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NZEC 24:1993

NEW ZEALAND ELECTRICAL CODE OF PRACTICE

for

THE SAFETY OF ELECTRICITY IN A HAZARDOUS AREA

Issued by the Office of
The Chief Electrical Inspector,
Energy and Resources Division, Ministry of Commerce

THE ELECTRICITY ACT 1992
APPROVAL OF ELECTRICAL CODE OF PRACTICE
FOR
THE SAFETY OF ELECTRICITY IN A HAZARDOUS AREA

Pursuant to Section 36 of the Electricity Act 1992 ("the Act")

On the 1st day of February 1993, the Secretary of Commerce issued the Electrical Code of Practice for the Safety of Electricity in a Hazardous Area ("the Code")

On the 4th day of February 1993, pursuant to Section 38 of the Act the Secretary published in the Gazette a notice of intention to apply to me for approval of the code, and there has been consultations with such persons (or their representatives) as will be affected by the Code and they have had the opportunity to consider possible effects and comment on those effects.

I have considered the comments concerning those effects and where necessary amendments were made to the Code.

Therefore Pursuant to Section 38 of the Act, I, John Luxton, Minister of Energy, have this day approved the Code as attached to this approval, which Code shall come into force on the 1st day of April 1993.

Dated this 18th day of March 1993.

John Luxton
Minister of Energy.

COMMITTEE REPRESENTATION

This Code of Practice was prepared by the Ministry of Commerce, Chief Electrical Inspector's Office with reference to the following organisations:

Electrical Contractors' Association of NZ Inc.
Electrical Supply Engineers' Association of NZ Inc.
New Zealand Electrical Institute
Electrical Inspectors' Association
Institution of Professional Engineers of New Zealand

REVIEW

This Code of Practice will be revised as occasions arise. Suggestions for improvement of this Code are welcome. They should be sent to the Chief Electrical Inspector's Office, Ministry of Commerce, P O Box 1473, WELLINGTON.

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INTRODUCTION

This code of practice is intended to provide guidance on acceptable methods for the installation of electrical equipment in hazardous areas.

SECTION 1

SCOPE, APPLICATION, REFERENCED DOCUMENTS, INTERPRETATION, GLOSSARY, AND NUMBERING

1.1 SCOPE

This Code of Practice sets the requirements for the safe application of electricity in locations where flammable gases, vapours, and dusts, but not including locations where explosives or other inherently explosive materials occur.

1.2 APPLICATION

In this Code, particular requirements are given for:

- a) The supply of electricity to fittings and appliances used in hazardous areas.
- b) Fixed wiring installations in hazardous areas.
- c) Electrical fittings and appliances used in hazardous areas.
- d) Maintenance of installations and fittings and appliances associated with hazardous areas.
- e) Inspection and certification of installations associated with hazardous areas.
- f) Periodic reinspection of installations and appliances associated with hazardous areas.
- g) Equipment installed above hazardous areas.

1.3 REFERENCED DOCUMENTS

BS 7361 Cathodic protection (Part 1-1991: Code of Practice for land and marine applications)

AS 2381.1 Electrical equipment for explosive atmospheres - Selection, installation and maintenance (Part 1, General requirements).

1.4 INTERPRETATIONS

For the purposes of this Code, the definitions given below shall apply.

- 1.4.1 Distribution switchboard - means a switchboard which has no link between neutral and earth.
- 1.4.2 Linked busbar switchboard - means a switchboard which has a removable link between earth and neutral for the purpose of returning earth fault currents to the supply neutral.

- 1.4.3 Main switchboard - means in respect of an electrical installation, that switchboard which provides the greatest degree of control of the supply of electricity to that installation.
- 1.4.4 MEN switchboard - means a switchboard which has a connection to an earth electrode via an earthing lead, and a connection between earth and neutral made by a removable link, for the purposes of an MEN system.
- 1.4.5 Prospective touch voltage - means the highest touch voltage liable to appear in the event of a fault of negligible impedance in the electrical installation.
- 1.4.6 Verification dossier - means a set of documents showing the correctness by examination demonstration for the compliance of electrical appliances and fittings.
- 1.4.7 Otherwise the definitions listed in 1.4 of AS 2381.1 shall apply.

