

energy

Bulletin

ISSN 1323-8957

Coroner's findings on electrocution

State Coroner Alastair Hope released the findings of an inquest into the death of a two-year-old boy electrocuted in a State Government-owned house in Roebourne in September 2009.

The Coroner found the boy had been at the house, when he crawled into a hole in a wall and placed his hand on the earthed metallic exposed wall frame of the house and at the same time grasped a flexible extension cord. The cord had a pin-sized hole penetrating the sheath and primary installation of the active conductor. As there was conductive water on the car-port floor immediately outside the hole, the boy received an electric shock of up to 240 volts AC.

The Coroner said the boy's death was tragic and unnecessary. It could have been prevented if residual current devices (RCDs) had been installed in the house.

The Coroner stated that Roebourne electrician Kimberley Dean Dowding could not provide an explanation as to why he did not install the RCDs at the property. He had signed a misleading Notice of Completion (as the electrical worker) that RCDs had been fitted when this was not the case. The Coroner also said that the Electrical Contractors (Sinewave Electrical) supervisor and nominee, Peter Harris, signed a misleading Notice of Completion that RCDs had been fitted when this was not the case, fabricated testing and checking

sheets for the RCD installations in Roebourne and failed to supervise the work properly.

The Coroner made the following recommendations:

- The Statute of Limitation for offences contrary to Regulation 52(3) of the Electricity (Licensing) Regulations 1991 be amended so that the period of limitation commences to run from the time when EnergySafety becomes aware of a suspected breach, rather than the date on which an alleged offence was committed.
- Disciplinary action to be considered for Kimberley Dean Dowding, in accordance with Regulation 30 of the Electricity (Licensing) Regulations 1991.
- Disciplinary action to be considered for Peter Harris in accordance with Regulation 30 of the Electricity (Licensing) Regulations 1991.
- The Department of Housing is to ensure its employees, when inspecting properties, can identify RCDs, ensure they are in place and test them to confirm they are operational. These officers should also be able to identify obvious unsafe electrical fixtures or fittings.
- Department of Housing's electrical contractors henceforth are required to report any properties which do not have RCDs installed as well as other issues relating to electrical safety.

- The Department of Housing is to complete regular electrical audits of its properties to ensure that electrical safety is being provided to its tenants.

The Coroner's findings serve as a reminder to all electrical contractors, nominees and electrical workers that they must carry out their work, complete all testing and submit required forms in a professional and diligent manner.

It also highlights the need for householders to check their electrical switchboards to ensure two RCDs are fitted to protect all socket outlets and lighting final subcircuits and, if not, to arrange installation. In the past twelve months three preventable electrocutions occurred where no RCDs had been fitted.

By law, all properties for sale or lease must have two RCDs fitted to the electrical switchboard protecting all socket outlets and lighting circuits. When a new tenant takes up residency, landlords will need to install the devices before the lease agreement is signed. However, for homes with a continuing tenancy, landlords have until 8 August 2011 to fit the RCDs.



KEN BOWRON
DIRECTOR OF ENERGY SAFETY

EnergySafety



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Analysis of reader satisfaction survey

The October 2010 issue of the Energy Bulletin included an invitation to readers to complete a reader satisfaction survey. EnergySafety has been very pleased with the response with 859 readers completing the survey.

Thank you for taking the time to complete this survey and providing valuable feedback. A full report of the findings will be published on the EnergySafety website.

The Energy Bulletin will continue to be produced on a quarterly basis and will incorporate both gas and electricity items.

399 written comments were made. The majority of respondents would like to see:

- a question and answer column;
- more information on standards, regulations and amendments;
- information on common faults and breaches; and
- education and training information.

Some of these ideas will be introduced in future editions of the bulletin.

Comments were made about accessing up to date versions of regulations and purchasing standards on-line. Current versions are available from the State Law Publisher's website www.slp.wa.gov.au. The regulations may be downloaded free of charge. AS/NZS standards may be purchased through the SAI Global website at www.infostore.saiglobal.com/store2/.

A number of respondents (310) indicated that they would subscribe to the automatic email alert that notifies when a new edition of the Bulletin has been issued which can be read on and/or downloaded

from EnergySafety's website. If you have not already done so, you have to go to the website and complete the subscription. The link to the site is www.commerce.wa.gov.au/EnergySafety/PDF/EnergyBulletins/index.html. If you change your email address you must resubscribe to continue to receive the alert and become aware that a new Bulletin is available.

Regulation breaches

Since March 2007 when infringement notices were introduced, for electricity the top two outstanding problem areas with the Electricity (Licensing) Regulations 1991 for which an infringement notice has been issued are:

- Reg 45(1) – displaying licence document at principal place of business and licence number in any advertising; 66 events.
- Reg 52(3) – delivering a notice of completion in respect of notifiable work that has not been completed; 83 events.

