

Schedule 14, Appendix 2

MANITOBA CONSERVATION AND WATER
STEWARDSHIP
ENVIRONMENTAL MANAGEMENT SYSTEM

EMS Lab Data File Format

Nov 2011

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

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

- B. **Lab-MWS** files (i.e. files submitted by the Laboratory for Samples submitted by MWS must adhere to the following naming conventions:
- The filename must either be the data file sequence number for the given Laboratory, or the work order number (if linked directly to Invoicing).
 - The filename must be left padded with "zero" characters to make the filename exactly 8 characters (alphanumeric) long.
 - The file name extension must be the three-digit Laboratory code assigned to the Laboratory by MWS.
 - Each file must contain analysis for only one User Group (e.g. 381:Manitoba Water Stewardship Surface Water Quality,

For example the first Lab-Opr file from Laboratory 127 would be named "00000001.127". The second file would be named "00000002.027", and so on.

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

**Manitoba Conservation and Water Stewardship
Environmental Management System**

Record Name Sample Header Record

Description Notes This record type contains information about a Sample
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 zeroes or spaces.

This Record type is required for Lab-MWS and Lab-Opr files.

All Dates must be in Central Standard Time (CST).

The "Required/Optional" Columns indicate whether each field is Required (R) or Optional (O) for the two file types: "Lab-MWS" or "Lab-Opr". An "n/a" (not applicable) in the required column indicates that the field should be left blank as it is ignored for that type of file.

Field No.	Field Name	Description	Sample Header Record (Type "S")		Data Type	Data Format	Data Len.	Start Pos.	End Pos.
			Required / Optional Lab-Opr	Required / Optional Lab-MWS					
1	Record Type	"S"	R	R	Char	X	1	1	1
2	Record Number	Sequential number of each record in the file	R	R	Num	999999	6	2	7
3	Sample No.	Sample No. Issued by MWS	n/a	R	Char	X(10)	10	8	17
4	Sample Date	Date Sample was taken from Station	R	R	Date	YYYYMMDDHHMMSS	14	18	31
5	Sample End Date	Date Sample was completed from station	O	O*	Date	YYYYMMDDHHMMSS	14	32	45
6	Sent Date	Date Sample was sent to the Laboratory	n/a	O*	Date	YYYYMMDDHHMMSS	14	46	59
7	Received Date	Date Sample was received by the Laboratory	R	R	Date	YYYYMMDDHHMMSS	14	60	73
8	Returned date	Date Sample was returned to MWS	n/a	R	Date	YYYYMMDDHHMMSS	14	74	87
9	Laboratory Code	ID Code of Laboratory where measurements are done **	R	R	Char	X(3)	3	88	90
10	Laboratory Sample Number	Sample number used internally by the Laboratory	R	R	Char	X(20)	20	91	110
11	Station No.	Station No. issued by MWS	R	O*	Char	X(10)	10	111	120

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Field No.	Field Name	Description	Sample Header Record (Type "S")			Data Len.	Start Pos.	End Pos.
			Required / Optional	Lab-Oper	Lab-MWS			
		# For Laboratory, if the data is associated with a particular approval (e.g. for bacterial monitoring data), this field will contain the Approval ID issued by MWS associated with the Sample						
		* Required is supplied by Manitoba Water Stewardship						
		** If populated must be a valid MWS Code.						
		*** Required if actual Method Detection Limit differs from the standard VMV Parameter's Method Detection Limit						

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Measurement Detail Record ("B" or "M")									
Field No.	Field Name	Description	Required / Optional		Data Type	Data Format	Data Len.	Start Pos.	End Pos.
			Lab-Opr	Lab-MWS					
7	Measurement Date	The date the measurement was made	R	R	Date	YYYYMMDDHHMISS	14	49	62
8	VMV Code	VMV Parameter code for Measurement **	R	R	Num	999999	6	63	68
9	Value	Numeric value of measurement	O#	R	Num	999999.99999	12	69	80
10	Flag	Flag to qualify the measurement value **	O	O	Char	C	1	81	81
11	Pre-Treatment Code	Code for any pre-treatment of the Sample	n/a	n/a	Char	X	1	82	82
12	Sample Method Detection Limit	Method Detection Limit for measurement	O***	O***	Char	X(15)	15	83	97
13	Value Type Code	Code to describe the type of value measured	n/a	n/a	Char	X(2)	2	98	99
14	Qualifier 1	1st Qualifier for measured value **	O	O	Char	X(4)	4	100	103
15	Qualifier 2	2nd Qualifier for measured value **	O	O	Char	X(4)	4	104	107
16	Qualifier 3	3rd Qualifier for measured value **	O	O	Char	X(4)	4	108	111
17	Qualifier 4	4th Qualifier for measured value **	O	O	Char	X(4)	4	112	115
18	Qualifier 5	5th Qualifier for measured value **	O	O	Char	X(4)	4	116	119
19	Qualifier 6	6th Qualifier for measured value **	O	O	Char	X(4)	4	120	123
20	Qualifier 7	7th Qualifier for measured value **	O	O	Char	X(4)	4	124	127
21	Missing Meas. Code	Code to indicate reason for missing measurement **	O#	n/a	Char	X(3)	3	128	130

