



# Wood Buffalo Environmental Association Progress Report

**2025-2026**  
Q4: January- March

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SUBMITTED APRIL 2026



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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 28<sup>th</sup>, 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 30<sup>th</sup>, 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
<b>24RSD823</b>	Atmospheric Pollutant Active Monitoring Network	A-LTM-S-1-2526
<b>24RSD828</b>	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 30<sup>th</sup>, 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 Q3) 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](http://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 Q4 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 Q3 there were 255 analyzers/sensors operating in the network for each month. Average operational uptimes for all equipment are included in Table 2. There were 31 less-than 90s last quarter, two in October, fifteen in November and fourteen in December. See section 3.8.ii for details on these non-compliances.

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, October to December 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	
October 2025	99.1	2	4	8	4	8	229	255
November 2025	98.0	15	4	1	1	18	216	255
December 2025	97.8	14	2	5	3	6	225	255

\*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. There was one calibration done in February in the network. Most of these calibrations are done in warmer months.

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

The locations of portable stations in the WBEA Network for Q4 2025-2026 are listed in Table 3.

**Table 3. Location of Portable Stations in WBEA Network, January to March 2026**

WBEA Portable Number	January	February	March
AMS 101	WBEA Centre	WBEA Centre	WBEA Centre
AMS 102	Leismer	Leismer	Leismer
AMS 103	Blackgold	Blackgold	Blackgold
AMS 104	Sawbones Bay	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 last quarter. December had the most analyzers operating below 90%. This was due to a power grid outage at the Buffalo Viewpoint AMS (see Table 8 for details).

**Table 4. Continuous Analyzer Operation Statistics by Parameter, October to December 2025**

Month	No. of analyzer(s) below 90%	SO <sub>2</sub>	H <sub>2</sub> S	TRS	THC	O <sub>3</sub>	NO <sub>2</sub>	CO	NH <sub>3</sub>	PM <sub>2.5</sub>
October 2025	1	0	0	0	0	0	1	0	0	0
November 2025	2	0	0	0	0	0	1	0	1	0
December 2025	7	1	1	0	1	1	2	0	0	1
<b>Numbers of analyzers in the network</b>		28	17	12	21	11	24	1	2	15
<b>Total Number of non-compliances 2025</b>		1	2	5	9	2	7	0	3	4
<b>Percentage of non-compliance by parameter</b>		3.0%	6.1%	15.2%	27.3%	6.1%	21.2%	0.0%	9.1%	12.1%

**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 867 samples from October to December 2025 (See Appendix B for time-integrated equipment present at each AMS location). Details on invalid samples and recovery percentages are provided below in Table 5. Most incidents leading to invalid samples from this quarter were due to motor or pump failures leading to low sample volumes. In Table 5, EC/OC is labelled as N/A as that sample type had been removed from the program in early June due to funding constraints.

Preventative maintenance and repairs were conducted by Deposition Technicians, as needed. Examples of maintenance conducted this quarter included replacing pumps and motors, fixing timers and flow checks.

**Table 5. Time Integrated Sample Collection - Incidents and Recovery, October to December 2025**

Month	Invalid Samples	Total No. of samples	% Recovery	# NAPS days	Incidents per Sample Type							
					PM <sub>2.5</sub>	PM <sub>10</sub>	EC/OC	VOC	PAH	Precip	TSP	Dustfall
October 2025	1	289	99.7	5	0	0	N/A	0	1	0	0	0
November 2025	3	289	99.0	5	1	0	N/A	0	2	0	0	0
December 2025	5	289	98.3	5	1	1	N/A	0	3	0	0	0
<b>Q3 Total</b>	<b>9</b>	<b>867</b>	<b>99.8</b>	<b>15</b>	<b>2</b>	<b>1</b>	<b>N/A</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>

*ii. Perform quarterly calibrations and audits of sampling equipment.*

Quarterly calibrations and audits of time-integrated sampling equipment were completed with 25 done in February and 24 done in March.

*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 2025 Ambient Data Annual Report was submitted March 31<sup>st</sup>, 2026, 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. No CGAs were conducted this quarter.

*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. Three internal audits were completed this quarter (Table 6).

