Ambient Air Quality Data Submitter's Guide

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1. About This Guide

This Document is the Ambient Air Quality Data Submitter's Guide (also referred to as the "submitters' guide" in the XML Schema for Ambient Data Submission). This guide is intended to assist users with submitting ambient data and using the administration application to maintain station metadata. It also addresses some expectations placed on submitters when submitting data and maintaining information about their stations.

Notes in Red Apply only to Area Operators

Notes in Green Apply only to Industrial Submitters

The new Air Data System refers to Area Operators. Airsheds are included as one type of Area Operator but there may be other Area Operators as well. For this reason the terms Airshed and Area Operator may be interspersed throughout this document.

2. Data Submission

This section is intended to assist users with submitting ambient data. It is not intended to prescribe what data must be submitted. Submission requirements are determined through the Air Monitoring Directive (AMD) or through facility EPEA approvals.

2.1. Training

Training manuals for Data Submitters have been created that cover the submission of air data (including ambient data) to the Electronic Transfer System (ETS). They are available on the ETS Air Reporting Support webpage (https://www.alberta.ca/ets-air-reporting-support) under the "Training Manuals" section. The manuals cover:

- Account Setup and who to contact initially
- How to login to ETS
- Who to contact for support
- How to navigate the ETS submission website

- ETS Roles
- ET Role Management
- How to submit files
- How to save work to return to later
- How to check on the status of submissions
- How to handle errors that may occur during submission
- How to cancel submissions

2.2. Account Creation

Site Administrator

For detailed information on the setup of Site Administrator Accounts please see the information on Account Setup available at: https://www.alberta.ca/electronic-transfer-system.

Accounts in ETS are based on company. There can be only one Site Administrator and one Backup Site Administrator per company. In the case of Area Operators, that were not previously registered as companies, business identities have been created for this purpose and accounts have been created.

Site Administrator accounts are created by the ETS team and require submitting an ETS Account Setup/Change Form as well as an Authorization Letter submitted to Crown Land Data. These forms are available under ETS Apply for Access webpage at https://www.alberta.ca/electronic-transfer-system#jumplinks-1.

The primary purpose of the Site Administrator account is to create sub-accounts. While the Site Administrator can take all actions, it is recommended that this account only be used to create sub-accounts and to designate Coordinator accounts.

Sub-Accounts

The Site Administrator is the only account that can create new accounts within the ETS system and may designate them the Coordinator Role. Any account given the Coordinator role can then assign the other roles to other accounts under that company and Site Administrator.

2.3. Roles

Site-Administrator

The Site Administrator account is the highest level of account used by data providers and is assigned at the company level. This account can be used to take any possible actions within the ETS Air Data Site that the company has access to, although (as mentioned above) it is recommended that this account be used in a limited fashion; only being used to create other accounts and to assign the Coordinator role. **The Site Administrator account is the only account that can be used to create additional user accounts.**

Roles for Industry Accounts

Roles	Role Assignment by Approval	Update Source and Station info (includes assigning ambient VVC, equipment)	See Stations (read-only)	Submit (create a submission)	Review (sign off on a submission)	View Submissions (work in progress)
Coordinator	Yes	No	Yes	No	No	Yes
Station Manager	No	Yes	Yes	No	No	No
Reviewer	No	No	Yes	No	Yes	Yes
Submitter	No	No	Yes	Yes	No	Yes
Viewer	No	No	Yes	No	No	Yes

*Note: An Industry Submitter can only view submissions that they have submitted.

Roles for Area Operator Accounts

Roles	Role Assignment by Station	Create Station	Update Ambient Station info (includes assigning VVC, equipment)	See Stations (read-only)	Submit (create a submission)	Review (sign off on a submission)	View Submissions (work in progress)
Coordinator	Yes	Yes	No	Yes	No	No	Yes
Station Manager	No	No	Yes	Yes	No	No	No
Reviewer	No	No	No	Yes	No	Yes	Yes
Submitter	No	No	No	Yes	Yes	No	Yes
Viewer	No	No	No	Yes	No	No	Yes

Coordinator

Coordinators are the highest level of account that is typically used on a day to day basis once all needed accounts are created by a Site Administrator.

The Coordinator has the ability to assign the Station Manager, Reviewer, Submitter, and Viewer roles.

Industrial Accounts: Roles are assigned on an approval by approval basis.

Area Operator Accounts: Roles can be assigned on a station by station basis. Area Operator Coordinators can create new stations.