Either Value or Missing Meas. Code is required – one or the other, but not both

* Required if supplied by Manitoba Water Stewardship

** If populated must be a valid MWS Code.

*** Required if actual Method Detection Limit differs from the standard VMV Parameter's Method Detection Limit

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Record Name Measurement detail Comment (Type "K")

Description Notes This optional record type contains comments pertaining to a measurement or bio-measurement. 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 zeroes or spaces.

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

Only one Measurement Detail Comment record is allowed for each measurement record.

The Laboratory 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 Laboratory Sample number, measurement type and measurement number.

The "Required/Optional" Columns indicate whether each field is Required (R) or Optional (O) for the two file types: "Lab-MWS" or "Lab-Opr". An "n/a" (not applicable) in the required column indicates that the field should be left blank as it is ignored for that type of file.

Field No.	Field Name	Description	Measurement detail Comment (Type "K")		Data Len.	Start Pos.	End Pos.
			Required / Optional	Data Type			
1	Record Type	"T"	R	Char	1	1	1
2	Record Number	Sequential number of each record in the file	R	Num	6	2	7
3	Laboratory Sample Number	Sample Number used internally by the Laboratory	R	Char	20	8	27
4	Measurement Type	"M" = Measurement "B" = Bio-Measurement	R	Char	1	28	28
5	Measurement No.	Measurement number for this comment	R	Num	9	29	37
6	Comment	Text comment describing measurement	R	Char	0 to 255	38	38 to 292

SCHEDULE 14

TERMS AND CONDITIONS FOR DATA TRANSFER for MANITOBA CONSERVATION AND WATER STEWARDSHIP WATER QUALITY OFFICE OF DRINKING WATER GROUNDWATER

General Specifications

The Laboratory must be required to provide regular electronic "downloads" to Manitoba of all Laboratory Services requested by Manitoba. These downloads shall be performed in the format and specification outlined in this Schedule 14. It shall be the responsibility of the Laboratory to track all Samples and information of interest to Manitoba so that each download is complete and accurate with respect to the information being downloaded and that there is no overlap in the downloaded information. Manitoba shall be kept apprised and/or be part of any changes to the system which may impact on the ability of Manitoba to collect and download data.

For Manitoba Conservation and Water Stewardship, the Laboratory must download electronic data to three different databases designed to receive the electronic download with distinct formatting requirements. The Groundwater Management Section of Water Stewardship currently uses a GWDrill database (formatting requirements can be found in Appendix 14-1). The Groundwater Management Section is currently reviewing its GWDrill Database in expectation of its eventual replacement. This replacement could occur during the period of the Agreement. The Laboratory must be required to change the reporting file format during this contract and must be able to meet those requirements in a timely fashion. The Office of Drinking Water and the Water Quality Management Section both use an Environmental Management System (EMS) based database that are unique but have many common elements. Formatting details on the EMS based database can be found in Appendix 14-2.

The Laboratory may be required to adjust the reporting units of Parameters to accommodate the number of digits that can be accepted into the EMS database. Currently the number of digits accepted into the database is five (5).

The Laboratory must be prepared to accommodate over the course of the Agreement any at present unforeseen requests made by Manitoba User Groups (*i.e.* monitoring and reporting requirements associated with a new regulation) with regards to potential electronic downloads likely in an EMS format. In the meantime, the Laboratory should anticipate, as a minimum requirement for other relevant Manitoba User Groups, downloading electronic data in a spreadsheet format such as Excel.

