



ACT
Government

NON-URBAN WATER METERING POLICY

OCTOBER 2023

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Acknowledgement of Country

Yuma

*Dhawura nguna ngurumbangu gunangu Ngunnawal. Nginggada dindi dhawura Ngunnawalbun yindjumaralidjinyin. Mura bidji mulanggaridjindjula.
Naraganawaliyiri yarabindjula.*

Hello

This country is Ngunnawal (ancestral/spiritual) homeland. We all always respect elders, male and female, as well as Ngunnawal country itself.

They always keep the pathways of their ancestors alive. They walk together as one.

We acknowledge the Ngunnawal people as traditional custodians of the ACT and recognise any other people or families with connection to the lands of the ACT and region. We acknowledge and respect their continuing culture and the contribution they make to the life of this city and this region.

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Version history

Version number	Document date	Document status
1	23 October 2023	Final policy

Review of policy

This policy will be reviewed every 5 years, or as required, to ensure that it remains consistent with the National Metering Framework and the requirements of Australian Standard 4747: Meters for non-urban water supply.

For more information contact the Environment Protection Authority on 13 22 81 or email environment.protection@act.gov.au.

Glossary

Accuracy testing - the process of confirming that a meter is operating within the maximum permissible error of $\pm 5\%$ accuracy for in-situ conditions.

AS 4747 – Australian Standard 4747: Meters for non-urban water supply.

Authorised officer - an officer authorised under Section 14 of the *Environment Protection Act 1997*.

Certified person - a person with the qualifications, skills or experience to carry out work in relation to metering equipment and is certified by an accredited organisation¹ to undertake meter installation, maintenance and validation activities in accordance with Australian Standards. A current listing of Certified persons can be found in the Member Directory on Irrigation Australia’s website www.irrigationaustralia.com.au

Competent person - a person employed in the meter or irrigation industry with the qualifications, skills or experience to carry out work in relation to metering equipment.

EPA – the ACT Environment Protection Authority.

Grandfathering - applies to meters installed before 1 December 2023 which are exempt from the installation and validation requirements of AS4747 for non-urban water metering.

Licence holder - the holder of a licence to take water issued under Part 5 of the *Water Resources Act 1997*.

Manufacturer’s seal - a metal wire installed at the time of manufacture of the meter that connects the meter to the meter body to detect any interference with the operation of a meter and the metering equipment.

Meter - a water meter required to be installed through a condition of a licence to take water.

ML – megalitre (equivalent to 1,000,000 litres).

Metering equipment - includes the meter itself and any ancillary wiring, pipework, telemetry equipment or apparatus (where installed) and any supporting structure.

Non-urban water meters – the National Framework for Non-Urban Water Metering has defined non-urban water meters as any meter which measures water take from regulated and unregulated surface water and groundwater systems for the purposes of monitoring compliance with water entitlements and for resource management activities.

It does not include stream gauging stations or groundwater infrastructure used for resource monitoring, or meters used in urban supply and distribution systems where raw or potable water is supplied under a Standard Customer Contract by water utility (e.g. Icon Water) or non-drinking water is supplied under a Customer Contract.

Pattern approved meter - a water meter that has passed the relevant pattern approval process and has a pattern approval certificate issued by the National Measurement Institute.

Policy - the Non-urban Water Metering Policy.

¹ At the time of writing this policy, Irrigation Australia is the only nationally registered training organisation for closed conduit meters

Tamper - as defined in the *Water Resources Act 2007*.

Tamper evident seal - a seal with a unique identification number, purchased through Irrigation Australia, which is applied by certified person to detect any interference with the operation a meter and the metering equipment.

Telemetry - a device that transmits readings (in this instance a pulse or a group of pulses from the water meter) to a central data store where it can be reviewed in near-real time.

Totaliser – displays the accumulated total and total volume of flow through a meter over time.

Validation - a set of activities that includes inspecting the meter to check that it is pattern approved or has a certificate issued by a recognised and accredited testing institution, and that it has been installed and maintained in a manner that provides an acceptable level of confidence that the meter will operate within a range of error under normal operating conditions.

1. Introduction

The National Framework for non-urban water metering (2009)² and the Murray-Darling Basin Compliance Compact (2018)³ were developed from the National Water Initiative to improve water management across Australia. This framework provides a nationally consistent metering standard to improve confidence in water meter performance and accuracy.

The updated Metrological Assurance Framework 2 (MAF2)⁴ is a part of the National Framework which describes the principles to improve the measurement and metering of water taken. The MAF2 is supported by meter standards specified by Australian Standard 4747 - Meters for non-urban water supply (AS4747) that covers the installation, validation, maintenance and verification of meters.

Each state and territory is required to develop its own policy that implements these metering standards to ensure equity around water sharing, improved and continuing confidence in meter performance and water accounting, and the protection of water resources.

In the ACT, the Environment Protection Authority (the EPA) regulates the abstraction of water resources through the *Water Resources Act 2007*. All licensed water take has been required to be metered to account for water use since the introduction of the legislation in 1998.

