



Regulation Roundup

A bulletin for electrical, gas and plumbing industry workers brought to you by the Office of the Technical Regulator
Issue 43 | February 2019

Message from the Technical Regulator:

Welcome to the 43rd edition of Regulation Roundup.

I trust everyone has come back to work refreshed after the holiday period. We are in for another year of change.

Importantly, **this will be the last printed edition of Regulation Roundup.**

We are going fully digital in the future. If you have registered for eCoC you will automatically get the next edition posted to your inbox.

A reminder that everyone should be exclusively using the eCoC system for all work.

We are excited about the new features we will be able to bring you through delivering this newsletter via a digital platform. Digital delivery will make it possible to tag and go back to any information you might want to review in the future.

In this edition of Regulation Roundup we kick off the Roadshow Series - you will find dates, times and venues listed within.

I encourage you to invest some time to attend one of the Roadshows, particularly as we have had some recent changes to Standards. It is worth noting that the transition period for AS/NZS 3000 has now expired. There is an article within that provides further detail on this subject. This issue also highlights several issues that we are finding in our field audits.

I trust that Regulation Roundup will prove to be an interesting read and as always, I encourage any feedback you may have to improve the publication.

Robert Faunt, Technical Regulator

eCoC News

A reminder that paper Certificate of Compliance forms were discontinued on 1 July 2018, so they can't be used for any new work. If you have any of these forms, please dispose of them.

The electronic Certificate of Compliance system (eCoC) continues to improve and since the last Regulation Roundup we've rolled out two substantial updates.

The first of these was a change to a new platform so you may have noticed that the design of the site changed slightly, late in 2018. The main effect of this change was a substantial decrease in loading times across all parts of eCoC. We received glowing feedback from several users who were very pleased to reduce the time needed for them to complete their certificates.

The other, more widely anticipated change was the addition of support for multiple licences under one eCoC account. Prior to the change, people who held more than a single licence were required to hold an eCoC account for each of their licences. For security, eCoC accounts must have a unique email address therefore this required some within the industry to set up a new email address for eCoC.

The multiple licence update brought with it the possibility for those who hold more than one licence to add another licence to their account, or to merge their accounts together if they were already registered separately. If you're signing the worker's section of an eCoC with one of your licences and the contractor section with another then it may be worth considering combining your accounts to make your compliance activities more straightforward.

It is very pleasing to see that industry has widely adopted eCoC in their compliance processes. Since we launched eCoC in January 2017 we've seen more than 11,000 licence holders register to access eCoC and more than 245,000 eCoCs have been submitted. Despite the break taken by many over December 2018, we received over 26,000 eCoCs - a substantial increase on the 4,000 received in December 2017.

In 2019 we will continue to improve and enhance eCoC, with new features such as a dashboard that plumbing contractors can use to manage their bookings. We're also investigating adding an embedded map that you could use to find an address which would be particularly useful for new builds on allotments.

If you work or contract in the electrical, gas fitting or plumbing industries and have not registered for eCoC please do so to ensure you are certifying your work correctly. eCoC is free for licence holders, for more information and to register go to www.sa.gov.au/otr/ecoc

FOR TECHNICAL ENQUIRIES:

Electrical

P: (08) 8226 5518 | (8:30am - 4:30pm) | F: (08) 8226 5529

Gas

P: (08) 8226 5722 | (8:00am - 4:30pm) | F: (08) 8226 5866

Plumbing

P: 1300 760 311 | (8:30am - 4:30pm)

www.sa.gov.au/otr

Electrical Bulletin



national
electrical and
communications
association

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NECA 2019 Roadshow Seminar Series

Calling all Electricians!

NECA SA/NT will be running their 2019 Roadshow Seminar Series across South Australia in March, April and May and we encourage all electrical contractors and workers to attend and find out the latest developments within the industry. The seminars will cover updates to Australian Standards, Solar and Battery Storage, Electronic Certificates of Compliance, Metering Contestability and the Security of Payment legislation and much more.

This annual seminar series is a significant training resource for our industry. The event this year is designed to provide licensed electricians with a greater understanding of the following topics:

- *NECA SA/NT on Security of Payment: Are You Getting Paid?*
- *MATES In Construction on who they are and what they do*
- *SA Power Networks on Metering Contestability, updates to the REX Portal and changes to the Service and Installation Rules*
- *Office of the Technical Regulator on Australian Standards, Approved Electrical Products, Electronic Certificates of Compliance, Electric Shock Reporting and the Home Battery Scheme.*

Thanks to the Office of the Technical Regulator and SA Power Networks for their support and involvement in this initiative.

NECA have nominated Mates in Construction to be our charity of choice for the 2019 Roadshow Seminar Series. There will be donation tins available at each seminar, and more information will be provided on MIC, the fantastic work they are doing for the construction industry and why they need our help.

Suppliers, manufacturers and wholesalers will be on location with their new products and service displays and NECA SA/NT staff will also be on hand to answer your questions regarding what NECA can do for you and your business.

To attend the NECA 2019 Roadshow Seminar Series, please complete the registration form enclosed in this edition of the Regulation Roundup at least 7 days prior to your chosen event and send to NECA SA/NT via fax on (08) 8373 1528 or email neca@necasa.asn.au.

For further information please phone NECA SA/NT on (08) 8272 2966 or visit www.neca.asn.au/sa

IMPORTANT INFORMATION - Have You Changed Your Address?

Contact Consumer and Business Services (CBS) for any change of address or licence details:

Level 3, 91-97 Grenfell Street, Adelaide 5000

Phone: 131 882

Email: occupational@sa.gov.au

SA - The Festival State

With festival season fast approaching, electrical workers will have plenty of work setting up temporary installations for the various events around the state.

Wiring and equipment set up for an event of less than 4 weeks is subject to the requirements of *AS/NZS 3002 Electrical installations—Shows and Carnivals*.

Events with a duration exceeding four weeks shall comply with the requirements of *AS/NZS 3000 Wiring Rules*.

Outdoor performance events, fetes, markets and street parties are examples of installations where AS/NZS 3002 will apply. Even basic extension cords and power boards for the distribution of power at a public event are subject to certain installation requirements, inspection and testing by a competent person.

Shows and carnivals are subject to audit from OTR officers as with any installation throughout the state, so as always, ensure your work is compliant and certified with an eCoC.

Safe Working Procedures Around Back-Up Electricity Supplies

With the rise of alternate back-up electricity supplies such as uninterruptible power systems (AS/NZS 62040), inverter systems (AS/NZS 4777), and engine-driven generating sets (AS/NZS 3010), there is the danger for the installation to remain live after incorrect isolation procedures.

