MANUFACTURE AND STORAGE OF EXPLOSIVES IN NORTHERN IRELAND

THE MANUFACTURE AND STORAGE OF EXPLOSIVES REGULATIONS (NORTHERN IRELAND) 2006 AS AMENDED

APPROVED CODE OF PRACTICE AND GUIDANCE 2019

The Approved Code of Practice and guidance

This Approved Code of Practice (ACOP) and guidance is issued by the Department of Justice. The guidance does not form part of the ACOP; following the guidance is not compulsory, unless specifically stated, and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance.

Acknowledgments

This Approved Code of Practice and Guidance is based on the guidance issued by the Health and Safety Executive in Great Britain to support the Explosives Regulations 2014, whose assistance is gratefully acknowledged.

CONTENTS

Preface

This publication contains the text of the Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006 as amended, at Annex 5, together with an Approved Code of Practice and supporting guidance.

For convenience, the text of the ACOP is set out in bold type and the guidance in normal type.

Introduction What is this publication about?

1. This publication provides guidance on how to comply with the Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006[1] (MSER(NI)) which cover the manufacture, storage and handling of all explosives, including:

(a) blasting explosives;

(b) propellants;

(c) detonators and detonating cord;

(d) fireworks and other pyrotechnic articles;

(e) ammunition; and

(f) other explosive articles such as air bags and seat belt pre-tensioners.

2. The activities covered by MSER(NI) include the manufacture of explosives and intermediate products for on-site mixing and storage.

3. Also covered are handling operations that are not in themselves considered to be "manufacture". These include:

(a) fusing fireworks;

(b) assembling fireworks displays from components; and

(c) filling shotgun cartridges and other cartridges for small arms.

4. The Regulations do not cover the use or off-site transport of explosives.

Who is this publication for?

5. This publication contains material that is relevant to everyone involved in any of the activities described in paragraphs 1-3.

Other legislation

6. There are also other general health and safety regulations which apply to the manufacture, storage and handling of explosives. This document gives additional guidance where there are particular issues which need to be considered, for example selecting work or personal protective equipment.

Note on terminology

7. The following terms are used in this document:

‘communication’ - the process of an ignition, deflagration or detonation progressing to adjacent or nearby explosives;

‘deflagration’ – exothermic chemical decomposition of a material in which the reaction front advances into the unreacted material at less than the speed of sound;

‘detonation’ – a chemical reaction that progresses through an explosive at a rate exceeding the speed of sound in the reaction zone;

‘explosives area’ - any area, which may be outdoors or within a building, where explosives are processed, stored or disposed of;

‘explosives building’ - any building in which explosives are processed, stored or disposed of;

‘explosives site’ - the whole area covered by the establishment. This is likely to be the same as the area covered by the explosives licence;

‘Hazard type’ - means any of hazard type 1 explosive, hazard type 2 explosive, hazard type 3 explosive or hazard type 4 explosive;

‘initiation’ – the act of causing an explosive material to ignite, burn, deflagrate, detonate or otherwise explode;

‘ISO container’ – the term ISO container is used to avoid confusion with the general usage of ‘container’ (meaning a receptacle). Unless the context indicates otherwise, this term includes other similar metal storage units;

‘propagation’ – the process of burning, deflagration, detonation or other explosive effect progressing through the mass of material in a container or stack;

‘pyrotechnic’ – the term pyrotechnic applies to fireworks plus other items such as flares, smoke signals and flash cartridges. The term ‘firework’ is only used in this document where a requirement applies only to fireworks and not to pyrotechnic articles;

‘reasonably practicable’ – to carry out a duty ‘as far as reasonably practicable’ means that the degree of risk in a particular activity or environment can be balanced against the time, trouble, cost and physical difficulty of taking measures to avoid the risk. If these are so disproportionate to the risk that it would be quite unreasonable for the people concerned to have to incur them to prevent it, they are not obliged to do so. The greater the risk, the more likely it is that it is reasonable to go to very substantial expense, trouble and invention to reduce it. However, if the consequences and the extent of a risk were small, insistence on great expense would not be considered reasonable. It is important to remember that the size or financial position of the employer are not taken into account;

‘relevant [or appropriate] standard’ - a code of practice or other standard linked to legislation (CEN, BS EN, ANSI, BS, IEC, ISO) or a published and commonly known industry-produced standard of performance, providing specific standards relevant to an explosives operation, activity or facility; and

‘storage area’ - any area where explosives are stored either on a short- or long-term basis.

(INTRODUCTION TO THE REGULATIONS)

Regulation 1 Citation and commencement

These Regulations are called the Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006; they came into operation on 1st December 2006 and were amended in 2009.

Regulation 2 Interpretation

Regulation 2 of MSER covers the interpretation and scope of the regulations; paragraphs 8-17 give further information on some of the terms used.

Guidance

Ammonium nitrate and other emulsions

8. Regulation 2(2) extends the scope of the Regulations so that the preparation and storage of ammonium nitrate blasting intermediates are treated as if they were the manufacture or storage of an explosive and, therefore, the safety and licensing requirements apply. It is important to stress that regulation 2(2) only extends the application of the Regulations on the manufacture and storage of explosives and has no bearing on the application of the regulations on the carriage of explosives or the Control of Major Accident Hazards Regulations (Northern Ireland) 2000, as amended[2].

Explosive substance

9. The definition of explosive substance contains two important qualifications:

(a) the definition of explosive substance excludes gases and mixtures of gases; and

(b) the explosion effect must be created by a reaction in the substance or preparation itself (or, in the case of a pyrotechnic effect, by a self-sustaining reaction). This does not therefore include a secondary reaction which involves substances or preparations which were not part of the original explosive substance.

Hazard Type

10. The quantity of explosive which may be kept without the need to hold a licence or to register depends on the Hazard Type. Definitions of the hazard types are given in regulation 2 but are repeated here for ease of reference, together with (in **bold**) additional explanatory information:

(a) **Hazard Type 1:** an explosive which, as a result of, or as a result of any effect of, the conditions of its storage or process of manufacture, has a mass explosion hazard (**a mass explosion is one in which the entire body of explosives explodes as one**);

(b) **Hazard Type 2:** an explosive which, as a result of, or as a result of any effect of, the conditions of its storage or process

2

Guidance

of manufacture, has a serious projectile hazard but does not have a mass explosion hazard;

(c) **Hazard Type 3:** an explosive which, as a result of, or as a result of any effect of, the conditions of its storage or process of manufacture, has a fire hazard and either a minor blast hazard or a minor projectile hazard, or both, but does not have a mass explosion hazard (**i.e. those explosives which give rise to considerable radiant heat or which burn to produce a minor blast or projectile hazard**); and

(d) **Hazard Type 4:** an explosive which, as a result of, or as a result of any effect of, the conditions of its storage or process of manufacture, has a fire or slight explosion hazard, or both, with only local effect (**i.e. those explosives which present only a low hazard in the event of ignition or initiation, where no significant blast or projectile of fragments of appreciable size or range is expected**).

In broad terms the hazard types parallel the UN hazard divisions used for classification for transport purposes. However, classification refers to the explosives as packaged for transport. If explosives are kept other than in their classified packages, it cannot be assumed that the hazard they present remains the same. Further guidance on Hazard Type, including information on determining the hazard type, is given in Annex 1.

Manufacture

11. The definition specifies certain activities that are regarded as manufacture. However, manufacture is not limited to these activities but would include any activity where the process undertaken changes the nature of the substance or article. This includes processes where explosive substances are reprocessed or adapted, or explosive articles are unmade or disassembled.

12. Ancillary activities such as the packing of fireworks or explosive articles into boxes or the marking of explosive articles do not fall within the definition of manufacture. Where these activities alone are undertaken, there is no requirement to hold a licence. However, such activities fall within the scope of the Regulations as a whole and of the safety requirements set out in regulations 4 to 8.

Net mass

13. The terms ‘net explosive content’ and ‘net explosive quantity’ are commonly used in the industry to refer to the weight of the explosive contained within an article (i.e. less packaging, casings etc.). Although these terms are commonly understood to refer to mass there is scope for differing interpretations of ‘content’ and ‘quantity’ in that these could be taken to refer to volume. The term ‘net mass’ is used for the sole reason of avoiding any possibility of confusion or misinterpretation.

2

Guidance

14. For fireworks the net mass should be assumed to be one quarter of the gross weight of the fireworks unless the manufacturer has provided more specific information.

Person

15. The term 'person' is used in a number of regulations and has the legal meaning, which may be an individual or certain types of organisation.

Singular and plural

16. Throughout the Regulations the singular includes the plural.

Site

17. A 'site' is defined as 'the whole area under the control of the same person'. See paragraphs 460-470 for more detailed guidance on the application of the Regulations to sites that are shared between a parent company and its subsidiaries (or between subsidiaries).

2

Regulation 3 Application

Scope of the Regulations

Guidance

Explosives for personal and recreational use

18. These Regulations apply to the manufacture and storage of explosives whether this is for work or non-work purposes. They would, therefore, apply to anyone storing explosives for personal recreational use or to voluntary clubs and societies storing explosives (examples include storage for firework displays or re-enactment events).

Transport

19. These Regulations do not apply to explosives that are being transported whether by road, rail, air or water provided that the explosives are not kept in one place for longer than 24 hours. However, they do apply to the transport of explosives on-site. This includes movements on public roads between different buildings on the same site.

20. The carriage regulations on vehicle placarding and transport documentation do not apply to the movement of explosives where the vehicle is exempt from excise duty (for example, some fork-lift trucks which may travel for short distances on public roads when moving between different parts of the site) or if the vehicle is being used for deliveries between private premises in the immediate vicinity (for example, movements of explosives between manufacturing and storage buildings or between storage buildings).

3

Guidance

Application offshore

21. The Regulations apply to certain activities in the territorial waters adjacent to Northern Ireland (for example, coastal construction activities which extend into the territorial sea and the construction, operation and demolition of wind farms). They do not apply to ships at sea or ships moored within harbour areas. The Regulations do not apply to offshore installations as defined by regulation 3 of the Offshore Installations and Pipeline Works (Management and Administration) Regulations 1995[3] (see MSER(NI) regulation 3(1)).

Ministry of Defence sites

22. Regulation 3(4) disapplies the separation distance requirements under regulation 5 and the licensing requirements of regulations 9 to 20 from sites under the permanent or temporary control of the Ministry of Defence (MOD) operating under a licensing scheme established by the Secretary of State for Defence. This applies irrespective of the ownership of the site itself or the status of the personnel. MOD and HM forces are subject to the other duties on safe manufacture and storage.

23. MOD sites are subject to inspection by the Secretary of State for Defence and, if it should be necessary, compliance with duties may be secured by enforcement action. The licensing scheme established by the Secretary of State for Defence is a mechanism for the MOD to ensure that it is compliant with the relevant requirements of the Regulations. The operation of the licensing system by the MOD will be subject to scrutiny by the Secretary of State for Defence.

24. The MOD will use different tables for determining separation distance requirements around its explosives buildings. These tables reflect the wider range of explosives and explosive articles used by the armed forces, together with a greater variety of storage facilities. These tables are designed to ensure an equivalent level of off-site safety to the tables in Schedule 1 to these Regulations and will be subject to scrutiny by the Secretary of State for Defence.

25. The MOD's own regulations set out the measures that MOD personnel are required to take to ensure that MOD fulfils its duties under these Regulations. However, the specific legal status of this ACOP applies and, if necessary, the MOD would need to demonstrate that the measures set out in its regulations ensured a level of safety that was at least as good as that required by the ACOP.

Explosives in use

26. These Regulations do not apply to explosives that are in use. Storage includes all possession, keeping or holding other than when the explosives are actually undergoing manufacture or are in use.

3

Guidance

Normally all unused explosives must be returned to a suitable store at the end of each day. However, there may be circumstances such as a complex demolition or blasting operation, or fireworks display when explosives charges are left overnight in the shothole or attached to the structure to be demolished. The operator or blasting contractor would have to make appropriate arrangements for the supervision of the explosives to ensure their safety. They would also have to take appropriate measures to ensure that such charges are properly safeguarded to prevent unauthorised access.

27. While the operations are continuing, these explosives would be regarded as being in use. However, were the operations to cease or be suspended for any length of time, the explosives could be regarded as no longer in use and, therefore, subject to these Regulations. In the event of a prosecution, the Court would then need to decide, as a matter of fact, whether in the specific circumstances the explosives were, or were not, in use.

Importation of pyrotechnics

28. The provisions of the Explosives Regulations 2014[4], (regulation 3(3)) concerning the importation of pyrotechnics into the United Kingdom extend to Northern Ireland.

3

Safety requirements

Risk assessment, management, training and information

Overview

The Management of Health and Safety at Work Regulations (Northern Ireland) 2000[5] (MHSWR(NI)) require the risks from a work activity to be assessed and appropriate measures taken to control them. Further requirements to carry out an assessment in relation to risks arising from dangerous substances are contained in the Dangerous Substances and Explosive Atmospheres Regulations (Northern Ireland) 2003[6] (DSEAR(NI)). The following sections provide Approved Code of Practice and guidance to MHSWR(NI) and DSEAR(NI) to help those with responsibilities to undertake a risk assessment. This includes material aimed at those engaged in specific activities such as selling fireworks and other pyrotechnic articles, storing explosives, operating firework displays and manufacturing explosives. Further sections cover management arrangements, employee consultation, employee responsibilities, training and competence, information on safety precautions and actions, and workplace rules.

The material in paragraphs 43-53 is Approved Code of Practice to DSEAR(NI). Regulation 5 of those Regulations requires a risk assessment to be carried out to identify whether dangerous substances are present and the risks they present. DSEAR(NI) apply to all hazards arising from both the manufacture and storage of explosives and from the other dangerous substances present on site (including, for example, substances not being used or those in storage waiting to be used).

The following section explains the general principles involved in undertaking a risk assessment. It then goes on to cover issues that will need to be considered by those involved in:

- selling fireworks and other pyrotechnic articles in shops;
- storing fireworks and other pyrotechnic articles other than in shops;
- storing explosives other than fireworks and other pyrotechnic articles;
- operating firework displays; and
- manufacturing.

Guidance

Risk assessment

General principles

29. Regulation 3 of MHSWR(NI) requires all employers and self-employed people to assess the risks to workers and other persons who may be affected by their work or business, to enable them to identify the measures they need to take to comply with health and safety law.

30. Regulation 5 of DSEAR(NI) requires a risk assessment to be carried out to identify whether dangerous substances are present and the risks they present. DSEAR(NI) apply to all hazards arising from both the manufacture and storage of explosives and from the other dangerous substances present on site (including, for example, substances not being used or those in storage waiting to be used).

31. The risk assessment must be undertaken before any new work activity involving dangerous substances begins.

32. The risk assessment has five steps:

(a) identify the hazards;

(b) decide who might be harmed and how;

(c) decide what safety measures are needed;

(d) record the significant findings of the assessment; and

(e) review the assessment.

33. It is important to consult and involve safety representatives and employees in the process of drawing up the risk assessment (see also paragraphs 59-61).

Identifying the hazards

34. The major hazards to be considered are fire and explosion. However, in certain circumstances there will be secondary hazards, such as the release of toxic substances, to be considered. Risks to health will also need to be addressed in meeting the requirements of other regulations (for example, the Control of Substances Hazardous

Guidance

to Health Regulations (Northern Ireland) 2003, as amended[7] and the Manual Handling Operations Regulations (Northern Ireland) 1992[8]).

Who might be harmed?

35. This will include members of staff but, depending on the circumstances, the risk assessment will need to consider hazards to:

(a) the public – either on-site or off-site;

(b) workers at other neighbouring premises; and

(c) visitors and contractors working on-site.

What needs to be done?

36. Determining what safety measures are necessary will involve considering:

(a) sources of ignition – how could a fire start? What could start an explosion?

(b) how might it spread or get worse?

(c) how would it affect people? This needs consideration of not only the immediate effects but also the impact on people's ability to escape.

Recording the results of the risk assessment

37. Where there are five or more employees, the employer must record the significant findings of the risk assessment and the measures that have been, or will be taken, to control the risks identified.

38. In this context "employee" means someone who works under a contract of employment. The contract may be express or implied, and if express may be oral or in writing. Although the issue has not been tested before the courts, it is recommended that newsagents consider paperboys and girls as employees.

39. Although employers with fewer than five employees are exempt from the recording requirements, it is recommended that they record the significant findings in order to help them in considering the safety measures that they need to take.

40. It must be stressed that the record need not be complicated or extensive. Its purpose is to act as a checklist to ensure that necessary safety measures are taken.

Provision of information about the risk assessment

41. The main findings of the risk assessment should be made available to workers and/or their representatives. The way in which this information is provided will depend on the nature and degree of risk found by the assessment. This may vary from oral communication to individual instruction and training, supported by information in writing.

Implementing the conclusions of the risk assessment

The ACOP and guidance to regulation 4 provide information on the measures that will need to be considered and put into operation. These should be seen as three consecutive steps, i.e.:

- reducing the hazard;
- controlling the risks; and
- where the risk of an accident cannot be eliminated, putting protective and mitigating measures in place.

