Work Plan Application

Project Information	
Project Title:	OSM Core Surface Water Quality Monitoring
Lead Applicant, Organization, or Community:	Environment and Climate Change Canada
Work Plan Identifier Number: If this is an on-going project please fill the identifier number for 24/25 fiscal by adjusting the last four digits: **Example:** D-1-2425 would become D-1-**2425**	W-LTM-S-2-2425
Project Region(s):	Athabasca
Project Start Year: First year funding under the OSM program was received for this project (if applicable)	2018
Project End Year: Last year funding under the OSM program is requested **Example: 2024**	ongoing
Total 2024/25 Project Budget: From all sources for the 2024/25 fiscal year	$5,135,252.00
Requested OSM Program Funding: For the 2024/25 fiscal year	$4,764,863.00
Project Type:	Long Term Monitoring
Project Theme:	Surface Water
Anticipated Total Duration of Projects (Core and Focused Study (3 years))	Year 5
Current Year (choose one):	Focused Study -Select One-
	Core Monitoring Year 1 of 3

Contact Information

Lead Applicant/ Principal Investigator: Every work plan application requires one lead applicant. This lead is accountable for the entire work plan and all deliverables.	Nancy Glozier
Job Title:	Section Manager, Arctic Athabasca Watershed
Organization:	Environment and Climate Change Canada
Address:	11 Innovation Blvd. Saskatoon SK, S7N3H5
Phone:	306-230-3298
Email:	Nancy.glozier@ec.gc.ca

Project Summary

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

The OSM Surface WQ Monitoring Program is an adaptive core program. Data collected during the first 3 years were evaluated and reported through multiple technical reports. Informed by this effort, the surface water quality monitoring network design was revisited and adapted in 2017-18, and adaptation is ongoing. A record of sites and years of monitoring is provided in the monitoring schedule.
By associating indicators of water quality with other variables that are related to Pressures and Stressors, the current program design is able to determine, 1) whether changes in WQ are occurring; 2) if there are linkages with oil sands development; 3) and the extent of cumulative effects along the river course, including outfalls.
Key activities in 2024-25 will focus on:
• Continue with the SWQ Core program at sites and frequencies as in the previous two years.
• Continuing to work with the SW TAC on funding conditions, including conceptual models, limits of change, key WQ indicators and standardized annual reporting.
• As per 2023/24 funding condition to include the Peace River area, no field work is planned and the study team will work with the SW TAC as they lead the scoping, review and development of a water quality monitoring program for the Peace River area, for potential implementation in 2025-26.
• As per 2023/24 funding condition to address sediment quality, a sediment monitoring workshop is proposed to review options for establishing a core sediment monitoring, as well, if feasible, conduct preliminary sediment sampling in areas of greatest concern.
Rationale for changes to Budget for 2024-25 are as follows:
• Core long term monitoring - 14% overall increase required due to increases in laboratory analytical contracts, helicopter, and fuel charges, as well as staff wages.
• To include sediment sampling including a workshop on approaches,an additional 5% of funding for the first year. and the study team will work with the SW TAC as they lead the scoping, review and development of a sediment monitoring Program, including in the Peace River area, for potential implementation in 2025-26.

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.

This workplan serves the mandate of the OSM program by addressing the key OSM Program questions (above) with a focus on surface water quality. The geographic scope of this program covers all three oil sands deposits (the Cold Lake Deposit, the Athabasca Deposit, and the Peace River Deposit). Any watersheds with Stressor or Pressures from either in-situ or open-pit (or both) bitumen extraction activities, and all surface water systems (i.e., both rivers and lakes), are similarly in scope for this program. Water quality parameters measured include those known to be enriched in bitumen (e.g., polycyclic aromatic compounds, vanadium, selenium, etc.), parameters known to influence the transport and cycling of key contaminants of concern (e.g., carbon), as well as parameters known to be released to aquatic ecosystems during periods of landscape disturbance or as tracers of altered watershed hydrology (e.g., nutrients, measures of dissolved and suspended solids, major ions, etc.). Water quality is measured and evaluated as concentrations (e.g., mg.L), loads (e.g., kg/year), and yields (e.g., kg/km2/year).