1.5 GLOSSARY OF ABBREVIATIONS USED IN THIS CODE

AS	Australian Standard
BS	British Standard
NZS	New Zealand Standard
MEN	Multiple Earthed Neutral

1.6 NUMBERING SYSTEM OF THIS CODE

- 1.6.1 Sections are numbered from 1 to 12
- 1.6.2 Subsections are numbered by one full stop between two numbers. (eg:1.6)
- 1.6.3 Clauses are numbered by two full stops between three numbers. (eg:4.18.3)
- 1.6.4 Subclauses are numbered by three full stops between four numbers. (eg:3.2.1.1)
- 1.6.5 Paragraphs contain numbering punctuated by one or more full stops together with a parenthesised letter.
- 1.6.6 Subparagraphs are represented by lower case roman numerals enclosed in parenthesis following paragraphs.

SECTION 2

DISTRIBUTION AND CONTROL

2.1 MEN SWITCHBOARDS

2.1.1 For the purposes of this Code; MEN switchboards of an electrical installation shall:

- (a) Be supplied with electricity from an electricity supply system, a generator, or another MEN switchboard;
- (b) Have a connection to the earth electrode made to the earth busbar;
- (c) Have a removable link between the earth continuity busbar and the neutral busbar; and
- (d) Not be supplied from either a linked busbar or distribution switchboard.

2.1.2 MEN switchboards may:

- (a) Have an earth continuity conductor linking its earth continuity busbar with the earth continuity busbar of the switchboard from which that MEN switchboard derives a supply of electricity; and
- (b) For the purposes of equipotential bonding, have conductive parts which have an electrical path to earth connected to the earth continuity busbar.

2.2 LINKED BUSBAR SWITCHBOARDS

2.2.1 Linked busbar switchboards of an electrical installation shall:

- (a) Not be supplied from a distribution switchboard;
- (b) Have an earth continuity conductor linking its earth continuity busbar with the earth continuity busbar of the switchboard from which that linked busbar switchboard derives a supply of electricity;
- (c) Have a removable link between the earth continuity busbar and the neutral busbar; and
- (d) Not supply an MEN or distribution switchboard.

2.2.2 Linked busbar switchboards may, for the purposes of equipotential bonding, have conductive parts which have an electrical path to earth, connected to the earth continuity busbar.

2.3 DISTRIBUTION SWITCHBOARDS

2.3.1 Distribution switchboards of an electrical installation shall:

- (a) Not be supplied from a linked busbar switchboard;
- (b) Have an earth continuity conductor linking its earth continuity busbar with the earth continuity busbar of the switchboard from which that distribution switchboard derives a supply of electricity;

- (c) Not be supplied with electricity from more than one switchboard (this does not prevent the total segregation of a single physical switchboard assembly into two separate sections); and
- (d) Not supply a main or linked busbar switchboard; and
- (e) Not have a link between any neutral and earth conductors.

2.3.2 Distribution switchboards may, for the purposes of equipotential bonding, have conductive parts which have an electrical path to earth connected to the earth continuity busbar.

2.4 SWITCHBOARDS INSTALLED PRIOR TO 1 APRIL 1994

2.4.1 Any switchboard installed prior to 1 April 1994 in which the connection to the mass of earth is made onto the supply neutral is deemed to be in conformity with these requirements and is deemed to constitute a MEN Switchboard.

2.5 SUPPLY TO INSTALLATIONS CONTAINING HAZARDOUS AREAS

2.5.1 All installations containing hazardous areas supplied with electricity from an MEN system shall have a MEN Switchboard.

2.5.2 In every installation containing a hazardous area supplied with electricity from an MEN system, the switchboard electrically closest to the point of supply shall be a MEN Switchboard.

2.5.3 Any installation containing a hazardous area supplied with electricity from an MEN system may include any number of Main, Submain or Distribution Switchboards in accordance with the limitations applying to the interconnection of such switchboards.

