enerc ISSN 1323-8957

• In this issue...

•	A time of change	1
•	Amendments to the WA Electrical Requirements	2
•	AS 2067:2008 Substations and	
	high voltage installations exceeding 1kV a.c.	2
•	Revision of Australian Standard for marinas and recreational boat	s 3
•	Technical presentation to Engineers Australia WA Division	4
•	Overview of activities 2007-08	4
•	The following are highlights of the work during 2007/08	5
•	Operational work including compliance enforcement activitie	s 5
•	Prosecutions	6
•	Major policy work	8
•	Safety statistics: Serious accidents and fatalities	9
•	Energy <i>Safety</i> teams up with Curtin FM	10
E	lectrical Focus	
•	Home electrical installation safety assessment scheme	11
•	"Notices" have been amended	11
•	Submitting Notices	12
•	When you need a ruling	12
•	Websites and media advertising must also show electrical contractor's licence numbers	12
•	Competency assessments or ETL course	12
•	IP rating of accessories exposed to water	13
•	Re-hearing for R & C Green Pty Ltd	13
G	as Focus	
•	Autogas conversions	15
•	AS 2746 – 2008 Working areas for gas-fuelled vehicles	15
•	Interim autogas fitters caught out	15
•	LP Gas fuel system skills training shifts up a gear	16
•	Caravans and recreational	
	vehicles (RV) – Mobile gas installations	17
•	Camping stoves	18
•	Perth Royal Show	19

A time of change

As I write this edition's front page article a few days before Christmas 2008. I am conscious that the winds of change are blowing.

In saying this I am referring not only to changes on the industry front caused by global financial problems, but also to organisational changes in the public sector (but for very different reasons).

A relatively short time ago the State election resulted in a new government and as a consequence, there is a change in the Minister responsible for technical and safety regulation of the energy industry in WA. EnergySafety WA is a division of the Department of Consumer & Employment Protection (DOCEP) and this agency now reports to the Hon Troy Buswell MLA, Minister for Commerce.

Furthermore, DOCEP itself is undergoing some changes. From 1 January 2009 the department will be renamed Department of Commerce and its Resources Safety Division, which is responsible for mine and dangerous goods safety regulation, will become part of the new Department of Mines and Petroleum. Concurrently parts of the current Department of Industry & Resources will join the new Department of Commerce to form the Science and Innovation Division of the new Department of Commerce.

There are also changes in the wind for EnergySafety, as I will be retiring from my position at the end of January 2009. By then I will have spent some 21 years in the energy industry technical and safety regulation area, which has changed significantly as part of the industry restructuring that commenced in 1995. The regulatory framework is

now reasonably well developed although some work always remains to be done, and EnergySafety WA itself is on a sound footing, particularly as a result of now being fully industry funded.

Very pleasing to me is the industry support for EnergySafety's approach to regulation, as was expressed during the year on a number of occasions as part of our extensive electrical industry roadshow. I believe this support is important and is a direct product of the capable and enthusiastic staff we have at our regulatory agency.

From 1 February 2009 Director Electricity Ken Bowron will be acting in my position which will be advertised early in the new year. This is therefore my final cover article to the Energy Bulletin and I take this opportunity to wish all readers the best for the Festive Season and 2009.



Albert Koening

ALBERT KOENIG

DIRECTOR OF ENERGY SAFETY



Email: energysafety@commerce.wa.gov.au www.energysafety.wa.gov.au

Amendments to the WA Electrical Requirements

Amendments have been made to the 1 July 2008 version of the Western Australian Electrical Requirements:

Section 2: Definitions
 Consumer Installation: delete
 "connection point" and add in
 its place "point of supply".

Service Apparatus: delete the entire definition and replace it with the definition appearing in Section 5 of the Electricity Act 1945, with the addition of "or transmission" after the word "distribution".

Section 12.11: Applicable
 Standards
 Standards Australia has
 published two revised standards
 requiring a change of title to
 their listing in Section 12.11:

AS 2067

Delete the title and replace it with "Substations and high voltage installations exceeding 1 kV a.c."

AS/NZS 3001

Delete the title and replace it with "Transportable structures and vehicles including their site supplies" AS/NZS 3004
Delete the entire listing and replace it with:

"AS/NZS 3004.1 Electrical Installations – Marinas

AS/NZS 3004.2 Electrical Installations – Recreational boats installations"

AS/NZS 60079

Delete the title and replace it with "Explosive Atmospheres"

Section 13:
 Add "Section 13.5 BHP Billiton"

 New telephone number for

Rio Tinto

The text for the new Section 13.5 appears as an insert with this Bulletin.

Replacement pages are included as inserts in this edition of Energy Bulletin. The Amendment Control Sheet is used to keep a record of all amendments to the current version of the WAER.

The changes come into effect from the date of publication of Energy Bulletin 45, except as explained in the following articles covering the Standards AS 2067, AS/NZS 3004.1 and AS/NZS 3004.2 and their application.

AS 2067:2008 Substations and high voltage installations exceeding 1kV a.c.

This extensively revised and retitled Australian Standard was published on 12 December 2008. Appendix K of AS/NZS 3000:2007 Wiring rules, dealing with consumers' high voltage installations, is redundant and no longer applies.

The Standard applies to network operator and consumer-owned substations, and consumer-owned high voltage installations.

This Standard is listed with other mandatory standards in Section 12.11 of the WA Electrical Requirements. The new AS 2067 comes into force on 1 July 2009.

Projects in the design or tender stage may be constructed to the 1984 version of the Standard, provided the network operator, or EnergySafety as appropriate, has received the Preliminary Notice prior to this date. Projects must comply with the new Standard if their Preliminary Notice is submitted after 1 July 2009. Project design work about to start should adopt the new Standard.

The revised Standard covers:

Electrical Requirements,

including neutral earthing methods, voltage classifications, normal and short-circuit currents, corona effects, EMF practices, over-voltages and harmonics.

Continued over page

© Department of Commerce 2009 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. Articles in this publication may be reproduced, provided they are reproduced in full and show acknowledgement to EnergySafety.

Alternative formats of this publication may be available to meet the needs of people with disabilities.