Transfer or changeover times for automatic back-up electricity supplies can range from milliseconds to minutes, depending on the system that has been installed.

OTR would like to re-enforce the importance of testing for dead before working on any electrical installation, and the importance to locate and isolate all main switches associated with back-up electricity supplies.



'Temporary' Power

The OTR has noticed an increase in non-compliant preliminary supplies. In some cases, we have discovered outlets that have incorrect or nil mechanical protection, no fault protection or RCD protection. The OTR would like to remind electricians that when any part of an installation has been made ready for energisation, it must be inspected and tested in accordance with Section 8 of AS/NZS 3000:2018.

Building sites can be volatile environments with equipment and leads that may be subject to excessive mechanical stress. With no RCD protection, the circumstances could be dire. Enforcement action was taken against this individual electrical contractor.



In this case, no RCD was installed on a socket outlet.



Laying underground bitumen-filled lightning-cable boxes, King William Road. Early 1900's. Note the partly-completed St. Peter's Cathedral in the background.



What could possibly go wrong?

OTR Electrical Expiations Issued Since the Last Edition of Regulation Roundup

Worker/ Contractor	Non-Compliance	Breach	Expiation
Contractor	Multiple breaches identified - installation of new domestic dwelling	Section 61 (1) (a) Electricity Act 1996	\$375
	Examinations and tests not fully carried out as required	Section 61 (1) (b) Electricity Act 1996	\$375
Contractor	Examinations and tests not fully carried out as required	Section 61 (1) (b) Electricity Act 1996	\$375
Contractor	Multiple breaches identified - installation of new domestic dwelling	Section 61 (1) (a) Electricity Act 1996	\$375
Contractor	Multiple breaches identified - installation of new domestic dwelling	Section 61 (1) (a) Electricity Act 1996	\$375
Contractor	Multiple breaches identified - installation of PV solar system	Section 61 (1) (a) Electricity Act 1996	\$375
	Examinations and tests not fully carried out as required	Section 61 (1) (b) Electricity Act 1996	\$375
Contractor	Failure to comply with a direction - reconnection of supply without approval	Section 62 (4) (c) Electricity Act 1996	\$1,060
Contractor	Examinations and tests not fully carried out as required	Section 61 (1) (b) Electricity Act 1996	\$375
Contractor	Multiple breaches identified - installation of new domestic dwelling	Section 61 (1) (a) Electricity Act 1996	\$375

A total of 26 Owner/Occupiers were expiated for failing to ensure a compliant and safe electrical installation Under Section 60 (1b) of the Electricity Act 1996

On 27 October 2018 the OTR issued a public warning in the Adelaide Advertiser (see below).

Action has been taken against the contractor's electrical licence and electrical workers registration under the PGE Act.

PUBLIC WARNING NOTICE POTENTIALLY DANGEROUS ELECTRICAL WORK

Section 62A of the *Electricity Act 1996*

Audits recently carried out on solar PV installations by the Office of the Technical Regulator in metropolitan and regional areas have identified potentially dangerous electrical work performed by David Dare of Synergy Solar and Electrical Pty Ltd. Mr Dare and his company are known to have performed installations on behalf of other solar energy companies.

In my opinion, Mr Dare's installation practices may pose a danger to persons or property.

Any electrical work including solar installations performed by Mr Dare or his company should be checked and tested by a licensed electrical contractor to verify its compliance.

For further information please contact the company that sold your system or the Office of the Technical Regulator on (08) 82265518.

Hire an apprentice and grow your business

Taking on apprentices is an excellent way to help your business grow.

Apprentices bring new ideas, enthusiasm and a fresh approach to business. Through on-the-job learning, they will acquire practical skills tailored to the needs of your business and industry. Mentoring apprentices also develops the leadership skills of your senior employees.

The Marshall Liberal Government is rebuilding South Australia's training system. We're offering new incentives to get more South Australians learning and earning, with more support for industry, businesses, training providers and learners.

Skilling South Australia is a \$203 million investment to help people build rewarding careers and meet the workforce needs of industry. This initiative will lift the number of apprentices and trainees in South Australia by more than 20,000 over four years.

Skilling South Australia makes it easier for you to take on apprentices.

We're providing incentives for first time employers to take on an apprentice or trainee, including reducing the tax burden and cutting red tape through a streamlined registration process.

A new state-wide advisory service supports you from first contact through to the apprentice or trainee's first day, and provides additional support where required.

As we prepare for the massive wave of opportunity that's heading our way from space and defence projects and the ever-expanding digital technology sector, the South Australian Government is building a stronger and more stable training sector.

We're asking businesses across South Australian industry to get on board by taking on apprentices where possible – which will help our state's future business owners get the strong start to their career that they deserve.

If you'd like to learn more about how we can support your business to take on an apprentice, visit www.skills.sa.gov.au/Employers or call the Skilling South Australia Infoline: 1800 673 097.

