

# MPCA Water Quality Database

## meta-data descriptions and requirements

### Project information<sup>1</sup>

Meta-data element	Description	Why important	Required?
<b>Project ID</b>			
<b>Project name</b>	Name of the monitoring project	Identification	Yes
<b>Project purpose</b>	Reason why the monitoring is being done	To help data users understand appropriate uses for the data, and to provide context for the monitoring effort	Yes
<b>Start date</b>	When the project began	Understand timeframe and seasonality of the monitoring	Yes
<b>Planned duration</b>	Planned duration of the monitoring (i.e. 2 years, ongoing)	Context, expected length of record. Also helps answer completeness questions (e.g. Are all the data in? Are there related data?)	Yes
<b>Lead organization name</b>	The group that is coordinating the monitoring effort	In case a data user (or the person loading the data into the database) has questions	Yes
<b>Project manager</b> (with contact info.)	The individual that is coordinating the monitoring effort	In case a data user (or the person loading the data into the database) has questions	Yes
<b>Data manager</b> (with contact info.)	The person who manages the data for the project	In case a data user (or the person loading the data into the database) has questions	Yes, if different than the project manager
<b>MPCA project contact</b>	The MPCA staff person assisting with the project	In case a data user (or the person loading the data into the database) has questions	Yes, if applicable
<b>Sampling personnel</b>	Who is doing the sampling	Identify monitoring staff; comparability of results	No, optional
<b>Sample medium</b>	The nature of the sample (e.g., water, sediment, tissue)	Provides essential information about the sample	Yes

<sup>1</sup> This data only needs to be supplied once, when the project data is first submitted for inclusion in the database (or if there are changes).

Meta-data element	Description	Why important	Required?
<b>Sample collection method(s) and gear(s)</b>	The sampling methods used (grab sample, 0-2 meter integrated sample, etc.) and the gear used to collect the sample (integrated sampler, open bucket, etc.)	Understanding the methods used so the results can be properly interpreted; allows data user to decide if the methods fit with the user's objectives; also needed for comparability to other monitoring and reproducibility of the results	Yes
<b>Field measurements - methods &amp; instruments</b>	The field measurement methods, and the instruments used (field meters, dry reagent kits, etc.)	Understanding the methods used so the results can be properly interpreted. allows data user to decide if the methods fit with the user's objectives; also needed for comparability to other monitoring and reproducibility of the results	Yes
<b>Comments about data submission plans</b>	A description of the project coordinator's plans for submitting data	Helps database coordinator understand project's intentions for submitting data (such as when, how often, in what format), and plan for data submission	Optional
<b>Other info.:</b> ■ Project Study Area ■ Design & sampling frequency ■ Programs associated with the Project ■ Cooperating Org.'s	Additional information about the monitoring project that can be stored in the database	Improves understanding about the project	Optional
<b>QA plan summary/reference</b>	A brief summary of the project's Quality Assurance Project Plan, and information on where to obtain the full plan	The completion of and adherence to a project QAPP helps to ensure the sampling plan will meet the purpose; also helps data users understand what "the numbers" (sampling results) mean, and provides credibility to the monitoring effort	Required for data to be used for 305(b)/303(d); optional for all others

## Laboratory establishment<sup>1</sup>

Meta-data element	Description	Why important	Required?
<b>Lab ID</b>	User-defined code for the lab	Quick way to identify lab, to be used when reporting sampling results	Yes
<b>Laboratory name</b> (w/ address, contact info.)	A unique name for the laboratory analyzing the samples	Clarity on who is doing the analysis; contact information in case there is a question	Yes, if applicable
<b>Citation for lab.</b> Manual or Handbook	Information about the manual/handbook for the lab procedures and methods, including where/how to obtain a copy	Understanding the methods and procedures followed so the results can be properly interpreted; allows data user to decide if the methods fit with the user's objectives; also needed for comparability to other data, reproducibility of the results, and confidence that the data is credible	Required for data to be used for 305(b)/303(d); optional for all others
For each type of analysis performed by the lab:			
<b>Analyte name</b>	Name of the parameter being measured	Identification	Yes
<b>Sample fraction</b>	Fraction associated with the analysis	Understanding and properly interpreting the results	Yes, as applicable

<sup>1</sup> This data only needs to be supplied once, when the project data is first submitted for inclusion in the database (or if there are changes).