In many cases, water quality monitoring at a particular station can be used to answer more than one questions. For example, monitoring near the mouth of the Muskeg River occurs both downstream of development and supports regional hydrologic mass balance calculations. Importantly, sampling frequency is also tied to these key questions. For example, understanding the cumulative impacts of multiple mine operators (and distinguishing these from other non-oil sands stressors, e.g., pulp and paper mills, municipal effluent discharge, etc.) requires sampling frequently enough to accurately quantify episodic mass transport in response to high-magnitude events (e.g., during spring freshet). The importance of this approach has been highlighted in publications (Chambers et al. 2018; Kerr et al. 2018), however this high frequency sampling is currently suspended.
This work plan is ADAPTIVE in the sense that the key questions and objectives are revisited (and revised) on a five-year cycle. Five years of data are necessary to quantify the range of natural variability; watershed response can change depending upon ambient conditions.
The work plan includes budgeting for the following details from the Surface water Scoping document
• Sampling Locations that are core and integrated are highlighted in the Monitoring Schedule file attached (OSM Program Field Monitoring Schedule_2024-25 Glozier SWQ_FINAL). Of the 57 OSM water quality sampling locations established in rivers, 46 are active stations (11 have been suspended through ongoing adaptive monitoring evaluations between 2015-2022), and 36 are integrated with at least one other OMS component (Benthos, Fish, Hydrology). Thus, the current water quality monitoring has been adapted to integrate and establish a core set of reaches within the lower Athabasca River (LAR) and extended geographic area (EGA) where intense, long-term water quality monitoring is used to inform and integrate with other programs. The core sampling in the Athabasca River, its major tributaries and in locations in EGA through to site at the mouth of the Slave River (SL1) will continue to be sampled at the current planned frequency based on the 2018 optimization plan.
• The project team will work with the Water TAC in planning a workshop to review the WQ program in detail in 2024. This exercise will guide future sampling design including a revised adaptive monitoring flow diagram, establishing critical effect sizes, limits of change, power, sample size, and rotational frequency.

2.0 Objectives of the Work Plan

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

The objective of this work plan is to collect the data necessary to answer the key OSM questions as they relate to Water Quality Monitoring component of the OSM Surface Water Quality Monitoring Program. With respect to monitoring, these objectives are:
1. Collect water quality samples at the stations listed in the monitoring schedule attachd to this work plan;
2. Conduct water quality sampling at a frequency sufficient to generate the data needed to answer the eight key surface water quality questions listed above;
3. Assist the OSM data management team within AEPA in properly curating the data and in making the data publically available;
4. Assist in OSM data integration team (or other teams/organizations) in advancement of adaptive monitoring;
5. Support water quality data requirements for other long-term core and/or focused studies;
6. Provide support, technical and scientific expertise as need to the CBM work plan;
7. Continue evaluation and reporting activities.

3.0 Scope

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

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

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

3.1 Theme

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

- ☐ Air
- ☐ Groundwater
- ☑ Surface Water
- ☐ Wetlands
- ☐ Terrestrial Biology
- ☐ Data Management Analytics & Prediction
- ☐ Cross Cutting

3.2 Core Monitoring, Focused Study or Community Based Monitoring

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

Long Term Monitoring

Themes

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

- ☐ Air
- ☐ Groundwater
- ☑ Surface Water
- ☐ Wetland
- ☐ Terrestrial
- ☐ Cross-Cutting

3.3.1 Surface Water Theme

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

Quality

3.3.1.2 Surface Water Key Questions:

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

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

Both the Mainstem Athabasca River and Tributary Water Quality OSM program have:
• established baseline for reference and accumulated state in exposure areas for 52 sites as follow: 5 sites > 30-50 years, for new OSM sites added in 2012 (9-10 years); 10 LAR/PR/SR; 6 CR; 29 LAR Tributaries; 7 PAD. Baseline data from 5 tributary sites flowing into Lake Clair and the PAD have been reviewed and analyzed for reporting in 2023. Select draft results were summarized by the PI in a meeting with the Surface Water TAC on April 26 2023. Final draft report will be provided to the TAC by March 2024.

Historical data from tributaries (Ells, Steepbank, Tar, Muskeg, Firebag, Mackay, Clearwater and Christina River) are currently being compiled through the KiWQM database (dated between 1997 and 2021) by AEPA; The initial assessment is that establishment of baseline for tributary largely depends on the site status (long (18yr+) vs short term, active site or not) and specific parameter whether the parameters have been consistently monitored using comparable methods (eg. PACs data collected after 2016 have been reported with much higher sensitivity compared to “older” data that “non-detectable” were mostly reported). Discussions with the Surface Water TAC regarding limits of change will help to clarify baseline requirements.

Limits of Change have been assessed with specific water quality guidelines. Development of site specific guidelines specific to OSM were recommended.
A key deliverable for the 2024/25 will be a review of WQ program for the ongoing development of indicators of change in WQ aquatic ecosystem health. Presentations and face to face discussions occurred on July 25 and August 22-24 2023. Included was a presentation of Level 1 Limits of Change (statistical difference at $p < 0.10$) currently being applied in the water quality program and several options for consideration for the development of revised Limits of Change which could be developed.

