fort McKay's Constitutional rights.

1.2 Definition of Constitutional Rights

In this document, Fort McKay's treaty and Constitutional rights and rights pursuant to the NRTA are collectively referred to as "Constitutional rights."

The LARP does not expressly discuss Constitutional rights except to state that consultation will occur in relation to treaty rights such as hunting, fishing and trapping, (Outcome 7), however, this is not an 'outcome' but a statement of an intention to have procedure. There are no outcomes, thresholds, objectives or strategies in LARP with respect to securing the supply of fish and game to support aboriginal sustenance nor land, access, or other matters essential to respecting and implementing Fort McKay's Constitutional rights. The terms of reference for LARP included the requirement that opportunities to exercise treaty rights would continue in reasonable proximity to First Nations' reserves but this has not been operationalized in the LARP.

1.3 Protecting Constitutional Rights Is Not Simply a Natural Outcome of Protecting the Environment

The role of the LARP in protecting Constitutional rights and its ability to protect aboriginal communities and culture is a critical issue. The absence of thresholds for traditional land allows a lack of consideration of the degree of impacts, as stated by the Shell Jackpine Mine Joint Review Panel: "the absence of a management framework and associated thresholds for TLU [traditional land use] makes it very difficult for Aboriginal groups, industry, and panels such as this one to evaluate the impact of individual projects on TLU. The Panel believes that to inform land use planning and allow better assessment of both project and cumulative effects on Aboriginal TLU, rights, and culture, a TLU management framework should be developed for the Lower Athabasca Region. The Panel recommends that Alberta develop and implement a TLU management framework for the Lower Athabasca region as a component of the LARP. The Panel recommends that the government of Alberta develop this framework with the involvement of all of the Aboriginal peoples who practice their rights in the oil sands region and who are affected by industrial development." (para 36, 2013 ABAER 011)

The cumulative environmental effects of development impact Fort McKay's members' abilities to pursue their Constitutional rights, and Alberta has divorced consultation and accommodation on these impacts on the theory that LARP manages cumulative impacts. Therefore, in our May 20, 2014 correspondence to Scott Milligan, Executive Director of the LUF Regional Planning Branch, we requested clarification on how the LARP would protect Constitutional rights. A reply from this office dated June 6, 2014 outlined a number of initiatives aimed at protecting Alberta's environment, including increasing protected areas and developing the management frameworks. This letter stated that: "setting measurable regional targets and objectives that aim to protect water quality, air quality and biodiversity, where there were no such targets previously, helps support continued hunting, fishing and trapping for food, as does effective reclamation of disturbed land and the creation of conservation areas...."

Thus Alberta fails to acknowledge its obligation to actively protect Constitutional rights and Fort McKay's ability to practice its rights within its traditional territory at locations that are meaningful and relevant. Alberta continues to approve projects that contribute to the escalation of cumulative impacts and asserts that protection of Constitutional rights is a natural outcome of the environmental protection provided by LARP and its associated frameworks. In fact, these management frameworks are too broad and general to offer meaningful protection, and are devoid of objectives and thresholds for terrestrial resources or traditional land use. And it is invalid to assume that protection of particular environmental values averaged over a large geographic area, results in the automatic protection of Constitutional rights. For example, the Air Quality Management Framework manages NO₂ and SO₂, over a large regional area, but does not manage the local air quality that affects Fort McKay, the episodic high pollution events, The framework does not manage many other air contaminants that cause health risks and do not manage compounds that cause odors. Odor-causing compounds impact Fort McKay's right to enjoyment of reserve lands, the ability to hunt on the land, and the contaminants that cause the odours, potentially impact the quality of country foods.

None of the management frameworks address access to culturally important areas, or supply of fish, game and plant resources in a reasonable proximity to Fort McKay's reserves or within culturally important areas. Conservation areas are assumed to provide locations for traditional land use, but these are relatively small, remote, and there has been no assessment as to whether these areas are useable, or contain the terrestrial and other resources necessary to enable Constitutional rights.

Finally, the assumption that reclamation will return the land to a natural state does not mean that the reclaimed lands will support traditional uses or will do so during a time period that will enable the survival of traditional environmental knowledge and cultural practices. For example, a number of tailings ponds were built on culturally important muskeg habitat. Their reclamation to boreal forest might regionally give the impression that the land has been returned to a natural state, but the muskeg will never be restored (because this is not possible based on the fact that companies have not figured out how to do it), and a mature old growth forest cannot be achieved for 80-120 years. Thus one cannot assume that protecting the environment through existing standards will automatically result in the protection of Constitutional rights; these are issues that must be dealt with explicitly.

1.4 Relationship to the Assessment and Approval of Projects

The LARP is intended to be a measurement-based tool, meaning that management actions are triggered only by environmental conditions reaching measured limits. Instead of being a proactive planning tool, the LARP reacts to changes to the receiving environment. While this is important, a more proactive planning framework would require a combination of predictive limits and modeling to estimate the impacts of different development scenarios. Most importantly, thresholds should be incorporated into the environmental assessment and approval process for projects.

Projects continue to be approved, even though there is evidence of significant adverse effects. In the Dover Project Decision 2013 ABAER 014, the AER relied on the *intention* to create wetlands policy and biodiversity framework to ameliorate or remedy the increased cumulative effects. No management framework or threshold exists within the LARP to address these significant adverse effects. Fort McKay has highlighted the inability to address cumulative effects by the LARP, or by any other section of the Integrated Resource Management System (IRMS), as a critical gap and high risk.

Environmental assessments are, according to the Environmental Protection and Enhancement Act, and EIA international standards, tools to identify potential impacts so that they can be avoided or otherwise managed. The purpose of environmental assessments of projects is denuded of usefulness when the thresholds in LARP are not required to be used to inform project assessments and approvals.

The approvals process would benefit from clearer guidelines on how to apply LARP and its thresholds and objectives in making decisions on projects. Predicted exceedances of LARP thresholds should be considered in the project assessment approval process. This would enable more robust and useful assessments and provide opportunities to avoid and manage impacts.

Bulletin 2014-28 of the Energy Resources Conservation Board states that applicants that seek approval for an activity ... that “is not permitted and is inconsistent” with the land uses established in the LARP, or activities that “may result in exceedance of a regional trigger or limit in the applicable Regional Plan” must submit a non-routine application.

Schedule F to LARP designates industrial development and hunting, fishing and trapping, “including by aboriginal peoples.” However the LARP does not resolve the fact these two land uses are incompatible. As there is no threshold for the amount of land or natural resources required for traditional land use activities by aboriginal persons, the project approval process treats all projects in these areas as “consistent” with LARP and therefore permitted and “routine”. The consequence is that development will continue to be authorized, despite the fact it displaces the other permitted use of the area: traditional hunting, fishing and trapping.

In practice, the fact that the thresholds in LARP are based on monitored results, has meant that projects are still approved, despite predicted exceedances, on the theory that when monitored levels approach a threshold, then corrective action can be taken (see for example, Shell Jackpine Mine Joint Review Panel Report, 2013 ABAER 011 at para 278.) This is so even when the potential corrective action or mitigation is not identified or assessed as to its viability.

FMFN has found that rather than protecting the environment and community members’ rights, the mere existence of LARP has instead resulted in a decreased onus for the Regulator and proponents to consider cumulative effects in their applications. As a recent example, in a Statement of Concern,

FMFN requested that “as a condition of approval that [Company] is required to develop and implement a Wildlife Mitigation Offset Plan for both key cultural species and species at risk that includes conservation offsets and comprehensive monitoring for effectiveness and that Fort McKay is consulted in the development and implementation of the plan.” In response, the company stated that “[The Company] believes that regional wildlife mitigation and monitoring is addressed through the following existing and future provincial and federal policies:

- the Lower Athabasca Regional Plan (LARP), which identifies regional conservation areas and management thresholds for monitoring cumulative effects to key resource indicators, including wildlife species;
- the recently established provincial independent monitoring agency (AEMERA), which will oversee regional monitoring of impacts associated with regional land use; and
- a provincial environmental offset program to potentially be developed under the Alberta Land Stewardship Act.”

The existence of the LARP has reduced the FMFN’s ability to consult with industry and the Crown, and in fact, removes the impetus for reaching mitigation agreements with proponents – an important mechanism for protecting Constitutional rights.

Under the assumption that the LARP exists with the intention to manage cumulative effects, every project can be approved and no limits on the timing and pace of development are necessary. The very development that causes the cumulative effects that the LARP theoretically manages, continues unabated.

1.5 Geographic Scope of Planning Obscures Local Realities

While regional planning is of utmost importance, it is important to recognize that this is simply a first step to rational land use planning that can protect Constitutional rights. FMFN’s concerns relate to the impacts within the traditional territory, which is only part of the LARP area. However, the impacts of development are disproportionately located within this territory. Thus the intensity of local impacts might be obscured by the large geographic area. As a hypothetical example, should the LARP might determine that a 2% decrease in moose population across the entire LARP region is acceptable, if this decrease is localized to Fort McKay’s traditional territory, then it will have a large negative impact on the community’s ability to pursue their Constitutional rights.

The LARP proposes sub-regional assessments and plans to help address these issues. Consultation on the South Athabasca Regional Assessment was slated to begin in the fall of 2014, while no sub-regional plan for the North – arguably the area experiencing the most development and cumulative effects – has been contemplated. We recognize that this approach might allow Fort McKay to address some local issues. However, in many consultation sessions on the LARP and its individual frameworks, we have been assured that “the next process” will be the arena in which to deal with concerns. In the meantime, project approvals continue and Fort McKay remains no more able to protect its members’ Constitutional rights. Furthermore, no matter the provisions of the sub-regional plan, they will not supersede the various management frameworks that already do not protect Constitutional rights.

1.6 Lack of Meaningful Engagement

Fort McKay has been involved in the development of the Lower Athabasca Regional Plan since the inception of the ALSA in 2007. We have been waiting since the fall of 2012 to understand how Alberta intended to engage with FMFN on the individual management frameworks. It was not until the fall of 2013 that the development of the remaining management frameworks was initiated, yet they were slated for completion by the end of 2014. This was an extremely short schedule, and combined with the lack of a defined engagement process it was unlikely that Fort McKay's engagement could be meaningful. Thus far, engagement has consisted of an opportunity to comment on Framework parameters already chosen by Government of Alberta staff, and no opportunity to discuss larger issues surrounding Constitutional rights. While some of our technical feedback has been included in subsequent drafts of individual frameworks, there remains a lack of attention to an explicit consideration and inclusion of protection of Constitutional rights as an outcome of managing cumulative effects. While we can provide technical input on all Frameworks, we have not seen in the past, and have not seen any indication that there will be, incorporation of outcomes or thresholds for land and resource management to address preservation of opportunities for the exercise of Fort McKay's Constitutional rights.

1.7 Summary

The cumulative effects of development are having significant impacts on FMFN's community members' ability to pursue their Constitutional rights. There are limited ways for FMFN to consult on these impacts. The LARP is intended to manage the Cumulative effects of development. In the vacuum of rational ways to address impacts to Constitutional rights, it has fallen on LARP to take this role. However, protecting the environment does not in itself, protect Constitutional Rights and the limited measures in LARP are applied to a large geographic that does not mitigate the impacts on the local area affecting Fort McKay. . In the sections that follow, we will evaluate the ability of existing and planned management frameworks to address Constitutional rights. We request that Alberta will develop a process for engaging Fort McKay in the ongoing management of cumulative effects on its Traditional Territory including specific strategies to protect Fort McKay's use and enjoyment of its Reserve lands and reasonable opportunities to exercise its Treaty rights.

2 AIR QUALITY MANAGEMENT FRAMEWORK

2.1 Introduction

The issue of managing cumulative effects associated with air emissions is of particular concern to Fort McKay as the community's location, and the current and planned developments within its Traditional Territories, have resulted in, and will continue to result in, air emission related cumulative impact issues. Fort McKay experiences regular poor air quality events, and has seen its air quality deteriorate significantly as a result of oil sands development. This deterioration in air quality has had a significant adverse effect on the quality of life of Fort McKay community members. The reluctance to be exposed to air of poor quality, with strong odours, and with significant particulate matter, impacts community members' abilities to pursue activities protected by their Constitutional rights. It especially affects the right to enjoy reserve lands.

Air quality impacts are a major environmental and health and wellbeing issue associated with oil sands development and a major concern for Fort McKay. The *Royal Society of Canada Expert Panel Report* (2010) [1] noted that:

"...the environmental footprint of bitumen production activities is considerable with major, air water and land dimensions. Air emissions are large both absolutely and in comparison to those associated with conventional crude oil production in the province and other industrial activities."

and that:

"Fort McKay is the First Nations settlement located amidst several major oil sands developments and is the community most vulnerable to air quality impacts from current oil sands development."

The importance of air quality in terms of quality of life is well recognized. The Federal Government [2] identifies air quality as one of the indicators of well-being in Canada and notes that:

"Air pollution has significant negative effects on human health, on the natural environment and, consequently, on economic performance."

The World Health Organization (2000) [3] indicates that:

"Clean air is considered to be a basic requirement for human health and wellbeing."

The issue of the impact of air quality on traditional land uses was addressed by the Joint Review Panel Report [4] for the Shell Jackpine Mine Expansion which noted that:

"While the Panel is satisfied that the Project will likely not contribute in a significant way to health issues related to air contaminants, the Panel believes

that perceived bad air quality and unpleasant odours could foster the avoidance of traditional use.”

The issue of air quality and health and wellbeing was also addressed in *The Royal Society of Canada Expert Panel Report (2010) [1]* which indicated that:

“...the air monitoring station in the nearby community of Fort McKay has not detected these occurrences of guidelines being exceeded, but odour is certainly recognized as a problem for this community. Although odour has often been considered a nuisance rather than a health effect, chronic odour problems become a burden on community well-being which ultimately leads to stress with the possibility of associated health effects. Resolution of the odour problems being caused by oil sands developments is clearly necessary.”

Odours, and associated airborne compounds originating from industrial operations, continue to be a major air quality issue in Fort McKay.

The Lower Athabasca Regional Air Quality Management Framework (LAR-AQMF) represents a small and very limited, but nevertheless important, first step towards addressing some of Fort McKay's air quality issues associated regional oil sands development.

The intent of this position paper is to outline the limitations of the current LAR-AQMF in terms of protecting Fort McKay's Constitutional rights, and in terms of managing air emissions and air quality, and to make recommendations as to how the LAR-AQMF could be expanded and improved in terms of addressing both Fort McKay's and the region's air quality and odour management issues.

2.2 Framework Analysis

2.2.1 The Current Framework and its Application as a Management Tool

The Lower Athabasca Regional Plan (LARP) Air Quality Management Framework (AQMF) is a regulatory tool intended to assist in the proactive management of the ambient air quality levels of NO₂ and SO₂ in the LARP. The goal is to ensure that the provincial objectives for these substances are never exceeded and that in general air quality is maintained well below objectives and limits. The AQMF indicates that it “...provides an additional component for the region in the overall air quality management system. This includes setting ambient air quality triggers and limits for nitrogen dioxide (NO₂) and sulphur dioxide (SO₂) with guidance for long-term decision making and management.” It also states that it is “...intended to add to and complement, not replace, existing policies, legislation, regulations and management tools.”

In terms of scope, the selection of NO₂ and SO₂ as initial parameters for management is appropriate as these two substances are emitted in large quantities by oil sands development and therefore represent a good starting point. Emissions of these substances also have a significant impact on regional air quality. The AQMF is structured such that current annual Alberta Ambient Air Quality Objectives (AAAQOs) for NO₂ and SO₂ are used as limits for annual average concentrations and two trigger levels below the limit are set at 1/3 (trigger level 2) and 2/3 (trigger level 3) of this annual

limit. An hourly metric of the 99th percentile of annual hourly NO₂ and SO₂ readings is also part of the Framework, and it has the same structure: a limit and two lower trigger levels which also set at 1/3 (trigger level 2) and 2/3 (trigger level 3) of the 99th percentile limits. The intent of the trigger levels is to ensure air quality management actions are taken before air quality exceeds the AAAQOs.

The Framework is “measurement based.” This approach to air quality management was first applied in the province under the CASA PM and Ozone Management Framework² for the Canada-wide standards (CWS) for PM and Ozone which was adopted as a Provincial air quality management policy (CASA, 2003)[5]. Recently the approach was adopted nationally for the new Canadian Ambient Air Quality Standards (CAAQS) for PM and Ozone [6].

The approach used in the AQMF is therefore well established and widely accepted by government, industry and non-government stakeholders. However, unless modelling predictions are also used to identify when, where and why trigger limits or limits might be exceeded, and appropriate proactive emission and development decision actions taken, the Framework is a “reactive” tool even if it has early warning trigger levels. The issue being that: if reliable modelling shows that additional development will likely result in exceedance of a level 3 trigger, should you wait for that level 3 trigger to be exceeded before taking action? The other issue is that monitoring cannot occur everywhere and therefore there might be trigger level or limit exceedances in a region that the air monitoring system doesn’t detect.

The AQMF is cited as a tool to proactively manage the cumulative effects of emissions on air and yet it doesn’t address the potential multi-pollutant effects of NO₂ in combination with O₃ and PM_{2.5}. For example at the current AQMF level 3 99% hourly trigger for NO₂ (62 ppb) combined with background regional levels for O₃ (20 ppb) and PM_{2.5} (5 ug/m³) translates to an Alberta Air Quality Health Index level of approximately 7 which is “high risk”. The single pollutant by pollutant used in the AQMF therefore does not address the cumulative impacts of air pollutants and even the level 3 trigger for NO₂ alone is not protective of health when even background levels of other air contaminants are considered.