The next level is Reg 52(1) – failing to deliver a notice of completion in the required time; 16 events.

All other infringements amount to less than 10 events each and the vast majority have had no notices issued.

However, for financial year 2009/10 there were 102 prosecutions completed for offences against Reg 52(1) (refer Energy Bulletin 53 page 4). This large number of prosecutions is due to many being multiple offences or the offence was not able to be processed as an infringement within the statutory 21 days.

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ISSN 1323-8957

The Energy Bulletin is published by EnergySafety, a Division of the Department of Commerce. It is distributed free of charge to licensed electrical contractors, in-house electrical installers, electrical inspectors, gas certificate holders, gas authorisation holders, gas permit holders and gas inspectors.

The Energy Bulletin may be downloaded free of charge from EnergySafety's website.

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For gas the top three problem areas with the Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999 for which an infringement notice has been issued are:

- Reg 18(2)(a) – installation does not comply with Schedule 6 or Schedule 7 codes or standards; 152 events.
- Reg 28(3) – failing to give notice of completion; 84 events.
- Reg 28(2) – failing to attach badge or label; 68 events.

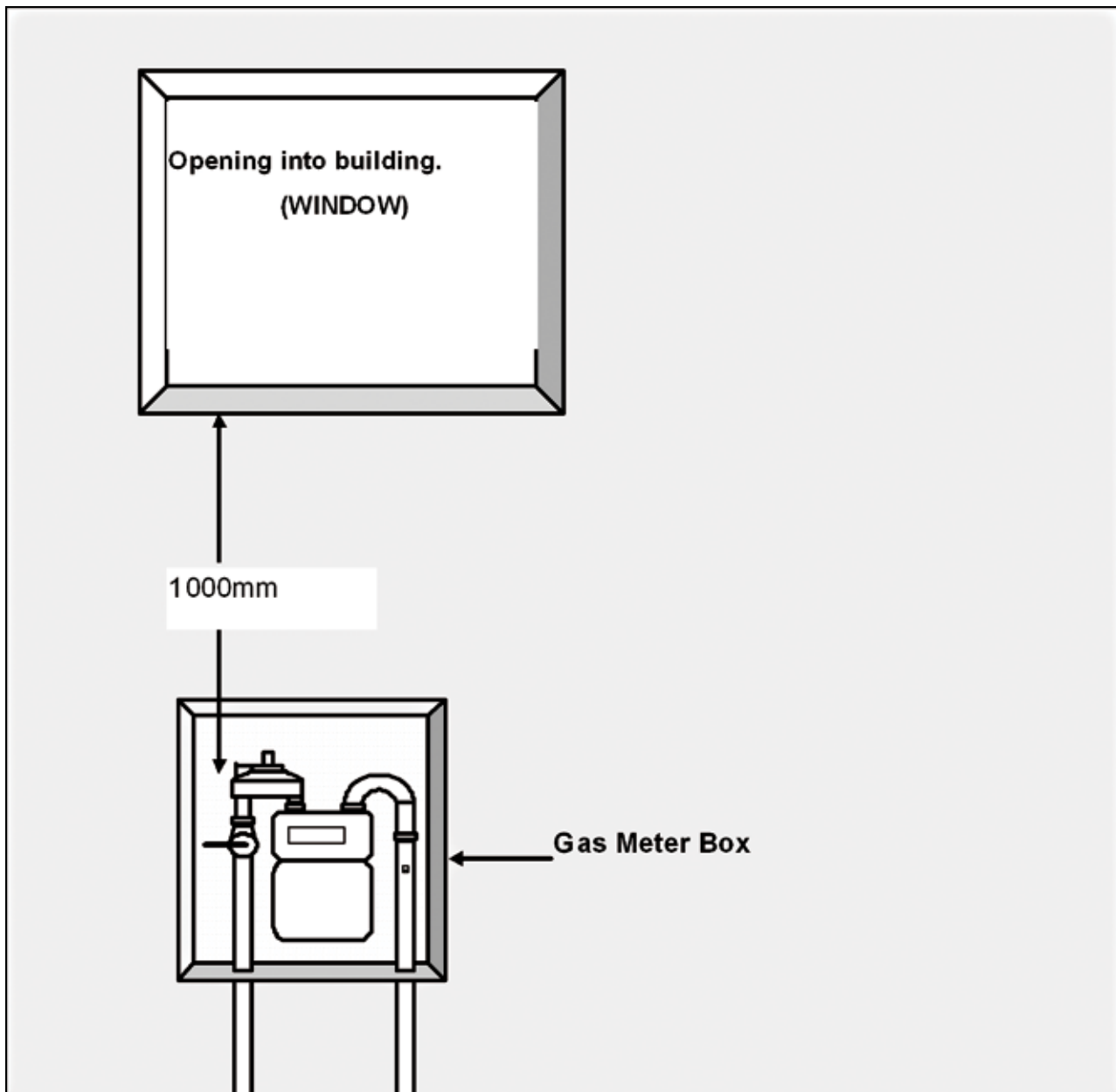
All other infringements amount to 14 or less events each and the vast majority have had no notices issued.