In response to conditions of funding placed on Surface Water PIs and the TAC, the plan to define LoC including the approach, data knowledge and gap have been discussed during SW TAC workshop (August 22-24,2023). The outcome of the workshop will be a plan to direct the future work on the determination of LoC

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?)

The water quality program has demonstrated statistically significant differences among reference and exposure areas, and long-term trend assessments. Recent trend analysis with data up to and including 2020 for all mainstem sites (M3-M12) has been completed and was summarized for select parameters in a meeting with the Surface Water TAC on April 26 2023. Final draft report will be provided to the TAC by March 2024.

Spatial and temporal changes in surface water quality as a result of oil sands activities have been reported in the surface mineable area. Evidence includes the episodic acidification of river water (Alexander et al. 2017) as well as changes in both river (Kelly et al. 2009; Kelly et al. 2010; Schwalb et al. 2014; Alexander and Chambers 2016; Wasiuta et al. 2020) and lake (Kurek et al. 2013; Cooke et al. 2017) water chemistry.

The spatial and temporal extent of reported change depends upon the parameter; not all water quality parameters have been evaluated. Some changes have been reported that may be a result of cumulative effects of multiple stressors along the Athabasca River (Glozier et al., 2018).

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

There are no unanticipated results in the data at this point.

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

The current list of key questions that guide surface water quality monitoring are informed by previous discussions with communities. However, it is anticipated that communities may have new questions that are currently out of scope for the program. Moreover, communities not previously engaged in OSM (or its predecessor, JOSM) may not yet have had an opportunity to provide input into the specific key questions that currently guide surface water quality monitoring activities. Therefore, this year, as we begin preparing for the next five-year cycle of water quality monitoring, we will make a concerted effort to engage communities in defining the specific key question for surface water quality monitoring. This will be accomplished in collaboration with the Community Based Monitoring Workplan.

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

Data are produced following OSM Program requirements and are posted publically after QA/QC checks have been completed. Data are available on the Canada-Alberta Oil Sands data portal (https://www.canada.ca/en/environment-climate-change/services/oil-sands-monitoring.html) and the AEPA OSM Data Portal (https://aws.kisters.net/OSM/applications/public.html?publicuser=Guest). Data posted to the OSM Data Portal are available in near real time. Requests for un-validated data are also routinely distributed.

The most recent data (as of October 31 2023) has been uploaded

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

Yes. Information on Standard Operating Procedures and Best Management Practices are available at the following link http://environmentalmonitoring.alberta.ca/resources/standards-and-protocols/

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

Samping Locations that are CORE and INTEGRATED are highlighted in the Monitoring Schedule. Of the 52 sampling locations in rivers 46 are active stations for 2022-23, and 36 are integrated with at least one other OMS component (Benthos, Fish, Hyrdrology). Details are in the file attached to the work plan. The water quality core monitoring program in this work plan is integrated with the fish and benthos core programs, as described in Cooke et al., 2018 with Question 6 - Is monitoring within the watershed required to meet the information needs of another long-term monitoring component? Thus the current water quality monitoring has been adapted to integrate and establish a core set of reaches within the lower Athabasca River (LAR) and extended geographic area (EGA) where intense, long-term water quality monitoring could be used to inform and integrate with other programs. It also integrates with the air program as snow deposition of contaminants potentially impacts water quality

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?

Surface water quality monitoring is explicitly listed on the theme area conceptual model. It also provides information on stressors (e.g., PACs, heavy metals, nutrients, etc.) as well as hydrologic transport. Monitoring data are used to quantify the contribution of relevant pressures on stressor water concentrations, loads and yields, and as key environmental drivers of biotic receptors (e.g., benthic macroinvertebrates and fish). All of these conceptual model components also appear on the OSM Programmatic model. This work will continue to provide necessary data for linking stressors to responses and determine the relative impact of various pressures on surface water quality.

How will this work advance understanding transition towards adaptive monitoring?

The OSM Surface Water Quality (WQ) Monitoring Program is an adaptive core program that operates on a five-year cycle. The initial water quality monitoring program design (in 2012) incorporated activities led and conducted by an independent contractor (RAMP), the Government of Alberta, and the Government of Canada. In 2015-16 (Year 4 of the initial five-year cycle), data collected during the first 3 years were evaluated and reported on in the Water Data Synthesis Reports. Informed by this effort, the surface water quality monitoring network design was revisited and revised;

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

YES - As needed and in the SOER work plan, work with ECCC and AEPA team members to provide data, advice and interpretation for 2024 SOER updates for LAR, EGA and tributary WQ Q1-Q4

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.