While the AQMF is very limited in scope and application, it is based on sound principles and can be a useful tool in the management of ambient concentrations of NO₂ and SO₂ with the appropriate supporting monitoring but is in general reactive and therefore has significant limitations as a cumulative effects and proactive development planning and emissions management instrument.

2.3 The AQMF in the Context of a Comprehensive Air Quality Management System

Air quality standards and objectives, and air related environmental effects management frameworks, generally set environmental thresholds and targets, and outline how and where the thresholds/targets are to be applied and measured as well as the management actions to be taken if and when thresholds/triggers are exceeded. Thresholds/triggers can be based on measurement, modelling or both. Such frameworks are generally intended to address cumulative effect issues associated with multiple developments/stressors on a long temporal and large spatial scale.

The AQMF outlines the elements of a cumulative effects management framework, which are:

- indicator selection
- triggers and limits for the indicator
- monitoring and/or modelling of indicator
- action if necessary based on triggers and measured/model results.

Fort McKay was consulted during the development of the LARP AQMF and provided detailed reviews of drafts of the Framework. In general, Fort McKay supported the management approach, and with some caveats, the triggers/limits used in the Framework. However, Fort McKay's recommendations regarding parameters for measurement were not reflected in the final draft.

The principle concern with the AQMF is that it is too limited in scope and lacks many of the elements necessary to be an effective air quality management tool. These concerns can be categorized as those relating to:

1. Application relative to other regulatory tools
2. Adequacy of current limits and triggers
3. Management responses
4. Aboriginal engagement

2.3.1 Application of the AQMF Relative to Other Regulatory Tools

As noted above, the AQMF indicates that it is: "...intended to add to and complement, not replace, existing policies, legislation, regulations and management tools." In its review of, and input into, drafts of the AQMF, Fort McKay also supported this context for the AQMF i.e. that it is not a stand-alone instrument for managing the potential cumulative effects associated with NO₂ and SO₂ emissions. Despite the fact that it is a "measurement" based tool, it is still occasionally being interpreted by the AER and proponents as a substitute for predictive tools and the principles of keeping clean areas clean and pollution prevention. It is therefore a concern of Fort McKay's that the AQMF is now being given a larger policy role than was originally intended. For example the Joint Review Panel Report [4] for the Shell Jackpine Mine Expansion stated that:

"The Panel stresses the importance of the air quality framework as being key to limiting the cumulative effects on the region's airshed."

and

"The Panel believes that the LARP air quality management framework provides an appropriate mechanism for managing emissions to avoid exceedances and associated health effects. "

This perspective is contrary to the AQMF itself which affirms the provincial environmental principles of:

- *pollution prevention through the application of best available technology economically achievable*
- *emission minimization through best management and control practices, and*
- *continuous improvement and keeping clean areas clean,*

which are the primary tools for managing emissions and preventing or minimizing significant cumulative impacts. In addition to these principles ESRD (2013) [7] outlines how emission modelling and AAAQOs are to be used in project approval and cumulative effects assessments.

The following excerpts from ESRD (2013)[7] are provided to support this position:

“Alberta Environment and Sustainable Resource Development has a number of key policies that guide the management of industrial emissions to the atmosphere, as follows:

- *industrial facilities must be designed and operated to prevent pollution;*
- *each industrial source must use technology that allows for a high level of control of emissions as outlined in an applicable source emission standards document or approval;*
- *residual emissions must be dispersed through a stack designed to keep ambient concentrations below ambient air quality objectives;*
- *cumulative impacts from multiple sources must be assessed and remain below the assimilative capacity of the airshed as defined by ambient air quality objectives;*
- *industrial operators are generally responsible for monitoring source emissions and the resulting ambient concentrations around their facilities as specified in their approvals, to demonstrate compliance with emission limits and ambient air quality objectives, and*
- *industrial operators must report, or cause to be reported in cooperation with others as part of an air quality monitoring zone, the monitoring results to the regulatory agency.*

and

“Dispersion Modelling

Dispersion models are tools that link residual source emissions (after pollutant minimization) to ambient air concentrations in a given area. Once an emission limit, based on technology capability as outlined in an approval, has been proposed for a particular source, computer models are used to determine the required stack height or source release conditions to disperse residual substances such that the concentrations resulting from all cumulative emissions in the area remain below the Alberta Ambient Air Quality Objectives. Dispersion modelling is also used in the siting of ambient air monitoring stations in the vicinity of industrial facilities, and takes into account the cumulative impact of all other sources emitting similar substances in the area.”

These principles and policies clearly indicate that emission minimization and modelling are the initial tools to be used in assessing project and cumulative effect air emission effects and in making project development approval decisions.

The current AQMF is therefore the “*after approval*” tool used to assess whether or not development decisions and related anticipated/predicted air impacts are what was expected with respect to impacts on ambient NO₂ and/or SO₂ levels.

2.3.2 Air Quality Limits/Triggers

The use of the AAAQOs as the basis for the NO₂ and SO₂ limits and management triggers is a concern since ESRD (2013) [7] acknowledges that “[a]s the ambient air quality objectives are in many cases not entirely protective of human health and the environment, efforts are made to improve air quality in order to stay well below ambient air quality objectives and if the circumstances warrant, to lower the ambient air quality objectives over time.” This is true of the AAAQOs for NO₂ and SO₂ which are generally well above WHO (2000, 2005) [3, 8] health based ambient air quality guidelines which might themselves not even be fully protective of health. Table 2-1 compares the AAAQOs for NO₂ and SO₂ to the WHO 2000 and 2005 Guidelines. Based on the WHO guidelines adverse effects would be expected at the level 3 trigger levels and in some cases between the level 2 and level 3 trigger levels. As noted above in the comments under “Current Framework” the level 3 trigger for NO₂ is a “high risk” level in terms of the Air Quality Health Index.

Therefore while the approach for managing air quality in the AQMF has merit, the limits and trigger levels in AQMF are such that actions are being triggered after air quality levels are at adverse effect levels rather than before these levels are reached which is not protecting human health or the environment.

Table 2-1: A Comparison of the AAQOs and WHO Guidelines for NO₂ and SO₂

Parameter	Averaging Period	AAAQO (µg/m ³)	WHO (µg/m ³)
Nitrogen Dioxide (NO ₂)	1 hour ¹	300	200
	Annual	45	40
Sulphur Dioxide (SO ₂)	10 minute	No limit (1 hour limit translates to approximately 750) ²	500
	1 hour ¹	450	No Limit (10 min limit translates to approx. 300) ²
	24 hour	125	20
	Monthly	30	No limit
	Annual	20 ³	10 ³

¹ The hourly values are used in the AQMF to calculate the 99th percentile of hourly data limits and level 2 and 3 triggers.

² Based on averaging period conversion approach recommended by: Ontario Ministry of Environment. (2009). Air Dispersion Modelling Guideline for Ontario - Guidance for Demonstrating Compliance with The Air Dispersion Modelling Requirements set out in Ontario Regulation 419/05: Air Pollution – Local Air Quality.

³ These values are based on vegetation protection

2.3.3 Management Response/Actions

The AQMF lists a number of steps that will be followed when limits or trigger levels are exceeded. These are:

- verification,

- preliminary assessment,
- investigation,
- mitigative management actions,
- oversight/delivery of management actions,
- evaluation, and
- communication

The AQMF also lists a number of possible management actions for each of the different exceedance levels i.e. limit (level 4), level 3 trigger and level 2 trigger.

While these steps and the possible management actions listed in the AQMF are appropriate there is an issue of timelines and development logistics. For example the exceedance of a limit or trigger level could take over a year to verify and then the development of an action plan another year or two. In the intervening 2 to 3 years a number of new projects could have commenced operation and other projects could have been approved which complicates management planning and presents challenges for companies in terms of environmental planning. The only way to address this issue is to use emission minimization and modelling predictions to guide project approval decision in order to minimize the potential that trigger levels are exceeded.

2.3.4 Aboriginal Engagement

The AQMF has provision for First Nations and Métis engagement at a number of stages in the assessment of trigger level or limit exceedances and the development of associate management actions. These include:

“Investigations of industry stations that exceed ambient air quality triggers (annual average or 99th percentile of hourly data) could involve the identified facilities and might involve forecasting trends and understanding future operational and development plans. Where such stations are on First Nations or Métis traditional lands, the appropriate communities would also be notified.”

“When community monitoring stations are influenced by industrial sources ... In such cases, all relevant stakeholders, and First Nations and Métis peoples would be involved.”

“Level 2 – Alberta Environment and Sustainable Resource Development will define implementation timelines, tools and parties including First Nations and Métis peoples to be involved in management actions by considering the ambient air quality levels and magnitude of trends as well as the type, location and number of air monitoring stations measuring those trends.”

“Level 3 - Identify Pressures and Measures Required to Prevent Reaching Air Quality Limits

- *Identify stakeholders, First Nations and Métis roles and inclusion*

- *Identify urgency of and need for measures*
- *Identify, if required, measures and appropriate tools for managing ambient air quality*
- *Implement identified action*
- *Communicate to the public, stakeholders, First Nations and Métis peoples*

“Level 4 - Alberta Environment and Sustainable Resource Development retains the responsibility to implement an emissions-reduction plan for the affected area. This will include identifying the parties including First Nations and Métis peoples to be involved in the plan as well as the timelines required to achieve the reductions necessary to get below the air quality limits.”

Regarding the management actions required when a trigger/limit is exceeded and AQMF states that it:

“...includes the Government of Alberta management response and describes the management tools from which regulators, in collaboration with stakeholders, First Nations and Métis peoples where applicable, can select appropriate place-based management actions to address specific circumstances.”

The AQMF notes that management responses under the Framework do not replace other responses that might be taken as part of ensuring compliance under the environmental regulatory system. The AQMF therefore contains commitments to engage with First Nations and Métis peoples in the assessment and management actions phases of the Framework which is a strength of the AQMF. The implementation and adequacy of these commitments should be evaluated with First Nations as the AQMF starts to be implemented based on 2012 and 2013 regional monitoring results.

2.4 Proposed Changes

The existing AQMF needs to be expanded significantly if it is to be an effective and comprehensive cumulative effects management tool for air emission and air quality management purposes.

Possible improvements and additions to the AQMF include:

1. **Context:** Additional clarification needs to be provided on when and how the AQMF is to be used in individual project and cumulative development effect assessments and in project approval decisions and regional development planning. There is currently considerable confusion on the role of the AQMF in project and cumulative development effects assessments and application decision making.
2. **Measurement and Modelling:** In addition to “*measurement based*” management criteria the AQMF need to include “*modelling based*” triggers/limits and associated modelling based management responses. Without this addition the AQMF cannot be fully used as a development planning and project approval decision tool or a cumulative effects assessment tool.
3. **Air Quality Parameters Covered:** The list of air quality parameters needs to be expanded considerably if the AQMF is to be an effective air quality management tool. Additional

parameters include: PM; O₃; TRS/H₂S; CO; THC; BTEX; and other selected VOC as well as some PAHs e.g. naphthalene. (Note: the AQMF (page 5) provides a listing of many of these same compounds).

4. **Air Contaminant Deposition Effect Issues:** The AQMF lists a number of regional and provincial frameworks that are effects based, i.e.
 - a) Acid Deposition Management Framework (Alberta Environment, 2008),
 - b) CEMA Acid Deposition Management Framework (CEMA, 2004),
 - c) CEMA Ozone Management Framework (CEMA, 2006), and
 - d) CEMA Interim Nitrogen (Eutrophication) Management Recommendations and Work Plan (CEMA, 2008).

These types of Frameworks/Plans need to be incorporated into the AQMF if the AQMF is to be a comprehensive regional cumulative effects management Framework.

5. **Air Quality Triggers/Limits:** The AQMF bases its triggers and limits on the AAAQOs. As noted above these are not fully protective of health and/or the environment. Fort McKay is in the process of establishing, through by-law, Fort McKay Ambient Air Quality Permissible Levels (AAQPLs) that will apply to its Reserve Lands. Fort McKay would expect that these AAQPLs will be incorporated into future versions of the AQMF with the triggers and limits for air quality on Fort McKay's Reserve Lands based on the AAQPLs.
6. **Odours:** Odours are a major air quality issue in the Regional Municipality of Wood Buffalo and to Fort McKay. This could be a cumulative effects issue covered by the AQMF. If not then a separate stand-alone odour management framework needs to be developed.
7. **Stakeholder/Community Engagement:** There has to be a formalized process for First Nation engagement in the ongoing development and expansion of the LARP AQMF. Since it is Fort McKay residents that live with the air quality and air quality related environmental effects associated with oil sands development, it is essential that Fort McKay have a meaningful role in both selection of the issues managed through the AQMF and the actual triggers/limits and approaches used to manage those issues.
8. **Constitutional Rights:** The Framework needs to specifically acknowledge First Nation rights to the use and enjoyment of Reserve and Traditional Lands and to outline how the AQMF is considering and addressing potential air emission related impacts on these rights.

It is suggested that a multi-stakeholder forum like CEMA be used to set priorities for additions to the AQMF and that CEMA, or a CEMA like process, be used to actually develop the triggers, limits and the associated management approaches. This is a proven process that has produced excellent frameworks e.g. the CEMA Acid Deposition Management and Ozone Management Frameworks.

2.5 References

- [1] Royal Society of Canada Expert Panel. 2010. Environmental and Health Impacts of Canada's Oil Sands Industry- Report. December 2010
<http://www.rsc.ca/documents/expert/RSC%20report%20complete%20secured%209Mb.pdf>
- [2] Employment and Social Development Canada. Indicators of Well-Being in Canada.
<http://www4.hrsdc.gc.ca/.3ndic.1t.4r@-eng.jsp?iid=62> (visited July 10, 2014)
- [3] WHO Air Quality Guidelines for Europe (2nd edition, 2000)
(<http://www.euro.who.int/document/e71922.pdf>)

- [4] Report of the Joint Review Panel Established by the Federal Minister of the Environment and the Energy Resources Conservation Board Decision 2013 ABAER 011: Shell Canada Energy, Jackpine Mine Expansion Project, Application to Amend Approval 9756, Fort McMurray Area, July 9, 2013. Catalogue No. En106-119/2013E-PDF, ISBN 978-1-100-22455-8. <http://www.ceaa-acee.gc.ca/050/documents/p59540/90873E.pdf>
- [5] CASA. (2003). PM and Ozone Management Framework. The Clean Air Strategic Alliance. <http://casahome.org/PastProjectsAwards/PMOzoneManagementFramework.aspx>
- [6] CCME. Air Quality Management System. http://www.ccme.ca/ourwork/air.html?category_id=146
- [7] ESRD. (2013). Using Ambient Air Quality Objectives in Industrial Dispersion Modelling and Individual Industrial Site Monitoring. Alberta Environment and Sustainable Resource Development. October 1, 2013. <http://esrd.alberta.ca/air/objectives-directives-policies-and-standards/documents/8114.pdf>
- [8] WHO Air Quality Guidelines. Global update 2005. Particulate matter, ozone, nitrogen dioxide and sulfur dioxide. <http://www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications/pre2009/air-quality-guidelines.-global-update-2005.-particulate-matter,-ozone,-nitrogen-dioxide-and-sulfur>.

3 SURFACE WATER QUALITY MANAGEMENT FRAMEWORK

3.1 Introduction

Healthy fish populations and good water quality in lakes and rivers are integral to the pursuit of traditional aboriginal activities. Clean and abundant fresh water, not just in the Athabasca mainstem, but also in the tributaries, fens and bogs, support Fort McKay community members' ability to access and engage in water-related activities across the landscape of their traditional territory. The practice of traditional activities, such as navigation and fishing, is a constitutionally-protected aboriginal right³ (Nowlan and Bakker 2010).

3.2 Constitutional Rights Related to Water

Fort McKay understands that the Lower Athabasca Regional Plan (LARP) is the Alberta government's reference point for concerns about cumulative effects in the region. Alberta appears to assume that, by planning to protect the environment, Constitutional rights are inherently protected. A critical examination of this assumption indicates that Constitutional rights were not considered in the development of the LARP Surface Water Quality Management Framework (SWQMF; the "Framework"). In fact, the words "aboriginal", "treaty" and "rights" are not mentioned at all in the Framework (AESRD 2012). Our review of the Framework indicates that, not only does it fail to protect Constitutional rights, but also it is not designed to detect cumulative changes to water quality in much of the lower Athabasca River.

Despite the *Report of Commissioners for Treaty No. 8*, which states that the people "would be as free to hunt and fish after the treaty as they would be if they never entered into it,"⁴ Fort McKay members are not free to hunt and fish where they historically were able to in their traditional territory. Three key reasons are (1) that large tracts of land are inaccessible to them owing to the presence of oil sands projects, (2) that they fear the health effects of consuming large-bodied fish that might have escalating levels of contaminants in their tissues, and (3) that rivers, streams and/or their watersheds are being mined out (e.g. large portion of the Muskeg River). In essence, the people do not trust that fish in the Athabasca River and its tributaries are safe to eat, so they must travel further away to pursue this traditional activity.

3.2.1 Surface Water Quality Management Framework

The Framework focuses on the Athabasca River from upstream of Fort McMurray (at Grand Rapids) to the Athabasca River Delta, and sets water quality triggers and limits for 38 indicators measured at the Old Fort monitoring station (AESRD 2012). The intent of the Framework is to "proactively manage cumulative effects to surface water quality in the Lower Athabasca Region." It is a policy document that complements but does not "replace existing policies, legislation, regulations and management tools."