For enquiries:

Editor: Nic Easton
Phone: 08 9422 5208
Fax: 08 9422 5244

Email: nicola.easton@commerce.wa.gov.au Internet: www.energysafety.wa.gov.au

Continued from previous page

Structural Requirements,

including equipment and supporting structures, types of loads (dead load, conductor tension, erection, ice and wind loads, switching and short-circuit forces, sudden conductor tension loss, vibration) and dimensions of structures.

Climatic and Environmental
Conditions, including indoor and
outdoor environments, special
conditions (altitude, pollution,
temperature, humidity, vibration,
seismic effects), small animals and
micro-organisms, noise levels and
special transport considerations.

Insulation Coordination, including insulation level selection, withstand values, minimum clearances (both normal and special conditions) and type-tested equipment.

High Voltage Equipment,

including compliance, personnel safety, labels, switching devices, power transformers and reactors, types of switchgear, instrument transformers, surge arrestors, capacitors, line traps, insulators, insulated cables, overhead power lines, conductors and accessories, rotating electrical machines, generating units, static converters, fuses and electrical and mechanical interlocking.

Installations, including circuit arrangement, documentation, transport routes, aisles and access areas, lighting, operational safety, labelling, outdoor installations of open design, clearances (protective barrier, obstacle, maintenance and boundary), minimum heights, clearances to buildings, indoor installations of open design, typetested switchgear, requirements for buildings, pre-fabricated

substations, and masts, posts

and towers.

General Requirements for

Safety Measures, including protection against direct and indirect contact, protection of persons working near installations, (working procedures, isolating, inadvertent closing, verifying de-energisation, earthing and short-circuiting, barriers), arc fault dangers, lightning strikes, fire and explosion (protection of personnel, plant and cables), fire-resistant barriers, oil containment, fire alarms and suppression systems, leaking insulating liquids and SF6 and identification and marking.

Protection, Control and Auxiliary Systems, including need, monitoring and control, AC & DC supplies, compressed air, SF6 handling and electromagnetic compatibility.

Earthing Systems, including safety criteria, functional requirements, higher and lower voltage earthing and design of earthing systems, faults, lightning and transients, construction of earthing systems, commissioning, monitoring, risk review and documentation.

Inspection and Testing,

including verification methods, documentation and records, verification of specified performance, tests during installation and commissioning and trial runs.

Operation and Maintenance,

including manuals, up-todate drawings manufacturer's instructions and emergency instructions (routes to hospital, telephone numbers).

Requirements for Consumer High Voltage Installations,

including description of installation, regulatory considerations and testing and verification.

The Standard also includes useful appendices with illustrative examples.

Revision of Australian Standard for marinas and recreational boats

Standards Australia has published a revised version of AS/NZS 3004:2008 Electrical Installations - Marinas and Recreational Boating Installations. This latest version will be enforced in Western Australia under Regulation 49 of the Electricity (Licensing) Regulations 1991 and the WA Electrical Requirements from 1 July 2009. This will give those affected six month's notice to familiarise themselves with the new standard and apply it. The revised standard is a companion standard under Section 7.8 of the Wiring Rules.

While the new Standard will not be enforced until 1 July 2009, those about to begin designs for such electrical installations should apply the new requirements immediately. They may also think it prudent to modify completed designs for which tenders have not yet been called and where construction contracts have not yet been placed.

The Standard is in two parts.

Part 1, AS/NZS 3004.1:2008 –

Marinas, has been mandatory for many years under the WA Electrical Requirements. The term 'Marinas' means fixed and floating jetties with electricity supplies for boats, not associated buildings such as clubhouses, boat stackers, workshops and the like, where AS/NZS 3000:2007 (Wiring Rules) applies.

Part 2, AS/NZS 3004.2:2008 –
Recreational Boats Installations, will also become mandatory under the WA Electrical Requirements from 1 July 2009 for boats up to 50 metres in length. Recreational boats often contain equipment and appliances, and present demand maxima, comparable to those found in homes. Such boats

Continued from previous page

may be connected to shore supplies with high fault current potential. For these reasons, AS/NZS 3004.2:2008 now reflects much more closely the normal Wiring Rules requirements.

Electrical contractors should manage marina and recreational boats like any other electrical installations. They require Preliminary Notices, Notices of Completion and Electrical Safety Certificates. EnergySafety is preparing a suitable sticker version of the Safety Certificate which can be applied to a boat's switchboard when the installation has been completed, checked and tested. Marina and boat installations will be subject to network operator inspections in the normal way.

The Standard covers the following topics:

Part 1: Marinas

Additional risk factors (corrosive conditions, collision impact, vibration), galvanic corrosion, methods of connecting electricity supplies to recreational boats, selection of wiring systems, earthing system, maximum demand calculation, isolating transformers, switchboards, socket outlets, supply leads (selection, installation and use), periodic verification, testing, residual current devices, berthing instructions and supply configurations for boats.

Part 2: Recreational Boats

Types of onboard electricity
generation and supply systems,
equipment to tolerate inclination,
voltage and frequency variations,
battery DC systems, AC systems,
generators, measuring instruments,
transformers, voltage converters,
inverters, galvanic isolators,
equipment construction, protection
of equipment and enclosures,
plugs and socket outlets, battery

installations, battery chargers, communications circuits, explosive atmospheres, bi-metal contact, distribution systems, earthing systems, equipotential bonding, load balancing, shore connections, supply leads, switchboards, overcurrent protection, earth leakage, cable selection, circuit segregation, wiring installation and termination, lightning protection, testing and verification.

Appendices cover: Recreational boats over 24 metres in length and larger vessels, shore-side electrical supply arrangements and periodic testing.

Technical presentation to Engineers Australia WA Division

On 12 November 2008 Albert Koenig, Executive Director of EnergySafety WA provided an overview and update on the technical regulation of the Western Australian electrical industry to electrical engineers from the WA Division of Engineers Australia. The presentation covered the following:

- Brief introduction to the WA electrical regulatory framework and the role of regulator, EnergySafety WA
- Recent major changes to regulation of the electricity supply industry
- Recent major changes to the framework in respect of consumers' electrical installation design requirements
- Recent changes to electrical licensing requirements for persons performing electrical work
- Important issues for electrical engineers who may be organising or supervising electrical construction, maintenance and operational work by electrical workers

The presentation was well attended and it was pleasing to note the number of young engineers in attendance.

