



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:	Fort McKay Métis Community-Based Wetland Monitoring
Lead Applicant, Organization, or Community:	Fort McKay Métis Nation
Work Plan Identifier Number: <i>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</i>	N/A
Project Region(s):	Athabasca
Project Start Year: <i>First year funding under the OSM program was received for this project (if applicable)</i>	2020
Project End Year: <i>Last year funding under the OSM program is requested Example: 2022</i>	2023 with the intent of transitioning to a long-term monitoring project
Total 2022/23 Project Budget: <i>For the 2022/23 fiscal year</i>	\$291,500.00
Requested OSM Program Funding: <i>For the 2022/23 fiscal year</i>	\$291,500.00
Project Type:	Longterm Monitoring
Project Theme:	Wetlands
Anticipated Total Duration of Projects (Core and Focused Study (3 years))	Year 3
Current Year	Focused Study: Year 3 of 3
	Core Monitoring: Choose an item.

CONTACT INFORMATION	
Lead Applicant/ Principal Investigator: <i>Every work plan application requires one lead applicant. This lead is accountable for the entire work plan and all deliverables.</i>	Adi Adiele
Job Title:	Manager, Environment Land Use Sustainability
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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.

For decades, Fort McKay Métis community members have raised concerns related to the cumulative impacts industrial development is having on regional wetlands and the effect this has on traditional livelihoods and culture. Despite these concerns, industrial development is prevalent in this region and major projects are expected to continue.

In 2019, Fort McKay Métis successfully implemented a three-year pilot community-based wetland program to answer key questions from the community relating to wetlands. In 2020 and 2021, Fort McKay Métis received funding through OSM to expand the community based wetland monitoring program and completed year 1 and 2 of wetland monitoring at new locations – Island Lake was added in 2020 and two sites in the McKay River watershed were added in 2021. Fort McKay Métis are now applying for funding to continue year 3 of data collection at Island Lake, year 2 of data collection in the McKay River watershed sites and expand the program to include another wetland site at a new location important to the community. Continuing this monitoring project provides value to the community and to the OSM program.

This program has been designed to meet both the Fort McKay Métis' objectives for community-based monitoring, and the objectives of several OSM Programs.

Fort McKay Métis have identified five key objectives for community based monitoring:

- 1) the use of both western science and Indigenous knowledge to measure indicators related to wetlands and understand change;
- 2) generate information that helps answer questions from the community;
- 3) build community capacity for environmental and social monitoring;
- 4) create meaningful employment opportunities for community members; and
- 5) create opportunities for youth and elders/land users to work together to support knowledge transfer and cultural sustainability.

Many of these objectives are aligned with the goals of the ICBM Advisory Committee.

The western science data collection will integrate methods used by the core Oil Sands Monitoring Wetland Technical Advisory Committee for hydrology and vegetation to ensure the data is comparable for regional analysis.

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.

Fort McKay Métis is building a regional community-based monitoring program that tracks changes in wetlands that are of key importance to them, as well as regionally. Ultimately, Fort McKay Métis would like to carry out a community-driven, community-based monitoring program using a complementary set of biological and socio-cultural indicators at all important wetlands within their territory. They hope information generated through this type of program will help inform decision making related to land use and development planning within their traditional harvesting area. Many of the wetlands currently monitored within the Fort McKay Métis Harvesting Area are monitored for western science indicators and questions related to industrial development. These programs have not been specifically designed to answer community questions and they have not integrated Indigenous knowledge or cultural values in their designs.

This monitoring project will address the Surveillance section of the EEM framework under the Wetlands column identifying how the wetland ecosystems have changed from baseline. Section 3.3.3.2.7 outlines how our project fits in the source-pathway-receptor conceptual models.

The Fort McKay Métis community based wetland monitoring program will answer specific questions being asked by the community, use Indigenous knowledge in all phases of the monitoring program, and use western science tools and methods that allow seamless integration with other OSM monitoring activities. The program will establish existing conditions at wetlands important to the community, collect scientific and socio-cultural data, build capacity for environmental monitoring within the community, and promote knowledge transfer between elders and youth. This monitoring program meets the mandate of the OSM program by tracking and reporting on changes in wetlands in the oil sands region and whether these changes can be attributed to oil sands activity.

The Fort McKay Métis successfully established a pilot community based wetland monitoring program in 2019 and 2020 with Environment and Climate Change Canada funding and completed year 1 and 2 of the OSM monitoring program at Island Lake (2020 and 2021) and two sites in the McKay River watershed (2021). Year 3 of monitoring will build on the success and efficiencies of the current program and will add an additional site.

2.0 Objectives of the Work Plan

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

- Continue an integrated monitoring program at three wetlands, one near Island Lake and two in the McKay River watershed, that includes both Indigenous knowledge and western science to measure indicators related to wetlands.
- Add one new wetland site to the monitoring program in a location chosen by the community that has the potential to be impacted by oil sands development and is not an existing OSM program site.
- Answer key questions for the community and generate information that contributes to the knowledge of environmental impacts from oil sands development by integrating monitoring protocols and data management.



- Build community capacity for data collection, reporting, and evaluation through training and mentorship.

This work plan falls under the Indigenous Community Based Monitoring Advisory Committee. The Wetlands Theme is the most relevant for this long term independent study, all indicator data will be collected within wetlands.

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.

Focused Study (includes Community-Based 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:

Quantity

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?

Access to the monitoring locations will use traditional travel routes where they exist and are accessible. Water quantity and flow changes due to oil sands development could impact these travel routes and these changes will be documented during the monitoring.

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

Fort McKay Métis have raised concerns related to the effects of oil sands development in the McKay River Watershed (hydrologic alterations, contaminants, vegetation removal) on wetlands, and the water in the McKay River and surrounding areas. The community has also raised concerns about water levels impacting access to Island Lake, by collecting data on water levels at this site, it will inform indigenous concerns and monitor for any changes.

