Air Monitoring Directive Chapter 9: Reporting

Version Dec 16, 2016
Amends the original Air Monitoring Directive published June, 1989

Title:	**Air Monitoring Directive Chapter 9: Reporting**
Number:	**AEP, Air Policy, 2016, No. 1-9**
Program Name:	**Air Policy**
Original Release Date:	**July 29, 2016**
Effective Date:	**January 1, 2019**
This document was updated on:	**December 16, 2016**
ISBN No:	**978-1-4601-3197-8 (Printed Edition)** **978-1-4601-3198-5 (On-line Edition)**

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1.0 Introduction

1.1 Interpretation

RC 1-A	*For the purposes of the Reporting Chapter:* *(a) a reference to "persona responsible" in Part 1 of the Reporting Chapter shall be interpreted as meaning a person responsible for an industrial operation and, for certainty, excluding a person responsible for an Alberta airshed;* *(b) a reference to "person responsible" in Part 2 of the Reporting Chapter shall be interpreted as meaning a person responsible for an Alberta airshed and, for certainty, excluding a person responsible for an industrial operation;* *(c) a reference to a specific reporting form or template, unless otherwise specifically stated, shall be interpreted as meaning that form or template, as amended from time to time;* *(d) a reference to a specific published document, unless otherwise specifically stated, shall be interpreted as meaning that published document, as amended from time to time;* *(e) all documents, forms and templates mentioned are located and available on the AMD website, unless otherwise noted;* *(f) in Section 7 of the Reporting Chapter, sources of air emissions are either an "air emission release point" or an "air emission non-point source"; and* *(g) the term "release" in the Reporting Chapter shall be interpreted as meaning an air release or a release affecting the air, unless otherwise specified.*

"Release" in RC 1-A (g) would include, but is not limited to, releases to the atmosphere and any uncontrolled, unauthorized or accidental releases that affect the air.

1.2 Purpose

This Reporting document forms a part (Chapter 9) of Alberta's Air Monitoring Directive (Alberta Environment and Parks 2016, as amended from time to time) and will hereafter be referred to as the Reporting Chapter. Refer to Chapter 1 (the AMD Introduction) for requirements and definitions that apply to all parts of the AMD, a list of what components constitute the AMD and details on review of and revisions to the AMD.

The purpose of the Reporting Chapter is to:

- establish the minimum requirements for the reporting of air and emissions data, reports and summarized information to the Regulator;
- standardize the types, content and format of air and emissions data, reports and summarized information;
- establish and/or reference the minimum reporting frequencies and deadlines for air and emissions data, reports and summarized information;
- establish and/or reference the procedures for the submission of air and emissions data, reports and summarized information; and

- provide guidance on the reporting of air and emissions data, reports and summarized information.

RC 1-B	*The person responsible must comply with the requirements set out in the Reporting Chapter of the AMD as of and from January 1, 2019, unless otherwise specified in the Reporting Chapter.*

1.3 Document Structure and Requirements

The Reporting Chapter is split into two parts. Part 1 covers industrial reporting, while Part 2 covers Alberta airshed reporting. The purpose of this separation is to make the document easier to read by focusing the requirements and guidance to the appropriate person responsible.

Approvals may require additional monitoring and reporting beyond what is covered by the Reporting Chapter. In these cases, the reporting of such information should be done according to the requirements and instructions set out in the approval or written notice from the Director.

1.4 Amendments

December 16, 2016 (Amendments made to July 29, 2016 version)

1. Update to title page – reference to AMD 1989.

1.5 Reporting During Changes in Ownership

If an industrial operation is being sold or transferred to a new owner or operator, the original approval holder is required to comply with the requirements of the Reporting Chapter, and all other approval terms and conditions, until the approval is formally transferred by the written consent of the Director.

1.6 Roles and Responsibilities for Reporting Air Data

In general, whoever conducts the monitoring prepares and submits the data and reports. An industrial operation reports on the monitoring that is conducted by the industrial operation and the Alberta airshed reports on the monitoring that is conducted by the Alberta airshed.

Some ambient air monitoring that is required under approvals is carried out by Alberta airsheds on behalf of member industrial operations, as authorized in an industrial operation's approval. In these cases, it is not necessary for an industrial operation to report on the same ambient air monitoring data that is reported by the Alberta airshed. The Alberta airshed submits data and reports on the ambient monitoring that the Alberta airshed conducts. Therefore it is not necessary for an industrial operation to discuss the ambient air monitoring results in a monthly or annual

report if an Alberta airshed has included the required discussion of ambient monitoring results in their airshed monthly and annual report. The Alberta airshed can conduct the required ambient air monitoring and associated reporting on behalf of an industrial operation.

Some industrial operations are members of an Alberta airshed but still conduct some or all of the ambient air monitoring required under their approval. Submission of the ambient air monitoring data in this case is the responsibility of the industrial operation, as they are the ones conducting the monitoring. Discussion of these monitoring results is required to be included in the industrial operation's monthly and annual reports.

Immediate notification at Alberta airshed operated ambient air monitoring stations can be carried out by the airshed or by a designated industrial member, as agreed on between the Alberta airshed and the industrial operation. Such notification roles should be clearly defined in the QAP protocols of both the Alberta airshed and industrial operation members. Immediate notifications for industry operated ambient air monitoring stations are required to be carried out by the industrial operation. Ultimately, the industrial operation is held accountable for meeting the requirements of their approval.

Part 1: Industrial Reporting

Part 1 of the Reporting Chapter, including clauses RC 2-A through RC 11-U, applies to industrial operations in Alberta.

Industrial operations are not required to report on ambient air monitoring that is conducted and reported by Alberta airsheds.

2.0 Industrial General Reporting Requirements

There are several types of reporting that may be required for an industrial operation, including, but not limited to:

- submission of air emission and ambient air monitoring data;
- exceedance and performance reporting;
- submission of monthly or quarterly reports;
- submission of annual reports;
- submission of emissions inventory reports;
- notifications;
- submission of source monitoring reports;
- supplemental reporting; and
- amendments to previously submitted data or reports.

2.1 General Report Content

RC 2-A *Unless otherwise specified in the Reporting Chapter, the person responsible must include the following information, at a minimum, in any report submitted to the Director pursuant to the AMD:*

(a) a cover letter meeting the requirements specified in the Reporting Chapter for the type of report;
(b) identification of (i) the industrial operation and (ii) the approval number;
(c) the (i) name, (ii) phone number, (iii) mailing address and (iv) email address of the representative of the person responsible;
(d) the (i) name, (ii) phone number, (iii) mailing address and (iv) email address of the person actually submitting the information, if different than that provided in RC 2-A (c);
(e) clear identification of (i) who prepared the report and (ii) who reviewed the report;
(f) the location where the monitoring activities being reported were carried out, if different from the address provided in RC 2-A (c) or (d);
(g) (i) a unique identifier on the report, such as the approval number and report name, and (ii) reporting timeframe to which the report applies, to enable the Director to differentiate the report from other reports submitted by the industrial operation;
(h) (i) identification on each page of the report to clearly show that the page is part of the report, and (ii) clear identification of the end of the report; and
(i) the date the report was generated.

RC 2-B *The person responsible must submit to the Director reports that (a) are clearly legible, and (b) contain the details required by the Reporting Chapter, including any accompanying forms as referred to in RC 2-C and RC 2-D.*

2.2 Reporting Forms

AMD reporting forms and templates are available from the AMD website. Additional information on the contents of the reports can be found in Sections 4 through 11 of the Reporting Chapter.

RC 2-C	*With respect to each report submitted to the Director, the person responsible must (a) use and (b) submit the applicable reporting forms specified in Part 1 of the Reporting Chapter, unless otherwise authorized in writing by the Director.*
RC 2-D	*In the event that no suitable form is specified in the Reporting Chapter, the person responsible must submit to the Director all of the required reporting information and data in a reporting format (a) suitable for the type of monitoring being carried out and (b) satisfactory to the Director.*

Completed reporting forms that are part of reports or submitted data are to be submitted at the same time as the report or submitted data they are a part of. Forms are to be submitted in their original, unaltered, digital format.

If a reporting form is not applicable to the industrial operation for the monthly, quarterly or annual reporting period, the form is not required to be submitted (e.g., the AMD CEMS Zero and Span Summary Form is not required if there were no out of control zeros or spans). Blank forms are not required to be submitted. However, it should be noted in the monthly, quarterly and annual reports which forms are being submitted with the specific report, to clarify that reporting forms are associated with the report. Similarly, if individual fields on a reporting form are not applicable to the specific monitoring carried out or the activities at the industrial operation, those fields may remain blank. Any mandatory fields not filled in because they are not applicable to the industrial should be identified in the comments section of the form. It is the responsibility of the industrial operation to ensure that the requirements of the Reporting Chapter have been met (both minimum AMD requirements and the reporting requirements set out in the approval).

2.3 Certification of Submitted Information

Certification is formal sign-off by the person responsible indicating that the data or reports being submitted to the Director (a) have been reviewed by the person responsible prior to submission, (b) accurately reflect the monitoring results and reporting timeframe, and (c) meet the specified analysis, summarization and reporting requirements.

RC 2-E	*The person responsible must certify all reports that are required to be submitted to the Director, by signing off on the cover letter of the report, unless otherwise specified in the Reporting Chapter.*
RC 2-F	*For the certification in RC 2-E, the person responsible must include in the cover letter the following statement: "I certify that I have reviewed and verified this*

	report and that the information is complete, accurate and representative of the monitoring results, reporting timeframe and the specified analysis, summarization and reporting requirements.”.
RC 2-G	*The person responsible must certify all air and emissions data that are required by the AMD to be electronically submitted to the Director, using the certification methodology of the electronic submission system.*
RC 2-H	*For the certification in RC 2-G, the person responsible must certify the data at the time of electronic submission, according to the requirements of the certification methodology of the electronic submission system. For clarity, this means that the certification in RC 2-G must meet the same submission deadline as the data being electronically submitted to the Director.*

The person responsible may designate who will certify reports and data for submission to the Director.

For RC 2-G and RC 2-H, each electronic submission system (e.g., CEMS, Alberta’s Ambient Air Quality Data Warehouse) will have its own method or process to certify the data being submitted, including online or digital sign-off.

RC 2-I	*The person responsible must submit to the Director an electronic copy of the certified laboratory analysis report with all (a) passive, (b) static and (c) intermittent sample results that are required to be submitted to the Director as per the AMD.*
RC 2-J	*For the certified laboratory analysis report in RC 2-I, the certified laboratory analysis report must be certified with the signature of an authorized staff member of the laboratory that prepared the report.*
RC 2-K	*For the certified laboratory analysis report in RC 2-I, the person responsible must submit the certified laboratory analysis report at the same time as monitoring sample results. For clarity, this means that the certified laboratory analysis report in RC 2-I must meet the same submission deadline as the specific monitoring sample results.*

There is no specified format for the certified laboratory analysis report in RC 2-I. The person responsible is simply required to submit the report that was provided by the laboratory.

2.4 Electronic Submission of Reports

RC 2-L	*The person responsible must, unless otherwise specified in the Reporting Chapter, electronically submit to the Director all reports and related documents required by the AMD, in accordance with:* *(a) the Acceptable Formats for EPEA Approval and Code of Practice Records and Submission Coordinates for Energy Projects for an AER regulated industrial operation; or* *(b) the Acceptable Formats for EPEA Approval and Code of Practice Records and Submission Coordinates for a non-AER regulated industrial operation.*
RC 2-M	*When submitting data that did not have to be otherwise submitted to the Director electronically, or via one of the AMD forms, the person responsible must submit to the Director this data in a digital, extractable format, along with the corresponding report, when applicable.*
RC 2-N	*For the submissions in RC 2-L and RC 2-M, the person responsible must follow the naming convention for all electronic reports specified in the EPEA Approval Industrial Monitoring Documentation Submission Naming Guideline.*
RC 2-O	*For the submissions in RC 2-L and RC 2-M, the person responsible must submit to the Director according to the deadlines specified in the Reporting Chapter for the specific type of report.*

2.5 Submissions from Contractors

The Quality System Chapter (Chapter 5) of the AMD outlines requirements for contractors conducting monitoring or reporting on behalf of the person responsible.

RC 2-P	*If the person responsible has hired a contractor to conduct any monitoring or reporting activities under the AMD on behalf of the person responsible, the person responsible must, as part of the data and reports being submitted to the Director,* *(a) identify the contractor or contractors who performed any or all of the monitoring or reporting work; and* *(b) indicate what monitoring or reporting work the contractor or contractors carried out.*

The person responsible may choose to have reports or reporting forms completed by a contractor. However, the person responsible is still responsible for the content of the submitted information and has the duty to review and sign off on any information required to be submitted to the Director.

3.0 Industrial Data Submission

This section outlines the requirements for the submission of ambient air monitoring and source emissions data. Submission of time labels, calibrations and metadata may also be required.

3.1 Submission of Ambient Air Monitoring Data

The Monitoring Chapter (Chapter 4) of the AMD outlines minimum performance specifications for continuous ambient air analyzers and meteorological sensors. The Data Quality Chapter (Chapter 6) of the AMD outlines requirements for the collection, validation and verification of continuous ambient air monitoring data.

RC 3-A	*Commencing January 1, 2019, the person responsible must electronically submit to Alberta's Ambient Air Quality Data Warehouse all ambient air monitoring data collected by the industrial operation, except those collected for the person responsible's own purposes, according to Alberta's Ambient Air Quality Data Warehouse: Data Submitter's Guide.*

Special air studies conducted by the industrial operation for its own purposes (i.e., not mandated by the Regulator) do not need to be reported to the Regulator. However, if the industrial operation chooses to submit results from a special air study to the Regulator, the air monitoring for the special air study needs to be conducted in accordance with the AMD in order for the Regulator to accept the data. Refer to the AMD Introduction (Chapter 1).

3.1.1 Submission Deadline for Ambient Air Monitoring Data

RC 3-B	*For the submission in RC 3-A, the person responsible must submit continuous ambient air monitoring data collected at permanent ambient air monitoring stations (a) monthly, (b) by the end of the month following the month of data collection, unless otherwise authorized in writing by the Director. For clarity, this requirement shall first come into effect January 1, 2019, such that the person responsible must submit all continuous ambient air monitoring data collected in the month of January 2019 by February 28, 2019, unless otherwise authorized in writing by the Director.*
RC 3-C	*For the submission in RC 3-A, the person responsible must submit continuous ambient air monitoring data collected at portable ambient air monitoring stations (a) monthly, (b) by the end of the month following the month of data collection, unless otherwise authorized in writing by the Director. For clarity, this requirement shall first come into effect January 1, 2019, such that the person responsible must submit all continuous ambient air monitoring data collected in*

	the month of January 2019 by February 28, 2019, unless otherwise authorized in writing by the Director.
RC 3-D	*For the submission in RC 3-A, the person responsible must submit ambient air monitoring data collected by (a) passive, (b) intermittent and (c) static samplers within one year of data collection, unless otherwise authorized in writing by the Director. For clarity, this requirement shall first come into effect January 1, 2019, such that the person responsible must submit all such data collected in January 2019 by the end of January 2020, unless otherwise authorized in writing by the Director.*

Where there are replicate samples (for example with passive sampling), both sample concentrations and replicate sample concentrations are reportable data values. Submitting solely an average of the data values would not fulfill the data submission requirement.

Data in Alberta's Ambient Air Quality Data Warehouse should always reflect the most current validated data. In some cases, errors or omissions in the submitted data may be discovered, requiring data resubmission by the person responsible. Data resubmission is discussed in Section 11 of the Reporting Chapter.

3.1.2 Significant Figures for Ambient Air Monitoring Data

Ambient air monitoring data reported under the AMD must reflect the appropriate number of significant figures based on the accuracy, precision and certainty of the measurement and detection limit of the analyzer. For example, decimal resolution for ambient air monitoring data collected from an analyzer may not be indicative of the analyzer's actual measurement capability, so some data treatment may be required before these data can be submitted or used in reports.

RC 3-E	*The person responsible must round all ambient air monitoring data reported to the Regulator to the appropriate number of significant figures, based on an analyzer's actual measurement capability, or the method used to obtain the data, prior to:* *(a) submission to Alberta's Ambient Air Quality Data Warehouse; and* *(b) inclusion in reports being submitted to the Director.*
RC 3-F	*For reporting a comparison to any AAAQO, the person responsible must:* *(a) round the value in RC 3-E to one significant figure greater than the AAAQO for comparison to the AAAQO; or* *(b) if the number of significant figures of the value in RC 3-E is not at least one significant figure greater than the AAAQO, use the number of significant figures available from RC 3-E for comparison to the AAAQO.*

RC 3-F applies to reporting a comparison to an AAAQO (e.g., in reporting exceedances of AAAQOs), not for the reporting of hourly data to Alberta's Ambient Air Quality Data Warehouse. While most analyzers provide enough resolution to compare to AAAQOs, there may be instances when an additional significant figure is not available for comparison to an AAAQO. In such cases the person responsible is to compare to the AAAQO using the number of significant figures available (that is the number of significant figures available based on the analyzer's measurement capability).

Examples of AAAQO comparisons in RC 3-F (a) would include, but are not limited to:

For a 1-hour average AAAQO of 300 µg m^{-3}:

- A rounded 1-hour ambient air concentration of 299.4 µg m^{-3} would not be an exceedance of the AAAQO;
- A rounded 1-hour ambient air concentration of 300.0 µg m^{-3} would not be an exceedance of the AAAQO; and
- A rounded 1-hour ambient air concentration of 300.4 µg m^{-3} would be an exceedance of the AAAQO.

Examples of AAAQO comparisons in RC 3-F (b) would include, but are not limited to:

For a 1-hour average AAAQO of 4.5 µg m^{-3}, when an additional significant figure is not available from the analyzer:

- A measured (non-rounded) 1-hour ambient air concentration of 4.5 µg m^{-3} would not be an exceedance of the AAAQO;
- A measured (non-rounded) 1-hour ambient air concentration of 4.6 µg m^{-3} would be an exceedance of the AAAQO.

RC 3-G *For the rounding in RC 3-E and RC 3-F, the person responsible must apply the following rounding conventions:*

(a) when the digit following the last significant figure is equal to or greater than five, the last significant figure must be increased by one and the digits to its right must be truncated; and

(b) when the digit following the last significant figure is less than five, the last significant figure must remain unchanged and the digits to its right must be truncated.

The requirements in RC 3-G refer to rounding up and rounding down, respectively. Some examples of these rounding conventions are:

For two significant figures:

- 1.27 rounds up to 1.3;
- 1.250 rounds up to 1.3;
- 1.248 rounds down to 1.2; and
- 1.23 rounds down to 1.2.

3.1.3 Unit Conversions for Ambient Air Monitoring Data

RC 3-H	*The person responsible must (a) convert all ambient air monitoring data to the appropriate units required by Alberta's Ambient Air Quality Data Warehouse, prior to submitting any data to Alberta's Ambient Air Quality Data Warehouse, and (b) submit to Alberta's Ambient Air Quality Data Warehouse using the converted units in (a).*
RC 3-I	*For the unit conversions in RC 3-H, the person responsible must use generally accepted scientific principles to perform all unit conversions.*
RC 3-J	*The person responsible must report all ambient air concentrations at local ambient temperature and pressure for (a) submission to Alberta's Ambient Air Quality Data Warehouse and (b) inclusion in reports being submitted to the Director, unless otherwise authorized by the Director.*

3.1.4 Format for Ambient Air Monitoring Data Submission

All ambient air monitoring data submitted electronically to Alberta's Ambient Air Quality Data Warehouse is required to be properly formatted and labelled prior to submission.

RC 3-K	*When submitting ambient air monitoring data to Alberta's Ambient Air Quality Data Warehouse, the person responsible must report all ambient air monitoring data using the file format specified in Alberta's Ambient Air Quality Data Warehouse: Data Submitter's Guide.*

3.1.5 Data Quality Identification for Ambient Air Monitoring Data

RC 3-L	*When submitting ambient air monitoring data to Alberta's Ambient Air Quality Data Warehouse, the person responsible must flag all ambient air monitoring data in accordance with the Data Quality Chapter (Chapter 6) of the AMD.*
RC 3-M	*Each time the person responsible submits a dataset to Alberta's Ambient Air Quality Data Warehouse, the person responsible must (a) complete, (b) sign, and (c) electronically submit to Alberta's Ambient Air Quality Data Warehouse the Ambient Data Validation and Certification Form. For clarity, the Ambient Data Validation and Certification Form must be submitted at the same time the associated dataset is submitted to Alberta's Ambient Air Quality Data Warehouse.*

3.1.6 Submission of Ambient Air Monitoring Metadata

Alberta's Ambient Air Quality Data Warehouse requires that a number of metadata records be kept up to date. Examples of these metadata records include, but are not limited to, ambient air monitoring station name, location, monitoring method and parameters. Account information for Alberta's Ambient Air Quality Data Warehouse is also required to be kept up to date. The account set-up and maintenance process is detailed in Alberta's Ambient Air Quality Data Warehouse: Data Submitter's Guide.

RC 3-N	*The person responsible must (a) submit and (b) keep up to date, all metadata associated with the ambient air monitoring data being submitted to Alberta's Ambient Air Quality Data Warehouse.*
RC 3-O	*The person responsible must (a) submit and (b) keep up to date, all account information associated with the ambient air monitoring data being submitted to Alberta's Ambient Air Quality Data Warehouse.*

For RC 3-N and RC 3-O, keeping metadata and account information up to date means that it should be updated, at a minimum, when monthly data is submitted to Alberta's Ambient Air Quality Data Warehouse. For example, changes in a monitoring station's metadata would need to be updated by the end of the month following the month in which the change to the station actually occurred. This includes changes to personnel contact information, changes to analyzers, changes to station location, or other changes to an ambient air monitoring station's operational and instrumentation information.

3.1.7 Submission of Ambient Air Monitoring Calibration Reports

The Calibration Chapter (Chapter 7) of the AMD specifies the requirements for when and how calibrations are to be carried out on ambient air analyzers, as well as the required content of calibration reports.

RC 3-P	*The person responsible must prepare a calibration report for each continuous ambient air analyzer calibrated during the month.*
RC 3-Q	*For the calibration report in RC 3-P, the person responsible must meet all minimum requirements as specified in the AMD Calibration Chapter (Chapter 7).*

Calibration report templates are provided on the AMD website for reference. It is acceptable to use a customized report format that is different than the calibration report templates provided, as long as the report provides, at a minimum, the same information that is required for calibration reports as specified in the Calibration Chapter (Chapter 7) of the AMD.

RC 3-R	*The person responsible must submit the calibration report in RC 3-P electronically to Alberta's Ambient Air Quality Data Warehouse with the monthly ambient air monitoring data in RC 3-A. For clarity, the calibration report must be submitted at the same time the associated dataset is submitted to Alberta's Ambient Air Quality Data Warehouse.*

For the submission in RC 3-R, Alberta's Ambient Air Quality Data Warehouse: Data Submitter's Guide provides instruction on how to submit calibration reports.

3.2 Submission of Air Emissions Data

Special air studies conducted by the industrial operation for its own purposes (i.e., not mandated by the Regulator) do not need to be reported to the Regulator. However, if the industrial operation chooses to submit results from a special air study to the Regulator, the air monitoring for the special air study needs to be conducted in accordance with the AMD in order for the Regulator to accept the data. Refer to the AMD Introduction (Chapter 1).

The exception to not having to submit special air studies is, in accordance with approval requirements, "If the approval holder monitors for any substances or parameters which are the subject of operational limits as set out in this approval more frequently than is required and using procedures authorized in this approval, then the approval holder shall provide the results of such monitoring as an addendum to the reports required by this approval."

3.2.1 Submission of CEMS Data

CEMS data is submitted electronically in accordance with the approval, the CEMS Code, the CEMS User Manual and the Codes for Electronic Reporting. As per Section 6.0 of the 1998 version of the CEMS Code, the AMD provides detailed CEMS reporting requirements (see: Monthly/Quarterly and Annual Report Sections of the Reporting Chapter) and supersedes Section 6.2 of the 1998 version of the CEMS Code.

Data reporting formats for CEMS data require a number of metadata record fields, including, but not limited to, industrial operation name, method code, parameter type, date, time, data record and any validation flags. The person responsible is required to translate internal data validation codes to the codes as described in the CEMS User Manual.

Upon uploading to the Regulator File Transfer Protocol website, a series of checks are initiated to ensure that data meets the necessary requirements for upload, including record metadata, actual data and flag values. Errors are communicated back to the person responsible via email and it is up to the industrial operation to addresses errors uploaded the data again to the Regulator's File Transfer Protocol site. In some cases, errors or omissions in the submitted data may be discovered after submission, requiring data resubmission. Resubmission of CEMS data is

discussed in Section 11 of the Reporting Chapter. Refer to the CEMS User Manual for more details on the submission and resubmission of CEMS data.

Monthly summaries of CEMS data are required to be submitted as part of monthly/quarterly or annual reports (see Sections 5.4.2 and 6.4.2).

RC 3-S	*The person responsible must electronically submit CEMS data, collected by any CEMS required by the industrial operation's approval terms and conditions, to the Director using the Alberta CEMS File Transfer Protocol site.*
RC 3-T	*For RC 3-S, the person responsible must submit CEMS data to the Director in accordance with the deadlines specified in the approval.*
RC 3-U	*For RC 3-S, if no submission deadline is specified in the approval, the person responsible must submit CEMS data to the Director by the end of the month following the month of data collection, unless otherwise authorized in writing by the Director.*
RC 3-V	*For RC 3-S, the person responsible must submit CEMS data to the Director in the electronic format specified in:* *(a) the CEMS Code;* *(b) the CEMS User Manual; and* *(c) the Codes for Electronic Reporting for the specific industrial operation.*
RC 3-W	*For RC 3-S, the person responsible must submit CEMS data to the Director in accordance with the procedures specified in:* *(a) the CEMS Code;* *(b) the CEMS User Manual; and* *(c) the Codes for Electronic Reporting for the specific industrial operation.*

3.2.2 Significant Figures for Air Emissions Data

The decimal resolution of source data may need to be adjusted before these data can be reported, to account for an analyzer's actual measurement capability or the input data used in emission calculations.

RC 3-X	*The person responsible must round all continuous air emissions data to the appropriate significant figures, based on an analyzer's actual measurement capability, prior to submission to the Director.*
RC 3-Y	*When comparing air emissions data to emission limits established in an approval, the person responsible must round the air emissions data to the same number of significant figures as the corresponding limit established in the approval, prior to submission to the Director.*

RC 3-Z	*The person responsible must round all source sampling air emissions data to the appropriate significant figures for the affected data in accordance with the Alberta Stack Sampling Code, prior to submission to the Director, except when comparing to emission limits established in an approval.*
RC 3-AA	*The person responsible must round all other measured air emissions data being reported to the Director in a monthly or annual report to the appropriate number of significant figures, based on an analyzer's actual measurement capability, or the method used to obtain the data, prior to submission to the Director, except when comparing to emission limits established in an approval.*
RC 3-BB	*If not specified elsewhere in the Reporting Chapter, the person responsible must round all calculated air emissions data using the smallest number of significant figures from any of the data used in the calculation, prior to submission to the Director, except when comparing to emission limits established in an approval.*
RC 3-CC	*For the rounding in RC 3-X, RC 3-Y, RC 3-Z, RC 3-AA and RC 3-BB, the person responsible must apply the following rounding conventions:* *(a) when the digit following the last significant figure is equal to or greater than five, the last significant figure must be increased by one and the digits to its right must be truncated; and* *(b) when the digit following the last significant figure is less than five, the last significant figure must remain unchanged and the digits to its right must be truncated.*

The requirements in RC 3-CC (a) and (b) refer to rounding up and rounding down, respectively. Some examples of these rounding conventions are:

For two significant figures:

- 1.27 rounds up to 1.3;
- 1.250 rounds up to 1.3;
- 1.248 rounds down to 1.2; and
- 1.23 rounds down to 1.2.

3.2.3 Unit Conversions for Air Emissions Data

RC 3-DD	*The person responsible must convert all air emissions data to the appropriate required units required by the CEMS User Manual, AMD form or template, prior to submitting the data to the Director.*
RC 3-EE	*For the unit conversions in RC 3-DD, the person responsible must use generally accepted scientific principles to perform all unit conversions.*

3.2.4 Date and Time Stamp for CEMS Data

RC 3-FF	*The person responsible must label all CEMS data using the date and time labels specified in the CEMS User Manual, prior to submission to the Director.*

Electronically submitted CEMS data is reported with period-beginning time labels (e.g., 01:00-01:59 would be reported as 01:00).

3.2.5 Submission of Other Air Emissions Data

Submission of air emissions data as part of monthly and annual reports is discussed in the Monthly and Annual Report sections (Sections 5 and 6) of the Reporting Chapter. Submission of emissions inventory data is discussed in the Industrial Emissions Inventory Reporting Section (Section 7) of the Reporting Chapter. Submission of air emissions data as part of source monitoring reports is discussed in the Source Monitoring Reporting Section (Section 9) of the Reporting Chapter.

4.0 Industrial Exceedance and Performance Reporting

The *Environmental Protection and Enhancement Act* requires that any release of substances into the environment that may cause, is causing or has caused an adverse effect be reported to the Director. The Release Reporting Regulation sets out requirements for what is to be reported, and when, how and to whom reports are to be made. The requirements of the Release Reporting Regulation include the reporting of air contaminants in excess of limits specified in an approval. Individual approvals may also have requirements for reporting contraventions of the terms and conditions of the approval.

A Guide to Release Reporting clarifies the specific requirements for the reporting of releases, including the phone number for immediate reporting, and address and contact information for the submission of required exceedance, contravention and performance reports.

EPEA approvals require immediate reporting of any contravention of any term or condition of the approval. Such contraventions include, but are not limited to, an exceedance of an emission limit, an unauthorized or accidental release, or operating without required pollution controls or working monitoring equipment.

In accordance with EPEA and the Substance Release Regulation, all contraventions of the Air Monitoring Directive must be immediately reported.

This section of the Reporting Chapter outlines the requirements for reporting of critical information related to measured ambient air concentrations above AAAQOs and issues with

monitoring equipment performance. This information is required for human and environmental health and safety assurance, and may be used in investigations.

If the person responsible is not sure whether or not immediate notification is required in a specific circumstance, it is recommended to err on the side of caution and call it in.

