ACFN
DENE LANDS AND RESOURCE MANAGEMENT (DLRM)

POLICY DOCUMENT

tu bet'a ts'ena

With Water We Live

Athabasca Chipewyan First Nation (ACFN) Water Policy 2023

ACFN WATER POLICY

We, the Athabasca Chipewyan First Nation have occupied the lands around the Athabasca River and the Peace-Athabasca Delta for the last 10,000 years. Our rights to use the lands and water on our traditional territory have never been extinguished, and we have the right to continue our traditional way of life.[1]

The Chipewyan Indians of Athabasca River, Birch River, Peace River, Slave River and Gull River entered into Treaty 8 with the Crown on July 13, 1899. The Athabasca Chipewyan First Nation is the modern Treaty holder with the Crown.

Treaty 8 established a relationship of mutual respect and benefit between ACFN and the Crown, and the Crown promised that their lands and way of life would be protected from interference.

The Crown has not honoured those promises. This Water Policy is intended to enable ACFN to protect and preserve the Athabasca River through their Dené Laws, so that the River, their lands and waters, and ways of life may be maintained for future generations.[2]

[1] See Athabasca Chipewyan First Nation Elders Council, "ACFN Elders Declaration on Rights to Land Use" (2010) [ACFN Elders Declaration].
[2] See Dené Lands and Resource Management (DLRM), "Consultation Policy" (2021) at 2 [Consultation Policy].

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1. Athabasca Chipewyan First Nation Authority

We, the Athabasca Chipewyan First Nation ("ACFN"), are a Treaty 8 Nation located in the Lower Athabasca Region in northeastern Alberta. We are located near Wood Buffalo National Park and the Peace-Athabasca Delta. In total, ACFN's eight reserves have a combined area of 34,767 ha.[3] Our reserve lands are located on the south shore of Lake Athabasca, on the Athabasca Delta, and on the Athabasca River.[4] Our territory is a mixture of wetlands, meadows, and black spruce forest.[5]

ACFN is part of the larger Denésułine, or Chipewyan, communities. We are collectively known as the K'ai Tailé Dené, meaning "people of the land of the willow".[6] We have lived on the K'ai Tailé nën, our traditional lands around the Peace-Athabasca Delta ("PAD"), since time immemorial. ACFN and our ancestors are the stewards of the PAD, and such stewardship is governed by our inherent laws, Dené Law. Through this stewardship, we have the responsibility to protect the K'ai Tailé nën, its resources, and all of its creatures for now and for future generations.[7]

Dené Law flows from ACFN's inherent collective and individual right to self-determination. Dené Law reflects ACFN's ancestors' teachings, traditions, and values, and it has existed on the K'ai Tailé nën for thousands of years.[8] The land and water within the K'ai Tailé nën are a gift from the Creator. It must be respected, nurtured, cared for and protected to ensure long-term sustainability and use for future generations.[9] ACFN members take care of the land, and in return the land takes care of them. The K'ai Tailé nën is central to us as a Nation and our livelihood.

Our ancestors signed Treaty 8 in 1899 in good faith, with the intent to share the land, not give it away.[10] Today ACFN members hold Aboriginal and Treaty Rights, including subsistence and cultural rights, which are recognized and protected through Treaty 8 and Section 35 of the *Constitution Act*, 1982. We have never ceded nor surrendered our stewardship and jurisdiction over the K'ai Tailé nën. We continue to have jurisdiction over and rights to use the lands and water within the K'ai Tailé nën.[11] We are and continue to be self-determining since time immemorial and have always governed our lands in accordance with their Dené Law. As one ACFN community member explains:

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[3] See Government of Canada, "Reserves/Settlements/Villages – Athabasca Chipewyan First Nation" (last modified 7 December 2021), online: *Crown-Indigenous Relations and Northern Affairs Canada* <fnp-ppn.aadnc-aandc.gc.ca/fnp/Main/Search/FNReserves.aspx?BAND_NUMBER=463&lang=eng>.
[4] See Athabasca Chipewyan First Nation, "Governance", online: *ACFN* <www.acfn.com/governance>.
[5] See Regional Aquatics Monitoring Program, "Athabasca River: Lower Reaches", online: *RAMP* <www.ramp-alberta.org/river/geography/basin+landscape/natural+features.aspx>.
[6] See Craig Candler, Susan Leech, and the Firelight Group, "Living Our Knowledge: A Community Report for ACFN Members" (2014) at 11 [Living Our Knowledge].
[7] See Consultation Policy at 3.
[8] See Consultation Policy at 7.
[9] See Consultation Policy at 7.
[10] See Consultation Policy at 3.
[11] See ACFN Elders Declaration.

> "We, the Dené sųłiné people of the Athabasca Chipewyan First Nation (ACFN), have relied on our traditional lands since time immemorial. Our traditions go on and we have the right to continue our traditional way of life. We agreed only to share our lands and we still consider these lands ours."[12]

As explained throughout this Policy, healthy water is central to ACFN people for maintaining and practising our Aboriginal and Treaty Rights.

Together with Dené Law and Canadian law, the United Nations Declaration on the Rights of Indigenous Peoples ("UNDRIP") applies equally on ACFN territory. Article 32(2) of UNDRIP requires that proponents and state governments obtain free, prior and informed consent "prior to the approval of any project affecting their lands or territories and other resources, particularly in connection with the development, utilization or exploitation of mineral, water or other resources."[13] UNDRIP Article 32(1) states that "Indigenous peoples have the right to determine and develop priorities and strategies for the development or use of their lands or territories and other resources."[14]

We adopt the standard of free, prior and informed consent as a principle and process through which we exercise authority within our territory. The three requirements for consent (free, prior and informed) are interrelated:[15]

- **'Free'** means that "consent [is] given voluntarily and without coercion, intimidation or manipulation." This requires decision-making processes and timelines that are determined by the ACFN and adhered to by any person or body proposing a project or amending a project on ACFN Territory.[16]
- **'Prior'** means that "consent is sought sufficiently in advance of any authorization or commencement of activities."[17] This includes all actions or decisions by a Proponent that may impact ACFN's Aboriginal and Treaty Rights, traditional territory and cultural connections to, heritage values in, and spiritual uses of ACFN traditional territory.[18]
- **'Informed'** means that consent must "be based on accurate, timely and sufficient information provided in a culturally appropriate way."[19] The information provided by a proponent, the Crown or a third party about a proposed activity must be accessible, objective, and accurate.[20]

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[12] See Living Our Knowledge at 13.
[13] See United Nations General Assembly, *United Nations Declaration on the Rights of Indigenous Peoples*, GA Res 61/295, UNGAOR, 61st Sess, Supp No 49, UN Doc A/RES/61/295 (2007) at art 32(2).
[14] *Ibid* at art 32(1).
[15] Food and Agriculture Organization of the United Nations, "Free Prior and Informed Consent: An indigenous peoples' right and a good practice for local communities: Manual for project practitioners" (FAO, 2016) at 15, online: <https://www.fao.org/3/i6190e/i6190e.pdf> [https://perma.cc/AUH8-2A3P] [FAO 2016],
[16] *Ibid*.
[17] *Ibid*.
[18] Consultation Policy.
[19] FAO 2016 at 15.
[20] *Ibid*.

> The information must be complete (scope, duration, size, reversibility, geographical area, and pace) and transparent,[21] in that it provides all potential impacts to the land, waterways, air, animals, fish, birds and other natural beings and human health associated with the activity. Information must be continually provided throughout the course of an activity, and be promptly updated to reflect changes to the activity or impacts from the activity.

The Dené Lands and Resource Management Consultation Policy (the "Consultation Policy") provides the terms by which ACFN's consent to a proposed land and resource-use related activity in, or affecting, ACFN traditional territory may be obtained.[22] No development is allowed on ACFN territory without first obtaining our free, prior and informed consent.

2. Introduction

It is within this context that this ACFN Water Policy ("Water Policy") is one instrument operationalizing Dené law and the free, prior, and informed consent principle within ACFN territory. It establishes water quality and quantity standards and processes that any use of or impact to water in ACFN territory must follow. It sets out a new process and standards that are modern statements of our Aboriginal and Treaty Rights. We will use this Water Policy to protect current and future generations.

This Water Policy applies to the ACFN consultation area as identified in Appendix E, as well as any tributaries of water systems that are captured in the consultation area.

Part 3 describes ACFN's relationship with the Athabasca River, Lake Athabasca, the PAD, groundwater and all waters in our territory. Part 4 identifies the purpose and scope of this Policy, with Parts 5 and 6 establishing the water quality and quantity standards and parameters, respectively. Part 7 identifies that restoration of the Athabasca River, Lake Athabasca, the PAD, groundwater and all waters in our territory will need to meet the thresholds established in this Policy. Part 8 describes the process with which water users or others whose activities will have an impact on ACFN waters must engage to understand the conditions by which they may use or have an impact on ACFN waters and obtain or be refused the free, prior and informed consent of ACFN.

3. Relationship with the Athabasca River

Water is not a commodity. Water is a spirit, a living thing. Water sustains life and must be protected.[23] Water must be treated fairly and with respect. The Athabasca River, Lake Athabasca and the PAD, which

[21] *Ibid*.
[22] Consultation Policy
[23] See Athabasca Chipewyan First Nation, "Draft – The Athabasca Chipewyan First Nation Constitution" (2019) at 1.

includes its related wetlands and groundwater, are the lifeblood of our territory and communities.[24] We depend on these waters whose health and wellbeing are vital for our ways of life.

The Athabasca River, Lake Athabasca and the PAD are essential for our members in exercising our Aboriginal and Treaty Rights and sustaining our unique Indigenous livelihoods, cultures, language and identities as the K'ai Tailé Dené.[25] The Athabasca River, Lake Athabasca and the PAD are integral to ACFN members' food security as they provide access to and the conditions for hunting, fishing, and trapping, and are the transportation corridor for the communities.[26] Maintaining adequate water flows may also assist in emergency management, for example, evacuations due to wildfires. The Athabasca River, Lake Athabasca and the PAD are the main travel route used to reach traditional territories and hunting grounds. The health of ACFN communities is dependent on the health of these waters. If the health of the Athabasca River, Lake Athabasca and the PAD is not maintained, ACFN members' culture and ways of life are in jeopardy. As one ACFN community member explains:

> "Hunting, gathering, trapping, and fishing is how ACFN members feed their families and share wild-foods with other community members (particularly Elders who cannot hunt for themselves); pass down skills that were passed down from generation to generation before us; and learn and practice important Dené values of stewardship, respect, and sharing. Without access to productive habitat that supports these land uses, we will be unable to continue our culture and way of life."[27]

The meaningful exercise of ACFN members' Aboriginal and Treaty Rights, including hunting, trapping, fishing, and navigational needs along the Athabasca River, Lake Athabasca and the PAD directly rely upon the water quality and quantity of the Athabasca River, Lake Athabasca and the PAD.[28]

4. Purpose and Objectives

The overall purpose of this Water Policy is to protect the Athabasca River, Lake Athabasca and the PAD, their wetlands, groundwater, and related ecosystems through the implementation of water quality and quantity standards and procedures that, together, express the free, prior and informed consent required within ACFN territory.