Guidance

Review and revision

42. Regulation 3(3) of MHSWR(NI)[5] requires that the assessment must be reviewed from time to time to make sure that the precautions are still effective. Those Regulations also require a review of the assessment where there is any significant change, for example, new machines, substances or procedures, which could create new risks. The risk assessment must be rechecked when processes or products are restarted after a long gap, for example circumstances may have changed and present staff may not be familiar with the product or process.

The following sections give further guidance on risk assessment aimed at specific activities. There are four subsections:

- storage of fireworks and other pyrotechnic articles;
- storage of high explosives;
- firework fusing; and
- manufacture.

ACOP

Storage of fireworks or other pyrotechnic articles

43. When storing fireworks or other pyrotechnic articles, the primary hazard that needs to be considered is fire or accidental ignition. Shops such as DIY superstores would also need to consider the additional hazard presented by flammable materials (for example, white spirit) present on the premises and the potential for a firework fire to spread to flammable materials.

Further information on safety measures with particular relevance to fireworks and other pyrotechnic articles is given in paragraphs 263-315.

Storing high explosives

This section is primarily intended for those who are storing high explosives. However, it will also be relevant to those holding the more energetic types of firework.

ACOP

44. A person storing high explosives (explosives with a mass explosion hazard, for example, blasting explosives, black powder and the more energetic types of firework) needs to consider a broader range of issues. Depending on the type of explosive, potentially any application of energy might initiate an explosion. Sources of initiation to consider include:

(a) naked lights/flames;

(b) electricity (including static electricity, lightning strikes and electromagnetic energy);

(c) heat, temperature and pressure;

(d) sparks from mechanical or frictional contact between metal surfaces;

(e) impact and friction; and

(f) chemical incompatibility between certain substances.

45. Other issues which need to be considered, depending on the characteristics of the explosive concerned, include risks from:

(a) contamination of the explosive with grit etc.;

(b) contact with water;

(c) contact with chemically incompatible substances (including, for example, bare rusted metal); and

(d) reduction of chemical and thermal stability over the life of the explosive.

Further guidance on sources of initiation is given in paragraphs 88-151 and on safety measures in paragraphs 316-321.

ACOP

Firework fusing

46. Firework display operators need to consider the possibility that an explosion might be initiated accidentally during work on fusing or putting together a display. Particular issues to consider include:

(a) initiation by nipping the fuse due to metal-to-metal contact during cutting; and

(b) initiation by friction when inserting fuses or fuseheads into sensitive exposed composition.

Further guidance on safety measures for fusing operations is given in paragraphs 368-371.

ACOP

Manufacturers

47. Manufacturers of explosives have the greatest number of issues to consider because of the range of tasks and situations they might encounter. In carrying out the risk assessment for manufacturing activities, the employer needs to consider risks arising from activities such as:

(a) the manufacturing activity itself;

(b) transport and movement of explosives and other hazardous substances around the site;

(c) disposal of explosives and decontamination of explosive-contaminated equipment;

(d) ancillary activities such as cleaning, testing and quality control;

(e) storage, including movements in and out of storage; and

(f) maintenance.

48. Where contractors are employed, the risk assessment will also need to consider whether there are additional risks from the activities in which they are engaged. The risk assessment will also need to consider whether there are other factors (for example, unfamiliarity with the site) to take into account. The following points need to be considered in assessing the potential for fire or explosion:

(a) any intrinsic properties of the explosive that can affect the risk of an explosion, for example, critical diameter or critical bed depth;

(b) the sensitivity of the explosives under ambient and process conditions to various stimuli, i.e. heat, flame, impact, friction, shock or electricity. For operations involving the processing of explosive substances and compositions, knowledge of their sensitivity to these stimuli is essential in order to identify the control measures which are necessary, for example, the level of protection against static electricity required; and

(c) any factors that might affect the sensitivity of the explosive under both normal and abnormal operating conditions for example, through contamination, degradation or chemical reaction or the loss of a desensitising agent.

49. It should be emphasised that the risk assessment should not simply address the risk factors that might arise in normal operation. It also needs to consider conditions under which the hazard might change and address risk factors which might arise during reasonably foreseeable circumstances. These include:

(a) spread of fires from neighbouring properties and buildings;

(b) operator error or other inadvertent deviations from laid-down operating procedures;

ACOP

(c) equipment malfunction, including failure of a cooling system leading to loss of control of an exothermic reaction;

(d) contamination of supplied ingredients or ingredients not being as specified including the introduction of foreign material;

(e) loss of containment;

(f) effects of interruptions/breaks (whether planned or unplanned);

(g) service failures (such as loss of power supplies or water); and

(h) maintenance.

50. It is important to remember that the behaviour of an explosive or substance in bulk or in production conditions may differ from the intended effect or the behaviour in laboratory conditions. For example, explosives which might normally simply deflagrate could, under confinement, produce a mass explosion.

51. In addition to considering the issues associated with fire and explosion hazards, the employer needs to consider any hazards arising from other substances or combinations of substances which are either used in the manufacturing process or which may be present at the site. These include:

(a) harmful effects to persons which might arise from the release of the substance;

(b) the potential that the release of the substance might lead to an explosion (for example, the release of diesel which if ignited might in turn cause a bulk store of ammonium nitrate to explode); and

(c) the potential for the consequences of an explosion to be aggravated by the release of other hazardous substances.

52. For more complex operations involving chemical processing or for operations controlled by programmable logic control, appropriate tools such as Hazard and Operability Studies (HAZOPS) and Failure Mode and Effects Analysis (FMEA) are recommended to assist in identifying potential areas where loss of control could result in an accidental fire or explosion. Consequence analysis and event tree analysis techniques may be useful in some situations.

Higher-risk operations

53. The risk assessment will also need to identify whether there are any operations that present higher risks, for example:

(a) maintenance work involving 'hot work' in explosives buildings or on explosives equipment (see paragraphs 168-169);

(b) pumping operations (paragraphs 133-139 and 181-184); and

(c) work involving handling particularly sensitive explosive compositions.

Management arrangements

Overview

Paragraphs 54-84 cover management arrangements for health and safety. They provide information about the following issues that will need to be covered in the arrangements:

- employee consultation on health and safety;
- employee responsibilities;
- training and competence;
- provision of information on safety precautions and actions; and
- workplace rules on safety policy and procedures.

This section is relevant to anyone manufacturing or storing explosives. However, it must be emphasised that the complexity of the management arrangements will depend on the complexity of the operation. A small company that is storing a small quantity of explosives will need much simpler management arrangements than a large manufacturer.

Guidance

Introduction

54. Regulation 5 of MHSWR(NI)[5] requires employers to have arrangements in place to manage health and safety. Effective management of health and safety will depend on, among other things, a risk assessment being carried out and the findings being used effectively.

55. It is important that management arrangements are drawn up to ensure that appropriate arrangements for health and safety in the workplace are in place and that roles and responsibilities are specified and understood.

56. The arrangements need to be integrated into the management system for all other aspects of activities carried out at the site.

General guidance on health and safety management is given in HSE guidance *Managing for health and safety*[9]

Guidance

57. The management arrangements should clearly specify the arrangements and responsibilities (where relevant) for:

(a) carrying out and periodically reviewing the risk assessment;

(b) assessing and reviewing the training needs for staff and contractors, and making arrangements for any necessary training;

(c) the design, layout and construction of the establishment and initiating any changes to it;

(d) the selection and specification of work equipment, including personal protective equipment, plant and materials;

Guidance

(e) planning, prioritisation and carrying out of maintenance work, together with inspection and testing of alarm and fire-fighting systems, and the keeping of appropriate records;

(f) the operation of formal systems of work, including permits-to-work on certain activities, and arrangements for the control of access to danger areas;

(g) providing information to employees and contractors;

(h) ensuring co-ordination and co-operation with contractors;

(i) control and supervision of contractors' staff;

(j) ensuring co-ordination and co-operation with all users of the site whether tenants or different operating arms of the same company;

(k) emergency planning;

(l) the reporting and investigation of accidents and 'near misses', and any necessary follow-up action; and

(m) ensuring compliance (where appropriate) with licence or registration conditions.

58. A manager or member of staff may undertake more than one of these roles. Equally on larger sites there may be more than one member of staff with responsibility for a particular area of work.

Employee consultation

59. It is essential that the workforce is actively involved, either directly or through their representatives, in the development and maintenance of workplace health and safety.

60. Proper consultation with the workforce is crucial in helping to raise awareness of the importance of health and safety and can make a significant contribution to creating and maintaining a safe and healthy working environment and an effective health and safety culture. In turn, this can benefit the business by reducing accidents and incidents of work-related ill health.

61. Employers are required by law to consult their employees on health and safety matters. The Safety Representatives and Safety Committees Regulations (Northern Ireland) 1979[10] provide for safety representatives to be appointed by trade unions that are recognised in the workplace. Safety representatives appointed under those Regulations by recognised trade unions must be consulted by employers. Employees who are not covered by such representatives must, under the Health and Safety (Consultation with Employees) Regulations (Northern Ireland) 1996[11], be consulted either directly or indirectly through elected representatives.

Employee responsibilities

62. Although MSER(NI) place no specific duties on employees, Article 8 of the Health and Safety at Work (Northern Ireland) Order 1978[12] (HSWO) requires all employees to take reasonable care of

Guidance

their own health and safety and of the health and safety of others who may be affected by what they do at work. Article 8 also places a duty on employees to co-operate with their employer to comply with statutory duties for health and safety.

63. Regulation 14 of MHSWR(NI)[5] is also relevant as this places specific duties on employees to:

(a) use all machinery, equipment, dangerous substances or other equipment provided by their employer correctly, in accordance with any training and safety instructions they have received; and

(b) inform their employer (or anyone appointed by them to assist with health and safety) without delay of any work situation which might present a serious and imminent danger. Employees should also notify any shortcomings in the health and safety arrangements, even when no immediate danger exists, so that, if needed, remedial action may be taken.

The duties placed on employees under MHSWR(NI) do not reduce the responsibility of the employer to comply with duties under those Regulations and other relevant statutory provisions.

Training and competence

Overview

In the following section paragraphs 64-71 are Approved Code of Practice to regulation 13 of MHSWR(NI), which require employers to ensure that employees are provided with adequate health and safety training.

ACOP

64. It is essential that all staff have the necessary training and competence for the work they undertake. This covers not only the skills necessary to undertake their work under normal conditions but also an appropriate understanding of the hazards and risks which may arise and the action to be taken in abnormal or emergency situations.

65. The training that employees require, and the training arrangements, will depend on the nature of the activity and the type of explosive. For example, employees in shops or other premises involved in the storage of fireworks will need to know and understand:

(a) the safety measures to be taken to prevent fire;

(b) the importance of keeping flammable or combustible materials away from the fireworks; and

(c) the action to be taken in the event of a fire.

66. Employees involved in the storage of other explosives will similarly need to know and understand the safety measures to be taken to prevent initiation, for example, excluding sources of radio frequency or electrostatic energy. They will also need to understand

ACOP

the importance of good housekeeping to exclude possible contaminants.

67. It will also be necessary to consider the training and competence requirements of contractors. For example, contractors involved in installing electrical fittings and other equipment will need to be aware of the particular requirements for explosives buildings or be under the supervision of someone who is familiar with these requirements. Contractors will also need to know what action to take in the event of an emergency.

68. The training and competence requirements for workers in explosives manufacture are potentially the most extensive. All workers (employees and contractors) need to:

(a) understand the nature of the risks and hazards that may arise out of the processes in which they are involved. For example, if the particular explosive concerned is sensitive to friction and impact then employees involved must understand the precautions to be taken in its handling;

(b) be competent in the use of the work equipment they need and, where necessary, in the selection of appropriate equipment for particular tasks;

(c) understand when personal protective equipment is required and be competent in its use;

(d) know what abnormal and hazardous conditions may arise, what warning signs to look for and what action to take in the event of a warning sign being detected;

(e) know what hygiene and housekeeping procedures need to be followed;

(f) know what workplace rules apply; and

(g) know what action to take in the event of an emergency.

69. In certain areas, workers are likely to require more extensive competence and/or training, for example, workers with responsibility for:

(a) management and supervision;

(b) the design and specification of products and processes;

(c) the selection and/or specification of work equipment and the preparation and specification of maintenance schedules;

(d) risk assessment and the design and specification of safety measures including the selection of personal protective equipment;

(e) quality control of materials; and

(f) maintenance and installation of work equipment and plant.

70. In certain circumstances, such as where there is a need for particular specialist expertise or where there is a discrete task to

ACOP

perform, it may be necessary to use external contractors. When employing contractors, the employer must confirm that the staff concerned have received the necessary training and have the necessary competence.

71. There must be appropriate mechanisms for assessing and identifying training and competence needs and for taking follow-up action where training needs are identified. The extent and formality of these systems depend on factors such as the size of the organisation, rate of turnover etc. A mechanism will be needed for review at periodic intervals and when there have been significant changes such as:

(a) changes in the process, including the manufacture of new articles;

(b) the introduction of new work equipment;

(c) the use of new substances; and

(d) changes in staff.

Information on safety precautions and actions

72. Staff, contractors and anyone else working on (or visiting) the site must be provided with appropriate information on safety, including, where relevant, information on:

(a) workplace rules including, for example, rules on the carrying/use of mobile phones and other radio-communications devices;

(b) limits on the quantity of explosives and numbers of people permitted in explosives buildings;

(c) types of tools and equipment permitted for use in explosives buildings and explosives areas;

(d) incompatible materials, substances etc. that must be kept away from explosives or explosive substances;

(e) the location of controlled areas;

(f) the use of personal protective equipment;

(g) procedures to be followed in the event of an emergency; and

(h) other health and safety systems as relevant (in particular the use of permit-to-work or other systems where maintenance work is to be carried out).

73. It is important to remember that signs or notices are not necessarily the only way to communicate safety information and should not be seen as a substitute for the provision of appropriate training, instruction and supervision.

Workplace rules

74. At manufacturing and larger storage sites, the most important safety policies and procedures should be set out in workplace rules and every employee should receive a copy. The

ACOP

content of the rules will depend on the risk assessment at the workplace, local conditions etc. Examples of some of the areas that they should cover are given in the following paragraphs.

75. Smoking and smoking materials must be prohibited in explosives areas. The possession of matches and other sources of ignition must also be prohibited unless expressly authorised (for example, under a permit-to-work system). The rules must be clear about where such prohibitions apply and about where, if at all, smoking is permitted in non-explosives areas.

76. The workplace rules must prohibit:

(a) the introduction of alcohol or any illegal drug into any explosives building or explosives area;

(b) working while under the influence of alcohol or any drug which might impair concentration; and

(c) admitting any person who appears to be intoxicated into any explosives building or explosives area.

77. As a guide in setting limits for their workplace, employers may wish to wish to note that, under section 93 of the Railways and Transport Safety Act 2003[13] a person is considered unfit for duty if the following limits are exceeded:

(a) 9mg of alcohol in 100ml of breath;

(b) 20mg of alcohol in 100ml of blood; and

(c) 27mg of alcohol in 100ml of urine.

78. Where appropriate, the workplace rules will also need to require workers and contractors to co-operate with any reasonable request to search for articles which might provide a source of ignition (for example, matches, lighters, mobile phones, pagers) or a source of contamination.

79. Employees should be required to report if they are prescribed any medicine that might affect their ability to drive or operate machinery etc.

80. Where the risk assessment finds it necessary, the workplace rules must clearly specify the areas of the establishment where the use and carrying of mobile phones, pagers and other radio-communications devices are prohibited. Similarly, where the risk assessment finds it necessary, the rules must specify where the use of such equipment is prohibited except when expressly authorised.

81. The workplace rules must set out any restrictions on other articles or substances which may not be taken into explosives areas (for example, jewellery, food and drink).

82. Where appropriate, the rules will also need to cover the importance of not putting on or removing items of clothing in the presence of explosive substances or articles.

ACOP

83. If there are areas on the site where entry is controlled, the rules will need to state where these are.

84. The rules may also need to cover where eating and drinking are permitted and any hygiene precautions to be taken by workers who may come into contact with toxic substances.

SAFETY REQUIREMENTS

This section has four parts. The first three parts follow the structure of regulation 4(1):

- Part 1 gives guidance on preventing fire or explosion. This includes guidance on design and construction, selection of work equipment and safe working practices;
- Part 2 discusses measures to limit the extent of fire or explosion; and
- Part 3 gives guidance on protecting people in the event of fire or explosion, including emergency arrangements.

These parts cover general principles that are relevant to anyone involved in the manufacture and storage of explosives.

Part 4 gives specific guidance for those involved in:

- storage and display of fireworks and other pyrotechnic articles in retail premises (paragraphs 263-315);
- storage of other explosives (paragraphs 316-318);
- storage of ammonium nitrate, ANFO and ammonium nitrate emulsions (paragraphs 322-353);
- mixing of emulsion explosives and ANFO (paragraphs 356-367); and
- fusing of fireworks (paragraphs 368-371).

