Work Plan Application

Project Information	
Project Title:	Fort McKay Community Odour Monitoring
Lead Applicant, Organization, or Community:	Fort McKay Metis Nation
Work Plan Identifier Number: If this is an on-going project please fill the identifier number for 24/25 fiscal by adjusting the last four digits: **Example:** D-1-2425 would become D-1-**2425**	202425_wkpln_FortMcKayCommunityOdourMonitoring_LukerMargaret
Project Region(s):	Athabasca
Project Start Year: First year funding under the OSM program was received for this project (if applicable)	2022
Project End Year: Last year funding under the OSM program is requested **Example: 2024**	2026 (based on requested 1-yr project extension)
Total 2024/25 Project Budget: From all sources for the 2024/25 fiscal year	$292,432.00
Requested OSM Program Funding: For the 2024/25 fiscal year	$292,432.00
Project Type:	Community Based Monitoring
Project Theme:	Air & Deposition
Anticipated Total Duration of Projects (Core and Focused Study (3 years))	Year 4
Current Year (choose one):	Focused Study Year 3 of 3
	Core Monitoring -Select One-

Contact Information

Lead Applicant/ Principal Investigator: Every work plan application requires one lead applicant. This lead is accountable for the entire work plan and all deliverables.	Margaret Luker
Job Title:	Agreement Relations Manager
Organization:	Fort McKay Metis Nation
Address:	Box 119, Riverstone PO Fort McMurray, AB T9K 2Y4
Phone:	780-881-3924
Email:	mluker@fortmckaymetis.com

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**.

This odour monitoring program is the result of ongoing odour issues in Fort McKay and the inability of established regional monitoring programs to adequately determine the frequency, magnitude and characteristics of odour occurrences in the community and to link these odour occurrences to specific odorants.

The odour monitoring program (which has so far established a SOP and QA/QC procedure) uses sensory-based odour measurement and characterization methods and is conducted by trained community members and Fort McKay Metis Nation (FMMN) staff. Odour monitoring commenced on August 15, 2022 following odour monitor training and sensitivity testing. Monitoring protocols and procedures have evolved and advanced based on discussions with the odour monitors and based on efforts to link odour monitor measurements to core OSM air quality monitoring conducted in Fort McKay. An electronic data capture and analysis system was established with QA/QC checks, and links odour measurements to core OSM air quality data measurements. All data and observations are electronically stored and available for independent use. Project deliverables include:

i) systematic odour unit measurement and odour characteristic observation data for Fort McKay;
ii) sensory odour monitoring trained community and FMSD staff, with associated monitoring equipment, QA/QC methods, and data recording protocols; and
iii) odour monitoring procedures and protocols that can be used by others.

The project fulfills a number of OSM monitoring objectives:

i) it monitors an "indicator" i.e. odours, which is of significant relevance to the community with monitoring conducted by the individuals that live with the odours;
ii) it focuses on a recognized but poorly documented or quantified oil sands impact i.e. odours; and
iii) it provides odour occurrence, magnitude and characteristics data that can be linked to current core meteorological and air quality monitoring to better understand the possible location(s) and specific source type(s) contributing to odours in the community which will inform odour management and regulatory actions.

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.

To date there had been no systemic or reliable method of recording the frequency, magnitude and characteristics of odours in Fort McKay. The project is providing this information and will therefore assist in establishing a 2022-2024 odour baseline for the community, with some limitations. Community feedback on the nuisance/annoyance levels associated with the measured odour levels in the 2022-2024 period will assist in establishing a "limit of change" for odours.

Data from the project will assist in the "examination of cause" in terms of the location, source type(s) and odorants responsible for the odours in the community. This directly relates to the source-pathway-receptor model used by the OSM.

