

Guidance on Common  
Air Monitoring  
Directive Questions

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This document provides guidance on common Air Monitoring Directive questions. Please note that the document may be updated frequently; users should use the online version of this document rather than referencing a downloaded copy.

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Alberta Environment and Protected Areas, Government of Alberta

Date of publication: January 23, 2023

Guidance on Common Air Monitoring Directive Questions

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# General Air Monitoring Directive (AMD) Guidance

## Enforcement of the AMD

The AMD is enforceable under the *Environmental Protection and Enhancement Act* (EPEA) approvals, contracts and grants with airsheds, and will also be enforceable through proposed revisions to the Substance Release Regulation. Contraventions of the AMD would be handled as any other contravention, with compliance actions used at the discretion of the Regulator.

## AMD and approval conflicts

Regulations and approvals supersede the AMD if there is a direct conflict. For example, if an approval provides a date for submission of monthly reports, then that is the date the monthly report would need to be submitted.

## Codes of Practice

The AMD applies to approval holders under EPEA, not specifically to Code of Practice registrations, unless the Code of Practice references the AMD. There are currently three Codes of Practice that reference the AMD for air monitoring:

- Code of Practice for Forage Drying Facilities
- Code of Practice for Sawmill Plants
- Code of Practice for Small Incinerators

Facilities registered under one of these Codes of Practice are required to monitor/sample in accordance with the AMD.

## Continuous Emission Monitoring System (CEMS)

No changes were made to CEMS monitoring as part of the AMD revision.

## Chapter 2: Ambient Air Monitoring Program Planning

Chapter 2 of the AMD was repealed as of December 10, 2019. This chapter originally applied only to airsheds and required them to develop, submit and update an ambient air monitoring plan.

# Chapter 3: Ambient Monitoring Site Selection

Chapter 3 is applicable to approval holders and airsheds who conduct ambient air monitoring.

## Chapter 4: Monitoring

### Air monitoring requirements

AMD Chapter 4 sets out minimum requirements for how to conduct air monitoring, it does not add additional monitoring requirements. Monitoring requirements are set out in the approval, or decided on through a multi-stakeholder process for airshed monitoring. However, the AMD may require additional estimations or calculations, not specifically set out in approval requirements, in order to meet the specific reporting requirements set out by the AMD. In absence of monitoring data, a reasonable effort must be made to otherwise determine the required information.

### Minimum specifications

Chapter 4 of the AMD outlines the minimum specifications that analyzers in use must be capable of meeting. If an analyzer is operated at specifications above the minimum requirement (more stringent, greater precision/accuracy), Director authorization is not required. Director authorization is only required if an analyzer is not capable of meeting the minimum specifications.

## Chapter 5: Quality System

### Who is responsible for drafting the QAP?

The person responsible is required to have a QAP for the monitoring, reporting and maintenance related activities that they undertake, including but not limited to the processes used to hire contractors and evaluate their performance in conducting monitoring activities.

If a contractor or airshed is used, the contractor or airshed is also required to have a QAP that meets the requirements of the AMD for the monitoring, reporting and maintenance related activities they undertake on behalf of the person responsible.

While hiring a contractor to conduct monitoring and reporting activities does not remove the responsible person's requirement to have and follow a QAP, the responsible person's QAP may refer to a contractor's QAP for activities that have been contracted out.

## Quality system/QAP guide or template

A guide or template has not been developed. Facilities and airsheds have a highly variable nature; therefore, a "one size fits all" approach would not satisfy the needs of the individual facility or airshed.

## QAP requirements for facilities that do not monitor air

The requirements for the QAP still apply for facilities that do not monitor but report air data (for example, based on emissions estimates and calculations).

However, the complexity of the QAP and the efforts associated with documentation and record keeping may be lower, where appropriate, as compared to a facility that conducts various monitoring activities

## QAP availability

Any information and data, including the QAP, required for the technical station audit must be available onsite at the continuous monitoring station. Available includes electronic access. All documents and records must be produced during an audit upon request.

## Continuous Emissions Monitoring System (CEMS) Code QAP

The Quality System Chapter (Chapter 5) does not include requirements for CEMS monitoring, however any industrial operation that conducts air monitoring or reporting is required to have a QAP that meets the requirements of Chapter 5. The CEMS Code has QAP requirements that are specific to CEMS monitoring.

If an industrial operation has a CEMS QAP, it could be expanded to meet the requirements of Chapter 5 rather than creating another QAP. An industrial operation is not required to have one QAP for CEMS and a separate QAP for AMD Chapter 5. CEMS QAP requirements are very similar to the requirements in AMD Chapter 5 and there should be no conflict between the two sets of requirements.

## Information sharing

It is suggested that approval holders and airsheds share information (i.e. QAP) and learnings, when it comes to monitoring and reporting (i.e. monitoring data), and as appropriate. However, this would depend on the arrangement between the airshed and the approval holder

## Records retention

Records retention is covered in Section 3.0 of AMD Chapter 5. The format of retention is not specified. Records may include electronic, written, photographed, or otherwise recorded evidence, including data.

# Chapter 6: Ambient Data Quality

## Ambient data validation and certification

Clause DQ 4-P requires certification that ambient data validations have been complete and refers to the Reporting Chapter of the AMD. The Ambient Data Validation and Certification Form required in AMD Chapter 9 Reporting is no longer required. Rather, certification that data has been validated according to the AMD is provided electronically when the ambient data is submitted.

## Independent assessment

The independent assessment is not required to be conducted by a third party, it just needs to be a cursory review of validated ambient data by someone independent of field operations and the primary data validation.