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

Yes

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

Yes

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

The monitoring integrates our community-based monitoring program with knowledge of surface water flows in areas around the oil sands and our group is willing to work with the Surface Water TAC to collect surface water samples in nearby streams, rivers, or lakes where the data would be useful to them.

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?

See Wetlands Theme section 3.3.3.2.6 for details.

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

Yes, providing data for programmatic state of the environment reporting and the Fort McKay Métis state of the environment report.



3.3.2 Groundwater Theme

3.3.2.1 Sub Themes:

Quantity

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?

Island Lake is a reference site. It is viewed as a clean, safe place unaffected by oilsands development. The two monitoring sites in the McKay River watershed and the new site will be closer in proximity to Fort McKay and are at risk because of oil sands development. Community members are concerned that water diversions, dewatering, and land clearing from projects like Syncrude MLX will affect groundwater quality and quantity. Shallow groundwater levels and quality will be monitored in all four wetland locations using shallow groundwater wells. See the Wetland Theme section for details.

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

Groundwater quantity will inform one question from Fort McKay Métis: Are wetlands drying out? Shallow groundwater well data will be used to determine if the groundwater levels are changing more than would be expected with natural variability between years. Community members are also concerned that tailings storage, spills and other unplanned releases may affect groundwater quality that may seep into wetlands and eventually the McKay River, groundwater samples will address this concern.

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

Yes

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

Yes, see the Wetland Theme section 3.3.3.2.4 for details.

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

See the Wetlands Theme section 3.3.3.2.5 for details.

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?

See the Wetlands Theme section 3.3.3.2.6 for details.

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?

See the Wetlands Theme section 3.3.3.2.7 for details.

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



Yes, providing data for programmatic state of the environment reporting and the Fort McKay Métis state of the environment report.

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?

The Island Lake site is a reference site. Fort McKay Métis want to make sure that this area remains healthy and free from oil sand development impacts. To confirm water in the area's wetlands are free from contaminants, groundwater samples will be collected at the Island Lake wetland site and analyzed, along with qualitative water data, shallow groundwater levels, and plant community composition.

The McKay River watershed sites and the new site are in areas affected by multiple oil sands projects. Shallow groundwater monitoring wells will be installed (complete at the McKay River watershed sites), groundwater levels will be measured, groundwater quality samples will be collected, and plant community composition will be documented. In the past, communities have raised concerns related to the effect mining and SAGD developments have on hydrological processes affecting wetlands (diversions, surface water and ground water withdrawal). Fort McKay Métis are also concerned wetlands may become contaminated from tailings pond seepage, spills, and the dust and emissions drifting from overburden piles, sulfur storage, trucks and roads, tailings storage, and mining operations.

Consistently collecting information for a common set of indicators at a reference site, and sites more directly affected by oil sands development helps the community and OSM understand the influence different drivers (i.e. oil sands productions, weather and climate, landscape factors) and pressures (land disturbance, surface water diversions, dewatering and other surface/groundwater withdrawals) have on the state of wetland health. It helps us understand how far the effects of oil sands development extend, and provides assurance to the communities that some areas remain safe for harvesting.

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

The Fort McKay Métis wetland monitoring Programs was initially designed to help answer these questions (FMMN, HEG 2018; FMMN, HEG, AE 2019; FMMN, HEG, AE, 2020):

- Are wetlands drying out?
- Are there fewer healthy wetlands that can be used for traditional harvesting?
- Are there fewer animals using wetlands?
- Is it getting harder to predict how to travel through wetland and muskeg areas?
- Is the water in wetlands being polluted through air, by water run-off from industrial sites or through seepage?
- Are changes in wetland health affecting the way people use wetlands and how does this affect our culture?
- Are the reasons for communities travelling in/through wetlands changing – why?

In addition to these general questions, community members have questions and concerns specific to each monitoring location depending on their proximity to oil sands development. For example, the main question driving monitoring at Island Lake is "Are wetlands around Island Lake free from oil sands impacts"?

The Fort McKay Métis monitoring program uses both quantitative and qualitative methods to collect information for a number of environmental and socio-cultural indicators linked to wetlands. Quantitative methods follow OSM Program Requirements. The approach and methods used to collect qualitative information about indicators are aligned with best practices and the objectives the Fort McKay Metis

have set out for community based monitoring programs:

1. To develop an integrated monitoring program that uses both indigenous knowledge and western science to measure indicators and understand change
2. To develop a program that answers key questions from the community and generates information that can better inform land use planning and decision making
3. To build community capacity for data collection, reporting, and evaluation
4. Create meaningful employment opportunities for community members that include spending time on the land, working to better understand environmental trends
5. Create opportunities for youth and Elders/Land users to work together to support knowledge transfer and cultural sustainability

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

Scientific data will be produced in an open, integrated, and transparent manner and provided to the OSM Program data management system.

Scientific data will be processed and formatted to be compatible with the OSM Program data management system and provided to the OSM Program. Monitoring locations will be selected not to overlap with or duplicate ongoing OSM core monitoring but data will be compatible when the same indicators are used.

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

Draft Standard Operating Procedure from the OSM Wetland Technical Advisory Committee (TAC) for protocols in shallow groundwater level monitoring and vegetation cover monitoring are used. Stephanie Connor and Danielle Cobbaert (Wetland TAC) were contacted to ensure the materials and methods used are consistent with the Wetland TAC core monitoring program and locations do not overlap. Additionally, the same laboratories will be used to analyse any groundwater or surface water samples collected to ensure the data is comparable.

