



Australian Government



# Review of the Condamine Alluvium Groundwater self- meter read process

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The Murray–Darling Basin Authority pays respect to the Traditional Owners and their Nations of the Murray–Darling Basin. We acknowledge their deep cultural, social, environmental, spiritual and economic connection to their lands and waters.

The guidance and support received from the Murray Lower Darling Rivers Indigenous Nations, the Northern Basin Aboriginal Nations and our many Traditional Owner friends and colleagues is very much valued and appreciated.

Aboriginal people should be aware that this publication may contain images, names or quotations of deceased persons.

# Executive Summary

A central component of the Murray-Darling Basin Plan is the introduction of sustainable diversion limits (SDLs), which is how much water can be used in the Murray–Darling Basin while leaving enough water to sustain natural ecosystems. These SDLs will come into effect in 2019 as new Water Resource Plan (WRP) are accredited for local catchment areas across the Basin. The WRPs set how much water can be taken from the system, ensuring the sustainable diversion limit is not exceeded over time.

The Condamine Alluvium is situated within the catchment of the Condamine River, extending across the Southern Downs, Toowoomba and Western Downs regional councils and covering an area of approximately 4453 km<sup>2</sup> (see map at Appendix A). It is one of the few groundwater resource units in the Basin where the current level of take exceeds the new Basin Plan SDL by a substantial amount.

Grazing and dryland cropping are the major land uses across the Condamine Alluvium, followed by irrigated agriculture, forestry and residential uses. All of these uses may access groundwater. There are approximately 160 individual licence holders within this area.

To bridge the gap between the current level of take and the new sustainable diversion limit, the Basin Plan requires groundwater extractions in the Queensland Upper Condamine Alluvium to be reduced by 40.4 gigalitres (an approximate 30% reduction). To achieve this, the Commonwealth has been purchasing groundwater licenses in this area.

The Murray-Darling Basin Authority (MDBA) has undertaken this limited assurance review, focussed on the self-meter read process, under section 173(1) of the Water Act 2007 to provide assurance that appropriate systems are in place to ensure the Condamine Alluvium water resource is being appropriately managed and there will be compliance with the new SDL once the WRP comes into effect. It also promotes public confidence that systems are in place to reliably measure both consumptive use and recovered water so that it is protected and new limits for water take are being observed.

## *Review Approach*

Senior executives from both MDBA and the Department of Natural Resources, Mines and Energy (DNRME) approved the engagement plan for the assurance review in April 2019. MDBA officers travelled to Brisbane and met with DNRME compliance and resource finance staff to discuss processes and procedures for collecting and recording meter read data, as well as the approach to compliance or enforcement action when non-compliance is identified. DNRME gave MDBA a walkthrough of the processes and procedures and a demonstration of the various systems it uses to store and collate meter read data.

Following on from this, MDBA officers travelled to Toowoomba for a similar walkthrough of regional office processes and procedures concerning the collection, storage and analysis of metering data. The MDBA then accompanied DNRME regional office staff on a site visit for a demonstration of the meter audit process at a groundwater extraction site in the Condamine region.

DNRME also provided MDBA with internal procedural documentation regarding its self-meter reading processes. As a result of reviewing this material, combined with the process walkthroughs with DNRME officers in Brisbane and Toowoomba, MDBA has made a number of observations and recommendations for improving the integrity and effectiveness of the self-meter read process.

The MDBA would like to thank DNRME staff for their co-operation and professionalism during the course of this review.

# Assessment against the Review Objective

**Review Objective:** To assess the adequacy and effectiveness of the metering and monitoring processes the Queensland Department of Natural Resources, Mines and Energy (DNRME) has in place to:

- ensure the accuracy of meter reads provided for measuring take by entitlement holders in the Condamine Alluvium groundwater resource; and
- ensure compliance with the new SDL for the Condamine Alluvium water resource.

**Conclusion:** Overall, the review found that, despite a number of measures DNRME have implemented to strengthen the integrity of its self-meter read process, the control environment is insufficient to provide adequate assurance that the measurement and reporting of water take in the Condamine Alluvium is reliable.

MDBA acknowledges that an audit of Queensland non-urban water measurement and compliance was conducted in 2017 by an independent panel of experts (Mr Tim Waldron, Prof. Poh-Ling Tan and Mr Ian Johnson), and that in response to that audit, DNRME have implemented a number of measures to strengthen the overall water compliance framework through the Rural Water Management Program. Notwithstanding this, the MDBA has identified a number of areas where improvements could be made to further strengthen this process.