³ Aboriginal rights are those rights held by aboriginal peoples that relate to activities that are an element of a practice, custom, or tradition, integral to that aboriginal group's distinctive culture.

⁴ http://www.treaty8.ca/documents/Treaty8_1899.pdf

The overall objective of the Framework is to “ensure that water quality changes resulting from human development do not compromise the protection of aquatic life and other water uses.” It is expected to fill a key gap for management of cumulative changes in water quality within the lower Athabasca River. To track such changes in water quality in the Athabasca River, AESRD has established the following:

- Historical water quality baseline records (data from the Old Fort monitoring station for 1988 to 2008)
- Water quality triggers (points at which a significant change from baseline can be detected⁵)
- Water quality limits (based on guidelines⁶ established by Alberta or the Canadian Council of Ministers for the Environment)

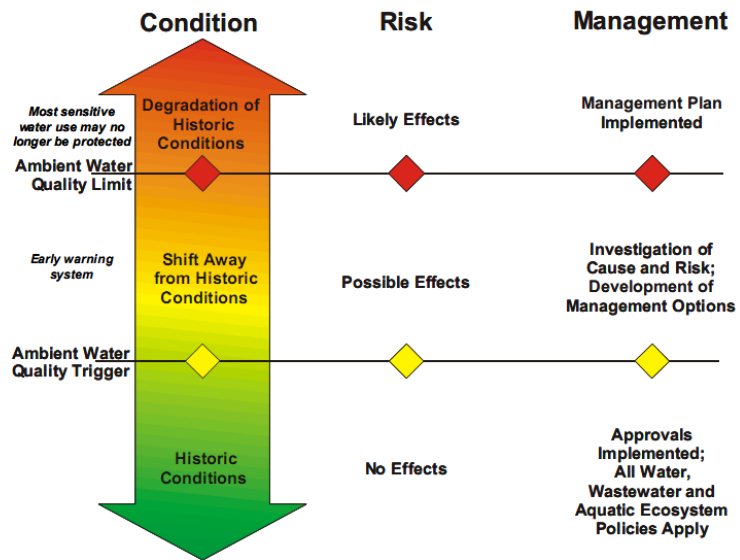


Figure 3-1: Schematic of the Water Quality Components of the LAR WMF

As shown in the diagram to the right, three colour-coded water quality conditions were established to depict the level of risk based on results obtained. The plan is to monitor and manage water quality within the “yellow” early warning condition to avoid approaching the “red” degraded water quality condition. All monitoring occurs at the Old Fort monitoring station, approximately 150 km downstream of Fort McKay. A management response is required if triggers or limits are exceeded at this remote station.

3.3 Analysis of Surface Water Quality Management Framework

3.3.1 Overview

Fort McKay made comments on the approach, sampling program, monitoring locations and reporting during the development of the Framework. While we agreed with the approach to limits and triggers, we had immediate concerns with the very long distance downstream of the single monitoring station that would activate a management response if triggers or limits were exceeded. One of Fort McKay’s **key requests** was that at least one additional monitoring station be located closer to the community and downstream of development to permit evaluation of cumulative effects. This request was denied by Alberta.

⁵ Triggers are intended as warning signals. They are based on change from historical ambient concentrations.

⁶ Limits based on guidelines should protect existing and future water uses (industrial, agricultural, recreational and aesthetics, drinking water, and aquatic life).

Other requests from Fort McKay that were not incorporated in the Framework were as follows:

- Location and Timing – Combined with adding sites to the Framework, implement the comparison of monitoring results to the data from other organizations (JOSM/AEMERA or industry). For example, comparison of data from JOSM sites M5 (Athabasca above Mackay R), M6 (Athabasca below Mackay R) or M7 (Athabasca below Ells R) would be particularly relevant.
- Implement the harmonization of the surface water and groundwater frameworks to make it easier to link any surface water-groundwater interactions (see Groundwater position paper).
- Implement the inclusion of sediment sampling and semi-permeable membrane device (SPMD) sampling, especially for oil sands-related contaminants that bind to particulates, such as polycyclic aromatic hydrocarbons (PAHs).
- Provide details about how government would identify sources and *promptly* rectify any issues. With the time lag for analysis, reporting and management response, it is not practicable to connect effect with cause or to mitigate any impacts in a timely fashion.

These are among the requests discussed below to support Fort McKay's submission, which requests that Alberta honour its commitment to meaningfully consult and accommodate on Constitutional rights.

3.3.2 Location and Timing of Data Collection and Reporting

Fort McKay's position is that use of the single monitoring station at Old Fort, which is 150 km downstream of Fort McKay and most industrial development, is insufficient to detect cumulative effects for much of the lower Athabasca River. AESRD is aware that numerous inflowing tributaries from undeveloped landscapes will dilute any contaminated inflows from industrial development further upstream, where cumulative effects are more likely to be detected. It is possible that many triggers, and possibly guideline-linked limits, have been or will be exceeded just downstream of current industrial development. This is especially true where reportable "incidents" or unexpected discharges occur. The recommendation by Fort McKay *and others* to include other monitoring stations further upstream (as reported in consultation summaries: AESRD 2011a, 2011b) was not adopted by Alberta.

Fort McKay requires assurance that the environment is protected, that governments and other responsible organizations are monitoring the water in a scientifically-defensible manner, and that monitoring results are provided in a time frame that allows effective mitigation. Mitigation that follows years after an incident or unexpected release might be ecologically irrelevant, depending on the severity and longevity of the exceedances. JOSM/AEMERA are monitoring the Athabasca River at several other locations, providing a wealth of historical water quality data to develop triggers and limits for these relevant upstream locations. Because industry-related contaminants are much diluted at Old Fort relative to locations near the main sources of seepage and other industrial inputs, the current framework is inadequate to protect against water quality impacts on lands traditionally accessed by Fort McKay community members, including waters that flow through the community and reserve. A number of active water quality stations on the Athabasca River could easily be incorporated in the LARP monitoring program.

Not only is monitoring required under the LARP sparse geographically, but also the current frequency of monitoring is insufficient to capture potential unplanned releases. If there were a tailings spill or other incident, the timing of sampling at Old Fort might result in the Province

missing the plume. Furthermore, the current time requirement regarding the reporting of results is such a long interval that if contaminants were detected in the plume, it might take years for this to be publicly disclosed. Based on the results published for up to 2012 (as of October 2014), the timeline for reporting and evaluation currently lags two years behind sampling. This means that the reaction time for a management decision could be delayed for up to three years, at which time the source of contamination might be either long gone or potentially increased.

Given the time lags for data release, the triggers can hardly be considered the “early warning system” they are indicated to be in the Framework for the lower Athabasca River⁷ (AESRD 2014a, 2014b). Responsible environmental protection assumes water quality reporting, evaluation and management response will proceed much more quickly than it currently does. Experience with the Regional Aquatics Monitoring Program indicates that the production of timely annual reports on quality-controlled regional river aquatics data is entirely feasible.

3.3.3 Surface Water Linked to Groundwater Monitoring

Fort McKay previously suggested that surface water and groundwater sampling and reporting should be integrated and not considered as detached and isolated monitoring programs. Near-surface groundwater, including potential tailings pond seepage, is closely linked with surface waters. Any monitoring reports should attempt to harmonize the results of near-surface groundwater and surface water quality wherever possible. Related to the point above about the location of water sampling sites, a surface water sampling site would be best located near-downstream of groundwater sampling sites. This is particularly important when such sites include wells screened in aquifers (i.e. open to the aquifer) that are believed to be linked to nearby surface water. Fort McKay expects surface-water groundwater interactions be a component of the cumulative effects assessment within the LARP (refer to Groundwater position paper).

3.3.4 Trigger and Limit Parameter and Collection Media Gaps

Two key oil sands-related groups of compounds are not monitored under the LARP at Old Fort: naphthenic acids (NAs) and polycyclic aromatic hydrocarbons and compounds (PAHs, PACs). Alberta indicates that the reason is that “important science gaps exist” with respect to quantifying these substances in water (AESRD 2012), yet NAs are routinely monitored by RAMP, JOSM, and even at other AESRD sites on the Athabasca River, and, PAHs could readily be quantified in sediments or SPMDs, which are also not included in sampling at Old Fort.

To highlight that sampling for these key parameters is possible, note that AESRD completes monthly sampling for NAs using the best available methods at all three AESRD stations on the lower Athabasca River (at Fort McMurray, Firebag, and Old Fort; AESRD 2012). Moreover, monthly sampling for PAHs has also been implemented at all three stations, and complementary approaches, such as the use of SPMDs, have been explored to address the frequent non-detects for these indicators in water samples. Despite this, the findings of this relevant monitoring program remain sequestered from the rest of the data accumulated under the LARP at Old Fort. *Customary good science would suggest that where other supporting information is available, it should be considered, yet this is not the case with the LARP program.*

⁷ http://esrd.alberta.ca/focus/cumulative-effects/cumulative-effects-management/management-frameworks/documents/LARP_FactSheet_SurfaceWaterQuality.pdf

AESRD stated in 2012 that “once a reliable dataset for NAs and PAHs has been compiled for the Athabasca River stations at Old Fort and upstream of the Firebag, triggers will be developed.” In the meantime, AESRD states that it will continue to evaluate the incoming PAH and NA data and will work to fill the science and data gaps that currently limit the inclusion of these parameters in this Framework. Fort McKay requests an immediate update and re-evaluation of inclusion of triggers and limits for these substances in the LARP monitoring program.

3.4 Proposed Changes

In order to effectively manage surface water quality to support the pursuit of Constitutional rights, we recommend that Alberta undertakes the following: Provide a summary of management actions taken following the LARP trigger exceedances that occurred in 2012; Provide to Fort McKay more current laboratory results for Old Fort (e.g. 2013, 2014), including an explanation of what it might take to obtain reports sooner than they are currently provided. Provide a description of potential specific mitigation actions that might reasonably be expected should serious exceedances be detected in the Athabasca River by any regional monitoring program (JOSM/AEMERA) or through LARP. Include in LARP additional stations closer to development (including key Athabasca River tributaries), locations where surface water might be influenced by degraded groundwater, tailings seepage, or can be integrated with existing groundwater monitoring; such stations are likely readily available and operational now; Consider and discuss with Fort McKay the benefits of JOSM/AEMERA and AESRD’s current water quality, sediment quality, and SPMD results for the Athabasca River closer to development, together with the LARP’s more distant sampling at Old Fort. Some of these other programs have similar reporting and sampling frequencies, which makes comparisons particularly appropriate. Include oil sands-associated chemicals, such as naphthenic acids, on the list of trigger and limit substances for water quality. Add sediment quality monitoring and SPMD sampling (including triggers and limits) at the Old Fort station and at any relevant upstream stations (e.g. M5, M6, M7). These media would provide detectable levels of oil sands-associated substances, such as PAHs and PACs. Implement some “real-time” monitoring system dataloggers at Old Fort and at any upstream stations.⁸

This section highlights some of the key issues that might strengthen a surface water quality monitoring framework for the lower Athabasca River. While it is commendable that efforts have been made to manage cumulative effects in the region, a more comprehensive and scientifically robust plan that includes adopting the suggestions provided here would demonstrate that the Province has given meaningful consideration to First Nations who are affected, and is committed to effective measures to protect water resources in the oil sands region.

3.5 References

Alberta Environment and Sustainable Resource Development. 2011a. Phase 3 Stakeholder Consultation Summary – Lower Athabasca Regional Plan. Edmonton, Alberta. 26 pp. Online at: <https://landuse.alberta.ca/LandUse%20Documents/Phase%203%20Stakeholder%20Consultation%20Summary%20Lower%20Athabasca%20Regional%20Plan%20-%202011-08.pdf>

⁸ Physical water quality monitoring data (at 30-minute time intervals) from M9 (Athabasca River 27 Baseline above Old Fort) for the period of July to October 2013 are available for pH, specific conductivity, water temperature, dissolved oxygen, turbidity, and water depth. These parameters are also available for the period between March and July 2012 near the outlet of three tributaries in the Lower Athabasca watershed: the Ells River (EL1); the Firebag River (FIRWSC); and the Steepbank River (STBWSC).

- Alberta Environment and Sustainable Resource Development. 2011b. Phase 3 Workbook Summary - Lower Athabasca Regional Plan. Edmonton, Alberta. 74 pp. online at:
<https://landuse.alberta.ca/LandUse%20Documents/Phase%203%20Workbook%20Summary%20Lower%20Athabasca%20Regional%20Plan%20-%202011-08.pdf>
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- Alberta Environment and Sustainable Resource Development. 2014a. Land-use framework regional plans – progress report – a review of our progress in 2013. Edmonton, Alberta. 28 pp. online at <http://esrd.alberta.ca/focus/cumulative-effects/cumulative-effects-management/frameworks/documents/LARP-AnnualProgressReport-2013.pdf>
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4 DRAFT BIODIVERSITY MANAGEMENT FRAMEWORK

4.1 Introduction

Alberta initiated the development of the draft Biodiversity Management Framework (BMF) in 2014 as part of the implementation of the Lower Athabasca Regional Plan (LARP). This section summarizes the draft BMF issued in November 2014; highlights the benefits and deficiencies in the draft BMF; and describes the requirements to achieve Fort McKay's expectations for a BMF that addresses the needs of the Community and ensures maintenance of biodiversity within Fort McKay's Traditional Territories to provide opportunities for Community Members to exercise Constitutional rights.

Conservation and maintenance of biodiversity in Fort McKay's Traditional Territory is essential to ensure sufficient biological resources and intact cultural landscapes are available to support the pursuit of Constitutional Rights by members of Fort McKay First Nation. Jean L'Hommecourt, a Traditional Knowledge Holder and Active Land User from Fort McKay First Nation, describes the importance of biodiversity to Fort McKay:

*"Our homeland offers a whole way of life for our First Nations and Métis peoples. The plants and animals depend on the land for survival, and in turn the people depend on the plants, animals, and water bodies such as lake, rivers, creeks, streams and wetlands for sustaining our culture."*⁹

Biodiversity supports both the spiritual and cultural well-being of the Community. Ability to pursue traditional activities ensures cultural transmission, resiliency and community cohesiveness. Biodiversity is a crucial component of maintaining the Community's health and well-being. In Fort McKay's Traditional Territory, land-use planning is thus not just about land use (i.e., hunting, fishing, and trapping) but it more broadly involves heritage, culture, spirituality, and social well-being which contributes to a cultural landscape or homeland. Homeland values are not on the same plane as commercial, recreation or even natural values, since they address the essence of Aboriginal right.

4.2 Draft Biodiversity Management Framework Analysis

Alberta describes the BMF as "a new cumulative effects management approach for key indicators of biodiversity."¹⁰ The information provided to Fort McKay for review in August and November 2014 provides a high-level overview that defines biodiversity and services biodiversity provides to Albertans, describes that context of the biodiversity management frameworks as a component of the Land-Use Framework, and summarizes the following components of the draft BMF for the Lower Athabasca Region:

- Objectives

⁹ SENES Consultants Ltd. 2011. An Aboriginal Road to Reclamation A Study Summary for Aboriginal Communities of the Oil Sands Region. Prepared for the Reclamation Working Group of Cumulative Environmental Management Association. Fort McMurray, AB.

¹⁰ Alberta Government. 2014. Lower Athabasca Regional Plan Strategies Biodiversity Management Framework for the Lower Athabasca Region. February 2014. ISBN: 978-1-4601-1528-2 (Printed Version).

- Indicators selection
- Identification of threshold values
- Management response

Alberta defines biodiversity as:

“Biodiversity or biological diversity is defined as the assortment of life on Earth – the variety of genetic material in all living things, the variety of species on Earth and the different kinds of living communities and the environments in which they occur. Biodiversity exists throughout Alberta, both on land and in water, and includes all organisms, from microscopic bacteria to more complex plants and animals.”¹¹

Alberta identifies the following services provided by biodiversity as “critical to the well-being of current and future generations of Albertans:”

- Supporting services – nutrient cycling and dispersal, seed dispersal
- Provisioning services – food, fibre, fresh water, raw materials, energy
- Cultural services – spiritual, recreational, esthetic, cultural benefits
- Regulating services – carbon sequestration, climate regulation, soil formation

As part of this section describing services provided by biodiversity, Alberta states:

“The Government of Alberta is committed to working with First Nations and Métis to consider how the exercise of constitutionally protected rights to hunt, fish and trap for food can continue to occur within reasonable proximity of First Nations’ main population centres.”¹²

4.2.1 Land-Use Framework – Context for Biodiversity Management Framework

Alberta proposes to develop biodiversity management frameworks for each of the regional planning areas to enable comparisons across regions of the key biodiversity indicators. The biodiversity management frameworks within each planning region are expected to provide the regional context for decisions about future activities and management of existing activities in each of the planning regions.

Within each region, regional biodiversity objectives will be included in the biodiversity management frameworks to support management of cumulative effects of development on the environment. The BMF for the Lower Athabasca Region is being developed to support meeting Outcome 3 defined in the LARP as “Landscapes are managed to maintain ecosystem function and diversity.”¹³ Monitoring and reporting on the performance of key indicators and defined threshold

¹¹ Alberta Government. 2014. Lower Athabasca Regional Plan Strategies Biodiversity Management Frameworks for the Lower Athabasca Region. August 2014.

¹² Alberta Government. 2014. Lower Athabasca Regional Plan Strategies Biodiversity Management Frameworks for the Lower Athabasca Region. August 2014.

¹³ Alberta Government. 2014. Lower Athabasca Regional Plan Strategies Biodiversity Management Frameworks for the Lower Athabasca Region. August 2014.

values will inform planning and decision-making and help determine if the biodiversity objectives are being achieved.