Hon. David Pisoni MP Minister for Industry and Skills

Electric Shock Report Incidents

Shock Source	Cause	Contributing Factors	Injuries	Action to make safe
Wall light fitting.	Protective earth conductor not connected.	Worker cleaning light diffuser contacted the metal base of the fitting. This was live as the active conductor was pierced where it enters the fitting. A protective earth had not been connected.	Worker received electric shock to hand.	Electrical contractor repaired light fitting supply cable and connected protective earth conductor.
Food mincer control panel.	Water had ingressed into control panel	Routine cleaning process had allowed water to enter control panel, livening up control buttons.	Worker received electric shock between two hands.	Equipment taken out of service until a replacement with an appropriate ingress protection can be sourced.
Perimeter security fence.	Electric fence controller faulty.	Worker attending site disarmed electric fence then went to open gate, however controller did not turn off system.	Worker received an electric shock to hand.	Electrical contractor installed new controller to resolve issue.
Industrial production camera.	Faulty power supply.	Technician servicing camera went to unplug extra low voltage supply to service camera.	Technician received electric shock to left hand.	Electrical worker isolated supply to camera until a replacement was installed.
Leather cutting machine.	Hand-held cutting machine cut through own power cord.	Operator was cutting through leather material when the supply cord flicked up onto the blade.	Operator received electric shock to right hand.	Equipment removed from service until repairs made. Work procedures to be reviewed.
Bathroom and laundry taps.	Hot water service.	Hot water service had failed resulting in an internal short that livened up the water pipes but would not operate the fuse protecting the circuit.	Home owner received electric shock to hands.	Network operator isolated supply to hot water service until owner could organise a replacement to be installed.
Hand-held hot glue gun.	Flexible cord damaged.	Operator was not aware of the damaged insulation on the flexible cord and contacted the exposed active conductor.	Operator received electric shock to right hand.	Hot glue gun taken out of service and replaced. Work procedures to be reviewed.
Electric recliner chair controller.	Damaged supply cord.	Staff member was inspecting a recliner chair at a residential facility but did not realise the flexible cord connecting the transformer was damaged.	Worker received electric shock to hands.	Transformer supply to chair unplugged and removed from service. Work place procedures to be reviewed.
Split steel conduit.	Conduit system cable had active to earth fault.	Worker was following split steel conduits over roof and was unaware one of the circuits had shorted to earth livening up the roof. There was no protective earth.	Worker received electric shock between hands and feet.	Split steel conduits installed incorrectly, exposing them to the weather. Subsequently removed by the electrical contractor.
Plasma cutter.	Incorrect work practices.	Students were using a plasma cutter when one assisted the other by relocating the earth electrode clamp whilst the unit was being used.	Student received electric shock between hands.	Review of training practices required. Correct PPE to be worn.
Wall hanging bracket.	Shovel placed on wall bracket.	The conductive wall bracket fixing had penetrated a cable buried in the wall. The metal shovel placed on it contacted the adjacent storage rack livening it up also.	Engineering student received electric shock to arm when using the storage rack.	Electrical contractor isolated damaged cable and then removed that circuit.
Metal door frame.	Lighting cable damaged.	Occupier contacted door frame which had been repaired. However, a fixing screw had penetrated a lighting cable. The occupier was not wearing any shoes.	Home owner received electric shock between hands and feet.	Network operator isolated supply until an electrical contractor could affect repairs.

Electric Shock Report Incidents (continued)

Shock Source	Cause	Contributing Factors	Injuries	Action to make safe
Steel mesh and cat netting.	Steel mesh and cat netting fixed to adjoining units' garage.	Owner was checking the cat netting. The fixing for the steel mesh supporting it penetrated a cable in neighbour's garage. Fine rain meant that the nonconductive cat netting had also become live.	The owner received an electric shock to their right arm.	Electrical contractor isolated supply and repaired damage to cable.
Automated gate controller.	Gate controller test bench.	Worker was testing an automated gate controller prior to it being installed but failed to turn off main isolator before he disconnected the wiring on the test bench.	Worker received electric shock to hand.	Work practices reinforced to reduce the likelihood of this incident re-occurring in the future.
Network operator's service fuses.	Contacts within service fuse.	New tenant decided to attempt to turn on the electricity themselves, contacting the exposed fuse contacts.	Tenant received electric shock to hands.	Network operator attended site and safely connected the supply to the premises. Tenant warned not to access service fuses again.

AS/NZS 3000 Wiring Rules - Transition Period is Now Over!

The six-month transition period from the 2007 version to the 2018 version of AS/NZS3000 Wiring Rules ended on 26 December 2018. The transition period was to allow electrical contractors and workers to gain a clear understanding of the changes and to allow for construction projects that may have already commenced under the old edition.

AS/NZS 3000:2018 Now must be adopted into your installation practices to ensure compliance, and to avoid penalties.

The New edition contains many changes including but not limited to:

- More definitions.
- Additional requirements for safety switches.
- Enhanced requirements on the installation of wiring systems.
- Further installation requirements for electrical appliances, accessories and equipment, eg downlight IC ratings, zones on open cooking services, isolation for air-conditioning and hot water services, etc.
- Earthing arrangements for outbuildings, pools and spas.
- Heightened requirements for electrical equipment installed in locations exposed to water.

- The addition of five new appendices.

To help identify all the changes the new edition has a red asterisk adjacent to clauses that have been altered or added.



Laying cables, the labour-intensive way, outside the Botanic Hotel, North Terrace. Early 1900's.

Gas Bulletin

It's Not Hard To Do A Great Job

The gasfitter who installed this multi-layer piping system took the time and care to do a GREAT job.

He attended one of the Gas Roadshows in 2018 and took note of the composite pipe and reversion fitting requirements.

He installed a copper reversion fitting, protected the copper from the steel frame (due to dissimilar materials touching), clipped the composite pipe at regular intervals and used grommets where the piping passes through the frame.



WELL DONE! Keep up the good work.



This job, on the other hand... not so great.

The Use and Storage of LPG Cylinders Indoors for Domestic Properties

The use or minor storage of LPG cylinders indoors in enclosed areas should be avoided due to the risks identified below.

Cylinders stored indoors can easily be knocked over, causing liquid propane to be supplied to any connected appliances with consequent uncontrolled flaring at the burners.

LPG is stored in cylinders at high pressure as a liquid which expands its own volume 273 times as it vaporises (changes from a liquid to a vapour). LPG vapour is heavier than air, so leaking gas sinks to the floor and spreads like water.

Any leakage indoors can pose a significant risk of fire or explosion if there is contact with ignition sources such as refrigerators or other electrical equipment where motors or components exist that can produce arcs or sparks.

Gas leakage in confined / poorly ventilated spaces can also pose a risk of asphyxiation through displacement of the air.

The flammable limits of LPG (Propane) extend from the lower limit of 2.2% gas in air up to the upper limit of 9.5% gas in air.

The Standard for Storage and Handling of LP Gas Cylinders, AS/NZS 1596 does allow for some minor storage and usage

of LPG cylinders indoors in Clause 2.3 and Table 2.1, however this is **only when there is no other option** to locate cylinders outdoors.

The OTR does not recommend using or storing any LPG cylinders indoors because of the above reasons and the numbers of incidents, ie fires and explosions, that we have had to investigate over the years.

Where cylinders are located inside a building, the area must be well-ventilated and the exclusion zones around cylinders from sources of ignition must be maintained.

The maximum quantities of LPG allowed in enclosed / indoor areas for a domestic property is **10kg**. Cylinders which hold quantities above 10kg LPG must be located outdoors in well-ventilated areas where walls, fences and other constructions do not prevent cross-ventilation.

Installing 45kg LPG cylinders inside sheds, garages or carports with roller doors, is prohibited, as these quantities exceed the 10kg limit, and therefore must be located outdoors in well-ventilated areas.

Please note where cylinders are located on a veranda, the veranda must be open on three sides.

The AS/NZS 1596-2014 Storage and Handling of LP Gas Cylinders standard describes an outdoor area as an above ground, open-air situation with natural ventilation, where any gas leakage and products of combustion are rapidly dispersed by wind and natural convection.