Gas meter locations – Openings into a building above a gas meter box

A gas fitter at the roadshow in Bunbury queried the distance a window is to be above a gas meter box. There is no mention of this in AS/NZS 5601: 2010, Gas Installations.

The Gas Distribution Networks AS/NZS 4645: 2008, Part 1: Network Management, Appendix K figure (1) requires an opening into a building to be greater than 1000mm above the gas service regulators relief vent contained in the gas meter box (see diagram below).

Gas service regulators are now required to have an internal relief. In the unlikely event that the relief valve discharges gas into the atmosphere, there is a possibility of gas entering a building if an opening is less than that as detailed in this code.



LP Gas storage and transport safety regulation

The Department of Mines and Petroleum’s (DMP) Dangerous Goods Safety Branch regulates LP Gas storage and transport safety issues in Western Australia.

To assist companies engaged in LP Gas storage and transport to meet the relevant regulatory requirements the DMP has prepared a series of posters that outline the key issues to address. Two posters set out the regulatory requirements for different quantities of LP Gas storage and transport. The other posters provide guidance on container design, installation of tanks, risk control measures and emergency planning.

The posters also provide references and web links to the relevant regulations, the Australian Dangerous Goods Code and the key Australian Standards that the DMP applies as approved codes of practice.

The LP Gas posters can be accessed from the DMP web site at: <http://www.dmp.wa.gov.au/6651.aspx#11925>.



DANGEROUS GOODS SAFETY REGULATION OF LP GAS TRANSPORT

Do you transport LP Gas...





	Cylinders in a load quantity of less than 250 litres for personal or work purposes?	YES	PERSONAL USE Ensure secure restraint
	Cylinders in the course of a transport business?	YES	PRIME CONTRACTOR DG transport regulations apply
	Cylinders in a load quantity of more than 250 litres?	YES	PLACARD LEVEL DG transport regulations apply; class labels required on vehicle; emergency responder approved
	In containers of capacity exceeding 500 litres or road tanker vehicles or portable tanks?	YES	PLACARD AND LICENCE LEVEL DG transport regulations apply; DG Driver and DG Vehicle Licences required; emergency information panels (EIP) and class labels on vehicle; emergency responder approved

electrical

focus

Western Power fined \$63,000 for dangerous work

On 15 December 2010, Electricity Networks Corporation T/As Western Power pleaded guilty to connecting three consumer's installations, such that these installations become dangerous. These serious breaches occurred between August and October 2008.

Western Power transposed the active and neutral conductors of the single-phase 240 volts AC overhead service mains at the mains connection box at a residential property in Wanneroo. As a result of this transposition, the installation's earthing systems, including earthed water taps, became 'live' and one of the property owners received an electric shock from the taps. Western Power was fined \$30,000 with costs of \$575.

In the second installation, Western Power replaced a damaged universal pillar at a property in Geraldton and had failed to reconnect a neutral conductor at the pillar connection terminal. As a result, the property owner received an electric shock from the shower taps, which had become 'live'. Western Power was fined \$8,000 with costs of \$575.

In the third installation, Western Power transposed the blue-phase active and neutral conductors of the 415 volts three phase overhead service mains at the overhead distribution system of a commercial premise in Osborne Park. This transposition made the earthing

system 'live' and also applied 415 volts to the 240 volt single phase appliances, which caused damage due to over voltage. Western Power was fined \$25,000 with costs of \$575.

Notices for PV solar arrays and wind powered generators

PV solar arrays, wind powered generators, micro-hydro generators and similar equipment connected to low voltage electrical installations that are connected to distribution works, form a second source of supply of electricity to the premises. As such, a separate main switch, suitably labelled, must be installed in the main switchboard. Preliminary Notices and Notices of Completion must be delivered to the relevant network operator. An Electrical Safety Certificate must be given to the client. Some electrical contractors believe that the generator circuit forms a single final sub-circuit for which notices are not required. This is incorrect and may lead to the contractor being prosecuted for an offence against regulations 51 and 52 of the Electricity (Licensing) Regulations 1991.