To ensure continued confidence with water metering requirements, this Non-urban Water Metering Policy has been developed to provide standard requirements for water meter selection, installation and maintenance in the ACT. It delivers on key requirements of the MAF2 and AS4747.

2. Objectives

The objectives of the Policy are to:

- Provide a set of standards for the installation, maintenance and replacement of water meters that ensure an acceptable level of confidence in meter performance and accuracy; and
- Use a staged risk-based regulatory approach by prioritising the implementation of new metering requirements for high risk water take; and
- Uphold community confidence in water resource management and accounting.

² National Framework for Non-urban Water Metering (2009) available from <https://webarchive.nla.gov.au/awa/20130905194923/http://www.environment.gov.au/water/publications/agriculture/pubs/national-framework-for-non-urban-water-metering.pdf>

³Murray-Darling Basin Compliance Compact available from <https://www.mdba.gov.au/sites/default/files/Basin-Compliance-Compact-180702-D18-31184.pdf>

⁴Metrological Assurance Framework 2 available from <https://www.dcceew.gov.au/water/policy/policy/nwi/nonurban-water-metering-framework>

3. Application of the policy

The National Framework for Non-Urban Water Metering defines non-urban water meters as any meter which measures take from regulated and unregulated surface water and groundwater systems for the purposes of monitoring compliance with water entitlements and for resource management activities.

This policy applies to all water abstraction in the ACT that is required to be licensed under the *Water Resources Act 2007*⁵.

The policy does not apply to:

- Water take that is exempt from the requirement for a licence to take water⁶; or
- Stream gauging stations or groundwater infrastructure used for resource monitoring; or
- Meters used in urban supply and distribution systems where raw or potable water is supplied under a Standard Customer Contract by water utility (e.g. Icon Water) or non-drinking water is supplied under a Customer Contract.

This policy replaces the EPA “Water Meter Installation, Maintenance and Replacement Guideline”, dated March 2015.

4. Standards for new and replacement meters

This section outlines the standards for all new and replacement meters installed on or after 1 December 2023. From this date, any new or replacement water meter must comply with the requirements of Australian Standard 4747: Meters for non-urban water supply (AS 4747) for water meter selection, installation, validation and maintenance.

4.1 Meter selection

All new and replacement meters must be pattern approved. Pattern approved meters have been tested in an accredited laboratory to ensure they operate accurately under a range of environmental and operating conditions and comply with AS 4747.

A list of AS4747 compliant, pattern approved meters is available from the Australian Government’s website⁷. This list will be updated from time to time as more meters receive pattern approval.

⁵ Note: the definition of ‘urban residential property’ in the Water Resources Act 2007 does not apply in the application of this policy.

⁶ As defined in Section 28(2) of the *Water Resources Act 2007*

⁷ At the time of writing, a list of pattern approved meters is available from the Department of Climate Change, Energy, the Environment and Water (DCCEEW)
<https://www.dcceew.gov.au/sites/default/files/documents/pattern-approved-meters-list-nov2022.pdf>

Meters must:

- Be fit for purpose and suited to the intended purpose, installation configuration and operating conditions (such as water quality conditions and flow rates); and
- Have a local totalising display that indicates the water used in metric units. The preferred units are kilolitres (kL) or cubic meters (m³). For larger water meters the scale of the display can be kL x 10 or m³ x 10.

It should be noted that, although connection to telemetry is not required at this stage⁸, it is likely that it will be required across the Murray Darling Basin by 2025.

It is advisable that licence holders consult with a hydrometric specialist prior to the selection and purchase of a pattern approved water meter.

4.2 Meter location

The following requirements should be taken into consideration when choosing the location for a water meter to ensure it is installed and operated correctly. A water meter should be:

- Installed as close as reasonably practicable to the water extraction point and located upstream of any valves (except air valves), tees, take/offs, diversions or branches;
- Installed above ground with inlet and outlet pipes visible at all times;
- If above ground installation is unavoidable, an underground installation must not be more than one metre below ground level with inlet and outlet pipes visible at all times;
- Installed in a location that allows for safe access to read the meter;
- Accessible at all times (subject to security arrangements which may prevent access to unauthorised persons) and clear of vegetation and landscaping to allow easy visibility for manually reading the meter and viewing the serial number;
- Adequately supported to ensure that the full weight of the meter and its associated pipework is structurally stable and that no leakage occurs under all operating conditions; and
- Protected from the risk of damage due to environmental conditions (such as vibration, corrosion, fogging, flooding, frost and freezing) or from damage from vehicles, livestock and vandalism.

4.3 Meter installation and validation

A licence holder is responsible for ensuring that all licensed water extraction passes through a meter(s) and that separate metering systems are installed to measure groundwater and surface water components (where required).

A new or replacement meter must be installed in accordance with the pattern approval certificate⁹. The pattern approval certificate outlines the installation requirements, including

⁸ Appendix C contains key points on why telemetry is not required at this stage

⁹ At the time of writing, a list of pattern approved meters is available from the Department of Climate Change, Energy, the Environment and Water (DCCEEW)

<https://www.dcceew.gov.au/sites/default/files/documents/pattern-approved-meters-list-nov2022.pdf>

correct flow direction orientation and the required lengths of pipework upstream and downstream of the meter.

