2022-2023 OSM WORK PLAN APPLICATION

This form will be used to assess the merits of the proposed work plan and its fit with the Oil Sands Monitoring (OSM) Program mandate and strategic priorities. Applicants must complete the form in its entirety. Applicants that fail to use this form and complete all sections in the timeframe will not be considered.

OSM Work Plan Submission Deadline: The deadline for submission of proposed work plans is ***October 5, 2021 at 4:30 PM Mountain Standard time.***	***October 5, 2021*** *4:30 PM MST*
Decision Notification	*Mid to Late January 2022*

The OSM Program is governed by the Freedom of Information and Protection of Privacy Act (FOIP) and may be required to disclose information received under this Application, or other information delivered to the OSM Program in relation to a Project, when an access request is made by anyone in the public. Applicants are encouraged to familiarize themselves with FOIP. All work plans are public documents.

Work Plan Completion

Please ***Enable Macros*** *on the form when prompted.*

The applicant is required to provide information in sufficient detail to allow the evaluation team to assess the work plan. Please follow the requirements/instructions carefully while at the same time being concise in substantiating the project's merits. *The OSM Program is not responsible for the costs incurred by the applicant in the preparation and submission of any proposed work plan.*

When working on this form, please maintain Macros compatibility by always saving your draft and your final submission as a **Microsoft Word Macro-Enabled Document**, failure to do so will result in loss of form functionality**.** This form was created using Microsoft word 2016 on a PC and may not have functionality on other versions of Microsoft on PC or MACS.

All work plans under the OSM Program require either a government lead or a government coordinator. This will ensure that the financial tables (for Alberta Environment and Parks & Environment and Climate Change Canada) are completed accurately for work plan consideration. ***However,*** *if an* ***Indigenous community, environmental nongovernmental organization*** *or any other* ***external partner*** *is completing a work plan proposal, they would* ***only*** *complete the* ***grant or contract budget component*** *of the* ***Human Resources & Financials Section*** *for their project. The government coordinator within Alberta Environment & Parks would be responsible for completing the remaining components of the Human Resources and Financial Section of this Work Plan Application, as they are responsible for contract and grant facilitation of successful submissions. All other sections outside of* ***Human Resources & Financials Section*** *of this work plan proposal are to be completed in full by all applicants.*

The OSM Program recognizes that majority of work planning submissions are a result of joint effort and monitoring expertise. Should the applicant wish to submit supplemental materials in addition to their application additional resources are available in the Work Planning Form and Distribution Package, accessible here: **Work Planning Form and Distribution Package**

Should you have any ***questions*** *about completing this work planning form or uploading your final submission documents, please send all inquiries by email to:* **OSM.Info@gov.ab.ca**.

Work Plan Submission

*Upon completion of this application, please submit the appropriately named work plan (**Microsoft Word Macro-Enabled Document**) and all supporting documents to the link provided below. Failure to follow the naming convention provided may result in oversight of your application.*

*Please upload (by drag and dropping) the **WORK PLAN SUBMISSION & ALL SUPPORTING DOCUMENTS** here:*

WORK PLAN SUBMISSION LINK (CTRL+CLICK HERE)

Please use the following file naming convention when submitting your WORK PLAN:

202223_wkpln_WorkPlanTitle_ ProjectLeadLastNameFirstName

Example:

202223_wkpln_OilSandsResiduesinFishTissue_SmithJoe

If applicable, **please use the following file naming convention when submitting your supplementary or supporting files.** Please number them according to the guidance and examples provided:

202223_sup##_WorkPlanTitle_ ProjectLeadLastNameFirstName

Examples:

202223_sup01_OilSandsResiduesinFishTissue_SmithJoe

202223_sup02_OilSandsResiduesinFishTissue_SmithJoe

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202223_sup10_OilSandsResiduesinFishTissue_SmithJoe

Do not resave your work plan or documents under any other naming conventions. *If you need to make revisions and resubmit before the work planning deadline of October 5, 2021, **DO NOT** rename your submission. When resubmitting, simply resubmit with the exact naming convention so that it replaces the original submission. **DO NOT** add any additional components such as versioning or dates to the file naming convention. Please direct any questions regarding the submission or naming of submissions to **OSM.Info@gov.ab.ca**.*

Work Plan Application

PROJECT INFORMATION	
Project Title:	Mikisew Cree First Nation – Community Based Wetlands 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 20/21 fiscal by adjusting the last four digits:* ***Example:*** *D-1-2020 would become D-1-****2022***	New stand alone – formerly 2 years with Donald and Danielle as integrated
Project Region(s):	Athabasca
Project Start Year: *First year funding under the OSM program was received for this project (if applicable)*	2022
Project End Year: *Last year funding under the OSM program is requested* ***Example: 2022***	2025
Total 2022/23 Project Budget: *For the 2022/23 fiscal year*	153,600.00
Requested OSM Program Funding: *For the 2022/23 fiscal year*	$147,600.00
Project Type:	Community Based Monitoring
Project Theme:	Wetlands
Anticipated Total Duration of Projects (Core and Focused Study (3 years))	Year 3
Current Year	**Focused Study:** Choose an item.
	Core Monitoring: Year 1

