ALBERTA ENVIRONMENT
ENVIRONMENTAL MANAGEMENT SYSTEM

LAB/DWQ DATA FILE FORMAT

June, 2003

This document describes the electronic data file format to be used to submit electronic sample/measurement data to Alberta Environment (AENV).

Operators of Drinking Water facilities that are regulated under the Alberta Environmental Protection and Enhancement Act (EPEA) may electronically submit monitoring data (as required in their EPEA approval) to Alberta Environment (AENV) by using the file format described in this document. In this document, rules pertaining to these Operator-submitted files are identified as "DWQ" (Drinking Water Quality) rules.

Laboratories contracted to analyze samples of water and biological samples for Alberta Environment will also submit these results to Alberta Environment in the electronic data format described in this document. In this document, rules pertaining to these Lab files are identified as "Lab-AENV" rules.

In addition, laboratories may analyze samples provided to them by Operators of Drinking Water facilities, and then submit the data to AENV on behalf of the Operator. In this document, rules pertaining to these Lab-Operator files are identified as "Lab-Opr" rules.

The data file is to be an ASCII text format, compatible with the MS-WINDOWS (95, 98, CE, XP, NT, 2000) operating systems. Each line of text is to be terminated with a carriage-return / line feed combination (DOS text line terminator), or terminated with a line feed character (UNIX text line terminator). Each text line represents one record of data.

There are a number of different types of records in this file format, identified by the letter in the first column of the record. The record types are summarized below.

Record Type	Record Name	Description
F	File Header Record	Contains submitter information. Required for DWQ. Not applicable for Lab-AENV and Lab-Opr.
T	Station Status Record	Contains station status information. Optional for DWQ. Not applicable for Lab-AENV and Lab-Opr.
S	Sample Header Record	Contains sample information. Optional for DWQ. Required for Lab-AENV and Lab-Opr.
M	Measurement Detail Record	Contains details about measurements made on a sample. Optional for DWQ. Required for Lab-AENV and Lab-Opr.
B	Bio-measurement Detail Record	Contains details about bio-measurements made on a sample. Optional for Lab-AENV. Not applicable for DWQ and Lab-Opr.
C	Sample Header Comment Record	Contains a text comment for a sample. Optional for DWQ. Required for Lab-AENV and Lab-Opr.
K	Measurement Detail Comment Record	Contains a text comment for a measurement or a bio-measurement. Optional for all files.
#	Comment string	General purpose comment identifier. Used for comments within the data file, for the submitter's internal purposes. These comments are ignored by the processes that validate and load the data files.

File naming:

a) Files submitted by Drinking Water facility operators must adhere to the following naming conventions:

The file name must be in the format

AAAAAAAA-YYYYMMDD-S-N.LLL

Where:

- AAAAAAAA is the operator's EPEA Approval Id, left padded with zeroes, excluding the renewal and amendment suffixes
- YYYYMMDD is the date the file is sent, in numeric format (4-digit year, 2-digit month and 2-digit day)
- S is an Alphabetic sequence to differentiate files of different content sent on the same day (i.e. if files having different content were sent on the same day, the first one should have an "A", the second one a "B", etc.).
- N is a Numeric sequence to differentiate the initial version of a file from subsequent replacement file(s) having largely the same data. (i.e. the first file sent would have a "1". If a replacement file were sent on the same day, e.g. if the first file is rejected because of format/content errors, the replacement file would have a "2", etc.)
- LLL is the numeric "Lab Code" assigned to the submitter by AENV

Note: the first four file name components are separated by dashes, and a period precedes the Lab Code. Every file name must be exactly 25 characters long, including the period and three-digit file name extension.