Reference Section 2 from AS/NZS 1596-2014 Storage and Handling of LP Gas and appendixes J2 and J3 from the AS/NZS 5601.1-2013.



Non-compliant location of 2 x 45kg LPG cylinders in a carport. This area has poor ventilation and will prevent the safe dispersal of any leaking gas.

Important - Have You Actually SUBMITTED Your eCoC.. (or left it as a DRAFT in the system?)

By now, all gasfitters should be using and issuing Electronic Certificates of Compliance (eCoC). This requirement became law on 1 July 2018 following an 18-month transition period.

Gasfitters have 30 days to submit an eCoC to the customer following any new installation of associated gas equipment or appliances, or alteration to a gas installation.

Having said that, the eCoC system allows you to create a certificate and hold it in 'draft' - this will log the start date of the eCoC.

This is great if you are doing both 1st and 2nd fix as you can submit one eCoC for the whole job.

When finalising the eCoC you must add in all the work that has been carried out at this address under the heading 'Work Type' (See below).

If there is a requirement to tender for the 2nd fix installation, then you must complete the eCoC for the 1st fix and submit the certificate.

This covers the installation of consumer piping if you do not return to complete the 2nd fix.

If, for any reason, you do not return to do the 2nd fix and were scheduled to, the draft certificate will need to be completed for the 1st fix only.

Date of Work	Started: 05/03/2018	Finished: 12/10/2018	Submitted: 21/10/2018
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SECTION A - JOB DETAILS			
Work Category	Work Type	Work Performed	
New Install	Consumer Pipework	Copper	Gas Supply: NG Metering Pressure: 2.75
Replacement	Heated Water	Instantaneous - Make - Rinnai, Model - Rinnai16, Capacity - 16L	Gas Supply: NG Metering Pressure: 2.75

eCoC - Entering Customer (Owner/Client) Details

If you don't have an Owner/Client name or phone number (eg new builds), do not enter your own name or phone number in the Owner/Client field.

The eCoC form asks you for a few customer details, including the mandatory *Owner/Client Name* and *Phone or Mobile* fields. The information you enter here must be the **customer's details only**.

Usually, the *Owner/Client Name* field will contain the name of the person you will be invoicing for the work.

The name of the worker and/or contractor **must not** be used to complete this field.

The *Phone or Mobile* field must contain the **customer's phone number**. If your customer does not have a mobile number, you can enter 08, followed by a landline number.

The mobile/phone number of the worker/contractor must not be used to complete this field.

When filling out an eCoC please remember that it is a legal document and as such, all fields should be filled out to the best of your ability with true and correct details.

eCoC - Tips For Gas Contractors and Workers

Gas network operators must be provided with a copy of gas eCoC's where gas is to be connected to the property for the first time. Please ensure that you specify the gas supplier when you draft the certificate.

Faults identified and brought to customer's attention:

Immediately Dangerous Report (IDR)

IDR's are for issues that are immediately dangerous. As a gas contractor or worker, you only check this box when something is immediately dangerous, and the client does not authorise you to fix it.

Obviously, you need to turn the gas off and make safe as per the requirements of Clause 3.9 in AS/NZS 5601 until the repairs are made. The same applies for potentially dangerous installations. Non-compliances should be identified as Non-Compliant and dealt with in the normal way.

When filling out an eCoC, there are 4 screens or 'sections' that need to be filled out; CoC Type, Customer Details, Job Details, and Sign & Submit.

COC type is where the contractor's details are selected, and whether it's a Plumbing, Gas or Electrical certificate.

Customer Details is where the customer's name, phone number, email, installation and postal address, and premises type are entered. There is also a 'Notes' field (free text) – the notes field doesn't print on the certificate and is used for communication between the contractor and the worker (e.g. recording internal reference numbers).

Job Details records the start and completion dates, work performed and supply details. This is also where workers can add attachments (eg plans, photographic evidence that an appliance was appropriately tagged out when they left site). This is also where **P1's and P2's** (known in the system as **Warnings**) are recorded.

When recording a warning, the '**Faults identified and brought to customer's attention**' field is free text. Here, you can write a short note, eg "appliance unsafe, gas turned off & appliance tagged out", or "photo attached", or "dangerous installation, made safe". The Risk Assessment field is a drop-down, allowing you to select from the following options: Immediately Dangerous / Potentially Dangerous / Non-Compliant / Recommend / None Observed

You are required to enter more information in the Risk Assessment Details field UNLESS you have selected 'None Observed' from the drop-down menu. Furthermore, if you select 'Immediately Dangerous' in the drop down, you are further prompted to contact the OTR immediately. Note *that we do not monitor eCoC's outside of business hours*.

Integral 2-Stage Regulators Connected to LPG Cylinders

Integral 2-stage regulators are two regulators in one assembly that operate to reduce cylinder or tank pressure to a safe working pressure in 2 stages. The first stage regulator reduces cylinder or tank pressure to the first stage pressure (typically 70-140 kPa) before it passes through to the 2nd stage regulator where the pressure is reduced to a safe working pressure (typically 2.75 kPa). In some cases, the pressures can be set by adjusting a spring over the diaphragm during commissioning.

Integral 2-stage regulators provide over pressure protection by a relief vent (as seen on many domestic LPG installations).

Some high end, commercial / industrial regulators for LPG incorporate an OPSO (over protection shut-off) device. The OPSO or slam shut device can be adjusted to trip at nominated pressures to limit potential fault pressures so they are less than the maximum pressure rating of the gas appliances or equipment in the installation, thus providing over pressure protection.

Where an OPSO or slam shut device is fitted, a gas filter that is appropriately pressure rated and certified is required upstream of the over pressure protection device.

Integral 2-stage regulators are commonly used to serve short run LPG installations. Some commercial and industrial

applications will have a single, first stage regulator, which reduces cylinder / tank pressure to between 70 kPa to 140 kPa, which is then piped external to buildings over greater distances to second stage regulators downstream that reduce the first stage pressure to a safe working pressure (normally 2.75 kPa). This installation design saves on material costs, as smaller bore piping can be used for the first stage.

Before installing any LPG regulator above LPG cylinders or tanks, it is important that you check the regulator maximum flow and pressure ratings. Pressure in LPG cylinders or tanks can fluctuate significantly, ie between 400 kPa to 1,250 kPa, under normally operating conditions. Cylinders or tanks subjected to over 50°C can reach pressures approaching 2,000 kPa.