1. Sample Submission Forms

1.1 Preparation of Submission Forms

- (a) The Laboratory must develop appropriate Submission Forms in consultation with Manitoba prior to implementation. The following information shall be included, but not be limited to:
- Sample type code
 - Sample matrix
 - status (rush, emergency, legal)
 - Client Code
 - User Group
 - project number
 - Submitter
 - Manitoba contact person & phone number
 - type of Final Report required (paper, electronic)
 - name & address Final Report sent to
 - name & address copy of Final Report sent to
 - lab number assigned to Sample
 - EMS water quality station number
 - Sample identification
 - sequence number
 - depth sampled
 - test number/analysis required
 - date sampled
 - date submitted or shipped
 - date received
- (b) Manitoba reserves the right to submit Samples using its own Submission Forms from time to time where existing Submission Forms are deemed inappropriate.
- (c) The Laboratory must make changes to the Submission Forms as required by Manitoba from time to time. After an initial approval by Manitoba as to the format of the Submission Forms to be, any future modifications to the Submission Forms will be made as determined necessary by Manitoba, or as otherwise approved by Manitoba.

2. Valid Method Variable Code (VMV)

- 2.1 All measurements electronically reported in the EMS format are done with Environment Canada's Envirodat Valid Method Variable (VMV) coding scheme. Upon award of the Agreement, the Laboratory shall provide to Manitoba a comprehensive and complete library of all VMVs, relevant to their

Laboratory method of analysis for all variables outlined in the Agreement, within a four month period after awarding of the Agreement at no cost to Manitoba.

- 2.2 All VMV's used in the downloading of data must be initially approved by Manitoba prior to implementation.
- 2.3 The Laboratory shall be responsible for updating and adding new VMVs as new methods or analyses are developed over the course of the Agreement. Any new VMV shall be forwarded to Manitoba for approval and ultimately as an update to the VMV library within their database system at no cost to Manitoba.
- 2.4 Manitoba has designated a limited number of VMVs for Parameters such as Sample depth; sequence number; that may/will be found on the Submission Form (see [Figure 13-1](#)). The Laboratory shall capture this information from the Submission Form and download it with all measured data relevant to that Sample.

3. Format of Laboratory Data Transfer Files

See [Appendix 14 - 1 to 14-2](#) for relevant information.

4. Manitoba Database Structure

See [Appendix 14-1 to 14-2](#) for relevant information.

5. Data Reporting

5.1 Data Transfer Quality Audits

- (a) The Laboratory must ensure that the file format and data contained in each downloaded file are free of errors and that the files pass quality control audits performed by Manitoba to verify accuracy and completeness of information.
- (b) Manitoba, at its sole discretion, may request any file which does not pass its quality control audits to be corrected by the Laboratory and re-sent at the Laboratory's cost.

5.2 Reporting Data for Re-analyzed Samples or Report Corrections

Occasionally, Samples will be re-analyzed after data has been downloaded. Occasionally, downloads are issued with errors e.g. Sample numbers and station numbers. In these cases, the Laboratory must correct the reported data and re-send the new data electronically in the appropriate format at no additional cost to Manitoba. The Laboratory shall also send an electronic summary report of all changes/corrections that have been completed to the EMS email inbox. This will be done on a frequency and in a format to be determined by Manitoba. The Laboratory will also develop with Manitoba a tracking system outlining course of action taken, timelines, and resolution of Manitoba issues or complaints that may occur over the course of the Agreement.

5.4 Data from Sub-contracted Services

- (a) The Laboratory must download Sample submission information and results from Samples analysed by a Subcontractor using the same mechanism and format as Samples analysed at its own Laboratory. The Laboratory is responsible for making the process as seamless as possible.
- (b) The Laboratory must provide a separate field in the electronic download designating the Subcontractor, if applicable.

5.5 Data from Sources Other Than Manitoba

- (a) The Laboratory must include analytical results in the electronic download for Samples submitted from sources other than Manitoba where the Submitter has requested that Manitoba be sent a copy or from Submitters who have been designated as partners in shared ventures with Manitoba.
- (b) The Laboratory must uniquely designate the information provided in (a) above, in the electronic download, so that it is differentiated from normal Sample submissions by Manitoba.

5.6 Failure of Regular Transmission Routes

- (a) The Laboratory shall deliver the required data download files to Manitoba on a diskette/CD, should the normal e-mail mechanism fail.
- (b) The Laboratory shall provide a diskette/CD that will be readable from Manitoba computers and shall be clearly labelled and designated.
- (c) The Laboratory shall provide the diskette/CD containing only files of interest to Manitoba on the diskette/CD.

6 Data Management Changes

Changes to Analytical Procedures or Codes

The Laboratory shall provide an electronically transferred file containing a complete list of all analytical procedures and codes associated with Manitoba analyses at regular intervals as specified by Manitoba. The Laboratory shall clearly indicate the changes made to the list with each update.

7 Data Storage

The Laboratory must maintain an electronically accessible file containing as a minimum the most recent three years of data after the expiry or earlier termination of the Agreement.

