



# 2023-2024 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 <b>October 31, 2022 at 4:30 PM Mountain Standard time</b> . Late submissions will not be accepted.	<b>October 31, 2022 4:30 PM MST</b>
<b>Decision Notification</b>	Mid to Late March 2023

## 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.

**Privacy:** 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.

**Technical Requirements:** 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.

**Government Lead/Coordinator:** 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.

**Supplemental Materials:** 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 Package accessible here: [2023-24 Work Planning Package \(Ctrl+CLICK\)](#)

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](mailto: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**:

**202324\_wkpln\_WorkPlanTitle\_ProjectLeadLastNameFirstName**

**Example:**

202324\_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:

**202324\_sup##\_WorkPlanTitle\_ProjectLeadLastNameFirstName**

**Examples:**

202324\_sup01\_OilSandsResiduesinFishTissue\_SmithJoe

202324\_sup02\_OilSandsResiduesinFishTissue\_SmithJoe

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202324\_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 31, 2022, **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](mailto:OSM.Info@gov.ab.ca).



## WORK PLAN APPLICATION

PROJECT INFORMATION	
<b>Project Title:</b>	Conklin Environmental Monitoring
<b>Lead Applicant, Organization, or Community:</b>	Conklin Resource Development Advisory Committee on behalf of Conklin Metis Local 193
<b>Work Plan Identifier Number:</b> <i>If this is an on-going project please fill the identifier number for 22/23 fiscal by adjusting the last four digits: <b>Example:</b> D-1-2223 would become D-1-2324</i>	The Conklin Wetland Project is an existing project that fell under the Wetland Core in 2020/2021: WL-PD-10-2122 however in 2021/2022 was under the CBM
<b>Project Region(s):</b>	Athabasca
<b>Project Start Year:</b> <i>First year funding under the OSM program was received for this project (if applicable)</i>	2019
<b>Project End Year:</b> <i>Last year funding under the OSM program is requested <b>Example:</b> 2024</i>	Ongoing
<b>Total 2023/24 Project Budget:</b> <i>For the 2023/24 fiscal year</i>	\$438,186.00
<b>Requested OSM Program Funding:</b> <i>For the 2023/24 fiscal year</i>	\$438,186.00
<b>Project Type:</b>	Community Based Monitoring
<b>Project Theme:</b>	Cross-Cutting
<b>Anticipated Total Duration of Projects (Core and Focused Study (3 years))</b>	Year 5
<b>Current Year</b>	<b>Focused Study:</b> Year 2 of 3
	<b>Core Monitoring:</b> Year 2

CONTACT INFORMATION	
<b>Lead Applicant/ Principal Investigator:</b> <i>Every work plan application requires one lead applicant. This lead is accountable for the entire work plan and all deliverables.</i>	Kimberly Desjarlais
<b>Job Title:</b>	Portfolio and Events Coordinator
<b>Organization:</b>	Conklin Resource Development Advisory Committee
<b>Address:</b>	114 Father Mercredi's Trail, Conklin, Alberta, T0P-1H1
<b>Phone:</b>	780-799-9761
<b>Email:</b>	kimd@crdac.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.

Conklin is surrounded by active oil sand leases. These leases are within traditional harvesting areas and surround Christina Lake which is an important source of food, water, culture, and recreation for the community and surrounding communities as well.

The CRDAC's objective is to continue the existing program, following the guidance of the TAC's and any relevant SOPs. Discussions with TAC representatives in wetlands (Stephanie Connor & Danielle Cobbaert), surface water (Keegan Hicks), benthic invertebrates (Lucie Levesque), and Terrestrial Wildlife (David Evans) were conducted in 2022 to ensure project alignment and discuss opportunities to connect going forward. There are opportunities to connect in terms of SOPs, technical support, and community training.

This year the intent is to incorporate the previous and ongoing Christina Lake monitoring program that includes fish, water quality, and water quantity assessments. Work during all previous field seasons has involved training and developing community member capacity for environmental monitoring and communicating with community representatives to collaborate on monitoring programs moving forward and to ensure workplan alignment between communities.

The CRDAC seeks to continue the accumulation of western science data to support the understanding of the impact from surrounding oil sands developments while participating in the design, data acquisition and reporting phase of the monitoring. The community plans to:

- Continue to develop an understanding of the impact of the surrounding oil sands projects are to Community-identified Wetlands, lakes, and wildlife distributions.
- Continue to confirm and validate the health of Christina Lake, including the water, fish, and ecosystem elements, such as invertebrates
- Understand and quantify the presence of important wildlife species and to determine if there are oil sands impacts to them
- Provide transfer of knowledge to community members in the collection of environmental data
- Determine if changes to wetlands, lakes, and wildlife are impacting harvesting volumes and patterns?

## 1.0 Merits of the Work Plan

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

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

Conklin has collected western science environmental data in the region since 2019. The monitoring data collected to date has been collected to answer the main community question of are oil sands developments near Conklin impacting the environment in the region. To date monitoring data does not provide a link to industrial impacts but serves as a benchmark for which future data can be compared against. Given the large degree of industry that exists in the region the monitoring also serves the purposes of providing the community with a western science background of the environmental state of their community. The monitoring proposed in this workplan includes surface water quantity (stream level and flow) & quality, shallow groundwater quantity (level) & quality, wetland vegetation (habitat change), fish health, as well as wildlife cameras & ARU recordings (wildlife presence). These factors have helped the community understand changes to their ability to engage in traditional and cultural practices such as hunting, fishing, and plant collection in the past. The intent is to continue to monitor these environmental factors and work towards further understanding the impacts to their traditional experiences as well as the potential stressors of that change.

The monitoring programs intent is to continue develop a firm baseline foundation from which to compare future years against and to determine if water associated habitats (wetlands, lakes, streams) are changing. If changes are observed to these habitats can this change, be attributed to oil sands developments in the region. The current network of 12 wetland sites and 17 lake & stream sites in the Conklin area are focused on areas that were considered important to the community and spread throughout the region with varying relationships to oil sands developments.