The project directly links to a number of the Air TAC scope of work questions/issues trying to be addressed; Specifically:

-Provide ambient concentrations to help understand the impact of multiple sources on air quality (including odours) in the Oil Sands region, including the ability to distinguish between oil sands specific sources of emissions and emissions from other natural and anthropogenic sources (Note: the data collected by this project can be used to help identify odour occurrences that are within community related versus those which are likely oil sands related or naturally caused e.g. wildfire smoke related.)
-Has air quality changed from baseline(s)?
-Are there effects on receiving environment (endpoints relating to ecological health, odours, human health, endpoints relating to Indigenous rights: wellbeing, culture and rights)?
-What are the frequency and extent of odour events?
-Do we have the right technology to detect and predict odour events? How does meteorology contribute to odour? Does air quality impact Indigenous wellbeing and ability to be out on the land?
-What are regional sources of contaminants in air?
-What are the pathways and fate of contaminants?
-How do management of odours, tailings pond emissions, mine fleets, and stack emissions affect air quality?

As noted previously, this is the first systematic sensory-based odour monitoring program undertaken in the Region so there are no previous/existing datasets against which the data from this project can be compared. There are, however, continuous, time-integrated, semi-continuous and air quality event triggered measurements being made that provide odorant related information that can and are being used to relate sensory odour measurements to ambient air quality readings. Establishing and understanding "air quality-odour response" concentration level relationships is important in that such relationships can be used to establish ambient air quality limits-of-change for specific odorants or odorant groupings e.g. total reduced sulphur (TRS).

2.0 Objectives of the Work Plan

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

The Fort McKay Community Odour Monitoring Program objectives for 2024-2025 are as follows:
1. Continue with the current daily odour monitoring program until the end of the 2024/25 period.
2. Continue to engage with community members regarding the need for systematic sensory-based community odour monitoring and recruit and train new Community members to do this type of monitoring.
3. Continue the detailed analysis of the odour data collected in relation to the continuous, semi-continuous, time-integrated and event triggered reduced sulphur and VOC data (note: WBEA has had issues with some of this monitoring which have recently been addressed so some of the WBEA datasets are limited).
4. Continue to coordinate with WBEA on integration of community odour monitoring with triggered canister sampling program.
5. Continue with check-ins and lessons learned sessions with community odour monitors.
6. Further develop and ideally trial a community odour event monitoring program that could be used as a core odour monitoring program when the current focused monitoring project is completed.
7. Quarterly community engagement and training sessions to present quarterly updates on odour monitoring and COMP odour reporting results, and promote awareness of community based odour monitoring and provide instructions on usage of the COMP app.
8. Integration of sensory odour monitoring data into Data Tool Software used by FMMN for Indigenous data management
9. Plan and prepare 2025-2026 work plan to prepare final reports and other deliverables to OSM based on results and learnings from Year 2022-2025.

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:

- [x] Air
- [ ] Groundwater
- [ ] Surface Water
- [ ] Wetlands
- [ ] Terrestrial Biology
- [ ] Data Management Analytics & Prediction
- [ ] Cross Cutting

3.2 Core Monitoring, Focused Study or Community Based Monitoring

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

Community Based Monitoring

Themes

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

- [x] Air
- [ ] Groundwater
- [ ] Surface Water
- [ ] Wetland
- [ ] Terrestrial
- [ ] Cross-Cutting

3.3.4 Air Themes

3.3.4.1 Sub Themes

Quality

3.3.4.2 Air & Deposition - Key Questions:

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

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

No

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?

Odour levels in the community are a function of both emissions and meteorology. In general, it appears that over the last few years the magnitude of odours in the community have lessened but based on the results of this odour monitoring program the frequency of odour events has not abated. This year the extensive wildfire activity and associated smoky days may also have masked oil sands odour influences. There have been some changes in froth treatment tailings management at one facility that may have reduced tailings pond related air emissions which are a major odorant emission source.

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

The unanticipated result is that the magnitude of the odour levels measured in the community are less than what was expected. Whether this is the result of emissions changes, meteorological fluctuations, which can be significant, or measurement methodology limitations is currently unknown. These are issues which need to be studied further and which require a longer term dataset to fully address.

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

Yes. Odours are a key quality of life issue for community members.

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

Project data is being collected and stored electronically and is available on request. There have been no discussions with the OSM on putting the data into the OSM data management system.

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

Yes

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

Since Fort McKay is the community most affected by oil sands' odorant emissions, the project is somewhat standalone but the odour monitoring methodologies being employed can be applied in other communities and/or at individual facilities or on a regional scale.
Community based odour monitoring results will also be incorporated into the Data Tool Software for integrated data management.