RC 4-A	*The person responsible must immediately report to the Director any monitoring results that show ambient air concentrations exceeding the AAAQOs.*
RC 4-B	*The person responsible must immediately report to the Director any significant (a) interruption, (b) damage or (c) interference, to any:* *(i) continuous ambient air analyzer; or* *(ii) meteorological sensor* *which would cause the continuous ambient air analyzer or meteorological sensor to be offline for an extended period of time.*

Examples of significant interruptions to an analyzer or sensor (RC 4-B) include, but are not be limited to, ceasing use of an analyzer or sensor indefinitely or permanently, or maintenance requiring an analyzer or sensor to be offline for an extended period.

RC 4-C	*The person responsible must immediately report to the Director if equipment uptime does not meet any minimum specifications set out for equipment in the approval or the AMD.*

An example of equipment uptime not meeting minimum specifications in RC 4-C would be not meeting the operational requirements for continuous ambient monitoring equipment specified in the Data Quality Chapter (Chapter 6) of the AMD.

RC 4-D	*For all reporting in RC 4-A, RC 4-B and RC 4-C, the person responsible must follow the procedures in A Guide to Release Reporting.*
RC 4-E	*For all issues and deficiencies leading to the notifications in RC 4-B and RC 4-C, the person responsible must take immediate action to correct or address the issues and deficiencies to the satisfaction of the Director.*

An example of immediate action (RC 4-E) would be ordering a replacement part when it becomes known that equipment is not working properly. That is, some action is taken to begin to address a discovered issue or deficiency.

RC 4-F	*During an emergency event, upon receiving a request from the Director, the person responsible must immediately provide any air monitoring data requested in writing by the Director to the Director, and any responding agencies identified in the request, in the format specified in the request.*

For RC 4-F, an example would be if there has been a sour gas well blowout and an industrial operation hires a contractor to collect hydrogen sulphide and sulphur dioxide data in a nearby downwind community. Upon receiving a request from the Director, the person responsible must immediately provide any relevant monitoring data to the Director and any agencies specified in the request (e.g., Alberta Health Services). Such emergency based monitoring data could be required for emergency response and making public health decisions, and therefore is required to be provided without delay.

In clauses RC 4-A through RC 4-F, immediate constitutes due diligence (i.e., reporting a contravention when it becomes known).

It is strongly recommended that all industrial operations have documented protocols in their QAPs covering immediate reporting of approval contraventions, ambient air concentrations exceeding the AAAQOs and significant interruption of monitoring equipment. Industrial operations who are members of an Alberta airshed should also ensure that the airshed has a documented protocol in place to clearly define and document their role and responsibility (if applicable) for immediate reporting of ambient air issues. The documented protocol should define that the Alberta airshed has the responsibility to immediately report on ambient air issues on behalf of its members (for monitoring that the Alberta airshed conducts), or that individual industrial operations have the responsibility to immediately report on ambient issues associated with their operation.

5.0 Industrial Monthly and Quarterly Reports

This section outlines monthly and quarterly report requirements. Monthly and quarterly reports provide a summary and evaluation of the monitoring performed and data collected during the month or quarter. The exact content that is required for a monthly or quarterly report will depend upon the specific monitoring and reporting requirements for the industrial operation, as set out in the approval, associated monitoring plan, the AMD and written notices from the Director.

General report requirements are outlined in Section 2 of the Reporting Chapter.

An example monthly/quarterly report will be available on the AMD website to show what a completed monthly/quarterly report looks like, show what information may need to be included and provide a sample report format.

5.1 Monthly and Quarterly Report Preparation and Submission

RC 5-A	*Commencing January 1, 2019, if the person responsible is required to prepare (a) a monthly report or (b) a quarterly report pursuant to the terms and conditions of an approval, the person responsible must prepare the monthly or quarterly report in accordance with the requirements of Section 5 of the Reporting Chapter.*

RC 5-B *For the monthly or quarterly report in RC 5-A, the person responsible must include all the information necessary to meet the monthly or quarterly reporting requirements of:*

(a) the approval conditions of the industrial operation;
(b) the applicable monitoring plan(s) of the industrial operation; and
(c) any applicable written notice(s) from the Director.

RC 5-C *For the monthly or quarterly report in RC 5-A, the person responsible must submit to the Director the monthly or quarterly report in accordance with the deadlines specified in the approval.*

RC 5-D *For the monthly in RC 5-A, if no submission deadline is specified in the approval, the person responsible must submit the monthly report to the Director by the end of the month following the month of data collection, unless otherwise authorized in writing by the Director.*

The first monthly report under the AMD Reporting Chapter will need to be submitted by February 28, 2019 and will need to cover January 2019 monitoring data.

5.2 Monthly and Quarterly Report General Content

RC 5-E *For the monthly or quarterly report in RC 5-A, the person responsible must include a cover letter.*

RC 5-F *For the cover letter in RC 5-E, the person responsible must include the following information, at a minimum:*

(a) where a monitoring analyzer is required to be operational 90% of the time and was not, identification of the problems that led to the monitoring analyzer being operational less than 90% of the time;
(b) identification of any previous correspondence related to the reporting of:
  (i) ambient air concentrations in excess of AAAQOs;
  (ii) exceedances of approval emission limits;
  (iii) any unauthorized release;
  (iv) any accidental release; and
  (v) any instance of operating without required pollution controls that occurred during the month or quarter;
(c) identification of any changes to monitoring locations, monitoring methods or significant changes to monitoring equipment;
(d) identification of any special air studies carried out for which data or results are being provided to the Director; and
(e) identification of any reporting or monitoring irregularities or issues.

Accidental releases in RC 5-F (b) (iv) would not include routine fugitive or open source releases (such as, but not limited to, fugitive emissions from tailings ponds or dust from on-site roads), but would include releases from spills, leaks or other on-site accidents.

Monitoring irregularities in RC 5-F (e) would include, but would not be limited to, analyzer malfunction, results outside of normal operating range, vandalism, or extended analyzer down time.

Special air studies conducted by the industrial operation for its own purposes (i.e., not mandated by the Regulator) do not need to be reported to the Regulator. However, if the industrial operation chooses to submit results from a special air study to the Regulator, the air monitoring for the special air study needs to be conducted in accordance with the AMD in order for the Regulator to accept the data. Refer to the AMD Introduction (Chapter 1).

The exception to not having to submit special air studies is, in in accordance with approval requirements, "If the approval holder monitors for any substances or parameters which are the subject of operational limits as set out in this approval more frequently than is required and using procedures authorized in this approval, then the approval holder shall provide the results of such monitoring as an addendum to the reports required by this approval."

RC 5-G *For the monthly or quarterly report in RC 5-A, the person responsible must include a title page.*

RC 5-H *For the monthly or quarterly report in RC 5-A, the person responsible must include a table of contents if the report is larger than 10 pages.*

RC 5-I *For the monthly or quarterly report in RC 5-A, the person responsible must include the following information, at a minimum:*

- *(a) a listing of all continuous ambient air monitoring stations that contributed data to the monthly or quarterly report; and*
- *(b) for any audit that occurred during the month or quarter, a summary of audit findings that affected data validity or resulted in a contravention of the terms and conditions of the approval or the AMD, and the associated corrective actions taken.*

RC 5-J *For the monthly or quarterly report in RC 5-A, the person responsible must include the following information, at a minimum:*

- *(a) (i) identification and (ii) description of any deviations from the authorized monitoring methods;*
- *(b) (i) identification and (ii) description of any non-standard conditions that may have affected the quality of the monitoring results, including the use of data qualifiers;*
- *(c) (i) identification and (ii) description of numerical results for values outside quantification limits;*
- *(d) a discussion of the operating status of the industrial operation and any irregularities that had an impact on source emissions or air quality,*

including (i) operating unit, (ii) condition description and (iii) time of occurrence; and

(e) any additional information that may be required by a specific monitoring method.

For RC 5-J (b), non-standard conditions include, but are not limited to, the presence of forest fire smoke in the monitoring area, excessively elevated concentrations, problems with calibrations or monitoring equipment, and changes in monitoring or supporting equipment.

For RC 5-J (c), values outside of quantification limits, such as beyond calibration range or full scale value, could result from causes such as non-standard conditions or problems with calibration or monitoring equipment.

For RC 5-J (d), discussion on the operating status of the industrial operation would include, but not be limited to, turnarounds, unscheduled shut-downs, start-ups and upsets.

RC 5-K *For the monthly or quarterly report in RC 5-A, the person responsible must include any other information that is required in monthly or quarterly reports as specified in writing by the Director.*

5.3 Reporting on Ambient Air Monitoring

Monthly and quarterly reports are required to include a summary of ambient air monitoring data collected for the month or quarter and an evaluation of all the monitoring performed and data collected.

Industrial operations are not required to report on ambient air monitoring conducted and already reported by Alberta airsheds.

5.3.1 Ambient Air Monitoring Data Issues

RC 5-L *For the monthly or quarterly report in RC 5-A, the person responsible must include the following information, at a minimum:*

(a) (i) identification of, (ii) description of, and (iii) reason(s) for any ambient air monitoring data deletion or resubmission to Alberta's Ambient Air Quality Data Warehouse;

(b) (i) identification of, (ii) description of, and (iii) reason(s) for any missed calibrations for ambient air analyzers that were required to be calibrated during the reporting period; and

(c) (i) identification and (ii) description of any other issues with the ambient air monitoring data.

5.3.2 Ambient Air Monitoring Results

RC 5-M *For the monthly or quarterly report in RC 5-A, the person responsible must include the following information, at a minimum:*

(a) the percentage of valid hourly data for all monitored parameters at each continuous ambient air monitoring station;

(b) (i) a time series plot of the hourly average ambient air concentrations for each parameter monitored at each continuous ambient air monitoring station, and (ii) a discussion of the context around any data anomalies in the time series plot for which the person responsible is aware of;

(c) monthly (i) average, (ii) maximum and (iii) minimum ambient air concentrations for each monitored parameter at each continuous ambient air monitoring station; and

(d) a monthly wind rose for each continuous ambient air monitoring station for the month being monitored, generated using meteorological data collected at the ambient air monitoring station. If meteorological data cannot be collected at the ambient air monitoring station, other meteorological data from another source that is representative of the ambient air monitoring station must be used in the generation of the wind rose.

Providing context in RC 5-M (b) (ii) should include noting known local events and influencers which may have an effect on monitoring results. Examples include, but are not limited to, forest fire, temperature inversions, nearby construction, changes to monitoring methods, siting changes, and changes in local sources.

For RC 5-M (d), site-specific meteorology should be used for wind roses. If site-specific meteorological data is not available, then the most representative (closest proximity) meteorological data that are available would be used and this would be noted on the wind rose. Examples of sources of potentially representative meteorological data include a nearby ambient air monitoring station, airport, or a station reporting to Alberta Agriculture and Forestry's Agro-Climatic Information Service.

RC 5-N *For the monthly or quarterly report in RC 5-A, the person responsible must include comparisons of the measured ambient air concentrations at each ambient air monitoring station to all the AAAQOs corresponding to the monitored parameters.*

RC 5-O *For the comparisons in RC 5-N, the person responsible must include the following information, at a minimum:*

(a) (i) identification and (ii) description of any measured ambient air concentrations in excess of all AAAQOs corresponding to the monitored parameters; and

(b) the context around any exceedance(s) identified, if known.

RC 5-P	*For the comparisons in RC 5-N, the person responsible must use the averaging specifications and data completeness criteria listed in Appendix A for the corresponding AAAQO averaging period.*
RC 5-Q	*For the monthly or quarterly report in RC 5-A, the person responsible must include a representation of data distribution for the monitored month, for each monitored parameter with a corresponding AAAQO.*

The representation of data distribution in RC 5-Q could include, but is not limited to, histograms, frequency distribution tables or percentiles.

5.4 Reporting on Source Monitoring

Monthly and quarterly reports are required to include a summary and evaluation of the source monitoring performed, and the source emissions and related data that were collected. Approvals may also require that additional source reporting be included in the monthly or quarterly report.

5.4.1 CEMS Zero and Span Reporting

Zero and spans, as defined in the CEMS Code, are performed daily and flagged in the data electronically submitted to the Director. The Reporting Chapter only requires reporting of CEMS zero and span in monthly or quarterly reports if there are any out of control calibrations zero and span (2X and 4X).

RC 5-R	*For the monthly or quarterly report in RC 5-A, the person responsible must include a monthly summary of all CEMS out of control calibration zero and span (2X and 4X) that occurred during the month or quarter by (a) completing and (b) submitting the AMD CEMS Zero and Span Summary Form.*
RC 5-S	*For the monthly summary in RC 5-R, the person responsible must include the following information, at a minimum:* *(a) the (i) start date, (ii) start time, (iii) end date, and (iv) end time of the out-of-control zero-span events that occurred during the month;* *(b) the unique source identifier, as identified in the approval or approval application;* *(c) the CEMS station ID, as specified in the Codes for Electronic Reporting;* *(d) the full scale of the CEMS analyzer;* *(e) the zero criteria based on Table 15 of the CEMS Code;* *(f) the zero reading from the CEMS analyzer during each event;* *(g) the zero reference used;* *(h) the zero drift percentage during each event;* *(i) the span criteria based on Table 15 of the CEMS Code;* *(j) the span reading from the CEMS analyzer during each event;*

(k) *the span reference used;*
(l) *the span drift percentage during each event;*
(m) *the cause of each out-of-control period;*
(n) *identification of the corrective actions taken for each out-of-control period; and*
(o) *any other information required by the AMD CEMS Zero and Span Summary Form.*

5.4.2 Continuous Emission Monitoring Results

A summary of CEMS data collected during the month is required in monthly and quarterly reports. The detailed data collected using CEMS analyzers are not required to be submitted in monthly or quarterly reports. CEMS data is required to be electronically submitted to the Director under approval requirements and must be submitted in accordance with the procedures specified in the CEMS User Manual.

As per Section 6.0 of the 1998 version of the CEMS Code, the AMD provides detailed CEMS reporting requirements and supersedes Section 6.2 of the 1998 version of the CEMS Code.

RC 5-T *For the monthly or quarterly report in RC 5-A, the person responsible must include a monthly summary of CEMS data by (a) completing and (b) submitting the AMD CEMS Summary Form.*

RC 5-U *For the monthly summary in RC 5-T, the person responsible must include the following information, at a minimum:*
(a) *identification of the unique source identifier, as identified in the approval or approval application;*
(b) *identification of the CEMS station ID, as specified in the Codes for Electronic Reporting;*
(c) *the number of stack exhaust hours for the month;*
(d) *the date of the Quality Assurance Plan audit, if it occurred during the month;*
(e) *identification of who performed the Quality Assurance Plan audit, if it occurred during the month;*
(f) *identification of the (i) name and (ii) reporting units of each pollutant and operational parameter monitored by each CEMS analyzer;*
(g) *identification of the (i) make, (ii) model number and (iii) serial number of each CEMS analyzer;*
(h) *identification of each dual range CEMS analyzer;*
(i) *the (i) range and (ii) units of each CEMS analyzer;*
(j) *identification of the monitoring (i) duration and (ii) interval of each CEMS analyzer;*
(k) *identification of any changes made to CEMS parameterization or data acquisition system configurations;*
(l) *the total operational hours of each CEMS analyzer;*

(m) the percent availability of each CEMS analyzer;
(n) the (i) minimum, (ii) maximum and (iii) average monthly reading for each parameter monitored;
(o) the (i) minimum, (ii) maximum and (iii) average monthly emission rate for each pollutant monitored;
(p) the total monthly mass emissions for each pollutant monitored;
(q) the approval limit of each parameter and pollutant monitored, if applicable;
(r) identification of the number of hours exceeding any approval limits;
(s) (i) identification and (ii) description of any missing data;
(t) identification of the method used to fill in missing data;
(u) identification of any performance tests carried out during the month;
(v) identification of the type of performance test carried out; and
(w) any other information required by the AMD CEMS Summary Form.

5.4.3 Source Testing Results

Monthly and quarterly reports are required to identify and provide a brief overview of any source testing carried out during the month or quarter. In addition to these overviews, Section 9 of the Reporting Chapter also requires the submission of manual stack survey reports, RATA reports, CGA reports and associated summary forms. See Section 9 for the specific requirements of these reports and summary forms.

RC 5-V *For the monthly or quarterly report in RC 5-A, the person responsible must include the following information, at a minimum:*
(a) identification of the dates of any source sampling activities carried out during the month or quarter;
(b) identification of the testing company that carried out any source sampling activities during the month or quarter;
(c) a brief overview of any CEMS initial or re-certification tests carried out during the month;
(d) a brief overview of the results of any complete or incomplete (i) manual stack surveys, (ii) RATAs, and (iii) CGAs carried out during the month or quarter;
(e) an explanation for stopping or aborting any incomplete (i) manual stack survey, (ii) RATA or (iii) CGA; and
(f) a brief overview of any required corrective actions taken or planned in response to the source sampling activities.

For RC 5-V (d), an example of a brief overview of source testing results would be: On May 6th, Stack Testing Company X carried out a source emission survey measuring particulate emissions from the Main Exhaust Stack. The average particulate emissions were 0.01 g/kg flue gas, which is under the 0.02 g/kg limit set forth in our approval.

5.4.4 Flaring Monitoring Results

Monthly and quarterly reports are required to identify and provide a summary of any flaring activity carried out during the month or quarter at the industrial operation. This summary information is to be provided using the AMD Flare Stack Form.

RC 5-W	*For the monthly or quarterly report in RC 5-A, the person responsible must include a monthly summary of any flaring carried out by the industrial operation during the month or quarter by (a) completing and (b) submitting the AMD Flare Stack Form.*
RC 5-X	*For the monthly summary of flaring in RC 5-W, the person responsible must include the following information, at a minimum:* *(a) identification of the unique source identifier, as identified in the approval or approval application;* *(b) identification of the analysis date(s) on which the flaring data is based, if applicable;* *(c) identification of the material sent to the flare;* *(d) the amount of material sent to the flare;* *(e) the reason for the flaring;* *(f) the type of notification provided, if applicable;* *(g) the quantification method for the flare release;* *(h) the (i) daily and (ii) monthly volume of gas being flared for each source;* *(i) the (i) daily and (ii) monthly percentages of hydrogen sulphide contained in the flared gas, if applicable;* *(j) the (i) daily and (ii) monthly substance emission totals for each source; and* *(k) any other information required by the AMD Flare Stack Form.*

For RC 5-W and RC 5-X, monitors are not required if not already installed. Estimated emissions can be reported.

5.4.5 Monthly Gas Processing Plant Sulphur Reports (S-30)

AER Directive 017: Measurement Requirements for Oil and Gas Operations requires that the inlet sour gas stream volume, including the gas equivalent volume of condensate, sour gas in solution in water, the sulphur disposition tonnage, and the sulphur balance be reported on a monthly basis to the Regulator. If the sour gas plant is approved with a sulphur inlet of more than one tonne per day, an AER S-30 report is required to be submitted to the Regulator via the AER Digital Data Submission System. If the sour gas plant is approved with a sulphur inlet of less than one tonne per day, AER Directive 017 requires the submission of an AMD S-30 report in accordance with the requirements set out in the AMD.

In accordance with AER Interim Directive (ID) 2001-03: Sulphur Recovery Guidelines for the Province of Alberta, other upstream oil and gas facilities with sulphur emissions greater than one tonne per day are not required to submit AER S-30 reports, but are required to maintain daily sulphur balance records and calendar quarter-year recovery calculations. These records may be requested by the Regulator for inspection or audit.

RC 5-Y	*For the monthly or quarterly report in RC 5-A, the person responsible for a sour gas plant with less than one tonne per day of approved sulphur inlet must (a) complete and (b) submit a monthly sulphur report, using an AMD S-30 Report Form.*
RC 5-Z	*For the monthly sulphur report in RC 5-Y, the person responsible must include the following information, at a minimum:* *(a) approved daily maximum volume of plant feedstock;* *(b) approved daily maximum mass of inlet sulphur;* *(c) actual (i) daily, (ii) monthly and (iii) quarterly volume of plant feedstock;* *(d) daily percentage of hydrogen sulphide contained in the recombined plant feedstock;* *(e) actual (i) daily, (ii) monthly and (iii) quarterly plant feedstock sulphur mass;* *(f) actual (i) daily, (ii) monthly and (iii) quarterly incinerator stack sulphur emissions;* *(g) actual (i) daily, (ii) monthly and (iii) quarterly incinerator stack sulphur dioxide emissions;* *(h) actual (i) daily, (ii) monthly and (iii) quarterly volume of gas flared from the plant;* *(i) daily percentage of hydrogen sulphide contained in the flared gas;* *(j) actual (i) daily, (ii) monthly and (iii) quarterly flared gas sulphur emissions;* *(k) actual (i) daily, (ii) monthly and (iii) quarterly flared gas sulphur dioxide emissions; and* *(l) any other information required by the AMD S-30 Report Form.*

5.4.6 Sulphur Recovery and Removal Results

Industrial operations required by their approval to recover or remove sulphur need to include a summary of sulphur recovery and removal activities in their monthly or quarterly reports. This summary information is to be provided using the AMD Sulphur Recovery Form.

RC 5-AA	*For the monthly or quarterly report in RC 5-A, if an industrial operation is required by an approval to recover or remove sulphur, the person responsible must include a monthly summary of sulphur recovery and removal by (a) completing and (b) submitting the AMD Sulphur Recovery and Removal Form.*

Sour gas plants with an approved sulphur inlet of less than one tonne per day are not required to complete an AMD Sulphur Recovery and Removal Form, as they have provided the required sulphur information via the AMD S-30 Report Form.

RC 5-BB *For the monthly summary in RC 5-AA, the person responsible must include the following information, at a minimum:*

- *(a) the operating hours of the sulphur recovery unit;*
- *(b) identification of whether any bypasses of the sulphur recovery unit occurred during the month;*
- *(c) identification of the (i) date, (ii) duration and (iii) reason for any bypass of the sulphur recovery unit that occurred during the month;*
- *(d) actual (i) daily, (ii) monthly and (iii) quarterly sulphur inlet or content mass;*
- *(e) actual (i) daily, (ii) monthly and (iii) quarterly sulphur production or capture mass;*
- *(f) actual (i) daily, (ii) monthly and (iii) quarterly incinerator stack sulphur emissions;*
- *(g) actual (i) daily, (ii) monthly and (iii) quarterly flared gas sulphur emissions;*
- *(h) actual (i) daily, (ii) monthly and (iii) quarterly sulphur injected;*
- *(i) actual (i) daily, (ii) monthly and (iii) quarterly mass of sulphur otherwise disposed of at the industrial operation;*
- *(j) actual (i) daily, (ii) monthly and (iii) quarterly total sulphur;*
- *(k) minimum approved sulphur recovery efficiency percentage;*
- *(l) actual (i) daily, (ii) monthly and (iii) quarterly sulphur recovery efficiency percentage; and*
- *(m) any other information required by the AMD Sulphur Recovery and Removal Form.*

5.4.7 Source Emission Results

Individual approvals may have monthly or quarterly air emissions reporting requirements. These reporting requirements are to be fulfilled by submitting the required information as part of the monthly or quarterly report, using the AMD Emissions Summary Form.

RC 5-CC *For the monthly or quarterly report in RC 5-A, if an industrial operation is required by an approval to report emission data monthly or quarterly, the person responsible must include the monthly or quarterly air emissions data by (a) completing and (b) submitting the AMD Emissions Summary Form.*

RC 5-DD *For the AMD Emissions Summary Form in RC 5-CC, the person responsible must include the following information, at a minimum:*

- *(a) identification of each pollutant being reported;*
- *(b) identification of the unique source identifier of each source, as identified in the approval or approval application;*

(c) identification of the CEMS station ID of each source, as specified in the Codes for Electronic Reporting, if applicable;
(d) the monthly hours of operation of each source;
(e) identification of the measurement or calculation method used to determine the emission value;
(f) if daily emission totals are required to be reported, the daily emission value for the source and pollutant;
(g) if monthly source emission totals are required to be reported, the monthly source emission total for the source and pollutant;
(h) if monthly emission totals for the industrial operation are required to be reported, the monthly pollutant totals for the industrial operation; and
(i) any other applicable information required by the AMD Emissions Summary Form.

5.4.8 Approval Contravention and Comparisons to Source Emission Limits

A summary of all air related approval contraventions are to be included in the monthly or quarterly reports by completing the AMD Approval Contravention Form. The monthly or quarterly report is also required to include comparisons to applicable emission limits, a discussion of operational problems impacting air emissions at the industrial operation and summary information related to unauthorized or accidental releases, as well as any instances of operating without required pollution controls for the month or quarter.

RC 5-EE *For the monthly or quarterly report in RC 5-A, the person responsible must include a summary of all air related approval contraventions that occurred during the month or quarter by (a) completing and (b) submitting the AMD Approval Contravention Form.*

RC 5-FF *For the summary of air related approval contraventions in RC 5-EE, the person responsible must include the following information for each approval contravention that occurred during the month, at a minimum:*
(a) the reference number from the Emergency Response Centre for the approval contravention event;
(b) the (i) start date, (ii) start time, (iii) end date, (iv) end time and (v) duration of the approval contravention event;
(c) identification of the pollutant, parameter or criteria that was exceeded or contravened;
(d) the measured or estimated actual quantity of the pollutant, parameter or criteria that was exceeded or contravened, if applicable;
(e) the method used to identify the exceedance or contravention, if applicable;
(f) the cause of the exceedance or contravention;
(g) a brief summary of the approval contravention event;
(h) a brief summary of the industrial operation's investigation of the approval contravention event;

	(i) a brief summary of any completed and ongoing actions taken in response to the approval contravention event; *(j) the date of the 7-day letter submission for the approval contravention event; and* *(k) other information required by the AMD Approval Contravention Form.*
RC 5-GG	*For the monthly or quarterly report in RC 5-A, the person responsible must include descriptions of any operational problems impacting source emissions during the month.*
RC 5-HH	*For the monthly or quarterly report in RC 5-A, the person responsible must include (a) discussions comparing air emissions at the industrial operation to the emission limits specified in the approval, (b) the total number of exceedances of each emission limit for the month or quarter and (c) the total number of exceedances of emission limits at the industrial operation for the month or quarter.*
RC 5-II	*For the monthly or quarterly report in RC 5-A, the person responsible must include a discussion of comparisons to performance targets specified in the approval, relevant to the month or quarter.*

5.4.9 Discussion of Pollution Control Technologies and Equipment

A discussion of pollution control technologies and equipment at the industrial operation during the month or quarter needs to be included in the monthly or quarterly reports. This discussion needs to cover any pollution control technologies or equipment required by the approval.

RC 5-JJ	*For the monthly or quarterly report in RC 5-A, the person responsible must include a discussion of any operational or performance issues with any pollution control technologies and equipment required by the industrial operation's approval.*
RC 5-KK	*For the monthly or quarterly report in RC 5-A, the person responsible must include a discussion of any significant maintenance activities on any pollution control technologies and equipment required by the industrial operation's approval that occurred during the month or quarter.*

For RC 5-KK, a significant maintenance activity would include any routine or non-routine maintenance activities that require the pollution control technology or equipment to be offline for an extended period, including, but not limited to, major repairs, unit shutdowns and turnarounds.

5.5 Production Reporting

Individual approvals may have monthly or quarterly production reporting requirements. These reporting requirements are to be fulfilled by submitting the required information as part of the monthly or quarterly report, using the AMD Production Form.

RC 5-LL *For the monthly or quarterly report in RC 5-A, if the person responsible is required to report production data under the conditions of an approval, the person responsible must include the required production summary data by (a) completing and (b) submitting the AMD Production Form.*

RC 5-MM *For RC 5-LL, the person responsible must include the following information, at a minimum:*

- *(a) identification of the product(s) being reported;*
- *(b) identification of the measurement units of each product being reported;*
- *(c) if daily production totals are required to be reported, the daily production values;*
- *(d) if monthly production totals are required to be reported, the monthly production values;*
- *(e) if quarterly production totals are required to be reported, the quarterly production values;*
- *(f) average percent sulphur content, if applicable; and*
- *(g) any other applicable information required by the AMD Production Form.*

RC 5-NN *If confidentiality is being requested for the data being reported in RC 5-LL, the person responsible must:*

- *(a) include appropriate supporting information for the confidentiality request; and*
- *(b) submit the production data and supporting information separately from the other monthly or quarterly report documents being submitted.*

For RC 5-NN, the required production summaries are to be submitted separately from the other monthly or quarterly report documents only if confidentiality is being requested.

5.6 Other Monitoring Results and Information

RC 5-OO *For the monthly or quarterly report in RC 5-A, the person responsible must include (a) a description and (b) the results of any required air monitoring, not identified in Sections 5.3 to 5.6 of the Reporting Chapter, that are to be submitted monthly or quarterly to the Director according to the requirements of an approval or written notice from the Director.*

5.7 Flow Diagram for Industrial Monthly and Quarterly Reports

The following flow diagram is provided to help identify what information may need to be included in the monthly or quarterly report for a specific industrial operation. This diagram is guidance only and does not necessarily cover every possible category of information that may need to be included in a monthly or quarterly report, which is set out by the AMD Reporting Chapter, the approval and any applicable written notices from the Director. This diagram does not replace the requirements set out in the Reporting Chapter clauses. The Reporting Chapter clauses and an industrial operation's approval requirements should always be reviewed prior to preparing and submitting a monthly or quarterly report.