To date the collective the program has functioned to develop and train community capacity for monitoring and environmental data collection as well as improved community confidence in areas such as the health of the fish species in Christina Lake or the amount of available traditionally valuable wetland plant species.

## 2.0 Objectives of the Work Plan

List in point form the Objectives of the 2023/24 work plan below

1. Understand what the impact of the surrounding oil and gas lease development is on community-identified wetlands including
  - a. Gathering another year of data on existing wetland, lake, and stream sites to identify variations year over year as well as measure results against provincial environmental quality guidelines and recognized standards.
  - b. assessing if additional sites will improve the programs' ability to detect and observe environmental changes
2. Continue ongoing capacity building of Conklin community members in water quality/quantity, vegetation identification, wildlife camera, ARU and mini-met station, management and data

interpretation and leading to:

- a. additional sustainable, full-time employment within the Community-approved consulting company leading the program and potential other environmental companies in the region, allowing local residents an opportunity to live in Conklin.
- b. continued and further development of 8 to 12 Conklin community members with knowledge in sampling techniques and equipment management.
3. Proceed with ongoing feedback loop of program results to community and community input into the program
4. Produce rigorous data that feeds into the core programs to help drive environmental policy and best practices going forward. Program will continue using source-pathway-effect based process including predicted In Situ facility 'source' that effects wetland datasets, including land disturbance (well pads, linear structures), groundwater dewatering, emissions. Conklin will work with OSM Wetland Core team to update as needed for standardized methodology.
5. Confirm that (source) Oil Sands production's (stressor) increased settlement/land disturbance and contaminants are impacting (pathways) wildlife harvesting, water quantity and quality, fishing, and culturally important vegetation (response) influence on Indigenous harvesting patterns/loss of traditional and cultural practices.
6. Work with community to further understand harvesting patterns and Indigenous indicators relating to fish and wildlife presence.

### 3.0 Scope

#### Evaluation of Scope Criteria (Information Box Only- No action required)

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

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

### 3.1 Sub Theme

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

Cross Cutting

### 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 2023/24 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:

Cross Cutting

##### 3.4.1.2 Surface Water Key Questions

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

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

Conklin has established baseline data for water quality and water quantity as well as general field parameters (EC, pH, DO) since 2018 at 12 separate shallow groundwater sites and 12 streams. At this time thresholds based on this data have not been established, however comparison to AEP environmental guidelines for surface waters has been used as a benchmark to compare observations against.

2. Are changes occurring in water quality, biological health (e.g., benthos, fish) and/or water quantity/flows relative to baseline? If yes, is there evidence that the observed change is attributable to oil sands development? (Describe source-pathway-receptor and/or conceptual models and what is the contribution in the context of cumulative effects?)

Changes have been observed in flows and water levels however at this time it appears to be mostly based on year to year and seasonal variations and correlates strongly with precipitation in the region. Fish health has also appeared to be consistent, however there has been a relatively small sample size as part of that program. Currently there is no direct evidence of impacts from oil sands developments. Based on the project setup if changes were to be observed at specific locations or streams then there would be potential to isolate those results and further assess the impacts upstream of the location and refine the potential source of the impact.

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

Not to date

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

Not to date

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

Previously data to my knowledge has not been incorporated into OSM data management systems, however the intent of the project is to provide data that is capable of being incorporated. In this workplan it is also intended to align a portion of the water quality program with the ALMS methods at one site near the Christina Lake outlet at Christina River





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

Yes, wherever possible SOPs will be followed, and lab analysis will be conducted at the same labs as the core program. This will include surface water data collection, flow collection, and ALMS standards for collection

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

The monitoring of surface water in the program has a direct connection with the wetland and shallow groundwater elements of the Conklin regional monitoring as these areas are mostly connected with the lake itself, and if not aspects of the same watershed. As well the connections between water quality, water quantity, fish, and wildlife, as well as wetlands are all interrelated because of their reliance on water. The community finds each of these elements a related environmental concern and reiterates their collective importance to engaging in a meaningful connection to their cultural traditions. Christina Lake is also an important waterbody to more communities than just Conklin and the data collected here can be compared against other surface water monitoring programs.

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

The surface water program is looking at changes in water quality itself as well as fish, invertebrates, and its impacts on human health and traditional use. The studies are conducted by assessing stressors observed by measuring water acidity, nutrients, organic and inorganic substances, and hydrology.

9. How will this work advance understanding transition towards adaptive monitoring?

By collecting additional data we are developing a more robust dataset that can be used to compare future data against. As the confidence in the existing state of environment is developed future years can potentially move towards a reduced monitoring state with triggers that would send monitoring back into a more robust assessment.

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

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

Click or tap here to enter text.

2. Are changes occurring in groundwater quality and/or quantity relative to baseline? If yes, is there evidence that the observed change is attributable to oil sands development? (*Describe source-pathway-receptor and/or conceptual models*) and what is the contribution in the context of cumulative effects?

Click or tap here to enter text.

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

Click or tap here to enter text.

4. 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.

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

Click or tap here to enter text.

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

Click or tap here to enter text.

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

Click or tap here to enter text.

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

Click or tap here to enter text.

9. How will this work advance understanding transition towards adaptive monitoring?

Click or tap here to enter text.

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

Click or tap here to enter text.

### 3.3.3 Wetlands Theme

#### 3.3.3.1 Sub Themes:

Cross-Cutting

#### 3.3.3.2 Wetlands - Key Questions

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

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

Conklin has sites with varying levels of historic data as the program has developed over time. Currently there are 12 sites with at least 1 year of existing data. At this time no monitoring data has been used to develop a threshold or limit of change, however there is a developing understanding of a 'baseline' condition for the region, though it is an as-is baseline and does not preclude majority of the existing regional oil sands development. Existing regulatory guidelines are being used as a current threshold of impacts; however, these have been developed to provide general guidance on water quality and do not capture thresholds related to change in vegetation health, diversity, or abundance

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

Since monitoring began there have not been observable changes to wetlands that appear to be outside of the natural variation. There are some water quality parameter exceedances for metals that have been observed multiple times at sites, however at this time there is not a link to oil sands developments.