A copy of the presentation can be downloaded from www. energysafety.wa.gov.au under the headings "publications" and then "reports and discussion papers"



Albert Koenig presenting to Engineering Australia WA Division

Overview of activities 2007-08

Introduction

EnergySafety is Western Australia's technical and safety regulator for the electricity industry and most of the gas industry.

EnergySafety is a Division of the Department of Commerce. Albert Koenig was (and currently is) the Executive Director of EnergySafety and has the statutory title Director of Energy Safety.

Energy*Safety* comprises three Directorates:

- Gas Directorate, headed by Geoff Wood;
- 2. Electricity Directorate headed by Ken Bowron; and
- 3. Business Services Directorate, headed by Joe Bonfiglio.

Continued from previous page

The principal functions of

EnergySafety can be summarised as:

- administering electricity and gas technical and safety legislation and providing policy and legislative advice to the Minister and Government;
- setting and enforcing minimum safety standards for electricity and gas networks;
- enforcing natural gas and LP gas quality standards;
- for the purpose of ensuring satisfactory billing of consumers by gas suppliers, administering the regulatory scheme that determines the "higher heating value" of natural gas in distribution systems subject to the commingling (mixing) of gas from different sources;
- providing technical advice and support to the Economic Regulation Authority (ERA) and the Energy Ombudsman;
- at the request of the ERA
 or Energy Ombudsman,
 investigating the performance
 of electricity and gas network
 operators, particularly in respect
 of energy supply reliability
 and quality;
- setting and enforcing minimum safety standards for consumers' electrical and gas installations;
- setting and enforcing safety and energy efficiency standards for consumers' electrical and gas appliances;
- licensing electrical contractors, electrical workers and gas fitters and carrying out accident investigations;
- promoting electricity and gas safety in industry and the community; and
- promoting energy infrastructure security and resilience.

EnergySafety derives most of its statutory functions through the statutory functions of the Director of Energy Safety, an independent statutory office (established 1 January 1995) that is held by the head of EnergySafety. Since its inception in 1995 as part of the first major restructuring of the State's energy utilities, EnergySafety has had a busy corporate life and has seen its functions considerably expanded to include inter alia electricity and gas network regulation, energy efficiency regulation, natural gas higher heating value regulation and critical energy infrastructure protection.

As part of these changes, EnergySafety became fully industry funded from 2006-07 following the passing of legislation and the subsequent publishing in the Government Gazette of the Energy Safety Levy Notice 2006 as approved by the Minister during June 2006. This mirrored what other major jurisdictions had also done and 2006/07 was the first financial year under which EnergySafety was fully industry funded.

The following are highlights of the work during 2007/08

Operational work including compliance enforcement activities

Western Power powerline clashing at Toodyay

The reports on the investigations undertaken by EnergySafety and later also Western Power into clashing powerlines and a subsequent fire at Toodyay were released. For detailed information please see Issue 41, the August 2007 edition of the Energy Bulletin.

Electrical Industry Seminars

EnergySafety conducted a series of free seminars for electrical industry personnel, to explain the changes to the Electricity (Licensing) Regulations 1991, the new edition of the AS/NZS 3000 Wiring Rules and the new edition of the WA Electrical Requirements. The seminars were held in venues throughout the metropolitan region, as well as at Bunbury, Albany, Kalgoorlie, Geraldton, Karratha, Broome, Northam and Kununurra.

Safety awareness campaign

A major advertising campaign to alert consumers to the need for greater safety awareness when dealing with gas and electricity was launched in March 2008, and ran for six weeks. The campaign aimed to bring home the severe consequences that can occur if gas and electricity are not handled safely.

The themes of the electrical safety commercials were: Test your safety switch; Don't do your own electrical work; and Make sure your appliances are safe to use.

The television commercials were carefully chosen from campaigns that were broadcast in Victoria and Queensland, where they were proven to provide the impact needed in Western Australia. The use of these commercials also significantly reduced production costs.

The gas radio commercials covered care and maintenance of gas appliances; checking for gas lines; using a licensed gas fitter; appropriate use of portable outdoor gas heaters; and appropriate storage of LP gas cylinders.

Electrical Safety Certificates

The implementation of the use of Electrical Safety Certificates took place from 1 July 2008, the date on which regulation changes came into effect.

Continued from previous page

The changes associated with the use of these new certificates were explained to industry as part of the state-wide electrical roadshow.

New gasfitting compliance badge

A new gasfitting compliance badge was introduced in late 2008.

Prohibition notice – autogas hoses

The Director of Energy Safety issued a Prohibition Order (PO) in May 2008 but that was later modified to apply from 1 December 2008. The PO is designed to limit the amount of plasticiser in flexible hose that may be used as the fuel lines and thus part of a vehicle autogas installation, as plasticiser was found to cause gas converter failure in some vehicles. Energy Safety is working with industry to facilitate compliance with these requirements.

Increased demand for licensing services

The Licensing Office at EnergySafety again experienced a

high volume of electrical and gas licence applications. The increased workload was well managed by staff of the Licensing Office.

Electrical Licensing

As at 30 June 2008, there were 29,477 electrical workers, 3,627 electrical contractors and 247 in-house licence holders registered.

The Electrical Licensing Board grants licences to eligible electrical operatives and conducts competency assessments of operatives when necessary. It also recommends disciplinary action when appropriate.

Members of the Electrical Licensing Board as at 30 June 2008 were:

- Mr K McGill Chairman
- Mr J Murie representing the interests of electrical workers
- Mr P Beveridge representing the interests of electrical contractors
- Mr G Grundy representing the interests of electrical workers with restricted licences
- Mr D Retallack representing the interests of large

- businesses, who are consumers of electrical services
- Mr P Mittonette representing the interests of small businesses, who are consumers of electrical services
- Ms A Ciffolilli a residential consumer of electrical services
- Mr D Saunders nominated by the Director of Energy Safety.

The Electrical Licensing Board met **20** times during the year.

Gas Licensing

As at 30 June 2008, there were **6,003** persons registered for gasfitting work.

The Gas Licensing Committee operates under delegated authority of the Director of Energy Safety and considers applications for licences for gas operatives. Routine applications are dealt with by licensing staff under delegated authority, as in the case of electrical licences.