It is mandatory that you install first stage regulators that are fit for purpose, ie can cope with the pressures that can occur in gas cylinders/tanks. Failing to do this may subject components to pressures beyond their safe working limits and damage them.

Under fault conditions, regulators with high capacity relief will start venting gas to limit downstream fault pressures. If the regulator contains an OPSO device, the OPSO will shut off and isolate the supply of gas to provide over pressure protection.

The OTR recently investigated an incident where a contractor installed an integral 2-stage regulator with OPSO provided to him by his supplier, without first checking if it was suitable for the tank operating pressures. This device was not designed for this application and failed in service leading to the consumer outlet service being over pressurised. The gas appliances were all damaged and leaked significant amounts of gas that ignited, burning the contractor.

LPG cylinders / tanks are pressure rated to approximately 3.3 MPa (3,300 kPa), and their relief valves are set between 2.3 MPa to 2.5 MPa. LPG first stage regulators must conform with the AS 4621 – 2004 Regulators for use with Liquefied Petroleum-Vapour Phase Standard. This standard requires all first stage regulators to operate in pressure ranges of 250 kPa to 1,750 kPa. The second stage regulator must be able to operate in pressure ranges of 35 kPa to 250 kPa.

Parts of first stage regulators subject to cylinder or tank pressure must be leak tight at 2.6 MPa and 375 kPa for second stage regulators. If you have doubts on the pressure operating range and the maximum capacity of a regulator, contact the equipment manufacturer for details to confirm that it is fit for purpose before installing it.

Location of Cylinder Regulator

Although this topic has been covered in previous editions of Regulation Roundup and Roadshows, the OTR is still finding cylinder regulators mounted too low.

The regulator must be rigidly fixed independent of the cylinder so the **outlet is above the height of the cylinder valves.**

And remember to fit a test point on the downstream side of the regulator.



Incorrectly located regulator

Vent Lines

If you find that you have to extend the vent so it terminates in a compliant location:

- For a vent line not exceeding 10m in length the size shall be the vent connection size.
- Where the vent line will exceed 10m but no longer than 30m in length, the size shall be one standard pipe size larger than the vent connection size.



Vent connection reduced from 20mm to 15mm

BBQ Requirements for Covered Areas - Advice to Builders & Gasfitters

Most BBQ's are certified for outdoor use only - you will usually find a label stating 'MUST BE USED OUTDOORS' attached to the front of the appliance.

As per AS/NZS 5601.1:2013, outdoor areas are depicted by informative diagrams under Appendix I. It is very common to see gas connection points under covered al fresco / quasi-indoor areas with only one side open to atmosphere.

This poses a problem when installing external BBQ's as this area would not be classed as outdoors (as per Appendix I), and the BBQ is not likely to be pre-certified for this environment. Modifications may need to be applied to the appliance and installation for it to remain safe and meet certain performance-based requirements.

A BBQ installed under a covered area with two full sides (ie 50% of the total area open), is acceptable... until café style blinds or screens are installed.

Café blinds prevent cross-flow ventilation and hinder the safe dispersal of products of combustion. This can be a major

safety issue and may create problems with appliance warranty and commercial insurance.

Once café blinds are added the space is no longer classified as an outdoor area, it becomes a quasi-indoor area. Appliances certified for outdoor installation must not be installed in areas other than those deemed outdoors.

There is a bulletin available from the OTR with information that you will find useful when challenged with this situation.

It is important that builders and home owners are made aware of the hazards and specific requirements of installing external gas appliances in poorly ventilated, non-compliant areas for which they are not designed and certified.

AS/NZS 5601.1:2013 clause 6.10.19 Gas barbecues and radiant gas heaters for outdoor use

Gas Barbecues and radiant gas heaters designed for *outdoor* use shall be installed *outdoors* or in areas complying with the

diagrammatical representation on Appendix I of areas that are considered *outdoors*.

NOTE: These requirements do not apply to appliances with *flue terminals*. For appliances with *flue terminals*, refer to clause 6.9.4

Any enclosure in which an outdoor *appliance* is installed shall comply with one of the following:

- 1) An enclosure with walls on all sides, but at least one permanent opening at ground level and no overhead cover
- 2) Within a partial enclosure that includes an overhead cover and no more than two walls
- 3) Within the partial enclosure that includes an overhead cover and more than two walls, the following shall apply
 - I. At least 25% of the total wall area is completely open; and
 - II. At least 30% of the remaining wall area is open and unrestricted

APPENDIX 1

APPLIANCES IN OUTDOOR AREAS

(Informative)

11 DIAGRAMMATIC REPRESENTATION OF OUTDOOR AREAS

The following figures are diagrammatical representations of outdoor areas as described in the definition. These areas used in these figures are examples – the same principles apply to any other shaped area.

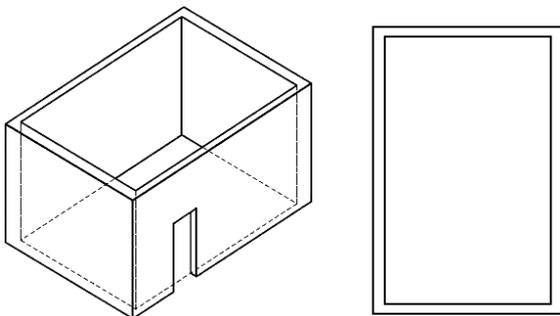


Figure 11: Example of an enclosure with walls on all sides, but at least one permanent opening at ground level and no overhead cover.

