Work Plan Application

Project Information	
Project Title:	Mikisew Cree First Nation - Community Based Wetland Monitoring
Lead Applicant, Organization, or Community:	Mikisew Cree First Nation
Work Plan Identifier Number: If this is an on-going project please fill the identifier number for 24/25 fiscal by adjusting the last four digits: **Example:** D-1-2425 would become D-1-**2425**	B-CM-28-2425
Project Region(s):	Athabasca
Project Start Year: First year funding under the OSM program was received for this project (if applicable)	2023
Project End Year: Last year funding under the OSM program is requested **Example: 2024**	2025
Total 2024/25 Project Budget: From all sources for the 2024/25 fiscal year	$213,450.00
Requested OSM Program Funding: For the 2024/25 fiscal year	$198,450.00
Project Type:	Community Based Monitoring
Project Theme:	Wetlands
Anticipated Total Duration of Projects (Core and Focused Study (3 years))	Year 3
Current Year (choose one):	Focused Study Year 2 of 3
	Core Monitoring -Select One-

Contact Information

Lead Applicant/ Principal Investigator: Every work plan application requires one lead applicant. This lead is accountable for the entire work plan and all deliverables.	Melody Lepine
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Project Summary

In the space below, please provide a summary of the proposed project that includes a brief overview of the project drivers and objectives, the proposed approach/methodology, project deliverables, and how the project will deliver to the OSM Program objectives. The summary should be written in plain language and **should not exceed 300 words**.

The Mikisew Cree First Nation - Community Based Monitoring (MCFN-CBM) program seeks continued funding from the Oilsands Monitoring Program to integrate our wetlands work with the Wetlands TAC and with ongoing research and monitoring planning for WBNP and the IRMP. This is to be a CBM focus- study, to continue creation of an adaptive monitoring framework building off of our previous four years of doing wetlands work.

With adaptive monitoring as a key principle of OSM, we seek this year to integrate TAC developed SOPs and design with historical efforts in the PAD (CBM as well as Baird and Cobbaert) and co-design a long term monitoring wetlands program that uses IK and a cumulative effects design. This year will include new field sampling at a sub set of 28 PAD sites, and will include Elders council development of Indigenous KNowledge Indicators, as well as braided data assessment design. These will be shareable materials to advance Wetlands TAC - CBM Wetlands integration. This work will also assist in the actions to combine ongoing Action Plan work on monitoring design with WBNP (to create a SOP and monitoring design ready for 2025-26 and beyond) that ties into OSM Wetlands work, CM, labs and SOPs. Will also help harmonize the SOE reporting requirements.

Using both western science and Cree knowledge, we seek to provide answers about the state of the Delta, water quality in the Delta, the health of wild foods, and provide information on water quantity to support safe water navigation for our community. In addition to measuring water quality and quantity using scientific methods, the MCFN-CBM program has formed a Land Users Advocates Network comprised of Elders and Land Users to inform monitoring from an Indigenous perspective. The Land Users Advocates Network will be assisting in developing methodology for assessing changes to the land and water using a Mikisew Indigenous Knowledge Index, that supports Knowledge Holders in collecting, interpreting and validating changes on the land within a Cree knowledge system.

1.0 Merits of the Work Plan

All work plans under the OSM Program must serve the mandate of the program by determining (1) if changes in indicators are occurring in the oil sands region and (2) if the changes are caused by oil sands development activities and (3) the contribution in the context of cumulative effects. In the space below please provide information on the following:

- Describe the key drivers for the project identifying linkages to Adaptive Monitoring framework particularly as it relates to surveillance, confirmation and limits of change (as per OC approved Key Questions).
- Explain the knowledge gap as it relates to the Adaptive Monitoring that is being addressed along with the context and scope of the problem as well as the Source - Pathway - Receptor Conceptual Models .
- Describe how the project meets the mandate of the OSM Program or areas of limited knowledge is the work being designed to answer with consideration for the TAC specific Scope of Work Document (attached) and the Key Questions (attached)?
- Discuss results of previous monitoring/studies/development and what has been achieved to date. Please identify potential linkages to relevant sections of the State of Environment Report.

The integrated OSM Wetlands monitoring program includes two key indicators for shallow open-water wetlands: water/sediment quality (OSM contaminants suite including metals and PACs) and wetland invertebrate communities. CBM, ECCC and Parks Canada scientists have been monitoring a core set of SOW wetlands since 2011, and data generated should yield valuable insights into long-term natural variability in boreal shallow open-water wetlands (SOWs).

The Mikisew Cree FN, along with the Athabasca Chipewyan FN have worked for four previous years to collect information at 7 additional PAD sites (for a total of 15 sites including those from the core TAC). This current year will allow for development of a long -term monitoring plan for the PAD - includes using the other 11 year data sets available, as well as exploration of cumulative effects driven site selection at an additional 9 sites.

This years workplan will attempt to close current gaps for the Mikisew which are:
Evaluation of long term PAD EEM triggers (benthic, sediment, water quality and likely quantity)
Braided data assessment methods and community level reporting and communication of findings
Integration of OSM wetlands findings into long term Action Plan habitat restoration/monitoring efforts

2.0 Objectives of the Work Plan

List in point form the objectives of the 2024/25 work plan below

(1) Work with Mikisew Elders and CBM staff, Parks Canada, ECCC and AEP to coordinate OSM PAD wetlands monitoring with the new methodologies in partnrship with the IRMP; - and test these in 9 basins for water quality, sediment quality and benthics;

(2) Develop community level braided assessment methods and reporting needs;

(3) Assess appropriateness of EEM triggers for basins of importance and align with cumulative effects methods

3.0 Scope

Evaluation of Scope Criteria (Information Box Only- No action required)
Your workplan will be evaluated against the criteria below. A successful workplan would:

- Be in scope of the OSM Program (e.g., regional boundaries, specific to oil sands development, within boundaries of the Oil Sands Environmental Monitoring Program Regulation)
- consider the TAC-specific Scope of Work document and the key questions
- integrate western science with Indigenous Community-Based Monitoring)
- address the Adaptive Monitoring particularly as it relates to surveillance, confirmation and limits of change as per approved Key Questions.
- have an experimental design that addresses the Pressure/Stressor, Pathway/Exposure, Response continuum
- produce data/knowledge aligned with OSM Program requirements and is working with Service Alberta
- uses Standard Operating Procedures/ Best Management Practices/ Standard Methods including for Indigenous Community-Based Monitoring

3.1 Theme

Please select the theme(s) your monitoring work plan relates to:

☐ Air ☐ Groundwater ☐ Surface Water ☑ Wetlands

☐ Terrestrial Biology ☐ Data Management Analytics & Prediction ☐ Cross Cutting

3.2 Core Monitoring, Focused Study or Community Based Monitoring

Please select from the dropdown menu below if the monitoring in the work plan is "core monitoring" and/or a "focused study". Core monitoring are long term monitoring programs that have been in operation for at least 3 years, have been previously designated by the OSM program as core, and will continue to operate into the future. Focused studies are short term projects 1-2 years that address a specific emerging issue.

Community Based Monitoring

Themes

Please select the theme from the options below. Select all that apply.

☐ Air ☐ Groundwater ☐ Surface Water ☑ Wetland

☐ Terrestrial ☐ Cross-Cutting

3.3.3 Wetland Themes

3.3.3.1 Sub Themes

Cross-Cutting

3.3.3.2. Wetlands - Key Questions:

Explain how your wetlands monitoring program addresses the key questions below.

Has baseline been established? Have thresholds or limits of change been identified?

We are building off of ECCC (Cobbaert and Baird's)10 years of monitoring focus study work review as well as community engagement sessions and Indigenous Indicator selections - 2023-24 fiscal)

Are changes occurring in wetlands due to contaminants and hydrological processes? If yes, is there evidence that the observed change is attributable to oil sands development? (Describe source-pathway-receptor and/or conceptual models) and what is the contribution in the context of cumulative effects?

There is evidence that there are changes in wetland vegetation communities in the oil sands region due to various land disturbance activities. Land disturbance activities can impact wetland vegetation communities by introducing non-native species (Boutin and Carpenter, 2017), and by reducing seed germination (Crowe et al., 2002), both of which can result in reduced abundance of native species and reduced overall floristic quality of wetlands (Ficken et al. 2019). Land disturbance associated with OS development can influence wetland hydrologic function and vegetation through numerous physical, chemical, and biological mechanisms (Volick et al. in review; Ficken et al. 2019). For example, physical disturbances to the landscape (e.g. seismic lines,well pads, or buried pipe lines) that affect water availability (Ryder et al., 2004; Lee and Boutin, 2006; Strack et al., 2018; Lovitt et al., 2018) can affect plant diversity and composition.

Open mine operation has a significant effect on surface and groundwater flow, including water table lowering and water diversion through canals, reservoirs and dikes. Ground water removal can disrupt hydrologic connectivity between the basal and shallow groundwater, alter local and regional recharge/ discharge and create a drawdown zone around a mine. Such drawdown can result in desiccation of the adjacent wetlands and uplands, and it is expected that the VSM will affect more than 700 ha ofwetlands proximal to the mine. Water diversion not only affects HC between landscapes, surface waterbodies and underlying aquifers, but also alters the water budget of the area through changes in evaporation (e.g., wetland evaporation rates vs. reservoir evaporation rates), water storage (e.g., wetland water storage capacity vs. canal water storage capacity) and run off. Previous simulation of runoff for Environmental Impact Assessment of the VSM suggested that during the operational phases of the mine, Poplar Creek discharge is expected to decline due to closed-circuit mining areas within the watershed, and rates will be similar to rates before the diversion of Beaver River into Poplar Creek watershed in 1970's. Consequently, VSM has a potential to affect the hydrologic function of the entire Poplar Creek basin; predicting the watershed response to the surface mining is crucial for estimating the true footprint of proposed mining. Hydrologic alterations associated with OSM development including surface water diversions, groundwater and surface water withdrawals and indirect alterations associated with land disturbance are predicted to cause local to watershed scale impacts to adjacent wetlands (Volick et al. in review).

Previous work has detected contaminants attributed to oil sands resource extraction activities in wetlands. N-deposition (Ndep), Sdep, and base cation (BCdep) gradients are well explained between oil sands mining operation sources and receptor sites nearby within 10-15 km, and are detectable out to a distance of 20-50 km, ≥ 50 km from sources Ndep approaches regional background values (Edgerton et al. 2020). Bogs and poor fens are predicted to be the most sensitive wetland ecosystem to increased Ndep, due to naturally low nutrient levels. Increased NPP, increased shrubs and forbs biomass, & decreased Sphagnum biomass are predicted at sites with > 3 kg-N ha−1 a−1 (Wieder et al. 2019). There is a high (90% confident) likelihood that N-deposition from oil sands operations will cause negative effects to bogs and poor fens in the region including increased shrub growth and vascular plants, shading and loss of Sphagnum species. Other wetland classes (rich fens, swamps and open water wetlands) presumed less sensitive to N deposition (mesotrophic; not N-limited). Increased Ndep may cause increased NPP of all wetland

ecosystems near N-emissions sources.

Are there unanticipated results in the data? If yes, is there need for investigation of cause studies?

Investigation of causality suffered from a lack of cumulative effects approach and is now improved in current proposed design

Are changes in wetlands informing Indigenous key questions and concerns?

The core Wetland Monitoring Program network for the last three years included 15 wetland sites of interest to the Mikisew and Athabasca Chipewyan FNs. It also includes wetland monitoring indicators and protocols of interest to local communities including culturally important wetland plants (e.g. rat root, pitcher plants). Wetland health questions co-inform other population assessment and health work such as muskrats.

Are data produced following OSM Program requirements and provided into the OSM Program data management system?

Yes, all data produced by the core Wetland Monitoring Program will follow OSM Program requirements and be provided to the OSM Program data management system.

Do methodologies use relevant Standard Operating Procedures/ Best Management Practices/ Standard Methods?

Yes, all methodologies apply existing Standard Operating Procedures and Methods.