2.5.4 The characteristics of the protective devices, the earthing arrangements for the installation, and the relevant impedances of any submain feeding a distribution switchboard shall be coordinated so that during an earth fault the simultaneous voltages between accessible exposed conductive parts occurring anywhere in the installation shall be of a magnitude and duration as not to cause danger.

2.5.4.1 This is deemed to be met when the earth fault loop impedance of every circuit of the installation or part of installation is such that disconnection occurs within 0.4 of a second and the prospective touch voltage does not exceed 50 volts.

2.6 SUPPLY TO HAZARDOUS AREAS

- 2.6.1 A Distribution Switchboard may be used in an installation for the supply of electricity to a hazardous area provided that:
- a) The installation contains only one MEN Switchboard; and,
 - b) The installation does not contain any Linked busbar Switchboards.
- 2.6.2 A Distribution Switchboard may be used in a Sub-installation for the supply of electricity to a hazardous area provided that:
- a) The Sub-installation is supplied, within an installation, from an electricity supply to which only one MEN Switchboard is connected; and
 - b) That MEN Switchboard is the Main Switchboard for the sub-installation; and
 - c) The installation does not contain any Linked busbar Switchboards.
- 2.6.3 A Distribution Switchboard may be used in an installation for the supply of electricity to a hazardous area provided that any conductive parts connected to the earth continuity bus bar for the purposes of equipotential bonding do not have an electrical path to earth which is shared with that of any other switchboard within the installation of which that Distribution Switchboard forms a part.
- 2.6.4 Where a distribution switchboard supplies a protected area, only those subcircuits and earth bonding conductors installed for that area shall be connected to that distribution switchboard.
- 2.6.5 An MEN switchboard may be used for the supply of electricity to a hazardous area provided that:
- a) The installation contains only one MEN Switchboard; and,
 - b) The installation does not contain any Linked busbar Switchboards.
- 2.6.6 A Linked busbar switchboard shall not be used for the supply of electricity to any hazardous area.
- 2.6.7 Where unregistered persons have access to switchboards, overcurrent protection shall be by a suitably rated circuit breakers.
- 2.6.8 All earthing continuity conductors shall be of high grade conductivity copper.

SECTION 3

FIXED WIRING INSTALLATIONS IN HAZARDOUS AREAS

3.1 GENERAL

Installations for the supply of electricity to hazardous areas shall be in accordance with the requirements of AS 2381.1, Sections 2 and 3 and the relevant requirements of the particular standards listed in Part 1 of the First Schedule to this Code, as amended in that Schedule.

3.2 CATHODIC PROTECTION SYSTEMS

- 3.2.1 Cathodic protection systems used in conjunction with electrical installations in hazardous areas shall comply with the requirements of BS 7361 Cathodic protection (Part 1-1991: Code of Practice for land and marine applications).

SECTION 4

FITTINGS AND APPLIANCES

4.1 GENERAL

- 4.1.1 All electrical fittings and appliances used in hazardous areas shall comply with one of the Standards listed in Part 3 of the First Schedule to this Code.
- 4.1.2 All electrical fittings and appliances used in a hazardous area shall be certified for compliance with the Standards referred to in the Clause above by a competent certifying authority and shall bear appropriate markings.
- 4.1.2.1 Where any electrical fittings or appliances are certified for compliance with the standards specified in this Section, the organisations from which certification will be prima facie acceptable are those listed in the Third Schedule to this Code.

SECTION 5**INSTALLATION OF FITTINGS AND APPLIANCES****5.1 GENERAL**

The installation of fittings and appliances in hazardous areas shall be in accordance with the requirements of AS 2381.1, Sections 2 and 3 and the relevant requirements of the particular standards listed in Part 1 of the First Schedule to this Code, as amended in that Schedule.

SECTION 6

PROTECTION BY VENTILATION AND ELECTRICAL INTERLOCK

6.1 GENERAL

Installations where ventilation and the supply of electricity is controlled in a manner in accordance with one of the Standards listed in Part 2 of the First Schedule to this Code as amended in that Schedule may be used in a hazardous area.