Community members from Fort McKay Métis were trained in standard field sampling procedures for water quality, shallow groundwater level monitoring, and vegetation cover by the University of Northern British Columbia and experienced environmental scientists of Associated Environmental Consultants Inc. during the pilot community based monitoring program in 2019 and during monitoring in 2020 under OSM. Qualitative information is recorded by community members in a format established for the 2019 pilot wetland monitoring program.

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

The proposed 2022 monitoring program builds on the successes and resources developed for the initial 2019 pilot project funded by an Environment and Climate Change Canada grant (Indigenous Fund for Community-Based Environmental Monitoring), and the 2020 & 2021 OSM monitoring for this project which integrates methods from the core programs under the OSM Wetland Technical Advisory Committee (TAC) while incorporating Indigenous knowledge in a community-based program.

This project integrates western science with Indigenous knowledge to monitor for changes in wetland health. Running this project as a focused study rather than a component of a core program allows the community the flexibility to create and run their own monitoring program using only the western science and socio-cultural indicators that are valuable to answer the questions posed by the community.

In addition to contributing to the community's goal of establishing a regional wetland monitoring program, establishing new wetland monitoring sites has the potential to contribute to other monitoring programs being led by the Fort McKay Métis. Since 2018, Fort McKay Metis has worked to establish a surface and groundwater effects monitoring program on the McKay River. In 2020, OSM provided

funding through the surface water TAC and the groundwater TAC that allowed Fort McKay Métis to continue this program. Information generated through establishing new community-based wetland monitoring sites near existing/future mine sites will complement the existing surface and ground water monitoring programs, and help interpret the results generated from all three 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 monitoring fits within the EEM framework under the categories: Surveillance and Focused.

Surveillance

This project addresses how the nature and quality of wetlands has changed. Vegetation, wetland hydrology, groundwater levels, and indigenous knowledge of the area will be recorded over time as development expands near the monitoring areas. This information will be collected using both scientific and community based methods to collect data and record knowledge.

Focused

The project will help answer the key questions related to Indigenous Rights and Culture, specifically: will changes to wetlands (surface water, groundwater, plant communities, wildlife) impact harvesting and occupancy patterns, intergenerational transfer of knowledge, sharing of resources linked to the reinforcement of kinship bonds, and people's relationship with the land.

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?

This monitoring program fits with the conceptual models for the wetlands and community-based monitoring themes and the overall OSM programmatic conceptual model as summarized below.

This project will advance the understanding of these conceptual models as Fort McKay Métis contribute knowledge directly related to valued components of each model, based on their unique perspective of a community that has been present on the land since pre-development. We will collect data that will contribute to knowledge specific to wetland impacts identified in the conceptual models. The data collected are related to western science and Traditional Ecological Knowledge (TEK) which is both aligned with the existing monitoring and enhances and expands it through the use of TEK.

OSM PROGRAMMATIC CONCEPTUAL MODEL

PRESSURES

Pressures relating to our monitoring include land disturbance, industrial water use, and oil sands production.

STRESSORS

These pressures will lead to the following stressors addressed by our project:

- Increased access
- Elimination of streams, wetlands, and lakes
- Surface water diversions/withdrawals
- Contaminants

PATHWAYS

These stressors will be seen in the following pathways included in our project:

- Groundwater levels, flows & supply – this project will measure groundwater levels near wetland edges to determine if groundwater levels are changing. Groundwater quality will also be measured by collecting and analyzing groundwater samples.
- Surface water & sediment quality – Surface water quality will be analyzed if the new site selected is a shallow open water wetland and results will relate to surface transport or atmospheric deposition

- Invasive species – Vegetation species will be recorded which will capture invasive species percent cover in relationship to native species cover as well as traditionally and culturally important plants.
- Wildlife harvesting – Incidental wildlife and human access routes will be recorded for comparison in future years.

RESPONSE

The response from these pathways is expected to be a change to health, biodiversity, and distribution of wetlands and their valued components.

VALUED COMPONENTS

Any impacts will be measured based on the valued components of ecosystem structure and function, traditional resources & cultural practices, and access to land.

COMMUNITY BASED MONITORING CONCEPTUAL MODEL

PRESSURES

Our project relates to all of the oil sands related pressures (landscape disturbance, air emissions, and industrial water use).

STRESSORS

Our project relates to all four of the stressors in the model (habitat loss, fragmentation, disturbance; contaminants; water withdrawals; and water regulation)

PATHWAYS

The pathways addressed by our monitoring indicators include water transport and altered habitat.

CBM & INDIGENOUS INDICATORS / OBSERVATIONS OF CHANGE:

- Wildlife abundance
- Water quality
- Drying Lakes, Creeks & Wetlands (habitat quality)

VALUED COMPONENTS

The valued components that will be recorded include:

- Quality of Traditional Resources,
- Access to Traditional Land & Resources, and
- Perception of Environment

All three of these valued components could lead to a loss or reduction in the observation of traditional and cultural practices.

WETLAND CONCEPTUAL MODEL

DRIVERS

The driver related to our monitoring is oil sands development.

PRESSURES

This driver has led to pressures including Surface Water Diversions, Ground & Surface Withdrawals, and Oil Sands Contaminants.

PATHWAYS

These pressures are being monitored through pathways including Changes to Local Surface Water, Changes to Local Groundwater, and Transport via Surface Water, Groundwater, Atmospheric Deposition.

WETLAND STRESSORS



Wetland stressors included in our monitoring include Changes to Recharge & Discharge Patterns and Changes to Surface Water Quality.

WETLAND ECOSYSTEM STATE

Changes to wetland ecosystem state will be measured through Changes to Wetland Ecosystem Structure.

WETLAND IMPACTS (VALUED COMPONENTS)

The valued components measured by our indicators include:

- Loss of Wetland Ecosystem Services,
- Decreased Health of Culturally Important Species,
- Changes to Wetland Navigation, and
- Loss of Traditional Way of Life.

