



Assets Planning and Delivery Group  
Engineering

## **HA-ST-04**

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# **Electrical Equipment in Hazardous Areas (EEHA) Competency Standard**

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VERSION 2  
REVISION 2

NOVEMBER 2022

## FOREWORD

Electrical Equipment in Hazardous Area (EEHA) Standards are prepared to ensure that the Water Corporation’s staff, consultants and contractors are informed as to the Water Corporation’s EEHA standards and recommended practices. EEHA standards are intended to promote uniformity so as to simplify selection, installation and maintenance practices; their ultimate objective is to provide safe and functional plant, at minimum whole of life cost.

The Water Corporation EEHA standards and recommended practices described in this EEHA standard have evolved over a number of years as a result of capital project delivery, plant operation and maintenance experience gained through the selection, installation and maintenance of electrical equipment in our hazardous area facilities.

Deviation, on a particular project, from the EEHA standards and recommended practices maybe permitted in special circumstances but only after consultation with and endorsement by the Senior Principal Electrical Engineer, Mechanical & Electrical Assets, Engineering.

Users are invited to forward submissions for continuous improvement to the Senior Principal Electrical Engineer, Mechanical & Electrical Assets who will consider these for incorporation into future revisions.

### Head of Engineering

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Any interpretation of anything in the Standards/Specifications that deviates from specific Water Corporation Project requirements must be referred to, and resolved by, reference to and for determination by the Water Corporation's project manager and/or designer for that particular Project.

**REVISION STATUS**

The revision status of this standard is shown section by section below:

<b>REVISION STATUS</b>						
<b>SECT.</b>	<b>VER./REV.</b>	<b>DATE</b>	<b>PAGES REVISED</b>	<b>REVISION DESCRIPTION (Section, Clause, Sub-Clause)</b>	<b>RVWD.</b>	<b>APRV.</b>
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All	1/1	30/04/12	All	Updated Formatting	FL	RC
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# HA-ST-04

## Electrical Equipment in Hazardous Areas (EEHA) Competency Standard

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# 1 INTRODUCTION

## 1.1 Scope

This Standard details the training and assessment requirements to ensure that all Electrical personnel, including contractors, working on Water Corporation facilities have sufficient knowledge and skills to design and/or work with electrical equipment for explosive atmospheres. It also covers the training and assessment requirements for personnel classifying hazardous areas, and training requirements for non-electrical management personnel, and operations and maintenance staff who may interact with hazardous areas, or may have hazardous area responsibilities.

These requirements apply to Water Corporation staff, Alliance employees and Contractors.

Requirements for appropriate continuing education or training are also contained in this Standard.

In general, the EEHA (Electrical Equipment in Hazardous Area) competency requirements of this Standard are based upon Australian AS/NZS 4761.

NOTE: Throughout this Standard, the term ‘electrical’ in relation to personnel, includes instrumentation personnel.

## 1.2 Exclusions

Nil.

## 1.3 Training and Assessment

Except where specifically stated otherwise, any competency assessment required by this Standard shall be carried out by, or under the auspices of, a Registered Training Organisation (RTO). Alternatively, a current and relevant IECEx Certificate of Personal Competency with AS/NZS endorsement is deemed to meet the competency requirements of this Standard.

EEHA training can be provided by any training provider deemed suitable by the Technical Integrity Custodian. The provider does not have to be an RTO.

## 1.4 Abbreviations

AQTF	Australian Qualification and Training Framework
EEHA	Electrical Equipment in Hazardous Area
Ex Equipment	Electrical Equipment for Potentially Explosive Atmospheres; also referred to as Explosion-protected Electrical Equipment
RCC	Recognition of Current Competencies
RTO	Registered Training Organisation
TIC	Technical Integrity Custodian

## 1.5 Technical Integrity Custodian

The Technical Integrity Custodian (TIC) for this Standard is the Senior Principal Electrical Engineer, Mechanical & Electrical Asset.

## 1.6 Referenced Documents

The following documents are referenced in this Standard. If a referenced standard has been superseded, the user shall notify the TIC and utilize the latest edition of the standard unless advised otherwise in writing by the TIC.

AS/NZS 60079.14:2022	Explosive atmospheres Part 14: Electrical installations design, selection and erection
AS/NZS 4761.1:2018	Competencies for working with electrical equipment for hazardous areas (EEHA) Part 1: Competency Standards

## 2 GENERAL REQUIREMENTS

### 2.1 Background

AS/NZS 60079.14 clause 4.4 states that only competent persons shall carry out the design, construction, testing, inspection and maintenance of explosion-protected electrical equipment and installations. It further states that competency may be demonstrated in accordance with AS/NZS 4761, or an equivalent training and assessment framework. The Water Corporation requires that all competencies be demonstrated in accordance with AS/NZS 4761, or a current IECEx Certificate of Personal Competency with AS/NZS endorsement, unless specifically stated otherwise in this Standard.