SECTION 7

EXAMINATION, TESTING AND CERTIFICATION

7.1 GENERAL

The examination, testing and certification of installations for the supply of electricity to hazardous areas, and fittings and appliances used in hazardous areas shall be in accordance with the requirements of AS 2381.1, Section 4 and the relevant requirements of the particular standards listed in Parts 1 and 2 of the First Schedule to this Code, as amended in that Schedule.

7.2 CERTIFICATION

The certifying person shall not certify any installation or fittings for the supply of electricity to hazardous areas that does not meet the requirements of this Section.

7.3 DOCUMENTATION

All documentation associated with the certification of installations for the supply of electricity to hazardous areas, and fittings and appliances used in hazardous areas shall be added to the verification dossier for the installation.

SECTION 8

INSPECTION, TESTING AND CERTIFICATION

8.1 GENERAL

The inspection, testing and certification of installations for the supply of electricity to hazardous areas, and fittings and appliances used in hazardous areas shall:

- a) Verify that the examination, testing and certification in accordance with Section 7 has been carried out;
- b) Verify that the documentation in accordance with Section 7 has been completed.
- c) Verify by an inspection of the labels of fittings and appliances, and by reference to the Zonal drawings that;
 - i) all fittings and appliances are rated correctly for both the voltage and frequency with which they are supplied; and
 - ii) all fittings and appliances are appropriate for the Hazardous Zone in which they are installed; and
 - iii) all fittings and appliances are compliant with one of the Standards listed in Part 3 of the First Schedule to this Code; and
 - iv) all fittings and appliances are certified by one of the organisations listed in the Third Schedule to this Code; and
 - v) all entries to fittings and appliances are appropriately filled; and
 - vi) all fastenings for the securing of covers on fittings and appliances are present.
- d) Verify that all area designation labels and switchboard markings have been installed in accordance with the requirements of this Code.

8.2 QUALIFICATIONS OF PERSONS PERFORMING INSPECTIONS

8.2.1 Any person carrying out inspection, testing and certification for the purposes of this Section shall, after the 1st of April 1994 meet the requirements of Section 4.3 of AS 2381.1.

8.2.2 Training programmes operated in accordance with the New Zealand Qualifications Authority Accreditation are deemed to satisfy the requirements of this Subsection.

8.3 CERTIFICATION

The inspecting person shall not certify any installations or fittings for the supply of electricity to hazardous areas that does not meet the requirements of this Section.

8.4 DOCUMENTATION

Documentation associated with the certification of installations for the supply of electricity to hazardous areas and fittings and appliances used in hazardous areas shall be added to the verification dossier for the installation.

SECTION 9

DOCUMENTATION

9.1 INSTALLATION DOSSIER

An information dossier shall be established for every electrical installation in a hazardous area. All documentation required by this Code and any of the referenced Standards shall be included in this dossier.

SECTION 10**MAINTENANCE****10.1 GENERAL**

- 10.1.1 All installations in hazardous areas shall be maintained in accordance with the requirements of Clauses 5.2 to 5.12 of AS 2381.1 - 1991 and the relevant requirements of the particular standards listed in Parts 1 and 2 of the First Schedule to this Code, as amended in that Schedule.
- 10.1.2 Compression glands where installed in a corrosive atmosphere shall be checked at regular intervals for signs of break down. Where corrosive atmospheres are present, barrier glands shall be fitted.
- 10.1.3 The possibility of stored energy and/or build up of internal pressure occurring in an enclosure shall be taken into consideration before opening an enclosure.

10.2 DOCUMENTATION

- 10.2.1 All documentation associated with the maintenance of fittings and appliances shall be added to the verification dossier for the installation.

SECTION 11

PERIODIC REINSPECTION

11.1 GENERAL

Periodic reinspection of installations and appliances associated with hazardous areas shall be carried out in accordance with the relevant requirements of the particular standards listed in Parts 1 and 2 of the First Schedule to this Code, as amended in that Schedule. In no case shall the period between inspections exceed 4 years.

