Wood Buffalo Environmental Association

Progress Report

2025-2026

Q2: July- September

SUBMITTED OCTOBER 2025

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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 (2025-2026 Q1) 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 Q2 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 a network of 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.

In April and May 2025 there were 263 analyzers and meteorological sensors operating in the network. This dropped to 257 in June due to the removal of the CO and CO_2 analyzers which was a result of budget reductions. Average operational uptimes for all equipment are included in Table 2.

Monthly calibrations were completed at all air monitoring stations, in compliance with the Air Monitoring Directive (AMD), with the exception of the $PM_{2.5}$ May calibration at the Fort Chipewyan AMS. The missed calibration was reported as required and is outlined in Table 8. Preventative maintenance and repairs were completed as needed.

Table 2. WBEA Continuous Monitoring Equipment Statistics, by Month, April to June 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	
April 2025	99.3	2	0	4	6	8	243	263
May 2025	98.7	4	4	8	1	5	241	263
June 2025	98.4	7	2	7	6	12	223	257

*For details on equipment operating at less than 90% uptime, please refer to Section 3.8.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. Eighteen calibrations on WS/WD sensors were completed this quarter. Some of which were either install or removal calibrations.

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

The locations of portable stations in the WBEA Network for Q2 2025-2026 are listed in Table 3.

Table 3. Location of Portable Stations in WBEA Network, July to September 2025

WBEA Portable Number	July	August	September
AMS 101	WBEA Centre	WBEA Centre	WBEA Centre
AMS 102	Jackfish 1 / WBEA Centre	WBEA Centre	WBEA Centre / Leismer
AMS 103	Hangingstone Expansion / WBEA Centre	WBEA Centre	WBEA Centre / Blackgold
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 South	Kirby South	Kirby South

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 April and June 2025. This included 3 THC, 2 TRS, 2 NO_2, 1 H_2S, 1 CO_2, and 1 NH_3.

Table 4. Continuous Analyzer Operation Statistics by Parameter, April to June 2025

Month	No. of analyzer(s) below 90%	SO_2	H_2S	TRS	THC	O_3	NO_2	CO	NH_3	$PM_{2.5}$
April 2025	2	0	0	1	1	0	0	0	0	0
May 2025	4	0	0	1	2	0	1	0	0	0
June 2025	4	0	1	0	0	0	1	0	1	0
Numbers of analyzers in the network		26	15	12	20	11	22	1	2	15
Total Number of non- compliances in last 12 months		0	1	4	13	1	3	0	4	3
Percentage of non-compliance by parameter		0.0%	1.7%	6.9%	22.4%	1.7%	5.2%	0.0%	6.9%	5.2%

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

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 954 samples from April to June 2025 (See Appendix B for time-integrated equipment present at each AMS location). 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. In Table 5, EC/OC is labelled as N/A as that sample type had been removed from the program in early June.

Preventative maintenance and repairs were conducted by Deposition Technicians, as needed. Examples of maintenance conducted this quarter included replacing sample lines and seals.

Table 5.Time Integrated Sample Collection - Incidents and Recovery, April to June 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
April 2025	2	308	99.4	5	0	1	0	0	1	0	0	0
May 2025	13	358	96.4	6	2	8	0	0	1	0	1	1
June 2025	4	288	98.6	5	0	0	N/A	2	0	0	0	2
Q1 Total	**19**	**954**	**98.0**	**16**	**2**	**9**	**0**	**2**	**2**	**0**	**1**	**3**

ii. Perform quarterly calibrations and audits of sampling equipment.

Quarterly calibrations and audits of time-integrated sampling equipment were completed at all stations, with 20 done in August and 7 done in September.

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. Seven CGAs were completed this quarter, and all passed the audit.

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. Six internal audits were completed this quarter (Table 6).

