Water metering guide

Measuring water use across the Eastern Mount Lofty Ranges will help secure sustainable water resources into the future for the local community, industry and environment.

Measuring water use

The South Australian Government is committed to securing sustainable water supplies for the community, industry and environment. Licensing and metering water use will help ensure the long-term future of the Mount Lofty Ranges water resources.

Licensing and metering water use protects landholders' rights to access water and makes it possible to transfer and trade water allocations and water rights. Water meters will also help licensees monitor their water use and track their irrigation system's efficiency.

Metering licensed sources

Certain licensed water sources will need to be fitted with a water meter to accurately measure water use and ensure the volume used remains within water allocations.

Measuring water use from licensed sources is an important tool in managing the resource and will help secure a sustainable future for the Eastern Mount Lofty Ranges water resources.

Under metering requirements for the Eastern Mount Lofty Ranges, not all surface water dams must be fitted with a meter. See the enclosed Meter Implementation Plan to determine if your surface water dam needs to be metered.

Licensee responsibilities

Licensees are responsible for:

- purchasing a fit for purpose water meter for their infrastructure
- ensuring the meter is installed correctly
- ensuring the meter records accurately
- notifying the Department of Environment, Water and Natural Resources (the Department) when the meter is installed
- ensuring meters and meter sites on their properties are well maintained
- ensuring all water extraction points endorsed on their licence are accurately metered
- installing water meter(s) or engaging a meter installer to install the meter(s).

Timeframes for installing meters

Licensees must install their own meter(s), or engage a meter installer to install their water meter and/or advise the Department of existing meter installations within six months of being issued their water licence.

Licensees that need to install multiple meters, have complex meter installations or experience special circumstances may discuss alternative time frames with the Department once their licence has been issued.

Meter selection

Licensees are responsible for installing water meters that comply with the *South Australian Licensed Water Use Meter Specification*. These specifications are available online at www.naturalresources.sa.gov.au/samurraydarlingbasin.

There is a wide range of water meters available on the market. The type, size and configuration of the water meter needs to meet the pump installation requirements, and the optimal flow rate and pressure range of the pump. Ideally, the meter should also match the outlet diameter of the pump and associated pipe work.

It is recommended that a suitably qualified person is engaged to help select a fit for purpose water meter. This will ensure that the correct meter is purchased to suit your infrastructure arrangements and takes into account other relevant factors such as water quality enabling you to meet your obligations under the *Natural Resources Management Act 2004* and *South Australian Licensed Water Use Meter Specification*.

Meter size

The selected meter size should ensure the meter's rated operating conditions are not exceeded. Selecting a water meter that matches the optimal flow rate from your pump will increase the accuracy and life of the meter.

Generally the size of the water meter selected should match the pump outlet diameter and corresponding pipe work. In circumstances where it is impractical to install a meter with the same diameter as the pipe work, it may be acceptable to install a smaller diameter meter.

The installation of a smaller water meter requires the pipe immediately upstream and downstream of the meter to be the equivalent diameter to the meter size. Any couplings used to adjust the pipe diameter must be outside of the required length of straight pipe work before and after the meter.

Selecting a water meter that matches the optimal flow rate from your pump will increase the accuracy and life of the meter.

Manufacturer's seal and certificate of accuracy

A purchased water meter should be accompanied by a manufacturer's certificate of accuracy detailing its operating accuracy. A copy of this certificate must be provided to the Department when you notify them of the installation.

The meter should also include an intact manufacturer's seal, which must not be broken. A meter with a broken manufacturer's seal would not comply with *South Australian Licensed Water Use Meter Specification* and would need to be re-tested, re-calibrated or replaced.

Mechanical meter with an intact manufacturer's seal. The manufacturer's seal is the wire seal connecting the register to the meter body.

Installation specifications

Installing a water meter correctly is critical to ensure it measures the volume of water that passes through it accurately. Water meters must be installed according to the manufacturer's specifications and must also comply with the *South Australian Licensed Water Use Meter Specification*.

These specifications provide details about the supply, installation, service, repair, replacement and adjustment of a water meter. They also cover issues including materials, workmanship, size, location, installation, security, accuracy and output type.

Meter location

The correct placement of a water meter is critical to ensure it provides accurate readings.

Things to consider include:

- locating the meter as close as practical to the point of extraction
- providing adequate lengths of straight pipe (free from disturbances) before and after the meter
- ensuring the pipe remains full of water whenever the pump is operating
- ensuring no off-takes are located before the meter location unless it is to be used soley for stock & domestic purposes.

Pipe requirements

A straight length of pipe 10 times as long as the pipe's diameter must be installed immediately upstream of the meter, and a straight length of pipe five times the pipe's diameter must be installed immediately downstream of the meter. The straight lengths of pipe must be free from any obstructions, joints or penetrations. This ensures flow within the pipe is uniform and results in accurate meter readings.