11.2 CERTIFICATION

11.2.1 Certificates of reinspection of installations associated with hazardous areas shall only be issued by persons holding a registration as an electrical inspector and having a valid practising certificate.

11.2.2 Certificates of reinspection of installations associated with hazardous areas shall be valid for a period of 4 years.

11.2.3 The issuing person shall complete testing and examination in accordance with the requirements of this section. The issuing person may issue a certificate (referred to as a "Certificate of Reinspection") to the client whose installation associated with a hazardous area meets the requirements of Section 6. The certificate issued in accordance with this section shall be in the Form prescribed in Appendix A of this Code.

11.2.4 The person issuing the certificate shall:

- a) Give a copy to the applicant;
- b) Either retain a copy of the certificate for a period not less than 4 years or supply a copy to the Secretary of Commerce.

11.3 DOCUMENTATION

11.3.1 All documentation associated with the periodic inspection of installations in hazardous areas shall be added to the verification dossier for the installation.

SECTION 12

REPAIR AND OVERHAUL

12.1 GENERAL

- 12.1.1 The repair and overhaul of fittings and appliances used in hazardous areas shall be carried out in accordance with the requirements of one of the Standards listed in Part 6 of the First Schedule to this Code.
- 12.1.2 Where any workshop has been assessed for compliance with a standard specified in this Section of this Code, the organisations from which certification of compliance will be prima facie acceptable are those listed in the Second Schedule to this Code.

12.2 DOCUMENTATION

- 12.2.1 All documentation associated with the repair and overhaul of fittings and appliances shall be added to the verification dossier for the installation.

APPENDIX A

CERTIFICATE OF REINSPECTION

(Please print)

IDENTIFICATION OF INSTALLATION :.....

LOCATION OF INSTALLATION :.....

NAME OF INSPECTOR & REG. NUMBER :.....

DATE OF EXAMINATION :.....

I hereby certify that the examination and testing of the above installation has been carried out in accordance with Section 11 of ECP 24, and that the installation meets the requirements for the issue of a certificate of reinspection.

Signed by: (Inspector).

FIRST SCHEDULE**STANDARDS SET AND ENDORSED UNDER THIS CODE****PART 1 INSTALLATION STANDARDS**

AS 2381.1-1991 (including Amendment 1) - Electrical equipment for explosive atmospheres - Selection, installation and maintenance (Part 1, General requirements).

Modification: This Standard shall apply subject to the following amendments:

- a) Deleting in Clause 2.2.2 "AS 2430 series of standards" and substitute with "NZS 6101 series of standards"
- b) Deleting in Table 2.1 all references to Australian Standards
- c) In Clause 2.3.5 adding "or BS 6467" after the word "AS 2236"

AS 2381.7-1989 Electrical equipment for explosive atmospheres - Selection, installation and maintenance (Part 7, Intrinsic safety i).

AS 2381.10-1989 (including Amendment 1) - Electrical equipment for explosive atmospheres - Selection, installation and maintenance (Part 10, Equipment in combustible dust. (Class II) areas).

AS 1076.3-1977 Selection, installation and maintenance of electrical apparatus and associated equipment for use in explosive atmospheres (other than mining applications), (Part 3 - Apparatus with type of protection d - Flameproof enclosure).

AS 1076.6-1977 Selection, installation and maintenance of electrical apparatus and associated equipment for use in explosive atmospheres (other than mining applications), (Part 6 - Apparatus with type of protection e - Increased safety).

AS 1076.7-1977 Selection, installation and maintenance of electrical apparatus and associated equipment for use in explosive atmospheres (other than mining applications), (Part 7 - Apparatus with type of protection n - Non-sparking apparatus).

AS 1076.8-1977 Selection, installation and maintenance of electrical apparatus and associated equipment for use in explosive atmospheres (other than mining applications), (Part 8 - Apparatus with type of protection s - Special protection).