Meta-data element	Description	Why important	Required?
<b>Reporting units</b>	Unit of measurement	Understanding and properly interpreting the results	Yes
<b>Comparable standard method</b>	Method number from <i>Standard Methods</i> that is comparable to the lab analysis method	Comparability	Yes (labs can provide this information)
<b>Field preservation method</b>	How the sample was preserved in the field following collection	Understanding and properly interpreting the results; confidence in the data; comparability	Yes, as applicable
<b>Detection limit</b>	The lowest concentration of a parameter that an analysis method can reliably measure	Understanding and properly interpreting the results; comparability; provides an indication of the quality of the method	Yes
<b>Lab certified for analyte?</b>	Has the lab been certified by the MN Department of Health for the particular parameter/ analytical method?	Certification provides confidence that the lab has met specific requirements to help ensure data quality	Yes/No question must be answered; lab data used for 305(b)/303(d) must be from a certified lab
<b>Duration basis</b>	Length of time of the analysis	Applicable to certain analytical methods that are time-dependent, such as the measurement of biochemical oxygen demand	Yes, as applicable
<b>Temperature basis</b>	The temperature at which the sample was maintained during analysis	Understanding and properly interpreting the results; comparability; provides an indication of whether quality control was properly maintained during analysis	Required for data to be used for 305(b)/303(d); optional for all others

## Station information<sup>2</sup>

Meta-data element	Description	Why important	Required?
<b>Project station ID</b>	User-defined code for the sampling site. For lakes, this is the DNR lake ID	Quick way to identify station, to be used when reporting sampling results	Yes
<b>Related station info.</b>	Additional information about the station	Identification, understanding of the station	Optional
<b>Station name</b>	Stream station names and descriptions should follow this format as closely as possible: (Stream Name) AT (Road) (Distance) (Direction) OF (Nearest Town).  Lake station names should follow this format: LAKE: (Lake Name) (Distance)(Direction) OF (Nearest Town)	Identification of the station	Yes

<sup>2</sup> This data only needs to be supplied once, the first time data is provided for a particular station/site.

Meta-data element	Description	Why important	Required?
<b>Station type</b>	Primary classification of the station – e.g., lake, river/stream, reservoir, storm sewer, etc.	Identification of the station; understanding and properly interpreting the results	Yes
<b>Station description</b> (including township, section, range)	Detailed description of the station location	Station location and identification; geographic location (i.e., latitude-longitude or UTM data) may not be specific enough.	Yes
<b>Site ID</b>	Unique and user-defined code for a sampling site within a lake station	Allows data users to identify and differentiate between multiple sampling sites within a single lake	Yes, for lakes
<b>Ecoregion name</b>	Which of the seven Minnesota ecoregions the station falls within	Station location and identification; understanding and interpreting the results	Optional
<b>Travel directions</b>	Narrative description of how to get to the station	Allows others to get to (and sample at) the same monitoring station, which promotes consistency and continuity of the monitoring record	Yes
<b>Station latitude-longitude or UTM</b> (x-y)	Geographic coordinates for the station	Allows precise location of the station on maps	Yes
<b>Geo-positioning method</b>	Method used for determining the geographic coordinates	Provides confidence in the geo-positioning data; allows data user to decide if the method meets the user's objectives	Yes
<b>Datum</b>	Reference site used in determining the geographic coordinates	Provides confidence in the geo-positioning data; reproducibility of the coordinates	Yes
<b>Map scale</b>	The map scale used if geo-positioning method is "Interpolation-map"	Provides confidence in the geo-positioning data; reproducibility of the coordinates.	Depends on geo-positioning method
<b>Site lat-long</b>	Latitude and longitude of lake sampling site	Allows data users to locate and differentiate between multiple sampling sites within a single lake	Yes, for lakes
<b>State/county</b>	State and county of the station	Location of the station	Yes
<b>HUC code</b>	The 8-digit hydrologic unit code (HUC code) for the station	Location of the station	Optional
<b>RF1 river reach</b>	Valid EPA RF1 reach number for the station	Location of the station	Optional