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?

Odours are specifically identified in the conceptual model for the OSM Program.

How will this work advance understanding transition towards adaptive monitoring?

As the first sensory-based odour monitoring program in the OSR, the program is providing insights into the ifs and/or hows this type of sensory odour monitoring can be applied to inform and address odour-related air quality issues in the region.

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.

The project is generating data that can be used in the air quality section of the State of the Environment

Report.

4.0 Mitigation

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

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

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

By providing a comprehensive, but time-period limited, odour magnitude/frequency/characteristic baseline dataset, the effectiveness of current and future odour management measures can be assessed, evaluated and modified as appropriate.

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

As a ICBM project it is directly address a long-standing issue/concern that Fort McKay i.e. odour impacts on quality of life not only in the community but throughout its Traditional Territory.
The sensory odour monitoring data will also be incorporated into the Data Tool Software used by FMMN which will integrate data associated with the monitoring of other oilsands related impacts that provide insight into Indigenous key questions and concerns.

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

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

Are there any community specific protocols that will be followed?

The Fort McKay Metis Nation has its own internal protocols that will be followed.

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.

Yes

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 Fort McKay Metis Nation will follow its own internal proptocols and also those of the FMFN who are partners in the project.

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

This is an indigenous community lead project.

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

This is an indigenous community lead project.

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

As note above, odour is a quality of life issue for the community and the community wants to better understand the magnitude of the issue from a Western Science quantitative perspective and help identify the sources contributing to this quality of life issue. The goal being to help inform actions and measures to reduce odours in the community and on the FMFN and FMMN Traditional Territories.
Quarterly community engagement and training sessions are planned for 2024-45 so that regular updates can be provided to community members on the odour monitoring program and COMP odour complaints. Instructions on how to use the COMP app will also be provided to community members at these sessions, as community members at a recent meeting (Oct 18 2023) indicated that they are unaware of the app and did not know how to use it.

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?

The results will be reported to the community by the community members involved in the project. Quarterly community sessions are planned for 2024-25.

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.

Since no baseline for odours in the community exists other than odour complaint records this monitoring program will establish a baseline for the frequency, magnitude and characteristics of odours in Fort McKay during the period of data collection. This data can, on a go-forward basis, be used as a baseline to measure and evaluated changes from these measurements.

This project represents adaptive monitoring in that it is the first odour related monitoring program that actually measures odour as a sensory response and not surrogates for odours e.g. ambient TRS levels. The sensory measurements taken as part of this project will be analyzed relative to the surrogate "odour-air quality" measurements currently used to try to improve the reliability of these surrogate odour prediction/ assessment parameters.

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 monitoring program is focused on odours in Fort McKay which is recognized as the Indigenous community most affected by oil sands development related odorant emissions and is where community members reside and are therefore most impacted by regional odour levels. While odour levels throughout the FMMN and FMFN Traditional Territories, understanding and addressing odours in the community are the initial critical odour/odorants requiring resolution.

As the key receptors, members of Fort McKay are the appropriate ones to be assessing the frequency and extent of odour issues as identified in the Air and Deposition TAC Scope of Work.

8.0 Transparency

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

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

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

All odour measurements and related odour measurements are recorded digitally and are available upon request. Quarterly odour event reports are being generated and an interim 1-yr of data report is currently being prepared. A community meeting was held on October 18, 2023 with interim findings presented to community members and feedback was solicited. At the conclusion of the monitoring stage of the project i.e. the 2022-2025 (assuming the 1 year extension is approved) a final report will be prepared and delivered to community members and partners for this project (Fort McKay Metis Nation, Fort McKay First Nation, WBEA).

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 Fort McKay Community Odour Monitoring program has and will continue to seek efficiency through:
- Collaboration and technical support between FMMN, FMFN, WBEA and the Air TAC
- Integration and resource sharing with existing odour monitoring efforts by WBEA and the Fort McKay Air Quality and Odour Program which has odour management in Fort McKay as one of its main focuses.
Quarterly community sessions are planned for 2024-25 which will allow for in-person opportunities to promote and provide instructions on odour reporting using the COMP app.

