Wood Buffalo Environmental Association

Progress Report

2025-2026

Q1: April- June

SUBMITTED JULY 2025

Table of Contents

List of Tables

1. Contract Scope and Delivery

This Progress Report is submitted quarterly by the Wood Buffalo Environmental Association (WBEA) on behalf of its members to Alberta Environment and Protected Areas (EPA) in accordance with the services and deliverables listed in Schedule A of the Government of Alberta contract 24RSD823 and 24RSD828, as amended.

As per the Alberta EPA contracts (Table 1), the WBEA provides environmental monitoring services based on the annual Oil Sands Monitoring (OSM) work plans and associated costs.

On April 28th, 2025, the WBEA received the 2025-2026 OSM funding notification, which dictated a budget reduction and change to workplan activities. The revised workplan and budget were resubmitted to OSM on May 30th, 2025. As a result of the funding notification, several projects have been paused, reduced, or discontinued this fiscal, as documented in this progress report.

Table 1. 2025-2026 Alberta EPA Contracts and Work Plans

Alberta EPA Contract	Work Plan Name	Work Plan Reference
24RSD823	Atmospheric Pollutant Active Monitoring Network	A-LTM-S-1-2526
24RSD828	Integrated Atmospheric Deposition Monitoring	A-PD-6-2526

2. Introduction

The WBEA is a multi-stakeholder, community-based, not-for-profit association that operates in the largest municipality in Canada. The WBEA monitors the air in the Regional Municipality of Wood Buffalo (RMWB) 24 hours a day, 365 days a year and conducts a variety of air, land, and odour monitoring programs. The information collected from all the WBEA's air monitoring stations between Conklin and Fort Chipewyan, most of which are located at or near oil extraction plants, is openly and continuously shared with stakeholders and the public on the WBEA's website (https://wbea.org/) and through annual reports, community engagement, and outreach activities.

An Air Quality Task Force was established in 1985 to address environmental concerns raised by the Fort McKay First Nation related to oil sands development. In 1990, this Task Force became the Regional Air Quality Coordinating Committee. Then in 1996 the area was endorsed as a regional airshed by the Clean Air Strategic Alliance (CASA). The WBEA was incorporated as an Alberta Non-Profit Society in 1997 and assumed responsibility for air quality monitoring within the boundaries of the RMWB. The WBEA became a working partner of the Alberta Environmental Monitoring, Evaluation and Reporting Agency (AEMERA) in 2014. With the dissolution of AEMERA on June 30th, 2016, the WBEA began working with the OSM Program and Alberta EPA to fulfill its mandate to provide independent ambient air monitoring in the region.

The WBEA submits annual work plans to the OSM Program. Once the work plans, and any required changes, are approved, the WBEA receives a contract with deliverables for the work from Alberta EPA. This Progress Report is a quarterly update on the work agreed to in the OSM Work Plans and the associated Alberta EPA Contract and includes program updates, exceedances and non-compliances, research and development overviews and adaptive monitoring progress.

Note: Ambient air and laboratory data must be quality assured and controlled prior to submittal to Alberta Environment's Air Data Warehouse and upload to the WBEA website. The data validation process follows one month behind the current month (i.e., data from May is reviewed throughout June and submitted by the end of June). **To ensure reporting of the most accurate data, this progress report will include data and statistics from the previous quarter (2024-2025 Q4) that have already been validated, where applicable.**

3. Atmospheric Pollutant Active Monitoring Network, 2025-2026 Work Plan Reference A-LTM-S-1-2526

The components of the Atmospheric Pollutant Active Monitoring Network Work Plan that are fulfilled, or supported, by the WBEA are described below:

***(1) Long-term core ambient air monitoring network** – includes continuous and time-integrated air monitoring. The Wood Buffalo Environmental Association (WBEA) operates 32 ambient air monitoring stations (AMSs) in the Athabasca Oil Sands Region (including the acute air monitoring station in Fort McKay - Waskōw ohci Pimâtisiwin). The Lakeland Industry and Community Association (LICA) operates 5 AMSs in the Cold Lake Oil Sands Region, and the Peace River Area Monitoring Program (PRAMP) operates 5 AMSs in the Peace River Oil Sands Region. All three airsheds collect time-integrated samples for the National Air Pollution Surveillance (NAPS) program and other parameters that cannot be collected through continuous monitoring. The long-term core air monitoring network was developed to fulfill EPEA Approval compliance monitoring requirements and satisfy community and scientific interests.*

***(2) Recommendations 14/15 in the report "Recurrent Human Health Complaints Technical Information Synthesis – Fort McKay Area" (Alberta Energy Regulatory and Alberta Health, 2016)** - continue to be implemented. Implementation of these recommendations will improve air monitoring consistency within 30 km of Fort McKay and allow improved characterization of the air pollutants and their sources that cause air quality and odour concerns in the community. The WBEA included the funds required to support the Rec 14/15 work in its 25/26 workplan submission, which received a significant budget reduction. As a result, the WBEA's ability to conduct these activities may be impacted by the 25/26 OSM Funding decision.*

***(3) Odour Monitoring** – The WBEA created an odour monitoring app (COMP) that allows the public to provide anonymous information on the odours they experience. The app collects information such as odour type, intensity, duration, time, and location. The long-term project is complete, so the proposed focus for this fiscal year was to be the creation of a 5-year review manuscript and public report; however, this was not supported by the 2025/26 funding decision. The app will be maintained but will no longer be actively advertised. All submitted odour observations and annual reports can be found at www.comp.wbea.org.*

***(4) Transition to an Adaptive Monitoring Approach** – will continue in 2025-26. This will involve a structured approach to: (a) reviewing the existing monitoring network and document the purpose or objective for each station and for each parameter monitored at each station (completed); (b) developing a shared understanding of regulatory and community expectations that will guide any OSM adaptive monitoring framework based adjustments required to the current long-term surveillance program (in progress); (c) determining which air quality parameters are applicable for the Adaptive Monitoring approach (in progress); (d) quantifying baselines for selected parameters (in progress); and (e) establishing limits of change for selected parameters (future work).*

In addition, the Atmospheric Pollutant Active Monitoring Network work plan includes collaboration with two community-based (FMFN and Fort McKay Metis Nation (FMMN)) monitoring projects, one for dust and one for odour that were approved for funding and commenced in 2022-23.

The following section provides details on the Q1 2025-2026 milestones and objectives under Workplan A-LTM-S-1-2526 (Atmospheric Pollutant Active Monitoring Network). Deliverables are from the Government of Alberta contract 24RSD823.

3.1 Continuous Monitoring – Operate 30 ambient air monitoring stations including the acute air monitoring station in Fort McKay (Waskōw ohci Pimâtisiwin - FMAQOAC Recommendation 1).

i. Complete monthly calibrations at all ambient air monitoring stations in the WBEA network in compliance with Alberta's Air Monitoring Directive (AMD). Perform preventative maintenance and repairs, as required.

A total of 257 continuous monitoring analyzers and sensors were operated in the network for quarter four, which included 133 air quality analyzers and 124 meteorological sensors. Average operational uptimes are included in Table 2.

Monthly calibrations were completed at all air monitoring stations, in compliance with the Air Monitoring Directive (AMD). Preventative maintenance and repairs were completed as needed.

Table 2. WBEA Continuous Monitoring Equipment Statistics, by Month, January to March 2025

Month	Average Operational Time (%)	# of Monitoring Equipment with Average Operational Uptime (%)						Total # of Equipment
		< 90*	90 to 92	93 to 94	95 to 96	96 to 98	98 to 100	
January 2025	98.7	8	1	3	10	15	220	257
February 2025	98.6	7	1	4	10	12	223	257
March 2025	99.4	1	1	5	3	17	230	257

*For details on equipment operating at less than 90% uptime, please refer to Section 3.10.ii: Table 8.

ii. Perform annual calibrations on meteorological sensors at air monitoring stations.

Annual meteorological calibrations at each station are conducted throughout the year. Nine calibrations on WS/WD sensors were completed this quarter.

iii. Provide locations of Portable Stations in the WBEA Network.

The locations of portable stations in the WBEA Network for Q1 2025-2026 are listed in Table 3.

Table 3. Location of Portable Stations in WBEA Network, April to June 2025

WBEA Portable Number	April	May	June
AMS 101	WBEA Centre	WBEA Centre	WBEA Centre
AMS 102	Jackfish 1	Jackfish 1	Jackfish 1
AMS 103	Hangingstone Expansion	Hangingstone Expansion	Hangingstone Expansion
AMS 104	WBEA Centre	Sawbones Bay	Sawbones Bay
AMS 105	Bertha Ganter – Fort McKay	Bertha Ganter – Fort McKay	Bertha Ganter – Fort McKay
AMS 106	WBEA Centre	WBEA Centre	WBEA Centre
AMS 28	Kirby North	Kirby North	Kirby North

iv. Provide continuous analyzer operation statistics, by month.