The Gas Licensing Committee met **7** times during the year.

Prosecutions

The following tables provide summaries of prosecutions finalised during 2007-08. Prosecutions are the result of investigations by inspectors, then review and authorisation by senior management of EnergySafety. The investigations are often initiated by inspectors of the electricity and gas distributors, as part of their consumer electrical or gas installation inspection work.

Summary of prosecution actions for breaches of electricity related legislation

Legislation	Breach	Number of Offences	Fines (\$)	Court Costs (\$)
Electricity (Licensing) Regulations 1991	Regulation 19(1)	10	8,100.00*	3,570.90*
Electricity (Licensing) Regulations 1991	Regulation 33(1)	6	6,450.00*	2,010.60*
Electricity (Licensing) Regulations 1991	Regulation 49(1)	45	42,100.00*	11,644.65*
Electricity (Licensing) Regulations 1991	Regulation 50(1)	3	2,950.00	1,094.15*
Electricity (Licensing) Regulations 1991	Regulation 51(1)	3	1,700.00	1,329.55
Electricity (Licensing) Regulations 1991	Regulation 52(1)	4	6,150.00*	1,707.60*

Continued from previous page

Legislation	Breach	Number of Offences	Fines (\$)	Court Costs (\$)
Electricity (Licensing) Regulations 1991	Regulation 52(3)	5	8,350.00	2,619.80
Electricity (Licensing) Regulations 1991	Regulation 53(2)	1	600.00	775.70
Electricity (Licensing) Regulations 1991	Regulation 63(1)	3	1,450.00	809.55*
Totals		80	77,850.00	25,562.50

^{*} Global Penalty (more than one offence)

Summary of prosecution actions for breaches of gas related legislation

Legislation	Breach	Number of Offences	Fines (\$)	Court Costs (\$)
Gas Standards Act 1972	Section 13A(2)	4	1,750.00*	2,183.30*
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	Regulation 18	6	6,550.00*	3,826.70*
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	Regulation 20(1)(b)	3	2,200.00	1,707.60
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	Regulation 21(a)	1	1,350.00	569.20
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	Regulation 26(1)(a)	2	750.00*	569.20*
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	Regulation 28(2)	19	7,050.00*	6,084.20*
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	Regulation 28(3)	12	*	*
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	Regulation 28(3a)(b)	16	800.00*	569.20*
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	Regulation 28(3a)(c)	15	*	*
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	Regulation 32	6	*	*
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	Regulation 38(1)	1	*	*
TOTALS		85	20,450.00	15,509.40

^{*} Global Penalty (more than one offence)

Continued from previous page

Summary of Infringement Notices issued for breaches of electricity related legislation

Legislation	Section / Regulation	Number of Offences	Penalties (\$)
Electricity Act 1945	33B(2)	4	10,000.00
	33F	2	4,000.00
Electricity (Licensing)	45(1)	30	29,500.00
Regulations 1991	49(1)	1	500.00
	52(1)	3	3,000.00
TOTAL		40	47,000.00

Summary of Infringement Notices issued for breaches of gas related legislation

Legislation	Breach	Number of Offences	Penalties (\$)
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	Regulation 18(2)(a)	19	7,600.00
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	Regulation 20(1)(b)	2	800.00
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	Regulation 20(4a)	1	400.00
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	Regulation 26(1)(a)	5	2,000.00
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	Regulation 28(2)	16	6,400.00
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	Regulation 28(3)	13	5,200.00
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	Regulation 30	2	800.00
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	Regulation 34(1)	4	1,000.00
TOTAL		62	24,200.00

Major policy work

National regulatory reform projects

During 2007/08 EnergySafety commenced work with electrical and gas safety regulators of other jurisdictions to make significant contributions to various national regulatory reform projects. Significant progress was made in reviewing the regimes for electrical appliance safety approvals, gas appliance safety approvals and restricted electrical licensing, to provide a more uniform regulatory framework across jurisdictions.

New areas projects were also commenced, covering energy supply technical and safety regulation harmonisation, a national occupational licensing system, and a proposed National Construction Code.

Code of practice for minimum requirements for safe electrical work

A code of practice was developed and issued to reduce the incidence of serious electrical accidents and to set out the minimum requirements for safe electrical work practices by electricians, particularly when working on or near live parts of a consumer's installation. The code of practice was issued under section 33AA of the *Electricity Act 1945* in April 2008.

Standards development work

During the year, EnergySafety
played a significant role in
the development of Australian
Standards, covering subjects
such as electrical installations
(AS/NZS 3000 Wiring Rules),
HV installations including electricity
Continued over page

Continued from previous page substations, marina electrical installations, gas installations, industrial gas appliances and gas distribution networks.

Regulatory model for energy efficiency of gas appliances

EnergySafety participated at a national level to progress improvements to the energy efficiency of gas appliances and equipment and it is anticipated that agreement will be reached by the end of 2008 on the regulatory model to be used.

Committee participation

Aside from major work on several key technical standards committees, EnergySafety continued to be involved in a number of national regulatory coordination and other technical standards bodies. The following is a summary list:

- National Regulatory Coordination Bodies
 - Electrical Regulatory
 Authorities Council (ERAC)
 - Gas Technical Regulators
 Committee (GTRC)
 - National Equipment Energy Efficiency Committee (Committee E3)
- National Standards Councils, Boards and Committees
 - Council of Standards
 Australia (representing the Government of WA)
 - Electrotechnology Standards
 Sector Board
 - AG6 Gas Installations
 - AG5 Industrial Gas Appliances
 - AG8 Gas Distribution
 - AG9 Natural Gas Vehicle Technical Standards
 - AG10 Specification for Natural Gas Quality
 - AG11 Gas Component & Industrial Equipment Standards Committee
 - CH-038 Liquefied Petroleum Gas

- EL1 Wiring Rules and related sub-committees
- EL2 Electrical Appliance Safety
- EL4 Electrical Accessory
 Safety
- EL11 Electricity Metering
- EL42 Renewable Energy Power Supply Systems
- EL43 High Voltage Electrical Installations
- ME46 Gas Fuel Systems for Vehicle Engines.