New modified penalties for infringements

Schedule 1 in the Electricity Regulations 1947 has been amended to insert new offences for which an infringement notice may be issued and to remove some

offences that were previously listed but, after review, were determined to be unsuitable for an infringement notice. Some of the modified penalties have increased and some have been reduced. The new offences listed follow amendments to the Electricity Regulations 1947 and the Electricity (Licensing) Regulations 1991 over the last 18 months. Up-to-date versions of all legislation is available from the State Law Publisher's website at www.slp.wa.gov.au/.

Does your electrical contracting business comply with the law?

It has come to our attention that many electrical contractors have not informed our Licensing Office of changes they have made to their legal or business trading name. Trading without the correct business name is an offence under the *Business Names Act 1962*.

In some instances, electrical contractors will change names from a sole trader (e.g. Joe Bloggs T/As Joe Bloggs Electrical) to a Pty Ltd (e.g. Joe Bloggs Electrical Pty Ltd). These are two separate legal identities and a new application for an electrical contractors licence is required.

To assist in this matter, the following advice is provided:

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1. Change of ownership

If your registered business name has changed ownership, business owners must lodge a **Form 4 – Statement of Change in Registered Particulars** with Consumer Protection (available from the Consumer Protection Business Names website <https://bizline.commerce.wa.gov.au/bnonline/misc/forms.jsp>) within one month after the change has been implemented to avoid paying a fee.

Once Consumer Protection has verified these changes and has issued you a new Registration Certificate, if you are an electrical contractor, you must then obtain a Certificate of Currency issued within the last thirty (30) days with your insurer, which provides civil liability cover for the electrical work undertaken while trading under the amended name.

You will also need to submit a new **Application for an Electrical Contractors Licence** to our Licensing Office, which is available on our website www.energysafety.wa.gov.au under Publications – Forms Electrical, with a copy of the Certificate of Currency attached.

2. Trading under a name other than your own

If you are trading under a name other than your own, you will also need to provide a copy of the Business Name Extract from Consumer Protection and the company extract issued by the Australian Securities and Investments Commission to our Licensing Office.

3. Ceasing to carry on your business

If you are planning to cease carrying on your business, you must also remember to lodge a **Form 5 – Notice of Cessation of Business under Business Name** to Consumer Protection, which is also available to download from

the Consumer Protection Business names website <https://bizline.commerce.wa.gov.au/bnonline/misc/forms.jsp>

On another note, if you need to change any of your business address details, you will then need to obtain a **Notification of Change of Address** form from EnergySafety's website www.energysafety.wa.gov.au under Publications – Forms Electrical. The new Certificate of Currency must also accompany this application.

It is important to keep your business details current as at any time, you may be randomly selected for an audit. A copy of your current Business Certificate needs to be displayed at your place of business.

Earthing for metallic DIN kit switchboards

Contractors are reminded to ensure they earth metallic DIN kit switchboards. Western Power Inspectors have come across several installations where electricians have failed to provide the required earthing for switchboards.

A recent domestic inspection revealed a main switchboard with a new metallic DIN kit and circuit breakers, where the electrician had failed to earth the main switchboard DIN kit (metallic parts) (see picture). This installation did not comply with AS/NZS 3000:2007, Wiring Rules, Clauses 5.3.1 and 5.4.1.1 and is also a breach of the Electricity (Licensing) Regulations 1991, Regulation 49(1).

The electrician had mistakenly assumed the main switchboard DIN kit was internally earthed and that it was not required to be earthed separately.

On completion of this inspection, the Inspector issued an Order requiring the switchboard to be earthed and fitted with a temporary earth conductor.



As readers would be aware, consumers are protected from receiving electric shocks by equipment that has been installed with the correct insulation and earthing. Electrical equipment usually contains exposed metallic parts which are required to be connected to a protective earth. Exposed metal parts are conductive and are not considered 'live', but have the potential to become 'live' if a fault occurs (i.e. if the insulation fails or is damaged). If the exposed metal parts come into contact with the mains, the earthing conductor will conduct the fault current to ground.

By using the correct testing procedures, you ensure the earthing conductors are intact. The reliability of the earth conductor is extremely important in preventing shocks.

Reporting lost electrical licences

In the event of losing your electrical licence/permit, under the Electricity (Licensing) Regulations 1991, it is important that you apply for a replacement by submitting an application titled **Declaration of Lost or Stolen Electrical Worker's Licence, Permit or Certificate of Registration** to our Licensing Office. This application is

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available from the Licensing Office, or, can be downloaded from our website www.energysafety.wa.gov.au. Failure to report your missing licence is an offence.