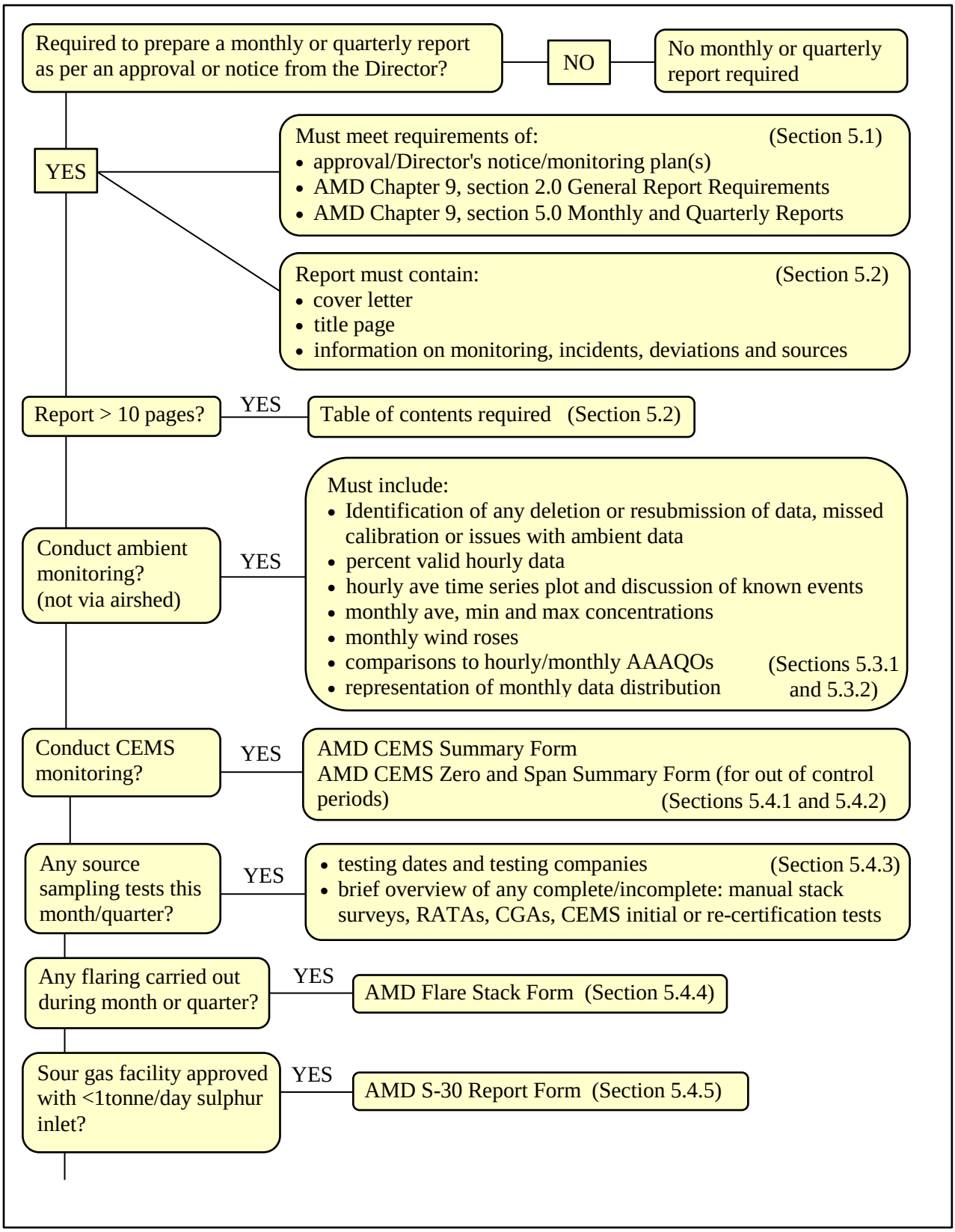

Figure 1 Flow Diagram for Industrial Monthly and Quarterly Report Contents

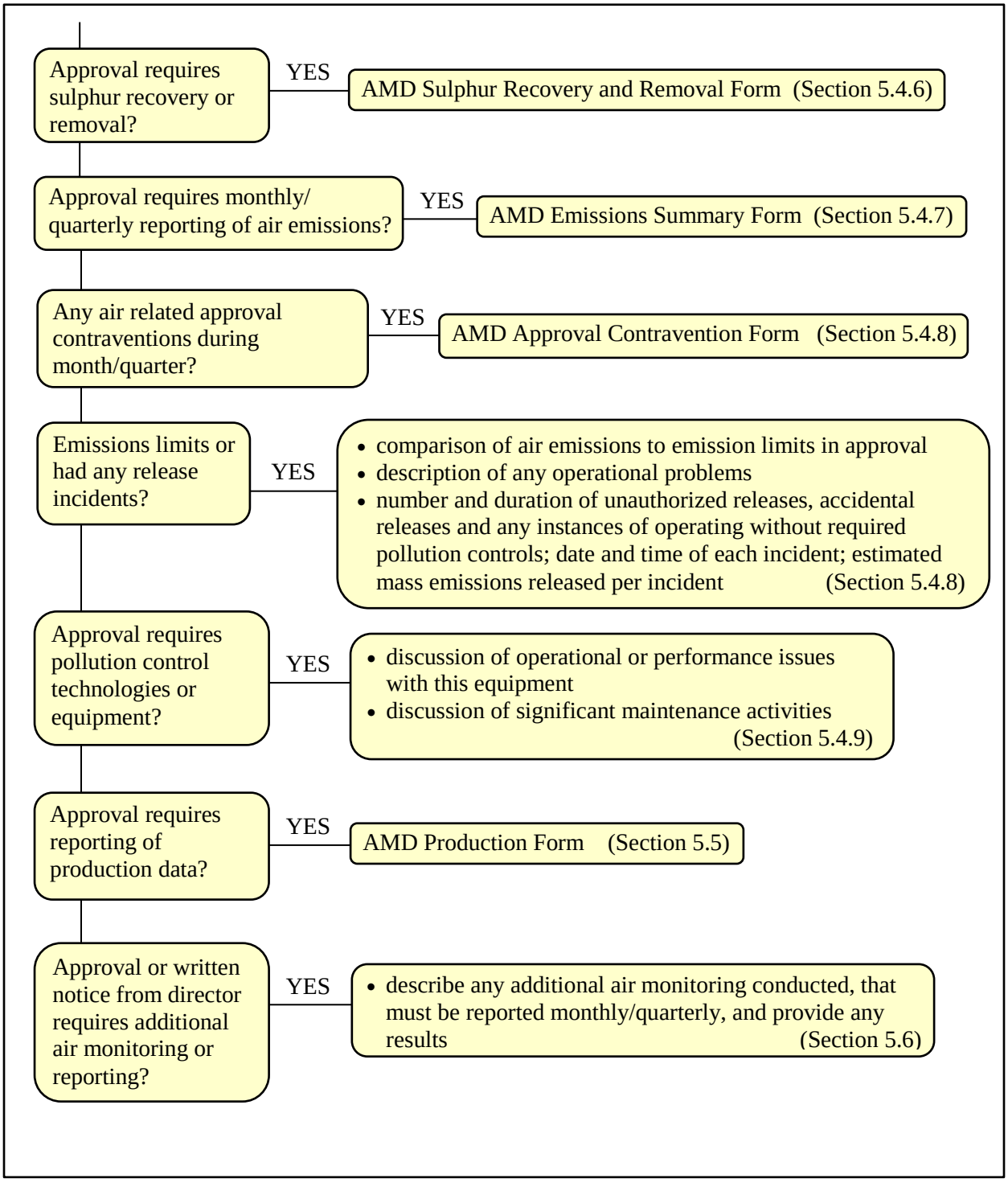

Figure 1 Flow Diagram for Industrial Monthly and Quarterly Report Contents (cont.)

6.0 Industrial Annual Reports

This section outlines annual report requirements. Annual reports provide an overview and evaluation of the monitoring performed during the year. They also provide an additional review of the data and present annual summaries that highlight overall performance, changes at the industrial operation, seasonal patterns, annual trends, and exceedances of AAAQOs and approval emission limits. The exact content that is required for an annual report will depend upon the specific monitoring and reporting requirements for the industrial operation, as set out in the approval, associated monitoring plan, the AMD and written notices from the Director.

General report requirements are outlined in Section 2 of the Reporting Chapter.

An example annual report will be available on the AMD website to show what a completed annual report looks like, show what information may need to be included and provide a sample report format.

6.1 Annual Report Preparation and Submission

RC 6-A	*Commencing January 1, 2019, if the person responsible is required to prepare an annual report pursuant to the terms and conditions of an approval, the person responsible must prepare the annual report in accordance with the requirements of Section 6 of the Reporting Chapter.*
RC 6-B	*For the annual report in RC 6-A, the person responsible must include all the information necessary to meet the annual reporting requirements of:* *(a) the approval conditions of the industrial operation;* *(b) the applicable monitoring plan(s) of the industrial operation; and* *(c) any applicable written notice(s) from the Director.*

The first annual report under the AMD Reporting Chapter will need to be submitted in March 2019 and will need to cover the 2018 calendar year.

RC 6-C	*If the period of monitoring carried out in the calendar year is less than twelve full months, the person responsible must prepare the annual report in RC 6-A applying the annual reporting requirements to the actual period monitored in that calendar year.*
RC 6-D	*For the annual report in RC 6-A, the person responsible must submit to the Director the annual report in accordance with the deadlines specified in the approval.*

RC 6-E	*For the annual report in RC 6-A, if no submission deadline is specified in the approval, the person responsible must submit the annual report to the Director no later than March 31 of the year following the year in which the data was collected, unless otherwise authorized in writing by the Director.*

6.2 Annual Report General Content

RC 6-F	*For the annual report in RC 6-A, the person responsible must include a cover letter.*
RC 6-G	*For the cover letter in RC 6-F, the person responsible must include the following information, at a minimum:* *(a) where a monitoring analyzer is required to be operational 90% of the time and was not, identification of monitoring issues for all months with a monitoring analyzer operational less than 90% of the time for the month;* *(b) identification of any previous correspondence related to the reporting of:* *(i) ambient air concentrations in excess of AAAQOs;* *(ii) exceedances of approval emission limits;* *(iii) any unauthorized release;* *(iv) any accidental release; and* *(v) any instance of operating without required pollution controls that occurred during the reporting year;* *(c) identification of any changes to monitoring locations, monitoring methods or significant changes to monitoring equipment;* *(d) identification of any special air studies carried out for which data or results are being provided to the Director; and* *(e) identification of any reporting or monitoring irregularities or issues.*

Accidental releases in RC 6-G (b) (iv) would not include routine fugitive or open source releases (such as, but not limited to, fugitive emissions from tailings ponds or dust from on-site roads), but would include releases from spills, leaks or other on-site accidents.

Monitoring irregularities in RC 6-G (e) would include, but would not be limited to, analyzer malfunction, results outside of normal operating range, vandalism, or extended analyzer down time.

Special air studies conducted by the industrial operation for its own purposes (i.e., not mandated by the Regulator) do not need to be reported to the Regulator. However, if the industrial operation chooses to submit results from a special air study to the Regulator, the air monitoring for the special air study needs to be conducted in accordance with the AMD in order for the Regulator to accept the data. Refer to the AMD Introduction (Chapter 1).

The exception to not having to submit special air studies is, in in accordance with approval requirements, “If the approval holder monitors for any substances or parameters which are the

subject of operational limits as set out in this approval more frequently than is required and using procedures authorized in this approval, then the approval holder shall provide the results of such monitoring as an addendum to the reports required by this approval."

RC 6-H *For the annual report in RC 6-A, the person responsible must include a title page.*

RC 6-I *For the annual report in RC 6-A, the person responsible must include a table of contents if the report is larger than 10 pages.*

RC 6-J *For the annual report in RC 6-A, the person responsible must include the following information, at a minimum:*

- *(a) with respect to a month in the calendar year, (i) identification of and (ii) justification for any changes made after a monthly or quarterly report was initially submitted;*
- *(b) a listing of all continuous ambient air monitoring stations that contributed data to the annual report;*
- *(c) a listing of all (i) passive, (ii) intermittent and (iii) static samplers that contributed data to the annual report; and*
- *(d) for any audit that occurred during the year, if not already included in the monthly or quarterly reports, a summary of any audit findings that affected data validity or resulted in a contravention of the terms and conditions of the approval or the AMD, and the associated corrective actions taken.*

RC 6-K *For the annual report in RC 6-A, the person responsible must include a summary of the following information, at a minimum:*

- *(a) (i) identification and (ii) description of any deviations from the authorized monitoring methods;*
- *(b) (i) identification and (ii) description of any non-standard conditions that may have affected the quality of the monitoring results, including the use of data qualifiers;*
- *(c) (i) identification and (ii) description of numerical results for values outside quantification limits;*
- *(d) a discussion of the operating status of the industrial operation and any irregularities that had an impact on source emissions or air quality, including (i) operating unit, (ii) condition description and (iii) time of occurrence; and*
- *(e) any additional information that may be required by a specific monitoring method.*

For RC 6-K (b), non-standard conditions include, but are not limited to, the presence of forest fire smoke in the monitoring area, excessively elevated concentrations, problems with calibrations or monitoring equipment, and changes in monitoring or supporting equipment.

For RC 6-K (c), values outside of quantification limits, such as beyond calibration range or full scale value, could result from causes such as non-standard conditions or problems with calibration or monitoring equipment.

For RC 6-K (d), discussion on the operating status of the industrial operation would include, but not be limited to, turnarounds, unscheduled shut-downs, start-ups and upsets.

RC 6-L	*For the annual report in RC 6-A, the person responsible must include any other information that is required in annual reports as specified in writing by the Director.*

6.3 Reporting on Ambient Air Monitoring

Annual reports are required to include a summary of ambient air monitoring data collected for the year and an evaluation of all the monitoring performed and data collected.

Industrial operations are not required to report on ambient air monitoring conducted and already reported by Alberta airsheds.

6.3.1 Ambient Air Monitoring Data Issues

RC 6-M	*For the annual report in RC 6-A, if not already submitted or covered in monthly or quarterly reports, the person responsible must include the following information, at a minimum:* *(a) (i) identification of, (ii) description of, and (iii) reason(s) for any ambient air monitoring data deletion or resubmission to Alberta's Ambient Air Quality Data Warehouse;* *(b) (i) identification of, (ii) description of, and (iii) reason(s) for any missed calibrations for ambient air analyzers that were required to be calibrated during the reporting period; and* *(c) (i) identification and (ii) description of any other issues with the ambient air monitoring data.*

6.3.2 Ambient Air Monitoring Results

RC 6-N	*For the annual report in RC 6-A, the person responsible must include the following information, at a minimum:* *(a) the percentage of valid hourly data for all monitored parameters at each continuous ambient air monitoring station;* *(b) annual (i) average, (ii) maximum and (iii) minimum ambient air concentrations for each monitored parameter at each ambient air monitoring station;*

	(c) (i) a plot of the annual average ambient air concentrations over the last five years for each monitored parameter at each ambient air monitoring station, and (ii) a discussion of the context behind changes in annual average concentration trends, if applicable and known to the person responsible; *(d) an annual average spatial plot using data collected with passive samplers, for networks with more than eight passive sampling sites; and* *(e) an annual wind rose for each continuous ambient air monitoring station for the year being reported, generated using meteorological data collected at the ambient air monitoring station. If meteorological data cannot be collected at the ambient air monitoring station, other meteorological data from another source that is representative of the ambient air monitoring station must be used in the generation of the wind rose.*

Providing context in RC 6-N (c) (ii) should include noting known local events and influencers which may have an effect on monitoring results. Examples include, but are not limited to, forest fire, temperature inversions, nearby construction, changes to monitoring methods, siting changes, and changes in local sources.

For RC 6-N (d), where there are replicate samples, both sample concentrations and replicate sample concentrations are used to determine the annual average ambient air concentration for each monitored parameter at each passive sampling site.

For RC 6-N (e), site-specific meteorology should be used for wind roses. If site-specific meteorological data is not available, then the most representative (closest proximity) meteorological data that are available would be used and this would be noted on the wind rose. Examples of sources of potentially representative meteorological data include a nearby ambient air monitoring station, airport, or a station reporting to Alberta Agriculture and Forestry's Agro-Climatic Information Service.

RC 6-O	*For the annual report in RC 6-A, the person responsible must include comparisons of the measured ambient air concentrations at each ambient air monitoring station to all AAAQOs corresponding to the monitored parameters.*
RC 6-P	*For the comparison in RC 6-O, the person responsible must include the following information, at a minimum:* *(a) (i) identification and (ii) description of any measured ambient air concentrations in excess of all AAAQOs corresponding to the monitored parameters; and* *(b) if not already submitted in monthly or quarterly reports, the context around any exceedance(s) identified, if known.*
RC 6-Q	*For the comparison in RC 6-O, the person responsible must use the averaging specifications and data completeness criteria listed in Appendix A for the corresponding AAAQO averaging period.*

RC 6-R	*For the annual report in RC 6-A, the person responsible must include the number of ambient air concentrations in excess of all AAAQOs corresponding to the monitored parameters per month, for each monitored parameter, at each:* *(a) continuous ambient air monitoring station;* *(b) intermittent sampling site; and* *(c) passive sampling site.*
RC 6-S	*For the annual report in RC 6-A, if not already submitted in monthly or quarterly reports, the person responsible must include a representation of data distribution for each month, for each monitored parameter with a corresponding AAAQO.*
RC 6-T	*For the annual report in RC 6-A, the person responsible must include a representation of data distribution for the year, for each monitored parameter with a corresponding AAAQO.*

The representation of data distribution in RC 6-S and RC 6-T could include, but is not limited to, histograms, frequency distribution tables or percentiles.

6.4 Reporting on Source Monitoring

Annual reports are required to include a summary and evaluation of the source monitoring performed, and the source emissions and related data that were collected. Approvals may also require that additional source reporting be included in the annual report.

6.4.1 CEMS Zero and Span Reporting

Zero and spans, as defined in the CEMS Code, are performed daily and flagged in the data electronically submitted to the Director. The Reporting Chapter only requires reporting of CEMS zero and span in annual reports if there are any out of control calibrations zero and span (2X and 4X) and this is not required if already submitted with the monthly or quarterly reports.

RC 6-U	*For the annual report in RC 6-A, if not already submitted in monthly or quarterly reports, the person responsible must include a monthly summary of all CEMS out of control calibration zero and span (2X and 4X) that occurred during the year by (a) completing and (b) submitting the AMD CEMS Zero and Span Summary Form.*
RC 6-V	*For the monthly summary in RC 6-U, the person responsible must include the following information, at a minimum:* *(a) the (i) start date, (ii) start time, (iii) end date, and (iv) end time of the out-of-control zero-span events that occurred during each month;* *(b) the unique source identifier, as identified in the approval or approval application;*

(c) the CEMS station ID, as specified in the Codes for Electronic Reporting;
(d) the full scale of the CEMS analyzer;
(e) the zero criteria based on Table 15 of the CEMS Code;
(f) the zero reading from the CEMS analyzer during each event;
(g) the zero reference used;
(h) the zero drift percentage during each event;
(i) the span criteria based on Table 15 of the CEMS Code;
(j) the span reading from the CEMS analyzer during each event;
(k) the span reference used;
(l) the span drift percentage during each event;
(m) the cause of each out-of-control period;
(n) identification of the corrective actions taken for each out-of-control period; and
(o) any other information required by the AMD CEMS Zero and Span Summary Form.

6.4.2 Continuous Emission Monitoring Results

If not already submitted in monthly or quarterly reports, a summary of CEMS data collected during the year is required in annual reports. The detailed monitoring data collected using continuous emission analyzers are not required to be submitted in annual reports. CEMS data is required to be electronically submitted to the Director under approval requirements and must be submitted in accordance with the procedures specified in the CEMS User Manual.

As per Section 6.0 of the 1998 version of CEMS Code, the AMD provides detailed CEMS reporting requirements and supersedes Section 6.2 of the 1998 version of the CEMS Code.

RC 6-W *For the annual report in RC 6-A, if not already submitted in monthly or quarterly reports, the person responsible must include a monthly summary of CEMS data by (a) completing and (b) submitting the AMD CEMS Summary Form for each month of the year to which the annual report covers.*

RC 6-X *For the monthly summaries in RC 6-W, the person responsible must include the following information, at a minimum:*
(a) identification of the unique source identifier, as identified in the approval or approval application;
(b) identification of the CEMS station ID, as specified in the Codes for Electronic Reporting;
(c) the number of stack exhaust hours for the month;
(d) the date of the Quality Assurance Plan audit, if it occurred during the month;
(e) identification of who performed the Quality Assurance Plan audit, if it occurred during the month;
(f) identification of the (i) name and (ii) reporting units of each pollutant and operational parameter monitored by each CEMS analyzer;

(g) identification of the (i) make, (ii) model number and (iii) serial number of each CEMS analyzer;
(h) identification of each dual range CEMS analyzer;
(i) the (i) range and (ii) units of each CEMS analyzer;
(j) identification of the monitoring (i) duration and (ii) interval of each CEMS analyzer;
(k) identification of any changes made to CEMS parameterization or data acquisition system configurations;
(l) the total operational hours of each CEMS analyzer;
(m) the percent availability of each CEMS analyzer;
(n) the (i) minimum, (ii) maximum and (iii) average monthly reading for each parameter monitored;
(o) the (i) minimum, (ii) maximum and (iii) average monthly emission rate for each pollutant monitored;
(p) the total monthly mass emissions for each pollutant monitored;
(q) the approval limit of each parameter and pollutant monitored, if applicable;
(r) identification of the number of hours exceeding any approval limits;
(s) (i) identification and (ii) description of any missing data;
(t) identification of the method used to fill in missing data;
(u) identification of any performance tests carried out during the month;
(v) identification of the type of performance test carried out; and
(w) any other information required by the AMD CEMS Summary Form.

6.4.3 Source Testing Results

If not already provided in monthly or quarterly reports, annual reports are required to identify and provide a brief overview of any source testing carried out during the year. In addition to these overviews, Section 9 of the Reporting Chapter also requires the submission of manual stack survey reports, RATA reports, CGA reports and associated summary forms. See Section 9 for the specific requirements of these reports and summary forms.

RC 6-Y *For the annual report in RC 6-A, if not already included in monthly or quarterly reports, the person responsible must include the following information, at a minimum:*
(a) identification of the dates of any source sampling activities carried out during the year;
(b) identification of the testing company that carried out any source sampling activities during the year;
(c) a brief overview of any CEMS initial or re-certification tests carried out during the year;
(d) a brief overview of the results of any complete or incomplete (i) manual stack surveys, (ii) RATAs, and (iii) CGAs carried out during the year;
(e) an explanation for stopping or aborting any incomplete (i) manual stack survey, (ii) RATA or (iii) CGA; and

	(f) a brief overview of any required corrective actions taken or planned in response to the source sampling activities.

For RC 6-Y (d), an example of a brief overview of source testing results would be: On May 6th, Stack Testing Company X carried out a source emission survey measuring particulate emissions from the Main Exhaust Stack. The average particulate emissions were 0.01 g/kg flue gas, which is under the 0.02 g/kg limit set forth in our approval.

6.4.4 Flare Stack Monitoring Results

If not already provided in monthly or quarterly reports, annual reports are required to identify and provide a summary of any flaring activity carried out during the year at the industrial operation. This summary information is to be provided using the AMD Flare Stack Form.

RC 6-Z	*For the annual report in RC 6-A, if not already submitted in monthly or quarterly reports, the person responsible must include a monthly summary of any flaring carried out during the year by (a) completing and (b) submitting the AMD Flare Stack Form for each month of the year to which the annual report covers.*
RC 6-AA	*For the monthly summaries in RC 6-Z, the person responsible must include the following information, at a minimum:* *(a) identification of the unique source identifier, as identified in the approval or approval application;* *(b) identification of the analysis date(s) on which the flaring data is based, if applicable;* *(c) identification of the material sent to the flare;* *(d) the amount of material sent to the flare;* *(e) the reason for the flaring;* *(f) the type of notification provided, if applicable;* *(g) the quantification method for the flare release;* *(h) the (i) daily and (ii) monthly volume of gas being flared for each source;* *(i) the (i) daily and (ii) monthly percentages of hydrogen sulphide contained in the flared gas, if applicable;* *(j) the (i) daily and (ii) monthly substance emission totals for each source; and* *(k) any other information required by the AMD Flare Stack Form.*

For RC 6-Z and RC 6-AA, monitors are not required if not already installed. Estimated emissions can be reported.

6.4.5 Monthly Gas Processing Plant Sulphur Reports (S-30)

AER Directive 017: Measurement Requirements for Oil and Gas Operations requires that the inlet sour gas stream volume, including the gas equivalent volume of condensate, sour gas in

solution in water, the sulphur disposition tonnage, and the sulphur balance be reported on a monthly basis to the Regulator. If the sour gas plant is approved with a sulphur inlet of more than one tonne per day, an AER S-30 report is required to be submitted to the Regulator via the AER Digital Data Submission System. If the sour gas plant is approved with a sulphur inlet of less than one tonne per day, AER Directive 017 requires the submission of an AMD S-30 report in accordance with the requirements set out in the AMD. If the AMD S-30 reports were submitted with the monthly or quarterly reports, they do not need to be resubmitted as part of the annual report.

In accordance with AER Interim Directive (ID) 2001-03: Sulphur Recovery Guidelines for the Province of Alberta, other upstream oil and gas facilities with sulphur emissions greater than one tonne per day are not required to submit AER S-30 reports, but are required to maintain daily sulphur balance records and calendar quarter-year recovery calculations. These records may be requested by the Regulator for inspection or audit.

RC 6-BB *For the annual report in RC 6-A, if not already submitted in monthly or quarterly reports, the person responsible for a sour gas plant with less than one tonne per day of approved sulphur inlet must (a) complete and (b) submit monthly sulphur reports for each month of the reporting year, using the AMD S-30 Report Form.*

RC 6-CC *For the monthly sulphur report in RC 6-BB, the person responsible must include the following information, at a minimum:*

- *(a) approved daily maximum volume of plant feedstock;*
- *(b) approved daily maximum mass of inlet sulphur;*
- *(c) actual (i) daily, (ii) monthly and (iii) quarterly volume of plant feedstock;*
- *(d) daily percentage of hydrogen sulphide contained in the recombined plant feedstock;*
- *(e) actual (i) daily, (ii) monthly and (iii) quarterly plant feedstock sulphur mass;*
- *(f) actual (i) daily, (ii) monthly and (iii) quarterly incinerator stack sulphur emissions;*
- *(g) actual (i) daily, (ii) monthly and (iii) quarterly incinerator stack sulphur dioxide emissions;*
- *(h) actual (i) daily, (ii) monthly and (iii) quarterly volume of gas flared from the plant;*
- *(i) daily percentage of hydrogen sulphide contained in the flared gas;*
- *(j) actual (i) daily, (ii) monthly and (iii) quarterly flared gas sulphur emissions;*
- *(k) actual (i) daily, (ii) monthly and (iii) quarterly flared gas sulphur dioxide emissions; and*
- *(l) any other information required by the AMD S-30 Report Form.*

6.4.6 Sulphur Recovery and Removal Results

Industrial operations that are required by their approval to recover or remove sulphur need to include a discussion of monthly and annual sulphur recovery and removal performance in their annual reports. If not already provided in monthly or quarterly reports, these industrial operations

also need to include a summary of sulphur recovery and removal activities, using the AMD Sulphur Recovery and Removal Form, in their annual reports.

RC 6-DD	*For the annual report in RC 6-A, if an industrial operation is required by an approval to recover or remove sulphur, the person responsible must include a discussion of monthly and annual sulphur recovery and removal performance.*

The discussion in RC 6-DD should include, but not necessarily be limited to, information on the amounts of sulphur recovered and/or captured for the year, a comparison to the amount of sulphur emitted during the year, the percent sulphur recovery and any operating issues with the sulphur recovery or capture equipment.

RC 6-EE	*For the annual report in RC 6-A, if not already submitted in monthly or quarterly reports, if an industrial operation is required by an approval to recover or remove sulphur, the person responsible must include a monthly summary of sulphur recovery and removal by (a) completing and (b) submitting the AMD Sulphur Recovery and Removal Form.*

Sour gas plants with an approved sulphur inlet of less than one tonne per day are not required to complete an AMD Sulphur Recovery and Removal Form, as they have provided the required sulphur information via the AMD S-30 Report Form.

RC 6-FF	*For the monthly summaries in RC 6-EE, the person responsible must include the following information, at a minimum:* *(a) the operating hours of the sulphur recovery unit;* *(b) identification of whether any bypasses of the sulphur recovery unit occurred during the month;* *(c) identification of the (i) date, (ii) duration and (iii) reason for any bypass of the sulphur recovery unit that occurred during the month;* *(d) actual (i) daily, (ii) monthly and (iii) quarterly sulphur inlet or content mass;* *(e) actual (i) daily, (ii) monthly and (iii) quarterly sulphur production or capture mass;* *(f) actual (i) daily, (ii) monthly and (iii) quarterly incinerator stack sulphur emissions;* *(g) actual (i) daily, (ii) monthly and (iii) quarterly flared gas sulphur emissions;* *(h) actual (i) daily, (ii) monthly and (iii) quarterly sulphur injected;* *(i) actual (i) daily, (ii) monthly and (iii) quarterly mass of sulphur otherwise disposed of at the industrial operation;* *(j) actual (i) daily, (ii) monthly and (iii) quarterly total sulphur;* *(k) minimum approved sulphur recovery efficiency percentage;* *(l) actual (i) daily, (ii) monthly and (iii) quarterly sulphur recovery efficiency percentage; and* *(m) any other information required by the AMD Sulphur Recovery and Removal Form.*

6.4.7 Source Emission Results

Individual approvals may have annual air emissions reporting requirements. These reporting requirements are to be fulfilled by submitting the required information as part of the annual report, using the AMD Emissions Summary Form.

RC 6-GG *For the annual report in RC 6-A, if an industrial operation is required by an approval to report emission data annually, the person responsible must include the annual air emissions data by (a) completing and (b) submitting the AMD Emissions Summary Form.*

RC 6-HH *For the AMD Emissions Summary Form in RC 6-GG, the person responsible must include the following information, at a minimum:*

- *(a) identification of each pollutant being reported;*
- *(b) identification of the unique source identifier of each source, as identified in the approval or approval application;*
- *(c) identification of the CEMS station ID of each source, as specified in the Codes for Electronic Reporting, if applicable;*
- *(d) the annual hours of operation of each source;*
- *(e) identification of the measurement or calculation method used to determine the emission value;*
- *(f) if monthly emission totals are required to be reported, the monthly emission value for the source and pollutant;*
- *(g) if annual source emission totals are required to be reported, the annual source emission total for the source and pollutant;*
- *(h) if annual emission totals for the industrial operation are required to be reported, the annual pollutant totals for the industrial operation; and*
- *(i) any other applicable information required by the AMD Emissions Summary Form.*

6.4.8 Approval Contraventions and Comparisons to Source Emission Limits

Annual reports must include comparisons to applicable emission limits, a discussion of operational problems impacting air emissions at the industrial operation and summary information related to unauthorized or accidental releases, as well as any instances of operating without required pollution controls for the year. If not already submitted in monthly or quarterly reports, a summary of any air related contraventions of approval conditions is also required to be included in the annual report by completing the AMD Approval Contravention Form.

