

# Guide to changes to water monitoring data collection and reporting standards

## Version 2, 2022

This revision has incorporated feedback received from water infrastructure licence holders (WIL) and departmental staff who have now had more than 18 months operational use of the 2020 standards which were the subject of a comprehensive review and update.

These standards apply to those water infrastructure licence holders (WIL) who are required to collect and report water monitoring data and information to the department. Providing greater direction and transparency through updated data collection and reporting standards enhances public confidence in the information used for water resource management under the *Water Act 2000*.

The risk assessment approach allows for operators to meet the standards using any updated monitoring practices and adaptive management to reduce water quality and flow management impacts, including the potential for bank slumping and fish stranding. Further minor clarifications have been made to this guideline and template also.

The department is requiring the continual improvement of data and report quality that is supported by specific guidance on data collection and reporting requirements, as highlighted in the tables below.



## Water monitoring data collection standards

Section	Summary of change
Introduction	<p>The background, purpose and scope provides a better explanation of monitoring and reporting requirements to support implementation of each Water Plan under the <i>Water 2000</i>.</p> <p>Where a monitoring program is not consistent with any additional requirements of these standards, the WIL holder may modify and transition within two years of the publishing date of these standards.</p> <p>Where there are inconsistencies with the matters on these standards the conditions of the licence shall prevail.</p> <p><b>2022 Version 2 changes:</b> Change to new template to the Department of Regional Development, Manufacturing and Water and include references to the departmental name in replace of the previous department are made throughout this document.</p>
External standards, guidelines and water quality objectives	<p>External standards and guidelines that relate or support these standards with new references and URLs (Table 1.1)</p>
Monitoring	<p>The requirements for water quality monitoring have been modernised to allow for a risk-based approach in s.3.2.1 &amp; 3.2.2 (and as supported by the risk assessment guidance and template referenced in row below). Operators of water storages with a potential for medium to high risk to associated water quality are required to have a monitoring program that demonstrates to the department their adaptive storage management (s 3.2.3). This new framework encourages the reduction in potential for releasing poor water quality i.e. through stratification, bank erosion or downstream impacts whilst being tailored to the operational needs of water storage management.</p> <p>Clearer and more prescriptive requirements are detailed on page 13 and includes monthly water quality sampling requirements in Table 3.1.</p> <p>Storages identified as low risk (s.3.2.3.2) may require less routine monitoring and may be replaced by investigate monitoring in response to releases being made.</p> <p>Recognition and responsiveness to areas of high ecological value is also important.</p> <p>Note: All storages are to be considered as medium or high risk unless the WIL holder has demonstrated otherwise by conducting a risk assessment within two years on this standard being in place. In the meantime, the minimum monitoring requirements apply.</p> <p><b>2022 Version 2 changes:</b> Inserted in Section 3.2.3: surface grab sampling is sufficient for the tailwater site and minimum monthly monitoring for high-risk storages.</p>
Bank condition (3.2.4)	<p>Further guidance on the monitoring of bank condition (where required under the WIL) and its management is provided to enable the department to determine any impact of scheme operations on bank condition.</p> <p><b>2022 Version 2 changes:</b> A full geomorphic assessment is not required and the term bank stability assessment replaces reference to 'geomorphic'. This is to further clarify the scope of this assessment and includes examples, thus allowing for a more pragmatic approach. The limit of the impact of the infrastructure operations on high risk or susceptible areas is to be determined by the operator</p>

