

## **Electrical Focus 4**

### **Electrical Inspection Branch**

In this edition of Electrical Focus, we are introducing to readers the staff of the Electrical Inspection Branch of the Office of Energy.

The Branch is headed by the Chief Electrical Inspector, Mike Bunko and comprises staff located in our Leederville office as well as staff in four country regional centres.

Functions of the Branch include:

- investigating reports of serious electrical accidents and breaches of regulations
- auditing industry practices
- monitoring and auditing the supply activities of Electricity Supply Authorities and independent power producers
- monitoring and auditing the performance of consumers' installation inspections by supply authorities
- keeping industry advised of changes in standards and regulatory requirements
- carrying out mines electrical inspections on behalf of the Department of Minerals and Energy

One of the functions of the Electrical Inspection Branch is to carry out inspections of mining installations, on behalf of the Department of Minerals and Energy. To carry out this work, as well as installation inspections (private generating plants) and the normal regulatory functions, Senior Inspectors are located at Karratha, Geraldton, Kalgoorlie and Collie/Bunbury.

Pictured at insets (above left to right) are Steve Gardiner (Karratha), Bob Lawrence (Geraldton), Mick Hayhow (Kalgoorlie) and Bob Anderson (Collie/Bunbury).

Inspections of mining installations in the Far North of the State (Kimberley Region) are carried out by inspection staff based at Leederville Office.

### **Incident Reporting**

Regulations require that all electric shocks and accidents irrespective of their seriousness, must be reported to:

- the employer
- the relevant supply authority, and
- the Office of Energy

When the incident is reported to the employer, the employer is also required to report the occurrence to the relevant supply authority and to the Office of Energy.

The Office of Energy has established a Freecall telephone number for all electrical (and gas) reports, at all hours.

During business hours, the calls are diverted to the Office of Energy Leederville Office (09) 422 5200. Outside of business hours, the calls will be diverted to an after-hours answering service.

The Freecall number may be used from anywhere within Western Australia and will be listed in the forthcoming edition of the white pages telephone directory.

***For reports of electrical or gas incidents:***

***Phone 1 800 678 198 (all hours)***

***Electrical Accidents***

In the Quarter ending 31 December 1995 a total of 76 electrical accidents/shocks was reported to the Office of Energy. The figure includes 4 fatalities.

Of the 76 reported incidents, 25 were suffered by licensed electrical workers. This figure includes 5 accidents, one of which was fatal.

An examination of the principal causes of these incidents shows that 14 of the 25 were as a direct result of:

failure to isolate wiring and/or prove the wiring isolated before working

- contact with exposed live parts in situations where either the area/circuit being worked on was isolated but the remainder of the installation/switchboard was live
- inadvertent contact with exposed live parts

In all these cases the electrician had control over his work area.

This highlights the need for electricians to be ever vigilant and follow the old and well known adage:

***isolate test prove test***

***..... before you touch******Review of Australian Voltage Standard***

The nominal standard supply voltage commonly used in Australia is 240/415 volts and is duly specified in Australian Standard AS 2926 - 1987. In 1983, the International Electrotechnical Commission (IEC) initiated a program to encourage an international standard voltage of 230/400 volts by the year 2003.

Australia is one of a number of countries throughout the world which will need to consider a change in supply voltage to meet the objective of more uniform voltages worldwide. As one of the first steps towards consideration of such a change, Standards Australia has just released for public review and comment, a draft revision of AS 2926 - 1987 which is based on IEC publication 38 - 1983 (and as amended in 1994) on standard voltages. This draft basically proposes that the Australian nominal system voltage will be 230/400 volts and that the transition period from 240/415 volts to a nominal 230/400 volts be as short as possible and the change be completed by the year 2003.

Major world markets are progressively harmonising their supply voltage to simplify trade in electrical goods. In March 1993, the British Government announced that it would reduce its low voltage electricity supply systems to the European 230/400 volts. As in Britain, were Australia to change to 230/400 volts, initially the change would be one of designation only when operating tolerances are taken into account as the 240/415 volts system essentially falls within the tolerance range specified by IEC for the 230/400 volts system.

However, it is contemplated by IEC that the tolerance (currently  $\pm 10\%$ ) should be reduced (possibly to  $\pm 6\%$ ) and, should this be agreed to internationally, then the current Australian system would not comply. Such non compliance could have serious consequences for Australian companies manufacturing for export and could add cost to imported electrical goods.

This issue, together with the implications of associated international trade agreements is currently being considered by the manufacturing and supply industries, as well as State and Territory regulators.

#### **Review of "WA Electrical Requirements"**

The manual WA Electrical Requirements (formerly known as SECWA Electrical Requirements) was published in 1991 and has continued to be distributed and serviced by this Office.

The manual has been well accepted throughout industry, but with the restructuring of the electrical industry, including the formation of Western Power and AlintaGas, the manual now contains a mix of supply authority requirements and regulatory matters administered by this Office.