RC 6-II *For the annual report in RC 6-A, if not already submitted in monthly or quarterly reports, the person responsible must include a summary of all air related approval contraventions that occurred during the year by (a) completing and (b) submitting the AMD Approval Contravention Form.*

RC 6-JJ *For the summary of air related approval contraventions in RC 6-II, the person responsible must include the following information for each approval contravention that occurred during the year, at a minimum:*

- *(a) the reference number from the Emergency Response Centre for the approval contravention event;*
- *(b) the (i) start date, (ii) start time, (iii) end date, (iv) end time and (v) duration of the approval contravention event;*
- *(c) identification of the pollutant, parameter or criteria that was exceeded or contravened;*
- *(d) the measured or estimated actual quantity of the pollutant, parameter or criteria that was exceeded or contravened, if applicable;*
- *(e) the method used to identify the exceedance or contravention, if applicable;*
- *(f) the cause of the exceedance or contravention;*
- *(g) a brief summary of the approval contravention event;*
- *(h) a brief summary of the industrial operation's investigation of the approval contravention event;*
- *(i) a brief summary of any completed and ongoing actions taken in response to the approval contravention event;*
- *(j) the date of the 7-day letter submission for the approval contravention event; and*
- *(k) any other information required by the AMD Approval Contravention Form.*

RC 6-KK *For the annual report in RC 6-A, if not already submitted in monthly or quarterly reports, the person responsible must include (a) the total number of exceedances of each emission limit for each month and (b) the total number of exceedances of emission limits at the industrial operation for each month.*

RC 6-LL *For the annual report in RC 6-A, the person responsible must include descriptions of any operational problems impacting source emissions during the year.*

RC 6-MM	*For the annual report in RC 6-A, the person responsible must include (a) discussions comparing air emissions at the industrial operation to the emission limits specified in the approval, (b) the total number of exceedances of each emission limit for the year and (c) the total number of exceedances of emission limits at the industrial operation for the year.*
RC 6-NN	*For the annual report in RC 6-A, if the industrial operation has been in operation for over six years, the person responsible must include, for each source and pollutant subject to an approval emission limit, comparisons of the number of exceedances of each emission limit for the reporting year to the number of exceedances of each emission limit in each of the previous five years of operation.*
RC 6-OO	*For the annual report in RC 6-A, if the industrial operation has been in operation for less than six years, the person responsible must include, for each source and pollutant subject to an approval emission limit, comparisons of the number of exceedances of each emission limit for the reporting year to the number of exceedances of each emission limit in each of the previous years of operation.*
RC 6-PP	*For the annual report in RC 6-A, the person responsible must include the number of (a) unauthorized releases, (b) accidental releases and (c) instances of operating without required pollution controls for the year.*
RC 6-QQ	*For the annual report in RC 6-A, if the industrial operation has been in operation for over six years, the person responsible must include comparisons of the number of (a) unauthorized releases, (b) accidental releases and (c) instances of operating without required pollution controls to the previous five years of operation.*
RC 6-RR	*For the annual report in RC 6-A, if the industrial operation has been in operation for less than six years, the person responsible must include comparisons of the number of (a) unauthorized releases, (b) accidental releases and (c) instances of operating without required pollution controls for the previous years of operation.*

For RC 6-PP, RC 6-QQ and RC 6-RR, accidental releases would not include routine fugitive or open source releases (such as, but not limited to, fugitive emissions from tailings ponds or dust from on-site roads), but would include releases from spills, leaks or other on-site accidents.

RC 6-SS	*For the annual report in RC 6-A, if not already included in monthly or quarterly reports, the person responsible must include a discussion of comparisons to performance targets specified in the approval relevant to the year, month or quarter.*

6.4.9 Fugitive Monitoring Results

A summary of fugitive monitoring carried out at the industrial operation during the year needs to be included in the annual report. This summary needs to cover any fugitive monitoring required by the approval. This may include, but may not be limited to, the monitoring of fugitive dust or volatile organic compounds.

RC 6-TT	*For the annual report in RC 6-A, the person responsible must include a summary of all approval required fugitive monitoring carried out at the industrial operation during the year.*
RC 6-UU	*For the summary in RC 6-TT, the person responsible must include the following information, at a minimum:* *(a) a description of the required fugitive monitoring that was carried out; and* *(b) a summary of the results of the required fugitive monitoring.*

6.4.10 Discussion of Pollution Control Technologies and Equipment

A discussion of pollution control technologies and equipment at the industrial operation during the year needs to be included in the annual report. This discussion needs to cover any pollution control technologies or equipment required by the approval.

RC 6-VV	*For the annual report in RC 6-A, the person responsible must include a discussion of any operational or performance issues with any pollution control technologies and equipment required by the industrial operation's approval.*
RC 6-WW	*For the discussion in RC 6-VV, the person responsible must include the following information, at a minimum:* *(a) the annual percent operation time of the required pollution control technologies and equipment; and* *(b) a brief overview of the performance of the required pollution control technologies and equipment during the year.*
RC 6-XX	*For the annual report in RC 6-A, if not already included in monthly or quarterly reports, the person responsible must include a discussion of any significant maintenance activities on any pollution control technologies and equipment required by the industrial operation's approval that occurred during the year.*

For RC 6-XX, a significant maintenance activity would include any routine or non-routine maintenance activities that require the pollution control technology or equipment to be offline for an extended period, including, but not limited to, major repairs, unit shutdowns and turnarounds.

6.5 Production Reporting

Individual approvals may have annual production reporting requirements. These reporting requirements are to be fulfilled by submitting the required information as part of the annual report, using the AMD Production Form.

RC 6-YY *For the annual report in RC 6-A, if the person responsible is required to report production data under the conditions of an approval and did not already do so via monthly or quarterly reports, the person responsible must include the required production summary data by (a) completing and (b) submitting the AMD Production Form.*

RC 6-ZZ *For RC 6-YY, the person responsible must include the following information, at a minimum:*

- *(a) identification of the product(s) being reported;*
- *(b) identification of the measurement units of each product being reported;*
- *(c) if monthly production totals are required to be reported, the monthly production values;*
- *(d) if annual production totals are required to be reported, the annual production values;*
- *(e) average percent sulphur content, if applicable; and*
- *(f) any other applicable information required by the AMD Production Form.*

RC 6-AAA If confidentiality is being requested for the data being reported in RC 6-YY, the person responsible must include:

- *(a) appropriate supporting information for the confidentiality request; and*
- *(b) the production data and supporting information separately from the other annual report documents being submitted.*

For RC 6-AAA, the required production summaries are to be submitted separately from the other annual report documents only if confidentiality is being requested.

6.6 Industrial Operation Expansions / Modifications

A brief summary of any significant expansion or modification to the industrial operation that occurred or was completed during the year needs to be included in the annual report. This summary should include any associated changes to air emission levels from the industrial operation or large individual sources at the industrial operation.

RC 6-BBB *For the annual report in RC 6-A, the person responsible must include a brief summary of any significant expansions or modifications to the industrial operation that occurred or were completed during the year.*

6.7 Sulphur Block Reporting

RC 6-CCC *For the annual report in RC 6-A, for any industrial operation utilizing sulphur blocks, the person responsible must include a summary of the sulphur block activity.*

RC 6-DDD *For the summary in RC 6-CCC, the person responsible must include the following information, at a minimum:*

- *(a) the amount of sulphur produced during the year;*
- *(b) the amount of sulphur removed during the year;*
- *(c) identification of the method of removal utilized;*
- *(d) information on any associated monitoring performed during the year;*
- *(e) any remedial actions taken; and*
- *(f) the number of block fires with:*
  - *(i) cause;*
  - *(ii) duration; and*
  - *(iii) environmental concerns with respect to each block fire discussed.*

The Directive for Monitoring the Impact of Sulphur Dust on Soils (Alberta Environment and Parks 2015) provides direction on the assessment and mitigation of the effects of deposition of sulphur dust on soil. Lab analysis of sulphur dust for vegetation monitoring is covered in Development and Validation of Analytical Methods for Elemental Sulphur in Alberta Soils (Alberta Environment and Parks 2015).

6.8 Other Monitoring Results and Information

RC 6-EEE *For the annual report in RC 6-A, the person responsible must include (a) a description and (b) the results of any required air monitoring not identified in Sections 6.3 to 6.7 of the Reporting Chapter that are to be submitted annually to the Director according to the requirements of an approval or written notice from the Director.*

6.9 Flow Diagram for Industrial Annual Reports

The following flow diagram is provided to help identify what information may need to be included in the annual report for a specific industrial operation. This diagram is guidance only and does not necessarily cover every possible category of information that may need to be included in an annual report, which is set out by the AMD Reporting Chapter, the approval and any applicable written notices from the Director. This diagram does not replace the requirements set out in the Reporting Chapter clauses. The Reporting Chapter clauses and an industrial operation's approval requirements should always be reviewed prior to preparing and submitting an annual report.

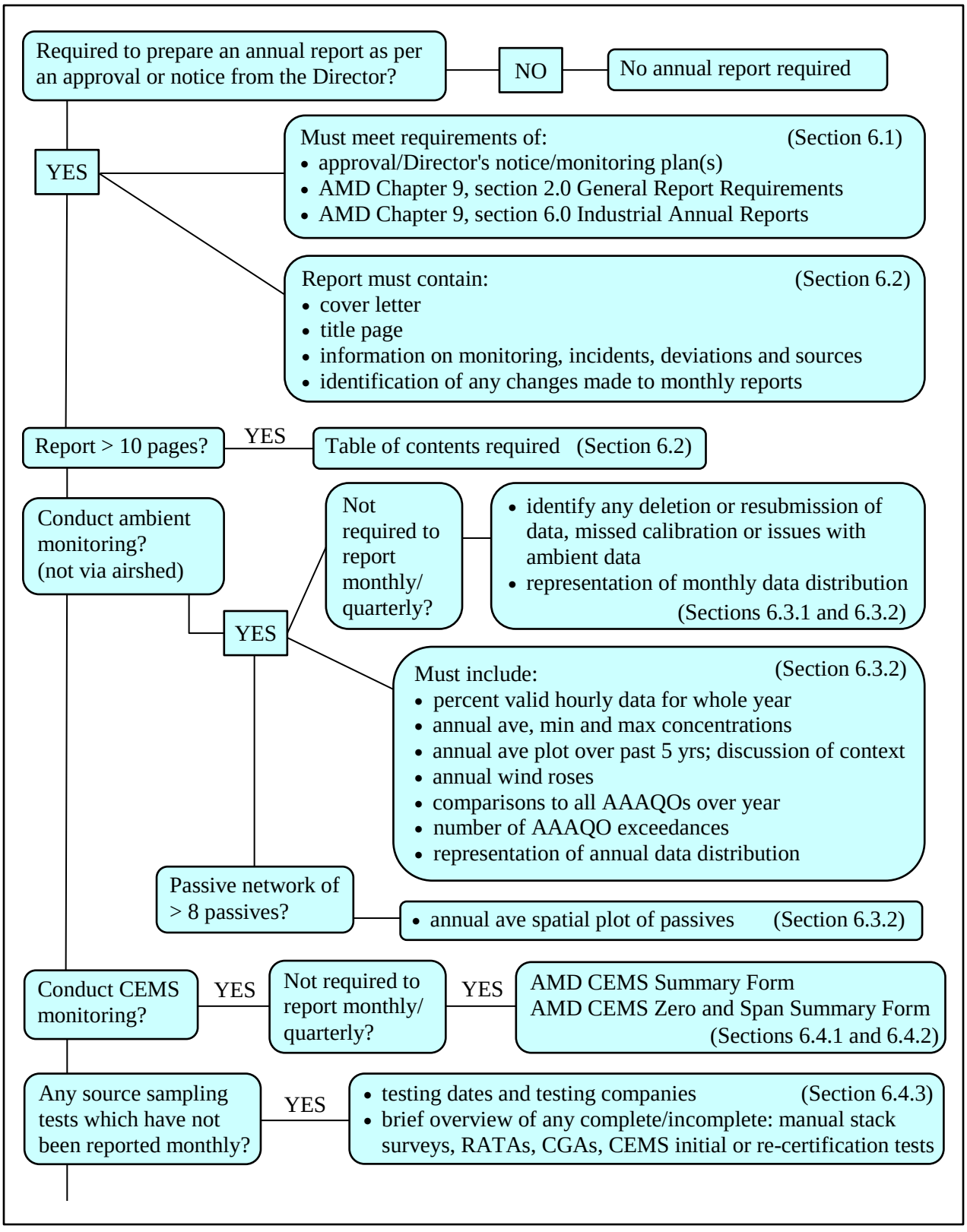

Figure 2 Flow Diagram for Industrial Annual Report Contents

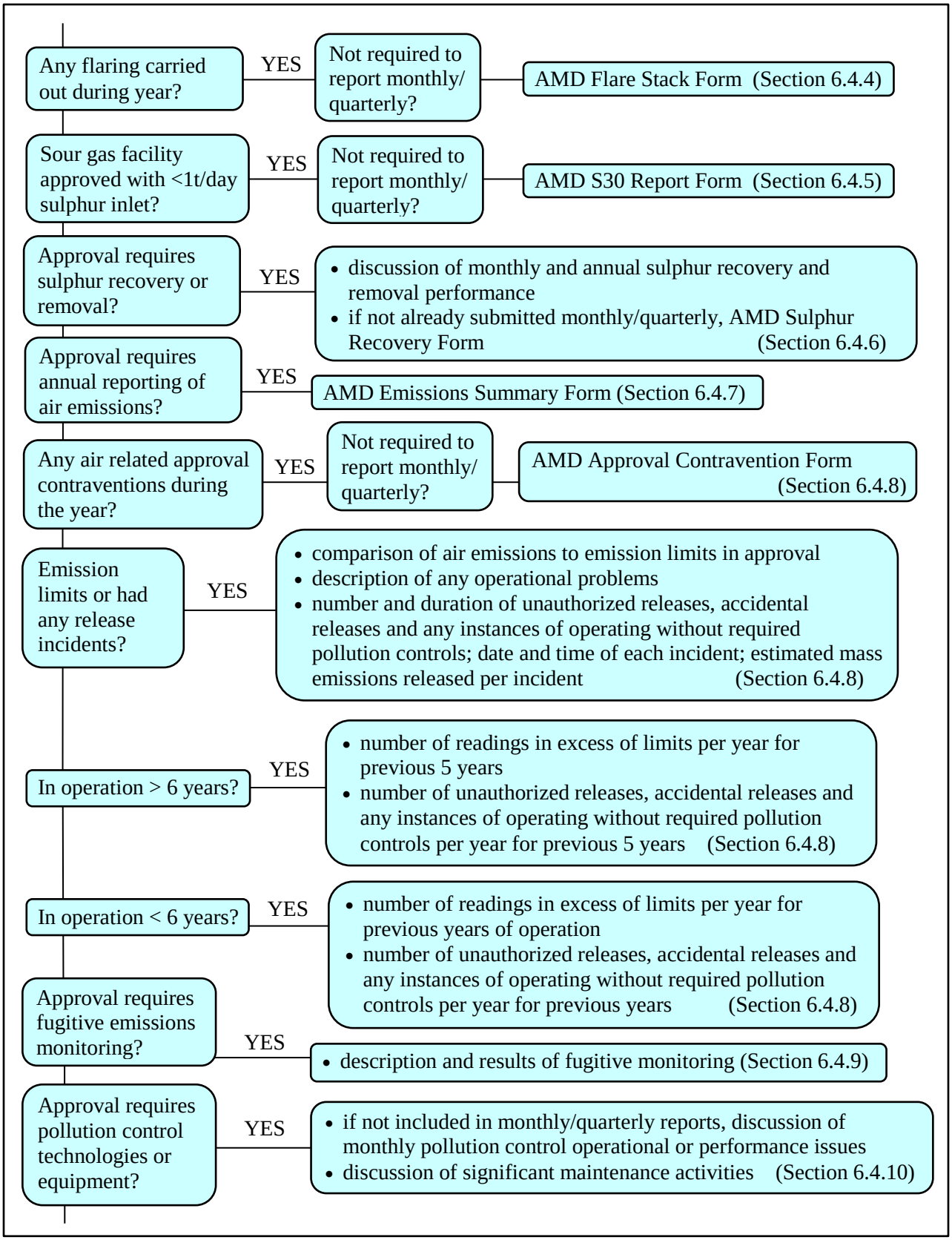

Figure 2 Flow Diagram for Industrial Annual Report Contents (cont.)

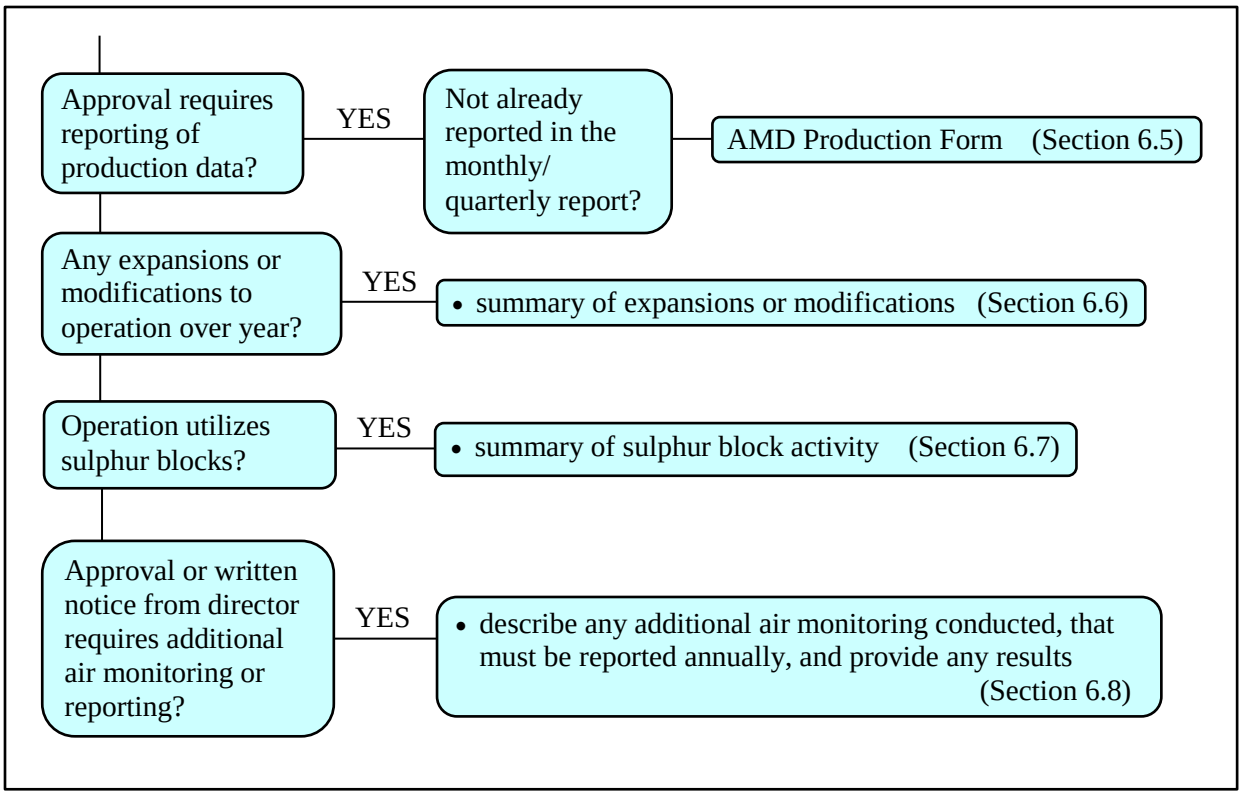

Figure 2 Flow Diagram for Industrial Annual Report Contents (cont.)

7.0 Industrial Emissions Inventory Reporting

This section outlines the general requirements for emissions inventory compilation and emissions inventory reporting. EPEA approved industrial operations are required to conduct an annual emissions inventory of the sources releasing substances into the atmosphere, and the quantities of substances being released by these sources. If certain reporting thresholds are met, these industrial operations are also required to complete and submit an annual emissions inventory report using the Annual Emissions Inventory Report Form. The Annual Emissions Inventory Report Form will be provided for review once the requirements of Chapter 9 have been finalized.

7.1 Annual Emissions Inventory

RC 7-A	*Commencing January 1, 2019, the person responsible must annually conduct an inventory of (a) the sources releasing substances into the atmosphere at the industrial operation and (b) the annual quantities of substances being released into the atmosphere by the sources at the industrial operation.*

2018 will be the first inventory year. The person responsible will not prepare the inventory until after January 1, 2019, as the inventory will cover all of 2018.

RC 7-B	*For the inventory in RC 7-A, the person responsible must complete the inventory by September 30 of the year following the year in which the inventory is to cover, unless otherwise authorized in writing by the Director.*

The first inventory in RC 7-A would cover the January 1 to December 31, 2018 calendar year and would need to be completed by September 30, 2019. The next annual inventory in RC 7-A would cover the January 1 to December 31, 2019 calendar year and would need to be completed by September 30, 2020.

7.2 Annual Emissions Inventory Reporting

7.2.1 Reporting Thresholds, Substances and Air Emissions

RC 7-C	*Commencing with the 2018 calendar year, if in any calendar year an industrial operation releases, or permits the release, of a substance into the atmosphere in excess of any of the threshold levels specified in Table 1: Reporting Thresholds, the person responsible must (a) prepare and (b) submit to the Director an annual emissions inventory report for that calendar year.*

2018 will be the first annual emissions inventory report year. The person responsible will not prepare the annual emissions inventory report until after January 1, 2019, as the annual emissions inventory report will cover all of 2018.

Table 1 Reporting Thresholds

Pollutant	Total annual actual air emissions from the industrial operation
Sulphur Dioxide	20 tonnes
Nitrogen Oxides (expressed as NO_2)	20 tonnes
Carbon Monoxide	20 tonnes
Total Particulate Matter	20 tonnes
Particulate Matter <= 10 Microns	0.5 tonnes
Particulate Matter <= 2.5 Microns	0.3 tonnes
Volatile Organic Compounds	10 tonnes
Ammonia	10 tonnes

RC 7-D	*For the annual emissions inventory report in RC 7-C, the person responsible must quantify from each air emission release point at the industrial operation:* *(a) the (i) annual actual air emissions, (ii) normal air emissions, and (iii) maximum air emissions for each substance listed in Appendix B Schedule 1 of the Reporting Chapter;* *(b) the (i) annual actual air emissions, (ii) normal air emissions, and (iii) maximum air emissions for each of the applicable substances listed in Appendix C Schedule 2 of the Reporting Chapter; and* *(c) the (i) annual actual air emissions, (ii) normal air emissions, and (iii) maximum air emissions for any additional applicable substances specified in the Annual Emissions Inventory Report Standard and Guidance Document, from each air emission release point at the industrial operation; and* *(d) the (i) annual actual air emissions, (ii) normal air emissions, and (iii) maximum air emissions for any additional substances specified in a written notice from the Director.*

Definitions for annual actual air emissions, normal air emissions and maximum air emissions are provided in the AMD Introduction (Chapter 1). Normal air emissions are intended to capture the usual, average or typical air emissions, as determined during normal (usual, average or typical) operating conditions.

RC 7-E	*For the annual emissions inventory report in RC 7-C, the person responsible must quantify from each air emission non-point source at the industrial operation:* *(a) the annual actual air emissions for each substance listed in Appendix B Schedule 1 of the Reporting Chapter;* *(b) the annual actual air emissions for each of the applicable substances listed in Appendix C Schedule 2 of the Reporting Chapter; and* *(c) the annual actual air emissions for any additional applicable substances specified in the Annual Emissions Inventory Report Standard and Guidance Document, from each air emission non-point source at the industrial operation; and* *(d) the annual actual air emissions for any additional substances specified in a written notice from the Director.*

In RC 7-D and RC 7-E, an air emission release point is defined as a stationary source responsible for the release of a substance to the atmosphere that can be practically traced back to a single identifiable source, such as, but not limited to, a smokestack. An air emission non-point source refers to an area, on-road mobile, non-road mobile, volume, line or group of point sources responsible for the release of a substance to the atmosphere, which cannot be practically inventoried as separate individual sources or release points because they are too small, too large, too numerous, too geographically dispersed, or because they are non-stationary. Non-point sources include, but are not limited to, materials handling, mine face, mine fleet, solid mine tailings, non-stationary equipment, fugitive leaks, road dust, space heating, storage tanks and liquid tailings ponds.

Applicable substances in RC 7-D (b) and (c) and RC 7-E (b) and (c) are those substances in Appendix C Schedule 2 of the Reporting Chapter, or Annual Emissions Inventory Report Standard and Guidance Document, which the industrial operation emits to the atmosphere in amounts that can be quantified with reasonable effort, and would include, at a minimum, the:

- substances that are part of the industrial operation's current approval emission limits, monitoring, or reporting requirements;
- substances whose air emissions were reported by the industrial operation to another regulatory or non-regulatory reporting program, such as the National Pollutant Release Inventory, for the same calendar year; and
- substances whose air emissions have otherwise been quantified by the industrial operation for the same calendar year.

7.2.2 Submission Deadline and Reporting Form

RC 7-F	*For the annual emissions inventory report in RC 7-C, the person responsible must submit the annual emissions inventory report to the Director by September 30 of the year following the year in which the annual emissions inventory report is to cover, unless otherwise authorized in writing by the Director.*

For clarity, RC 7-F requires that if the reporting threshold has been met for 2018, the person responsible submits an annual emissions inventory report to the Director, containing the required data covering the January 1 to December 31, 2018 calendar year, by September 30, 2019. If the reporting threshold is met again in 2019, then the second annual emissions inventory report would cover the January 1 to December 31, 2019 calendar year and would need to be submitted to the Director by September 30, 2020.

RC 7-G	*For the annual emissions inventory report in RC 7-C, the person responsible must (a) use and (b) complete the Annual Emissions Inventory Report Form.*
RC 7-H	*For the annual emissions inventory report in RC 7-C, the person responsible must not modify the Annual Emissions Inventory Report Form, beyond entering in required information, unless otherwise authorized in writing by the Director.*

The Annual Emissions Inventory Report Form is locked and password protected to prevent modification, in order to ensure the integrity of the data when it is imported into the internal Regulator database. Any unauthorized modifications to the Annual Emissions Inventory Report Form, beyond entering in required information, will render it invalid. An unauthorized modified Annual Emissions Inventory Report Form will not be accepted and will not satisfy the requirements of the AMD.

RC 7-I	*For the annual emissions inventory report in RC 7-C, the person responsible must submit to the Director using the submission method specified in the Annual Emissions Inventory Report Standard and Guidance Document.*

RC 7-J	*For the annual emissions inventory report in RC 7-C, the person responsible must use the units and formatting required by the Annual Emissions Inventory Report Form.*

The Annual Emissions Inventory Report Standard and Guidance Document will be available on the AMD website.

7.2.3 General Annual Emissions Inventory Report Requirements

RC 7-K *For the annual emissions inventory report in RC 7-C, the person responsible must include the following information, as specified in the Annual Emissions Inventory Report Form, at a minimum:*

- *(a) identification of the year the report applies to;*
- *(b) reporting company information;*
- *(c) industrial operation identification information;*
- *(d) industrial operation temporal information;*
- *(e) industrial operation activity and capacity information;*
- *(f) industrial operation boundary information;*
- *(g) industrial operation building dimensions;*
- *(h) industrial operation sector information;*
- *(i) industrial operation location information;*
- *(j) operational and release issues and incidents at the industrial operation; and*
- *(k) contact information for:*
  - *(i) the industrial operation;*
  - *(ii) the person actually submitting the annual emissions inventory report;*
  - *(iii) a public contact; and*
  - *(iv) any consultants used in preparing the annual emissions inventory report.*

7.2.4 Release Point Reporting Requirements

RC 7-L *For the annual emissions inventory report in RC 7-C, the person responsible must include the following information, as specified in the Annual Emissions Inventory Report Form, at a minimum:*

- *(a) (i) identification and (ii) description of all air emission release points at the industrial operation;*
- *(b) identification of all air emission release point spatial locations;*
- *(c) the air emission release point parameters;*
- *(d) (i) identification and (ii) description of all processes, units and equipment at the industrial operation which emit to the atmosphere using the air emission release points;*
- *(e) information on any air emission release point emission limits;*
- *(f) information on any air emission release point pollution control technologies or equipment;*

(g) *information on the temporal operation of the air emission release points; and*
(h) *(i) identification and (ii) description of any source sampling or continuous emission monitoring carried out during the year.*

RC 7-M *For the annual emissions inventory report in RC 7-C, the person responsible must include the following information, as specified in the Annual Emissions Inventory Report Form, at a minimum:*

(a) *the measured or estimated annual actual air emissions from each air emission release point at the industrial operation for the substances quantified in RC 7-D;*
(b) *identification of the methodology used to determine the annual actual air emissions for each air emission release point for the substances quantified in RC 7-D;*
(c) *the measured or estimated normal air emissions from each air emission release point at the industrial operation for the substances quantified in RC 7-D;*
(d) *identification of the methodology used to determine the normal air emissions for each air emission release point for the substances quantified in RC 7-D;*
(e) *the measured or estimated maximum air emissions from each air emission release point at the industrial operation for the substances quantified in RC 7-D; and*
(f) *identification of the methodology used to determine the maximum air emissions for each air emission release point for the substances quantified in RC 7-D.*

7.2.5 Non-Point Source Reporting Requirements

RC 7-N *For the annual emissions inventory report in RC 7-C, the person responsible must include the following information, as specified in the Annual Emissions Inventory Report Form, at a minimum:*

(a) *(i) identification and (ii) description of all air emission non-point sources at the industrial operation;*
(b) *identification of all air emission non-point source spatial locations;*
(c) *the air emission non-point source parameters;*
(d) *(i) identification and (ii) description of all processes, units and equipment at the industrial operation associated with the non-points sources;*
(e) *information on any air emission non-point source emission limits;*
(f) *information on any air emission non-point source pollution control technologies or equipment;*
(g) *information on the temporal operation of the air emission non-point sources;*
(h) *information on storage tanks;*
(i) *information on exposed storage piles; and*
(j) *for industrial operations that perform mining activities, information on (i) mine fleets, (ii) mine faces and (iii) tailings ponds.*

RC 7-O *For the annual emissions inventory report in RC 7-C, the person responsible must include the following information, as specified in the Annual Emissions Inventory Report Form, at a minimum:*

(a) the measured or estimated annual actual air emissions from each air emission non-point source at the industrial operation for the substances quantified in RC 7-E; and

(b) identification of the methodology used to determine the annual actual air emissions for each air emission non-point source for the substances quantified in RC 7-E.