This Water Policy applies to the Athabasca River, Lake Athabasca and the PAD, their wetlands, groundwater, and related ecosystems within ACFN territory. Its intent is to:

[24] See Affidavit of Lisa Tssessaze (23 September 2022) at para 13 in support of ACFN's application for leave to intervene at the Supreme Court of Canada regarding *Reference re Impact Assessment Act* [Affidavit of Lisa Tssessaze] [on file with authors].
[25] See Craig Candler, Rachel Olson, Steven DeRoy and the Firelight Group Research Cooperative, with the Athabasca Chipewyan First Nation (ACFN) and the Mikisew Cree First Nation (MCFN), "As Long As The Rivers Flow: Athabasca Knowledge, Use and Change" (2010) at 6 [As Long As the Rivers Flow]; See Living Our Knowledge at 44.
[26] See Affidavit of Lisa Tssessaze at paras 11-19.
[27] See Affidavit of Lisa Tssessaze at para 28.
[28] See As Long As the Rivers Flow at 15-29.

1. Implement ecosystem parameters for the exercise of ACFN members' Aboriginal and Treaty Rights, and traditional land uses by identifying water quality and quantity thresholds;
2. Restore, preserve and protect the water quality and quantity of the Athabasca River, Lake Athabasca the PAD, their wetlands, groundwater and related ecosystems;
3. Enable us to enforce our Dené laws in the use of water by land and water users and municipal, provincial, territorial, and federal governments; and
4. Provide a set of procedures for interacting with the Athabasca River, Lake Athabasca, the PAD and other waters within ACFN territory.

The following K'ai Taile Dené laws apply on ACFN territory and are guiding principles for this Water Policy:[29]

Principle 1: Take care of the land
Principle 2: Take only what you need
Principle 3: Use everything you take
Principle 4: Respect the process
Principle 5: Honor the land for what you take

5. Water Quality Thresholds

The required water quality thresholds are set out in the *Lower Athabasca Surface Water and Sediment Quality Criteria for Protection of Indigenous Use* (2022) report[30] ("LAR Surface Water and Sediment Quality Criteria Report" - see Appendix G for criteria/standards). The report sets out health risk criteria for various contaminants that we adopt through this Water Policy as the water quality standards. Adherence to these criteria means that the surface water of the Athabasca River, Lake Athabasca, the PAD and other waters within ACFN territory as well as groundwater will meet the needs of ACFN members by ensuring that water, animals, and plants are safe to consume, and that animal and plant populations are healthy and available to support traditional uses and the practice of ACFN members' Aboriginal and Treaty Rights.

The LAR Surface Water and Sediment Quality Criteria Report establishes generic health risk criteria in relation to four traditional water use categories and health protection goals: 1) Traditional foods and drinking water; 2) Traditional medicines; 3) Aquatic ecosystem health; and 4) Wildlife health.

[29] These guiding principles come from the DLRM Consultation Principle (see p8).
[30] See Mandy Olsgard, Megan Thomspon and Thomas Dyck, "Lower Athabasca Surface Water and Sediment Quality Criteria for Protection of Indigenous Use" (2022) at 18-31 [LAR Surface Water and Sediment Quality Criteria Report]. Note: The LAR Surface Water and Sediment Quality Criteria Report used water quality standards from many sources, including the World Health Organization ("WHO").

1) Traditional Foods and Drinking Water[31]

We are exposed to contaminants through ingestion of culturally important wildlife and fish species. Fish are directly exposed to and take up contaminants from being immersed in water, whereas wildlife take up contaminants from consuming surface water, plants and other wildlife and fish. We also have traditionally consumed untreated drinking water from the Athabasca River, Lake Athabasca and the PAD and continue to do so. The generic health risk criteria are designed to ensure that the protection goals of safe food consumption and safe natural surface water consumption are achieved.

2) Traditional Medicines[32]

We rely on the medicinal properties of various aquatic plants for treating health conditions. These aquatic plants may absorb contaminants from the surface water, and then expose ACFN members to such contaminants when they use plants for medicinal purposes. Furthermore, community members have noticed that there has been both a decrease in the availability and the potency of these medicinal plants. The generic health risk criteria are designed to ensure that the protection goal of safe medicine consumption is achieved.

3) Aquatic Ecosystem Health[33]

We have identified that water cannot be managed in isolation. Aquatic ecosystem health depends on the quality of water and vice versa. Both are affected by one another. Therefore, surface water quality and aquatic ecosystem health must be managed together. Likewise, the personal health and wellbeing of ACFN community members is closely linked to aquatic ecosystem health: we cannot exercise our Aboriginal and Treaty Rights fully if aquatic ecosystem health is diminished. The generic health risk criteria are designed to ensure that a functional and healthy aquatic ecosystem is maintained.

4) Wildlife Health[34]

Like aquatic ecosystem health, wildlife health directly affects our personal wellbeing. We have observed that the quality of meat and the abundance and presence of wildlife species we hunt and trap has continued to decline from the onset of industrial development in the area. We believe that the decline is likely due to wildlife species being exposed to industrial development contaminants through their drinking water and diet. We are concerned that wildlife health is being directly affected by increased contaminants in the Athabasca River, Lake Athabasca, the PAD and other water bodies due to industrial development. The generic health risk criteria are designed to ensure that the protection goals of healthy wildlife, robust populations, natural behaviours and patterns, and good quality meat/pelts are achieved.

[31] See LAR Surface Water and Sediment Quality Criteria Report at 156.
[32] *Ibid* at 157.
[33] *Ibid*.
[34] *Ibid* at 158.

We would like to consume more traditional foods than we currently do.[35] The primary reason why we do not consume and harvest more traditional foods is due to fear that the foods may be contaminated by emissions from industrial developments. Community trust in the safety and quality of the resources can be regained by achieving and adhering to the generic health risk criteria for water quality of the waters within ACFN territory.

In conclusion, the LAR Surface Water and Sediment Quality Criteria Report establishes water quality standards that need to be adhered to for us to exercise our Aboriginal and Treaty Rights. These standards ensure that water, animals, and plants are safe to consume, and that wildlife and plant populations are healthy and available to support our subsistence as well as Aboriginal and Treaty Rights, and traditional land use practices. We adopt these standards and implement them in this Policy.

6. Water Quantity Processes

There are two water quantity thresholds that are important for us to exercise our Aboriginal and Treaty Rights, as well as to access our traditional territories: Aboriginal Base Flow (ABF) and Aboriginal Extreme Flow (AXF).[36] ABF estimates a level on the Athabasca River and tributaries where we can exercise our rights and access our traditional territories fully. AXF estimates a minimum level below which widespread and extreme disruption to the exercise of our Aboriginal and Treaty Rights occurs along the Athabasca River and tributaries due to a loss of access related to low waters.

Through hydrograph flow reports of the Athabasca River from 2010[37] and assuming a flow slightly above the mean peak summer flow of the Athabasca River, the ABF of the Athabasca River is approximately $1600m^3/s$.[38] Flows above this threshold allow us to access our traditional territory and exercise our Aboriginal and Treaty Rights along the Athabasca River and adjoining tributaries. However, below this threshold, "navigability and access are compromised to differing degrees around the territory and are generally impaired as flow declines."[39]

When the Athabasca River falls below the $1600m^3/s$ ABF, we will work with water users to decrease extraction rates. The ABF is a condition of all ACFN water use consent, and all approved permits are subject to change when flows fall below the ABF.

[35] *Ibid* at 279-280.
[36] See As Long As the Rivers Flow at 47.
[37] Dan Ohlson, Graham Long and Todd Hatfield, "Phase 2 Framework Committee Report: Final report of the Phase 2 Framework Committee" (2010).
[38] See As Long As The Rivers Flow at 47.
[39] See Martin Carver and Bruce Maclean, "Community-Based Monitoring of Water Depth in and around the Peace-Athabasca Delta: Ten-Year Review" (2022) at 11 [CBM Ten-Year Review].

After ten years of community-based monitoring of water depth at pinch points through our territories, we revised the AXF for the Athabasca River to approximately 500m^3/s.[40]

Pinch points are "critical water passageways that are a) essential for accessing important Traditional Territories or travel routes and b) are known to be the limiting locations in that they are the first to become impassable when water levels decline."[41] In other words, if the water depth drops below a defined level at these pinch points, we are unable to successfully navigate through them to access our traditional territory and exercise our Aboriginal and Treaty Rights. Through extensive interviews with ACFN community members in 2010, the estimated minimum depth of four feet (122 cm) is needed at these pinch points for successful navigation and access.[42]

When the discharge of the Athabasca River is above 500m^3/s, the water depth at these pinch points is above 122cm. However, when discharge is below 500m^3/s, pinch point water depth falls below 122cm. Therefore, the maintenance of the Athabasca River discharge above 500m^3/s is crucial for us to be able to successfully navigate within our territory and exercise our Treaty rights.

When the Athabasca River falls below the AXF, which is 500m^3/s, water users must halt water withdrawal immediately until water flow returns above the AXF. In addition to the ABF, the AXF is also a condition of all ACFN water usage consent. All approved permits are subject to cease water extraction when flows fall below the AXF.

7. Restoring the Waters in ACFN Territory

Restoration of the Waters in ACFN Territory is to the water quality and quantity thresholds set out in this Water Policy and Appendix G.

8. Procedures for Interacting with the Waters in ACFN Territory

The procedures for proponents taking water from or having an impact on the Athabasca River, Lake Athabasca, the PAD, groundwater and other waters within ACFN territory is guided by the Consultation Policy.[43] The procedures established in this Water Policy are to be followed and completed in conjunction with the Consultation Policy. Indication of where each of these procedures fits into the steps of the Consultation Policy is provided. The Dené Lands and Resource Management (DLRM) department holds the authority for providing consent (approving or denying) applications when our core priorities such as the Athabasca River, Lake Athabasca and the PAD are impacted by a proposed or existing project or activity.

[40] The Athabasca River flow was measured at two points: Fort McMurray (site 07DA001) and Embarras (site 07DD001). Seven pinch points were monitored. See CBM Ten-Year Review at 2.
[41] CBM Five-Year Review at 22.
[42] See As Long As The Rivers Flow at 27; and CBM Ten-Year Review at 15.
[43] See Dené Lands and Resource Management (DLRM), "Consultation Policy" (2021).

Anyone who is developing a project that may have an impact on the Athabasca River, Lake Athabasca, the PAD, groundwater and other waters (either use of water or release of substances or water into these waterbodies or its tributaries) in our territory must adhere to these procedures. This includes any time a water licence comes up for renewal.

This Water Policy, approved by ACFN Chief and Council is effective August 2, 2023. Therefore, new activities for pre-existing projects and ongoing negotiation and consultation on potential projects will need to conform to this Water Policy.

The steps are as follows:

1) Begin consultations with ACFN-DLRM
2) Identify impacts
3) Develop water quality and quantity standards
4) Establish mitigation actions and monitoring programs
5) Engage community
6) Approve or deny application
7) Monitor long term

1) Begin consultations with ACFN-DLRM

This step is to be completed in conjunction with Consultation Policy Step 1: Proponent Obligations and Step 2: Process Issues Scoping.

During this initial consultation, proponents will contact DLRM staff and introduce the project. This will involve explaining the scope of the project (i.e. the purpose of and need for, activities and infrastructure associated with, and location of the project), setting out anticipated timelines related to the project, and identifying relevant stakeholders involved. Initial consultation will also involve establishing expectations, roles and responsibilities between the proponent and ACFN in relation to the project.

2) Identify Impacts

This step is to be completed in conjunction with Consultation Policy Step 3: Technical Review.