Efficacy of an existing regulation or policy
The Surface Water Quality Program generates the information required by AEPA to fulfill the 2015 Bilateral Agreement between Alberta and NWT. Specifically, the site on the Slave River at Fort Fitzgerald (M11A) is used for assessment related to Transboundary Objectives, while 10 other sites are identified in the agreement as key for long term regional and basin level monitoring to inform transboundary conditions. An additional 33 locations are listed as sites of interest.

An EPEA approval condition
The Surface Water Quality Program:
- generates the information required to assess the potential acidification of surface waters due to the emission and deposition of acidifying agents;
- contains a description of each of the monitoring sites that is sufficient to be used by the Alberta Energy Regulator to deem compliance with individual EPEA approval conditions;
- contains a description of quality assurance and quality control program that is sufficient to be used by the Alberta Energy Regulator to deem compliance with individual EPEA approval conditions;
- contains a list of water quality parameters measured by the program that is sufficient to be used by the Alberta Energy Regulator to deem compliance with individual EPEA approval conditions;
- generates the monitoring data necessary to assess the status and trends of the measured water quality parameters;
- generates the water quality data required to conduct chemical mass balance for individual watersheds impacted by oil sands extraction and processing activities (note this activity is also dependent upon the Water Quantity Monitoring Program) that is sufficient to be used by the Alberta Energy Regulator to deem compliance with individual EPEA approval conditions.

A regional Framework (i.e., LARP 2012)
Data collected as part of the surface water quality monitoring program is used as part of AEPA's reporting requirements and management response under LARP. Specifically, this program will generate the data needed to:
- monitor at surface water quality stations M3 and M7 stations to support future expansion of an amended Surface Water Quality Management Framework (SWQualMF); and
- monitor PAHs in the water column at surface water quality stations M3, M7 and M9 to support future expansion of amended SWQualMF.
Other sites linked to LARP that are monitored as part of this work plan include: M0, M2, M9A as well as several sites on the Muskeg River.

5.0 Indigenous Issues

Evaluation of Indigenous Issues Criteria (Information Box Only- No action required)

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

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

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

This work plan monitors a wide range of contaminants (e.g., PACs, trace metals) that are of concern to communities. There are potential impacts of contaminants on wildlife health (e.g., fish) and human health through consumption of country foods. Surface water quality monitoring data are also used to assess ecological changes to wetlands and to understand the interaction between surface and ground water resources, which are relevant to communities. Participatory community involvement is being discussed and will be facilitated through the Athabasca University Facilitation Centre.

Project team members will participate in an All TAC meeting with ICBMAC and the Athabasca University Facilitation Centre, and support a consistent approach and implementation of engagement and/or integration of Indigenous community based monitoring, where appropriate.

Does this project include an Integrated Community Based Monitoring Component?

No

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

ICBM WORK PLAN SUBMISSION LINK

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

Are there any community specific protocols that will be followed?

NA

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.

NA

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.

NA

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

NA

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

NA

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

NA

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

NA

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.

This workplan will generate the surface water quality data necessary to assess environmental condition relative to baseline. These data will include the concentrations of a suite of chemical parameters in key surface water quality systems impacted by both open-pit and in-situ bitumen extraction and processing activities. The TAC and project team will continue to finalize definitions for “baseline” and “limits of change” to assess the extent to which change has occurred. Temporal changes have been assessed for a broad suite of parameters within both the Athabasca River (e.g., Glozier et al. 2018) and tributaries to the Athabasca River (e.g., Chambers et al. 2018; Alexander and Chambers 2016). Spatial patterns have also been assessed and compared with snowpack chemistry in rivers (e.g., Wasiuta et al. 2019) and with modeled emissions and deposition patterns in lakes (Emmerton et al. 2018).

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.

This work plan collects the data necessary to inform evaluation and reporting activities focused on answering the key questions. The program design spans multiple spatial scales, from small watersheds like the Muskeg River watershed, up to collecting the information to understand mass balance loading to the Peace-Athabasca River and the Slave River Delta. The data collected have (and will continue to be) used by modelling efforts to predict watershed response to future development (e.g., Eum et al. 2016), and data collected by this program are relied upon by other components of aquatic ecosystem health (i.e., benthic macroinvertebrates and fish) to assess environmental condition.

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.