### 2.2 EEHA Training and Competency

The following ‘groups’ of personnel have been identified as requiring specific EEHA training, and in some instances, competency assessment.

- Maintenance Electrical Technicians and in-house or Integrated Alliance Electrical Installation technicians
- Water Corporation (and Integrated Alliance) Electrical Engineers and Designers
- Personnel conducting hazardous area classification, electrical design, electrical installation, testing and inspection on new projects.
- Water Corporation (and Integrated Alliance) Operators and Mechanical trades staff
- Water Corporation (and Integrated Alliance) Managers

Personnel will not be permitted to work on Water Corporation hazardous area installations (including area classification) without the appropriate training (and competency, when stated) with the exception that with TIC written permission, a person will be allowed to work under the supervision of a person holding with the appropriate training and competency. The level of supervision required shall be determined by the TIC after consideration of the person’s current skill/knowledge level and the risk associated with the task.

## 3 SPECIFIC REQUIREMENTS

This section of the Standard details the specific training and competency requirements for the various ‘groups’ of personnel.

### 3.1 Maintenance Electrical Technicians and in-house or Integrated Alliance Electrical Installation Technicians

All Maintenance Electrical Technicians who work on explosion-protected electrical equipment for hazardous areas shall be competent to all the following units of competency:

- Report on the integrity of explosion-protected equipment in hazardous areas
- Attend to breakdowns in hazardous areas
- Install explosion-protected equipment and wiring systems

- Maintain equipment in hazardous areas
- Test installations in hazardous areas

All in-house or Integrated Alliance Electrical Installation technicians who install explosion-protected electrical equipment for hazardous areas shall be competent to the following unit of competency:

- Install explosion-protected equipment and wiring systems

Any Maintenance Electrical Technicians and in-house or Integrated Alliance Electrical Installation Technicians who are conducting Ex inspections shall also be competent to all the following units of competency:

- Conduct visual inspection of existing hazardous area installations
- Conduct detailed inspection of hazardous area installations

Endorsements are required in all gas explosion-protection techniques.

Appropriate continuing education or training shall be undertaken to aide in ensuring that personnel maintain their competency. A formal EEHA Refresher Course shall be undertaken at least every four years. The EEHA Refresher Course shall meet the requirements stated in Appendix A of this Standard.

In addition, all Maintenance Electrical Technicians and in-house or Integrated Alliance Electrical Installation Technicians shall complete the Water Corporation HAMS – Technical Course and “Working in a Flammable Gas Area” Course which focus on Water Corporation specific EEHA and FGA aspects. The Water Corporation HAMS - Technical Course and “Working in a Flammable Gas Area” Course shall meet the requirements stated in Appendices C and D of this Standard.

### **3.2 Water Corporation (and Integrated Alliance) Electrical Engineers and Designers**

All Water Corporation (and Integrated Alliance) Electrical Engineers and Designers who work on explosion-protected electrical equipment for hazardous areas shall have a general knowledge of hazardous area classification, and the requirements related to:

- Equipment Certification
- Equipment Selection
- Equipment Installation and Inspection
- Personnel Competency

Typically, the above knowledge could be obtained via a five-day EEHA training course.

Appropriate continuing education or training shall be undertaken to ensure personnel maintain their knowledge. A formal EEHA Refresher Course shall be undertaken at least every four years. The EEHA Refresher Course shall meet the requirements stated in Appendix A of this Standard.

In addition, they shall complete the Water Corporation HAMS - Technical Course which focuses on Water Corporation specific EEHA aspects. The Water Corporation HAMS - Technical Course shall meet the requirements stated in Appendix C of this Standard.

There is no requirement for competency assessment of Water Corporation (and Integrated Alliance) Electrical Engineers and Designers who work on explosion-protected electrical equipment for hazardous areas. However, their work relating to hazardous area installations shall be checked by a person holding relevant competency regarding electrical installations in hazardous areas, and approved by the TIC.

### **3.3 Project Personnel**

It is a requirement that the Project Personnel who works on Water Corporation facilities with Hazardous Area be familiar with the basic requirements of HA. They shall complete the Water Corporation



Hazardous Area Awareness Course which focuses on Water Corporation general EEHA aspects. The Water Corporation Hazardous Area Awareness Course shall meet the requirements stated in Appendix B of this Standard.

Where work is to be performed under a contract (e.g. new capital works), it is the Contractor's responsibility to prove that all personnel employed by the Contractor have been assessed and deemed competent in the competency standard units and endorsements relevant to the work to be performed (e.g. hazardous area classification, design, inspection, installation, etc.) In addition, the personnel shall have undertaken appropriate continuing education or training to aide in ensuring that personnel have maintained their competency.