Proponents will work with ACFN-DLRM to identify all potential impacts that the project will have on our Aboriginal and Treaty Rights such as water quality and quantity of the Athabasca River, Lake Athabasca and the PAD, either directly, through tributaries, or through cumulative impacts within the territory. This will involve identifying all chemicals and contaminants associated with the project that may or will have an impact on water quality. If the project involves water extraction, then the proponent must indicate the water withdrawal rate in m^3/s, location of withdrawal, and diversion schedule (i.e. when and at what rate extraction is proposed throughout the year), and other diversions nearby.

3) Develop water quality and quantity standards

This step is to be completed in conjunction with Consultation Policy Step 3: Technical Review.

Proponents must adhere to the general health risk criteria set out in Part 5 and Appendix G for chemicals and contaminants for activities they have identified in Step 2 of these procedures. If a chemical or contaminant identified in Step 2 of these procedures is not identified in the LAR Surface Water and Sediment Quality Criteria Report, we will work with proponents to establish a generic health risk criteria for that chemical or contaminant.

Proponents, working in collaboration with us, will also establish procedures and protocols that will come into effect when it is found that the generic health risk criteria for a chemical or contaminant is exceeded. However, as a general principle, if it is found that the generic health risk criteria for a chemical or contaminant is not being adhered to, the proponent must immediately attempt to remedy the matter in order to restore compliance with this Policy.

In terms of water quantity, we will confirm the established ABF and AXF with proponents, and ensure that flows in the Athabasca River are adequate to approve the application for new water extraction, as applicable. In other words, we will examine the volume impact that the new proponent's activity will have on the existing ABF and AXF, and if there is space for further water extraction, we will establish conditions (i.e. diversion rate, timing of diversion, etc.) for the extraction of water.

4) Establish mitigation measures and monitoring programs

This step is to be completed in conjunction with Consultation Policy Step 3: Technical Review.

Proponents, working in collaboration with us, will establish mitigation activities and monitoring programs relating to their project. Mitigation activities will include mitigation plans and measures to prevent the water quality and quantity of the Athabasca River, Lake Athabasca and the PAD from declining and diminishing. Monitoring programs will monitor the water quality and quantity of the affected waters in relation to the project. We will establish reporting guidelines under this step. These monitoring programs are essential to ensure that the determined water quality and quantity standards set out in Step 3 of these procedures are adhered to.

5) Engage Community

This step is to be completed in conjunction with Consultation Policy Step 4: Community Engagement.

As stated in the Consultation Policy, proponents will ensure that we are always informed about the proposed project. As directed by us, proponents may be required to gather community members' views and

concerns on the project and implement measures to adequately address these concerns. This may involve changing or modifying the project's design, the developed ABF and AXF, and the established mitigation measures and monitoring programs to ensure that community members' concerns are adequately addressed. In an event where modification, minimization, avoidance of impacts is not possible, then the proponent would accommodate our members' concerns. Accommodation can take various forms including rejecting the project, financial compensation, land exchanges, training and employment opportunities as well as relationship agreements (Impact Benefit Agreements).

6) Approve or Deny Application

This step is to be completed in conjunction with Consultation Policy Step 5: Negotiated Accommodation Agreement(s).

DLRM will take all of the information it has gathered through Steps 1-5 of these procedures and make an informed decision on whether or not to provide consent for the proponent's project to proceed. If DLRM provides consent for the project, it will issue the proponent a Permit to Interact with Water, which, among other things, will contain conditions on water extraction (i.e. the maximum water withdrawal rate allowed in m^3/s), the established water quality standards (i.e. the generic health risk criteria for chemicals and contaminants), the established water quantity standards (i.e. ABF and AXF), the established procedures and protocols for when water quality and quantity standards fall below their identified thresholds, and terms and conditions of the established monitoring programs.

The Permit to Interact with Water is not determinative, and is always subject to ACFN's discretion, amendment, and withdrawal of consent.

7) Monitor Long Term

This step is to be completed in conjunction with Consultation Policy Step 6: Long Term Relationship.

Long term monitoring of the water quality and quantity of the Athabasca River, Lake Athabasca and the PAD is essential for ACFN community members' wellbeing and cultural practices. Once the DLRM issues to proponents a Permit to Interact with Water the proponents will perform on-going monitoring of both the water quality and quantity in relation to their project. We have the right to ensure that an ACFN member is present when these samples are taken. Proponents must communicate and report these findings to DLRM pursuant to the reporting guidelines and schedules established in Step 4 of these procedures. We will also perform long term community-based monitoring to ensure adherence to established water quality and quantity standards.

8. Implementation/Communication Plan

Implementation of ACFN's Water Policy will require approval by ACFN Chief and Council. We will communicate the Water Policy both internally and externally. Externally, we will communicate the Water Policy to all levels of government, industry partners, as well as other Indigenous communities. The Water Policy will be housed on ACFN's external-facing website as part of its existing policy library.

9. State of the Watershed

As part of our responsibility to the Athabasca River, we will compile the state of the Athabasca River watershed every five years as well as conduct research on water quality and quantity and review this Water Policy as needed. For a State of the Athabasca River completed for the creation of this Policy, see Appendix C.

Appendix A – ACFN Resources and Data

ACFN, "As Long as the Rivers Flow" Report Executive Summary: www.acfn.com/wp-content/uploads/2023/08/As-the-River-Flows.pdf

ACFN, "Consultation Area": www.acfn.com/wp-content/uploads/2024/04/ACFN_ConsultationNotice_traditional-lands.pdf

ACFN, "Contact": https://www.acfn.com/contact

ACFN, "Dene Lands and Resource Management": https://www.acfn.com/dlrm

ACFN, "DLRM Consultation Policy": www.acfn.com/wp-content/uploads/2023/08/ACFN-Consultation-Policy.pdf

ACFN, "Governance": www.acfn.com/governance

ACFN, "Lower Athabasca Surface Water and Sediment Quality Criteria for Protection of Indigenous Use": www.acfn.com/wp-content/uploads/2023/10/wqciu_report.pdf

Appendix B – Definitions

Aboriginal Base Flow (ABF) – a threshold which "estimates a level on the Athabasca River and adjacent streams" at which ACFN members "are able to practice their rights, and access their territories fully."[44]

Aboriginal Extreme Flow (AXF) – a threshold which "estimates a minimum level below which widespread and extreme disruption of Aboriginal and Treaty Rights occurs along the Athabasca river, delta, and tributaries due to a loss of access related to low waters."[45]

Dené Lands and Resource Management (DLRM) – a department "established to create capacity for the community in order to work with industry and government to assess the environmental impacts of industrial development on the ACFN territory… DLRM works with the Elders, Chief and Council and Membership to understand the Key Concerns and determine the process for consultation with the ACFN… DLRM also facilitates the collection of Indigenous Knowledge and conducts studies on impacts to the territory. The purpose of DLRM is to work with Industry and Government to determine consultation requirements, including assessment of the impacts of development on ACFN's territory, uses, rights, and well-being."[46]

Free, Prior and Informed Consent (FPIC) – a principle present in UNDRIP that relates to Indigenous self-determination. ACFN adopts the FPIC standard on its traditional territory for any decisions falling under this Water Policy. See page 5 of this Policy for an explanation of FPIC.

K'ai Tailé nën - Denésułine traditional lands around the Peace-Athabasca Delta.

Section 35 of rights **the *Constitution Act*, 1982** – section 35(1) states: "The existing Aboriginal and Treaty Rights of the aboriginal peoples of Canada are hereby recognized and affirmed."[47] Section 35 confers upon the Crown a duty to consult for actions that may infringe on Aboriginal or treaty rights.[48]

Treaty 8 – signed in 1899 between the Chipewyan Indians of Athabasca River, Birch River, Peace River, Slave River and Gull River, which "established a relationship of mutual respect and benefit…".[49] ACFN is the modern Treaty holder with the Crown. Treaty 8.

United Nations Declaration on the Rights of Indigenous People (UNDRIP) – adopted by the General Assembly in 2007, UNDRIP is "the most comprehensive international instrument on the rights of

[44] See As Long As The Rivers Flow at 47.
[45] *Ibid*.
[46] Athabasca Chipewyan First Nation, "Dene Lands & Resource Management, online: *ACFN* <https://www.acfn.com/dlrm>.
[47] *Constitution Act, 1982, Schedule B to the Canada Act 1982 (UK)*, 1982, c 11.
[48] See Consultation Policy at 4.
[49] See Consultation Policy at 2.

indigenous [sic] peoples… [and] established a universal framework of minimum standards for the survival, dignity and well-being"[50] of Indigenous peoples worldwide. UNDRIP has been adopted as domestic law both federally and in BC.

Waters user – any person or corporate entity extracting water under a permit issued under this Water Policy.

[50] United Nations, "United Nations Declaration On The Rights Of Indigenous Peoples, online: *UN* <https://social.desa.un.org/issues/indigenous-peoples/united-nations-declaration-on-the-rights-of-indigenous-peoples#:~:text=The%20United%20Nations%20Declaration%20on,%2C%20Bangladesh%2C%20Bhutan%2C%20Burundi%2C>.

Appendix C - State of the Athabasca River

The water quality and quantity of the Athabasca River continues to decline due to industrial development within the region, which adversely affects ACFN members' ability to exercise Aboriginal and Treaty Rights. According to a 2014 report, there are currently 15 oil sands mines on ACFN lands north of Fort McMurray that are operating or being built: 10 that have been approved, and 20 that have been proposed or announced.[51] Each of these operations has impacts on water within our territory but without our free, prior and informed consent.

Water Quality

The water quality in the Athabasca River has been declining largely due to oil sands operations upstream of the PAD. Oil sands operations produce oil sands processed water (OSPW) which is a mixture of water, sand, residual bitumen and lighter hydrocarbons. Freshly produced OSPW is a substance acutely toxic to aquatic organisms.[52] There is direct evidence of OSPW seeping into groundwater sources adjacent to industrial operations. While there is less direct evidence from western science of OSPW reaching natural surface waters and no evidence of OSPW being detected in the mainstem Athabasca River, western scientific research has concluded that this is likely due to dilution by the volume of river flow.[53] Findings of groundwater seepage suggest that as oil sands operations continue, there is an increasing risk of surface water contamination.