7.2.6 Other Annual Emissions Inventory Report Requirements

RC 7-P *For the annual emissions inventory report in RC 7-C, the person responsible must include the following information, at a minimum:*

(a) (i) identification and (ii) description of any changes from the previous year greater than 10% for the annual actual air emission levels at the industrial operation, for the substances quantified in RC 7-D and RC 7-E, as specified in the Annual Emissions Inventory Report Form;

(b) (i) identification and (ii) description of any plant changes made to the industrial operation affecting air emissions, as specified in the Annual Emissions Inventory Report Form;

(c) (i) identification and (ii) description of any sources deemed negligible and excluded from reporting, as specified in the Annual Emissions Inventory Report Form;

(d) a description of any authorized changes in measurements, estimation methodologies, emission factors, equations or calculations, as specified in the Annual Emissions Inventory Report Form;

(e) any other information required by the Annual Emissions Inventory Report Form;

(f) any other information identified as a mandatory reporting requirement in an annual emissions inventory report, as specified in the Annual Emissions Inventory Report Standard and Guidance Document; and

(g) any additional information that is required to be included in the annual emissions inventory report, as specified in a written notice from the Director.

7.2.7 Methodologies

RC 7-Q *For the inventory in RC 7-A and the annual emissions inventory report in RC 7-C, the person responsible must determine the (a) annual actual air emissions, (b) normal air emissions, and (c) maximum air emissions using the measurement equipment, estimation methodologies, emission factors, equations and*

calculations that are specified in the Annual Emissions Inventory Report Standard and Guidance Document.

RC 7-R *For the inventory in RC 7-A and the annual emissions inventory report in RC 7-C, where no measurement equipment, estimation methodologies, emission factors, equations or calculations have been specified in the Annual Emissions Inventory Report Standard and Guidance Document, the person responsible must determine the (a) annual actual air emissions, (b) normal air emissions, and (c) maximum air emissions using measurements, methodologies, emission factors, equations and calculations that are:*

(i) based on the best information available;

(ii) applicable to the particular industrial operation and its operating conditions; and

(iii) if appropriate, widely used and accepted by the industrial sector to which the industrial operation belongs.

RC 7-S *For the inventory in RC 7-A and the annual emissions inventory report in RC 7-C where no measurement equipment, estimation methodologies, emission factors, equations or calculations have been specified in the Annual Emissions Inventory Report Standard and Guidance Document, the person responsible must:*

(a) determine annual actual air emissions for each air emission release point using any of the following:

(i) continuous emission monitoring;

(ii) predictive emission monitoring;

(iii) source testing;

(iv) materials balance;

(v) site-specific emission factors;

(vi) published or general emission factors;

(vii) emission estimation models;

(viii) engineering estimates;

(ix) speciation profiles;

(x) an optional method for release point annual actual air emissions specified in the Annual Emissions Inventory Report Standard and Guidance Document; or

(xi) a method authorized in writing by the Director;

(b) determine annual actual air emissions for each air emission non-point source using any of the following:

(i) continuous emission monitoring;

(ii) predictive emission monitoring;

(iii) source testing;

(iv) materials balance;

(v) site-specific emission factors;

(vi) published or general emission factors;

(vii) emission estimation models;

(viii) engineering estimates;

(ix) speciation profiles;

(x) fugitive monitoring;
(xi) an optional method for non-point source annual actual air emissions specified in the Annual Emissions Inventory Report Standard and Guidance Document; or
(xii) a method authorized in writing by the Director;

Information on the general accuracy of the methods in RC 7-S (a) and (b) is provided in the Annual Emissions Inventory Report Standard and Guidance Document. Industrial operations should use the most accurate and representative methods and data for their specific operation.

(c) determine normal air emissions for each air emission release point using any of the following:
(i) continuous emission monitoring data, collected during normal operating conditions;
(ii) an average of several recent source sample results, conducted during normal operating conditions;
(iii) a recent representative source sample result, conducted during normal operating conditions;
(iv) an average of multiple recent annual emission estimates converted to a normal air emission rate;
(v) a recent representative actual annual emission estimate converted to a normal air emission rate;
(vi) an engineering estimate;
(vii) an optional method for release point normal air emissions specified in the Annual Emissions Inventory Report Standard and Guidance Document; or
(viii) a method authorized in writing by the Director; and
(d) determine the maximum air emissions for each air emission release point using:
(i) the industrial operation's approval emission limit for the applicable substances specified in Appendix B Schedule 1 or Appendix C Schedule 2 of the Reporting Chapter for which an approval emission limit exists; or
(ii) for the substances specified in Appendix B Schedule 1 or Appendix C Schedule 2 of the Reporting Chapter with no applicable approval emission limit for the industrial operation, any of the following:
(1) the design maximum air emission rate of the specific equipment or release point;
(2) applicable information from the equipment manufacturer;
(3) a historical maximum air emission rate based on the highest previously determined emission rate over the last several years;
(4) an engineering estimate;
(5) an optional method for release point maximum air emissions specified in the Annual Emissions Inventory Report Standard and Guidance Document; or

(6) a method authorized in writing by the Director.

RC 7-T *For the inventory in RC 7-A and the annual emissions inventory report in RC 7-C, where no measurement equipment, estimation methodologies, emission factors, equations or calculations have been specified in the Annual Emissions Inventory Report Standard and Guidance Document, the person responsible must determine all air emission release point annual actual air emissions using consistent measurements, estimation methodologies, emission factors, equations and calculations as were used in the previous reporting year, unless:*

(a) it is the first annual emissions inventory report being submitted for the industrial operation;

(b) the reporting thresholds were not met for the previous calendar year and no annual emissions inventory report for the industrial operation was submitted for the previous calendar year; or

(c) the person responsible has received written authorization from the Director to use a different measurement, estimation methodology, emission factor, equation or calculation.

RC 7-U *For the inventory in RC 7-A and the annual emissions inventory report in RC 7-C, where no measurement equipment, estimation methodologies, emission factors, equations or calculations have been specified in the Annual Emissions Inventory Report Standard and Guidance Document, the person responsible must determine all non-point source annual actual air emissions using consistent measurements, estimation methodologies, emission factors, equations and calculations as were used in the previous reporting year, unless:*

(a) it is the first annual emissions inventory report being submitted for the industrial operation;

(b) the reporting thresholds were not met for the previous calendar year and no annual emissions inventory report for the industrial operation was submitted for the previous calendar year; or

(c) the person responsible has received written authorization from the Director to use a different measurement, estimation methodology, emission factor, equation or calculation.

As per RC 7-T and RC 7-U, changes to the measurements, estimation methodologies, emission factors, equations or calculations used in the annual emissions inventory report require prior written authorization from the Director.

RC 7-V *For the annual emissions inventory report in RC 7-C, the person responsible must (a) prepare, and (b) submit to the Director, a Quantification Methodology Document.*

RC 7-W *For the Quantification Methodology Document in RC 7-V, the person responsible must include the following information, at a minimum:*

(a) a description of all air emission measurement and estimation methodologies that were used for determining the (i) annual actual, (ii) normal and (iii) maximum air emissions from each air emission release point for each of the substances included in the annual emissions inventory report;

(b) a description of all air emission measurement and estimation methodologies that were used for determining the annual actual air emissions from each air emission non-point source for each of the substances included in the annual emissions inventory report;

(c) a description of all data sources used in determining the (i) annual actual, (ii) normal and (iii) maximum air emissions from each air emission release point;

(d) a description of all data sources used in determining the annual actual air emissions from each air non-point source;

(e) identification of all emission factors used in determining (i) annual actual, (ii) normal and (iii) maximum air emissions from each air emission release point;

(f) identification of all emission factors used in determining annual actual air emissions from each air emission non-point source;

(g) identification of all equations and calculations used in determining (i) annual actual, (ii) normal and (iii) maximum air emissions from each air emission release point;

(h) identification of all equations and calculations used in determining annual actual air emissions from each air emission non-point source;

(i) citation of all reference materials used;

(j) a list of the release points and non-point sources at the industrial operation;

(k) a map or other visual representation showing the labelled release points and non-point sources at the industrial operation; and

(l) a description of any changes to the measurement equipment, estimation methodologies, emission factors, equations or calculations that were used, compared to previous annual emissions inventory reports.

7.2.8 Certification

The annual emissions inventory report in RC 7-C does not require a cover letter. A Statement of Certification is required in place of signing off on a cover letter.

RC 7-X *For the annual emissions inventory report in RC 7-C, the person responsible must certify the information in the annual emissions inventory report prior to submitting it to the Director.*

RC 7-Y *For the certification in RC 7-X, the person responsible must:*

(a) review the annual air emissions report to confirm:

(i) the information being submitted is true and complete;

(ii) *the values and information included are accurate, based on measurements or reasonable estimations using the best available data and information; and*

(iii) *due diligence has been exercised in the preparation of the annual emissions inventory report;*

(b) *complete the Statement of Certification included in the Annual Emissions Inventory Report Form; and*

(c) *submit the completed Statement of Certification to the Director as part of the annual emissions inventory report.*

7.2.9 Resubmission of Annual Emissions Inventory Reports

RC 7-Z *Upon discovery of errors, omissions or other issues with an annual emissions inventory report submitted to the Director, the person responsible must notify the Director, electronically in accordance with the procedures of the Annual Emissions Inventory Report Standard and Guidance Document, as soon as the errors, omissions or other issues are identified.*

RC 7-AA *For the notification in RC 7-Z, the person responsible must include the notification information specified in the Annual Emissions Inventory Report Standard and Guidance Document.*

RC 7-BB *Upon discovery of errors, omissions or other issues with an annual emissions inventory report submitted to the Director, the person responsible must (a) prepare and (b) submit to the Director an amended annual emissions inventory report addressing the errors, omissions or other issues that were identified.*

RC 7-CC *Upon receiving formal notification from the Regulator of any errors, omissions or other issues with an annual emissions inventory report, the person responsible must (a) prepare and (b) submit to the Director an amended annual emissions inventory report addressing the errors, omissions or other issues that were identified by the Regulator.*

RC 7-DD *For RC 7-BB and RC 7-CC, the person responsible must submit the amended annual emissions inventory report within the timelines specified in the Annual Emissions Inventory Report Standard and Guidance Document.*

RC 7-EE *For RC 7-BB and RC 7-CC, the person responsible must submit the amended annual emissions inventory report in the form of an amended or additional Annual Emissions Inventory Report Form. For clarity, a correction to an annual emissions inventory report made in the text of an email is not acceptable, as it does not meet the Regulator's record keeping requirements for submitted environmental reports and data.*

RC 7-FF	*For RC 7-BB and RC 7-CC, the person responsible must include (a) unique identification indicating it is an amended annual emissions inventory report and (b) a reference to the original annual emissions inventory report that it corrects.*
RC 7-GG	*For RC 7-BB and RC 7-CC, the person responsible must certify the amended annual emissions inventory report in accordance with the requirements of RC 7-X, prior to submitting it to the Director.*

7.3 Flow Diagram for Industrial Emissions Inventory Reporting

The following flow diagram is provided to help identify what emissions inventory information may need to be reported in the annual emissions inventory report. This diagram is guidance only and does not necessarily cover every possible category of information that may need to be included in an annual emissions inventory report, which is set out by the AMD Reporting Chapter, the approval and any applicable written notices from the Director. This diagram does not replace the requirements set out in the Reporting Chapter clauses. The Reporting Chapter clauses and an industrial operation's approval requirements should always be reviewed prior to preparing and submitting an annual emissions inventory report.

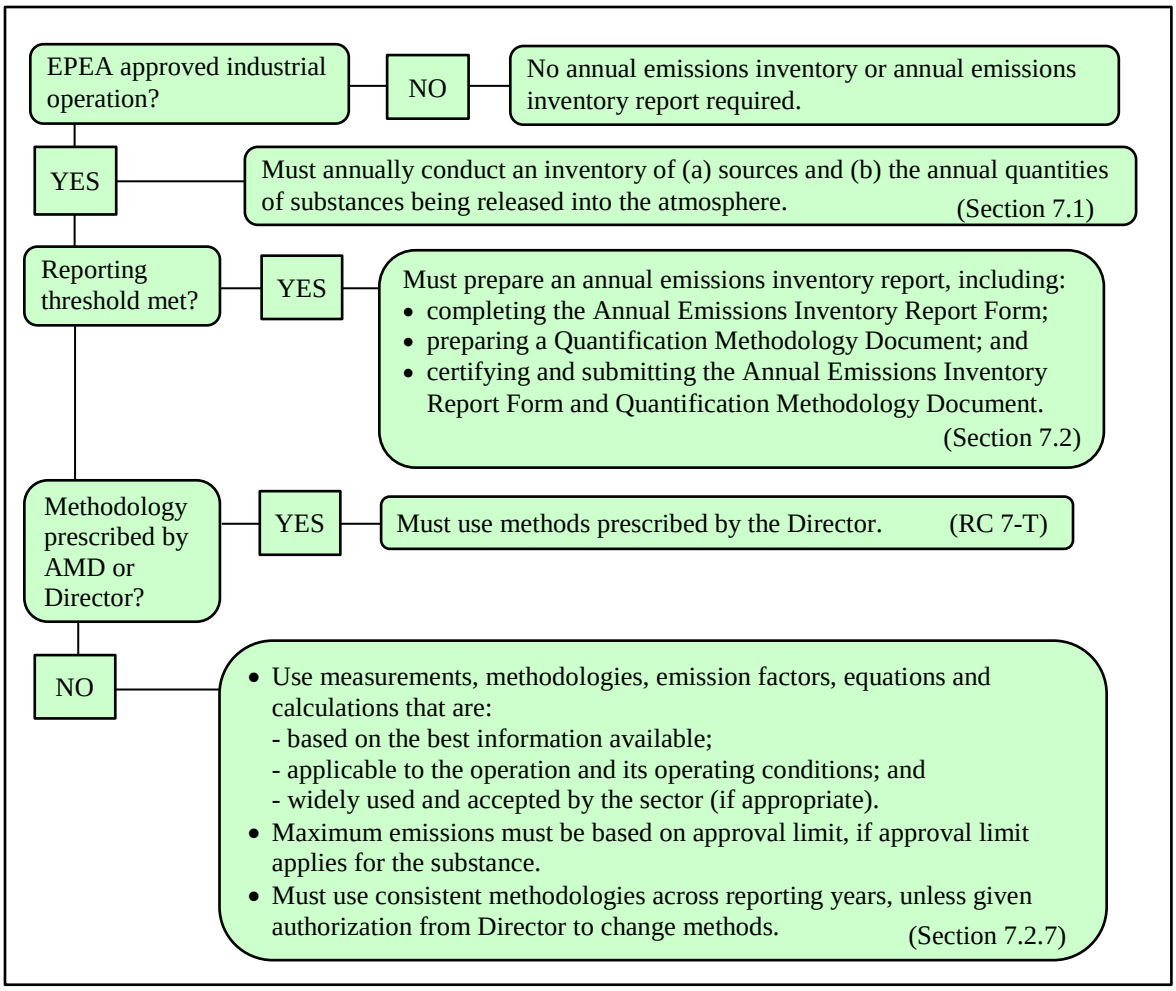

Figure 3 Flow Diagram for Annual Emissions Inventory Reports

8.0 Industrial Notifications

This section outlines the requirements for notifying the Director of specific monitoring and industrial operation activities. This includes source sampling, commencing operations, scheduled shut-downs, relocations and monitoring equipment changes.

Notification to the Director is not required for air monitoring conducted by the industrial operation for its own purposes (i.e., not mandated by the Regulator). However, if the industrial operation chooses to submit results to the Regulator, the air monitoring must have been conducted in accordance with the AMD in order for the Regulator to accept the data.

RC 8-A	*The person responsible must provide the Director with a minimum of fourteen days advanced notice of any Stack Survey or RATA, electronically using the AMD Stack Survey and RATA Notification Form, prior to commencing the source sampling, unless otherwise authorized by the Director.*

RC 8-B *For the notification in RC 8-A, the person responsible must include the following information, at a minimum:*

- *(a) identification of the type of source sampling to be performed;*
- *(b) the unique source identifier, as identified in the approval or approval application;*
- *(c) the CEMS station ID, as specified in the Codes for Electronic Reporting, if applicable;*
- *(d) identification of the company conducting the testing;*
- *(e) the proposed test date(s);*
- *(f) identification of the pollutant(s) being testing;*
- *(g) identification of the proposed sampling methodology;*
- *(h) identification of any variance from standard sampling methods;*
- *(i) the date of authorization by the Director for any sampling method variances; and*
- *(j) any other information required by the AMD Stack Survey and RATA Notification Form.*

RC 8-C *Where the scheduled dates change after notification has been given in RC 8-A, the person responsible must notify the Director of the change as soon as it becomes known, (a) electronically using the AMD Stack Survey and RATA Notification Form and (b) within in the timeline specified in RC 8-A, unless otherwise authorized in writing by the Director.*

RC 8-D *For the notification in RC 8-A, if the notification is for a rescheduled stack survey or RATA, the person responsible must include the following additional information in the AMD Stack Survey and RATA Notification Form, at a minimum:*

- *(a) indication that the source sampling has been rescheduled;*
- *(b) the rescheduled date(s) of the source sampling;*
- *(c) an explanation of the reasons for the rescheduling or cancellation of the source sampling; and*
- *(d) any other information required by the AMD Stack Survey and RATA Notification Form.*

For RC 8-D, examples of situations potentially requiring rescheduling of surveys or audits would include, but would not be limited to, process interruptions, reference method equipment failure, inclement weather or emergency situations.

For rescheduled stack surveys or RATAs, Director authorization may take into consideration auditor availability.

RC 8-E	*The person responsible must provide the Director with a minimum of fourteen days advance notice, electronically using the AMD Notification Template, prior to commencement of a new (a) monitoring station, (b) monitoring parameter, or (c) monitoring method for an (i) ambient analyzer or (ii) meteorological sensor.*

For RC 8-E, the replacement of an ambient analyzer or meteorological sensor with the exact same analyzer or sensor model, for the purposes of routine maintenance or to maintain equipment uptime, would not require notification, but would be reported in a monthly and annual report. Adding a new ambient monitoring station, adding a new analyzer or sensor for a parameter that was not previously being monitored at the station, and modifying or replacing an existing analyzer or sensor with a different monitoring method would all require notification as per RC 8-E.

RC 8-F	*For those industrial operations required by an approval to perform continuous ambient monitoring for less than twelve months per year, the person responsible must provide the Director with a minimum of fourteen days advance notice, electronically using the AMD Notification Template, prior to the commencement of these continuous ambient monitoring programs.*
RC 8-G	*The person responsible must provide the Director with a minimum of thirty days advance notice, electronically using the AMD Notification Template, prior to the scheduled shut-down of any (a) ambient analyzer or (b) meteorological sensor.*

In RC 8-G, shut-down refers to an analyzer or sensor being offline for an extended period or permanently. If an ambient analyzer or sensor has a non-scheduled shut-down, the Director should be notified when it becomes known that analyzers that will be offline for an extended period or permanently.

RC 8-H	*The person responsible must provide the Director with a minimum of thirty days advance notice, electronically using the AMD Notification Template, prior to the scheduled relocation of any ambient air monitoring station.*

For RC 8-G and RC 8-H, Regulator approval of the change may also be required.

For the relocation of a portable monitoring station, it is acceptable to submit the monitoring location schedule for the entire year to satisfy the requirements of RC 8-H, rather than sending notification prior to each relocation. If any changes to the site rotation schedule are needed, notification of the revised dates is required as per the requirements of RC 8-J.

RC 8-I	*If required by an approval, the person responsible must provide the Director advance notice, electronically using the AMD Notification Template, ahead of an industrial operation commencing operation or undergoing a scheduled shutdown.*

RC 8-J	*Where the scheduled dates change after notification has been given in RC 8-E, RC 8-F, RC 8-G, RC 8-H or RC 8-I, the person responsible must notify the Director as soon as the change becomes known, electronically using the AMD Notification Template. Reasons for the change, as well as identification of applicable new dates, must be included in the notification.*

9.0 Industrial Source Monitoring Reporting

This section outlines the requirements for submitting reports on manual stack surveys, RATAs and CGAs. Results from any manual stack survey, RATA or CGA conducted at industrial operations are to be submitted by the end of the month following the month in which the survey was conducted. For example, a survey conducted in May would require the submission of results by the end of June of the same year. Source monitoring reports are submitted as separate documents from the standard monthly/quarterly and annual reports.

Applicable US EPA promulgated instrument methods, as described in the Monitoring Chapter of the AMD (Chapter 4), may be used to conduct manual stack surveys, RATAs or CGAs. Identification of the promulgated method is required to be included within the manual stack survey report, RATA Report or CGA Report.

For industrial operations required by an approval to conduct source monitoring, membership in an association such as, but not limited to, the Source Evaluation Society is recommended. It is the Regulator's expectation that individuals involved in source sampling increase knowledge in source emissions measurement and evaluation, and are expected to keep up-to-date on current and emerging sampling methodology. Training from technical institutions such as, but not limited to, SAIT, NAIT, Mount Royal University, etc. is available to industry representatives and consultants.

In accordance with approval requirements, "If the approval holder monitors for any substances or parameters which are the subject of operational limits as set out in this approval more frequently than is required and using procedures authorized in this approval, then the approval holder shall provide the results of such monitoring as an addendum to the reports required by this approval."

General report requirements are outlined in Section 2 of the Reporting Chapter.

9.1 Manual Stack Survey Reports

Manual stack survey requirements issued under an approval are to be fulfilled using the Alberta Stack Sampling Code.

RC 9-A *The person responsible must prepare a manual stack survey report for any complete or incomplete manual stack survey performed, in accordance with the requirements of Section 9.1 of the Reporting Chapter.*

RC 9-B *For the manual stack survey report in RC 9-A, the person responsible must submit a summary of the results of any complete or incomplete manual stack survey to the Director by (a) completing and (b) submitting the AMD Manual Stack Survey Summary Form.*

RC 9-C *For the AMD Manual Stack Survey Summary Form in RC 9-B, the person responsible must include the following information, at a minimum:*

- *(a) the unique source identifier, as identified in the approval or approval application;*
- *(b) the CEMS station ID, as specified in the Codes for Electronic Reporting, if applicable;*
- *(c) the date of the final notification of the manual stack survey;*
- *(d) identification of each parameter being testing;*
- *(e) the testing date of each parameter;*
- *(f) the production rate during testing;*
- *(g) the average production rate for the 30-days prior to the test;*
- *(h) the (i) start time, (ii) stop time and (iii) test value of each test;*
- *(i) the average value of the three tests for each parameter;*
- *(j) the approval limit of each parameter;*
- *(k) indication of whether any test values exceeded the approval limit;*
- *(l) indication of whether the average of the three test values exceeded the approval limit;*
- *(m) indication of whether the result of the manual stack survey for each parameter was pass or fail; and*
- *(n) any other information required by the AMD Manual Stack Survey Summary Form.*

RC 9-D *The person responsible must submit the manual stack survey report in RC 9-A and the AMD Manual Stack Survey Summary Form in RC 9-B to the Director by the end of the month following the month in which the survey was conducted, unless otherwise authorized in writing by the Director.*

Completed reporting forms are to be submitted at the same time as the report they are a part of.

9.1.1 Manual Stack Survey Report General Requirements

RC 9-E *For the manual stack survey report in RC 9-A, the person responsible must include all the information necessary to meet the requirements of the Alberta Stack Sampling Code, unless otherwise authorized in writing by the Director.*

RC 9-F *For the manual stack survey report in RC 9-A, the person responsible must include a cover letter.*

RC 9-G *For the cover letter in RC 9-F, the person responsible must include the following information, at a minimum:*

- *(a) identification of the approval number;*
- *(b) identification of the unique source identifier, as identified in the approval or approval application;*
- *(c) the stack survey sampling dates;*
- *(d) indication of whether the unit was operating under normal conditions during the survey;*
- *(e) the percentage of the industrial process operating rate during the survey;*
- *(f) comparisons of survey results to applicable approval limits, including:*
  - *(i) whether the industrial process is in compliance with the applicable approval emission limits;*
  - *(ii) all Regulator reference number(s) related to survey non-conformances; and*
  - *(iii) all corrective action taken in response to failed or incomplete surveys;*
- *(g) all variances from the Alberta Stack Sampling Code related to the survey;*
- *(h) all authorizations obtained from the Director for variances related to the survey, including:*
  - *(i) date of authorization; and*
  - *(ii) description of authorization;*
- *(i) identification of the third party performing the survey, if applicable;*
- *(j) identification of the industrial operation representative responsible for the survey and their contact information; and*
- *(k) the signature of the industrial operation representative certifying the results of the report.*

RC 9-H *For the manual stack survey report in RC 9-A, the person responsible must include a title page.*

RC 9-I *For the title page in RC 9-H, the person responsible must include the following information, at a minimum:*

- *(a) industrial operation name;*
- *(b) industrial operation location;*
- *(c) approval number;*
- *(d) date of the survey;*
- *(e) unique source identifier, as identified in the approval or approval application;*
- *(f) name of the third party performing the survey, if applicable; and*
- *(g) author of the report.*

RC 9-J *For the manual stack survey report in RC 9-A, the person responsible must include a table of contents if the report is larger than 10 pages.*

9.1.2 Manual Stack Survey Report Summary Content

RC 9-K *For the manual stack survey report in RC 9-A, the person responsible must include the following information, at a minimum:*

- *(a) identification of the unique source identifier, as identified in the approval or approval application;*
- *(b) the stack height in metres;*
- *(c) the stack diameter in metres;*
- *(d) the survey sampling dates;*
- *(e) the average production rate during the survey;*
- *(f) the average production rate over the previous month;*
- *(g) if applicable, a description of the industrial process during the survey, including descriptions of multiple unit operations contributing to the exhaust;*
- *(h) if applicable, a description of the fuel details during the survey, including the authorized fuel make-up;*
- *(i) the list of parameters being monitored;*
- *(j) a list of the sampling methods;*
- *(k) a list of the analytical methods;*
- *(l) a statement on assessment of stratification and cyclonic flow; and*
- *(m) a summary of results, including:*
  - *(i) test run results;*
  - *(ii) results average;*
  - *(iii) a comparison of survey results to applicable approval limit and performance specifications;*
  - *(iv) identification of whether the industrial process is in compliance with the applicable emission limits;*
  - *(v) identification of any additional, omitted or outlying test results;*
  - *(vi) all variances from the Alberta Stack Sampling Code or US EPA promulgated methods related to the survey;*
  - *(vii) a statement that an authorization for variance was received from the Director, if applicable;*
  - *(viii) the contact information of the third party performing the survey, if applicable; and*
  - *(ix) the name(s) of the individual(s) conducting the survey.*

In RC 9-K (g) process details should describe multiple unit operations contributing to the exhaust during the survey, while in RC 9-K (h) fuel details should describe the authorized fuel make-up during the survey.

In RC 9-K (m) (v) examples of omission include, but are not limited to, inconsistencies in findings or problems with sampling procedures.

9.1.3 Manual Stack Survey Report Sampling and Analytical Test Methods

RC 9-L *For the manual stack survey report in RC 9-A, the person responsible must include a sampling and analytical test methods section.*

RC 9-M *For the sampling and analytical test methods section in RC 9-L, the person responsible must include the following information, at a minimum:*

- *(a) an outline of the methods and equipment used to collect and analyze the samples;*
- *(b) an explanation detailing any variance from the sampling and analytical methods of the Alberta Stack Sampling Code or Methods Manual for Chemical Analysis of Atmospheric Pollutants, or any other reference methods;*
- *(c) identification of any US EPA promulgated instrument methods used;*
- *(d) identification of all authorizations obtained from the Director for variances related to the survey, including:*
  - *(i) date of authorization; and*
  - *(ii) description of authorization; and*
- *(e) a statement of ISO/IEC 17025 accreditation for the labs performing analytical sampling for each parameter analyzed.*

9.1.4 Manual Stack Survey Report Discussion

RC 9-N *For the manual stack survey report in RC 9-A, the person responsible must include a discussion section.*

RC 9-O *For the discussion section in RC 9-N, the person responsible must include the following information, at a minimum:*

- *(a) discussion of reasons for not meeting the approval limits, and any corrective action taken;*
- *(b) identification of any stratification measured for both flow and pollutant, reported as described in Method 2 of the Alberta Stack Sampling Code, including a discussion on how this affects the final survey results;*
- *(c) (i) identification and (ii) description of any problems encountered during sample analysis, if applicable;*
- *(d) (i) identification and (ii) description of problems encountered due to inadequate sampling facilities, if applicable;*
- *(e) (i) identification and (ii) description of any sampling problems associated with the industrial operation, if applicable;*
- *(f) reasons for any additional, omitted or outlying test results;*
- *(g) reasons for terminating the survey, if applicable; and*
- *(h) any corrective action taken as a result of any problems encountered.*

For RC 9-O (c), examples of problems encountered might include, but are not limited to, possible contaminated or damaged samples, weather conditions affecting sampling, or process rate changes in operating parameters.

9.1.5 Manual Stack Survey Report Appendices

RC 9-P *For the manual stack survey report in RC 9-A, the person responsible must include an appendix.*

RC 9-Q *For the appendix in RC 9-P, the person responsible must include the following source survey detailed results in a table, at a minimum:*

- *(a) unique source identifier, as identified in the approval or approval application;*
- *(b) (i) sampling port location details and (ii) finalized stack drawings; and*
- *(c) for each test:*
  - *(i) the test number;*
  - *(ii) the date of sampling;*
  - *(iii) the sampling point locations;*
  - *(iv) the test start and stop times at each sampling point;*
  - *(v) the name of the pollutant(s);*
  - *(vi) the concentration of the pollutant(s);*
  - *(vii) the effluent flow rate;*
  - *(viii) the mass emission of pollutant as determined by the stack survey, in units specified by the method, unless alternate units are specified in the approval;*
  - *(ix) the mean isokinetic variations for each particulate test;*
  - *(x) the particulate weight distribution where particulates are being sampled, based on percentage of particulate catch in the front half and back half of the sampling train; and*
  - *(xi) the operational (plant load) data from the process for the corresponding stack survey period.*

The finalized stack drawings in RC 9-Q (b) (ii) represent what was actually constructed and operating, not just what was planned or designed. These drawings are used to verify that the accurate stack diameter is being used in the calculations, and can also satisfy the requirement for reporting stack port locations in RC Q-R (c) (iii).