A Coordinator may assign these roles to themselves if they wish. In this way a Coordinator can also act as a Station Manager, Reviewer, Submitter, and/or Viewer.

Station Manager

Station Managers have the ability to maintain metadata about the stations.

Industrial Accounts: Station Managers can also update Source information.

Reviewer

The Reviewer role has the ability to "sign off" on a data submission sending it to the system for processing for the Approvals or Stations they are authorized for.

Having dedicated reviewer accounts is optional. If an account has both the Submitter and Reviewer roles, they are able to submit data and "sign off" in one step rather than having that submission go through two accounts.

Submitter

The Submitter role has the ability to upload data files to ETS for submission.

Viewer

The Viewer role has the ability to see all submitted files but in a read-only fashion. They will have no ability to make changes to submissions or station information.

The Viewer role is entirely optional.

3. XML

3.1. Schema

The XML Schema is available on the ETS Air Reporting Support webpage for air reporting at https://www.alberta.ca/ets-air-reporting-support. The .xsd file is embedded within the word document.

3.2. XML Schema Guidance

There may appear to be differences between this section of the guide and the ambient XML schema itself. Specifically, some attributes or elements may use=”optional” or minOccurs=”0” in the schema. This DOES NOT mean that submitters do not have to submit this information, it only means that an XML file will not fail the schema checks if this information is missing. These fields may be required in certain scenarios and this document is intended to provide guidance. It is up to the submitter to ensure that their XML file is complete and meets the requirements of the AMD and their EPEA approval.

The guidance section on XML Fields makes reference to Data Tables for codes required by the schema. These reference tables are included in the Excel document “Reference Tables” found on the ETS Air Reporting Support webpage (https://www.alberta.ca/ets-air-reporting-support)

Reference Links

- XML Overview
- Schema Overview XML Fields

For any field that requires the use of the reference tables, the tables are available on the ETS Air Reporting Support webpage (https://www.alberta.ca/ets-air-reporting-support)

XML Schema Fields

Field	Description	Format	When to Use
Data	This Is the container element for all of the data		Always
schemaVersion	This attribute is the schema version of the XML being submitted	This must be provided in a single decimal place number. For all Schema version 2.0 submissions this will be <Data schemaVersion=”2.0” >	Always. This lets the system know that the correct schema version is being submitted.
General Comments	This element is used to provide a comment about the entire data set	Text (1500 character maximum) This will be rejected by XML validation if more than 1500 characters are used.	When there has been an event that may have affected large portions of the data.
Interval	An element containing the start and end time attributes for each measurement.		Always. Every measurement requires a start and end point in time.
Start	This attribute identifies the start date and time of the period for which a measurement was taken.	dateTime YYYY-MM-DDThh:mm:ss.ttt	Always. Every measurement requires a start point in time.

Field	Description	Format	When to Use
End	This attribute identifies the end date and time of the period for which a measurement was taken.	dateTime YYYY-MM-DDThh:mm:ss.ttt These should not end at the start of the next full hour. They should end before the next hour so there is no overlap. Errors may be caused if there is overlap. Typically this means that the Interval End will be at HH:59:59.	Always. Every measurement requires an end point in time.
Station	This element is the location where ambient air was captured for analysis. In the case of continuous monitoring, it is also where the analyzers are located. Each station is assigned a unique ID.		Always. Measurements must be associated with a station or there is no way of knowing where data was collected.

Field	Description	Format	When to Use
ID	This attribute identifies the unique identification number created by the department which is assigned to the station. For industrial stations these are assigned by air.reporting@gov.ab.ca, For existing area operator stations these are the old station IDs from the CASA Data Warehouse. New area operator stations will be assigned IDs through the administration application going forward **For Area Operator stations that are co-located but were previously reported as multiple stations based on collection type, these should now be reported as the same station. In most cases this will be the continuous station.**	Text For industrial stations this is the EPEA approval number for industry submissions which must be front-padded with zeros with the collection type and station number. For example: 00000112-C-1 For area operator stations this is a 5 digit integer with leading zeroes. This will be rejected by XML validation if more than 50 characters are used.	Always. This value identifies at which Station a measurement was taken.
Longitude	This attribute identifies the location (Longitudes) of a mobile station only (e.g., a MAML or moving platform such as a drone, aircraft, or ground vehicle that takes readings while in motion).	Decimal degrees A minimum of 5 decimal places using the WGS 84 datum.	This is only used for mobile stations (those that are expected to move regularly as part of the monitoring).
Latitude	This attribute identifies the location (Latitude) of a mobile station.only (e.g., a MAML or moving platform such as a drone, aircraft, or ground vehicle that takes readings while in motion).	Decimal degrees A minimum of 5 decimal places using the WGS 84 datum.	This is only used for mobile stations (those that are expected to move regularly as part of the monitoring).