Monitoring data are made publically available via the AEPA OSM Data Portal: (https://aws.kisters.net/OSM/applications/public.html?publicuser=Guest) and via the Environment and Climate Change Canada Oil Sands Data Portal (https://www.canada.ca/en/environment-climate-change/services/oil-sands-monitoring.html).

Several Key Enagement presentations are listed in the deliverables to openly communicate the results of the progam and approaches to adapting the program. Including presenations on the results of the long term trend assessments, establishing baseline in the EGA area, results of the SPMD dissolved PACs assessments, compilation of and presentation of water quality data and daily/ monthly loads, to contribute to the adaptive monitoring exercise.

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 allocation of resources in this work plan is focused on surface water quality monitoring where information is required to answer one of the driving questions for the program. Specifically, the majority of staff resources are allocated to field work, including sample submission to the appropriate analytical laboratory and assisting the OSM data management team in the curation and provision of these data. Most surface water quality stations are sampled monthly; however, answering some of the questions requires more frequent sample collection.
Specific roles are provided in Section 15. There are coordinated efficiencies between AEPA and ECCC, such as joint sampling trips and coordinating sampling shipping and laboratory analyses. Most of the surface water quality sampling sites are co-located with sites that are also key monitoring sites for other components of aquatic ecosystem health (e.g., benthic macroinvertebrates and fish). Based on previous workshops and reports there is little-to-no duplicative surface water quality monitoring.

10.0 Work Plan Approach/Methods

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

1. Data Collection
1.1. Preparation for field work (ordering supplies, procuring helicopter support, etc)
1.2. Collection of samples and field measurements and observations recorded
1.3. Shipping and submission to designated laboratory

2. Laboratory analysis
2.1. Acknowledgement of sample arrival from labs
2.2. Analysis of sample for requested parameters
2.3. Laboratory specific quality assurance and quality control
2.4. Delivery of results as both electronic data file and laboratory report (PDF)

3. Data management
3.1. Field and lab data received and uploaded to database
3.2. Review of results including matching with sample metadata and verification and validation of data
3.3. Preparation of data release files in machine readable format (e.g., CSV)
3.4. Review and approval for data release
3.5.5 Public data release

Describe how changes in environmental Condition will be assessed

Changes will be assessed to measured parameters on an ongoing basis. Anomalous changes or unusual trends will be flagged and subject to further investigation. Ongoing data evaluation and reporting products preparation will be achieved through data analysis by ECCC and AEPA scientists and through discussion with the SW TAC

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

Yes, there are both federal Government of Canada (CCME) and provincial Government of Alberta surface water quality guidelines. In addition, triggers and limits have been formally established for 38 indicators under the Surface Water Quality Management Framework for the Lower Athabasca Regional Plan

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

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

Sampling methodologies will follow the ECCC and AEPA field Standard Operating Procedures (SOPs), as appropriate. Field SOPs include guidelines for obtaining and recording field measurements and observations. Field SOPs are available online. Laboratory methods will be provided by contracted labs and reviewed by AEPA and ECCC staff to ensure they are appropriate for the parameters measured.

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

Major ions (e.g., calcium) nutrients (e.g., phosphorus) physical parameters (e.g., total suspended solids), total and dissolved metals (e.g., lead), total and dissolved mercury and methylmercury, total and dissolved polycyclic aromatic hydrocarbons (e.g., phenanthrene), water isotopes, carbon, and naphthenic acids (key sites to be determined and dependent upon the availability of suitable reference material.

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.

Over the past several years, standard operating procedures have been developed to sample water quality and the collection of supporting variables as appropriate such as water and sediment chemistry. These documents can be used by other monitoring groups to ensure consistency in sampling regimes and data used to assess change in water quality in the Oil Sands Areas of Alberta. We have published integration documents from the first 3 years of JOSM that include chapters on water quality Chambers et al., 2018; Glozier et al., 2018). A number of peer reviewed scientific documents have been published as well including a recent manuscript on the synthesis of results (Culp et. al., 2020 and SPMD results (Levesque et al., 2023)

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

Partners for core monitoring components include:

A number of contracts will be established with external analytical laboratories according to AEPA and ECCC procurement processes. This process is ongoing.
Contracts with helicopter providers will be established according to AEPA and ECCC procurement processes.