Table 6. WBEA Internal Audits of AMS Stations, July to September 2025

Air Monitoring Station	Audit Date	Parameters Audited	Audit Response	Follow-up
Wapasu	Jul 3, 2025	SO2, H2S, THC, O3, NOX, PM2.5	No issues observed with audit. O3 analyzer displays considerable negative dip and recovery time at zero, some maintenance required. Calibrator photometer could be calibrated for higher accuracy.	None required.
Anzac	Jul 8, 2025	SO2, TRS, NMHC, O3, NOX, PM2.5	No issues observed with audit.	None required.
Blackrod	Jul 10, 2025	SO2, H2S, NOX	No issues observed with audit.	None required.
Conklin	Aug 13, 2025	SO2, TRS, NMHC, O3, NOX, PM2.5	No issues observed with audit.	None required.
Ells River	Aug 28, 2025	SO2, TRS, NMHC, NOX, PM2.5	TRS response was slow to stabilize, likely due to excessive environmental operating conditions (high ambient heat, smoke) was affecting SOX scrubber. No other issues observed with audit.	Follow up with TRS performance, action will be determined when ambient conditions are more typical.
Jackfish 2/3	Sep 11, 2025	SO2, H2S, NOX	No issues observed with audit.	None required.

3.4 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.

3.5 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.

3.6 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 paused all special studies. This included the Continuous Hydrocarbon Instrument Evaluation Study and the Continuous Particulate Instrument Evaluation Study.

3.7 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 RSC compounds for the Triggered Samplers.

This project was initiated through the Rec 14/15 committee with the intent to capture triggered samples during events of elevated TRS readings and/or during events of experienced odours within the community of Fort McKay. The Triggered RSC Sampler was installed at Bertha Ganter – Fort McKay AMS in February 2022.

The RSC Triggered Samplers began experiencing data validity issues and a root cause has not been identified through various troubleshooting steps. The manufacturer installed new leak detection software and returned the sampler to the WBEA early in the quarter. The sampler was deployed in August with both new and old tubes to determine if the tubes were the source of the data quality issues. The tubes were retrieved and sent for laboratory analysis in late September. The WBEA is awaiting results to determine next steps.

ii. Operation and maintenance of the VOC Gas Chromatograph analyzer.

The VOC Gas Chromatograph (GC) is deployed at Bertha Ganter – Fort McKay AMS compound. The WBEA is in the process of shifting operations to a remote contractor as the equipment is highly technical and time intensive to maintain; this will hopefully help with identifying and correcting issues quicker.

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

3.8 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 second 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 follows the *WBEA Immediate Reporting Protocol* to report exceedances and non-compliances in the ambient air network to the appropriate stakeholder and regulator. In addition, members are notified of exceedances through the Air Quality Events app and are notified of exceedances and non-compliances through the GLC distribution list, quarterly committee meetings and 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 first quarter of 2025-2026, there were a total of 1,103 validated exceedances within the WBEA network (Table 7). Exceedances of $PM_{2.5}$ made up 99% (1,087) of the reports; these were mostly due to wildfire smoke. 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 April to June 2025

Event Type	Parameter							Total
	H_2S	$PM_{2.5}$	O_3	SO_2	Dustfall	TRS	TSP	
AAAQG	-	987	-	-	3	9	-	999
AAAQO	1	100	3	0	-	-	0	104
Total	**1**	**1,087**	**3**	**0**	**3**	**9**	**0**	**1,103**

Non-compliances of the AMD that occurred in the WBEA network in the first quarter of 2025-2026 are listed in Table 8. There were 14 non-compliances during this quarter. June had the most non-compliances with 7 total. Of the non-compliances, 13 were due to having an operation uptime of less than 90%; one non-compliance (Fort Chipewyan, $PM_{2.5}$, May) was due to a missed monthly calibration.

Table 8. WBEA Non-Compliances, April to June 2025

Reporting Period	Date Reported	Alberta EPA Reference Number	Location	Brief Description	Issue	Remedial Action
April	09-May-25	440537	Barge Landing	The THC/NMHC/CH4 analyzer at the Barge Landing AMS operated for less than 90% of April 2025, due to various issues.	During the month of April, a series of technical issues impacted the THC/NMHC/CH4 analyzer data quality resulting in 99 hours of invalid data and an operational time of 85.42% for the month. During the daily system check on April 4 and 5, the daily span was outside of AMD criteria. Subsequent troubleshooting determined analyzer replacement was required, which was completed on April 5. Data during this period was invalidated for a total of 58 hours. From mid to late April, the analyzer displayed excessive baseline noise, indicating instability in the analyzer's performance. Various maintenance activities were conducted, including recalibration and span adjustments, which rectified the issue on April 29. A total of 41 hours were invalidated during this period.	Analyzer was recalibrated and issue was rectified on April 29, 2025.
April & May	28-May-25	441112	Fort Chipewyan	The TRS analyzer at Fort Chipewyan AMS operated less than 90% of April and May 2025, due to daily span checks being outside of AMD criteria.	On April 13, during a routine system check, the TRS span failed to meet AMD compliance standards. In response, WBEA promptly initiated an investigation and performed a recalibration of the analyzer on April 15, which temporarily restored compliance. However, by April 21, TRS span checks indicated a decline, resulting in continued non-compliance in the subsequent days. Throughout April, WBEA implemented a series of corrective actions, including the reinstatement of daily quality assurance checks, recalibrations to adjust zero and span settings, replacement of scrubber beads, and ultimately, the replacement of both the TRS analyzer and the external converter. During the data validation process, 320 hours of data were invalidated in April and 616 hours in May.	N/A