Regulation 4 Fire and explosion measures

Overview

Regulation 4 requires that anyone manufacturing or storing explosives takes appropriate measures to prevent fire and explosion. The safety measures will depend on the nature of the operations and the explosive but will involve controlling sources of energy that could initiate an explosion ('sources of initiation'). It also requires measures to limit the extent of fire or explosion. This involves limiting the numbers of people who might be affected if there were a fire or an explosion and limiting the quantity of explosives involved. Finally, the regulation requires measures to protect people in the event of an explosion, for example, ensuring that people can quickly escape in the event of a fire or making provision to protect them from the effects of a blast.

It should be emphasised that the measures required are not necessarily complex. To take the example of a store holding a small quantity of Hazard Type 4 pyrotechnic articles, the main measure to prevent an explosion would be to exclude naked flames and heaters. The main measures to limit the extent of fire or explosion would be to keep the articles away from stocks of flammable substances.

Part 1: Preventing fires and explosions (regulation 4(1)(a))

The following paragraphs are relevant to anyone with duties under these Regulations.

ACOP

4

85. The principal issue to be addressed is preventing the accidental initiation of explosives. This involves keeping sources of ignition (such as open flames) away from the explosives. It also involves controlling the presence of explosives (including explosive vapours and dusts), especially in areas of activity, for example, places where work is done or where people or other traffic move around regularly.

86. The sources of ignition which need to be considered will depend on the conclusion of the risk assessment. In all cases employers will need to take precautions to exclude naked lights/flames. In other cases, depending on the results of the risk assessment, it will be necessary to consider:

(a) electricity (including static electricity, lightning strikes and electromagnetic energy) (see paragraphs 88-116);

(b) sparks from mechanical or frictional contact between metal surfaces (see paragraphs 117-122);

(c) heat and temperature (see paragraphs 123-132);

(d) pressure (see paragraphs 133-139);

(e) impact and friction (see paragraphs 140-142); and

(f) chemical incompatibility between certain substances (see paragraphs 143-151).

Common precautions

The following section is primarily relevant to manufacturers, anyone storing high explosives and firework display operators. It opens with an overview of the safety measures to be taken while storing these items and then goes on to give specific guidance on particular sources of initiation (for example, electrical energy) and the measures to be taken to prevent an explosion.

ACOP

4

87. The precautions that need to be taken will depend on the results of the risk assessment but will include some or all of the following:

(a) excluding naked flames etc.;

ACOP

(b) excluding sources of electrical energy which could produce sparks or otherwise initiate the explosives;

(c) preventing accidental initiation from frictional or impact energy;

(d) preventing accidental contact between exposed metal surfaces;

(e) preventing accidental contact between explosives and exposed hot surfaces;

(f) preventing contact between explosives and chemically incompatible substances;

(g) preventing contamination of explosives and ingredients (including contamination by water);

(h) minimising the time that explosives are in an unstable intermediate state before final processing;

(i) avoiding the uncontrolled build-up of waste explosives and, where it creates a hazard, ensuring complete removal before maintenance operations; and

(j) preventing the build-up of flammable gases, vapours and explosive dusts through the provision of adequate ventilation including, where necessary, extraction systems.

4

Electrical, electrostatic and electromagnetic energy

Paragraphs 88-116 cover the particular hazards posed by electrical, electrostatic and electromagnetic energy (including lightning). They are relevant to anyone manufacturing or storing explosives but are particularly relevant where explosive substances or articles that are sensitive to electrical initiation, such as electric detonators or fuseheads, are manufactured or stored.

ACOP

General

88. The presence of electrical energy (including electrostatic or electromagnetic energy) brings with it a risk of a spark initiating an explosion or of setting off an igniter or fuse head. The presence of electrical energy in and around explosives buildings must be kept to the minimum necessary.

89. Overhead power lines and telephone wires must not cross over, or terminate on, an explosives building nor should underground cables pass under it. Overhead lines leading to the building must terminate away from it with the final connection made underground fitted with appropriate surge protection. Where new cables are laid they will need to incorporate appropriate protection against mechanical damage.

4

90. Conductors, generating plant, or high-voltage transformers and switchgear must be located at a suitable distance away from

ACOP

explosives buildings. It is inadvisable to site switchgear and distribution boards inside a room containing explosives.

91. Electrical equipment should generally be sited outside areas where explosive substances are present; only equipment essential for production purposes should be sited in buildings where flammable gases and vapours or explosive dusts may be present. In this case the equipment must be designed and constructed to prevent it becoming a source of ignition. Further information is available in the relevant standard publications.

92. Socket outlets must not be fitted in buildings where flammable gases or vapours may be present. Sockets may be used, when absolutely necessary, in places where explosive dust alone could be present. In this case, they will need to meet the requirements of the relevant standard and the appropriate IP rating. The advice of a competent specialist should be sought before fitting any socket outlets.

Portable electrical equipment

93. A risk assessment must be carried out before any portable electrical equipment is used in a process building. The risk assessment must consider the presence of explosive atmospheres and the potential for electrical spark from the motor during use. It must also consider other risks during use (for example, frictional heating) and the maintenance of suitable separation from explosives.

94. Unless relevant technical advice has been obtained, mains-operated portable equipment must not be used where:

(a) explosive gases or vapours may be present; or

(b) explosives are exposed which may give rise to explosive dust.

95. Battery-operated equipment should only be used in places where explosives do not give rise to flammable vapour or explosive dust. Further information is given in the relevant standard publications.

96. The use of either mains- or battery-powered electrical equipment in an explosives building may be permitted once the building has been cleared of all explosives or, where the building is divided into rooms which can be isolated from one another, where the room has been cleared of all explosives and isolated from the rest of the building. In other cases, if it is not feasible to clear the whole building, a risk assessment will need to be carried out and suitable arrangements must be made to isolate the area where the work is being carried out. The equipment must be suitable for the environment, including, where appropriate, the means to prevent dust entering the equipment. Electrical equipment should never be left unattended when connected to the supply.

4

97. Electrical test equipment for use with explosive articles must not be capable of arming or firing the devices. The necessary

ACOP

4

information, such as the limiting voltage and current, will need to be obtained from the equipment supplier or manufacturer to allow an analysis to be carried out which demonstrates the risk to be as low as reasonably practicable. In the small number of cases where adequate assurance may not be available, assessment testing under strictly controlled conditions may be appropriate. Where analysis does not provide the necessary assurance of safety, personnel must be excluded from processes and provided with suitable protection.

Lightning protection

This section is relevant to anyone storing explosives.

ACOP

4

98. Suitable lightning protection must be installed in explosives stores except where the store:

(a) is temporary (for example, for no more than a few weeks on a seasonal basis), holding Hazard Type 4 pyrotechnic articles;

(b) is licensed/registered to keep less than 75 kg of Hazard Type 4 explosives;

(c) is licensed/registered to store less than 25kg of Hazard Type 3 explosives;

(d) contains only Hazard Type 4 small arms ammunition;

(e) is made by excavation; or

(f) is exempted under the conditions of the licence.

Hazard Type 4 pyrotechnic articles include items such as Category F2 fireworks, flares, smoke signals, cable cutters, explosive rivets, toy caps, party poppers and cracker snaps in bulk for Christmas crackers. While not strictly pyrotechnic articles, some other Hazard Type 4 explosives, such as small arms ammunition and nailgun cartridges, may be treated in a similar way when kept in shops and other premises.

ACOP

4

99. For process buildings, the need for lightning protection must be considered as part of the risk assessment. The assessment might consider how much warning can be given of an impending thunderstorm and whether the explosives could be transferred to a suitable store with lightning protection before the storm arrives. If it is not feasible to remove the explosives from the process building, the assessment will need to consider the probability of initiation of the explosives and the consequences in deciding whether lightning protection is required.

ACOP

100. Bearing in mind the exceptions in paragraph 98, steel ISO or similar containers used for the storage of explosives can be regarded as self-protecting provided that:

(a) the walls are lined with wood or the explosives are kept at least 150mm away from the container's interior walls;

(b) the panels and doors are electrically bonded with straps of at least 50 mm^2;

(c) two earthing points connected to earth rods are provided at opposite corners; and

(d) resistance from the top of the container to earth is less than 10 ohms.

101. Lightning protection will need to be based on the requirements set out in the relevant standard. The method of protection will depend on the nature of the area to be protected and include the use of a suspended air termination network at an adequate height above the area to be protected and/or any vertical conductors. All metallic reinforcement, crane and railway rails which enter explosives buildings must be bonded to the nearest point of the lightning protection system. All lightning protection systems must be inspected and tested by a competent person. Inspections and tests should be conducted at least every eleven months at intervals that ensure the system is tested during every season of the year.

102. All main structural metalwork in and on the explosives building (including the lightning and antistatic protection systems) needs to be connected to a common system of earthing and equipotential bonding. It is essential that metallic enclosures of electrical switchgear, motors, starters and other electrical appliances are suitably earthed. Metallic cable sheaths or armouring, metal projections through walls (pipes, rails etc.) need to be suitably bonded to the lightning protection system. Provision will need to be made to allow access to the earth electrodes for testing purposes.

103. Steel-framed structures with metallic cladding may be regarded as self-protecting provided the individual earth resistance of each stanchion, in a stand-alone condition, does not exceed ten ohms. The metallic cladding must be bonded to the structure by suitable metal fixings and electrically bonded with straps of the same cross-sectional area as the main down conductor, and at least 50 mm^2. Where these conditions cannot be met, a ring conductor, bonded to each stanchion and with earth electrodes at each end of the structure, will need to be provided.

4

Electromagnetic energy

Electromagnetic energy emitted from radio transmitters and other devices such as mobile phones, bleepers, pagers, transmitters and electrical cables can be collected by pipework or other metal structures acting as aerials. The energy can be released when the 'aerial system' is broken. Certain explosives are also sensitive to electrostatic discharges. The guidance in this section is particularly relevant where explosives sensitive to this type of energy, such as electro-explosive devices (EEDs), are manufactured, stored or handled.

ACOP

4

104. It is strongly recommended that, where reasonably practicable, suitable fixed communication systems should be provided in order to eliminate the use of portable communications devices. Where the use of such equipment is unavoidable, the risks posed by the transmission characteristics will need to be assessed. It is essential to maintain a margin of at least 12 decibels (dB) below the 'no fire hazard' threshold of the most sensitive device present. As part of the pre-planning for emergencies, the police, the fire and rescue service and other emergency services will need to be informed if explosives sensitive to electromagnetic energy are, or may be, present so that they may make a similar assessment of their radio communications equipment.

Further information on the assessment of risks from radio-frequency radiation and the relevant standards is contained on the HSE GB website.

Electrostatic energy

Paragraphs 105-116 are particularly relevant to anyone storing or manufacturing electro-sensitive substances and articles.

Overview

Electrostatic charges are commonly generated by contact electrification when two dissimilar materials are brought together then separated. Other mechanisms which generate separated charge include charging by induction and charge transfer. Separated electrostatic charges quickly combine either directly or via the earth unless they are prevented from doing so. The main ways in which separated charges are retained are:

- on a conductor insulated from other conductors and from earth by a non-conductor; and
- on a non-conductor by virtue of the resistance of the material itself.

The spark discharge of accumulated electrostatic charges can initiate fire or explosion. The electrostatic energy sufficient to cause ignition varies with the type of explosive and its physical state. In

general, primary explosives are much more sensitive than propellants or high explosives, while pyrotechnics exhibit a wide range of sensitivity. The guidance must be followed in all cases where the explosive is sensitive to electrostatic energy – the level of the precautions will depend on the explosive.

ACOP

105. It is essential to limit the electrostatic charge on people handling electro-sensitive explosive substances and articles. Accumulation of charge is dependent on a number of variables but can be controlled by the use of conductive/antistatic shoes and floors and the correct humidity. An antistatic regime is required when materials with ignition energies of 1 millijoule (mJ) and above are present. A conductive regime is required where materials with ignition energies of less than 1 mJ are present.

106. The extent of the precautions that are required depends upon the sensitiveness of the explosives. There are three broad degrees of precaution, usually referred to as:

(a) first degree - avoidance of exposed, isolated conductors and earthing of all large conducting objects (such as fixed plant and equipment);

(b) intermediate - first degree plus antistatic measures to reduce accumulation and retention of electrostatic charge; and

(c) second degree - first degree plus conducting measures to prevent accumulation and retention of electrostatic charge.

107. First degree precautions are appropriate for comparatively insensitive explosives (those with a minimum spark energy for ignition greater than 450 mJ).

108. Intermediate precautions are required for sensitive explosives (those with a minimum ignition energy greater than 1 mJ but less than 450 mJ). In addition to first degree precautions, specific measures include:

(a) use of antistatic materials and effective earthing for all equipment, work benches, chairs, boxes or other containers and other movable or portable items;

(b) strict control of high-resistivity materials such as plastics, rubber and glass. Where it is necessary to use these materials they should not have a surface area greater than 75 cm^2;

(c) provision of conductive floors in accordance with the relevant standard, with a resistance from surface to earth of between 50 kilo ohm (kohms) and 2 mega ohm (mohms);

(d) provision of antistatic footwear in accordance with the relevant resistance requirements in accordance with the relevant standard;

(e) maintaining the relative humidity of the atmosphere at 65% or above. It may be acceptable to reduce this if a risk assessment, carried out on a case-by-case basis, shows that

4

ACOP

electrostatic charges cannot be acquired but, in any event, a relative humidity of 40% is the absolute minimum that must be maintained;

(f) provision of suitable external work clothing which is not liable to generate electrostatic charge. It is preferable that the clothes are made of fire-resistant cotton rather than man-made fibres. Clothing must not be put on or removed in the presence of any explosive substances or articles; and

(g) if the use of wrist or ankle straps are specified as part of the required antistatic precautions then they should be of a quick release type and comply with an appropriate standard and the end-to-end resistance including the strap, cabling and termination contact should be between 900 kohms and 35 mohms. Connections for straps should be dedicated for each working area and should be readily accessible.

109. Second degree precautions are required when dealing with very sensitive explosives (those with a minimum spark energy up to and including 1 mJ). In addition to first degree precautions, specific measures include:

(a) use of conducting materials and effective earthing for all equipment, work benches, chairs, boxes or other containers and other movable or portable items;

(b) avoidance of high-resistivity materials such as plastics, rubber and glass;

(c) provision of conductive floors in accordance with the relevant standard, with a resistance from surface to earth of less than 50 kohms;

(d) provision of conducting footwear in accordance with the relevant resistance requirements;

(e) installation of personal resistance monitors at every entrance. When handling compositions having ignition energies of less than 100 Micro Joules, the use of personal resistance monitors at individual workstations is recommended; and

(f) maintaining the relative humidity of the atmosphere at 65% or above.

110. In addition to wearing suitable external work clothing (as described in paragraph 108) people working with very sensitive explosives will also need to ensure that clothing worn underneath external clothing is not liable to generate electrostatic charge.

111. It is advisable not to wear gloves. Where other hazards are present and avoidance of skin contact is advised (for example, when handling toxic substances) the need to wear gloves should be decided on the balance of risk. Where gloves are worn, care must be taken to ensure they comply with the general provisions of this paragraph and do not compromise the electrostatic protection

4

ACOP

system in place (for example, in some situations electrically conducting surgical gloves have been used whereas in other situations non-conducting gloves have been used).

112. Where people are required to wear conducting footwear and low-resistivity clothing, they should be given training in the care of such clothing in accordance with the manufacturers' recommendations. Where resistance monitors are used, clear operating instructions should be provided.

Checking and maintenance of antistatic and conducting precautions

113. An assessment will need to be made on how frequently conducting and antistatic precautions are to be checked to ensure they remain effective, for example, straps should be inspected daily whereas other parts of the system may only require weekly or monthly checking. Suppliers' or manufacturers' instructions on maintenance should be followed.

114. Wherever antistatic or conducting precautions are being taken, it is essential that personnel working in the areas are protected from electric shock. Wherever possible, electrical systems should be protected by Residual Current Detectors (RCDs) which comply with the appropriate standard and any fixed or portable electrical equipment should be double insulated.

115. It is essential to follow manufacturers' advice on the cleaning and polishing of antistatic or conducting floors as incorrect techniques can adversely affect the conducting properties of the floors. As the use of such flooring increases the risk of electrocution, additional care should be exercised with maintenance and other work on electrical equipment.

4

116. Similar considerations need to be taken into account in the use and maintenance of worktops etc.

Mechanical sparks

Paragraphs 117-122 are particularly relevant where explosive fillings are exposed and where explosives are being processed but they are also relevant to the storage of explosive substances.

ACOP

117. Appropriate steps must be taken to minimise the risk from metal-to-metal contact that could create the potential for mechanical impact and friction and, as a consequence, sparks or localised heating.

118. Where it is reasonably practicable, metal surfaces should be replaced with, or covered by, a durable and chemically compatible non-metallic material. When selecting the material, consideration needs to be given to the electrostatic precautions required for the application.