Researchers have documented ACFN community members' observations of contamination to the Athabasca River, fish and animals in the ACFN territory. Over the years, we have seen negative changes in the Athabasca River's water quality generally, but also more specifically in the quality of fish, berries, and meat.[54] We attribute such declines to oil sands-related emissions. In general, there is a lack of confidence in the water quality and quality of resources around the Athabasca River, which has a direct impact on subsistence use and the practice of Aboriginal and Treaty Rights in the watershed. As one community member explained:

> "We can't use the Athabasca River as we used to. It used to be a drinking source at one time. Not anymore...You think twice before you drink the water and all that stuff...That's a big change..."[55]

The decline in water quality of the Athabasca River directly impedes ACFN members' exercise of our Aboriginal and Treaty Rights, and our passing down of teachings. Our members hunt and gather plants,

[51] See Living Our Knowledge at 13.
[52] See Commission for Environmental Cooperation (CEC), "Alberta Tailings Ponds II - Factual Record regarding Submission SEM-17-001" (2020) at 24 [CEC Report].
[53] See CEC report at 139, 147.
[54] See As Long As the Rivers Flow at 25-26; See Living Our Knowledge at 43-40.
[55] See Living Our Knowledge at 41.

animals, fish and berries through our territory. However, because of the lack of confidence in water quality, we are more hesitant and less likely to eat and use a variety of wild foods that we hunt and gather from our territory. In addition, the decline in water quality is affecting the passing down of culture because "ACFN members are avoiding areas where they traditionally hunted, fished and gathered wild foods. With the loss of these areas for practicing traditional use of the land, traditional knowledge about that land can be lost within a generation or two."[56]

Water Quantity

In recent years, our community members have noticed drastic declines in the water flow of the Athabasca River. This is largely due to industrial development within the region. The Athabasca River passes through the world's third largest oil deposit.[57] Oil sands operations adjacent to the Athabasca River withdraw significant amounts of water from the river, which directly decreases water levels and flow. In 2020, the cumulative water withdrawal by the oil sands mining sector in the Lower Athabasca Region was 121 million m^3/year (3.8m^3/s).[58]

Members have reported that "the seasonal flow of the Athabasca River has changed over their lifetimes, that the trend is for the river to be lower than in the past, and that the reduction in flow is making it more difficult for boat travel or subsistence practice."[59] Due to low water flow and depth in the Athabasca River, our community members are finding it increasingly difficult to navigate the Athabasca River and to access our territory. Travel along the Athabasca River is now dangerous as it is very shallow: one can easily bottom out on a boat, and there are sandbars everywhere. As one community member explained:

> "...there's sandbars ... everywhere. It's dangerous. Like all these little shortcuts we were able to use to cut off time, right here, you come through here, all these little islands, you used to be able to navigate through all of them ... See, there's a shortcut here, sometimes you got to go all the way round here, come all the way back like that, it depends on how the current is, the sandbars are always moving. And it's dangerous. Some places here you could walk right across on the Athabasca River."[60]

We used to be able to travel extensively on the Athabasca River without worrying about hitting the bottom, but this is not the case anymore. Because of this, many of our community members now avoid using the Athabasca River, as the risks are too great and this avoidance impacts the continued exercise of their

[56] *Ibid*.
[57] See Martin Carver and Bruce Maclean, "Community-Based Water-Depth Monitoring in the Peace-Athabasca Delta: Insights and Evaluation" (2016) at 15 [CBM Five-Year Review].
[58] See Alberta Government, "2020 Status of the Surface Water Quantity, Lower Athabasca Region" (2020) at 24, online (pdf): <open.alberta.ca/dataset/a38963df-e0f0-4983-9974-88fae5de42f8/resource/4bae5273-4e3b-455b-8957-8a0fe47022e7/download/aep-status-of-surface-water-quantity-lower-athabasca-region-2020.pdf>.
[59] See As Long As the Rivers Flow at 24.
[60] *Ibid*.

Aboriginal and Treaty Rights to hunt, fish, trap and navigate through the river to access other parts of their lands.

Extreme low water levels occurs when water flow of the Athabasca River falls below the Aboriginal Extreme Flow water quantity threshold (See Part 6 for more details).

Navigability is becoming more difficult in the fall season. The fall season is an important hunting season for us and navigation throughout the River system during this season is essential, as many of our traditional hunting grounds are only accessible by boat and become inaccessible during low water flows. The figure in Appendix F shows the decline of water flow of the Athabasca River in recent years, specifically in relation to the fall season.

It is important to note that large industrial water users and facilities that impact water, as approved by the Province of Alberta, continue to develop within ACFN territory and use water that is important for the Athabasca River. This continued use and impact cumulatively contribute to the decline of the River. We have, on numerous occasions, participated fully in federal and provincial regulatory processes and contacted both industry proponents and the relevant Province of Alberta and federal regulatory agencies regarding the negative impact on the health of the Athabasca River, specifically the decline of its water quality and quantity. However, these concerns have largely been ignored. Neither the Province of Alberta or industries operating within ACFN territory have developed defensible water quality and quantity standards that account for cumulative impacts and respect Dené law.

In summary, the provincial government has not addressed the issues of oil sands operations within the Lower Athabasca Region, which have had negative impacts and caused declines in both the water quality and quantity in the Athabasca River. Emissions from industry pollute the River and negatively affect the quality of meat, fish, and berries that ACFN members harvest. Large water extractions by oil sands operations reduce the water flow of the Athabasca River, which affects ACFN members' navigational abilities to reach traditional territories and hunting grounds. Because of these negative changes, and because of the lack of action on the part of the Province of Alberta, we are unable to exercise our Aboriginal and Treaty Rights. Therefore, and pursuant to their inherent authority and Dené law, we are implementing this water policy to help restore and preserve the Athabasca River.

Appendix D – Application Form

APPLICATION FOR LICENCE, AMENDMENT OF LICENCE, OR RENEWAL OF LICENCE IN ACFN TERRITORY

To complete this form, please fill in the grey fields; attach additional pages, as necessary. Indicate N/A in the grey fields for Items or parts of Items that are not applicable.

If applicable, provide the existing or current Water Licence number:			
Use an "X" to indicate if this Application is accompanied by another Application for a Water Licence in a non-federal area and/or a Land Use Permit.		Water Licence:	
		Land Use Permit:	

1. NAME AND CONTACT INFORMATION – APPLICANT

Applicant's Name:			
Position:			
Company Name:			
Mailing Address:			
Community:		Telephone:	
Prov/Terr:		Email:	
Postal Code:		Other:	

2. NAME AND CONTACT INFORMATION – APPLICANT'S HEAD OFFICE

Use an "X" to indicate this information is the same as Item 1 above:			
Name:			
Position:			
Company Name:			
Mailing Address:			
Community:		Telephone:	
Prov/Terr:		Email:	
Postal Code:		Other:	

3. LOCATION OF PROJECT

Use the grey fields below to provide or reference the following information:

Traditional Place Name:	

Maps and Geographic Information System (GIS) Data: Include a map in your Application Package, identifying local geographic features, watercourses and water sources, project structures, and location(s) of any proposed waste deposits. Provide geographic coordinates (latitude and longitude) of project features, and the maximum and minimum project boundary in degrees, minutes, seconds, or decimal degrees. Include GIS data in your Application Package, if applicable.

Minimum latitude: Minimum longitude:		Maximum latitude: Maximum longitude:	

NTS Map Sheet No.: Provide the map sheet number:	

Land Types: Use an "X" to indicate the type(s) of land on which the activities are proposed:

Free Hold/ Private:		Commissioner's/ Territorial Lands:		Federal Land:		Municipal Land:	

4. DESCRIPTION OF PROJECT

Describe the proposed activities in the grey field provided below and contact DLRM staff to determine whether additional information will be required. For proposed amendments to authorized activities, specify: the nature of the amendment, the condition(s) to be amended, and the rationale for the amendment.

5. TYPE OF UNDERTAKING

Use an "X" to indicate which one type of undertaking applies:

1	Industrial		
2	Mining and milling		
3	Municipal		
4	Power		
5	Agriculture		
6	Conservation		
7	Recreation		
8	Miscellaneous		(describe):

6. WATER LICENSING CRITERIA
Use an "X" to indicate which criteria apply:

	Type B	Type A	
To obtain water			
To cross a watercourse			
To modify the bed or bank of a watercourse			
Flood control			
To divert water			
To alter the flow of, or store, water			
To deposit waste			
Other			(describe):

7. PROPOSED QUANTITY OF WATER INVOLVED
Describe the purpose of each proposed water use, name, and type (e.g., lake, river) of the water source, the location, and the quantity of water that would be used in the grey fields below. Add more rows as needed.

Purpose of Water Use	Name and Type of Water Source	Location	Geographic Coordinates		Proposed Water Use Volume/Rate, including units
			Latitude	Longitude	

For each water source identified in the table above, provide a comparison of total proposed water use to the available capacity. Add more rows as needed.

Water Source	Capacity of Water Source, including units	Other Users of the Water Source	Comparison of Total Proposed Water Use to Available Capacity

8. PROPOSED WASTE MANAGEMENT METHODS
Use the grey field below to provide or reference the following information:

Waste Management Plan: Include a Waste Management Plan in your Application Package, if applicable, or for small-scale activities, describe proposed waste management activities in the grey field provided below.

9. EXISTING WATER USERS AFFECTED BY THIS PROJECT
Describe pre-Application engagement efforts with any existing water users and associated possible claims for water compensation or compensation agreements. Include the names and locations of existing water users (e.g., persons or organizations) in the grey fields below. An additional table should be added for each water user.

Name:	
Community:	
Province/Territory:	
Describe Engagement Completed:	

10. POTENTIAL ENVIRONMENTAL IMPACTS OF THE PROJECT AND PROPOSED MITIGATIONS
If the proposed project, or parts of the proposed project, may be exempt from preliminary screening, describe the rationale for the exemption in the grey field below. Include the date of the most recent screening, and/or the environmental assessment or impact review number.

Identify all potential impacts and possible mitigations that are relevant to the proposed project, and indicate whether any of the mitigation measures have been developed as a result of input from affected parties. Possible potential impacts are listed below; however, these lists are not exhaustive and may not apply to all projects. All information provided should reflect the size, scale, and nature of the proposed project. Cumulative impacts and climate change must be considered. Attach additional pages if needed.

Potential Impacts *Use an "X" to indicate which apply*	**X**	**Potential Project Impacts and Proposed Mitigations** *Describe the potential impact(s) and the proposed measure(s) to reduce each of these impacts.*
ABIOTIC COMPONENTS		
Land		
Soil contamination		
Soil compaction		
Destabilization/erosion		
Change in soil structure		
Inability to support vegetation		
Other		
Water		
Groundwater		
Water table alteration		
Infiltration changes		
Changes in water quality		
Temperature changes		
Other		
Permafrost		
Loss or change in extent		
Changes in seasonal fluctuations		
Change in persistence		
Other		
Surface Water		
Water flow or level changes (permanent, temporary, seasonal)		
Drainage pattern changes		
Temperature changes		
Changes in water quality		
Wetland impairment		
Changes to aquatic habitat (see Biotic section below)		
Other		
Air		
Changes in air quality		

Potential Impacts *Use an "X" to indicate which apply*	**X**	**Potential Project Impacts and Proposed Mitigations** *Describe the potential impact(s) and the proposed measure(s) to reduce each of these impacts.*
Harm to living things		
Increased greenhouse gases		
Other		
BIOTIC COMPONENTS		
Vegetation		
Direct loss of vegetation		
Loss of Species at Risk or may-be-at-risk plants		
Change in species composition		
Introduction of non-native (invasive) species		
Effects on plant health (dust, metals, toxins)		
Increased risk of fire		
Compaction of vegetation		
Other		
Terrestrial Wildlife Habitat		
Direct loss or removal of habitat, dens, or nests		
Loss or removal of keystone species and/or Species at Risk habitat		
Fragmentation of wildlife corridor		
Direct injury or mortality		
Disturbances to key lifecycle stages: breeding, feeding, nesting, staging		
Effects on population abundance		
Change in species diversity		
Effects on wildlife health (toxins, metals, etc.)		
Changes to migratory movement patterns		
Changes to predator-prey relationships		
Human-wildlife conflicts		
Other		
Aquatic Habitat		
Breeding disturbances		

Potential Impacts *Use an "X" to indicate which apply*	**X**	**Potential Project Impacts and Proposed Mitigations** *Describe the potential impact(s) and the proposed measure(s) to reduce each of these impacts.*
Change in species diversity		
Effects on health (toxins, metals, sediment, etc.)		
Changes to migratory movement patterns		
Changes to predator-prey relationships		
Effects on population abundance		
Change in species diversity		
Other		
CULTURAL COMPONENTS		
Wildlife Harvesting		
Loss or reduction in game species populations		
Effects on traditional land use, subsistence, and harvesting rights		
Other		
Cultural Integrity and Heritage Resources		
Change to or loss of cultural integrity		
Change to or loss of traditional lifestyle		
Change to or loss of heritage resource		
Other		
Social and Economic Well-being		
Increased human health hazard and risk		
Economic opportunities or losses (employment, training)		
Change in ecological, cultural, social, or economic values identified for protection in approved Land Use Plans		
Impairment of the recreational or traditional uses of the land or water		
Impairment of the aesthetic quality of the land or water		
Changes to the use of the area by other non-Indigenous people (e.g., trappers, outfitters, residents, hunters, forest harvesters, other		

Potential Impacts *Use an "X" to indicate which apply*	**X**	**Potential Project Impacts and Proposed Mitigations** *Describe the potential impact(s) and the proposed measure(s) to reduce each of these impacts.*
authorized projects)		
Other		

Spill Contingency Plan: Include a Spill Contingency Plan in your Application Package, if applicable, or for small-scale activities, provide relevant details in the grey field provided below.