During the course of this review, DNRME advised MDBA that it was in the process of revising its *Queensland Non-urban Water Metering Policy for Unsupplemented Water Extractions 2016*. While this revised policy may address some of the issues raised in this report, it is yet to be formally approved by the Queensland government, and as such, could not be provided to MDBA for its consideration.

**Overall Rating**

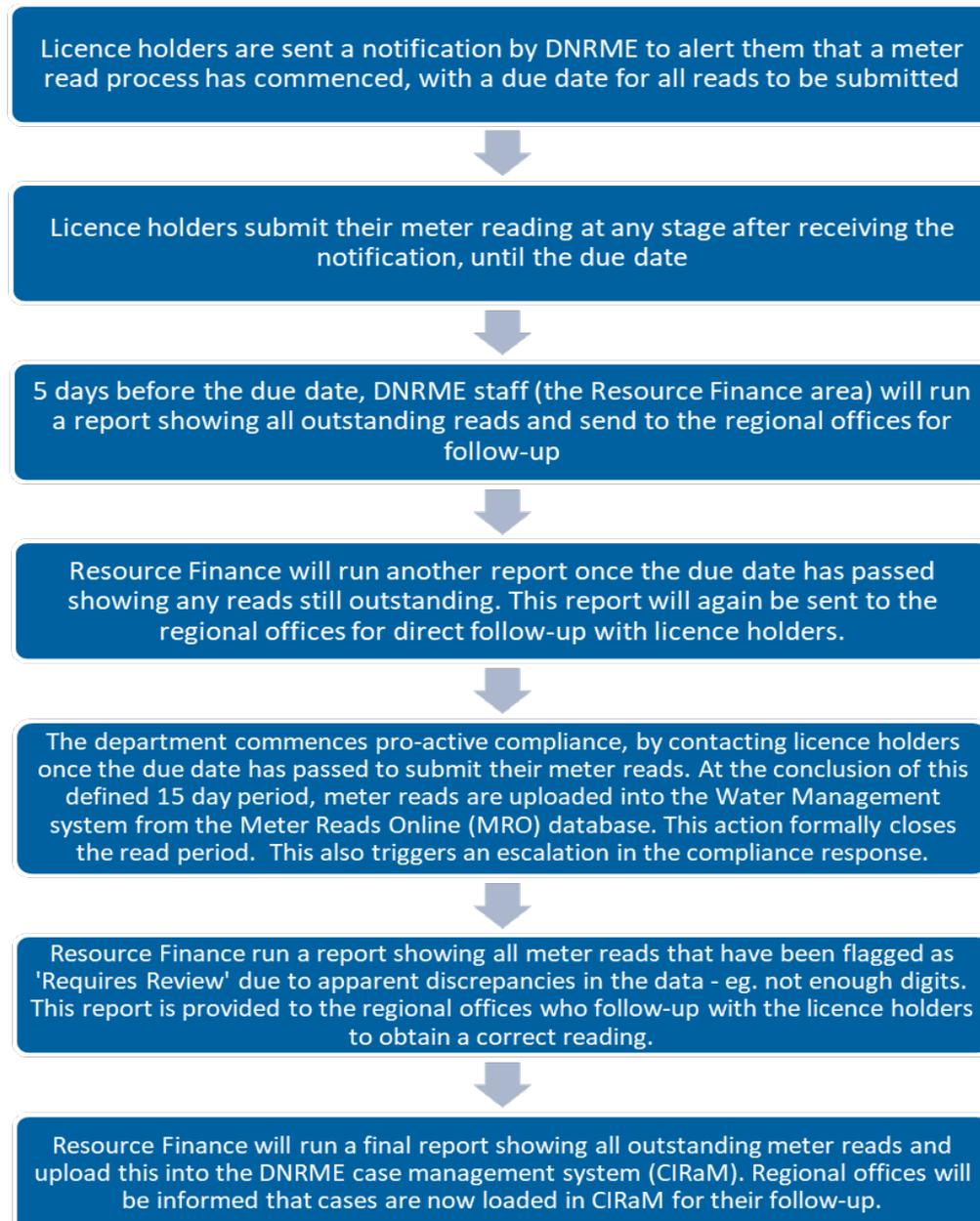
**Requires Improvement**

# Detailed Findings

## 1. Reliability of self-meter read data

### Background

Licence holders in the Condamine Alluvium area are required to submit a meter read twice a year. Meter reads can either be submitted to DNRME via an online portal (Meter Readings Online), or in a hardcopy paper form. Below is a summary of the key steps in the process:



Licence holders, whether using the online portal or the paper form to submit their meter read, are not required to validate their meter reading with any supplementary verification of the accuracy of that reading. An absence of validation of meter read data by licence holders in a self-reporting system can adversely impact the integrity of the self-meter read process by:

- Increasing the risk of entitlement holders misreporting their water usage (either accidentally or deliberately); and
- Increasing the workload for DNRME staff having to manually follow-up with licence holders to rectify minor data issues. For example, a licence holder may inadvertently make an error when transcribing the number on their meter, and this can only be resolved by a DNRME officer contacting the licence holder to obtain the correct reading.

<b>Risk Rating</b>	<b>High</b>
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## Recommendation

MDBA recommends that where meters are not telemetered, and data logging is not used, DNRME should make it a requirement for licence holders to include verification of the read - such as a date stamped digital photo of their meter - when submitting their meter reads.

This requirement would strengthen the integrity of the self-meter read process and act as a strong deterrent against deliberate non-compliance by licence holders.

## DNRME Response

Accepted in principle.

DNRME, as the lead agency with responsibility for water measurement and metering, has reviewed its metering policy and is progressing recommendations to Government to undertake stakeholder engagement on a range of proposals to support improved measurement and metering. Based on the feedback from the proposed consultation and the final draft policy, significant strengthening of metering requirements are likely to be implemented progressively across Queensland based on risk-based considerations.

DNRME has reviewed its existing metering policy and is seeking to consult on proposals that would deliver a comprehensive validation, maintenance and assurance regime, consistent with National metering policy and Australian Standard 4747. Minor amendments to the interim metering standard will be progressed to strengthen these requirements, whilst Government considers recommendations from the metering policy review.

The capability for collection of visual evidence through the self-meter read process to provide additional verification has been considered, but constraints exist with current information platforms and data management protocols. The Rural Water Management Program will examine options for systems improvements to deliver more effective water management and compliance and increase information transparency.

Field based audit processes currently undertaken do include a visual inspection of meter dials for comparison with most recent meter read submissions, as a preliminary flag for possible read anomalies and providing a level of validation that the submitted read is consistent with factors such as crop history and previous reads.

<b>Implementation due date</b>	<b>In accordance with RWMP project timeframes</b>
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## 2. Publicising compliance activities, priorities and sanctions

### Background

An important element of any compliance framework is ensuring that stakeholders are informed of their obligations under the framework, as well as the regulatory approach and penalties for non-compliance.

Greater transparency around compliance and enforcement activities increases voluntary compliance and provides stronger deterrence, as well as promoting confidence in the community that DNRME places an emphasis on compliance and enforcement.

During its discussions with DNRME compliance officers, DNRME provided MDBA with a copy of its *Natural Resources Compliance Plan* for 2018/19. Having reviewed this document, MDBA considers it to be a well presented document which clearly articulates the DNRME compliance priorities relating to vegetation, land and water. This document however has not been made publicly available.

DNRME also discussed with MDBA its annual program of field-based meter audits, with targets for audit coverage based on an analysis of risk in the individual catchment areas and resourcing considerations in the regional offices.

The meter audit that MDBA accompanied DNRME on demonstrated that the field officers conducting these audits have extensive knowledge of the local area – specifically around crop production - and use this knowledge to support their compliance activities. A high-level summary of this audit program is also contained within the *Natural Resources Compliance Plan*.

While DNRME has created a dedicated compliance page on its [business.qld.gov.au](http://business.qld.gov.au) website, there is no specific information provided here about the meter audit program, or the range of enforcement tools used to penalise non-compliance (such as warning notices, fines, or water licence cancellations).

<b>Risk Rating</b>	<b>Low</b>
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### Recommendation

MDBA recommends that DNRME update its compliance page on [business.qld.gov.au](http://business.qld.gov.au) to include a link to the *Natural Resources Compliance Plan*, along with specific information about the range of penalties that can be issued to licence holders who do not comply with their obligations under the Commonwealth Water Act (2007) and DNRME Metering Policy.

### DNRME Response

Accepted.

The DNRME Natural Resource Compliance Framework is currently on the department's website. DNRME is working to provide greater transparency of the department's compliance approach and activities.