How does the monitoring identify integration amongst projects, themes or with communities?

The Wetland Monitoring Program is integrated amongst other environmental monitoring program through integrated conceptual models, consistent data collection protocols, and a study design and site selection approach that is consistent with other these areas including the terrestrial biological monitoring programs. Mikisew connects wetland water quality to its core CBM water quality work. We are furthermore beginning a 'supersite' methodology to ensure all pathways of concern can be correlated. Finally, we intend to assist in co-ordinating future research and monitoring activities in the PAD to ensure integration of key questions.

With consideration for adaptive monitoring, where does the proposed monitoring fit on the conceptual model for the theme area relative to the conceptual model for the OSM Program?

The Mikisew Cree, for all of their CBM work, develop adaptive monitoring triggers. They use these triggers to assess if culturally important elements are trending in a negative direction and if so, how these trends may impact their section 35 rights.

1) Selecting monitoring sites that are designed to be influence by connectivity of wetland basins to Athabasca River flows and those only available by highest floods for recharge, so more subject to deposition impacts; and contrasting against PAD areas dominated by impacts from Hydro regulation to those of Climate change dominance.

How will this work advance understanding transition towards adaptive monitoring?

The core wetland monitoring program is designed to address oil sands pressures (land disturbance, contamination, and hydrologic alteration) identified in the conceptual model. The additional community basins of importance help tie in the immediate concerns of the community in their traditional territory to the wider network of wetland sites.

All wetland monitoring program indicators are oil sands pressures (atmospheric deposition, land disturbance in buffer, or hydrologic alteration in local watershed), wetland stressors (wetland hydrology/ meteorology, surface water quality or sediment quality) or wetland ecosystem responses (vegetation, amphibians, birds, amphibians). This wetland monitoring program will test and validate the relationships of the wetland conceptual model.

Key gaps under the oil sands pressures are integrated hydrology watershed models to understand the effects of loss wetlands and streams and the loss of hydrologic connectivity on adjacent wetland ecosystems, and the cumulative effects of various oil sands pressures.

We are working collaboratively with the OSM Groundwater Monitoring Program to map groundwater-surface water interactions and identify wetlands that are vulnerable to hydrologic alteration. This will be used to identify wetland sites that are high risk for impacts from groundwater and surface water alterations associated with oil sands development.hibians). This wetland monitoring program will test and validate the relationships of the wetland conceptual model.

With adaptive monitoring as a key principle of OSM, we seek this year to integrate the findings from Donald Baird's 10 year focus study in the PAD, and co-design a long term monitoring wetlands program that uses IK and a cumulative effects design. This year will not include any new field sampling, instead will take Donald's findings and our own 3 years of research to combine with the ongoing Action Plan work on monitoring design with WBNP to create a SOP and monitoring design ready for 2024-25 and beyond.

Is the work plan contributing to Programmatic State of Environment Reporting? If yes, please identify potential linkages to relevant sections of the State of Environment Report.

Yes, this work plan will provide data, evaluation and reporting products to directly support Programmatic Condition of Environment Reporting

4.0 Mitigation

Evaluation of Mitigation Criteria (Information Box Only- No action required)
Your workplan will be evaluated against the criteria below. A successful workplan would potentially inform:

- efficacy of an existing regulation or policy
- an EPEA approval condition
- a regional framework (i.e., LARP)
- an emerging issue

Explain how your monitoring program informs management, policy and regulatory compliance. As relevant consider adaptive monitoring and the approved Key Questions in your response.

The MCFN-CBM program collects water quality, sediment and benthic wetland data to inform how our Nation engages with the province on policy development. We will continue to use our data to inform management, policy, and regulatory compliance, and to examine any potential impact to our Sec 35 rights.

5.0 Indigenous Issues

Evaluation of Indigenous Issues Criteria (Information Box Only- No action required)
Your workplan will be evaluated against the criteria below. A successful workplan would potentially:

- Investigate Indigenous communities key questions and concerns
- Includes culturally relevant receptor(s) and indicator(s)
- Include or be driven by Indigenous communities (participatory or collaborative)
- Develop capacity in Indigenous communities
- Include a Council Resolution or Letter of Support from one or more Indigenous communities
- Describe how ethics protocols and best practices regarding involvement of Indigenous peoples will be adhered to
- Provide information on how Indigenous Knowledge will be collected, interpreted, validated, and used in a way that meets community Indigenous Knowledge protocols

Explain how your monitoring activities are inclusive and respond to Indigenous key questions and concerns and inform the ability to understand impacts on concerns and inform Section 35 Rights

Mikisew Elders, Knowledge Holders, and elected leadership have been actively involved in guiding the Mikisew Guardian program since its inception. Their involvement is integral to ensuring that the program is grounded in Mikisew stewardship values, provides information to support decision-making, and answers to community priorities.

Elders and Land Users have informed the selection of CBM sites and indicators to ensure that they are relevant to the community and address the concerns that our community has.

The waters of the Peace-Athabasca Delta are central to Cree people's culture, well-being, spirituality, and economies. The CBM program is heavily focused on monitoring surface water quality, quantity, and fish health because water is such an important resource for their community.

The MCFN-CBM program hires local community-members as CBM Guardians, which builds capacity within our community. Youth are invited to participate in on-the-land camp to facilitate knowledge transmission from Elders to youth and to involve them in scientific monitoring. This work builds future capacity in the community.

A Land Users Advocacy Network has been established, comprised of Mikisew land users and knowledge holders. The network will meet three times a year to discuss observations of changes on the land and provide recommendations on stewardship activities. These recommendations will be provided to MCFN leadership to support decision making. The network will enhance community involvement in monitoring, and provide opportunities for Knowledge Holders to contribute their understanding to decision-makers.

We will refine a Mikisew Indigenous Knowledge Index, a tool to help us assess the health of the land and communicate Mikisew knowledge, values, and perspective into resource management processes. The Mikisew Indigenous Knowledge index will provide a numerical summary of the state of the environment from the Knowledge Holders perspectives, to compliment their narrative-based assessments.

