

Temporary Alberta Airshed Wildfire Bulk Reporting Protocol:

Temporary Protocol for Fine Particulate Matter Exceedance Reporting by Alberta Airsheds Experiencing Wildfire Smoke (2023 Update to Implementation)

Guidance for Implementation

Purpose

The Temporary Alberta Airshed Wildfire Bulk Reporting Protocol (herein, the protocol) is a protocol that is intended to manage the reporting of the high number of fine particulate matter (PM_{2.5}) exceedances generated during wide-spread and persistent poor air quality episodes as a result of wildfire smoke. The large number of exceedances of the Alberta Ambient Air Quality Objective (AAAQO) and Alberta Ambient Air Quality Guideline (AAAQG) for PM_{2.5} that occur during these episodes can result in a high volume of calls to Alberta Environmental and Dangerous Goods Emergencies (Alberta EDGE; also known as the “environmental hotline”) and can be a reporting burden for Alberta Airsheds. To ensure that resources are available to manage emerging high-risk issues at Alberta EDGE and Alberta Airsheds during prolonged wildfire smoke episodes, the protocol aims to simplify and consolidate reporting of exceedances temporarily. Public health messaging around wildfire smoke episodes is separate from the reporting of exceedances to Alberta EDGE. High-priority public health messaging around poor air quality episodes is handled by the Alberta Air Quality Notification Protocol,¹ which acts as a mechanism to provide updates on poor air quality episodes to Albertans. The Alberta Government works together with Environment and Climate Change Canada to determine when Special Air Quality Statements should be issued and takes into account information such as data from air quality monitoring stations, satellite images, forecasts of smoke movement, local reports and road

¹ <https://open.alberta.ca/publications/alberta-air-quality-notification-protocol-what-you-need-to-know>

cameras. Air quality advisories may also be issued by Alberta Health Services and Indigenous Services Canada.

Application of the Protocol

The protocol is a temporary measure to be implemented for Alberta Airsheds experiencing wildfire smoke or if invoked by written notification during other parts of the year. The protocol is intended to reduce the volume of PM_{2.5} AAAQO or AAAQG exceedances reported to Alberta EDGE. Alberta Airsheds may² follow the protocol in either of two circumstances:

- Between the dates of April 15 and October 1³; or,
- When written⁴ notification is received from Alberta EDGE indicating that the protocol in effect (triggers used by Alberta EDGE to initiate the protocol are discussed below).

When the protocol is in place, reporting of exceedances of parameters other than PM_{2.5} must follow the *Air Monitoring Directive* requirements for exceedance and performance reporting in Chapter 9⁵.

The protocol applies to all monitoring stations within an Alberta Airshed, except for any monitoring stations that have reporting requirement specifically tied to an EPEA approval (refer to Protocol Section 7).

When the protocol is enabled via written notification from Alberta EDGE the protocol may apply to one Alberta Airshed, several Alberta Airsheds, or all Alberta Airsheds. This will be explicitly specified in the written notification from Alberta EDGE.

² When in effect, the protocol provides Alberta Airsheds with an opportunity to reduce their reporting burden. Alberta Airsheds are not required to follow the protocol. However, if not following the protocol, Alberta Airsheds must otherwise follow the *Air Monitoring Directive* requirements for exceedance and performance reporting in Chapter 9

³ Beginning for 2023, the protocol will be automatically activated between the dates of April 15 and October 1. These dates may be reviewed and adjusted as needed in future years.

⁴ Written notification constitutes a text-based notification received from Alberta EDGE. Written notification may be communicated via email.

⁵ <https://open.alberta.ca/publications/air-monitoring-directive-2016>

Triggers for Activating the Protocol

Automatic Activation

The protocol will be automatically activated between the dates of April 15 and October 1. Historical data⁶ indicates that the period between April 15 and October 1 has the highest incidence of reported wildfires in Alberta⁷. Automatic implementation of the protocol may be evaluated in the future and may be amended or adjusted based on experience and feedback.

Written Notification from Alberta EDGE

The protocol may be activated by Alberta EDGE outside of April 15 to October 1 only if a poor air quality episode is wide-spread, persistent (is likely to continue or has continued over several days to weeks), and is due to wildfire smoke. The protocol will not be activated if the poor air quality episode is due to industrial or anthropogenic influence (e.g., industrial upset, temperature inversion, etc.). Outside of April 15 to October 1, the protocol can only be placed into and taken out of effect via written notification from Alberta EDGE directly to Alberta Airsheds. The following triggers are used to determine when to manually activate the protocol. These triggers may indicate that there is wide-spread and persistent poor air quality due to high PM_{2.5} concentrations attributable to wildfire smoke, however it does not explicitly mean that the protocol is in effect.