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
Job Title:	Director
Organization:	Mikisew Cree First Nation – Government and Industry Relations
Address:	Suite G – 8219 Fraser Avenue Fort McMurray, AB, T9H 0A2
Phone:	780-714-6500
Email:	Melody.lepine@mcfngir.ca

PROJECT SUMMARY

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*

In the space below please provide a summary (300 words max) 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.

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. This is our first year of a stand alone workplan, however is our third year (proposed herein) of doing wetlands field monitoring.

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 piloting a 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.

Integrated with the wetlands TAC, our work focuses on the wetlands of the Peace-Athabasca Delta (PAD). Our stated goals for this year are to build out the third year of our PAD wetland triggers, to host a workshop to discuss integration goals for the PAD and Indigenous Indicators and to broadly collaborate with the wider wetlands Tac on analysis and community reporting needs.

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 the EEM 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 EEM framework 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*
- *Discuss results of previous monitoring/studies/development and* what has been achieved to date.

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. 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 two previous years to collect information at 7 additional PAD sites. This current year will allow for development of EEM triggers – once compared against the other 11 year data sets available for the broader wetlands program.
Additionally this years workplan will attempt to expore current gaps for the Mikisew which are:

Data management and interpretation
Development of long term PAD EEM triggers (benthic, sediment, water quality and likely quantity)
Reporting and community level reporting and communication of findings
Integration of OSM wetlands findings into long term Action Plan habitat restoration/monitoring efforts
Integration of wetlands findings with the work of Peters et al and connectivity to guide weir construction and planning.

Additionally, (from the Wetlands core TAC):
Key knowledge gaps that need to be addressed by the PAD wetland work plan are:
1) How to integrate the study design of the new surveillance wetland monitoring network (30 AOSR SOW sites) with the core PAD sites? - I included a few ideas on this.
2) How to integrate the wetland indicators of the new surveillance wetland monitoring network (30 AOSR SOW sites) with the core PAD sites? - Only gap is vegetation assessment protocol - and I think we can figure this out this year, so prob not a gap for next year.
3) Strategy for resourcing long-term wetland monitoring in the PAD considering long-term core PAD monitoring sites, recent CBM monitoring sites, new OSM surveillance wetland monitoring program and other PAD wetland monitoring (Action Plan). Approach / deliverables - Workshops and technical report and presentation to Wetland TAC.
4) Synthesis of learnings from OSM PAD work to inform OSM integrated wetland monitoring program - natural variability, power analysis, eDNA vs. traditional taxonomy lessons etc. Approach / deliverables - Workshops and technical report and presentation to Wetland TAC.

One other constraint/ limitation this year is that the AEP wetland team will be maxed out trying to execute the surveillance wetland monitoring program at 30 SOWs in the AOSR, which is why we need the PAD work plan to include Parks Canada or ECCC manpower resources to provide support to the CBM monitoring.

2.0 Objectives of the Work Plan

List in point form the Objectives of the 2022/23 work plan below

[1] Continue field monitoring of the 5 community basins of importance/ refine sites of importance
(2) Meet with Parks Canada, ECCC and AEP to coordinate OSM PAD wetlands monitoring with the CBM methodologies and the Wood Buffalo National Park Action Plan and Parks Canada's ongoing ecological integrity work within the PAD;
[2] Develop community level Indicators and reporting needs
[3] Develop EEM triggers for basins of importance

Core program objectives below:
The overall objective of this Program is to develop a scientifically robust and efficient OSM Wetland Monitoring Program that is valued by local communities that determines the effects of oil sands development on wetland ecosystems.

Key objectives in 2021-2022 are as follows:
1. Conduct surveillance monitoring of wetlands in the mineable oil sands area and Peace Athabasca Delta (2021-2022 priority focus area) for core wetland indicators to assess effects of oil sands development. Wetland monitoring activities will be carried out by government scientists (AEP and ECCC), academic partners (U. Villanova and U. Waterloo), and local indigenous communities.

2. Continued engagement and participation of local indigenous communitiesin the development of thecore wetland monitoringprogram including training and engagement support from ICBMAC and the Athabasca University Facilitation Centre. Four indigenous communities (ACFN & MCFN, Fort MacKay Metis and Conklin Metis) are proposing to conduct core wetland monitoring at ~20 monitoring sites using standardized protocols, as well as some additional support for monitoring wetland CBM indicators of interest.