Alberta's LARP Team defined four objectives for the draft BMF:

- "Biodiversity and healthy, functioning ecosystems continue to provide a range of benefits to Albertans and communities in the region, including First Nations' continued ability to exercise constitutionally protected rights to hunt, fish and trap for food;
- Species at risk are recovered and no new species require at risk designation; and
- Long-term regional ecosystem health and resiliency are sustained with consideration of natural disturbance patterns and processes."¹⁴

The presentations to Fort McKay by the LARP Team on September 4, 2014, included additional descriptions of the purpose of the draft BMF which were not specifically defined as objectives:

- "A systematic, credible approach to biodiversity management
- Support continued economic and community growth in all Land Use Framework Regions (e.g., Lower Athabasca)
- Drive improved practice (industry and other land users) in a region to minimize the extent and duration of human footprint."¹⁵

4.2.2 Indicator Selection and Identification of Threshold Values

Proposed biodiversity indicators for the draft BMF were selected using the following criteria:

- "Responsiveness to changes in land use and land use management;
- Relevant to regional plan and management framework objectives;
- Representative of regional scale biodiversity and specific vulnerable aspects of biodiversity in the Lower Athabasca Region;
- Feasible to measure and monitor – cost effective; and
- Relevant to biodiversity interactions and ecosystem functions in the region."¹⁶

The indicators were selected by reviewing the Terrestrial Ecosystem Management Framework (TEMF) developed by CEMA¹⁷ and to align with indicators defined by Alberta Biodiversity Monitoring Framework (ABMI). The proposed indicators are arranged into four pyramids: Terrestrial Habitat, Terrestrial Species, Aquatic Habitat and Aquatic Species (Figure 4-1 reproduced below¹⁸). The pyramids represent two scales of biodiversity – species and habitat – to account for the multiple spatial scales that contribute to biodiversity. Within each of the four pyramids, four categories of indicators have been defined (Levels 1, 2, 3 and 4) and only two categories (Level 1 and 2) will have threshold values defined.

¹⁴ Alberta Government. 2014. Draft Lower Athabasca Regional Biodiversity Management Framework V 1.0 November 6, 2014.

¹⁵ Alberta Government. 2014. Lower Athabasca Region Biodiversity Management Framework Workshop Working Presentation August 15, 2014. P. 4 of PDF.

¹⁶ Alberta Government. 2014. Lower Athabasca Regional Plan Strategies Biodiversity Management Frameworks for the Lower Athabasca Region. Working Document No. 2: Identification of Threshold Values. August 2014.

¹⁷ Sustainable Ecosystem Working Group. 2008. Terrestrial Ecosystem Management Framework for the Regional Municipality of Wood Buffalo. Prepared by Sustainable Ecosystem Working Group of the Cumulative Environmental Management Association. June 5, 2008.

¹⁸ Alberta Government. 2014. Lower Athabasca Regional Plan Strategies Biodiversity Management Frameworks for the Lower Athabasca Region. Working Document No. 1: Indicator Selection. August 2014.

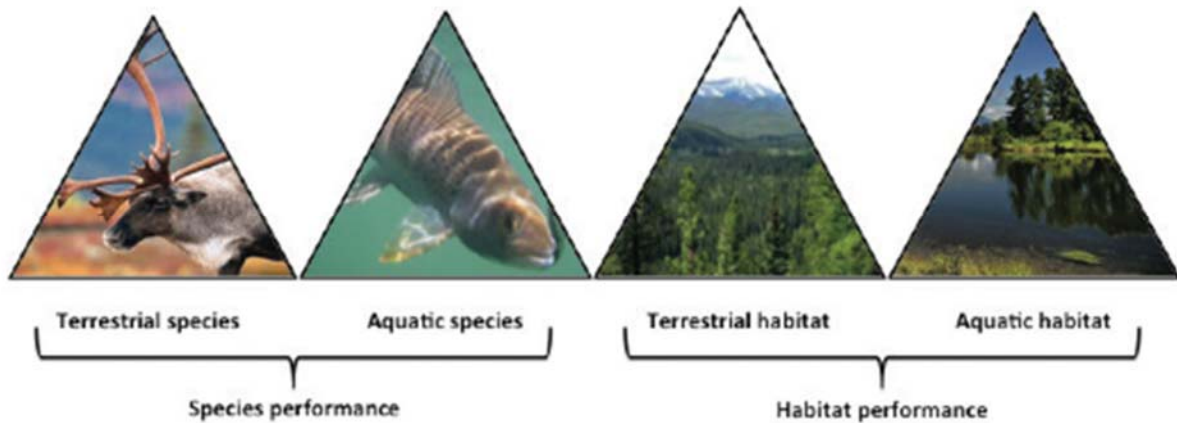


Figure 4-1: Four Categories of Indicator Pyramids Used in the Biodiversity Management Framework

Figure 4-2 (reproduced below¹⁹), depicts the hierarchical organization of the four levels of indicators. Level 1 represents one composite indicator that communicates the general state of biodiversity within the region and will be associated with a threshold value. Level 2 represents two indicators of regional significance that are associated with threshold values. Level 3 is described as subcomponents of the Level 1 and 2 composite indicators that will not be associated with any threshold value. Level 4 is described as supporting data that provides valuable additional information regarding the status of biodiversity within the region and the effectiveness of management applications applied in response to thresholds for Level 1 and 2 indicators.

4.2.3 Setting Threshold Values (Triggers)

Alberta proposes to develop threshold values for the Level 1 and 2 indicators only.

Alberta states that the threshold values will be used to assess the condition of the indicators and indicate the need for a management response. Threshold is defined in the *Alberta Land and Stewardship Act* as “a limit, target, trigger, range, measure, index, or unit of measurement.” Alberta intends to use threshold values in the BMF as triggers, representing warning signals for decision-makers. Alberta states the threshold values are intended to drive improved practice to minimize the rate, extent and duration of human footprint. A risk-based approach based on the evaluation of current conditions used by the International Union for the Conservation of Nature (IUCN) to define risk to species and ecosystems will be used to set threshold values. A management response will be initiated if a threshold value is exceeded.

¹⁹ Alberta Government. 2014. Lower Athabasca Regional Plan Strategies Biodiversity Management Frameworks for the Lower Athabasca Region. Working Document No. 1: Indicator Selection. August 2014.

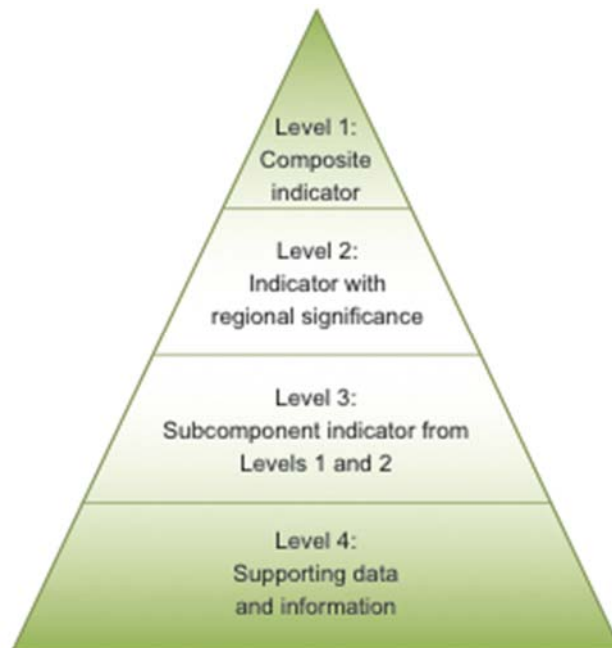


Figure 4-2: Levels of the Indicator Pyramid

The risk-based approach compares current conditions of an indicator to a reference condition to define a risk category. Four risk categories will be used to describe how much the current conditions deviate from reference conditions. The deviation is measured as a percentage with 100% being same as reference condition and 0% being extreme deviation from reference condition. Three breaking points are used to define the risk categories: 70%, 50% and 20% of reference condition. Figure 4-3 (reproduced below) shows the range of reference condition for each risk category.

Within each risk category, a tolerance for change in the condition of the indicator is assigned. The purpose of the tolerance for change value is to prevent the shift of the condition of the indicator to a higher risk category. The tolerance for change decreases the further the current condition is from the reference condition. The draft BMF proposes the following tolerances of change:

- Category A (over 70% similar to reference condition): 4% change tolerated
- Category B (50-70% similar to reference condition): 3% change tolerated
- Category C (20-50% similar to reference condition): 2% change tolerated
- Category D (less 20% similar to reference condition): 1% change tolerated

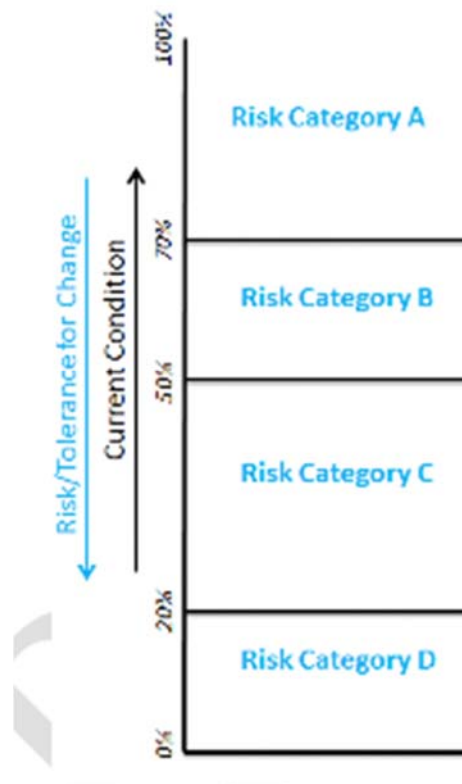


Figure 4-3: Risk Categories

Within each risk category, four levels of trigger values will be used to correspond to management intentions for the indicator. The initial level will be designated based on current condition of the indicator. Level 1 triggers will apply in Category A only, Levels 2 and 3 will apply to Category A, B and C. Level 4 will apply to Category C and D. Value for the current condition triggers are presented in the draft BMF for some of the proposed indicators and are under development for the others. The trigger levels are defined as outlined below:

- Level 1: Low risk
- Level 2: Low to moderate risk
- Level 3: Moderate to considerable risk
- Level 4: Consider to high risk

4.2.4 Management Response

Alberta states that the BMF will build on the foundation of current management practices that support biodiversity such as existing conservation areas, forest management planning, species at risk planning, regulatory requirements in approvals and dispositions, hunting and fishing requirements, and land management plans at a sub-regional and local level. The BMF will include “proactive management actions” to further support achievement of biodiversity objectives now. Alberta states that “managing linear footprint, including the extent, duration and rate of disturbance and motorized access are the most significant actions that can be taken to support

biodiversity.”²⁰ The Landscape Management Plan, being developed by Alberta, separately from the BMF and with no input to date from Fort McKay, will be used to determine how and where these management approaches should be used.

Alberta proposes a six-step management response to be undertaken if a threshold value (i.e., trigger) is exceeded. These steps include verification, preliminary assessment, investigation, mitigative management actions, oversight/delivery of management actions, assess implementation of effectiveness and communication. Not all steps might be required for all management responses. Mitigative management actions will be developed by Environment and Sustainable Resource Development (ESRD) in collaboration with other parties (i.e., other provincial government departments and agencies, local governments, stakeholders, First Nations and Métis.)

4.3 Benefit and Deficiencies of Draft BMF

As noted in Fort McKay’s submissions to the LARP consultation process, Fort McKay supports the development of a BMF. The benefits of a BMF identified by Fort McKay include using the BMF and its associated indicators to establish designated land-use zones, amount and location of conservation areas, management strategies to address environmental indicators currently at risk or that might become at risk in the future, and approaches to respond to monitoring data that indicate stated environmental objectives are not being achieved.²¹

Based on the materials provided in August and November 2014 for review and discussion at the September 4, 2014 information session and the presentations and discussions that occurred during this information session, Fort McKay identified the following main deficiencies with the draft BMF:

1. BMF Does Not Adequately Address Constitutional rights
2. BMF is Incomplete and Not Ready for Release
3. BMF Does Not Align with UN Convention on Biodiversity
4. BMF Does Not Align with Canadian Biodiversity Strategy
5. BMF Lacks Clarity in Purpose
6. BMF Lacks Clarity in Linkages to Integrated Resource Management System
7. Indicator Selection Incomplete and Not Relevant to Fort McKay
8. Identification of Thresholds Incomplete and Not Relevant to Fort McKay
9. Monitoring Requirements Incomplete
10. Management Response Incomplete and Excludes Fort McKay

Each of these deficiencies is described in more detail below.

4.3.1 Draft BMF Does Not Adequately Address Constitutional rights

The draft BMF states that one of the objectives is: “Biodiversity and healthy, functioning ecosystems continue to provide a range of benefits to Albertans and communities in the region, including First Nations’ continued ability to exercise constitutionally protected rights to hunt, fish and trap for

²⁰ Alberta Government. 2014. Lower Athabasca Regional Plan Strategies Biodiversity Management Frameworks for the Lower Athabasca Region. Working Document No. 3: Management Response. August 2014.

²¹ FMSD. 2011. Fort McKay Submission to the Draft Lower Athabasca Integrated Regional Plan 2011-2021 Appendix I – Fort McKay’s review of Terrestrial, Biodiversity and Traditional Land Use Aspects of the Plan.

food.”²² The BMF is the natural framework to include an explicit objective to support this aim. On p. 25 of the draft BMF below the Regional Objectives, the following information is provided to address cultural sustainability:

“Meeting the above established objectives is intended to address a range of values, including to help support exercise of constitutionally protected rights to hunt, trap, and fish for food within reasonable proximity of First Nations’ main population centres. The objectives are also intended to help support traditional land use and cultural practices associated with the right to hunt, trap, and fish for food.”²³

The draft BMF does not adequately address maintenance of biodiversity to support Constitutional rights related to cultural and spiritual activities. It is unclear why the current objective focuses specifically on the right to hunt, trap, and fish for food and Fort McKay requests additional opportunities to review and update the objectives for the BMF. It is critical that Fort McKay be involved in defining appropriate land-use objectives for the BMF. A review of Aboriginal criteria and indicator frameworks indicated that the framework objectives need to more directly include the objectives of Aboriginal peoples to ensure their voice is heard. Until Aboriginal goals and their relationship with the land are recognized, Aboriginal values will never truly be included in criteria and indicator frameworks.²⁴ By assuming that Constitutional rights will be protected as a natural extension of protecting the environment, Alberta continues to misunderstand the nature of Constitutional rights and marginalize the needs of Aboriginal people in land use planning.

Fort McKay requested at the September 4, 2014 information session that Alberta work with Fort McKay to develop wording for a new objective to address the maintenance of biodiversity to support exercise of Constitutional rights. Alberta has not agreed to develop this objective stating that other mechanisms will address Constitutional rights and that the selected indicators will implicitly address Constitutional rights.

Fort McKay fundamentally disagrees with Alberta’s position that other mechanisms address Constitutional rights with respect to maintaining biodiversity and that the biodiversity indicators selected by the LARP Team with no input from Fort McKay or no consideration of Fort McKay’s LARP submissions will implicitly address Constitutional rights.

Fort McKay requests that Alberta works with Fort McKay to develop a new objective specific to maintenance of biodiversity to exercise Constitutional rights and that Fort McKay be provided with capacity, time and opportunity to identify indicators to evaluate that this objective is being achieved.

Examples of potential thresholds to be developed to support this objective might include the following:

- Availability of land: limits on land disturbance, limits on the intensity of development in RMWB and in defined areas (example: around reserves and culturally relevant for the

²² Alberta Government. 2014. Draft Lower Athabasca Regional Plan Strategies Biodiversity Management Frameworks for the Lower Athabasca Region. V 1.0 November 6, 2014. August 2014.

²³ Alberta Government. 2014. Draft Lower Athabasca Regional Plan Strategies Biodiversity Management Frameworks for the Lower Athabasca Region. V 1.0 November 6, 2014. August 2014.

²⁴ Adam, Marie-Christine and Daniel Kneeshaw. 2009. Formulating Aboriginal Criteria and Indicator Frameworks. Sustainable Forest Management Network, Edmonton, Alberta 35 pp.

- exercise of Constitutional rights), amount of undisturbed land accessible within one hour of travel from communities
- Availability of terrestrial resources: population and abundance of wildlife and vegetative resources (berries, plants, trees) sufficient to support harvesting for the exercise of rights
 - Availability of these terrestrial resources on lands where the Fort McKay First Nation have right of use and access in close proximity to its traditional territory and communities
 - Continuity of watercourses and their integrity
 - Limits on amount of linear disturbances
 - Limits on forestry in intensive development areas
 - Limits on off highway vehicle access to linear disturbances areas of intensive development (except for the exercise of Constitutional rights)
 - Criteria for progressive reclamation to land capable of supporting TLU

4.3.2 Draft BMF is Incomplete and Not Ready for Release

Alberta acknowledges that the draft BMF is incomplete and more work is required to identify indicators, threshold values, management responses and monitoring protocols but is intending to release the BMF according to the imposed timeline (Early 2015). Alberta states that the LARP includes a review process for the management frameworks and after a 5-year or 10-year period, the BMF will be reviewed and it will be determined during the review if any updates or revisions are required.