Field	Description	Format	When to Use
Elevation	This attribute identifies the location (Elevation) of mobile station only. (e.g., a MAML or moving platform such as a drone, aircraft, or ground vehicle that takes readings while in motion).	Integer Whole meters above sea level.	This is only used for mobile stations (those that are expected to move regularly as part of the monitoring).and is only required when the station is not at ground level (IE drones, aircraft).
Program Code	This element specifies the purpose of the monitoring.	Text Code provided by the department In the Reference Tables. This code will look like "APC##" an example is "APC7" This will be rejected by XML validation if more than 50 characters are used.	Always. The Program code is required for all Measurements.
Project ID	This element is used to contain an ID used to identify special projects. Typically these are scientific studies or extra monitoring required on an as needed or temporary basis due to specific concerns.	Integer This code is preassigned by the department and would be included in the reference tables. As of this date there are no special project codes and they will be created as needed. This will be rejected by XML validation if more than 50 characters are used.	This is required for all measurements where the monitoring is part of a special project.

Field	Description	Format	When to Use
Approval ID	This element contains the EPEA approval number for industry submissions which must be front-padded with zeros. The Approval excludes the renewal sequence and amendment sequence numbers. IE. for approval 00000112-01-01, the Approval ID would be the root approval front-padded with zeros: 00000112	8 digit number which must be front-padded with zeroes.	This is required for every measurement when data is being submitted for a facility with an approval. Where data is collected by an airshed and an approval requires participation in said airshed, this field is NOT required, as data will be submitted by the airshed.
Contravention Number	This element is used to contain a number provided by the Alberta Environmental and Dangerous Goods Emergencies (EDGE) response centre when reported the data is in exceedance.	Text This will be provided by the ERC when an exceedance is reported. This will be rejected by XML validation if more than 50 characters are used.	This is required for any measurements where an approval or Ambient Air Quality Objective or Guideline are exceeded.
Valid Variable Combination	This is the element that contains the actual measured value as well as the VVC code that identifies which parameter was measured and which monitoring collection type, time code, method, and unit were used.		Always. This element contains the actual measured value and which pollutant or environmental state it is measuring.

Field	Description	Format	When to Use
VvcCode	This attribute is a code that designates a Unique Combination of Parameter, Method, Unit, Collection Type and Time Code (refer to the reference tables)	Text. Format will be “VVC####” Examples might be VVC12 or VVC1026 This will be rejected by XML validation if more than 50 characters are used.	Always. This code explains what was monitored and how it was measured.
Value	This attribute is the measured value of the VVC in question (pollutant or other environmental state).	Numeric with as many decimal places as needed to match analyzer or laboratory precision. Measured to the precision of the analyzer. Any characters that are not numbers or the decimal point (.) will be rejected by XML validation.	This is required when a value is available. It will only be allowed to be missing when there is a flag explaining why the value is missing. If data is missing the “Value” attribute should not be included; a blank or NULL value will fail validation. A flag DOES NOT automatically mean the value should be missing. Many flags still allow for measurement values.
Sample	This element contains information about ambient air samples that are collected and analyzed using laboratory methods.		This is required any time a VVC is used that is not using the “continuous” collection type. Any sample that would normally be analyzed using laboratory methods requires this element even if the sample was never analyzed.

Field	Description	Format	When to Use
Sample Reference	This attribute is the Reference number used by the lab to identify each sample. It should also be provided in the Certificate of Analysis lab reports. These should be unique to each sample (never repeat) at each laboratory.	Text Format is up to the laboratory but it must be unique among sampled from that lab. This will be rejected if a string is empty or contains only whitespace	This is required any time a sample is analyzed using laboratory methods.
Date Analyzed	This attribute is the date the sample was analyzed by the lab; this can differ for various parameters for one sample.	Text (date) YYYY-MM-DD	This is required any time a sample is analyzed using laboratory methods.
LabId	This attribute is the Code of laboratory facilities identifying which laboratory the sample was analyzed at.	Text Code provided by the department in the Reference Tables. This code will look like “AL##” examples might be “AL9” or “AL13” This will be rejected if a string is empty or contains only whitespace	This is required any time a sample is analyzed using laboratory methods.
Lab Accredited	This attribute is used to identify if the sample was analyzed in a laboratory accredited to ISO/IEC 17025 for the specific parameter analyzed?	True or False	This is required any time a sample is analyzed using laboratory methods.