10.0 Work Plan Approach/Methods

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

Key previous phases of the Fort McKay Community Odour Monitoring Program Work Plan and for 2024-2025 are as follows:

Phase 1: Develop and implement a sensory based odour monitoring program:
- development and implementation of a community based was completed in 2022-2023 and involved the purchase of portable olfactometry equipment, testing and selection of community members to be odour monitors, development of an SOP for the program, and development of a digital data recording and analysis system

Phase 2: Ongoing implementation of the community odour monitors' collection routine (5 days a week morning period) odour magnitude and characteristic measurements and, when possible, on-demand odour measurements. This ongoing monitoring includes:
- Community odour monitors perform regular maintenance of Nasal Ranger units;
- Regular odour sensitivity testing for odour monitors;
- Regular refresher training for odour monitors;
- Regular monitoring data quality reviews.

Phase 3: Continue ICBM odour program collaboration with WBEA Core ambient air monitoring program:
- include the use of continuously measured ambient air quality levels of odour related parameters as triggers for possible odour event identification and olfactory monitoring;
- use of the semi-continuous VOC and RSC WBEA data to try and identify the specific compounds contributing to odours in the community and the sources of these odorants;
- coordinate with WBEA on integration with triggered canister sampling program.

Phase 4: Continue community engagement and recruitment of additional Community Odour Monitors
- engage with community members regarding their perspective on the need for, and value of, systematic sensory-based community odour monitoring and recruit new Community members to do this type of monitoring;
- demonstration of the use of Nasal Ranger for odour unit measurements;
- host quarterly community engagement sessions to provide odour monitoring updates and COMP odour report stats, and provide training on the use of the COMP app;
- host check-ins and lessons learned sessions with community odour monitors at 24 month mark.

Phase 5: Program planning, enhancements, and reporting:
- Conduct data analysis of community odour monitoring results. Analyze for relationships with COMP odour reports and odour complaints to AER, ambient air quality monitoring data, meteorology, and odourous compound concentrations obtained through triggered odour event air quality sampling system;
- Regular reporting to OSM;
- Integrate odour monitoring data into Indigenous data management portal (Data Tool Software)
- Ongoing program adjustment and enhancement as needed and/or opportunities arise;

Note: Phase 6 was initially was intended to involve finalization of a 2024-2025 work plan which would involve preparation of a final project report and other deliverables to OSM based on results and learnings from Year 2022-2024. However a 1-yr extension to the current monitoring element is being requested which would defer the final report and final community presentation elements to 2025/26. The rationale for this requested 1-yr extension is as follows.

Rationale for Extending the ICBM Odour Monitoring Program by 1-year:
- The 3-yr odour monitoring project (2-yrs of actual monitoring followed by a final report and community wrap-up meeting) was approved in May 2022.

- This project required the purchase of portable olfactometry monitoring equipment and odour monitor testing and training which involved an odour monitoring equipment, odour testing and consulting firm in the U.S. that is a recognized expert in the odour monitoring field.
- Confirmation of sites within the community for odour monitoring needed to be identified and agreed to by community members.
- The first actual community odour measurements under the program occurred on August 15th, 2022.
- There were some initial data recording procedural issues and the establishment and refinement of an SOP manual was an interative process, as it involved getting feedback from the community odour monitors on what was working and not working and addressing questions and concerns they had. In this regard it needs to be noted that there was no precedent for this type of regional odour monitoring and therefore it was somewhat of a “learn as you go" project evolution built upon sound science of the Nasal Ranger unit with professional support from its suppplier and air quality consultants.
- There were several iterations in terms of developing data capture and associated QA/QC procedures for recording odour monitoring measurements/observations and finalization of a project SOP which was reviewed by the U.S. consulting firm providing project guidance/advice.
- In approximately November 2022 monitoring procedures were essentially finalized and a standardized and routine monitoring system started.
- As routine monitoring results started to be generated, and the odour monitors developed some expertise with this type of monitoring, some possible project monitoring enhancements/improvements were identified which involved:

o Two rounds of odour monitoring each morning instead of one; and
o Wearing a half-mask (carbon filter mask) between odour measurements to reduce the possibility of odour fatigue/desensitization during the approximate 1-1.5 hr odour monitoring sites cycle.