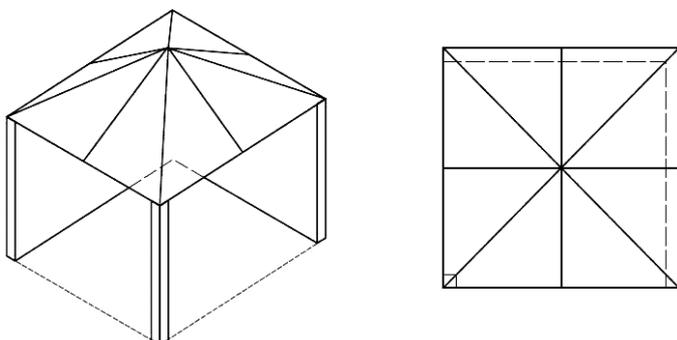


Figure 12: Outdoor Area – Example 2

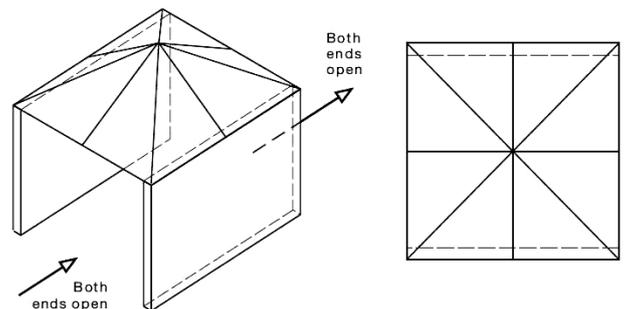


Figure 13: Outdoor Area – Example 3

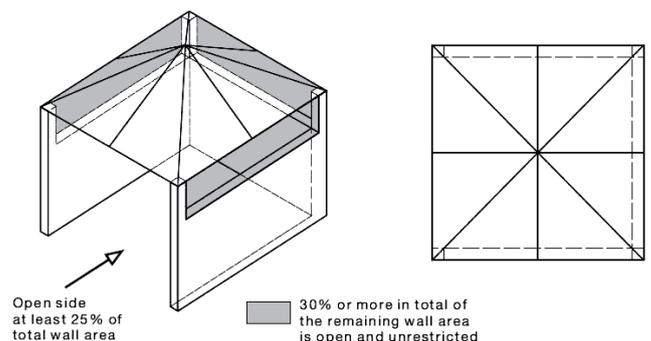


Figure 14: Outdoor Area – Example 4

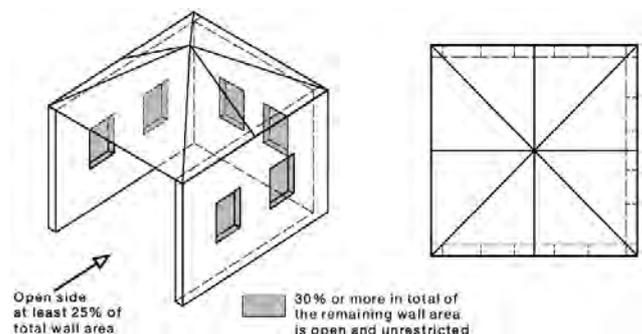


Figure 15: Outdoor Area – Example 5

Plumbing Bulletin

From the Past... to the Present

The manufacturing of plumbing products has progressed significantly over the years. Did you know..?

Thomas Crapper was born in Thorne, South Yorkshire in 1836. He invented several plumbing fixtures including the manhole cover used in sewers.

It has often been claimed in popular culture that the slang term for human bodily waste, *crap*, originated with Thomas Crapper because of his association with lavatories. A common version of this story is that American servicemen stationed in England during World War I saw his name on cisterns and used it as army slang, ie "I'm going to the crapper".



Cabinet toilet

Mr Peterson was a very good tradesperson.

He was not only a plumber, he was also a house and ship painter and glazier - that's what we call multi- skilled!

No More Rage Against the Latrine

Today WC's are designed at the peak of luxury technology costing more than \$10,000. These intelligent toilets use integrated UV light and special glaze to break down dirt and grime in the bowl. Features include heated seats, music, deodorizer and warm water sprays, which deliver a sense of relaxation to the discernible user.



Plumbing exhibition - Frankfurt, Germany

Plumbers with Restricted Electrical Worker's Registrations

A reminder that Certificates of Compliance are required to be completed for ALL electrical work no matter how small the job, even simple testing and inspections.

Replacement of electric hot water systems, thermostats, elements or pumps are examples of electrical work that plumbers with the appropriate restricted electrical registrations commonly carry out.

Inspection, testing and certification with the eCoC system is required by restricted electrical workers when working on fixed or hard-wired appliances.

The electrical section of a Plumbing eCoC may be used, however, if there is no plumbing work involved, eg an element change, you must use an Electrical eCoC.

Penalties apply for non-compliance with eCoC requirements. For further information on certifying electrical work, please contact the electrical team at the OTR on 8226 5518.

A Reminder About WELS

WELS is the Water Efficiency Labelling and Standards Scheme that was introduced in 2005 with the principal objectives of conserving water supplies and providing information for purchasing of water-use and water saving products.

The Scheme requires taps, showers, flow controllers, toilets, urinals, clothes washing machines, water using clothes dryers and dishwashers to be registered under the Scheme.

WELS is administered by the Australian Government Department of Agriculture and Water Resources in partnership with State and Territory Governments. WELS requires all products imported or manufactured since 1 July 2006 to be registered and labelled before they are sold. The current WELS star ratings are detailed in AS/NZS 6400.

WELS inspectors are appointed by the WELS Regulator under Part 9 of the WELS Act. This Act sets out the requirements to enter premises, inspect regulated products and investigate possible offences. Inspectors also check publicly available information including websites and advertising material.

Recently, staff from the Office of the Technical Regulator SA, together with representatives from WELS, attended an inspection of a large warehouse containing numerous non-compliant WELS and WaterMark products. The owner of the warehouse was reminded of his responsibilities when offering non-WELS products for sale and

the associated fines that can be applied. A follow-up inspection will be carried out to confirm whether the products have been removed for sale.

Plumbers should be aware of their responsibilities when purchasing and installing WELS approved products and additionally for installing non-Water Marked products.

If you do not comply with your obligations, penalties can be imposed. These include infringement notices, civil penalties or criminal prosecution. Penalties up to \$12,600 for an individual or \$63,000 for a corporation can apply for each unregistered, unlabelled or incorrectly labelled product.