# Chapter 7: Ambient Calibration

## Zero/span requirements

If a zero/span is missed within a 23 to 25 hour period due to equipment malfunction or another issue, and if the issue can be rectified, a zero span can be completed later on in the day. In such a case, the hour during which the zero/span is completed would need to be flagged as the calibration hour. This would be noted in the monthly report.

After one zero/span is completed in a day, any additional zero/spans would contribute to accrued downtime for maintenance. A contravention would occur if the additional zero/span accrued downtime resulted in the site not meeting the 90 per cent uptime requirement.

If in doubt on whether or not to report a potential non-compliance, it is recommended to err on the side of caution and report.

# Chapter 8: Ambient Calibration

## Calibration of in-situ calibration systems

Each in-situ calibration system must be verified directly to Environment and Protected Areas Audit Centre reference calibrators and gases on an annual basis. If the calibration system must be removed and transported, notification should be given to any applicable approval holders that the calibration system will be out for a number of days.

It is recommended that as an alternative, a spare calibration system be verified by the Environment and Protected Areas Audit Centre and used as a direct reference to the Environment and Protected Areas system. On-site records would need to be maintained to show the direct reference and confirm that the results of the comparison of each system meets Environment and Protected Areas requirements.

## Continuous ambient monitoring station site audits

Environment and Protected Areas currently audits airshed ambient stations annually and industrial ambient stations once every two to three years unless otherwise requested.

# Chapter 9: Reporting

## Application of Chapter 9

The Reporting Chapter of the AMD applies to airsheds and all Environmental Protection and Enhancement Act (EPEA) approved industrial operations. However, not all of the reporting requirements will apply to all industrial operations. For example the sections on ambient monitoring would only apply to those industrial operations that have ambient monitoring requirements in their approval.

## Code of Practice Registrations

The Reporting Chapter of the AMD does not apply to Code of Practice registrations. The three Codes of Practice that reference the AMD (Code of Practice for Forage Drying Facilities, Code of Practice for Sawmill Plants, and Code of Practice for Small Incinerators) require the AMD be adhered to for air monitoring/sampling.

Code of Practice registered facilities are able to report electronically through ETS, however they are not required to. This would include submission of manual stack survey reports and the AMD11 Manual Stack Survey and RATA Notification Form.

## Exceedances

### Who provides notification of exceedances of Ambient Air Quality Objectives or Guidelines?

The person responsible for monitoring will provide notification of exceedances of Ambient Air Quality Objectives or Guidelines.

If an airshed is conducting monitoring on behalf of an industrial operation, generally the airshed would provide notification of exceedances of Ambient Air Quality Objectives or Guidelines. However, it is up to the industrial operation and airshed to determine who will call in exceedances. This should be documented in both the industrial operation's and the airshed's QAP.

### Exceedances of Guidelines

Chapter 1 of the AMD provides a definition for Alberta Ambient Air Quality Objectives (AAAQOs) as including guidelines as well. Exceedance of both objectives and guidelines (e.g., fine particulate matter) must be reported according to Chapter 9.

### Reporting exceedances for passive data

Passive data would be compared to monthly or annual objectives, as applicable, and reported in the monthly or annual report.

### Immediate notification

According to A Guide to Release Reporting, immediate reporting means reporting a release, exceedance or contravention at the first available opportunity, as soon as the person responsible knows, or should know about the release, exceedance or contravention.

More information on how to provide immediate notification can be found in [A Guide to Release Reporting](#) or the [Reporting Spills and Releases](#) Fact Sheet.

## Electronic submission to ETS for data, forms and reports

### Air Data Management Program

Alberta Environment and Protected Areas' Air Data Management Program includes two systems for intake and storage of data:

- Electronic Transfer System (ETS) is used for data intake.
- Enterprise Data Warehouse (EDW) is used for data storage and reporting.

### When did required submission to ETS begin?

The air module of ETS became active on January 2, 2019 for approval holders. Industrial operations began reporting 2019 air reports and data to ETS. Emailed reports and data are no

longer accepted, unless specified in the [Acceptable Formats for EPEA Approval and Code of Practice Records and Submission Coordinates](#) manual.

Airsheds began submitting ambient air data and reports to ETS on November 15, 2019.

## Submissions to ETS

Training manuals on how to submit data through ETS and create an ETS user account is available through [ETS Support and Online Learning](#).

## Reports to be submitted via ETS

Some reports/documents which had been emailed are now to be submitted through ETS.

Documents to be submitted via ETS include:

- Monthly, quarterly and annual industrial air monitoring reports
- CGA report
- RATA report
- SES report
- SES and RATA combined report
- Combined monthly, quarterly and annual reports (if air component is included)
- Regulatory/Industrial Ambient Site documentation
- Industrial Ambient Proposal
- CEMS Monitoring Plan
- Special Air Report
- Notifications, including:
  - Continuous Ambient Monitoring
  - Start-up
  - Scheduled Shutdown
  - CEMS Recertification
- QAP Plan (upon request)
- Audit Reports (upon request)
- CEMS CAR report

Refer to the [Acceptable Formats for EPEA Approval and Code of Practice Records and Submission Coordinates](#) formatting manual for details on submitting these reports. The [AMD Notification Template](#) includes requirements for notifications.

## Coordinating submission by contractors

Contractors may submit data, reports and forms on behalf of an industrial operation. The contractor would require an ETS user account under the parent company's or airshed's ETS account in order to submit on their behalf.

Chapter 9 of the AMD requires that forms be submitted at the same time as the accompanying report (as applicable) and reports that accompany data (e.g., ambient calibration reports) be

submitted at the same time as the data. Industrial operations and contractors will need to coordinate submission of files to ETS.

The air data module has been updated with roles management to allow contractors to submit on behalf of industrial operations and the industrial operation to review the reports or forms before final submission. Training on this feature is available in the [ETS Air Data Administration Module Training Manual](#).