These project changes resulted in what is considered the “best/most reliable” odour monitoring data with this change starting in Feb. 2023. However, the prior odour monitoring dataset i.e. Aug. 2022 to Jan. 2023 is a still a valid dataset but with the caveat that, based on the methodology used, it likely somewhat underestimated the frequency and magnitude of odours.
- Odour monitoring in the April through September 2023 period was significantly impacted by the wildfire smoke influences which resulted in a large number of odour measurements that were characterized as "smoky/burnt".
- One of the project elements is to compare the odour monitoring data to WBEA monitoring data. WBEA’s continuous monitoring data for total reduced sulphur (TRS), H2S and non-methane hydrocarbon (NMHC) are being used to relate the olfactory odour measurements taken to these three ambient air quality parameters which have been, and continue to be, used as an indicator of the likelihood and frequency of odour events in the community. This project is intended to provide the data required to determine if, how and/or when these continuously measured ambient air quality odour indicators might or should be used in understanding odour frequency and magnitude trends. The rigour of type of analysis depends on dataset sizes.
- Another project element involving WBEA data relates to using WBEA semi-continuous VOC and reduced sulphur (RSC) speciated data to compare the ambient concentrations of specific odorants at the time that odours are measured by the odour monitors. This comparison is intended to help identify the compounds that might have contributed to the measured odours and also how the odour monitors characterized the odour associated with those compounds. Based on emission profiles for different VOC and RSC sources this type of analysis will also allow some source attribution analysis. Unfortunately WBEA has had some challenges in getting these semi-continuous VOC and RSC monitoring instruments fully operational but WBEA has indicated that they expect these instruments to be fully operational by the fall of 2023. Therefore an additional year of odour monitoring would allow this project element to be meaningfully undertaken.
- A final linkage between the project and WBEA data relates to the triggered VOC and RSC sampling which involves automatically triggering the collection of an air sample based on 5-min levels of TRS and/or NMHC. When such samples are triggered, and coincide with an odour monitoring reading, the same type of

analysis conducted with the semi-continuous data is undertaken. While there have been some disruptions in this triggered monitoring, there is a pretty good dataset but an additional year of odour monitoring would allow more of these types of dataset comparisons.
- The impact of industrial emissions on air quality and odours in Fort McKay are very strongly influenced by meteorology, e.g. prevailing winds, wind speeds, temperature and solar radiation, and these meteorological factors can vary significantly from year to year. These means that odours in the community can vary significantly from year to year with no change in emissions. Therefore this odour monitoring project is very much synoptic in nature. An additional year, or even two, of odour monitoring would help address this inter-annual variability issue.
- Focused community engagement and training sessions are planned for 2024-25 to provide the necessary information and knowledge to encourage the community to participate in community based odour monitoring and/or reporting.

Conclusion

Based on the above considerations and factors, and on the basis that the project to date has demonstrated a “proof of concept” for this type of odour monitoring and has resulted in new and insightful data on the odour issues in the community, approval for an additional year for odour monitoring is being requested. The implications of this request are that the project’s 2024/25 budget request is similar to the 2023/24 budget request and the 2025/26 budget estimate is similar to the current 2024/25 budget estimate.

Phase 7: Assuming that the 1-yr project extension is approved, continue the above odour monitoring activities in 2024/25.

Phase 8: Final project report and community presentation(s) in Q2 of 2025-2026. Final project report will include recommendations on possible long-term core sensory based odour monitoring in the community.

Describe how changes in environmental Condition will be assessed

Since this is the the first systematic sensory-based odour monitoring conducted in the community, it will be used to assess current odour conditions in the community against which future odour levels/conditions can be evaluated.

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

There are several jurisdictions that have D/T (OU) criteria and the measurement results from this project will be compared to these criteria.

(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

The portable olfactometer used in this study is a western science-based odour measurement instrument and the odour characterization element of the project provides odour information from the perspective of the community.

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

The magnitude of odours i.e. D/T (OUs), the frequency of odours during the odour monitoring periods and the characteristics of any detected odours.

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.