Does this project include an Integrated Community Based Monitoring Component?

No

If YES, please complete the ICBM Abbreviated Work Plan Forms and submit using the link below

ICBM WORK PLAN SUBMISSION LINK

5.1 Alignment with Interim Ethical Guidelines for ICBM in the OSM Program

Are there any community specific protocols that will be followed?

We have a Land Users Advocates Network (Elders Council) with an established TOR that guides our CBM work.

Does the work plan involve methods for Indigenous participants to share information or knowledge (e.g. interview, focus group, survey/structured interview), or any other Indigenous participation? If yes, describe how risks and harms will be assessed, and the consent process that will be used.

We share all water quality data with Mackenzie DataStream and onto our Mikisew Knowledge Hub. Therefore raw data and interpretation of the water quality data are all available to other Nations.

Do the activities include any other collecting/sharing, interpreting, or applying Indigenous knowledge? Please describe how these activities will be conducted in alignment with the Interim Ethical Guidelines, and any community-based protocols and/or guidelines that may also apply.

Not specific to wetlands work, however other OSM CBM work, such as the IK Index work for fish is interpreted alongside the fish health indices. For now this work is used internally, however the IK Index work is publicly shared (just not the raw data from fish camps).

Indicate how Indigenous communities / Indigenous knowledge holders will be involved to ensure appropriate analysis, interpretation and application of data and knowledge.

The CBM is managed, staffed and operated by Mikisew members and through their Government and Industry Relations department. They have an established Elders Council (LUAN) with a TOR that defines how Elders are involved and guide this work. Quarterly formal meetings with LUAN involve CBM staff presentations of findings for validation. All work is directed by Mikisew C&C.

How are Indigenous communities involved in identifying or confirming the appropriateness of approach, methods, and/or indicators?

Most SOPs have been co-created with the community. For our CBM OSM work in general, such as, the fish camp IK Index work, which is an example of a truly integrated approach. Each fish sampled is looked at through an Indigenous lens and a scientific lens. Often scientists and Elders are at the same sample tables to ensure that there is overlap between the Knowledge holders (this means Elders and expert scientists).

How does this work plan directly benefit Indigenous communities? How does it support building capacity in Indigenous communities?

It directly employs the CBM staff and supports the operations to get answers to the community questions about changes to the environment. Mikisew members see CBM jobs as meaningful land-based work that directly supports cultural knowledge exchange between generations. We support the Elders, we support the schools, we build 'community' by allowing us to work with the other Nations (ACFN and FCMN) as well as Parks Canada and Alberta and even the municipality. The work plan capacity leads to empowerment in the community and support for long-term environmental management.

How is the information from this work plan going to be reported back to Indigenous communities in a way that is accessible, transparent and easy to understand?

We do this in 4 ways:
Reporting (technical and through our data visualization platform)
Presentations to the community (annually)
Engagement with the LUAN (quarterly meetings)
Annual calendars

6.0 Measuring Change

Evaluation of Measuring Change Criteria (Information Box Only- No action required)

Your workplan will be evaluated against the criteria below. A successful workplan would potentially:

- assess changes in environmental conditions compared to baseline (e.g., validation of EIA predictions)
- report uncertainty in estimates and monitoring is of sufficient power to detect change due to oil sands development on reasonable temporal or spatial scales
- include indicators along the spectrum of response (e.g., individual, population, community)
- focus on areas of highest risk (where change is detected, where change is greater than expected, where development is expected to expand collection of baseline).
- measure change along a stressor gradient or a stressor/reference comparison

Explain how your monitoring identifies environmental changes and how can be assessed against a baseline condition. As relevant, consider adaptive monitoring, the TAC specific Scope of Work document and the Key Questions in your response.

Wetland ecosystem changes in the PAD will be assessed against reference conditions through selecting wetland sites along a cumulative effects stressor gradient (divided into three distinct PAD regions) as well as against the broader OSM wetlands gradient - from high risk stressor areas to areas with little to minimal oil sands stressors (reference areas). Wetlands in high oil sands stressor areas will be compared to wetlands in low to minimal oil sands stressor areas. The study design is also constrained by natural wetland landscape units (covariables include surficial geology, topography, fire history) in the oil sands region to minimize factors affecting natural variability. The PAD sites tie into this transect approach and link the culturally relevant sites into the broader network of analysis.

Some wetland sites are also selected in areas where development is currently absent but expected to occur over time to capture baseline conditions and changes over time as oil sands disturbances increase.

7.0 Accounting for Scale

Evaluation of Accounting for Scale Criteria (Information Box Only- No action required)

Your workplan will be evaluated against the criteria below. A successful workplan would potentially be:

- appropriate to the key question and indicator of interest
- relevant to sub-regional and regional questions
- relevant to organism, population and/or community levels of biological organization
- where modelled results are validated with monitored data
- where monitoring informs on environmental processes that occur at a regional scale. e.g. Characterizing individual sources to gain a regional estimate of acid deposition and understand signal from individual contributing sources.

Explain how your monitoring tracks regional and sub-regional state of the environment, including cumulative effects. As relevant, consider adaptive monitoring, the TAC specific Scope of Work document and the Key Questions in your response.

There is a persistent need to better characterize OS development effects on wetlands across the broader oil sands region.

The Core Wetland Monitoring Network is focused on monitoring wetlands indicators that are sensitive to oil sands stressors and that can be scaled-up to watershed and regional scales through remote sensing and modelling approaches. Wetland monitoring sites are located along oil sands stressors gradients to test and validate predicted effects in high risk cumulative oil sands stressor areas compared to reference areas. Through scaling-up approaches the Wetland Monitoring Program aims to answer 'What is the spatial extent and magnitude of wetland changes in the Oil Sands Region?' and 'Are these changes due to oil sands development activities or cumulative effects from other human development activities?' Our work done in the PAD is essential to better understanding the cumulative effects picture.
Our focus study work will look at the past ten years of data to understand trends in the wetlands data in the PAD. Based on this our work will design a long term monitoring program, that is efficient, and able to detect change driven by OS versus climate or hydro influenced drying. This will be tested in a subset of our

28 supersites (as validated by the Elders and Land users and CBM staff) and then develop braided assessment techniques for understanding the significance of the findings and communicating results.

