



Office of the Chief Electrical Inspector

INDUSTRY PROCEDURE/GUIDELINES

ACCEPTANCE OF ELECTRICAL EQUIPMENT

OTHER THAN

AUS EX OR IEC EX CERTIFIED EQUIPMENT

FOR INSTALLATION IN EXPLOSIVE ATMOSPHERES



This document sets out the procedures/guidelines to be adopted by owners or occupiers of electrical installations which contain electrical equipment in areas where the presence of materials, such as flammable gases or vapours and combustible dusts, fibres or flyings, are generated, prepared, processed, handled, stored or otherwise used, and which are therefore potentially hazardous as specified in Clause 7.9 of AS/NZS 3000:2000.

REFERENCED DOCUMENTS

The following documents are referred to in this document:

AS/NZS 3000:2000	ELECTRICAL INSTALLATIONS (KNOWN AS THE AUSTRALIAN/NEW ZEALAND WIRING RULES)
AS/NZS 2381.1:1999	ELECTRICAL EQUIPMENT FOR EXPLOSIVE ATMOSPHERES – SELECTION, INSTALLATION AND MAINTENANCE – GENERAL REQUIREMENTS
AS 2381.2:1993	ELECTRICAL EQUIPMENT FOR EXPLOSIVE ATMOSPHERES – SELECTION, INSTALLATION AND MAINTENANCE – FLAMEPROOF ENCLOSURE D
AS 2381.6:1993	ELECTRICAL EQUIPMENT FOR EXPLOSIVE ATMOSPHERES – SELECTION, INSTALLATION AND MAINTENANCE – INCREASED SAFETY E
AS 2381.7:1989	ELECTRICAL EQUIPMENT FOR EXPLOSIVE ATMOSPHERES – SELECTION, INSTALLATION AND MAINTENANCE – INTRINSIC SAFETY I
AS/NZS 61241.1.1:1999	ELECTRICAL APPARATUS FOR IN THE PRESENCE OF COMBUSTIBLE DUST – ELECTRICAL APPARATUS PROTECTED BY ENCLOSURES AND SURFACE TEMPERATURE LIMITATION – SPECIFICATION FOR APPARATUS
AS/NZS 61241.1.2:2000	ELECTRICAL APPARATUS FOR IN THE PRESENCE OF COMBUSTIBLE DUST – ELECTRICAL APPARATUS PROTECTED BY ENCLOSURES AND SURFACE TEMPERATURE LIMITATION
AS/NZS 61241.2.1:2000	ELECTRICAL APPARATUS FOR IN THE PRESENCE OF COMBUSTIBLE DUST – TEST METHODS – METHODS FOR DETERMINING THE MINIMUM IGNITION TEMPERATURE OF DUST
AS/NZS 61241.2.2:2000	ELECTRICAL APPARATUS FOR IN THE PRESENCE OF COMBUSTIBLE DUST – TEST METHODS – METHOD FOR DETERMINING THE ELECTRICAL RESISTIVITY OF DUST IN LAYERS
AS/NZS 61241.2.3:2000	ELECTRICAL APPARATUS FOR IN THE PRESENCE OF COMBUSTIBLE DUST – TEST METHODS – METHOD FOR DETERMINING THE MINIMUM IGNITION ENERGY OF DUST/AIR MIXTURES
AS/NZS 61241.3:1999	ELECTRICAL APPARATUS FOR IN THE PRESENCE OF COMBUSTIBLE DUST – CLASSIFICATION OF AREAS WHERE COMBUSTIBLE DUSTS ARE OR MAY BE PRESENT
AS/NZS 61241.4:1999	ELECTRICAL APPARATUS FOR IN THE PRESENCE OF COMBUSTIBLE DUST – PRESENCE OF COMBUSTIBLE DUSTS – TYPE OF PROTECTION (PD)

GENERAL

In Victoria, Regulation 401 of the Electricity Safety (Installations) Regulations 1999, in part, states that;

“A person must not install, alter, repair or maintain an electrical installation or a portion of an electrical installation unless the installation or the installed, altered, repaired or maintained portion of the installation complies with the Australian/New Zealand Wiring Rules as modified ...”.

Compliance with all the provisions of the Australian/New Zealand Wiring Rules (AS/NZS 3000:2000) is required to satisfy the intent of the above Regulation. Clause 7.9.3.2 of these Rules states that electrical equipment selected for use in hazardous areas shall be installed in accordance with the installation requirements of the various parts of the AS 2381 series of Standards.