While a meter can be installed by any person including a licence holder or competent person, the meter and its installation must be validated by a certified person within 28 days of installation and before taking water (whichever is first) to certify that it complies with the requirements of the pattern approval certificate, MAF2 and AS4747.

The certified person must issue a completed validation certificate¹⁰ within 7 days of completing the work. The certificate must be submitted by the licence holder via email to environment.protection@act.gov.au within 14 days of receiving it.

If a meter is not installed correctly and cannot be validated by a certified person, the installation will need to be rectified at cost to the licence holder. The validation process will also need to be repeated.

4.4 Tamper-evident seals

Metering equipment must have tamper-evident seals installed at the time of validation. The seal will be provided¹¹ and installed by the certified person to ensure the meter or any ancillary pipework cannot be removed without breaking the seals.

Refer to Section 6 for more information on tamper-evident seals.

5. Standards for Existing Meters

This section applies to existing meters installed before 1 December 2023. Any meter installed on or after this date must meet the new meter standards set in Section 4 (unless exempt as detailed in Section 8).

Existing meters installed before 1 December 2023 must be accuracy tested before the relevant rollout date in Appendix B. A meter can remain in service where it can be demonstrated that it is accurate to within $\pm 5\%$ for in-situ conditions and complies with this policy.

Where a meter does not meet the requirements below, it will either need to be repaired and validated so that it is accurate or replaced in accordance with the requirements for new and replacement meters (as outlined in Section 4).

¹⁰ Template available at <https://www.accesscanberra.act.gov.au/s/article/water-resources-licensing-tab-overview>

¹¹ Seals can only be purchased through Irrigation Australia by a certified person https://www.irrigationaustralia.com.au/Web/Shop/Water_Meter_Seals.aspx

5.1 Pattern approved meters

Where a licence holder intends to continue using an existing pattern approved meter, it must meet each of the following criteria:

- The meter is suitable for the particular application and within its functional life of the meter, with consideration given to the age, usage, wear, expected reliability, physical condition, and operating conditions (eg. environmental or water quality) of the meter;
- The meter is validated by a certified person every five years;
- Documentation is provided to show that the meter is pattern approved and has been validated as required; and
- The tamper evident seal(s) is intact.

Note: If the tamper evident seal(s) are not intact, they must be replaced by a certified person as outlined in section 6.

5.2 Non-pattern approved meters

Where a licence holder intends to continue using an existing non-pattern approved meter, it must meet each of the following criteria:

- The meter is suitable for the particular application and within its functional life of the meter, with consideration given to the age, usage, wear, expected reliability, physical condition, and operating conditions (e.g. environmental or water quality) of the meter;
- A certificate is provided to show that the meter accuracy has been confirmed by a certified person to within $\pm 5\%$ accuracy for in-situ conditions no more than five (5) years before the rollout date. If certified accuracy has not been confirmed, the meter must be tested in accordance with Section 9 of this policy; and
- The manufacturer's tamper evident seal(s) is intact. If the manufacturer's seal is broken, the meter is considered to be faulty and it must be tested in accordance with Section 9 of this policy.

A certified person may confirm that a meter is operating within $\pm 5\%$ accuracy for in-situ conditions by using in-situ volumetric measurement, in-series metering with another temporary pattern approved meter, or any other method outlined in AS4747.

6. Tamper evident seals

A tamper evident seal is installed on a meter or any adjacent components to prove the integrity of the meter and show if a water meter or any adjacent components have been dismantled, altered or removed ('tampered' with).

A tamper evident seal must have a unique serial number which is recorded on the validation certificate¹². It is the responsibility of the certified person to provide and install seals to the meter installation to ensure the meter or any ancillary pipework cannot be removed without breaking the seals.

A tamper evident seal should be installed in a location where it is protected from the risk of damage or deterioration due to environmental conditions.

A certified person can break and replace a tamper evident seal. However, the EPA may approve the breaking of a seal by a non-certified person in certain situations, such as when a meter needs to be removed for testing. Approval must be given in writing by the EPA before the seal is broken. Requests can be submitted by email to environment.protection@act.gov.au.

A meter must be re-validated if the tamper evident seal is broken by maintenance or broken or removed by a person who is not a certified person. Minor maintenance, such as battery replacement where removal of the battery does not alter the meter totaliser or cleaning of the external parts of the meter, does not require validation if the tamper evident seal remains in place.

7. Telemetry

Telemetry involves automatically recording data and sending it electronically from the meter to an information technology (IT) system in another place for monitoring and recording.

Although connection to telemetry is not required at time of commencement of this policy¹³, it is likely that it will be required across the Murray Darling Basin by 2025.

Pattern approved meters are fitted with pulse output capability to enable future connection of ancillary equipment such as telemetry.

There is no requirement for telemetry capability to be added to existing meters at time of commencement of this policy. The benefits of requiring telemetry capability on every existing meter will need to be balanced with the significant costs required by licence holders to retrospectively install fully automated telemetry.