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

Not at this time

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

The data collected to date is setting up a context of current baseline conditions for wetlands in the region. The data to date has provided the community with an understanding of the current scenario but at this stage does not fully answer any of their questions. The goal will be to continue to work with the community and gather enough data both spatially and temporally to potentially provide a western science context for the community experience.

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

Data is collected based on the SOPs provided by AEP and in discussion with AEP staff. At this time data is not being incorporated into the OSM Program data management system, however the community remains open to supporting this.

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



Field observations and collection are based on the SOPs provided by AEP and in discussion with AEP staff. Water quality lab samples utilize the same labs as the OSM program.

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

There is a natural connection between waterbodies within a watershed so there is a connection to the water monitoring that we conduct as part of the lake surface water monitoring. As well many wildlife species in the region rely on wetlands as a component of their habitat. The wetland program has included wildlife cameras for the last year and also provides a connection to the community understanding of wildlife populations and habitat usage in the region. The region that is included in this wetland monitoring program extends around Conklin and is in areas that are also used by other communities, however at this time the study has focused on areas important to the Conklin community.

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

The program itself is setup to assess the current state of the wetlands in the region including changes to structure as well as ecosystem processes. The monitoring looks at shallow groundwater quality and quantity to quantify any changes caused by potential upstream pressures. As well the vegetation abundance and diversity guide an understanding of changes to the structure and function in the area. If changes are detected there is the potential to adapt and pursue more detailed assessment of the specific pressures related to the impacts. As well if changes are not observed, the development of seasonal and natural variations can be developed into trigger values that would allow monitoring to be reduced and follow a tiered response based on exceeded trigger value observations.

9. How will this work advance understanding transition towards adaptive monitoring?

Additional data collection both on a temporal scale and with an integrated discipline perspective (including ARU/Camera/Invert data) will provide the opportunity to develop a broader range of trigger observations to changes at each wetland. Trigger development requires a detailed understanding of existing site conditions and expected seasonal and natural variation. Additional integration between disciplines will allow a more holistic set of triggers to be developed.

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

Click or tap here to enter text.



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

Click or tap here to enter text.

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

Click or tap here to enter text.

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

Click or tap here to enter text.

4. Are changes in air quality informing Indigenous key questions and concerns?

Click or tap here to enter text.

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

Click or tap here to enter text.

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

Click or tap here to enter text.

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

Click or tap here to enter text.

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

Click or tap here to enter text.

9. How will this work advance understanding transition towards adaptive monitoring?

Click or tap here to enter text.

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

Click or tap here to enter text.

### 3.3.5 Terrestrial Biology Theme

#### 3.3.5.1 Sub Themes:

Wildlife

#### 3.3.5.2 Terrestrial Biology - Key Questions

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

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

Baseline data has not been established – there is currently 1 year of wildlife data collection that was conducted as a part of the wetland workplan using cameras as wetland sites. No program specific baseline or threshold has been developed.

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

The community has observed changes in wildlife populations and their ability to harvest as effectively as they used to. At this time the community believes it is caused by the surrounding industry and development. They have observed a reduction in the wildlife, particularly game species that has coincided with industrial development

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

Not at this time

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

Yes, community members are concerned that the pace and scale of development has impacted wildlife patterns in the region, which in turn has reduced their ability to hunt and enjoy the wildlife around Conklin.

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

Not to date, there is potential to link photo and ARU data with Wildtrax in the program going forward after discussion with ABMI

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

At this time, basic camera standards have been used, that were in line with AEP methods shown in the field during the 2021 field season. Going forward the potential to train with ABMI staff in the community would help ensure that field programs are run in accordance with SOPs

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

The wildlife monitoring conducted to date is focused on the wetland locations within the region. The intent is to expand this wildlife monitoring to also occur near stream sites and lake sites that are apart of

the surface water components of this program. There is also potential to coordinate with the Conklin berry picking program and include cameras and ARUs at those sites to provide context into wildlife usage, but also human use of these areas over time.

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

Since the intent is to monitor existing sites in the program that are part of the wetland or surface water programs the wildlife data can be used as potential trigger value to prioritize future monitoring. At this point it's in the early stages of data collection and baseline development but will provide a context for the responses to wildlife distributions in the areas we are monitoring for habitat diversity, change, and water quality. Over time this should provide context to the changes we are seeing on the landscape and the impacts we are seeing on wildlife use.

9. How will this work advance understanding transition towards adaptive monitoring?

This program will provide a stronger context of the responses to stressors on the landscape as we are measuring some of pathways as part of the wetland and surface water quality programs, measuring changes in the response should help give confidence to the results of the other studies, as well as provide value to the community in understanding their regional wildlife populations better.

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

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

Click or tap here to enter text.

5. How will this work advance understanding transition towards adaptive monitoring?

Click or tap here to enter text.

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

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 consider adaptive monitoring and the approved Key Questions in your response.

It is Conklin's belief that the data gathered from their monitoring programs will feed into regional Core Wetland data to provide evidence of impact from oil sands development that will in turn drive necessary mitigation measures and land use planning in the region. The monitoring should parallel and eventually combine with Industry EPEA approvals for wetland monitoring. The coordination/combination of AEP and AER should drive a less redundant process that incorporates both on lease and off lease sites and subsequent data.