For example, the operator for AEPA approval 1234, has been assigned Lab Code 323. The first file sent on May 1, 2002, by this operator would be named:

00001234-20020501-A-1.323

If the operator chose to submit a separate file on the same day, for some additional monitoring data (say, for some different monitoring locations), the second file would be named:

00001234-20020501-B-1.323

If it then became necessary to re-submit the first file on the same day, the replacement file would be named:

00001234-20020501-A-2.323

It is the responsibility of the submitter to manage their file names, using the above approach, to ensure that every file sent to AENV has a unique name. If a file is sent with a file name that has already been used, the file will be rejected.

b) Lab-Opr files (i.e. files submitted by labs on behalf of Drinking Water facility operators) must adhere to the following naming conventions:

1. The file name must be either the data file sequence number for the given lab or the work order number (if linked directly to invoicing).
2. The file name should be left padded with zero characters to make the file name exactly 8 characters (alpha-numeric) long.
3. The file name extension must be an uppercase "M" followed by the 3-digit lab code assigned to the lab.
4. Each file must only contain analyses for one municipality/approval.

For example, the first Lab-Opr file from lab 27 would be named: 00000001.M027. The second file would be named 00000002.M027, and so on.

It is the responsibility of the labs to maintain their file naming sequence. If a file is sent with a file name that has already been used, the file will be rejected.

c) Lab-AENV files (i.e. files submitted by AENV-contracted labs) must adhere to the following naming conventions:

1. The file name must be either the data file sequence number for the given lab or the work order number (if linked directly to invoicing).
2. The file name should be left padded with zero characters to make the file name exactly 8 characters (alpha-numeric) long.
3. The file name extension must be the 3-digit lab code assigned to the lab.
4. Each file should only contain analyses for one agency (e.g. 211:surface water, 202: municipal inspections, etc)

For example, the first Lab-AENV file from lab 27 would be named: 00000001.027. The second file would be named 00000002.027, and so on.

It is the responsibility of the labs to maintain their file naming sequence. If a file is sent with a file name that has already been used, the file will be rejected.

Record Name: File Header Record

Description: This record type contains information about the file and the file submitter.

Notes: All fields are 'fixed format'. If optional data is not included, the appropriate character positions must be filled with spaces. Character fields that are not completely filled must be padded on the right with spaces. Numeric fields that are not completely filled must be padded on the left with zeros or spaces.

The file cannot contain more than one File Header Record. The File Header Record should appear before any other records in the file, other than file comment strings (record type #).

This record type is required for DWQ files, and not applicable for Lab-AENV and Lab-Opr files.

All dates must be in Mountain Standard Time (MST).

The "Required /Optional" columns indicate whether each field is Required (R) or O (Optional) for the three types of files: "DWQ", "Lab-AENV", and "Lab-Opr". An "n/a" (not applicable) in the Required / Optional column indicates that the field should be left blank as it is ignored for that type of file.

Field No.	Field Name	Description	Required / Optional			Data Type	Data Format	Data Length	Start Pos.	End Pos.
			DWQ	Lab-Opr	Lab-AENV					
1	Record Type	F	R	n/a	n/a	Char	X	1	1	1
2	Record Number	Sequential number of each record in the file	R	n/a	n/a	Num	999999	6	2	7
3	Approval Id	EPEA Approval Id, issued by AENV. **	R	n/a	n/a	Num	99999999	8	8	15
4	Sent Date	The date the file was sent to AENV.	R	n/a	n/a	Num	YYYYMMDD	8	16	23
5	Email Address	Email address to be used for notifications about the file processing success / failure.	R	n/a	n/a	Char	X(50)	50	24	73
6	Data Year/Month	The year or year and month to which the data refers (i.e. the time period in which the samples where taken.)	R	n/a	n/a	Num	YYYYMM (The MM portion may be left blank for annual reporting.)	6	74	79
7	File Name	The name of the submitted file.	R	n/a	n/a	Char	X(25)	25	80	104
8	Notes / Comments	Notes and/or comments for the submission	O	n/a	n/a	Char	X(2000) (Maximum size is 2000 characters. This field is terminated by the line feed character.)	0 to 2000	105	104 to 2104

** Must be a valid AENV code.

Record Name: Station Status Record

Description: This record type contains information about changes in the status of a station (i.e. monitoring location).

Notes: All fields are 'fixed format'. If optional data is not included, the appropriate character positions must be filled with spaces. Character fields that are not completely filled must be padded on the right with spaces. Numeric fields that are not completely filled must be padded on the left with zeros or spaces.

This record type is optional for DWQ files and not applicable for Lab-AENV and Lab-Opr files.