**Table 6. WBEA Internal Audits of AMS Stations, January to March 2026**

<b>Air Monitoring Station</b>	<b>Audit Date</b>	<b>Parameters Audited</b>	<b>Audit Response</b>	<b>Follow-up</b>
<b>Buffalo Viewpoint</b>	January 14, 2026	SO2, H2S, NMHC, O3, NOX	NMHC outside criteria on CH4, low point at -8.0% and average response was -6.1% low. All channels were noted low and follow the daily span response. All other audits were within criteria.	Monitor the calibration post audit for similar changes, no other follow-up required.
<b>Fort Chipewyan</b>	January 28, 2026	SO2, TRS, O3, NOX	TRS was observed in low flow conditions, still performed within all audit criteria. No other issues observed.	None required.
<b>Firebag</b>	February 11, 2026	SO2, H2S, THC, NOX	All audits were within criteria, however there was some deviation from expected results based on site gas CGA results. Calibrator had leak, will need to be replaced. Following replacement, the NOX gas is suspect to have deviated from CGA results.	Calibrator and NO gas to be replaced. Will monitor changes after field replacements for alignment to audit results.

**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, including installation of new leak detection software last quarter. The sampler was re-deployed in August and September with both new and old tubes to determine if the tubes were the source of the data quality issues. The triggered samples were analyzed in late September, but no results were detected once again. The sampler was re-deployed in January and the trigger limits were raised in another attempt to collect viable samples. The WBEA is awaiting results from the lab.

#### *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 with analyzer expertise as the equipment is highly technical and time intensive to maintain. This will also help identify and correct issues quicker. In November and December, new support system equipment was installed in preparation for the new contractor to begin, with a tentative start in April.

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 Q4 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, here:

(<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 Q3 of 2025-2026, there were a total of 13 validated exceedances within the WBEA network (Table 7). 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 October to December 2025**

Event Type	Parameter								Total
	H <sub>2</sub> S	PM <sub>2.5</sub>	O <sub>3</sub>	SO <sub>2</sub>	CO	Dustfall	TRS	TSP	
AAAQG	-	5	-	-	-	1	4	-	10
AAAQO	0	1	0	1	0	-	-	1	3
<b>Total</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>4</b>	<b>1</b>	<b>13</b>

Non-compliances of the AMD that occurred in the WBEA network in the third quarter of 2025-2026 are listed in Table 8. There were 12 non-compliance events during this quarter. October had 2 non-compliance events, November had 4 and December had 6. One event (Fort Chipewyan – NO/NO<sub>2</sub>/NO<sub>x</sub>) spanned two months (November and December).

**Table 8. WBEA Non-Compliances, October to December 2025**

Reporting Period	Date Reported	Alberta EPA Reference Number	Location	Brief Description	Issue	Remedial Action
October	12-Nov-25	447579	Jackfish 2/3	The NO/NO <sub>2</sub> /NO <sub>x</sub> analyzer at Jackfish 2/3 AMS (AMS27) operated less than 90% of the time in October 2025.	The daily span check for the NO/NO <sub>2</sub> /NO <sub>x</sub> analyzer did not meet AMD criteria from October 21 to October 23, 2025. The analyzer was calibrated, and the span was adjusted on October 23, which resolved the issue and returned the instrument to normal operation. A total of 80 hours were invalidated during the data validation process, resulting operational uptime of 89% for October 2025.	Analyzer is scheduled for preventative maintenance and routine calibration scheduled for November 2025.
October	18-Nov-25	447765	Wapasu	The Wind Speed (WS) and Wind Direction (WD) at Wapasu AMS operated less than 90% of October 2025.	Throughout the month of October, the Wind Speed (WS) and Wind Direction (WD) sensor froze due to weather conditions, resulting in intermittent flatlining. Normal operation returned once weather conditions changed. Data from this incident was invalidated for a total of 120 hours, resulting in an operational time of 83% for the month of October.	N/A
November	08-Dec-25	448387	Surmont 2	The Wind Speed (WS) and Wind Direction (WD) at Athabasca Valley AMS operated less than 90% of November 2025.	On November 17, during the daily system check a discrepancy in the readings of the Wind Speed (WS) and Wind Direction (WD) was observed. The WBEA investigated the situation and found an issue with the sensor's cups. On the same day, the sensor was replaced, and normal operations resumed after the sensor's performance was verified. During data validation, a total of 171 hours of data were invalidated, resulting in an operational time of 76.3% for November 2025.	Sensor was replaced on the same day.
November	12-Dec-25	448518	Fort McKay - Bertha Ganter	The NH <sub>3</sub> analyzer at Fort McKay - Bertha Ganter AMS01 operated for less than 90% operational time for the month of November 2025.	On November 14, routine daily system checks indicated that the NH <sub>3</sub> analyzer daily QA span response was outside of AMD compliance. A site visit was conducted the same day to investigate the issue and complete troubleshooting and maintenance activities. Based on the observed analyzer performance and response of the analyzer, on November 16, the NH <sub>3</sub> analyzer and converter were swapped with a replacement analyzer and converter. The analyzer was left flagged overnight to allow stabilization prior to calibration. On November 17, the NH <sub>3</sub> analyzer was calibrated, verified for AMD compliance, and normal operation of the analyzer was restored. The removed analyzer was returned to the WBEA Centre for further maintenance and evaluation. During data validation, a total of 154 hours of NH <sub>3</sub> data were invalidated for November 2025. This included: - Invalidation associated with analyzer failure on November 14 with further troubleshooting and stabilization until November 17, resulting in 105 hours of invalid data, as noted above.	Analyzer was replaced on November 16.