Continuous air quality analyzer operation statistics are provided in Table 4. These totals do not include meteorological sensors. A total of 10 analyzers operated below 90% uptime between January and March 2025. This included 5 THC, 2 TRS, 1 O_3, 1 NH_3, and 1 $PM_{2.5}$.

Table 4. Continuous Analyzer Operation Statistics by Parameter, January to March 2025

Month	No. of analyzer(s) below 90%	SO_2	H_2S	TRS	THC	O_3	NO_2	CO	CO_2	NH_3	$PM_{2.5}$
January 2025	4	0	0	1	1	1	0	0	0	1	0
February 2025	5	0	0	1	4	0	0	0	0	0	0
March 2025	1	0	0	0	0	0	0	0	0	0	1
Numbers of analyzers in the network		27	16	12	20	11	23	4	3	2	15
Total Number of non- compliances In 12 months		2	3	3	16	1	3	0	0	3	2
Percentage of non-compliance by parameter		2.9%	4.4%	4.4%	23.5%	1.5%	4.4%	0.0%	0.0%	4.4%	2.9%

3.2 Time-Integrated Monitoring – Operate and maintain the WBEA's time-integrated sampling network, maintenance, and sample results.

i. Complete routine deployment and collection of time-integrated sampling. Perform preventative maintenance and repairs, as required.

The WBEA collected and deployed a total of 924 samples from January to March 2025 (See Appendix B for time-integrated equipment present at each AMS location). The total number of samples was low in February due to the shorter month and less NAPS days. Details on sample collection incidents and recovery percentages are provided below in Table 5. Incidents leading to invalid samples from this quarter included suspected leaks in canisters and seals, and motor issues.

Preventative maintenance and repairs were conducted by Deposition Technicians, as needed. Examples of maintenance conducted this quarter included troubleshooting issues and replacing or readjusting motors.

Table 5.Time Integrated Sample Collection - Incidents and Recovery, January to March 2025

Month	No. of Incidents	Total No. of samples	% Recovery	# NAPS days	Incidents per Sample Type							
					$PM_{2.5}$	PM_{10}	EC/OC	VOC	PAH	Precip	TSP	Dustfall
January 2025	4	366	98.9	6	0	0	0	1	3	0	0	0
February 2025	2	250	99.2	4	0	1	0	1	0	0	0	0
March 2025	3	308	99.0	5	0	1	0	1	1	0	0	0
Q4 Total	**9**	**924**	**99.0**	**15**	**0**	**2**	**0**	**3**	**4**	**0**	**0**	**0**

ii. Perform quarterly calibrations and audits of sampling equipment.

Quarterly calibrations and audits of time-integrated sampling equipment are to be completed at all stations. All calibrations were completed with most (23) conducted in May 2025.

iii. Make time-integrated data available online.

Time-Integrated data can be accessed online at https://wbea.org/data/time-integrated-data-search/

iv. Submit time-integrated data with annual data report.

Time-Integrated data is submitted as part of the annual data report in Volume 2. The WBEA 2024 Ambient Data Annual Report was submitted March 31st, 2025, and can be found at https://wbea.org/resources-section/annual-data-report/

3.3 Continue the WBEA's Quality Assurance Program

i. Maintain the WBEA's Reference Centre, including monthly calibrations on reference analyzers, perform CGAs, and maintain primary reference materials.

Over the last quarter, regular maintenance and monthly calibrations were carried out on instruments in WBEA's Reference Centre. Routine calibrations were conducted on the reference center's $NO_x/NO/NO_2$ analyzer and ozone photometer in April.

ii. Complete annual internal audits at all WBEA ambient air monitoring stations.

The WBEA has an internal audit program that follows the same procedures as the Alberta EPA; however, the WBEA applies stricter audit criteria allowing the WBEA to initiate investigations and potential maintenance repairs before an AMS analyzer would fail Alberta EPAs audit. Five internal audits were completed this quarter (Table 6).

Table 6. WBEA Internal Audits of AMS Stations, April to June 2025

Air Monitoring Station	Audit Date	Parameters Audited	Audit Response	Follow-up
Mannix	Apr 8, 2025	SO2, H2S, NMHC, all HC study analyzers	All compliance analyzers within audit criteria, further follow-up with HC study analyzers will be required.	Ongoing.
Surmont2	Apr 17, 2025	SO2, H2S, THC, NOX, PM2.5	Small imbalance of channels for NOX/NO analyzer, cause was result of incorrect calibration gas certification values applied during calibration. No other issues observed with audit.	Tech was advised of situation, will monitor for updated certified values in calibration report.
Pihew Point	May 8, 2025	SO2, H2S, NMHC	H2S outside audit criteria, all instruments were responding high by ~5%.	Investigation showed site calibrator dilution flow was outside criteria of flow requirements, calibrated site calibrator. No further follow-up required.
Lower Camp	May 13, 2025	SO2, H2S, NMHC	H2S outside audit criteria, all other instruments within criteria. A recent site calibrator change was applied to all instrument calibrations with exception of H2S for May (H2S scheduled post audit).	None required.
Mildred Lake	May 21, 2025	SO2, H2S, NMHC	No issues observed with audit.	None required.

3.4 Operate the Community Odour Monitoring Program (COMP) App.

The Community Odour Monitoring Program (COMP) was launched in September 2017 with the goal to understand the link between odours experienced in the communities and ambient air quality. Users submit odour observations through the WBEA COMP App. Annual reports of the COMP data were produced between 2018 and 2023 and can be found at https://comp.wbea.org/

A five-year data review was created to examine the link between odour observations and ambient air quality measurements. The data review was first conducted for observations from within the city of Fort McMurray, with the goal to use the same statistical methods for other communities with odour observations.

On October 2nd, 2024, a Special Meeting of the OMP committee was held to decide the future of the COMP program and OMP committee. The COMP program was deemed to have met its goal in understanding the link between odour observations and ambient air quality measurements through the results of the 5-year review. The proposed and accepted future direction included:

- Maintaining the COMP app, which can be repurposed for other specific studies.
- Ending the creation of the COMP annual reports.
- Releasing the manuscript and website-based public report of the 5-year study results. This was planned for 2025 but budget reductions will postpone this publication.
- Ending the OMP committee and moving all odour related activities under the purview of the AATC committee. The AATC accepted the transfer of the activities.

i. Create awareness of the COMP and COMP App for community members.

See details above. No awareness campaigns will be conducted unless a specific study is developed and the use of the data the app collects is defined and approved by the AATC.

ii. Release publicly available annual report on the WBEA website.

See details above. It was decided to end the annual reports, so no report will be made for the 2024 data. Past reports from 2018 to 2023 can be found at https://comp.wbea.org/

3.5 Modify operations and reporting to meet new requirements in the Air Monitoring Directive (AMD).

No changes to the AMD were identified in this quarter; therefore, no modifications in operations or reporting were required.

3.6 Continue partnership with Athabasca Chipewyan First Nation (ACFN) and Mikisew Cree First Nation (MCFN) to create an Indigenous-led air monitoring program in the Peace Athabasca Delta.

The WBEA, ACFN, and MCFN successfully completed the three-year plan to expand the air monitoring capabilities within the community of Fort Chipewyan and support the Air Quality Monitoring in the Peace Athabasca Delta Indigenous Community Based Monitoring (ICBM) work plan. ACFN and MCFN staff operate and maintain the Fort Chipewyan AMS and change-out all time-integrated and deposition samples. This work is ongoing and is now considered routine network operations. Reporting of all data collected through this initiative are included in the WBEA's routine monthly and annual reports, which are submitted to the Alberta EPA, and available on the WBEA's website.

3.7 Provide updates on Special Studies conducted by the WBEA to improve understanding of air quality in the RMWB region, monitoring methods, assessment of technology changes and method validation.

Due to budget reductions in the 2025/2026 fiscal year, the WBEA has paused all special studies which includes the Continuous Hydrocarbon Instrument Evaluation Study and the Continuous Particulate Instrument Evaluation Study.

3.8 Continue operating a Regional Dustfall Monitoring program.

The WBEA's Ambient Air Technical Committee (AATC) approved the proposed Regional Dustfall Monitoring Proposal at the September 14th, 2022, committee meeting. The study is focused on publicly accessible residential and recreational areas and will measure monthly collections of dustfall according to the American Society for Testing and Materials 1739-98 method. Sampling for this program began in November 2022 and was a two-year pilot study, ending in October 2024. Dustfall collectors were deployed at six community air monitoring stations: Bertha Ganter – Fort McKay, Patricia McInnes, Athabasca Valley, Anzac, Janvier, and Conklin.