	<p>themselves based on the baseline assessment findings (past evidence of flow patterns and behaviours that may lead to bank erosion).</p> <p>WIL holders are required to monitor the impacts of storage releases against the baseline assessment using a risk-based approach to enable a targeted and responsive monitoring program. The revised edition now includes further explanation of minimum monitoring requirements for high-risk areas. As this is a risk-based approach, the department is non-prescriptive with exact methodology, thus encouraging a tailored approach to the initial baseline assessment for bank stability and ongoing monitoring of any impacts.</p>
Fish stranding (3.2.5)	<p>Certain licences require storage operators to record and assess any instances of fish stranding that may be associated with operation of scheme infrastructure. These standards now provide guidance on the information that is required to be collected where a fish stranding incident has occurred. This includes further steps to detail any mitigation strategies conducted or planned to be undertaken i.e. additional or altered water releases.</p> <p><b>2022 Version 2 changes:</b> A definition of fish stranding is included in section 3.2.5 Fish Stranding.</p>
Appendix A - Glossary	<p>Added new terms and definitions including for continuous monitoring, environmental flow objectives, low flow, medium to high flow, hydrometric networks, quality assurance, turnover event and the umbrella term of 'water infrastructure licence'.</p>
<p><b><u>Guidance on assessing risk of impact of water infrastructure licence holders storage operations on aquatic ecosystems</u></b></p> <p>New guideline that has the risk-based adaptive management framework.</p> <p><b>2022 Version 2 changes:</b> WIL holders are to consider all types of risk in the single assessment, rather than a partial assessment. This may also include more than one storage or weir for all or part of the water supply scheme.</p> <p><b><u>Template for assessing risk of impact of water infrastructure licence holder storage operations on aquatic ecosystems</u></b></p> <p>New template to support the above guideline to be lodged to the chief executive when required to amend a WIL holder monitoring program or to demonstrate that proposed changes will not impact on compliance with the WIL or water plan outcomes and objectives.</p> <p><b>2022 Version 2 changes:</b> The section for 'different type of monitoring' at the front has been removed to due to the need for holistic risk assessment as part of the overall monitoring program.</p>	

## Water monitoring data reporting standards

Section	Summary of change
Introduction	<p>This is similar to the collection standards introduction but includes a summary of the information about requirements for quarterly and annual data transfers, annual reports and operational and emergency reports.</p> <p>Where a monitoring program is not consistent with additional requirements of these standards, WIL holder may modify and transition <b>within two years</b> of the new standards publication date.</p> <p>Where there are inconsistencies with the matters on these standards with the licence conditions, the conditions of the licence shall prevail.</p> <p>External standards and guidelines that relate or support these standards with new references and URLs (Table 1.1)</p>
What must be reported	<p>There is further guidance on the content of reports and data to be provided to the department in order to assess if WIL holders are complying with their licence conditions, for monitoring impacts of scheme operations and to assess against the water plan outcomes.</p> <p>Further explanation on the handling of data gaps or anomalies is required to better establish a level of confidence in the data or information provided.</p> <p>Table 2.1 details the purpose and provide more content requirements for each report type, with the following timeframes (and Table 3.3):</p> <p><b>Operational reports</b> must be submitted within <b>five business days</b> (no change) and notification must be made to the chief executive within <b>one business day</b> upon discovery of an incident (new requirement).</p> <p><b>Emergency reports</b> must be submitted within <b>five business days</b> (no change) of notification of the emergency. WIL holders must notify within <b>one calendar day</b> upon discovery of the emergency (new requirement).</p> <p><b>Quarterly reports</b> are to be submitted within <b>eight weeks</b> (previously 3 months) after the end of the reporting quarter (unless otherwise specified in the licence).</p> <p><b>Annual reports</b> are due within <b>three months</b> (no change) after the end of the water year.</p> <p>Annual reports are now required to have a quality assurance statement including details of any quality controls in place (s2.2). A new request (and table) for the disclosure of sale price data for seasonal water assignments is required when specified under the licence. Further information is to be provided to detail any impacts of storage operations on the natural ecosystems and quality of water being released. Details are to be provided on whether the data remains as primary measured data or has been processed or validated (i.e. quality coded).</p> <p><b>2022 Version 2</b> changes include minor edits for clarity in wording. Bank condition and fish stranding is reported for incidents in the operational reports. A summary of ongoing monitoring for any high-risk areas is to be reported quarterly (as identified in the risk assessments). The annual report needs to detail any mitigation measures as a result of the incidents.</p>
Submitting data sets and reports	<p>Manual data and report transfer process remains the same but some minor updates to enable clear identification. Metadata requirements for all continuous and non-continuous data is detailed in Appendix B.</p> <p>The department is supporting or working towards supporting telemetered water data records (i.e. File Transfer Protocol) from WIL holders to be exported and acquired into our Water Monitoring Information System</p>