					<p>- Routine recovery periods following daily QA checks resulted in 29 hours of invalid data</p> <p>- Routine calibration activities conducted over two days which resulted in 20 hours of downtime.</p> <p>The total invalidated data resulted in an operational time of 78% for the month of November 2025.</p>	
<b>November &amp; December</b>	09-Dec-25	448422 & 448423	Fort Chipewyan	<p>The NO/NO<sub>2</sub>/NO<sub>x</sub> analyzer at Fort Chipewyan AMS08 operated for less than 90% operational time for the month of November &amp; December 2025.</p>	<p><b>November 2025 Non-Compliance Event</b></p> <p>During November, declining daily QA span responses were observed prior to November 12; however, the analyzer remained within AMD compliance at that time. A site visit was completed on November 12, 2025, and the sample pump was replaced. Following this replacement, the analyzer performance degraded further, resulting in span response falling outside AMD criteria. A replacement pump was shipped to Fort Chipewyan and installed on November 17, 2025. Normal operation was restored following this maintenance. During data validation, a total of 113 hours of data were invalidated, resulting in an operational time of 84% for November 2025.</p> <p><b>December 2025 Non-Compliance Event</b></p> <p>On December 6, 2025, routine system checks indicated that the NO/NO<sub>2</sub>/NO<sub>x</sub> analyzer's daily QA span check was outside AMD compliance. A maintenance visit was completed on December 8, 2025, confirming that the as-found span values were not within compliance. Adjustments were made to the analyzer span, and a calibration was performed, confirming operation of the analyzer. During data validation, data were invalidated back to the last acceptable daily span check from December 5, resulting in 85 hours of invalidated data, which resulted in less than 90% operational uptime for December. WBEA is planning further investigation and preventative maintenance in the coming weeks to ensure analyzer stability and prevent recurrence.</p>	<p>Analyzer was replaced on November 12, 2025, and a recalibration was done on December 8, 2025 to adjust span.</p>
<b>November</b>	17-Dec-25	448674	Lower Camp Met Tower	<p>The vertical wind speed, wind speed and direction sensor at all elevations at Lower Camp Met Tower (AMS3) operated less than 90% of the time for the month of November 2025.</p>	<p>From November 24 to 30, an unplanned power outage disrupted the normal operation of the meteorological sensors at the 20-meter, 45-meter, 100-meter, and 163-meter elevations on the Lower Camp Met Tower. Normal operations were restored on November 30. During the data validation process, 160 hours of data for each sensor at each elevation were deemed invalid, resulting in 73% operational time for all sensors in November 2025.</p>	N/A
<b>December</b>	17-Dec-25	448675	Buffalo Viewpoint	<p>All parameters at Buffalo Viewpoint (AMS4) operated less than 90% of the time for the month of December 2025.</p>	<p>A power grid shutdown at the Buffalo Viewpoint AMS, resulting in the loss of the primary power supply to the station, was planned for December. To maintain operations, a temporary generator was installed prior to the shutdown as an alternate power source. However, generator performance was unreliable, leading to continued intermittent power interruptions which affected system operations. The generator reliability issues are continually being managed and the primary power supply is scheduled to be</p>	N/A