May	28-May-25	441113	Fort Chipewyan	The nitric oxide (NO)/nitrogen dioxide (NO2)/nitrogen oxides (NOx) analyzer at Fort Chipewyan AMS operated less than 90% of May 2025, due to analyzer response being outside of AMD compliance.	On May 2, the daily span check for the $NO/NO_2/NO_x$ analyzer did not meet AMD criteria. The analyzer was calibrated, and the span adjusted on May 20, resolving the issue and resuming normal operation on that day. Data validation is currently in progress and 436 hours of data have been invalidated to date for the month of May due to this incident.	Analyzer was recalibrated and issue was rectified on May 20, 2025.
May	03-Jun-25	441356	Fort Chipewyan	The routine monthly calibration was not conducted on the PM2.5 analyzer at Fort Chipewyan AMS for the month of May 2025, due to AMD non-compliance.	The routine monthly calibration for PM2.5 was not completed in May, as scheduled, due to an oversight by the station operator. The WBEA is currently working to complete the calibration as soon as possible and is completing additional training and procedural updates to prevent a recurrence.	N/A
May	24-Jun-25	442193	Stony Mountain	The THC/NMHC/CH_4 analyzer at the Stony Mountain AMS operated for less than 90% of May 2025, due to multiple different issues related to unstable operations of the analyzer.	During the month of May, two periods of technical issues impacted the THC/NMHC/CH4 analyzer data quality resulting in 82 hours of invalid data and an operational time of 88.7% for the month. - From May 16 to 20, excessive baseline noise was observed in the THC/NMHC/CH_4 analyzer output signal. In response, maintenance was initiated, including the replacement of the zero-air generator on May 21. Additional adjustments to the analyzer's chromatogram were performed on May 23, after which normal operation was restored. This incident resulted in 43 hours of invalid data. - From May 25 to 28, the analyzer again exhibited intermittent unstable baseline behavior. After further investigation and troubleshooting, the analyzer was replaced on May 28. It was allowed to stabilize overnight, and performance was verified on May 29, at which point normal operation resumed. This event resulted in 39 hours of invalid data.	Analyzer was replaced on May 28,2025.

May	26-Jun-25	442296	Patricia McInnes	The total hydrocarbon (THC)/non-methane hydrocarbon (NMHC)/methane (CH4) analyzer at the Patricia McInnes AMS operated less than 90% of May 2025, due to unstable operations of the analyzer.	Throughout the month of May, persistent baseline noise and drift were observed in the data. In response, WBEA implemented a series of troubleshooting and maintenance procedures, including multiple adjustments to span, zero, and window timing settings, as well as the replacement of the support gas cylinder. The analyzer was replaced on two separate occasions to resolve the issue. Despite these interventions, the problem persisted until the second replacement on May 20, after which performance was successfully verified and normal operations resumed. During data validation process, 199 hours of data were invalidated, resulting in an operational time of 74% for the month of May.	The analyzer was replaced on May 20.
June	26-Jun-25	442297	Athabasca Valley	The barometric pressure (BP) sensor at Athabasca Valley AMS operated less than 90% of June 2025, due to sensor signal flatlining following a power outage.	On June 4, a local power outage occurred, impacting the station and causing the BP sensor signal to flatline. The WBEA reset the sensor, verified its performance, and resolved the issue on June 23. Data from this incident was invalidated for a total of 449 hours.	The sensor operations were reset on June 23.
June	03-Jul-25	442522	Jackfish 1	The nitric oxide (NO)/nitrogen dioxide (NO_2)/nitrogen oxides (NOx) analyzer at Jackfish 1 AMS operated less than 90% of June 2025, due to a power failure, and a pinched exhaust sample line.	The less than 90% operational time was the result of two separate incidents affecting the $NO/NO_2/NO_x$ analyzer at Jackfish 1 AMS506. First, the station experienced a power outage due to a wildfire event, which resulted in a loss of data from May 29 through June 1, 2025. Following the restoration of power, the analyzer resumed operation; however, a pinched sample exhaust line caused the analyzer to operate outside of AMD criteria from June 1 to June 4, 2025. On June 4, a WBEA technician repaired the pinched exhaust sample line, performed a full calibration, and verified the performance of the analyzer. Normal operations resumed at 16:00 MST on June 4, 2025. During the data validation process, a total of 84 hours of data were invalidated as a result of the combined impacts of the power outage and the sample pump failure. Consequently, the $NO/NO_2/NO_x$ analyzer operated for 88.3% of the reporting period for June 2025.	Sample line was repaired on June 4, 2025