## Resubmission of reports or data

Resubmission of a report or data file is completed through the same system as the original submission. For example, ETS for reports, AMD reporting forms or ambient XML data files. A version number must be added to a resubmitted file, according to [the EPEA Approval Industrial Monitoring Documentation Submission Naming Guideline](#) (e.g., V01, V02, etc. must be added in the comments portion of the file name). You cannot resubmit a file with the same file name as the original submission.

If you discover an error, omission, or other issue with a submitted report, prepare and submit an amended report, submission of which will constitute notification. When uploaded to ETS, a comment is added during upload to explain the resubmission rationale. Comments would be added to the comments section of a resubmitted form, or the cover sheet of a report to detail the resubmission rationale.

## Ambient data submission

Any industrial operation required by an approval to conduct ambient monitoring is required to electronically report ambient air data as per the requirements in Chapter 9. This includes any ambient data from continuous, passive or intermittent monitoring (including dustfall) that the industrial operation conducts. If an airshed conducts ambient monitoring on behalf of the industrial operation, it would be the airshed that reports the ambient data.

Airsheds and industrial operations submit ambient data in XML format online through ETS (the Electronic Transfer System).

A guidance document has been created to assist with the creation of XML data for ambient data submissions. The Ambient Schema Guidance document contains descriptions of each required and optional data field, and Reference Tables provide the data codes that are used for creating XML files. These documents are available through the [ETS Support and Online Learning](#) portal.

### Submission of ambient XML files

Continuous, passive and intermittent data are required to be submitted in XML format, following the schema available through [ETS Support and Online Learning](#). Continuous, passive and intermittent data can be submitted in separate XML files, however two files with exactly the same name cannot be uploaded under one request number. If required, use comments in the file name to differentiate the files (i.e. AMB-00000000-201901-Passives and

AMB-00000000-201901-Continuous). Follow the naming conventions provided in the [EPEA Approval Industrial Monitoring Documentation Submission Naming Guideline](#).

## Unique ambient station identifiers for industrial operations

All industrial operations that have an approval condition requiring monitoring and reporting of ambient air need to email [air.reporting@gov.ab.ca](mailto:air.reporting@gov.ab.ca) to receive unique Ambient Station Identifiers for all ambient stations (continuous, intermittent, passive, dustfall). The unique Ambient Station Identifier is one of the required fields in the ambient data XML schema. Airsheds will use the same ambient station identifiers that they have been using.

## Passive data reporting timeline

AMD Chapter 9 requires that passive data be reported one year following data collection. If the approval requires monthly reporting on passive data, then the approval takes precedence. Reporting passive monitoring results one year following collection is the minimum requirement; however, if an approval requires monthly reporting of passive data, the passive data needs to be submitted monthly via XML upload to ETS and the data would be summarized in monthly reports.

## Reporting during time changes

AMD Chapter 9 does not specify time zone for air reporting, and we have had questions on how to report for the upcoming time change. This will be rectified when Chapter 9 is next updated.

Please report air data using Mountain Standard Time (MST) all through the year, with no change for Daylight Savings Time. By doing this there is no need to account for data loss or double reporting during the time changes each year.

## Are hourly values reported as hour beginning or hour ending?

This is specified in the submission guidance document or manuals, not in the AMD, as it varies by system (CEMS vs ETS). Refer to the [CEMS User Manual](#) or [Ambient Schema Guidance Document](#). For monthly or annual reports, it would be hour beginning (i.e., 0900 reported data is an average of data scanned from 0900-0959). So the hour is labelled as the hour that the data came from.

## Reporting Forms

### Why has Alberta Environment and Protected Areas moved to reporting using forms?

Excel forms have been used for emissions reporting in the past. They were chosen as a simple, low cost interim solution for collecting summary data in an extractable, digital format. XML schemas have also been provided for submission of the AMD form data in XML (eXtensible Markup Language) format. Industrial operations can choose to submit the Excel forms or XML

files. The long-term goal is to move towards more comprehensive online reporting of environmental data.

## Submitting AMD Forms

Industrial operations must submit their air data online through ETS, including submission of AMD forms, in either Excel or XML Format. The AMD forms and XML schemas for the forms can be found through [ETS Support and Online Learning](#). Naming conventions for the AMD forms are provided in the [EPEA Approval Industrial Monitoring Documentation Submission Naming Guideline](#). For XML submission of the AMD form data, naming conventions are provided in the XML schemas.

Only the most recent versions of the AMD forms can be used for data submission. Users must ensure they are using an up-to-date version of the Excel forms or XML schemas prior to submitting data, or the system will reject the data submission.

## Excel versus XML version of the Forms

Industrial operations have the option of submitting either the Excel version of AMD forms, or submitting an XML file for the emissions summary data required in AMD Chapter 9.

Alberta Environment and Protected Areas may transition to XML submission in the future. If a decision is made to discontinue use of the Excel version of the forms, industrial operations would be given adequate advance notice. However, there is no timeline for a transition away from the Excel forms at this time.

The AMD Excel Forms **cannot** be converted to XML, as the data is hierarchical, which is unsupported by Excel's export feature. The forms are protected files, with embedded internal formulas. The XML schemas need to be used with a data acquisition system to create the XML data files; the XML schemas cannot be used with the Excel forms. Do not attempt to recreate the Excel forms for conversion to XML; the data will not be accepted by the system. If an industrial operation is not able to create XML files using the schemas provided, the Excel forms would be used.

## AMD Ambient Data Validation and Certification Form

The AMD Ambient Data Validation and Certification Form is no longer required. AMD Chapter 9 will be amended to make this correction. Ambient data is certified online during submission to ETS.

## Are there any forms required for airsheds?

No. The AMD forms are only applicable to emissions reporting by approval holders. There are no AMD reporting forms that apply to airsheds.