At the conclusion of the study, a report was created and presented to the WBEA's AATC committee in December 2024. This report compared the dustfall measurements to continuous $PM_{2.5}$, PM_{10}, and TSP measurements, also taken at community AMS. After review and discussion on the program, the committee approved the decision to continue monitoring dustfall at Bertha-Ganter – Fort McKay starting January 2025. At the March 2025 AATC meeting, the opportunity to discuss a potential future regional dustfall program was opened to members but no further action was determined.

3.9 Fulfill monitoring requests from the Fort McKay Air Quality and Odours Advisory Committee (FMAQOAC) Recommendations 14/15 committee in accordance with the schedule outlined in the approved OSM Program work plan. Document all activities completed.

i. Analysis and Reporting of VOC and RSC compounds for the Triggered Samplers.

This project was initiated through the Rec 14/15 committee. The intent was to design and build VOC canister and RSC tube sampling systems to capture triggered samples during events of semicontinuous NMHC and continuous TRS readings in the Fort McKay region. The WBEA designed and ordered two custom-made triggered samplers – one for RSC compounds, based on a methodology the WBEA developed in 2017, and one for VOCs. Both samplers were installed at Bertha Ganter – Fort McKay AMS in February 2022.

An analysis was conducted on all data from October 2022 to October 2024. The results were provided to the Rec 14/15 to determine the future of this sampling. After review of the report and data, the Rec 14/15 decided on the following path forward:

- Discontinue the VOC Triggered Samples since the VOC Gas Chromatograph data has proven to be reliable. The WBEA stopped the triggered VOC Sampling in October 2024.
- Move the RSC Triggered Samples to a process of manual trigger during times of odour experienced by community members in Fort McKay to allow for better understanding of RSC compounds during events of experienced odours within the community.

The RSC Triggered Samples have recently had issues with data validity. The WBEA has been troubleshooting this issue; leak checks were performed, and the instrument passed this test. The instrument was sent back to the manufacturer for software updates and new sample tubes were ordered in hopes of correcting the data issue.

ii. Operation and maintenance of the VOC and RSC Gas Chromatograph analyzers.

Based on funding reductions in the 2025/2026 fiscal year and discussions with the Rec 14/15 committee, the decision was to continue with the VOC GC but pause the RSC GC. Data collection from the VOC GC are currently paused as there were issues and the WBEA needed to source a new calibration gas cylinder. The WBEA is also shifting operations to a remote contractor as the equipment is highly technical and time intensive to maintain.

Data from both the VOC GC and RSC GC are available on the WBEA website under "Other Data" at https://wbea.org/data/time-integrated-data-search/

3.10 Provide data from the WBEA's ambient air monitoring network.

i. Maintain processing, validation, and reporting of all WBEA ambient air quality data. Make all data available on the WBEA's website.

During the first quarter of 2025-2026, monthly ambient air data was reviewed, as per the WBEA's monthly data validation process. Quality controlled Level II data was made available on the WBEA's website 30 days after the end of the calendar month in which the data were collected (https://wbea.org/data/continuous-monitoring-data/)

WBEA time-integrated data was collected and centralized within a database. A catalogue containing sample types, number of data points, and date ranges is available to view on the WBEA website. The catalogue and download page are available at https://wbea.org/data/time-integrated-data-search/

ii. Report exceedances of the Alberta Ambient Air Quality Objectives and Guidelines, and non-compliances of the Air Monitoring Directive to the Alberta Government as established by WBEA's Immediate Reporting Protocol and the Fort McKay Acute Response Triggers (FMART) Process.

The WBEA notifies members of exceedances in the ambient air network using the Air Quality Events app. Exceedances are also reported at quarterly committee meetings and through the WBEA's ambient air monitoring monthly data reports. These reports can be found at https://wbea.org/monthly-continuous-data-and-calibration-reports/

In the fourth quarter of 2024-2025, there were a total of 110 validated exceedances within the WBEA network (Table 7). Exceedances of the TRS AAAQG made up 59% of the exceedances. Users can search all exceedances through the WBEA's Air Quality Events website (https://wbea.org/data/air-quality-events/).

Table 7. Total number of Exceedances by Parameter, from January to March 2025

Event Type	Parameter							Total
	H_2S	$PM_{2.5}$	O_3	SO_2	Dustfall	TRS	TSP	
AAAQG	-	27	-	-	2	65	-	94
AAAQO	11	4	0	0	-	-	1	16
Total	**11**	**31**	**0**	**0**	**2**	**65**	**1**	**110**

Non-compliances of the AMD that occurred in the WBEA network in the fourth quarter of 2024-2025 are listed in Table 8. There were 16 non-compliances during the fourth quarter. January had 8 non-compliances with most due to freezing temperatures impacting the equipment. February had 7 non-compliances and March had 1 non-compliance.

Table 8. WBEA Non-Compliances, January to March 2025

Reporting Period	Date Reported	Alberta EPA Reference Number	Location	Brief Description	Issue	Remedial Action
January	13-Jan-25	436790	Fort Chipewyan	The O_3 analyzer at Fort Chipewyan air monitoring station (AMS) operated less than 90% of January 2025 due to intermittent flatlining.	During the first week of January, the O_3 analyzer flatlined intermittently. The WBEA collaborated with the local Fort Chipewyan technicians to investigate the issue, but the root cause could not be determined, and the issue persisted. A site visit by a WBEA technician was scheduled for January 9. During this visit, the analyzer was replaced, its performance was verified, and normal operations were restored on the same day. Data from this incident was invalidated for a total of 177 hours.	Analyzer was replaced on January 9, 2025.
January	10-Feb-25	437586	Jackfish 1	The wind speed and wind direction (WS/WD) sensor at the Jackfish 1 AMS operated less than 90% of January 2025, due to intermittent flatlining.	Throughout the month of January, the WS/WD sensor froze due to weather conditions, resulting in intermittent flatlining. Operation returned to normal once weather conditions changed. Data from these events were invalidated, resulting in an operational time of 88% for the month of January.	N/A
January	13-Feb-25	437673	Anzac	The wind speed and wind direction (WS/WD) sensor at the Anzac AMS operated less than 90% of January 2025, due to frozen sensors.	During the daily system checks on January 13, 16 and 27, it was noted that the WS/WD readings were incorrect. On January 13, the sensor was frozen due to weather conditions and returned to normal operations after de-icing. On January 16, troubleshooting on-site determined that both the cross arm and sensor were misaligned; adjustments were made to correct the alignment. On January 27, troubleshooting on-site determined the tail of the wind vane was missing. The vane was replaced, and the sensor was properly calibrated. Data from these events were invalidated, resulting in an operational time of 70% for the month of January.	N/A
January	18-Feb-25	437789	Conklin	The wind speed and wind direction (WS/WD) sensor at the Conklin AMS operated less than 90% of January 2025, due to intermittent flatlining.	Throughout the month of January, the WS/WD sensor froze due to weather conditions, resulting in intermittent flatlining. Normal operation returned once weather conditions changed. Data from these events were invalidated, resulting in an operational time of 88% for January.	N/A

January	21-Feb-25	437929	Blackrod	The wind speed and wind direction (WS/WD) sensor at the Blackrod AMS operatedlessthan90% of January 2025, due to intermittent flatlining.	Throughout the month of January, the WS/WD sensor froze due to weather conditions, resulting in intermittent flatlining. In some instances, normal operation returned once weather conditions changed. However, after several days of flatlining, the sensor was removed and thawed on January 20. Data from these events were invalidated, resulting in an operational time of 72.3% for January.	N/A
January & February	21-Feb-25	437908	Fort Chipewyan	The TRS analyzer at Fort Chipewyan AMS operated less than 90% of January and February 2025, due to power failure and TRS converter internal issue.	On January 27, a power failure at the station disrupted the normal operation of all air quality analyzers for 3 hours. The power failure caused a malfunction of the TRS converter, affecting the accuracy of the daily span results. A site visit was scheduled for February 3, the best available time due to the remote location. During the visit the TRS converter was replaced, and its performance was verified. A period of stabilization and adjustment was needed to ensure optimal performance of the analyzer. Normal operation was restored on February 21. During the data validation process, 96 hours of data from January were invalidated, resulting in an operational time of 86.7%. The validation of February data is in progress.	TRS converter was replaced, and normal operation was restored on February 21, 2025.
January & February	21-Feb-25	437900 / 438805	Mannix	The total hydrocarbon (THC)/non-methane hydrocarbon (NMHC)/methane (CH4) analyzer at the Mannix AMS operated less than 90% of January 2025, due to internal pump issue.	During the daily system check on January 23, it was noted that the daily span of the THC/NMHC/CH4 analyzer did not meet criteria. As a result, the analyzer was calibrated, the gas cylinder was replaced, and the span was adjusted that day, which temporarily resolved the issue. During the daily system check on February 6, it was noted that the automated daily span had not occurred. An investigation was completed which identified the internal analyzer pump as the cause. On February 13, the internal pump was replaced, performance was verified, and normal operation of the analyzer was restored. During the data validation process, 133 hours of data, resulting in an 82% operational time, and 183 hours of data, resulting in a 72% operational time, were invalidated for the month of January and February, respectively.	Internal pump was replaced last February 13, 2025.

