CASA Data Warehouse

USER'S GUIDE FOR DATA PROVIDERS

VERSION 1.1 June 2006

DISCLAIMER: All information contained in this document is considered accurate as of the writing of this document. Due to the on-going development and improvements to the CASA Data Warehouse, accuracy cannot be ensured beyond the time of publication. The document will be updated regularly as changes occur. Data providers will be informed of any changes or updates and should access the most recent version of this document from the Documentation link on the Maintenance Menu page of the CASA Data Warehouse. http://www.casadata.org/Maintenance/Maintenance_Menu.asp

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

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Chapter 1
Introduction

This guide is designed for those who provide, or will be providing, air quality data to the CASA Data Warehouse (CDW). The purpose of this manual is to make available to data providers the information required to successfully submit data into the CDW database.

CASA Data Warehouse Overview

In 1995, the Clean Air Strategic Alliance (CASA) envisioned a provincial air monitoring system that would allow for the collection and dissemination of ambient air quality data. The Alberta Ambient Air Data Management System (AAADMS), or CASA Data Warehouse (CDW) began operation later in 1997.

A primary focus of the Clean Air Strategic Alliance (CASA) is to "obtain credible and reliable information on ambient air quality and its relationship to human health and ecosystem health" (Angle and Teal, 1997).

The purpose of the CDW is to provide a central repository for ambient air and ecological data and to provide a vehicle for dissemination of information to a wide range of stakeholders. The data is gathered through regular monitoring programs by a range of organizations. The provincial government, federal government, industry, and air sheds operate these ambient air-monitoring stations. The data provider performs quality assurance and quality control on the data prior to submitting the data to the warehouse.

The Alberta Ambient Air Data Management System (AAADMS) is built on a Microsoft Active Server environment connecting to an Oracle 8i database. Any web-attached PC or Macintosh can use the system. It can be viewed on most common Web browsers, such as Netscape or Internet Explorer, but the site is only fully tested with Internet Explorer.

CASA Data Warehouse Objectives

Business and system objectives for the CDW were derived by CASA during meetings with stakeholders.

The business objectives of the CDW are:

- To provide access to environmental information.
- To provide information regarding environmental monitoring in Alberta.
- To provide a way of disseminating environmental information.
- To maintain a database of environmental monitoring information.

The system objectives of the CDW are:

- To collect continuous air monitoring data as hourly averages.
- To collect integrated (non-continuous) air monitoring data
- To collect meteorological data.
- To provide Internet-based summary reporting.
- To provide standardized query access to the database for the public.

Getting Help

If you have questions about the CASA Data Warehouse, contact Alberta Environment at: airquality.webmaster@gov.ab.ca.

Chapter 2
The CASA Data Warehouse Web Site

To view the CASA Data Warehouse Web site

The CDW Web site can be viewed from any web browser over the Internet. In your web browser, in the Address bar, type: http://www.casadata.org/

Features of the CASA Data Warehouse Web site

- A navigation menu bar on the left-hand side of the screen. It allows access to most other main sections of the site (by linking to the section 'heading'), as well as listing some important off-site links. Within certain sections of the page, the menu will expand to show links to the lesser pages in those sections.

Note:

Of special interest to Data Submitters of the CDW are the links to Data Reports as well as the Data Submitters section, which leads to the station maintenance section.

- A title bar across the top of each page. It contains the CASA logo, and an indication that the user is on the CDW site rather than on the CASA homepage. This title bar also contains links to five other pages:
    - 'FAQ', a frequently asked questions page;
    - 'Related Links', a long listing of affiliates and relevant sites;
    - 'Contact Us', where users may sign the guest book or evaluate the site;
    - 'Issues Manager', where data providers can report issues that require technical assistance; and
    - 'Sitemap', a fairly complete listing of all the pages on this site

- A Search box underneath the title bar. This is linked to a third-party search engine powered by FusionBot, which searches a cached version of the site for instances of the keyword. Generally, this is not very useful for finding information, and can be misleading with the reports section.

- An Icon shortcut to the Current Air Quality Site. This link is to an external Website containing real-time hourly data submitted by ambient air monitoring sites in Alberta. It also contains the Air Quality Index (AQI), a value that is calculated from the concentration of five major air pollutants. The AQI provides an indication of the quality of Alberta's outdoor air.

- An Icon shortcut to the Data Reports section. This was added to increase the visibility of the reports section, which is the primary focus of Data Warehouse site.

- An Icon shortcut to a graphic report counter. This counter provides a graphic display of the most frequently used reports.

- An Icon shortcut to a Modifications report. This table lists recent changes to the CDW.

- An Icon shortcut to a tabular report counter. This provides an Annual Report Count Summary as well as an annual report count trend in a tabular display.

- An Icon shortcut to a site meter. This meter is also linked to third-party software, a tracking device that records the number of users and the length of their stay on each particular page and on the site as a whole.

- A contact address for the web site administrator. The address is listed on each of the pages so that if anyone has comments or suggestions they can access webmaster@casadata.org from any point on the webpage.

The CASA Data Warehouse Homepage

Note the navigation menu bar on the left-hand side of the screen, the title bar across the top of the page, the Search box underneath the title bar, the icon shortcut to the Data Reports section and the icon shortcut to the Current Air Quality link. The contact address for the web site administrator and the icon shortcut to the report counters and the site meter are not visible here, but they are further down the page.

CASA Data Warehouse Reports

On the CDW Web site, click the Data Reports icon at the lower left of the screen. Alternately, Data Reports can be accessed from the navigation menu bar on the left-hand side of the screen.

The CASA Data Warehouse Data Reports Page

When the ‘Data Reports’ link is initially selected, the user will be presented with a list of options regarding which type of report to generate. This helps the user browse more efficiently to the report they wish to run.

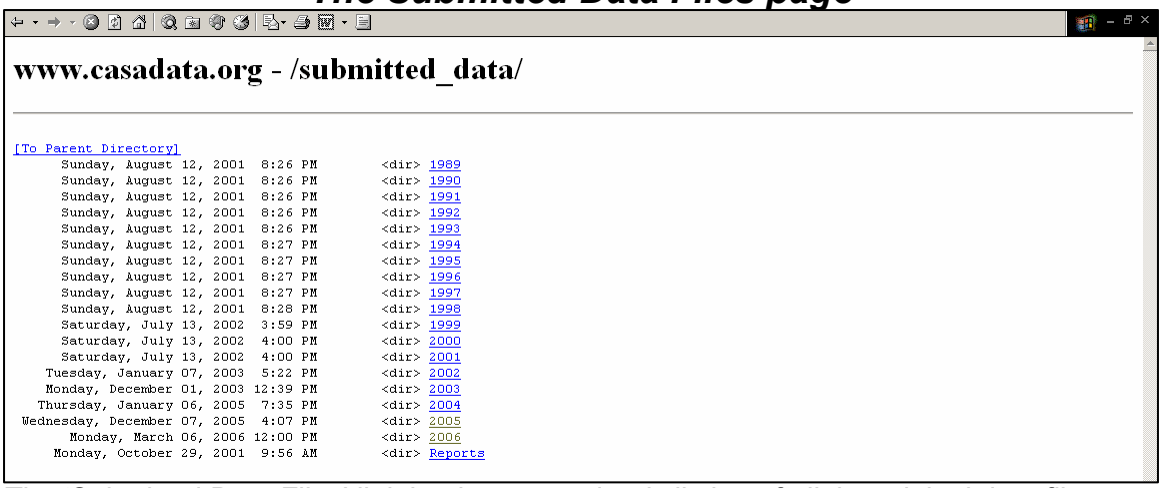
Clicking on any of the selections except ‘Submitted Data Files’ will open a page listing all the reports of the selected category.

The Report Criteria Page

After clicking on a specific report to run, the report criteria page is displayed. This page allows the user to indicate what values the report ought to display. One of the most important selection criteria on the page is the expandable list found within the dark green bands: “Expand to select different Parameter Types” and “Expand to select new site.” Choosing a parameter type and site will narrow the parameters and stations available for creating the report.

Otherwise, the process is straightforward. The parameter and station boxes will indicate what the first and second required steps are (depending on what was chosen in the previous screen). The date fields are independent of stations and parameters, and can be set at any time.

The Submitted Data Files page



www.casadata.org - /submitted_data/

[To Parent Directory]

Sunday, August 12, 2001	8:26 PM	<dir> 1989
Sunday, August 12, 2001	8:26 PM	<dir> 1990
Sunday, August 12, 2001	8:26 PM	<dir> 1991
Sunday, August 12, 2001	8:26 PM	<dir> 1992
Sunday, August 12, 2001	8:26 PM	<dir> 1993
Sunday, August 12, 2001	8:27 PM	<dir> 1994
Sunday, August 12, 2001	8:27 PM	<dir> 1995
Sunday, August 12, 2001	8:27 PM	<dir> 1996
Sunday, August 12, 2001	8:27 PM	<dir> 1997
Sunday, August 12, 2001	8:28 PM	<dir> 1998
Saturday, July 13, 2002	3:59 PM	<dir> 1999
Saturday, July 13, 2002	4:00 PM	<dir> 2000
Saturday, July 13, 2002	4:00 PM	<dir> 2001
Tuesday, January 07, 2003	5:22 PM	<dir> 2002
Monday, December 01, 2003	12:39 PM	<dir> 2003
Thursday, January 06, 2005	7:35 PM	<dir> 2004
Wednesday, December 07, 2005	4:07 PM	<dir> 2005
Monday, March 06, 2006	12:00 PM	<dir> 2006
Monday, October 29, 2001	9:56 AM	<dir> Reports

The ‘Submitted Data Files’ link leads to a read-only listing of all the original data files loaded into the CASA database.

Note:

Any files that contained incorrect data (where the data was resubmitted later in a different file) that did not follow the standard naming convention outlined in *Chapter 4: Creating a Input Data File – Naming Data Files* may still exist in these directories.

CASA Data Warehouse Station Maintenance

The Station Maintenance section of the website can be accessed from the left hand navigation by clicking on Data Submitters. This will take you to a screen with folders containing lists of codes, documentation, data submission formats, a "What's New" folder, as well as access to the Station Maintenance Access login (user name and password required) of the site.

The Maintenance Menu Page.

Station Maintenance Access (Login)

By clicking on Station Maintenance Access (Login Required), you will be taken to the login screen for Station Maintenance. You will require a user name and password. If you do not have a user name and password contact support@casadata.org. This username and password will grant you access to the Station Maintenance and the Issues Manager (*See Chapter 8: Reporting Issues*). User names and passwords will be updated regularly for security purposes. You will be contacted when your user name and password is about to expire.

Note:

The user name and password for Station Maintenance and the Issues Manager is different from the FTP user name and password (*See Chapter 6: Submitting a Data File*). Any computer can access the Station Maintenance and Issues Manager. A static, registered IP address is only required for FTP access.

Each username and password is assigned to a specific person and should not be shared with anyone. This is done for security and tracking purposes, and you may be held responsible for any issues arising from problems created with your account information.

Once logged in, you will be able to Add, Edit or View detailed information on the stations you maintain.

Note:

You are not required to Login to view the "What's New" section, Parameter Code Lists, Static Code Lists, Documentation or Data Submission Formats.