Safety statistics: Serious accidents and fatalities

The following were reported to EnergySafety during the year:

Electric shocks 1005
Serious electricity related accidents 24
Fatalities (included in serious electrical accidents): 1

Serious electricity related accidents notified per million population*

Year	The number of electricity caused serious injuries per million population	Five Year Average
1997-98	14	20
1998-99	22	19
1999-00	16	17
2000-01	11	15
2001-02	12	15
2002-03	18	16
2003-04	16	15
2004-05	23	16
2005-06	15	17
2006-07	9	16
2007-08	10	15

Note: In the above table, some of the numbers of serious electricity related accidents notified per million population differ from the figures given in previous reports on activities. These corrections resulted from a comprehensive review of statistics of serious electricity related accidents notified.

* Electrical shock incidents resulting in the person requiring treatment at a medical facility.

The serious electricity related accidents included one fatality in which electricity was found to be the cause:

 A ten year old girl climbed a steel pole to retrieve a football jumper and came into contact with "live" 230/240 volt conductors and received a fatal electric shock.

Gas related incidents and fatalities

The following were reported to EnergySafety during the year:

Incidents	93
Serious gas related accidents (persons injured)	16
Fatalities	1

Continued from previous page

Serious gas related accidents notified per million population

Year	The number of gas caused injuries per million population	Five Year Average
1997-98	5	7
1998-99	6	6
1999-00	4	6
2000-01	9	6
2001-02	13	7
2002-03	10	8
2003-04	9	9
2004-05	9	10
2005-06	8	10
2006-07	9	9
2007-08	7	8

EnergySafety teams up with Curtin FM



EnergySafety has teamed up with Curtin FM to promote electricity and gas safety to Perth householders.

EnergySafety's Director of Electricity, Ken Bowron has become a regular guest on Curtin FM's afternoon show with popular presenter Liz Pye.

Curtin FM 100.1 reaches 177,000 listeners across Perth, approximately 140,000 of that audience is aged 45 years or over. Curtin FM is a "community licence" station and boasts higher audience figures than some Perth commercial radio stations.

"This is a great opportunity for EnergySafety to promote our safety messages to the community," Mr Bowron said.

"Curtin radio allows us to reach an older audience, who may not be aware of new licensing and safety requirements, and who are more likely to pass on information to their children and grandchildren," he said.

"Many small businesses also prefer this radio station to more confrontational talk-back and rock music-oriented commercial radio stations."

Mr Bowron was asked to appear on Curtin FM in October following an EnergySafety media release alerting consumers to a voluntary recall of certain models of Electrolux, Westinghouse and Dishlex dishwashers.

Some models of Electrolux dishwashers sold after 1 April 2007 have an electrical fault that can cause the units to overheat and catch fire.

Following the interview, Ms Pye asked Mr Bowron to return on a regular basis to talk about other Energy*Safety* issues.

Since then, Mr Bowron has promoted the new Electrical Safety Certificates, the use and testing of RCDs, and gas safety in caravans and when using BBQs.

Next year, Mr Bowron plans to talk about electrical safety in the home, the proposed home electrical installation safety assessment scheme, and the dangers of buying online imported electrical appliances and second hand electrical appliances.

Mr Bowron said EnergySafety was committed to promoting the safe use of electricity and gas to the general public.

Home electrical installation safety assessment scheme

EnergySafety is presently planning regulations to establish a home electrical installation safety assessment scheme. Participating electrical contractors will undertake electrical installation safety assessments of dwellings for owners, tenants and potential purchasers.

The electrical contractor will prepare a report:

- confirming that the electrical installation is safe to use; or
- listing any defects affecting the electrical installation's safety and recommending remedial action required to make the installation safe.

The scheme will be voluntary for both client and contractor.

Buyers making an offer to purchase a property often attach conditions, such as "subject to satisfactory finance arrangements". Increasingly, a report on the structure of the building and a termite inspection are included in the conditions. Unlicensed and inexperienced persons are including comments on the electricity installation in these building reports. A serious defect may not be identified by such a person, resulting in the continuation of an unsafe situation for the new owner.

EnergySafety will promote the home electrical installation safety assessment scheme. EnergySafety will develop and make available a

report template, itemising the visual checks and electrical tests to be undertaken as part of the safety assessment.

Electrical contractors may use the template free of charge and advertise that they provide a safety assessment service complying with EnergySafety requirements.

The regulations are required to ensure the integrity of the safety assessment scheme. Only contractors undertaking to abide by EnergySafety's requirements will be allowed to use the EnergySafety template. They may then assure clients that the service complies with the requirements of the scheme. Contractors may carry out a safety assessment using their own criteria and report format, as is currently done, but will not be allowed to claim that the assessment complies with the Energy Safety requirements. They also must not use the template or documentation resembling it.

While an individual contractor may be a scheme participant, an industry representative body or other organisations may decide to act as a point-of-contact for a number of contractors in a particular geographic area.

Draft regulations will be made available in early 2009 to the electrical contracting industry for comment. The scheme should be ready to launch in the second half of 2009. Once the electrical safety scheme has been implemented and its success evaluated, consideration will be given to a similar service for gas consumers.

"Notices" have been amended

Readers will be aware that the Preliminary Notices / Notices of Completion ("Notices") are being amended to accommodate the following changes:

- The electrician (electrical worker) who carried out the checking and testing function will no longer be required to sign the Notice of Completion. The electrical contractor or nominee will instead provide the name and electrical worker's licence number of the electrician who carried out the work and/or the checking and testing function.
- The electrical contractor or nominee will need to identify if the work that is the subject of the Notice has not been carried out to meet Part 2 of the Wiring Rules.

Some of the other changes that electrical contractors will notice include:

- The familiar yellow and green colours of the forms that have been in use for many decades have disappeared. The new Notices are printed in black only, to facilitate legibility when the Notices are being faxed.
- Contact details of some network operators are different.
 This applies particularly for Western Power.
- There are additional fields to notify:
 - The number of points of supply – referred to in

Electrical Focus No. 45 January 2009

Continued from previous page

- Section 3.9 of the WA Electrical Requirements.
- Where an installation may include alternative electricity supplies, for example, photovoltaics, standby generators.
- A customer copy of the Notice of Completion is no longer provided – customers will now, of course, be receiving an Electrical Safety Certificate for the work.