January	25-Feb-25	438082	Bertha Ganter - Fort McKay	The ammonia (NH3) analyzer at the Bertha Ganter - Fort McKay AMS operated less than 90% of January 2025, due to various maintenance to address low span.	During the daily system check on January 22, it was noted that the daily span was low, and an assessment was needed. Various maintenance activities were completed on January 22 and 23 including analyzer, converter, and pump replacement. Subsequently, a period of stabilization and adjustment was needed to ensure optimal performance of the analyzer. Data for the period was invalidated, resulting in an operational time of 62% for the month of January.	Analyzer was replaced.
February	21-Feb-25	437930	Stony Mountain	The precipitation collector at Stony Mountain AMS18 operated less than 90% of operational time for the month of February 2025, due to excessive false readings.	During the weekly preparation of the time-integrated precipitation sample from Stony Mountain AMS, it was noted that the sample volume did not compare well with the precipitation data from the gauge that is also located at the Stony Mountain AMS, or with data from other precipitation gauges in the WBEA network. It was determined that the precipitation gauge at Stony Mountain was over-reporting precipitation volumes from approximately February 10-February 21 due to an overfilled collection bucket and snow-covered shield. The issue was resolved by emptying the bucket; the standard maintenance that is completed monthly. Data for the period was invalidated, resulting in an operational time of approximately 70% for February.	Bucket was emptied.
February	11-Mar-25	438501	Fort Hills	The total hydrocarbon (THC)/non-methane hydrocarbon (NMHC)/methane (CH4) analyzer at the Fort Hills AMS operated less than 90% of February 2025, due to unstable baseline.	During the daily system check on February 18, the baseline data showed evidence of an instrument issue, therefore, a calibration was performed, which subsequently failed. As a result, the analyzer, zero air generator, and pump were replaced. However, the replacement analyzer also malfunctioned, and additional maintenance was required. Ultimately, on February 25, the analyzer was replaced again, its performance was verified, and normal operation was restored. During the data validation process, 147 hours were invalidated, resulting in an operational time of 82.6%.	Analyzer was replaced and existing analyzer brought back to the WBEA center for shop repairs.

February	11-Mar-25	438503	Wapasu	The wind speed and wind direction (WS/WD) sensor at the Wapasu AMS operated less than 90% of February 2025, due to freezing weather conditions.	At the end of February, the WS/WD sensor froze due to weather conditions, resulting in intermittent flatlining. In some instances, normal operation returned once weather conditions changed. However, in another instance the sensor required removal and thawing. Data from these events were invalidated, resulting in an operational time of 82.6% for January.	Warmer weather and thawing of wind sensors resolved the issue.
February	24-Mar-25	438873	Mildred Lake	The total hydrocarbon (THC)/non-methane hydrocarbon (NMHC)/methane (CH4) analyzer at the Mildred Lake AMS operated for less than 90% of February 2025, due to two different issues.	Throughout February, two issues impacted the operation of the THC/NMHC/CH4 analyzer, leading to 110 hours of invalid data, resulting in an 83% operational time for the month: • On February 1, excessive baseline noise was observed in the data. Maintenance was performed, which included analyzer and gas calibration cylinder replacement and an overnight column bake-out followed by calibration and performance verification. Normal operation was restored on February 4. Data during this period was invalidated, resulting in a total of 76 hours. • From February 23 to 25, intermittent power failures at the station disrupted the normal operation of the analyzer. Power was restored on February 25, and normal operation resumed. Data during this incident was invalidated, resulting in a total of 34 hours.	The gas chromatograph column of the analyzer was conditioned overnight.
February	26-Mar-25	438975	Patricia McInnes	The total hydrocarbon (THC)/non-methane hydrocarbon (NMHC)/methane (CH4) analyzer at the Patricia McInnes AMS operated less than 90% of February 2025, due to unstable baseline.	Throughout the month of February, excessive baseline noise was consistently observed in the data. In response, the WBEA investigated and carried out several troubleshooting and maintenance procedures, including multiple adjustments to the span and zero, and replacement of the daily zero span valve, support gas cylinder, and actuator. Despite these efforts, the issue remained unresolved. On February 25, the analyzer was replaced, its performance was verified, and normal operation resumed. During the data validation process, a total of 174 hours of data were invalidated, resulting in an operational time of 74%.	Analyzer was replaced and existing analyzer brought back to the WBEA center for shop repairs.

March	02-Apr-25	439190	Barge Landing	The PM2.5 analyzer at Barge Landing air monitoring station (AMS) operated for less than 90% of March 2025, which is a contravention of the Air Monitoring Directive (2016, as amended), due to unstable baseline signal.	On March 24, during the daily system check, the WBEA reviewed the PM2.5 data to confirm the validity of two Alberta Ambient Air Quality Objective (AAAQO) exceedances that had been reported on March 22 and 23. An unusual cyclical pattern in the PM2.5 data was noted; therefore, instrument maintenance was conducted that day which included cleaning of the optical chamber and standard checks to ensure proper performance of the analyzer. It was determined the reported AAAQO exceedances were not valid and both AB EPA and the associated approval holder were notified. The monthly data validation process confirmed unstable operation of the PM2.5 analyzer from March 20 to March 24, resulting in a total of 85 hours of invalid data and an operational time of 89% for the month of March.	On-site maintenance was completed to clean the optical chamber followed by routine field checks.

iii. Provide real-time air quality data from continuous air monitoring stations to EPA real-time website in the required format.

Real-time air quality data is provided on a continual basis to Alberta EPA via a secure file upload from the WBEA Data Management System.

iv. Submit Monthly Ambient Air Monitoring Report to the Alberta Government and submit data to the EPA Air Data Warehouse.

Table 9 lists the Monthly Air Monitoring Reports and Quality Assured Data that were submitted electronically via the Electronic Transfer System (ETS) to Alberta EPA.

Table 9. Schedule of Monthly Air Monitoring Reports and Quality Assured Data Submissions from January to March 2025

Monthly Air Monitoring Report and Quality Assured Data	Date Submitted
January 2025	February 28, 2025
February 2025	March 31, 2025
March 2025	April 30, 2025

v. Provide WBEA data to citizens, industry members, regulatory bodies, and governments so that it can be used to make informed decisions on health, facility compliance, and environmental management and policy. All data management and accessibility outcomes will be in alignment with the OSM Program direction.

The WBEA makes data accessible on the WBEA website. Data is further disseminated through the Alberta Data Warehouse, community outreach activities, and through WBEA committee meetings. The WBEA engages with members including Indigenous communities, industry, three levels of government, and non-government organizations. The WBEA works with Alberta EPA and OSM Program staff to ensure data management and accessibility outcomes are aligned.

vi. Any data not submitted to the Alberta Data Warehouse or not on the WBEA website will be provided directly to Alberta EPA in an agreed upon format within three months of data collection.

If data is not submitted to the Alberta Air Data Warehouse or not posted on the WBEA website, the WBEA will provide the data to Alberta EPA in an agreed-upon format within three months of data collection.

vii. Submit the WBEA Continuous Ambient Air Quality Monitoring Program Annual Report 2024 – Volume 1 Continuous Data; Volume 2 Integrated Data; and Volume 3 Site Documentation.

The 2024 Ambient Air Monitoring Data Annual Report was submitted March 31st, 2025, and is available online at https://wbea.org/resources-section/annual-data-report/.

3.11 Participate in Oil Sands Monitoring (OSM) Program related to optimizing and improving the active air monitoring network in the Athabasca Oil Sands Region (AOSR).

i. Participate in OSM Program Committees, activities, workshops, and webinars.

From April to June 2025, the WBEA participated in the OSM Air and Deposition TAC meetings, as required.

ii. Implement any additions, deletions, or any other changes to the WBEA active air monitoring network consistent with approved OSM Program workplan(s).

Based on the budget reductions and required amendments to the 2025-2026 workplan, the following projects were ended or paused:

- All activities related to the Network Assessment recommendations were paused.
- Hydrocarbon study at AMS 5 was discontinued.
- PM study at AMS 13 was discontinued.
- Aethalometer at AMS 1 and 18 were discontinued.
- The RSC GC was paused after discussions with Rec 14/15.
- EC/OC Sampling paused.
- COMP 5-year report and publication paused.
- CO and CO_2 monitoring at AMS 8, AMS 1, and AMS 18 was discontinued.

iii. Document any additions, deletions, or any other changes to the WBEA continuous or time-integrated air monitoring network not indicated previously. Identify and describe any deviations from the approved OSM Program.