1. The training and use of community odour monitors has resulted in community members who are able to conduct olfactory-based odour measurement. This monitoring capability is being maintained through regular refresher training on the monitoring protocol and use of the portable olfactometer and an ongoing effort to recruit new odour monitors.
2. A meeting with community members was held in October 2023 at which the project was explained, preliminary results presented and feedback obtained on whether the preliminary results from the project were consistent with community member experiences.
3. Quarterly community engagement sessions are planned for 2023-25 to provide odour monitoring and COMP odour reporting updates, as well as to provide training on the use of the COMP app.
4. An interim project report is being prepared based on the first full year of data.
5. An abstract for the project will be submitted for the Air and Waste Management Odor Conference to be held in Toronto in May 2024. If accepted, this will result in a conference proceedings paper that will give the project findings through 2022/23 widespread transfer. The individuals involved in the community project would attend this conference and be exposed to information on other odour monitoring programs and odour experiences/situations.
6. Odour monitoring program data will be integrated into FMMN's Indigenous data management database (Data Tool Software).
7. A final report and project presentation will be prepared and delivered to community members and partners in Q2 of 2025-2026.

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

Portable olfactometer supplier – St. Croix Sensory Inc.
Project support - Fort McKay First Nation
Project partner/integration – Wood Buffalo Environmental Association (WBEA)
Technical support - David Spink (Pravid Environmental), Danlin Su (Emerald Environmental)

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

13.0 Data Sharing and Data Management

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

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

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

Indigenous Knowledge is defined as:

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

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

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

Yes

13.2 Type of Quantitative Data Variables**:**

Discrete

13.3 Frequency of Collection:

Real Time

13.4 Estimated Data Collection Start Date:

August 2022

13.5 Estimated Data Collection End Date:

March 2025

13.6 Estimated Timeline For Upload Start Date:

Unknown

13.7 Estimated Timeline For Upload End Date:

September 2025

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
Fort McKay Odour Monitoring Program	path	GoogleSheet or xlsx	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
Other (Describe in Description Section)	Q1	a SOP for portable olfactory monitoring (complete)
OSM Program Annual Progress Report (required)	Q1	An interim report covering one year of data monitoring results
Conference Presentation	Q1	AWMA Odour Conference in Toronto

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.

Project Lead (Fort McKay Metis Nation) – Margaret Luker
- lead Fort McKay Community Odour Monitoring Program
- manage recruitment of community odour monitors
- coordinate training, lessons learned sessions, and monitoring activities
- engage with FMMN community members
- liaison with OSM program administrator and project partners
- general project management and administration

Project Partner Representative (Fort McKay First Nation) – Ryan Abel
- engage with FMFN community members
- provide project coordination and support on an as-needed basis

Nasal Ranger Supplier/Odour Consultant (St. Croix) - Mike McGinley
- supplier for Nasal Ranger, accessories, and field consumables
- calibration services for Nasal Ranger units
- technical support for SOP development and update, Nasal Ranger maintenance
- initial and refresher training for Nasal Ranger use
- ongoing technical support on odour monitoring program enhancements and troubleshooting

Project Partner Representative (WBEA) – Sanjay Prasad
- facilitate community odour monitoring integration with existing WBEA programs (COMP, ambient air monitoring, semi-continuous canister monitoring)
- provide technical guidance with respect to air quality monitoring on an as-needed basis

Community Odour Monitors – Brandon Paquette, Foluke Aina
- conduct field odour monitoring using portable olfactometer and sensory (nose-based) odour characterization
- collect and input monitoring results through established platform (i.e. variation of COMP app will be developed)
- participate in training and lessons learned sessions

Senior Air Quality Consultant – David Spink, M.Sc., P.Eng.
- provide recommendation on monitoring technology selection and procurement
- provide technical guidance on odour monitoring program development
- support program lessons learned sessions and provide guidance on program adjustment on an as-needed basis
- conduct senior review of data analysis and project interim/final reports and AWMA Odour Conference presentation/proceedings products if Conference accepts the project.