All dates must be in Mountain Standard Time (MST).

The "Required /Optional" columns indicate whether each field is Required (R) or O (Optional) for the three types of files: "DWQ", "Lab-AENV", and "Lab-Opr". An "n/a" (not applicable) in the Required / Optional column indicates that the field should be left blank as it is ignored for that type of file.

Field No.	Field Name	Description	Required / Optional			Data Type	Data Format	Data Length	Start Pos.	End Pos.
			DWQ	Lab-Opr	Lab-AENV					
1	Record Type	T	R	n/a	n/a	Char	X	1	1	1
2	Record Number	Sequential number of each record in the file	R	n/a	n/a	Num	999999	6	2	7
3	Station No.	Station Number issued by AENV to identify the monitoring location. **	R	n/a	n/a	Char	X(10)	10	8	17
4	Effective Date	The effective date for the station status.	R	n/a	n/a	Char	YYYYMMDDHHMISS	14	18	31
5	Status Indicator	The station status indicator.**	R	n/a	n/a	Char	X(3)	3	32	34
6	Status Comment	A comment about the station status.	O	n/a	n/a	Char	X(255) (Maximum size is 255 characters. This field is terminated by the line feed character.)	0 to 255	35	34 to 289

** Must be a valid AENV code.

Record Name

Sample Header Record

Description

This record type contains information about a sample.

Notes

All fields are 'fixed format'. If optional data is not included, the appropriate character positions must be filled with spaces. Character fields that are not completely filled must be padded on the right with spaces. Numeric fields that are not completely filled must be padded on the left with zeros or spaces.

This record type is required for DWQ, Lab-AENV, and Lab-Opr files.

All dates must be in Mountain Standard Time (MST)

The "Required /Optional" columns indicate whether each field is Required (R) or O (Optional) for the three types of files: "DWQ", "Lab-AENV", and "Lab-Opr". An "n/a" (not applicable) in the Required / Optional column indicates that the field should be left blank as it is ignored for that type of file.

Field No.	Field Name	Description	Required / Optional			Data Type	Data Format	Data Length	Start Pos.	End Pos.
			DWQ	Lab-Opr	Lab-AENV					
1	Record Type	S	R	R	R	Char	X	1	1	1
2	Record Number	Sequential number of each record in the file	R	R	R	Num	999999	6	2	7
3	Sample No.	Sample number issued by AENV	n/a	n/a	O *	Char	X(10)	10	8	17
4	Sample Date	Date sample was taken from station	R	R	R	Date	YYYYMMDDHHMISS	14	18	31
5	Sample End Date	Date sample was completed from station	O	O	O *	Date	YYYYMMDDHHMISS	14	32	45
6	Sent Date	Date sample was sent to the lab	n/a	n/a	O *	Date	YYYYMMDDHHMISS	14	46	59
7	Received Date	Date sample was received by the lab	n/a	R	R	Date	YYYYMMDDHHMISS	14	60	73
8	Returned Date	Date sample data was returned to AENV	n/a	n/a	O	Date	YYYYMMDDHHMISS	14	74	87
9	Lab Code	ID code of lab where measurements are done**	R	R	R	Char	X(3)	3	88	90
10	Lab Sample Number	Sample number used internally by the lab	R	R	R	Char	X(20)	20	91	110
11	Station No.	Station number, issued by AENV, where sample was obtained**	R	R	O *	Char	X(10)	10	111	120
12	Project No.	Project number sample was collected for**	n/a	n/a	R	Char	X(6)	6	121	126
13	Agency Code	Code to identify agency responsible for sample**	n/a	n/a	R	Char	X(4)	4	127	130
14	Sample Matrix Code	Code to define sample matrix **	R	R	O *	Char	X(2)	2	131	132
15	Number Caught	Number of discrete biota caught in a single sample	n/a	n/a	O *	Num	99999	5	133	137
16	Number Kept	Number of biota kept from a single sample	n/a	n/a	O *	Num	99999	5	138	142
17	Sample Type Code	Code which identifies the type of sample**	R	R	O *	Char	X(2)	2	143	144
18	Collection Code	Code which identifies how sample was collected**	n/a	n/a	O *	Char	X(3)	3	145	147
19	Group Sample No	Number for samples that are linked to other samples	n/a	n/a	O *	Char	X(10)	10	148	157
20	Sample Cross Ref.	Cross reference for agency or project	n/a	R #	O *	Char	X(20)	20	158	177

