Guidance on environmental management at filling stations

energy institute

GUIDANCE ON ENVIRONMENTAL MANAGEMENT AT FILLING STATIONS

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A registered charity, the EI serves society with independence, professionalism and a wealth of expertise in all energy matters.

This publication has been produced as a result of work carried out within the Technical Team of the EI, funded by the EI's Technical Partners. The EI's Technical Work Programme provides industry with cost-effective, value-adding knowledge on key current and future issues affecting those operating in the energy sector, both in the UK and internationally.

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FOREWORD

This publication consolidates and updates the information from two former Energy Institute (EI) publications:

– *Guidelines for soil, groundwater and surface water protection and vapour emission control at petrol filling stations*, and

– *Guidance document on risk assessment for the water environment at operational fuel storage and dispensing facilities*.

The intent of this publication is to be a reference guide for individuals charged with environmental protection at filling stations and to direct them to relevant legislation, codes of practice and other publications. It aims to provide guidance on overall management and environmental risks and emissions at filling stations and includes guidance on undertaking an environmental risk assessment (ERA) in line with current United Kingdom (UK) government principles.

It is to be noted that references to Environment Agency (EA) documents are subject to ongoing review.

Whilst written in the context of the UK legislative and regulatory framework, the principles set out in this publication can similarly be applied in other countries providing national and local statutory requirements are complied with. Where the requirements differ, the more stringent should be adopted. A similar legislative and regulatory framework generally applies elsewhere in the European Union.

The information contained in this publication is provided as guidance only and, while every reasonable care has been taken to ensure the accuracy of its contents, the Energy Institute and the representatives listed in the Acknowledgements cannot accept any responsibility for any actions taken, or not taken, on the basis of this information. The EI shall not be liable to any person for any loss or damage that may arise from the use of any of the information contained in any of its publications.

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1 INTRODUCTION

1.1 GENERAL

Good environmental performance over and above legal requirements has for many years been considered best practice. Experience has shown that improved environmental management can bring wider benefits in addition to helping to protect and enhance the environment: reducing energy consumption and waste, making more efficient use of resources and preventing losses of product all lead to direct cost savings, while reviewing operational practices can help create a safer and more efficient organisation.

This publication is aimed principally at owners and operators of petrol filling stations (PFSs) and will also be of use to those involved in the inspection and maintenance of PFSs and to regulators. Operating a PFS involves receiving, storing and dispensing products (e.g. fuels and oils) that have the potential to cause harm to human health or pollute the environment (groundwater, surface waters and local air quality). However, human health and the environment should be protected if the risk associated with these activities are responsibly managed as far as is reasonably practicable taking into account the nature of business and operational needs. In the remainder of this document, the use of the terms 'environment' and 'environmental' implicitly includes 'human health'.

The philosophy presented in this publication is that 'prevention is better than cure'. If an effluent, emission, waste or spill is not generated, it does not have to be cleaned up or controlled. For example, the aim in managing fuels on site should be containment integrity, from the tanker off-loading point, via pipework and storage tanks, to the dispenser nozzle, through site design, construction, maintenance and correct operational procedures. The cost of cleaning up leaks or spills can be high, particularly if groundwater has been impacted. These costs may be in addition to any fines and legal expenses if enforcement action is taken by regulatory authorities, and compensation payments if neighbours are adversely affected.

This publication assists with the development of an Environmental Management System (EMS) as a practicable means to manage the environmental risks associated with the operation of a PFS and improve its environmental performance. The focus of this publication is the routine operation of a PFS rather than construction, demolition, modification or maintenance; these activities are addressed in detail in the EI/Association for Petroleum and Explosives Administration (APEA) publication *Guidance for the Design, Construction, Modification and Maintenance of Filling Stations*, hereafter referred to as the EI/APEA Blue Book.

An EMS is a structured framework based on the Plan-Do-Check-Act (PDCA) continual improvement cycle that helps an organisation to achieve its environmental goals. It comprises an environmental policy, provides a structured means of deciding what should be done to satisfy policy requirements and establishes a framework within which these actions should be undertaken to achieve the intended outcomes. The EMS should be integrated within the organisation's standard management processes to ensure that good environmental management becomes part of normal, everyday operations. It should be recognised, however, that an EMS is just a tool to help improve environmental performance: the key to success is commitment throughout the organisation.

It is not a legal requirement to have an EMS nor, if one is in place, to have it externally audited. Furthermore, the EMS protocols are not intended to increase an organisation's legal responsibilities. Whilst compliance with the requirements of an EMS protocol will not

guarantee that no environmental incidents occur, the committed implementation of an EMS reduces the likelihood of an incident and the severity of any impact. In addition, the ability to demonstrate compliance with an externally-audited EMS protocol may be of benefit to a site operator in the event of an incident.