3.Continued optimization of the core surveillance Wetland Monitoring network using a source-pathway-effect based approach to prioritize wetlands at high risk of impacts as well as identify appropriate 'reference' wetlands. This work requires continued updates to the wetland conceptual model 'source' and 'effect' datasets to support geospatial analysis of the wetland monitoring program through collaborations with the Integrated Collaborate with the Integrated Geospatial team (led by OSM geospatial work plan under objective Phase 1 –Tasks 1.1 and 1.4) on an integrated geospatial framework/ conceptual model and geospatial datasets utilized by the Core Wetland Monitoring Program including:
a) Oil sands development 'source' datasets that are predicted to cause 'effects' to wetland ecosystems (e.g. mine and in situ operational groundwater dewatering activities, mining and in situ project emissions, regional atmospheric deposition models, updates to human footprint inventory to assess effects of land disturbance). Accurate oil sands 'source' geospatial datasets are vital for optimizing the core wetland monitoring site network including expansion of the network to the in situ development areas, and analyzing wetland monitoring datasets for source-pathway-effect relationships following the EEM framework approach.
b) Production of an updated wetland inventory for the Mackay River and Poplar Creek watersheds (Phase 1) that meets new Alberta Wetland Inventory Guidelines (AEP 2020), to support integrated watershed modelling projects in these study areas. An accurate and up-to-date wetland inventory is vital for improved design of the wetland monitoring network to ensure ecological variability within the wetlands is accounted for) and essential for detecting oil sands effects on wetland area (small effects to wetland area and class may be important). An updated wetland inventory is also vital for assessing wetland area and class as key wetland indicator for State of Environment reporting. The current Alberta Merged Wetland Inventory is out of date (source data is < 22 years old) and new remote sensing source data and classification machine learning approaches enable production of much improved products efficiently. This work will leverage work underway by ABMI for an updated provincial wetland inventory, and learnings from the OSM Mackay River and Poplar Creek watershedwetland inventory (Phase 1) will be used to produce an updated wetland inventory for the entire oil sands region in 2022-2023 (Phase 2).
c) Production of a high resolution digital elevation model (DEM; target resolution < 1m) for the entire oil sands region. This DEM will be used to support integrated watershed modeling and support production of an updated wetland inventory in the OSR.

4. Develop approaches for defining baseline conditions and limits of change for development of an adaptive wetland monitoring framework using existing data and consideration of other potential data sources. This work will include engagement with the Wetland TAC and local indigenous communities participating inthe corewetland monitoringprogram. Ongoing development of core wetland indicators that are sensitive to oil sands development sources of disturbance and valued by local communities using existing monitoring datasets. These indicators will be used for State of the Environment reporting.

5. Continued developmentof an integrated surface water/ groundwater model for the Poplar Creek watershed, using GSFLOW (an established coupled groundwater-surface water modeling platform developed by the USGS and already proven useful for the OSM groundwater program in the McKayRiver watershed to quantify groundwater discharge to surface water under development and climate change scenarios). Wetlands that are susceptible to alterations from oil sands activities will be identified by predicting, testing and validating source-pathway-effect responses of priority stressors (e.g., dewatering, landscape disturbance) on key wetland, hydrology and groundwater indicators (e.g., water levels) outside the range of natural variability. Surveillance monitoring alone is considered inadequate to predict, test and validate these complex hydrological processes and source-pathway-effect relationships.

This objective will be met through a collaborative project under the Integrated Modeling work plan with grant budget provided equally by the Wetland Ecosystem Monitoring, Groundwater Monitoring, and Integrated Modelling work plans. The grant leverages existing work with $117,500 of matching funding from U of W (e.g., through NSERC and Boreal Water Futures).

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)
- integrate western science with Indigenous Community-Based Monitoring
- addresses the EEM framework 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 Sub Theme

Please select from the dropdown menu below the theme(s) your monitoring work plan relates to:

Wetlands

3.2 Core Monitoring or Focused study

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. For the purposes of 2022/23 work planning all Community Based Monitoring Projects are Focused Studies.

Core Monitoring

3.3 Sub Theme Key Questions

Please select from the dropdown menus below the sub-theme(s) your monitoring work plan relates to and address the Key Questions:

3.3.1 Surface Water Theme

3.3.1.1. Sub Themes:

Cross Cutting

3.4.1.2 Surface Water Key Questions

Explain how your surface water monitoring program addresses the key questions below.

1. Are changes occurring in water quality, biological health (e.g., benthos, fish) and/or water quantity/flows, to what degree are changes attributable to oil sands activities, and what is the contribution in the context of cumulative effects?

Click or tap here to enter text.