AS 1076.13-1977 Selection, installation and maintenance of electrical apparatus and associated equipment for use in explosive atmospheres (other than mining applications), (Part 13 - Installation and maintenance requirements for instrumentation).

AS 1020-1984 The control of undesirable static electricity.

BS 7430-1991 Code of Practice for earthing.

PART 2 STANDARDS FOR PROTECTION BY VENTILATION AND ELECTRICAL INTERLOCK

AS 1482-1985 Electrical equipment for explosive atmospheres - Protection by ventilation, Type of protection v.

Modification: only the following Parts of this standard shall apply:
Section 1, Ventilation of buildings and rooms - Gas or vapour dilution.

AS 1681-1974 Electrically heated ovens in which flammable volatiles occur Type 1 ovens.

Modification: only the following Parts of this standard shall apply:
Section 4, Ventilation: Appendix B, Methods for calculation of ventilation.

AS 2243.8-1986 Safety in laboratories. Part 8, Fume cupboards.

Modification: only the following Part of this standard shall apply:
Appendix F, Clause F6.

NZS 7203-1987 Safety in laboratories. Part 8, Fume cupboards.

Modification: only the following Part of this standard shall apply:
Appendix C, Clause C3.3.

PART 3 STANDARDS FOR FITTINGS AND APPLIANCES

AS 1021-1980 Protection by purging of electrical equipment for explosive gas atmospheres.

AS 1825-1982 Electrical equipment for explosive atmospheres - pressurised enclosure - Type of protection p.

AS 1826-1983 Electrical equipment for explosive atmospheres - special protection - Type of protection s.

AS 1828-1984 (including Amendment 1) - Electrical equipment for explosive atmospheres. Cable glands.

AS 1915-1992 Electrical equipment for explosive atmospheres - Battery operated vehicles.

AS 2229.1-1982 Electrical equipment for explosive atmospheres - Electrical systems of dispensing equipment.
(Part 1, Flammable liquid dispensing equipment).

AS 2229.2-1988 Electrical equipment for explosive atmospheres - Electrical systems of dispensing equipment.
(Part 2, Liquefied petroleum gas dispensing equipment).

AS 2236-1985 Electrical equipment for explosive atmospheres - Dust excluding ignition proof (DIP) enclosure.

AS 2268-1979 Electrostatic paint and powder spray-guns for explosive atmospheres.

AS 2275-1979 Electrical equipment for explosive atmospheres - Combustible gas detection instruments:

Modification: only the following Parts of this standard shall apply:

- (a) Part 1, General requirements for explosion protection of electrical apparatus and systems; and
- (b) Part 2, Performance requirements.

AS 2380.1-1989 Electrical equipment for explosive atmospheres - Explosion-protection techniques (Part 1, General requirements).

AS 2380.2-1991 (including Amendment 1) - Electrical equipment for explosive atmospheres - Explosion-protection techniques (Part 2, Flameproof enclosed d).

AS 2380.6-1988 Electrical equipment for explosive atmospheres - Explosion-protection techniques (Part 6, Increased safety).

AS 2380.7-1987 Electrical equipment for explosive atmospheres - Explosion-protection techniques (Part 7, Intrinsic safety i).

AS 2380.9-1991 Electrical equipment for explosive atmospheres - Explosion-protection techniques (Part 9, Type of protection n).

AS 2431-1981 Electrical equipment for explosive atmospheres - Encapsulated apparatus - Type of protection m.

AS 2595.1-1992 Electrical equipment for coal mines - Electrical requirements for underground mining machines and accessories. (Part 1: Equipment for use in hazardous areas).

AS 2989-1992 Electrical equipment for coal mines - Specific requirements for high voltage circuit-breakers and disconnecters.

NZS 6109-1988 Electrical systems of dispensing equipment for explosive atmospheres:

Modification: only the following Parts of this standard shall apply:

- (a) Part 1: Flammable liquids dispensing equipment; and
- (b) Part 2: Liquefied petroleum gas dispensing equipment.

BS 4683 - Specification for electrical apparatus for explosive atmospheres.