	<p>(WMIS) (s3.2). This will significantly increase access to more timely data (i.e. daily).</p> <p>New water data quality codes now need to be applied to processed or edited data. Any numerical quality coded data (as determined by the WIL holder) needs to be mapped against the BoM water data quality codes (s3.3).</p>
Request to extend reporting timeframes	<p>This section is more concise and still allows for requests to be made to extend data sets or report submission timeframes subject to approval by the chief executive. Request must be made within <b>three business days</b> and no longer stipulates when chief executive decision is to be made, as it depends on the nature of the request.</p>
3.6.2 Data exchange codes	<p>Further information provided in the second paragraph around the department's data exchange codes</p>
3.6.3 Privacy statement	<p>New privacy statement added</p>
References (Section 4)	<p>National Industry Guidelines for hydrometric monitoring (Commonwealth of Australia Bureau of Meteorology 2018)</p>
Appendix A: Glossary	<p>Added terms/definitions including announced allocation, assignee, assignor, continuous monitoring, discrete monitoring, data quality code, quality assurance, unvalidated and validated data, water data transfer format and Water Monitoring Information System (WMIS-Hystra).</p> <p><b>2022 Version 2 changes now include a data exchange code definition.</b></p>
Appendix B: Tables for data transfers	<p>Modernised wording around existing data format &amp; type in line with national guidelines and standards, and international standards.</p> <p>Removed interim resource operations licence dataset requirements (now redundant).</p> <p>Filenames are still the same for most reports.</p> <p>For written descriptions (non-numerical) reference to a string data type has been inserted.</p> <p>Water taken by water users – surface water and water taken by water users - groundwater has many new elements to better enable the department to audit and determine compliance with water entitlements issued under the <i>Water Act 2000</i>.</p> <p>Seasonal water assignment has additional elements to better enable the department to audit and determine compliance with water entitlements issued under the <i>Water Act 2000</i>.</p> <p><b>2022 Version 2 changes:</b></p> <p>Table 1.2.3 is now titled daily flow and not stream flow.</p> <p>New tables 1.2.5 and 1.3.6 - storage overflow volume for either continuous or non-continuous time series. There is a one-year transitional phase to meet this additional data set requirement.</p> <p>Section 1.3 now includes a statement about requiring data to be recorded at 09:00am on the day of measurement. If not recorded at 09:00am, the recording time should be noted in the comments field.</p> <p>1.3.2 Storage height table amended to be storage water level.</p> <p>Table 1.3.8 and 1.3.9– water entitled to be taken by water users and water taken by water users now includes water entitlement number (not just water allocation number).</p>

	<p>Section 1.3.10 and section 1.3.12 are two new tables – Water taken by water users in excess of their entitlement for surfacewater and groundwater. These metadata requirements were removed from ‘water taken by water users’ (1.3.9 and 1.3.11). All of these tables now include ‘total volume taken’ and can be reported as ‘null, one or many’. Removed the ‘invoiced for excess’ metadata row.</p> <p>1.3.10 – Aggregate use by water users from channel distribution systems – has been removed as it is no longer required.</p> <p>1.3.13 Waterholes – removal of ‘Site ID element’ is replaced by a location element for either zone or site ID.</p> <p>Table 1.3.15 Seasonal water assignment includes reference to ‘null, one or many’ are made to allow for flexibility in reporting. The tables are ordered more logically. Price disclosure (where required under the WIL) enables the department to fulfil its water markets reporting obligations.</p> <p>Removed repetition of wording in all tables (i.e. ‘unique identifier’ and ‘see exchange codes’).</p>
<p>1.3.15 Cyanobacteria</p>	<p><b>Version 2, 2022:</b> Existing table – new reference to enumeration and total cell biovolumes (instead of biovolume for each species).</p>
<p>Section 2.1 and section 2.2 have been removed</p>	<p><b>2022 Version 2 changes include the removal of all Section 2 tables as they are no longer required.</b></p> <p>All of the tables relating to the Fitzroy Basin Water Plan have been removed.</p> <p>Burnett Basin - Bundaberg water supply scheme tables and Barron resource operations plan tables have all been removed as the previous ROL specific data sets are no longer required.</p> <p>Removed Pioneer River for water supply scheme and Eton water supply scheme tables.</p> <p>The bank slumping and fish stranding tables have been removed and this can be included in the reports (no need for CSV format).</p>