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

Yes, providing data for programmatic state of the environment reporting and the Fort McKay Métis state of the environment report.



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 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?

Air quality and deposition are not addressed in this work plan.

2. Are changes informing Indigenous key questions and concerns?

N/A

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

N/A

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

N/A

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

N/A

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?

N/A

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?

N/A

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

N/A

3.3.5 Terrestrial Biology Theme

3.3.5.1 Sub Themes:

Cross-Cutting

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?

Vegetation cover and wildlife observation data will be collected in wetlands. Detailed information can be found in the Wetland Theme section.

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

Yes, see the Wetlands Theme section 3.3.3.2.2 for details.

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

Yes

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

Yes

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

Yes, see the Wetlands Theme section 3.3.3.2.5 for details.

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?

See the Wetlands Theme section 3.3.3.2.6 for details.

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?

See the Wetlands Theme section 3.3.3.2.7 for details.

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

Yes, providing data for programmatic state of the environment reporting and the Fort McKay Métis state of the environment report.

3.3.6 Cross-Cutting Across Theme Areas

3.3.6.1 Sub Themes:

QA/QC/Standards/Methods

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

N/A

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?

All data collected will follow written protocols to ensure the data collected at different sites and in different years is comparable. All western science data collected will be provided to the OSM Program data management system.

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

Yes, the methodologies are based on the methods used in the core monitoring for wetlands for overlapping indicators between this focus study and the core programs.

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

The monitoring integrates wetlands, surface water, groundwater, and Indigenous community-based monitoring which are all necessary to identify changes to wetland health, which is directly related to wetland functions that rely on key ecosystem processes such as wetland hydrology. Communication with the Wetlands TAC has ensured the western science data will be easily compatible with current datasets collected by the core monitoring programs which can be analyzed on a regional scale.

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?

The monitoring fits within the EEM framework under the categories: Surveillance and Focused.

Surveillance
This project addresses how the nature and quality of wetlands has changed. Vegetation, wetland hydrology, groundwater quality and levels, and indigenous knowledge of the area will be recorded over time as development expands near the monitoring areas. This information will be collected through western science data and TEK related to the indicators.

Focused
This project relates to Indigenous Rights and Culture and addresses whether the changes to groundwater impact harvesting and occupancy patterns, intergenerational transfer of knowledge, sharing of resources linked to the reinforcement of kinship bonds, and people's relationship with the land. It will also record how disturbance has impacted access to important areas and whether it has increased hunting efforts through the distance required to access locations. This data will be collected through TEK.

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?

This monitoring program fits with the conceptual models for the wetlands and community-based monitoring themes and the overall OSM programmatic conceptual model as summarized below.

This project will advance the understanding of these conceptual models as Fort McKay Métis contribute knowledge directly related to valued components of each model, based on their unique perspective of a community that has been present on the land since pre-development. We will collect data that will contribute to knowledge specific to wetland impacts identified in the conceptual models. The data collected are related to western science and Traditional Ecological Knowledge (TEK) which is both aligned with the existing monitoring and enhances and expands it through the use of TEK.

OSM PROGRAMMATIC CONCEPTUAL MODEL

PRESSURES

Pressures relating to our monitoring include land disturbance, industrial water use, and oil sands production.

STRESSORS

These pressures will lead to the following stressors addressed by our project:

- Increased access
- Elimination of streams, wetlands, and lakes
- Surface water diversions/withdrawals
- Contaminants

PATHWAYS

These stressors will be seen in the following pathways included in our project:

- Groundwater levels, flows & supply – this project will measure groundwater levels near wetland edges to determine if groundwater levels are changing
- Surface water & sediment quality – Surface water quality will be analyzed if the new site is a shallow open water wetland and results relate to surface transport or atmospheric deposition
- Invasive species – Vegetation species will be recorded which will capture invasive species percent cover in relationship to native species cover as well as traditionally and culturally important plants.
- Wildlife harvesting – Incidental wildlife species and human access routes will be recorded for comparison in future years.

RESPONSE

The response from these pathways is expected to be a change to health, diversity, and distribution of wetlands and their valued components.

VALUED COMPONENTS

Any impacts will be measured based on the valued components of ecosystem structure and function, traditional resources & cultural practices, and access to land.

COMMUNITY BASED MONITORING CONCEPTUAL MODEL

PRESSURES

Our project relates to all of the oil sands related pressures (landscape disturbance, air emissions, and industrial water use).

STRESSORS

Our project relates to all four of the stressors in the model (habitat loss, fragmentation, disturbance; contaminants; water withdrawals; and water regulation)

PATHWAYS

The pressures addressed by our monitoring indicators include water transport and altered habitat.

CBM & INDIGENOUS INDICATORS / OBSERVATIONS OF CHANGE:

- Wildlife abundance
- Water quality
- Drying Lakes, Creeks & Wetlands (habitat quality)

VALUED COMPONENTS

The valued components that will be recorded include:

- Quality of Traditional Resources,
- Access to Traditional Land & Resources, and
- Perception of Environment

All three of these valued components could lead to a loss of traditional and cultural practices.

WETLAND CONCEPTUAL MODEL

DRIVERS

The driver related to our monitoring is oil sands development.

PRESSURES

This driver has led to monitoring the results of pressures including Surface Water Diversions, Ground & Surface Withdrawals, and Oil Sands Contaminants.

PATHWAYS

These pressures are being monitored through pathways including Changes to Local Surface Water, Changes to Local Groundwater, and Transport via Surface Water, Groundwater, Atmospheric Deposition.

WETLAND STRESSORS

Wetland stressors included in our monitoring include Changes to Recharge & Discharge Patterns and Changes to Surface Water Quality.