21	Sample Depth	Depth sample was taken at	n/a	n/a	O *	Num	99999.9	7	178	184
22	Sampler ID 1	First ID number of person who collected the sample	n/a	n/a	O *	Num	99999999	8	185	192
23	Sampler ID 2	Second ID number of person who collected sample	n/a	n/a	O *	Num	99999999	8	193	200
24	Sampler ID 3	Third ID number of person who collected sample	n/a	n/a	O *	Num	99999999	8	201	208
25	Sample Frequency Code	Code to indicate the frequency of the sampling**	R	R	n/a	Char	X(5)	5	209	213
26	Reading Type	Code to indicate the reading type**	O	n/a	n/a	Char	X(3)	3	214	216

* Required if supplied by Alberta Environment, blank otherwise.

** If populated, must be a valid AENV code.

For Labs, if the data is associated with a particular approval (e.g. for bacteriological data), this field will contain the approval id associated with the measurement.

Record Name

Measurement Detail Record

Description

This record type contains details of measurements or bio-measurements pertaining to a sample.

Notes

All fields are 'fixed format'. If optional data is not included, the appropriate character positions must be filled with spaces. Character fields that are not completely filled must be padded on the right with spaces. Numeric fields that are not completely filled must be padded on the left with zeros or spaces.

Record type M is optional for DWQ files and required for Lab-AENV and Lab-Opr files.
Record type B is optional for Lab-AENV files and not applicable for DWQ and Lab-Opr files.

Fields 5 and 6 relate only to biological/biota records (record type B).

The lab sample number field in each M or B record must relate to a corresponding S record in the data file with the same lab sample number.

All dates must be in Mountain Standard Time (MST)

The "Required /Optional" columns indicate whether each field is Required (R) or O (Optional) for the three types of files: "DWQ", "Lab-AENV", and "Lab-Opr". An "n/a" (not applicable) in the Required / Optional column indicates that the field should be left blank as it is ignored for that type of file.

Field No.	Field Name	Description	Required / Optional			Data Type	Data Format	Data Length	Start Pos.	End Pos.
			DWQ	Lab-Opr	Lab-AENV					
1	Record Type	M (if standard measurement record) B (if biological measurement record)	R	R	R	Char	X	1	1	1
2	Record Number	Sequential number of each record in the file	R	R	R	Num	999999	6	2	7
3	Lab Sample Number	Sample number used internally by the lab	R	R	R	Char	X(20)	20	8	27
4	Measurement No.	Measurement sequence number within a sample	R	R	R	Num	999999999	9	28	36
5	Project No.	Project number measurement is for	n/a	n/a	O *	Char	X(6)	6	37	42
6	Tissue Item No	Tissue item the measurement is from	n/a	n/a	O *	Num	999999	6	43	48
7	Measurement Date	Date measurement was made	R	R	R	Date	YYYYMMDDHHMISS	14	49	62
8	VMV Code	VMV parameter code for measurement**	R	R	R	Num	999999	6	63	68
9	Value	Numeric value of measurement	O #	R	R	Num	999999.99999	12	69	80
10	Flag	Flag to qualify measurement value**	O	O	O	Char	X	1	81	81
11	Pretreatment Code	Code for any pretreatment of the sample	n/a	n/a	n/a	Char	X	1	82	82
12	Sample Detect Limit	Detection limit for measurement	n/a	O ***	O ***	Char	X(15)	15	83	97
13	Value Type Code	Code to describe the type of value measured	n/a	n/a	n/a	Char	X(2)	2	98	99
14	Qualifier 1	First qualifier for measured value**	O	O	O	Char	X(4)	4	100	103
15	Qualifier 2	Second qualifier for measured value**	O	O	O	Char	X(4)	4	104	107
16	Qualifier 3	Third qualifier for measured value**	O	O	O	Char	X(4)	4	108	111
17	Qualifier 4	Fourth qualifier for measured value**	O	O	O	Char	X(4)	4	112	115
18	Qualifier 5	Fifth qualifier for measured value**	O	O	O	Char	X(4)	4	116	119
19	Qualifier 6	Sixth qualifier for measured value**	O	O	O	Char	X(4)	4	120	123
20	Qualifier 7	Seventh qualifier for measured value**	O	O	O	Char	X(4)	4	124	127
21	Missing Meas. Code	Code to indicate reason for a missing	O #	n/a	n/a	Char	X(3)	3	128	130