Fort McKay does not support releasing an incomplete framework under the pretense that in five or ten years, the deficiencies will be reviewed and a plan for updating the BMF during the review process will be determined. This approach is ineffective and fails to provide Fort McKay with any confidence that the BMF will protect the community's Constitutional rights. Fort McKay is concerned that releasing an incomplete and ineffective framework will do more harm than good because an incomplete or preliminary framework creates a false impression that cumulative effects are being sufficiently managed, and has the potential to allow proponents to divest themselves of any responsibility for mitigating activities that contribute to cumulative environmental degradation. For example, recently proponents and the regulator have considered mitigation of cumulative effects outside their scope, on the assumption that the LARP is managing these impacts.

4.3.3 Draft BMF Does Not Align with UN Convention on Biodiversity

Article 8(j) of the UN Convention on Biodiversity, to which Canada is a signatory, acknowledges that indigenous people and practices require the same protection as traditional indicators of biodiversity, and their inclusion in land management is imperative. This Article identifies a responsibility to "respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and

practices.”²⁵ Despite this, the knowledge and land-based practices of Aboriginal peoples is not mentioned in the draft BMF.

Fort McKay participated in a Biodiversity Traditional Knowledge Study conducted by the Reclamation Working Group at the Cumulative Environmental Management Association (CEMA). This project documented that “The Program of Work related to Article 8(j) identifies the need for Parties to enhance and strengthen the capacity of indigenous communities to be effectively involved in decision-making related to Article 8(j) objectives.”²⁶ From Fort McKay’s perspective, the development of the BMF for use in the Lower Athabasca Region must address Article 8(j) and provide opportunities for Fort McKay to be directly involved in the development of the content of the BMF (i.e., defining objectives, indicator selection, identification of threshold values, developing monitoring protocols, determining management responses) and the process by which decision-making will occur for initiating a management response where threshold values are exceeded.

Other management frameworks in Canada exist where the objectives of the framework directly identify the need to comply with Article 8(j). For example, the Nunavut Wildlife Management Board objectives state:

“To comply with relevant directions in the International Convention on Biological Diversity, as well as in the Canadian Biodiversity Strategy;

- *International Convention on Biological Diversity, Article 8: Respect, preserve, and maintain indigenous knowledge, innovations, and practices, and promote their wider application.*
- *Canadian Biodiversity Strategy, Traditional knowledge can provide an excellent basis for developing conservation and sustainable use policies and programs. All too often, however, traditional knowledge is inappropriately used or disregarded by policy-makers, scientists, resource planners, and managers.”²⁷*

4.3.4 Draft BMF Does Not Align with Canadian Biodiversity Strategy

Canada was one of the first countries to ratify the UN Convention on Biodiversity. In 1995, Canada released a Biodiversity Strategy to fulfill national obligations to the UN Convention. The strategy identified the benefits and challenges in working appropriately with traditional knowledge and defined an objective to:

“identify mechanisms to use traditional knowledge, innovations and practices with the involvement of the holders of such knowledge, innovations and

²⁵ United Nations. 1992. Convention on Biological Diversity. Montreal, PQ: Secretariat of the Convention on Biological Diversity. <http://www.cbd.int/convention/convention.shtml>. Accessed September 2014.

²⁶ SENES Consulting Limited. 2010. Renewing the Health of Our Forests Biodiversity Traditional Knowledge of the Oil Sands Region Final Report Volumes I-III. Prepared by The Biodiversity Traditional Knowledge Research Team. Prepared for the Biodiversity and Wildlife Task Group of the Reclamation Working Group of the Cumulative Environmental Management Association, Fort McMurray, AB. (Contract 2009-0031).

²⁷ Nunavut Wildlife Management Board. IQ Program and Database Objectives. Available at: <http://www.nwmb.com/en/funding/introduction/97-english/sidebars/current-initiatives/109-iq-program-and-database#>. Accessed September 2014.

practices, and encourage the equitable sharing of benefits arising from the utilization of such knowledge, innovations and practices.”²⁸

Both the process to develop the draft BMF and the content presented by Alberta do not address the strategic direction of Canada’s Biodiversity Strategy cited above. The Nunavut Wildlife Management Board also directly incorporates the strategic direction of Canada’s Biodiversity Strategy as shown in the example provided in Section 5.2 above.

4.3.5 Draft BMF Lacks Clarity in Purpose

The draft BMF outlines four objectives summarized above. Alberta also identified that “Threshold values are intended to drive improved practice (industry and other land users) in a region to minimize the extent and duration of human footprint” as a purpose of the draft BMF.

Fort McKay requests that the “drive to improve practice to minimize human footprint” be adopted as a formal objective of the draft BMF. If the threshold values are evaluating performance of practice and expected to lead to improvements, then formally stating an objective to drive improvements in practices is required. By doing so, performance measures of existing practices can be defined and the effectiveness of these practices at achieving their intended outcomes can be measured.

In the existing draft BMF materials, there is a lack of clarity regarding how existing practices (i.e., existing conservation areas, forest management planning, species at risk planning, regulatory requirements in approvals and dispositions, hunting and fishing requirements, and land management plans at a sub-regional and local level) contribute to achieving the stated biodiversity objectives and how the contributions of these practices will be measured to evaluate their effectiveness at achieving their intended biodiversity outcomes.

4.3.6 Draft BMF Lacks Clarity in Linkages to Integrated Resource Management Systems

Alberta launched the Integrated Resource Management System (IRMS) in 2013 and presented a linkage diagram depicting how the draft BMF informs the IRMS and is linked to other components of the IRMS. These linkages are poorly developed and lack sufficient information to explain how the management response described in the draft BMF will lead to modifications to the components of the IRMS associated with specific exceedances in threshold values.

Furthermore, as discussed above, the contributions of existing practices (i.e., existing conservation areas, forest management planning, species at risk planning, regulatory requirements in approvals and dispositions, hunting and fishing requirements, and land management plans at a sub-regional and local level) to achieving biodiversity outcomes is unclear. Many of these existing practices are components of the IRMS (i.e., forest management planning). However, the draft BMF does not incorporate the biodiversity requirements of forest management plans in the indicator selection process or identification of threshold values.

²⁸ Canada. 1995. *Canadian Biodiversity Strategy: Canada’s Response to the Convention on Biological Diversity*. Ottawa: Minister of Supplies and Services Canada. http://www.biodivcanada.ca/560ED58E-0A7A-43D8-8754-C7DD12761EFA/CBS_e.pdf. Accessed September 2014.

Even within the LARP, it is unclear how the other management frameworks have been considered in the development of the draft BMF. The cumulative effects to air, surface water quantity, surface water quality and groundwater will all have direct effects on the state of biodiversity in the Lower Athabasca Region but these are not considered directly in the draft BMF.

Finally, many of the components of the IRMS were developed with little to no input from Fort McKay. For example, The Integrated Land Management Tools Compendium²⁹ does not include Aboriginal land uses as a group in the Sector definitions of land uses and none of the tools have any direct application to the cultural context of Aboriginal land use. Alberta did not provide any information in the draft BMF describing how integrated land management and its contributions to achieving the biodiversity objectives is currently monitored within the IRMS or what criteria are used to determine that the tools are successful. The Landscape Management Plan is expected to provide this information but is being developed outside of the draft BMF with no input from Fort McKay.

4.3.7 Indicator Selection Incomplete and Not Relevant to Fort McKay

Fort McKay has several concerns with the indicators selected for the draft BMF. These concerns include:

- lack of opportunity for Fort McKay to participate in and contribute to the indicator selection process;
- lack of information identifying how each of the selected indicators demonstrates that the objectives of the draft BMF are being achieved;
- lack of information describing the relationships and linkage among the four levels of indicators;
- lack of information describing how indicators will provide sub-regional evaluations of cumulative effects (i.e., within Fort McKay's Traditional Territory and Fort McKay's Moose Lake area);
- lack of alignment to cumulative effects assessments completed as part of energy applications under the *Environmental Protection and Enhancement Act*; and
- lack of consideration of recent literature on the status of wildlife in Fort McKay's Traditional Territory.

4.3.8 Fort McKay Participation in and Contribution to the Indicator Selection Processes

The engagement process defined and implemented by Alberta for the development of the draft BMF is ineffective. This process did not provide any opportunities for Fort McKay to be included in the indicator selection process. In addition, a new objective to maintain biodiversity at sufficient levels to ensure First Nations and Métis communities are able to continue to exercise Constitutional rights is required. This objective would require identification of indicators to demonstrate that this objective is being achieved. None of the currently proposed indicators are relevant to assessing maintenance of biodiversity in the context of Constitutional rights.

²⁹ Alberta. 2012. Integrated Land Management Tools Compendium. Prepared by O2 Planning + Design Inc.

4.3.9 Identify How Selected Indicators Demonstrate Draft BMF Objectives

Each of the selected indicators should directly inform on the stated objectives of the draft BMF. The rationale provided for each of the indicators does not include a description of how the measurement of the indicator will provide information on whether or not the stated objectives are being achieved.

The criteria and indicator framework structure proposed by the Canadian Council of Forest Ministers in 1995 outlines how indicators provide direct feedback on goals, objectives and criteria.³⁰ This criteria and indicator model was adopted by 12 countries covering 90% of the world's temperate and boreal forests as part of the Montreal Process. In Alberta, the criteria and indicator structure was recommended to Alberta by CEMA for evaluating oil sands mine reclamation certification.³¹ Alberta accepted the recommendation and directed CEMA to continue to develop the indicators for reclamation certification as part of the framework. The indicators in the draft BMF should be clearly linked to the Goals, Objectives and Criteria defined for the BMF to demonstrate how the indicator will evaluate if the objectives are being achieved. Consider the example below using the Level 1 indicator from the Terrestrial Habitat pyramid:

Level 1 – Total amount of terrestrial native land cover

Rationale: Habitat loss and land conversion are the largest contributors of local biodiversity loss on Earth. By monitoring terrestrial native land cover in the region we get a clear picture of the amount of habitat being lost or converted.

Go back to the objectives:

- Biodiversity and healthy, functioning ecosystems continue to provide a range of benefits to Albertans and communities in the region, including First Nations' continued ability to exercise constitutionally protected rights to hunt, fish and trap for food;
- Species at risk are recovered;
- No new species require at risk designation; and
- Long-term regional ecosystem health and resiliency are sustained.

The BMF should clearly outline how "amount of habitat being lost or converted" informs the four objectives to demonstrate that these objectives are being achieved. None of these objectives specifically address habitat loss. It is unclear how this Level 1 indicator, which will have a defined threshold value, will inform on any of the four objectives defined by the LARP Team.

4.3.10 Describe Relationships and Linkages among Four Levels of Indicators

Alberta presents the selected indicators in the form of a four-level pyramid (see Figure 2 above). This categorization of the indicators does not provide any information regarding the relationship among the four levels or the purpose of collecting data on all four levels of indicators. Relationships

³⁰ Canadian Forest Service. 1995. Defining sustainable forest management: A Canadian approach to criteria and indicators. Canadian Council of Forest Ministers, Ottawa. 22 p.

³¹ CEMA. 2012. Criteria and Indicators Framework for Oil Sands Mine Reclamation Certification. Prepared by Mike Poscente and Theo Charette for the Cumulative Environmental Management Association. Fort McMurray, AB. CEMA Contract 2010-0028.

among indicators need to be defined from both a western science and traditional knowledge perspective.

The Great Lakes Environmental Indicators Project developed two types of indicators – ecological (state) indicators and stressor (pressure) indicators.³² Ecological indicators provide information about the condition of the environment from species to landscape scale. Stressor indicators provide information on the human-influenced factors affecting the ecological condition. The relationship between stressor indicators and ecological indicators needs to be evaluated to know which stressors are causing the environmental condition so that management responses can be defined to prevent the stressor from affecting the ecological indicator.

The LARP Team should consider how to categorize the indicators selected for the BMF as either ecological or stressor indicators and then link these to the objectives of the draft BMF. The current categorization of Level 1, 2, 3 and 4 is not informative and does not provide any information about the relationship among indicators.

Fort McKay participated in a project at the Reclamation Working Group of CEMA where the *Environmental Protection and Enhancement Act* approval conditions outlining monitoring requirements were evaluated to determine if the monitoring was assessing an ecological indicator or stressor indicator and how these indicators contribute to assessing the biodiversity on reclaimed lands in the oil sands region.³³ The categorization of the variables is very informative for understanding the relationships among management practices, stressor indicators and ecological indicators.

In a review of Aboriginal criteria and indicator frameworks³⁴, the researchers found that traditional knowledge holders automatically consider the relationship among indicators. The western science approach of separating indicators and evaluating them independently does not provide holistic information to traditional knowledge holders. A process of working with traditional knowledge holders is required to identify indicators to evaluate the new objective proposed by Fort McKay to maintain biodiversity to provide opportunities to exercise Constitutional rights. Through this process, the relationship among indicators that is relevant to evaluating impacts to Constitutional rights can be defined. This would be much more informative than the non-descript level 1, 2, 3 and 4 currently described by the LARP Team.

4.3.11 Describe How Indicators Will Provide Sub-regional Evaluations of Cumulative Effects

From Fort McKay's perspective, existing, approved and planned disturbance in its Traditional Territory is substantial and directly affects the ability of members of the Community to exercise their Constitutional rights. Indicators defined to assess the new objective proposed by Fort McKay should be analyzed to quantify sub-regional and regional effects. In this way, the vastly different disturbance scenarios north (i.e., mining and in situ developments) and south (no mining) of Fort McMurray can be relevantly described.

³² Great Lakes Environmental Indicators Project. 2005. Evaluating potential indicators of environmental condition. Available at: <http://glei.nrri.umn.edu/default/dsanalysis1.htm>. Accessed September 2014.

³³ Ciborowski, J.J.H., M. Kang, A. Grgicak-Mannion, D. Raab, S.E. Bayley and A.L. Foote. 2013. Synthesis: Applying the Reference Condition Approach for Monitoring Reclamation Areas in the Athabasca Oil Sands Region. Submitted to the Cumulative Environmental Management Association. CEMA Contract No. 2010-0025.

³⁴ Adam, Marie-Christine and Daniel Kneeshaw. 2009. Formulating Aboriginal Criteria and Indicator Frameworks. Sustainable Forest Management Network, Edmonton, Alberta 35 pp.

4.3.12 Align indicators to cumulative effects assessments completed under the *Environmental Protection and Enhancement Act*

Each commercial in situ and mining oil sands project application filed under the *Environmental Protection and Enhancement Act* (EPEA) assesses potential cumulative effects under three development scenarios: Base Case, Application Case and Planned Development Case. For all three development scenarios, a regional study area is defined where valued ecosystem components (VECs) or key indicators resources (KIRs) for biodiversity are identified. A cumulative effects assessment is completed for the VECs or KIRs with the intent to understand the potential effects at a regional level. The draft BMF does not discuss how the proposed indicators will align with commonly used VECs or KIRs in the project applications or provide any guidance for how project applications might incorporate the indicators proposed for the draft BMF into the cumulative effects assessments. Fort McKay regularly files statements of concerns on in situ and mining EPEA approval applications documenting the deficiencies of the current biodiversity cumulative effects assessments due to a lack of regional datasets and bold assumptions regarding the effectiveness of mitigation measures for re-establishing biodiversity on disturbed lands. The draft BMF should include guidance for improving the selection of VECs or KIRs for these project applications and should define the requirements for regional datasets of sufficient quality to allow for credible cumulative effects assessments to be completed as part of EPEA applications for approval.

4.3.13 Status of Wildlife in Fort McKay's Traditional Territory

In the indicator selection, Alberta has not considered recent literature published by Fort McKay describing the results of scenario analyses predicting the potential environmental effects on the habitat suitability indices of wildlife species within Fort McKay's Traditional Territory.³⁵ This modelling exercise clearly demonstrated that habitat suitability indices of wildlife species important to the community will decline substantially under the current resource development business as usual case. Fort McKay proposed alternate resource development scenarios that showed improvements in the sustainability of the habitat suitability indices. Based on the results of the scenario analyses, the following integrated suite of management strategies were recommended:

- “That the indirect impact on habitat will likely be effectively reduced through continued improvement and coordinated implementation of industry best practices that reduce footprint growth and hasten footprint reclamation.
- Implementation of a systematic and regional coordinated access management plan to manage and monitor access across the regional land base will be a critically important management strategy to reduce the continued and unintended consequences of increased harvest pressure and mortality of wildlife and fish.
- Expanded protected areas that are “no-go” areas for industry will provide a building block for anchoring a land base that will prioritize production and sustainable harvesting of wild plants and animals to support traditional harvesting activities.”³⁶

³⁵ Nishi, J.S., S. Berryman, J.B. Stelfox, A. Garibaldi, and J. Straker. 2013. Fort McKay Cumulative Effects Project: Technical Report of Scenario Modeling Analyses with ALCES®. ALCES Landscape and Land Use Ltd., Calgary, AB., and Integral Ecology Group, Victoria, BC. Prepared for the Fort McKay Sustainability Department, Fort McMurray, AB. 126 pp + 5 Appendices.

³⁶ Nishi, J.S., S. Berryman, J.B. Stelfox, A. Garibaldi, and J. Straker. 2013. Fort McKay Cumulative Effects Project: Technical Report of Scenario Modeling Analyses with ALCES®. ALCES Landscape and Land Use Ltd., Calgary, AB., and Integral Ecology Group, Victoria, BC. Prepared for the Fort McKay Sustainability Department, Fort McMurray, AB. 126 pp + 5 Appendices.

The draft BMF does not sufficiently address how the proposed indicators are linked to evaluation of industry best practices, access management strategies or effectiveness of currently designated protected areas. Fort McKay expects Alberta to consider the results of this study and provide rationale explaining why similar work is not planned or has not been completed to support indicator selection and identification of threshold values for the draft BMF.