Proof of compliance of electrical equipment selected for use in hazardous areas, with the applicable explosion-protection technique Standards detailed in Clauses 2.4 and 2.5 of AS/NZS 2381.1:1999, shall be provided by means of a certificate of conformity.

The Office of the Chief Electrical Inspector will accept proof of compliance consistent with Clause 2.6.1 of AS/NZS 2381.1:1999, where a Certificate of Conformity, is either,

- (a) issued in accordance with the Australian National Certification Certificate – ‘AUS Ex’; or,



- (b) carrying IEC Ex certification in accordance with the IEC Ex Scheme rules (Publication IEC Ex 02) and certified to the IEC Standards recognized by such scheme.

In general, electrical installation work installed in a hazardous area is deemed to be prescribed electrical installation work. Section 45(1) of the Electricity Safety Act 1998 requires any person who is responsible for the carrying out of prescribed electrical installation work to ensure that that work is inspected by a licensed electrical inspector in accordance with the regulations.

Please Note: Regulation 406(2) of the Electricity Safety (Installations) (Amendment) Regulations 2001, states that for the purposes of section 45 of the Act, "prescribed electrical installation work" does not include –

- (a) *the repair or maintenance of a single component part of an electrical installation; or*
(b) *the replacement of a single component part of an electrical installation by an equivalent single component part at the same location.*

The licensed electrical installation worker and the licensed electrical inspector should ensure that electrical equipment, covered by a Certificate of Conformity carrying AUS Ex or IEC Ex Certification in accordance with IEC Ex Scheme Rules, is supported by the following:

- all relevant certification documents,
- drawings; and
- test reports.

This information is required to allow for the proper identification of the originally type tested equipment and to allow for repairs to be carried out in compliance with the certification conditions.

Equipment and installations where hazardous areas exist are required to comply with the applicable regulations in Victoria. It should be noted that an electrical installation may also come under the jurisdiction of other regulatory authorities with different areas of responsibility, e.g., occupational health and safety, etc.

The installation and maintenance requirements contained within Australian/New Zealand Standards AS 2381 series and AS/NZS 61241 series are supplementary to, and not alternative to, any regulations, which apply to installations in hazardous areas.

- Electrical equipment selected for use in hazardous areas shall comply with the appropriate requirements as specified in the various parts of the AS 2381 series.
- Electrical equipment shall be installed in accordance with the installation requirements of the various parts of the AS/NZS 2381 series and AS/NZS 61241 series. The installation of electrical equipment shall be carried out in a manner that does not reduce the protection afforded by the electrical equipment design.

Guidance on additional inspection techniques and maintenance and repair methods is given in the various parts of the AS 2381 series.

ALTERNATIVE STANDARD CERTIFICATION (OTHER THAN AUS EX OR IEC EX SCHEMES)

It is understood that specific items of electrical equipment may not have current AUS Ex or IEC Ex certification in accordance with Clause 2.6.1 of AS/NZS 2381.1:1999. However, electrical equipment to be repaired or replaced on a like-for-like basis, which was, installed in accordance with the Electricity Safety (Installations) Regulations 1999 or relevant predecesing Regulations, applicable at that time, may be accepted on the following basis:



- Any electrical equipment installed in a hazardous area that is to be repaired or replaced on a like-for-like basis shall have appropriate certification relevant to all the regulatory requirements that applied at the time of original installation;
- Electrical installation workers repairing or replacing on a like-for-like basis shall verify that the electrical equipment installed in a hazardous area has appropriate certification relevant to all the regulatory requirements that applied at the time of original installation;
- The owner/occupier shall ensure that the relevant Australian Standard to which the electrical equipment was originally installed has not been changed for safety reasons that would affect the equipment being repaired or replaced or the location in which the equipment is to be installed; and
- Complete certification documentation of any electrical equipment, repaired or replaced on a like-for-like basis as above, is available on site as appropriate for audit.

OTHER ACCEPTABLE CERTIFICATION - REFER CLAUSE 2.6.2 OF AS/NZS 2381.1

In Australia, electrical equipment certified to an alternative Standard to those referenced in Clauses 2.4 and 2.5, of AS/NZS 2381.1:1999, but shown to provide an equivalent level of safety, may be accepted by the relevant regulatory authority.