Field	Description	Format	When to Use
Method Detection Limit	This attribute identifies the minimum level that the analysis method can accurately measure for the given parameter—must be reported in the same unit as the parameter	Numeric with as many decimal places as needed to communicate the MDL. Any characters that are not numbers or the decimal point (.) will be rejected by XML validation.	This is required any time a sample is analyzed using laboratory methods.
Volume	This attribute is the volume of the sample collected	Numeric with decimal places as required to convey the precision of the volume measurement. Any characters that are not numbers or the decimal point (.) will be rejected by XML validation.	This is required when a measured volume of air is captured or passed through a filter for laboratory analysis. Typically this would be for canister, bag or filter samples.
Volume Unit	This attribute is the unit used to measure the volume of the sample.	Code provided by the department in the Reference Tables. This code will look like “AU##” an example is “AU2”	This is only required when a sample volume is reported. This means it is used when a measured volume of air is captured for analysis. Typically this would be for canister, bag or filter samples.

Field	Description	Format	When to Use
Period Duration	This attribute is the sample collection time for lab samples that have active pumping or for canister samples with flow controllers.	Text (time) hh:mm:ss Maximum duration allowed is 23:59:59	This is required when a sample is collected using a pump. This may include collection types of Canister, Bag, Sorbent tubes, Partisol, Dichot, Small Filter, Hi-Vol etc. It should also be used for canisters with flow controllers. i.e. For 24 hour period duration, enter 23:59:59 In the rare case that a sample is collected for over 24hrs this field can be left blank and comments to be provided against the measurement.
Date Shipped	This attribute is the date the sample was shipped to the lab for analysis.	Text (date) YYYY-MM-DD	This is required if the sample is shipped to a laboratory for analysis. NOT required if the laboratory is on-site.
Date Received	This attribute is the date the sample was received by the lab.	Text (date) YYYY-MM-DD	This is required if the sample is shipped to a laboratory for analysis. It is NOT required if the laboratory is onsite.

Field	Description	Format	When to Use
Gauge Depth	This attribute is the depth of the sample gauge used for precipitation measurements.	Numeric with decimal places to the precision of the gauge. Units in mm Any characters that are not numbers or the decimal point (.) will be rejected by XML validation.	This is required when using a sample gauge for precipitation measurements.
Bucket Diameter	This attribute is the diameter of the catch bucket used for precipitation measurements.	Numeric with decimal places to the precision of the bucket. Units in mm Any characters that are not numbers or the decimal point (.) will be rejected by XML validation.	This is required when using a catch bucket for precipitation measurements.
Flags	This element contains codes that describe the quality of the data or explain why data is not available.	Comma Separated Text containing all applicable flags. Flags must be a code chosen from the flag tables provided by the department. This will be rejected by XML validation if more than 250 characters are used.	These are required any time one or more flags from the provided list is applicable to the data, and any time data is not available to explain why it is not available.

Field	Description	Format	When to Use
Comments	This element contains comments on a single measurement.	Text (1500 character maximum) This will be rejected by XML validation if more than 1500 characters are used.	This is used when an explanation is needed for a reading that might be considered abnormal, or to explain resubmission of data.

4. Submission Expectations

4.1. Expected Units

In most cases the unit of measure for data submission can be chosen from the VVC list as the data provider sees fit.

Industrial Submitters: For Parameters that have Ambient Air Quality Objectives the unit used in the chosen VVC must be the same unit as the objective.

4.2. Time Zone

All times reported in submissions are expected to be in Mountain Standard Time (UTC -7).

4.3. Program Codes

The list of Program Codes and definitions are available on the ETS Air Reporting Support webpage in the Reference Tables document, available at https://www.alberta.ca/ets-air-reporting-support under the Ambient XML Schema section.

4.4. Time Codes

When choosing VVCs a Time Code is part of the choice. These are the up to date time code choices (as per this version of the submitter's guide) with clearer definitions of when they should be used.