WA's six Electricity Supply Authorities have identified the need to review and update the WA Electrical Requirements.

The Director of Energy Safety has agreed that the Office of Energy should facilitate such a review. The proposed new edition will reflect the latest industry standard for supply authority requirements in respect of consumer installations throughout Western Australia.

The review process commenced recently. Each of the Electricity Supply Authorities is represented on a working group that will produce a new edition of the WA Electrical Requirements towards the end of 1996.

If any organisations or individuals would like to offer comments on the

structure or content of the proposed new edition, written comments should be forwarded to Bob Briggs, Principal Engineer Electrical Installations and Appliances, at the Office of Energy. All comments should be received by 30 May 1996.

### **Certification of Caravan Electrical Installations**

Currently under the provisions of the Local Government Act Model By Laws for caravan parks and camping grounds, caravans are only permitted to be connected to an electricity supply at a caravan park if:

- the caravans' electrical installation complies with AS 3001, and
- the caravan bears a Certificate of Compliance (this certificate is currently affixed by Western Power or a competent authority in WA or another State)

The following details improvements to the existing system based on self-certification by licensed electrical contractors.

At present there are two approved systems for certifying caravan electrical installations.

#### 1. Caravan Manufacturers

The first system applies to caravans manufactured in WA. The electrical contractor carrying out the installation is issued with a quantity of certification stickers. On completion of the electrical work (including the testing and checking of the installation for compliance with AS 3001) the electrical contractor completes the installing work details on the certificate certifying that the electrical installing work meets AS 3001 and attaches it to the caravan. Also, the electrical contractor is required to record the relevant details in a record book kept for this purpose.

Electrical contractors can obtain more certificates upon production of the relevant part of the record book (listing the caravan details etc) attached to a Notice of Completion certifying the caravan installations.

Audit inspections are carried out by the Office of Energy to ensure that the standard of installing work is acceptable.

This system will not change, however new certificates have been produced and will be issued to existing electrical contractors who carry out this type of work for caravan manufacturers.

#### 2. Individual Caravans

The second system applies in the case of an electrical contractor receiving a request to install electrical wiring (other than at premises as covered in (1) above) and then to certify the installation, or to cases where owners request testing and certification of an individual caravan that may have been wired by

others.

The testing, inspection and certification of electrical installations of such caravans will not be provided by the Office of Energy.

#### a)Where Electrical Installing Work Is Carried Out

An electrical contractor who wires the caravan is required after completion to submit a Notice of Completion, certifying the electrical installing work, to the supply authority (where the caravan is located) and attach a Certificate of Compliance to the caravan. Previously, this certificate was attached after an inspection by a Supply Authority Inspector.

Audit inspections are carried out by the Supply Authority to ensure that the standard of installing work is acceptable.

#### b)Testing and Certification Only

The previous arrangement was that a Supply Authority Inspector tested the caravan, carried out an inspection and, if the installation complied, attached a Certificate of Compliance.

This service may still be provided by the Supply Authorities at their discretion and a fee may be charged. However, from now on it is also acceptable for electrical contractors to test and certify caravans as detailed below.

Electrical contractors may charge a fee for this work and caravan owners can "shop around" until satisfied. The selected electrical contractor will then test and certify the caravan's electrical installation. If the installation complies with AS 3001 then the contractor will complete a certificate and attach it to the caravan. The electrical contractor must then record the relevant caravan and owner's details in a record book kept by the electrical contractor for this purpose.

### 3General Principles

#### **Testing and Certification**

Caravans must be tested and the electrical installation shall comply with the current edition of AS 3001. However, if the caravan was wired prior to the current edition of AS 3001 then it only needs to meet the edition that was in effect at the time of the manufacture and wiring of the caravan.

Upon completion of the testing and confirmation that the installation complies the electrical contractor must complete all details required on the certificate and attach it to the caravan.

Where the installation does not comply a certificate is not to be fitted until further testing and confirmation reveals that the defects have been corrected.

#### **Notice Of Completion**

Where it is necessary to carry out electrical installing work to either a new caravan or to bring an existing caravan installation into compliance with AS 3001 the contractor shall submit a Notice of Completion - Minor Work to the relevant supply authority.

### **Record Book**

All details of the caravan and certificate issued are to be entered into a record book kept for this purpose by the electrical contractor. Details must include date of testing, name and address of owner, model/type of caravan, caravan's registration number, installation details and certificate number.

### **Audit Inspection**

Any caravan subject to a Notice of Completion - Minor Work may be inspected by the supply authority as part of their audit inspection system.

### **Supply of Certificates**

Certificates will be issued to relevant electrical contractors, from the Electrical Inspection Branch staff at the Office of Energy. The certificates will be provided to electrical contractors upon appropriate proof of identity.

Further supplies of certificates will be made available upon request. The electrical contractor will be required to provide a copy of the record book showing details of the certificates previously issued.