June	07-Jul-25	442679	Jackfish 1	The relative humidity (RH) sensor at Jackfish 1 AMS operated less than 90% of June 2025, due to periodically over-ranging.	During monthly data validation, it was identified that the RH measurements were over-ranging periodically, with the output signal of the sensor displaying values beyond 100%. Data was invalidated during periods when RH measurements were inconsistent with comparable data in the WBEA ambient network, resulting in a total of 120 hours of invalid data and 81.3% of operational time for the month of June 2025.	N/A
June	08-Jul-25	442737	Jackfish 2/3	The hydrogen sulphide (H_2S) analyzer at Jackfish 2/3 AMS operated less than 90% of June 2025, due to issues with the sample pump.	On June 14, the H2S daily span failed to meet the AMD compliance standards, and a site investigation determined that the sample pump was deteriorating. On June 17, the sample pump was replaced, a routine calibration was completed to verify the analyzer performance, and the issues was resolved. During the data validation process, a total of 99 hours of data were invalidated, resulting in an operational time of 84% for the month of June 2025.	Sample pump was replaced on June 17, 2025
June & July	17-Jul-25	443100	Ells River	The particulate matter (PM2.5) analyzer at Ells River AMS operated less than 90% of June and July 2025 due to unstable operations observed after the routine calibration.	On July 11, during the routine calibration check of the PM2.5 analyzer, a significant change in the photomultiplier tube (PMT) value was observed following the cleaning of the measurement chamber. Upon review, the WBEA confirmed the analyzer had exhibited unstable operation from the previous calibration on June 18 to the July 11 calibration. Data for this period was invalidated, resulting in a total of 299 hours and an operational uptime of 58% for the month of June and 251 hours for July. No exceedances of the Alberta Ambient Air Quality Objectives or Guidelines were observed during this period.	N/A
June	21-Jul-25	443257	Bertha Ganter - Fort McKay	The ammonia (NH3) analyzer at Bertha Ganter - Fort McKay AMS operated less than 90% of June 2025, due to the analyzer operating outside the AMD criteria.	On June 16, 2025, during a routine monthly calibration, the on-site technician discovered that all multipoint "as found" calibration results for the NH_3 analyzer were outside of AMD tolerance limits. The analyzer was promptly removed and returned to the WBEA center for further diagnostics and repair. A replacement analyzer was installed on June 17; however, which did not meet AMD calibration criteria. On-site troubleshooting and additional field maintenance were carried out over the following days. Eventually, the analyzer was fully replaced with a new unit on June 25. After allowing the instrument to warm up and stabilize overnight, a	The analyzer was replaced on June 25, 2025.

					successful installation calibration was performed on June 26, verifying the analyzer's proper operation. During Level 2 data validation, the total of invalid data and downtime associated with maintenance, calibration, and analyzer replacement accounted for 484 hours, resulting in 32% operational time for the month of June 2025.	
June	29-Jul-25	443571	Conklin	The relative humidity (RH) sensor at Conklin AMS operated less than 90% of June, due to periodically over-ranging.	During monthly data validation, it was identified that the RH measurements were over-ranging periodically, with the output signal of the sensor displaying values beyond 100%. Data was invalidated during periods when RH measurements were inconsistent with comparable data in the WBEA ambient network, resulting in a total of 121 hours of invalid data and 83% of operational time for the month of June 2025.	N/A

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 April to June 2025

Monthly Air Monitoring Report and Quality Assured Data	Date Submitted
April 2025	May 30, 2025
May 2025	June 27, 2025
June 2025	July 31, 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 Ambient Air Monitoring Data Annual Report Volume 1-3.