Parameter Lists

Parameters are identified by codes signifying the type of data being collected (i.e. Continuous vs. Wet Deposition), the Method of data collection, as well as a specific code for the parameter. By clicking on the "+" box next to the Listing of all Valid Parameter and Method Codes link, you will get access to all the codes sorted by collection type. Currently these collection types include:

- Continuous Data (collection type code 1)
- Dry Deposition (collection type code 5)
- Polycyclic Aromatic Hydrocarbons (PAHs) (collection type code 8)
- PM_{10} Speciation (collection type code C)
- $PM_{2.5}$ Speciation (collection type code A)
- $PM_{2.5-10}$ Speciation (collection type code B)
- Passive (collection type code 9)
- Total Suspended Particulate (collection type code E)
- Volatile Organic Compounds (VOCs) (collection type code 6)
- Wet Deposition (collection type code 4)

The parameter listings table has 7 columns, not all of which will contain information (depending on the parameter). They are:

1) ID –the CDW code for the parameter
2) CAS Number –the Chemical Abstract Service number (not to be confused with the CASA number) and is provided, if available, as a reference to help make the proper selection of the parameter
3) Name – the name of the parameter used by the CDW
4) Abbreviation – the abbreviation of the parameter used by the CDW
5) Method Code – the CDW code for the method of data collection
6) Reporting Units – the units in which the data was collected
7) Standard Units – the units in which the data is stored by the CDW

These code combinations are all generated dynamically from the CDW Database and always contain the latest information. If a code does not exist in these lists, then the code does not appear in the CDW. If you feel a code is missing, contact airquality.webmaster@gov.ab.ca. or support@casadata.org.

Note:

While the Parameter Code Lists, Static Code Lists, Documentation or Data Submission Formats are not likely to change very often, they are updated from time to time, it is important to check these lists from time to time to ensure you have the most current information.

Static Code Lists

By clicking on the "+" box next to the Static Codes link, you will get access to the codes you will require for data submission. Currently, those codes include:

- Collection Types
- Method Codes
- Null Data Codes
- Site/Station Codes
- Time Codes
- Unit Codes
- Agency Codes
- Program Codes

These codes are all generated dynamically from the CDW Database and thus always contain the latest information. If a code does not exist in these lists, then the code does not appear in the CDW. If you feel a code is missing, contact airquality.webmaster@gov.ab.ca. or support@casadata.org.

Documentation

By clicking on the "+" box next to the Documentation link, you will get access to all the available documentation. Currently, this section contains:

- CEMS Manual
- This document

Data Submission Formats

By clicking on the "+" box next to the Data Submission Formats link, you will get access to a detailed description of the file submission formats. Currently, this section contains:

- The data structure for Continuous Data (CDEF part 1 – Sample Record Format and CDEF part 2 – Data Value columns)
- The data structure for Integrated Data (IDEF)
- The data structure for Real–time hourly data

Detailed information about these file submission formats can also be found in:
Appendix A: CDEF Format in Detail,
Appendix B: IDEF Format in Detail and
Appendix C: Real-Time Hourly Data Format in Detail.

What's New!

By clicking on "What's New!" link you will access a table containing the date and description of recent changes to the CASA data warehouse as well as any relevant news or updates for data providers.

Chapter 3
Setting Up a Station

Before you can submit data, your station and the parameters collected must be set up or added to the CDW database. Similarly, if you add a new parameter to a station, and are submitting the data to the CDW, the parameter must be set up or added to the CDW database.

Overview

Before setting up a station in the CDW database, you will require a valid User Name and Password to access the Station Maintenance section of the website. If you don't already have a username and password, refer to *Chapter 2: The CASA Data Warehouse Website – Login* for instruction on how to obtain your username and password. You will also be required to provide contact information. Any changes that are made to a station will have a notification email sent to the contact person. This ensures that the responsible person is aware of any changes made to the station.

Information You Will Need Before Setting Up a Station

In order to properly setup a station, you will need to have as much of the following information as possible about the station:

- Owner information
- Site Contact Information
- Site Name
- Abbreviation
- Station Type
- Location
- Start Date
- End Date.
- Status information
- Elevation
- Station's Coordinates
- Comments

Logging into the Station Manager

Click on the Data Submitters link from the main menu.
On the Maintenance Menu page, click on Station Maintenance Access (Login Required).

By clicking on Station Maintenance Access (Login Required), you will be taken to the login screen for Station Maintenance. You will require a user name and password. If you do not have a user name and password contact support@casadata.org. This username and password will grant you access to the Station Maintenance and the Issues Manager.

Type your user name and password, and then click Login. You must login to Add, View or Edit a Station.

Once logged in, you will be able to Add, Edit or View detailed information on the stations you maintain.

Note:

The user name and password for Station Maintenance and the Issues Manager is different from the FTP user name and password (*See Chapter 6: Submitting a Data File*). Any computer can access the Station Maintenance and Issues Manager. A static, registered IP address is only required for FTP access.

Each username and password is assigned to a specific person and should not be shared with anyone. This is done for security and tracking purposes, and you may be held responsible for any issues arising from problems created with your account information User names and passwords will be updated regularly for security purposes. You will be contacted when your user name and password is about to expire.

The Maintenance Login Page

Adding a Station

If your station is not currently displayed on the list of stations on the Station Maintenance page, you must add the station to the Stations List. If this is for a recently formed Airshed, or if your contact information changes, notify airquality.webmaster@gov.ab.ca or support@casadata.org.

Click the Add Station link near the lower left of the Station Maintenance area.

The Station's data entry fields will appear on the lower portion of the screen.

Required fields are indicated with a red asterisk. Please provide as much required information as possible. You will find some fields have a drop-down box available for you to make a selection from the provided list, whereas other fields require you to type in the information. Some fields have an example displayed of the required format, i.e. Latitude and Longitude, whereas other fields allow some flexibility, i.e. Location.

Once you have completed the on-line form, you have the following two options:

1. To add the station to the system, click Submit.
2. To cancel the new station, click Cancel.

The contact for the station should receive an e-mail confirming the changes to the station within a few minutes of saving the changes.

If you discover an error in the information you have entered, add the station and then use the Station Maintenance page to edit the information, as described in *Chapter 3: Setting Up a Station - Viewing/Editing a Station.*

Adding a Parameter

If you have added a parameter to a station, use the Station Maintenance page to add the parameter and information about the parameter to the CDW database. Below the Station Information Area is a Parameters Area, containing parameters collected by various collection types. These include:

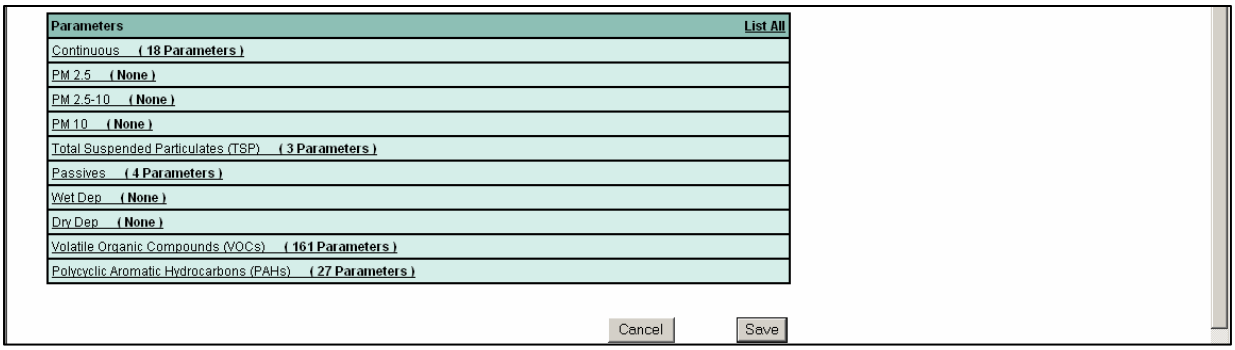
- Continuous Data
- Wet Deposition
- Dry Deposition
- Volatile Organic Compounds (VOCs)
- Polycyclic Aromatic Hydrocarbons (PAHs)
- Passives
- $PM_{2.5}$ (collected intermittently)
- $PM_{2.5-10}$ (collected intermittently)
- PM_{10} (collected intermittently)
- Total Suspended Particulates (TSP)

Note:

Particulates ($PM_{2.5}$, PM_{10}) may be collected continuously or intermittently. Please ensure you choose the appropriate collection type code.

Listed beside each collection type, in brackets, is the number of parameters assigned to (or collected by) the selected station.

Parameters Area of the Station Maintenance Page



Note:

If no parameters have been assigned for the selected collection type, "None" will appear in the Parameters Table beside the collection type and "No Parameters Assigned" will appear in the resultant Stations Parameters table for that collection type. If you do not see information that should be displayed here, contact airquality.webmaster@gov.ab.ca or support@casadata.org.

Click on the collection type for the parameter you wish to add from the selected station. The Parameter List appears.

The list contains:

Parameter	- the parameter code and collection type
Method	- the method code and method type
Variance	- the amount in % that the parameter can vary from the historical average.
Min	- the minimum acceptable level
Max	- the maximum acceptable level, and
Remove	- a check box to remove that parameter from the list.

Note:

Min and max indicate, in units assigned to that parameter, the minimum and maximum levels that are acceptable; outside of which a validation error message will be sent to the data provider when the data is submitted. This is not intended to limit a value; values outside the min/max may be valid, it is intended to flag data that is outside typical values.

Variance is the amount the parameter can vary in percent from the historical average. During the data loading process the monthly historical average of a parameter is calculated from the historical database and compared to the submitted file. A variance (as set by the air quality webmaster in consultation with the data provider) from the historical average will result in a validation error message being sent to the data provider.

This is a means of revisiting high or low values that are sent to the CDW. It is a "check" on data as to its validity, as specified by criteria designated by the data provider. This is not meant to replace quality assurance procedures done by the data provider prior to submitting the file to the CDW.

A parameter listing is provided to you from the drop-down list. To view details about a parameter before choosing it, select the parameter from the drop down and click the 'Details' link.

A listing of all parameters and valid method codes for the selected collection type is provided to you from the Parameters List link.

Click Save or your changes will be lost.

The contact for the station should receive an e-mail confirming the changes to the station within a few minutes of saving the changes.

Note:

All station information is subject to review by Alberta Environment and casasupport to ensure that values entered are within acceptable limits. Min, Max and Variance levels should be set to reasonable values to ensure proper validation of data.

Viewing/Editing a Station

You may view information about an existing station, using the Station Maintenance page. If your station has already been added to the site, it will appear in the list that is displayed when you click the down arrow in the Station area.

To view station information, click the down arrow in the Station area, and then select the station for which you want to view information.
Click Refresh.

Note:

If you have already viewed a station, a message appears, confirming that you want to change the station viewed and warning you that any changes you have made to the currently viewed station will be lost. To continue, click OK.

Information about the station appears on the lower section of the screen.

If you do not see a station that should be displayed in the list of stations, contact airquality.webmaster@gov.ab.ca or support@casadata.org.

Editing Station Information

Once you have selected a station to view, all the station information will be displayed, and can be edited as required. Once you have finished making your changes, remember to click Save to save your changes to the database.

The contact for the station should receive an e-mail confirming the changes to the station within a few minutes of saving the changes.

Editing a Parameter

For Quality Control reasons, the data provider cannot edit Min, Max and Variance Values after a station has been set up via the web. If you would like to have these values changed, contact airquality.webmaster@gov.ab.ca or support@casadata.org.

Chapter 4
Creating an Input Data File

Disclaimer:

Agencies submitting data must perform quality assurance and quality control procedures on the data before creating and formatting data files to submit to the CDW, and are responsible for ensuring that the data included in the files they submit are correct.