It is important that electrical contractors who participate in this system of caravan certification conform fully to these requirements. Failure to do so may result in the contractor being denied further participation in the scheme or other action being taken.

### **Notification of Electrical Installing Work**

The article in Bulletin No.2 (August 1995) relating to the circumstances requiring the submission of Preliminary Notices/Notices of Completion rather than just a Notice of Completion - Minor Work, needs further clarification. The following additional information is provided.

Alterations to the main switchboard involving the addition of a single final sub-circuit eg for air conditioning, lighting, power, pool/reticulation pump, home workshop, etc are classed as minor work.

However, the addition of more than one single final subcircuit, or sub-mains for a significant load increase eg granny flat, or new unit at rear of block (sub-metered), or extensions to commercial premises or converting to a new

installation from a builder's supply, etc are not classed as minor work and will require the submission of a Preliminary Notice and Notice of Completion.

### **Testing Of Electrical Installations, AS/NZS 3017**

A significant new standard on testing of completed installations was issued in January 1996, AS/NZS 3017-1996, *Electrical Installations - Testing Guidelines*. The need for this document has arisen from regulatory requirements that electrical contractors/ workers test their work before certifying it is completed. Also, Clause 1.5 of AS 3000 requires that electrical installations be tested before being placed in service.

The standard describes tests both where the supply is connected and where it is not connected. It is recommended that electrical work be tested before the work is connected to electricity supply.

### **Plug-In Metered Installations**

Western Power has requested electrical contractors who undertake new installations requiring plug-in meters, to indicate on Preliminary Notices and Notices of Completion that plug-in meters will be required.

The indication is to be made in the Comments and Additional Details sections on both notices.

This will assist Western Power to ensure that connection staff carry the appropriate meters to facilitate connection to electricity supply in a timely and efficient manner.

### **Meter Enclosures for Temporary Builder's Supplies**

Western Power has advised that top hinged lid meter enclosures will be accepted as complying with Degree of Protection IP23, when installed to accommodate temporary builder's supplies in permanent meter positions. The lids must be maintained in the semi closed position and flexible leads exiting from the enclosure are to be protected from mechanical damage.

When the builder's supply is no longer required, the enclosure will revert to Degree of Protection IP24, as required by Section 3.3.1.2 of WA Electrical Requirements.

### **Amendment No 1/96 to WA Electrical Requirements**

Heavy duty corrugated conduit complying with AS 2053 may be used as an enclosure for consumers mains and submains.

The current edition of the WA Electrical Requirements manual (issued as SECWA Electrical Requirements, January 1993) is therefore amended as follows; the amendments should be made in the appropriate Sections.

## 1 Overhead Reticulated Distribution

Table 2.3 "Acceptable Underground Consumer's Mains in an Overhead Reticulated Area"

*In the heading "Heavy Duty Rigid Non-Metallic Conduit to AS 2053", delete the word "Rigid".*

## 2 Underground Residential Distribution

Section 2.1.11.1 "Types of Cables and Conduits"

*In paragraphs 1 and 2, delete the word "rigid".*

Holders of a WA Electrical Requirements manual should ensure that this amendment is incorporated into their manual.

### ***1996 Electrical Safety Campaign:***

#### ***"The Hazards of Doing Your Own Electrical Work"***

On 23 March 1996, the Minister for Energy, the Hon Colin J Barnett, launched a multimedia electrical safety campaign "The Hazards of Doing your Own Electrical Work".

The campaign resulted from the Office of Energy's concern at the recent spate of electrocutions, particularly those three unlicensed people electrocuted while carrying out their own "DIY" wiring work.

Persons who are not trained and licensed do not possess the knowledge and skills to be able to carry out electrical work to the required safety standards. This can result in exposing themselves and other people who may use the electrical installation, to the risk of receiving an electric shock.

A symbol depicting that 'electricity kills instantly' (shown in the photographs) is the centre-piece of the campaign. The symbol will carry our electrical safety message into the future, following the six week promotional segment of the campaign.

We at the Office of Energy are pleased with the support the campaign has received from major sectors of the electrical industry. Electricity Supply



Authorities, electrical contractors and suppliers of electrical equipment have assisted by distributing our safety messages to their customers.

The Electrical Contractors Association has been very supportive of the campaign. In addition, the Association has established a telephone Hotline to offer free advice on how to contact a licensed electrical contractor. Members of the public are being invited to call:

***Freecall 1 300 361 645***

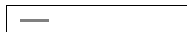
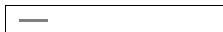
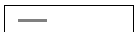
**We seek the continuing support of industry in this important electrical safety initiative.**

***Western Power Electrical Inspectors***

Western Power has provided the following contact details for its electrical inspectors operating within the metropolitan area. For non metropolitan areas, please contact Western Power's nearest district office.

---

Western Australian Government - EnergySafety WA  
All contents © 2001  
Page last modified 10-Apr-2002



[Frequently Asked Questions](#)

[Links](#)