You will need to explain briefly the circumstances surrounding the loss, as well as providing proof of identification and an application fee of \$25. If the Electrical Licensing Board is satisfied with your application, they will issue a replacement licence/permit.

It is important to report such losses immediately to our Licensing Office, as the lost licence could be used for fraudulent purposes by an unlicensed person, who, by wrongfully representing themselves as an electrician, could carry out unsafe and substandard work under your name. This represents a serious threat to community safety.

Inferior copper coated earth electrodes

EnergySafety has been informed about new copper clad electrodes on sale that do not meet the minimum copper thickness, as per Table 5.2 in the AS/NZS 3000:2007, Wiring Rules.

The connection of the electrical installation earthing system to the general mass of earth shall be achieved by means of an earth electrode. Earth electrodes need to be able to withstand corrosion and have adequate mechanical strength.

Electrical contractors and electrical workers need to ensure they comply with the requirements of Clause 5.3.6 of the AS/NZS 3000:2007, Wiring Rules when installing earth electrodes.

Please also ensure that when you purchase these products from your suppliers, they can demonstrate the electrodes comply with the minimum copper thickness.

August deadline for RCD installations

EnergySafety's RCD campaign has been generating a great amount of exposure on television and newspapers with the catch phrase, "*No RCD means no second chance. Install. Test. Survive*". The figures for the number of deaths related to electrocutions for people who did not have RCDs installed are alarming; 29 people in 17 years, with eight of them being children.

The August 2011 deadline is looming for all residential rental properties to be fitted with two (2) RCDs (protecting socket outlets and lighting circuits) for continuing tenancies. In the lead up to this date, we are expecting an influx in the demand for electrical contractors to install the RCDs. We encourage all electricians to support our RCD campaign and let all your customers know of these requirements early, to avoid the last minute rush for RCD installations.

To make the installation of RCDs more attractive to your senior customers, you could inform them of the State Government's Safety and Security Rebate. If they are the owners of the house they live in, senior citizens are able to claim a government rebate of up to \$200 per household, which can go towards buying or installing an RCD. This scheme started on 1 July 2009 and will run until 30 June 2012. To claim this rebate, your senior customers must firstly fill out a Senior Safety and Security Rebate claim form, (which they can obtain from any Australia Post outlet) and attach copies of dated receipts which show proof of purchase or installation.

Working with older switchboards – asbestos safety

Old black or dark brown electrical switchboards can contain up to 20% asbestos. The panels may have a rough fibrous surface and a tar-like smell. Brand names including Lebah, Zelemite, Miscolite or Ausbestos may be stamped on the reverse of the panel. In some cases old switchboard enclosures may be lined with an asbestos-containing material. This was to achieve a fire rating.

If you are working on an old pre-1987 electrical switchboard, assume asbestos is there even if it is not labelled or stamped.

Use work practices causing as little dust as possible and contain any dust that is made. Be aware that drilling, cutting or sanding these panels may release harmful asbestos fibres. Switchboard enclosures fitted with such panels may contain loose asbestos fibres in the enclosure's recess.

Where a significant amount of work is needed on the switchboard panel, replacement is recommended. For example domestic panels should be replaced with a DIN kit and metallic escutcheon.

Specific guidance on safe work practices is available in relation to:

- Working on switchboards containing asbestos (*Code of Practice for the Management and Control of Asbestos in Workplaces [NOHSC: 2018 (2005)]* – Appendix H).
- Drilling of asbestos containing materials (*Code of Practice for the Management and Control of Asbestos in Workplaces [NOHSC: 2018 (2005)]* – Appendix D).

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- Removal of asbestos containing switchboards (*Code of Practice for the Safe Removal of Asbestos 2nd Edition [NOHSC: 2002(2005)]* – Section 12.5).

These two national asbestos codes of practice are available from www.safeworkaustralia.gov.au (search “asbestos code”).

Asbestos is a recognised cause of asbestosis, mesothelioma and lung cancer.

For further information on workplace safety and health legislation, including asbestos safety, please contact WorkSafe on 1300 307 877, email safety@commerce.wa.gov.au or visit www.commerce.wa.gov.au/WorkSafe/.