Choosing a File Type

You must submit data to the CDW in files that are formatted correctly.
Data files will only be accepted in one of the following three, text based formats:

1. CDEF (Continuous Data Exchange Format). This format should be used for continuous air monitoring data, including hourly and five-minute averages.

2. IDEF (Integrated Data Exchange Format). This format should be used for integrated air monitoring data, that is data that is collected on an intermittent or non-continuous basis; including: particulates, volatile organic compounds, polycyclic aromatic hydrocarbons, wet deposition, dry deposition, and passive data. This data may be of varying time frames i.e. 7 days, 31 days, 45 days etc.

3. CEMS (Continuous Emissions Monitoring) format.

Note:

Each file should contain only one collection type of data. You cannot combine data CDEF and IDEF, nor can you combine Wet deposition (collection type 4) with Dry deposition (collection type 5) data.

Continuous Data Exchange Format (CDEF)

Continuous Hourly Data

Continuous hourly monitoring stations provide readings every hour for a total of 24 values per parameter. Use CDEF formatted data files to submit this type of data.
CDEF is based on the US Environmental Protection Agency's SAROAD structure, which provides space for only 12 values per parameter. This means that for hourly data two lines must be used to hold data for one day (24 values per parameter). These two lines must be placed consecutively in the file.

Each line of data in the CDEF format must be 92 characters in length, and consist of two parts:

1. Data header (the first 32 characters)
2. Data values (the following 60 characters)

Because a sample reference number is used to track common information about the collection method used, lines in the sample files should be grouped by day.

Note:

Each line in the Continuous Hourly Data file should be structured as illustrated in Appendix A: CDEF Format in Detail, using the appropriate codes for the location and type of data, and using a Collection Type code of 1, to indicate continuous data, a Time Code of 1, to indicate hourly data and a start hour on each line as indicated below.

The Start Hour variable indicates the period of time to which the data applies:

- A Start Hour of 00 indicates that the data is for midnight and onward.
- A Start Hour of 12 indicates that the data is for noon and onward.

Continuous Five-Minute Data

Continuous monitoring stations that collect data in five-minute averages provide readings every five minutes for each hour of the day; a total of 12 values per parameter. Use CDEF formatted files to submit this type of data, with each line containing one hour of data. To send data for one day, you would therefore submit 24 lines of data.

List each parameter measured at the station for the same hour before adding a new time period.

Note:

Each line in the Continuous Five-Minute Data file should be structured as illustrated in *Appendix A: CDEF Format in Detail*, using a Time Code of D, to indicate 5-minute data and a start hour on each line of 00 to 23. The Start Hour variable indicates the specific hour to which the data applies.

An example of the sample input reference for CDEF columns is available for viewing at the CDW website on the Maintenance Menu page, under the heading Data Submission Formats. This can be accessed from the Data Submitters link from the main menu.

Integrated Data Exchange Format (IDEF)

Integrated Data Exchange Format (IDEF) should be used to submit integrated or non-continuous data collected in the field or obtained from laboratory analysis.

IDEF is based on the method used by Alberta Environment that accommodates all the information, while allowing for small transfer file sizes by eliminating unnecessary fields. Each line represents a single parameter (and associated value) analyzed by a laboratory, and must be at least 135 characters in length, arranged in a single string. The maximum line length contains 235 characters, including “Remarks”.

For example, if a filter is sent to a lab for analysis and the values for 6 parameters are returned, the file will have 6 lines. These lines would be similar, with only the parameter code, the values, and the units changing.

All parameter values from the same sample method (as with a filter sent to a lab) would receive the same reference number, and should appear sequentially before another lab reference number is assigned. Each different Site, Station, or Date would also cause a new sample number to be assigned.

Note:

Each line in the Integrated Data Exchange Format Data file should be structured as illustrated in *Appendix B: IDEF Format in Detail*.

An example of the sample input reference for IDEF columns is available for viewing at the CDW website on the Maintenance Menu page, under the heading Data Submission Formats. This can be accessed from the Data Submitters link from the main menu.

Continuous Emission Monitoring Format (CEMS)

CEMS is a format that is accepted by the CDW.
More information on this format can be found on the Maintenance Menu page, under the heading Documentation. This can be accessed from the Data Submitters link from the main menu.

Creating Files

You can use any type of text editor to create the data input files, providing you format and name the files correctly.

A complete listing of all the applicable codes is shown on the Maintenance Menu page, under the heading “Listing of All Valid Parameters and Method Codes” and under the heading “Static Codes”. This can be accessed from the Data Submitters link from the main menu.

Note:

Parameter codes used for CDEF data files may be different for IDEF data files.

CEMS Files

Files created using the CEMS format will also be accepted at the CDW. For more information about creating files in the CEMS format, see the CEMS User Guide; found on the Maintenance Menu page, under the heading Documentation – CEMS Manual. This can be accessed from the Data Submitters link from the main menu.

Naming Data Files

To easily identify and access data files that have been submitted to the CDW, a file naming convention has been developed. Data files submitted to the CDW must adhere to the file-name convention:

{AirshedZone}_{Site}{Station}_{Date}_{Type}.{Format}

For example, Alberta Environment’s Edmonton Central station hourly data, in CDEF format, collected for March of 2005 should be in a file named:

AENV_01001_Mar05_Hrly.CDEF

Additionally, data submitters for the Wood Buffalo Environmental Association, submitting PAH data from multiple stations at Site 12, collected for January of 2004, in IDEF format, should name the file:

WBEA_12000a_Jan04_PAH.IDEF

Note that the Airshed and site are identified by the appropriate code, but multiple stations are signified by the code “000”, with “a” signifying this is the first set of data sent for this date.

If data submitters for the Wood Buffalo Environmental Association subsequently submit further files containing additional data for the same date and type, the file should be named:

WBEA_12000b_Jan04_PAH.IDEF

As before, the Airshed and site are identified by the appropriate code, but multiple stations are signified by the code “000”, with “b” signifying this is a subsequent set of data sent for this date.

Individual components of the naming convention are described in the following subsections:

- Airshed Zone
- Site
- Station
- Date
- Type
- Format

Airshed Zone

The Airshed Zone must be one of the Accepted Airshed Zones listed below.

Airshed	Description
AENV	Alberta Environment
FAP	Fort Air Partnership
PALLISER	Palliser Airshed Society
PAMZ	Parkland Airshed Management Zone
PASZA	Peace Airshed Zone Association
WBEA	Wood Buffalo Environmental Association
WCAS	West Central Airshed Society
LICA	Lakeland Industry and Community Association

Site

The Site is the two-digit number assigned to each site. This is found on the Maintenance Menu page, under the heading Static Codes in the Site/Station codes listing. For example, Site: Fort Air Partnership [14] indicates the Site ID for Fort Air Partnership is 14.

Station

The Station is the three-digit number assigned to each station. This is found on the Maintenance Menu page, under the heading Site/Station codes listing. For example, 002 Elk Island indicates the Station ID for Elk Island is 002. If you are submitting data from more than one station, use the station ID of 000a. Subsequent multiple station files for the same date and type should use the station 000b, 000c, and so on.

Date

The Date must be in the format MMMYY.

Type

The Type must be one of the Accepted Types listed below.

Type	Description
Hrly	Hourly
Wet	Wet Deposition
Dry	Dry Deposition
PAH	Polycyclic Aromatic Hydrocarbons
TSP	Total Suspended Particulate
Pass	Passive
VOC	Volatile Organic Compounds
$PM_{2.5}$	$PM_{2.5}$
$PM_{2.5-10}$	$PM_{2.5-10}$
PM_{10}	PM_{10}

Format

The Format must be one of the Accepted types listed below.

Format	Description
CDEF	Continuous Data Exchange Format
IDEF	Integrated Data Exchange Format
CEM	Continuous Emissions Monitoring

File Structures

Detailed breakdowns of each column for CDEF Format and IDEF Format can be found on the Maintenance Menu page, under the heading Data Submission Formats.

File columns are also shown in detail in:

Appendix A: CDEF Format in Detail and
Appendix B: IDEF Format in Detail.

Chapter 5
Verifying a Data File

Disclaimer:

Agencies submitting data must perform quality assurance and quality control procedures on the data before creating and formatting data files to submit to the CDW, and are responsible for ensuring that the data included in the files they submit are correct.

Overview

After you have performed quality assurance and quality control procedures on your data and you have created and formatted your data files you are ready to view the files using the CASA Data Viewer application.

The CASA Data Viewer is a desktop application that provides data providers with the ability to "view" CDEF and IDEF formatted data. The application will highlight the most common errors that would prevent the data from automatically loading. **The intent of the CASA Data Viewer is not for QA/QC testing of the data.** Its purpose is to aid in isolating issues that may arise when submitting data to the CDW.

Once you have viewed your sample data using the Data Viewer, and you have ensured that the data is valid and formatted correctly, you can transfer it via the viewer at any time to the CDW using a standard FTP procedure.

If you do not have the CASA Data Viewer desktop application, and will be submitting data contact airquality.webmaster@gov.ab.ca or support@casadata.org.

When the CDW receives the file, it undergoes a basic validation process. After the process is complete, a notification e-mail will be sent to the e-mail address listed as the contact for your site with a notification that the file has passed or failed validation. If the file has passed validation it will be loaded automatically, and no further action is required. If your file has failed validation you will be notified as to what action to take.

How to Submit Data

Take the following steps to successfully add your data files to the CDW database:

1. Create your input data file, as described in *Chapter 4: Creating an Input Data File*.
2. Verify your data file, as described in *Chapter 5: Verifying a Data File*.
3. Submit the data file, as described in *Chapter 6: Submitting a Data File*.

Data Viewer Application

To ease the data submission process, this desktop application was created to provide data providers with the ability to "view" and verify ambient air quality data before it is submitted to the CDW. The application will indicate many errors that would prevent the data from being loaded. If errors were found, the data provider is required to resubmit a corrected version of the file to the CDW.

Errors could include:

- File validation errors, such as wrong extension, wrong line length, missing month start, missing month end, missing day in month, site not in lookup, insufficient data and insufficient calibration.
- Line validation errors, such as duplicate line, missing hour in day, invalid parameter, station not in lookup, wrong collection type, wrong time interval, date duration mismatch and missing data.
- Parameter validation errors, such as parameter not in lookup, method not in lookup, unit not in lookup, duplicate parameter, parameter too high, parameter too low, minimum range missing, maximum range missing, invalid data supplied, missing data not flagged and invalid flag.

What Does the Data Viewer Do?

The Data Viewer has the following capabilities:

- Updated station information can be downloaded directly from the Data Viewer and you will be prompted to save the updated XML file in a folder you have selected.
- Integrated parameters (IDEF) and Continuous parameters (CDEF) can be viewed with the Data Viewer.
- The Station Maintenance page can be accessed directly from the Data Viewer.
- Static codes (collection types, method codes, null data codes, site/station codes, time codes and unit codes) can be accessed directly from the Data Viewer.
- Data can be submitted via FTP directly from the Data Viewer.
- Columns of data can be selected and highlighted for viewing.
- Incorrect flags will be flagged as an error.
- Blocks of data can be selected to set or remove parameter flags.
- Data providers can set parameter flags and apply Nulldata Codes.
- A search function allows the user to search for specific values or character strings in selected columns.
- The viewer may suggest a proper file name using the naming convention criteria.
- The viewer will indicate if the file contains data collected for less than 75% of the time period and if the file contains parameters without the null code 9986 indicating that no calibrations have been performed in that time period.
- The viewer will indicate if the file contains improper null codes.