11. NAME AND CONTACT INFORMATION – CONTRACTORS AND SUB-CONTRACTORS
Include relevant names, responsibilities, and contact information in the grey fields below. An additional table should be added for each contractor and sub-contractor.

Name:			
Responsibilities:			
Company Name:			
Mailing Address:			
Community:		Telephone:	
Prov/Terr:		Email:	
Postal Code:		Other:	

	Use an "X" to indicate that contractor and/or subcontractor information is not available at this time.

12. STUDIES UNDERTAKEN TO DATE
In the grey field below list any relevant studies that support the proposed activities and include them in your Application Package.

13. PROPOSED PROJECT SCHEDULE AND TERM
Indicate the proposed project start and completion dates, and the time of year the project activities are planned to occur. Describe any anticipated temporary closure(s) or seasonal shutdowns. Indicate the term requested.

Start Date:		Completion Date:	
Term of Licence Requested:			

14. ADDITIONAL SUPPORTING INFORMATION
Use the grey field below to provide or reference the following information:

15. FEES
Refer to the Guide for assistance with determining applicable fees.

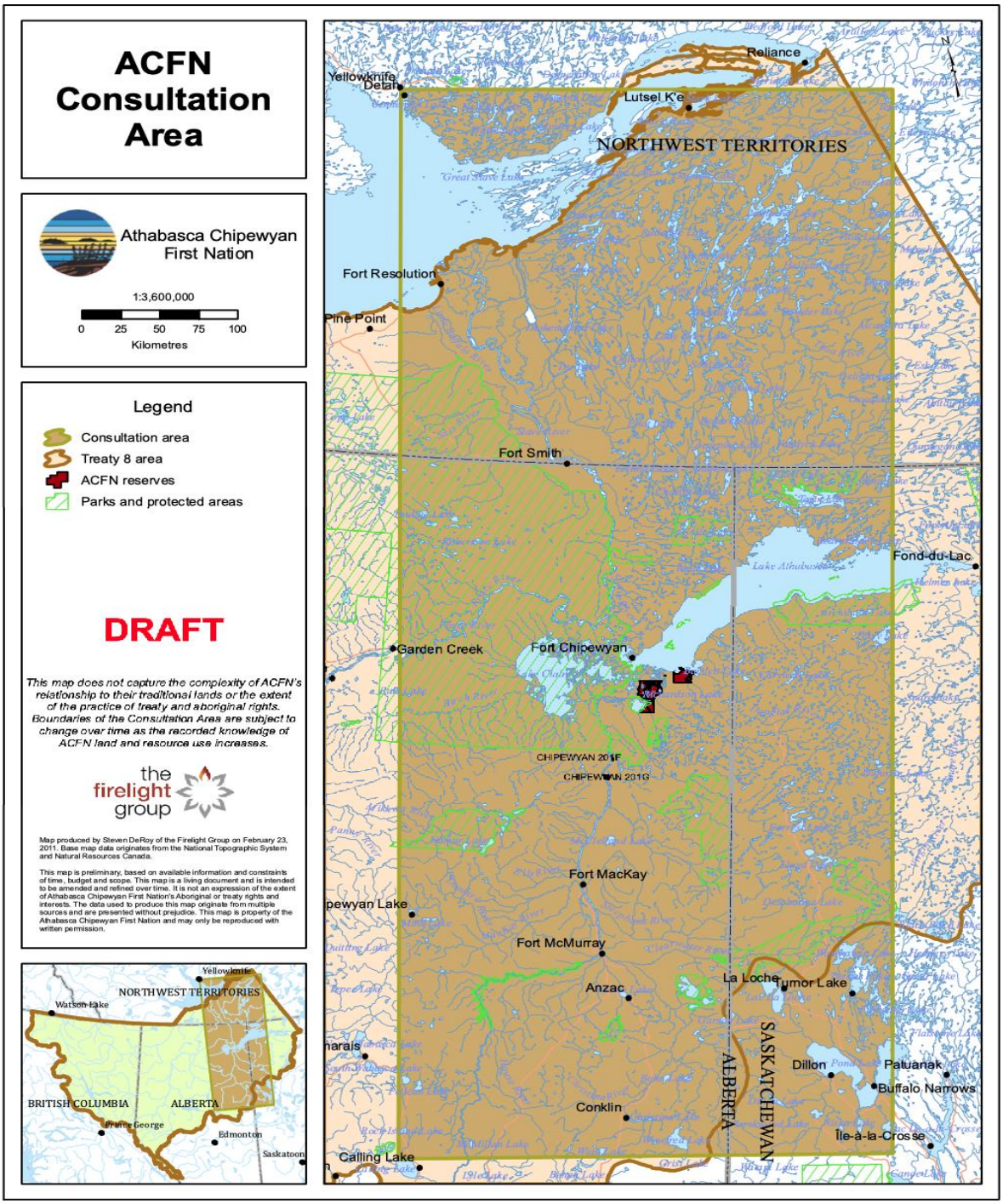
Type of Fee	Amount ($)
Application fee (if applicable):	$
Water use fee deposit:	$
Total Fees:	$

16. SIGNATURE

Applicant's Name (print) or Company Name	Position (print)

Signature	Date

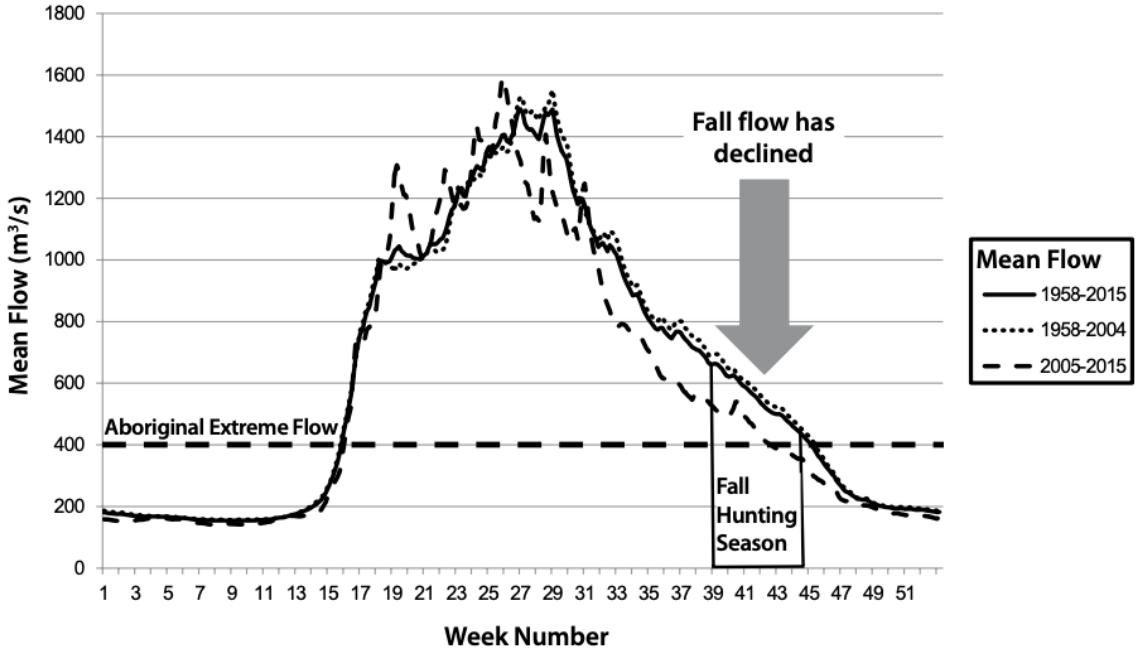
Appendix E – ACFN Consultation Map Area



Source: Dené Lands and Resource Management (DLRM), "Consultation Policy" (2021) at 15.

Appendix F – Declining Mean Hydrograph of the Athabasca River in relation to the fall hunting season

Figure 5. Declining mean hydrograph of the Athabasca River at Fort McMurray in relation to the fall hunting season.



Source: Martin Carver and Bruce Maclean, "Community-Based Water-Depth Monitoring in the Peace-Athabasca Delta: Insights and Evaluation" (2016) at 19.

Appendix G – Generic Health Risk Criteria for the Protection of all Indigenous Water Use Categories (regarding water quality)

Adopted from Olsgard, ML, M thompson, T Dyck. *Lower Athabasca Surface Water and Sediment quality Criteria for Protection of Indigenous Use* (undated, version 289)

Table 1.2: Generic health risk criteria for the protection of all Indigenous water use categories.

Parameter	Sample Fraction	Units	Generic (All water uses protected)		
			Most Stringent	Sensitive Receptor	Source
.alpha.-Endosulfan		ug/L	0.056	aquatic biota	US EPA Aquatic Life Criteria
.beta.-Endosulfan		ug/L	0.056	aquatic biota	US EPA Aquatic Life Criteria
1,1,1-Trichloroethane*		ug/L	200	human	US EPA DWR
1,1,2,2-Tetrachloroethane*		ug/L	2	human	HH DW+Org (US EPA)
1,1,2-Trichloroethane		ug/L	3	human	US EPA DWR
1,1-Dichloroethylene		ug/L	7	human	US EPA DWR
1,2,3,4-Tetrachlorobenzene		ug/L	0.03	human	USEPA WQC HH Org HH DW+Org (US EPA)
1,2,3-Trichlorobenzene		ug/L	8	aquatic biota	AEP Water PAL CCME Water PAL
1,2,4-Trichlorobenzene		ug/L	0.071	human	HH DW+Org (US EPA)
1,2-Dibromo-3-chloropropane		ug/L	0.2	human	US EPA DWR

Table 1.2: Generic health risk criteria for the protection of all Indigenous water use categories. *(continued)*