The AMD Ambient Data Validation and Certification Form is no longer required. AMD Chapter 9 will be amended to make this correction.

## **Limitations to submission of the Excel AMD forms**

If industrial operations choose to submit the Excel forms rather than XML, the Excel forms must be submitted as .xls (Excel format) files. Forms submitted as PDF will not be accepted. The version of Excel used to populate and save the Excel form must be 2010 or later. Earlier versions of Excel will convert the AMD forms for compatibility, which would make them unacceptable for upload into the Air Data Management Program. Excel forms that have been converted will not be accepted. If Excel 2010 or later is not available to you, XML would be the option for AMD form submission.

## **What if a form or a field in a reporting form does not apply? What if summary data does not fit into the form?**

Not all reporting forms will be relevant to all industrial operations and not all fields in a given form will apply. You would not submit a form if it does not apply to your operations (e.g., you would not be required to submit an AMD CEMS Summary Form if you do not conduct CEMS monitoring).

Blank forms do not need to be submitted. Similarly, a field in a form may be left blank if it does not apply to the industrial operation. Note however, some fields in the forms are mandatory – submission will not be accepted if the mandatory fields are left blank. The [form XML schemas](#) list which fields are optional and which are mandatory.

The forms have been created from the original reporting tables that were provided in the appendix of the 1989 AMD as well as current monthly, annual and source reports submitted by industrial operations. The forms have been designed to suit all industrial operations and sectors; however, it is recognized that they may not suit all equally well. Ultimately, if key pieces of data/information cannot be inserted into the forms (e.g., special reporting), the information must still be provided in monthly/annual/source reports. The forms do not replace monthly, annual and source PDF reports. They are considered a supplement to these reports.

## **Submission of AMD reporting forms does not replace submission of monthly, annual and source sampling reports**

The reporting forms must be submitted in addition to monthly, annual and source sampling reports. The purpose of the forms is to pull data which were previously submitted as tables within monthly, annual and source sampling reports and provide this in a digitally extractable format. The forms are to be submitted at the same time as the relevant monthly, annual or source sampling report. See the instructions tab on each form for directions on how to submit the Excel form or see the XML schemas for instructions on submitting the XML file for form data.

## **Submission of monthly reporting forms when only annual reporting is required**

The approval dictates the frequency of reporting, while the AMD sets out minimum requirements for what to include in those reports. There are several clauses in the annual report requirements section of Chapter 9 (section 6.0) that require that monthly forms be submitted with the annual report if they have not already been submitted monthly. This does not mean that the forms need

to be submitted on a monthly basis, but rather it means that the monthly summary data needs to be submitted collectively with the annual report. The instructions tab in the forms explains submission of monthly forms with an annual report.

This means if you only have an annual reporting requirement you would submit 12 monthly forms with your annual report to cover each month of the year.

## Reporting “day”

The AMD reporting forms (instructions tab) had stated that “calendar day” must be reported. However, this requirement was rescinded. AMD forms will be updated over time.

Industrial facilities may report either production day or calendar day on AMD reporting forms, but must use the comments field of the reporting form to indicate what time period was used for “day”.

## Reporting percentage

When you are reporting a percentage value in an AMD Excel form, please either:

- enter the percent value (e.g., 92), or
- if you use a formula, multiply by 100 to give percentage (e.g.,  $[684/744] \times 100 = 92$ ).

Note also that you cannot include the % character.

Do not use the “Percent” button in Excel (in the Number format section of the Home tab).

When this is done, percentage is viewable in the cell, but the underlying cell is still holding the decimal place value. When the ETS system processes the data file, it grabs the underlying cell value, which in that case would be the decimal. This in turn has resulted in values being reduced by an order of 100.

Various AMD forms require that values be reported as percent. For example, linearity on the AMD4 CGA Summary form and percent availability on the AMD2 CEMS Summary form.

## Reporting continuous stack temperature or flow data

For approvals that require continuous monitoring of stack temperature or flow via CEMS, data must be reporting by Secure File Transfer Protocol (SFTP), according to the [CEMS User Manual](#). As well, a monthly summary of any CEMS data is required to be reported on the AMD2 CEMS Summary Form. This is the case even if temperature or flow is the only parameter monitored by CEMS.

If you require a unique station ID or codes for electronic reporting via SFTP, contact [cem.usercoord@gov.ab.ca](mailto:cem.usercoord@gov.ab.ca) to obtain these.

## Updates to ETS Administration Module for industrial operations

With new data validations, implemented April 7, 2021, source names and unique source identifiers entered on AMD forms must match source names in the ETS Administration Module.

If any source information that is greyed out require updates, please send along a list of updates to [air.reporting@gov.ab.ca](mailto:air.reporting@gov.ab.ca). While reviewing, keep in mind source names must be consistent with your approval.

### AMD Contravention Form – AMD1

Ambient Air Quality Objective exceedances are not approval contraventions and do not need to be included on the AMD Contravention Form. Exceedances of Objectives and Guidelines do, however, need to be immediately reported for public safety reasons and these need to be identified in monthly and annual reports.

You do not need to fill out a separate line for each hourly exceedance of a limit, if the hourly exceedances all result from the same incident, same cause, and were dealt with by the same corrective action. The form has fields for start date/time and end date/time for incidents over an extended time period.

Separate incidents do need to be reported on separate lines. For example if there is an incident related to a sulphur surge for 4 hours in the morning, then there is a power outage 2 hours later, each of those incidents would need to have a start and end time. As well if on top of hourly exceedance, another timeframe exceedance occurs (e.g., 24-hour), that would be reported separately.