The application will indicate at the top of the page the number of continuous or integrated records loaded for the site, the site name, and the date range for the file opened.

What Does the Data Viewer Not Do?

The Data Viewer will not:

- Access the historical database; validation errors as a result of exceedances of historical variances would still result in a validation error automatic email notification.
- Allow the data provider to edit the file, change parameter values or modify the file in any way other than to add Nulldata codes or set parameter flags. Any other changes to the data must be done in the program in which the data file was created. The modified file can then be reviewed through the Data Viewer Application before submission to the CDW.
- Make changes to the station information. If a station is added, a parameter added or any other changes are made to any stations in your site you are required to make the

changes in the Station Maintenance Access (Login Required) page accessed through the Maintenance Menu page. See Chapter 3 – Setting up a Station for more information on how to do this. The Station Maintenance page can also be accessed directly from the Data Viewer by clicking on Edit, Access Station Maintenance.

- Further, once you have made changes to the station's information, you will have to download the Station Information again for the changes to affect the Data Viewer. Information on how to do this can be found later in this chapter.
- Work with Real-Time Hourly data.
- Work with CEMS formatted data.

Installing and Running the Data Viewer Application

(1) Select a destination to store the application contained in the zip file.
Create and name a folder with something appropriate such as - Data Viewer.
Open the zip file by double clicking. Drag the .exe file contained within into the folder you just created. Delete the zip file.

(2) Run the application.
Double click on the exe file. Open the .exe file by double clicking.
Your application will open and is ready for use.

(3) Download Station Information.
Select file, Download Stations File.

A pop-up will open prompting you to select the Site Number and choose from Continuous Parameters only, Integrated Parameters only or both types of Parameters. You may also check "Refresh station data" to update your station information file. (To select station information that you have filed previously, select "Open Stations File"). Click the OK button. (You may need to resize the pop-up to access the OK button.)

Note:

The data file that you select for viewing will be compared to the latest station information available from an XML file downloaded from the CDW. If a station is added, a parameter added or any other changes are made to any stations in your site you are required to make the changes in the Maintenance Menu page
Any changes made here are changes to the database and a new site XML file will be created for the viewer. To accurately view data files created after a change is made, you will need to download a new site information XML file from the XML file link as before.

(4) Load the Data File.
Now that you have all the station information loaded you can open a data file. Find the data file that you want to view; you may wish to store this in the Data Viewer Application folder you created.
In the Data Viewer Application click File, open data file. Find the data file you wish to view and open. The data will load.

If any errors are found a pop-up window will appear that says:
"Loaded file failed one or more validations: Click on the Errors tab for more information." Click OK.

Navigating the Data Viewer

The application will indicate at the top of the page the number of continuous records loaded for the site, the site name, and the date range for the file opened.
There are 3 selection tabs - data, stations and errors.

1. The Data Tab

The Data Tab displays the data in 2 view types, raw or interpreted. This selection is made from the drop down box for “View Type”. The Raw data view shows each string of data as it is formatted and submitted. The interpreted data view shows the data with headings to indicate in text what each part of each string of data shows. The parameter values in the interpreted data view are displayed, as they will be in CDW reports.

The bottom of the data tab page displays the columns of CDEF or IDEF formatted data, in the raw or interpreted view as selected.

If you move your cursor around the page you will notice the displayed values at the bottom will change to indicate the data selected.

If you right click on any of the parameter value or status cells, you will notice a pop-up box that provides you with a number of choices:

- Set Flag (see Setting the Flags later in this chapter for more information) or Clear Flag that you have set in the viewer.
- Restore original value to restore a value incorrectly changed in the application.
- Set null values to select one of the null values as indicated. The fly-out menu provides a list of ten null value choices.

Select any of these by left clicking on the appropriate choice. This can be done in the parameter value cells or status cells in the main body of the data tab page, or in the table in the bottom right corner of the page.

If you make any changes to the file you are viewing, such as flag as valid, restore original value or set null value, you may submit the file through the viewer with the changes, however you must save the file first. A popup will confirm that changes have been made and prompt you to save the file first.

2. The Stations Tab

The Stations Tab displays the parameter information within the loaded stations file. Each station within the site will be displayed, along with the names and codes for the station, and collection information for each collection type including parameter, methods and units.

3. The Errors Tab

The Errors Tab displays the errors detected within the data file that was loaded.
The information provided includes line number, date, hour, station code, error type, value, parameter code and helpful information. Some error types have been color-coded. You can change the colour by selecting edit, options in the error tab view. Right click in the appropriate box and a selection of colour choices will be made available. If you double click in the line number box it will automatically take you to the corresponding line in the data tab with the error highlighted. Information about the error will also be listed in the bottom of the data page.

Note:

You cannot edit the file using the application, other than to flag a parameter, restore original value or set null values; editing must be done in the program in which the data file was created.

Setting Flags or Null Codes

Data quality flags are assigned to convey a “quality of value” to data users. Data flags differentiate data that are valid without qualification and data that are valid but qualified or suspect. There are a number of circumstances where data flags would be applied, such as data that does not meet the standards of the Air Monitoring Directive (AMD) or data that is non-compliance.

Some examples of data that may be flagged are:

"**Flag as Valid (V)**" - for values that exceed the limits that have been set for that parameter, but are indeed valid. This would ensure the data would load automatically (if there are no other errors) and avoid a validation error message.

"**Flag as Questionable (?)**" - for values that do not meet AMD standards or is non-compliance. This infers questionable data quality due to excess downtime, no daily zero and span, or calibration or audit failures, data that has been interpolated or estimated as well as other reasons.

"**Flag as Below Detection Limit (BDL)**" - for data that is submitted as a value but is below the detection limit.

"**Flag as Missing (M)**" – for data that was not available at the time of collection, or contaminated data. This is used for integrated data only.

Note:

The intent of data flags is to provide information to the data user as to data quality. QA and QC procedures should be performed on the data prior to submission to the CDW. It is not the intent of the data viewer to validate the dataset so as to facilitate loading without going through the standard validation process. Data sets that have excess numbers of null values or data flags will result in an error message.

To select a single value, click on the parameter value. To select a block of data left click and hold down while dragging the mouse across the multiple selection. (You may also make multiple data selections by holding the shift key). Right click. A pop-up will appear containing the Flag Selection. Select the Flag or Null Value as required. Alternately, you may set your Flags or Null Codes in the bottom right corner.

The data viewer defaults to the last Station file opened. Download new station file information for updated versions of the viewer or if changes are made to station information.

Data users may contact data providers for information on the quality of the data they access through contact information (email address) available on the CDW website.

Access the Station Maintenance Pages

In the viewer, Select Edit, Access Station Maintenance. This will take you to the Station Maintenance Login page.

Note:

If a station is added, a parameter added or any other changes are made to any stations in your site you are required to make the changes in the Maintenance Menu page, through the Station Maintenance Access (Login Required) link. Any changes made here are changes to the database and a new XML file will be created. To accurately view data files created after a change is made, you need to download new site information from the XML file link as before.

View Static Codes

Select View, View Static Codes. This will take you to the CDW website, to the codes you select.

Using the Data Viewer to Submit Data

Once your data has been loaded into the Data Viewer, and you have verified it, Select File, Submit Data File.

A popup will appear prompting you to input the FTP address, and your username and password (see *Chapter 6: Submitting a Data File – User Name and Password* to obtain a username and password).

Click – Save User Information to save this information for future use and click OK.
Your file will be sent.

Viewing Columns or Searching for Values

Below the yellow "view type" band you will find a drop down arrow beside the text "open section to select columns or search for values". Click on this arrow to find a Highlight column box with a drop-down list containing a selection of data input columns. Choose the desired column and click select to highlight that portion of the file. Click "Clear all Columns" to clear the highlighting.

Alternately, you can select a field by clicking anywhere in the data string, and highlight that column by selecting Edit, Highlight column or by clicking anywhere in the data string and CTRL H. Select CTRL H again to clear the highlights. An indication of where you are in the data can also be viewed at the bottom left of the screen.

To search for a specific value or character string, select the column in which you want to search in the Highlight column box using the dropdown menu, and insert the search value in the box below. Click Find and Find Next and the viewer will search and highlight the value.

Close and Exit

Close the file by selecting File - Close.
Exit by selecting File - Exit.

Chapter 6
Submitting a Data File

Disclaimer:

Agencies submitting data must perform all quality assurance on the data before submitting the data files to the CDW, and are responsible for ensuring that the data included in the files they submit are correct.

Sending the File to the CASA Data Warehouse

Once you have verified your sample data, you can transfer it to the CDW using the Data Viewer or any standard FTP procedure to the following FTP address: ftp://ftp.casadata.org. Data files can be transferred to the CDW at any time. Agencies collecting air quality data must have their results received by the CDW by the end of the month following the month for which the data was collected. For example, data collected for the month of April must be submitted the beginning of June. You will need a valid username and password.

Information Required Before You Proceed

Before contacting the CDW for access, you will require the following contact information:

- First Name
- Last Name
- Title
- Agency
- Organization
- Physical Address
- Mailing Address
- City
- Province
- Postal Code
- Phone Number
- Fax Number
- Cell Number
- E-mail Address
- The Static IP Address of the Computer being used for access to the CDW
- A Valid Data file

Username and Password

Once you have all the information listed above, contact support@casadata.org to get your username and password. The user name and password for FTP access is different from the user name and password used for Station Maintenance and the Issues Manager. Each FTP access username and password is assigned to a specific person and should not be shared with anyone. This is done for security and tracking purposes, and you may be held responsible for any issues arising from problems created with your account information.

FTP Access

Users that will be uploading data are also required to register the IP address for the computer they will be using to submit the data. An IP address is the address to a computer. It is recommended that you obtain your IP address from your systems support group (as they are aware of the particulars of your network). Some computers on a network may have a "range" or a number of IP addresses for your computer, and as a result your IP address may change at certain times. If this is the case you will need to submit to support@casadata.org the range of IP addresses. In an emergency, the IP address of your computer is available from http://www.whatismyip.com/. This will provide you with the IP address for your computer at that point in time.

When you attempt to connect to the CASA ftp site the login ID and password will be compared to the list of IP addresses that have been registered. If there is a match you will be allowed access. If you wish to submit data from a computer that you normally do not use for submitting data you will need to submit the IP address of that computer to support@casadata.org. Be aware that you need a STATIC (unchanging) IP address, or a range of addresses registered with to support@casadata.org otherwise you will not be granted access. (For instance a home computer - may not have a permanent IP address.)

If there is no match between the login ID and the list of IP addresses registered access will not be granted. Any computer can access the data but, for security reasons, data submission has been restricted to a specific list of IP Addresses.

Once you have your login ID and have registered your IP address you will be able to connect to the following FTP address to upload your data: ftp://ftp.casadata.org.

Using the Data Viewer to Submit Data

Once your data has loaded into the Data Viewer (for more information see *Chapter 5: Verifying a Data File – Navigating the Data Viewer*) Select File, Submit Data File.

A popup will appear prompting you to input the FTP address, and your username and password.

Click – Save User Information to save this information for future use and click OK. Your file will be sent.

Using an FTP Program to Manually Submit Data

Using an FTP program of your choice input the proper ftp address: ftp://ftp.casadata.org as well as your username and password.

Submit the file(s) via the FTP program (see the FTP program's documentation for more information on how to accomplish this).

What Happens to the Data after Submission?

When data files are submitted, they are initially placed in a Process directory, where the files are verified. This basic process does not check for duplicate data files, so you must ensure that data files are not submitted more than once. If you need to make changes to

data files that have already been submitted, contact airquality.webmaster@gov.ab.ca or support@casadata.org.