		measurement**								

\# Either Value or Missing Meas. Code is required - one or the other, but not both.
* Required if supplied by Alberta Environment, blank otherwise.
** If populated, must be a valid AENV code.
*** Required if actual detection limit differs from the standard VMV parameter's detection limit.

Record Name

Sample Header Comment

Description

This record contains comments pertaining to a sample.

Notes

All fields are 'fixed format'. If optional data is not included, the appropriate character positions must be filled with spaces. Character fields that are not completely filled must be padded on the right with spaces. Numeric fields that are not completely filled must be padded on the left with zeros or spaces.

This record type is optional for DWQ files and required for Lab-AENV and Lab-Opr files. For labs, this record contains the written site description from the chemical analysis request sheet. Additional lab comments regarding the sample can be appended to the site description by the lab.

Only one comment record is allowed for each sample record.

The lab sample number field in each C record must relate to a corresponding S record in the data file with the same lab sample number.

The "Required /Optional" columns indicate whether each field is Required (R) or O (Optional) for the three types of files: "DWQ", "Lab-AENV", and "Lab-Opr". An "n/a" (not applicable) in the Required / Optional column indicates that the field should be left blank as it is ignored for that type of file.

Field No.	Field Name	Description	Required / Optional			Data Type	Data Format	Data Length	Start Pos.	End Pos.
			DWQ	Lab-Opr	Lab-AENV					
1	Record Type	C	R	R	R	Char	X	1	1	1
2	Record Number	Sequential number of each record in the file	R	R	R	Num	999999	6	2	7
3	Lab Sample Number	Sample number used internally by the lab	R	R	R	Char	X(20)	20	8	27
4	Comment	Text comment describing sample	R	R	R	Char	X(255) (Maximum size is 255 characters. This field is terminated by the line feed character.)	0 to 255	28	27 to 282

Record Name

Measurement Detail Comment

Description

This optional record contains comments pertaining to a measurement or a bio-measurement.

Notes

All fields are 'fixed format'. If optional data is not included, the appropriate character positions must be filled with spaces. Character fields that are not completely filled must be padded on the right with spaces. Numeric fields that are not completely filled must be padded on the left with zeros or spaces.

If a comment record is included, all fields in the comment record are required.

Only one comment record is allowed for each measurement record.

The lab sample number, measurement type and measurement number fields in each K record must relate to a corresponding M or B record in the data file with the same lab sample number, measurement type and measurement number.

The "Required /Optional" columns indicate whether each field is Required (R) or O (Optional) for the three types of files: "DWQ", "Lab-AENV", and "Lab-Opr". An "n/a" (not applicable) in the Required / Optional column indicates that the field should be left blank as it is ignored for that type of file.

Field No.	Field Name	Description	Required / Optional			Data Type	Data Format	Data Length	Start Pos.	End Pos.
			DWQ	Lab-Opr	Lab-AENV					
1	Record Type	K	R	R	R	Char	X	1	1	1
2	Record Number	Sequential number of each record in the file	R	R	R	Num	999999	6	2	7
3	Lab Sample Number	Sample number used internally by the lab	R	R	R	Char	X(20)	20	8	27
4	Measurement Type	M=Measurement B=Bio-measurement	R	R	R	Char	X	1	28	28
5	Measurement No.	Measurement number for this comment	R	R	R	Num	999999999	9	29	37
6	Comment	Text comment describing measurement	R	R	R	Char	X(255) (Maximum size is 255 characters. This field is terminated by the line feed character.)	0 to 255	38	37 to 292