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/.

viii. Continuous monitoring data from the WBEA's ambient air monitoring network should be provided in near real-time in support of the EAMAS program, as amended from time to time.

The WBEA continued to provide access to RWDI to enable the retrieval of near real-time ambient air monitoring data from the WBEA network to support of the EAMAS program.

3.9 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.

The WBEA continued to support the OSM Program's Air and Deposition TAC in their efforts to optimize and improve the active air monitoring network through on-going and open communication with the project lead and TAC representatives, as required. The WBEA was not invited to participate in, or aware of, any related OSM initiatives in this quarter.

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 this year:

- 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.
- COMP 5-year report and publication paused.
- CO and CO_2 monitoring at AMS 8, AMS 1, and AMS 18 was discontinued.
- EC/OC Sampling paused.

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.

No additions, deletions, or other changes to the WBEA continuous or time-integrated air monitoring network were done that were not previously indicated.

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

See item 3.9(i).

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 Q2 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 and Passives sampling program, including routine sample changeouts and equipment maintenance.

Denuders and passives are co-located to understand gaseous atmospheric pollutants for deposition modelling. Routine sample changeouts for both samplers are completed monthly at all sites (Figure 1). Dates for this quarter's changeouts are:

July Changeout – July 2nd to 4th, 2025
August Changeout – July 30th to August 1st, 2025
September Changeout – September 2nd to 5th, and 8th, 2025

In December 2022, the TEEM committee approved a new tower location (site 3017) as part of the Denuder Expansion Program Proposal. 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 denuder and passive samples were deployed on July 4th, 2025.

Denuders experience extreme fluctuations in temperature which impacts the flow rates. Consistent flow calibrations and audits have led to overall more consistent flow rates across the network. A new black box board will be trialed to see if it helps keep the denuder flow constant during changes in temperature. This will be deployed and monitored at site 1004 over the coming quarter.

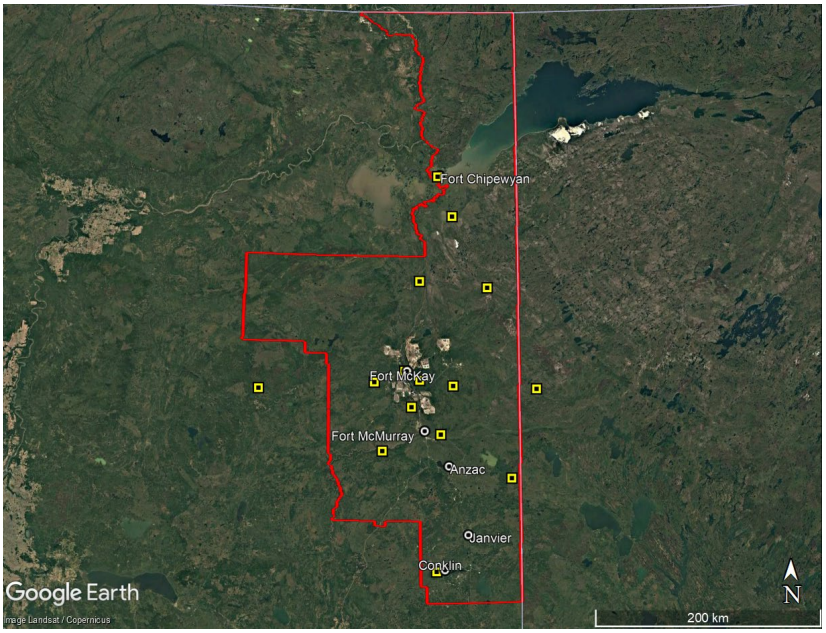


Figure 1. Map of the current denuder locations with co-located passives (yellow symbols).

4.2 Operate and maintain the Ion Exchange Resins (IER) 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, at the 50 locations (Figure 2). This quarter focused on fly-over site checks and maintenance as needed. The routine fall sample changeout will occur during the first few weeks of October 2025. Preparations for that changeout have started this quarter.