Parameter	Sample Fraction	Units	Generic (All water uses protected)		
			Most Stringent	Sensitive Receptor	Source
1,2-Dibromoethane		ug/L	0.4	human	WHO DW
1,2-Dichlorobenzene		ug/L	0.7	aquatic biota	AEP Water PAL
1,2-Dichloroethane*		ug/L	5	human wildlife	Health Canada DW AEP Water Ag CCME Water Ag US EPA DWR
1,2-Dichloroethene		ug/L	50	human	WHO DW
1,2-Dichloropropane*		ug/L	5	human	US EPA DWR
1,2-Diphenylhydrazine*		ug/L	0.3	human	HH DW+Org (US EPA)
1,3-Dichlorobenzene		ug/L	7	human	HH DW+Org (US EPA)
1,3-Dichloropropene*		ug/L	2.7	human	HH DW+Org (US EPA)
1,4-Dichlorobenzene		ug/L	26	aquatic biota	AEP Water PAL
1,4-Dioxane		ug/L	50	human	WHO DW
2,3,4,6-Tetrachlorophenol		ug/L	1	human	USEPA WQC AO
2,3-Dichlorophenol		ug/L	0.04	human	USEPA WQC AO
2,4,5-Trichlorophenol		ug/L	1	human	USEPA WQC AO
2,4,6-Trichlorophenol*		ug/L	2	human	USEPA WQC AO
2,4-D		ug/L	4	aquatic biota	CCME Water PAL AEP Water PAL
2,4-DB		ug/L	25	aquatic biota	AEP Water PAL
2,4-Dichlorophenol		ug/L	0.3	human	USEPA WQC AO
2,4-Dimethylphenol		ug/L	100	human	HH DW+Org (US EPA)
2,4-Dinitrophenol		ug/L	10	human	HH DW+Org (US EPA)
2,4-Dinitrotoluene*		ug/L	0.49	human	HH DW+Org (US EPA)
2,5-Dichlorophenol		ug/L	0.5	human	USEPA WQC AO
2,6-Dichlorophenol		ug/L	0.2	human	USEPA WQC AO
2-Chloronaphthalene		ug/L	800	human	HH DW+Org (US EPA)
2-Chlorophenol		ug/L	0.1	human	USEPA WQC AO
2-Methyl-4,6-Dinitrophenol		ug/L	2	human	HH DW+Org (US EPA)
2-Methyl-4-Chlorophenol		ug/L	1800	human	USEPA WQC AO
3,3'-Dichlorobenzidine		ug/L	0.49	human	HH DW+Org (US EPA)
3,4-Dichlorophenol		ug/L	0.3	human	USEPA WQC AO
3-Chlorophenol		ug/L	0.1	human	USEPA WQC AO
3-Iodo-2-propynyl butyl carbamate		ug/L	1.9	aquatic biota	CCME Water PAL AEP Water PAL

Table 1.2: Generic health risk criteria for the protection of all Indigenous water use categories. *(continued)*

Parameter	Sample Fraction	Units	Generic (All water uses protected)		
			Most Stringent	Sensitive Receptor	Source
3-Methyl-4-Chlorophenol		ug/L	500	human	HH DW+Org (US EPA)
3-Methyl-6-Chlorophenol		ug/L	20	human	USEPA WQC AO
4-Chlorophenol		ug/L	0.1	human	USEPA WQC AO
Acenaphthene§		ug/L	4.79	human	HH DW+Org (derived)
Acridine		ug/L	4.4	aquatic biota	AEP Water PAL CCME Water PAL
Acrolein		ug/L	2.87	human	HH DW+Org (derived)
Acrylamide		ug/L	0.07	human	HH DW+Org (derived)
Acrylonitrile*		ug/L	0.53	human	HH DW+Org (derived)
Alachlor		ug/L	2	human	US EPA DWR
Alcohol ethoxylates		ug/L	70	aquatic biota	FEQG Water PAL
Aldicarb		ug/L	1	aquatic biota	AEP Water PAL CCME Water PAL
Aldrin*		ug/L	0.0000077	human	USEPA WQC HH Org HH DW+Org (US EPA)
Aldrin and dieldrin		ug/L	0.03	human	WHO DW
Alkalinity, total		mg/L	20	aquatic biota	AEP Water PAL US EPA Aquatic Life Criteria
alpha-Endosulfan		ug/L	1.82	human	HH DW+Org (derived)
alpha-Hexachlorocyclohexane*		ug/L	0.0002	human	HH DW+Org (derived)
Aluminum	Total	ug/L	18	wildlife	US DOE Wildlife
Aluminum	Dissolved	ug/L	50	aquatic biota	AEP Water PAL
Ammonia		mg/L	0.67	human	HH DW+Org (derived)
Ammonia, unionized		mg/L	0.016	aquatic biota	AEP Water PAL
Aniline		ug/L	2.2	aquatic biota	AEP Water PAL CCME Water PAL
Anthracene		ug/L	0.012	aquatic biota	CCME Water PAL AEP Water PAL
Antimony	Total	ug/L	4.59	human	HH DW+Org (derived)
Arsenic*	Total	ug/L	0.03	human	HH DW+Org (derived)
Arsenic*††	Dissolved	ug/L	150	aquatic biota	US EPA Aquatic Life Criteria
Asbestos		ug/L	7	human	US EPA DWR HH DW+Org (US EPA)

Table 1.2: Generic health risk criteria for the protection of all Indigenous water use categories. *(continued)*

Parameter	Sample Fraction	Units	Generic (All water uses protected)		
			Most Stringent	Sensitive Receptor	Source
Atrazine		ug/L	1.8	aquatic biota	AEP Water PAL CCME Water PAL
Atrazine and its chloro-s-triazine metabolites		ug/L	100	human	WHO DW
Azinphos-methyl		ug/L	0.01	aquatic biota	US EPA Aquatic Life Criteria AEP Water PAL
Barium	Total	ug/L	1000	human	HH DW+Org (US EPA) Health Canada DW
Benzene*		ug/L	2.11	human	HH DW+Org (derived)
Benzidine*		ug/L	0.001	human	HH DW+Org (derived)
Benzo(a)anthracene*†		ug/L	0.001	human	HH DW+Org (derived)
Benzo(a)pyrene*†		ug/L	0.0001	human	HH DW+Org (derived)
Benzo(b)fluoranthene*†		ug/L	0.001	human	HH DW+Org (derived)
Benzo(k)fluoranthene*†		ug/L	0.01	human	HH DW+Org (derived)
Beryllium	Total	ug/L	3.27	human	HH DW+Org (derived)
beta-Endosulfan		ug/L	2.87	human	HH DW+Org (derived)
beta-Hexachlorocyclohexane*		ug/L	0.01	human	HH DW+Org (derived)
Bis(2-Chloro-1-methylethyl) Ether		ug/L	127.99	human	HH DW+Org (derived)
Bis(2-Chloroethyl) Ether*		ug/L	0.25	human	HH DW+Org (derived)
Bis(2-Ethylhexyl) Phthalate		ug/L	0.21	human	HH DW+Org (derived)
Bis(Chloromethyl) Ether*		ug/L	0.001	human	HH DW+Org (derived)
Bisphenol A-d6		ug/L	3.5	aquatic biota	FEQG Water PAL
Boron	Total	ug/L	1333.33	human	HH DW+Org (derived)
Bromacil		ug/L	5	aquatic biota	AEP Water PAL CCME Water PAL
Bromate		ug/L	10	human	Health Canada DW US EPA DWR WHO DW
Bromodichloromethane		ug/L	6.33	human	HH DW+Org (derived)
Bromoform		ug/L	7	human	HH DW+Org (US EPA)

Table 1.2: Generic health risk criteria for the protection of all Indigenous water use categories. *(continued)*

Parameter	Sample Fraction	Units	Generic (All water uses protected)		
			Most Stringent	Sensitive Receptor	Source
Bromoxynil		ug/L	5	aquatic biota human	AEP Water PAL CCME Water PAL Health Canada DW
Butylbenzyl Phthalate*		ug/L	0.06	human	HH DW+Org (derived)
Cadmium‡	Total	ug/L	0.002	human	HH DW+Org (derived)
Cadmium‡††	Dissolved	ug/L	0.824	aquatic biota	US EPA Aquatic Life Criteria
Calcium		mg/L	1000	wildlife	CCME Water Ag AEP Water Ag
Captan		ug/L	1.3	aquatic biota	CCME Water PAL AEP Water PAL
Carbamazepine		ug/L	10	aquatic biota	CCME Water PAL AEP Water PAL
Carbaryl		ug/L	0.2	aquatic biota	AEP Water PAL CCME Water PAL
Carbofuran		ug/L	1.8	aquatic biota	CCME Water PAL AEP Water PAL
Carbon tetrachloride		ug/L	1.9	human	HH DW+Org (derived)
Chloramines		ug/L	0.5	aquatic biota	CCME Water PAL
Chlorate		ug/L	700	human	WHO DW
Chlordane		ug/L	0.001	human	HH DW+Org (derived)
Chloride		mg/L	120	aquatic biota	CCME Water PAL AEP Water PAL
Chlorinated paraffins, long-chain, C18-C20		ug/L	2.4	aquatic biota	AEP Water PAL FEQG Water PAL
Chlorinated paraffins, medium-chain, C14-C17		ug/L	2.4	aquatic biota	AEP Water PAL FEQG Water PAL
Chlorinated paraffins, short-chain, C10-C13		ug/L	2.4	aquatic biota	FEQG Water PAL AEP Water PAL
Chlorine		ug/L	0.5	aquatic biota	AEP Water PAL
Chlorine dioxide		ug/L	800	human	US EPA DWR
Chlorite		ug/L	700	human	WHO DW
Chlorobenzene		ug/L	1.3	aquatic biota	AEP Water PAL
Chlorodibromomethane		ug/L	8	human	HH DW+Org (US EPA)
Chloroform		ug/L	1.8	aquatic biota	AEP Water PAL CCME Water PAL
Chlorophenol		ug/L	7	aquatic biota	AEP Water PAL CCME Water PAL
Chlorophenoxy Herbicide (2,4,5-TP) [Silvex]		ug/L	20.55	human	HH DW+Org (derived)
Chlorothalonil		ug/L	0.18	aquatic biota	CCME Water PAL AEP Water PAL

Table 1.2: Generic health risk criteria for the protection of all Indigenous water use categories. *(continued)*

Parameter	Sample Fraction	Units	Generic (All water uses protected)		
			Most Stringent	Sensitive Receptor	Source
Chlorotoluron		ug/L	30	human	WHO DW
Chlorpyrifos		ug/L	0.002	aquatic biota	AEP Water PAL CCME Water PAL
Chromium	Total	ug/L	50	human	WHO DW Health Canada DW
Chromium (III)‡	Total	ug/L	8.9	aquatic biota	CCME Water PAL AEP Water PAL
Chromium (III)‡††	Dissolved	ug/L	100.92	aquatic biota	US EPA Aquatic Life Criteria
Chromium (VI)	Total	ug/L	1	aquatic biota	CCME Water PAL AEP Water PAL
Chromium (VI)	Dissolved	ug/L	5	aquatic biota	FEQG Water PAL
Chrysene*†		ug/L	0.07	human	HH DW+Org (derived)
cis-1,2-Dichloroethylene		ug/L	70	human	US EPA DWR
Cobalt‡	Total	ug/L	1.10	aquatic biota	FEQG Water PAL AEP Water PAL
Copper*‡	Total	ug/L	2.76	aquatic biota	CCME Water PAL
Copper	Dissolved	ug/L	0.53	aquatic biota	FEQG Water PAL
Cyanazine		ug/L	0.6	human	WHO DW
Cyanide		ug/L	3.62	human	HH DW+Org (derived)
Cyanobacterial toxins		ug/L	1.5	human	Health Canada DW
Dalapon		ug/L	200	human	US EPA DWR
DDT and metabolites*		ug/L	0.000004	wildlife	US DOE Wildlife
Deltamethrin		ug/L	0.0004	aquatic biota	AEP Water PAL CCME Water PAL
Demeton		ug/L	0.1	aquatic biota	US EPA Aquatic Life Criteria AEP Water PAL
Di(2-ethylhexyl) adipate		ug/L	400	human	US EPA DWR
Di(2-ethylhexyl) phthalate		ug/L	6	human	US EPA DWR
Di-n-Butyl Phthalate		ug/L	0.15	wildlife	US DOE Wildlife
Diazinon		ug/L	0.17	aquatic biota	AEP Water PAL US EPA Aquatic Life Criteria
Dibenzo(a,h)anthracene*		ug/L	0.0001	human	HH DW+Org (derived)
Dibromoacetonitrile		ug/L	70	human	WHO DW
Dibromochloromethane		ug/L	5.21	human	HH DW+Org (derived)
Dicamba		ug/L	10	aquatic biota	CCME Water PAL AEP Water PAL
Dichloroacetate		ug/L	50	human	WHO DW
Dichloroacetonitrile*		ug/L	20	human	WHO DW