Based on the 2025-2026 workplan, there were no additions, deletions, or other changes to the WBEA continuous or time-integrated air monitoring network that were not previously identified.

iv. Participate in development of Adaptive Monitoring Approach for Active Air Monitoring Network.

From April to June 2025, the WBEA participated in the OSM Air and Deposition TAC meetings, as required.

4. Integrated Atmospheric Deposition Monitoring, 2024-2025 Work Plan Reference A-PD-6-2425

Atmospheric deposition is a critical pathway that links stressors to responses. Deposition monitoring data are used by the Oil Sands Monitoring Program to assess responses, and to help determine the source(s) of stressors.

The overall objectives of this project are:

(1) Determine levels and changes of atmospheric deposition for specific pollutants that pose a likely risk for forest, river, lake, and wetland ecosystem function

(2) Quantify the contribution of OS emissions to deposition of pollutants of concern, particularly at ecological monitoring sites, and provide these data to ecological effects monitoring projects

(3) Deliver model outputs and deposition data required by other themes and OSM Program participants

This work plan monitors the spatial and temporal changes in deposition of pollutants of concern at relevant ecological monitoring sites, including: acidifying (e.g., nitrogen, sulphur), alkalizing (i.e., base cations) and eutrophying (e.g., nitrogen) pollutants at forest and wetland sites; and contaminants (i.e., polycyclic aromatic compounds (PACs), other organic carbon compounds and trace metals) at forest, wetland, and aquatic sites. This work plan also contains environmental effects monitoring of soil and forest health indicators at co-located deposition monitoring sites. This allows for an assessment of if/how deposition is affecting forests.

Source apportionment analyses and chemical transport models can both determine the contribution of specific OS and non-OS sources to deposition. Deposition modelling and GIS techniques will support the estimation of deposition at ecological monitoring sites where deposition is not actually measured, and allow for determination of contribution of OS sources. The key modelling tool that will enable the above is GEM-MACH, which is an observation-evaluated tool that simulates emissions, transport, transformation, and deposition, and is used for scenario testing. GEM-MACH will be used in a 'service delivery role by 2024 (e.g., providing annual deposition maps, scenario-testing), with transition to that role finishing 2022-23, including comparison against surface observations. Beyond 2024, GEM-MACH will undergo periodic evaluations and updates as emissions evolve and inputs/science improves.

The following section provides details on the Q1 2025-2026 milestones and objectives under Workplan A-PD-6-2526 (Integrated Atmospheric Deposition Monitoring) and is based off the deliverables in the Government of Alberta contract 24RSD828.

4.1 Operate and maintain the Denuder sampling program, including routine sample changeouts and equipment maintenance.

Routine denuder sample changeouts are completed monthly at all sites (Figure 1). Dates for this quarter's denuder changeouts are:

April Changeout - March 31st and April 2nd to 3rd, 2025
May Changeout - April 30th and May 1st to 2nd, 2025
June Changeout - June 2nd to 4th, 2025

A denuder design update to improve temperature control and flow rate precision was started in August 2023. A review of the data and observations made by the Deposition Technicians indicated an issue with the flow rate. The actual flow rate differed from the rate logged by ~0.5. Denuder data is in the process of being reviewed and corrected, as the flow rate is used in the calculation of concentrations. Recent flow calibrations and audits have led to overall more consistent flow rates across the network.

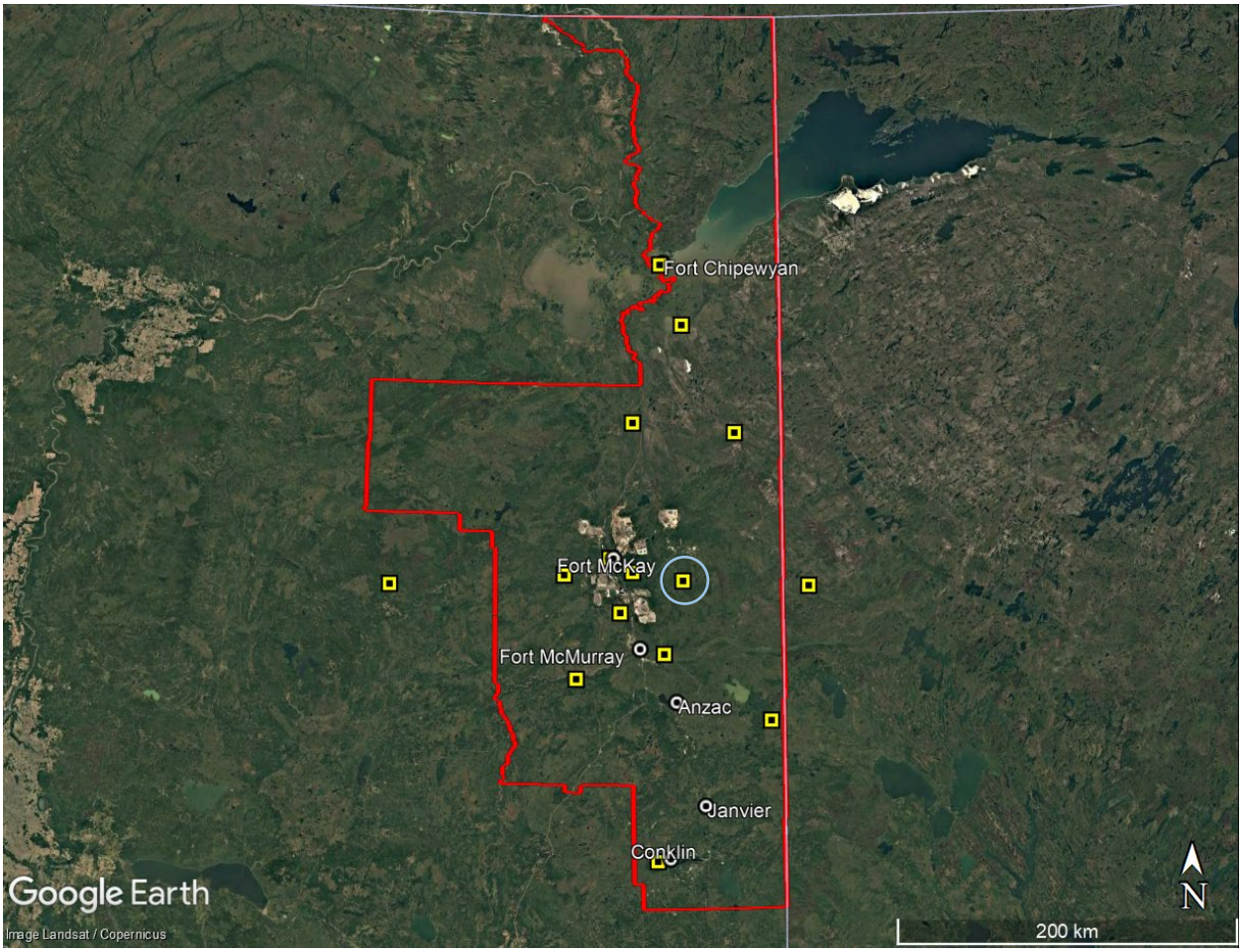

Figure 1. Map of the current denuder locations with co-located passives (yellow symbols). The denuder circled in light blue shows the location of the new 3017 tower with denuder and passives.

In December 2022, the TEEM committee approved a new tower location (site 3017) as part of the Denuder Expansion Program Proposal. The DML needed to install the tower was received in summer 2024. A 30m tower was slung by helicopter to the site and installed by contractors between June 3rd to June 6th, 2025. WBEA Deposition Technicians visited the site from June 16th to 20th to install solar panels and monitoring equipment on the tower. The first samples will be deployed for July 2025.

4.2 Operate and maintain the Passive sampling program, including routine sample changeouts and equipment and site maintenance.

All passives are co-located with a denuder (see Figure 1 for locations). Passives sample for Nitrogen Dioxide (NO_2), Ozone (O_3) and Sulphur Dioxide (SO_2). Passive sampler changeouts are completed monthly and dates for this quarter's passive changeouts are:

April Changeout: March 31st and April 2nd to 3rd, 2025
May Changeout: April 30th and May 1st to 2nd, 2025
June Changeout: June 2nd to 4th, 2025

A tower with passive monitoring equipment was installed at site 3017 (see section 4.1 for more details). Monitoring will begin July 2025.

4.3 Operate and maintain the Ion Exchange Resins network sampling program, including routine sample changeouts and equipment and site maintenance.

The spring routine IER sample changeout occurred from April 30th to May 12th, 2025. The field campaign was successful with 400 samples changed at 50 different sites (Figure 2). In June, site visits and maintenance were conducted as needed. The next routine sample changeout will occur in October 2025.