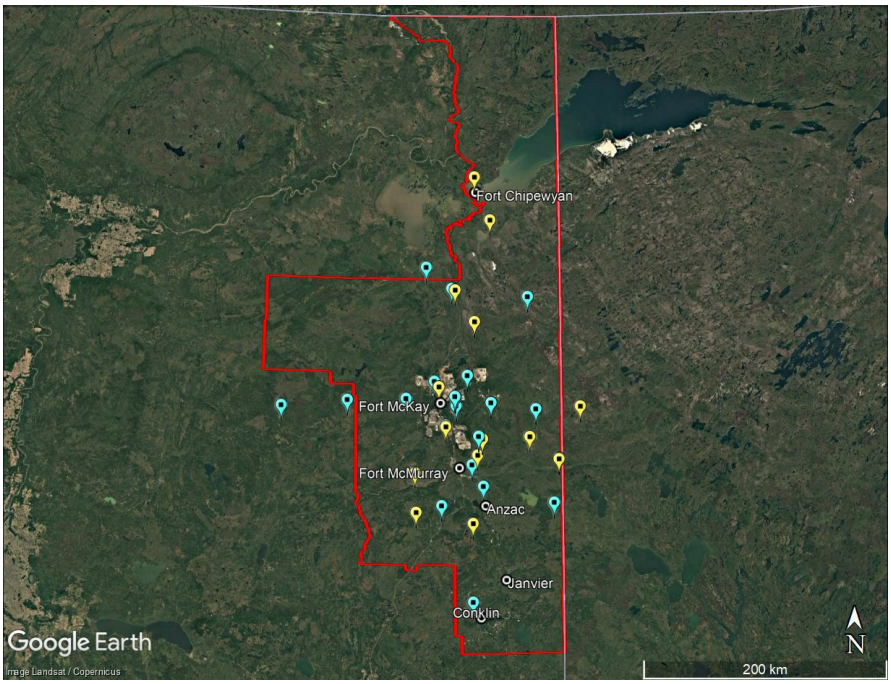


Figure 2. Map of the current IER freefall (yellow symbols) and throughfall (blue symbols) sites.

4.3 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.

All professional towers inspections were completed for 2025 in this quarter and the annual fall meteorological sensors swap was completed in September.

4.4 Operate and maintain the Forest Health Monitoring program, including data analyses.

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. The last field campaign was in 2024.

2024 FHM Field Campaign: The intensive field sampling campaign ran from August 1st, 2024 to September 16th 2024. Twenty-four of the twenty-five Forest Health sites were completed. Tasks for this quarter focused on continued data analysis to understand the spatial and temporal changes in soil and vegetation at the FHM sites.

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 – September 11th, 2025
Workshop 5 – Date TBD

The workshop series has been influential in the progress, evolution and understanding of the FHM program. 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 below). Workshop 4 focused on providing updates on the field work, reviewing results, and preparing for future programs. A Field Workshop was held on September 11th, 2025, where 32 members joined WBEA staff at a Forest Health monitoring site to learn about the collection of vegetation, soil, and lichen measurements and samples through an interactive, hands-on session.

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 sampling program ran from September 9th to September 25th, 2024.

Tasks for this quarter focused on:

- 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.

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
- Drafting the FHM Report Volume 2 – Data Analysis

4.5 Data & Reporting

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

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

4.6 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 Athabasca Oil Sands region.

The WBEA continued to support the OSM Program's Air and Deposition TAC in their efforts to optimize and improve the atmospheric deposition monitoring network through on-going and open communication with the project lead and TAC representatives, as required. The WBEA was not invited to participate in, or aware of, any related OSM committees, activities, workshops or webinars this quarter.

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 this year:

- 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. The WBEA has made no changes to its key personnel list during this reporting period. Any changes would be 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 Q2, July to September 2025

Date	Meeting	Member (Name and Organization)		Declared Conflict of Interest
Sept 10, 2025	TEEM	Greg Wentworth	Alberta EPA	Works for EPA and participates on OSM Air and Deposition TAC
		Carla Davidson	Fort McKay First Nation	Participates on OSM's Oversight committee
		Courtney Brown	Canadian Natural	Participates on OSM Air and Deposition TAC
Sept 17, 2025	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)
		Greg Wentworth	Alberta EPA	Works for EPA and participates on OSM Air and Deposition TAC
		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
Sept 19, 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
Sept 24, 2025	GM Meeting	Peter Fortna	Conklin Métis	Participates on OSM ICBMAC and Indigenous Caucus
		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
		Greg Wentworth	AEPA	Works for AEPA and participates on OSM Air and Deposition TAC