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

13.0 Data Sharing and Data Management

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

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

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

Indigenous Knowledge is defined as:

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

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

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

Yes

13.2 Type of Quantitative Data Variables**:**

Both

13.3 Frequency of Collection:

Other

13.4 Estimated Data Collection Start Date:

Apr 1, 2024

13.5 Estimated Data Collection End Date:

Mar 31, 2025

13.6 Estimated Timeline For Upload Start Date:

Jun 30, 2025

13.7 Estimated Timeline For Upload End Date:

Mar 31, 2026

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 add row on the bottom right side of table

Name of Dataset	Location of Dataset (E.g.:Path, Website, Database, etc.)	Data File Formats (E.g.: csv, txt, API, accdb, xlsx, etc.)	Security Classification
AEPA Water quality Data	AEPA Data portal	Varions including CSV	Open by Default
ECCC Water Quality Data	ECCC data portal	Various including CSV	Open by Default

14.0 2024/25 Deliverables

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

Type of Deliverable	Delivery Date	Description
Public Dissemination Document	Q1	AEPA - fact sheets summarizing OSM tributary water quality monitoring
Other (Describe in Description Section)	Q1	AEPA- Develop and share R code to model CO2 partial pressure in surface water, facilitating the interpretation of SWQ data to support data evaluation and reporting
Key Engagement/Participation Meeting	Q1	AEPA -Presentation on OSM tributary surface water monitoring if needed and requested by TAC, in support of the ICE working group
Key Engagement/Participation Meeting	Q2	AEPA – As needed and in the SOER work plan, to provide tributary SWQ data, advice and interpretation for 2024 SOER updates
Key Engagement/Participation Meeting	Q2	ECCC led with the SWTAC workshop on approaches to sediment sampling for inclusion in the core WQ program.
Key Engagement/Participation Meeting	Q2	AEPA -as needed, presentation on daily, monthly and annual loads of dissolved substance in the Athabasca River.
Key Engagement/Participation Meeting	Q3	AEPA -Presentation on naphthenic acids variation in representative tributaries in NOSR if needed by Water TAC
Key Engagement/Participation Meeting	Q2	ECCC led with the SWTAC workshop on options and objectives for WQ sampling in the Peace River OS area
Key Engagement/Participation Meeting	Q3	AEPA - PAH profiling in Athabasca tributaries if requested by water TAC, surpporting the development of limit of change, indicators etc.

Type of Deliverable	Delivery Date	Description
Technical Report	Q3	AEPA- Draft report on tributary SWQ reporting for 2017-2022 Part 1 (Inorganics) , as directed by OC to focus on evaluation and reporting
Peer-reviewed Journal Publication	Q4	AEPA -Submission of a manuscript examination of riverine carbon sources and sinks in mining-impacted tributaries, supporting the answer to the key question on " Are changes occurring in SWQ and what degree are the changes attributable to oil sands activities?"
Technical Report	Q3	AEPA - Draft report on preliminary study of naphthenic acids variation in representative tributaries in NOSR, filling the data gap on this oil sands organic contamninant that was not monitored before
Peer-reviewed Journal Publication	Q4	ECCC - submit manuscript on results of long term trend analysis on mainstem of Athabasca River
Other (Describe in Description Section)	Q4	AEPA – provide data from surface water quality monitoring in 2024-2025 to OSM data systems (Kister portal)
Peer-reviewed Journal Publication	Q4	AEPA - Drafting manuscript on Historical review of OSM tributray surface water monitoring acitivities, as directed by OC to focus on evaluation and reporting and support the adaotive monitroing framework
Peer-reviewed Journal Publication	Q4	AEPA - Draft manuscript on Variation of CO2 Effluxes from northern lakes: observation and modelling from long term lake monitoring
Technical Report	Q4	AEPA - Draft report on summary of long-term lake chemistry data for the use of stakeholders and to inform directions of lake monitoring development
Condition of Environment Report	Q4	ECCC & AEPA– As needed and in the SOER work plan, work with ECCC and AEPA team members to provide data, advice and interpretation for 2024 SOER updates for LAR, EGA and tributary WQ Q1-Q4
OSM Program Annual Progress Report (required)	Q4	ECCC & AEPA Quarterly and annual reporting as required Q1-Q4

Type of Deliverable	Delivery Date	Description
Key Engagement/Participation Meeting	Q4	ECCC & AEPA – As needed and determined in the CBM work plans be available for engagement and training opportunities with community Q1-Q4
Key Engagement/Participation Meeting	Q4	ECCC & AEPA - As Condition of 2023 24 Work plan Project team to work with the SW TAC to further develop of a SWQ conceptual model, approach to defining limits of change and a standardized reporting approach Q1-Q4

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.