4

ACOP

119. It is not always practicable to cover the metal surfaces in process equipment (for example, inside reactors, mixers, extrusion presses). In these situations, the design and maintenance of the equipment must ensure that either:

(a) adequate clearances are achieved between moving and static parts of the equipment; or

(b) durable and chemically compatible, non-ferrous metals or non-metallic materials are used at the interface between moving and static parts of the equipment.

120. Where clearances are relied upon to prevent ferrous-metal-to-ferrous-metal contact, adequate measures are required to prevent the accidental introduction of ferrous metal objects into the process equipment. Such measures include locking of nuts and bolts and screening explosive materials for metallic objects. Methods for doing this include the visual checking and sieving of the raw materials or the use of induction loop or x-ray equipment.

121. Non-sparking hand tools must be used for the mechanical manipulation of explosives, for example, cutting plastic igniter cord with scissors. Non-sparking materials include bronze as well as some steel alloys. It is also preferable to use non-sparking tools in operations where there are exposed explosives or where equipment has not been decontaminated such as in-process adjustments, maintenance operations or when dismantling plant. Ferrous tools should only be used after a suitable risk assessment and precautions taken to avoid metal-to-metal contact, for example, the use of a steel blade to cut plastic igniter cord on a wooden (rather than a metal) surface.

4

122. Angle grinders and similar equipment must not be used in explosives buildings unless the buildings have been cleaned of all explosive. Such operations should be carried out under a permit-to-work or similar system (see paragraph 165 for more information about permit-to-work systems).

The following sections cover heat and temperature, pressure, impact and friction. An important general principle in preventing accidental ignition from these sources is to keep the level of energy input to the lowest practical levels.

Heat and temperature

Paragraphs 123-132 are particularly relevant where heating (or cooling) is used in explosives processing but guidance is also given on heating explosives buildings.

ACOP

4

123. Appropriate measures must be taken to ensure that explosives which are sensitive to heat do not come into unintentional contact with hot surfaces or exposure to direct sunlight and other strong sources of illumination. Where contact is intentional (for example, during processing) the temperature and

ACOP

period of exposure must be controlled. Similar considerations apply where explosive gases and vapours may be present.

124. Where heat is used as part of the process (for example, melting, extrusion at temperature or drying of certain explosives) the lowest practical temperature must be specified and used. In determining the appropriate temperature, a sufficient margin of safety must be maintained below the auto-ignition temperature of the explosive. The determination must take into account factors such as:

(a) the potential differential between measured temperature and the actual temperature of the explosive;

(b) the level of temperature control in the process;

(c) the potential for uneven delivery of heat in the process; and

(d) the potential for the process to heat up as a consequence of friction, shear heating etc.

125. The assessment must also consider the thermal stability of the explosive and, where necessary, a maximum time of exposure to process temperatures must be specified.

126. When drying explosives using heat, the depth of the bed must be kept to a minimum.

127. Where the explosive is a mixture, it is also important to consider and address the potential separation of the more volatile components from the mixture. Such substances may pose a much greater risk of accidental ignition than the mixture itself.

128. The process equipment and thermal control system should, wherever possible, be intrinsically safe (for example, use hot water that cannot exceed 100°C rather than steam).

129. Where appropriate, measures will be required to control condensates or sublimates. The design of process equipment and of the safe system of work should consider the potential for the condensation of vapours and sublimates on cold surfaces in and around the immediate area of the process.

130. Permanently installed, rather than portable, heating appliances are strongly recommended in explosives buildings. Electrically heated air re-circulation systems must not be used in buildings where flammable gases and vapours or explosive dusts may be present.

131. It is important to site (or guard) radiators and pipes to prevent physical contact with explosives. Precautions should be taken to ensure that the maximum temperature of electrically heated water-filled radiators is limited either by specification or by the use of thermal cut-outs. It is also good practice to fit heating units with tamper-proof controls and an indicator to show when they are energised. Radiators sited in dusty areas need to be cleaned regularly.

4

ACOP

4

132. Where the explosive properties of the explosive may be affected by temperature (for example, the freezing of nitro-glycerine-based explosives), appropriate measures must be taken to ensure that a suitable temperature is maintained in explosives buildings so that explosives are kept within safe temperature limits. Information to help identify the effects of heat and temperature on the explosive may be obtained from the manufacturers' or suppliers' Material Safety Data Sheet.

Pressure

Paragraphs 133-139 are particularly relevant to manufacturers of explosives and to anyone involved in the pumping of ammonium nitrate blasting intermediates.

ACOP

133. It is important to keep the input of energy to the lowest practical levels (for example, using low-pressure pumps when pumping emulsions or using the lowest pressure possible when pressing explosives).

134. Where pressure is used as part of a process involving explosives both the safe maximum pressure and the safe rate of application of pressure must be considered. In determining the safe maximum pressure, the lowest practical pressure should be used relative to the strength of design of the process equipment (with an adequate margin of safety).

135. In determining the safe rate of application of pressure to explosives, issues to consider include:

(a) the friction and impact sensitiveness of the explosive;

(b) the potential for adiabatic heating of the explosive (for example, as a consequence of pumping against a dead head or the presence of air pockets in extrusion feedstock); and

(c) inertia within the system (for example, at the start of an extrusion cycle).

136. It may be necessary to determine a minimum safe pressure (for example, a minimum pump pressure) to prevent settling or separation of slurries.

137. The application of pressure to explosive mixtures that are solid solutions (for example, nitrocellulose/nitro-glycerine-based propellants) can reduce the solubility of one or more of the elements of the solution. This may result in the presence of substances that are more friction-and/or impact-sensitive than the mixture.

138. The design of extrusion process equipment should include a control system designed to prevent the specified design pressure of the equipment being exceeded (with an adequate margin of safety).

4

139. Persons using pumps and pumping systems will also need to consider issues covered in paragraphs 181-184.

Impact and friction

Paragraphs 140-142 are relevant to all types of explosive but are of particular relevant to those storing or handling initiating explosives or pyrotechnic compositions.

ACOP

140. All explosives are sensitive to impact and friction to a greater or lesser extent. Initiating explosives and pyrotechnic compositions tend to be more sensitive than ammonium nitrate-based explosives or military high explosives. All explosives require protection from impact and friction but more care is needed for those that are more sensitive.

141. Where impact-sensitive explosives are stored or handled it is essential to:

(a) design work processes to avoid unnecessary nipping and squeezing of explosives that are sensitive to impact and friction;

(b) take care to minimise the height at which explosives are handled or stored in order to reduce the force of the impact should they be dropped;

(c) lay out workspaces, walkways and passageways to reduce the risk of objects being dropped on, or knocked into, explosives; and

(d) use special soft-floor surfaces (for example, bitumen, lead) in areas where explosives, which are friction-and/or impact-sensitive, may be handled. The electrostatic precautions required for the application need to be considered when selecting the floor-surface material. The quantity of sensitive explosives present should be reduced to the minimum necessary. The wearing of soft overshoes may also be appropriate in such areas.

4

142. Particular attention is needed in the design and selection of materials for hinges and lids of process equipment to minimise the risk of friction and impact during opening and closing.

Chemical incompatibility

Paragraphs 143-151 are particularly relevant in explosives manufacture but should also be considered wherever explosives may come into contact with incompatible materials.

Introduction

ACOP

4

143. Incompatible substances and/or mixtures can produce significant chemical reactions. It is therefore essential to avoid unintended contact between explosives and incompatible substances except under known and controlled conditions. In general, explosives and propellants are often found to be incompatible with such substances such as acids, alkalis, strong

ACOP

oxidising or reducing agents, sulphur, phosphorus and strong amines.

144. Some of the principal incompatibilities, where care needs to be taken to prevent *unintended* contact, occur with:

(a) metal powders and water;

(b) picric acid and metal (particularly copper, lead and zinc);

(c) chlorates with, in particular, metals, acids, sulphur and phosphorus;

(d) azides and ammonium nitrate with copper and copper alloys; and

(e) contact between gassing solution acids and the chemicals used to manufacture gassing solutions. Generally, gassing chemicals should be kept away from acidic materials.

It is important to emphasise that this paragraph is not an exhaustive list of incompatible substances. Further information about incompatibilities may be obtained from manufacturers or suppliers (see boxed text after paragraph 147 at the end of this section).

145. In addition, the sensitiveness of some explosives may be affected by water or moisture.

146. Indicators of chemical incompatibility can include colour change, or gas, smoke or heat evolution. Materials intended for use in the construction of an explosive article or in packaging likely to be in contact with explosives or propellants may exhibit similar chemical incompatibility. Compatibility between constituents may be assessed by thermal stability tests such as the UN Series 3(c) test and the Abel heat test scheme. Compatibility of materials of construction or packaging may be assessed by the vacuum stability test.

147. The chemical compatibility of proprietary materials such as paints, varnishes, adhesives, elastomers and lubricants will need to be assessed before they are used in direct contact with explosives. It is important to be aware that, as manufacturers may alter their product composition, re-testing should be undertaken as appropriate.

4

Information on chemical incompatibilities may be obtained from manufacturers' or suppliers' materials safety data sheets and/or explosives hazard data sheets.

ACOP

Precautions

148. Steps to prevent accidental contact include:

(a) ensuring construction materials used are compatible with the explosives present in the building to prevent unwanted chemical reactions (for example, rusty iron coming into contact with aluminium and causing a thermite reaction);

4

ACOP

(b) designing and constructing drainage systems so that incompatible substances do not come into contact (either because waste products flow into a common drainage system or because the substance is incompatible with the material used in the pipework); and

(c) ensuring that solid waste does not enter the main drainage system and that waste materials in traps and collection devices can be removed easily. Drains or sumps should not be located under structures or process equipment. Drainage systems should also allow access for maintenance.

149. Care must also be taken to avoid contact between incompatible materials in drainage systems.

150. Other measures include:

(a) quality control systems aimed at detecting the presence of contaminants in materials, substances etc.;

(b) precautions to keep explosives dry where they are sensitive to water or moisture;

(c) compatibility testing of all new materials that come into contact with explosives before they are used; and

(d) cleaning tools between jobs to ensure that incompatible explosives on tools are not transferred from one section to another.

151. It is important to bear in mind the possibility of an accident being caused by confusion between substances with similar names. Where there is a danger of this (for example, sodium nitrite and sodium nitrate, or chlorate and perchlorate) then the substances should be kept well apart. Suitable measures, such as the use of colour-coded packaging and warning signs, must also be taken.

4

Safe systems of work and working practices

Paragraphs 152 to 173 are relevant to anyone manufacturing or storing explosives.

The following paragraphs cover:

- general principles;
- housekeeping;
- stock management;
- maintenance systems;
- systems for carrying out maintenance work in explosives buildings and areas; and
- transporting and moving explosives on site.

Overview

It is essential to have safe working practices and systems of work. These will depend on the nature of the operation. The safety precautions included in the safe system will depend on the results of the risk assessment.

ACOP

General principles

152. There are four general principles that need to be part of the working practices of anyone manufacturing or storing explosives:

(a) control sources of initiation;

(b) where the work process involves the application of energy, ensure that this is controlled;

(c) limit, as far as reasonably practicable, the quantity of explosive and extent and duration of exposure to the hazard; and

(d) limit the number of people exposed to the hazard to the minimum necessary for the process in hand.

153. Depending on the risk assessment the systems of work may also need to include other steps such as ensuring that:

(a) the quantities of explosive present in production areas are limited to those needed for the work in hand (see paragraphs 187 to 190);

(b) the numbers of people in explosives areas are limited (see paragraphs 191 to 192);

(c) wherever reasonably practicable, sensitive explosives are desensitised during processing or storage;

(d) changes in the work process are not made until checks have been made to see that all the control measures remain appropriate; and

4

ACOP

(e) explosives are not introduced into multi-stage processes until as late as possible.

Housekeeping

154. It is essential that explosives buildings and areas are kept clean and tidy. It is particularly important to ensure that quantities of explosive waste are kept to a minimum and that explosive waste and other dangerous material are not allowed to build up in sinks, drains etc. A system for regular cleaning and disposal must be established. Work stations should be designed so that they are easy to keep clean.

155. The quantity of flammable and combustible material in explosives areas should be kept to the minimum. All materials not necessary for the processes of manufacturing or the storing of explosives should be kept out of explosives buildings and areas.

156. Systems to prevent grit, dirt and foreign matter being carried on shoes into explosives buildings and areas should be used where such contamination is likely to increase the risk of accidental initiation. The traditional system involves the use of 'clean boundaries' beyond which iron-nailed boots or other outdoor or dirty shoes should not be worn unless contained in a suitable overshoe or boot. The overshoe or boot should not be placed outside the clean boundary. A system is required for sweeping of floors and disposal of sweepings to prevent the uncontrolled build-up of waste explosives. Waste and contaminated materials must not be allowed to accumulate in process or storage areas.

157. Other specific measures include:

(a) keeping escape routes clear;

(b) keeping floors, workbenches, shelves, clean platforms, plant and machines scrupulously clean and free from grit and from all accumulations of explosives and explosive dust; and

(c) cleaning protective clothing that has been contaminated with explosives. Disposable protective clothing must be removed and disposed of safely after use.

Stock management

158. A suitable stock management system is essential. In its simplest form the stock management system will involve:

(a) rotating stock to ensure that the oldest stock is used first;

(b) checking to ensure that the stock is in good condition; and

(c) checking the position, height and stability of stacks, condition of packaging etc.

159. Depending on the results of the risk assessment it may also be necessary to:

4

(a) ensure that incompatible items are kept separate;

ACOP

(b) control the temperature and humidity; and

(c) monitor the chemical and thermal stability of the explosives.

Maintenance systems

160. It is essential to have systems in place at all manufacturing sites to ensure preventative measures are properly maintained. These should include suitable arrangements for:

(a) identifying safety-critical systems, plant and equipment as part of the risk assessment;

(b) record keeping;

(c) planning and prioritisation of maintenance work;

(d) planned preventative maintenance;

(e) inspection by a competent person at regular specified intervals; and

(f) reporting and acting on faults with systems, plant and equipment.

161. It is strongly recommended that a system of planned preventative maintenance is put in place to ensure that systems, which are critical to safe operation, are inspected and maintained at specific intervals.

162. It is important to bear in mind that in safety-critical applications, such as explosives, inspection and maintenance of equipment may need to be more frequent than manufacturers' recommendations. In some cases this may include a daily visual inspection of equipment. Only replacement parts from the manufacturer or approved supplier should be used with safety-critical equipment.

163. The maintenance regime must include a system of periodic inspections. Inspections will need to include checking safety-critical factors such as, for example, the condition of:

(a) the roof to ensure that it provides adequate weather protection;

(b) any earthing system and the arrangements to avoid static build-up;

(c) the floor, in particular to see that slip or trip hazards are avoided, that there are no cracks where explosives could accumulate and that conducting floors are effective; and

(d) the internal surfaces, particularly to ensure that there are no areas of exposed iron, steel, rust etc.

164. The programme of planned preventative maintenance will need to specify the minimum replacement intervals for key components. An assessment should be made of each such system to determine the maintenance and replacement intervals. This may be more frequent than the manufacturer recommends. A record will

4

ACOP

need to be kept for each uniquely identified pump or other safety device as well as of the inspection and maintenance schedules.

Safe systems for carrying out maintenance work in explosives buildings and areas

165. Particular attention needs to be given to ensuring the safety of the arrangements for maintenance work itself. This includes arrangements for control and supervision. Maintenance tasks in explosives buildings and areas should generally be subject to a permit-to-work system (further information is available on the HSE GB website). Minor modifications or adjustments to plant and equipment may be undertaken provided they are covered by specific work instructions.

166. Maintenance work may well involve the use of contractors. Particular care is needed when contractors are employed to ensure that they, and their employees, fully understand and follow safety procedures.

167. It is essential to have arrangements to ensure that maintenance staff are competent, suitably trained and have appropriate tools and equipment.

168. Equipment that produces naked light or flame (for example, portable gas lights, welding equipment, matches, cigarette lighters) must not be taken into explosives buildings unless needed for repairs and specifically authorised, for example, by a permit-to-work. Suitable methods to control the introduction of such items, including the use of searches if appropriate, will need to be put in place.

169. All explosives must be removed from the building, room or area before any work involving the use of naked flames or grinders takes place. The area and equipment must be thoroughly cleaned. Hot work may normally only be undertaken on machinery in explosives areas where it is not practical to remove the machinery to a safe area. Before moving it to a safe area, machinery must be thoroughly cleaned. Machinery parts (such as mixing bowls) must be thoroughly cleaned and examined by a competent person and certified as being explosives-free before they are repaired by hot work.