Historical Time Code	Name	Typical Duration	Typical Frequency
1	Hourly	1 clock hour	1 clock hour
7	24 Hours	24 clock hours	24 clock hours
8	Monthly (Calendar) / 30 Days	30 calendar days or 1 calendar month	30 calendar days or 1 calendar month
A	Weekly (Calendar)	24 clock hours	1 calendar week
D	5 Minute Avg.	5 clock minutes	5 clock minutes
E	NAPS Schedule 3 Day	24 clock hours	3 calendar days
G	NAPS Schedule 6 Day	24 clock hours	6 calendar days
I	Instantaneous	under 1 clock minute	undefined frequency

4.5. Flags

Definitions of flags are available on the ETS Air Reporting Support webpage in the Reference Tables document, available at https://www.alberta.ca/ets-air-reporting-support under the Ambient XML Schema section.

Flags are to be used to explain abnormalities in the data as well as to document when required actions take place.

Examples:

- The S (daily span) and C (monthly calibration) flags are expected once per day and once per month respectively for continuous data. If they are not found in a submission, a validation will warn the submitter that they were not found.
- If a reading is missing a value then a flag that explains why is expected. Failure to provide a flag explaining missing data will result in a submission being rejected.

Certain flags also require a comment to be included with the measurement to provide more detailed information on what happened and why the data is missing or abnormal. When this is required for a flag it will be listed in the Flag Description column of the reference table.

If a facility conducts additional monitoring that is not a requirement of the EPEA Approval, the data needs to be flagged with AM (Reported data is submitted by industry but not required as part of their approval)

4.6. Discovery of Errors

Upon discovery of errors in submitted data, omission of data that should have been submitted, data submitted with the incorrect flags, or other issues with data that was submitted, the data, and any corresponding reports must be resubmitted. Resubmission of data or reports is described in the AMD Notification Template, available from the AMD webpage: https://www.alberta.ca/amd-resources.aspx. Notification of resubmission is no longer required by email.

Each resubmission needs to be marked as a version V01 (for first resubmission), V02 (for second resubmission), etc. This is included in the EPEA Approval Industrial Monitoring Documentation Submission Naming Guideline.

4.7. Resubmission

Resubmission of data follows the same process as the original submission **but with a change in the file name indicating that it is an amendment.**

For the purposes of ambient XML submission, this means adding a version number in the filename comments section.

For example:

- Original ambient data submission (xml): AMB-00000112-201901.xml
- Amended ambient data submission (xml): AMB-00000112-201901-**v01.xml**
- Second amended ambient data submission (xml): AMB-00000112-201901-**v02.xml**

The amended version will not replace the original submission; both (all) versions will be stored in the data system. For external reporting, only the most up-to-date version of the data will be reported, however all submission versions are saved.

The comments section of the XML data file being resubmitted must specify:

- Identification and description of the errors, omissions or other issues in the data;
- An explanation of the errors, omissions or other issues that were identified in the data; and
- Identification of all changes and corrections that were made in response to the errors, omissions or other issues that were identified in the data.

The process for resubmission upon notification from the regulator is the same as above.

4.8. Timelines

Data Submission timelines are generally established in the Air Monitoring Directive (Chapter 9) for airsheds and EPEA Approval for industry. In most cases, ambient data from continuous monitoring is required by the end of the month following the month in which the data was collected. In most cases, ambient data collected from passive, intermittent or static samplers must be submitted within one year of data collection. Note that approval holders must follow the timelines specified in the approval.

When errors are found in data that require correction and resubmission, the data must be submitted within 30 days of discovery of the issue by the submitter or notification of the issue by the Regulator.

4.9. Data Completeness/Operational Time for Continuous Ambient Data

Industrial Submitters: For continuous ambient data submitted monthly an Operational Time datapoint is required to be included in the file for each continuous parameter.

This requirement is for industrial submitters only. For each continuous parameter submitted in a monthly ambient data submission a single data point is required to be included that shows the percentage of the of analyzer operational time (as per Chapter 6 of the AMD). The unit for this is percent and there are dedicated VVCs for this purpose with the same parameter, but a method of operational time (uptime).