Once the data is submitted to the CDW, the information is processed and a variety of tests and calculations are performed to ensure the data is of the highest possible quality. If the data falls within expected parameters, the data is loaded and made available to the public. If the data is found to be outside of expected ranges, the CDW will contact the Data Provider for more information.

After the files are validated, they undergo a process that includes sample sorting and transfer of information to the appropriate tables, before the files are finally stored in the database for access by the public. Once the data has been loaded into the database, it can be used to generate reports on the CDW Web site.

Notification e-mails from the CASA Data Warehouse

After the basic validation process is complete, a notification e-mail will be sent the e-mail address listed as the contact for your site. You will receive an e-mail notifying you that one of the following have occurred:

1) Passed Validation.
Your file has passed all validation checks and was successfully loaded into the CDW database. You do not need to take any further action.

2) Failed Validation – Input Required.
This message indicates that the CDW encountered some problems with the data as it was submitted. An attachment will be included outlining the validation errors that do not permit the file to be loaded. The Data Submitter should review the attached error log and either contact support@casadata.org to indicate the data is valid and should be loaded, or correct the data and resubmit a file. In either instance inform support@casadata.org what you intend to do.

3) Failed Validation - CASA Support Notified.
This message indicates that the CDW encountered some problems with the data as it was submitted, but that the CASA Support may be able to solve the problem without your input. CASA Support should send you a follow up message indicating the results of their investigation. You require no action at this time.

Manual or Override Loading of Files

If the data file failed to be loaded, but the data provider indicates that the data is valid, the information can be reprocessed using manual overrides to attempt to bypass the errors. Once this has been done, the data provider should expect to receive one of two e-mail messages from the CDW:

1) (Override Loading) Passed Validation
This message means that the data passed all the CDW checks and has been loaded successfully. No further input is required.

2) (Override Loading) Failed Validation – Input Required

This generally means that the CDW encountered a serious problem with the data as it was submitted that would prevent it from loading. See the attached log file for more information. Contact support@casadata.org.

Resubmitting Data Files

If it is necessary to resubmit your files, follow the same procedure as you did when you submitted the data files originally (see *Chapter 6: Submitting a Data File*).

Before you resubmit your file notify support@casadata.org and indicate that the original file is to be removed. Data is not “overwritten”, if a duplicate file is submitted you will receive an error message indicating the data already exists. The original file must first be erased from the database before the corrected or resubmitted file can be loaded.

Other messages from CDW

Occasionally, you may receive other e-mail messages from the CDW if you are listed as a station contact. The most common types of e-mail you will receive are:

1) Confirmation that you added a Station
2) Confirmation that you Added/Edited Station Information
3) Confirmation/Updates about any Issues you may have submitted
4) Notification that you are missing data and/or are overdue on your data submissions

Most of the messages are fairly self-explanatory, but if you have any questions please feel free to contact airquality.webmaster@gov.ab.ca or support@casadata.org.

Chapter 7
Real Time Hourly Data Transfer

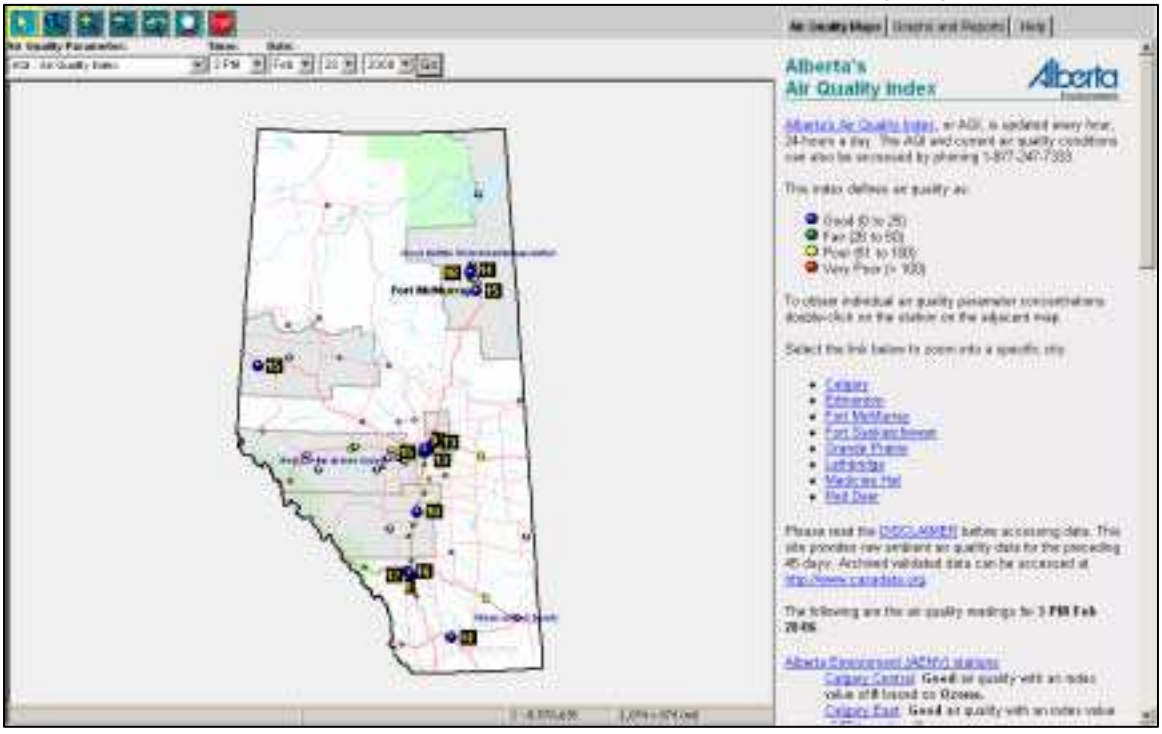
Overview

Real-time or current ambient air quality data in Alberta collected by Alberta Environment and participating Airsheds are submitted to Alberta's Real-Time Air Quality System. The Real-Time Air Quality System became operational on March 22, 2002

Data is displayed on Alberta Environment's web page at http://www3.gov.ab.ca/env/air/index.html. Click on "Click Here for Current Air Quality".

The data can also be accessed at http://www.telusgeomatics.com/tgpub/ag_air/default.asp.

Alberta Environment's Real-Time Air Quality System



Current air quality conditions are also available to Albertans through an automated 24-hour phone system (1-877-247-7333).

The system, developed and managed by Alberta Environment, is operated by Telus Geomatics using TELUS GeoExplorer™ GIS (geographical information system) web application. This system provides Albertans with a province-wide, web-based interactive application for provision and display of real-time (last available hour) air quality and meteorological data and information. The system is also a process by which to notify the airquality.webmaster@gov.ab.ca in the event of Poor air quality conditions or air quality concentrations that exceed specified concentration limits.

The system allows the user access to:

(1) a GIS map of Alberta (zoom-in zoom-out capability);
(2) a time series line graph; and
(3) a tabular output.

These features allow the user to view air pollutant levels for a specific portion of the province. The user can also view air pollutant levels over the previous 45 days either on the GIS map or with graphical and tabular displays.

The GIS map display allows the user to select the air pollutant and time period of interest. As the pollutant is selected, the appropriate text will appear on the right side of the page describing the pollutant and the air quality guidelines for that pollutant. By double-clicking on a monitoring station, the levels for all pollutants monitored at the selected station for the selected time period are displayed. The graph display allows the user to query pollutant levels over a specific time period on a line graph for one or more stations. This component of the application is useful for looking at changes in air pollutant levels over time and for comparing levels between monitoring locations. The user can also view data in a dynamically generated table. The user can select the stations, pollutants and time period of interest. This tabular file can then be downloaded into an Excel file.

Information Required Before You Proceed

Before you can submit data to Alberta's Real-Time Air quality system the station needs to be set up in the Telus Geomatics database and your station needs to be assigned a Telus Station Code. Contact airquality.webmaster@gov.ab.ca with the following information about the station:

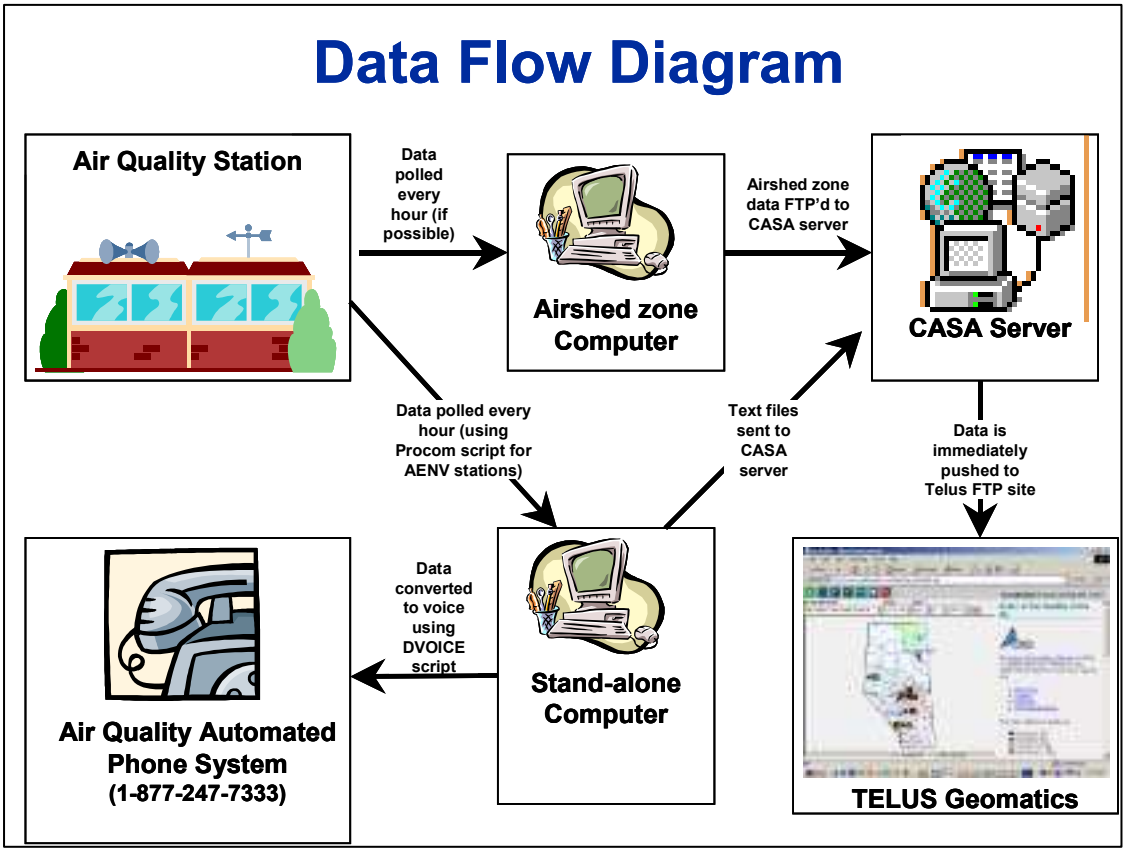
- Owner information
- Site Contact information
- Site Name
- Geographical location
- Parameters collected
- Parameter Units
- Lower and Upper Limits
- Start Date
- Links to your Agency website and stations

Your station will be assigned a Telus Station Code and you will be advised on the data transfer process.

A User ID and Password is required to submit data to the casadata.org/iqua directory. Contact support@casadata.org for this.