For example, if you install a 50 mm water meter on 50 mm pipe work, there must be a minimum of 500 mm of straight undisturbed pipe before the water meter and a minimum of 250 mm of straight undisturbed pipe after the meter.

A key consideration for water users is to ensure installation follows meter manufacturer's specifications (for example, mag flow meters may not require the requirements above) but you will need to demonstrate your meter is fit for purpose and correctly installed to meet the manufacturer's instructions and requirements under the *South Australian Licensed Water Use Meter Specification*.

Examples of disturbances include elbow bends, T-pieces, joints and obstructions such as valves, filters or flow switches that penetrate the pipe.

Such infrastructure can be included in pump and pipe infrastructure, but must only be installed outside of the required straight lengths of pipe before and after the meter.

It is recognised that it may not be a simple process to install a water meter into existing water supply systems where there is not enough straight pipe to meet the *South Australian Licensed Water Use Meter Specification*. Solutions may include modifying above ground pipe work or installing an insertion type water meter that may occupy less space along a straight length of pipe.

Where existing systems do not meet minimum straight pipe work requirements and major infrastructure changes cannot be made, it may be acceptable for the water meter to be installed with reduced lengths of straight pipe before and/or after the meter.

In these situations it is important to check the manufacturer's specifications to ensure that the meter can accurately record water taken.

Prior approval must be sought from the Department to install a water meter in these conditions. It will be necessary to provide a copy of the manufacturer's specifications or a statement in writing from the manufacturer demonstrating that the meter can be installed with reduced lengths of straight pipe and still function within the required two percent accuracy.

Installation of pipe penetrating objects

Objects installed into pipe infrastructure such as elbows, T-pieces, low flow switches, pressure gauges and filters can be installed, but only outside of the minimum straight lengths of pipe before and after the meter. Licensees are reminded that no off-takes are to be located before the meter location unless it is to be used soley for stock & domestic purposes.

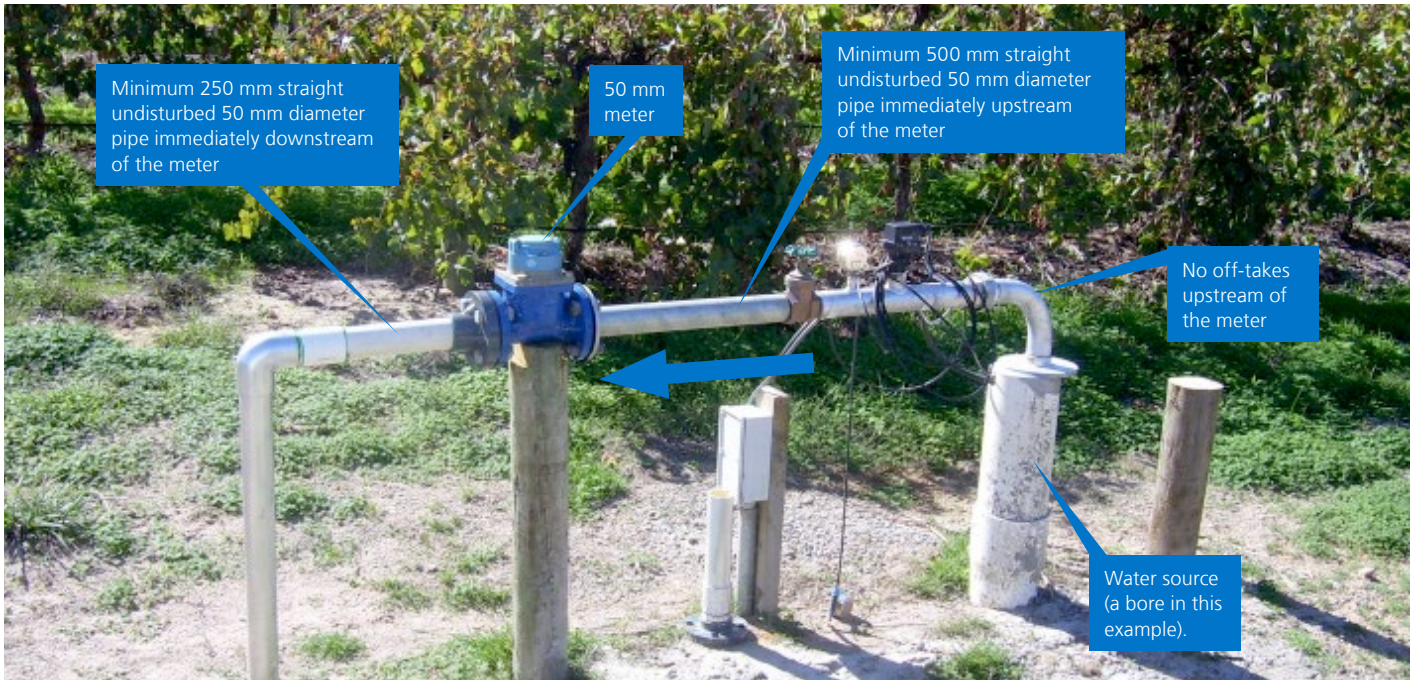
Maintaining an uninterrupted flow of water within the pipe upstream and downstream of the water meter reduces the potential for water flow disturbances which can cause an inaccurate meter reading.