Printing of books of the amended Notices will commence during January 2009. Electrical contractors, when they request stocks of books of Notices, should expect to receive the new books shortly after that time.

The amended Notices can be identified by the reference number ESWA E001 0109 at the bottom right hand corner of the respective forms.

The new Preliminary Notices must be used for all notifiable electrical installing work commenced after 30 June 2009.

The existing Notice of Completion may still be used where the associated Preliminary Notice is submitted before 30 June 2009.

Submitting Notices

Western Power has advised that Preliminary Notices and Notices of Completion for electrical installing work within the interconnected grid system should be mailed to:

Western Power Connections Manager Locked Bag 2520 Perth WA 6001

When Notices are faxed to Western Power, the usual fax number should be used:

Fax No. (08) 9225 2643

When you need a ruling ...

Electrical contractors who require a ruling about an installation that is, or will be, connected to a network operator's distribution system, should contact the relevant network operator as follows:

Western Power

Interconnected grid system Ph. (08) 9383 5811

Horizon Power

Kimberley

Ph. (08) 9192 9902

Pilbara

Ph. (08) 9159 7277

Esperance

Ph. (08) 9071 0568

Gascoyne/ Midwest Ph. (08) 6310 1814

Websites and media advertising must also show electrical contractor's licence numbers

Readers will be aware of articles in several Energy Bulletins that carry the message to electrical contractors to ensure compliance with Regulation 45(1) of the *Electricity (Licensing) Regulations* 1991.

Specifically, electrical contractors must ensure that their electrical contractor's licence number is conspicuously displayed in any advertisement about their electrical contracting business, including websites, letterheads, other stationery involving customers and business cards.

In this context, 'conspicuous' is taken to mean not less than 50% of the largest lettering used in the advertisement.

Websites are a form of advertising and must therefore include the electrical contractor's licence number. The licence number must appear at least on the home page of the website and on any pages that provide contact details for the electrical contractor. The licence number must be conspicuous.

Website advertising includes, but is not limited to, Internet web pages and online directories, for example, Yellow™ online.

Regulation 45(1) also applies to media advertising, such as on TV and radio and in the press.

Please note that failure to conspicuously display the electrical contractor's licence number on any form of advertising can attract penalties. So care should be taken to ensure that all media, printed, vehicle and other advertising (showing business name and purpose) complies.

Competency assessments or ETL course

EnergySafety refers cases of serious breaches of regulations by electricians to the Electrical Licensing Board for its consideration. Under Regulation 29(2) of the Electricity (Licensing) Regulations 1991, the Board may require the electrician involved to undergo a competency assessment. If the person fails, the Board may suspend or refuse to grant an electrician's licence.

Twenty nine electricians have been required to undergo competency assessments so far during 2008. All have either failed or did not attend. Some have elected to attempt the assessment a second time but again all such persons have failed.

January 2009 Electrical Focus No. 45

Continued from previous page

The Board does not want to see electricians lost to the trade if their competency can be restored by appropriate retraining. The Board recommends that such electricians undertake the Electrical Trades Licensing (ETL) course, rather than attempt the competency assessment. The ETL course is designed to re-train electricians who have let their licences lapse and wish to re-enter the trade, and to equip migrant electricians to operate safely and effectively in WA. Participants may continue working while they undertake the course. The Board accepts successful completion of the ETL course as sufficient evidence of competence.

The course is offered by TAFE colleges and the College of Electrical Training, is accredited and the cost is subsidised. The cost is therefore modest. The course comprises 80 hours of training, either in evening sessions or in a two-week block. The experienced TAFE instructors can provide individual tuition to address weaknesses or knowledge gaps of particular course participants.

On the other hand, a competency assessment usually means a oneon-one situation with a senior TAFE instructor, which may cost the electrician up to \$900. Failure will mean immediate suspension of the electrician's licence.

Several electricians have elected to take the ETL course which has been updated. All but one passed successfully. They have all praised the course for refreshing their knowledge and skills, and for giving them increased confidence as electricians.

IP rating of accessories exposed to water

Clauses 1.5.14 and 4.1.3 of AS/NZS 3000:2007 "Wiring Rules" require all parts of an electrical installation to be designed to be adequately protected against damage that would be expected during normal operation. This includes protection against the ingress of water.

Electrical accessories such as switches and socket outlets installed where they may be exposed to ingress of water must have an International Protection (IP) rating suitable for the environment.

Normally, a rating of IP 53 would be suitable for electrical accessories mounted on weather protected walls or under eaves. However, if the accessories are located in

areas exposed to wind driven rain or near sprinklers, they would require an IP rating of IP 54 or greater. This also applies to accessories in cyclonic areas.

Information on the suitability of equipment and the relevant IP rating is provided in Appendix G of the Wiring Rules.

Re-hearing for R & C Green Pty Ltd

R & C Green Pty Ltd was prosecuted for a breach of *Electricity (Licensing) Regulations* 1991, Regulation 52(3) on 19 November 2008.

This matter was first heard before the court on 9 July 2008. There was no appearance for the company on that date and the court imposed a fine of \$7,500.00 with court costs of \$569.20. The accused subsequently made an application for re-hearing on the basis that the Prosecution Notice had been served on their old accountants, and was therefore not aware of the matter.

The application was heard on 19 November 2008 and was granted. The accused then entered a plea of guilty to the charge and the court fined the accused \$1,500.00 and awarded costs of \$569.20.

