

## Custodianship and management

### 1 Purpose and scope

The purpose of this document is to provide information on data handling and the importance of custodianship and management.

### 2 Importance of data custodianship and management

Reliable and defined custodianship and data management is essential to ensure data are collected, maintained and used appropriately. Good custodianship of data provides accountability for datasets and gives the user confidence in the level of integrity, timelines, precision and completeness of datasets.

### 3 What are data?

Data can be measurements or statistics obtained from measuring devices or observations, usually presented in a numerical or structured format.

A collection of data may be referred to as a dataset, often held electronically in files or a database.

Generic classification of data includes:

- **Time series data** which are a set of observations, results, or other data obtained over a period of time from consistent or known monitoring locations, often at regular intervals.
- **Spatial data** which are data that refer to specific geographic areas. Such records would generally include a geographic reference, e.g. map references, latitude and longitude references, river catchment areas, local government areas etc.
- **Metadata** which are datasets that detail the content, quality, condition, and other relevant characteristics of the data. Metadata often describes any data that are processed, organised or classified into categories, images, graphs, etc. for a designated purpose. If data has been modified at all (i.e. outliers removed) this must be captured in the metadata.

### 4 Data custodians

All data, whether generated by government or by organisations external to government, must be managed by a custodian.

A data custodian can be defined as a person or organisation that is responsible for ensuring data are collected, maintained and made available according to standards, policies or other licences, agreements or specifications. In the case of regulatory work undertaken by organisations external to government, the data custodian would typically be the proponent or the approval holder. A custodian can act as a contact with the regulatory authority to allow the release or use of data by other parties<sup>1</sup>.

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<sup>1</sup> For Queensland Government custodians, public release of data is governed by the publishing standards classifications in line with the Queensland Government Information Security Classification Framework (QGISCF) need to be obtained. <https://www.qgcio.qld.gov.au/products/qgea-documents/549-information-security/2417-queensland-government-information-security-classification-framework>

Custodians are responsible for ensuring that the following minimum standards are applied to each dataset:

- The method and process for data collection must be clearly documented.
- Data are fully validated and quality assured with sufficient detailed metadata to enable the use by third parties without referring to the person or organisation who collected the data.
- Ownership, access constraints and licence conditions are associated with any recorded data.

## 5 Data quality assurance and quality control

Data custodians must ensure as far as practicable, the accuracy, currency and timeliness of data supplied. Data quality assurance and quality control minimises any potential problems that may arise with data use by preventing errors and reviewing data management practices. Good data management practices include:

- the provision of clear documentation
- the use of standard definitions and classifications
- the maintenance of metadata (including quality attributes of the data)
- the appropriate storage of the data itself.

Some public sector examples of documented standards and guidelines for water data management and publication include:

- resource and publication guides for publishing datasets to the Queensland Government Data Portal, including a resource formatting and metadata guide
- the Draft National Industry Guideline for water quality metadata for water quality data collected and supplied to the Australian Government Bureau of Meteorology under the Water Regulations 2008.

Organisations that use data for regulatory purposes, including those submitting data to the Queensland Government, are encouraged to have a structured data management system that provides reliable and secure consistent storage, access and reporting.

Specific quality assurance protocols and procedures are generally required for continuous monitoring techniques where higher frequency data is collected over a period of time. In such cases, instrument measurements can “drift” away from real values with time and it may be necessary to adjust the time series data to account for such changes. The application of any data corrections must be based on documented procedures and be defensible. Erroneous data should be removed from the dataset before use, particularly where data is to be submitted to the Queensland Government for regulatory purposes.

## 6 Regulatory purposes

There are a number of situations where individuals and organisations may need to submit water monitoring information (and related metadata) to the Queensland Government for the purpose of regulatory decision making. This could include, but is not limited to, purposes such as:

- Environmental Impact Statements
- Environmental Approvals and related conditions
- Environmental Management Plans
- Environmental Evaluations.

Any water monitoring data provided to the Queensland Government should be collected in accordance with this document and other relevant standards, guidelines and policies. In many cases, water monitoring data is required to be submitted electronically. As a minimum, data submitted should include:

- a unique sample identifier

- information about the sampling location identifier
- sampling location description
- sampling date
- sampling time
- details of the person who took the sample (name and contact)
- constituent measured
- units
- qualifiers (such as equal to or greater/less than signs)
- results, method used to derive the result and the names of organisation/s responsible for sample collections and field or laboratory analysis.

Supporting information on sampling locations is essential and should include:

- unique sampling location identifier
- sampling location descriptions
- latitudes and longitudes
- the datum used, and relevant stream/basin names where applicable in addition to maps or diagrams showing the monitoring point locations.

The data must be supplied to the Queensland Government in the specified electronic file format and/or template where requested. Portable document formats (pdfs) are not considered an acceptable file format for water monitoring data submission. Acceptable file formats may include excel, text or comma separated value (csv) files, depending on the application.

Information on the methods used for monitoring, including both sampling and analysis, should be kept and supplied. Data custodians submitting data must have sufficient records to demonstrate that any sampling and analysis has been undertaken in accordance with this manual.

The provision of correct and accurate data is the sole responsibility of the data custodian and the Queensland Government will not be held responsible for incorrect data submitted by other organisations or agencies. The Queensland Government also reserves the right to use monitoring data that has been provided to it by any organisation for any purpose it sees fit including supply of data to a third party.

**Note:** For more information on water data standards, including metadata, refer to Australian Government Bureau of Meteorology, Water Quality Metadata Guideline.

## 7 References and additional reading

Queensland Government. Publishing standards for data.qld.gov.au. Available from:  
<https://publications.qld.gov.au/dataset/publishing-standards-data-qlg-gov-au>

Australian Government Bureau of Meteorology, Water Data Collection Standards. Available from:  
<http://www.bom.gov.au/water/standards/datacollection/index.shtml>

Australian Government Bureau of Meteorology, Water Quality Metadata Guideline.  
<http://www.bom.gov.au/water/standards/projects/waterqlty.shtml>

[http://www.bom.gov.au/water/standards/documents/NI\\_GL\\_101.00-2016.pdf](http://www.bom.gov.au/water/standards/documents/NI_GL_101.00-2016.pdf)

Queensland Government information security classification framework  
<https://www.qgcio.qld.gov.au/products/qgea-documents/549-information-security/2417-queensland-government-information-security-classification-framework>