2. Are changes in water quality and/or water quantity and/or biological health informing Indigenous key questions and concerns?

Click or tap here to enter text.

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

Click or tap here to enter text.

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

Click or tap here to enter text.

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

Click or tap here to enter text.

6. 7.6. Where does the monitoring fit on the conceptual model within the EEM framework for the theme area and relative to the conceptual model for the OSM Program theme area? How will this work advance understanding transition towards of the conceptual model EEM framework?

Click or tap here to enter text.

7. Is the work plan contributing to Programmatic State of Environment Reporting?

Click or tap here to enter text.

3.3.2 Groundwater Theme

3.3.2.1 Sub Themes:

Choose an item.

3.3.2.2 Groundwater Key Questions

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

1.Are changes occurring in groundwater quality and/or quantity, to what degree are changes attributable to oil sands activities, are changes affecting other ecosystems, and what is the contribution in the context of cumulative effects?

Click or tap here to enter text.

2. 2. Are changes in groundwater quality and/or quantity informing Indigenous key questions and concerns Indigenous concerns and health?

Click or tap here to enter text.

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

Click or tap here to enter text.

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

Click or tap here to enter text.

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

Click or tap here to enter text.

6. Where does the monitoring fit within the EEM framework and relative to the theme area? How will this work advance transition towards the EEM framework?

Click or tap here to enter text.

7. Where does the monitoring fit on the conceptual model for the theme area and relative to the conceptual model for the OSM Program? How will this work advance understanding of the conceptual model?

Click or tap here to enter text.

8. Is the work plan contributing to Programmatic State of Environment Reporting?

Click or tap here to enter text.

3.3.3 Wetlands Theme

3.3.3.1 Sub Themes:

Cross-Cutting

3.3.3.2 Wetland - Key Questions

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

1. Are changes occurring in wetlands due to contaminants and hydrological processes, to what degree are changes attributable to oil sands activities, 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.

2. Are changes in wetlands informing Indigenous key questions and concerns?

The core Wetland Monitoring Program network for 2021-2022 includes ~20wetland sites of interest to local communities. It also includes wetland monitoring indicators and protocols of interest to local communities including culturally important wetland plants (e.g. rat root, pitcher plants).

3. 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 requirementsand be provided to the OSM Program data management system.

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

Yes, all methodologies apply existing Standard Operating Procedures and Methods; a draft wetland monitoring protocol document will be submitted to the OSM Program office for review and publication as an OSM Report by March 31, 2021.

5. 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.

6. Where does the monitoring fit within the EEM framework and relative to the theme area? How will this work advance transition towards the EEM framework?

The Mikisew Cree, for all of their CBM work, develop EEM 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 along a cumulative oil sands pressure gradient that includes land disturbance density, contaminant load, and hydrologic alteration. The study design allocates more sites in high-risk areas (i.e. watersheds with high cumulative pressures index scores and sites adjacent tomine boundaries).

2) Selecting wetland monitoring indicators that are sensitive to oil sands pressures and early-warning indicators (e.g. N-loading experiments have found to cause increased shrub biomass; bog and fen plant communities have been shown to be particularly sensitive to land disturbance; N-content in bog plant tissues are sensitive to N-deposition loading).

3) Working with communities to co-develop a wetland monitoring program that addresses their values of wetland ecosystems and their perceived threats of oil sands development. Several sites have been chosen by communities' which incorporates their perception of risk of oil sands development affecting high value wetlands. We are also working with communities to co-develop wetland indicators that are highly valued by communities (e.g. monitoring protocol under development for culturally important wetland plant surveys).

7. Where does the monitoring fit on the conceptual model for the theme area and relative to the conceptual model for the OSM Program? How will this work advance understanding of the conceptual model?

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.

8. Is the work plan contributing to Programmatic State of Environment Reporting?

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

3.3.4 Air Theme

3.3.4.1 Sub Themes:

Choose an item.

3.3.4.2 Air & Deposition - Key Questions

Explain how your air & deposition monitoring program addresses the key questions below.

1. Are changes are occurring in air quality, to what degree are changes attributable to oil sands emissions, and what is the contribution in the context of cumulative effects?

Click or tap here to enter text.

2. Are changes informing Indigenous key questions and concerns?

Click or tap here to enter text.

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

Click or tap here to enter text.

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

Click or tap here to enter text.

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

Click or tap here to enter text.

6. Where does the monitoring fit within the EEM framework and relative to the theme area? How will this work advance transition towards the EEM framework?

Click or tap here to enter text.

7. Where does the monitoring fit on the conceptual model for the theme area and relative to the conceptual model for the OSM Program? How will this work advance understanding of the conceptual model?

Click or tap here to enter text.

8. Is the work plan contributing to Programmatic State of Environment Reporting? (Answer Box)

Click or tap here to enter text.