RC 9-R *For the appendix in RC 9-P, the person responsible must include the following computer output or equivalent for each test, at a minimum:*

- *(a) barometric pressure in millimetres of mercury (or inches of mercury);*
- *(b) stack static pressure in millimetres of mercury (or inches of mercury);*
- *(c) average stack temperature in degrees Celsius;*
- *(d) average orifice pressure in millimetres of water (or inches of water) or equivalent data;*

(e) pitot correction factor;
(f) nozzle inside diameter, where applicable;
(g) stack diameter in metres;
(h) volume or weight of condensate collected in millimetres or grams;
(i) volume of flue gas sampled at meter conditions in cubic metres;
(j) average flue gas velocity in metres per second;
(k) effluent flow rate at reference conditions in cubic metres per second;
(l) average flue gas composition; and
(m) pollutant emission results expressed as (i) concentration and (ii) mass emission rate, in units specified in the method, unless alternate units are specified in the approval.

RC 9-S *For the appendix in RC 9-P, the person responsible must include an engineering drawing of the stack being tested.*

RC 9-T *For the appendix in RC 9-P, the person responsible must include the velocity profile for each traverse.*

RC 9-U *For the appendix in RC 9-P, the person responsible must include a legible copy of the original raw field data for each test.*

RC 9-V *For the appendix in RC 9-P, the person responsible must include all calculations used for the survey results.*

RC 9-W *For the appendix in RC 9-P, the person responsible must include details on the scope of ISO/IEC 17025 accreditation for the labs performing analytical sampling for each parameter analyzed.*

RC 9-X *For the appendix n RC 9-P, the person responsible must include (i) the complete laboratory analysis report and (ii) the chain of custody associated with the analysis.*

RC 9-Y *For the appendix in RC 9-P, the person responsible must include the most recent calibration certificates and validation logs for, as applicable:*
(a) pitot tubes;
(b) calibration gases;
(c) temperature sensors;
(d) balances;
(e) dry gas meter;
(f) barometer;
(g) orifices;
(h) instrumentation; and
(i) converter efficiency results as required when sampling.

9.2 RATA Reports

In addition to fulfilling RATA requirements of the CEMS Code, valid data obtained during a RATA (using data from six consecutive reference method runs) may also be used to fulfill associated manual stack survey requirements as required by an approval. For the RATA results to be accepted for the manual stack sampling requirements, the reporting section is required to be followed. For example, calculations for combined RATA and manual stack sampling are required to meet both the CEMS Code and the Alberta Stack Sampling Code.

One hour compliance runs need to be calculated using two consecutive RATA runs performed on the same day.

RC 9-Z *The person responsible must prepare a RATA report for any complete or incomplete RATA performed, in accordance with the requirements of Section 9.2 of the Reporting Chapter.*

RC 9-AA *For the RATA report in RC 9-Z, the person responsible must submit a summary of the results of any complete or incomplete RATA to the Director, by (a) completing and (b) submitting the AMD RATA Summary Form.*

RC 9-BB *For the AMD RATA Summary Form in RC 9-AA, the person responsible must include the following information, at a minimum:*

- *(a) unique source identifier of each source, as identified in the approval or approval application;*
- *(b) stack diameter of each source;*
- *(c) CEMS station ID of each source, as specified in the Codes for Electronic Reporting;*
- *(d) the (i) date, (ii) start time and (iii) end time of each audit;*
- *(e) the final notification date of the audit;*
- *(f) identification of the parameter(s) being audited;*
- *(g) the (i) serial number, (ii) make and (iii) model number of each CEMS analyzer;*
- *(h) the (i) range and (ii) full scale of each CEMS analyzer;*
- *(i) the approval limit for each parameter being audited, if applicable;*
- *(j) for each audited parameter;*
  - *(i) the average CEMS response;*
  - *(ii) the average reference method;*
  - *(iii) the relative accuracy;*
  - *(iv) the performance specification;*
  - *(iv) the bias;*
  - *(v) the percent bias; and*
  - *(vi) confirmation of whether the result acceptability was pass or fail; and*
- *(k) any other information required by the AMD RATA Summary Form.*

RC 9-CC *For the AMD RATA Summary Form in RC 9-AA, if the RATA results are being used for approval manual stack survey compliance purposes, the person responsible must also include the following information, at a minimum:*

- *(a) indication that the RATA results are being used for approval manual stack survey compliance purposes;*
- *(b) the parameter units;*
- *(c) identification of the RATA run numbers being used for the compliance test for each parameter;*
- *(d) the compliance test results value for each parameter;*
- *(e) the compliance test results average for each parameter;*
- *(f) the approval compliance limit;*
- *(g) confirmation of whether the approval manual stack survey compliance was pass or fail;*
- *(h) an explanation if six consecutive reference method runs were not used; and*
- *(i) any other information required by the AMD RATA Summary Form.*

RC 9-DD *The person responsible must submit the RATA report in RC 9-Z and the AMD RATA Summary Form in RC 9-BB to the Director by the end of the month following the month in which the audit was conducted, unless otherwise authorized in writing by the Director.*

Completed reporting forms are to be submitted at the same time as the report they are a part of.

RC 9-EE *For the RATA report in RC 9-Z and the AMD RATA Summary Form in RC 9-AA, the person responsible must report measurement results as found or unadjusted.*

9.2.1 RATA Report General Requirements

RC 9-FF *For the RATA report in RC 9-Z, the person responsible must include all the information necessary to meet the requirements of the CEMS Code, unless otherwise authorized in writing by the Director.*

RC 9-GG *For the RATA report in RC 9-Z, the person responsible must include a cover letter.*

RC 9-HH *For the cover letter in RC 9-GG, the person responsible must include the following information, at a minimum:*

- *(a) identification of the approval number;*
- *(b) identification of the unique source identifier, as identified in the approval or approval application;*
- *(c) identification of the CEMS station ID, as specified in the Codes for Electronic Reporting;*
- *(d) identification of whether the RATA is being used to replace a CGA or fulfill manual stack survey requirements;*

(e) *the audit dates;*
(f) *the percentage of the industrial process operating rate during the survey;*
(g) *a comparison of as found or unadjusted audit results to applicable performance specification as stated in the CEMS Code;*
(h) *a comparison of survey results to approval limits, if applicable;*
(i) *all Regulator reference number(s) related to audit non-conformances;*
(j) *all corrective action taken in response to failed or incomplete audit(s);*
(k) *all variances from the Alberta Stack Sampling Code or the CEMS Code related to the audit;*
(l) *all authorizations obtained from the Director for variances related to the audit, including:*
  (i) *the date of the authorization; and*
  (ii) *a description of the authorization;*
(m) *the (i) date and (ii) type of the previous performance specification test procedure performed;*
(n) *identification of the third party performing the audit, if applicable;*
(o) *identification of the industrial operation representative responsible for the audit and their contact information; and*
(p) *the signature of the person certifying the results of the report.*

RC 9-II *For the RATA report in RC 9-Z, the person responsible must include a title page.*

RC 9-JJ *For the title page in RC 9-II, the person responsible must include the following information, at a minimum:*
(a) *industrial operation name;*
(b) *industrial operation location;*
(c) *approval number;*
(d) *date of the audit;*
(e) *unique source identifier, as identified in the approval or approval application;*
(f) *name of the third party performing the audit, if applicable; and*
(g) *the author of the report.*

RC 9-KK *For the RATA report in RC 9-Z, the person responsible must include a table of contents if the report is larger than 10 pages.*

9.2.2 RATA Report Summary Content

RC 9-LL *For the RATA report in RC 9-Z, the person responsible must include the following information, at a minimum:*
(a) *identification of the unique source identifier, as identified in the approval or approval application;*
(b) *the CEMS station ID, as specified in the Codes for Electronic Reporting;*
(c) *identification of the parameters being assessed;*

(d) identification of the analyzer(s) make/model;
(e) identification of the analyzer(s) serial number;
(f) the analyzer(s) full scale in ppm or percent as applicable;
(g) the audit sampling dates;
(h) identification of whether the analyzer is dual range;
(i) a summary of results, including:
  (i) parameter test run results;
  (ii) results average;
  (iii) comparisons of audit results to applicable performance specifications as stated in the CEMS Code;
  (iv) comparisons of survey results to approval limits, if applicable; and
  (v) whether the industrial process is in compliance with the applicable approval emission limits and CEMS Code performance specifications;
(j) the stack diameter in metres;
(k) for compliance surveys, identification of the six consecutive thirty-minute runs used for calculations;
(l) identification of any additional, omitted or outlying test results;
(m) the average production rate percentage of the industrial process operating rate during the audit;
(n) the average production rate over the previous month;
(o) the percentage of the process operating rate during the audit;
(p) process description and fuel details during the audit;
(q) a list of the sampling methods used;
(r) a statement on the assessment of stratification and cyclonic flow;
(s) (i) identification and (ii) description of all variances from the Alberta Stack Sampling Code, CEMS Code or US EPA promulgated methods related to the audit;
(t) a statement that an authorization for variance was received from the Director, if applicable;
(u) the contact information of the third party performing the audit, if applicable; and
(v) the name(s) of the individual(s) conducting the audit.

As per the CEMS Code, for multi-range analyzers all applicable operating ranges must be verified.

In RC 9-LL (k), the identification should include a statement similar to: RATA runs 4-5, runs 6-7 and runs 8-9 have been combined to form Stack Survey runs 1, 2 and 3 respectively.

In RC 9-LL (p), the process description should describe multiple unit operations contributing to the exhaust during the audit, while fuel details should describe the authorized fuel make-up during the audit.

9.2.3 RATA Report Sampling and Analytical Test Methods

RC 9-MM *For the RATA report in RC 9-AA, the person responsible must include a sampling and analytical test methods section.*

RC 9-NN *For the sampling and analytical test methods section in RC 9-MM, the person responsible must include the following information, at a minimum:*

- *(a) an outline of the methods and equipment used to monitor;*
- *(b) identification of the CEMS Code performance specifications that were used, as applicable;*
- *(c) details of any variances from the sampling methods of the Alberta Stack Sampling Code and CEMS Code, or any other reference methods;*
- *(d) identification of promulgated methods used; and*
- *(e) identification of all authorizations from the Director for variances related to the audit, including:*
  - *(i) date of authorization; and*
  - *(ii) description of authorization.*

9.2.4 RATA Report Discussion

RC 9-OO *For the RATA report in RC 9-Z, the person responsible must include a discussion section.*

RC 9-PP *For the discussion section in RC 9-OO, the person responsible must include the following information, at a minimum:*

- *(a) reasons for not meeting any of the CEMS Code performance specifications and any corrective action taken;*
- *(b) identification of any stratification measured for both flow and pollutant, and how this affects the final survey results;*
- *(c) (i) identification and (ii) description of any problems encountered during sample analysis, if applicable;*
- *(d) (i) identification and (ii) description of any problems encountered due to inadequate sampling facilities, if applicable;*
- *(e) (i) identification and (ii) description of any sampling problems associated with the industrial operation, if applicable;*
- *(f) reasons for terminating the audit, if applicable;*
- *(g) any corrective action taken as a result of any problems encountered; and*
- *(h) a discussion of reasons for any additional, omitted or outlying test results, including, but not limited to, inconsistencies in findings and problems with sampling procedures;*

For RC 9-PP (b), the percent degree of stratification should be reported as described in the CEMS Code.

For RC 9-PP (c), (d) and (e), examples of problems encountered might include, but are not limited to, discovery of expired calibration gases, cyclonic flow and weather conditions affecting sampling.

9.2.5 RATA Report Appendices

RC 9-QQ *For the RATA report in RC 9-Z, the person responsible must include an appendix.*

RC 9-RR *For the appendix in RC 9-QQ, the person responsible must include the following RATA detailed results in a table, at a minimum:*

- *(a) unique source identifier, as identified in the approval or approval application;*
- *(b) CEMS station ID, as specified in the Codes for Electronic Reporting;*
- *(c) (i) sampling port location details and (ii) finalized stack drawings; and*
- *(d) as applicable, for each test:*
  - *(i) the test number;*
  - *(ii) the date of sampling;*
  - *(iii) the sampling point locations;*
  - *(iv) the test start and stop times at each sampling point;*
  - *(v) the name of the pollutant(s);*
  - *(vi) the concentration of pollutant(s) from the reference method and the CEMS analyzer;*
  - *(vii) the velocity and flow rate of source from the reference method and the CEMS analyzer;*
  - *(viii) the pollutant mass emission rates determined from the reference method and the CEMS analyzer;*
  - *(ix) the ppm concentration relative accuracy;*
  - *(x) the volumetric flow rate relative accuracy;*
  - *(xi) the pollutant mass emission rate relative accuracy;*
  - *(xii) a comparison of audit results to the applicable performance specification in the CEMS Code;*
  - *(xiii) a comparison of survey results to emission limits, if applicable;*
  - *(xiv) whether the industrial process is in compliance with the emission limits stated and performance specifications;*
  - *(xv) reference for effluent flow rates and temperature;*
  - *(xvi) final flow values downstream of the output device signal, reported based on as found or unadjusted signal values;*
  - *(xvii) the operational (plant load) data from the process for the corresponding audit period;*
  - *(xviii) all data including any outliers; and*
  - *(xix) all RATA calculations required by the CEMS Code.*

The finalized stack drawings in RC 9RR (c) (ii) represent what was actually constructed and operating, not just what was planned or designed. These drawings are used to verify that the

accurate stack diameter is being used in the calculations, and can also satisfy the requirement for reporting stack port locations in RC 9-RR (d) (iii).

RC 9-SS *For the appendix in RC 9-QQ, the person responsible must include the following computer output or equivalent for each test, at a minimum:*

- *(a) barometric pressure in millimetres of mercury (or inches of mercury);*
- *(b) stack static pressure in millimetres of mercury (or inches of mercury);*
- *(c) average stack temperature in degrees Celsius;*
- *(d) average orifice pressure in millimetres of water (or inches of water) or equivalent data;*
- *(e) pitot correction factor;*
- *(f) stack diameter in metres;*
- *(g) volume or weight of condensate collected in millimetres or grams;*
- *(h) volume of flue gas sampled at meter conditions in cubic metres;*
- *(i) average flue gas velocity in metres per second;*
- *(j) effluent flow rate at reference conditions in cubic metres per second;*
- *(k) average flue gas composition; and*
- *(l) pollutant emission results expressed as (i) concentration and (ii) mass emission rate, in units specified in the method, unless alternate units are stated in the approval.*

RC 9-TT *For the appendix in RC 9-QQ, the person responsible must include the velocity profile for each traverse.*

RC 9-UU *For the appendix in RC 9-QQ, the person responsible must include a legible copy of the original raw field data for each test.*

RC 9-VV *For the appendix in RC 9-QQ, the person responsible must include all calculations used for the survey results.*

RC 9-WW *For the appendix in RC 9-QQ, the person responsible must include records, as required, for:*

- *(a) digital output of pre and post run zero and span, including bias and drift;*
- *(b) the most recent calibration certificates and validation logs for, as applicable:*
  - *(i) pitot tubes;*
  - *(ii) calibration gases;*
  - *(iii) temperature sensors;*
  - *(iv) balances;*
  - *(v) dry gas meter;*
  - *(vi) barometer; and*
  - *(vii) orifices; and*
- *(c) converter efficiency results as required when sampling.*

RC 9-XX *For the appendix in RC 9-QQ, the person responsible must include the total production or throughput for the industrial operation over the 720 hour period immediately prior to the commencement of the audit.*

RC 9-YY *For the appendix in RC 9-QQ, the person responsible must include (a) one-minute continuous emission monitoring data for the corresponding audit period, (b) one-minute continuous emission monitoring data for one hour both prior to and immediately after the audit, and (c) hourly continuous emission monitoring data for the 12 hour period both prior to and immediately after the audit.*

RC 9-ZZ *For the data in RC 9-YY, the person responsible must identify the source of data corresponding to the RATA period.*

9.3 CGA Reports

While the CGA is being conducted, the process and analyzer system should be operating at normal conditions. Normal conditions refer to factors including, but not limited to, pressure, temperature, flow rate and pollutant concentration.

A CGA conducted at normal operating conditions is recommended to increase the confidence in the relevance of the audit results to the CEMS measurements observed during the time period closest to the CGA.

RC 9-AAA *The person responsible must prepare a CGA report for any complete or incomplete CGA performed, in accordance with the requirements of Section 9.3 of the Reporting Chapter.*

RC 9-BBB *For the CGA report in RC 9-AAA, the person responsible must submit a summary of the results of any complete or incomplete CGA to the Director, by (a) completing and (b) submitting the AMD CGA Summary Form.*

RC 9-CCC *For the AMD CGA Summary Form in RC 9-BBB, the person responsible must include the following information, at a minimum:*

- *(a) identification of the parameter(s) monitored;*
- *(b) identification of the unique source identifier, as identified in the approval or approval application;*
- *(c) identification of the CEMS station ID, as specified in the Codes for Electronic Reporting;*
- *(d) CEMS analyzer (i) serial number, (ii) make and (iii) model number;*
- *(e) approval limit for each parameter monitored, if applicable;*
- *(f) identification of whether the analyzer is dual range;*
- *(g) the range of each CEMS analyzer;*
- *(h) the (i) date, (ii) start time and (iii) end time of the audit;*
- *(i) for each certified gas:*
  - *(i) protocol 1 cylinder gas ID number;*
  - *(ii) gas serial number;*
  - *(iii) gas manufacturer;*

(iv) composition;
(v) concentration;
(vi) expiry date;
(vii) percent full scale; and
(viii) the gas bottle inventory pressure in psi.

(j) for each audited parameter;
(i) the actual gas concentration;
(ii) the three as found unadjusted CEMS response concentrations;
(iii) the average response;
(iv) the calculated percent linearity;
(v) the CEMS criteria based on the CEMS Code;
(vi) confirmation of whether the result met the CEMS Code specifications; and
(vii) a brief description of any corrective action taken, if required;

(k) confirmation of whether the audit found the CEMS acceptable; and
(l) any other information required by the AMD CGA Summary Form.

RC 9-DDD The person responsible must submit the CGA report in RC 9-AAA and the AMD CGA Summary Form in RC 9-BBB to the Director by the end of the month following the month in which the audit was conducted, unless otherwise authorized in writing by the Director.

Completed reporting forms are to be submitted at the same time as the report they are a part of.

RC 9-EEE For the CGA report in RC 9-AAA and the AMD CGA Summary Form in RC 9-BBB, the person responsible must report the CGA results as found or unadjusted.

For those systems that are not designed for the dynamic use of calibration gases (and whose use has been authorized by the Director in writing), alternative procedure (as authorized in writing by the Director) may be used in place of a CGA. As required by the CEMS Code, these alternative procedures need to be included and detailed in the industrial operation's QAP.

A RATA may be substituted in place of a CGA. A CGA cannot be substituted in place of a RATA.

Where the person responsible has been given written authorization by the Director to use an alternative procedure for a CEMS that is incapable of performing a CGA, the CGA report requirements of Section 9.3 of the Reporting Chapter do not apply. However, the results of the authorized alternative procedure are still required to be submitted to the Director.

RC 9-FFF If an authorized alternative procedure is conducted in place of a CGA, the person responsible must submit the results to the Director by the end of the

month following the month in which it was conducted. These reported results must clearly state the procedure used as an alternative to a CGA.

9.3.1 CGA Report General Requirements

RC 9-GGG *For the CGA report in RC 9-AAA, the person responsible must include all the information necessary to meet the requirements of the CEMS Code, unless otherwise authorized in writing by the Director.*

RC 9-HHH *For the CGA report in RC 9-AAA, the person responsible must include a cover letter.*

RC 9-III *For the cover letter in RC 9-HHH, the person responsible must include the following information, at a minimum:*

- *(a) identification of the approval number;*
- *(b) identification of the unique source identifier, as identified in the approval or approval application;*
- *(c) the CEMS station ID, as specified in the Codes for Electronic Reporting;*
- *(d) the date and time of the audit;*
- *(e) a comparison of the audit results to all applicable performance specifications as stated in the CEMS Code;*
- *(f) the average production rate percentage of the industrial process operating rate during the audit;*
- *(g) the average production rate over the previous month;*
- *(h) all Regulator reference number(s) related to audit non-conformances;*
- *(i) identification of all failed or incomplete audits for the CGA in question;*
- *(j) all variances from the CEMS Code related to the audit;*
- *(k) all authorizations obtained from the Director for variances related to the audit, including:*
  - *(i) date of authorization; and*
  - *(ii) description of authorization;*
- *(l) the date and type of the previous performance specification test procedure performed;*
- *(m) identification of the third party performing the audit, if applicable;*
- *(n) identification of the industrial operation representative responsible for the audit and their contact information; and*
- *(o) the signature of the person certifying the results of the report.*

RC 9-JJJ *For the CGA report in RC 9-AAA, the person responsible must include a title page.*

RC 9-KKK *For the title page in RC 9-JJJ, the person responsible must include the following information, at a minimum:*

- *(a) industrial operation name;*
- *(b) industrial operation location;*

(c) approval number;
(d) date and time of the audit;
(e) unique source identifier, as identified in the approval or approval application;
(f) the name of the third party performing the audit, if applicable; and
(g) the author of the report.

RC 9-LLL For the CGA report in RC 9-AAA, the person responsible must include a table of contents if the report is larger than 10 pages.

9.3.2 CGA Report Summary Content

RC 9-MMM For the CGA report in RC 9-AAA, the person responsible must include the following information, at a minimum:
(a) identification of the unique source identifier, as identified in the approval or approval application;
(b) the CEMS station ID, as specified in the Codes for Electronic Reporting;
(c) the audit sampling date and times;
(d) identification of whether the analyzer is dual range;
(e) a summary of results, including:
(i) identification of the specific parameter;
(ii) identification of the analyzer type/model number;
(iii) identification of the analyzer serial number;
(iv) certificates of gas analysis;
(v) location of gas injection point(s);
(vi) analyzer range and full scale in ppm or percent, as applicable;
(vii) 2% full scale or as otherwise specified by the CEMS Code;
(viii) the average CEMS response; and
(ix) the results of the audit;
(f) identification of any omissions or outliers;
(g) (i) identification and (ii) description of all variances from the CEMS Code;
(h) a statement that an authorization for variance was received from the Director, if applicable;
(i) the contact information of the third party performing the audit, if applicable; and
(j) the name(s) of the individual(s) conducting audit.

As per the CEMS Code, for multi-range analyzers all applicable operating ranges must be verified.

For RC 9-MMM (e) (vii), an example of 2% full scale would be if full scale is 100 ppm, then 2% would be 2 ppm.

9.3.3 CGA Report Sampling and Analytical Test Methods

RC 9-NNN *For the CGA report in RC 9-AAA, the person responsible must include a sampling and analytical test methods section.*

RC 9-OOO *For the sampling and analytical test methods section in RC 9-NNN, the person responsible must include the following information, at a minimum:*

(a) (i) identification and (ii) description of the procedure(s) followed; and

(b) the concentration ranges as a percent of full scale used to challenge the system.

9.3.4 CGA Report Discussion

RC 9-PPP *For the CGA report in RC 9-AAA, the person responsible must include a discussion section.*

RC 9-QQQ *For the discussion section in RC 9-PPP, the person responsible must include the following information, at a minimum:*

(a) reasons for not meeting the CEMS Code performance specifications and any corrective action taken;

(b) a description of the CEMS shelter and bottle storage;

(c) a description of the calibration gases, including, but not limited to, (i) identification of the concentrations, (ii) Protocol 1 certification and (iii) expiry dates; and

(d) an assessment of the test result.

RC 9-RRR *For the discussion section in RC 9-PPP, the person responsible must include the following information, at a minimum:*

(a) discussion of how the gas injection technique was performed; and

(b) discussion of problems encountered for any omission or outliers of any results, including, but not limited to, (i) inconsistencies in findings and (ii) problems with sampling procedures.

For RC 9-RRR (a), the discussion of the how the gas injection technique was performed would include, but would not be limited to, whether the gas was introduced into the entire system or just the analyzer.

For RC 9-RRR (b), examples of problems encountered include, but would not be limited to, possible discovery of expired calibration gases, cyclonic flow, weather conditions affecting the audit or other reasons for additional testing.

9.3.5 CGA Report Appendices

RC 9-SSS	*For the CGA report in RC 9-AAA, the person responsible must include an appendix.*
RC 9-TTT	*For the appendix in RC 9-SSS, the person responsible must include the following CGA detailed results in a table, at a minimum:* *(a) unique source identifier, as identified in the approval or approval application;* *(b) CEMS station ID, as specified in the Codes for Electronic Reporting; and* *(c) for each test:* *(i) the test number;* *(ii) the date of the audit;* *(iii) run start and stop time; and* *(iv) the specification of the test gas(es).*
RC 9-UUU	*For the appendix in RC 9-SSS, the person responsible must include the following computer output or equivalent for each test, at a minimum:* *(a) all the one minute CEMS Data Acquisition System responses for each entire test run; and* *(b) the one minute data for the one-hour period immediately preceding the test period.*

10.0 Industrial Supplemental Monitoring Results

This section outlines the requirements for submitting supplemental monitoring results and information. Supplemental monitoring activities may need to be conducted to satisfy the specific requirements of an approval or written notice from the Director. Supplemental air reports, including, but not limited to, fugitive emissions and emission reductions may be required to be submitted under an approval. The Regulator should be consulted regarding the format for submission of such supplemental air reports.

Air monitoring conducted by the industrial operation for its own purposes (i.e., not mandated by the Regulator) do not need to be submitted to the Regulator. If the industrial operation chooses to submit results to the Regulator, the air monitoring must have been conducted in accordance with the AMD in order for the Regulator to accept the data.

The exception to not having to submit special air studies is, in in accordance with approval requirements, “If the approval holder monitors for any substances or parameters which are the subject of operational limits as set out in this approval more frequently than is required and using procedures authorized in this approval, then the approval holder shall provide the results of such monitoring as an addendum to the reports required by this approval.”

RC 10-A	*The person responsible must submit the results of any (a) air monitoring required by an approval or (b) air monitoring required by a written notice from the*

Director, not already submitted under Sections 3 to 9 of the Reporting Chapter, to the Director.

RC 10-B *For the submission in RC 10-A, the person responsible must submit to the Director within the timelines specified by the approval or written notice from the Director.*

RC 10-C *For the submission in RC 10-A, the person responsible must include the following information, at a minimum:*

(a) (i) identification of and (ii) reason(s) for any deviations from the authorized monitoring methods;

(b) (i) identification and (ii) description of any non-standard conditions that may have affected the quality of the monitoring results, including the use and definitions of data qualifiers;

(c) any additional information that may be required by the monitoring method used to gather the data; and

(d) any other information specified by the approval or written notice from the Director.

Non-standard conditions in RC 10-C (b) include, but are not limited to, the presence of forest fire smoke in the monitoring area, excessively elevated concentrations, problems with calibrations or monitoring equipment, or changes in monitoring or supporting equipment.

For the submission in RC 10-A, Section 2.4 Electronic Submission of Reports of the Reporting Chapter applies.

11.0 Amendments to Industrial Reports and Data

In some cases, errors or omissions in air monitoring data may be discovered following data reviews or audits. This section outlines the general processes for the resubmission of reports and data after errors or issues are discovered with the original submission.

11.1 Report Resubmission

RC 11-A *Upon discovery of errors, omissions or other issues with reports submitted to the Director under the Reporting Chapter, the person responsible must notify the Director, electronically using the AMD Notification Template, as soon as the errors, omissions or other issues are identified.*

RC 11-B *For the notification in RC 11-A, the person responsible must include the following information, at a minimum:*

(a) *(i) identification and (ii) description of the errors, omissions or other issues identified;*
(b) *an explanation of the cause of the errors, omissions or other issues that were identified; and*
(c) *identification of all changes and corrections that are expected to be required in response to the errors, omissions or other issues that were identified.*

RC 11-C *Upon discovery of errors, omissions or other issues with reports submitted to the Director under the Reporting Chapter, the person responsible must (a) prepare and (b) submit to the Director an amended report addressing the errors, omissions or other issues that were identified.*

RC 11-D *Upon receiving formal notification from the Regulator of any errors, omissions or other issues with reports submitted to the Director under the Reporting Chapter, the person responsible must (a) prepare and (b) submit to the Director an amended report addressing the errors, omissions or other issues that were identified by the Regulator.*

RC 11-E *For RC 11-C and RC 11-D, the person responsible must submit the amended report within thirty days of the initial discovery or receiving formal notification from the Regulator of the errors, omissions or other issues.*

RC 11-F *For RC 11-C and RC 11-D, the person responsible must submit the amended report in the form of an amended or additional document. For clarity, a correction to a report made in the text of an email is not acceptable, as it does not meet the Regulator's record keeping requirements for submitted environmental reports.*

RC 11-G *For RC 11-C and RC 11-D, the person responsible must include (a) unique identification indicating it is an amended report and (b) a reference to the original report that it corrects.*

For the submission of the amended report in RC 11-C and RC 11-D, Section 2.4 Digital Submission of Reports of the Reporting Chapter applies.