## 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

- 1) Conklin has raised concerns regarding impacts of the numerous oil sands leases surrounding Conklin. These concerns relate largely to impact on harvesting and human health. Oil sands development is thought to impact harvesting through emissions, water drawdown, poor water quality and land disturbance, impacting the presence of wildlife and plants use for food and medicinal purposes.
- 2) Conklin Community Members have selected key wetland areas of high concern in the area that serve as wetland sites for the monitoring program. In addition, community members identified culturally important plants to be included in vegetation monitoring at each wetland.
- 3) Indicators and associated protocols – We are working with communities to develop core wetland, fish, water, and wildlife indicators and protocols that are highly valued by the community and can be collected by the community.
- 4) The Conklin Community Consultant Entity has hired and trained members of the Metis Local 193 to participate in the monitoring field work, the intent has always been to include as much community participation and employment as feasible. The workplan and program budget have been developed to create longer term employment and training opportunities to members of the Metis local 193 in Conklin. In addition, 6 to 12 more community members participate in training each year for water quality and quantity sampling, well installation, vegetation plotting, wildlife camera and ARU deployment and retrieval and mini-met station set-up. Also, at the beginning of each year, a general community invite goes out to the community to meet, review, and discuss the previous years results and to review any potential changes to the program for the coming year. This is also a meeting where concerns about ongoing impacts can be raised, and any observations of the environment can be shared.
- 5) Evaluation and Reporting –We are working with communities to provide monitoring program information that is valued and effectively-communicated. The CRDAC provides an annual community brochure highlighting the program, its methodologies and the results. An open invitation goes out each year to have community provide input to the program.

Does this project include an Integrated Community Based Monitoring Component?



Yes

If YES, please complete the [ICBM Abbreviated Work Plan Forms](#) and submit using the link below

[ICBM WORK PLAN SUBMISSION LINK \(CTRL+CLICK HERE\)](#)

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

1. Are there any community specific protocols that will be followed?

There are no community specific protocols that will be followed at this time.

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

There are multiple avenues for indigenous participation with data sharing and planning groups occurring annually as well as field surveys and training conducted with community members. Risks and Harms are an ongoing component of any of the work conducted as part of this workplan with pre-field safety discussions giving opportunity for everyone to bring up potential risks and mitigations as well as the need for everyone to understand and participate in conducting all our work safely. In the case of any incidents there is a protocol to ensure it is responded to, communicated to reduce the likelihood it occurs again, and investigated to determine the root cause of the risk.

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

The collection of any and all indigenous knowledge is led by the community members involved. Any concerns, historical observations, or knowledge of the area is recorded and used to the benefit of the program and community. In the past traditional knowledge and experience has been used to guide the locations of monitoring as well as the species of plants to focus on. It is important that any community member sharing knowledge is aware of how that information is going to be used and where it will be shared, prior to doing so.

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

Community members including elders are provided with an annual meeting to go over the previous year's program as well as looking forward to this year's program and identifying any changes they are not seeing captured in the data analysis, as well all data and reports are shared with the community as well as a technical summary in the form of a pamphlet. In the annual community meetings members and western scientists can learn and share from each other's experiences and observations and look for ways to further align the monitoring to increase the value back to the community.

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

The same annual meetings have been used when developing the program and continue to be used in the same way. Given the project is driven by community need it is critical that they find value in the data, the way it was collected, where it was collected and what it is telling them about their

6. How does this work plan directly benefit your community? How does it support capacity building in your community?



The work plan is intended to benefit the community in three primary ways. The development and documentation of environmental knowledge within the region that supports their land use and provides evidence of impacts and where they are occurring. The workplan also involves capacity building specifically in the training both as part of larger community sessions and meetings as well as on site meetings in the wetlands and around the lake. Community members are trained in scientific data collection techniques and whenever feasible local community members are hired and trained in both safety and in the past been able to work on other projects in the region as well. The intent is to ensure that there is ongoing employment opportunities to community members in Conklin in environmental monitoring and assessment.

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

Monitoring reports in the past have always been provided to the community to ensure they have access to everything that is conducted. This format however is quite long and not accessible for everyone in the community, as such pamphlets summarizing the program and its results have been created in the past for distribution in the community. Annual meetings have also provided additional context and a space for questions and answers to community members. The intent going forward is to work with the community to host more of the data and results on the community website.

## 6.0 Measuring Change

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

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

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

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

Conklin has 12 wetland sites and 14 sites around at streams surrounding Christina Lake. There are also 5 locations within the lake that have been monitored. 4 Wetland sites were established in 2019/20, 4 more wetland sites were established in 2021/2022, and four more were established in 2022/2023. All sites were selected based on community input and ability to access. Over time the monitoring will chart changes in vegetation. Vegetation parameters were chosen to allow comparisons of vegetation communities for wetland types of time, this includes species % cover, species health and traditional species a percent of total cover. For water levels and flows, they will be compared to previous years looking for impact from industry water drawdowns and compared against precipitation data from program MET stations. For water quality, parameters will be measured against previous years as well as against provincial environmental quality guidelines. This monitoring will look for oil sands contaminant impact. Overall, the social and cultural barriers, real and perceived, will be assessed as it relates to harvesting practices in particular with the inclusion of ARU and Camera wildlife data the program will begin to develop a baseline of wildlife presence and distribution that can be compared against observed changes in the other elements of the program.

## 7.0 Accounting for Scale

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

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

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

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

The Conklin environmental monitoring program falls within and aligns with the OSM Core programs that focuses on stressors from the in situ region of the oil sands around Conklin. The program details below will help answer the Core question of if the impacts/changes to wetlands, surface water, and wildlife are due to oil sands development or cumulative effects from other development activities.

Shallow Groundwater & Surface water Quantity:

- Alteration of flows and water levels to water bodies caused by groundwater or surface water withdrawals or changes in runoff.

Shallow Groundwater & Surface water Quality:

- Changes in groundwater & surface water quality;
- Suspended sediment inputs;
- Leaks and spills; and,
- Deposition of acidifying substances.

Wetlands:

- Changes to hydrology such as restricted water flow, resulting in changes to water levels and water quality affecting vegetation communities;
- Habitat loss and fragmentation resulting in changes to vegetation community, diversity, cover, and vigour or changes in community type potentially altering wildlife habitat; and,
- Changes to water quality from leaks, spills, run-off and atmospheric deposition resulting in decreased species richness and diversity, cover, and vigour or changes in community structure.