8.0 Transparency

Evaluation of Transparency Criteria (Information Box Only- No action required)
Your workplan will be evaluated against the criteria below. A successful workplan would potentially include:

- a plan for dissemination of monitoring data, including appropriate timing, format, and aligns with OSM program data management plan
- demonstrated transparency in past performance
- identified an annual progress report as a deliverable
- reporting of monitoring results occurs at timing and format that is appropriate for recipient audience.

Explain how your monitoring generates data and reporting that is accessible, credible and useful. As relevant, consider adaptive monitoring, the TAC specific Scope of Work document and the Key Questions in your response.

All water quality, sediment and benthic data is shared by default with the AEPA and ECCC and the sites of community concern will therefore be available to be placed into a regional context of oil sands impacts. Furthermore Mikisew is working with the ICBMAC, ICBM Facilitation Centre, The Wetland TAC and the Data Analytics TAC to ensure ingestion of wetlands data into the Kister's platform to ensure greater access for all communities.
Development of EEM monitoring triggers for basins and indicators of significance is the end goal. These should be used to examine oil sands impacts regionally and help inform future monitoring intensity.

9.0 Efficiency

Evaluation of Efficiency Criteria (Information Box Only- No action required)
Your workplan will be evaluated against the criteria below. A successful workplan would include:

- appropriately addressed a risk-informed allocation of resources
- identified the role and justification for each staff member on the proposed work plan
- identified in-kind and leveraged resources (e.g., resources and approaches are appropriately shared with other OSM projects where possible)
- established partnerships (value-added) and demonstrated examples of coordinated efficiencies (e.g., field, analytical)
- identified co-location of monitoring effort
- demonstrated monitoring activities and information collected are not duplicative
- considered sampling/measurement/methods compatibility to other data sources (e.g., AER)

Explain how your monitoring is integrated with other OSM projects and incorporates community-based participation and/or engagement in proposed monitoring activities. As relevant, consider adaptive monitoring, the TAC specific Scope of Work document and the Key Questions in your response.

ALL materials (SOPs. Trainings, integration findings) support OSM ICBM integration goals through the ICBMAC and the ICBM Facilitation Centre. Therefore all materials developed here will help build the regional ICBM program. This will include braided assessment techniques, however not IK.

This work plan builds off of over 14 years of CBM experience. MCFN has demonstrated leadership in development of OSM Operational Framework Agreement and has been engaged in the Oil Sands Monitoring project for 12 years. MCFN has established relationships with Environment and Climate Change Canada, Government of Alberta, Parks Canada, and University of Alberta. We hope to strengthen these relationships and work towards stronger monitoring integration with these organizations through this work plan.

MCFN has coordinated with OSM (AEPA, ECCC), and other Indigenous groups in a variety of ways include study design, sharing of methods, coordination of analysis, and ensuring that sampling methods are compatible between data sources to ensure efficiencies. We host other nations to co-learn, share and mentor SOPs where appropriate.

The MCFN-CBM program is highly coordinated with the Athabasca Chipewyan First Nation (ACFN) CBM program. We share methods, protocols, and data. MCFN & ACFN lab analyses are done in coordination to support efficiencies.

- MCFN is continuing a partnership with Keegan Hicks (AEP) and Mark McMaster (ECCC) through the "OSM Monitoring Fish Health and Community" program to study the health of Lake Whitefish through an annual Whitefish Camp. Lab analyses are done in coordination with AEP and ECCC.

The MCFN Community Based Monitoring Program is highly participatory. Community members are hired as CBM Guardians; Elders and Land Users are engaged in program design as well in the gathering and interpretation of Indigenous knowledge; youth are involved in CBM on the land camps; and accessible reporting is done to share information with MCFN members.

10.0 Work Plan Approach/Methods

List the Key Project Phases and Provide Bullets for Each Major Task under Each Project Phase

(1) Work with other PAD Nations, Parks Canada, ECCC and AEPA and OSM TAC, as well as other CBM programs undertaking wetlands efforts to coordinate OSM PAD wetlands monitoring methodologies. Essentially this involves sharing our methods and SOPs to ensure that there is compatibility with the wider OSM wetalnds TAc collected information. This includes the granularity of data templates, Kisters injestion needs, power analysis, laboratory alignment, sampling timing.

(2) Refine the PAD sampling. Approximately 28 basins will be selected (supersites) representing 3 distinct regions of the PAD (cumulative FX framework). The basins will be selected to tie wetlands work into other areas of PAD research (muskrats, deposition etc). At each basin we will either sample, or coordinate with partners to get data on:

water level;
surface water extent;
isotopes;
water quality;
sediment quality;
invertebrate diversity and quality
muskrat population and health metrics
snow quality (deposition)

(3) Pilot sample collections at 9 basins in August 2024.

(4) Collect at 9 basins and then refine community level Indigenous Indicators.

(5) qa/qc all data and add current year (24-25) data to our EEM triggers to assess trends.

(6) Explore braided assessment techniques and community level reporting on findings

(7) Work with OSM TAC and beyond to assess PAD findings with wider Wetlnds TAC findings

(8) Integration of OSM wetlands findings into long term Action Plan (IRMP) habitat restoration/monitoring efforts

Describe how changes in environmental Condition will be assessed

These should be described using monitoring triggers for parameters/indicators of concern to the community. The focus study is also working on a monitoring assessment framework that includes Indigenous Knowledge. In short, we will have EEM style triggers (mean with natural variation the +/- 2 Standard deviation) and place our basin data for water, sediment and benthics along these baselines to understand trends. If trends do occur we have a comprehensive enough cumulative effects design to begin to assess causation. Assessment however, may be broader than trends. For example we will explore groups of indicators such as IK wetland habitat indicators alongside eDNA techniques (benthics) to see if there is not a 'fingerprint' for healthy versus stressed basins. Also, importantly, PAD wetland health reflects a percentage of basins in different stages from flooded - dry (cycle). Too much dry or too always wet is unantural, and therefore we look at changes to the preferred ephemeral wetland basin and how this preferred habitat is trending.