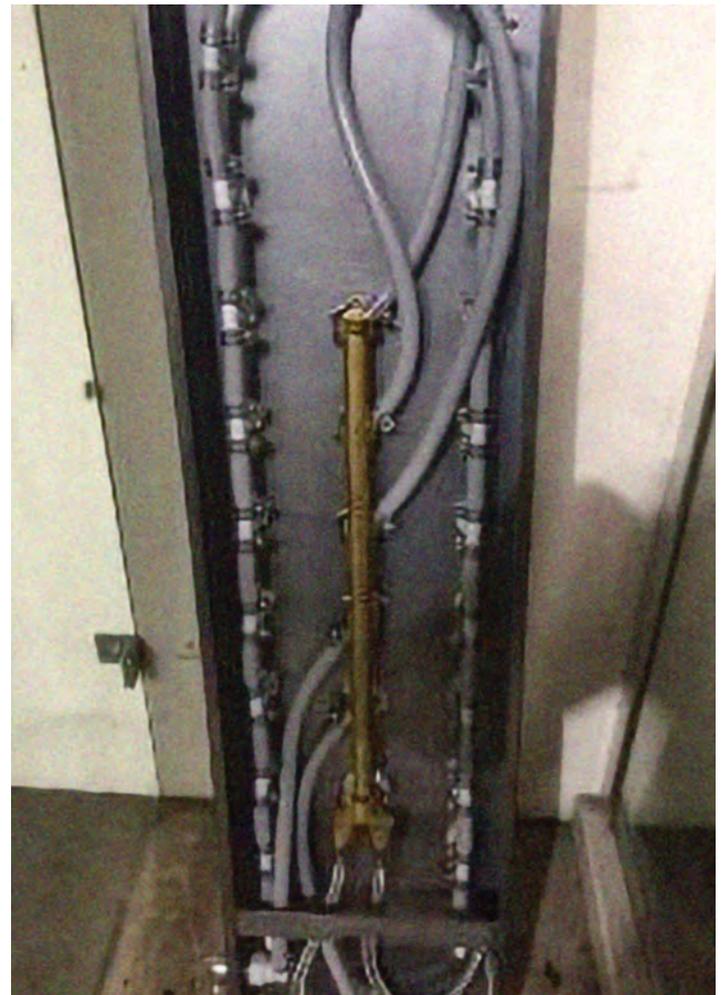


Photo of non-WELS / Water Marked shower

New Manager Water and Sewerage Infrastructure



Welcome to Naomi Struve who started in November 2018 as Manager Water and Sewerage Infrastructure. Naomi is an Environmental Engineer who has worked with the National Pollutant Inventory (NPI) program at the South Australian Environment Protection Authority(EPA).

Naomi has experience in contaminated site assessment and remediation; and researching acid and metalliferous drainage (AMD) at the legacy Brukunga MineSite.

She has also lived in Germany; working in the areas of water quality and site contamination at an industrial park in Frankfurt.

Naomi is enjoying her new role as Manager Water and Sewerage Infrastructure and looks forward to the interesting challenges ahead.

Fire Service Installations - Plumbing eCoC Reminder

When a Fire Service Installation has been completed and the Office of the Technical Regulator has confirmed the work has been booked in for auditing, then the appropriate documentation, ie a **copy of the eCoC**, the **Fire Service Installation Report**, the **Block Plan** - must be forwarded by email to the OTR.

Send all documentation to:
otr.plumbregulator@sa.gov.au

Note: A separate copy of the Fire Installation Report, the Block Plan, and the eCoC must be forwarded.

Noel Trout Retires



Noel Trout retired from a distinguished career as a Plumbing Inspector in June 2018.

He commenced his apprenticeship with RB Woodroffe Pty Ltd in 1970. Woodroffe's was a large plumbing company which engaged in a diverse range of plumbing. The company was well respected and produced several inspectors.

After completing his apprenticeship, Noel was employed by Marshall and Hutt before venturing into self-employment as a Master Plumber. With the experience gained from both companies, Noel worked in the fields of commercial, industrial housing and maintenance before becoming an inspector with SA Water, and then transferring across to the OTR.

Since his retirement, Noel has said that becoming an inspector was a pivotal moment in his plumbing career. Noel was well-respected by both his peers and by the plumbing industry. He expected plumbers to do a good job and take pride in their work.

Noel's dry sense of humour will be sorely missed, and we wish him a very happy and healthy post-plumbing inspector future.

Brian Williamson Retires



Brian 'The Bear' Williamson, Plumbing Installation Inspector with the Office of the Technical Regulator, has moved on to his next stage of life as a retiree.

Brian has been in the Plumbing Industry for over 53 years. He commenced his plumbing journey at the age of 18 where he was first employed as an apprentice plumber with RB Woodroffe in Brompton. Brian joined SA Water as a specialist Non-Drinking Water Inspector where he was responsible for carrying out inspections of water service installations, primarily in the Mawson Lakes area. His role expanded to inspecting residential and commercial plumbing installations.

With the transfer of the Plumbing Regulatory Area from SA Water to the OTR in 2013, Brian transferred over and has been carrying out plumbing audits for the last five years.

Brian was a dedicated Inspector who enjoyed his time in the field and made a lot of friends in the plumbing industry.

In retirement, Brian will continue his love of basketball which he has been refereeing and managing for over 30 years. He will also spend some time fishing, restoring garden gnomes, and travelling with his wife Margaret, his two sons and his three grandchildren.

We wish Brian a very happy and healthy retirement.

Guidelines for Non-Drinking Water in South Australia

The Office of the Technical Regulator (OTR) produced and published the *Guidelines for non-drinking water in South Australia* (<https://www.sa.gov.au/topics/energy-and-environment/electrical-gas-and-plumbing-safety-and-technical-regulation/plumbing-trades/non-drinking-water-guidelines>) in July 2017. The Guidelines were designed for the plumbing and water industries, water industry entities, and property owners with a non-drinking water supply. Their purpose is to improve awareness and understanding of the installation requirements for non-drinking water systems and the associated regulatory responsibilities.

The guidelines outline the requirements and responsibilities for installing, operating and maintaining non-drinking water systems to comply with the *Water Industry Act 2012*, *Water Industry Regulations 2012*, and appropriate technical standards.

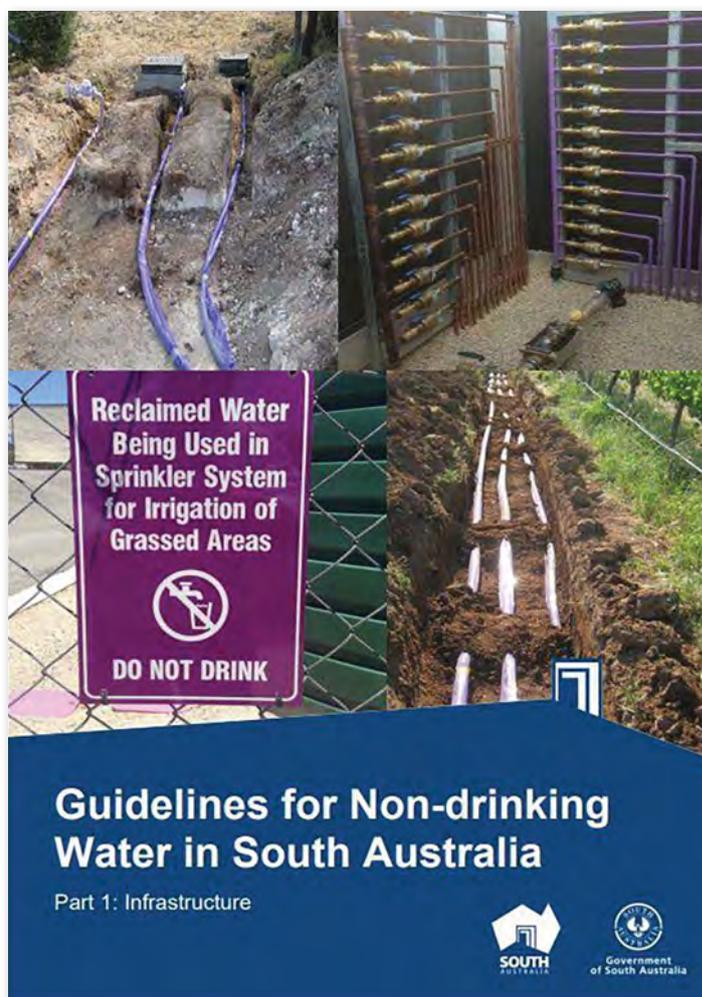
There are three parts to the guidelines:

Part 0 – Glossary of Terms, Abbreviations and References helps with interpreting terminology and abbreviations used in parts 1 and 2 of the guidelines.