Table 1.2: Generic health risk criteria for the protection of all Indigenous water use categories. *(continued)*

Parameter	Sample Fraction	Units	Generic (All water uses protected)		
			Most Stringent	Sensitive Receptor	Source
Dichlorobromomethane		ug/L	9.5	human	HH DW+Org (US EPA)
Dichloromethane*		ug/L	5	human	US EPA DWR
Dichlorophenol		ug/L	0.2	aquatic biota	CCME Water PAL AEP Water PAL
Dichlorprop		ug/L	100	human	WHO DW
Diclofop-methyl		ug/L	6.1	aquatic biota	AEP Water PAL CCME Water PAL
Didecyl dimethyl ammonium chloride		ug/L	1.5	aquatic biota	CCME Water PAL AEP Water PAL
Dieldrin*		ug/L	0.00001	human	HH DW+Org (derived) HH DW+Org (US EPA)
Diethanolamine		ug/L	450	aquatic biota	AEP Water PAL
Diethyl Phthalate		ug/L	35.61	human	HH DW+Org (derived)
Diethylene glycol		ug/L	150000	aquatic biota	AEP Water PAL
Diisopropanolamine		ug/L	1600	aquatic biota	AEP Water PAL CCME Water PAL
Dimethoate		ug/L	3	wildlife	CCME Water Ag AEP Water Ag
Dimethyl Phthalate		ug/L	102.91	human	HH DW+Org (derived)
Dinitrophenols		ug/L	10	human	HH DW+Org (US EPA)
Dinoseb		ug/L	0.05	aquatic biota	CCME Water PAL AEP Water PAL
Dioxin (2,3,7,8-TCDD)		ug/L	0.00000002134	wildlife	US DOE Wildlife
Diquat		ug/L	20	human	US EPA DWR
Diuron		ug/L	150	human	Health Canada DW
Edetic acid		ug/L	600	human	WHO DW
Endosulfan		ug/L	0.003	aquatic biota	AEP Water PAL CCME Water PAL
Endosulfan Sulfate		ug/L	2.63	human	HH DW+Org (derived)
Endothall		ug/L	100	human	US EPA DWR
Endrin		ug/L	0.001	wildlife	US DOE Wildlife
Endrin Aldehyde		ug/L	0.11	human	HH DW+Org (derived)
Epichlorohydrin		ug/L	0.4	human	WHO DW
Ethanol			123377	wildlife	US DOE Wildlife
Ethinyl estradiol		ng/L	0.5	aquatic biota	AEP Water PAL
Ethyl acetate			136465	wildlife	US DOE Wildlife
Ethylbenzene		ug/L	2.4	wildlife	AEP Water Ag CCME Water Ag
Ethylene dibromide		ug/L	0.05	human	US EPA DWR

Table 1.2: Generic health risk criteria for the protection of all Indigenous water use categories. *(continued)*

Parameter	Sample Fraction	Units	Generic (All water uses protected)		
			Most Stringent	Sensitive Receptor	Source
Ethylene glycol		ug/L	192000	aquatic biota	AEP Water PAL CCME Water PAL
Fenoprop		ug/L	9	human	WHO DW
Fluoranthene[§]		ug/L	0.04	aquatic biota	AEP Water PAL CCME Water PAL
Fluorene[§]		ug/L	3	aquatic biota	AEP Water PAL CCME Water PAL
Fluoride		mg/L	0.12	aquatic biota	CCME Water PAL
Formaldehyde			73910	wildlife	US DOE Wildlife
gamma-Hexachlorocyclohexane [Lindane]		ug/L	0.01	aquatic biota	AEP Water PAL
Glyphosate		ug/L	280	human wildlife	AEP Water Ag Health Canada DW CCME Water Ag
Haloacetic acids		ug/L	60	human	US EPA DWR
heptaBDE		ng/L	14	aquatic biota	FEQG Water PAL
Heptachlor[*]		ug/L	0.00004	human	HH DW+Org (derived)
Heptachlor epoxide[*]		ug/L	0.0001	human	HH DW+Org (derived)
hexaBDE		ng/L	120	aquatic biota	FEQG Water PAL AEP Water PAL
Hexabromocyclododecane		ug/L	0.56	aquatic biota	FEQG Water PAL AEP Water PAL
Hexachlorobenzene[*]		ug/L	0.0001	human	HH DW+Org (derived)
Hexachlorobutadiene[*]		ug/L	0.001	human	HH DW+Org (derived)
Hexachlorocyclohexane[*]		ug/L	0.01	aquatic biota human	HH DW+Org (derived) CCME Water PAL
Hexachlorocyclopentadiene		ug/L	0.4	human	HH DW+Org (derived)
Hexachloroethane[*]		ug/L	0.02	human	HH DW+Org (derived)
Hydrazine		ug/L	2.6	aquatic biota	FEQG Water PAL AEP Water PAL
Hydrogen Sulfide		ug/L	2	aquatic biota	US EPA Aquatic Life Criteria
Hydroxyatrazine		ug/L	200	human	WHO DW
Imidacloprid		ug/L	0.23	aquatic biota	AEP Water PAL CCME Water PAL
Indeno(1,2,3-cd)pyrene[*†]		ug/L	0.001	human	HH DW+Org (derived)
Inorganic nitrogen (nitrate and nitrite)	Dissolved	mg/L	100	wildlife	CCME Water Ag AEP Water Ag
Iron	Total	ug/L	300	aquatic biota human	CCME Water PAL USEPA WQC AO

Table 1.2: Generic health risk criteria for the protection of all Indigenous water use categories. *(continued)*

Parameter	Sample Fraction	Units	Generic (All water uses protected)		
			Most Stringent	Sensitive Receptor	Source
Iron	Dissolved	ug/L	300	aquatic biota	AEP Water PAL
Isophorone*		ug/L	268.41	human	HH DW+Org (derived)
Isoproturon		ug/L	9	human	WHO DW
Lead‡	Total	ug/L	4.01	aquatic biota	AEP Water PAL CCME Water PAL
Lead‡††	Dissolved	ug/L	3.07	aquatic biota	US EPA Aquatic Life Criteria
Linuron		ug/L	7	aquatic biota	CCME Water PAL AEP Water PAL
m-Dichlorobenzene		ug/L	150	aquatic biota	CCME Water PAL
Malathion		ug/L	0.1	aquatic biota	AEP Water PAL US EPA Aquatic Life Criteria
Manganese	Total	ug/L	50	human	HH DW+Org (US EPA)
MCPA		ug/L	2.6	aquatic biota	CCME Water PAL AEP Water PAL
Mecoprop		ug/L	10	human	WHO DW
Mercury	Total	ug/L	0.0016	wildlife	US DOE Wildlife
Mercury††	Dissolved	ug/L	0.77	aquatic biota	US EPA Aquatic Life Criteria
Mercury (methyl)	Total	ug/L	0.001	aquatic biota	AEP Water PAL
Mercury (methyl)	Dissolved	ug/L	0.004	aquatic biota	CCME Water PAL
Methanol		ug/L	1500	aquatic biota	AEP Water PAL
Methoprene		ug/L	0.09	aquatic biota	AEP Water PAL CCME Water PAL
Methoxychlor		ug/L	0.001	human	HH DW+Org (derived)
Methyl Bromide		ug/L	100	human	HH DW+Org (US EPA)
Methyl tert-butyl ether		ug/L	10	aquatic biota	AEP Water PAL
Methylene chloride*		ug/L	32.62	human	HH DW+Org (derived)
Metolachlor		ug/L	7.8	aquatic biota	AEP Water PAL CCME Water PAL
Metribuzin		ug/L	1	aquatic biota	AEP Water PAL CCME Water PAL
Microcystin-LR		ug/L	1	human	WHO DW
Mirex		ug/L	0.001	aquatic biota	US EPA Aquatic Life Criteria AEP Water PAL
Molinate		ug/L	6	human	WHO DW
Molybdenum	Total	ug/L	33.33	human	HH DW+Org (derived)
Monochloramine		ug/L	3000	human	WHO DW
Monochloroacetate		ug/L	20	human	WHO DW

Table 1.2: Generic health risk criteria for the protection of all Indigenous water use categories. *(continued)*

Parameter	Sample Fraction	Units	Generic (All water uses protected)		
			Most Stringent	Sensitive Receptor	Source
Monochlorobenzene		ug/L	1.3	aquatic biota	CCME Water PAL AEP Water PAL
Monoethanolamine		ug/L	75	aquatic biota	AEP Water PAL
N-Nitrosodi-n-Propylamine*		ug/L	0.05	human	HH DW+Org (US EPA) HH DW+Org (derived)
N-Nitrosodimethylamine*		ug/L	0.007	human	HH DW+Org (US EPA)
N-Nitrosodiphenylamine*		ug/L	33	human	HH DW+Org (US EPA)
Naphthalene§		ug/L	1	aquatic biota	AEP Water PAL
Naphthenic acids (Lower Athabasca River)	Total	ug/L	<0.05	Adopted current condition (Oil Sands Monitoring Program Reporting Limit)	
Naphthenic acids (Athabasca River Delta)	Total	ug/L	230	Adopted current condition (50th percentile, high flow)	
Naphthenic acids (Lake Athabasca)	Total	ug/L	140	Adopted current condition (50th percentile, open water)	
Nickel‡	Total	ug/L	7.35	human	HH DW+Org (derived)
Nickel‡††	Dissolved	ug/L	60.68	aquatic biota	US EPA Aquatic Life Criteria
Nitrate	Dissolved	mg/L	3	aquatic biota	CCME Water PAL AEP Water PAL
Nitrilotriacetic acid		ug/L	200	human	WHO DW
Nitrite	Dissolved	mg/L	0.06	aquatic biota	CCME Water PAL
Nitrobenzene		ug/L	9.72	human	HH DW+Org (derived)
Nitrosamines		ug/L	0.008	human	HH DW+Org (US EPA)
Nitrosodibutylamine		ug/L	0.05	human	HH DW+Org (derived)
Nitrosodiethylamine		ug/L	0.002	human	HH DW+Org (derived)
Nitrosopyrrolidine		ug/L	0.16	human	HH DW+Org (US EPA) HH DW+Org (derived)
Nonylphenol		ug/L	6.6	aquatic biota	US EPA Aquatic Life Criteria
Nonylphenol and its ethoxylates		ug/L	1	aquatic biota	CCME Water PAL
o-Dichlorobenzene		ug/L	0.7	aquatic biota	AEP Water PAL CCME Water PAL