Are there Benchmarks Being Used to Assess Changes in Environmental Condition? If So, Please Describe, If Not, State "NONE"

The triggers/trends are being developed for the PAD in 2022-23 and will be the key body of work from which to design the long term monitoring effort as described herein.

(e.g., objectives, tiers, triggers, limits, reference conditions, thresholds, etc.)

Provide a Brief Description of the Western Science or Community-Based Monitoring Indigenous Community-Based Monitoring Methods by Project Phase

(1) Methods would be meetings (in person or zoom) to align all aspects of PAD design with wider TAC work

(2) Power analysis for each indicator chosen (ongoing) and written SOPs. SOPs are mostly complete as of 2023-24)

(3) Pilot sample collections at 9 basins in August 2024. By helicopter we will collect water sediment and benthics at 9 sites following the established SOP(s) above.

(4) Collect at 9 basins and then refine community level Indigenous Indicators.

(5) qa/qc all data and add current year (24-25) data to our EEM triggers to assess trends. This will follow the established Mikisew CBM program qa/qc methodology (shared with MDS).

(6) Explore braided assessment techniques and community level reporting on findings. Workshops with IRMP and Elders will explore this.

(7) Work with OSM TAC and beyond to assess PAD findings with wider Wetlands TAC findings

(8) Integration of OSM wetlands findings into long term Action Plan (IRMP) habitat restoration/monitoring efforts

List the Key Indicators Measured, If Not Applicable, State N/A

Water level
Surface water extent
isotopes
Water quality (chemistry/routine/ metals/ nutrients/ PACs)
Benthic invertebrate - contaminants/diversity - exploration of eDNA techniques
Sediment quality (chemistry/routine/ metals/ nutrients/ PACs)
IK wetland habitat health indicators
muskrat abundance (though other work with ECCC)

11.0 Knowledge Translation

In the space below, please provide the following:

- Describe the plan for knowledge transfer and distribution of learnings from the project. This could include workshops, publications, best practice documentation, marketing plan, etc.
- Demonstrate that the knowledge transfer plan is appropriate for the intended end-users.

Knowledge transfer will occur through:

Principally through direct engagement with CBM staff, and through a workshop/meetings held in Fort Chipewyan which will include Elders, community based monitoring staff and Wetland TAC members as well as Parks Canada. Regular update to Mikisew leadership will also occur.

Also Land Users Advocacy Network Meetings: a meetings with group of Land Users and Knowledge holders to gather their observations, and disseminate scientific findings back to them related to the wetlands monitoring

12.0 External Partners

List by project or project phase each component that will be delivered by an external party (including analytical laboratories) and name the party. Describe and name the associate work plan/grant/contract for these services. * state none if not required

1. Bruce Maclean - Principal, Maclean Environmental Consulting
Responsibility: MCFN- CBM program design & implementation, data analysis, reporting.

2. Parks Canada - in-kind support

*To ensure complete work plan proposal submission, all grants and contracts listed in this section should also be captured in Grants & Contracts.

13.0 Data Sharing and Data Management

For 2024-25 the following approach will be taken by the OSM Program related to data sharing.

For all work plans of a **western science** nature funded under the OSM Program, data sharing is a condition of funding and must align with the principle of **"Open by Default"**. In this case, all data is to be shared with the OSM Program as directed by the OSM Program Data Management work plan.

For all work plans involving **Indigenous Knowledge** as defined below and funded under the OSM Program, data sharing is a condition of funding and the Indigenous Knowledge components of the work plan must align with the principle of **"Protected by Default"**. In this case, all data as defined as Indigenous Knowledge, are to be retained by the Indigenous community to which the Indigenous Knowledge is held.

Indigenous Knowledge is defined as:

"The knowledge held by First Nations, Inuit and Métis peoples, the Aboriginal peoples of Canada. Traditional knowledge is specific to place, usually transmitted orally, and rooted in the experience of multiple generations. It is determined by an Aboriginal community's land, environment, region, culture and language. Traditional knowledge is usually described by Aboriginal peoples as holistic, involving body, mind, feelings and spirit. Knowledge may be expressed in symbols, arts, ceremonial and everyday practices, narratives and, especially, in relationships. The word tradition is not necessarily synonymous with old. Traditional knowledge is held collectively by all members of a community, although some members may have particular responsibility for its transmission. It includes preserved knowledge created by, and received from, past generations and innovations and new knowledge transmitted to subsequent generations. In international or scholarly discourse, the terms traditional knowledge and Indigenous knowledge are sometimes used interchangeably."

This definition was taken from the Canadian Government's Tri-council Policy Statement for Ethical Research involving Humans (Chapter 9, pg. 113) and is an interim definition specific to the Oil Sands Monitoring Program.

13.1 Has there, or will there be, a Data Sharing agreement established through this Project? *

Yes

13.2 Type of Quantitative Data Variables:

Discrete

13.3 Frequency of Collection:

Annually

13.4 Estimated Data Collection Start Date:

Aug 1, 2024

13.5 Estimated Data Collection End Date:

Aug 14, 2024

13.6 Estimated Timeline For Upload Start Date:

Mar 31, 2025

13.7 Estimated Timeline For Upload End Date:

Mar 31, 2025

13.8 Will the data include traditional knowledge as defined by and provided by an Indigenous representative, Community or Organization?