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), 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	NH_3
BERTHA GANTER-FORT MCKAY	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						
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		
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				

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, 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	$PM_{2.5}$	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			
BARGE LANDING	X						
FORT MCKAY SOUTH	X		X				
ANZAC	X	X	X	X			
WAPASU					X		
STONY MOUNTAIN					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

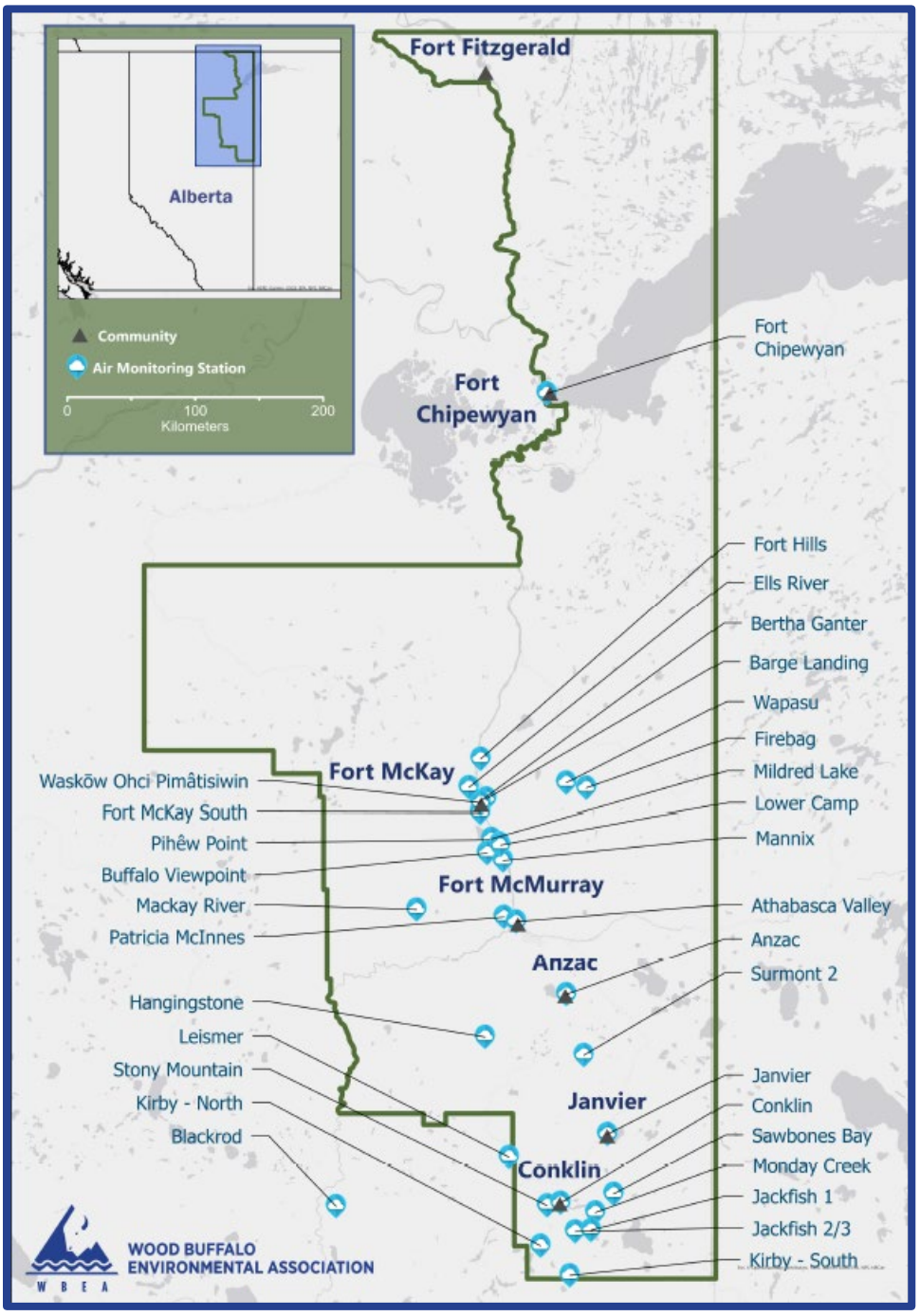
Additional Continuous/Semi-continuous Measurements