WETLAND ECOSYSTEM STATE

Changes to wetland ecosystem state will be measured through Changes to Wetland Ecosystem Structure.

WETLAND IMPACTS (VALUED COMPONENTS)

The valued components measured by our indicators include:

- Loss of Wetland Ecosystem Services,
- Decreased Health of Culturally Important Species,
- Changes to Wetland Navigation, and
- Loss of Traditional Way of Life.

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

Yes, providing data for programmatic state of the environment reporting and the Fort McKay Métis state of the environment report.

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.

Our monitoring program will inform management, policy, and regulatory compliance by documenting changes in wetland indicators using Indigenous knowledge and scientific methods. If current industrial development in the area is in environmental compliance yet wetland changes are documented then it will inform policy makers that current legislation is not sufficient for the desired outcome. This project will also document information about the valued components of wetlands that Fort McKay Métis traditionally use which will inform policy makers when assessing gaps in current regulatory processes. The project aligns with the Strategic Direction of the Lower Athabasca Regional Plan of "Inclusion of Aboriginal Peoples in Land-Use Planning" that intend to collect traditional ecological knowledge to inform land and natural resource planning in the region. Additionally, the information collected will inform Fort McKay Métis decision-making on continued traditional use and access.

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

This program is led by Fort McKay Métis in collaboration with Associated Environmental Consultants Inc., and the Human Environment Group. The first and second years of this project with the same collaborators was proven successful in 2020 and 2021. Our monitoring activities are initiated by the Fort McKay Métis community and inform questions posed by the community relating to regional wetland health. The data will be collected by the community relating to socio-cultural and western science indicators at locations chosen or confirmed at a community meeting each year. The indicators will answer questions relating to overall wetland health, traditional use and harvesting, surface water quality, groundwater quality, and shallow groundwater levels. This project will build community capacity for future environmental monitoring. All research questions and indicators are approved by Fort McKay Métis collaboratively during project development and any comments or concerns are addressed at a community meeting prior to each year of monitoring to ensure full consent is received. Monitoring activities may be staged from a camp (if public health restrictions and the site allow) where elders, land users, and community monitors will work together throughout all aspects of the program. All program activities are structured to facilitate the transfer of knowledge, skills, and values among participants.

Does this project include an Integrated Community Based Monitoring Component?

No

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.

Changes to wetlands will be assessed using the indicators for the following wetland values: vegetation community composition and plant harvesting, water quality, groundwater levels, access to cultural sites and traditional harvesting areas, wildlife and wildlife harvesting, cultural transmission of skills and knowledge.

Changes in environmental condition will be assessed by comparing results to historical conditions whenever possible using Indigenous knowledge or previous data collected through other studies in the area. Where no data is available (such as Island Lake), the first year of monitoring will be used as baseline conditions for comparison in future years.

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 monitoring will use methods and materials aligned with core monitoring programs in the wetland Technical Advisory Committee (TAC) which will allow the data to contribute to regional monitoring. The sub-regional scale will be at a wetland level and will monitor groundwater levels, surface water quality, groundwater quality, vegetation, and wildlife which will be analyzed for the many interactions that may be causing the conditions.

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.

This monitoring program will be a collaboration between the Fort McKay Métis community, Associated Environmental Consultants Inc., and the Human Environment Group to collect data with consistent formats and methods as the Technical Advisory Committee (TAC) core monitoring programs. This will result in the western science data produced in a useful format that can be shared with the interested TACs. The Fort McKay Métis community ran the first year of this program in 2020 and the results were summarized in a year end report and on posters. The 2021 data will be summarized in the same way. The same collaborators also completed a pilot project in 2019 and 2020 through Environment and Climate Change Canada where a report was produced each year containing all locations, methods, results, and data sheets, along with a set of posters. A similar report containing the results and datasheets from each year of monitoring will be completed and a set of posters created, to document progress each year for the OSM program.

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.

The monitoring integrates methods from the core programs under the Wetland Technical Advisory Committee (TAC) while incorporating Indigenous knowledge in a community-based program. Results will be shared with the relevant TACs and monitoring locations avoid existing monitoring locations to avoid duplication. This project is entirely community-based with the Fort McKay Métis community and integrates western science with Indigenous knowledge to monitor for changes in wetland health.

10.0 Work Plan Approach/Methods

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

Phase 1: Develop a list of questions and concerns from the Fort McKay Métis community relating to wetland health.

Status: COMPLETED September 2018 (Fort McKay Métis Sustainability Centre 2018).

- Compile a document that lists Fort McKay Metis concerns, traditional use, and knowledge relating to wetlands in the region.

Phase 2: Complete a pilot community-based wetland monitoring project in one wetland complex.

Status: COMPLETED 2019 and 2020 funded by Environment and Climate Change Canada (Associated Environmental Consultants Inc. & Human Environment Group 2019).

- Choose one important wetland complex with the community for the pilot project
- Develop a list of wetland indicators with the community
- Train community members for wetland monitoring
- Complete field work at three locations within the wetland complex
- Compile data and report on the results
- Validate report and recommendations with community members

Phase 3: Expand the wetland monitoring pilot project into a comprehensive wetland monitoring program

Status: COMPLETED in 2020 through OSM year 1 funding

- Meet with the Fort McKay Metis community to select a new monitoring site from the existing list of priority areas and confirm access, coordinate monitoring program participants, and review methods.
- Review existing data from nearby environmental monitoring programs.
- Continue working with community members who participated in the 2019 pilot project and train additional community members to support monitoring activities.
- Expand indicators used in the 2019 pilot project and modify western science data collection to incorporate methods used by the Oil Sands Monitoring program Wetland Technical Advisory Committee (TAC) and Surface Water TAC.
- Collect field data using western science and Indigenous knowledge at Island Lake during one annual visit.