In Victoria, the regulatory authority is;

The Office of the Chief Electrical Inspector (OCEI)

OCEI - ACCEPTANCE OF ELECTRICAL EQUIPMENT CERTIFIED TO AN ALTERNATIVE STANDARD

In general, this Office does not intend to circumvent the certification requirements as indicated in AS/NZS 2381.1:1999. However, the Office, as the relevant Regulatory Authority, reserves the right to accept equipment certified to an alternate non-Australian/New Zealand Standard.

The following process is to be adopted when seeking approval for the use of electrical equipment in Victoria, for use in hazardous areas, certified to an alternative Standard.

The applicant must provide the following information;

1. All relevant technical details of the equipment – *see example below*;
2. Legible copies of certificates of conformity or other equivalent documentation related to the equipment. *Non-English certificates/documentation must be translated into the English language by a certified translator; and*
3. An agreement, in writing on the Company's letterhead, to meet all reasonable costs incurred by the OCEI in determining the suitability of the electrical equipment.

[Refer Flowchart A]



APPLICATIONS SHOULD BE SUBMITTED IN WRITING TO,

The Chief Electrical Inspector
Office of the Chief Electrical Inspector
PO Box 262
COLLINS STREET WEST, VICTORIA, 8007

AND PROVIDED WITH THE FOLLOWING DETAILED INFORMATION;

Installation Details

Example

➤ Owner/occupier's Name	<i>Bay Petroleum Ltd</i>
➤ Site Location Details	<i>Jetty Road, Yarrowonga</i>
➤ Area Classification	<i>Zone 2</i>
➤ Required Equipment Group	<i>IIB</i>
➤ Required Temperature Rating	<i>T3</i>
➤ Method of Protection	<i>Ex d</i>
➤ IP Rating	<i>IP55</i>

Equipment

➤ Type	<i>Level transmitter</i>
➤ Manufacturer Name	<i>ZKK-Temp Corporation</i>
➤ Model Number	<i>FES – 145/34A</i>
➤ Electrical Ratings	<i>240 volt, 0.5-amp, 50 Hz</i>

Certification/Documentation Details

➤ Certification/Technical Body	<i>LCIE (Laboratoire Central Des Industries Electriques)</i>
➤ Certificate Type	<i>Certificate of Compliance</i>
➤ Certificate Number	<i>LCIE 97.D5114 X</i>
➤ Certificate Date	<i>14 May 1997</i>

OCEI approval, in general, will be limited to an individual item of equipment located in a specific area of an owners/occupiers electrical installation.



EMERGENCY PROCEDURES

There may be occasions where existing equipment needs to be replaced in an emergency. Currently Clauses 1.2 & 2.7 of AS/NZS 2381.1:1999 do not distinguish between new or modified electrical equipment for explosive atmospheres.

Situations may occur under emergency conditions, such as, after-hours replacement of equipment critical to plant operation.

The normal application procedure, as above, may not be suitable under emergency conditions. However, as much detail of the affected electrical equipment should be sourced and provided to the OCEI at the time of application.

Urgent verbal application can be made via the OCEI's emergency telephone number.

1 800 000 922

[Refer Flow Chart B]

EXTRA LOW VOLTAGE EQUIPMENT

In Victoria, electrical work performed on electrical equipment operating at extra-low voltage (ELV) does not require the person carrying out that work to be licensed as an electrical worker. However, the person must have the knowledge, skills, training and competencies to carry out the work in accordance with the appropriate Australian Standards.

Any electrical work must always be carried out in accordance with Section 43 of the Electricity Safety Act 1998 (*Safety of Electrical Installations*) and Regulation 401 of the Electricity Safety (Installations) Regulations 1999 (*Wiring Methods – Compliance with Australian/New Zealand Standards*).

Regulation 106 of the Electricity Safety (Installations) Regulations 1999 states;

Prescribed classes of electrical installation work For the purposes of Division 1 of Part 3 of the Act, the installation, alteration, repair or maintenance of an electrical installation ordinarily operated at low voltage or a voltage exceeding low voltage is a prescribed class of electrical installation work.