### AMD CEMS Summary Form – AMD2

The AMD CEMS Summary Form (AMD2) replaced the quarterly CEMS report required in the 1998 CEMS Code. If you are required by an approval to conduct CEMS monitoring, you are required to complete and submit the AMD CEMS Summary Form on a monthly basis. If you have a monthly reporting requirement the form would be submitted along with your monthly report.

The AMD2 form has been updated and takes effect June 25, 2021. Fields have been added to capture out-of-control events which were previously reported on the AMD3 CEMS Zero/Span Summary Form. The “Mass Emissions Month Total” field was removed from the AMD2 form to eliminate duplication with emissions reporting in the AMD5 Emissions Summary Form. Therefore, total emissions monitored via CEMS must be reported on the AMD5 form going forward.

The AMD2 form updates included changes to coincide with the 2021 revised CEMS Code. This includes a field (“Was a New or Temporary Analyzer Installed”, column AK) to note when a replacement analyzer is installed. In the case of a replacement analyzer (either permanent or a temporary replacement) and two analyzers in operation during one month, the AMD2 form fields (e.g., serial number, range, etc.) are completed for the analyzer that is the predominant one for the month. So in that case, “Yes” would be chosen in column AK for a new or temporary analyzer

and the comments section of the form would be used for information on the other (less predominant) analyzer.

### **AMD CEMS Zero and Span Summary Form – AMD3**

The AMD3 CEMS Zero and Span Summary Form was repealed as of June 25, 2021. This form is no longer required and will not be accepted as of June 25, 2021.

### **Reporting multiple sources on CGA Summary Form – AMD4**

For reporting multiple sources on the CGA Summary Form (AMD4), one form can be used as long as the tests are conducted on the same day (in order to follow the form naming validation). Report the additional sources using the duplicates in the form (Parameter 1, Parameter 2, etc.). The parameter could be the same, but you would indicate a new unique source identifier.

If there are multiple leads conducting CGAs reported on one form, list all applicable names in cell 8F/G and clarify in the comments sections which person led the CGA on which source.

### **[UPDATED] Use of Emission Summary Form – AMD5**

Effective February 3, 2023, the AMD5 form is a summary of monthly or annual emissions intended to capture ALL emissions as required per approvals, including emissions from flaring.

For monthly reporting, if you are reporting flaring emissions only, you will now need to report on AMD5. If you were completing AMD6 for non-routine flaring or AMD10/12 for routine flaring, you will now use AMD5 to report monthly flare emissions (by source).

If a facility was submitting AMD 6 before Feb 3, 2023 to report non routine flaring emissions they will (after Feb 3, 2023) capture those emissions on AMD5 (by source).

If a facility was submitting AMD10 before Feb 3, 2023 and using it to capture SO<sub>2</sub> emissions from flaring, they will (after Feb 3, 2023) capture those emissions on AMD5 (by source) whether or not they continue to submit AMD10. If they continue to submit AMD10 the sulphur mass emitted will be recorded on the updated AMD10 form.

If a facility was submitting AMD12 prior to Feb 3, 2023 all SO<sub>2</sub> emissions from flare stacks and incinerators will be captured (after Feb 3, 2023) and submitted on AMD5 (By source). These facilities will also now submit AMD10 and include sulphur mass emitted from flaring and incineration or used as fuel using that form (Facility totals).

AMD5 is for reporting substances, not for non-substance parameters (such as flow or temperature). This form is not for reporting ambient data – source emissions only. The AMD5 form is for capturing a summary of mass emissions data only (e.g., daily totals, monthly totals – see AMD Chapter 9 clauses RC 5-CC and RC 5-DD). It is not used for reporting concentration or average volumetric emissions data (e.g., ppm). If a concentration-based limit is exceeded it would still be reported on the AMD1 Contravention Form and concentration-based summary data is captured on the AMD2 CEMS Summary Form.

If sulphur incineration or flaring is reported on AMD10, reporting SO<sub>2</sub> (by source) is now (as of Feb 3, 2023) required on AMD5. The emissions on AMD10 are to be measured in tonnes of sulphur for sulphur balance purposes while emissions on AMD5 will be measured in tonnes of that substance (in this case SO<sub>2</sub>). The “Mass Emissions Month Total” field has been removed from the AMD2 CEMS Summary Form (effective June 25, 2021) to eliminate duplicate reporting, therefore total emissions measured via CEMS must be reported on the AMD5 form going forward.

If required by an approval to report a facility/plant total for SO<sub>2</sub>, this will be reported on the AMD5 form.

AMD5 is also used for reporting emissions other than SO<sub>2</sub> (e.g., NO<sub>2</sub>) and for reporting annual emissions, if required by the approval.

### **Quarterly SO<sub>2</sub> emissions limit on Emissions Summary Form – AMD5**

SO<sub>2</sub> emissions for each quarter would be reported using the monthly/quarterly tabs of the AMD Emissions Summary Form. There are fields for quarterly total and quarterly average in the “Monthly-3” tab.

### **[UPDATED] Use of Flare Stack Form – AMD6**

The AMD6 Flare Stack Form is repealed as of Feb 3, 2023. This form is no longer required and will not be accepted as of Feb 3, 2023.

### **Manual Stack Survey Summary Form – AMD7**

The purpose of the Manual Stack Survey (AMD7) form is to summarize the manual stack survey report. While the manual stack survey report (PDF) will contain details on all results of the survey, the summary should only include “reportable parameters”. See section 9.1 of AMD Chapter 9 for the requirements of the Manual Stack Survey Form. Industrial operations are only required to provide the parameters that are stated in the approval as requiring a Manual Stack Survey, in the same units as the approval limit (if applicable). The form requires “Parameter Units (same as approval limits)”, so if an approval limit applies to the reportable parameter, the parameter needs to be reported in the same units as the approval limit. However, not all reportable parameters will have an associated approval limit.