Yes

Table 13.9 Please describe below the Location of Data and Data Type:

Add a Data Source by clicking on the add row on the bottom right side of table

Name of Dataset	Location of Dataset (E.g.:Path, Website, Database, etc.)	Data File Formats (E.g.: csv, txt, API, accdb, xlsx, etc.)	Security Classification
MCFN_wetland_WQ	internal database/ knowledge hub	.csv	Open by Default
MCFN_wetland_sed	internal database/ knowledge hub	.csv	Open by Default
MCFN_wetalnd_benthic	internal database/ knowledge hub	.csv	Open by Default

14.0 2024/25 Deliverables

Add an additional deliverable by clicking on the add row on the bottom right side of table

Type of Deliverable	Delivery Date	Description
Technical Report	Q4	Final SOP and PAD monitoring plan, and pilot analysis and assessment
Stakeholder or Community Presentation	Q3	Meeting with key Indigenous knowledge holders including the LUAN
OSM Program Annual Progress Report (required)	Q4	Final progress report

15.0 Project Team & Partners

In the space below please provide information on the following:

- Describe key members of the project team, including roles, responsibilities and expertise relevant to the proposed project.
- Describe the competency of this team to complete the project.
- Identify any personnel or expertise gaps for successful completion of the project relative to the OSM Program mandate and discuss how these gaps will be addressed.
- Describe the project management approach and the management structure.

The MCFN-CBM program has been operating for ten years, and has strong experience developing and implementing community based monitoring projects. The program has demonstrated a strong ability to work in collaboration with government-led monitoring initiatives as well as other CBM programs. Since the inception of the program, Elders and community members have been involved in various aspects of the program demonstrating the programs ability to meaningfully and respectfully engage community members.

In the past year MCFN-GIR has hired a Environmental Affairs Manager, Environment Coordinator, Community Based Monitoring Coordinator, and one new CBM Guardian greatly increasing our capacity and expertise within our team. With the additions to the team, we do no expect to have any personnel or expertise gaps that would inhibit successful completion of the project.

We have developed strong partnerships with other OSM monitoring projects which has fostered integration and collaboration between MCFN-GIR and OSM partners.

1. Melody Lepine - Director of MCFN- GIR
Role: Melody provides oversight and direction to the MCFN-CBM program.

Expertise: Melody is a co-chair of the Oilsands Monitoring Program Oversight Committee. Melody has a Masters of Science in Environment and Management from Royal Roads University. She has worked with the MCFN-GIR for over a decade. She has managed six oil sands regulatory interventions, co-developed the Mikisew Cree consultation protocol, and managed numerous traditional land use studies and oil sands application reviews. She initiated MCFN's community based environmental monitoring program and participates in multiple government policy initiatives.

2. Lindsay Wong - Environmental Affairs manager, MCFN-GIR
Role: Lindsay is responsible for program coordination and coordinates data analysis & reporting.

Expertise: Lindsay holds a Masters of Science from the University of Saskatchewan which focused on GIS analysis, policy development and community engagement.

3. Jocelyn Marten - Community Based Monitoring Coordinator, MCFN-GIR
Role: Coordinate community participation; Coordinate CBM Guardian work; Logistics for meetings & camps; Coordinate external scientist; Oversee sampling chain of custody; Community reporting

Expertise: Jocelyn is a skilled program coordinator with many years of experience working in community engagement in Fort Chipewyan. She is actively involved with engaging the MCFN of Fort Chipewyan, Trappers, Hunters and Traditional Knowledge Keepers into community events and initiatives

4. Matthew Courtoreille - CBM Guardian, MCFN-GIR
Role: Data collection & management; gathering IK observations; Participation at seasonal gatherings; General labour

Expertise: Holds a Certificate in Community Based Environmental Monitoring through Keyano College.

5. Cynthia Marten - CBM Guardian, MCFN-GIR
Expertise: Holds a Certificate in CBEM from Keyano College.

16.0 Project Human Resources & Financing

Section 16.1 Human Resource Estimates

Building off of the competencies listed in the previous section, please complete the table below. Add additional rows as necessary. This table must include **ALL staff involved** in the project, their role and the % of that staff's time allocated to this work plan. The AEPA calculated amount is based on an estimate of $120,000/year for FTEs. This number cannot be changed. The OSM program recognizes that this is an estimate.

Table 16.1.1 AEPA

Add an additional AEPA Staff member by clicking on the add row below the table. The total FTE (Full Time Equivalent) is Auto Summed (in Table 16.2.1) and converted to a dollar amount.

Name (Last, First)	Role	%Time Allocated to Project
Mahoney, Craig	Coordination of CBMs	0

Table 16.1.2 ECCC

Add an additional ECCC Staff member by clicking on the add row below the table. The total FTE (Full Time Equivalent) is Auto Summed (in Table 16.2.2) and converted to a dollar amount.

Name (Last, First)	Role	%Time Allocated to Project

The tables below are the financial tables for Alberta Environment & Protected Areas (AEPA) and Environment & Climate Change Canada. All work plans under the OSM Program require either a government lead or a government coordinator.

Section 16.2 Financing

The OSM Program recognizes that many of these submissions are a result of joint effort and monitoring initiatives. A detailed "PROJECT FINANCE BREAKDOWN" must be provided using the Project Finance Breakdown Template provided, accessible here. Please note that completion of this Project Finance Breakdown Template is mandatory and must be submitted along with each workplan.

PROJECT FINANCE BREAKDOWN TEMPLATE

Table 16.2.1 Funding Requested BY ALBERTA ENVIRONMENT & PROTECTED AREAS

Organization - Alberta Environment & Protected Areas ONLY	Total % time allocated to project for AEPA staff	Total Funding Requested from OSM
Salaries and Benefits (Calculated from Table 16.1.1 above)	0	$0.00

Operations and Maintenance	
Consumable materials and supplies	
Conferences and meetings travel	
Project-related travel	
Engagement	
Reporting	
Overhead	
Total All Grants (Calculated from Table 16.4 below)	$183,450.00
Total All Contracts (Calculated from Table 16.5 below)	$0.00
Sub-Total (Calculated)	$183,450.00
Capital*	$15,000.00
AEPA TOTAL (Calculated)	$198,450.00

* The Government of Alberta Financial Policies (*Policy # A600*) requires that all **capital asset** purchases comply with governmental and departmental legislation, policies, procedures, directives and guidelines. **Capital assets** (*Financial Policy # A100*, Government of Alberta, January 2014) are tangible assets that: have economic life greater than one year; are acquired, constructed, or developed for use on a continuing basis; are not held for sale in ordinary course of operations; are recorded and tracked centrally; have a cost greater than $5,000.
Some **examples of capital asset equipment include:** laboratory equipment, appliances, boats, motors, field equipment, ATV's/snowmobiles, stationary equipment (pier/sign/weather), fire/safety equipment, pumps/tanks, heavy equipment, irrigation systems, furniture, trailers, vehicles, etc. (*Financial Policy # A100*, Government of Alberta, January 2014).