3.3.5 Terrestrial Biology Theme

3.3.5.1 Sub Themes:

Choose an item.

3.3.5.2 Terrestrial Biology - Key Questions

Explain how your terrestrial biological monitoring program addresses the key questions below.

1. Are changes occurring in terrestrial ecosystems due to contaminants and landscape alteration, to what degree are changes attributable to oil sands activities, and what is the contribution in the context of cumulative effects?

Click or tap here to enter text.

2. Are changes in terrestrial ecosystems informing Indigenous key questions and concerns?

Click or tap here to enter text.

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

Click or tap here to enter text.

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

Click or tap here to enter text.

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

Click or tap here to enter text.

6. Where does the monitoring fit within the EEM framework and relative to the theme area? How will this work advance transition towards the EEM framework?

Click or tap here to enter text.

7. Where does the monitoring fit on the conceptual model for the theme area and relative to the conceptual model for the OSM Program? How will this work advance understanding of the conceptual model?

Click or tap here to enter text.

8. Is the work plan contributing to Programmatic State of Environment Reporting?

Click or tap here to enter text.

3.3.6 Cross-Cutting Across Theme Areas

3.3.6.1 Sub Themes:

Choose an item.

If "Other" was selected from the drop down list above please describe below:

Click or tap here to enter text.

3.3.6.2 Cross-Cutting - Key Questions

Explain how your cross-cutting monitoring program addresses the key questions below.

1. Is data produced following OSM Program requirements and provided into the OSM Program data management system?

Click or tap here to enter text.

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

Click or tap here to enter text.

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

Click or tap here to enter text.

4. Where does the monitoring fit within the EEM framework and relative to the theme area? How will this work advance transition towards the EEM framework?

Click or tap here to enter text.

5. Where does the monitoring fit on the conceptual model for the theme area and relative to the conceptual model for the OSM Program? How will this work advance understanding of the conceptual model?

Click or tap here to enter text.

6. Is the work plan contributing to Programmatic State of Environment Reporting?

Click or tap here to enter text.

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 give consideration for the EEM framework and the approved Key Questions.

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?

Yes

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 can be assessed against a baseline condition. As relevant give consideration for the EEM framework and the approved Key Questions.

Wetland ecosystem changes will be assessed against reference conditions through selecting wetland sites along a cumulative effects stressor 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.

Preliminary analysis of various wetland plant community parameters (e.g. species richness) and oil sands stressor gradients indicates that at least 30 wetland sites of each wetland class (i.e. 30 bogs, 30 fens and 30 SOWWs) are needed to detect effects. Thirty peatland sites (bogs and fens) will be sampled in 2020-2021 and additional power analysis will be used to further review and modify the wetland monitoring site network as needed.

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 give consideration for the EEM framework and the approved Key Questions.

This year is the first year of implementation of a core wetland monitoring program (Phase 2) beyond the pilot scale work completed to date (Phase 1). Surveillance monitoring sites in 2021-2022 is focused on assessing effects of mining and in situ development in theAthabasca Oil Sands Region and the Peace-Athabasca Delta. Additional wetland monitoring sites will be added to the network in 2022-2023 to the Cold Lake and Peace River Oil Sands Regions to better characterize effects 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 activitiesor cumulative effects from other human development activities?'

The Wetland Monitoring Program will scale-up wetland field measurements through twocomplementary and parallel approaches:

1) Remote sensing approach: A pilot-scale wetland ecosystem change project is nearing completionusing lidar data to quantify vegetation canopy heightchanges (2008 vs. 2018) along transects over the oil sands mine centre. The spatialization of wetland change can be linked to various regional oil sands stressor datasets including contaminant deposition models and the human footprint inventory, and then quantified over space and time. This provides spatial quantification of:
a) land covers that are most sensitive to disturbance (using vegetation structure as a proxy indicator) and
b) disturbance types from Alberta Human Footprint that have the greatest impact. We propose to scale-up with pilot that will use a machine learning framework to characterize the land surface characteristics (derived from lidar data) that correspond with areas of greatest sensitivity (and greatest resilience) to disturbance. This will then be tested against eco-hydrological model (part 2 of scaling-up).