					restored by late December. Data validation for December will be completed in January; however, preliminary verification confirmed that the station was operational for less than 90% of the month of December.	
<b>December</b>	12-Jan-26	449237	Surmont 2	The Wind Speed (WS) and Wind Direction (WD) at Surmont 2 AMS operated less than 90% of December 2025 & January 2026.	Throughout December 2025 and January 2026, the WS/WD sensor experienced freezing due to extreme cold weather, leading to intermittent flatlining. Normal operation resumed once weather conditions improved. During data validation, 86 hours of data were invalidated for December 2025, resulting in 88% operational uptime. For January 2026, a total of 124 hours of data were invalidated; data validation for January is still ongoing at the time of this letter.	N/A
<b>December</b>	15-Jan-26	449350	Mannix	The WS/WD/VWS sensor at the 20-meter elevation at Mannix operated less than 90% of December 2025.	In December 2025, ice fog caused intermittent flat-line readings in the WS/WD/VWS sensor at the 20-meter elevation. The sensors returned to normal operation once weather conditions improved. Following data validation, 118 hours were invalidated, resulting in 84% operational time for the month.	N/A
<b>December</b>	16-Jan-26	449518	Wapasu	The precipitation gauge at the Wapasu AMS operated less than 90% of December 2025 and January 2026.	During the weekly preparation of the time-integrated precipitation sample at Wapasu AMS, it was observed that the sample volume did not align with precipitation data from the on-site gauge or with measurements from other precipitation gauges across the WBEA network. Further investigation determined that the Wapasu precipitation gauge was over-reporting precipitation from approximately December 20, 2025, to January 13, 2026 due to an overfilled collection bucket and a snow-covered shield. The issue was resolved through standard maintenance, which included emptying the collection bucket on January 13, 2026. As a result, data for this period were invalidated, yielding an operational time of 61% for December 2025 and a total of 132 hours of invalidated data for January 2026.	The issue was resolved through standard maintenance, which included emptying the collection bucket on January 13, 2026.
<b>December</b>	20-Jan-26	449537	Stony Mountain	The precipitation gauge at the Stony Mountain AMS operated less than 90% of December 2025 & January 2026.	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 from December 20, 2025, through January 6, 2026, due to an overfilled collection bucket and snow-covered shield. The issue was resolved by emptying the bucket; the standard maintenance that is completed on January 6, 2026. Data for the period was invalidated, resulting in an operational time of approximately 61% for December 2025, and 132 hours in January 2026.	The issue was resolved through standard maintenance, which included emptying the collection bucket on January 6, 2026.

*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 October to December 2025**

Monthly Air Monitoring Report and Quality Assured Data	Date Submitted
<b>October 2025</b>	November 28, 2025
<b>November 2025</b>	December 22, 2025
<b>December 2025</b>	January 30, 2026

*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 2025 Ambient Air Monitoring Data Annual Report was submitted March 31<sup>st</sup>, 2026, 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 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<sub>2</sub> 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, 2025-2026 Work Plan Reference A-PD-6-2526

*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 Q4 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 were completed monthly at all sites (Figure 1). Teams struggled with several no-fly days due to weather issues. Dates for this quarter's changeouts were:

January Changeout – January 5<sup>th</sup> to 7<sup>th</sup> and January 9<sup>th</sup> 2026

February Changeout – February 3<sup>rd</sup>, 4<sup>th</sup>, 10<sup>th</sup>, and 11<sup>th</sup> 2026

March Changeout – March 3<sup>rd</sup> to 5<sup>th</sup> and 9<sup>th</sup> 2026

Denuders experience extreme fluctuations in temperature which has been noted to impact the flow rates. Consistent flow calibrations and audits have led to overall more consistent flow rates across the network. A new black box board was deployed in December at site 1004 to see if it helps keep the denuder flow constant during changes in temperature. Preliminary results show improvement of flow rates with the new black box. More monitoring will be done and then, assuming no issues, they will be deployed throughout the network.

During the February visit to site 3016, the denuder cable was found wrapped around a cross-arm on the tower (likely due to extreme winds). This prevented the teams from being able to lower the denuder and therefore the sample could not be changed out. The site was visited in March and deposition technicians climbed the tower to untangle the cable. It was also noted the WS/WD that was caught in the cable required maintenance and the propeller was replaced.