Part 1 – Infrastructure provides an overview of non-drinking water as an alternative water supply, and the requirements associated with non-drinking water infrastructure. This part includes legislative requirements, planning and design, implementation, monitoring, management, reporting and auditing for non-drinking water infrastructure.

Part 2 – On-site Plumbing provides detailed information related to on-site non-drinking water installations.

For further information, please [contact the Office of the Technical Regulator](#).



Plumbing and Gas Roadshows 2019 Presented by The Master Plumbers Association

Day	Date	Location
Wednesday	20/02/2019	Mt Gambier
Tuesday	05/03/2019	Port Lincoln
Wednesday	06/03/2019	Port Pirie
Wednesday	13/03/2019	Victor Harbor
Wednesday	20/03/2019	Elizabeth
Thursday	28/03/2019	Clare
Wednesday	03/04/2019	Berri
Wednesday	01/05/2019	Murray Bridge
Thursday	09/05/2019	Kadina
Wednesday	22/05/2019	Tonsley
Wednesday	29/05/2019	Barossa
Wednesday	05/06/2019	Thebarton
Wednesday	12/06/2019	Thebarton

To register, contact the MPA at mpasa.com.au or call 8292 4000.



world plumbing conference

MELBOURNE 2019

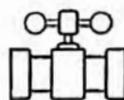
The World Plumbing Council invites you to join us for a unique opportunity to come together on home soil with the global plumbing community to discover the 4 Pillars of Plumbing, share knowledge and develop your professional skills.



PARTICIPATION



PRACTICES



PRODUCTS



PROTECTION

11-13 SEPTEMBER 2019

REGISTRATIONS NOW OPEN WITH MEMBER DISCOUNTS
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worldplumbingconference.com.au



wpc 2019

Contact list

be energy safe

Electrical Technical Advice

Office of the Technical Regulator
Level 8, 11 Waymouth Street, Adelaide
(Reception on Level 4)
Phone: (08) 8226 5518 (8:30am-4:30pm)
Fax: (08) 8226 5529
Email: otrmail@sa.gov.au

Gas Technical Advice

Office of the Technical Regulator
Level 8, 11 Waymouth Street, Adelaide
(Reception on Level 4)
Phone: (08) 8226 5722 (8:00am-4:30pm)
Fax: (08) 8226 5866
Email: otr@sa.gov.au

Plumbing Technical Advice

Office of the Technical Regulator
Level 8, 11 Waymouth Street, Adelaide
(Reception on Level 4)
Phone: 1300 760 311 (8:30am-4:30pm)
Email: otr.plumbenquiries@sa.gov.au
www.sa.gov.au/otrplumbing

General Information

Licence and Address Change
Consumer & Business Services
Phone: 131 882
Email: occupational@sa.gov.au

Appointments and Information
SA Power Networks
Builders & Contractors Line
Phone: 1300 6500 14
Fax: 1300 6500 16

Australian Standards
Standards Australia
www.standards.com.au

AGA
Phone: (03) 9580 4500
www.gas.asn.au

Training

Gas

Master Plumbers Association
1 South Road, Thebarton
Phone: (08) 8292 4000
Fax: (08) 8292 4040

Technical Advisory Centre P/L
4/543 Churchill Road, Kilburn
Phone: (08) 8162 5640
Fax: (08) 81625638
www.techad.com.au

Gastrain
U1, 61-65 Tapleys Hill Road, Hendon 5014
(PO Box 83, Royal Park 5014)
Phone: (08) 8447 7783
Phone: 1300 955 583
Fax: (08) 8447 7753
www.gastrain.com.au

Electrical and Gas

TAFE info (for all training enquiries)
Phone: 1800 882 661

Peer Veet
Rescue and Resuscitation, First Aid
& other Industry related courses:
1042 Port Road, Albert Park
Phone: (08) 83481200
www.peer.com.au

Electrical

ATEC (Adelaide Training and Employment Centre)
Electrical Rescue & Resuscitation Certificate
Phone: (08) 82401233
www.atec.asn.au

Power Lines/Cables

Clearance Zones
Between vegetation and power lines or building/
structures and power lines contact the

Office of the Technical Regulator
Phone: (08) 8226 5667

SA Power Networks (SAPN)
Phone: 13 12 61

For locations of Gas, Electricity or Telecommunications

“Dial Before You Dig”
This service is still available when doing
emergency excavations at short notice.
Phone: 1100
www.dialbeforeyoudig.com.au

For after-hours locations or gas emergency (including LPG)

Origin Energy LPG: 1800 808 526
Kleenheat: 1800 093 336
Elgas: 1800 819 783
APA Group Gas leaks: 1800 427 532
(1800 GAS LEAK)

For gas or electrical major incident reporting 24 hours / 7 days (South Australia only)

Office of the Technical Regulator
Phone: 1800 558 811
This number also appears in the 24-hour
emergency numbers section at the front of the
South Australian White Pages

Gas Trade contact

APA Group
Gas Distribution Network Operator
Phone: 1300 001 001

Additional websites for further information

South Australian Parliament for Acts and Regulations
www.legislation.sa.gov.au

SafeWork SA
www.safework.sa.gov.au

Gas Energy Australia (formerly ALPGA)
gasenergyaustralia.asn.au

Australian Competition and Consumer Commission (ACCC)
www.accc.gov.au

Australian Gas Networks Ltd (formerly Envestra)
www.australiangasnetworks.com.au

Elgas
www.elgas.com.au

Origin Energy
www.originenergy.com.au

Kleenheat
www.kleenheat.com.au

Australian Standards
www.infostore.saiglobal.com/store/