Wildlife:

- The inclusion of wildlife cameras and ARUs at locations located as part of the rest of the program will monitor wildlife distributions in the region
- This data will be able to feed into other OSM initiatives as it will follow ABMI camera and ARU protocols as well as be connected to training and data sharing with the ABMI and Wildtrax

As the Conklin monitoring programs will predominantly follow the Core monitoring approaches our data will feed into their cumulative effects modeling approach consistent with the EEM framework, which will incorporate modeling of key source-pathway-wetland ecosystem responses and serve as a point of integration across the various theme areas. This modeling will enable the assessment of effects of oil sands development on wetland ecosystems at a watershed/ sub-regional scale in the southern Athabasca predominantly in-situ area, which is one of the objectives of OSM Wetland Monitoring Program.

## 8.0 Transparency

### **Evaluation of Transparency Criteria (Information Box Only - No action required)**

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

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

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

Data gathering/monitoring will be in compliance with SOPs supplied by the respective TACs (wetlands, surface water, cameras & ARU SOPs specifically). The Conklin environmental Team has experienced community members and consultants that work together following best practice/SOPs for installation, observation retrieval and handling procedures. The Conklin data will be provided to the respective TAC, in addition the data is analyzed by the Conklin team and a report is created for the Conklin Team and Community purposes. In addition, a community brochure is created annually and made readily available containing highlights of the program. This data is also shared in community meetings to ensure that all of the community is able to share, ask questions, and respond to the results of the 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, consider adaptive monitoring, the TAC specific Scope of Work document and the Key Questions in your response.

The Environmental program has fit within the OSM Core Wetland program in previous years, with intention to follow the Wetland TAC SOP. The inclusion of the Christina Lake program based on conversations in 2022 and going forward as part of this workplan to bring it in alignment with the Core Surface Water Program, in particular the type of sampling and conducting ALMS sampling as a part of the program. The Christina Lake Monitoring Program has had rigorous data gathering for the past 4 years through ECCC funding. Industry best practices have been used for this data gathering and in discussions in 2022 the program is set to be aligned with the Surface Water core monitoring program by following SOPs and incorporating ALMS monitoring at one surface water location for the full field season.

The Consultant – the Community Approved entity hires Metis Local 193 members as employees and for sustainable work, works with additional community members for training and retrieving community input and feedback to discuss and incorporate into the program. Currently, the community has chosen the wetland sites as well as identifies additional community vegetation to incorporate into the monitoring process. The Christina Lake program was developed in a similar manner and the incorporation of wildlife cameras and ARUs as a component of this workplan has been community driven. Community members through employment or as community field representatives are typically two thirds to three quarters of the field work force. Community member inclusion helps the understanding of the pressure-stressor-pathways-response framework and can confirm and dispel perceptions around water quality/quantity and fish health relating back to oil sand development impacts.

- Changes in wetland ecosystem condition will be assessed in relation to key oil sands pressures of concern including atmospheric deposition, landscape disturbance and hydrologic alteration. Other factors that may affect wetland change in the region such as inter-annual weather variability, underlying landscape factors, and fire history will be treated as covariates.
- Wetland condition will be assessed at each site: including hydrology (precipitation and water level), water quality, plant community composition and structure, benthic invertebrate community composition (only at shallow open water wetlands), and wildlife distribution (cameras), and bird and amphibian community composition (using acoustic recording units).
- Sentinel wetland sites will be monitored annually to determine the effects of inter-annual climate variability on wetland condition, which is a key natural stressor affecting wetlands.
- Remote sensing data will be used periodically to assess changes in wetland condition (location, areal extent, and wetland class) over time across the region. Long-term wetland monitoring sites will be used to validate wetland inventories. A pilot scale project using lidar data to detect changes in wetland vegetation canopy height shows promising results that may be applied further in the future



- Changes in surface water quality and quantity to Christina Lake and its inflow and outflow streams are monitored and results are compared against historical data and provincial guidelines. Opportunities to collect benthics at streams in the program will also be assessed to provide additional context to water quality samplings as benthics can show larger temporal water quality issues, if there have been acute events that are non-detected.
- Observed impacts in surface water will be assessed annually and any noted issues will be assessed relative to upstream industry and potential sources of impacts.

## 10.0 Work Plan Approach/Methods

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

1. Community Program Update and Feedback Sessions
  - 1.1. Community Meeting and presentation of last year's program results and plan for the upcoming year. This will include the potential for discussing training opportunities and to ensure that training and monitoring are in alignment with community goals and needs. This time will also be used to ensure there is opportunity for knowledge and experience sharing between all parties associated with the monitoring program.
2. April Field Visit (Early Spring)
  - 2.1. Setup of field monitoring equipment, Cameras, ARU's, and MET stations
  - 2.2. Ensuring shallow wells at field sites are functional and in good condition, completing or planning to maintain and repair any site deficiencies
  - 2.3. Potential for an Environmental Field Camp between community members, the communities chosen consultant and technical leads from the related TACs, such as benthic invertebrate training, surface water sampling, wetlands methods, camera & ARU setup. This field camp may not be possible during the April field visit but based on availability of community members and technical scientists from the program will be arranged to optimize the experience for the community.
3. May Field Visit (Spring)
  - 3.1. Water quality measurement at wetland sites, stream sites, and lake sites
  - 3.2. Water quantity measurements at wetland sites and stream flow stations
    - 3.2.1. Installation of transducers at shallow wells
4. July Field Visit (Summer)
  - 4.1. Water quality measurement at wetland sites, stream sites, and lake sites
  - 4.2. Water quantity measurements at wetland sites and stream flow stations
  - 4.3. Vegetation assessments at wetland plots including species, coverage, pH, EC, and Moisture values throughout each plot
5. Fish Assessments (Summer/Fall)
  - 5.1. Completing the fish components of the program including community catch and assessment
  - 5.2. Program intended to align with provincial protocols and will be developed in alignment with the SOPs from the facilitation centre where applicable, but the fishery component will also be community driven in ensuring that the areas and specific fish they are interested in are being assessed adequately.
6. October Field Visit (Fall)
  - 6.1. Water quality measurement at wetland sites, stream sites, and lake sites
  - 6.2. Water quantity measurements at wetland sites and stream flow stations
  - 6.3. Take down of MET stations, removal of ARUs and Transducers
  - 6.4. Camera download and restock (SD Cards & battery replacement)
7. Reporting
  - 7.1. Consultant works with retrieved data through biologists, ecologists, hydrologists and hydrogeologist to interpret and to create a report. Consultant works with community member lead to create a community brochure with a summary of program and results.