Surface Water Quality (ECCC; InKind & VNR)
Project Lead (Work plan PI): Nancy Glozier (Arctic-Athabasca Section Manager) – Mainstem (M2-M9) and EGA water quality study lead
Kerry Pippy (Senior Aquatic Scientist) – EGA water quality study co-lead
Lucie Levesque (Senior Aquatic Scientist) & Julie Roy (Aquatic Scientist) – Lead SPMD data processing, data analysis, interpretation and reporting for Mainstem
Minzhen Su (Data Scientist) – Database management and distribution
Primary Field Technical Staff: Jim Syrgiannis (Senior Field Technician), Erica Keet (Aquatic Technician), Jennifer Maines (Aquatic Technician), Leah Dirk (Aquatic Technician), John Coughlin (Aquatic Technician), Kean Steevs, data analytical scientist and reporting
Vijay Tumber (Senior Aquatic Data Technician) – WQ data tracking and QA for mainstem
There is also support from other WQMS staff from various offices to assist in fieldwork on occasion.
A part time term technician will be hired to support any requirements identified through the work with the SW TAC development of sediment monitoring approaches

Surface Water Quality (AEPA)
Project Lead: Angela Sun – Tributary Water Quality study lead
Scientific and Technical Staff: 3.0 AEPA Monitoring Scientific and 5.0 Technical staff.

16.0 Project Human Resources & Financing

Section 16.1 Human Resource Estimates

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

Table 16.1.1 AEPA

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

Name (Last, First)	Role	%Time Allocated to Project
Water Quality Technician	Field planning and implementation	100
Water Quality Technician	Field planning and implementation	100
Water Quality Technician	Field planning and implementation	100
Water Quality Technician	Field planning and implementation	100
Water Quality Technician	Field planning and implementation	100
Watershed Scientists	Program planning, data analysis and reporting	100
Watershed Scientists	Program planning, data analysis and reporting	100
Watershed Scientists	Program planning, data analysis and reporting	100

Table 16.1.2 ECCC

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

Name (Last, First)	Role	%Time Allocated to Project
Glozier, Nancy	In-kind, PI, Section Manager and Ecosystem Scientist	35
Levesque, Lucie	In Kind – Lead SPMD design & analysis	15
Pippy, Kerry	In Kind – Co-Lead EGA WQ	60
Roy, Julie	In Kind – SPMD Data analysis	40
Syrgiannis, Jim	In Kind – Lead Field Technician	70
Keet, Erica	VNR – Primary Field Technician	50
Maines, Jennifer	VRN – Primary Field Technican	50
Dirk, Leah	VNR – Primary SPMD/Field Technican	70
Coughlin, John	VNR – Primary Field Technican	100
Steeves, Kean	VNR, Term Primary Data Scientist,	50
Tumber, Vijay	In-kind, Data tracking and nt QAQC	60
Su, Minzhen	In-kind, Data management and distribution	60
Term/ Casual Field Technician (TBD)BC	VNR, Term Junior Field Technician	45
NLET Lab Technician	VNR WQ Laboratory Analysis	100
NLET Lab Technician	VNR WQ Laboratory Analysis	100
NLET Lab Technician	VNR WQ Laboratory Analysis	30

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

Section 16.2 Financing

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

Table 16.2.1 Funding Requested BY ALBERTA ENVIRONMENT & PROTECTED AREAS

Organization - Alberta Environment & Protected Areas ONLY	Total % time allocated to project for AEPA staff	Total Funding Requested from OSM
Salaries and Benefits (Calculated from Table 16.1.1 above)	800	$960,000.00
Operations and Maintenance		
Consumable materials and supplies		$204,200.00
Conferences and meetings travel		$0.00
Project-related travel		$45,053.92
Engagement		$0.00
Reporting		$0.00
Overhead		$0.00
Total All Grants (Calculated from Table 16.4 below)		$0.00
Total All Contracts (Calculated from Table 16.5 below)		$1,428,636.40
Sub-Total (Calculated)		$2,637,890.32
Capital*		
AEPA TOTAL (Calculated)		$2,637,890.32

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

Table 16.2.2 Funding Requested BY ENVIRONMENT & CLIMATE CHANGE CANADA

Organization - Environment & Climate Change Canada ONLY	Total % time allocated to project for ECCC staff	Total Funding Requested from OSM
Salaries and Benefits FTE (Please manually provide the number in the space below)		$818,660.00
Operations and Maintenance		
Consumable materials and supplies		$832,840.68
Conferences and meetings travel		$0.00
Project-related travel		$266,200.00
Engagement		$77,500.00
Reporting		$10,000.00
Overhead		$121,772.00
ECCC TOTAL (Calculated)		$2,126,972.68

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

Table 16.3

Complete ONE table per Grant recipient.

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

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

Table 16.4

Complete ONE table per Contract recipient.