Table 1.2: Generic health risk criteria for the protection of all Indigenous water use categories. *(continued)*

Parameter	Sample Fraction	Units	Generic (All water uses protected)		
			Most Stringent	Sensitive Receptor	Source
octaBDE		ng/L	14	aquatic biota	FEQG Water PAL
Oxamyl (Vydate)		ug/L	200	human	US EPA DWR
p,p'-Dichlorodiphenyldichloroethane (DDD)*		ug/L	0.001	human	HH DW+Org (US EPA)
p,p'-Dichlorodiphenyldichlorc (DDE)*		ug/L	0.00018	human	USEPA WQC HH Org
p-Dichlorobenzene		ug/L	5	human	Health Canada DW
Paraquat		ug/L	10	human	Health Canada DW
Parathion		ug/L	0.013	aquatic biota	US EPA Aquatic Life Criteria AEP Water PAL
Pendimethalin		ug/L	20	human	WHO DW
pentaBDE		ng/L	0.2	aquatic biota	AEP Water PAL FEQG Water PAL
pentaBDE (BDE-100)		ng/L	0.2	aquatic biota	FEQG Water PAL AEP Water PAL
pentaBDE (BDE-99)		ng/L	4	aquatic biota	AEP Water PAL FEQG Water PAL
Pentachlorobenzene		ug/L	0.01	human	HH DW+Org (derived)
Pentachloronitrobenzene			4	wildlife	US DOE Wildlife
Pentachlorophenol		ug/L	0.1	human	HH DW+Org (derived)
Perchlorate		ug/L	70	human	WHO DW
Perfluorooctanesulfonate		ug/L	0.6	human	Health Canada DW
Perfluorooctanoic acid		ug/L	0.2	human	Health Canada DW
Permethrin		ug/L	0.004	aquatic biota	AEP Water PAL CCME Water PAL
pH		pH units	7-9	aquatic biota human human	US EPA Aquatic Life Criteria HH DW+Org (US EPA) AEP Water PAL CCME Water PAL Health Canada DW
Phenanthrene§		ug/L	0.4	aquatic biota	CCME Water PAL AEP Water PAL
Phenol		ug/L	2	wildlife	CCME Water Ag AEP Water Ag
Phorate		ug/L	2	human	Health Canada DW
Picloram		ug/L	29	aquatic biota	CCME Water PAL AEP Water PAL
Polychlorinated Biphenyls (PCBs)*		ug/L	0.00064	human	USEPA WQC HH Org
Propylene glycol		ug/L	500000	aquatic biota	CCME Water PAL AEP Water PAL
Pyrene§		ug/L	0.025	aquatic biota	CCME Water PAL AEP Water PAL

Table 1.2: Generic health risk criteria for the protection of all Indigenous water use categories. *(continued)*

Parameter	Sample Fraction	Units	Generic (All water uses protected)		
			Most Stringent	Sensitive Receptor	Source
Quinoline		ug/L	3.4	aquatic biota	AEP Water PAL CCME Water PAL
Selenium	Total	ug/L	0.24	wildlife	US DOE Wildlife
Silver	Total	ug/L	0.25	aquatic biota	AEP Water PAL CCME Water PAL
Simazine		ug/L	2	human	WHO DW
Sodium dichloroisocyanurate		ug/L	40000	human	WHO DW
Solids Dissolved and Salinity		ug/L	250000	human	HH DW+Org (US EPA)
Strontium	Total	ug/L	4000	human	HH DW+Org (derived)
Styrene		ug/L	20	human	WHO DW
Sulfate		mg/L	250	human	WHO DW
Sulfide		mg/L	0.0019	aquatic biota	AEP Water PAL
Sulfolane		ug/L	50	aquatic biota	AEP Water PAL
Tebuthiuron		ug/L	1.6	aquatic biota	CCME Water PAL
Terbufos		ug/L	1	human	Health Canada DW
Terbuthylazine		ug/L	7	human	WHO DW
tetraBDE		ng/L	24	aquatic biota	FEQG Water PAL AEP Water PAL
Tetrabromobisphenol A		ug/L	3.1	aquatic biota	FEQG Water PAL AEP Water PAL
Tetrachloroethane		ug/L	13.3	aquatic biota	CCME Water PAL
Tetrachloroethylene*		ug/L	4.48	human	HH DW+Org (derived)
Tetrachlorophenol		ug/L	1	aquatic biota	CCME Water PAL AEP Water PAL
Thallium	Total	ug/L	0.02	human	HH DW+Org (derived)
Toluene		ug/L	0.5	aquatic biota	AEP Water PAL
Total dissolved solids		mg/L	3000	wildlife	AEP Water Ag CCME Water Ag
Toxaphene		ug/L	0.0002	aquatic biota	US EPA Aquatic Life Criteria
Toxicity (chronic)‡‡		Toxic Units (c)	1	aquatic biota	AEP Water PAL
trans-1,2-Dichloroethylene		ug/L	100	human	US EPA DWR
Triallate		ug/L	0.24	aquatic biota	CCME Water PAL AEP Water PAL
triBDE		ng/L	46	aquatic biota	AEP Water PAL FEQG Water PAL
Tribromomethane		ug/L	100	wildlife	CCME Water Ag
Tributyltin		ug/L	0.008	aquatic biota	CCME Water PAL
Trichlorfon		ug/L	0.009	aquatic biota	AEP Water PAL CCME Water PAL

Table 1.2: Generic health risk criteria for the protection of all Indigenous water use categories. *(continued)*

Parameter	Sample Fraction	Units	Generic (All water uses protected)		
			Most Stringent	Sensitive Receptor	Source
Trichloroacetate		ug/L	200	human	WHO DW
Trichloroethylene*		ug/L	1.38	human	HH DW+Org (derived)
Trichlorophenol		ug/L	18	aquatic biota	AEP Water PAL CCME Water PAL
Triclosan		ug/L	0.47	aquatic biota	FEQG Water PAL
Tricyclohexyltin		ug/L	250	wildlife	CCME Water Ag AEP Water Ag
Triethylene glycol		ug/L	350000	aquatic biota	AEP Water PAL
Trifluralin		ug/L	0.2	aquatic biota	AEP Water PAL CCME Water PAL
Trihalomethanes		ug/L	80	human	US EPA DWR
Triphenyltin		ug/L	0.022	aquatic biota	CCME Water PAL AEP Water PAL
Uranium	Total	ug/L	15	aquatic biota	CCME Water PAL AEP Water PAL
Vanadium	Total	ug/L	100	wildlife	AEP Water Ag CCME Water Ag
Vinyl chloride*		ug/L	0.18	human	HH DW+Org (derived)
Xylene		ug/L	28	wildlife	US DOE Wildlife
Xylenes (total)		ug/L	10000	human	US EPA DWR
Zinc‡	Total	ug/L	12.72	human	HH DW+Org (derived)
Zinc‡	Dissolved	ug/L	31.35	aquatic biota	CCME Water PAL
Low Moelcular Weight PAHs¶		ug/L	1	aquatic biota	AEP Water PAL

Table 1.2: Generic health risk criteria for the protection of all Indigenous water use categories. *(continued)*

Parameter	Sample Fraction	Units	Generic (All water uses protected)		
			Most Stringent	Sensitive Receptor	Source
High Molecular Weight PAHs**		ug/L	0.0001	human	HH DW+Org (derived)

Note:
HH DW + Org and Org were adjusted to reflect carcinogenity of 1 in 1000,000 (1×10^{-5}) ILCR levels (Alberta Health (2019))
HH DW+Org: Human Health (HH) criteria from consuming surface water (SW) and aquatic organisms (O)
AO: Aesthetic Objectives; DW: Drinking Water; PAL: Protection of Aquatic Life; Ag: Agriculture
Aquatic biota: invertebrates, plants and fish
Wildlife: bird and mammalian species
WHO DW taken from World Health Organization (WHO) (2017)
AEP Water PAL taken from GoA (2018)
Health Canada DW taken from Health Canada (2020a)
CCME Water Ag taken from CCME (2021)
US EPA DWR taken from United States Environmental Protection Agency (US EPA) (2021a)
HH DW+Org (US EPA) taken from US EPA (2015a)
FEQG Water PAL taken from of Canada (2021)
US DOE Wildlife taken from Sample et al. (1996)

* Known human carcinogen via oral exposure route (Health Canada (2021))

† The following known human carcinogens and must be converted to Provisional Benzo[a]pyrene RPF and summed as per Health Canada (2021) then compared to the Benzo(a)pyrene and equivalents health risk criteria: Anthanthrene, Benzo[c]chrysene, Benzo[g]chrysene, Benzo[c]phenanthrene, Cyclopenta[c,d]pyrene, Dibenzo[a,e]fluoranthene Dibenzo[a,e]pyrene, Dibenzo[a,h]pyrene, Dibenzo[a,i]pyrene, Dibenzo[a,l]pyrene, 9,10- Dimethylanthracene, 7,12- Dimethylbenzo[a]anthracene, 1,2- Dimethylbenzo[a]pyrene, 1,6- Dimethylbenzo[a]pyrene, 3,6- Dimethylbenzo[a]pyrene, 4,5- Dimethylbenzo[a]pyrene, 5,6- Dimethylchrysene, 5,7- Dimethylchrysene, 5,11- Dimethylchrysene, 1,4- Dimethylphenanthrene, 4,10- Dimethylphenanthrene, 5- Ethylchrysene, Fluoranthene, 7- Methylbenzo[a]anthracene, Methylbenzo[a]anthracene, 9- Methylbenzo[a]anthracene, 12- Methylbenzo[a]anthracene, 11- Methylbenzo[b]fluorene, Methylbenzo[a]pyrene, Methylbenzo[a]pyrene, Methylbenzo[a]pyrene, Methylbenzo[a]pyrene, Methylbenzo[a]pyrene, Methylbenzo[a]pyrene, 11- Methylbenzo[a]pyrene, 12- Methylbenzo[a]pyrene, 5-Methylchrysene, Methylchrysene, 2- Methylfluoranthene, Phenanthren,e 2,9,10- Trimethylanthracene, 2,3,9,10- Tetramethylanthracene .

‡ Calculated using modifying factors presented in Table 3.1.

§ Sum identified LMW PAH congeners (Anthracene, Acenapthene, Acenaphthylene, Fluoranthene, Fluorene,Naphthalene, Phenanthrene, Pyrene) and compare to Naphthalene health risk criteria (adopted as surrogate) (CCME (2010))

¶ Sum identified LMW PAH congeners (Anthracene, Acenapthene, Acenaphthylene, Fluoranthene, Fluorene,Naphthalene, Phenanthrene, Pyrene) (CCME (2010))

** Sum of identified HMW PAH congeners (Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene) (CCME (2010))

†† Comparison of water quality data must be presented for both Dissolved and total fractions

‡‡ Toxic Unit-Chronic (TUc) is the reciprocal of the effluent concentration (e.g., TUc = 100/NOEC) that causes no observable effect (NOEC) on the test organisms by the end of a chronic toxicity test (US EPA (2000c)).

Source: Mandy Olsgard, Megan Thomspon and Thomas Dyck, "Lower Athabasca Surface Water and Sediment Quality Criteria for Protection of Indigenous Use" (2022) at 18-31