2) A cumulative effects modeling approach consistent with the EEM framework direction is proposed under the Integrated Modelling plan, which will incorporate modeling of key source-pathway-wetland ecosystem responses and serve as a point of integration across the various theme areas. Wetlands and groundwater support further development of groundwater -surface modelling, which has been developed using a USGS platform onthePoplar Creek watershed. This modeling will enable the assessment of effects of oil sands development on wetland ecosystems at a watershed/ sub-regional scale, which is one of the objectives of OSM Wetland Monitoring Program. The modeling will help to answer the key questions of the Program by 1) identifying wetlands within the watershed that are more susceptible to hydrologic disturbances, 2) by isolating the effects of oil sandsmine development activities including groundwater dewatering . Modeled results will be validated byfield observation at surveillance and sentinel monitoring sites inthe watershed. The simulated streamflow in Beaver and Poplar Creek and three other gauging stations within these watersheds will be compared and validated by the observed daily streamflow at these stations. Simulation of changes in hydrological connectivitywill improve the understanding of interactions between communities of living organisms and hydrologic conditions and will contribute to making well-informed decision on wetland mitigation by recognizing signals from open mining operation.

While Environmental Impact Assessment (EIA) of the Voyageur South Mine (VSM) simulated deep groundwater flow and Poplar Creek discharge during the operational phases of the mine, possible changes to shallow groundwater flow and their effects on wetlands are still unknown. This study can fill this knowledge gap by the assessment of changes in shallow groundwater movement that is essential for wetland maintenance. In addition, the model will be useful for validation of EIA predictions. The study can assess changes in hydrologic connectivity of Poplar Creek watershed due to open mining activities by assessing such indicators as 1) wetland area, 2) water table depth, and 3) soil moisture. Despite possible uncertainties related to model development, results of modeling will reveal the areas of highest risk and will detect changes along related go proximity to open mining activities. Although prediction of changes in every single wetland at community level may be associated with some uncertainty, the model has sufficient power to accurately predict decadal changes due to mining development at watershed level. In addition, modeling results will allow the assessment of changes along a stressor gradient associated with proximity to mining operations and will be helpful for comparison of magnitude of changes related to differences in topography, surface geology, and landscape position.

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 give consideration for the EEM framework and the approved Key Questions.

All data is shared by default with the AEP 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 give consideration for the EEM framework and the approved Key Questions.

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 work plan builds off of over 10 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 9 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 AEP, 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.

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. We have also started to integrate with Fort Chipewyan Metis Association.

- MCFN is continuing a partnership with Keegan Hicks (AEP) and Paul Drevnick 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. A joint ICBM template (with the Athabasca Chipewyan FN) was sent to Paul Drevnick.

MCFN is also integrated into the Whitefish Tissue OSM workplan being led by Mark McMaster and Erin Ussery

- MCFN's integration with Donald Baird & Danielle Cobbaert Partnering on "OSM Integrated Wetland Monitoring" in the Peace Athabasca Delta is also work that adds to the overall objectives of the OSM ICBMAC as well as the broader integration aims through the coordination with the ICBM Facilitation Centre.

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

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

Coordinated with the Wetlands TAC:

[1] Continue field monitoring of the 5 community basins of importance/ refine sites of importance
(2) Meet with Parks Canada, ECCC and AEP to coordinate OSM PAD wetlands monitoring with the CBM methodologies and the Wood Buffalo National Park Action Plan and Parks Canada's ongoing ecological integrity work within the PAD;
[3] Develop community level Indicators and reporting needs
[4] Develop EEM triggers for basins of importance
-

Additionally through the wetlands TAC we will support as required:
[a] Carry out statistical modelling to explore biomonitoring data properties of eDNA and standard CABIN wetland invertebrate samples from a 10-year data set collected in the PAD to support use of invertebrates as indicators of wetland ecosystem change, particularly related to OS stressors (contaminants, hydrological alteration);
- development of a biomonitoring model suitable for detection of effects against a background of natural variability, including specification of effect size and statistical power
[b] Create a detailed SOP for the eDNA data generation including sample extraction, library prep, sequencing and bioinformatics to support generation of robust & repeatable biodiversity results for shallow open-water wetlands.
- creation of a workflow model which could support long-term monitoring of SOW sites using eDNA, including possible quantification of biodiversity elements (i.e. key indicator species)ops in Fort Chipewyan led by CBM partners and Parks Canada
[2] Carry out statistical modelling to explore biomonitoring data properties of eDNA and standard CABIN wetland invertebrate samples from a 10-year data set collected in the PAD to support use of invertebrates as indicators of wetland ecosystem change, particularly related to OS stressors (contaminants, hydrological alteration);
- development of a biomonitoring model suitable for detection of effects against a background of natural variability, including specification of effect size and statistical power
[3] Create a detailed SOP for the eDNA data generation including sample extraction, library prep, sequencing and bioinformatics to support generation of robust & repeatable biodiversity results for shallow open-water wetlands.
- creation of a workflow model which could support long-term monitoring of SOW sites using eDNA, including possible quantification of biodiversity elements (i.e. key indicator species)

10.2 Describe how changes in environmental Condition will be assessed *

Click or tap here to enter text.

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

Click or tap here to enter text.

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

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

Click or tap here to enter text.