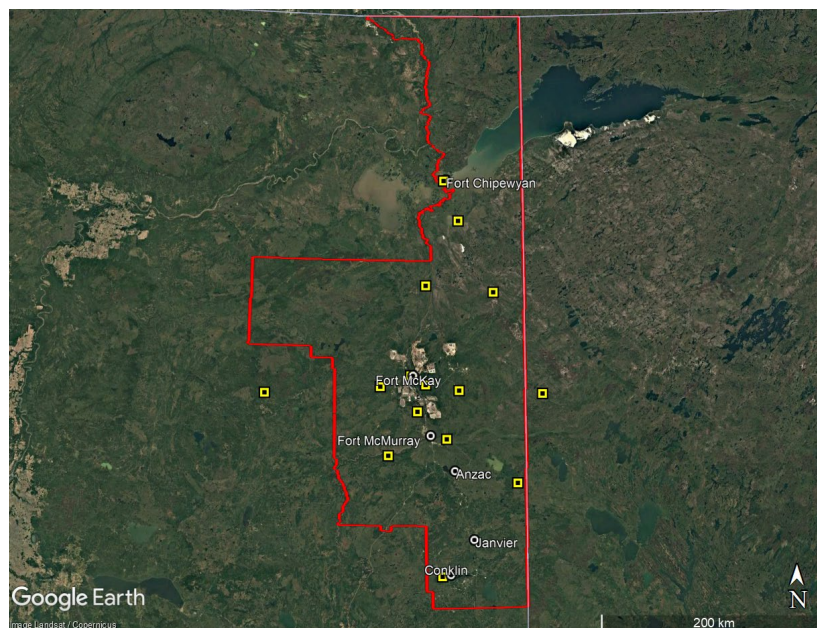


Figure 1. Map of the current denuder locations with co-located passives (yellow symbols).



#### 4.2 Operate and maintain the Ion Exchange Resins (IER) network sampling program, including routine sample changeouts and equipment and site maintenance.

Equipment and site maintenance was conducted as needed this quarter. No issues were noted with the network (Figure 2). Preparations were started for the upcoming spring sample changeouts which are planned to take place the first two weeks of May.

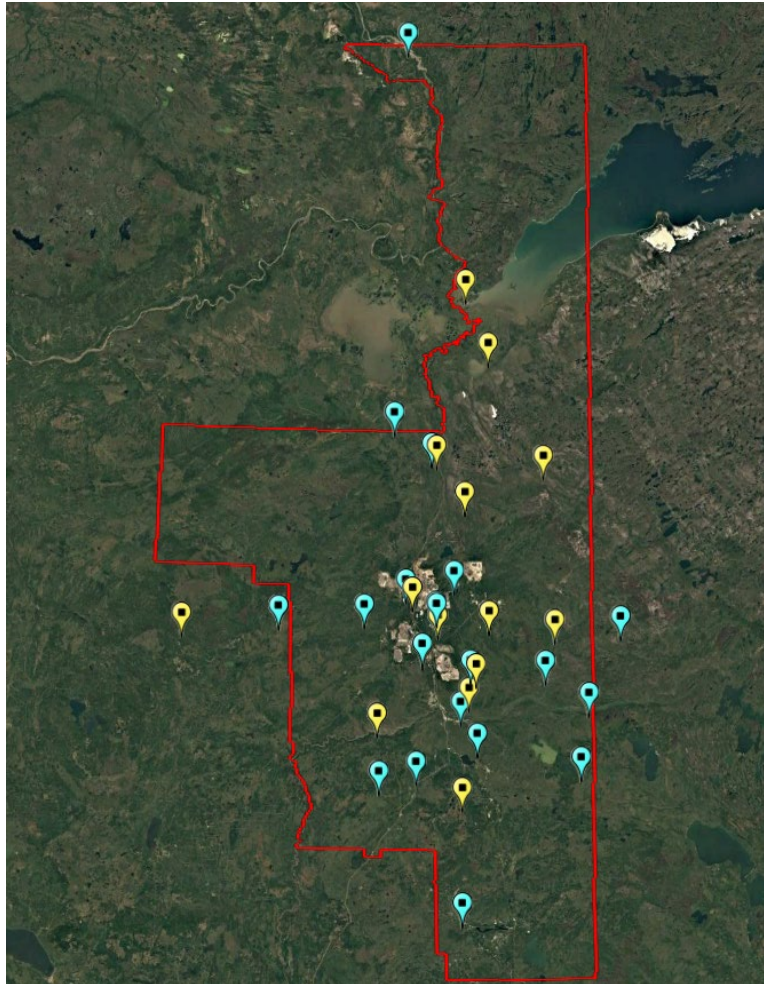


Figure 2. Map of the current IER freefall (yellow symbols) and throughfall (blue symbols) sites.