11.2 Ambient Air Monitoring Data Resubmission

RC 11-H *Upon discovery of errors, omissions or other issues with any ambient air monitoring data that have previously been submitted to Alberta's Ambient Air Quality Data Warehouse, the person responsible must notify the Director, in accordance with the procedures of Alberta's Ambient Air Quality Data Warehouse: Data Submitter's Guide, as soon as the errors, omissions or other issues are identified.*

RC 11-I	*Upon discovery of errors, omissions or other issues with any ambient air monitoring data that have previously been submitted to Alberta's Ambient Air Quality Data Warehouse, the person responsible must resubmit corrected data in accordance with the procedures set out in Alberta's Ambient Air Quality Data Warehouse: Data Submitter's Guide.*
RC 11-J	*Upon receiving formal notification from the Regulator of any errors, omissions or other issues with any ambient air monitoring data that have previously been submitted to Alberta's Ambient Air Quality Data Warehouse, the person responsible must resubmit corrected data in accordance with the procedures set out in Alberta's Ambient Air Quality Data Warehouse: Data Submitter's Guide.*
RC 11-K	*For RC 11-I and RC 11-J, the person responsible must resubmit the corrected data within the timelines set out in Alberta's Ambient Air Quality Data Warehouse: Data Submitter's Guide.*

11.3 Continuous Emission Monitoring Data Resubmission

RC 11-L	*Upon discovery of errors, omissions or other issues with CEMS data submitted to the Director, the person responsible must notify the Director, electronically in accordance with the procedures of the CEMS User Manual, as soon as the errors, omissions or other issues are identified.*
RC 11-M	*Upon discovery of errors, omissions or other issues with CEMS data submitted to the Director, the person responsible must (a) complete and (b) submit a corrective action report in accordance with the procedures of the CEMS User Manual.*
RC 11-N	*Upon receiving formal notification from the Regulator of any errors, omissions or other issues with CEMS data submitted to the Director, the person responsible must (a) complete and (b) submit a corrective action report in accordance with the procedures of the CEMS User Manual.*
RC 11-O	*For RC 11-M and RC 11-N, the person responsible must submit the corrective action report within the timelines specified by the Regulator.*
RC 11-P	*Upon discovery, or receiving formal notification from the Regulator, of errors, omissions or other issues with CEMS data submitted to the Director, the person responsible must resubmit corrected data in accordance with procedures set out in the CEMS User Manual.*
RC 11-Q	*For RC 11-P, the person responsible must resubmit the corrected data within the timelines specified by the Regulator.*

For RC 11-O and RC 11-P, the industrial operation should contact the CEMS User Coordinator for specific details, including timelines, on corrective actions and CEMS data resubmission. CEMS data resubmissions are dealt with on a case by case basis.

11.4 Resubmission of Other Data

RC 11-R	*Upon discovery of errors, omissions or other issues with any other data reported to the Director under the air or air related requirements of an approval, not covered by Sections 11.1, 11.2 or 11.3 of the Reporting Chapter, the person responsible must notify the Director, electronically using the AMD Notification Template, as soon as the errors, omissions or other issues are identified.*
RC 11-S	*For the notification in RC 11-R, the person responsible must include the following information, at a minimum:* *(a) (i) identification and (ii) description of the errors, omissions or other issues identified;* *(b) an explanation of the cause of the errors, omissions or other issues that were identified; and* *(c) identification of all changes and corrections that are expected to be required in response to the errors, omissions or other issues that were identified.*
RC 11-T	*Upon discovery of errors, omissions or other issues with any other data reported to the Director under the air or air related requirements of an approval, not covered by Sections 11.1, 11.2 or 11.3 of the Reporting Chapter, the person responsible must submit corrected data to the Director within thirty days of the initial discovery of the errors, omissions or other issues with the data.*
RC 11-U	*Upon receiving formal notification from the Regulator of any errors, omissions or other issues with any other data reported to the Director under the air or air related requirements of an approval, not covered by Sections 11.1, 11.2 or 11.3 of the Reporting Chapter, the person responsible must submit corrected data to the Director within thirty days of the formal notification from the Regulator.*

Resubmission of Annual Emissions Inventory Reports is discussed in Section 7.2.9.

Part 2: Alberta Airshed Reporting

Part 2 of the Reporting Chapter, including clauses RC 12-A through RC 18-Q, applies to Alberta airsheds.

Alberta airsheds are not required to report on ambient air monitoring that is conducted and reported by industrial operations.

12.0 Alberta Airshed General Reporting Requirements

There are several types of reporting that may be required for an Alberta airshed, including, but not limited to:

- submission of ambient air monitoring data;
- submission of real-time continuous ambient air monitoring data;
- exceedance and performance reporting;
- submission of monthly reports;
- submission of annual reports;
- notifications; and
- amendments to previously submitted data or reports.

12.1 General Report Content

RC 12-A *Unless otherwise specified in the Reporting Chapter, the person responsible must include the following information, at a minimum, in any report submitted to the Director pursuant to the AMD:*

(a) *a cover letter meeting the requirements specified in the Reporting Chapter for the type of report;*
(b) *identification of the Alberta airshed;*
(c) *the (i) name, (ii) phone number, (iii) mailing address and (iv) email address of the representative of the person responsible;*
(d) *the (i) name, (ii) phone number, (iii) mailing address and (iv) email address of the person actually submitting the information, if different than that provided in RC 12-A (c);*
(e) *clear identification of (i) who prepared the report and (ii) who reviewed the report;*
(f) *(i) a unique identifier on the report, such as the report name, and (ii) reporting timeframe to which the report applies, to enable the Director to differentiate the report from other reports submitted by the Alberta airshed;*
(g) *a list of approval numbers, company names and industrial operation names for which the Alberta airshed is monitoring on behalf of;*
(h) *identification of which of the industrial operations listed in RC 12-A (g) that the report is being submitted on behalf of, if different than (g);*
(i) *(i) identification on each page of the report to clearly show that the page is part of the report, and (ii) clear identification of the end of the report; and*
(j) *the date the report was generated.*

RC 12-B *The person responsible must submit to the Director reports that (a) are clearly legible, and (b) contain the details required by the Reporting Chapter, including any accompanying forms as referred to in RC 12-C and RC 12-D.*

Additional information on the contents of the reports can be found in Sections 13 through 18 of the Reporting Chapter.

12.2 Reporting Forms

AMD reporting forms and templates are available from the AMD website.

RC 12-C	*With respect to each report submitted to the Director, the person responsible must (a) use and (b) submit the applicable report forms specified in Part 2 of the Reporting Chapter, unless otherwise authorized in writing by the Director.*
RC 12-D	*In the event that no suitable form is specified in the Reporting Chapter, the person responsible must submit to the Director all of the required reporting information and data in a reporting format (a) suitable for the type of monitoring being carried out and (b) satisfactory to the Director.*

Completed reporting forms that are part of reports or submitted data are to be submitted at the same time as the report or submitted data they are a part of. Forms are to be submitted in their original, unaltered, digital format.

12.3 Certification of Submitted Information

Certification is formal sign-off by the person responsible indicating that the data or reports being submitted to the Director (a) have been reviewed by the person responsible prior to submission, (b) accurately reflect the monitoring results and reporting timeframe and (c) meet the specified analysis, summarization and reporting requirements.

RC 12-E	*The person responsible must certify all reports that are required to be submitted to the Director, by signing off on the cover letter of the report, unless otherwise specified in the Reporting Chapter.*
RC 12-F	*For the certification in RC 12-E, the person responsible must include in the cover letter the following statement: "I certify that I have reviewed and verified this report and that the information is complete, accurate and representative of the monitoring results, reporting timeframe and the specified analysis, summarization and reporting requirements."*
RC 12-G	*The person responsible must certify all air data that are required by the AMD to be electronically submitted to the Director, using the certification methodology of the electronic submission system.*
RC 12-H	*For the certification in RC 12-G, the person responsible must certify the data at the time of electronic submission according to the requirements of the certification methodology of the electronic submission system. For clarity, this*

means that the certification in RC 12-G must meet the same submission deadline as the data being electronically submitted to the Director.

The person responsible may designate who will certify reports and data for submission to the Director.

For RC 12-G and RC 12-H, each electronic submission system (e.g., Alberta's Ambient Air Quality Data Warehouse) will have its own method or process to certify the data being submitted, including online or digital sign-off.

RC 12-I	*The person responsible must submit to the Director an electronic copy of the certified laboratory analysis report with all (a) passive and (b) intermittent sample results that are required to be submitted to the Director as per the AMD.*
RC 12-J	*For the certified laboratory analysis report in RC 12-I, the certified laboratory analysis report must be certified with the signature of an authorized staff member of the laboratory that prepared the report.*
RC 12-K	*For the certified laboratory analysis report in RC 12-I, the person responsible must submit the certified laboratory analysis report at the same time as monitoring sample results. For clarity, this means that the certified laboratory analysis report in RC 12-I must meet the same submission deadline as the specific monitoring sample results.*

There is no specified format for the certified laboratory analysis report in RC 12-I. The person responsible is simply required to submit the report that was provided by the laboratory.

12.4 Electronic Submission of Reports

RC 12-L	*The person responsible must electronically submit to the Director all reports and related documents required by the AMD, in accordance with the Acceptable Formats for EPEA Approval and Code of Practice Records and Submission Coordinates, unless otherwise specified in the Reporting Chapter.*
RC 12-M	*When submitting data that did not have to be otherwise submitted to the Director electronically, or via one of the AMD forms, the person responsible must submit to the Director this data in a digital, extractable format, along with the corresponding report, when applicable.*
RC 12-N	*For the submissions in RC 12-L and RC 12-M, the person responsible must submit to the Director according to the deadlines specified in the Reporting Chapter for the specific type of report.*

12.5 Submissions from Contractors

The Quality System Chapter (Chapter 5) of the AMD outlines requirements for contractors conducting monitoring or reporting on behalf of the person responsible.

RC 12-O	*If the person responsible has hired a contractor to conduct any monitoring or reporting activities under the AMD on behalf of the person responsible, the person responsible must, as part of the data and reports being submitted to the Director,* *(a) identify the contractor or contractors who performed any or all of the monitoring or reporting work; and* *(b) indicate what monitoring or reporting work the contractor or contractors carried out.*

The person responsible may choose to have reports or reporting forms completed by a contractor. The person responsible is still responsible for the content of the submitted information and has the duty to review and sign off on any information required to be submitted to the Director.

13.0 Alberta Airshed Data Submission

This section outlines the requirements for the submission of various types of ambient air monitoring data, including real-time reporting of continuous ambient air monitoring data.

13.1 Submission of Ambient Air Monitoring Data

The Monitoring Chapter (Chapter 4) of the AMD outlines minimum performance specifications for continuous ambient air analyzers and meteorological sensors. The Data Quality Chapter (Chapter 6) of the AMD outlines requirements for the collection, validation and verification of ambient air monitoring data.

RC 13-A	*Commencing January 1, 2019, the person responsible must electronically submit to Alberta's Ambient Air Quality Data Warehouse all ambient air monitoring data collected by the Alberta airshed, except those collected for the person responsible's own purposes, according to Alberta's Ambient Air Quality Data Warehouse: Data Submitter's Guide.*

Special air studies conducted by the Alberta airshed for its own purposes do not need to be reported to the Regulator. If the Alberta airshed chooses to submit results from a special air study to the Regulator, the air monitoring for the special air study needs to be conducted in accordance with the AMD in order for the Regulator to accept the data. Refer to the AMD Introduction (Chapter 1).

13.1.1 Submission Deadline for Ambient Air Monitoring Data

RC 13-B	*For the submission in RC 13-A, the person responsible must submit continuous ambient air monitoring data collected at permanent ambient air monitoring stations (a) monthly, (b) by the end of the month following the month of data collection, unless otherwise authorized in writing by the Director. For clarity, this requirement shall first come into effect January 1, 2019, such that the person responsible must submit all continuous ambient air monitoring data collected in the month of January 2019 by February 28, 2019, unless otherwise authorized in writing by the Director.*
RC 13-C	*For the submission in RC 13-A, the person responsible must submit continuous ambient air monitoring data collected at portable ambient air monitoring stations (a) monthly, (b) by the end of the month following the month of data collection, unless otherwise authorized in writing by the Director. For clarity, this requirement shall first come into effect January 1, 2019, such that the person responsible must submit all continuous ambient air monitoring data collected in the month of January 2019 by February 28, 2019, unless otherwise authorized in writing by the Director.*
RC 13-D	*For the submission in RC 13-A, the person responsible must submit ambient air monitoring data collected by (a) passive and (b) intermittent samplers within one year of data collection, unless otherwise authorized in writing by the Director. For clarity, this requirement shall first come into effect in January 1, 2019, such that the person responsible must submit all such data collected in January 2019 by the end of January 2020, unless otherwise authorized in writing by the Director.*

Where there are replicate samples (for example with passive sampling), both sample concentrations and replicate sample concentrations are reportable data values. Submitting solely an average of the data values would not fulfill the data submission requirement.

Data in Alberta's Ambient Air Quality Data Warehouse should always reflect the most current validated data. In some cases, errors or omissions in the submitted data may be discovered, requiring data resubmission by the person responsible. Data resubmission is discussed in Section 18 of the Reporting Chapter.

13.1.2 Significant Figures for Ambient Air Monitoring Data

Ambient air monitoring data reported under the AMD must reflect the appropriate number of significant figures based on the accuracy, precision and certainty of the measurement and detection limit of the analyzer. For example, decimal resolution for ambient air monitoring data collected from an analyzer may not be indicative of the analyzer's actual measurement capability, so some data treatment may be required before these data can be submitted or used in reports.

RC 13-E *The person responsible must round all ambient air monitoring data reported to the Regulator to the appropriate number of significant figures, based on an analyzer's actual measurement capability, or the method used to obtain the data, prior to:*

(a) submission to Alberta's Ambient Air Quality Data Warehouse; and

(b) inclusion in reports being submitted to the Director.

RC 13-F *For reporting a comparison to any AAAQO, the person responsible must:*

(a) round the value in RC 13-E to one significant figure greater than the AAAQO for comparison to the AAAQO; or

(b) if the number of significant figures of the value in RC 13-E is not at least one significant figure greater than the AAAQO, use the number of significant figures available from RC 13-E for comparison to the AAAQO.

RC 13-F applies to reporting a comparison to an AAAQO (e.g., reporting exceedances of AAAQOs), not for the reporting of hourly data to Alberta's Ambient Air Quality Data Warehouse. While most analyzers provide enough resolution to compare to AAAQOs, there may be instances when an additional significant figure is not available for comparison to an AAAQO. In such cases the person responsible is to compare to the AAAQO using the number of significant figures available (that is the number of significant figures available based on the analyzer's measurement capability).

Examples of AAAQO comparisons in RC 13-F (a) would include, but are not limited to:

For a 1-hour average AAAQO of 300 µg m^{-3}:

- A rounded 1-hour ambient air concentration of 299.4 µg m^{-3} would not be an exceedance of the AAAQO;
- A rounded 1-hour ambient air concentration of 300.0 µg m^{-3} would not be an exceedance of the AAAQO; and
- A rounded 1-hour ambient air concentration of 300.4 µg m^{-3} would be an exceedance of the AAAQO.

Examples of AAAQO comparisons in RC 13-F (b) would include, but are not limited to:

For a 1-hour average AAAQO of 4.5 µg m^{-3}, when an additional significant figure is not available from the analyzer:

- A measured (non-rounded) 1-hour ambient air concentration of 4.5 µg m^{-3} would not be an exceedance of the AAAQO;
- A measured (non-rounded) 1-hour ambient air concentration of 4.6 µg m^{-3} would be an exceedance of the AAAQO.

RC 13-G *For the rounding in RC 13-E and RC 13-F, the person responsible must apply the following rounding conventions:*

(a) when the digit following the last significant figure is equal to or greater than five, the last significant figure must be increased by one and the digits to its right must be truncated; and

	(b) when the digit following the last significant figure is less than five, the last significant figure must remain unchanged and the digits to its right must be truncated.

The requirements in RC 13-G refer to rounding up and rounding down, respectively. Some examples of these rounding conventions are:

For two significant figures:

- 1.27 rounds up to 1.3;
- 1.250 rounds up to 1.3;
- 1.248 rounds down to 1.2; and
- 1.23 rounds down to 1.2.

13.1.3 Unit Conversions for Ambient Air Monitoring Data

RC 13-H	*The person responsible must (a) convert all ambient air monitoring data to the appropriate units required by Alberta's Ambient Air Quality Data Warehouse, prior to submitting any data to Alberta's Ambient Air Quality Data Warehouse, and (b) submit to Alberta's Ambient Air Quality Data Warehouse using the converted units in (a).*
RC 13-I	*For the unit conversions in RC 13-H, the person responsible must use generally accepted scientific principles to perform all unit conversions.*
RC 13-J	*The person responsible must report all ambient air concentrations at local ambient temperature and pressure for submission to Alberta's Ambient Air Quality Data Warehouse and (b) inclusion in reports being submitted to the Director, unless otherwise authorized by the Director.*

13.1.4 Format for Ambient Air Monitoring Data Submission

All ambient air monitoring data submitted electronically to Alberta's Ambient Air Quality Data Warehouse is required to be properly formatted and labelled prior to submission.

RC 13-K	*When submitting ambient air monitoring data to Alberta's Ambient Air Quality Data Warehouse, the person responsible must report all ambient air monitoring data using the file format specified in Alberta's Ambient Air Quality Data Warehouse: Data Submitter's Guide.*

13.1.5 Data Quality Identification for Ambient Air Monitoring Data

RC 13-L	*When submitting ambient air monitoring data to Alberta's Ambient Air Quality Data Warehouse, the person responsible must flag all ambient air monitoring data in accordance with the Data Quality Chapter (Chapter 6) of the AMD.*
RC 13-M	*Each time the person responsible submits a dataset to Alberta's Ambient Air Quality Data Warehouse, the person responsible must (a) complete, (b) sign, and (c) electronically submit to Alberta's Ambient Air Quality Data Warehouse the Ambient Data Validation and Certification Form. For clarity, the Ambient Data Validation and Certification Form must be submitted at the same time the associated dataset is submitted to Alberta's Ambient Air Quality Data Warehouse.*

13.1.6 Submission of Ambient Air Monitoring Metadata

Alberta's Ambient Air Quality Data Warehouse requires that a number of metadata records be kept up to date. Examples of these metadata records include, but are not limited to, ambient air monitoring station name, location, monitoring method and parameters. Account information for Alberta's Ambient Air Quality Data Warehouse is also required to be kept up to date. The account set-up and maintenance process is detailed in Alberta's Ambient Air Quality Data Warehouse: Data Submitter's Guide.

RC 13-N	*The person responsible must (a) submit and (b) keep up to date all metadata associated with the ambient air monitoring data being submitted to Alberta's Ambient Air Quality Data Warehouse.*
RC 13-O	*The person responsible must (a) submit and (b) keep up to date all account information associated with the ambient air monitoring data being submitted to Alberta's Ambient Air Quality Data Warehouse.*

For RC 13-N and RC 13-O, keeping metadata and account information up to date means that it should be updated, at a minimum, when monthly data is submitted to Alberta's Ambient Air Quality Data Warehouse. For example, changes in a monitoring station's metadata would need to be updated by the end of the month following the month in which the change to the station actually occurred. This includes changes to personnel contact information, changes to analyzers, changes to station location, or other changes to an ambient air monitoring station's operational and instrumentation information.

13.1.7 Submission of Ambient Air Monitoring Calibration Reports

The Calibration Chapter (Chapter 7) of the AMD specifies the requirements for when and how calibrations are to be carried out on ambient air analyzers, as well as the required content of calibration reports.

RC 13-P	*The person responsible must prepare a calibration report for each continuous ambient air analyzer calibrated during the month.*
RC 13-Q	*For the calibration report in RC 13-P, the person responsible must meet all minimum requirements as specified in the AMD Calibration Chapter (Chapter 7).*

Calibration report templates are provided on the AMD website for reference. It is acceptable to use a customized report format that is different than the calibration report templates provided, as long as the report provides, at a minimum, the same information that is required for calibration reports as specified in the Calibration Chapter (Chapter 7) of the AMD.

RC 13-R	*The person responsible must submit the calibration report in RC 13-P electronically to Alberta's Ambient Air Quality Data Warehouse with the monthly ambient air monitoring data submitted in RC 13-A. For clarity, the calibration report must be submitted at the same time the associated dataset is submitted to Alberta's Ambient Air Quality Data Warehouse.*

For the submission in RC 13-R, Alberta's Ambient Air Quality Data Warehouse: Data Submitter's Guide provides instruction on how to submit calibration reports.

13.1.8 Real-Time Ambient Air Monitoring Data Submission

Real-time air quality data is used to inform the public of current ambient air concentration levels. It is also used to report the Air Quality Health Index, which provides simple numeric values to help Albertans understand what the current measured ambient air quality means to their health and what precautions they may want to take.

Real-time reporting instructions, including technical requirements and specifications, can be found in the Alberta Real-time Ambient Air Data Submitter's Guide. The Alberta Real-time Ambient Air Data Submitter's Guide will be available on the AMD website.

RC 13-S	*The person responsible must electronically submit real-time ambient air monitoring data to the Alberta Real-time Ambient Air Website whenever both of the following criteria are met:* *(a) the ambient parameter is monitored continuously in real-time at the ambient air monitoring station; and*

	(b) the ambient parameter is being submitted to Alberta's Ambient Air Quality Data Warehouse, or reported in monthly and annual reports, for the ambient air monitoring station.
RC 13-T	*For the real-time ambient air monitoring data submission in RC 13-S, the person responsible must follow the methods specified in the Alberta Real-time Ambient Air Data Submitter's Guide.*
RC 13-U	*For the real-time ambient air monitoring data submission in RC 13-S, the person responsible must submit by the submission deadline specified in the Alberta Real-time Ambient Air Data Submitter's Guide.*

14.0 Alberta Airshed Exceedance and Performance Reporting

In accordance with EPEA and the Substance Release Regulation, all contraventions of the Air Monitoring Directive must be immediately reported.

This section outlines the requirements for reporting of critical information related to measured ambient air concentrations above AAAQOs and issues with monitoring equipment performance. This information is required for human and environmental health and safety assurance, and may be used in investigations. A Guide to Release Reporting provides information on how to submit exceedance, contravention and performance reports, including the phone number to call.

If the person responsible is not sure whether or not immediate notification is required in a specific circumstance, it is recommended to err on the side of caution and call it in.

RC 14-A	*The person responsible must immediately report to the Director any monitoring results that show ambient air concentrations exceeding the AAAQOs.*
RC 14-B	*The person responsible must immediately report to the Director any significant (a) interruption, (b) damage or (c) interference, to any:* *(i) continuous ambient air analyzer; or* *(ii) meteorological sensor* *which would cause the continuous ambient air analyzer or meteorological sensor to be offline for an extended period of time.*

Examples of significant interruptions to an analyzer or sensor (RC 14-B) include, but are not be limited to, ceasing use of an analyzer or sensor indefinitely or permanently, or maintenance requiring an analyzer or sensor to be offline for an extended period.

RC 14-C	*The person responsible must immediately report to the Director if monitoring equipment uptime does not meet the minimum specifications set out in the AMD.*

An example of equipment uptime not meeting minimum specifications in RC 14-C would be not meeting the operational requirements for continuous ambient monitoring equipment specified in the Data Quality Chapter (Chapter 6) of the AMD.

RC 14-D	*For all reporting in RC 14-A, RC 14-B and RC 14-C, the person responsible must follow the procedures in A Guide to Release Reporting.*
RC 14-E	*For all issues and deficiencies leading to the notifications in RC 14-B and RC 14-C, the person responsible must take immediate action to correct or address the issues and deficiencies to the satisfaction of the Director.*

An example of immediate action (RC 14-E) would be ordering a replacement part when it becomes known that equipment is not working properly. That is, some action is taken to begin to address a discovered issue or deficiency.

RC 14-F	*During an emergency event, upon receiving a request from the Director, the person responsible must immediately provide any air monitoring data requested in writing by the Director to the Director, and any responding agencies identified in the request, in the format specified in the request.*

For RC 14-F, an example would be if there has been significant wild fire smoke impacting an area and an Alberta airshed is carrying out portable or mobile monitoring near an affected community. Upon receiving a request from the Director, the person responsible must immediately provide any relevant monitoring data to the Director and any agencies specified in the request (e.g., Alberta Health Services). Such emergency based monitoring data could be required for emergency response and making public health decisions, and therefore is required to be provided without delay.

In clauses RC 14-A through RC 14-F, immediate constitutes due diligence. For example, reporting an AAAQO exceedance once it becomes known. This does not require 24-7 or "on-call" reporting by Alberta airsheds.

It is strongly recommended that all Alberta airsheds have documented protocols in their QAPs addressing immediate reporting of ambient air concentrations exceeding the AAAQOs and any significant interruption of monitoring equipment. The documented protocol should clearly define the roles and responsibilities for immediate reporting of ambient air issues. For example, the documented protocol should define that the Alberta airshed has the responsibility to immediately report on ambient air issues on behalf of its members (for the monitoring that the Alberta airshed conducts on behalf of industrial operations), or that individual industrial operations have the responsibility to immediately report on ambient issues associated with their operation.

15.0 Alberta Airshed Monthly Reports

This section outlines monthly report requirements. Monthly reports provide a summary and evaluation of the monitoring performed and data collected during the month. The exact content that is required for a monthly report will depend upon the specific monitoring carried out by the Alberta airshed.

General report requirements are outlined in Section 2 of the Reporting Chapter.

An example monthly report will be available on the AMD website to show what a completed monthly report looks like, show what information may need to be included and provide a sample report format.

15.1 Monthly Report Preparation and Submission

RC 15-A	*Commencing January 1, 2019, if the person responsible has collected ambient air monitoring data for a month or longer, the person responsible must prepare a monthly report.*
RC 15-B	*For the monthly report in RC 15-A, the person responsible must include all the information necessary to meet the reporting requirements of Section 15 of the Reporting Chapter.*
RC 15-C	*If the monthly report in RC 15-A is being prepared on behalf of an approved industrial operation, the person responsible must submit to the Director the monthly report in accordance with the deadlines specified in the respective approval(s).*
RC 15-D	*If the monthly report in RC 15-A is not being prepared on behalf of an approved industrial operation, or if the approvals do not specify a deadline for submitting annual reports, the person responsible must submit to the Director the monthly report by the end of the month following the month of data collection, unless otherwise authorized in writing by the Director.*

The first monthly report under the AMD Reporting Chapter will need to be submitted by February 28, 2019 and will need to cover January 2019 monitoring data.

15.2 Monthly Report General Content

RC 15-E	*For the monthly report in RC 15-A, the person responsible must include a cover letter.*

RC 15-F *For the cover letter in RC 15-E, the person responsible must include the following information, at a minimum:*

- *(a) where a monitoring analyzer is required to be operational 90% of the time and was not, identification of the problems that led to the monitoring analyzer being operational less than 90% of the time;*
- *(b) identification of any previous correspondence related to the reporting of ambient air concentrations in excess of AAAQOs during the month;*
- *(c) identification of any changes to monitoring locations, monitoring methods or significant changes to monitoring equipment;*
- *(d) identification of any special air studies carried out for which data or results are being provided to the Director; and*
- *(e) identification of any reporting or monitoring irregularities.*

Monitoring irregularities in RC 15-F (e) include, but are not be limited to, analyzer malfunction, results outside of normal operating range, vandalism or extended analyzer down time.

Special air studies conducted by the Alberta Airshed for its own purposes do not need to be reported to the Regulator. However, if the Alberta Airshed chooses to submit results from a special air study to the Regulator, the air monitoring for the special air study needs to be conducted in accordance with the AMD in order for the Regulator to accept the data. Refer to the AMD Introduction (Chapter 1).

RC 15-G *For the monthly report in RC 15-A, the person responsible must include a title page.*

RC 15-H *For the monthly report in RC 15-A, the person responsible must include a table of contents if the report is larger than 10 pages.*

RC 15-I *For the monthly report in RC 15-A, the person responsible must include the following information, at a minimum:*

- *(a) a listing of all continuous ambient air monitoring stations that contributed data to the monthly report; and*
- *(b) for any audit that occurred during the month, a summary of audit findings that affected data validity or resulted in a contravention of the terms and conditions of the approval or the AMD, and the associated corrective actions taken.*

RC 15-J *For the monthly report in RC 15-A, the person responsible must include the following information, at a minimum:*

- *(a) (i) identification and (ii) description of any deviations from the authorized monitoring methods;*
- *(b) (i) identification and (ii) description of any non-standard conditions that may have affected the quality of the monitoring results, including the use and definition of data qualifiers;*

	(c) (i) identification and (ii) description of numerical results for values outside quantification limits; *(d) (i) identification and (ii) description of any air related incidents called into the Environmental Response Centre, including the reference number; and* *(e) any additional information that may be required by a specific monitoring method.*

For RC 15-J (b), non-standard conditions include, but are not limited to, the presence of forest fire smoke in the monitoring area, excessively elevated concentrations, problems with calibrations or monitoring equipment, and changes in monitoring or supporting equipment.

For RC 15-J (c), values outside of quantification limits, such as beyond calibration range or full scale value, could result from causes such as non-standard conditions or problems with calibration or monitoring equipment.

RC 15-K	*For the monthly report in RC 15-A, the person responsible must include any other information that is required in monthly reports as specified in writing by the Director.*

15.3 Reporting on Ambient Air Monitoring

Monthly reports are required to include a summary of ambient air monitoring data collected for the month and an evaluation of all the monitoring performed and data collected.

Alberta airsheds are not required to report on ambient air monitoring carried out and already reported by industrial operations.

15.3.1 Ambient Air Monitoring Data Issues

RC 15-L	*For the monthly report in RC 15-A, the person responsible must include the following information, at a minimum:* *(a) (i) identification of, (ii) description of and (iii) reason(s) for any ambient air monitoring data deletion or resubmission to Alberta's Ambient Air Quality Data Warehouse;* *(b) (i) identification of, (ii) description of and (iii) reason(s) for any missed calibrations for ambient air analyzers that were required to be calibrated during the reporting period; and* *(c) (i) identification and (ii) description of any other issues with the ambient air monitoring data.*

15.3.2 Ambient Air Monitoring Results

RC 15-M *For the monthly report in RC 15-A, the person responsible must include the following information, at a minimum:*

- *(a) the percentage of valid hourly data for all monitored parameters at each continuous ambient air monitoring station;*
- *(b) (i) a time series plot of the hourly average ambient air concentrations for each parameter monitored at each continuous ambient air monitoring station; and (ii) a discussion of the context around any data anomalies in the time series plot for which the person responsible is aware of;*
- *(c) monthly (i) average, (ii) maximum and (iii) minimum ambient air concentrations for each monitored parameter at each continuous ambient air monitoring station; and*
- *(d) a monthly wind rose for each continuous ambient air monitoring station for the month being monitored, generated using meteorological data collected at the ambient air monitoring station. If meteorological data cannot be collected at the ambient air monitoring station, other meteorological data from another source that is representative of the ambient air monitoring station must be used in the generation of the wind rose.*

Providing context in RC 15-M (b) (ii) should include noting known local events and influencers which may have an effect on monitoring results. Examples include, but are not limited to, forest fire, temperature inversions, nearby construction, changes to monitoring methods, siting changes, and changes in local sources.

For RC 15-M (d), site-specific meteorology should be used for wind roses. If site-specific meteorological data is not available, then the most representative (closest proximity) meteorological data that are available would be used and this would be noted on the wind rose. Examples of sources of potentially representative meteorological data include a nearby ambient air monitoring station, airport, or Alberta Agriculture and Forestry's Agro-Climatic Information Service.