It is advisable that licence holders consult with a hydrometric specialist prior to the selection and purchase of a pattern approved water meter.

¹² Seals may be purchased by a certified person through an official supplier such as Irrigation Australia

¹³ Appendix C contains key points on why telemetry is not required at this stage

8. Exemptions for metering requirements

All licensed water use is required to be metered in the ACT. However, the following circumstances may be exempt from the metering requirements (subject to written approval by the EPA) where:

- No pumping infrastructure is installed and water cannot be taken;
- The use of water carts and water usage record keeping has been approved through the licence to take water;
- A meter was purchased prior to 1 December 2023 but has not been installed since the time of purchase (evidence of proof of purchase is required); or
- There is no pattern approved meter listed on the Australian Government's website¹⁴ for a particular application.

A request for an exemption to the metering requirements can be submitted by email to environment.protection@act.gov.au. Exemptions will be assessed on a case by case basis and will generally be granted for a short time period, with the aim to work towards compliance with this policy. Exemption requests must be approved in writing by the EPA.

9. Maintenance, testing and repair of meters

Ongoing maintenance of a water meter is required to provide an acceptable level of confidence that a meter continues to operate within the maximum permissible limits of error and is maintained in good working order.

All maintenance procedures must comply with the MAF2, AS 4747 and the pattern approval certification (or manufacturer's specifications for non-pattern approved meters).

The maintenance requirements, including who is permitted to perform maintenance works, are outlined in Appendix A. These are key maintenance activities only and other maintenance work must be performed as required to ensure that the accuracy and integrity of the meter is maintained.

A brief summary of the requirements is provided below.

9.1 Maintenance of meters installed after 1 December 2023

A licence holder is required to undertake the following activities to ensure that the meter is measuring accurately and maintained in good working order.

- Undertake general maintenance as required to keep the area clear of vegetation and debris, check for damage and ensure the meter display is clear and legible.
- Conduct regular inspections to ensure the site remains safe and accessible, the meter is maintained in good working order and that the tamper evident seals remain intact.

¹⁴ At the time of writing, a list of pattern approved meters is available from the Department of Climate Change, Energy, the Environment and Water (DCCEEW) <https://www.dcceew.gov.au/sites/default/files/documents/pattern-approved-meters-list-nov2022.pdf>

- Ensure that the meter is validated by a certified person every five (5) years to ensure that the meter and metering equipment remain accurate and to perform any maintenance/service on the meter. The validation certificate, together with photographs of the meter installation and tamper-evident seals, must be provided within 14 days of receiving it, unless it has been provided by the certified person.
- Notify the EPA within five (5) working days of becoming aware of faults with meter installation or meter accuracy.
- Remedy faults of meter installation or meter accuracy within 28 days.
- Use a certified person to perform maintenance work where tamper evident seals will be broken or where meter accuracy will be affected.
- Keep a log of all maintenance activities carried out on a meter and metering equipment for a period of five (5) years, including all instances when a tamper-evident seal or manufacturer's seal is broken.

9.2 Maintenance of meters installed before 1 December 2023

Consistent with the grandfathering provisions in the MAF2, meters installed before 1 December 2023 are exempt from mandatory validations where it can be demonstrated that the meter is accurate to within $\pm 5\%$ accuracy for in-situ conditions and complies with this policy. All other maintenance provisions are the same as for meters installed after this date.

A licence holder is required to undertake the following activities to ensure that the meter is measuring accurately and maintained in good working order.

- Undertake general maintenance as required to keep the area clear of vegetation and debris, check for damage and ensure the meter display is clear and legible.
- Conduct regular inspections to ensure the site remains safe and accessible, the meter is maintained in good working order and that the tamper evident seals remain intact.
- Ensure that the meter is accuracy tested by a certified person every five (5) years to confirm that the meter is operating within $\pm 5\%$ accuracy for in-situ conditions.
- Provide a certificate of accuracy, together with photographs of the meter installation and tamper-evident seals, to confirm the accuracy of the meter.
- Fix faults within 28 days (and notify the EPA within five (5) working days of becoming aware of the fault).
- Use a certified person to perform maintenance work where tamper evident seals will be broken or where meter accuracy will be affected.
- Keep a log of all maintenance activities carried out on a meter and metering equipment for a period of five (5) years, including all instances when a tamper-evident seal or manufacturer's seal is broken.

9.3 Meter accuracy testing

A licence holder must arrange for the accuracy of the meter to be tested if the meter is suspected to be operating inaccurately or if the tamper-evident seal or manufacturer's seal are broken by an unauthorised person.

Where the meter is removed and tested in laboratory conditions, it must operate within $\pm 2.5\%$ accuracy across the full flow rate range. Alternatively, in-situ testing can be used where the testing will provide reliable results to show that meter operates with the accuracy requirement of $\pm 5\%$ accuracy for in-situ conditions.

If the meter is outside relevant acceptable accuracy limits when tested, the meter must not be used until the meter is either:

- Repaired and it is demonstrated through a certificate of accuracy that the meter operates within acceptable accuracy limits; or
- A certificate is provided by a certified person to show that the meter accuracy has been confirmed to within $\pm 5\%$ accuracy for in-situ conditions; or
- Replaced with a pattern approved meter that is compliant with Section 4 of this policy.