Upon written request from the Contractor, the TIC may grant an exemption for Contractor's electrical personnel working only on specific activities (e.g. cable termination), provided that they have formally demonstrated competency related to those activities to the satisfaction of the TIC.

### **3.4 Water Corporation Operators and Mechanical Trades Staff**

All Water Corporation (and Integrated Alliance) Operators and Mechanical Trades Staff who work in facilities with Hazardous Areas shall undertake the Water Corporation Hazardous Area Awareness Course which focuses on their interaction with hazardous areas. The Water Corporation Hazardous Area Awareness Course shall meet the requirements stated in Appendix B of this Standard.

In addition, all Water Corporation (and Integrated Alliance) Operators and Mechanical Trades Staff who work in facilities with Hazardous Areas shall complete the "Working in a Flammable Gas Area" Course which focus on Water Corporation specific FGA aspects. The "Working in a Flammable Gas Area" Course shall meet the requirements stated in Appendix D of this Standard.

### **3.5 Water Corporation (and Integrated Alliance) Managers**

All Water Corporation (and Integrated Alliance) Managers who have a responsibility for facilities with hazardous areas shall undertake the Water Corporation Hazardous Area Awareness Course which focuses on their responsibilities regarding hazardous areas. The Water Corporation Hazardous Area Awareness Course shall meet the requirements stated in Appendix B of this Standard.

## APPENDIX A: EEHA REFRESHER COURSE

The EEHA Refresher Course is for Maintenance Electrical Technicians, in-house or Integrated Alliance Electrical Installation technicians, and Water Corporation (and Integrated Alliance) Electrical Engineers and Designers. The objective is to refresh knowledge, and to inform the students on relevant changes to EEHA practices and standards

It is envisaged that this will be a two-day course.

The course shall be structured so that as a minimum the following is covered:

- Changes to the Standards, Legislation and Water Corporation requirements regarding EEHA.
- Review of the main techniques, and installation requirements.
- Review of the Water Corporation EEHA requirements.
- Common problems that have been occurring with management of EEHA.
- Open forum to cover anything the students want to discuss.

## APPENDIX B: HA AWARENESS COURSE

The Water Corporation Hazardous Area Awareness Course focuses on the Water Corporation (and Integrated Alliance) employees' interaction with the hazardous areas in their facility.

It is envisaged that this will be a half day course.

At the end of the Hazardous Area Awareness Course, the student will be able to:

- State what a hazardous area is.
- State the difference between Zones 0, 1 & 2.
- State where the hazardous areas are located at the main WWTPs.
- State idea of FGA vs zones.
- Identify new FGA signage and PTW system.
- State the requirements for working in Flammable Gas Areas at Water Corporation facilities.
- State the fundamentals being adopted by WC to manage the hazardous area aspects of the biogas systems regarding gas appliances.
- Identify overt non-compliances regarding hazardous area installation.
- State the required actions when non-conformances are identified.
- State the Water Corporation's obligations regarding hazardous area compliance.
- State what a hazardous area dossier is, and what should it contain
- State how projects can affect the hazardous area dossier.
- List the main EEHA problems associated with new projects.
- State dossier overview.
- State the basic elements of the change management process for EEHA

## APPENDIX C: HAMS - TECHNICAL COURSE

The Water Corporation HAMS – Technical Course focuses on Water Corporation specific EEHA aspects. It compliments generic EEHA training that has been received by the students via various means.

It is envisaged that this will be a half day course.

If students have not been EEHA trained recently, this course could be run in conjunction with the EEHA Refresher Course (refer App A).

At the end of the Water Corporation EEHA Course, the student will be able to:

- Identify the location of the HAMS within Water Corporation systems and the main topics covered
- List the contents of the Water Corporation’s dossier.
- State how to locate the HA dossiers on site.
- Explain the procedures to be followed to update the Water Corporation’s dossiers as a result of maintenance activities and project activities.
- List specific Water Corporation requirements regarding hazardous area installations, as detailed in the relevant Water Corporation Standards.

## APPENDIX D: “WORKING IN A FLAMMABLE GAS AREA” COURSE

The “Working in a Flammable Gas Area” Course focuses on the Water Corporation (and Integrated Alliance) OSH requirements working in a hazardous area in their facility.

It is envisaged that this will be a quarter day course.

At the end of the “Working in a Flammable Gas Area” Course, the student will be able to:

- State what a flammable gas area is.
- Identify the issues relating to flammable gas area.
- State the details of the new FGA procedure.
- State the sites where the new FGA procedure applies to.
- State the roles of authorized person and responsible person.
- State the work categories.
- State requirements for vehicle access.
- State requirements for venting gas.

**END OF DOCUMENT**