### **Changes to Flow Units on RATA Summary Form - AMD9**

In the June 2021 update to the AMD9 form, a number of changes were made to the way flow is reported. These changes were made to improve consistency in reporting and align with changes made to the updated CEMS code, which takes effect January 1, 2022.

This included the removal of some units from the Parameter Units column and renaming that column to Analyzer Units, and the addition of a new Flow Reporting Units column in the Relative Accuracy section of the form for use when reporting flow. The Flow Reporting Units provides a selection of units for reporting flow that align with the updated CEMS code.

When reporting flow, neither of these unit fields may be left blank. The analyzer units should match analyzer output, whereas flow units need to correspond to the Relative Accuracy specification being compared to; either the standard flow or the alternate velocity specification. If these units do not correspond to the units you measure in, you will need to convert to one of the provided units. These conversions are usually straightforward, and collecting the data in a consistent way assists in compliance, consistency, and validation. Also note that the revised CEMS Code requires reporting either wet or dry basis, from January 1, 2022 forward.

## **Forms Required as Part of Relative Accuracy Test Audit or Manual Stack Survey – AMD7, AMD9**

As per the Air Monitoring Directive, RATA results submitted in an AMD9 RATA Summary form may be used for compliance with approval requirements for a manual stack survey. If all the requirements in AMD section RC 9-CC are met for a particular parameter, then only the AMD9 form needs to be submitted for that parameter (accompanied by a SES/RATA report) – a separate AMD7 Manual Stack Survey Summary form for the same parameter and same survey is not required.

However, if a parameter is not tested as part of the RATA, then a separate AMD7 form for just that parameter has to be submitted. For example, if a RATA is conducted for NO<sub>x</sub>, flow and temperature it would meet the SES requirements if all the correct fields are filled out on AMD9 form for those parameters. However, if a manual stack survey for SO<sub>2</sub> is also conducted for the purpose of an SES only, then submitting a separate AMD7 form would be required for the SO<sub>2</sub> results.

## **Stack Survey and RATA Notification Form – AMD11**

The Stack Survey and RATA Notification Form (AMD11) is used for providing a minimum 14-day advance notification of any manual stack survey or RATA. Submission of the AMD11 form to ETS replaces notification by email, therefore there is no longer email notification for manual stack surveys and RATAs.

The requirement to provide 14-day advance notification of a manual stack survey or RATA comes from the approval, a Code of Practice, the 1998 CEMS Code, and the AMD Reporting Chapter. The purpose of advance notification is to allow for the Regulator to attend and audit the test, and for industrial operation accountability (providing full disclosure of their plan to test). These tests are designed to provide a snapshot in time of emissions levels or CEMS performance.

If circumstances require an industrial operation to change source testing dates or the source being tested, and they are unable to provide the minimum 14-days notice to the Regulator, clauses RC 8-A and RC 8-C in AMD Chapter 9 give the Director discretion to authorize notification provided less than 14 days prior to testing, if deemed appropriate.

Advance notification is not required for CGAs. The AMD11 form is for manual stack surveys and RATAs only.

The AMD11 form does not need to be submitted with any report. It can be submitted alone, at any time.

For any rescheduled survey or RATA, a new AMD11 form is not required. Rather, the original AMD11 form is resubmitted and the only changes are: rescheduled dates populated (columns M, N), comments added (row 36), and filename updated using the amendment naming convention:

For example if the original AMD11 form is named: AMD11-00012345-2021-20210501-Stack A:

- The rescheduled form should be named: AMD11-00012345-2021-20210501-Stack A-V01
- Note the notification date on both files are the same (20210501), and this date would be populated in cell B4.

If sources were not on the original AMD11 submission, they should not be included in the revision(s) but sent in a new AMD11 submission.

## **[UPDATED] Reporting of flaring and sulphur emissions on AMD5 and AMD10 forms**

### **Guidance on using AMD5 and AMD10 for sulphur reporting:**

AMD6 and AMD12 forms are repealed as of Feb 3, 2023. These forms are no longer required and will not be accepted after of Feb 3, 2023.

All flaring emissions that were reported on AMD6 (i.e., SO<sub>2</sub>) will now be reported on AMD5 by source.

All facilities that were submitting AMD12 (Sulphur Recovery and Removal Form) will now report sulphur balance using AMD10.

AMD10 is now to be used for all routine operation of facilities with any sulphur inlet above 1 t/d and only where required in an approval (or by a Director) for facilities below 1 t/d.

Sulphur mass flared, incinerated or burned as fuel will be reported on AMD10 in tonnes of sulphur, and the SO<sub>2</sub> emissions will be reported on AMD5 (by source) as tonnes of SO<sub>2</sub>. This is not double counting as AMD5 requires emission by source, while AMD10 is for the entire facility for the purpose of showing the sulphur balance (sulphur mass).

Any additional reporting required by the approval (e.g., flaring details) that cannot be put into a form needs to be reported in the PDF report (monthly, annual).

### **Guidance for particular operations:**

#### Co-mingled non-routine flaring / more than 1 stream being flared

The AMD S-30 Report Form (AMD10) wasn't designed for multiple mixtures being sent to flare on the same day.

- On AMD10, where flaring occurs, report the average/co-mingled/representative volume/H<sub>2</sub>S % for all streams and the total sulphur tonnage.

The Monthly Report Emissions Summary Form (AMD5) was designed to capture pollutant emissions on a daily basis (rather than multiple events per day or multiple streams).

- Report one line per day by source (one per column) on AMD5 – total emissions.
- If the approval or approvals coordinator requires a further breakdown in reporting separate streams, this would need to be provided in the PDF monthly/annual report.