Air Quality Consultant – Danlin Su, M.Eng., P.Eng.
- lead technical aspects of odour monitoring program development and execution
- plan program lessons learned sessions and provide guidance on program adjustment on an as-needed basis
- conduct data validation and analysis
- prepare project interim/final reports

-prepare AWMA Odour Conference presentation and associated proceedings if project abstract accepted

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

Table 16.1.2 ECCC

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

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

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

Section 16.2 Financing

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

PROJECT FINANCE BREAKDOWN TEMPLATE

Table 16.2.1 Funding Requested BY ALBERTA ENVIRONMENT & PROTECTED AREAS

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

Operations and Maintenance	
Consumable materials and supplies	
Conferences and meetings travel	
Project-related travel	
Engagement	
Reporting	
Overhead	
Total All Grants (Calculated from Table 16.4 below)	$227,860.00
Total All Contracts (Calculated from Table 16.5 below)	$64,572.00
Sub-Total (Calculated)	$292,432.00
Capital*	
AEPA TOTAL (Calculated)	$292,432.00

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

Table 16.2.2 Funding Requested BY ENVIRONMENT & CLIMATE CHANGE CANADA

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

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

Table 16.3

Complete ONE table per Grant recipient.

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

GRANT RECIPIENT - ONLY: Name	Margaret Luker
GRANT RECIPIENT - ONLY: Organization	Fort McKay Metis Nation
Category	Total Funding Requested from OSM
Salaries and Benefits FTE	$170,920.00
Operations and Maintenance	
Consumable materials and supplies	$500.00
Conferences and meetings travel	$9,400.00
Project-related travel	$27,600.00
Engagement	
Reporting	
Overhead	$19,440.00
GRANT TOTAL (Calculated)	$227,860.00

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	Mike McGinley
CONTRACT RECIPIENT - ONLY: Organization	St. Croix
Category	Total Funding Requested from OSM
Salaries and Benefits	$7,840.00
Operations and Maintenance	
Consumable materials and supplies	$7,812.00
Conferences and meetings travel	
Project-related travel	
Engagement	
Reporting	
Overhead	
CONTRACT TOTAL (Calculated)	$15,652.00
CONTRACT RECIPIENT - ONLY: Name	David Spink
CONTRACT RECIPIENT - ONLY: Organization	Pravid Environmental
Category	Total Funding Requested from OSM
Salaries and Benefits	$17,640.00
Operations and Maintenance	
Consumable materials and supplies	
Conferences and meetings travel	$5,700.00
Project-related travel	
Engagement	
Reporting	$280.00
Overhead	
CONTRACT TOTAL (Calculated)	$23,620.00
CONTRACT RECIPIENT - ONLY: Name	Danlin Su

CONTRACT RECIPIENT - ONLY: Organization	Emerald Environmental
Category	Total Funding Requested from OSM
Salaries and Benefits	$17,850.00
Operations and Maintenance	
Consumable materials and supplies	
Conferences and meetings travel	$5,700.00
Project-related travel	
Engagement	
Reporting	$1,750.00
Overhead	
CONTRACT TOTAL (Calculated)	$25,300.00

Table 16.5 GRAND TOTAL Project Funding Requested from OSM Program

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

Category	Total Funding Requested from OSM
Salaries and Benefits Sums totals for salaries and benefits from AEPA and ECCC ONLY	$0.00
Operations and Maintenance	
Consumable materials and supplies Sums totals for AEPA and ECCC ONLY	$0.00
Conferences and meetings travel Sums totals for AEPA and ECCC ONLY	$0.00
Project-related travel Sums totals for AEPA and ECCC ONLY	$0.00
Engagement Sums totals for AEPA and ECCC ONLY	$0.00
Reporting Sums totals for AEPA and ECCC ONLY	$0.00
Overhead Sums totals for AEPA and ECCC ONLY	$0.00
Total All Grants (from table 16.2.1 above) **Sums totals for AEPA Tables ONLY**	$227,860.00
Total All Contracts (from table 16.2.1 above) **Sums totals for AEPA Tables ONLY**	$64,572.00
SUB-TOTAL (Calculated)	$292,432.00
Capital* **Sums total for AEPA**	
GRAND PROJECT TOTAL	$292,432.00

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.

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)
	TOTAL	$0.00

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

Margaret Luker

Title/Organization

Agreement Relations Manager
Fort McKay Metis Nation

Signature

Margaret Luker Digitally signed by Margaret Luker
Date: 2023.11.03 15:13:29 -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