SCHEDULE 2

TERMS AND CONDITIONS FOR CHEMISTRY SERVICES FOR THE OFFICE OF DRINKING WATER, MANITOBA CONSERVATION AND WATER STEWARDSHIP

The Office of Drinking Water is a regulatory branch of Manitoba Conservation and Water Stewardship committed to ensuring public health by administering two regulations pursuant to *The Drinking Water Safety Act: the Drinking Water Safety Regulation* and the *Drinking Water Quality Standards Regulation*. The Office of Drinking Water has central (Winnipeg) and regional drinking water officers throughout Manitoba available to carry out the drinking water program for the Province. Regulatory and advisory roles are inherent responsibility. The Office of Drinking Water's mission is to assure the provision of safe, adequate, aesthetically pleasing, and acceptable drinking water supplies from source to tap within the Province of Manitoba.

1. General Specifications

In addition to the general Technical and Service Requirements set out at Section D, Schedule 2 contains specific requirements for Chemistry Services requested by the Office of Drinking Water. The Office of Drinking Water requires chemical analysis to be undertaken for various Office of Drinking Water programs. The majority of the water Samples will be part of the Office of Drinking Water's monitoring and regulating of public and semi-public water systems (hereafter referred to as "water systems") throughout the province.

Similar to other jurisdictions, prompt analysis and quick delivery of Final Reports are fundamental to the Office of Drinking Water's capacity to efficiently and effectively respond to public health issues related to drinking water.

Water Samples will be taken by Drinking Water Officers or designates and the Submitter and will forward the Samples to the Laboratory from various locations throughout the province. Water Samples requiring Chemistry Services described herein will consist of raw (surface and groundwater sources), treated water, distribution water and drinking water (untreated sources used for consumptive purposes).

Over the course of the Agreement, the Laboratory Contract Manager for the Office of Drinking Water will be the Laboratory and Special Contracts Coordinator unless otherwise identified by the director.

2. Number of Samples and Timing of Submissions

Office of Drinking Water expects to submit approximately 600 Samples submission requests per annum for analysis with the majority of the Samples submitted from May to October. Sample submissions are based upon past requests for general chemistry Analytes, pesticides, hydrocarbons, disinfection by-products, radiological, and individual Analytes requests. No minimum number of Samples is guaranteed.

Detailed listing of Analytes and estimates for chemistry requirements can be found in the Schedule 16.

3. Shipping and Handling

- 3.1 If a Drinking Water Officer or designate submits both Microbiological Samples and Chemistry Samples from the same location, on the same Chain of Custody Form, the Laboratory must ensure that the respective reporting requirements are achieved.
- 3.2 As sampling is specific to the Office of Drinking Water, the Laboratory will be provided a custom Chain of Custody Form.

4. Data Reporting and Data Timeframes

As the reporting process is unique to the Office of Drinking Water, the Preliminary Report and Final Report formats are also unique. The Office of Drinking Water will provide formats for the majority of the Preliminary Reports and Final Reports required as specified below.

- 4.1 The Submitter can request both Microbiological Services and Chemistry Services from one (1) location on one (1) Chain of Custody Form.
- 4.2 Format of the Office of Drinking Water Preliminary Reports and Final Reports will be provided to the Laboratory and must include, but is not to be limited to information specified on the Chain of Custody Form, corresponding aesthetic objectives (AO), maximum or interim maximum acceptable concentration (MAC or IMAC) and other guidelines from Health Canada's Guideline for Canadian Drinking Water Quality and the Manitoba Drinking Water Quality Standards Regulation (Manitoba Regulation 31/2007). Preliminary Reports and Final Reports indicating Sample results that exceed any of the guideline values must be highlighted in some means to ensure easy identification.
- 4.3 The subject line in all Preliminary Reports and Final Reports emailed to the Submitter must follow the following format: the initials of the Submitter, the

code of the water system sampled if referenced or project name, and the date of sampling.

- 4.4 The Laboratory shall capture, in their management system, field tests and other notations specified by Office of Drinking Water that are recorded by the Submitter on the Submission Form for inclusion in the Preliminary Report or Final Report (for example pH, disinfectant residuals or visual notations such as experiencing heavy rainfall or flooding.)

5. Office of Drinking Water Special Projects

Over the course of this Agreement, Laboratories can expect changes in analysis requirements as Manitoba's priorities change to meet its evolving needs. It is expected that over the course of the Agreement, the Office of Drinking Water will require analyses for special projects. The Office of Drinking Water will work with the Laboratory to establish mutually agreeable requirements.

The Laboratory must work with Office of Drinking Water to develop invoice and formats for Preliminary Reports and Final Reports that will meet the needs of both the Office of Drinking Water and the Laboratory.