Transporting and moving explosives on site

170. The risk assessment will need to consider the methods of transport and the location of transport routes. When explosives need to be moved, great care should be taken to avoid situations which cause impact such as explosives being dropped (or objects dropping onto explosives), collisions or striking (for example, accidental collision between a fork-lift truck and explosives). When moving explosives which are sensitive to friction it is good practice, wherever possible, to lift rather than slide them. As with measures to reduce risks arising from impact, when addressing risks from friction it is generally good practice to minimise the energy in processes and activities by carrying them out slowly, where possible. This is

4

ACOP

4

particularly important where the explosive is exposed and is not contained in some finished article or package, box or other container.

171. The principle of separating sensitive explosive articles and substances from less sensitive bulk items (for example, not carrying detonators with explosives) should be observed for the transport of explosives on-site. In general, mixed loads of different types of explosives on one vehicle should be avoided. The vehicle should contain only the explosives and ingredients. It should be closed or properly covered over.

172. Care should be taken with loading and unloading of explosive substances and articles onto any vehicle. Loads should be secured if necessary.

173. Consideration should be given to measures to create suitable traffic management systems on-site, such as the use of specified routes. It is important to park vehicles loaded with explosive substances and articles away from explosives buildings to avoid communication of an explosion from the building.

Explosives being transported by road outside the site are covered by the Carriage of Explosives Regulations (Northern Ireland) 2006[14] from the time of loading to the time of unloading. This includes periods of storage on the vehicle during, for example, rest stops and intermediate temporary storage in order to change mode or means of transport. For further guidance see the Carriage of Dangerous Goods Manual[15].

Selection of suitable work equipment

Paragraphs 174-180 are primarily relevant to anyone manufacturing or storing high explosives and to anyone using equipment to manufacture explosives or to perform other related operations such as firework fusing.

ACOP

4

174. Regulation 4 of the Provision and Use of Work Equipment Regulations (Northern Ireland) 1999[16] requires employers to ensure that work equipment is suitable for the intended purpose. In selecting the equipment, employers must consider the risks to health and safety in the premises or undertaking and any additional risks which may arise from the use of the equipment. 'Work equipment' includes plant and other machinery and is not limited to hand tools.

175. Work equipment must be suitable for the particular conditions of explosives manufacture and storage and only that equipment authorised for use in explosives buildings should be allowed. The inherent properties of the materials must be determined before the equipment is designed or used.

176. Equipment and processes should be designed to prevent ignition through chemical reactions or excessive heat or

ACOP

mechanical/frictional ignition. Issues to be considered include:

(a) applying a hierarchy of controls, i.e. elimination, substitution, reduction, engineering and finally personal protection;

(b) using controls which fail to safety wherever reasonably practicable;

(c) taking into account both normal and abnormal operating conditions, including machinery breakdown or failure, maintenance and decontamination;

(d) ensuring equipment is suitable for use in areas containing flammable gases and vapours, or explosive dusts;

(e) ensuring that the equipment can be thoroughly cleaned, avoiding the uncontrolled build-up of waste explosives and ensuring that there is minimal possibility of material remaining in corners and crevices. Inspection ports should be provided for cleaning and decontamination. There should be no cracks or holes where material might accumulate and be confined, for example, all welds should be continuous and flush, and blind-threaded holes should be avoided if at all possible;

(f) avoiding contact between exposed metal surfaces or the introduction of foreign objects into moving machinery (see paragraph 177);

(g) preventing accidental contact between explosives and chemically incompatible surfaces or between explosives and exposed hot surfaces. Equipment specifications need to take into account the chemical properties of the mixtures that will be made and the compatibility of the equipment construction materials with the raw materials and products with which they come into contact. It is important to remember that wear (for example, on seals) may lead to explosives getting into moving parts or explosives becoming contaminated;

(h) preventing explosives coming into contact with working parts of plant such as bearings and motors by installing suitable seals and barriers. However, in some circumstances the risk assessment may conclude that it is safer to design the equipment in order to avoid the need for the fitting of seals;

(i) installing alarms and trips (for example, low flow, high temperature) where appropriate; and

(j) fitting explosion relief where extraction systems are used to prevent the build-up of flammable gases, vapours and explosive dusts. Such systems should be designed to allow easy access to collection traps.

177. Steps to prevent accidental metal-on-metal contact or the introduction of foreign objects into machinery include:

4

(a) ensuring sufficient clearances between moving parts both at the designed operating temperatures and at foreseeable

ACOP

departures from those temperatures (the clearances for use in explosives manufacture may need to be greater than for other operations);

(b) securing screws and other mechanical parts with wires or locking compound to prevent them from falling from the equipment into the explosives during manufacture;

(c) taking steps to prevent personal protective equipment or ancillary items (for example, valve keys and scoops) falling into the explosive during manufacture; and

(d) preventing the introduction of foreign objects into moving machinery. This may include the use of filters or screens on the inlets or on tanks supplying raw materials to the manufacturing process. Filters should be designed to keep out foreign bodies such as nuts and bolts while allowing other materials to pass freely.

178. Care must be taken in the choice of equipment construction materials due to the corrosive nature of ammonium nitrate. The solvent properties of fuel oil should also be taken into account.

179. Tools and portable equipment should be readily identifiable as authorised and controlled (for example, through the use of tool lists and shadow boards).

180. Vehicles used for transport of explosives on site should be constructed of materials suitable for the type of explosive being carried in order to avoid inadvertent contamination or contact between incompatible substances.

4

Pumps and pumping systems

Paragraphs 181-184 are particularly relevant to manufacturers of explosives and to those involved in pumping ammonium nitrate emulsions. These paragraphs should be read in conjunction with paragraphs 133-139.

ACOP

181. The selection and design of pumps must take into account:

(a) the potential for, and consequences of, a failure of a pump part or a hard object entering the pump;

(b) the need to ensure that the materials used in the construction of the pump are compatible with the explosive being pumped;

(c) prevention of continuous friction leading to a heating of a stagnant pocket of explosives;

(d) discontinuous feed of explosive to the pump leading to the inclusion of air pockets in the feed which could be subject to compression heating;

4

(e) collapse of a feed hose leading to starvation of the pump;

ACOP

(f) the chemical and explosive properties of the material to be pumped, i.e. its minimum burning pressure, friction and thermal sensitivity; and

(g) the operating parameters of the chosen pump, for example, torque and operating temperature and pressure.

182. Pumps should be fitted with appropriate pressure and temperature gauges, no-flow meters and associated alarms. It is essential that any instrumentation is located at appropriate positions, i.e. pressure measurement as close as reasonably practicable (taking into account the location of other instrumentation) to the delivery outlet of the pump.

183. The maximum safe operating pressure of the pumping system will need to be determined and measures put into place to ensure pressure is controlled within specified levels, for example, by fitting an appropriately rated bursting disc as near as reasonably practicable to the delivery outlet of the pump to prevent operation outside specified limits.

184. It is essential that pumps used for handling explosives are protected to prevent them running dry (i.e. continuing to run when there is no product to pump) or deadhead pumping (i.e. pumping against a complete blockage). Both events will result in localised heating which in turn can result in an explosion in the pump. One option is to use diaphragm pumps, which will stall in these situations. Alternatively, trips should be fitted to discontinue pumping automatically if either:

(a) there is a 'no-flow' of product in the pump because of blockage or product starvation; or

4

(b) the pump exceeds the design running temperature or maximum running pressure.

PART 2: Measures to limit the extent of fire or explosion (Regulation 4(1)(b))

Paragraphs 185-196 are relevant to anyone with duties under this regulation.

Overview

As well as taking steps to prevent fire or explosion occurring, regulation 4 also requires anyone manufacturing or storing explosives to take steps to limit the severity of the consequences in the event of fire or explosion. At its simplest this will involve:

- managing stocks of explosive to limit the quantity of explosive in areas in which people are likely to be present;
- limiting the number of people in areas where explosives are present; and

- keeping explosives away from flammable or combustible materials which could fuel a fire, and away from toxic substances which could be released in the event of a fire.

In other situations, particularly in manufacturing, it may also be necessary to take other steps to contain and release safely the blast effects.

ACOP

Separation of storage and other areas

185. A key measure to reduce the severity of an explosion is to separate storage buildings from production buildings. The aim is to ensure that an explosion which takes place in a production area (where the risk of an explosion is greatest) does not propagate to storage buildings (where the greatest quantity of explosive substances or articles is kept and therefore the hazard is greatest).

186. Licences to manufacture explosives or to store more than 2000 kilograms of explosives require distances to be maintained between process buildings and other explosives buildings ('process building' distances) and between explosives stores ('inter-store' distances). Annex 2, Tables 1 and 2 give indicative distances for information. The distance specified will depend on the layout of the site and other factors. Licence applicants should contact the Department of Justice (DOJ) Firearms and Explosives Branch (FEB) for specific advice. The 'inter-store' distances in Annex 2, Table 1 must also be maintained at explosives sites licensed to store no more than 2000 kilograms of explosives where there is more than one explosives store.

Limiting the quantity of explosives in production areas

187. In line with this principle, it is essential to make arrangements to ensure that the quantity of explosives in production areas is limited to that needed for the work in hand and that finished explosives are removed as soon as possible after production. Explosives in production processes can present higher risks due to the lack of packaging, exposed explosive substances or because they have not been fully purified. They should not be stored with the finished product.

188. Where it is necessary to keep explosives in production buildings, they must be kept in boxes or other containers which are designed to withstand the initiation of adjacent explosives or, alternatively, kept in separate, designated storage areas.

189. There are circumstances, such as the packing of firework selection boxes, where it may be necessary to have finished explosives or explosive articles in a production area. The same basic principles apply in these circumstances: stocks must be planned and managed with the aim of limiting the quantity of explosive in production areas to that needed for the job in hand.

4

190. Ingredients with explosive properties or those which, when mixed with other ingredients in the building, are capable of forming

ACOP

an explosive mixture or compound, should also be removed from the building as soon as the process involving those ingredients is completed.

Limiting the numbers of people in explosives areas

191. As a general principle, the number of workers in explosives areas should be kept to the minimum needed to carry out the work safely. It is recommended that signs and notices are placed on doors or at other appropriate places indicating the maximum number of people permitted in the area at any one time.

192. The number of visitors at any one time in an explosives building should be kept to a minimum.

Controlled areas

193. Measures to restrict access will normally be required for buildings or areas used for:

(a) remote manufacturing; and

(b) manufacture or storage of particularly sensitive explosives.

194. The control measures needed depend on the circumstances, including the process, level of hazard etc. Appropriate measures might range from simple signs stating who may or may not enter a low-hazard area through to physical barriers and surveillance systems (in specific limited circumstances) to control entry to particularly hazardous areas. Where barriers are used they should be interlocked to prevent people being present when the process is in operation.

Containment and safe release of blast effects

195. For very small quantities of explosives it is possible to contain completely the effects of fire or explosion within the work area, machine etc. This is the case, for example, when manufacturing and loading small explosive articles such as small high-explosive caps, some pressing of small pyrotechnic articles and detonators. Where larger quantities of explosives are involved, it may not be practicable to contain the effects to the immediate work area. In such cases the design and construction of the building itself, and of areas around it, should have the aim of controlling the direction of blast, flame, debris etc. away from people, other buildings, roads etc.

196. It is essential that workplaces are designed to prevent the propagation of fire and explosion from explosives located in one area to those in another. Where appropriate, this may, for example, include the use of “airlocks”, detonation traps, drenching systems etc.

4

PART 3: Protecting people from the effects of fire or explosion (Regulation 4(1)(c))

Paragraphs 197-237 are relevant to anyone with duties under this regulation. Paragraphs 238-257 are primarily relevant to those involved in the manufacture of explosives.

Overview

As well as requiring persons manufacturing or storing explosives to take steps to prevent fire or explosion and to prevent the fire spreading and/or limit the size of any explosion, regulation 4 also requires them to take steps to protect people in the event of fire or explosion.

At its simplest this means ensuring that in the event of a fire, anyone in the immediate area of the explosives can quickly and safely escape. The following paragraphs cover:

- the establishment of emergency procedures;
- fire precautions;
- fire detection and warning systems;
- means of escape and evacuation;
- fire-fighting; and
- measures to protect against explosion.

Emergency procedures

The Management of Health and Safety at Work Regulations (Northern Ireland) 2000[5] require the establishment of procedures to be followed in situations presenting serious and imminent danger. Certain sites where very large quantities of hazardous substances, including explosives, are present are subject to the requirements of the Control of Major Accident Hazards Regulations (Northern Ireland) 2000, as amended[2]. Those Regulations contain requirements for the preparation of on-site and off-site emergency plans. Further guidance is given in *Emergency Planning for Major Accidents*[17].

ACOP

4

197. Emergency procedures must clearly set out what employees and others should and should not do in an emergency. The procedures must normally be written down. Information on the procedures must be provided to all employees. It must be stressed that this does not necessarily require extensive documentation and, for example, in a small shop the emergency procedures might consist of evacuating the shop and calling the fire and rescue service. In such a case the documentation might involve no more than a written notice displayed prominently where all staff will see it.

198. In manufacturing and similar situations the procedures may need to be more extensive and will need to state:

ACOP

(a) the responsibilities of individual employees where they have specific tasks to perform (such as shutting down plant);

(b) the role and responsibilities of people nominated to implement detailed actions;

(c) any requirements laid on employers by health and safety regulations which cover some specific emergency situations;

(d) the provision of suitable first-aid facilities (including appropriately trained first-aiders) taking account of the likely effects of any accident, incident or emergency; and

(e) when and how the procedures are to be activated.

199. It is essential that the information given to personnel includes clear guidance on situations when they must stop work and how they should move to a place of safety. Arrangements should include procedures for assisting particular groups of people such as members of the public or other visitors on site (who may be unfamiliar with the workplace and the risks presented by the dangerous substances that are present) or disabled employees. The guidance will draw on the risk assessment and identify:

(a) when work must stop (for example, in the event of fire, equipment malfunction, loss of containment or in other cases which could lead to accidental initiation);

(b) what escape routes to take to leave quickly and safely;

(c) where people should assemble after evacuation; and

(d) who will tell them if and when it is safe to return to work.

200. It is essential to carry out exercises to familiarise employees with the procedures and to test their effectiveness. Procedures must be reviewed if test results suggest it is necessary to do so.

Fire precautions

201. The fire precautions required will depend on the complexity of the site, the type of material being kept, the processes being conducted and the results of the risk assessment. At their simplest the fire precautions will consist of ensuring that the explosives are not stored where, in the event of a fire, they would endanger the escape routes and that they are kept well away from flammable and hazardous substances. Common fire precaution principles to consider in the design of the workplace and systems of work include:

(a) removing any features that would assist the rapid development of a fire;

(b) locating the process operation or storage away from escape routes. They should also be kept away from vertical openings which might spread smoke or fire through buildings (in some cases openings may be specifically designed to vent heat and flame away from escape routes etc.); and

4

(c) proper maintenance, testing and examination, at regular intervals, of the means of escape, fire-fighting equipment and fire-warning systems, and the keeping of records.

202. When considering fire precautions, it is important to assess the particular fire hazards that may arise from the process or activity being carried out, as these may vary from one situation to another. This includes:

(a) ensuring that people are not prevented from escaping by toxic fume, flame or radiant heat in areas where there are potential leakage and ignition sources;

(b) identifying the places where people need to go during normal plant operation or maintenance and the means provided to allow them to enter or leave these places; and

(c) considering potential hazards arising from the form of construction and materials used for the structure and finish of the building. For example, unprotected openings in walls and vertical shafts may help the spread of smoke and therefore hinder escape, and unsuitable lining surfaces of walls and ceilings can lead to the rapid spread of flame.

Fire detection and warning systems

203. A means of raising the alarm in case of fire is required. It may also be appropriate to install a fire detection system, for example, where processes are left unattended or where occupants in a large building may not be aware of fire developing in another part of the building. The fire-warning system and detection system (where fitted) should be suitable for the site and will vary depending on the operation or process being carried out and should be appropriate to the level of risk presented. For example, these may range from the installation of a smoke alarm in a shop storing a small quantity of fireworks to the use of detectors linked to automatic water drench systems in certain manufacturing processes.

204. Where an automated warning system is used, workers must be able to activate the alarm manually in the event of an emergency.

205. The type of system, including the siting of alarm-actuating points, will vary depending on the size of the site and the size, number, construction and use of the buildings on the site. Advice on the type of system and actuating points may be sought from competent designers or suppliers.

Means of escape and evacuation

General principles

206. All explosives buildings and areas must be designed to allow people to escape quickly. It is essential that, in the event of fire, people can reach a place of safety quickly. This is a place that is either well away from the fire or protected by a fire-resisting

ACOP

structure with not less than 30 minutes' protection. As a general rule, the greater the risk to which people are exposed, the shorter the escape route should be.

207. It should be emphasised that in the event of fire, the hazards may include smoke and hot toxic gases, as well as flames, and the danger is exacerbated by the speed at which these may spread through a building.

208. Exit doors must open outwards, be easily pushed open and be accessible without the use of a key while the building is occupied. Exit doors must never be blocked. There should be a flat area of at least one metre immediately around the outside of the exit door. All escape routes and exits must be clearly marked.