All % operational times should be now reported within the xml data file using the correct VVC codes. It needs to be reported for each continuous parameter once per month. For example if a station only monitors NO2 it will have the hourly data reported for NO2 (VVC37) for each hour plus the % operational uptime (Continuous completeness VVC) one record for the month:

```
-<Measurement>
        <Interval Start="2019-04-01T00:00:00" End="2019-04-30T23:59:00" />
        <Station ID="0000XXXX-C-1" />
        <ProgramCode>APC1</ProgramCode>
        <ApprovalID>0000XXXX</ApprovalID>
        <ValidVariableCombination VvcCode="VVC1270" Value="93.4" />
</Measurement>
```

5. Validations

Validations are tests performed by the Air Data System on files that are submitted. The validations can be split into three general levels:

- Primary validation
- Data validation (Errors)
- Data validation (Warnings)

5.1. Primary Validation (ETS Validations)

Primary validation is performed right away upon submission and should occur very quickly. No checks are done at this stage on the actual data.

The following items are validated as part of this stage and will return errors and failed submissions if they are not done correctly:

- Not selecting a company name when submitting
- Attempting to submit without uploading any files
- Attempting to submit the wrong file type. (Ambient data must be XML, most reports must be PDF, and AMD forms must be XLSX or XML)
- File Names must be valid (and follow the naming convention).
- File name must not have already been uploaded. (See re-submission 4.7)
- Corrupted file check.
- Area Operator user authorization (Checks if the user has the roles assigned to them that would allow them to submit for that station). This also checks if the station is real.
- If Area Operator acronyms are valid.
- Industrial user authorization (Checks if the user has the roles assigned to them that would allow them to submit for that approval). This also checks that an approval is real.
- XML schema adherence. (This verifies that the schema was followed, the expected fields, elements, and attributes are included and that the datatypes submitted align with what is expected.)

5.2. Data Validation (Errors)

These validations take place within the Enterprise Data Warehouse and will require some processing time to complete.

The following items are validated as part of this stage and will result in errors and failed submissions if the validation is not met:

- Referential Integrity (Checking against reference tables and metadata)
    - Are approvals valid and still active?
    - Are stations valid and still active?
    - Do station names line up with the approval?
    - Are flags real?
    - Are VVCs valid? (in the reference tables)

- Are labs valid? (In the reference tables)
- Are Program Codes valid (in the reference tables)
- Is the Project ID valid (If applicable)

- Measurement Validations
  - Data submitted for VVCs using the continuous collection type must not have a <SAMPLE> element.
  - Data submitted for VVCs using the continuous collection type must have the correct number of readings for the month. For a 30-day month this is 720 hours. Having fewer than this or more than this will both cause an error. In the case where an instrument does not run for the entire month measurements must be submitted with no value and a flag indicating that.
  - Proper use of flags. (Flag use is in the Reference Tables)
    - Some flags are collection type specific
    - Some flags must not have data values
    - Some flags must have data values
    - Some flags cannot co-exist
  - Minimum and maximum data values (is the value possible?)
    - Most parameters cannot be below zero
    - Wind direction cannot be greater than 360 degrees
  - Duplicates?
    - If the same VVC exists at the same station with the same time stamp this must be flagged as a duplicate with the DUP flag to indicate that it is being measured twice with the same VVC.
  - Does the file name match the data in the file?
    - Approval numbers
    - Stations
    - Dates

5.3. Data Validation (Warnings)

These validations take place within the Enterprise Data Warehouse and will require some processing time to complete.

Validation at this stage will result in warnings if the validation step is not met. This is intended to warn the submitter of potential issues but does not necessarily indicate that something is wrong with the submission. **These are NOT a compliance check**. If a warning occurs the submitter is able to continue the submission after acknowledging the warning. On the other hand, if a warning does indicate an issue with the submission this gives the submitter the opportunity to correct the issues before continuing with the submission.

- Measurement Validations
  - Resubmission
  - Percent Valid Data. This checks if 90% or more of continuous readings have values. This is not equivalent to completeness or operational uptime but might indicate an issue.
  - Is data below the MDL with no “LT” flag? Lab data with values below the method detection limit should be flagged as such.
  - For continuous data only was there a zero/span performed and flagged every 24 hours?
  - For continuous data only was a calibration performed and flagged every month?

- For passive data is the interval fall within 30 days +/- 4 days?
- For Core and Regulatory Program Codes, the system checks for AAAQO exceedances and if they exist looks for a contravention number.
- For Program Codes other than Core or Regulatory the system warns for all AAAQO exceedances.
- Sticky Values indicating a possible “jammed instrument”. If a reading is the same (and non-zero) for 5 readings in a row for continuous collection types this warning is triggered.