Extra Low Voltage:	≤ 50 V a.c. ≤ 120 V d.c. (ripple free)	Not exceeding 50 V a.c or 120 V ripple-free d.c.
Low Voltage:	> 50 ≤ 1000 V a.c. > 120 ≤ 1500 V d.c.	Exceeding extra-low voltage, but not exceeding 1000 V a.c. or 1500 V d.c.
High Voltage:	> 1000 V a.c. > 1500 V d.c.	Exceeding low voltage



AUSTRALIAN/NEW ZEALAND STANDARD - AS/NZS 2381.1:1999

For the purpose of these guidelines, the relevant repair and maintenance requirements, in general, are referenced within Australian/New Zealand Standards AS/NZS 2381.1:1999 by the following specific clauses:

- CLAUSE 1.2* Application
 - CLAUSE 1.3* Referenced Documents (Appendix D)
 - CLAUSE 1.6* Documentation
 - CLAUSE 1.7* Qualification of Personnel
 - CLAUSE 2.3* Permitted Equipment
 - CLAUSE 2.6* Verification of Acceptance of Electrical Equipment
 - CLAUSE 2.6.2.1* Other Acceptable Certification for Australia
 - CLAUSE 2.7* Selection of Repaired or Existing equipment
 - FIGURE 2.1* Flow Chart Procedure for the selection of repaired or existing Equipment
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CERTIFYING ORGANISATION

FOR AUSTRALIA - AUS EX SCHEME (AUSTRALIAN NATIONAL CERTIFICATION SCHEME)