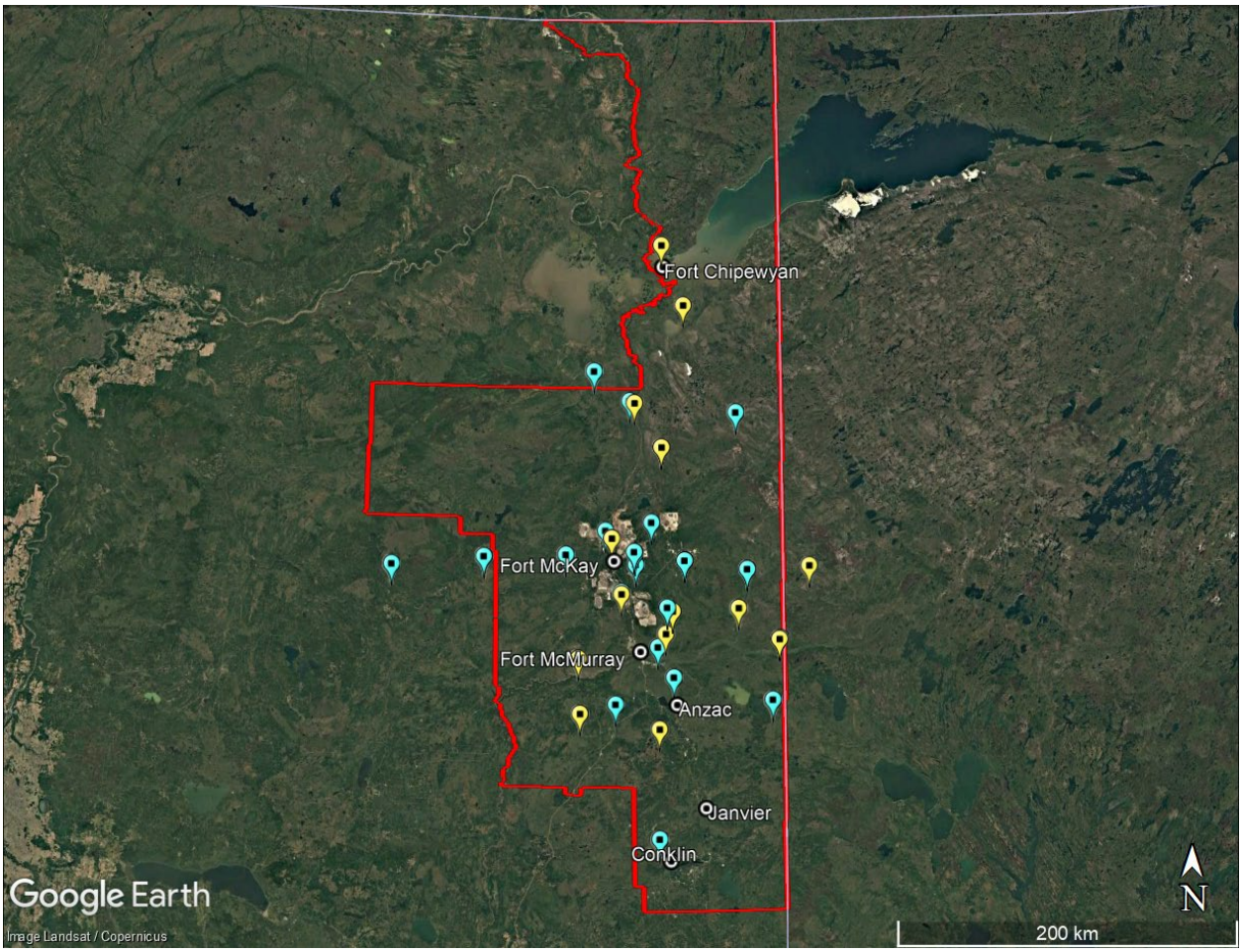

Figure 2. Map of the current IER freefall (yellow symbols) and throughfall (blue symbols) sites.

4.4 Operate and maintain the Turf Surrogate Surface Sampler pilot program, including routine sample changeouts, equipment and site maintenance, and data review.

The Turf Surrogate Surface Sampling (TSSS) project was initiated to collect dry-depositing gases using a method based on trials conducted in the USA. The TSSS consists of a disk-shaped airfoil supporting an artificial turf disk, which aims to collect the gases without altering the existing turbulent flow. Two TSSS collectors were deployed between June and October 2023. Data was reviewed and several issues were identified. In June 2024, the TEEM committee passed a motion to pause the project until these issues could be resolved.

4.5 Operate and maintain the Remote Ozone Network monitoring program, including routine and preventative maintenance, and data review.

The Remote Ozone Monitoring program was proposed to and approved by the TEEM Committee at the September 14th, 2022, meeting. The program was created to provide continuous 15-minute measurements of ozone and meteorological conditions in remote areas around the RMWB during the annual growing season (i.e., April through October). The two main objectives of the Remote Ozone Program are to (1) measure ground-level ozone increases due to stratosphere-troposphere exchange

(STE), and (2) measure the transformation of ozone created as a secondary pollutant from oil sands emissions (ROM). Initial deployment of the equipment in 2022 indicated the equipment was very sensitive to cold temperatures. The WBEA purchased cold-weather kits for the unit and trialed deployment at Athabasca Valley AMS from November 2023 to February 2024. Results showed that although the unit turns off in extreme temperature drops, it will turn back on when temperatures rise and thus the ozone monitoring program was initiated in early 2024 at a total of four locations.

STE Program: On February 28th, 2024, an ozone analyzer was deployed remotely at site 2001; this site was chosen since it is to the north-west and therefore ozone levels would not be influenced by industrial emissions and could instead capture the stratosphere-troposphere exchange. The analyzer remains deployed and is collecting data.

ROM Program: Three ozone analyzers were deployed in early May 2024. Two analyzers were deployed at remote locations (4002 and 4914) and one analyzer was co-located at AMS 17 (Wapasu station) which has a continuous ozone monitor, allowing for comparison among the two equipment types.

All ozone units were removed from the field in October 2024. Post-field calibrations and audits on the equipment was completed.

4.6 Operate and maintain the Meteorological Towers data collection program, including tower inspections and maintenance, equipment maintenance, and annual calibrations.

The Regional Meteorological Network (MET) provides multi-level continuous, hourly measurements of meteorological conditions in remote areas around the Wood Buffalo region. The WBEA operates six meteorological towers. Data collected by these towers are used for deposition calculations and modelling. All remote meteorological data is reviewed weekly and validated monthly.

Tower conditions were checked visually during routine monthly sampling. Maintenance was scheduled as needed.

4.7 Provide an update on the Forest Health Monitoring program, including site maintenance, data review, and planning for the 2024 campaign.

The Forest Health Monitoring (FHM) program was established in the 1990s to examine the effects of deposition on soil chemistry and vegetation in mature Jack Pine forests. Field work to collect data is completed every six years.

2024 FHM Field Campaign: The intensive field sampling campaign began August 1st, 2024. Twenty-four of the twenty-five Forest Health sites were completed; one site (4015) was burned in the 2024 wildfires and could not be sampled. Measurements of trees and understory vegetation, needle samples and soil samples were collected at each site. Some flight delays occurred due to heavy smoke and fog in the region. Fieldwork concluded on September 16th.

All data has been received from the labs and have undergone QA reviews by WBEA staff and science advisor team. Tasks for this quarter focused on continued data analysis to understand the long-term changes in soil and vegetation at the FHM sites.

2024 FHM Focus Studies: Two focus studies were approved by the TEEM committee and added to the 2024-2025 OSM Workplan. This included:

Indigenous Indicator - Deposition Impacts on *Cladonia mitis* Lichen (Focus Study): The WBEA proposed the addition of *Cladonia mitis* (Caribou lichen), a ground-dwelling lichen that is a key food source to the Woodland Caribou and makes up a major component to the understory biomass at the jack pine sites. The proposal included lichen collection at the 25 forest health sites at the same time as the long-running sampling of the epiphytic lichen (*Hypogymnia physodes*). Ecological observations were also collected on the health of the lichen and surrounding jack pine forest.

The sampling program ran from September 9th to September 25th, 2024, *C mitis* was collected at 19 of the 25 Forest Health sites and *H physodes* was collected at 21 of the 25 Forest Health sites; past wildfires were the main reason for the absence of lichen at a site. Eight communities participated in the lichen collection. Ecological observations were collected at all sites visited.

Tasks for this quarter focus on:

- Finalizing, printing, and distributing the FHM Report Volume 1 – Ecological Observations
- Awaiting laboratory analysis results
- Developing the framework for the FHM Report Volume 2 – Data Analysis

Indigenous Indicator – Deposition Impacts on Traditional Food (Focus Study): The WBEA proposed the addition of blueberry collection and analysis at eight sites with known deposition levels. Ecological observations were also collected on the health of the blueberries.