## Monitoring results<sup>3</sup>

Meta-data element	Description	Why important	Required?
<b>Station and site ID</b>	Identifies exactly where the sample or measurement was taken	Location of monitoring event, understanding and interpreting results	Yes
<b>Date</b>	Date the sampling took place	Understanding and interpreting results	Yes

<sup>3</sup> This data is required every time data is submitted to the database.

Meta-data element	Description	Why important	Required?
<b>Time</b>	Time when the sampling occurred	Understanding and interpreting results	Required for data to be used for 305(b)/ 303(d); recommended for all others
<b>Station ID</b>	Database identification code for the sampling station	Location of the station that the results are associated with	Yes
<b>Site ID</b>	Database identification code for the sampling site within a lake sampling station	Location of the specific site within a lake that the results are associated with; allows users to differentiate between multiple sampling sites in the same lake	Yes, for lakes
<b>Activity ID, type and category</b>	Identifies whether the result is from a sample (grab, integrated, etc.), a field measurement, or a field quality control measure (duplicate, blank)	Understanding and interpreting results	Yes
<b>Medium</b>	The nature of the sample (e.g., water, sediment, tissue)	Provides essential information about the sample	Yes
<b>Sample depth</b>	Depth at which the sample was collected; for integrated samples, an upper and lower depth is reported	Understanding and interpreting results	Yes
<b>Sampling personnel</b>	Who collected the samples	Identity monitoring staff; comparability of results	Optional
<b>Activity comments</b>	Any comments made about the sampling event (such as information taken from the field notes)	Qualification of data; captures deviations from monitoring plan/QAPP; captures anomalies	Optional (but recommended)
<b>Sample collection method and gear</b>	The sampling methods used (grab sample, 0-2 meter integrated sample, etc.) and the gear used to collect the sample (integrated sampler, open bucket, etc.)	Understanding the methods used, so the results can be properly interpreted	Yes (for samples)
<b>Sample preservation</b>	How the sample was preserved in the field following collection	Understanding and properly interpreting the results; confidence in the data; comparability	Yes, for samples as applicable
<b>Lab ID</b>	Database identification code for the lab performing the analysis	Allows data user to go back and ask the lab questions if needed	Yes, as applicable
<b>Lab sample ID</b>	Unique identification code that lab used for the sample	Helps when communicating with the lab about a particular set of results	Optional
<b>Lab certified?</b>	Yes/No information as to whether the lab is certified for parameter and lab procedure at the time of analysis	Certification provides confidence that the lab has met specific requirements to help ensure data quality	Lab data used for 305(b)/303(d) must be from a certified lab
<b>Results</b>	Result from lab analysis or field measurement, including the units	This is the data that the monitoring is designed to generate. Units are necessary to understand the scale/magnitude of the results	Yes

Meta-data Element	Description	Why important	Required?
<b>Field/lab ID</b>	Valid database ID for the analytical procedure that was used to obtain the result	Understanding the methods and procedures followed so the results can be properly interpreted; allows data user to decide if the methods fit with the user's objectives; also needed for comparability to other data, reproducibility of the results, and confidence that the data is credible	Yes, as applicable
<b>Lab sample temperature</b>	Temperature of the sample at the time of lab analysis	Credibility of the data; helps to show that proper methods were followed	Required for data to be used for 305(b)/303(d); optional for all others
<b>Remark codes</b>	Comments about the results. Can include exceedence of holding times, QA/QC problems, deviation from established methods, etc.	Helps with understanding and interpreting the results	Yes, as needed