### 10.2 Describe how changes in environmental Condition will be assessed \*

- Changes in surface water condition will be assessed in relation to key oil sands pressures of concern including atmospheric deposition, contaminants (water and soil transport) and water drawdowns.
- Fish protocol will be standardized with Core protocols to ensure consistency. Tissue samples will be sent to a consistent lab as the Core program
- Long-term surface water and shallow groundwater monitoring sites will be used to validate data inventories as well as compared against the existing monitoring record for anomalies
- Changes in wetland ecosystem condition will be assessed in relation to key oil sands pressures of

concern including atmospheric deposition, landscape disturbance and hydrologic alteration. Other factors that may affect wetland change in the region such as inter-annual weather variability, underlying landscape factors, and fire history will be treated as covariates.

- Wetland condition will be assessed at each site: including hydrology (precipitation, water level), water quality, sediment quality, plant community composition and structure, meteorological data (mini-met stations), wildlife presence (cameras) and bird and amphibian community composition (using acoustic recording units).
- Sentinel wetland sites will be monitored annually to determine the effects of inter-annual climate variability on wetland condition, which is a key natural stressor affecting wetlands.
- Long-term wetland monitoring sites will be used to validate wetland inventories

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

Yes, field parameters and water quality are measured against provincial Environmental Quality Guidelines.

(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 \*

Shallow Groundwater & Field Parameters:  
The following shallow groundwater sampling methodology was used during the sampling event:

- Before sampling, the static groundwater level was measured in each monitoring well using a hand-held water level tape;
- All wells were purged of standing water using a Monoflex polyvinyl chloride (PVC) bailer or Peristaltic Pump (pump) with DI rinsed tubing;
- The temperature, electrical conductivity (EC), and pH were measured during the purging process until measurements stabilized to within +/- 0.5°C, 2% EC and 0.1 pH units, respectively;
- Measurements of temperature, EC, and pH were recorded after stabilization of readings;
- Samples were then collected using clean-sampling protocols, and those requiring filtering (0.45 um) and chemical preservation were treated as such in the field;
- Once collected, water samples were placed in ice-filled coolers to ensure chemical integrity during transport from Conklin, Alberta to Bureau Veritas Laboratory in Edmonton, AB or stored and shipped to the relevant Innotech Lab; and
- All samples were collected for a comprehensive suite of chemical analytes based on the Core programs guidance be it the Wetland or Surface Water programs including:
  - o Routine potability (major ions, alkalinity, hardness, and total dissolved solids [TDS]);
  - o Nutrients and indicators such as nitrate, nitrite, chlorophyll a (open water sites), phosphorous, orthophosphate and carbonaceous biochemical oxygen demand (BODc);
  - o Total and dissolved metals and trace elements.
- Field Measurements, Sampling and Handling QA/QC
  - o Throughout the duration of the water sampling program, the following standards were employed:
    - Nitrile gloves were worn and replaced at each sampling location (multiple times as appropriate) to eliminate the potential for cross contamination; Clean hands dirty hands protocol used where applicable.
    - Water levels were measured from wells as 'metres below top of casing' (mbtoc);
    - All meters used for field measurement testing were calibrated on site each morning;
    - New bailers and bailing rope were installed at each well and replaced as appropriate;
    - All samples were stored and shipped in third party laboratory supplied bottles and coolers with adequate ice to maintain required temperatures; and

- All samples were packaged with completed Chain of Custody forms and hand-delivered to the Laboratory.
  - Laboratory QA/QC
    - o For quality assurance purposes, Laboratory regularly uses calibration checks, surrogate matrix spikes, blanks, and laboratory duplicates during analyses. Following receipt of the Certificate of Analysis (CoA), HGC staff reviews the final results of the report and would provide details if there were any deviations or exceptions to the above.
- Vegetation:
- Vegetation parameters (species inventory, strata, height, and percent cover) were assessed and recorded at all wetland sites. At each site the forb, graminoid, and bryophyte layers were observed and recorded within each surveyed plot (12 sites in the program, 3 transects per site, 5 plots per transect, for 180 plots). At each site, two transects were chosen at random to be observed annually. Vegetation parameters were chosen to allow comparisons of vegetation communities for wetland types over time.
- Surface Water Sampling
- In-situ water quality field parameters (temperature, EC, pH, dissolved oxygen, turbidity, and ORP) are measured using a YSI Professional Plus handheld multi-parameter unit;
  - water sample(s) are collected directly from the intended stream and the water is poured into the appropriate laboratory supplied bottles;
  - A Van Dorn sampler is used to collect both shallow and deep lake samples;
  - Water samples are placed in an ice-filled cooler for transport from Conklin, Alberta to Bureau Veritas in Edmonton, Alberta or Innotech Labs; and
  - Standard COC protocols are followed at all times.
  - Surface water samples are collected for a comprehensive suite of chemical analytes including:
    - o Routine potability (major ions, alkalinity, hardness, and TDS);
    - o Nutrients and indicators such as nitrate, nitrite, chlorophyll a, phosphorous, orthophosphate and BODc;
    - o Total metals and trace elements;
    - o BTEX and PHC F1 and F2; and
    - o PACs (at select locations).
    - o Microcystin
  - ALMS methods and sample parameters will be collected at a single site as part of the 2023 workplan season.
- Wildlife/Amphibians/Birds:
- OSM SOP protocol will be followed and will include training from the ABMI on their protocol, methods and study design.
- Fish Data
- Depending on year, fish data, if received from the provincial FIN program includes fork, total length, weight, gender life stage, spawning, maturity. When fish are pulled from the Lake by the Conklin team, fish are dissected and observed by an aquatics expert in collaboration with community members. Fish evaluations will mimic surface water/aquatics SOP for upcoming years. If possible additional aquatics monitoring and training will be organized based on community interest and support.