5.4. Still in Development

Validations are mostly complete but some are still in development and others may be revisited. This Guide will be updated when validations are updated.

6. Metadata Requirements

6.1. Stations

Naming

Station Naming only applies to Area Operators

Industrial Submitters: Industry ambient station names are assigned by facilities and should not be changing once assigned to a station ID.

Station names should be meaningful to the general public and be representative of the location, such as a combination of the city-community name. An acronym followed by a number is not acceptable.

If there is a commonly used station name that might not be easily understood by the general public, the Alternate Name field can be used to store that (AQM95 for example).

Accuracy of geo-coordinates

Latitude and Longitude are expected to have 5 decimal places of accuracy or more. Elevation should be measured in meters above sea level accurate to 1 meter.

Effective Date

The Effective Date for a station should be set to the date and time when data was first collected at the station.

Type

Station Type applies to both Area Operator and Industrial Submitters but only Area Operators can select this field when creating a station, it cannot be modified once created.

The available types for Area Operators are Permanent, Portable and Mobile.

The available types for Industry is continuous, passive, intermittent, dustfall, filter to be assigned during station updates by station manager role.

Station Type	Definition	Examples of Monitoring Included
Permanent	Station that is expected to be in place long-term. Station coordinates are fixed.	Long term monitoring stations, such as those included in the core long term network, intended to be in place until the monitoring objective is no longer relevant.
Portable	Station that can be moved intermittently. Station coordinates are fixed. A new station name and ID is required if the station moves.	Portable Air Monitoring Laboratory (PAML) Airpointer Canisters, when deployed outside a permanent air monitoring station
Mobile	Station on a mobile platform. Station coordinates can change at a single station, and are attached to each data point.	Mobile Air Monitoring Laboratory (MAML) Aircraft measurements

In the case of Mobile Stations, the geo-location (latitude, longitude, elevation) is required to be include in the XML for every reading.

For Area Operators, Collection Type does not affect the Station in any way. Passive monitoring, Intermittent monitoring and Continuous monitoring can all occur at the same station. If collection types are co-located the station is expected to be the same for both.

6.2. Station Maintenance

Naming

Industrial Submitters: Industry ambient station names are assigned by facilities and should not be changing once assigned to a station ID.

For Area Operators, Station Names can be changed but this should be used sparingly as data is provided to the public using station names and a name change can be confusing

Acceptable moves

Normally if a station is moved at all the existing station should be terminated and a new station created. There are exceptions to this rule however:

- Moves of up to 200 meters from the initial position may be acceptable without terminating and creating a new station, if monitored data are insignificantly effected by this move. The typical case where this might be used is when a station is only required to be active for part of the year and the old location is blocked at the start of the recording period.
- Mobile Stations are expected to move regularly.

Terminating a Station

When a station is no longer used it should be terminated. This is done by updating the station and adding a termination date. The termination date should be the last day that data was collected at the station. If a station is terminated and then later put back into use the termination date can be removed.

6.3. Station VVCs

VVCs (Valid Variable Combinations) are the acceptable combinations of Parameter, Collection Type, Time Code, Method, and Unit that are pre-determined in the system.

Which VVCs are monitored at a station can be maintained within the administration application by users with the Station Manager role. As of November 15, 2019, these are not required to be maintained but it is expected that by January 15, 2020 all Station to VVC relationships will be maintained accurately. At that point VVC validations will be enabled that will prevent data from being successfully submitted it the VVCs if the data do not align with the Station/VVC relationships maintained in the administration application.

6.4. Equipment

To be developed.

6.5. How to request new VVCs or other Reference Data

If a submitter finds that a VVC or other reference data needed to submit is missing from the reference tables they should contact AMDFeedback@gov.ab.ca with the requested information and details of why they are requesting the additions. Internal Air Data Administrators will examine the request and determine a course of action; usually the addition of new reference data

7. Where to Get Assistance

- ETS Account Setup and Account Support:
  - ETSAccountSetup@gov.ab.ca or 780-644-2300
- ETS Technical Support (xml error questions, admin module issues, etc.):
  - ETS@gov.ab.ca
- Industry /regulatory reporting questions:
  - Air.Reporting@gov.ab.ca
- Airshed/Area Operator reporting questions:
  - Air.Data@gov.ab.ca
- AMD General Reporting Questions / VVC Requests:
  - AMDFeedback@gov.ab.ca