209. Fire alarm-actuating devices should normally be situated at the exit(s) from the building and should preferably be capable of immediate activation (for example, a push button, not a break-glass type). Alarms should be located at a safe place or on evacuation routes at a safe distance. The planning, design, installation, commissioning and maintenance of fire-detection and alarm systems in buildings other than dwellings should be completed to the relevant standard.

Escape routes

210. Where there is a risk of blast or fireball, plans and arrangements for escape and evacuation from explosives buildings must take into account the fact that workers escaping from a building may still be in immediate danger from blast and fragments thrown by the exploding building or from the fireball. Issues which will need to be taken into account include:

(a) escape routes. These should be clearly marked and appropriately lit. Consideration should be given to 'dog legs' and pressure relief areas to divert blast pressure away from those escaping a building; and

(b) the location of muster areas. These should be clearly identified. Fire blankets and other fire and first-aid equipment should be available at, or readily accessible from, these areas.

211. Evacuation plans and procedures will need to take into account the possibility that in the event of a fire in one building, workers in other buildings may be at less risk if they stay indoors.

Exits in buildings storing explosives

212. In explosives stores, the distance between the occupants and exit(s) should not normally be more than 25 metres where the exit is in one main direction and 45 metres where there is more than one escape route.

4

ACOP

4

Exits in manufacturing buildings

213. There should normally be two exits in buildings or areas where explosives are being manufactured. Where two or more exits are provided they should preferably be sited far enough apart so that if one exit is threatened by fire, the other exit (or exits) is not.

214. Working processes must be designed to ensure that there are no explosive compositions or materials between the worker and exits that could hinder or prevent escape.

215. It is recommended that the travel distance between the occupant and the exit (or protected route) is limited to not more than 6 metres. Where only one exit is provided, this distance should not be more than 4 metres and explosives must not be kept between the occupant and the exit (or protected route).

216. In firework process areas the spread of fire is likely to be rapid and travel distances must be very short with dead ends not normally accepted. The exception is where cell-type construction is used, and the operator is between the workbench and the exit, with a travel distance of no more than a pace or two.

External plant

217. Some sites may include external plant (i.e. where the plant is either not enclosed or is only partially enclosed for weather protection). For people working at external plant the main dangers are likely to be the rapid engulfment in flames and the effects of radiant heat rather than smoke logging. Operators must be able to move quickly away. Generally a minimum of two escape routes is required, sited so that they are clear alternatives (i.e. both not likely to be involved in the same initial fire). Where it is not reasonably practicable to provide more than one exit, travel distances must be kept short. It is generally not necessary or practicable to construct protected routes from external plant.

218. In some cases it may be safer for people working at high level at external plant to escape at high level rather than to return immediately to ground level.

Other relevant legislation and sources of advice include:

- the Fire Precautions (Workplace) Regulations (Northern Ireland) 2000[18]; and
- the Fire and Rescue Services (Northern Ireland) Order 2006[19].
- www.nifrs.org and www.gov.uk

Guidance

4

Fire-fighting

Guidance to the fire and rescue service

219. The fire and rescue service may wish to consider in advance in what circumstances they would or would not fight a fire. Fire-fighting action should generally be limited to preventing the fire spreading to buildings or areas containing explosives, or to fighting secondary fires after an explosion. In general, the fire and rescue service should withdraw to a safe distance (600 metres) if the fire should spread to a building known to contain explosives or other similarly hazardous materials. If there is any doubt about the nature or location of the explosives involved, the fire should not be fought and the fire and rescue service should withdraw to a safe distance. Fires that have spread to buildings or areas holding Hazard Type 1, Hazard Type 2 or Hazard Type 3 explosives must not be fought.

ACOP

4

220. As a general rule, the priority in the event of a fire will be to evacuate people to a place of ultimate safety. Anyone detecting a fire involving explosives should evacuate the area immediately and raise the alarm.

221. It is important to emphasise in any training and information that:

(a) staff should only tackle fires when it is safe to do so and only after receiving appropriate training in the use of the fire-fighting equipment; and

(b) fighting large fires is dangerous and that workers should only tackle small fires and certainly not those that have gained a firm hold or involve explosives.

The training and information will also need to cover:

(a) the number, type and location of fire-fighting equipment stored in the premises and elsewhere; and

(b) the type(s) and location of fire-warning systems.

222. Appropriately trained on-site personnel may use fire-fighting equipment to prevent external fires reaching stocks of explosives but *only when they can do so without endangering themselves or others.* It is essential that staff do not put themselves or others at risk by attempting to fight fires unless this is necessary to protect escape routes or the fires are small enough to be brought under control easily. It is essential that the fire and rescue service is called immediately, prior to any attempt to fight the fire. Fires may develop quickly, are often difficult to extinguish and any delay to call the fire and rescue service may prove critical.

223. In certain cases, where there is an experienced works fire-fighting team, the team may fight larger fires that do not pose an immediate threat to the explosives.

224. It is essential to avoid the potential danger from prolonged attempts at fire-fighting. In particular, fire-fighting must not continue

ACOP

when the means of escape are threatened. It is also extremely important that, having left the vicinity of a fire, people should not return to fight it.

225. If there is any danger that the fire will affect any explosives present, those fighting the fire must evacuate the area immediately.

Liaison with the fire and rescue service

226. Information on the buildings where explosives are present and the explosives involved should be prepared in advance and be provided to the fire and rescue service in the event of a fire. The fire and rescue service should be contacted and may wish to undertake familiarisation visits to explosives sites. A competent person should be appointed to advise the fire and rescue service in the event of an incident. On arrival the fire and rescue service should be told where the fire is located and the hazards involved.

Fire-fighting equipment

227. In carrying out the risk assessment consideration should be given to whether equipment should be provided for fighting fires at an early stage in order to assist with escape and evacuation. Pyrotechnic articles and other explosives that could be involved in a fire burn rapidly, have great potential for fire spread and often produce large volumes of smoke. The risk assessment should consider whether fire-fighting is necessary to safeguard personal escape or to safeguard others. If it is not needed for these purposes then consideration should be given to excluding fire-fighting altogether.

228. The only fire-fighting equipment usually required in explosives buildings is equipment for fighting small fires and to ensure that means of escape can be safely used. Fire-fighting equipment should not generally be provided in pyrotechnic process areas and need not be provided in stores. However, in certain circumstances consideration will need to be given to providing fixed automatic water drench facilities. An example of where it might be necessary to provide such a system is at an automated manufacturing/loading facility which is attended and where significant quantities of pyrotechnic material are in process.

229. Where fire-fighting equipment is provided as part of the overall fire risk assessment in places storing small quantities of fireworks, it may be used to safeguard personal escape or to maintain protection while others escape. One 9 litre water extinguisher or a 3 kilogram dry powder extinguisher may be considered suitable for fire-fighting of this type as they are simple to use, do not pose major incompatibility issues and have limited duration. These should not be supplemented by additional extinguishers as this may encourage those fighting the fire to stay longer than it is safe to do so.

4

ACOP

230. Relevant recognised standards are available that relate to firefighting equipment. Where it is provided, it must conform to a relevant standard.

231. All fire-fighting equipment must be suitably maintained and checked at regular intervals. Records should be kept of maintenance and checks carried out. The equipment must be kept in a state ready for immediate use.

232. It is also essential to recognise the dangers of using the wrong type of fire extinguishers on certain fires and to prohibit certain fire extinguishers in buildings containing certain fire hazards. Incorrect fire-fighting methods can dramatically increase the severity and effect of a small fire. For example, while water may be suitable for use on fires involving pyrotechnic articles, it must not be used on:

(a) powdered aluminium;

(b) fires involving liquids such as oils; and

(c) molten metal fires.

Fire-fighting and emergency arrangements for ammonium nitrate and ammonium nitrate emulsions

233. The local fire and rescue service must be informed that ammonium nitrate or ammonium nitrate emulsions are being stored. Arrangements should be agreed for giving early warning of a fire, providing suitable access to the site and ensuring that there is an adequate supply of water available to tackle an incident. Additional safeguards may be necessary at some sites which are close to neighbouring buildings. These may include automatic fire detection or a fixed deluge system.

234. Where there are homes or businesses in the immediate area, the emergency plans will need to include arrangements for alerting and evacuating those off the site who would be at risk in the event of fire or explosion (including those at risk from toxic fumes). These arrangements will need to cover periods when the site itself is unattended.

235. Employees need to be trained and practised in the actions to take in the event of a fire. This includes using portable fire-fighting equipment in the fire's early stages. Portable water fire extinguishers or fire hose reels are appropriate where ammonium nitrate or emulsions are, or might be, involved.

236. To enable employees to deal with such incidents, they need to receive specific training to ensure that they do not put themselves at risk of breathing fumes from decomposing ammonium nitrate. The effects of the inhalation of these fumes may be delayed and immediate medical help should be called.

4

ACOP

4

Re-entry and resumption of work

237. Re-entry after an incident, and the resumption of work, must only be permitted when directed by a competent person appointed by the site operator. Where there has been a major incident involving the call-out of the fire and rescue service, entry to the premises should be prohibited until the fire and rescue service has given the all-clear. Any work involving potentially hazardous situations after an incident (for example, dealing with smouldering explosives, opening of vessels, sealed work equipment) must only be undertaken under the supervision and direction of a competent person. It is important to remember that certain explosives could still detonate even if they are submerged in water.

Protection against explosion

Paragraphs 238-257 are primarily relevant to anyone involved in the manufacture of explosive substances or articles.

ACOP

4

238. Depending on the conclusions of the risk assessment, measures to protect people in the event of fire or explosion include the use of safety screens and barriers, remote working and personal protective equipment, or a combination of these.

239. The protection measures required will depend on the likelihood of ignition and the potential to harm people if ignition occurs. As a general rule, this means that where it is foreseeable that ignition may occur:

(a) remote working will be required in cases where the potential for serious injury or death is significant; and

(b) depending on the activity being undertaken, safety screens and personal protective equipment will be required in cases where the potential for serious injury is low.

240. It is essential to protect the operator handling the substance or article. Protection of hands and eyes is particularly important. The precautions will need to be judged but often this can be helped by deliberately and safely initiating the substance or article and observing the potential for harm, perhaps using mannequins as targets.

Remote working

241. Certain explosives, propellants and pyrotechnics manufacturing processes carry such a serious risk of fire and/or explosion that, even though the risk of initiation has been reduced as low as is reasonably practicable, the risk of injury to an operative is higher than the tolerable level of risk. Such operations must be carried out remotely.

242. The following are examples of explosives operations for which remote operations will normally need to be considered, depending on the type of explosive, its sensitivity and likelihood of ignition,

ACOP

nature of the process (including confinement etc.) and the quantities involved:

(a) the manufacture of primary explosives;

(b) incorporation of pyrotechnic compositions;

(c) mixing and handling of propellants and blasting explosives;

(d) medium- and large-calibre ammunition shell filling;

(e) making detonators;

(f) propellant extrusion/pressing; and

(g) pressing and subsequent handling of MTV flare compositions.

243. Before deciding on whether to use remote working an assessment should be made of the likelihood of initiation and the potential for harm to operators if an initiation were to occur. The assessment will need to cover the hazards/sensitiveness of the raw materials, intermediates and finished product, as well as the effects of elevated temperature, pressure or increased confinement. In some cases, it may be necessary to carry out tests and trials to gain the information needed.

244. Remote working must be used where the assessment of an operation shows both the potential to kill or injure seriously and the significant likelihood of initiation.

245. Safeguards must be put in place to prevent access to the remote process area during manufacture and physical barriers must be used for this purpose. The 'captive key' (for example, Castell Key) type of interlock system is an effective method for securing entrances to fenced-off manufacturing areas. The safeguards should be arranged either to isolate positively the power supply or control to the manufacturing unit if any of the entrances are open. Surveillance by camera and/or infrared detectors may also be necessary.

Safety screens

246. In some low-hazard operations, if a foreseeable likelihood of initiation remains, safety screens are needed to protect the operator. The use of transparent shields is desirable to allow the operator to observe the operation process. Materials such as polymethyl methacrylate and polycarbonate are available for such purposes. However, it is important to recognise that such materials are susceptible to the build-up of static electricity and therefore in some instances the use of closed-circuit television or mirrors may be appropriate. Laminated safety glass held in a steel plate assembly offers a strong barrier protection. It is important to ensure that the shielding arrangement is firmly anchored and the screen provides the necessary protection to people who are nearby. It may be necessary to perform type-tests on the substances or articles being handled in conjunction with the proposed screen arrangement.

4

ACOP

247. While safety screens can provide effective protection to the head and torso, the hands and arms are likely to remain vulnerable. The screens will therefore need to be used in conjunction with other equipment such as gauntlets and 'kit-sticks'.

248. People using a safety screen for head and body protection while manipulating very sensitive explosive substances or articles require, in addition, suitable hand and wrist protection. Suitable fire-resistant gloves provide protection against burns from pyrotechnics. Suitable gloves may also provide protection against potential blast and fragment injuries.

249. Guarded tools such as 'kit-sticks', guarded tweezers, pneumatic or suction devices may be more practicable where a certain amount of manual dexterity is required. Even with the use of such devices it is necessary to provide wrist protection such as leather armlets.

250. Where a high degree of manual dexterity is required and the use of gloves or tools is not practicable, the only viable option is to redesign the process. This may involve using extremely small quantities together with systems of work designed to ensure that any explosion is directed away from the hands (appropriate training and supervision are essential where such systems are used). It may also be necessary to consider eliminating the operation altogether.

Personal protective equipment

251. Personal protective equipment is only appropriate as a last line of protection and should not be relied upon where protection would be better provided by engineering solutions or by using safer systems of work. Where the risk assessment shows that the consequences of initiation of the materials are slight but the likelihood of initiation is significant, careful consideration must be given as to whether the operation is acceptable taking into account the quantity of explosive involved, its sensitiveness and precautions taken, or whether a safer substitute may be used.

252. The personal protective equipment must be suitable for explosives use, correctly fitted, maintained and used. Suitable training must be given in its use.

Eye protection

253. Eye protection must be worn when sensitive explosive substances are handled openly (in very small quantities) such as in a laboratory. Eye protection must be worn regardless of any other shielding which may be provided. In considering whether safety glasses, goggles or face shields are used, the following points should remembered:

(a) safety glasses are only suitable where the risk is confined to minor deflagrations and where protection against dust is not required. Safety glasses with side shields are preferred as they offer more protection;

4

ACOP

(b) goggles protect the eyes and orbital cavities and are effective for low-and medium-energy impact and for protection against dust;

(c) face shields provide both eye and face protection and are suitable for all impact categories but normally do not provide protection against dust; and

(d) vapours, gases, hot or corrosive liquids, heat and light may also be significant hazards to be taken into account in the selection of eye protection.

254. Eye protection designed for use in general industry may not be designed to withstand the forces which could be generated by an explosion. It is essential to check whether the equipment is suitable for use in an explosives context. Guidance on this is contained in Personal protective equipment (PPE) at work (a brief guide) on the HSE's Website[20].

Clothing

255. In general, it is recommended that overalls of fire-resistant cotton are used. Where workers face a significant risk of burns, they must be equipped with suitable fire-resistant protective clothing which may need to be of a higher specification.

256. Depending on the results of the risk assessment, precautions may be required to avoid accidental transfer of incompatible substances from one explosives area to another, for example, on gloves or overshoes. An appropriate precaution would be to have specific personal protective equipment dedicated for use in specific processes.

Design of nearby buildings

257. The design of nearby buildings where explosives are not present and, in particular, control rooms, will need to provide reasonable protection to people inside from the effects of an explosion in the vicinity.

4

Further guidance on protective measures (other than personal protective equipment) is available in the CBI Explosives Industry Group publication *Protective measures*[21]. Further guidance on personal protective equipment is available in the CBI Explosives Industry Group publication *Guidance on Personal Protective Equipment (PPE) for Explosives Operations* [22].

PART 4: Further guidance for particular activities

This part includes additional guidance for those involved in particular activities. This includes guidance on:

- storage of pyrotechnic articles;
- storage of other explosives;
- storage of ammonium nitrate and ammonium nitrate blasting intermediates; and
- firework fusing.

Storage of explosives

Paragraphs 258-321 give an overview of common principles for the storage of explosives and then provide a further specific Approved Code of Practice aimed at those people involved in particular processes, i.e. the storage and display of pyrotechnic articles in shops and other premises; the storage of car air bags and seat belt pre-tensioners; and the storage of other explosives.

Paragraphs 322-367 cover the storage of ammonium nitrate, ammonium nitrate and fuel oil mixtures, and ammonium nitrate emulsions; and the mixing of emulsion explosives and ANFO.

Paragraphs 368-371 cover the fusing of fireworks.

Overview: Common principles

A number of common principles should be applied to the safe storage of explosives. These are summarised here. Detailed guidance on the principles and measures may be found elsewhere in this document.

The common principles are to:

- protect explosives from sources of ignition;
- prevent fire and explosion spreading;
- avoid unsuitable storage conditions; and
- ensure accurate control and record-keeping arrangements.