Prosecutions for breaches of electricity legislation 1 December 2010 to 31 March 2011

Name (and suburb of residence at time of offence)	Licence No.	Legislation and Breach	Offence	Date of Offence	Fine (\$)	Court Costs (\$)
Ringo Lim T/As Ringo Electrical Services (Thornlie)	EC006756	E(L)R Regulation 49(1)	Carried out substandard electrical work	19/12/08	8,000.00	649.70
		E(L)R Regulation 52(3)	Submitted a Notice of Completion to the Network Operator when the electrical installing work was not complete			
Clifford Ronald Herbert T/As Fast Track Electrical (Somerville)	EC008146	E(L)R Regulation 49(1) (3 breaches)	Carried out substandard electrical work	Between 13/10/08 and 14/10/08	11,574.00	74.70
		Regulation 52(3) (2 breaches)	Submitted a Notice of Completion to the Network Operator when the electrical installing work was not complete			
Cockburn Group Pty Ltd T/As Cockburn Electrical Company (Bibra Lake)	EC000498	E(L)R Regulation 53(2) (3 breaches)	Employed an unlicensed person to carry out electrical work	Between 01/04/08 and 18/02/09	3,600.00	575.00
Electricity Network Corporation T/As Western Power (Perth)	EC004931	EA Section 25(1)(a)	Network operator did not maintain apparatus in a safe and fit condition for supplying electricity	3/10/08	25,000.00	649.70
Electricity Network Corporation T/As Western Power (Perth)	EC004931	EA Section 25(1)(a)	Network operator did not maintain apparatus in a safe and fit condition for supplying electricity	8/08/08	30,000.00	649.70
Electricity Network Corporation T/As Western Power (Perth)	EC004931	E(SS&SS) R Regulation 10(1)	Failed to ensure the repair and operation of a prescribed activity was carried out in a safe manner	6/08/08	8,000.00	649.70

Legend NLH No Licence Held
E(L)R Electricity (Licensing) Regulations 1991
* Global Fine or costs issued

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focus

Gas Industry Trade Expo

The inaugural Gas Industry Trade Expo was a roaring success with forty three exhibitor stands and over 800 attendees visiting the Expo held at Ascot Racecourse on the 16 March 2011. The Expo showcased the downstream side of the gas industry and coincided with the release of Australian Standards AS/NZS 5601: 2010, Gas Installations.

Initially there had been apprehension from potential exhibitors as to whether the Expo would work. Those that participated were justly rewarded with a large number of attendees from both the trade and professional areas. A number of exhibitors commented that they wished they had invested in larger display stands, and asked "when is the next one?" Expo organisers, EnergySafety and WA Gas Networks have been overwhelmed with the enthusiasm demonstrated by all that participated.



The venue at Ascot Racecourse was outstanding offering a central location outside the Perth CBD with free parking and a relaxing atmosphere with great facilities.

For those unable to attend the presentation on the release of the Australian Standards, the roadshow for the regional centres and towns throughout the State is underway. For further information on the roadshow dates and venues please visit www.energysafety.wa.gov.au.

Gasfitting in roof spaces – Turn off the power

The electrocution of a person working in a roof space reported to EnergySafety in February is a timely reminder to plumbers/gas fitters of the dangers lurking in this area.

A roof space can be treacherous at the best of times especially for a plumber/gas fitter who is required to enter the space on occasions. Poor lighting, trip hazards, electric cabling, possible exposed cable joints and a layer of dust and debris accumulated over time, are all there.

On one occasion a plumber/gas fitter was seen pushing copper pipe into the roof space while standing on the roof of his van. The house was estimated to have been built in the early fifties and may have had older style wiring installed known as vulcanised insulated rubber (VIR) with ceramic cleats fixed to the roof joists. The rubber insulation is known to break down exposing live copper conductors. A copper pipe coming in contact with exposed copper conductors is a sure-fire way of receiving a fatal electric shock.

Dust in the roof space has been known to smoulder and eventually catch fire after hot droplets of silver solder have fallen onto it. Before leaving the roof space ensure you check the area where any hot work was carried out. A suitable fire extinguisher is an option here.

Trip hazards are another area to watch out for. There is nothing worse than slipping off a roof beam, at least twisting an ankle or putting a foot through the ceiling. To alleviate some of these hazards portable lighting is the answer.

Don't be the next statistic; inform the consumer that you need to turn off the power before you are able to safely enter the roof space. Treat the roof space as a confined space entry and apply the appropriate precautions.

EnergySafety Gas Licensing Policy

We have had some enquiries from training providers on minimum literacy and numeracy standards for gas fitters to hold a licence. EnergySafety has implemented a literacy and numeracy licensing policy.

Gas fitters registered in Western Australia that are not restricted to work under supervision, may contract for work and certify gas installations as complying with regulatory requirements including compliance with industry standards and manufacturers instructions. In other words they are expected to be at a level where they can work independently; this requires

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a minimum level of literacy and numeracy.