Seven sites were sampled between August 12 – 16th, 2024. Due to heavy smoke, one helicopter day was not possible, which corresponded to a loss of two sites; in response to this, one truck accessible site was added to the program. Five communities participated in the blueberry collection. Ecological observations were collected at all sites visited. All samples were shipped to the labs for analysis in mid-August.

Tasks for this quarter focused on:

- Finalizing, printing, and distributing the FHM Report Volume 1 – Ecological Observations
- Data analysis of blueberry concentrations in correlation with soil chemistry
- Developing the framework and beginning writing the FHM Report Volume 2 – Data Analysis

Forest Health Workshops: A series of planning workshops was initiated in 2023, with the goal to (1) align all WBEA members on the FHM objectives and history, and (2) review and determine the path forward of the FHM program. Workshops have been held:

Workshop 1 – November 7th and 8th, 2023
Workshop 2 – January 30th and 31st, 2024
Workshop 3 – April 10th and 11th, 2024
Workshop 4 – February 19th and 20th, 2025
Field Workshop – Date TBD (Sept 2025)
Workshop 5 – Date TBD (early 2026)

The workshop series has been influential in the progress of the FHM program. Each workshop sees increasing attendance with the last workshop having 56 individuals attend. The first three workshops focused on understanding the program and priority indicators for monitoring. This process led to the establishment of the two 2024 FHM Focus Studies (see above). Workshops 4 and 5 focus on understanding the results, reviewing technical reports, and preparing for future programs.

4.8 Provide an update on the 2021 Lichen sampling program.

All lichen samples collected as part of the 2021 regional lichen monitoring program have undergone laboratory analysis and data has been received. The data was reviewed and issues with some of the data, particularly the trace metals, were noted. The contracted lab was contacted to attempt to figure out the issues. The WBEA's ASG lab was contacted to do method development and a trial analysis of the 2021 samples to compare results. A subset of the 2021 samples were run and trace metal results looked good. ASG will now run a subset of the 2017 samples to further results validation and will analyze the rest of the 2021 samples. Once data has been validated, the analyses can continue, and a report and publication are planned. Due to budget cuts this 25/26 fiscal, this will not be completed until 2026.

4.9 Data & Reporting

i. Maintain public access to WBA deposition data via the WBEA website.

Public access to the searchable deposition database, plus additional datasets in excel files, can be found at https://wbea.org/data/time-integrated-data-search/

ii. Provide support for ongoing analysis and interpretation of deposition monitoring and modeling data.

The WBEA Science Advisors continue to support the OSM Model-Measurement Intercomparison. In addition, support for analysis and interpretation of WBEA data is provided upon request.

iii. Provide WBEA data to citizens, industry members, regulatory bodies and governments, so that it can be used to make informed decisions on health, facility compliance, and environmental management policy. All data management and accessibility outcomes will be in alignment with the OSM Program direction.

Data collected under the Integrated Atmospheric Deposition Monitoring workplan is available to view on and/or download from https://wbea.org/data/time-integrated-data-search/. Users can search the WBEA's catalogue of data and can filter for specific sample types, date ranges, etc.

4.10 Changes to the Monitoring Network.

i. Participate in Oil Sands Monitoring (OSM) Program committees, activities, workshops and webinars related to optimizing and improving the atmospheric deposition monitoring network in the AOSR.

From April to June 2025, the WBEA participated in the OSM Air and Deposition TAC meetings, as required.

ii. Implement any additions, deletions or any other changes to the WBEA atmospheric deposition monitoring network consistent with approved OSM Program work plan(s).

Based on the budget reductions and the subsequent amendment of the 2025-2026 workplan, the following projects were ended or paused:

- Implementation of the Southern Monitoring Plan, developed through the Network Assessment, was paused.
- The number of planned FH workshops was reduced from 3 to 1.5.
- Site maintenance at FH sites was paused.

iii. Document any additions, deletions or any other changes to the WBEA atmospheric deposition monitoring network not indicated previously. Identify and describe any deviations from approved OSM Program work plan(s).

Based on the 2025-2026 workplan, there were no additions, deletions, or other changes to the WBEA deposition monitoring network this quarter that were not previously identified.

5. Appendix A – Adhering to Contract Clauses

Clause 9

As per Clause 9, Personnel Replacement, of the WBEA Contracts with Alberta EPA, the WBEA is required to report any changes to the list of key personnel. Three changes to WBEA key personnel have been made this quarter. Sanjay Prasad retired from the Executive Director role, Emilie Briggs moved from her role as Operations Manager to Executive Director, and Dianne McIsaac moved from her role as Stakeholder Engagement Coordinator to Operations Manager. Changes were communicated to the Alberta EPA within five business days of the change.

Clause 12

As per Clause 12, Conflicts of Interest and Ethical Conduct, of WBEA's Contracts with Alberta EPA, the WBEA is required to report all potential or perceived conflicts of interest. The WBEA noted the following potential or perceived conflicts of interest during this reporting period (Table 10). These conflicts are communicated to the Alberta EPA via email within five business days of each meeting.

Table 10. Declared Conflicts of Interest in Q1, April to June 2025

Date	Meeting	Member (Name and Organization)		Declared Conflict of Interest
April 11, 2025	GC Meeting	Ryan Abel	Fort McKay First Nation	Participates on OSM Air and Deposition TAC and OSM Oversight Committee as alternate and OSM Indigenous Caucus
April 23, 2025	TIKC	Braya Quilty	Fort Chipewyan Métis Nation	Participates on OSM Indigenous Community-Based Monitoring Advisory Committee (ICBAC)
May 14, 2025	Special AATC – TEEM	David Spink	Fort McKay First Nation	Participates on OSM Air and Deposition TAC, participated in two Indigenous Community Based Monitoring (ICBM) project submissions that involve the WBEA (Fort McKay Métis Nation – odour project & Fort McKay First Nation – dust project). Member of FMAQOAC project team and Rec 14/15 subcommittee.
		Danlin Su	Fort McKay First Nation	Participated in two ICBM project submissions that involve the WBEA (Fort McKay Métis Nation – odour project & Fort McKay First Nation – dust project)
		Courtney Brown	Canadian Natural	Participates on OSM Air and Deposition TAC
		Greg Wentworth	EPA	Works for EPA and participates on OSM Air and Deposition TAC. Chair of the Rec 14/15 subcommittee
		Laurie Cheperdak	Alberta Health	Participate on Rec 14/15 subcommittee and co-chair of FMAQOAC project
		Denise Golden	Fort McKay Metis Nation	Participates on programs also funded by OSM Air and Odour Programs
		Carla Davidson	Fort McKay First Nation	Participates on OSM's Oversight committee
May 16, 2025	GC Meeting	Ryan Abel	Fort McKay First Nation	Participates on OSM Air and Deposition TAC and OSM Oversight Committee as alternate and OSM Indigenous Caucus

June 4, 2025	TEEM	Greg Wentworth	Alberta EPA	Works for EPA and participates on OSM Air and Deposition TAC
		Courtney Brown	Canadian Natural	Participates on OSM Air and Deposition TAC
		Carla Davidson	Fort McKay First Nation	Participates on OSM's Oversight committee
		David Spink	Fort McKay First Nation	Participates on OSM Air and Deposition TAC, participated in two Indigenous Community Based Monitoring (ICBM) project submissions that involve the WBEA (Fort McKay Métis Nation – odour project & Fort McKay First Nation – dust project)
June 11, 2024	AATC	David Spink	Fort McKay First Nation	Participates on OSM Air and Deposition TAC, participated in two Indigenous Community Based Monitoring (ICBM) project submissions that involve the WBEA (Fort McKay Métis Nation – odour project & Fort McKay First Nation – dust project)
		Danlin Su	Fort McKay First Nation	Participated in two ICBM project submissions that involve the WBEA (Fort McKay Métis Nation – odour project & Fort McKay First Nation – dust project)
		Courtney Brown	Canadian Natural	Participates on OSM Air and Deposition TAC
June 13, 2025	GC Meeting	Ryan Abel	Fort McKay First Nation	Participates on OSM Air and Deposition TAC and OSM Oversight Committee as alternate and OSM Indigenous Caucus
June 24, 2025	GM Meeting	Chris Heavy Shield	Chipewyan Prairie Dene First Nation	Participates on the OSM Oversight Committee
		Ryan Abel	Fort McKay First Nation	Participates on OSM Air and Deposition TAC and Oversight Committee as alternate, and Indigenous Caucus
		Luc White	ECCC	Works for ECCC
		Doug Thrussell	AEPA	Works for AEPA

6. Appendix B – Summary of Air Monitoring Stations & Parameters in the WBEA Network

Continuous Monitoring Measurements

Table 11 provides a list of stations names and parameters measured by continuous methods, which include sulphur dioxide (SO_2), nitric oxide/nitrogen dioxide (NO/NO_2), ozone (O_3), $PM_{2.5}$, total reduced sulphur (TRS), hydrogen sulphide (H_2S), total hydrocarbons (THC), methane (CH_4), non-methane hydrocarbons (NMHC), carbon monoxide (CO), carbon dioxide (CO_2) and ammonia (NH_3).