ACOP

4

258. All explosives must be stored in a suitable place. The nature of the place of keeping will depend on the quantity and type of explosive being kept. However, a number of key principles apply to the safe storage of explosives, regardless of the type of store or place where they are being kept. The principles are covered in detail elsewhere in this document but in summary they include ensuring that the store, storage area, container or cupboard is, where appropriate:

(a) suitably weatherproof;

ACOP

(b) designed to ensure that explosives do not come into contact with substances with which they are incompatible;

(c) protected by a lightning conductor (see paragraphs 98-103);

(d) used only to keep explosives and tools or implements connected with the keeping of explosives; and

(e) kept clean, with steps taken to prevent grit entering unpackaged explosives.

Protecting explosives from sources of ignition

259. Suitable precautions must be taken to exclude possible sources of ignition. Details of these sources and precautions are given elsewhere but in summary these include excluding:

(a) naked flames, including matches, lighters, smoking materials etc.;

(b) where appropriate, sources of electrical energy and radio energy (including mobile phones, pagers etc.) which could induce stray electric currents in certain circumstances;

(c) grit, rust and other contaminants; and

(d) incompatible materials.

260. Further precautions include:

(a) not using or keeping portable heaters in the store;

(b) ensuring that the store is thoroughly cleaned before the start of maintenance work and that only non-sparking tools and implements are used unless the plant or equipment has been cleaned or is otherwise free from contamination by explosives; and

(c) if it is necessary to use flammable materials in the store, for example, for maintenance work, only taking them in for immediate use and then removing them straight away.

Preventing fire and explosion spreading

261. Measures to prevent fire and explosion spreading will include segregation of high-risk materials from lower-risk explosives. This will involve segregation of:

(a) detonators;

(b) 'in-process' unstable or sensitive explosives from finished products;

(c) suspect or deteriorated explosives;

(d) out-of-life explosives;

(e) development products or samples; and

(f) any other explosives or materials where accepted compatibility issues arise.

4

ACOP

4

Other safety precautions

262. Other safety precautions will include:

(a) ensuring that confinement does not increase the hazard (for example, certain Hazard Type 3 propellants may under confinement behave as Hazard Type 1); and

(b) not storing explosives with other hazardous goods (for example, flammable liquids, solids, reactive substances).

Storing Hazard Type 4 pyrotechnic articles

Paragraphs 263-315 cover the storage of Hazard Type 4 pyrotechnic articles and other similar Hazard Type 4 explosives. This section of the document is relevant to anyone storing this type of explosive although specific guidance is given on the particular issues that need to be considered in shops (including supermarkets, DIY 'superstores' and garden centres) where quantities of pyrotechnic articles are stored/displayed in places to which the public has access.

The Health and Safety Executive in Great Britain has published a useful leaflet *Storing and selling fireworks safely: Advice for anyone selling fireworks*[23] which has been written to help retailers do what is necessary to protect the safety of their staff and customers. Accompanying this leaflet is a Risk Assessment Checklist which is published on-line at www.hse.gov.uk/pubns/indg407ch.pdf

ACOP

4

Fire safety regulations

263. As well as duties under these Regulations most businesses storing pyrotechnic and other explosive articles will have duties under fire safety legislation. These duties include arranging for a competent person to carry out a risk assessment to identify risks to the public, employees and fire and rescue officers. It is essential that the risk assessment takes into account the presence of pyrotechnic articles in the premises. If the assessment is carried out at a time of year when there are no pyrotechnic articles on the premises, then the person carrying out the risk assessment should be told that they are present at certain times of the year.

264. It is essential also that the storage arrangements for pyrotechnic articles take account of the advice of the person carrying out the risk assessment who will have had the opportunity to consider all the circumstances at the site, including in particular any additional fire loading, for example, from the presence of highly flammable liquids.

General precautions

265. The basic principles for the display, storage and handling of pyrotechnic articles in retail and other premises (such as cash and carry stores) are the same as for other types of explosive. Those storing these articles must carry out a risk assessment and take the

ACOP

appropriate measures to control the risks identified by it. These measures include:

(a) storing pyrotechnic articles well away from flammable liquids and materials that can easily catch fire and burn;

(b) controlling the quantities being stored, handled or displayed in areas where people work or gather. This is especially relevant to the shop floor area of shops;

(c) prohibiting smoking near the stored pyrotechnic articles;

(d) ensuring that sources of heat, such as space heaters, are kept well away from the pyrotechnic articles;

(e) keeping the pyrotechnic articles in closed transport packaging;

(f) storing the pyrotechnic articles away from hazardous substances;

(g) protecting the pyrotechnic articles from damp; and

(h) ensuring that other chemicals do not contaminate the pyrotechnic articles.

Preventing the spread of fire from/to flammable or other dangerous substances.

266. It is preferable to keep pyrotechnic articles in a storage place that can be used exclusively for this purpose. A fire involving pyrotechnic articles is likely to spread very quickly as burning projectiles are thrown around. Where the pyrotechnic articles are kept in a warehouse (or similar room or building) that also holds significant quantities of other combustible materials, the storage arrangements will need to be designed to prevent the spread of fire by fragment throw. This will involve:

(a) storing in an ISO transport container (or similar fully enclosed metal structure);

(b) using storage cupboards or cabinets;

(c) building a structural partition; or

(d) using a wire mesh screen or cage.

267. It is important to stress that the safety measures must be seen as a whole. Any container or enclosure must be:

(a) suitably constructed - it must be sufficiently robust to remain stable and effective throughout its expected working life taking into account the expected working conditions; and

(b) suitably located - it must be located well away from flammable or hazardous substances. For example, in the warehouse of a DIY superstore, it should be located in the area of the warehouse used to store inert non-combustible building materials or gardening products (for example, sand and cement, or compost).

4

ACOP

268. There must be a fire-resisting separation (for example, a breeze block, stud partition or other suitably constructed wall capable of resisting fire for at least half an hour) between the store (or warehouse containing the store) and the sales area.

269. Where pyrotechnic articles are kept in a store used exclusively for this purpose, the transport packaging alone may be considered to afford sufficient protection providing that the safety measures set out in paragraphs 270-271 are taken.

270. The transport packages must not be left opened in the storage area. The packages should normally only be opened when needed (or if the contents are to be transferred to a storage cupboard or cabinet). After opening, it is important to close the flaps securely if pyrotechnic articles remain in the package (for example, by taping the flaps down, interleaving the flaps, or securing them in some other way to ensure that the flaps do not open).

271. It is also important to avoid transferring pyrotechnic articles from one transport package to another in order to avoid the spillage of explosives.

272. Where it is not possible to reserve a place exclusively for the storage of pyrotechnic articles then ideally the bulk of the articles should be stored away from the shop premises. Where this is not feasible, the pyrotechnic articles must be kept (preferably in their closed transport packaging) in a fire-resistant cabinet or container.

273. It is not good practice to decant loose pyrotechnic articles into metal dustbins. There is a danger that the articles will become mixed up or damaged with loose compound collecting at the bottom of the dustbin.

274. Under no circumstances should the pyrotechnic articles be kept where, in the event of a fire, they might endanger the safety of those using escape routes from the building. Pyrotechnic articles must not be stored where, in the event of a fire, the fire could quickly spread from or to other flammable materials (for example, white spirit, barbeque-lighting fluid, paint thinners, matches, firelighters) or materials that can easily catch fire (for example, bulk quantities of paper, cardboard, surplus wooden pallets, video tapes, tights).

275. It is advisable to restrict entry to the room or store used for storage of the pyrotechnic articles to those members of staff who need to be there.

Housekeeping and stock management

276. It is important that the storage area is kept clean of any loose powder and that unwanted empty packaging and other combustible waste materials are removed straight away when they are no longer required.

4

ACOP

4

277. Damp pyrotechnic articles can be dangerous especially to users. It is therefore very important to ensure that appropriate measures are taken to keep them dry.

278. It is also important to manage stocks to avoid the need to repack fireworks and other pyrotechnic articles. However, it is a good idea to retain some of the empty transport packages, for example, so that any unsold fireworks can be repacked in the appropriate transport packaging for return to the supplier (if the items have been supplied on sale or return) or for transport to the site where they are to be disposed of. There are legal requirements on the packaging of pyrotechnic articles for transport and if in doubt advice from the supplier must be sought on how unsold articles should be repackaged for transport.

Storing pyrotechnic articles

Some dos...

- exclude sources of ignition
- keep in closed transport packaging
- use suitable storage and display cabinets
- restrict entry to the store

and don'ts...

- allow smoking
- decant into metal dustbins
- keep flammables nearby
- put space heaters nearby
- keep excessive quantities
- block escape routes

ACOP

4

Other safety measures

279. As well as the risk from fire, it is also essential to remember that certain other chemicals may be hazardous where there is a risk of chemical contamination or an additional explosion hazard. They should therefore be stored far enough away from pyrotechnic articles so that there is no risk of contamination.

280. Examples of products that could present a contamination hazard include:

(a) products containing caustic substances (acids or alkalis), such as drain cleaners and paint strippers; and

(b) products, including certain wood preservatives, which might have chemical incompatibility.

ACOP

281. Products that might create an additional explosion hazard include:

(a) products containing oxidising agents, for example, fertilizers; and

(b) products containing peroxides, such as certain fibreglass hardeners.

282. Aerosols and bottled gas canisters can have devastating effects if involved in a fire and should be kept well away from pyrotechnic articles.

ISO containers

283. ISO containers (or similar metal storage units) used for the storage of pyrotechnic articles must, wherever possible, be kept in an area away from public access. It is recommended that measures are taken to prevent smoking in the immediate area of the container.

284. ISO containers storing Hazard Type 4 pyrotechnic articles should be marked with a Fire Division 4 symbol. The symbol should be taken off the container when the pyrotechnic articles have been removed.

285. Where it is necessary to use an area of a car park, it is essential to take measures to prevent arson or other malicious attack. The ISO or similar container must either be under constant supervision or other physical measures must be taken to prevent unauthorised access to the area around the container. Cars and other vehicles must not be permitted to park within 3 metres of the container. Where the container is kept in a goods delivery yard it is important to put it in a suitable place in order to reduce the risk of it being hit by vehicles.

Movement

286. All movements of pyrotechnic articles around the site must be properly supervised to ensure that:

(a) the pyrotechnic articles are never left unattended;

(b) the pyrotechnic articles are not left, however briefly, in places where they could be inadvertently mixed up with other goods especially flammable products; and

(c) boxes containing pyrotechnic articles are not inadvertently handled by staff (or members of the public) unaware of their contents.

287. Ideally pyrotechnic articles should be taken direct from the store to the shop floor. However, there may be cases where it is necessary to keep pyrotechnic articles temporarily in a holding area specified for that purpose. If so:

(a) the quantity in movement at any one time should be kept to the minimum necessary;

4

ACOP

(b) stock replenishment should be timed to avoid the pyrotechnic articles being in movement for an unnecessarily long period of time;

(c) the holding area must be away from other goods; and

(d) the pyrotechnic articles must not be left unattended.

288. It is recommended that pyrotechnic articles in holding areas are kept in metal-caged trolleys.

Storage and display of pyrotechnic items on the shop sales area

289. When pyrotechnic articles are kept in places where members of the public are present there is both an increased risk that an accident could take place and, if there were an accident, a larger number of people could be at risk.

290. These risks need to be controlled by storing and displaying the articles in a way that limits the risks of accidental ignition and by taking precautions to protect people (both members of the public and employees) in the event of a fire.

Preventing accidental ignition

291. Pyrotechnic articles on the shop floor must be kept:

(a) in a designated area well away from sources of ignition (for example, naked flames, lit cigarettes, portable gas heaters); and

(b) in a display case, or storage cupboard or cabinet.

('Well away' means sufficiently far enough to remove the risk of ignition. This distance will depend on the nature of the heat source and whether there are any barriers between the articles and the potential source of ignition).

292. Smoking must not be allowed where pyrotechnic articles are stored or sold ('No smoking' notices should be displayed).

293. Display cases and storage cabinets must be designed to protect against sparks or other sources of ignition and to prevent handling of unpackaged items by members of the public or by members of staff who are not specifically engaged in activities related to the sale of the pyrotechnic articles.

294. It is preferable to use appropriately labelled inert or non-explosive samples of pyrotechnic articles for display. It is important to avoid mixing live articles and dummies. Where live samples are used for display purposes, they must be kept in a suitable display case. When live samples are removed from a display case, they must be kept under the supervision of a member of staff until sold.

295. It is also preferable that the display case is not used for the display or storage of other articles (except any instruction leaflets/safety literature) so that the case is only opened when the pyrotechnic articles are sold. In any event pyrotechnic articles must

4

ACOP

not be kept in the same display case as flammable substances, chemicals or articles, such as lifejackets with self-inflating gas cylinders.

296. It is essential to ensure that the cabinets and display cases do not present a spark or heat hazard to their contents. Lights or other electrical fittings may only be used if dummy pyrotechnic articles are being displayed. If such cabinets are to be used to store or display live articles, they must be disconnected from the electrical supply and measures taken (such as warning notices) to prevent the apparatus from being inadvertently reconnected.

297. It is also essential to ensure that cabinets and display cases are dry before use to avoid the pyrotechnic articles becoming damp. They must be thoroughly cleaned after use to ensure that no loose composition is left behind.

298. Appropriate steps must be taken to prevent unauthorised access to display cases. Normally, this would mean using lockable cases that are locked when unattended.

4

It is important to note that the police will be particularly concerned to ensure that appropriate precautions are taken to prevent small arms ammunition falling into the wrong hands.

ACOP

Controlling the quantity in the sales area

299. It is essential to control the levels of stock held in the sales area. The guiding principle is to control the extent of the hazard to which people would be exposed in the event of a fire by avoiding storing unnecessary quantities of explosive on the shop floor. However, in considering how much stock to keep in the sales area it will also be necessary to avoid excessive transport movements through the shop, taking into account the anticipated trading levels for the day.

300. In any event, the quantity kept on the shop floor must not exceed the levels set out in Table 1. It is important to stress that these figures are maximum quantities. Where significant quantities of highly flammable liquids or other highly flammable articles are likely to be present, the quantity that is to be stored will need to be reduced to take into account the additional fire loading from these substances. The advice of the competent person carrying out the risk assessment should be followed as to what reduction will need to be made – this will in turn depend on factors such as whether the premises have an automated sprinkler systems etc. It is also important to remember that the licence (or certificate of registration) quantity limit applies to the quantity held on the premises, including the quantity held on the shop floor.

301. The Department of Justice (DOJ) may issue a licence, which permits a greater quantity to be kept than that specified in column 4 of the table. However, before doing this, it may need to consult the

4

ACOP

fire and rescue service. Regulation 11 (8) provides for the DOJ to insert additional licence conditions in such cases. They may cover:

(a) the quantity of pyrotechnic articles that can be kept in the area to which the public has access;

(b) the location of the sales/storage areas in relation to escape routes and the storage of flammable substances (if any);

(c) escape routes;

(d) fire safety measures such as the provision of smoke detectors or restrictions on the presence of flammable substances; and

(e) other safety precautions.

302. The general principle behind the table is to take into account the size of the sales area where the pyrotechnic articles are present and from which the public may need to escape. Where the premises are divided into a number of sales areas (whether rooms or otherwise enclosed areas) the size of the room or area where the pyrotechnic articles are sold must be considered in determining the maximum quantity that may be kept in the sales area (as distinct from the maximum quantity that may be kept on the site).

Table 1: Maximum quantities on shop floor

Total floor area of the sales area (square metres)	Maximum quantity of pyrotechnic articles that may be kept under a registration (net mass – kg)	Maximum quantity of pyrotechnic articles that may be kept under a registration (gross weight – kg)	Maximum quantity of pyrotechnic articles that may be kept under a licence (net mass - kg)	Maximum quantity of pyrotechnic articles that may be kept under a licence (gross weight – kg)
up to 20	12.5	50	20	80
up to 40	15	60	25	100
up to 60	20	80	35	140
up to 80	25	100	50	200
up to 100	30	120	60	240
up to 150	35	140	70	280
up to 200	40	160	80	320
up to 250	45	180	90	360
up to 300	50	200	100	400
up to 350	55	220	110	440
up to 400	60	240	120	480
up to 450	65	260	130	520
up to 500	70	280	140	560
over 500	75	300	150	600

4

ACOP

303. It must be stressed that the quantity that can be kept in any given location will depend on the circumstances and on the ability to comply with the requirements of the Regulations. For example, in considering where to locate the display/storage area it is essential to ensure that the items are located so that employees and members of the public can easily evacuate the area in the event of a fire.

304. Controlling the quantity of pyrotechnic articles on the premises also includes designing sales systems that avoid the need for customers to carry pyrotechnic articles around the shop and that enable/encourage customers to make (or collect) their purchases immediately before leaving the shop. This might be achieved, for example, by operating a system where customers can order their purchases and pick them up on their way out or by selling pyrotechnic articles from a separate sale point located near to, but not impeding, the exit.

