

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.