A certified person may confirm that a meter is operating within $\pm 5\%$ accuracy for in-situ conditions by using in-situ volumetric measurement, in-series metering with another temporary pattern approved meter, or any other method outlined in AS4747.

9.4 Repair of faulty meters

A licence holder must notify the EPA within five (5) working days of detecting a malfunction in which the meter is unable to accurately record water use.

A meter must be repaired, replaced or reinstalled within 28 days of notifying the EPA of the fault. If the meter cannot be repaired within that time, the licence holder must apply to the EPA for an extension in writing and include the reasons why the repair cannot be completed within that time, and provide the date by which meter repair is expected to be completed.

Once repaired, the meter must be either:

- If installed after 1 December 2023, revalidated by a certified person if the repair works affect the accuracy of the meter or if tamper evident seals are broken or removed by an unauthorised person; or
- If installed before 1 December 2023, tested for accuracy by a certified person if the repair works affect the accuracy of the meter or if the manufacturer's seal is broken by an unauthorised person.

The licence holder must provide a copy of the validation certificate or certificate of accuracy to the EPA within 14 days of receiving it, together with the first available meter reading after the meter is repaired.

If the meter cannot be repaired, it must be replaced with a meter in accordance with Section 4 of this policy.

10. Requirements for certified persons and competent persons

Competent persons and certified persons must report if they know or reasonably suspect that a meter or metering equipment they are installing, or carrying out work on, has been tampered with, within five (5) working days.

A report must be made to the EPA by email to environment.protection@act.gov.au.

11. Notification requirements for licence holders

A licence holder is responsible for notifying the EPA when the following circumstances apply.

- A new or replacement meter is installed.
- A meter is revalidated.
- A fault is detected and/or repairs are undertaken on a meter.
- Maintenance activities are completed.
- A meter has been removed or relocated.

Notifications should be provided to the EPA by email to environment.protection@act.gov.au and must be provided within the timeframes specified below.

11.1 Installation of a new or replacement meter

A licence holder must notify the EPA that a new or replacement meter has been installed within 14 days of installation. The notification must include the following information.

- A completed validation certificate confirming that the meter has been approved for use (unless it has been provided by the Certified person).
- The location of the meter using GPS coordinates (and if applicable, the colloquial name given to the meter location).
- The date the meter was installed.
- The make, size, type and serial number of the meter.
- Name and contact details of the installer.
- Licence to take water (licence number) to which the meter relates.
- Unique identification number on tamper evident seal(s) installed on meter and/or metering equipment.
- Photographs and/or a diagram of the meter fitted on pipe-work, together with dimensions showing lengths of clear pipe before and after the water meter up to the first off-take.
- The meter reading at the time of installation.

11.2 Revalidation of an existing meter

A licence holder must notify the EPA when revalidation of a meter is completed. The notification must include the following information.

- A completed validation certificate confirming that the meter has been approved for use (unless it has been provided by the Certified person).
- The make, size, type and serial number of the meter.
- Licence number to which the meter relates.
- Unique identification number on any new or replaced tamper evident seal(s) installed on the metering equipment.
- The meter reading at the time of revalidation.

11.3 Faulty meters, repair work and testing

A licence holder must notify the EPA within five (5) working days of detecting a meter malfunction in which the meter is unable to accurately record water use. The notification must include the following information.

- Licence holder's name.
- Licence number to which the meter relates.
- The location of the meter using GPS coordinates (and if applicable, the colloquial name given to the meter location).
- The make, size, type and serial number of the meter.
- Date the fault was suspected or identified.
- Last available meter reading before the meter became faulty (or if not known, the current meter reading).

For repairs and testing, the following additional information must be included within 14 days of the repair work being completed.

- Date of repair work and a description of the repair work.
- Name and contact details of repairer.
- Date of removal and meter reading at time of removal.
- If tested, the name and contact details of tester, whether the test was performed in a laboratory or in-situ, and a certificate of accuracy if approved for use.
- Date of reinstallation and meter reading at time of reinstallation.
- Unique identification number on any new or replaced tamper evident seal(s) installed on the metering equipment.

11.4 Maintenance inspections

A licence holder must notify the EPA when a 5-yearly maintenance inspection has been undertaken. The notification must include:

- Date of maintenance inspection.
- Licence holder's name.
- Licence number to which the meter relates.
- The location of the meter using GPS coordinates (and if applicable, the colloquial name given to the meter location)
- The make, size, type and serial number of the meter.
- A certificate of accuracy (for meters installed prior to 1 December 2023).
- A completed validation certificate confirming that the meter has been approved for use (for meters installed after 1 December 2023).
- The information listed in Section 9.4 if repair works are undertaken.
- Unique identification number on any new or replaced tamper evident seal(s) installed on the metering equipment.
- The meter reading at the time of maintenance inspection.

11.5 Permanent removal or relocation of a meter

A licence holder must notify the EPA when a meter is permanently removed or relocated for use at another location. The notification must include the following information.