#### Acid gas flaring or incineration facilities

- Acid gas flare stacks (or low pressure flare stacks) typically used for routine flaring – use AMD5 (by source) and AMD10.
- Emergency flare stacks (or high pressure flare stacks) typically used for non-routine flaring (e.g., flaring the whole inlet stream) – now use AMD5 (by source) and AMD10 (where sulphur inlet is over 1 tonne or when sulphur balance reporting is required by the approval or a Director)
- Single flare stacks (or dual flare stacks) that are used for both routine and non-routine flaring should be reported in AMD5 (by source) and AMD10, accordingly as per the above form-specific bullets.
- For acid gas incinerators (used in place of flare) – treat as an incinerator and report on AMD10 using the incineration/burned as fuel column, and on AMD5 (by source) for emission purposes.
- For acid gas injection and or transfer offsite with no routine flaring, and therefore no sulphur emissions, use AMD10 to track injection. Any emergency/non-routine flaring would be reported on AMD10 and AMD5 (by source).

#### C300 facilities

These are sour gas processing plants with a sulphur inlet less than or equal to 1 t/d.

- Not required to report routine flaring and sulphur balance using AMD10 unless required by Director/approval.
- Will report SO<sub>2</sub> emissions on AMD5 (by source) for all flaring emissions and acid gas incinerator.
- Report any other required emissions (as per approval) on AMD5 by source.

#### In-situ facilities

Combustion of sulphur compounds either routinely (used as fuel in boilers or flared) or non-routinely (flared).

- Use AMD10 for routine flaring or combustion in boilers and sulphur balance for facilities with a sulphur inlet greater than 1 t/d (or where required in an approval or by a Director). Use the “incineration/burned as fuel” column to report combustion in boilers. Report SO<sub>2</sub> emissions on AMD5 by source.

- Use AMD5 for reporting all emissions, including routine flaring, incineration, and non-routine flaring.

### **[UPDATED] Use of S-30 Report Form – AMD10**

- Beginning February 3, 2023, the S-30 Report Form (AMD10) is required to be submitted by:
    - Industrial operations with more than 1 t/d sulphur inlet.
    - Industrial operations who have a requirement in their approval to recover or remove sulphur.
    - Industrial operations required to complete an S-30 by the Director.
  - Not all columns will be applicable to all facilities.
  - Validations are implemented to check if sulphur balance roughly adds up.
    - Sulphur Production + Incineration/Burned as Fuel + Flared Gas Sulphur Emission + Injected/Transferred/Other Sulphur Mass = Total Sulphur Out +/- 1%
    - Actual Daily Sulphur Inlet = Total Sulphur Out +/- 10%
- Failing these validations will warn the submitter that there may be an error but not cause the submission to be rejected.
- Other field validations will be brought up to the level of other AMD forms. For example
    - Approval IDs will be checked as valid.
    - Submitters will be checked to ensure they have the rights to submit for a given approval.
    - Company name will be checked against approval ID.
    - Email address format check
    - File naming convention checks
    - Number of days in a month will be validated

### **[UPDATED] Use of Sulphur Recovery and Removal Form – AMD12**

The AMD12 Sulphur Recovery and Removal Form is repealed as of Feb 3, 2023. This form is no longer required and will not be accepted after of Feb 3, 2023.

Any discussion of SRU uptime/bypass will need to be included in monthly reports.

## **Monitoring not required to be reported**

Monitoring conducted for the person responsible's own purposes (i.e., not required by the Regulator) does not need to be reported under the AMD. However, if for any reason, monitoring data collected for the person responsible's own purposes is being submitted or going to be submitted to the Regulator, it must meet all AMD requirements (for monitoring, reporting and equipment maintenance) in order for the Regulator to accept the data.

## Reporting incomplete source tests

Information on incomplete source tests (manual stack surveys, RATAs, CGAs) must be submitted (see section 9.0 of AMD Chapter 9). This includes providing a brief overview of any incomplete source test as part of monthly/annual reports, submitting results of the incomplete source test in a source testing report and completing the relevant AMD reporting form for source testing (AMD4 CGA Summary Form, AMD7 Manual Stack Survey Form or AMD9 RATA Summary Form). These forms have been updated to accommodate reporting of aborted/incomplete CGAs, manual stack surveys and RATAs and take effect June 25, 2021). Therefore, from June 25, 2021 going forward, results must be included on the AMD reporting form for any incomplete CGA, manual stack surveys or RATA. A single reporting form can be used for reporting both an incomplete source test and a follow-up completed test, as long as the tests are conducted on the same day (this is due to the form naming validation).

## Reporting production or throughput prior to source tests or audits

AMD Chapter 9 provides varying terminology for reporting production rate or throughput for the time period prior to conducting a Manual Stack Survey, RATA or CGA (e.g., previous month, previous 30 days, previous 720 hours). The 1998 CEMS Code stated “previous month”, which had been interpreted as either the previous calendar month or the previous 30 days. The revised 2021 CEMS Code clarifies that it is the average production rate for the previous 30 days that is required to be reported. AMD Chapter 9 will be updated in the future to coincide. The intent is to get a snapshot of the production rate leading up to the test. The AMD9 RATA Summary Form clearly asks for “Average Production Rate for Previous 30 days”.

## Continuous Emissions Monitoring System (CEMS)

CEMS monitoring is still dictated by the approval and the CEMS Code. The 1998 CEMS Code has been revised. The 2021 revised CEMS Code is now in effect and is available from the [CEMS webpage](#).

### **CEMS summary reporting**

Chapter 9 of the AMD now requires monthly reporting on CEMS (in place of quarterly reporting) via the AMD CEMS Summary Form. Manual Stack Survey, Cylinder Gas Audit (CGA) and Relative Accuracy Test Audit (RATA) reporting requirements are also now within AMD Chapter 9.