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

CONTRACT RECIPIENT - ONLY: Name	Contract for Helicopter AEPA
CONTRACT RECIPIENT - ONLY: Organization	Varioous
Category	Total Funding Requested from OSM
Salaries and Benefits	
Operations and Maintenance	
Consumable materials and supplies	$346,000.00
Conferences and meetings travel	
Project-related travel	
Engagement	
Reporting	
Overhead	
CONTRACT TOTAL (Calculated)	$346,000.00
CONTRACT RECIPIENT - ONLY: Name	Contract for analytical service Core WQ Monitoring AEPA & ECCC
CONTRACT RECIPIENT - ONLY: Organization	Various
Category	Total Funding Requested from OSM
Salaries and Benefits	$1,042,636.40
Operations and Maintenance	
Consumable materials and supplies	
Conferences and meetings travel	
Project-related travel	
Engagement	
Reporting	
Overhead	
CONTRACT TOTAL (Calculated)	$1,042,636.40
CONTRACT RECIPIENT - ONLY: Name	Contract for Cold storage AEOA

CONTRACT RECIPIENT - ONLY: Organization	Versa Cold
Category	Total Funding Requested from OSM
Salaries and Benefits	
Operations and Maintenance	
Consumable materials and supplies	$40,000.00
Conferences and meetings travel	
Project-related travel	
Engagement	
Reporting	
Overhead	
CONTRACT TOTAL (Calculated)	$40,000.00
CONTRACT RECIPIENT - ONLY: Name	Contract for analytical service for Peace River Oil Sands Area AEPA& ECCC - not funded in 2024-25
CONTRACT RECIPIENT - ONLY: Organization	
Category	Total Funding Requested from OSM
Salaries and Benefits	
Operations and Maintenance	
Consumable materials and supplies	
Conferences and meetings travel	
Project-related travel	
Engagement	
Reporting	
Overhead	
CONTRACT TOTAL (Calculated)	$0.00

Table 16.5 GRAND TOTAL Project Funding Requested from OSM Program

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

Category	Total Funding Requested from OSM
Salaries and Benefits Sums totals for salaries and benefits from AEPA and ECCC ONLY	$1,778,660.00
Operations and Maintenance	
Consumable materials and supplies Sums totals for AEPA and ECCC ONLY	$1,037,040.68
Conferences and meetings travel Sums totals for AEPA and ECCC ONLY	$0.00
Project-related travel Sums totals for AEPA and ECCC ONLY	$311,253.92
Engagement Sums totals for AEPA and ECCC ONLY	$77,500.00
Reporting Sums totals for AEPA and ECCC ONLY	$10,000.00
Overhead Sums totals for AEPA and ECCC ONLY	$121,772.00
Total All Grants (from table 16.2.1 above) **Sums totals for AEPA Tables ONLY**	$0.00
Total All Contracts (from table 16.2.1 above) **Sums totals for AEPA Tables ONLY**	$1,428,636.40
SUB-TOTAL (Calculated)	$4,764,863.00
Capital* **Sums total for AEPA**	
GRAND PROJECT TOTAL	$4,764,863.00

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.

ECCC and AEPA leads will perform quarterly reviews of budgets and deliverables. Deviations from the proposed work plan will be reported to the OSM program office, and management actions may be taken to facilitate meeting of budget and deliverable expectations.

Foreseeable risks to the program include delays in hiring and contracts.

Previous years budgets have been on track and spent with acceptable guidelines

18.0 Alternate Sources of Project Financing - In-Kind Contributions

Table 18.1 In-Kind Contributions

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

Description	Source	Equivalent Amount ($CAD)
Scientific Expertise	ECCC	$228,888.00
Technical Expertise	ECCC	$141,501.00
	TOTAL	$370,389.00

19.0 Consent & Declaration of Completion

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

☑ I acknowledge and understand.

Lead Applicant Name

Nancy E,. Glozier

Title/Organization

ECCC

Signature

Glozier, Nancy Digitally signed by Glozier, Nancy
Date: 2023.11.03 14:28:19 -06'00'

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

Title/Organization

Signature

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

Program Office Use Only

Governance Review & Decision Process

this phase follows submission and triggers the Governance Review

TAC Review (Date):

ICBMAC Review (Date):

SIKIC Review (Date):

OC Review (Date):

Final Recommendations:
Decision Pool:

Notes:

Post Decision: Submission Work Plan Revisions Follow-up Process

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

ICBMAC Review (Date):

SIKIC Review (Date):

OC Review (Date):

Comments:
Decision Pool:

Notes & Additional Actions for Successful Work Plan Implementation:

Signature