- Alberta EDGE receiving a high call volume⁸ of wide-spread exceedances of the 1-hour PM_{2.5} AAAQG or the 24-hour PM_{2.5} AAAQO as a result of wildfire smoke
 - o High call volumes are indicative of a wide-spread air quality episode that is taxing the resources of Alberta Airsheds, Alberta Environment and Protected Areas, or Alberta EDGE
- A Special Air Quality Statement is issued from Environment and Climate Change Canada⁹ indicating that a routine air quality event (as defined in the Alberta Air Quality Notification Protocol) is occurring as a result of wildfire smoke. Special Air Quality statements are issued under the following circumstances:

⁶ <https://wildfire.alberta.ca/resources/historical-data/historical-wildfire-database.aspx>

⁷ Outside of this period, impacts from wildfire smoke are less common, with the majority of PM_{2.5} in the atmosphere resulting from anthropogenic sources. (Aklilu, Yayne-abeba; Adams, Cristen; Wentworth, Gregory R.; Mazur, Maxwell; Dabek-Zlotorzynska, Ewa. 2023. An approach to inform air quality management through receptor source apportionment and thermodynamic modelling of fine particulate matter in Red Deer, Alberta, Canada. Atmospheric Research 283, 106583)

⁸ High call volumes are situations where the volume of incoming calls related to PM_{2.5} AAAQO or AAAQG exceedances significantly limit the ability for Alberta EDGE to receive and prioritize other environmental and dangerous goods emergencies. Determination of high call volume is left to the discretion of Alberta EDGE.

⁹ In addition to Special Air Quality Statements air quality advisories can be issued by Alberta Health Services and/or Indigenous Services Canada. Air Quality Advisories contain similar information to a Special Air Quality Statement and may supplement Special Air Quality Statements.

- The Air Quality Health Index will be 7 or higher for 2 or more hours
- When wildfire smoke is impacting an Alberta community
- Situations where reduced visibility is expected as a result of wildfire smoke where.

Special Air Quality Statements issued as a result of one of the preceding circumstances occurring as a result of wildfire smoke may be used as a trigger to activate the protocol.

Triggers for Rescinding the Protocol

Automatic Rescindment

Alberta Airsheds that follow the protocol between April 15 and October 1 must cease following the protocol effective October 2 unless Alberta EDGE has provided specific direction via written notification directly to Alberta Airsheds. Reporting of measured exceedances must resume as specified in the *Alberta Air Monitoring Directive*.

Written Notification from Alberta EDGE

If Alberta EDGE has activated the protocol outside of April 15 to October 1, Alberta EDGE will send written notification to Alberta Airsheds to rescind the protocol, indicating that the protocol is no longer in effect. Alberta EDGE could also rescind automatic activation of the protocol (i.e., within April 15 and October 1) through written notification, if deemed necessary. Once the protocol has been rescinded and is no longer in effect, reporting of measured exceedances must resume as specified in the *Alberta Air Monitoring Directive*. Rescinding the protocol is at the discretion of Alberta EDGE but will generally adhere to the following triggers. These triggers may indicate that wide-spread and persistent poor air quality due to high PM_{2.5} concentrations attributable to wildfire smoke is no longer occurring, however it does not explicitly mean that the protocol has been rescinded and is no longer in effect.

- Call volumes at Alberta EDGE return to normal, or are steadily occurring at a rate that enables Alberta EDGE to appropriately respond to emerging environmental and dangerous goods emergencies at available staffing levels.
- Special Air Quality Statements issued in response to routine air quality events occurring as a result of wildfire smoke have been rescinded, or are no longer in place due to the wildfire smoke conditions ceasing to trigger the continued need for the Special Air Quality Statement.