The Gas Licensing Committee considered the matter and prepared a policy on the minimum literacy and numeracy requirements to qualify for a gasfitting licence. The major consideration in formulating the policy was public safety. An incorrectly installed or serviced gas installation can be a significant danger to the customer, the public, and the gas fitter. It is essential that the gas fitter can independently comprehend and apply the regulations, standards, and manufacturers' installation instructions.

The policy states:

Pursuant to regulation 12(1)(a) an applicant for a gasfitting permit or authorisation must have sufficient literacy and numeracy skills so that they are, in the workplace, able to independently:

- (a) read, interpret and apply regulations, industry codes, standards, and manufacturers' installation instructions;
- (b) duly complete the administration requirements of the Regulations. This includes but is not limited to Notices of Completion and compliance badges; and
- (c) correctly calculate ventilation requirements, correctly size flueing, correctly size piping systems, and correctly plan a gas installation.

EnergySafety can not specify who can undertake gasfitting training or nominate what adjustment may be made to the assessment processes to meet the needs of individual participants. However applicants for gasfitting licences will be expected to comply with the policy to be awarded a gasfitting licence.

Amendments to the Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999

Amendments to the Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999 were published in the Government Gazette (No 8) of 18 January 2011* and are now law.

The amendments provide for the following:

1. Various references to AS 5601 amended

The joint Australian and New Zealand Standard, AS/NZS 5601: Gas Installations, was published on 23 December 2010. The amendment replaces references to AS 5601 with AS/NZS 5601.

2. Schedule 7 amended

Schedule 7 which references a number of industry codes and standards, compliance with which is mandatory, has been updated. The update was required as the reference to AS 5092 was incorrectly shown as AS 5902, and the reference to AS 5601 was replaced by AS/NZS 5601.

The consolidated regulations can be obtained from the State Law Publisher or viewed on their website at www.slp.wa.gov.au.

** The Director of Energy Safety will permit a six month transitional period from the date of gazettal, rather than from the date of publication of the joint Australian and New Zealand Standard, AS/NZS 5601: Gas installations.*

Training for servicing Type A gas appliances

Challenger Institute of Technology is now provisionally recognised as meeting EnergySafety guidelines on training for servicing Type A gas appliances. On successful completion of the Challenger training and assessment (150 nominal hours) the Class G gas fitter can apply for servicing to be added to their permit. The student must hold or be eligible to hold a Class G permit for installation as a pre-requisite for the training.

For further information on training for servicing Type A gas appliances contact:

- Challenger Institute of Technology, or
- MPA Skills.

Industrial gas fitter training

EnergySafety is pleased to announce that GasTrain Pty Ltd is now recognised as meeting our guidelines for the training of Class I gas fitters restricted to work on Type B appliances up to a maximum rated gas input of five gigajoules per hour. GasTrain is a training and service provider for industrial gas customers mainly in the Eastern States and are opening a Western Australian operation.

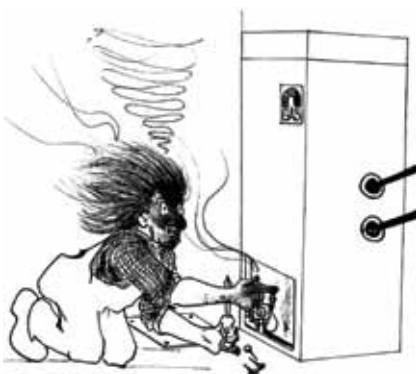
The national unit of competency, CPCPGS4003A Install commission and service Type B gas appliances, is becoming the nationally recognised qualification for Type B appliance gas fitters. Western Australia now has two training providers, Optec Pty Ltd and GasTrain Pty Ltd that offer industrial gas fitter training. We hope shortly to have a third recognised provider of this training.

Lighting gas appliances

Gas appliances, as with any appliance used in a domestic situation, are primarily sold on looks rather than efficiency. Companies producing gas storage water heaters have had their design engineers improving both the looks and the thermal efficiency of these units in recent times.

Unfortunately these changes have also had an effect on the number of injuries being sustained when lighting these units for the first time. Earlier models had an opening on the bottom to allow access and removal of both the pilot burner and/or the main burner for servicing. We can equate the size of this opening to the size of a rabbit hole. To improve efficiency the pilot flame sizes have been reduced, the rabbit hole replaced with a mouse hole. The effect of these two changes alone has increased the frequency of delayed ignition and flash-overs much to the danger of the person lighting the water heater.

These flash-overs generally occur when the water heater is lit for the first time or when using LP Gas and the cylinder has emptied causing the pilot light to extinguish. Even though the lighting instructions call for a period of 5 minutes after purging, the incident reports received by EnergySafety identify mostly burns received on the face and arms.