#### 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. Site 2001 was burned by wildfires and therefore has not had data since May 2025.



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

The last field campaign for the Forest Health Monitoring (FHM) program was in 2024. The science advisor team has been working on analyses comparing deposition values with soil and vegetation trends.

**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 7<sup>th</sup> and 8<sup>th</sup>, 2023
- Workshop 2 – January 30<sup>th</sup> and 31<sup>st</sup>, 2024
- Workshop 3 – April 10<sup>th</sup> and 11<sup>th</sup>, 2024
- Workshop 4 – February 19<sup>th</sup> and 20<sup>th</sup>, 2025
- Field Workshop – September 11<sup>th</sup>, 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 11<sup>th</sup>, 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 Forest Health Monitoring Program. This included:

**Indigenous Indicator - Deposition Impacts on *Cladonia mitis* Lichen (Focus Study):** The WBEA proposed the addition of a chemical analysis 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 9<sup>th</sup> to September 25<sup>th</sup>, 2024.

Updates from this quarter included:

- Received trace element laboratory results
- Started QA of datasets
- Began writing the draft data report

**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 – 16<sup>th</sup>, 2024.

Updates from this quarter included:

- Blueberry concentrations in comparison to commercial blueberries was analyzed
- Draft technical report was reviewed internally
- In the process of finalizing



#### 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/>

A new WBEA website was launched as a data visualization tool for the deposition and forest health monitoring data. This can be found at <https://dep.wbea.org/> This will be updated on a regular basis and currently shows deposition data (nitrogen, sulphur, base cations and potential acid input) from 2013 to 2020 on interactive maps.

#### 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 Q4, January to March 2026**

Date	Meeting	Member		Declared Conflict of Interest
		Name	Organization	
January 16, 2026	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
January 28, 2026	TIKC Meeting	Braya Quilty	Fort Chipewyan Métis Nation	Participates on OSM Indigenous Community-Based Monitoring Advisory Committee (ICBAC)
March 4, 2026	TEEM	Carla Davidson	Fort McKay First Nation	Participates on OSM's Oversight committee
		Pourya Shahpoury	Alberta EPA	Participates on OSM Air and Deposition TAC
		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)
		Courtney Brown	Canadian Natural	Participates on OSM Air and Deposition TAC
March 11, 2026	AATC	Pourya Shahpoury	Alberta EPA	Participates on OSM Air and Deposition TAC
		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
March 13, 2026	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
March 18, 2026	GM Meeting	Morgan Voyageur	Athabasca Chipewyan First Nation	Participates on OSM Indigenous Community Based Monitoring Advisory Committee (ICBMAC)
		Peter Fortna	Conklin Métis	Participates on OSM ICBMAC and Indigenous Caucus
		Pourya Shahpoury	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<sub>2</sub>), nitric oxide/nitrogen dioxide (NO/NO<sub>2</sub>), ozone (O<sub>3</sub>), PM<sub>2.5</sub>, total reduced sulphur (TRS), hydrogen sulphide (H<sub>2</sub>S), total hydrocarbons (THC), methane (CH<sub>4</sub>), non-methane hydrocarbons (NMHC), carbon monoxide (CO), and ammonia (NH<sub>3</sub>).

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

Station name	SO <sub>2</sub>	NO/NO <sub>2</sub> /NO <sub>x</sub>	O <sub>3</sub>	PM <sub>2.5</sub>	TRS	H <sub>2</sub> S	THC	CH <sub>4</sub>	NMHC	CO	CO <sub>2</sub>	NH <sub>3</sub>
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						