<b>Implementation due date</b>	<b>September 2019</b>
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# 3. Improving data integrity through system upgrades

## Background

MDBA was provided with a walkthrough demonstration of the DNRME Water Management System (WMS), which the system used to store licence holders’ meter read data. Licence holders who submit their meter reads online use a portal (MRO) which feeds the data directly into the WMS.

MDBA identified that when a meter read is entered or uploaded into the WMS, the system does not have the functionality to perform a reconciliation of that reading against the licence holder’s allocation. It also does not restrict a licence holder from entering a reading such that a negative account balance may occur.

DNRME regional offices store meter read data in local spreadsheets and use these for reporting and manual analysis, including reconciliations against a licence holders’ allocation. This appears to be a somewhat laborious process that may lead to data integrity issues.

The absence of any system validation of the meter read data, whether entered by licence holders (through the online portal) or DNRME staff (when transferring information from paper-based forms), increases the risk of data integrity issues occurring.

During the course of this review MDBA was advised by DNRME that it is currently scoping requirements for an upgrade to the WMS that will consider additional automated reconciliation of meter reads.

<b>Risk Rating</b>	<b>High</b>
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## Recommendation

MDBA recommends that as part of any future upgrade of the WMS, DNRME should give strong consideration to incorporating functionality that enables the automatic reconciliation of a meter read with a licence holder’s allocation, as well as system controls to prevent erroneous meter reads from being entered that would allow a negative account balance.

## DNRME Response

Accepted in principle.

The Queensland Government is examining options to deliver improvements to water management, compliance, the availability of transparent water information and enabling water markets to realise economic benefits and resourcing.

Initial scoping work under the Rural Water Management Program has identified significant benefits with the development of smart-forms and/or online lodgement platforms that incorporate a level of error-checking and automatic evaluation of entitlement conditions. This timing for progression of this functionality is contingent on the system options considered and the associated funding options.

<b>Implementation due date</b>	<b>In accordance with RWMP project timeframes</b>
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# 4. Tracking all licence holders in the system

## Background

From its discussion with DNRME, it was identified that in circumstances where a licence holder is not taking water for a particular year, they are able to advise DNRME of this and subsequently be exempted from the meter read process.

When a licence holder informs DNRME that they are relying on this exemption they are removed from the list of Meter Read Notices to be issued. This exemption remains in place until the licence holders notifies DNRME that they intend on taking water, and the exemption should no longer apply.

MDBA acknowledges that these licence holders may still be included in the regular meter audit program, however there is a risk that under this self-reporting system the licence holder may resume taking water without first notifying DNRME, and this oversight may not be identified for some time.

<b>Risk Rating</b>	<b>Moderate</b>
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## Recommendation

MDBA recommends that DNRME should establish a formal process for keeping track of all entitlements currently exempted from the meter read process, which includes a program of scheduled monitoring to ensure that any resumption of water take by licence holders is identified in a timely manner.

## DNRME Response

Accepted in principle.