- Date of removal or relocation.
- Licence holder's name.
- Licence number to which the meter relates.
- The location of the meter using GPS coordinates (and if applicable, the colloquial name given to the meter location).
- The make, size, type and serial number of the meter.
- The meter reading at the time of permanent removal or relocation.
- If relocated, the information listed in Section 11.1.

12. Compliance with policy

Licence holders and certified persons must comply with the requirements of this policy.

A water meter and metering equipment can be inspected by an authorised officer to confirm compliance with this policy and with the *Water Resources Act 2007*. Inspections may be undertaken in consultation with the licence holder and arranged at a mutually suitable time, where possible.

The EPA may direct a licence holder to test a meter to verify that the meter is operating within acceptable accuracy limits, or undertake other works, where:

- It is reasonably suspected that the meter is not operating within acceptable accuracy limits;
- Tamper-evident seals are broken by an unauthorised person; or
- Maintenance activities that will affect the accuracy of the meter are undertaken by an unauthorised person.

Enforcement action may be taken by the EPA in accordance with the Access Canberra Accountability Commitment¹⁵ to ensure compliance with this Policy.

Penalties may apply for certain offences under the *Water Resources Act 2007*, including but not limited to:

- Contravening conditions of a licence to take water, not installing a water meter, not maintaining a water meter in working condition, and not giving water meter data to the EPA; and
- Water meter tampering.

¹⁵ Access Canberra's Accountability Commitment can be found here <https://www.accesscanberra.act.gov.au/s/article/about-access-canberra-tab-access-canberra-accountability-commitment>

Appendix A - Maintenance Schedules

Maintenance schedule for meters installed after 1 December 2023

The following tables present maintenance schedules for license holders with meters installed after 1 December 2023. Please note that if any maintenance activities affect or may affect the accuracy of the meter, or if tamper evident seals are broken by an unauthorised person, then the meter must be tested to ensure it continues to operate within acceptable accuracy limits in accordance with section 9 of this policy.

Preventative maintenance

	Annual inspection	5 Yearly inspection	Who can perform work
Site is safe and accessible for employees, contractors or visitors to inspect and perform work	✓	✓	Licence holder or competent person
General cleaning to suction clear the equipment, clean solar panel, check for damage and clear the area around the clear of vegetation and debris	✓	✓	Licence holder or competent person
Meter, pipework and other fittings within the metering equipment have structural integrity and there are no leaks	✓	✓	Licence holder or competent person
Tamper evident seal is present and intact	✓	✓	Licence holder or competent person
Meter display is clear and legible	✓	✓	Licence holder or competent person
Meter appears to be in good working order and rotation of totaliser is working correctly when pump is started and water is flowing	✓	✓	Licence holder or competent person
Batteries and/or solar panel are working, replace as required or as specified by the manufacturer ¹⁶	✓	✓	Licence holder or competent person
For electronic meters – there are no error messages on display or obvious faults	✓	✓	Licence holder or competent person

Corrective maintenance

	Annual inspection	5 Yearly inspection	Who can perform work
Weather-proof tamper evident seals are intact		✓	Certified person
Internal pipe is clear of damage, corrosion, material deposits or misalignments		✓	Certified person
Electrical cables and communication cables appear to be in good condition		✓	Certified person
If telemetry is installed - telemetry pole, antenna and any other infrastructure appear to be in good condition		✓	Certified person
Basic maintenance as specified by the manufacturer and pattern approval requirements		✓	Certified person
Validation		✓	Certified person
Tolerance assessment on components		✓	Certified person
For electronic meters – check software version and configuration, electronic check against internal reference source that is set at the time of calibration (as per manufacturer's requirements)		✓	Certified person

¹⁶ Where battery replacement involves the breaking of the tamper evident seal, the replacement must be carried out by a certified person

Fix a mechanical failure		✓	Certified person
Replace flow meter or flow computer		✓	Certified person
Replace Printed Circuit Board (PCB), electrical component		✓	Certified person
Software upgrade or change configuration		✓	Certified person
If telemetry is installed - effective signal transfer between transmitter, sensor and data logger and no fault notifications		✓	Certified person
Provide maintenance report after completing all maintenance activities in this Schedule	✓		Licence holder
Provide meter validation certificate to EPA after completing all maintenance activities in this Schedule	✓	✓	Licence holder

Maintenance schedule for meters installed before 1 December 2023

The following tables present maintenance schedules for license holders with meters installed before 1 December 2023. Please note if a manufacturer’s seal or tamper evident seal is broken as part of maintenance, or at any other time, it must be replaced with an approved tamper evident seal by a certified person. A validation may be completed in place of the 5 yearly inspection to approve the meter and metering equipment for use.