An incident reported recently occurred after the gas fitter had purged the gas line and ignited the pilot, however it failed to remain alight. The gas fitter then checked the pilot and struck the piezo igniter. With that a fireball rushed out from under the water heater rolling over his head causing superficial burns to his face and arms needing a visit to hospital.

The lesson here is to ensure all the air is purged from the gas line, secondly if you wish to view the pilot use a small mirror to confirm the ignition and subsequent lighting of the main burner. One manufacturer at one stage was aware of the difficulty in sighting the pilot and main burner and installed a polished aluminium reflector.

Under no circumstances place your face directly in line with the opening on the bottom of a storage water heater.

Gas Service pipe fires

As another incident of a gas service pipe fire recently occurred it is timely to remind plumbers/gas fitters of some of the hazards when working in the front garden of residences. Previous articles produced in the Gas Focus of Energy Bulletins, issue 20 (April 2001), issue 29 (October 2003) and issue 34 (December 2004) detailed where a plumber/gas fitter has either been burnt or received a fright when the ground has erupted in a fireball.

In the most recent incident a plumber was working on the water service in close proximity of the PVC gas service. The plumber was using his oxy set undertaking repairs to the copper water service. Whilst playing the flame on the copper pipe the tip of the flame came in contact with the nearby PVC gas service, weakening the pipe where the internal gas



pressures caused the pipe to weep, the escaping gas was ignited by the oxy torch. The resulting fire was extinguished by the plumber using a fire extinguisher.

Fortunately the gas pressure in the mains that day was between 7 – 10kPa, a low pressure gas area. This may not always be the case as high pressure gas mains can be operated at 200kPa. In these situations the gas service pipe is connected using polyethylene (PE). Rather than the gas pressure causing the gas to weep through the weakened PVC pipe, in the case of high pressure you can expect the internal gas pressure to burst the weakened pipe resulting in a fireball and an intense fire.

There have been further incidents where the gas service was buried under the water service and covered with 100mm of sand and it still caught fire. It is good practice to check the location of other services that may be in close proximity of the pipe you are about to work on. If natural gas is connected to the residence a gas meter box will be on the front or near the front of the residence. The gas service is laid at right angles to the gas main connection in the street. Any variation to this will be indicated on a sticker and diagram placed inside the gas meter box.

Should you need to do any hotwork on a pipe in close proximity to a live gas service, appropriate precautions need to be applied in protecting the gas service from the excessive heat of an oxy torch.

Engineering student working at EnergySafety

Victor Gordeyev, who is entering his fourth year studying Mechanical Engineering at the RMIT University (Melbourne), undertook a 12 week placement with EnergySafety to gain work experience during the summer vacation, primarily working with the Gas Utilisation branch.

During his time with EnergySafety Victor has:

- Created three dimensional computer aided design assembly drawings of a pressure test head used for gas tightness testing of gas installations.
- Validated the adequacy of a new clause I2 in Appendix I of the recently published Australian Standard, AS/NZS 5601: Gas Installations.
- Investigated a gas related fatality involving an exhaust fan that had induced a negative pressure in an enclosure causing spillage of combustion products from a gas appliance flue diverter.



- Set up a spreadsheet for importing and graphing performance indicators for a gas distribution network as listed in AS/NZS 4645.1:2008.
- Completed two weeks work experience in most activities undertaken by the Engineering and Asset Management Division of WA Gas Networks, the largest WA natural gas supplier.
- Prepared recommendations for variation/exemption applications from the Australian Standards AS 3814 and AS/NZS 5601, for industrial, commercial, and domestic gas installations to

ensure an equivalent level of safety for the non-compliances.

- Attended several independent Type A and Type B gas appliance certifications onsite.

Victor was also able to gain an understanding of the regulatory work done by EnergySafety and how the regulations and standards play an integral part in the gas industry. He saw how engineering fundamentals are applied to practical applications expanding his knowledge of engineering, in particular gas engineering. Overall, he enjoyed his time at EnergySafety and the experiences that it afforded him.

Prosecutions for breaches of gas legislation 1 December 2010 to 31 March 2011

Name (and suburb of residence at time of offence)	Licence No.	Legislation and Breach	Offence	Fine (\$)	Court Costs (\$)
Aaron Pascoe (Canning Vale)	7676	GSR 18A(2)(i), 30, 32	Failing to ensure that the installation complied with the requirements of Australian Standard – Gas Installations AS 5601 2004. Failed to ensure the gasfitting work was rectified within 7 days and failing to provide a Notice of Rectification within the required time.	5,040	649.70

Legend NLH No Licence Held
 GSA Gas Standards Act 1972
 GSR Gas Standards (Gasfitting & Consumer Gas Installations) Regulations 1999