As part of establishing environmental priorities, this guidance emphasises the use of risk assessment as a key tool in overall site management, enabling environmental risk to be considered along with legal, organisational, reputational and financial factors, and allowing different risk reduction options to be reviewed, with the reduction in risk being assessed in the context of other factors such as practicability, durability and cost.

The greatest environmental risk associated with the operation of filling stations is considered to be the loss of fuels from storage tanks, distribution pipework or through spillage, and the subsequent migration of these liquids into groundwater, surface water or towards neighbouring properties. Although well-maintained equipment and good operating practices can reduce the likelihood of such events, the potential severity of the consequences – in addition to environmental harm, possible legal enforcement action, fines, compensation, investigation and remediation costs – means that prevention of fuel loss should remain the highest environmental priority for site operators.

Accordingly, this publication focuses on assessing and managing the risk associated with a loss of fuel at a site. This is followed by sections on waste and air emissions. Finally, managing known or suspected contamination is addressed in brief; the EI publication *Guidance on managing environment risks associated with land contamination at filling stations* should be referred to for more information.

1.2 LEGISLATION AND OTHER GUIDANCE

Relevant legislation and other guidance are referred to where appropriate and the key aspects highlighted. It is not the intention of this publication to repeat in detail the technical content of other guidance documents or to provide an exhaustive interpretation of applicable legislation, but rather to highlight key aspects which could be beneficial and to direct the reader appropriately.

The Pollution prevention guidance (PPG) series published by the Environment Agency (EA), jointly badged with the Scottish Environment Protection Agency (SEPA) and Northern Ireland Environment Agency (NIEA) was withdrawn in 2015 and is under review by SEPA at the time of publication of this guidance by SEPA. The review is intended to result in a replacement guidance series branded *Guidance for pollution prevention* (GPPs). The aim of the new series is to provide environmental good practice guidance for the whole of the UK, and environmental regulatory guidance directly to Northern Ireland, Scotland and Wales. For business in England, regulatory guidance is available on the GOV.UK website.

A number of GPPs have already been produced in the past few months. NIEA and SEPA are also still referring to the remaining PPGs on their websites with links to the documents. The new GPPs and the PPGs still to be updated are all available on the NetRegs website, http://www.netregs.org.uk.

Natural Resources Wales (NRW) has published its own guidance on how to comply with an environmental permit providing information relevant to all the sectors regulated under the *Environmental Permitting Regulations* together with Regulatory Guidance Notes explaining the definitions and terms for the *Environmental Permitting Regulations*.

Readers should note that the PPGs, although officially withdrawn, are still available in the EA section of the National Archives website and are considered to provide general good practice advice.

Within the UK, health and safety issues associated with the design, construction, modification, maintenance and operation of filling stations are subject to a regulatory regime, guidance for which is provided elsewhere e.g. by the HSE, and is outside the scope of this publication.

1.3 APPLICATION

This guidance has been written so that its sections can be used sequentially. Example checklists are provided in the Annexes to assist the reader with site environmental management and completing an environmental risk assessment (ERA).

The guidance in this publication is set out as follows:

Section 2 introduces the principles and describes the essential elements of an EMS in the context of the operation of a filling station. An essential step in improving environmental performance is the identification of a site's significant environmental impacts and the operations/activities associated with them. This process is completed on the basis of a qualitative ERA.

Section 3 explains the principles of a qualitative ERA and its use in prioritising improvements. The ERA is based on the source-pathway-receptor concept and includes considerations of both the potential severity of any environmental impact and the likelihood that it may occur. In short, for a risk of harm to human health or the environment to exist, all three elements of the source-pathway-receptor linkage must be present: a source of pollution, a receptor that can be affected by it and a pathway connecting the two.

Section 4 considers the potential sources of a loss of product on a filling station and factors influencing the likelihood that such a loss might occur. Guidance is provided on identifying potential receptors and pathways. Factors influencing the movement of product via potential pathways, and hence the likelihood that product would reach a receptor, are described.

Systems for containing and detecting losses of product are discussed in section 5.

Section 6 covers incident response.

Sections 7 and 8 address the management of air emissions and waste respectively. These aspects of filling station operation are subject to specific legislation and form part of legal compliance within an EMS.

Dealing with known or suspected contamination of soil and groundwater is discussed in section 9. This subject is covered further in the EI publication *Guidance on managing environment risks associated with land contamination at filling stations.*

1.4 TERMINOLOGY

The term 'site operator' is used throughout this publication to mean the person or persons legally responsible for the safe operation of the PFS, whether or not the owner of the site.