Ensuring a full pipe

It is only possible to correctly measure the amount of water pumped through the meter when the pipe is completely full of water.

Some water meters may be installed vertically, horizontally or inclined, as long as the pipe remains full whilst pumping, and installation meets the manufacturer and the *South Australian Licensed Water Use Meter Specification*. It is important to read the manufacturer's specifications before meter installation, because some meters can only be orientated horizontally to ensure accuracy.

Modifications to pipe work may be required to maintain a full pipe of water e.g. flood irrigators using large pipes. Some options include installing an up-turned elbow bend at the end of the pipe, mounting the pipe on an incline or constricting the flow with a pipe reducer.



50 mm meter with compliant pipework, with all flow disturbances located outside of the minimum required pipe lengths, and no off-takes upstream of the meter.

Access to water meters

The water meter must be installed in a way that provides meter readers with clear and safe access to the meter. Usually this means ensuring there are no obstructions to reading the meter. All meter installations should also be stock proofed.

If the meter is located in an unsafe environment, e.g. on a steep incline or in a wedge hole, adaptations such as handrails and kick plates may be required to provide safe access.

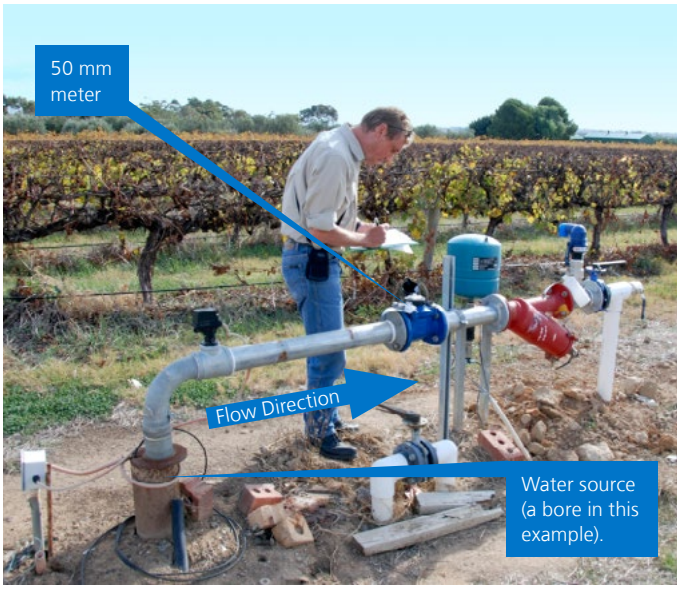
Any water meter that must be installed underground should be safely secured, (eg in a plastic valve box), to ensure the site remains free of mud and obstacles. It should not be installed deeper than 1.5 metres below ground level.

Validation of water meters

Water meters that are installed by a trained water meter validator will be accepted as compliant by the Department.

Water meters that were installed before the issue of water licences, or not installed by a trained meter validator must be validated to ensure they are accurate and meet the necessary standards.

If you choose to self install meters, you must contact the Department who will validate your installation and ensure the meter is correctly fitted.



Meter and associated pipework must be inspected and approved by an accredited meter validator.

Maintenance

Meter maintenance requirements vary depending on the type of meter installed, water quality (i.e. sand, pebble, oxygen and plant material content) and the type of pump system.

Correct maintenance will therefore vary from location to location, but will usually include:

- lubrication of moving parts
- flushing and cleaning to remove any debris or deposits
- identifying and replacing damaged parts
- inspecting regularly to ensure the meter is recording when the pump is operating
- following any instructions within the manufacturer's warranty.

Notifying the Department

You must notify the Department of the meter details once each meter has been installed. This information can be submitted by completing the Meter Notification Form which is available online by visiting www.naturalresources.sa.gov.au/samurraydarlingbasin.

Phone 8595 2053 during business hours to request assistance with the Meter Notification Form.

Copies of other related doccumentation including the South Australian Licensed Water Use Metering Policy and Specification are also available via the website www.naturalresources.sa.gov.au/samurraydarlingbasin.

You must also notify the Department and receive approval to disconnect a meter or break any departmental seals on the meter before undertaking any maintenance works.

Contact the Department 48 hours before work is undertaken on 8595 2053.

For further information

GPO Box 240, Berri SA 5343
T: 8595 2053
F: 8595 2232
E: DEWNRwaterlicensingBerri@sa.gov.au
www.naturalresources.sa.gov.au/samurraydarlingbasin