### 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 <sup>1,2</sup>	X <sup>1</sup>		X <sup>2</sup>	X <sup>2</sup>		X	X	X
MILDRED LAKE	X <sup>1</sup>	X <sup>1</sup>		X <sup>2</sup>	X <sup>2</sup>				
LOWER CAMP MET TOWER	X <sup>4</sup>	X <sup>4</sup>		X <sup>4</sup>	X <sup>4</sup>	X <sup>4</sup>			
BUFFALO VIEWPOINT	X <sup>1</sup>	X <sup>1</sup>		X <sup>2</sup>	X <sup>2</sup>				
MANNIX	X <sup>5</sup>	X <sup>5</sup>		X <sup>5</sup>	X <sup>5</sup>	X <sup>5</sup>			
PATRICIA MCINNES	X <sup>1</sup>	X <sup>1</sup>		X <sup>2</sup>	X <sup>2</sup>				
ATHABASCA VALLEY	X <sup>1</sup>	X <sup>1</sup>	X	X <sup>2</sup>	X <sup>2</sup>				
FORT CHIPEWYAN	X <sup>1</sup>	X <sup>1</sup>		X <sup>2</sup>	X <sup>2</sup>		X		X
BARGE LANDING	X <sup>1</sup>	X <sup>1</sup>	X	X <sup>2,3</sup>	X <sup>2,3</sup>				
LOWER CAMP	X <sup>1</sup>	X <sup>1</sup>	X	X <sup>2</sup>	X <sup>2</sup>				
FORT MCKAY SOUTH	X <sup>1</sup>	X <sup>1</sup>		X <sup>2</sup>	X <sup>2</sup>				
ANZAC	X <sup>1</sup>	X <sup>1</sup>		X <sup>3</sup>	X <sup>3</sup>				X
WAPASU	X <sup>1</sup>	X <sup>1</sup>		X <sup>2</sup>	X <sup>2</sup>			X	
STONY MOUNTAIN	X <sup>1</sup>	X <sup>1</sup>		X <sup>3</sup>	X <sup>3</sup>		X	X	X
FIREBAG	X <sup>1</sup>	X <sup>1</sup>		X <sup>2</sup>	X <sup>2</sup>				
MACKAY RIVER	X <sup>1</sup>	X <sup>1</sup>		X <sup>2</sup>	X <sup>2</sup>			X	
CONKLIN	X <sup>1</sup>	X <sup>1</sup>		X <sup>2</sup>	X <sup>2</sup>				
JANVIER	X <sup>1</sup>	X <sup>1</sup>		X <sup>2,3</sup>	X <sup>2,3</sup>				
FORT HILLS	X <sup>1</sup>	X <sup>1</sup>		X <sup>2</sup>	X <sup>2</sup>				
WASKOW OHCI PIMATISIWIN	X <sup>1</sup>	X <sup>1</sup>		X <sup>2</sup>	X <sup>2</sup>				
JACKFISH 2/3	X <sup>1</sup>	X <sup>1</sup>		X <sup>2</sup>	X <sup>2</sup>				
SURMONT 2	X <sup>1</sup>	X <sup>1</sup>		X <sup>2</sup>	X <sup>2</sup>				
ELLS RIVER	X <sup>1</sup>	X <sup>1</sup>		X <sup>2</sup>	X <sup>2</sup>		X		
LEISMER	X <sup>1</sup>	X <sup>1</sup>		X <sup>2</sup>	X <sup>2</sup>				
SAWBONES BAY	X <sup>1</sup>	X <sup>1</sup>		X <sup>2</sup>	X <sup>2</sup>				
JACKFISH 1	X <sup>1</sup>	X <sup>1</sup>		X <sup>2</sup>	X <sup>2</sup>				
KIRBY SOUTH	X <sup>1</sup>	X <sup>1</sup>		X <sup>2</sup>	X <sup>2</sup>				
KIRBY NORTH	X <sup>1</sup>	X <sup>1</sup>		X <sup>2</sup>	X <sup>2</sup>				
BLACKGOLD	X <sup>1</sup>	X <sup>1</sup>		X <sup>2</sup>	X <sup>2</sup>				
HANGINGSTONE EXPANSION	X <sup>1</sup>	X <sup>1</sup>		X <sup>2</sup>	X <sup>2</sup>				
MONDAY CREEK	X <sup>1</sup>	X <sup>1</sup>		X <sup>2</sup>	X <sup>2</sup>				
BLACKROD	X <sup>1</sup>	X <sup>1</sup>		X <sup>2</sup>	X <sup>2</sup>				

<sup>1</sup> Parameter measured at 2m.

<sup>2</sup> Parameter measured at 10m.

<sup>3</sup> Parameter measured at 20m.

<sup>4</sup> Parameter measured at multiple elevations (i.e., 20m, 45m, 100m, 163m).