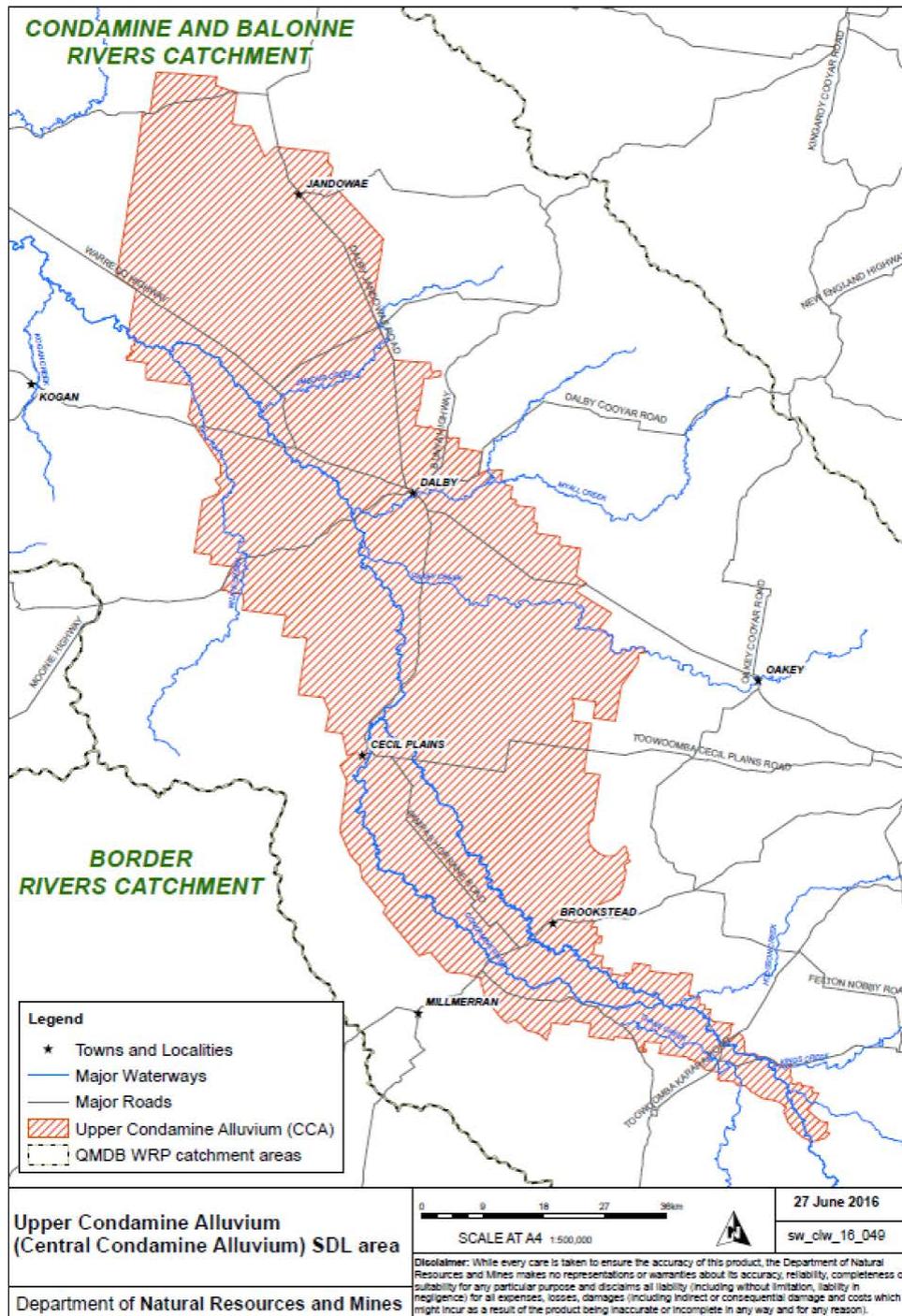
DNRME, as the lead agency with responsibility for water measurement and metering, has reviewed its metering policy and is progressing recommendations to Government to undertake stakeholder engagement on for a range of proposals to support improved measurement and metering. Based on the feedback from the proposed consultation and the final draft policy it is likely that significant strengthening of metering requirements will be implemented progressively across Queensland based on risk-based considerations.

In addition to a strengthened approach to metering and meter validation, Queensland Government is examining options for systems improvements to deliver increased transparency of water information for the community and entitlement holders and a platform for enhanced water sales and trading.

<b>Implementation due date</b>	<b>In accordance with RWMP project timeframes</b>
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# Appendix A

## Map of the Condamine Alluvium Groundwater Resource



Source: *Upper Condamine Alluvium – Central Condamine Alluvium Groundwater Background Paper 2018*; Queensland Department of Natural Resources, Mines and Energy (DNRME).

# Appendix B

## Engagement Report Rating and Findings Rating

### Engagement Report Rating Definitions

Report rating	Explanation
<b>Satisfactory</b>	Controls are adequate and effective in addressing key risks. No critical, high-rated or medium-rated findings identified. Any findings are minor and is insignificant.
<b>Satisfactory with room for improvement</b>	Controls are largely adequate and effective in addressing key risks. No critical or high-rated findings identified. Any findings are moderate or low.
<b>Requires improvement</b>	Controls only partially addresses the key risks. Some high-rated and/or medium-rated findings were identified.
<b>Unsatisfactory</b>	Controls are ineffective in addressing the key risks. Most findings were rated as critical and/or high and urgent corrective actions are necessary.

### Findings/Observations – Risk Ratings

Report rating	Explanation
<b>Low</b>	The event is of low consequence. Remedial action (if noted) should be considered.
<b>Moderate</b>	The event may threaten an element of the organisation's objectives. Remedial action should be implemented in the short to medium term.
<b>High</b>	The event may threaten the achievement of the organisation's objectives. A high priority should be given to implementing remedial action.
<b>Critical</b>	The event represents a significant control weakness which could stop the achievement of the organisation's objectives. Remedial action should be implemented as a matter of urgency.

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