As before, FTP access requires data submitters to register their IP address. See *Chapter 6: Submitting a Data File – FTP Access*.

Data Transfer Process



1. Data providers poll data every hour from the stations via modem and log the reading automatically. The scripting language used to poll the data will also calculate the Air Quality Index (AQI) every hour. (Alberta Environment uses PROCOMM script.) See Air Quality Index Calculation below.

2. The data is then output into a text file following a specific naming convention and text format.

3. The data is then sent to the CDW web server at http://www.casadata.org/iqua using an FTP application.

4. The CDW web server "pushes" the data to the On-line Air Quality System operated by Telus where the text file is retrieved and the information parsed into an Oracle database. Data from the Oracle database is then displayed on the real-time air quality website.

This entire process takes about 20 minutes. Therefore, the data is usually displayed on the AENV web site at about 25 minutes after the hour.

Data can be transferred at any time to the Real-Time Air Quality System. If data files are missed, they can be sent at a later date and will "fill in" the missing timeframe with the data, provided the files are not prior to the 45 days the database archives the data.

Note:

An example of a text file for Real-Time Hourly Data Transfer is illustrated in *Appendix C: Real-Time Hourly Data Format in Detail* as well as at the CDW website on the Maintenance Menu page, under the heading Data Submission Formats –Real-Time Hourly Data.

Air Quality Index Calculation

Parameter Name	Concentration	Units	Formula
Carbon Monoxide	If <= 13	ppm	AQI = 1.92 x Concentration
	If > 13		AQI = (1.47 x Concentration) + 5.88
Ozone	If <= .05	ppm	AQI = 500 x Concentration
	If > .05 <= .08		AQI = (833 x Concentration) - 16.67
	If > .08		AQI = (714 x Concentration) - 7.14
Sulphur Dioxide	All	ppm	AQI = 147.06 x Concentration
Nitrogen Dioxide	If <= 0.21	ppm	AQI = 238.09 x Concentration
	If > 0.21		AQI = (156.24 x Concentration) + 17.19
Respirable Particulate Matter ($PM_{2.5}$)	If <= 30	ug/m^3	AQI = 0.8333 x Concentration
	If > 30		AQI = (0.5 x Concentration) + 10

The method for calculating the AQI is also located at the CDW web site at http://www.casadata.org/airqualityindex/aqi/aqicalculated.asp

The AQI is a system developed to provide the public with a meaningful measure of outdoor air quality. From the AQI, we can effectively rate air quality as Good, Fair, Poor or Very Poor. The AQI converts concentrations of five major air pollutants to a single numerical value and matching description. For example, a rating of 0-25 indicates Good air quality, 26-50 is Fair, 51-100 is Poor, and more than 100 is Very Poor.

The AQI is based on outdoor concentrations of carbon monoxide (CO), fine particulate matter ($PM_{2.5}$), nitrogen dioxide (NO_2), ozone (O_3) and sulphur dioxide (SO_2).

At least four of the five parameters must be used to calculate the AQI, one of which MUST be $PM_{2.5}$. The highest number calculated for a specific hour is used as the AQI for that hour.

Quality Control

The data sent to the Real-Time Air quality system is raw data that has not undergone any quality control processes. However, the data undergoes an automated screening procedure prior to being displayed on the Webpage. The data is checked against upper and lower limits that would be expected for a specific parameter, and is compared to

Alberta's Ambient Air Quality Objectives. If the data falls outside the set limits, a number of things can happen.

Some parameters have specific autocorrection criteria. If the parameter drifts below the autocorrect lower limit the value displayed will be n/a. The data is flagged and the airquality.webmaster@gov.ab.ca is notified via email.

If the parameter value is above the upper limit set, the value is displayed but is flagged and the airquality.webmaster@gov.ab.ca is notified via email.

If any changes are made to a station or site; such as parameters added, new stations added, web page links changed, contact information changed, please contact airquality.webmaster@gov.ab.ca so that the appropriate updates can be made.

Editing Data

If any parameter value is deemed incorrect, then the airquality.webmaster@gov.ab.ca has the capability of accessing the air quality database and making the appropriate change to parameter value using the TELUS GeoExplorer™ data-editing tool.

If the station is undergoing maintenance or calibrations of specific parameters, the text file should indicate this with "n/a" for that parameter. Sometimes data files are sent with parameters displaying data that is obviously erroneous. In this case contact the airquality.webmaster@gov.ab.ca to remove that data using the data-editing tool.

Viewing Data Files

Real-time data files that are submitted for the Telus real-time website can be viewed at www.casadata.org - /iqua/. The "sent to Telus" file contains the previous 48 hours of files that have successfully been sent to Telus. The archive file contains the previous 45 days of archived data that had been successfully sent to Telus. "Temp "is where the files reside before they are sent to Telus. "Resend" is used by casasupport as a hold file for manual loading.

Chapter 8
Reporting Issues

Users are encouraged to report issues that they feel would improve the system. Issues can include:

- A request for enhancements to the system.
- A request for formatting or layout changes.
- Reporting errors you have encountered.
- Selecting reports.

You can view and report issues on the CDW Web site. This allows you to track how and when the issue you report is dealt with.

Before you report an issue, you should check the Issue List to see if someone else has already done so. After you have reported an issue, you can track its progress by periodically checking the Issue List.

Accessing the Issues Manager

On the CDW Web site main page, click the Issues Manager link near the upper right of the page. The Login page appears.

CASA Data Warehouse Issues Manager Login Screen

On the Login page, type your user name and password, and then click Login. (The user name and password used here is not the same password used for FTP access).

The Issue List page appears.

CASA Data Warehouse Issues List

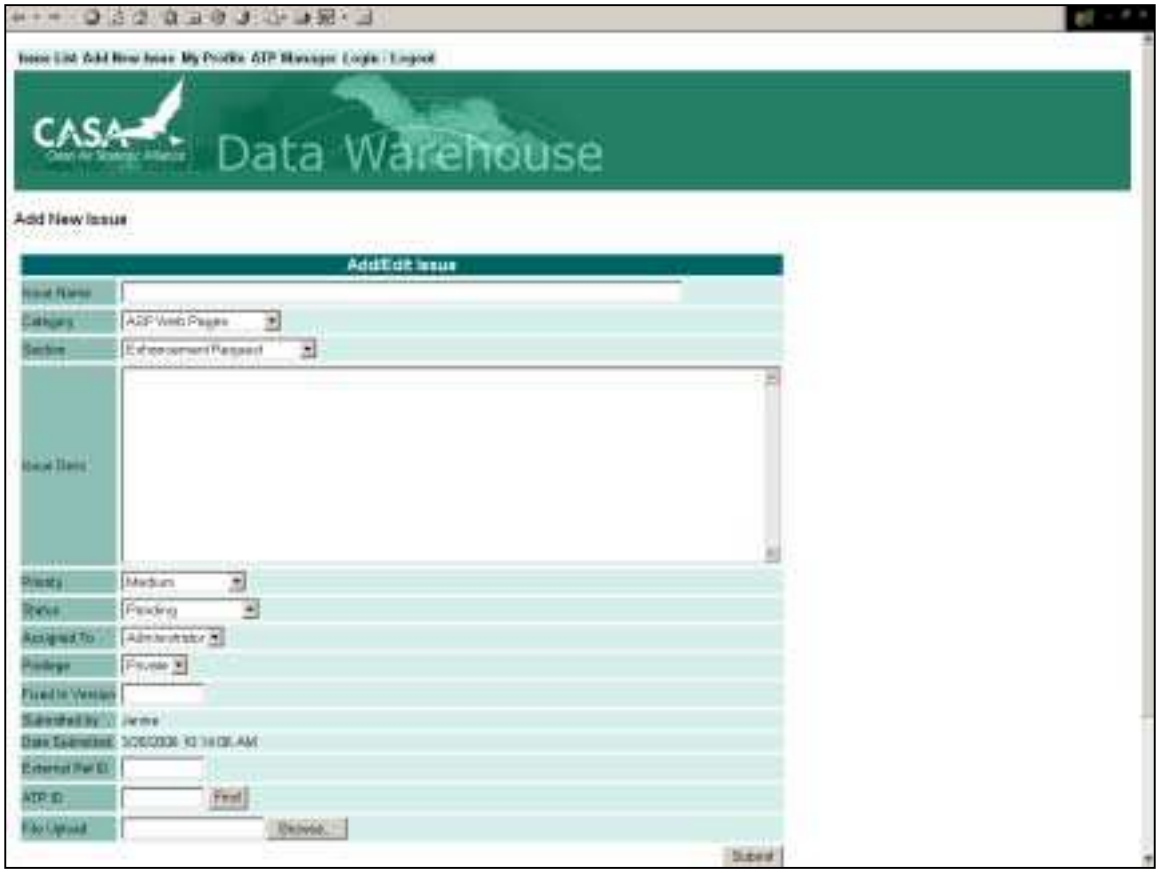
Adding New Issues

Once you have ensured that the issue has not yet been reported, report it by adding it to the Issue List.

To add an issue to the Issue List
Click the Add New Issue link near the lower left of the page.

The Add New Issue page appears.

Add/Edit Issue Page



On the Add New Issue page, do the following to report a new issue:

- In the Issue Name box, type a name for the issue you want to create.
- In the Category box, select the category that best describes your issue.
- In the Section box, select the type of change that your issue will address.
- In the Issue Desc. box, type a description of your issue.
- Click Submit to add your issue to the issues list.

Setting	Option	Description
Issue Name		The user-defined name of the issue.
Section	All	For use when all types of issues want to be viewed.
	Enhancement Request	For use when you have a suggestion which would improve usability of the CDW.
	Error Encountered	For use when a bug in the CDW has been encountered.
	Layout of Formatting Change	For use when you have a suggestion that may improve the user interface of the CDW.
	Report Selection	For use when you have a suggestion for a new report generated by the CDW.
Issue Desc		The user-defined description of the issue.

Priority	All	Displays issues with all priorities.
	Highest	Indicates that the issue is one of the highest priority.
	High	Indicates that the issue is one of high priority.
	Medium	Indicates that the issue is one of medium priority.
	Low	Indicates that the issue is one of low priority.
Feature Request		Indicates that the issue is a feature request for future versions.
Status	All	Displays issues with all statuses.
	Pending	Indicates that the issue is pending.
	Follow-up Required	Indicates that the issue requires follow-up.
	In Progress	Indicates that a solution to the issue is in progress.
	Completed	Indicates that the issue has been resolved.
	In Testing	Indicates that a solution to the issue is being tested.
	Closed	Indicates that the issue is closed.
	Abandoned	Indicates that the issue has been abandoned.
Assigned To	Anyone	Indicates that the issue has been assigned to anyone available.
	Administrator	Indicates that the issue has been assigned to the administrator.
Privilege	Private	Indicates that the issue is not available for public viewing.
	Public	Indicates that the issue is available to everyone.
Fixed In Version		Indicates in which version the issue has been fixed.
Submitted By		Displays the name of the person who submitted the issue.
Date Submitted		Displays the date on which the issue was submitted.
External Ref ID		Displays the external reference identifier.
ATP ID		Displays the ATP identifier.
File Upload		Used to select a file to be uploaded to accompany the issue report.

Note

Text in green indicates that the setting is to be defined by administrators only.

Editing an Issue

You may need to edit an issue that you have added to include more information or to correct errors. You can edit any issue that is not yet closed.

To edit an issue in the issue list

1) View the Issue List, as described in Accessing the Issues Manager.
2) Click the Add New Issue link near the lower left of the window. The Add New Issue screen appears.