4.3.14 Thresholds Identification Is Incomplete and Not Relevant to Fort McKay

The LARP Team proposed threshold values for some of the aquatic and terrestrial habitat and species indicators in the draft BMF and is developing values for the remaining indicators. Fort McKay objects to not having the opportunity to participate in the process for determining threshold and rejects the risk-based approach presented in the draft BMF. The LARP Team is proceeding with the development of threshold values despite Fort McKay's request in September to be included in refining the objectives and selected indicators and determining threshold values.

In general, threshold values for biodiversity should be defined using a reference condition approach. There is a vast body of literature on this procedure and Fort McKay has actively participated in projects at the Reclamation Working Group of CEMA to develop monitoring programs for assessing biodiversity in the oil sands region using a reference condition approach. Furthermore, in areas of intensive development, such as Fort McKay's Traditional Territory, identifying reference condition sites is difficult due to the level of existing impact. From Fort McKay's perspective, the following points need to be discussed, at a minimum, before proceeding with determining threshold values:

1. What data will the LARP Team use to calculate threshold values?
2. Will the pre-industrial baseline conditions be defined as the reference condition?
3. How will existing human-footprint be considered in defining threshold values?
4. Who will decide that the threshold values are acceptable limits?
5. How will data gaps be managed for indicators where it is not possible to calculate a threshold value?

Selecting relevant indicators, defining reference conditions and current conditions of each indicator, and determining threshold values is very complex. Fort McKay requests that a multi-stakeholder process be used to determine indicators and threshold values acceptable to all parties, particularly First Nations and Métis peoples.

4.3.15 Monitoring Requirements Incomplete

For each indicator, a monitoring protocol needs to be defined that ensures a random sample, collected at a sampling intensity sufficient to meet data needs for statistical purposes. The draft BMF proposes to use Alberta Environmental Monitoring, Evaluation and Reporting Agency (AEMERA) to conduct the monitoring. However, since AEMERA is presently a clearinghouse of all the regional monitoring programs brought under one agency and limited by a \$50 million annual budget, it is unclear how the indicators proposed for the BMF will be specifically incorporated into AEMERA.

4.3.16 Management Response Incomplete and Excludes Fort McKay

LARP includes the implementation of management actions that have direct effects on biodiversity outcomes in the Lower Athabasca Region such as establishment of conservation areas and multi-use zones, encouraging timely and progressive reclamation, caribou habitat needs in alignment with provincial caribou policy, integrated land management strategies and others.

It is unclear if the draft BMF will incorporate the components of other initiatives either external to or embedded within the LARP to understand how the implementation of these management actions is contributing to achieving the objectives defined for the draft BMF. It is also unclear how existing management responses will be incorporated into the six-step management response proposed in the draft BMF.

The material presented by the LARP Team refers mainly to identifying management actions if a threshold value is exceeded. More clarity is required regarding how the current management activities (i.e., integrated land management strategies, conservation areas) will be implemented when threshold values are exceeded. Consider the caribou habitat example:

Level 2 Indicator – Woodland Caribou

Rational – Woodland Caribou is listed as Threatened under Alberta’s *Wildlife Act* and the federal *Species at Risk Act (SARA)*. This species-at-risk indicator is intended to track the status of a species sensitive to human development and important to local peoples and regional environmental management.

Definition – Populations of woodland caribou are currently monitored, or are the focus of developing monitoring protocols, under several policies/plans. The indicator will be monitored using the approach outlined in the Alberta Action and Range Planning Project in the immediate future.

1. Populations of woodland caribou are declining in Alberta. (See: Hervieux, D., M. Hebblewhite, N.J. DeCesare, M. Russell, K. Smith, S. Robertson and S. Boutin. 2013. Widespread declines in woodland caribou (*Rangifer tarandus caribou*) continue in Alberta. *Canadian Journal of Zoology* 91: 872-882.)
2. The threshold value for disturbance (i.e., human footprint) in caribou habitat has already been met in certain caribou ranges.
3. The integrated land management strategies define a restricted activity period and progressive reclamation for continuing industrial activities in caribou ranges.
4. One of the BMF objectives is “Species at risk recover.”
5. The management action of the restricted activity period and progressive reclamation exist but the woodland caribou population is still declining.
6. How will the stated objective be achieved for the woodland caribou indicator and how will the DRAFT BMF address this?

From Fort McKay's perspective, it makes more sense to evaluate how often approval is granted to industrial activities despite the restricted activity period designation, and how much area of progressive reclamation is completed per year in the caribou zones. Limits on overriding the restricted activity period and annual quotas for progressive reclamation in caribou habitat could and should be established under the BMF. These are two stressors that directly affect caribou performance and both of these can be managed through integrated land management strategies. Preventing the exceedance of the threshold value that measures negative impacts to woodland caribou should be the goal of the BMF. The present approach is focused on managing exceedances of impacts to ecological indicators. Fort McKay suggests that it is more effective to focus on preventing the exceedances by managing the stressor indicators contributing to the negative response of the ecological indicators.

4.4 Proposed Changes

In order to effectively manage biodiversity at levels to support the pursuit of Constitutional rights, we recommend that Alberta undertakes the following:

1. Works with Fort McKay to develop a new objective specific to maintenance of biodiversity to exercise Constitutional rights and provide Fort McKay capacity, time and opportunity to identify indicators to evaluate that this objective is being achieved.
2. Shares the internal review of the Aboriginal submissions to the LARP consultation process with Fort McKay and validate the information incorporated from the Fort McKay submissions into the draft BMF materials.
3. Establishes a process in collaboration with Fort McKay that provides Fort McKay with capacity, time and opportunity to contribute to the content of the BMF and develop a timeline to allow for the deficiencies identified in the draft BMF to be addressed prior to the release of the BMF.
4. Expands the draft BMF to address using the BMF and its associated indicators to establish designated land-use zones and to determine amount and location of conservation areas required to maintain biodiversity for Fort McKay to continue to exercise Constitutional rights in close proximity to our Community and reserves.
5. Addresses the known deficiencies and develop a more robust framework that addresses Fort McKay's concerns and incorporates Fort McKay's input before releasing to the public.
6. Aligns the draft BMF with Article 8(j) of the United Nations Convention on Biodiversity.
7. Aligns the draft BMF with the strategic direction of Canada's Biodiversity Strategy.
8. Provides more clarity on the purpose of the draft BMF, specifically with respect to the drive to improve practices implemented to reduce habitat disturbance.
9. Provides more clarity on the linkages of the draft BMF to the IRMS.
10. Addresses the following concerns prior to releasing the draft BMF to the public: the lack of opportunity for Fort McKay to participate in and contribute to the indicator selection process; lack of information identifying how each of the selected indicators demonstrates that the objectives of the draft BMF are being achieved; lack of information describing the relationships and linkage among the four levels of indicators; lack of information describing how indicators will provide sub-regional evaluations of cumulative effects (i.e., within Fort McKay's Traditional Territory); lack of alignment to cumulative effects assessments completed as part of energy applications under the *Environmental Protection and Enhancement Act*; and lack of consideration of recent literature on the status of wildlife in Fort McKay's Traditional Territory.
11. Addresses the following questions relating to defining threshold values prior to releasing the draft BMF to the public:

- a) What data will the LARP Team use to calculate threshold values?
 - b) Will the pre-industrial baseline conditions be defined as the reference condition?
 - c) How will existing human-footprint be considered in defining threshold values?
 - d) Who will decide that the threshold values are acceptable limits?
 - e) How will data gaps be managed for indicators where it is not possible to calculate a threshold value?
12. Provides more information regarding the development of monitoring protocols and funding to support implementation of the monitoring programs.
13. Provides Fort McKay with capacity, time and opportunity to identify appropriate management responses to threshold-value exceedances for indicators identified to evaluate the objective of maintaining biodiversity to provide opportunities for exercising Constitutional rights.
14. Establishes a multi-stakeholder process to determine threshold values for indicators and appropriate management responses.

5 TAILINGS MANAGEMENT FRAMEWORK

5.1 Introduction

The Tailings Management (TM) Framework represents a significant policy and regulatory tool under the Lower Athabasca Regional Plan (LARP) that aims to manage regional environmental pressures as a result of intense development in the area. The cumulative environmental impact of industrial development in the Lower Athabasca presents unique challenges, and aboriginal peoples of the region have Constitutional rights that are significantly negatively impacted by these cumulative impacts. For Fort McKay, the proximity of tailings ponds to the community poses significant challenges. The management of tailings impoundments is an important issue that directly impacts Fort McKay's traditional rights and the safety of the community therefore we submit this position paper to outline our expectations for a meaningful Tailings Management Framework that protects the community of Fort McKay and the Constitutional rights of our members.

The recent tailings discharges from the Mount Polley mine in British Columbia and the October discharge of tailings from the Obed Coal Mine upstream from Fort McKay have confirmed that all tailings impoundments provide a significant risk to downstream residents and water users. As such it's imperative that Fort McKay have a more active role in ensuring that tailings impoundments are constructed, operated and closed in a safe and responsible fashion. The community of Fort McKay and the land on which members conduct traditional activities will be the most at risk to be directly impacted by any release or catastrophic failure of an impoundment.

5.1.1 Draft Tailings Management Framework (TMF) Components

The need for such a management framework stems from the large volumes of mine tailings that have already accumulated from mine operations. Tailings are the residual material, including sand, water, clay and residual bitumen left after most of it has been extracted from the oil sands. The sands can be readily separated from the remaining tailings and are easily settled out, leaving Fluid Fine Tailings (FFT) containing suspended clay particles which are much more difficult to deal with. In the past and currently, these fluid fine tailings have been deposited into large impoundments, which pose a risk of spills, discharge to groundwater, and require continual withdrawal of makeup water from the Athabasca River. The residual bitumen rises to the surface and is toxic to any waterfowl that land on these ponds. Over time, the clay suspended in the FFT will settle to produce mature fine tailings (MFT), which are about 30% solids. The ERCB (now AER) Directive 074 was developed to arrest the buildup of these fluid fine tailings on the landscape and to begin treating them, by separating the solids and recycling tailings water through the processing plant. Although companies have made considerable progress in treating their FFT, the Directive has generally not been met.

As increasing development will likely increase the amount of tailings and amount of landscape impacted by them, the Government of Alberta has developed a Tailings Management Framework to mitigate the risks associated with accumulated tailings waste. In particular, the TMF has been designed to protect the Government of Alberta from the financial risks associated with tailings accumulation and abandonment. The TMF outlines requirements for companies to maintain tailings accumulation below a plan individually designed for each mine, and requires increased security payment into the Mine Financial Security System.

The TMF provides separate management direction for fluid tailings produced after January 1, 2015 and for legacy fluid tailings existing before that time. The Framework provides the following additional elements to the existing management system:

1. Triggers and a limit on the volume of fluid fine tailings accumulation for each oil sands mine for each year and over the life of the mine. These limits and volumes will be based on plans submitted by each company and approved by ESRD that set out a profile of tailings volumes.
2. A trigger on the deviation of fluid fine tailings volumes from each company's approved tailings profile.
3. A requirement to have all fluid tailings in a ready-to-reclaim state within 10 years of end of mine life, with active treatment completed earlier, no later than 5 years within the 10 year period to allow treated tailings to reach the strength requirements to allow reclamation.
4. A management response when triggers and limits are exceeded.
5. A requirement to address legacy tailings.

Although the Framework focuses regulation at the level of individual mines, the Framework also will monitor regional performance metrics to determine whether or not the desired outcomes are being achieved and that the inventory of fluid fine tailings is being reduced.

Finally, the term fluid tailings used in the Framework is misleading as all tailings are usually deposited in a fluid form. The term fluid fine tailings (FFT) should be used as it is more descriptive as it differentiates them from fluid sand tailings or fluid whole tailings (sand and fines).

5.2 Framework Analysis

The following comments are provided based on the proposed "Tailings Management Framework for Mineable Athabasca Oil Sands" set out in the June 26, 2014 draft as well as the Power Point presentation and conference call of August 6, 2014.

Fort McKay's concerns include:

1. Defining risk and the narrow mandate of Tailings Management Framework,
2. Allowing additional Fluid Fine tailings accumulation,
3. Too much flexibility as tailings management plans are proposed by each company,
4. Management considerations,
5. Technical considerations.

5.2.1 Defining Risk and the Narrow Mandate of the TMF

One of the key principles stated in the TMF is the intent to manage and decrease risk. This is a laudable objective but the framework will likely not accomplish this. While Fort McKay agrees that mitigating the financial risk of tailings accumulation is important, we believe that Alberta has not been diligent in its definition of risk. There are a number of other risks associated with tailings accumulation: the risks to local communities in tailings failure, tailings-associated air quality issues, and loss of traditional territory (including culturally important muskeg areas) that are critical to Fort McKay. Increased tailings accumulations have the potential to impair Constitutional rights by reducing lands available for the pursuit of rights, impacting travel on the land, and impacting the wildlife and fish which support the pursuit of rights. In addition, the siting of tailings ponds has the potential to impact the community's right to enjoyment of reserve lands, as odours and dust

associated with tailings treatment are reaching the community. Thus, if this policy document is to provide a comprehensive tailings management framework then risks must be thought of more holistically. In particular, Alberta must consider the risks to local communities in the case of impoundment failure, the impacts to wildlife that support the pursuit of Constitutional rights, the loss of access to culturally important lands, and the impacts to landscapes that are culturally important, such as muskeg. This could be achieved, in part, by eliminating the continual buildup of Fluid Fine Tailings, developing tools for mitigating the risk of a failure of tailings impoundment, and establishing tools for emergency response, oversight and stakeholder engagement in impoundment siting decisions.

The TMF's major regulatory tool is the requirement that facilities pay into the Mine Financial Security System in order to mitigate the risk of the operator abandoning the facility. However, this tool is unlikely to achieve its objective. A payment into the Mine Financial Security System is usually not required until near the end of the mine's life. Also, these payments are unlikely to be sufficient to cover the full cost of tailings impoundment failure. There needs to be additional security that equals the cost of tailings treatment, and reflects more accurately all risks, rather than the proportional amounts set under the Mine Financial Security Policy. It is clear that in designing this tool, Alberta has not fully considered the spectrum of risks associated with tailings accumulation on the landscape; this remains the greatest shortfall of the proposed framework.

5.2.2 Tailings Accumulation

Fort McKay's position is that any new company should not be allowed to generate any Fluid Fine Tailings. However, we recognize that there will always be some produced even if the technology for thickening tailings greatly improves. Nevertheless, immediate and full treatment of FFT is what industry should strive for. In contrast, the TMF allows companies to develop their own compliance pace and not to continually strive for the existing requirements of the Tailings Directive 074.

The TMF does not require companies to estimate the outstanding liability for treatment of fluid fine tailings during mine life or to require that the full cost of tailings non-treatment be secured under the Mine Financial Security System. Current security requirements only partially cover the cost of treating existing tailings. Therefore, more stringent financial security requirements should be required for companies that do not comply and exceed their triggers amounting to the full cost of treating existing tailings, which would be over and above the regular security requirements which are only a partial cost.

Not only is the amount of security required likely to be insufficient, but because oil sands companies commonly defer many of the major decisions regarding tailings until shortly before closure, there is the potential for troubling loopholes to arise. Depending on the price of oil, mine closure could occur at any time when the extraction and recovery of bitumen exceeds the cost of the product. In that event, there might be insufficient funds available to pay the cost of reclamation. Now that the requirement of treating tailings will also be deferred to the final ten years of mine life, this will add greatly to the final cost of reclamation. Furthermore, because this system pushes the final treatment of a proportion of tailings to the end of mine life this might encourage companies to propose an extended mine life, rather than addressing tailings management.

Companies will have 10 years following the cessation of mining to have tailings ready for reclamation. The mechanical deposition of fine tailings will likely need to be completed earlier to allow time to for tailings consolidation and to meet the strength requirements that will allow a sand and soil capping. Companies will likely want to cover the fines deposited in a dedicated disposal

area (DDA) with a layer of sands as a way to compress the final lifts of fines to achieve the required strength. Presumably, this will be allowed as part of the mechanical deposition process. However, five years will not be enough time to allow MFT to develop and treat that final batch of tailings. Therefore, encouraging companies to only address tailings at the end of mine life will limit the technology that can be used.

Finally, there are a number of other issues surrounding the accumulation of tailings:

- For new mines, the Framework allows fluid fine tailings to increase for five years. The reasoning for this is unclear. Alberta should clarify if it is intended to encourage operators to place these fine tailings into an impoundment then treat the mature fine tailings (MFT).
- New mines, even with dry tailings produced directly from the plant, will undoubtedly produce a small quantity of off-spec material and will need to have some time to treat this material. However, it should not be assumed that there will be a five year production period where fluid fine tailings will be allowed to build up.
- For existing mines, the stockpile of fluid fine tailings should not be permitted to increase after January 1, 2015.
- The Total Volume Limit for tailings accumulation is set at 40% above the end of mine life threshold which is the volume equivalent to two years of tailings production. While setting a limit where punitive action will occur has value, this limit is too high. In combination with the provision that companies will develop their own plans, the limit will provide an incentive for companies to develop very permissive tailings plans. In contrast, under Directive 074, only 50% of tailings, and those that are captured in the sand fraction, are allowed to be deposited in a DDA (and those fines that are captured within the sand fraction). Nevertheless, setting such a limit where significant punitive action will occur has value.
- The Lower Total Volume Trigger is not really necessary. Data should be tracked to ensure that the EML limit is not exceeded.
- The end of mine life threshold should in fact be the compliance point (or limit) instead of the upper volume limit proposed.