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

Click or tap here to enter text.

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 a workshop held in Fort Chipewyan which will include Elders, community based monitoring staff and Wetland TAC members as well as Parks Canada.

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 2022-23 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.

Data Sharing and Data Management Continued

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:

Monthly

13.4 Estimated Data Collection Start Date:

2022-08-15

13.5 Estimated Data Collection End Date:

2024-08-16

13.6 Estimated Timeline For Upload Start Date:

2023-03-31

13.7 Estimated Timeline For Upload End Date:

2025-03-31

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 table and then clicking on the blue "+" symbol 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_WaterQuality Other (Describe in Description Section)	AEP	.csv	Open by Default
MCFN sediment Other (Describe in Description Section)	AEP	.csv	Open by Default
MCFN inverterbates Other (Describe in Description Section)	AEP	.csv	Open by Default

MCFN_IKIndex Other (Describe in Description Section)	MCFN Internal Database	.csv	Protected by Default

14.0 2022/23 Deliverables

Add an additional deliverable by clicking on the table and then clicking on the blue "+" symbol on the bottom right side of table.

Type of Deliverable	Delivery Date	Description
Technical Report	Q4	A technical summary of findings from both western Science and Indigenous Knowledge components of the project. Includes EEm monitoring triggers
Key Engagement/Participation Meeting	Q1	Multi- stakeholder meeting in Fort chipewyan to discuss alignment between Action Plan and OSM wetland and habitat monitoring goals
OSM Program Annual Progress Report (required)	Q4	OSM Program Annual Progress Report on CBM wetlands
Public Dissemination Document	Q2	Report on findings of conference/meeting
Choose an item.	Choose an item.	Click or tap here to enter text. Click or tap here to enter text.
Choose an item.	Choose an item.	Click or tap here to enter text. Click or tap here to enter text.
Choose an item.	Choose an item.	Click or tap here to enter text. Click or tap here to enter text.
Choose an item.	Choose an item.	Click or tap here to enter text. Click or tap here to enter text.
Choose an item.	Choose an item.	Click or tap here to enter text. Click or tap here to enter text.

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. Benjamin Sey – Environmental Affairs Manager, MCFN- GIR
Role: Benjamin manages the MCFN-CBM program operations and works with the Nation's leadership to ensure that MCFN-CBM data informs policy and management decisions.

Expertise:
Benjamin holds a Ph.D. in Renewable Resources Management from McGill University and a Master of Soil Science from the University of Alberta. Ben's professional experience spans working in Government, Industry, Academia, and with First Nations communities. This diverse experience includes his previous work as a Reclamation

Specialist for Syncrude and CNRL, as well as serving as the Dean of the School of Energy and Environmental Sciences at Lakeland College. Prior to joining MCFN GIR, he served as the Regulatory and Environmental Lead for the Fort McKay First Nation.

3. Lindsay Wong – Environmental Coordinator, 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.

4. 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

6. 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.

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

8. Willis Flett – Community Engagement - GIR

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 AEP 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 AEP

Add an additional AEP Staff member by clicking on the table and then clicking on the blue "+" symbol on the bottom right side of 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
Click or tap here to enter text.	Click or tap here to enter text.	0%

Table 16.1.2 ECCC

Add an additional ECCC Staff member by clicking on the table and then clicking on the blue "+" symbol on the bottom right side of table. The total FTE (Full Time Equivalent) is Auto Summed in Table 16.2.2

Name (Last, First)	Role	% Time Allocated to Project
Daneille Cobbaert	AEP lab analysis costs	0%

The tables below are the financial tables for Alberta Environment & Parks (AEP) 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 (ctrl + click the link below). Please note that completion of this Project Finance Breakdown Template is mandatory and must be submitted along with each workplan.

PROJECT FINANCE BREAKDOWN TEMPLATE (CTRL+CLICK HERE)

Table 16.2.1 Funding Requested BY ALBERTA ENVIRONMENT & PARKS

Organization – Alberta Environment & Parks ONLY	Total % time allocated to project for AEP staff	Total Funding Requested from OSM
Salaries and Benefits *(Calculated from Table 16.1.1 above)*	**0.00%**	**$0.00**
Operations and Maintenance		
Consumable materials and supplies		$22320.00
Conferences and meetings travel		$0.00
Project-related travel		$0.00
Engagement		$0.00
Reporting		$0.00
Overhead		$0.00
Total All Grants *(Calculated from Table 16.4 below)*		**$0.00**
Total All Contracts *(Calculated from Table 16.5 below)*		**$0.00**
Sub- TOTAL *(Calculated)*		**$0.00**
Capital*		$0.00
AEP TOTAL *(Calculated)*		**$0.00**