Preventative maintenance

	Annual inspection	5 Yearly inspection	Who can perform work
Site is safe and accessible for employees, contractors or visitors to inspect and perform work	✓	✓	Licence holder or competent person
General cleaning to suction clear the equipment, clean solar panel, check for damage and clear the area around the clear of vegetation and debris	✓	✓	Licence holder or competent person
Meter, pipework and other fittings within the metering equipment have structural integrity and there are no leaks	✓	✓	Licence holder or competent person
Tamper evident seal (or manufacturer’s seal) is present and intact	✓	✓	Licence holder or competent person
Meter display is clear and legible	✓	✓	Licence holder or competent person
Meter appears to be in good working order and rotation of totaliser is working correctly when pump is started and water is flowing	✓	✓	Licence holder or competent person
Batteries and/or solar panel are working, replace as required or as specified by the manufacturer ¹⁷	✓	✓	Licence holder or competent person
For electronic meters – there are no error messages on display or obvious faults	✓	✓	Licence holder or competent person

¹⁷ Where battery replacement involves the breaking of the tamper evident seal, the replacement must be carried out by a certified person

Corrective maintenance

	Annual inspection	5 Yearly inspection	Who can perform work
Meter pipework and other fittings within the metering equipment have structural integrity and there are no leaks		✓	Licence holder or competent person
Weather-proof tamper evident seals are intact		✓	Licence holder or competent person
Internal pipe is clear of damage, corrosion, material deposits or misalignments		✓	Licence holder or competent person
Electrical cables and communication cables appear to be in good condition		✓	Licence holder or competent person
If telemetry is installed - telemetry pole, antenna and any other infrastructure appear to be in good condition		✓	Licence holder or competent person
Basic maintenance as specified by the manufacturer and pattern approval requirements		✓	Licence holder or competent person
Perform volumetric or simulated testing (in situ accuracy testing to ensure meter is operating within $\pm 5\%$ accuracy)		✓	Certified person
Tolerance assessment on components		✓	Certified person
For electronic meters – check software version and configuration, electronic check against internal reference source that is set at the time of calibration (as per manufacturer's requirements)		✓	Certified person
Fix a mechanical failure		✓	Certified person
Replace flow meter or flow computer		✓	Certified person
Replace Printed Circuit Board (PCB), electrical component		✓	Certified person
Software upgrade or change configuration		✓	Certified person
If telemetry is installed - effective signal transfer between transmitter, sensor and data logger and no fault notifications		✓	Licence holder or competent person
Provide completed 5-yearly inspection report or meter validation certificate to EPA after completing all maintenance activities in this Schedule		✓	Licence holder

Appendix B - Roll out dates

This policy recognises that there are water meters installed at time of policy commencement that will initially not meet the requirements of the national metering standards. Transitional periods are provided to ensure licence holders have time to comply with the new rules.

The requirement to upgrade water meters to pattern approved is being rolled out in stages until December 2024, using a risk-based approach to ensure that the largest water users are approached first to become compliant with this policy and national metering standards. Different roll out dates apply depending on the type of water and the licensed volume. Once fully implemented, the metering rules will apply consistent metering requirements across the ACT.

Licence holders must demonstrate compliance with this policy by the respective roll out dates provided below.

Stage	Risk Category	Surface water	Groundwater	Roll out date
1	High risk	Licensed volume equal to or more than 100ML	Licensed volume of equal to or more than 50ML	31 March 2024
2	Moderate risk	Licensed volume more than 30ML but less than 100ML	Licensed volume more than 5ML but less than 50ML	30 June 2024
3	Low risk	Licensed volume less than or equal to 30ML	Licensed volume less than or equal to 5ML	31 December 2024

Note: 1 ML = 1,000,000 litres

For the purposes of this policy, high risk water take is defined by:

- high volume of water take across a small number of licences,
- permitted use of water has a higher potential for over extraction (eg. agricultural and horticultural irrigation),
- multiple meters at one or multiple sites,
- highest volumes of groundwater extraction are located in fully or overallocated sub-water management areas, or
- considerable impact on low flows during dry periods for surface water extraction.

Low risk water take is defined by:

- low volume of water take across a large number of licences, with total take being less than 10% of all licensed water allocated,
- permitted use of water has a lower potential for over extraction (eg. urban residential),
- there is generally one meter at one site,
- smallest volumes of groundwater use are located in fully or overallocated sub-water management areas, or
- low risk of impact on low flows during dry periods for surface water extraction.

Appendix C - Alignment with the Murray-Darling Basin Compliance Compact

Table 1: Alignment with the Compliance Compact

3.2 - Meter accuracy

Action	Requirement	Response
3.2 (i)	All new and replacement meters to comply with AS4747 including pattern approval and verification, by no later than June 2025.	This policy requires that: <ul style="list-style-type: none"> new or replacement meters are to comply with AS4747, including pattern approval and validation from 1 December 2023; and existing meters must be verified with a certificate of accuracy to within $\pm 5\%$ accuracy for in-situ conditions or replaced with a new AS4747 compliant meter.
3.2 (ii)	Commencing immediately, and until June 2025: <ol style="list-style-type: none"> All new and replacement meters to comply with AS4747 where available. Where an AS4747 compliant meter is not available the use of an interim meter that has been verified with a manufacturer's certificate of accuracy to within $\pm 5\%$ accuracy is acceptable. 	As above
3.2 (iii)	When an existing meter no longer meets $\pm 5\%$ accuracy in the field it must be repaired and validated so that it is accurate to within $\pm 5\%$ accuracy in the field or replaced (see 3.2(i)).	Meter accuracy testing is required when: <ul style="list-style-type: none"> tampering is suspected or identified; seals are broken by an unauthorised person; or any meter is suspected to be operating inaccurately. <p>A meter must be tested and not used until the meter is either:</p> <ul style="list-style-type: none"> repaired and it is demonstrated through a certificate of accuracy that the meter operates within acceptable accuracy limits; or replaced with a new AS4747 compliant meter. <p>This policy will also introduce new requirements for meter maintenance and an improved process for repairing faulty meters which will assist to detect issues earlier that could affect meter accuracy.</p>