5.2.3 Defining the Tailings Management Plan for Each Operator

A key principle of the TMF is to allow flexibility and adaptation. While we appreciate that as tailings management technologies improve, the program might need to adapt, and that individual operators have different needs, in practice the flexibility afforded to companies is too high. The TMF allows companies to determine their own plan and schedule with limited guidance from Alberta. Because each company will be allowed to propose its own program, without more firm requirements, it will be difficult to treat all operations equally. Also, it creates an incentive for operators to set their End of Mine Life Tailings Accumulation Limit as high as possible. Better guidance needs to be provided on what this level should be; in particular, there should be little to no build-up of FFT on any mine.

5.2.4 Management Considerations

The relationship between the TMF and the existing Tailings Directive 074 is unclear. Under Directive 074, all companies are currently required to capture 50% on their fines in a DDA and meet strength requirements of 5kPa after one year, and be ready to reclaim after five years following the last deposition. In fact the total amount of tailings captured might be higher than

50%, as fines tied up in sands must also be captured. While an ambitious directive, no operator has been able to meet these requirements. On March 13, 2015 the AER suspended Directive 074 requirements. This was done despite the assurance that the TMF would build on existing regulations and directives. It is somewhat worrying that the directive was suspended before the AER has determined how the TMF will be used to regulate oil sands tailings. This leaves the management of tailings in limbo.

A further policy principle set out in the Framework is to encourage shared responsibility. It is unclear how this can be achieved. Presumably the regional metrics will be used to encourage sector-wide management of tailings. The bulk of the responsibility for tailings management should rest solely with the company that produces it, and individual performance metrics should be used for compliance and enforcement by Alberta. Regional performance metrics must also be provided by government and will be primarily aimed at seeing whether the Framework is working and whether or not Government is on the right track, however, how this relates back to managing activity by individual operators is unclear. Therefore the TMF needs more development of the regional metrics and how Alberta intends to encourage shared responsibility, and a more thorough investigation of methods for regional management of tailings.

One of the policy principles that the Framework seeks to achieve is transparency. Fort McKay strongly supports this principle and recommends that all matters relating to tailings management be readily available. Each company must provide annual reporting, with these reports sent to Fort McKay and publicly available, and non-compliance and the government's response publicly available. As part of encouraging transparency, operators should be required to involve stakeholders in siting tailings impoundments, and in monitoring impoundment safety.

5.2.5 Technical Considerations

There are technical considerations that require more thought. For example, the technology for treating tailings in a timely fashion is not yet in place and this will be a challenge for all mines as well as regulators, as it was for Directive 074. Fort McKay believes and hopes that a cost effective technology for thickening tailings as they are discharged from the processing plant for placement in a Dedicated Disposal Area (DDA) will eventually be available. However, until this is the case Alberta might have to take a stronger role in technology discovery, or limiting mining activities until such time as the technology is available.

A possible method for final deposition of tailings is to deposit them under water. Fort McKay has always opposed the use of flooded pits over submerged tailings. It is unclear whether the TMF allows for this sort of tailings treatment, and how these volumes will be included in tailings accumulation profiles is not clear. Both submission of tailings and other forms of disposal in DDAs often requires more disturbance of the landscape. Thin lift drying at mine sites can require additional land disturbance. Care must be taken to ensure that the solution to tailings management do not in turn result in further environmental damage.

5.3 Proposed Changes

The June 26, 2014 draft TMF is entitled "Tailings Management Framework for Mineable Athabasca Oil Sands," but only provides a framework for the mitigating the financial risk of fluid fine tailing abandonment. For it to be a true Tailings Management Framework it must be expanded to address their location, design standards, stability monitoring, oversight responsibilities, risk of failure, run-

out analysis, financial assurance, emergency response plans, communication, management and monitoring of effluent, air emissions and groundwater, and reclamation.

It is recognized that some of what we would like to see incorporated into a comprehensive tailings management framework is already contained in existing legislation, policy and operational policy elsewhere. Nevertheless, it is important to set out these matters into one management framework in order to ensure that requirements and standards are clear to industry first nations and government. This is especially important now that the Mount Polley tailings disaster is on the minds of First Nations and the public.

The following issues must be addressed in a comprehensive Tailings Management Framework:

5.3.1 Siting External and In-pit Tailings Impoundments

Criteria should be provided for the siting of external tailings impoundments on the landscape. At present, it appears that the main criteria for the location of these impoundments are that they do not cover areas of recoverable bitumen, and that they are near a source of dyke construction material. Of greater importance to Fort McKay is that these facilities do not cover areas of important traditional use values, do not cover or impinge on major watercourses and are not located close to the community. While restoration and reclamation is planned, it's important to note that the landscape will be transformed into upland boreal forest, a land type that does not have the same cultural importance. The permanent alteration of lands due to tailings ponds poses a major impact to Fort McKay's ability to pursue their Constitutional rights.

Freshwater resources in the area are extremely culturally important. Therefore siting should consider specifying a suitable buffer between the edge of the impoundment and a major watercourse. The buffer should consider the possibility of future expansion of the impoundment, and sufficient room between the impoundment and the watercourse to monitor and collect any groundwater seepage.

On a wider and more regional perspective, the Government of Alberta must take the initiative to require companies to look at ways of avoiding the construction of additional external tailings impoundments by possibly utilizing pits from an adjacent operation. Alberta should consider the development of a regional Tailings Management Framework as an opportunity to employ creative solutions to tailings accumulation. As there might be liability issues with having companies share tailings sites, Alberta would need to play a role in identifying responsible parties, identify a third party to manage waste, or might need to accept some portion of the liability itself.

5.3.2 Design, Size and Construction Standards

Current tailings impoundment design standards likely follow the Canadian Dam Safety Guidelines, 2007 (2013 Edition). However, the assignation of an impoundment design to CDSG risk classification must be clearly discussed and agreed upon between the proponent and Fort McKay. The CDSG classification system takes into account possible environmental and safety risks associated with a failure, and assigns design standards according to the level of risk. For example, dams built upstream of heavily populated areas are classified as high risk. An effective Tailings Management Framework should develop a framework by which dam classification in traditional territories takes into account traditional use values, and the risk to local communities and reserve

lands. General principles of tailings impoundment construction should include limits to the size of external tailings impoundments, and construction standards.

While not posing as great a risk as external tailings impoundments, in-pit tailing disposal poses a number of potential issues. Most will require dyke construction to contain the tailings and will require most of the standards, supervision and monitoring required for external impoundments. Undoubtedly, the risk of catastrophic failure will be much lower than external above ground impoundments the concerns related to contamination, air and water emissions and discharges remain and will require constant surveillance.

5.3.3 Construction Supervision

The risks associated with the potential for tailings failure, either through leakage or breach, require that construction be supervised by an independent geotechnical consultant. This should include the submission of an “as-built” report signed by the geotechnical consultant to confirm that the impoundment has been constructed in accordance with the design, and apply to include initial construction as well as subsequent raises to the impoundment.

5.3.4 Preparing a Construction, Operation, Maintenance and Surveillance Manual

Ongoing maintenance of tailings structures is essential. As with emergency response plans, these should include documentation for staff that sets out the conditions for safe operation, maintenance and surveillance, which are updated on a regular basis. As the mine progresses to closure, the manual will need to be modified to outline the responsibilities for maintenance and ongoing surveillance.

5.3.5 Tailings Dam Oversight Including Responsibilities of Companies, Consultants, Expert Review Panels and Government

Fort McKay needs to be assured that the proper oversight by companies, consultants, expert review committees and government is in place for all impoundments and roles and responsibilities need to be clearly established as part of AER’s regulatory oversight.

5.3.6 Consequence of Failure Category and Inundation Analysis

All dams must be assessed for their consequence of failure category, and constructed and operated to the appropriate design standards. Because Fort McKay’s community and land will be directly affected by any failure, Fort McKay believes that the consequence for failure will be very high to high for all tailings impoundments constructed in the oil sands and, therefore, all dams should have an inundation analysis as well as an emergency response plan.

5.3.7 Financial Assurance to Provide Funding to Pay for Clean-up

At present, Alberta’s Financial Management System assumes that a mine will progress in a systematic and planned fashion until closure and that full financial security will only be in place near the end of this mine life. There is no current requirement for additional security. As evidenced by the Mount Polley breach, the costs of mitigation and clean up can be substantial and impose a

large financial burden on both the operator and the province, and problems can arise long before mine closure. Therefore, the provision of additional security, likely in the form of insurance, needs to be mandated by government, and the amount of insurance coverage must consider the risk and consequence of any major tailings breach.

5.4 Emergency Preparedness Plan

As for sour gas facilities, the risk of harm in the case of tailings failure is high. Recent leaks at the Suncor facility (March 2013 and March 2011) and the Obed Mine tailings release (October 2013) showed that there is no coordinated response for notification of downstream communities who use the Athabasca for traditional activities. This is a serious oversight. Emergency preparedness plans (EPP) for all external, and possibly some in-pit, tailings impoundments, must be prepared, continually updated and made available to Fort McKay as part of the annual reporting requirements. The EPP should be implemented if any of the following occurs:

- Failure or suspected failure of the dam
- Unauthorized discharge from an impoundment
- Slumping, sliding, cracking or bulging of the dam
- Sinkholes in the tailings beach or dam
- Breakage of tailings pipelines
- Extreme flooding

Should one of these events occur, the plan must indicate who needs to be notified. This will include notification of internal company personnel, government, as well as First Nations. The list of contacts must be available and updated frequently to ensure that the list is current.

5.4.1 Management and Monitoring of Effluent Including Air Emissions, Direct Discharge of Effluent and Groundwater Contamination

The framework must set out the monitoring requirements for all tailings impoundments and this data must be made available to Fort McKay on a timely basis. The community of Fort McKay remains concerned about possible tailings breaches as well as ongoing contamination of surface and groundwater, and odours arising from tailings.

5.4.2 Tailings Impoundments Reclamation

The majority of tailings impoundments are and have been constructed on peat accumulating wetlands and their planned reclamation will generally be to upland ecosystems. This represents a continual loss of these wetlands which are an important cultural feature on the boreal landscape. Fort McKay would like to see more attention given to restoring peat accumulating wetland ecosystems on the landscape following mine closure.

5.4.3 Effectively Engaging Fort McKay

Because Fort McKay bears a large part of the risk for any tailings failure we must be a full partner in the development of this framework and the ongoing approval, inspection and monitoring of these facilities. Furthermore, the development of a comprehensive tailings management framework

requires more substantive input from downstream communities who are at considerable risk for tailings failure or abandonment. Effective engagement must include:

- Opportunities to review proposed new regulations arising from the TMF
- Opportunities to review all tailings proposals
- Opportunities to be appraised of research into new treatment technologies
- At the request of Fort McKay, provision of an independent geotechnical consultant to review tailings pond design and operation on Fort McKay's behalf
- Opportunity to review all reports submitted to government including, annual geotechnical reports, monitoring reports and data
- Inspection reports prepared by government, consultants to be submitted directly to Fort McKay
- Immediate notification of any potential emergency

5.5 References

Canadian Dam Safety Guidelines, 2007 (2013 Edition)

Directive 074: Tailings Performance Criteria and Requirements for Oil Sands Mining Schemes.

Energy Resources Conservation Board (now Alberta Energy Regulator), February 3, 2009.

Draft Tailings Management Framework for the Mineable Athabasca Oil Sands. June 26, 2014.

Lower Athabasca Regional Plan, 2012-2022. Alberta Government, 2012.

6 LARP GROUNDWATER MANAGEMENT FRAMEWORK

6.1 Introduction

Groundwater is a vital part of the natural hydrologic cycle and serves to replenish streams, lakes and wetlands supporting aquatic life with fresh water, and in places is also recharged by infiltrating surface water. Traditional uses of groundwater are known to have included manually digging through muskeg to the shallow water table as well as an indirect use through the harvesting of groundwater-dependent plants, and fishing in groundwater-fed surface water bodies.

The Lower Athabasca Region (LAR) Groundwater Management Framework (“GWMF”; August 2012) was developed over an approximate three-year period and covers three geographic sub-regions with the LARP: the North Athabasca Oil Sands (NAOS), South Athabasca Oil Sands (SAOS) and the Cold-Lake Beaver River (CLBR) area. The goals of the framework are to establish baseline groundwater conditions along with identifying the range of natural variability in groundwater parameters of interest, to provide a consistent approach to understanding cumulative effects from development, to allow for predictions of effects in the future, and to support current pollution prevention and risk management principles. Numerous groundwater-intensive industrial activities near Fort McKay as well as throughout the traditional territory, including proposed projects near the Moose Lake area, pose significant threats to Fort McKay’s Constitutional rights should groundwater be depleted through over-use or polluted by industrial activities. This could occur by the loss of muskeg to groundwater depletion or contamination, particularly for muskeg areas in close proximity to the community or around Moose Lake. The protection of fresh waters (including groundwater) and the maintenance of healthy ecosystems is a high priority for Fort McKay for many of the community’s constitutionally protected traditional uses rely on the preservation of healthy aquatic ecosystems.

The GWMF sets regional objectives for groundwater quantity and quality in the form of triggers and limits. A trigger indicates a response action; a limit is a threshold that must not be exceeded. These can be summarized as maintaining existing quality within the range of natural variability and managing groundwater quantity such that the integrity of regional flow systems is maintained. At present, these objectives are intended to be addressed through the implementation of triggers and limits, with only some triggers (but no limits) proposed for certain aquifer management units on an interim basis, as the range of natural variability has not been defined for all parameters of interest.

The government’s engagement process during GWMF development included the opportunity for Fort McKay to review and comment on the draft framework in 2011. At that time, Fort McKay found that the framework and accompanying draft regulations lacked important details (which included, importantly, the process to establish and update regional and project-specific triggers and limits), and therefore required more comprehensive development and continuing review and input from stakeholders. However, the GWMF was finalized in early 2012 without further input from Fort McKay. Page 4 of the document states that during the engagement process that feedback from stakeholders was “considered” though it remains unclear how feedback was considered and integrated. In 2013, Alberta published three supporting documents that provided further technical details for each of the three geographic regions covered by the LARP including the NAOS which covers most of Fort McKay’s traditional territory (See *References* below). The supporting documents did not provide sufficient detail to address Fort McKay’s concerns from the initial review in 2011.

6.2 Groundwater Management Framework Analysis

The establishment of the GWMF was supported by an assessment of regional groundwater quality and the implementation of regional groundwater monitoring (CEMA 2010), which had largely been lacking since the 1990s. This is seen as one of the major steps forward of the GWMF in that a large amount of historical groundwater monitoring data have been reviewed, assessed and reported on. Also, plans have been developed and partially implemented to install new regional groundwater monitoring wells. Another positive outcome of GWMF development is that regional groundwater flow modeling has been initiated along with the publication of technical documents that describe the regional groundwater flow systems.

The framework includes the following main elements:

- Setting triggers and limits on certain water quality and quantity criteria.
- A requirement to establish project-specific groundwater management and response plans with triggers and limits (presumably set by government) included for each project
- Continuing implementation of regional groundwater monitoring.

Gaps and/or weaknesses in the GWMF include, but are not limited to the following.

- a) Operators will presumably continue to be allowed to design and implement groundwater monitoring and management plans which are typically not made public or reviewed in detail by stakeholders.
- b) As noted in Fort McKay's 2011 review, there is not a clear sense of the integration and linkages between the surface water quality and quantity frameworks and groundwater.
- c) Linkages between GWMF and regulatory directives are unclear.
- d) The preservation and enhancement of Constitutional rights is not explicitly stated as an objective in the GWMF. The GWMF does not directly consider ecological values, and direct or indirect traditional uses of water.
- e) Another issue is the fact that triggers are interim at this point (and no limits are in place), and development does not necessarily need to maintain conditions within these criteria (Note: most but not all regulatory applications and EIAs reviewed in the past two years make some reference to the LARP framework or the triggers and limits in the description of proposed groundwater monitoring plans).
- f) Lack of clarity on details, such as: The process to establish and/or update triggers and limits is unclear. Do companies propose these which are then approved by government? Is there a consultation process with stakeholders on regional triggers and limits or project-specific ones?
- g) Groundwater resources protected under the framework appear to be limited to those aquifers chosen by government (i.e. Aquifer Management Units, AMUs) as opposed to all groundwaters.
- h) Triggers and limits to be identified appear to be limited to numeric/measurable values and do not include a way to determine if traditional uses of water are protected.

At this point, it is unclear if the LARP GWMF will enable the government as well as stakeholders to have a consistent and transparent process on which an evaluation of long term cumulative impacts can be made. Moreover, the limited stakeholder engagement process seen during the draft stages of the framework could have consequences over the long term because the extent to which ongoing feedback from First Nations and other stakeholders will inform the GWMF as conditions change

remains unclear. The poor engagement of stakeholders in this process will lead to continuing impacts on Constitutional rights, and increase distrust.

The interim triggers are based on scientific and measurable criteria such as the concentration of certain chemical compounds at a monitoring well. A community member, when presented with such information might still not know the answer to the basic question: “When I go out on the land, how can I know it’s safe to use this water?” In fact it is unclear whether Alberta knows the answer to that question. The GWMF is very stressor based, suggesting that we are unclear what the impacts on the environment will be. Without an explicit requirement to manage the impacts to the receiving environment through effects-based end-points, Alberta’s ability to protect groundwater-based impacts to Constitutional rights is limited. It remains unclear how adherence to the triggers and limits necessarily translates to maintaining a healthy aquatic ecosystem or the ability of community members to engage in traditional uses in accordance with aboriginal and Constitutional rights. Furthermore, the 2013 supporting document for NAOS only proposes interim triggers but no limits. This means that at present there are still no regulatory benchmarks established, and development continues to be approved without these criteria in place.