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

- Core wetland indicators are measured at all wetland monitoring sites unless otherwise indicated include:
- Meteorology (mini met stations measure precipitation, soil moisture, and temperature during the growing season, they are setup to ensure that one MET station is within 15 km of each wetland site) These also provide reasonable coverage for the area around Christina Lake.
  - Hydrology (water level and barometric pressure is measured continuously throughout the growing season)
  - Water quality following the SOPs provided by AEP (Trace metals, routine, nutrients, and isotopes for all wetland sites. At open water wetland sites PACs, Chlorophyll a, and mercury is also collected)

- Plant community composition and structure including height and leaf area index (LAI), soil pH, EC and moisture which will be used to validate lidar and other remote sensing data.
  - Bird and amphibian community composition (using acoustic recording units).
  - Mammal community composition (using trail cameras)
  - Autonomous Recording Unit (ARU), Wildlife Camera and Mini-Met Stations.
- Core Surface Water indicators are measured at all stream and well sites unless otherwise indicated include:
- Hydrology (water level and stream flow; velocity, width, depth)
  - Water quality – major ions, routine, trace elements, polycyclic aromatic compounds, microcystin, nutrients, mercury, and total metals are analyzed. The intent is to follow current surface water quality guidelines and monitoring protocols as well follow ALMS sampling for a subset of sampling

## 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.

- Water quality, water quantity, field parameters (pH, EC, temperature, and DO), standard vegetation plots (not including meandering transects for cultural plants) wildlife and ARU data will be gathered as per SOP methodologies with data provided back to feed the regional OSM program.
- The Conklin Environmental Team has an open meeting with Conklin community members to present the previous year's results and get feedback and input for upcoming programs. Community members participate in all field studies. All community comments are recorded and included in the annual report for review and possible inclusion for future programs. A community brochure is created each year with the results of the monitoring program and highlighting exceedances and red flags. Historic reports and future data will be made available to the community via their community web page including executive summaries.

## 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

- Higher Ground Consulting (including Conklin Metis Local 193 employees) – Provides Field Leads and field seconds (and sometime a supporting third field staff, when necessary) for each field component of the Conklin Environmental Monitoring Program. Please note that Higher Ground employs Conklin Metis 193 members for full time seasonal work. There is always at least 50% Conklin Metis Local 193 employees in each field Program.
- Higher Ground professional designated employees complete 100% of the reporting and scientific data analysis.
  - Laboratory
    - o InnoTech – Trace Metals, Routines.
    - o Bureau Veritas – Nutrients, BTEX
    - o InnoTech-Victoria – d180, d2H
    - o BASL - Mercury
  - Oak Environmental: Field Equipment Rental, Groundwater and Vegetation Field Kits.
  - Christina Lake Lodge – Boat Rentals
  - The Printing House – Printing of Community Brochure
  - Alberta Biodiversity Monitoring Institute: Camera & ARU Training
  - Canadian Aquatic Biomonitoring Network: Benthic Invertebrate Training
  - Alberta Lake Management Society – Water Quality sampling 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:

Both

13.3 Frequency of Collection:

Annually

13.4 Estimated Data Collection Start Date:

2023-05-01

13.5 Estimated Data Collection End Date:

2023-11-01

13.6 Estimated Timeline For Upload Start Date:

2023-11-02

13.7 Estimated Timeline For Upload End Date:

2024-02-28

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

NO

**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
Database	Database	.csv, .xlsx, or geopackage	Open by Default
ARU & Camera Data	Wildtrax	.jpg, .wav/w4v, and .csv	Open by Default
Groundwater Quality	Database	.csv, .xlsx, or geopackage	Open by Default
Vegetation	Database	.csv, .xlsx, or geopackage	Open by Default



<i>Field Parameters</i>	Database	.csv, .xlsx, or geopackage	Open by Default
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<i>Weather Data</i>	Database	.csv, .xlsx, or geopackage	Open by Default
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<i>Surface Water Quantity</i>	Database	.csv, .xlsx, or geopackage	Open by Default
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<i>Surface Water Quality</i>	Database	.csv, .xlsx, or geopackage	Open by Default
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## 14.0 2023/24 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	Summary report of all data gathered including methods, results, and analysis. Any guideline exceedances are included as well as deviations or anomalies from historical data. Community communications are captured, and recommendations are put forth
Stakeholder or Community Presentation	Q4	Community presentation and summary brochures are developed to provide the results to the community in a manner that allows open discussion, questions, and comments on the program and its results

## 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.

Kimberly Desjarlais: CRDAC and Higher Ground Consulting Employee and Metis Local 193 Member – Project Administrator and Community Liaison. Kim, a Métis Local 193 member from the Community of Conklin, has been with HGC for over three years, helping lead field studies in wetlands. Through HGC’s capacity-building commitment to Indigenous communities, Kim mentors and trains fellow Conklin residents as they look to build their skillset and gain a better understanding of the industrial development occurring in their backyard. With 15 years of environmental experience in Western Canada, Kim helps bridge the gap between perceived and actual effects by utilizing and combining her knowledge in both western science and traditional knowledge.

Kyle Desjarlais: Higher Ground Consulting Employee and Metis Local 193 Member – Kyle has approximately 2.5 years of field experience in the area of water monitoring, including water quality and quantity monitoring as well as field parameters gathering. He has also done multiple field programs involved with the setup and maintenance of ARU’s and Cameras.