Table 11. Summary of stations and continuously measured parameters at WBEA AMS

Station name	SO_2	$NO/NO_2/NO_X$	O_3	$PM_{2.5}$	TRS	H_2S	THC	CH_4	NMHC	CO	CO_2	NH_3
BERTHA GANTER-FORT MCKAY	X	X	X	X	X	X	X	X	X	X*	X*	X
MILDRED LAKE	X					X	X	X	X			
BUFFALO VIEWPOINT	X	X	X	X		X	X	X	X			
MANNIX	X					X	X	X	X			
PATRICIA MCINNES	X	X	X	X	X		X	X	X			X
ATHABASCA VALLEY	X	X	X	X	X		X	X	X	X		
FORT CHIPEWYAN	X	X	X	X	X					X*	X*	
BARGE LANDING	X	X		X	X		X	X	X			
LOWER CAMP	X					X	X	X	X			
FORT MCKAY SOUTH	X	X	X	X	X		X	X	X			
ANZAC	X	X	X	X	X		X	X	X			
WAPASU	X	X	X	X		X	X					
STONY MOUNTAIN	X	X	X	X	X		X	X	X	X*	X*	
FIREBAG	X	X				X	X					
MACKAY RIVER	X	X				X	X					
CONKLIN	X	X	X	X	X		X	X	X			
JANVIER	X	X	X	X	X		X	X	X			
FORT HILLS	X	X		X	X	X	X	X	X			
WASKOW OHCI PIMATISIWIN	X					X						
JACKFISH 2/3	X	X				X						
SURMONT 2	X	x		X		X						
ELLS RIVER	X	X		X	X		X	X	X			
LEISMER	X	X				X						
SAWBONES BAY	X	X				X						
JACKFISH 1	X	X				X						
KIRBY SOUTH	X	X				X	X					
KIRBY NORTH	X	X				X	X					
BLACKGOLD	X	X				X	X					
HANGINGSTON EXPANSION	X	X				X						
MONDAY CREEK	X	X				X						
BLACKROD	X	X				X	X					

** Due to 25/26 budget reductions, CO and CO_2 sampling was stopped at the end of May 2025.*

Continuous Meteorological Measurements

Table 12 provides a listing of stations and meteorological parameters measured by continuous methods. Parameters measured include ambient temperature (Temp), relative humidity (RH), barometric pressure (BP), wind speed (WS), wind direction (WD), vertical wind speed (VWS), global radiation, precipitation, and leaf wetness.

Table 12. Summary of stations and meteorological parameters measured continuously at WBEA AMS

Station name	Temp	RH	BP	WS	WD	VWS	Global Radiation	Precipitation	Leaf Wetness
BERTHA GANTER-FORT MCKAY	X[1,2]	X[1]		X[2]	X[2]		X	X	X
MILDRED LAKE	X[1]	X[1]		X[2]	X[2]				
LOWER CAMP MET TOWER	X[4]	X[4]		X[4]	X[4]	X[4]			
BUFFALO VIEWPOINT	X[1]	X[1]		X[2]	X[2]				
MANNIX	X[5]	X[5]		X[5]	X[5]	X[5]			
PATRICIA MCINNES	X[1]	X[1]		X[2]	X[2]				
ATHABASCA VALLEY	X[1]	X[1]	X	X[2]	X[2]				
FORT CHIPEWYAN	X[1]	X[1]		X[2]	X[2]		X		X
BARGE LANDING	X[1]	X[1]	X	X[2,3]	X[2,3]				
LOWER CAMP	X[1]	X[1]	X	X[2]	X[2]				
FORT MCKAY SOUTH	X[1]	X[1]		X[2]	X[2]				
ANZAC	X[1]	X[1]		X[3]	X[3]				X
WAPASU	X[1]	X[1]		X[2]	X[2]			X	
STONY MOUNTAIN	X[1]	X[1]		X[3]	X[3]		X	X	X
FIREBAG	X[1]	X[1]		X[2]	X[2]				
MACKAY RIVER	X[1]	X[1]		X[2]	X[2]			X	
CONKLIN	X[1]	X[1]		X[2]	X[2]				
JANVIER	X[1]	X[1]		X[2,3]	X[2,3]				
FORT HILLS	X[1]	X[1]		X[2]	X[2]				
WASKOW OHCI PIMATISIWIN	X[1]	X[1]		X[2]	X[2]				
JACKFISH 2/3	X[1]	X[1]		X[2]	X[2]				
SURMONT 2	X[1]	X[1]		X[2]	X[2]				
ELLS RIVER	X[1]	X[1]		X[2]	X[2]		X		
LEISMER	X[1]	X[1]		X[2]	X[2]				
SAWBONES BAY	X[1]	X[1]		X[2]	X[2]				
JACKFISH 1	X[1]	X[1]		X[2]	X[2]				
KIRBY SOUTH	X[1]	X[1]		X[2]	X[2]				
KIRBY NORTH	X[1]	X[1]		X[2]	X[2]				
BLACKGOLD	X[1]	X[1]		X[2]	X[2]				
HANGINGSTONE EXPANSION	X[1]	X[1]		X[2]	X[2]				
MONDAY CREEK	X[1]	X[1]		X[2]	X[2]				
BLACKROD	X[1]	X[1]		X[2]	X[2]				

[1] Parameter measured at 2m.
[2] Parameter measured at 10m.
[3] Parameter measured at 20m.
[4] Parameter measured at multiple elevations (i.e., 20m, 45m, 100m, 163m).
[5] Parameter measured at multiple elevations (i.e., 20m, 45m, 75m, 90m).

Time-Integrated Analysis Measurements

Table 13 provides a listing of stations and air quality parameters measured by time-integrated methods. Parameters measured include volatile organic compounds (VOC), particulate matter less than 2.5 µm aerodynamic diameter ($PM_{2.5}$) and associated metals and ions, elemental carbon-organic carbon (EC/OC), particulate matter less than 10 µm aerodynamic diameter (PM_{10}) and associated metals and ions, polycyclic aromatic hydrocarbons (PAH), precipitation samples, dustfall, and total suspended particulates (TSP).

Table 13. Summary of parameters measured using Time-integrated methods at WBEA AMS

Station name	VOC	$PM_{2.5}$	EC/OC*	PM_{10}	PAH	Precip	TSP	Dustfall
BERTHA GANTER-FORT MCKAY	X	X	X	X	X	X		X
PATRICIA MCINNES	X	X		X	X			
ATHABASCA VALLEY	X	X		X	X			
FORT CHIPEWYAN	X	X	X	X	X			
BARGE LANDING	X							
FORT MCKAY SOUTH	X			X				
ANZAC	X	X		X	X			
WAPASU			X			X		
STONY MOUNTAIN			X			X		
CONKLIN	X	X		X	X			
JANVIER	X	X		X	X			
FORT HILLS	X			X				
ELLS RIVER	X			X			X	
CANADIAN NATURAL DF1								X
CANADIAN NATURAL DF2								X
CANADIAN NATURAL DF3								X
CANADIAN NATURAL DF4								X
CANADIAN NATURAL DF5								X

** Due to 25/26 budget reductions, EC/OC sampling was stopped at the end of May 2025.*

Additional Continuous/Semi-continuous Measurements

Table 14 provides a list of stations and continuous/semi-continuous methods that are additional to standard monitoring techniques. Parameters measured include AE33 aethalometer (measures black carbon), visibility sensor, volatile organic compounds (VOC) gas chromatograph (GC), and triggered RSC sampling.

Table 14. Summary of stations and continuous/semi-continuous methods at WBEA AMS

Station name	AE33 Aethalometer*	Visibility Sensor	VOC GC	Triggered RSC
BERTHA GANTER-FORT MCKAY	X		X	X
BUFFALO VIEWPOINT		X		
LOWER CAMP		X		
STONY MOUNTAIN	X			

** Due to 25/26 budget reductions, aethalometer monitoring was stopped during this quarter.*

Research and Development Measurements

Table 15 provides a list of stations and studies conducted by the WBEA for research and development purposes. Due to budget reductions for the 25/26 fiscal year, both studies conducted at WBEA Air Monitoring Stations, the Continuous Hydrocarbon Instrument Evaluation Study, and the Continuous Particulate Instrument Evaluation Study, were paused for this year.

Table 15. Summary of stations and studies for research and development at WBEA AMS

Station name	Continuous Hydrocarbon Instrument Evaluation Study	Continuous Particulate Instrument Evaluation Study
MANNIX	X, Paused	
FORT MCKAY SOUTH		X, Paused

7. Appendix C – Map of the WBEA Monitoring Network