Electrical Focus No. 45 January 2009

Prosecutions for breaches of electricity legislation 1 September 2008 – 30 November 2008

Name (and suburb of residence at time	Licence No.	Legislation and Breach	Offence	Fine (\$)	Court Costs (\$)
of offence) Electricity Networks Corporation T/As Western Power	EC004931	EA Section 25	Network operator did not maintain their service apparatus in a safe condition	20,000.00	569.20
Andrew Gunning (Esperance)	NLH	E(L)R Regulation 19(1)	Carried out electrical work without holding an electrical workers licence	800.00	569.20
Daniel Lawrence (Collie)	NLH	E(L)R Regulation 19(1)	Carried out electrical work without holding an electrical workers licence	1,200.00	569.20
Sampath Wickramaratne (Willetton)	EW131992	E(L)R Regulation 19(1)	Carried out electrical work without holding an electrical workers licence	750.00	769.20
City West Electrics Pty Ltd T/As Harvey Norman Electrics City West (Winthrop)	NLH	E(L)R Regulation 33(1) (2 breaches)	Failed to have energy efficiency labels fitted to appliances that were on display and for sale	500.00	571.70
Darren Fairburn (Sorrento)	EW114086	E(L)R Regulation 49(1)	Carried out substandard electrical work	*	*
Scott Logan (Donnybrook)	EW104985	E(L)R Regulation 49(1) (3 breaches)	Carried out substandard electrical work	1,200.00	1669.20
Cusack Electrical Technologies Pty Ltd (Bunbury)	EC007385	E(L)R Regulation 51(1)	Failed to submit a Preliminary Notice to the network operator	2,000.00	569.20
Donnybrook Electrics (Donnybrook)	EC000577	E(L)R Regulation 51(1)	Failed to submit a Preliminary Notice to the relevant network operator	800.00	*
Cusack Electrical Technologies Pty Ltd (Bunbury)	EC007385	E(L)R Regulation 52(1)	Failed to submit a Notice of Completion to the network operator upon completion of the electrical installing work	*	*
R & C Green Pty Ltd T/As Avant Electrical Services (St James)	EC007394	E(L)R Regulation 52(3)	Submitted a Notice of Completion for electrical installing work that was defective and therefore not complete	1,500.00	569.20
Sorrento Electrix (Sorrento)	EC003978	E(L)R Regulation 52(3)	Submitted a Notice of Completion to the relevant network operator when the electrical installing work was not complete	500.00	571.20
Robert Lawer (Carnarvon)	EW101827	E(L)R Regulation 63(1)	Failed to immediately report an electrical accident	300.00	369.20

Legend NLH No Licence Held
EA Electricity Act 1945

E(L)R Electricity (Licensing) Regulations 1991

* Global Fine or costs Issued

Autogas conversions

The Australian Government's subsidy and the West Australian Government's grant totalling \$3000 paid to owners of family rated vehicles who convert their vehicle to operate on autogas have both now been in place for two years.

Prior to these announcements, between 250 to 300 motor vehicle LP Gas conversions per month were taking place. This year the number of conversions has been consistently above 1100 vehicles per month. In October 2008, 1359 vehicles were converted.

This has seen the conversion industry flourish. There are however requirements to ensure the consumer (the vehicle owner) is protected from substandard practices.

Vehicles converted to operate on LP Gas (autogas) need to comply with the requirements contained in the Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999. The regulations call up Australian Standard AS/NZS 1425. Vehicles manufactured from 1 January 2004 being converted are required to comply with Appendix D Exhaust Emission Standards (2004 onwards). Put simply, if a kit has been certified for a Toyota Camry, that same kit cannot be adapted to be used on a

LPG Australia maintains a website with a list of "Certified Kits" for a wide range of vehicles, www.lpgaustralia.com.au

Hyundai Elantra. This requirement

does not apply to vehicles

manufactured prior to 2004.

Certified kits only remain compliant when fitted to the vehicle type nominated on that list and to vehicles that have not been subject to modification. If the vehicle is modified in any way, for example, a hot exhaust, that vehicle cannot be deemed compliant.

EnergySafety, if made aware of a non-compliant autogas installation will issue a Notice of Defect to the gas fitter who lodged the Notice of Completion. This may also result in an infringement notice, or in the worst case scenario, a prosecution.

Remember, persons signing a Notice of Completion and fixing a compliance badge to a vehicle, you are certifying that gas installation.

AS 2746 – 2008 Working areas for gasfuelled vehicles

Standards Australia has just released a new standard AS 2746 – 2008 "Working areas for gasfuelled vehicles". It is a worthwhile investment for all operators of premises installing and servicing LPGas powered vehicles, Compressed Natural Gas (CNG) vehicles and Liquefied Natural Gas (LNG) vehicles to obtain a copy.

This standard now covers all three categories of vehicles and details the requirements for fire safety, ventilation of the premises and explains the increased hazards associated with each type of gas.

Available from: SAI Global Limited Phone: 13 12 42 Fax: 1300 65 49 49

Email: sales@sai-global.com

Interim autogas fitters caught out

Recent Notices of Completion received by the EnergySafety WA Gas Inspection Branch, have been incorrectly signed by some Interim Class E Permit holders.

Interim Class E Permit holders have conditions limiting their activities, which include:

- Working under the supervision of a Class E Permit holder;
- Only carrying out Class E gasfitting that the supervisor is registered to carry out; and
- Not submitting Notices of Completion, fixing compliance badges or fixing service labels.

The Supervisor is responsible for the submitting of Notices of Completion, fixing compliance badges and fixing service labels. An Interim Class E Permit is issued to trainees after completing the required institutional based training. As on-the-job training is then required to follow the institutional based training, the Interim Permit holder must comply with these conditions during this work experience period.

Carrying out gasfitting work without an appropriate permit makes persons liable for prosecution, and a possible fine of up to \$50 000 under the *Gas Standards Act 1972* and the associated Regulations. Supervisors of Interim Permit holders need to remind their trainees of these requirements.

Gas Focus No. 45 January 2009

LP Gas fuel system skills training shifts up a gear

Industry-driven training has been given a major boost, since the opening of Challenger TAFE's Automotive Technology Skills Centre earlier this year.

Costing over \$10 million, the Centre is located at the corner of Gilmore Avenue and Sulphur Road, Kwinana, in the rapidly-expanding south metropolitan corridor and is well-placed to meet the region's current and future skills needs.

The technology-driven centre has the look and feel of a modern automotive dealership with a state of the art high-tech repair workshop, combined with a neighbouring gallery space with service reception shopfront, specialist learning rooms, and an exhibition space leading into general learning and specialist rooms.

The specialist learning rooms are used for the delivery of more advanced short training packages such as 'Service, Repair and Install LP Gas Fuel Systems' and with the very latest vapour-technology training aids available the trainees are able to get hands-on experience by handling complete and running vehicles.

With the emphasis on environmentally sustainable energy, the centre was designed to cater for the anticipated increase in short courses being delivered in the sphere of alternative fuel supplies, such as in LP Gas liquid injection and hydrogen powered vehicles.

