Guidance on inspection and testing of safety critical equipment on retail filling stations

energy institute

GUIDANCE ON INSPECTION AND TESTING OF SAFETY CRITICAL EQUIPMENT ON RETAIL FILLING STATIONS

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FOREWORD

This publication provides guidance on the appropriate inspection and testing of safety critical equipment at filling stations. The guidance is complementary to both the Energy Institute (EI)/Association for Petroleum and Explosive Administration (APEA) *Design, construction, modification, maintenance and decommissioning of filling stations* (known as The Blue Book) and the Petroleum Enforcement Liason Group (PELG) *Petrol filling stations Guidance on managing the risks of fire and explosion* (The Red Guide). The EI/APEA *Design, construction, modification, maintenance and decommissioning of filling stations* provides guidance to industry and regulators on best practices to be followed for the design, construction, installation and maintenace of equipment providing the safe storage and handling of fuels at retail filling stations. The PELG *Petrol filling stations Guidance on managing the risks of fire* provides guidance to operators on the processes and procedures to be followed to ensure the day to day safe operation of a petrol filling station including the safe use of the installed equipment.

The objective of this publication is to provide a consolidated reference guide for those involved with the storage and dispensing of vehicle fuels at either retail or commercial premises. The guidance provides an indication of levels of inspection and testing needed to provide assurance that equipment and systems, required for the safe storage and handling of fuels, remain in a condition which meets the system design intent, legal requirements and manufacturers recommendations throughout their operating life.

The inspection and testing schedules cover:

- Identification of the safety critical items and equipment.
- The nature of examinations comprising the:
  - type of faults that should be looked for;
  - typical frequency of inspections and who should do them, and
  - follow up actions that may be required.
- The nature of records to be kept.

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1 INTRODUCTION

This publication identifies retail filling station equipment which is critical to safe operation and recommends suitable inspection and testing frequencies. The inspection and testing schedule in 2.7 shows best practice regimes for routine inspection of equipment including standard visual, more detailed visual and functional tests. Specific inspection and testing requirements for electrical equipment may be set by equipment manufacturers and/or the inspecting electrician. Site operators should also take account of any specific maintenance and inspection regimes recommended by the manufacturer or system designers. Records should be maintained by site operators indicating the inspection and testing regimes to be followed, the results of inspections and any follow up actions.

1.1 SCOPE

This guidance supports the type of equipment identified for use in the EI/APEA *Design, construction, modification, maintenance and decommissioning of filling stations*.
Equipment within the scope of this publication includes:

- The retail site fuel system components involved in the following processes:
  - receiving fuel into the tanks;
  - storage of fuel in underground or above-ground storage tanks;
  - distribution of fuel from tanks to dispensers, and
  - dispensing of fuel to customer vehicles.
- Monitoring equipment.
- Retail site drainage and spillage control.
- Retail site water storage systems e.g. car wash/jet wash systems and foul water systems.
- Retail liquefied petroleum gas (LPG) systems including the following processes:
  - receiving LPG into pressure vessels;
  - storage of LPG in underground or above-ground pressure vessels;
  - distribution of LPG from vessels to dispensers, and
  - dispensing of LPG to customer vehicles.
- Principle civil structures on the retail site:
  - canopies;
  - high rise signage, and
  - buildings.
- Electrical equipment covering:
  - main switch panels;
  - electrical distribution systems;
  - earthing and bonding systems, and
  - vehicle charging systems.

1.2 OBJECTIVES

The objectives of inspection and testing are to:

- Protect the safety and health of site operators, site employees and the general public.
- Minimise potential for damage to property.

- Protect the environment.
- Confirm that equipment remains safe to operate.
- Verify that maintenance, repairs, and alterations are correctly executed.
- Comply with relevant occupational health and safety legislation e.g. Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR) (UK only). Further information can also be found in the PELG *Petrol filling stations Guidance on managing the risks of fire and explosion*.

1.3 RESPONSIBILITIES

Site operators are responsible for ensuring that an appropriate inspection and testing regime is in place and is carried out for equipment used in association with the storing and dispensing of fuel. A suitable regime should encompass the following:

- Establish and maintain inspection and testing policies, procedures, and schedules.
- Ensure that inspections and testing is carried out by competent and qualified personnel.
- Access to specialist advice and assistance as necessary.
- Planning and execution of inspection and testing of equipment.
- Maintenance of records to identify due dates for inspection and testing of equipment.

Processes should be put in place to:

- Monitor and advise on current or foreseeable defects in equipment function.
- Respond to alarms and take identified control action.
- Control inspection and testing works on site.
- Retain inspection and testing records.