Cameron Johnston: Higher Ground Consulting - B.Sc.,P. Biol – Lead Wetlands Specialist - Cameron Johnston has worked in environmental consulting since 2008, with the last decade of his experience focused on wetlands, vegetation, and water related projects. He is experienced in wetland and surface water monitoring programs for largescale oil sands projects as well as smaller scale developments and community-based monitoring. Cameron has also provided baseline vegetation assessments for multiple industrial sectors, surveyed and reported for wetland impacts, consulted clients on rare plant mitigations, and managed the vegetation component on numerous projects from field surveying to regulatory applications. Cameron’s environmental background as well as technical data management and GIS experience allow him to work directly with the environmental reporting and data components to ensure efficient and effective reporting and deliverables. He is also an educator and has conducted field training with indigenous communities in the province as well as taught water management in both a formal classroom and field setting. Cameron will lead/oversee field studies and the environmental reporting

Chris Stoesz: Higher Ground Consulting – P. Bio – Fisheries Lead - Mr. Stoesz has over 20 years of experience in the consulting sector. He has been involved in managing the aquatic ecology component of a variety of projects, including pipeline projects, oil sands environmental impact assessments (EIAs), fish health studies for environmental effects monitoring (EEM) as well as attaining regulatory approvals for construction and fish habitat enhancement projects. Chris is very experienced working with the Water Act and the Fisheries Act, and has been responsible for attaining multiple project approvals on time via creative offsetting plans. He is an experienced project manager, is well-versed in field data collection methods, data analysis, and reporting. Chris has designed and implemented short and long-term monitoring programs for instream construction projects and accidental industrial releases, as well as responding to initial spill response.

Melanie Myden: M. Sc. P. Geol. – Senior Hydrogeologist - Melanie has over 15 years of professional experience and specializes in water quality analysis and assessments and has extensive experience and understanding of the AB Surface Water Quality Guidelines, Tier 1 and 2 Guidelines and the AB Wetlands Policy. Melanie leads efforts, beginning at the planning phase, to develop comprehensive water quality monitoring plans that meet client and regulatory requirements, while also ensuring the community and public needs are met. She is also experienced in coordinating and communicating relevant program status and potential issues with clients and



regulatory agencies. Melanie manages, analyzes and reports on the water data for the program.



## 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
<b>Salaries and Benefits</b> <i>(Calculated from Table 16.1.1 above)</i>	<b>0.00%</b>	<b>\$0.00</b>
<b>Operations and Maintenance</b>		
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
<b>Total All Grants</b> <i>(Calculated from Table 16.4 below)</i>		<b>\$438,186.00</b>
<b>Total All Contracts</b> <i>(Calculated from Table 16.5 below)</i>		<b>\$0.00</b>
<b>Sub- TOTAL</b> <i>(Calculated)</i>		<b>\$438,186.00</b>
Capital*		\$0.00
<b>AEP TOTAL</b> <i>(Calculated)</i>		<b>\$438,186.00</b>

\* 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
<b>Salaries and Benefits FTE</b> <i>(Please manually provide the number in the space below)</i>		
Salaries and Benefits		\$0.00
<b>Operations and Maintenance</b>		
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
<b>ECCC TOTAL</b> <i>(Calculated)</i>		<b>\$0.00</b>

\* 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	Kimberly Desjarlais
GRANT RECIPIENT - ONLY: Organization	Conklin Resource Development Advisory Committee
<b>Category</b>	<b>Total Funding Requested from OSM</b>
Salaries and Benefits	\$151,717.00
<b>Operations and Maintenance</b>	
Consumable materials and supplies	\$89,850.00
Conferences and meetings travel	\$0.00
Project-related travel	\$39,240.00
Engagement	\$55,054.00
Reporting	\$72,548.00
Overhead	\$29,777.00
GRANT TOTAL <i>(Calculated)</i>	<b>\$438,186.00</b>

**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.
<b>Category</b>	<b>Total Funding Requested from OSM</b>
Salaries and Benefits	\$0.00
<b>Operations and Maintenance</b>	
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 <i>(Calculated)</i>	<b>\$0.00</b>

**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
<b>Salaries and Benefits</b> <i>Sums totals for salaries and benefits from AEP and ECCC ONLY</i>	\$0.00
<b>Operations and Maintenance</b>	
<b>Consumable materials and supplies</b> <i>Sums totals for AEP and ECCC ONLY</i>	\$0.00
<b>Conferences and meetings travel</b> <i>Sums totals for AEP and ECCC ONLY</i>	\$0.00
<b>Project-related travel</b> <i>Sums totals for AEP and ECCC ONLY</i>	\$0.00
<b>Engagement</b> <i>Sums totals for AEP and ECCC ONLY</i>	\$0.00
<b>Reporting</b> <i>Sums totals for AEP and ECCC ONLY</i>	\$0.00
<b>Overhead</b> <i>Sums totals for AEP and ECCC ONLY</i>	\$0.00
<b>Total All Grants (from table 16.2.1 above)</b> <i>Sums totals for AEP Tables ONLY</i>	\$438,186.00
<b>Total All Contracts (from table 16.2.1 above)</b> <i>Sums totals for AEP Tables ONLY</i>	\$0.00
<b>Sub- TOTAL</b>	\$438,186.00
<b>Capital*</b> <i>Sums total for AEP</i>	\$0.00
<b>GRAND PROJECT TOTAL</b>	\$438,186.00

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 Conklin Environmental team will manage with attention to detail on quality, scope, schedule and costs. Higher Ground Consulting manages timesheets and expenses through the Unanet Project Management Software System, which tracks hours per human resource and costs. Time is entered on a weekly basis to track work scope and budget. Risks relating to scope and budget include: Significant inclement weather could reduce community participation, timing if inclement weather could increase standby days and reduce productivity. In 2022/2023 the project is on pace to be underspent from the original workplan, efficiencies in the wetland SOP relative to the original scoped workplan reduced total field time and namely water quality sampling costs. In 2022/2023 the Christina Lake scope of the program is on pace to use its full budget after final reporting.



## 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
<b>TOTAL</b>		<b>\$0.00</b>



## 19.0 Consent & Declaration of Completion

**Lead Applicant Name**

Kimberly Desjarlais

**Title/Organization**

Portfolio and Events Coordinator – Conklin Resource Development Advisory Committee

**Signature**

Kimberly Desjarlais

**Date**

2022-10-28

**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.