* 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)*		
Salaries and Benefits		$0.00
Operations and Maintenance		
Consumable materials and supplies		$0.00
Conferences and meetings travel		$0.00
Project-related travel		$0.00
Engagement		$0.00
Reporting		$0.00
Overhead		$0.00
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 the table and then clicking on the blue "+" symbol on the bottom right side of table. The total of all Grants is Auto Summed in Table 16.2.1

GRANT RECIPIENT - ONLY: Name	Melody Lepine – Director, Mikisew Cree First Nation – Government & Industry Relations
GRANT RECIPIENT - ONLY: Organization	Mikisew Cree First Nation – Government & Industry Relations
Category	**Total Funding Requested from OSM**
Salaries and Benefits	$16,600.00
Operations and Maintenance	
Consumable materials and supplies	$24,100.00
Conferences and meetings travel	$2,500.00
Project-related travel	$8,500.00
Engagement	$18,000.00
Reporting	$24,000.00
Overhead	$17,000.00
GRANT TOTAL *(Calculated)*	**$0.00**

Table 16.4

Complete ONE table per Contract recipient.

Add a Recipient by clicking on the table and then clicking on the blue "+" symbol on the bottom right side of 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	Click or tap here to enter text.
CONTRACT RECIPIENT - ONLY: Organization	Click or tap here to enter text.
Category	**Total Funding Requested from OSM**
Salaries and Benefits	$0.00
Operations and Maintenance	
Consumable materials and supplies	$0.00
Conferences and meetings travel	$0.00
Project-related travel	$0.00
Engagement	$0.00
Reporting	$0.00
Overhead	$0.00
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 AEP and ECCC ONLY***	$0.00
Operations and Maintenance	
Consumable materials and supplies *Sums totals for AEP and ECCC ONLY*	$0.00
Conferences and meetings travel *Sums totals for AEP and ECCC ONLY*	$0.00
Project-related travel *Sums totals for AEP and ECCC ONLY*	$0.00
Engagement *Sums totals for AEP and ECCC ONLY*	$0.00
Reporting *Sums totals for AEP and ECCC ONLY*	$0.00
Overhead *Sums totals for AEP and ECCC ONLY*	$0.00
Total All Grants (from table 16.2.1 above) *Sums totals for AEP Tables ONLY*	$0.00
Total All Contracts (from table 16.2.1 above) *Sums totals for AEP Tables ONLY*	$0.00
Sub- TOTAL	$0.00
Capital* *Sums total for AEP*	$0.00
GRAND PROJECT TOTAL	$0.00

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.*

This is the third year of an integrated multi-year project, however is being written as a stand alone workplan this year as per new OSM workplan rules for CBM projects . Last fiscal year (2020-2021) and this current fiscal year we demonstrated our ability to fulfill project deliverables, despite disruptions due to Covid-19. We successfully trained staff vritually, hosted multiple engagement sessions via zoom with Elders and Land Users. The MCFN-CBM was able to successfully carry out sampling, and collect samples for external researchers who were unable to travel to the areas due to COVID-19 travel restrictions.
Strict safety measures are in place with the MCFN-CBM staff, and contingency plans are in place to allow sampling to continue due to our close working relationship with in-kind partners Parks Canada.The MCFN-CBM program has had a consistent staff team which has enabled us to fulfill project deliverables. We have long standing relationships with the consultants and labs that we work with that have a proven track record of delivering analyses on time.

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 blue "+" symbol on the bottom right side of table.

DESCRIPTION	SOURCE	EQUIVALENT AMOUNT ($CAD)
Environmental Manager time	Mikisew Cree - GIR	$6,000.00
	TOTAL	**$0.00**

19.0 Consent & Declaration of Completion

Lead Applicant Name

Melody Lepine

Title/Organization

Director, Mikisew Cree First Nation – Government and Industry Relations

Signature

Melody Lepine

Date

2021-09-30

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

Click or tap here to enter text.

Title/Organization

Click or tap here to enter text.

Signature

Click or tap here to enter text.

Date

Click or tap to enter a date.

PROGRAM OFFICE USE ONLY

Governance Review & Decision Process

this phase follows submission and triggers the Governance Review

TAC Review (Date):

Click or tap to enter a date.

ICBMAC Review (Date):

Click or tap to enter a date.

SIKIC Review (Date):

Click or tap to enter a date.

OC Review (Date):

Click or tap to enter a date.

Final Recommendations:

Decision Pool:

Choose an item.

Notes:

Click or tap here to enter text.

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):

Click or tap to enter a date.

SIKIC Review (Date):

Click or tap to enter a date.

OC Review (Date):

Click or tap to enter a date.

Comments:

Decision Pool:

Choose an item.

Notes & Additional Actions for Successful Work Plan Implementation:

Click or tap here to enter text.