Modification: only the following parts of this standard shall apply:

Part 1-1971: Classification of maximum surface temperatures.

Part 2-1971: The construction and testing of flameproof enclosures of electrical apparatus.

BS 5501 Electrical apparatus for potentially explosive atmospheres.

Modification:

(A) Only the following Parts of this standard shall apply:

- (a) Part 1-1977 (including Amendments), General requirements.
- (b) Part 2-1977 (including Amendments), Oil immersion 'o'.
- (c) Part 3-1977 (including Amendments), Pressurised apparatus.
- (d) Part 4-1977 (including Amendments), Powder filling 'q'.
- (e) Part 5-1977 (including Amendments), Flameproof enclosure 'd'.
- (f) Part 6-1977 (including Amendments), Increased safety 'e'.
- (g) Part 7-1977 (including Amendments), Intrinsic safety 'i'.
- (h) Part 8-1988 (including Amendments), Encapsulation 'm'.
- (i) Part 9-1982 (including Amendments), Specification for intrinsically safe electrical systems 'i'.

(B) For the purposes of clause 9 of Part 9-1982, the type test on the spark test apparatus shall be carried out by a recognised testing authority, as is provided for in clause 4.1.4 of this Code.

BS 6467 Electrical apparatus with protection by enclosure for use in the presence of combustible dusts.

Modification: only the following parts of this standard shall apply:

(a) Part 1:1985, Specification for apparatus.

EN 50014, Edition 1-1977, (including Amendments 1;July 1979: 2;June 1982: 3;December 1982: 4;December 1982: 5;February 1986) - Electrical apparatus for explosive atmospheres. (Part 1: General requirements).

EN 50015, Edition 1-1977, (including Amendments 1 and 2) - Electrical apparatus for potentially explosive atmospheres. (Part 2: Oil immersion 'o').

EN 50016, Edition 1-1977, (including Amendment 1;March 1990) - Electrical apparatus for potentially explosive atmospheres. (Part 3: Pressurized apparatus 'p').

EN 50017, Edition 1-1977, (including Amendments 1(E);January 1980: 2;March 1990)- Electrical apparatus for potentially explosive atmospheres. (Part 4: Powder filling 'q').

EN 50018, Edition 1-1977, (including Amendments 2 December 1982, Amendment 3 November 1985, Amendment 5 March 1990, Amendment 6 June 1990, Amendment 7 April 1991. Electrical apparatus for potentially explosive atmospheres. (Part 5: Flameproof enclosures 'd').

EN 50019, Edition 1-1977, (including Amendments Amendment 2 July 1981, Amendment 2 (E) July 1982, Amendment 3 December 1985, Amendment 4 October 1989, Amendment 5 August 1990) - Electrical apparatus for potentially explosive atmospheres. (Part 6: Increased safety 'e').

EN 50020, Edition 1-1977, (including Amendments 5;October 1983; 6;April 1984; 7;July 1985; 8;February 1986: 9;February 1986: 10;August 1988: 11;July 1990: 12;March 1990: 13;February 1992: 14;April 1992: 15;April 1992), - Electrical apparatus for potentially explosive atmospheres. (Part 7: Intrinsic safety 'i').

EN 50028, Edition 1-1987, (including Amendment 1;March 1990) - Electrical equipment for potentially explosive atmospheres. (Part 8: Encapsulation 'm').

EN 50039, Edition 1-1980, (including Amendment 1;March 1990) - Electrical apparatus for potentially explosive atmospheres. (Part 9: Specification for intrinsically safe electrical systems 'i').

**PART 4 OTHER STANDARDS RECOGNISED FOR APPLICABILITY TO
HAZARDOUS AREAS**

AS 1896-1976 Electrical equipment for explosive atmospheres - Method of test for ignition temperature of gasses and vapours.

AS 1939-1990 Degrees of protection provided by enclosures for electrical equipment (IP Code).

AS 2420-1987 (including Amendment 1) - Fire test methods for solid insulating materials and non-magnetic enclosures used in electrical equipment.