Action	Requirement	Response
3.2 (iv)	All meters to be periodically validated consistent with the requirements of AS4747.	This policy has the following requirements. <ul style="list-style-type: none"> • Meters installed after 1 December 2023 are required to be periodically validated by a certified person. • Meters installed before 1 December 2023 are exempt from periodic validation as they are 'grandfathered', however they are subject to periodic accuracy testing.
3.2 (v)	Any exemptions to 3.2(i) to 3.2(iv) made by the state to be supported by a justification published on the relevant state agency website.	Meters installed before 1 December 2023 are exempt from the pattern approval and validation requirements of AS 4747 as this is permitted under the National Framework for Non-urban Water Metering. This policy puts in place interim measures to ensure that these meters remain accurate.

3.3 - Meter coverage

3.3 (i)	All take via water entitlements to be metered by June 2025 and a plan for achieving this.	This policy requires all licensed water take to be metered except in certain circumstances as described in section 8.
3.3 (ii)	Any exemptions to 3.3(i) made by the state to be supported by a justification, such as a regulatory impact assessment, published on the relevant state agency website.	As above
3.3 (iii)	The basis upon which meter thresholds have been set.	As above

3.4 – Transmission of data

3.4 (i)	A program to progressively automate the reporting of take, regardless of how that is measured, no later than 2025.	The installation of telemetry for non-urban meters in the ACT would be a costly exercise which would provide minimal benefit for the relative costs for the following reasons. <ul style="list-style-type: none"> • The ACT is a small geographical area, with all metering sites being accessible within a 40-minute drive from the city centre. Over 84 percent of groundwater licences are located within the residential suburbs of the ACT, and 66 percent for surface water licences. • All water take in the ACT has been required to be metered since 1998. This means there is a high level of confidence in existing water accounting and measurement across the ACT. • There is already a well-established requirement for licence holders to self-read their meters at a set frequency (once a year for low risk users, monthly for high risk users). This could be improved with a functionality for licence holders to submit their meter readings through an online form. • Licensed volumes in the ACT are relatively small volume (and few numbers of licences) compared to other jurisdictions, for example, 72 percent of groundwater licences are for 10ML or less, and 45
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		<p>percent of surface water licences are for 20ML or less. These licensed volumes are considered to be low-moderate risk in terms of resource use and potential non-compliance.</p> <p>Note: The ACT will reassess this position if the level of risk to the resource changes in the future or where required telemetry becomes mandatory under the Compliance Compact.</p>
3.4 (ii)	Any exemptions to 3.4(i) made by the state to be supported by a justification published on the relevant state agency website.	As above

3.5 – High risk take

3.5	The highest risk take, including large users in the Barwon–Darling, to be accurately metered by December 2019 and will publish what constitutes highest risk in their metering policies. High risk take should also be telemetered by December 2019 with any exemptions published.	<p>All licensed water use must be metered in the ACT. Exemptions are limited to specific types of water take prescribed by legislation (e.g. stock and domestic riparian rights). The staged roll out of the policy targets largest ACT non-urban water users first.</p> <p>As described above, the installation of telemetry for non-urban meters is not required in the ACT at this time due to the significant costs that would be imposed on licence holders and the minimal benefits it would achieve.</p>
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3.6 – Timetable for installation

3.6	A timetable for the installation of new meters and telemetry, and auditing and maintenance of the metering fleet to meet the above requirements.	<p>The timetable for the installation of new meters is outlined in the policy:</p> <ul style="list-style-type: none"> • From 1 December 2023, all new and replacement meters must be AS4747 compliant. • Meters installed prior 1 December 2023 must be confirmed as accurate or replaced with a AS4747 compliant meter by the relevant roll out date. <p>The timetable for maintenance of meters is outlined in the policy:</p> <ul style="list-style-type: none"> • All meters must be inspected annually by the licence holder; • Meters installed after 1 December 2023 are subject to validation requirements every five years which must be performed by a certified person; • Meters installed prior to 1 December 2023 are subject to accuracy testing every five years which can be performed by a certified person; • Any meter which is suspected to be faulty must be accuracy tested and repaired or replaced as required; and
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		<ul style="list-style-type: none">• A meter must be tested when a tamper proof seal is broken. <p>As described above, the installation of telemetry is not required in the ACT at this time due to the significant costs that would be imposed on licence holders and the minimal benefits it would achieve.</p>
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