In summary, since GWMF was finalized in 2012, progress in further developing this framework has been slow. There have been no annual reports on progress. Guidelines or directives on the preparation of Groundwater Management Plans for in-situ projects have still not been released. The desired transparency is not yet realized. Another example of this gap in communications strategy is that as projects continue to get approved, each project must presumably establish a groundwater management plan under LARP, but these plans are not submitted with applications and are generally not available publicly. The following is posted on the LARP webpage:

“Alberta Environment and Sustainable Resource Development is taking deliberate steps to improve the collection, integration, accessibility and evaluation of science and monitoring information. Of note is the establishment of a Science and Monitoring Division. This team will work towards the development of an Integrated Monitoring, Evaluation and Reporting Framework.” This project seems to have been developed at the same time as other aspects of the Integrated Resource Management System, but has either not been fully realized, or is incomplete.

Another potentially significant gap in the framework is that it is unclear how regulatory approvals are linked to the framework in a way that ensures that cumulative effects are managed and can be traced to specific projects when found. Description of response actions to be taken when effects outside of triggers or limits remains vague. As noted by others (Pembina 2012), LARP states that “...a management response will not be a mandatory requirement of the regional plan until there is better understanding of the current state of groundwater in the region and final triggers and limits have been established.” Thus its ability to protect Constitutional rights is even more unclear.

6.3 Proposed Changes

The following provides a non-prioritized list of suggestions on how to improve the GWMF so that it is more protective of Fort McKay’s community and Constitutional rights.

- a) Expand the definition of and the goals of the framework. Include an objective to protect the pursuit of Constitutional rights. In the introduction to the framework, there should be an explicit statement that a desired outcome of framework implementation is to improve the ability of aboriginal groups to participate more fully in regulatory processes and assessment of regional cumulative impacts.
- b) The framework should consider protecting all groundwaters, not just those aquifers selected by government (i.e. Aquifer Management Units, AMUs). As noted in Fort McKay's 2011 review, the process to determine how a high priority aquifer is identified needs further definition.
- c) Identify a process within the framework whereupon appropriate levels of engagement and consultation occur, for example, at the community member level, the technical expert level and with Fort McKay leadership.
- d) Finalise regional triggers and limits, enforce same, and consider expanding triggers and/or limits to include criteria that are important to the aboriginal community. Define the "range of natural variability" for each parameter of interest.
- e) Require some baseline groundwater monitoring data for proposed projects and the development of draft groundwater monitoring and management plans at the time of regulatory (EPEA) application. Establish project-specific triggers and limits on approval based on the regional framework triggers and limits, and the project-specific base-lining.
- f) As was noted in the 2011 review of the draft GWMF, the need to identify and protect traditional direct and indirect uses of groundwater is not mentioned in the framework, and although such uses might not fit the prioritized scheme for managing regional aquifers and setting scientifically based numeric trigger and limit values, this does not mean that traditional uses are lower priority.
- g) Provide a stronger linkage between this groundwater framework, and the surface water framework(s) and the protection of ecological health at the watershed level.
- h) Develop and implement a clear communication strategy so that progress on the implementation and updating of the framework is understood by aboriginal stakeholders. Consider directly engaging with Fort McKay as part of this strategy. It has been two years since the framework was finalized and the LARP website does not appear to provide links to published reports or updates.

6.4 References

- CEMA 2010. Regional Groundwater Quality Study and Monitoring Network Design in the Athabasca Oil Sands: Phase 1 (Report prepared by Worley Parsons).
- Government of Alberta 2012. Lower Athabasca Region, Groundwater Management Framework. ISBN 978-1-4601-0354-4 (online version).
- Government of Alberta 2013. Lower Athabasca Region, Groundwater Management Framework, Supporting Document for the NAOS Area. 978-1-4601-1118-5 (online version).
- Western Water Associates Ltd. 2011. Technical Memorandum: Comments on Lower Athabasca Regional Plan – Groundwater Management Framework. Prepared for Fort McKay and submitted to Lagimodiere and Associates, 24 May.

7 WATERSHED MANAGEMENT

7.1 Introduction

The watersheds, rivers, streams and lakes within Fort McKay's traditional territory are essential for the exercise of Fort McKay's Constitutional rights. The Lower Athabasca River and its tributaries including the MacKay, Ells, Tar, Calumet, Clearwater, Steepbank, Muskeg, and Firebag rivers, and smaller creeks are integral to the culture of Fort McKay as are Namur, Gardiner, Legend, McClelland, Creeburn, Kearn, and Ruth lakes and other lakes and ponds. These rivers and lakes provide a focal point for many of Fort McKay's cultural practices and Constitutional rights including hunting, fishing, trapping, gathering for food and medicine, spiritual activities and other activities that are integral to the culture.

To be effective for protecting Fort McKay's Constitutional rights, land use planning must be done at the appropriate scale. Watershed scale planning is important, both because it is ecologically relevant and because it is culturally relevant. In order to preserve the integrity of a river or lake, activities in the supporting watershed need to be addressed. Fort McKay believes that one key approach to protecting surface water, groundwater, fish and aquatic ecosystems is to develop appropriate watershed management plans. Such plans set protection levels up front that provide direction for: appropriate levels and timing of development; land disturbance limits and thresholds; setbacks; groundwater, surface and wastewater management practices; reclamation; and ecological thresholds and limits.

7.2 Background

Fort McKay identified the need for watershed management plans more than a decade ago, starting with the Muskeg River watershed, which continues to be under pressure from oil sands mines, SAGD projects and other industrial developments (e.g. quarries). In 1999, the Regional Sustainable Development Plan (RSD) identified the need to "protect the integrity of the Muskeg River" and this became a priority issue for the Cumulative Environmental Management Association (CEMA) to address. Alberta acknowledged the importance of watershed scale planning in its Water for Life Strategy (GoA 2003), which *"embraces a watershed approach to water management planning that allows for tandem management of water and land issues. It advocates a collaborative multi-stakeholder governance model."*

An Energy Utilities Board (EUB) and Canadian Environmental Assessment Agency (CEAA) Joint Review Panel decision report for the Shell Jackpine Mine (Decision 2004-009) recommended that CEMA develop a management plan for the Muskeg River watershed by the end of 2005 and that Alberta Environment (AENV) should backstop the process by committing to develop and implement a watershed management plan if CEMA did not deliver it. Further decisions, such as the EUB decision reports for Albion Sands Energy for the Muskeg River Mine Decision 2006-128) and the Imperial Oil Kearn Oil Sands Project (Decision 2007-013), noted that CEMA had not delivered the requested watershed management framework by the end 2005 and that the proposed revised date that CEMA had proposed was September 2008. The EUB recommended that should CEMA fail to deliver by the revised timeline that AENV implement a "full backstop by the end of 2008."

In 2004 the Watershed Integrity Task Group (WITG) was formed within CEMA's Surface Water Working Group (SWWG), and was mandated to develop a Watershed Management Plan for the

Muskeg River Watershed and provide a CEMA recommendation to the Government of Alberta. Fort McKay participated actively in this group. While some progress was made, it was hampered by debates over the appropriate level of development within the watershed and the scope of what defined ecological integrity. By 2007, WITG had developed a State of the Environment Report for the watershed and developed a draft Terms of Reference (December 7, 2007) for a Muskeg River Water Management Plan. The ToR was fairly comprehensive and included a conceptual model of ecological integrity, which defined the stressors and effects, a list of defined goals for the plan and associated management objectives. However, in December 2007, CEMA indicated that it would no longer fund development of the Muskeg River Watershed Management Plan and it recommended that Alberta Environment lead the development of the Plan.

Alberta Environment produced the *Muskeg River Interim Management Framework for Water Quantity and Quality (2008)*. However, this framework was meant to be in interim backstop until the comprehensive plan could be developed. The interim plan set thresholds for water quality and quantity for the Muskeg River and water level objectives for Kearl Lake but did not address terrestrial, wetlands or aquatic ecosystems, wildlife, social, cultural and economic aspects.

Fort McKay's view on the *Interim Framework* was that it was narrowly focused and did not fulfill the Joint Panel recommendation for the Kearl Oil Sands Project to provide a full backstop. Fort McKay stated that the spatial extent of the Framework needed to be expanded, as the monitoring and management was focused on the mouth of the Muskeg River, and that other reaches of the Muskeg River and tributaries needed to be addressed. Fort McKay also indicated that ecosystem health and land-based components of the watershed needed to be addressed.

Within the *Interim Framework* document AENV identified some key issues remaining to be addressed in a comprehensive framework:

- management policy for the mainstem of the Muskeg River,
- establishment of water conservation objectives,
- watershed approach to integrate terrestrial and aquatic components, economic, social, and cultural issues and sustainability,
- additional water quality parameters,
- scenario development using an adaptive management approach to develop sustainable management scenarios, and
- development of an adaptive management plan.

In the conclusions of the Interim Framework, AENV stated: "The Interim Management Framework will be in place until the end of 2009. AENV, in collaboration with First Nations and other stakeholders, will immediately initiate the development of a comprehensive management plan for the Muskeg River watershed." To Fort McKay's knowledge, AENV or Environment and Sustainable Resource Development (ESRD) did not initiate development of a comprehensive management plan for the Muskeg River watershed in 2009 or since that time. However, the ability to develop a watershed management plan is affirmed in Government of Alberta policy. In an update to the Water for Life strategy GoA (2008) added the following principle: "Water for Life will be integrated into other policies and plans, such as the Land-use Framework planning, ensuring better resources management integration." Furthermore, LARP allows for the development of sub-regional plans and a watershed based Landscape Management Plan (GoA 2012).

Fort McKay's 2011 submission on the draft LARP plan specifically requested the development of sub-regional plans for the Muskeg River and other watersheds (FMSD 2011). Given the fact that

EUB decision recommendations for three different mining projects approved between 2004 and 2007 have not been fully addressed and the continuing level of intensive on-going and planned development occurring in the Muskeg River watershed, a sub-regional, watershed-based plan is essential for the Muskeg River watershed. Other watersheds are under intensive development pressure as well and need to be prioritized for sub-regional planning. Fort McKay's priority watersheds are discussed below.

7.2.1 Gaps in Water-related Frameworks

Specific gaps and Fort McKay's proposed improvements in the *Groundwater Management Framework* and the *Surface Water Quality Management Framework* are described in their respective sections in this document (Groundwater: Section 6, Surface Water: Section 3). Fort McKay's comments on the *Athabasca River Surface Water Quantity Framework*, are described in Fort McKay's May 20, 2014 letter to ESRD. In addition, Fort McKay's view is that the division of the management frameworks into media-specific guidelines will create a major gap in the management of cumulative effects and the protection of Fort McKay's Constitutional rights. The narrow focus on the Athabasca River leaves gaps for culturally important tributaries and lakes. Furthermore, the groundwater framework does not fully address groundwater-surface water interactions, and there is no framework linking land disturbance to water quality or quantity.

It is essential that watershed management plans be developed that provide appropriate regulations, guidance, thresholds and limits to address cumulative ecological effects and effects of industrial activity on Fort McKay's Constitutional rights of industrial activity within the Athabasca River tributary watersheds and specific water bodies within Fort McKay's traditional territory.

7.2.2 Proposed Watershed Management Planning

Fort McKay's expectation is that river discharge and lake levels will be maintained as close to natural conditions as possible and within the range of natural variability. Maintaining seasonal and year-to-year patterns is important. Fort McKay also expects that runoff from natural areas of a watershed will be used to help sustain the river in the downstream portion of the watershed that is undergoing change, as opposed to being used, for example, to achieve mine reclamation goals. The management plan will provide the framework necessary to ensure these outcomes, and watershed monitoring programs provide feedback on whether environmental effects are within predicted values and provide information necessary for alterations to the management plan.

Fort McKay has defined some key principles regarding watershed management, some of which are based on the principles described in a publication of the U.S. Environmental Protection Agency (US EPA, 1997) titled *Delineation of Source Water Protection Areas – Part 1: A Conjunctive Approach for Ground Water and Surface Water*.

Fort McKay's key ecological watershed management principles include:

- Retaining as much of the natural runoff in the watershed as possible;
- Limiting the amount of surface disturbance in the watershed;
- Understanding the role groundwater plays in maintaining the stream flows;
- Understanding the role groundwater plays in maintaining lake and wetland water balance and in sustaining outlet stream flow;

- Minimizing development of non-saline, sand and gravel aquifers that are in direct hydraulic communication with surface water bodies;
- Creating appropriate setbacks of surface facilities from water bodies (e.g. for maintain wildlife connectivity, maintaining access for Fort McKay, protecting surface water from erosion and spills);
- Creating buffers for specific types of facilities (e.g. for tailings ponds seepage, buffer for groundwater withdrawal to minimize drawdown effects);
- Protecting fish habitat, fish passage/movement, fish health and populations; and
- Protecting overall ecological integrity of the watershed, lakes and rivers.

Fort McKay has identified key goals for watershed management plans, which are outlined below. These are adapted, with enhancements, from the draft Goals that the Watershed Management Integrity Task Group of CEMA developed (draft ToR, December 7, 2007), which had considerable input from Fort McKay, government, industry, and other stakeholders. It is important to acknowledge that considerable work has previously been done on building a common understanding of the goals and management objectives of a plan for the Muskeg River watershed.

Watershed management plans, should address, at a minimum, the following goals:

- Maintain the Constitutional rights of Fort McKay and other Aboriginal groups,
- Maintain and protect the cultural, historical, heritage and traditional values of the watershed,
- Ensure sufficient water quantity to maintain the hydrological and biological integrity of the key rivers and lakes within the watershed,
- Ensure adequate surface water quality to maintain the integrity of the water bodies within the watershed,
- Establish water quality targets and limits for key water bodies to maintain chemical, physical and biological characteristics (e.g. Namur and Gardiner Lakes, Muskeg River)
- Establish riparian corridor/stream buffer criteria to protect water quality,
- Establish management practices and water release targets and limits to protect water quality (e.g., muskeg drainage, sediment ponds, tailings management, drainage ditches, wetland water treatment, stream diversions, end pit lakes),
- Determine aquatic ecosystem requirements to maintain the integrity of the rivers and lakes within the watershed,
- Establish aquatic biodiversity and productivity criteria to maintain the aquatic ecosystem,
- Establish requirements for water body protection, reclamation and compensation to maintain the aquatic ecosystem,
- Determine wildlife habitat and population requirements to maintain the integrity of the watershed,
- Determine wetland and upland vegetation community requirements to maintain the integrity of the watershed,
- Maintain economic benefits from the development of the oil sands resource in the watershed over the long term,
- Develop management objectives, thresholds and limits for all goals identified above,
- Develop monitoring programs and criteria for adaptive management of the watershed.

7.3 Recommendations

Fort McKay's view is that a watershed management framework should be developed that can be applied and adapted to the various watersheds within the LARP planning area. Due to the development pressures it is important to prioritize the timing of specific watershed management plans.

The following criteria were developed by Fort McKay and presented in the Fort McKay Specific Assessment (Fort McKay IRC 2010, R. Bothe pers. comm.) to provide a first order overview of the state of surface water in a watershed and to aid in prioritizing the development of watershed management plans). The criteria are based on observed changes in surface water runoff that occurred in the Spring Creek and Tri Creeks research watersheds in Alberta (DeBoer unpublished data, Jablonski 1978). The degree of predicted change in a watershed forms the basis for this state of the watershed index. The index points to the relative need for water management planning to be undertaken in a watershed. From a regulatory perspective, it identifies the need for a shift from case-by-case approvals to a comprehensive plan for a watershed.

- **Sustainable** – less than 10% change in stream flow predicted in any given season and/or less than 20% of the watershed area potentially affected by development and related land-use changes. No water management plan is needed at this time.
- **Threatened** – more than 10% change but less than 25% change in stream flow predicted in any season, and/or between potentially 20% and 40% of the watershed area affected by development and related land-use changes. A water management plan should be developed to establish impact limits and provide direction to development.
- **Endangered** – more than 25% change in stream flow predicted in any given season and/or more than 40% of the watershed area potentially affected by development and related land-use changes. A water management plan is urgently needed to establish impact limits and provide direction to development.

Due to significant development pressures and high cultural sensitivity, Fort McKay's has identified the following as priority areas for the development of detailed watershed management plans:

- **Muskeg River watershed** – As of the Fort McKay Specific Assessment in 2010 the state of the Muskeg River watershed was rated as “threatened” due to land disturbance and predicted flow changes, and further development has been proposed since that time).
- **MacKay River watershed** – A recent environmental assessment predicted cumulative groundwater withdrawal in the MacKay River (Southern Pacific 2011). Based on the data presented in the Application, Fort McKay in its review of the application (R. Bothe, surface water review, in FMSD 2012), calculated that groundwater withdrawal would adversely affect the MacKay River and could result in March mean monthly flow decline of 14% to 59% (Application Case) and 59% to 100% (Planned Development Case) in low flow years. A CEMA project is ongoing which could help inform a watershed management plan for the MacKay River watershed.
- **Namur and Gardiner lakes watershed and Ells River** – These areas have been identified by Fort McKay as priority areas for protection due to their high cultural significance, Reserves 174A, 174B. In addition, the Ells River is the domestic water source for Fort McKay.

7.4 References

- Alberta Environment. Framework for Water Management Planning.
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