Phase 4: Continue field data collection in the wetland complex, analyze data, and report on results for additional years.

Status: IN PROGRESS, started in 2021, continue through 2022 and beyond with OSM funding.

- Add one additional monitoring site chosen by the community, the new site will have two site visits in 2022:
 - Field visit 1: Collect western science and Indigenous knowledge data on vegetation, surface water, groundwater, and wildlife. This field visit will take place mid-summer during peak biomass and will include deploying groundwater data level loggers.
 - Field visit 2: Collect groundwater data level loggers and record incidental wildlife data. This field visit will take place at the end of the growing season, before frozen conditions.
- Continue monitoring at the site near Island Lake by conducting one site visit to collect data on vegetation, groundwater quality, wildlife, and shallow groundwater levels.
- Continue monitoring at the two sites in the McKay River watershed by conducting three site visits for monitoring vegetation, groundwater quality, wildlife, and shallow groundwater levels. Visit 1 will be used to deploy groundwater data level loggers in spring, visit three will be used to collect the groundwater data level loggers in the fall. The second site visit will collect all other data in the middle of the growing season.
- Report on results
- Collaborate with Athabasca University to seek local opportunities for knowledge sharing.

10.2 Describe how changes in environmental Condition will be assessed *

Changes to wetland condition will be assessed using the following indicators: vegetation community composition, water quality, groundwater levels, access and traditional use and cultural activities.

Changes in environmental condition will be determined by comparing results to historical data (including Indigenous knowledge), and previous data collected through other studies in the area. Where no data is available, the first year of monitoring will be used as existing conditions for comparison in future years. The results will be used to answer the community's questions related to changes in wetland condition in the vicinity of industrial oil sands development and expansion.

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

Any surface water quality data will be compared to Alberta Environment and Parks Environmental Quality Guidelines for Alberta Surface Waters (AEP 2018), and various Canadian Council of Ministers of the Environment water quality guidelines for water uses such as protection of aquatic life, recreation and aesthetics and drinking water.

(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 *

COMPLETE

Phase 1: Develop a list of questions and concerns from the Fort McKay Métis community relating to wetland health.

Methods:

- Literature review/search of community database
- Community meetings to identify wetlands of concern, record wetland questions and concerns
- Reporting

COMPLETE

Phase 2: Complete a pilot community-based wetland monitoring project in one wetland complex.

Methods:

- Community meeting to develop a list of wetland indicators and choose a monitoring location
- Develop a monitoring plan and prepare for the field assessment
- Community member training in the field to collect the required data
- Field data collection
 - o Vegetation: dominant woody vegetation in 10 m diameter circular plot and in 1 m square quadrats for herbaceous species along a 30 m transect at three locations.
 - o Hydrology: depth to water table was recorded at vegetation transect locations using shallow groundwater monitoring wells.
 - o Water quality: water in the wetland was measured for dissolved oxygen, pH, conductivity, visual qualities (e.g., colour, odour, surface residue, and transparency), and samples were sent to a lab for analysis of additional parameters.
 - o Cultural use: (harvesting, access, interactions with industry and non-indigenous users). Indigenous knowledge exchange from elders to family and community members was audio recorded and recorded on datasheets.
- Reporting to Environment and Climate Change Canada to summarize the program methods and discuss results.
- Validation of the reporting and program recommendations with community members at a harvest camp.

COMPLETE

Phase 3: Expand the wetland monitoring pilot project to include a new site in a different, important wetland area.

Methods:

- Meet with the Fort McKay Metis community to choose a site important to the community, consider access routes, coordinate monitoring teams, and confirm methods. Island Lake was chosen.
- Review any existing data from nearby environmental monitoring programs to ensure efforts are not

duplicated.

- Continue working with community members who participated in the 2019 ECCC pilot project and train additional community members to support monitoring activities.
- Expand indicators used in the 2019 pilot project and modify western science data collection to incorporate methods used by the Oil Sands Monitoring program Wetland Technical Advisory Committee (TAC) and Surface Water TAC.

Collect data on:

- Vegetation percent cover by species along transects
- Incidental wildlife observations
- Surface water quality
- Benthic macroinvertebrates
- Depth to water table using shallow groundwater monitoring wells
- cultural use and Indigenous knowledge (harvesting, water use, access, interactions with industry or non-indigenous users)

STARTED IN 2021, PLANNED TO CONTINUE IN 2022 AND BEYOND USING OSM FUNDING

Phase 4: Continue field data collection in the wetland complexes, analyze data, and report on results.

- Hold a community meeting to add one additional monitoring site that is important to the community. Confirm access routes, a monitoring team, and methods.
- Review any existing data from nearby environmental monitoring programs to ensure efforts are not duplicated.
- Add one additional monitoring site chosen by the community, the new site will have two site visits in 2022:
 - Field visit 1: Collect western science and Indigenous knowledge data on vegetation, surface water, groundwater, and wildlife. This field visit will take place mid-summer during peak biomass.
 - Field visit 2: Collect groundwater level monitoring devices and record incidental wildlife data. This field visit will take place at the end of the growing season, before frozen conditions.
- Continue monitoring at one site near Island Lake by conducting one site visit for data collection on vegetation, groundwater quality, wildlife, and shallow groundwater levels.
- Continue monitoring at two sites in the McKay River watershed by conducting three site visits for monitoring vegetation, groundwater quality, wildlife, and shallow groundwater levels. Visit 1 will be used to deploy groundwater data level loggers in spring, visit three will be used to collect the groundwater data level loggers in the fall. The second site visit will collect all other data in the middle of the growing season.
- Report on results
- Collaborate with Athabasca University to seek local opportunities for knowledge sharing.