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

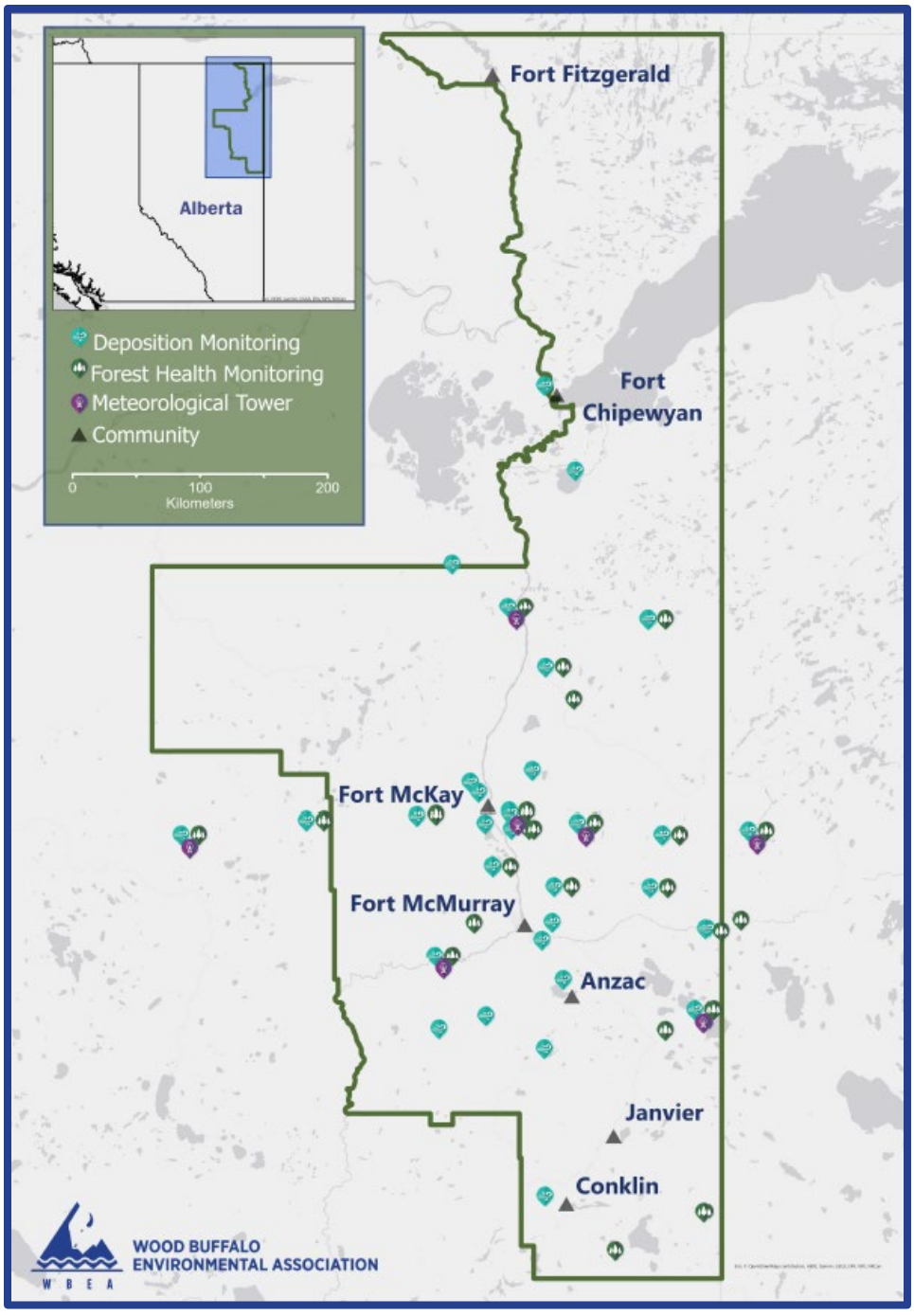
Table 14. Summary of stations and continuous/semi-continuous methods at WBEA AMS

Station name	Visibility Sensor	VOC GC	Triggered RSC
BERTHA GANTER-FORT MCKAY		X	X
BUFFALO VIEWPOINT	X		
LOWER CAMP	X		

7. Appendix C – Maps of the WBEA Monitoring Networks



Continuous Ambient Air Monitoring Stations



Deposition Monitoring Network