Table 16.2.2 Funding Requested BY ENVIRONMENT & CLIMATE CHANGE CANADA

Organization - Environment & Climate Change Canada ONLY	Total % time allocated to project for ECCC staff	Total Funding Requested from OSM
Salaries and Benefits FTE (Please manually provide the number in the space below)	0	$0.00
Operations and Maintenance		
Consumable materials and supplies		
Conferences and meetings travel		
Project-related travel		
Engagement		
Reporting		
Overhead		
ECCC TOTAL (Calculated)		$0.00

* ECCC cannot request capital under the OSM program. Any capital requirements to support long-term monitoring under the OSM program should be procured by Alberta and captured in that budget table.

Table 16.3

Complete ONE table per Grant recipient.

Add a Recipient by clicking on add table below the table. The total of all Grants is Auto Summed in Table 16.2.1

GRANT RECIPIENT - ONLY: Name	Melody Lepine
GRANT RECIPIENT - ONLY: Organization	Mikisew Cree FN - GIR
Category	Total Funding Requested from OSM
Salaries and Benefits FTE	$24,000.00
Operations and Maintenance	
Consumable materials and supplies	$79,450.00
Conferences and meetings travel	
Project-related travel	$32,000.00
Engagement	$8,500.00
Reporting	$15,500.00
Overhead	$24,000.00
GRANT TOTAL (Calculated)	$183,450.00

Table 16.4

Complete ONE table per Contract recipient.

Add a Recipient by clicking on add row below the table.. This section is only to be completed should the applicant intend to contract components or stages of the project out to external organizations. The total of all Contracts is Auto Summed in Table 16.2.1

CONTRACT RECIPIENT - ONLY: Name	
CONTRACT RECIPIENT - ONLY: Organization	
Category	Total Funding Requested from OSM
Salaries and Benefits	
Operations and Maintenance	
Consumable materials and supplies	
Conferences and meetings travel	
Project-related travel	
Engagement	
Reporting	
Overhead	
CONTRACT TOTAL (Calculated)	$0.00

Table 16.5 GRAND TOTAL Project Funding Requested from OSM Program

The table below is auto calculated, please do not try to manually manipulate these contents.

Category	Total Funding Requested from OSM
Salaries and Benefits Sums totals for salaries and benefits from AEPA and ECCC ONLY	$0.00
Operations and Maintenance	
Consumable materials and supplies Sums totals for AEPA and ECCC ONLY	$0.00
Conferences and meetings travel Sums totals for AEPA and ECCC ONLY	$0.00
Project-related travel Sums totals for AEPA and ECCC ONLY	$0.00
Engagement Sums totals for AEPA and ECCC ONLY	$0.00
Reporting Sums totals for AEPA and ECCC ONLY	$0.00
Overhead Sums totals for AEPA and ECCC ONLY	$0.00
Total All Grants (from table 16.2.1 above) **Sums totals for AEPA Tables ONLY**	$183,450.00
Total All Contracts (from table 16.2.1 above) **Sums totals for AEPA Tables ONLY**	$0.00
SUB-TOTAL (Calculated)	$183,450.00
Capital* **Sums total for AEPA**	$15,000.00
GRAND PROJECT TOTAL	$198,450.00

Some **examples of capital asset equipment include:** laboratory equipment, appliances, boats, motors, field equipment, ATV's/snowmobiles, stationary equipment (pier/sign/weather), fire/safety equipment, pumps/tanks, heavy equipment, irrigation systems, furniture, trailers, vehicles, etc. (*Financial Policy # A100*, Government of Alberta, January 2014).

17.0 FINANCIAL MANAGEMENT

The OSM Program reserves the right to reallocate project funding during the current fiscal year on the basis of project performance and financial overspend or underspend.

☑ Please check this box to acknowledge you have read and understand

In the space below please describe the following:

- Discuss how potential cost overruns and cost underruns will be managed.
- If this is a continuing project from last year, identify if this project was overspent or underspent in the previous year and explain why.
- Describe what risks and/or barriers may affect this project.

We review all project expenditures thoroughly after each quarter and before the end of Q4. We have Xyntax accounting/PM software and an experienced project manager and finance staff. Our projects in the OSM program have consistently been on time and on budget since funding began. We do not anticipate overages or being underspent, however have a good working relationship with the program office staff and will strive to communicate should those scenarios arise and seek support. As our program has more than one funding stream there are some limited abilities to handle overages.

18.0 Alternate Sources of Project Financing - In-Kind Contributions

Table 18.1 In-Kind Contributions

Add an In Kind Contribution by clicking on the table and then clicking on the add row on the bottom right side of table.

Description	Source	Equivalent Amount ($CAD)
Env Affairs Manager	Mikisew Cree FN - GIR	$15,000.00
	TOTAL	$15,000.00

19.0 Consent & Declaration of Completion

Should your application be successful, The OSM Program reserves the right to publish this work plan application. Please check the box below to acknowledge you have read and understand:

☑ I acknowledge and understand.

Lead Applicant Name

Melody Lepine

Title/Organization

Mikisew Cree First Nation

Signature

Government Lead / Government Coordinator Name (if different from lead applicant)

Director

Title/Organization

Signature

Please save your form and refer to the instructions page for submission link.

Program Office Use Only

Governance Review & Decision Process

this phase follows submission and triggers the Governance Review

TAC Review (Date):

ICBMAC Review (Date):

SIKIC Review (Date):

OC Review (Date):

Final Recommendations:

Decision Pool:

Notes:

Post Decision: Submission Work Plan Revisions Follow-up Process

This phase will only be implemented if the final recommendation requires revisions and follow-up from governance

ICBMAC Review (Date):

SIKIC Review (Date):

OC Review (Date):

Comments:

Decision Pool:

Notes & Additional Actions for Successful Work Plan Implementation:

Signature