3) On the Add New Issue screen, do the following to report a new issue:
a) In the Issue Name box, type a name for the issue you want to create.
b) In the Category box, select the category that best describes your issue. The available categories are described in the table on the Adding an Issue Page.
c) In the Section box, select the type of change that your issue will address. The available sections are described on the table on the Adding an Issue Page.
d) In the Issue Desc. box, type a description of your issue.
e) Click Submit to add your issue to the issues list.
4) On the Add New Issue screen, do the following to report a new issue:
a) In the Issue Name box, type a name for the issue you want to create.
b) In the Category box, select the category that best describes your issue. The available categories are described in the table on the Adding an Issue Page.
c) In the Section box, select the type of change that your issue will address. The available sections are described in the table on the Adding an Issue Page.
d) In the Issue Desc. box, type a description of your issue.
e) In the Priority box, select the priority that best describes your issue. The available priorities are described in table on the Adding an Issue Page.
f) In the Status box, select the status of your issue. The available statuses are described in table on the Adding an Issue Page.
g) In the Assigned To box, select the name of the person you want to assign to the issue.
h) In the Privilege box, select Private or Public, depending on whether the issue should be viewable by other users.
i) In the Fixed in Version box, type a name for the issue you want to create.

Appendix A
CDEF Format in Detail

CDEF

This section briefly describes each CDEF data file column shown in CDEF data file structure available on the Station Maintenance Pages of the CDW under Data Submission Formats. The numbers following the column names represent the character location in the data line.

Note:

A complete listing of all the applicable codes is shown on the Maintenance Menu page, http://www.casadata.org/Maintenance/Maintenance_Menu.asp under the heading "Listing of All Valid Parameters and Method Codes" or under the heading "Static Codes".

Collection Type Code (1)

The Collection Type Code specifies the type of data that is contained in the file. For CDEF data, this code must be 1 (continuous).

A complete listing of all the Collection Type Codes is shown in the online table "Collection Type Codes". (http://www.casadata.org/Maintenance/StaticCodes_List.asp?type=1).

Site Code (2-3)

Each site is assigned a Site Code, which specifies the site to which the station belongs. Each site can have numerous stations, and the Site Code, along with the Station Code, identifies each station.

A complete listing of all the Site Codes is shown in the online table "Site/Station Codes". Site codes are displayed in brackets next to the Site Name. (http://www.casadata.org/Maintenance/StaticCodes_List.asp?type=4).

Area Code (4-7)

The Area Code specifies the area where the station is located: Northern Alberta (0780) or Southern Alberta (0403).

Station Code (8-10)

Each station is assigned a Station Code, which specifies the station that collected the sample. The Station Code, along with the Site Code, identifies each station.

A complete listing of all the Station Codes is shown in the online table "Site/Station Codes". (http://www.casadata.org/Maintenance/StaticCodes_List.asp?type=4).

Agency Type (11)
The Agency Type specifies the type of group that has collected the data in the file. The agency types are:

- W (Airshed Zone)
- X (Industry)
- Y (Federal Government)
- Z (Provincial Government)

(Not to be confused with the Agency Code used in IDEF Columns, which contains six characters, Agency Type for CDEF formatting contains one character)

Program Code (12-13)
The Program Code specifies the type of program used to collect the data in the file. The program code for continuous data is 09.

A complete listing of all the Program Codes is shown in the online table "Program Codes". (http://www.casadata.org/Maintenance/Maintenance_Menu.asp)

Time Code (14)
The Time Code specifies the time interval over which the data was collected. Although there are numerous Time Codes, the Time Code for continuous data is either 1 (1-hour) or D (5-minute).

A complete listing of all the Time Codes is shown in the online table "Time Codes". (http://www.casadata.org/Maintenance/StaticCodes_List.asp?type=5).

Date (15-20)
The Date specifies the date on which the data was collected. The date is entered using the format yymmdd, where:

- yy represents the year (for example, 99 for 1999 or 04 for 2004)
- mm represents the month (for example, 02 for February or 11 for November)
- dd represents the day of the month (for example, 03 for the third day of the month)

The digits in the date are not separated. For example, April 19, 2003 is represented by 030419.

Start Hour (21-22)
The Start Hour specifies the period of time to which the data applies. The Start Hour for continuous 1-hour data is one of the following:

- A Start Hour of 00 indicates that the data is for midnight and onward.
- A Start Hour of 12 indicates that the data is for noon and onward.

The Start Hour for continuous 5-minute data is the hour during which the data was collected, using the 24-hour clock. For example, data collected 10 minutes after midnight has a Start Hour of 00, whereas data collected 5 minutes after 7 pm has a Start Hour of 19.

Parameter Code (23-27)
The Parameter ID specifies the parameter represented by the data, and has 5 digits. For example, the Parameter ID for CO2 data is 42102, whereas the Parameter ID for H2S data is 42402.

A complete listing of all the Parameter IDs along with the applicable method codes is shown in the online table "Continuous Parameters and Method Codes". (http://www.casadata.org/Maintenance/Parameters_List.asp?CT=1).

Method Code (28-29)
The Method Code specifies the method used to collect the data. These codes are based on those used by the US EPA's AIRS.
For example, the Method Code for instrumental data is 11, whereas the Method Code for Chemiluminescence data is 14.

A complete listing of all the Method Codes is shown in the online table "Method Codes". (http://www.casadata.org/Maintenance/StaticCodes_List.asp?type=2).

Unit Code (30-31)
The Unit Code specifies the unit used to measure the data, and depends on the type of measurement collected.

A complete listing of all the Unit Codes is shown in the online table "Unit Codes". (http://www.casadata.org/Maintenance/StaticCodes_List.asp?type=6).

Decimal (32)
The Decimal specifies the precision of the data values by indicating the number of decimal places used to represent the values.
For example, if the Decimal for a value is 1, and the value in the data file is 3434, the value will be interpreted as 343.4 units.

Data Values and Flags (33-92)
The Data Values are the 1st four digits, the Data Flag follows; this is repeated for each line, starting at character location 33 and ending at character location 92.

The Data Values are the value of the parameter.

The Data Flag field is optional. A blank in the status or data flag field is acceptable and indicates the data value for that time period is valid. However if a data flag is used only one of the following is recognized:

- <: Below Detection Limit
- M: Missing (for integrated data)
- V: Valid
- ? : Questionable

Examples of the CDEF data submission formats are shown on the Maintenance Menu page, http://www.casadata.org/Maintenance/Maintenance_Menu.asp under the heading "Data Submission Formats".

Appendix B
IDEF Format in Detail

IDEF

This section briefly describes each IDEF data file column shown in IDEF data file structure available on the Station Maintenance Pages of the CDW under Data Submission Formats. The numbers following the column names represent the character location in the data line.

Note:

A complete listing of all the applicable codes is shown on the Maintenance Menu page, http://www.casadata.org/Maintenance/Maintenance_Menu.asp under the heading "Listing of All Valid Parameters and Method Codes" or under the heading "Static Codes". If you are submitting ecological data, contact AENV for the appropriate codes.

Collection Type Code (1)

The Collection Type code specifies the type of data that is contained in the file.

A complete listing of all the Collection Types is shown in the online table Collection Type Codes (http://www.casadata.org/Maintenance/StaticCodes_List.asp?type=1).

Site Code (2-3)

Each site is assigned a Site Code, which specifies the site to which the station belongs. Each site can have numerous stations, and the Site Code, along with the Station Code, identifies each station.

A complete listing of all the Site Codes is shown in the online table Site/Station Codes (http://www.casadata.org/Maintenance/StaticCodes_List.asp?type=4).

Station/Plot Code (4-6)

Each station is assigned a Station/Plot Code, which specifies the station. The Station/Plot Code, along with the Site Code, identifies each station. The term used by your agency depends on the type of data that is being collected: ecological samples are usually collected from plots, whereas intermittent and passive samples are usually collected from sites.

A complete listing of all the Station Codes is shown in the online table "Site/Station Codes". (http://www.casadata.org/Maintenance/StaticCodes_List.asp?type=4).

Instrument/Subplot Code (7-9)

The Instrument/Subplot Code is used to break down the sampling plot or site. Plots may be broken down into subplots, whereas instruments represent individual monitoring devices within a plot or station. **This is usually used for ecological data only. Other data types would input 000 for a null code.**

Subsection Code (10-12)
Subsection Codes may be used to track parameters to individual species or multiple vegetation sections. **This is usually used for ecological data only. Other data types would input 000 for a null code.**

Agency Code (13-18)
The Agency Code specifies the agency that has collected the data in the file. This code can include blanks as long as it is a total of 6 digits. For instance AENV__ would represent Alberta Environment, WBEA__ would represent Wood Buffalo Environmental Association. (Not to be confused with the Agency Type Code used for CDEF Columns, which contains one character, the Agency Code used for IDEF Columns contains six characters)

Program ID (19-20)
The Program ID specifies the type of program used to collect the data in the file. (Passive, VOC, etc.)

A complete listing of all the Program Codes is shown in the online table "Program Codes". (http://www.casadata.org/Maintenance/Maintenance_Menu.asp)

Time Code (21)
The Time Code specifies the time interval over which the data was collected. For example, the Time Code for integrated data may be 1 (1-hour) or 7 (daily).

A complete listing of all the Time Codes is shown in the online table Time Codes (http://www.casadata.org/Maintenance/StaticCodes_List.asp?type=5).

Sample Start Date (22-27)
The Sample Start Date specifies the date on which the data was collected. The Start Date is entered using the format yymmdd, where:

- yy represents the year (for example, 99 for 1999 or 04 for 2004)
- mm represents the month (for example, 02 for February or 11 for November)
- dd represents the day of the month (for example, 03 for the third day of the month)

The digits in the date are not separated. For example, 030419 represent April 19, 2003.

Sample Start Time (28-31)
The Sample Start Time specifies the time when the data begins. The Start Time is entered using the format hhmm, where:

- hh represents the hour on the 24-hour clock (00 to 23)
- mm represents the minutes (00 to 59)

For example, if the first measurement were collected at 8:25 am, then the Start Time would be 0825.

Sample End Date (32-37)
The Sample End Date specifies the date on which the last measurement was collected. The Sample End Date is entered using the format yymmdd, where:

- yy represents the year (for example, 99 for 1999 or 04 for 2004)
- mm represents the month (for example, 02 for February or 11 for November)

- dd represents the day of the month (for example, 03 for the third day of the month)

The digits in the date are not separated. For example, 030419 represent April 19, 2003.

Sample End Time (38-41)

The Sample End Time specifies the time when the last measurement was collected. The End Time is entered using the format hhmm, where:

- hh represents the hour on the 24-hour clock (00 to 23)
- mm represents the minutes (00 to 59)

For example, if the last measurement were collected at 7:00 am, then the Sample End Time would be 0700.

Security Flag (42)

The Security Flag indicates whether other agencies are allowed to view the data. Although by default, all data submitted to the CDW is made available to anyone with access to subscriber reports, agencies may occasionally want to restrict the use of data to themselves or to other specific agencies. If the Security Flag is set to 0, then authorized agencies may view the data, but if the Security Flag is set to 1, the data is flagged as secure and other subscribers may not have access to the data.