Bulk Reporting Protocol

1. The protocol comes into effect:
 - a. Between the dates of April 15 and October 1 and applies to all Alberta Airsheds (as defined in the Alberta *Air Monitoring Directive* Chapter 1: Appendix A¹⁰); or,
 - b. When written¹¹ notification is received from Alberta EDGE indicating that the protocol is in effect (triggers used by Alberta EDGE to initiate the protocol are discussed above). In this case, the protocol applies only to the Alberta Airshed(s) explicitly specified in the written notification received from Alberta EDGE.
2. When in effect, Alberta Airsheds may submit one exceedance summary per monitoring station to Alberta EDGE encompassing seven days on a calendar week basis (i.e. Monday – Sunday). Each report must summarize **all measured 1-hour PM_{2.5} AAAQG and 24-hour PM_{2.5} AAAQO** exceedances for each monitoring station to which the protocol applies. This exceedance summary fulfills the immediate reporting requirement for Alberta airsheds (i.e. Alberta *Air Monitoring Directive* Clause RC 14-A) when the protocol is in effect. An exceedance summary is not required if there were no measured exceedances.
3. One reference number will be generated by Alberta EDGE per monitoring station and the reference number will cover a seven day period on a calendar week basis. Each reference number will apply to all reportable PM_{2.5} AAAQO or AAAQG exceedances from an individual monitoring station over the seven day period. All reportable PM_{2.5} AAAQO or AAAQG exceedances from an individual monitoring station must be reported starting from the beginning of the calendar day on which the protocol is in effect (e.g. if the protocol is activated on Tuesday, all reportable PM_{2.5} exceedances from the beginning of Tuesday through to the following Sunday would be covered by the same reference number respective to each given station).
4. When the protocol is in effect for longer than seven days, a new reference number will be generated per station for each subsequent seven day calendar week, until the protocol is rescinded and is no longer in effect.
5. Exceedance summaries, as outlined in the protocol, must be received within seven calendar days following the end of each seven-day calendar week reporting period (i.e. exceedance summaries are due by the end of day on the Sunday following the calendar week being reported). Exceedance summaries must be emailed to Alberta EDGE at edge@gov.ab.ca. Additional reporting, as indicated in Alberta *Air Monitoring Directive* Clause RC 14-D, and further defined under “Written Reports” (also referred to as seven-

¹⁰ <https://open.alberta.ca/publications/air-monitoring-directive-2016>

¹¹ Written notification constitutes a text-based notification received from Alberta EDGE. Written notification may be communicated via email.

day letters) in Section 4(1) of Alberta's *Release Reporting Regulation*¹² is not required for 1-hour PM_{2.5} AAAQG and 24-hour PM_{2.5} AAAQO exceedances while the protocol is in effect.

6. When the protocol is rescinded and no longer in effect, reporting of measured exceedances must resume as specified in the Alberta *Air Monitoring Directive*. The last reporting period will conclude at midnight on the calendar day that the protocol is rescinded and is no longer in effect (i.e. it is likely that the last reporting period will encompass less than 7 calendar days). Exceedance summaries summarizing the exceedances observed during the last reporting period must be received within seven calendar days following when the protocol is rescinded and is no longer in effect in effect.
7. This protocol applies to monitoring stations operated by an Alberta Airshed, including those operated on behalf of an *Environmental Protection and Enhancement Act* approval holder with general requirements for air quality monitoring¹³. Exceptions include those monitoring stations which meet any of the following criteria:
 - a. Monitoring for PM_{2.5} which occurs as a result of direct requirements in an operating approval (i.e. an industrial compliance monitoring station). Immediate reporting of 1-hour PM_{2.5} AAAQG and 24-hour PM_{2.5} AAAQO exceedances is still required, as per the approval requirements.
 - b. Monitoring for PM_{2.5} as required by an order (e.g. Environmental Protection order) or requirements from any provincial agency or department other than Alberta Environment and Protected Areas.

Industrial operations are still required to immediately report any releases or exceedances of emission limits. If a PM_{2.5} AAAQO or AAAQG is exceeded in response to a release or emissions limit exceedance, the PM_{2.5} AAAQO or AAAQG exceedance must be reported immediately.

¹² https://open.alberta.ca/publications/1993_117

¹³ Examples of general requirements for air quality monitoring are clauses such as the following: "The approval holder shall operate, or cause to be operated, a regional Airshed network for the monitoring of ambient air, in a manner satisfactory to the Director.", and "The approval holder shall operate or cause to be operated the [Alberta Airshed name] [air quality monitoring network name]."

Notification Template

If the protocol is activated through written notification from Alberta EDGE, the following template is intended to be used to place the protocol into effect:

The following trigger has indicated that a wide-spread, persistent poor air quality episode is occurring as a result of wildfire smoke:

- [List trigger (e.g. Special Air Quality Statement Issued)]

As a result the Alberta Airshed Wildfire Bulk Reporting Protocol has been placed into effect under reference #[XXXX] in the following Alberta Airshed(s):

- [List applicable Alberta Airshed(s)]

Alberta Airsheds may follow the protocol for the reporting of PM_{2.5} exceedances. Reporting of all other parameters must continue to follow the *Air Monitoring Directive*.

For more information, please contact:

[Title of person responsible for issuing]

When the protocol is activated through written notification from Alberta EDGE, the following template is intended to be used to rescind the protocol:

The Alberta Airshed Wildfire Bulk Reporting Protocol is rescinded and is no longer in effect under reference #[XXXX] in the following Alberta Airshed(s):

- [List applicable Alberta Airshed(s)]

Alberta Airsheds must return to reporting exceedances as specified in the *Air Monitoring Directive*.

For more information, please contact:

[Title of person responsible for issuing]