PART 5 STANDARDS FOR THE DETERMINATION AND CLASSIFICATION OF HAZARDOUS AREAS

NZS 5425 Code of Practice for CNG compressor and refuelling stations:

Modification: only the following Parts of this standard shall apply:

- (a) Part 1:1980 (including Amendment 1), On site storage and location of equipment; and
- (b) Part 2:1982, Compressor equipment.

NZS 6101 Classification of hazardous areas:

Modification: only the following Parts of this standard shall apply:

- (a) Part 1:1988, Flammable gas and vapour atmospheres; and
- (b) Part 2:1990, Combustible dusts.
- (c) Part 3:1991, Classification of hazardous areas (Flammable gas and vapour atmospheres).

**PART 6 STANDARDS FOR THE REPAIR AND OVERHAUL OF FITTINGS
AND APPLIANCES**

NZS 6112-1989 Code of Practice for the repair of electrical apparatus for use in potentially explosive atmospheres.

AS 2290.1-1990 Electrical equipment for coal mines - Maintenance and overhaul (Part 1: Maintenance of electrical equipment for hazardous areas).

AS 2290.2-1989 Electrical equipment for coal mines - Maintenance and overhaul (Part 2: Overhaul of electrical equipment for hazardous areas).

AS 2290.3-1990 Electrical equipment for coal mines - Maintenance and overhaul (Part 3: Maintenance of gas detecting and monitoring equipment).

SECOND SCHEDULE**ORGANISATIONS FROM WHICH WORKSHOP CERTIFICATION WITH THE
STANDARDS LISTED IN SECTION 12 SHALL BE PRIMA FACIE ACCEPTABLE****NEW ZEALAND**

Standards New Zealand
Private Bag
Wellington

AUSTRALIA

Office of Energy
PO Box 536
St. Leonards
NSW 2065

THIRD SCHEDULE

ORGANISATIONS FROM WHICH CERTIFICATION FOR COMPLIANCE WITH THE STANDARDS LISTED IN PART 3 OF THE FIRST SCHEDULE TO THIS CODE SHALL BE PRIMA FACIE ACCEPTABLE

Australia

Standards Australia
Certification of Explosion-Protected Electrical Equipment
PO Box 458
North Sydney
NSW.

Belgium

La Direction de Paturages de l'Institut National des Industries Extractives: (INIEX)
Rue Grande 60
B-7260 Colfontaine
Kingdom of Belgium.

Canada

Canadian Standards Association: (CSA)
178 Rexdale Blvd.
Rexdale
(Toronto) Ontario
Canada M9W 1R3.

Denmark

Danmarks elektriske materielkontrol: (DEMKO)
Lyskaer 8
DK 2730 Herlev
Kingdom of Denmark.

France

Laboratoire Central des Industries Electriques:(L.I.C.E.)
33 avenue du General Leclerc
BP 8
F - 92266 Fontenay-aux-Roses
French Republic.

Centre d'Etudes et Recherches Charbonages de France: (CHERCHAR)
Laboratoire de Verneuil en Halatte
BP No. 2
F - 60550 Creil
French Republic.

Germany

Physikalisch-Technische Bundesanstalt: (PTB).
Bundesallee 100
D - 3300 Braunschweig
Federal Republic of Germany.

Berggewerkschaftliche Versuchsstreke: (BVS)
Beylingstrasse 65
D - 4600 Dortmund (DERNE)
Federal Republic of Germany.

United Kingdom of Great Britain and Northern Ireland

British Approvals Service for Electrical Equipment Flammable Atmospheres: (BASEEFA)
Research and Laboratory Services Division
Health and Safety Executive
Harpur Hill
Buxton
Derbyshire
SK 17 9JN.

Sira Test & Certification Limited
Saighton Lane
Saighton
Chester CH3 6EG
England.

Italy

Centro Elettrotecnico Sperimentale Italiano: (CESI).
Via Rubattino 54
I - 20134
Milano
Italian Republic.

Spain

Laboratorio Oficial, Madarigo, (LOM)
Rios Rosas 21
E - 28003
Madrid
Kingdom of Spain.