A monthly CEMS summary is now provided using the CEMS Summary Form (AMD2) which is submitted via ETS. The CEMS Summary Form replaces the CEMS quarterly reports formerly required by the 1998 CEMS Code.

## Submission of CEMS data

AMD Chapter 9 requires industrial operations to electronically submit all CEMS data collected by any approval-required CEMS. Submission of CEMS hourly data has not changed. CEMS data will continue to be submitted via the SFTP portal.

## Annual Emissions Inventory Reports

The AMD Reporting Chapter requires that, as of 2019, all EPEA approved industrial operations annually carry out an emissions inventory. If the reporting thresholds set out in the AMD Reporting Chapter are met, an EPEA approved industrial operation is also required to prepare and submit an Annual Emissions Inventory Report.

### Sources covered in an Annual Emissions Inventory Report

All release points and non-point sources (and all units, processes, equipment and control technologies/equipment related to the release points and non-point sources) are required to be included in the Annual Emissions Inventory and reported via the Annual Emissions Inventory Report Form.

### Reported substances

If any of the reporting thresholds are met by an EPEA approved industrial operation, then air emissions of the Schedule 1 substances are required to be reported, along with the air emissions of any applicable Schedule 2 substances.

If any of the reporting thresholds have been met, then air emissions of all Schedule 1 substances must be reported regardless of whether the individual substance's reporting threshold has been met. However, if the industrial operation does not actually emit one of the individual Schedule 1 substances (e.g., sulphur dioxide or ammonia), the industrial operation can identify the Schedule 1 substance as negligible and exclude it from reporting.

More information on negligible Schedule 1 substances is provided in the [Annual Emissions Inventory Report Standard and Guidance Document](#).

Reporting of Schedule 2 substances is not dependent on the Schedule 1 reporting thresholds. If an industrial facility is required to submit an Annual Emissions Inventory Report, air emissions of all non-negligible Schedule 1 substances would be reported. If any of the Schedule 2 substances are applicable to the industrial facility, then the specific applicable Schedule 2 substances would also be included in the Annual Emissions Inventory Report. An individual industrial facility could have zero or several applicable Schedule 2 substances that must be reported.

### Applicable Schedule 2 substances

As stated in the AMD Reporting Chapter, applicable Schedule 2 substances are those substances (listed in Schedule 2), 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 have otherwise been quantified by the industrial operation for the same calendar year;
- 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.

## **Annual actual, normal and maximum air emission rates**

“Annual actual air emissions” means the actual, measured or estimated quantity of a substance being emitted to the atmosphere from a source during a specific calendar year. The terminology of “annual actual” does not necessarily mean that the value has been measured. An estimated value can be, and is often, used to determine the annual actual air emissions. Annual actual air emissions are simply meant to capture a representative emission rate for the specific inventory year for the industrial operation (for the specific source and substance). Annual actual air emissions are to be reported in tonnes/year.

“Normal air emissions” means the rate at which a substance is emitted to the atmosphere from a source under normal operating conditions. Normal air emissions are intended to capture the usual, average or typical air emission rate for the specific source and substance, as determined during normal (usual, average or typical) operating conditions. Normal air emissions are only required for release points and are to be reported in tonnes/day.

“Maximum air emissions” means the maximum rate at which a substance is emitted to the atmosphere from a source, factoring in emission limits, equipment specifications, or other relevant information. The maximum emission rate is to be determined using the applicable emission and operating limits set out in the industrial operation’s EPEA approval terms and conditions. Maximum air emissions are intended to capture the maximum air emission rate allowed (but not upset or emergency limits) or (when no limit is specified) the maximum emission rate the source could potentially emit (based on normal maximum design or emission capability). Maximum air emissions are only required for release points and are to be reported in kilograms/hour.

## **Emissions inventory submission documents**

Annual Emissions Inventory Reports include three components:

- The completed Annual Emissions Inventory Report Form
- The Quantification Methodology Document describing the inventory development and emission quantifications
- The signed and dated Statement of Certification

The Annual Emission Inventory Report Form and Statement of Certification are provided on the [AMD resources](#) web page along with other supporting documents.

## Annual Emissions Inventory Report due date

As specified in the AMD Reporting Chapter, completed Annual Emissions Inventory Reports are required to be submitted by September 30th of the reporting year (the year following the inventory year).

## Inventory year versus reporting year

The “inventory year” is the year to which the Annual Emissions Inventory is to cover. The first inventory year will cover the January 1 to December 31, 2018 calendar year and would need to be completed by September 30, 2019. The next annual inventory would cover the January 1 to December 31, 2019 calendar year and would need to be completed by September 30, 2020. Therefore, 2018 will be the first inventory year for the first Annual Emissions Inventory Report.

The “reporting year” is the year during which the Annual Emissions Inventory Report is being prepared and will be submitted (by September 30). The reporting year is the year following the inventory year. The person responsible will not typically prepare the Annual Emissions Inventory Report until after January 1 of the reporting year, as it will need to cover all of the inventory year. The first Annual Emissions Inventory Report will cover the 2018 inventory year and would therefore be prepared sometime after January 1, 2019. The first reporting year would therefore be 2019.

## Emissions inventory results

Alberta Annual Emissions Inventory Reporting Program results (report and datasets) are available at:

- <https://open.alberta.ca/publications/results-of-aier-program-by-inventory-year>
- <https://open.alberta.ca/opendata/aeirairemissionrates>

## Emissions inventory contact

Questions on annual emissions inventory reporting can be sent to:

- [emissions.inventory@gov.ab.ca](mailto:emissions.inventory@gov.ab.ca)

Frequently asked questions on annual emissions inventory reporting are covered in the [Annual Emissions Inventory Report Standard and Guidance Document](#).