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

- Vegetation percent cover by species
- Hydrology (shallow groundwater levels)
- Surface water quality (if new site is a shallow open water wetland)
- Wildlife observations
- Groundwater quality
- Socio-cultural indicators describing community member's experiences relating to each of the above indicators as well as access and interactions with industry or non-indigenous land users

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.

The methods, results, and datasheets will be included in a report completed after each year of monitoring. The end-users of the monitoring program are the Fort McKay Métis community who have reports documenting their concerns relating to wetlands and a pilot project documenting wetland health. These annual reports will add to their collection of data documenting change on their land. The results will also be presented in poster format at an annual harvest camp where the community can discuss the results and provide feedback for future 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

Phase 1: Develop a list of questions and concerns from the Fort McKay Métis community relating to wetland health.

Status: COMPLETED IN September 2018 (Fort McKay Métis Sustainability Centre 2018).

Delivery: Completed in collaboration with the Human Environment Group under the Government of Alberta's Environment Monitoring and Science Division

Phase 2: Complete a pilot community-based wetland monitoring project in one wetland complex (McClelland Lake Wetland Complex).

Status: COMPLETED IN 2019 and 2020 funded by Environment and Climate Change Canada (Associated Environmental Consultants Inc. & Human Environment Group 2019).

Delivery: Completed by the Fort McKay Métis community in collaboration with Associated Environmental Consultants Inc. and the Human Environment Group under an Environment and Climate Change Canada grant. ALS Environmental laboratory was used for analysis of surface water samples.

Phase 3: Expand the wetland monitoring pilot project to monitor other important wetlands in the Fort McKay Metis harvesting area (add Island Lake wetland as a reference site)

Status: COMPLETED IN 2020 through OSM funding

Delivery: Completed by the Fort McKay Métis community in collaboration with Associated Environmental Consultants Inc. and the Human Environment Group entirely funded by the Oil Sands Monitoring program. Laboratories used include Maxxam, Alberta Innovates, SGS, and University of Alberta BASL because they are the labs used by the Wetland TAC and this will ensure our data is comparable in regional datasets.

Phase 4: Continue field data collection in the reference wetland and expand the wetland monitoring pilot project to include a new site.

Status: STARTED IN 2021, PLANNED TO CONTINUE IN 2022 AND BEYOND USING OSM FUNDING

Delivery: This will be completed by the Fort McKay Métis community in collaboration with Associated Environmental Consultants Inc. and the Human Environment Group, tentatively funded by the OSM program. Laboratories used will align with those used by the Wetland TAC for samples taken from open water wetlands.

*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:

Both

13.3 Frequency of Collection:

Other

13.4 Estimated Data Collection Start Date:

2022-04-01

13.5 Estimated Data Collection End Date:

2022-10-31

13.6 Estimated Timeline For Upload Start Date:

2022-12-01

13.7 Estimated Timeline For Upload End Date:

2023-01-31

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, xls, etc.)	Security Classification
Surface water quality	Fort McKay community database and Wetland TAC core monitoring program data storage location	xlsx	Open by Default
Vegetation cover	Fort McKay community database and Wetland TAC data storage location	xlsx	Open by Default



Groundwater levels	Fort McKay community database	xlsx	Open by Default
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Groundwater quality	Fort McKay community database and Wetland TAC core monitoring program data storage location	xlsx	Open by Default
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<i>Indigenous knowledge – vegetation, wildlife, water levels, water quality, access routes, interactions with industry or non-indigenous land users</i>	Fort McKay Community database	pdf	Protected by Default
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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
OSM Program Annual Progress Report (required)	Q4	Annual report summarizing methods, results, and data from 2022 monitoring.
Stakeholder or Community Presentation	Q3	Annual presentation at the harvest camp discussing the results with the community. Subject to public health restriction limitations.

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.

Craig Mahoney – Alberta Environment and Parks

Craig will be the contract manager and the point of contact for establishing the contract between AEP and Fort McKay Métis Nation outlined in this work plan. Invoices related to the activities funded through this contract will be sent to Craig for processing.

Adi Adiele – Fort McKay Métis Nation

Adi will coordinate the Project Team, track the budget, complete financial reporting, and provide overall project management and coordination between project technical experts and community members.

Adi is a Geoscientist with over 10 years' experience in building and leading diverse technical teams with focus in managing and coordinating stake holder's engagement, environmental site assessments, contaminant and physical hydrogeology projects for numerous clients. Adi is active member of APEGA and ACSA as a professional Geologist and National Construction Safety Officer in Alberta. Adi was also involved in the 2019 and 2020 pilot wetland monitoring project and 2020 and 2021 OSM monitoring project.

Carrie Oloriz – the Human Environment Group

Carrie will be the socio-cultural and TEK specialist that helps develop the plan for the community-based wetland monitoring program. She will also deliver training on socio-cultural monitoring techniques, survey methods and documenting TEK. She will help coordinate community participation and provide support in the field.

Carrie has worked in various capacities for the Fort McKay Métis since 2014. On behalf of the community, she has been involved in multiple Traditional Land Use Assessments, Integrated Cultural Assessments, community monitoring programs, technical reviews and facilitated several community meetings to discuss matters related to wetlands, fisheries work, community-based monitoring, social programs, cultural issues, Aboriginal Rights and knowledge systems. Since 1995, Carrie has completed numerous projects for the Fort McKay community, the Athabasca Tribal Council, other Aboriginal communities, multi-stakeholder organizations, government agencies and industry proponents in NE Alberta. Carrie was also involved in the 2019 and 2020 pilot wetland monitoring project and 2020 and 2021 OSM monitoring project.

Kristen Andersen – Associated Environmental Consultants Inc.

Kristen will be the technical wetland specialist who helps develop the plan for the community-based wetland monitoring program. She will also deliver training on biological monitoring techniques, wetland mapping and classification and provide support in the field.