Project Code (43-45)

The Project Code specifies which individuals and agencies are allowed to gain access to data that has been flagged as secure using a Security Flag set to 1. To set up a project that will restrict access to data to specific individuals and agencies, contact airquality.webmaster@gov.ab.ca. or support@casadata.org and provide the names of the individuals and agencies to whom you want to grant. **This field is optional, and can be left blank or filled with zeros.**

Method Code (46-48)

The Method Code specifies the method used to collect the data. These codes are based on those used by the US EPA's AIRS and are the same codes used by CASA stakeholders for a number of years. For example, the Method Code for instrumental data is 11, whereas the Method Code for Chemiluminescence data is 14.

A complete listing of all the Method Codes is shown in the online table Method Codes (http://www.casadata.org/Maintenance/StaticCodes_List.asp?type=2).

Laboratory ID (49-51)

The Laboratory ID specifies the laboratory used to analyze the parameter or process the sample. **This field is optional, and can be left blank or filled with zeros.**

Lab Sample Number (52-61)

The Lab Sample Number specifies the reference number used by the lab to identify the sample. This number can be up to 10 characters. **This field is optional, and can be left blank or filled with zeros.**

Lab Analysis Number (62-69)

When a laboratory analyzes a sample for various parameters, their internal job ID number may be stored as the Lab Analysis Number. **This field is optional, and can be left blank or filled with zeros.**

Operator ID (70-72)
The Operator ID specifies the person responsible for collecting the data. This ID is for reference only. **This field is optional, and can be left blank or filled with zeros.** If you want to use Operator IDs, contact airquality.webmaster@gov.ab.ca. to obtain further information.

Field Reference Number (73-79)
The Field Reference Number is a numeric or character code that references an operator's collection procedure or field notes. This number is used for internal purposes by the agency submitting the data. **This field is optional, and can be left blank or filled with zeros.**

Flow Rate / Special Pool (80-86)
The contents of the Flow Rate / Special Pool column varies according to the type of data in the file. For intermittent data, the Flow Rate indicates the amount of air or liquid that passed through the collecting device to obtain an adequate sample. For ecological data, the Special Pool indicates the size or number of species required to collect the sample. **This field is optional, and can be left blank or filled with zeros.**

Flow / Special Pool Units (87-88)
The Flow / Special Pool Units column specifies the units used in the Flow Rate / Special Pool column. For example, if intermittent data was used in the Flow Rate / Special Pool column, then units such as litres per minute or gallons per minute may be used. However, if file contains ecological data, the unit code 00 should be used. **This field is optional, and can be left blank or filled with zeros.**

Sample Volume (89-95)
The Sample Volume specifies the amount or number of units represented by the sample. **This field is optional, and can be left blank or filled with zeros.**

Sample Volume Units (96-97)
The Sample Volume Units specifies the units used to measure the sample volume. **This field is optional, and can be left blank or filled with zeros.**

Period Duration (98-104)
The Period Duration column, used only for intermittent data, specifies the amount of time during which a mechanical device was activated to collect the sample. This number is formatted with two decimal places, and the numbers that appear after the decimal represent the fractional portion of the hour, not the number of minutes. For example, a Period Duration of .33 represents 20 minutes.

Parameter Code (105-112)
The Parameter Code specifies the parameter represented by the data, and has 5 digits. For example, the Parameter Code for CO2 data is 42101, whereas the Parameter Code for SO2 data is 42401.

A complete listing of Parameter Codes is shown in the online table under the heading "Listing of All Valid Parameters and Method Codes"
http://www.casadata.org/Maintenance/Maintenance_Menu.asp

Note:
Parameter codes used for CDEF data files may be different for IDEF data files.

Unit Code (113-114)
The Unit Code specifies the unit used to measure the Parameter Code.

A complete listing of all the Unit Codes is shown in the online table Unit Codes (http://www.casadata.org/Maintenance/StaticCodes_List.asp?type=6).

Parameter Value (115-123)
The Parameter Value specifies the value of the parameter measured, and is formatted with at least decimal place.

The maximum integer value is 4 digits (for example, 9999), and the maximum precision is to 4 decimal places (for example, 1.9999). Leading zeros are not required.

Parameter QA Flag (124)
The Parameter QA Flag specifies additional information about the parameter value and is usually assigned by the agency or individual performing the QA/QC procedure. This single digit flag can be one of the following:

- <: Below Detection Limit
- M: Missing
- V: Valid
- ? : Questionable

This field is optional, and can be left blank.

Calculation Status (125)
The Calculation Status specifies the calculation method used to calculate the measurement. For example, the height of a tree may be E (estimated) or A (actual measurement). **This field is optional, and can be left blank or filled with zeros.**

Eco Species Type (126-133)
The Eco Species Type specifies the type of object measured (such as a tree or lichen). This code is normally only used for ecological data. **This field is optional, and can be left blank or filled with zeros.**

Eco Species List (134-135)
The Eco Species Type is a code created by an agency to group common classes of parameters. This code is normally only used for ecological data. **This field is optional, and can be left blank or filled with zeros.**

Remarks (136-235; Optional)
The Remarks column is to include comments about the data, and can contain up to 100 characters. This field is optional, and can be left blank.

Examples of the IDEF data submission formats are shown on the Maintenance Menu page, http://www.casadata.org/Maintenance/Maintenance_Menu.asp under the heading "Data Submission Formats".

Appendix C
Real-Time Hourly Data Format in Detail

The real time hourly data collected by data providers is submitted in a text file following a specific naming convention. The naming convention for the file is:

H##_yy_mm_dd_stnam.TXT

where:

- "H" indicates that this is an hourly file,
- "##" is the end hour for the data submitted in MST (the TELUS system will convert to MDT) - for example if ## = 01 will contain data averaged from midnight to 1 a.m. MST,
- "yy" is the year (02 for 2002),
- "mm" is the month (07 for July),
- "dd" is the day of the month, and
- "stnam" is the station name recognized by the TELUS system (stnam for Fort Saskatchewan is 14AQM). Contact airquality.webmaster@gov.ab.ca to be assigned a stnam.

The file called "H08_02_07_11_14AQM.TXT" will contain hourly data from 0700 to 0800 MST on July 11, 2002 for the Fort Saskatchewan station. See the example below.

```
IQUA: 02/07/1108:00:00 13O3

***** Hourly Readings *****

Station: 14AQM
Data Logger: ESC
Date: 02/07/11 YY/MM/DD
Time: 08:00:00 MST

Parameter,Units,Value,IQUA
-------------------------
CO,PPM,0.3,0.58
O3,PPM,0.025,12.50
THC,PPM,1.6,-99.99
NO,PPM,0.004,-99.99
NOX,PPM,0.015,-99.99
NO2,PPM,0.010,2.38
SO2,PPM,0.001,0.15
H2S,PPM,0.001,-99.99
NH3,PPM,0.004,-99.99
DEV,DEG,32.,-99.99
WDR,DEG,237.,-99.99
WSP,KPH,2.1,-99.99
TEMP,DGC,19.2,-99.99
PM2,UGM,8.3,-99.99
TPX,DGC,23.5,-99.99
********** EOF **********
```

The first record of the text file contains date and time information followed by the calculated AQI number and the pollutant responsible for the AQI reading.

Records five to eight contain station, data logger, and date and time information.

In this example, the file is for July 11, 2002 at 8 a.m. MST and the AQI is 13 based on ozone at Fort Saskatchewan.

The subsequent records contain the parameter name, units of measurement, parameter value, and calculated AQI for each parameter in a comma-separated-variable format.

“-99.99” is used if the AQI cannot be calculated for a specific parameter. An “n/a” is used if the data for a specific pollutant is not available.

Data logger short names for parameters are listed below.
SHORTNAME_DLOGGER are the parameter names recognized by the TELUS system.

SHORTNAME_DLOGGER	SHORT_NAME	FULL_NAME
IQUA	IQUA	Index of the Quality of the Air
CO	CO	Carbon Monoxide
O3	O3	Ozone
THC	THC	Total Hydrocarbons
NO	NO	Nitric Oxide
NOX	NOX	Total Oxides of Nitrogen
NO2	NO2	Nitrogen Dioxide
H2S	H2S	Hydrogen Sulphide
TRS	TRS	Total Reduced Sulphur
SO2	SO2	Sulphur Dioxide
PM2	PM2.5	Respirable Particulates ($PM_{2.5}$)
PMC	PM10	Inhalable Particulates (PM_{10})
TPX	Temp.	Outdoor Temperature
RH	RH	Relative Humidity
WDR	WDR	Wind Direction
WSP	WSP	Wind Speed
NH3	NH3	Ammonia
C2H4	C2H4	Ethylene
CH4	CH4	Methane
NOY	NOY	Reactive Oxidized Nitrogen
NMHC	NMHC	Non-Methane Hydrocarbons
BNZ	C6H6	Benzene
TOL	C7H8	Toluene
EB	C8H10	Ethylbenzene
XYL	C24H30	Xylene

Appendix D
Glossary

AAADMS
Alberta Ambient Air Data Management System – original name for the CDW

AAAQMS
Alberta Ambient Air Quality Monitoring System

Air Monitoring Directive (AMD) An Alberta Environment directive, which specifies environmental monitoring and reporting requirements and guidelines.
http://www3.gov.ab.ca/env/air/OGS/airmonitdir.html

Ambient air
All air that plants and animals breathe, except the air inside buildings.

CASA
Clean Air Strategic Alliance

CDEF
Continuous Data Exchange Format – A file format structure used for continuous data.

CDW
CASA Data Warehouse

CEMS
Continuous Emission Monitoring

Continuous Data
Continuous data provided by monitoring stations collecting readings every hour or every 5 minutes.

Dry Deposition
The direct transfer of acids and acid-forming substances to the earth's surface by all means that do not involve precipitation. This includes absorption, impaction, sedimentation and chemical reaction.

IDEF
Integrated Data Exchange Format – A file format structure used for integrated or non-continuous data.

Integrated Data
Integrated Data is non-continuous data collected in the field or obtained from laboratory analysis.

Issues Manager
Refers to a section of the CDW web site where data providers can provide feedback about the functionality of the CDW.

Null Data Codes
Codes used by the CDW to represent missing or invalid data.

PAH
Polycyclic Aromatic Hydrocarbons – a group of more than 100 chemicals formed during the incomplete combustion of fossil fuels and other organic substances.

Parameters
A set of measurable factors; in this instance pollutants monitored.

Passives
Also known as diffusive sampling. Passive sampling involves the exposure of a reactive surface to the air, and transfer of the pollutant occurs by diffusion from the air to the surface.

$PM_{2.5}$
Respirable particulates, or $PM_{2.5}$, are particulate matter less than 2.5 micrometres in diameter, and they are small enough to penetrate into the lungs.

$PM_{2.5 - 10}$
Small particles produced in the burning of fossil fuels that are emitted into the atmosphere. $PM_{2.5-10}$ indicates the particles are 2.5 to 10 micrometres in diameter.

PM_{10}
Inhalable particulates, often referred to as PM_{10}, are particulate matter less than 10 micrometres in diameter that can be inhaled into the nose and throat.

Precipitation
Also known as Wet Deposition. The transfer of acids and acid-forming substances to the earth's surface by precipitation.

Station Manager
Refers to the section of the CDW where Data Providers can maintain the information on their stations.

TSP
Total Suspended Particulates – Tiny particles of solid material or liquid aerosols, defined collectively as particulates.

VOCs
Volatile Organic Compounds –Organic compounds that evaporate readily into the air. They include substances such as benzene, toluene, methylene chloride, formaldehyde and methyl chloroform. They are common ingredients in many household products

Wet Deposition
Also known as Precipitation. The transfer of acids and acid-forming substances to the earth's surface by precipitation.