<sup>5</sup> 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<sub>2.5</sub>) and associated metals and ions, particulate matter less than 10 µm aerodynamic diameter (PM<sub>10</sub>) 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 <sub>2.5</sub>	PM <sub>10</sub>	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**

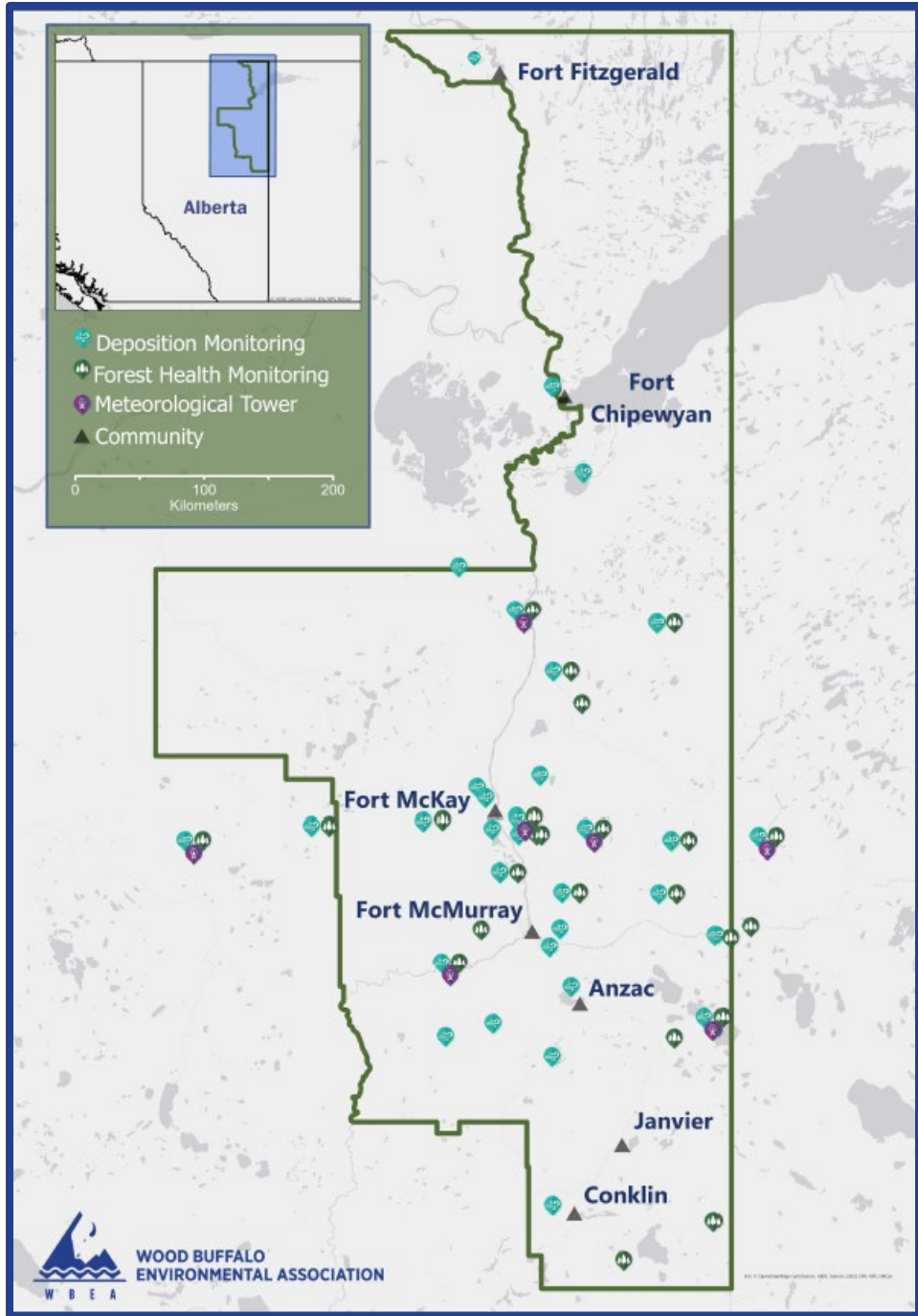
Station name	Visibility Sensor	VOC GC	Triggered RSC
BERTHA GANTER-FORT MCKAY		X	X
BUFFALO VIEWPOINT	X		
LOWER CAMP	X		

## 7. Appendix C – Maps of the WBEA Monitoring Networks



**Continuous Ambient Air Monitoring Stations**





**Deposition Monitoring Network**