Kristen has over 20 years of experience specializing in comprehensive wetlands services including wetland assessment and reclamation as a consultant. Kristen is passionate about education and has been a wetland instructor at the University of Alberta Faculty of Extension for the past 10 years. Her expertise includes vegetation, soils, and hydrology monitoring, functional assessment, remote sensing and wetland restoration. She also runs workshops for the instruction of stream restoration techniques through Associated Environmental and as a volunteer for the Alberta Native Plant Council, she teaches workshops related to plant identification. Kristen was involved in the 2019 and 2020 pilot wetland monitoring project as well as the 2020 and 2021 OSM monitoring project.

No personnel or expertise gaps for successful completion of the project relative to the OSM program mandate have been identified.



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
Click or tap here to enter text.	Click or tap here to enter text.	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 <i>(Calculated from Table 16.1.1 above)</i>	0.00%	\$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
Total All Grants <i>(Calculated from Table 16.4 below)</i>		\$87,550.00
Total All Contracts <i>(Calculated from Table 16.5 below)</i>		\$203,950.00
Sub- TOTAL <i>(Calculated)</i>		\$291,500.00
Capital*		\$0.00
AEP TOTAL <i>(Calculated)</i>		\$291,500.00

* 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 <i>(Please manually provide the number in the space below)</i>		
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 <i>(Calculated)</i>		\$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	Adi Adiele
GRANT RECIPIENT - ONLY: Organization	Fort McKay Métis Nation
Category	Total Funding Requested from OSM
Salaries and Benefits	\$18,000.00
Operations and Maintenance	
Consumable materials and supplies	\$22,700.00
Conferences and meetings travel	\$0.00
Project-related travel	\$16,500.00
Engagement	\$28,350.00
Reporting	\$2,000.00
Overhead	\$0.00
GRANT TOTAL <i>(Calculated)</i>	\$87,550.00

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	Kristen Andersen
CONTRACT RECIPIENT - ONLY: Organization	Associated Environmental Consultants Inc.
Category	Total Funding Requested from OSM
Salaries and Benefits	\$73,100.00
Operations and Maintenance	
Consumable materials and supplies	\$350.00
Conferences and meetings travel	\$0.00
Project-related travel	\$10,600.00
Engagement	\$25,500.00
Reporting	\$33,700.00
Overhead	\$0.00
CONTRACT TOTAL <i>(Calculated)</i>	\$143,250.00
CONTRACT RECIPIENT - ONLY: Name	Carrie Oloriz
CONTRACT RECIPIENT - ONLY: Organization	Human Environment Group
Category	Total Funding Requested from OSM
Salaries and Benefits	\$21,600.00
Operations and Maintenance	
Consumable materials and supplies	\$600.00
Conferences and meetings travel	\$0.00
Project-related travel	\$5,900.00
Engagement	\$3,600.00
Reporting	\$24,000.00
Overhead	\$0.00
CONTRACT TOTAL <i>(Calculated)</i>	\$55,700.00
CONTRACT RECIPIENT - ONLY: Name	Laboratory Analysis of Wetland Samples
CONTRACT RECIPIENT - ONLY: Organization	Laboratory Analysis of Wetland Samples
Category	Total Funding Requested from OSM
Salaries and Benefits	\$0.00
Operations and Maintenance	
Consumable materials and supplies	\$5,000.00
Conferences and meetings travel	0
Project-related travel	0
Engagement	0
Reporting	0



Overhead	0
CONTRACT TOTAL <i>(Calculated)</i>	\$5,000.00

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 <i>Sums totals for salaries and benefits from AEP and ECCC ONLY</i>	\$0.00
Operations and Maintenance	
Consumable materials and supplies <i>Sums totals for AEP and ECCC ONLY</i>	\$0.00
Conferences and meetings travel <i>Sums totals for AEP and ECCC ONLY</i>	\$0.00
Project-related travel <i>Sums totals for AEP and ECCC ONLY</i>	\$0.00
Engagement <i>Sums totals for AEP and ECCC ONLY</i>	\$0.00
Reporting <i>Sums totals for AEP and ECCC ONLY</i>	\$0.00
Overhead <i>Sums totals for AEP and ECCC ONLY</i>	\$0.00
Total All Grants (from table 16.2.1 above) <i>Sums totals for AEP Tables ONLY</i>	\$87,550.00
Total All Contracts (from table 16.2.1 above) <i>Sums totals for AEP Tables ONLY</i>	\$203,950.00
Sub- TOTAL	\$291,500.00
Capital* <i>Sums total for AEP</i>	\$0.00
GRAND PROJECT TOTAL	\$291,500.00

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.

The budget will be held by Fort McKay Métis and managed using a detailed budget spreadsheet. Any cost overruns will be assessed to see if there is a realistic reason for the additional cost or if there is a solution where the additional cost can be avoided. Unavoidable additional costs will be recorded and the budget will be rearranged where possible to balance it. Budget which has not been spent will be used to create educational materials relating to the wetland monitoring program, or to present the results at a conference.

This project is a continuing project and the budget was underspent in 2020 due to funds being released later than expected leading to a reduced scope. The 2021 scope is not yet complete but is currently within the allotted budget.



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)
Click or tap here to enter text.	Click or tap here to enter text.	\$0.00
TOTAL		\$0.00



19.0 Consent & Declaration of Completion

Lead Applicant Name

Adi I. Adiele

Title/Organization

Manager, Environment & Land Use Sustainability, Fort McKay Métis Nation

Signature

Adi Adiele

Date

2021-10-05

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

Craig Mahoney

Title/Organization

Wetland Scientist, Alberta Environment and Parks

Signature

Craig Mahoney

Date

2021-10-04



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.