LP Gas training packages are currently delivered on either a staged basis over 10 weeks with trainees attending one day per week, or on a block basis over two weeks with trainees attending daily.

The Industry Advisory Board for the Centre also includes an EnergySafety WA representative.





January 2009 Gas Focus No. 45

Caravans and recreational vehicles (RV) - Mobile gas installations

Some imported caravans and recreational vehicles (RVs) find their way into Western Australia from the Eastern States. The gas installations on these vehicles often do not comply with AS 5601"Gas Installations" This causes our local gas fitters problems as they need to explain to the customer why the gas installation must be made to comply before they can fix a compliance badge and submit a Notice of Completion.

Caravans and RVs manufactured in other states generally comply, however our local gas fitters do occasionally find non-compliances. Local gas fitters who specialise in caravans and RVs excel in the work that they do.

Caravans and RVs, being mobile gas installations as defined in the regulations, come under EnergySafety's regulations.
EnergySafety conducts audit inspections and deals with customer complaints. Audits undertaken within the last 12 months revealed very few non-complying gas installations. In all cases, these were rectified promptly.

For example, Coromal Caravans is a long established Western Australian manufacturer. Their manufacturing facility is in Forrestfield and they employ five gas fitters on their team.

Terry Dods has worked at Coromal for ten years and casts an experienced eye over the gas installations. Terry provided the following comment: "Previously the gas fitting had been contracted out. With extensive changes in caravan design and compliance requirements, it is now preferred to have the trades in house. Customers are looking for a high standard in quality and safety and Coromal has always strived to achieve both. We have an extensive QA system which includes compliance with regulations."

EnergySafety conducts regular audits of local caravan manufacturers. Some issues identified include the clearance of range hoods above the built in cookers. The popup caravans proved to be a challenge in meeting the minimum clearances, however,

changes to the design of the range hood and extensive durability testing by the manufacturer enabled the range hood to be installed after a variation was issued by EnergySafety allowing the reduced clearance.

Any change of design that results in the appliance not conforming with the relevant standards requires a detailed submission explaining the need and how safety will not be compromised to EnergySafety for a variation/exemption. If granted, the variation/exemption (V/E) number must be inscribed onto the compliance badge. This enables ready identification for any later compliance inspection.

EnergySafety encourages local caravan, RV manufacturers and gas fitters to produce safe, complying gas installations and offers advice on compliance issues through the Gas Inspection Branch on telephone (08) 9422 5297.



Terry Dods pressure testing the gas installation

Gas Focus No. 45 January 2009

Camping stoves

With the summer break in full swing, EnergySafety would like remind all consumers of the possible hazards associated with the small butane gas camping stoves. They have become very popular for camping because of their convenience and general ease of operation.

Every year, about this time, EnergySafety receives reports of incidents where these camping stoves have exploded and/or caught fire. To date there have been no reported major injuries from these incidents other than superficial burns.

Incidents in all cases have been attributed to misuse of the stove, incorrect assembly of the trivet (pan support) and not understanding the instructions for changing the butane gas cylinder.

These camping stoves come complete in a plastic blow formed carry case. It is important to understand the instructions, and that the trivet must be assembled correctly. In transit, the trivet is inverted to fit inside the carry case. It must be re-assembled correctly for safe operation.

When changing the butane cylinder, make sure it is done away from naked flames, open fires, camping lanterns etc. The stove is always to be used in a well ventilated area.

If a portable camping stove becomes damaged in any way it should be discarded. These stoves are inexpensive and it is safer to replace it with a new one. When purchasing a camping stove, persons should look for the Australian Gas Association (AGA) approval.



A typical portable camping stove



Pot is possibly too large for the small camping stove

January 2009 Gas Focus No. 45

Perth Royal Show

Another successful Perth Royal Show concluded 4 October 2008 without a gas incident occurring. Every year, EnergySafety's gas inspectors work closely with the Royal Agricultural Society to visit a number of permanent and mobile catering outlets to ensure all gas installations at the showground are safe and compliant.

This year the inspector targeted LP Gas cylinder locations, proximity of cylinders to ignition sources and drains, protection of cylinder from tampering and securing of the gas cylinders.

All gas appliances had to be in a serviceable condition and be approved. Two gas appliances were found to be unapproved and were prohibited from use. One gas installation was found to be non-complying and the gas fitter was subsequently issued with an Infringement Notice. All non-compliances were rectified prior to the commencement of the show.

All gas fitting work associated with these types of shows and events must be compliant and a notice of completion must be given to the gas supplier or, if not known, to EnergySafety. This applies to all gas installations, whether or not they are used on a temporary basis or for a short time.

One showman commented on meeting the same gas inspector conducting gas inspections not only in Cairns in Queensland, but here again in Western Australia. He said he must have one of the largest beats in the world. That was Frank Chapman who had worked for the Queensland Government's Department of Mines and Energy for five years and recently re-commenced work here in Western Australia at EnergySafety.

As EnergySafety does not have the resources to be proactive at every function, especially in rural areas, we are requesting all community minded gas fitters to assist by pointing out to event organisers and operators gas installations/gas appliances that are potentially dangerous or if necessary report them.



Non compliance: Gas bottles in prohibited zone near electrical meter box

Gas Focus No. 45 January 2009

Prosecutions for breaches of gas legislation 1 September 2008 to 30 November 2008

Name (and suburb of residence at time of offence)	Licence No.	Legislation and Breach	Offence	Fine (\$)	Court Costs (\$)
Michael Ainsworth (Morley)	NLH	GSA Section 13A(2)	Carried out gasfitting work while not holding a certificate of competency, permit or authorisation allowing him to do so	2,500.00	571.70
Kevin Donovan (Viveash)	NLH	GSA Section 13A(2)	Carried out gasfitting work while not holding a certificate of competency, permit or authorisation allowing him to do so	2,000.00	571.70
David Kitchen (Edgewater)	GF002832	GSR Regulations 28(2), 28(3), 28(3a)(b), 28(3a)(c),	Failed to fit a compliance badge to the gas installation Failed to submit a Notice of Completion to the gas supplier Failed to give a copy of the Notice of Completion to the customer	1,000.00	669.20

Legend:

GSA Gas Standards Act 1972

GSR Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999