RC 15-N *For the monthly report in RC 15-A, the person responsible must include comparisons of the measured ambient air concentrations at each ambient air monitoring station to the AAAQOs corresponding to the monitored parameters.*

RC 15-O *For the comparisons in RC 15-N, the person responsible must include the following information, at a minimum:*

- *(a) (i) identification and (ii) description of any measured ambient air concentrations in excess of the AAAQOs; and*
- *(b) the context around any exceedance(s) identified, if known.*

RC 15-P *For the comparisons in RC 15-N, the person responsible must use the averaging specifications and data completeness criteria listed in Appendix A for the corresponding AAAQO averaging period.*

RC 15-Q	*For the monthly report in RC 15-A, the person responsible must include a representation of data distribution for the monitored month, for each monitored parameter with a corresponding AAAQO.*

The representation of data distribution in RC 15-Q could include, but is not limited to, histograms, frequency distribution tables or percentiles.

The Alberta airshed may report on the results of any special air studies in the monthly report, provided that the special air study was conducted in accordance with the AMD. See requirements in the AMD Introduction (Chapter 1).

15.4 Flow Diagram for Alberta Airshed Monthly Reports

The following flow diagram is provided to help identify what information may need to be included in the monthly report for an Alberta airshed. This diagram is guidance only and does not necessarily cover every possible category of information that may need to be included in a monthly report. This diagram does not replace the requirements set out in the Reporting Chapter clauses. The Reporting Chapter clauses should always be reviewed prior to preparing and submitting a monthly report.

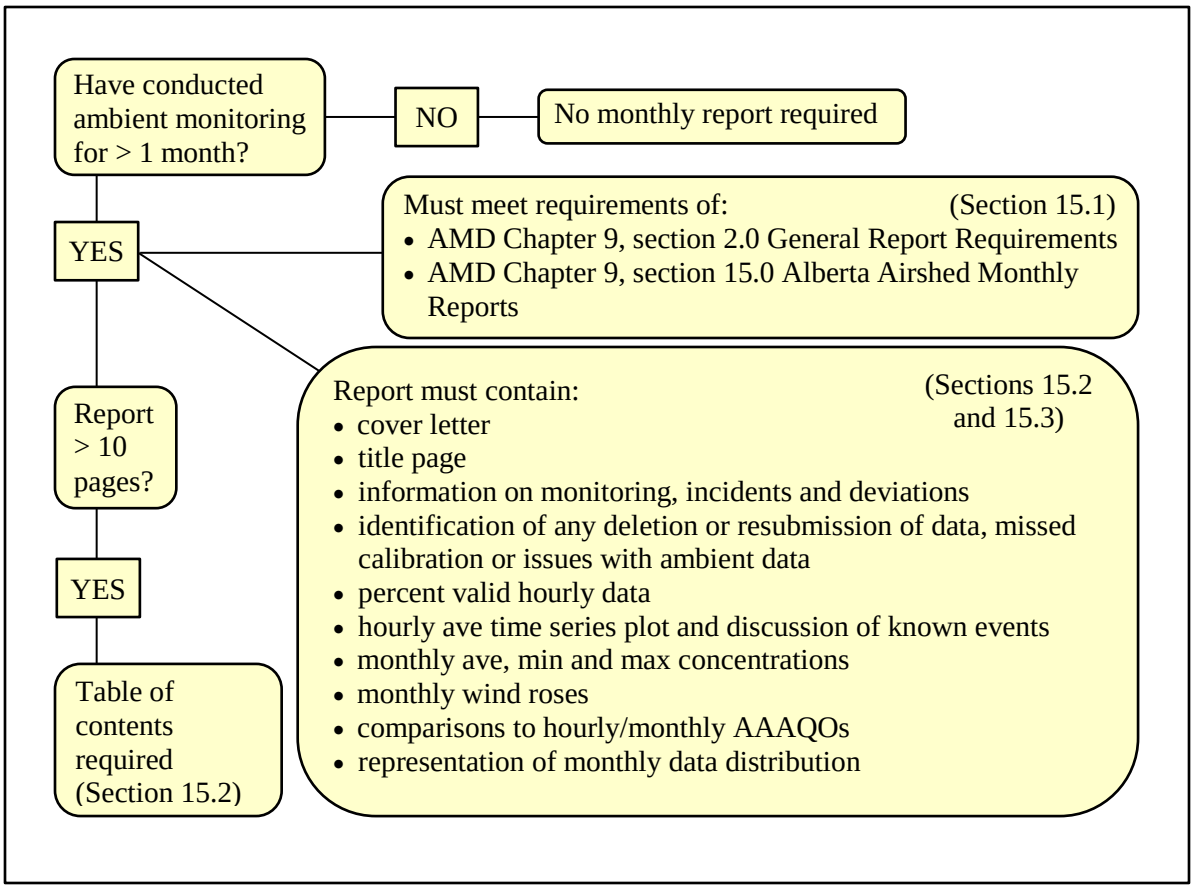

Figure 4 Flow Diagram for Alberta Airshed Monthly Report Contents

16.0 Alberta Airshed Annual Reports

This section outlines annual report requirements. Annual reports provide an overview and evaluation of the monitoring performed during the year. They also provide an additional review of the data and present annual summaries that highlight overall performance, seasonal patterns, annual trends and exceedances of AAAQOs. The exact content that is required for an annual report will depend upon the specific monitoring carried out by the Alberta airshed.

General report requirements are outlined in Section 2 of the Reporting Chapter.

An example annual report will be available on the AMD website to show what a completed annual report looks like, show what information may need to be included and provide a sample report format.

16.1 Annual Report Preparation and Submission

RC 16-A	*Commencing January 1, 2019, if the person responsible has collected ambient air monitoring data for one year or longer, the person responsible must prepare an annual report based on the data collected for the calendar year.*
RC 16-B	*Commencing January 1, 2019, if the person responsible has collected ambient air monitoring data for a period of less than twelve full months and greater than six months, the person responsible must prepare an annual report.*
RC 16-C	*For the annual report in RC 16-B, the person responsible must prepare the annual report applying the annual reporting requirements to the actual period monitored in that calendar year.*

The first annual report under the AMD Reporting Chapter will need to be submitted in March 2019 and will need to cover the 2018 monitoring period.

RC 16-D	*For the annual report in RC 16-A and RC 16-B, the person responsible must include all the information necessary to meet the reporting requirements of Section 16 of the Reporting Chapter.*
RC 16-E	*If the annual report in RC 16-A or RC 16-B is being prepared on behalf of an approved industrial operation, the person responsible must submit the annual report to the Director in accordance with the deadlines specified in the respective approval(s).*
RC 16-F	*If the annual report in RC 16-A or RC 16-B is not being prepared on behalf of an approved industrial operation, or if the approvals do not specify a deadline for submitting annual reports, the person responsible must submit to the Director the annual report no later than March 31 of the year following the year in which the data was collected, unless otherwise authorized in writing by the Director.*

16.2 Annual Report General Content

RC 16-G	*For the annual report in RC 16-A and RC 16-B, the person responsible must include a cover letter.*
RC 16-H	*For the cover letter in RC 16-G, the person responsible must include the following information, at a minimum:* *(a) where a monitoring analyzer is required to be operational 90% of the time and was not, identification of monitoring issues for all months with a monitoring analyzer operational less than 90% of the time for the month;* *(b) identification of any previous correspondence related to the reporting of ambient air concentrations in excess of AAAQOs during the reporting year;*

(c) identification of any changes to monitoring locations, monitoring methods or significant changes to monitoring equipment;
(d) identification of any special air studies carried out for which data or results are being provided to the Director; and
(e) an explanation of any reporting or monitoring irregularities.

Monitoring irregularities in RC 16-H (e) include, but are not be limited to, analyzer malfunction, results outside of normal operating range, vandalism or extended analyzer down time.

Special air studies conducted by the Alberta Airshed for its own purposes do not need to be reported to the Regulator. However, if the Alberta Airshed chooses to submit results from a special air study to the Regulator, the air monitoring for the special air study needs to be conducted in accordance with the AMD in order for the Regulator to accept the data. Refer to the AMD Introduction (Chapter 1).

RC 16-I *For the annual report in RC 16-A and RC 16-B, the person responsible must include a title page.*

RC 16-J *For the annual report in RC 16-A and RC 16-B, the person responsible must include a table of contents if the report is larger than 10 pages.*

RC 16-K *For the annual report in RC 16-A and RC 16-B, the person responsible must include the following information, at a minimum:*
(a) with respect to a month in the calendar year, (i) identification of and (ii) justification for any changes made after a monthly report was initially submitted;
(b) a listing of all continuous ambient air monitoring stations that contributed data to the annual report;
(c) a listing of all (i) passive and (ii) intermittent samplers that contributed data to the annual report; and
(d) for any audit that occurred during the year, if not already included in the monthly reports, a summary of any audit findings that affected data validity or resulted in a contravention of the terms and conditions of the approval or the AMD, and the associated corrective actions.

RC 16-L *For the annual report in RC 16-A and RC 16-B, the person responsible must include the following information, at a minimum:*
(a) (i) identification and (ii) description of any deviations from the authorized monitoring methods;
(b) (i) identification and (ii) description of any non-standard conditions that may have affected the quality of the monitoring results, including the use and definitions of data qualifiers;
(c) (i) identification and (ii) description of numerical results for values outside quantification limits;

	(d) (i) identification and (ii) description of any air related incidents called into the Environmental Response Centre, including the reference number; and *(e) any additional information that may be required by a specific monitoring method.*

For RC 16-L (b), non-standard conditions include, but are not limited to, the presence of forest fire smoke in the monitoring area, excessively elevated concentrations, problems with calibrations or monitoring equipment and changes in monitoring or supporting equipment.

For RC 16-L (c), values outside of quantification limits, such as beyond calibration range or full scale value, could result from causes such as non-standard conditions or problems with calibration or monitoring equipment.

RC 16-M	*For the annual report in RC 16-A and RC 16-B, the person responsible must include any other information that is to be included in annual reports as specified in writing by the Director.*

16.3 Reporting on Ambient Air Monitoring

Annual reports are required to include a summary of ambient air monitoring data collected for the year and an evaluation of all the monitoring performed and data collected.

Alberta airsheds are not required to report on ambient air monitoring conducted and already reported by industrial operations.

16.3.1 Ambient Air Monitoring Data Issues

RC 16-N	*For the annual report in RC 16-A and RC 16-B, if not already covered in the monthly reports, the person responsible must include the following information, at a minimum:* *(a) (i) identification of, (ii) description of, and (iii) reason(s) for any ambient air monitoring data deletion or resubmission to Alberta's Ambient Air Quality Data Warehouse;* *(b) (i) identification of, (ii) description of, and (iii) reason(s) for any missed calibrations for ambient air analyzers that were required to be calibrated during the reporting period; and* *(c) (i) identification and (ii) description of any other issues with the ambient air monitoring data.*

16.3.2 Ambient Air Monitoring Results

RC 16-O *For the annual report in RC 16-A and RC 16-B, the person responsible must include the following information, at a minimum:*

- *(a) the percentage of valid hourly data for all monitored parameters at each continuous ambient air monitoring station;*
- *(b) annual (i) average, (ii) maximum and (iii) minimum ambient air concentrations for each monitored parameter at each ambient air monitoring station;*
- *(c) (i) a plot of the annual average ambient air concentrations over the last five years for each monitored parameter at each ambient air monitoring station, and (ii) a discussion of the context behind changes in annual average concentration trends, if applicable and known to the person responsible;*
- *(d) an annual average spatial plot using data collected with passive samplers, for networks with more than eight passive sites; and*
- *(e) an annual wind rose for each continuous ambient air monitoring station for the year being reported, generated using meteorological data collected at the ambient air monitoring station. If meteorological data cannot be collected at the ambient air monitoring station, other meteorological data from another source that is representative of the ambient air monitoring station must be used in the generation of the wind rose.*

Providing context in RC 16-O (c) should include noting known local events and influencers which may have an effect on monitoring results. Examples include, but are not limited to, forest fire, temperature inversions, nearby construction, changes to monitoring methods, siting changes and changes in local sources.

For RC 16-O (d), where there are replicate samples, both sample concentrations and replicate sample concentrations are used to determine the annual average air concentration for each monitored parameter at each passive sampling site.

For RC 16-O (e), site-specific meteorology should be used for wind roses. If site-specific meteorological data is not available, then the most representative (closest proximity) meteorological data that are available would be used and this would be noted on the wind rose. Examples of sources of potentially representative meteorological data include a nearby ambient air monitoring station, airport or Alberta Agriculture and Forestry's Agro-Climatic Information Service.

RC 16-P *For the annual report in RC 16-A and RC 16-B, the person responsible must include comparisons of the measured ambient air concentrations at each ambient air monitoring station to the AAAQOs corresponding to the monitored parameters.*

RC 16-Q *For the comparison in RC 16-P, the person responsible must include the following information, at a minimum:*

	(a) (i) identification and (ii) description of any measured ambient air concentrations in excess of all AAAQOs corresponding to the monitored parameters; and *(b) if not already submitted in monthly reports, the context around any exceedance(s) identified, if known.*
RC 16-R	*For the comparisons in RC 16-P, the person responsible must use the averaging specifications and data completeness criteria listed in Appendix A for the corresponding AAAQO averaging period.*
RC 16-S	*For the comparison in RC 16-P, the person responsible must include the number of ambient air concentrations in excess of the AAAQOs per month for each monitored parameter, at each:* *(a) continuous ambient air monitoring station;* *(b) intermittent sampling site; and* *(c) passive sampling site.*
RC 16-T	*For the Annual Report in RC 16-A and RC 16-B, the person responsible must include a representation of data distribution for the year, for each monitored parameter with a corresponding AAAQO.*

The representation of data distribution in RC 16-T could include, but is not limited to, histograms, frequency distribution tables or percentiles.

The Alberta airshed may report on the results of any special air studies in the annual report, provided that the special air study was conducted in accordance with the AMD. See requirements in the AMD Introduction (Chapter 1).

16.4 Flow Diagram for Alberta Airshed Annual Reports

The following flow diagram is provided to help identify what information may need to be included in the annual report for an Alberta airshed. This diagram is guidance only and does not necessarily cover every possible category of information that may need to be included in an annual report. This diagram does not replace the requirements set out in the Reporting Chapter clauses. The Reporting Chapter clauses should always be reviewed prior to preparing and submitting an annual report.

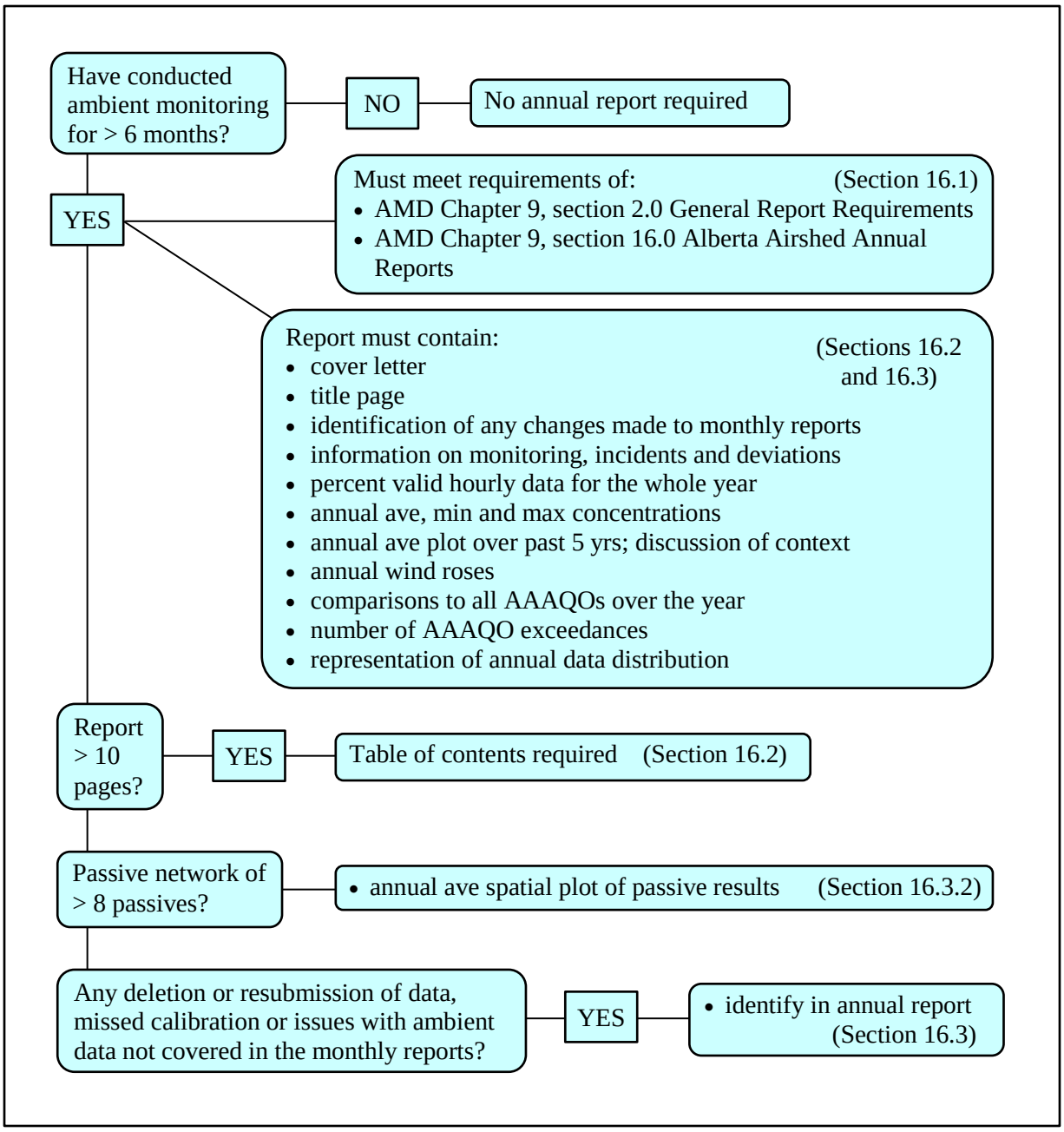

Figure 5 Flow Diagram for Alberta Airshed Annual Report Contents

17.0 Alberta Airshed Notifications

This section outlines the requirements for Alberta airsheds to notify the Director of specific monitoring activities. This includes commencing operation, scheduled shut-downs, equipment changes and relocations of ambient air monitoring stations.

Notification to the Director is not required for air monitoring conducted by the Alberta airshed for its own purposes (i.e., not mandated by the Regulator). However if the Alberta airshed chooses to submit results to the Regulator, the air monitoring must have been conducted in accordance with the AMD in order for the Regulator to accept the data.

RC 17-A	*The person responsible must provide the Director with a minimum of fourteen days advance notice, electronically using the AMD Notification Template, prior to commencement of a new (a) monitoring station, (b) monitoring parameter, or (c) monitoring method for an (i) ambient analyzer or (ii) meteorological sensor.*

For RC 17-A, the replacement of an ambient analyzer or meteorological sensor with the exact same analyzer or sensor model, for the purposes of routine maintenance or to maintain equipment uptime, would not require notification, but would be reported in a monthly and annual report. However, adding a new ambient monitoring station, adding a new analyzer or sensor for a parameter that was not previously being monitored at the station, and modifying or replacing an existing analyzer or sensor with a different monitoring method would all require notification as per RC 17-A.

RC 17-B	*For those Alberta airsheds performing continuous ambient monitoring for less than twelve months per year, the person responsible must provide the Director with a minimum of fourteen days advance notice, electronically using the AMD Notification Template, prior to the commencement of these continuous ambient monitoring programs.*
RC 17-C	*The person responsible must provide the Director with a minimum of thirty days advance notice, electronically using the AMD Notification Template, prior to the scheduled shut-down of any (a) ambient analyzer or (b) meteorological sensor.*

In RC 17-C, shut-down refers to an analyzer or sensor being offline for an extended period or permanently. If an ambient analyzer or sensor has a non-scheduled shut-down, the Director should be notified when it becomes known that analyzers that will be offline for an extended period or permanently.

RC 17-D	*The person responsible must provide the Director with a minimum of thirty days advance notice, electronically using the AMD Notification Template, prior to the scheduled relocation of any ambient air monitoring station.*

For RC 17-C and RC 17-D, Regulator approval of the change may also be required.

For the relocation of a portable monitoring station, it is acceptable to submit the monitoring location schedule for the entire year to satisfy the requirements of RC 17-D, rather than sending notification prior to each relocation. If any changes to the site rotation schedule are needed, notification of the revised dates is required as per the requirements of RC 17-E.

RC 17-E	*Where the scheduled dates change after notification has been given in RC 17-A, RC 17-B, RC 17-C or RC 17-D, the person responsible must notify the Director of the change as soon as it becomes known, electronically using the AMD Notification Template. Reasons for the change, as well as identification of applicable new dates, must be included.*
RC 17-F	*The person responsible must notify the Director, according to requirements of the Alberta Real-time Ambient Air Data Submitter's Guide, once aware of any ongoing issues preventing real-time submission of ambient air monitoring data.*

18.0 Amendments to Alberta Airshed Reports and Data

In some cases, errors or omissions in air monitoring data may be discovered following data reviews or audits. This section outlines the general processes for the resubmission of reports and data after errors or issues are discovered with the original submission.

18.1 Report Resubmission

RC 18-A	*Upon discovery of errors, omissions or other issues with reports submitted to the Director under the Reporting Chapter, the person responsible must notify the Director, electronically using the AMD Notification Template, as soon as the errors, omissions or other issues are identified.*
RC 18-B	*For the notification in RC 18-A, the person responsible must include the following information, at a minimum:* *(a) (i) identification and (ii) description of the errors, omissions or other issues identified;* *(b) an explanation of the cause of the errors, omissions or other issues that were identified; and* *(c) identification of all changes and corrections that are expected to be required in response to the errors, omissions or other issues that were identified.*
RC 18-C	*Upon discovery of errors, omissions or other issues with reports submitted to the Director under the Reporting Chapter, the person responsible must (a) prepare and (b) submit to the Director an amended report addressing the errors, omissions or other issues that were identified.*

RC 18-D	*Upon receiving formal notification from the Regulator of any errors, omissions or other issues with reports submitted to the Director under the Reporting Chapter, the person responsible must (a) prepare and (b) submit to the Director an amended report addressing the errors, omissions or other issues that were identified by the Regulator.*
RC 18-E	*For RC 18-C and RC 18-D, the person responsible must submit the amended report within thirty days of the initial discovery or receiving formal notification from the Regulator of the errors, omissions or other issues.*
RC 18-F	*For RC 18-C and RC 18-D, the person responsible must submit the amended report in the form of an amended or additional document. For clarity, a correction to a report made in the text of an email is not acceptable, as it does not meet the Regulator's record keeping requirements for submitted environmental reports.*
RC 18-G	*For RC 18-C and RC 18-D, the person responsible must include (a) unique identification indicating it is an amended report and (b) a reference to the original report that it corrects.*

For the submissions in RC 18-C and RC 18-D, Section 12.4 Electronic Submission of Reports of the Reporting Chapter applies.

18.2 Ambient Air Monitoring Data Resubmission

RC 18-H	*Upon discovery of errors, omissions or other issues with any ambient air monitoring data that have previously been submitted to Alberta's Ambient Air Quality Data Warehouse, the person responsible must notify the Director, in accordance with the procedures of Alberta's Ambient Air Quality Data Warehouse: Data Submitter's Guide, as soon as the errors, omissions or other issues are identified.*
RC 18-I	*Upon discovery of errors, omissions or other issues with any ambient air monitoring data that have previously been submitted to Alberta's Ambient Air Quality Data Warehouse, the person responsible must submit corrected data in accordance with procedures set out in Alberta's Ambient Air Quality Data Warehouse: Data Submitter's Guide.*
RC 18-J	*Upon receiving formal notification from the Regulator of any errors, omissions or other issues with any ambient air monitoring data that have previously been submitted to Alberta's Ambient Air Quality Data Warehouse, the person responsible must submit corrected data in accordance with procedures set out in Alberta's Ambient Air Quality Data Warehouse: Data Submitter's Guide.*

RC 18-K	*For RC 18-I and RC 18-J, the person responsible must submit corrected data within the timelines set out in Alberta's Ambient Air Quality Data Warehouse: Data Submitter's Guide.*
RC 18-L	*Upon discovery of errors, omissions or other issues with any real-time ambient air monitoring data that have previously been submitted in accordance with RC 13-S, RC 13-T and RC 13-U, the person responsible must follow the procedures set out in the Alberta Real-time Ambient Air Data Submitter's Guide to address the error, omission or other issue identified.*
RC 18-M	*Upon receiving formal notification from the Regulator of errors, omissions or other issues with any real-time ambient air monitoring data that have previously been submitted in accordance with RC 13-S, RC 13-T and RC 13-U, the person responsible must follow the procedures set out in the Alberta Real-time Ambient Air Data Submitter's Guide to address the error, omission or other issue identified.*

18.3 Resubmission of Other Data

RC 18-N	*Upon discovery of errors, omissions or other issues with any other data reported to the Director, not covered by Sections 18.1 or 18.2 of the Reporting Chapter, the person responsible must notify the Director, electronically using the AMD Notification Template, as soon as the errors, omissions or other issues are identified.*
RC 18-O	*For the notification in RC 18-N, the person responsible must include the following information, at a minimum:* *(a) (i) identification and (ii) description of the errors, omissions or other issues identified;* *(b) an explanation of the cause of the errors, omissions or other issues that were identified; and* *(c) identification of all changes and corrections that are expected to be required in response to the errors, omissions or other issues that were identified.*
RC 18-P	*Upon discovery of errors, omissions or other issues with any other data reported to the Director, not covered by Sections 18.1 or 18.2 of the Reporting Chapter, the person responsible must submit to the Director corrected data within thirty days of the initial discovery of the errors, omissions or other issues with the data.*
RC 18-Q	*Upon receiving formal notification from the Regulator of any errors, omissions or other issues with any other data reported to the Director, not covered by Sections 18.1 or 18.2 of the Reporting Chapter, the person responsible must submit to the Director corrected data within thirty days of receiving formal notification from the Regulator.*

19.0 References

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Any comments, questions, or suggestions regarding the content of this document may be directed to:

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Original signed by: Date: December 16, 2016
Hamid Namsechi, Director
Air Policy
Environment and Parks

Appendix A Alberta Ambient Air Quality Objective Calculation Guidelines

Alberta Ambient Air Quality Objective Calculation Guidelines

Averaging Period	Minimum Data Completeness Criteria	Averaging Specification
Hourly Averages	75%	Hourly average of continuous values
8-hour averages	75% (6 hours)	8-hour average of hourly values
24-hour Averages	75% (18 hours)	Average of hourly values
3-day Averages	75% per day 3 complete days	Rolling 3-day average of hourly values
Monthly Average*	75% per day 75% of days per monthly period	Monthly average of hourly values
Annual Averages	75% per day 75% of days per year	Annual average of hourly values

*Actual monthly average is a 1-month average which may include between 28 and 31 daily averages depending on the month.

Appendix B Schedule 1: Common Air Contaminant Substance List

Schedule 1: Common Air Contaminant Substance List

Name	CAS or NPRI Substance Number
Ammonia (total)	NA - 16
Carbon monoxide	630-08-0
Nitrogen oxides (expressed as nitrogen dioxide)	11104-93-1
Particulate Matter <= 10 Microns	NA - M09
Particulate Matter <= 2.5 Microns	NA - M10
Sulphur dioxide	7446-09-5
Total Particulate Matter	NA - M08
Volatile Organic Compounds	NA - M16

Appendix C Schedule 2: Additional Substance List

Schedule 2: Additional Substance List

Name	CAS or NPRI Substance Number
1,1,2-Trichloroethane	79-00-5
1,1,2,2 Tetrachloroethane	79-34-5
Acetaldehyde	75-07-0
Acetone	67-64-1
Acrolein	107-02-8
Acrylic acid (and its salts)	79-10-7
Acrylonitrile	107-13-1
Antimony (and its compounds)	NA - 01
Arsenic (and its compounds)	NA - 02
Benzene	71-43-2
Benzo(a)pyrene	50-32-8
1,3-Butadiene	106-99-0
Butane (all isomers)	NA - 24
Cadmium (and its compounds)	NA - 03
Carbon disulphide	75-15-0
Carbon Tetrachloride	56-23-5
Chlorine	7782-50-5
Chlorine dioxide	10049-04-4
Chlorobenzene	108-90-7
Chloroform	67-66-3
Chloromethane	74-87-3
Chromium (and its compounds)	NA - 04
Cobalt (and its compounds)	NA - 05
Copper (and its compounds)	NA - 06
Cumene	98-82-8
1,2-Dichloroethane	107-06-2
Dichloromethane	75-09-2
Dioxins and furans - total	NA - D/F
Ethyl chloroformate	541-41-3
Ethylbenzene	100-41-4
Ethylene	74-85-1
Ethylene oxide	75-21-8
Formaldehyde	50-00-0
Hydrogen fluoride	7664-39-3
Hydrogen sulphide	7783-06-4
Isopropyl alcohol	67-63-0
Lead (and its compounds)	NA - 08
Manganese (and its compounds)	NA - 09
Mercury (and its compounds)	NA - 10

Name	CAS or NPRI Substance Number
Methanol	67-56-1
Methyl tert-butyl ether	1634-04-4
3-Methylcholanthrene	56-49-5
Methylene bisphenyl diisocyanate	101–68–8
Naphthalene	91-20-3
n-Hexane	110-54-3
Nickel (and its compounds)	NA - 11
o-dichlorobenzene	95-50-1
PAHs, total unspeciated	NA - P/H
p-dichlorobenzene	106-46-7
Phenol (and its salts)	108-95-2
Phosgene	75-44-5
Propylene oxide	75-56-9
Selenium (and its compounds)	NA - 12
Styrene	100-42-5
Sulphuric acid	7664-93-9
Tetrachloroethylene	127-18-4
Toluene	108-88-3
Total reduced sulphur (expressed as hydrogen sulphide)	NA - M14
Trichloroethylene	79-01-6
1,2,4-Trimethylbenzene	95-63-6
Vanadium (and its compounds)	7440-62-2
Vinyl Chloride	75-01-4
Xylene (all isomers)	1330-20-7
Zinc (and its compounds)	NA - 14