STANDARDS AUSTRALIA QUALITY ASSURANCE SERVICES (QAS)
286 SUSSEX STREET
SYDNEY NSW 2000

TEL 02 8206 6962
www.qas.com.au

FOR AUSTRALIA - LISTING OF APPROVED TEST LABORATORIES

TESTSAFE AUSTRALIA (FORMERLY LOSC)
919 LONDONDERRY ROAD
LONDONDERRY NSW 2753

PO Box 592 RICHMOND NSW 2753
TEL 02 4724 4900
www.workcover.nsw.gov.au

THE SAFETY IN MINES TEST AND RESEARCH STATION (SIMTARS)
2 SMITH STREET
REDBANK QLD 4301

PO BOX 467 GOODNA QLD 4300
TEL 07 3810 6333
www.dme.qld.gov.au/simtars/index.htm

INTERNATIONAL TESTING AND CERTIFICATION SERVICES (ITACS)
4-6 SECOND STREET
BOWDEN SA 5007

PO Box 300 HINDMARSH SA 5007
TEL 08 8346 8680
www.ozemail.com.au/~itacs/

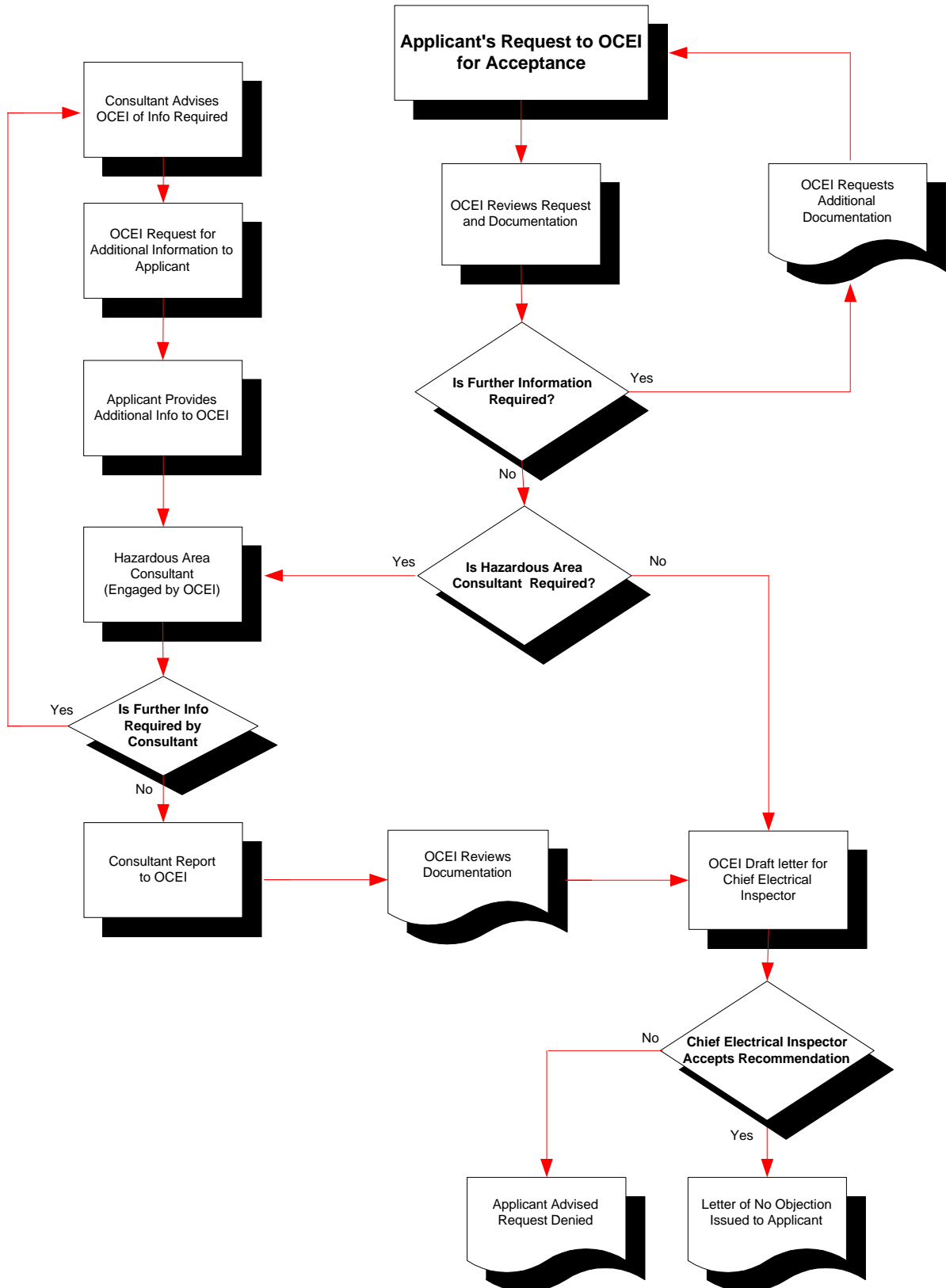


CERTIFYING AUTHORITIES - OTHER THAN AUSTRALIA

COUNTRY	PREFIX	ORGANISATION
AUSTRIA	TUV OSTERREICH	<i>TUV OSTERREICH E.V.</i>
BELGIUM	ISSEP	<i>INSTITUT SCIENTIFIQUE DE SERVICE PUBLIC (ISSEP)</i>
DENMARK	DEMKO	<i>FORMERLY DANMARKS ELECTRISKE MATERIELKONTROL</i>
FINLAND	VTT	<i>VTT</i>
FRANCE	LCIE	<i>LABORATOIRE CENTRAL DES INDUSTRIES ELECTRIQUES (L.C.I.E.)</i>
	INERIS	<i>INSTITUT NATIONAL DE L'ENVIROMENT INDUSTRIEL ET DES RISQUES</i>
GERMANY	PTB	<i>PHYSILAKISH – TECHNISCHE BUNDESANSTALT</i>
	BVS	<i>BERGGEWERKSCHAFTLICHE VERSUCHSSTREKE</i>
ITALY	CESI	<i>CENTRO ELETTROTECNICO SPERIMENTALE ITALIANO</i>
NETHERLANDS	NV KEMA	<i>NV KEMA</i>
NORWAY	NEMKO A/S	<i>NEMKO A/S</i>
SPAIN	LOM	<i>LABORATORIO OFICIAL JOSE MARIA MADARIAGA</i>
SWEDEN	SP	<i>SWEDISH NATIONAL TESTING AND RESEARCH INSTITUTE</i>
UNITED KINGDOM	EECS (FORMERLY BASEEFA)	<i>ELECTRICAL EQUIPMENT CERTIFICATION SERVICES</i>
	SIRA CERTIFICATION SERVICES	<i>SIRA CERTIFICATION SERVICES</i>
	INDUSTRIAL SCIENCE CENTRE	<i>INDUSTRIAL SCIENCE CENTRE</i>
CANADA	CSA	<i>CANADIAN STANDARDS ASSOCIATION</i>
UNITED STATES OF AMERICA	FM	<i>FACTORY MUTUAL RESEARCH CORPORATION</i>
	UL	<i>UNDERWRITERS LABORATORIES INC</i>



Electrical Equipment Acceptance Process by OCEI - Victoria Flow Chart (A)





Essential Electrical Equipment Failure Emergency Response Process Flow Chart (B)