Slowing the spread of fire in the sales area

305. As well as controlling the overall total of pyrotechnic articles kept on the shop floor it is also essential to reduce the hazard by taking steps to slow the spread of fire both within the stock and from the pyrotechnic articles to other flammable substances.

306. In order to slow the spread of fire, the pyrotechnic articles must be divided between storage cabinets or display cases, each holding no more than 12.5 kg net mass (50 kg gross).

307. The storage cupboards or cabinets may be of wood, metal or another substantial material that does not readily catch fire.

Protecting people in the event of a fire

308. The key measures to be taken to protect people in the event of a fire are:

(a) ensuring that they are able to escape quickly from the area and from the shop;

(b) controlling the quantity of pyrotechnic articles present on the shop floor;

(c) breaking that quantity down into smaller units (so that if there is a fire it does not immediately involve the whole stock) and taking steps to slow the spread of fire between the units; and

(d) if the pyrotechnic articles catch fire, taking steps to ensure that the fire does not easily spread to other flammable substances on the shop floor.

Helping people escape

309. The provision of fire escapes and other precautions is covered by fire safety legislation. Anyone storing pyrotechnic articles

4

ACOP

must ensure that they comply with the relevant requirements of that legislation and in particular ensure that the pyrotechnic articles are not stored or placed where they would endanger people escaping from a fire or impede their exit routes.

310. In the event of a fire it is important to tell the fire and rescue service (and other emergency service personnel attending) that pyrotechnic articles are present and where they are being stored.

Storage adjoining or in the same building as domestic/sleeping accommodation

311. If more than 75 kg net of Hazard Type 4 pyrotechnic articles are kept in a store within, or adjoining, a building containing domestic/sleeping accommodation, suitable steps must be taken to protect residents of those premises in the event of a fire. The following specific precautions must be taken:

(a) a fire detection system must be installed in the shop;

(b) the domestic parts of the building must have access/exit routes that are fire-separated from those used for the pyrotechnic store;

(c) there must be suitable fire separation between the pyrotechnic store and the domestic accommodation (for example, doors and floors/ceilings offering 30 minutes fire resistance); and

(d) the store must be closed off and secured from the domestic part of the property in order both to prevent unauthorised access (including by children connected with the domestic accommodation) and to help prevent the accidental introduction of sources of ignition.

4

Where these precautions cannot be taken the DOJ may decide that the premises are not a suitable place for the storage of explosives and refuse to issue a licence or certificate of registration.

Hazard Type 4 pyrotechnic articles include items such as Category F2 fireworks, flares, smoke signals, cable cutters, explosive rivets, toy caps, party poppers and cracker snaps in bulk for Christmas crackers. While strictly not pyrotechnic articles, some other Hazard Type 4 explosives, such as small arms ammunition and nailgun cartridges, may be treated in a similar way when kept in shops and other premises.

ACOP

312. The explosive content in items such as party poppers, toy caps and Christmas crackers is so small that, in the quantities in which they are normally found on retail premises, they present minimal risk. These articles may be kept on open display in their retail packaging.

313. However, it is important to remember that, although the quantity of explosive in each item is small, very large quantities may

4

ACOP

4

altogether contain a significant quantity of explosive and must be treated with the same care as other explosive articles.

Age restrictions on the sale of explosive articles

It is important to remember that age restrictions apply to the sale of explosives. Staff should be made aware of these legal requirements. The Explosives Act 1875[24] (as amended) prohibits the sale of explosives, including fireworks, to children under the age of 16.

The Explosives (Fireworks) Regulations (Northern Ireland) 2002[25] require suppliers of fireworks to display a sign informing customers that it is illegal to supply category F1 fireworks to anyone under the age of 16 and category F2 and F3 to anyone under the age of 18.

ACOP

Car air bags and seat belt pre-tensioners

314. The major hazard from car air bags is their accidental inflation in a working area; an unrestrained car air bag may become a potentially lethal projectile. Air bags should preferably be kept in a cupboard or store room (or building) away from working areas and away from electrical power sources, flammable materials and other dangerous goods. It is essential to leave sufficient space so that there is room for a bag to inflate. The storage of air bags in filing cabinets and similar cupboards or drawers is strongly discouraged because, if the bag accidentally expands, this could create an additional hazard from fragments of metal.

315. Where there is no suitably sized storage room or cupboard, air bags may be kept in a wire cage, away from flammable and other hazardous materials. The cage must be sturdy enough to contain an accidentally inflated air bag.

Storage of other explosives

316. The general principles for the storage of explosives reflect the broad principles outlined in the rest of this publication. Safety measures are required to reduce the risk of an explosion being initiated and to limit the consequences in the event of initiation. The safety measures which follow from these general principles are:

(a) separating the most sensitive substances or articles (particularly detonators) from less sensitive explosives so that in the event of an accidental initiation they do not act as an initiator for the larger quantity of less sensitive material. For example, detonators must be kept in a separate compartment from blasting explosives;

(b) keeping explosives, other than those which are still in the course of being processed, within their transport packaging wherever possible and only removing them in an appropriate and suitable place away from the storage area; and

4

ACOP

(c) keeping separately explosive substances or articles which present a special risk or hazard.

317. It is important to ensure that the following are kept separately from other explosives:

(a) explosives presenting a special risk (for example, due to water activation or presence of hypergolic liquids, phosphides or a pyrophoric substance). Explosive substances or articles in this category will be assigned to Compatibility Group L under the UN Recommendations on the Transport of Dangerous Goods Model Regulations (the "Orange Book");

(b) especially hazardous explosives and articles. These include articles containing both an explosive substance and either white phosphorus (Compatibility Group H), a flammable liquid or gel (Compatibility Group J), or a toxic chemical agent (Compatibility Group K);

(c) 'normal' product explosives from those believed to be suspect due to deterioration or other reasons. Samples, or other materials made as part of research and development, should not be stored with 'normal' products;

4

(d) classified from non-classified explosives; and

(e) waste explosives from non-waste explosives.

Further information about Compatibility Groups is available in the *European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR 2017)*[26] and from the Explosives Hazard Data Sheet. It should be noted that ADR is updated every two years and the most recent edition should be used as a guide.

ACOP

318. The explosives should be kept well away from materials such as flammable liquids, other flammable substances, LPG and gas cylinders, pesticides and packaging materials (unless the explosives are in the process of being packed). It is also important that explosives are not kept in such a way that self-confinement increases the hazard (unless they are incorporated into the explosive device).

Stock management

319. Appropriate arrangements should be made for stock management. These include:

(a) ensuring that the oldest stock of explosives is easily accessible, is used first and within its recommended shelf life;

(b) recording all movements of explosives in and out of the store so there is always an up-to-date record of the quantity and type of explosive in the store. Recording is an important way to ensure that licence/registration limits are not breached. It is good practice to keep duplicate records in a safe place

4

ACOP

4

outside the store. The Explosives Act (Northern Ireland) 1970[27] contains requirements for the keeping of records of explosives transactions (but not for Category F1 fireworks or up to 900 kg (gross weight) of Category F2 fireworks);

(c) stacking explosives boxes, packages or other containers in a stable manner, laid flat and with the top side up;

(d) avoiding over-stacking as this can result in pressure deformation of packaging, the spilling and exposure of the contents and the possible deterioration of the explosive; and

(e) leaving a sufficient gap between stacks and walls to allow air to circulate freely.

Activity in storage area

320. It is essential that activity in storage buildings and areas is kept to a minimum. Activities such as fusing, or removing fuses, must not under any circumstances be carried out in storage buildings or areas where explosives are stored. The same applies to any maintenance activities which might give rise to a source of ignition (for example, flame, mechanical spark, inductive spark).

321. There may be some circumstances (for example, checking the condition of stocks of explosive or certain maintenance tasks) where it may be less risky to carry out the activities within the store - to avoid creating additional risk by moving explosives out of, and then back into, the store. If it is necessary to carry out activities in a store, these must be carefully planned, controlled and supervised, and based on a suitable and sufficient risk assessment (this may well involve the use of a permit-to-work system).

Storage of ammonium nitrate and ammonium nitrate blasting intermediates etc.

Paragraphs 322-355 cover the storage of:

- ammonium nitrate, ammonium nitrate blasting intermediates and other raw materials used in the production of ammonium nitrate-based explosives;
- ammonium nitrate emulsion explosives; and
- ammonium nitrate and fuel oil mixtures (ANFO).

ACOP

4

Risk assessment

322. Any risk assessment should take into account the potential for the spread of fires from neighbouring properties especially adjoining buildings.

Location, design and construction of storage buildings

323. Ammonium nitrate and ammonium nitrate blasting intermediates must be stored separately from:

ACOP

4

(a) explosives stores and from explosives manufacturing and blasting operations;

(b) other fuels such as flammable liquids, oils, greases, powdered metals and other chemicals which are incompatible with ammonium nitrate or emulsions such as acids, chlorates, zinc, copper and copper salts; and

(c) aluminium powder (see paragraphs 354-355 for further guidance on the storage of aluminium powder).

324. Unless there is a fire-resisting barrier between them, a fire-break separation distance of 10 m should be maintained between the ammonium nitrate stores or ammonium nitrate blasting intermediate storage tanks and other buildings or stocks of flammable materials on or off the site.

325. Table 2 shows separation distances to be maintained between stores holding explosives and stores of ammonium nitrate and/or ammonium nitrate blasting agents. Please note that the table does not apply where the stores only hold ammonium nitrate or blasting intermediates - in these instances only the fire-break distance of 10 m would apply. Where the explosive is kept in a mounded store then the 'barricaded' distances apply. The barricaded distances also apply where there is a natural or artificial barricade around the ammonium nitrate or between it and the explosive. Site operators should seek further advice from the DOJ on the suitability of natural barricades.

ACOP

Table 2: Separation distances between explosives stores and ammonium nitrate/blasting intermediates

1	2	3	4	5	6
Quantity of explosive (kgs)	Distance (in metres) to be maintained between the store and ammonium nitrate passing detonation resistance test or AN blasting intermediate in UN 3375 (barricaded)	Distance (in metres) to be maintained between the store and ammonium nitrate passing the detonation resistance test or AN blasting intermediate in UN 3375 (no barricade)	Distance (in metres) to be maintained where the AN has *not* passed the detonation resistance test or where the AN blasting intermediate is *not* in UN 3375 (barricaded)	Distance (in metres) to be maintained where the AN has *not* passed the detonation resistance test or where the AN blasting intermediate is *not* in UN 3375 (no barricade)	Minimum thickness of artificial barricade (cm)
Under 50	1	5	3	20	30
50 –100	1	7	4	23	30
100 – 200	1	8	5	29	30
200 – 500	2	11	7	41	30
500 - 1000	2	15	9	55	30
1000 - 2000	3	19	11	68	40
2000 - 3000	4	21	13	75	40
3000 - 4000	4	23	14	82	50
4000 - 5000	4	25	15	89	50
5000 - 6000	4	26	16	94	50
6000 - 7000	5	27	16	98	60
7000 - 8000	5	28	17	102	60
8000 - 9000	5	29	18	105	60
9000 -10000	5	31	19	111	60
10000 -15000	6	36	21	128	80
15000 – 20000	7	40	24	144	80
20000 – 30000	8	48	28	168	90
30000 – 40000	9	54	33	195	100
40000 – 50000	10	60	36	216	130
50000 – 60000	11	66	39	234	130
60000 – 70000	12	71	43	258	130
70000 – 80000	13	79	47	283	130
80000 – 90000	15	87	52	314	130
90000 –100000	16	96	57	342	150
100000 – 110000	17	100	61	363	150
110000 – 120000	18	107	64	384	150
120000 – 130000	19	113	68	405	150

326. It is essential that buildings used for the storage of ammonium nitrate are well ventilated; constructed from materials that will not burn, such as concrete, brick or steel; and located away from sources of heat, fire or explosion. It is recommended that access is restricted to those who need to enter the building.

327. When keeping ammonium nitrate or ammonium nitrate blasting intermediates, care must be taken to avoid drains, channels or pits where, in the event of fire, molten ammonium nitrate or ammonium nitrate blasting intermediates could become confined. Where the presence of drains etc. is unavoidable they will need to be protected so that molten material cannot run into them.

328. Floors must be made of non-combustible material without hollows where molten ammonium nitrate could concentrate in the event of a fire. It is important that floors are easy to sweep and to clean with water. Care must be taken to ensure that ammonium nitrate or ammonium nitrate blasting intermediates cannot

4

ACOP

accumulate in nooks and crannies or cavities either in the store or in equipment.

329. Light fittings need to be robust, made of material which does not readily burn and constructed or positioned so that ammonium nitrate dust cannot penetrate them. It is strongly recommended that main electrical switches, fuses, etc. are located outside the storage area to minimise the risk of fire. Local switches must not be located where they could lead to a fire in the store or come into contact with stored ammonium nitrate.

330. Care must be taken to ensure that ammonium nitrate blasting intermediates cannot accumulate in hollow sections in equipment such as storage tanks.

Storage tanks

331. To avoid unnecessary confinement, storage tanks must be fitted with a pressure relief device, which may be of the re-closing spring-loaded type, a frangible disc or a fusible element. The pressure-relief device must be designed to prevent the entry of foreign matter or leakage of the ammonium nitrate blasting intermediate. If portable transport tanks are used, it is recommended that they are located on a hard standing with clear access all round.

332. Fixed tanks must be securely located and fixed in accordance with the manufacturers' recommendations, such as on a frame or platform. The tanks must not be fitted with a bund but may have sloping ground to allow ejected material to flow away from the tank in the event of fire. Only inorganic non-combustible materials are to be used for any thermal insulation of the tank.

333. The design and construction of portable transport tanks must comply with the requirements of the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations (Northern Ireland) 2006[28].

General management and housekeeping

334. All materials used in the manufacture of ANFO or ammonium nitrate blasting intermediates must be stored in a dry location. Ammonium nitrate, fuels and other incompatible materials must be kept separately from one another. Suppliers' guidance on the storage of particular materials must be followed.

335. Fuel oil must be stored away from ammonium nitrate and ammonium nitrate blasting intermediates. If stored in the open, the distance between the ammonium nitrate store and fuel must be adequate to prevent cross-contamination. Tanks containing fuel oil should be bunded, the bund designed to contain 110% of the tank volume.

4

336. Precautions are also necessary to exclude sources of ignition or contamination including in particular copper or copper alloys and zinc. The building and handling routines must be designed to

ACOP

prevent organic material and other foreign materials coming into contact or being mixed with the ammonium nitrate and ammonium nitrate blasting intermediates.

337. Self-confinement of ammonium nitrate in large stacks can increase the risk of detonation of the whole stack. It is good practice to limit stacks of relatively low density ammonium nitrate (i.e. below 900 kg/m^3) to 2 m high and 3 m wide and a stack size of 300 t maximum. There should be a space of at least 1 m between stacks and between the stack and the wall, electrical equipment and heating pipes. Where water sprinkler systems have been fitted, there should be sufficient clearance above the top of the stack to allow for the operation of water sprinklers in the event of fire.

338. Where packaged ammonium nitrate is stored:

(a) there should be adequate space between each row of packaging to allow for inspection of the material; and

(b) the packages should not be piled so high as to damage the packages of the lower units.

339. Decomposition can occur if heaters are positioned too near to ammonium nitrate or if dust deposits are allowed to accumulate on steam pipes or other heating devices. Direct electrical heaters (i.e. fan or radiant heaters) must never be used in ammonium nitrate stores.

340. It is advisable to ensure that the storage temperature for ammonium nitrate is kept below 32^{o}C because if the material is cycled through 32^{o}C several times the prill structure could break down.

341. Devices (such as hot water or trace heating) used to keep the emulsions at their design temperature must be fitted with a thermal cut-out to prevent overheating.

342. A suitable stock management system must be maintained to enable monitoring of stock levels and substances being held (and therefore any compatibility issues which might arise).

343. It is essential to ensure that:

(a) filled bags and intermediate bulk containers are stored in stable stacks;

(b) walls, floors and equipment are kept clean. Spillage is cleared promptly;

(c) organic materials such as sawdust are not used as an aid to cleaning floors;

(d) contaminated products are disposed of promptly and safely; and

4

(e) pallets, ropes and covers are not allowed to become impregnated with ammonium nitrate.

ACOP

344. It is important to remove combustible waste materials from the store. Unused pallets should not be stored in or against the outside walls of the store.

Maintenance

345. The storage area (or other working area where ammonium nitrate is handled) must be thoroughly cleaned before any maintenance that involves heat such as welding or cutting. Apart from the risk of explosion in confined areas, there is also the risk of toxic fumes being produced (see paragraph 165 for further information on maintenance work and the operation of a permit-to-work system).

Vehicles in ammonium nitrate stores

346. Only battery- or diesel-powered vehicles may be used in ammonium nitrate stores. The engine exhaust of any vehicle used in a building with bulk, loose ammonium nitrate must be fitted with an effective spark arrester.

347. The vehicles need to be checked carefully for any fuel, lubricating or hydraulic oil leaks, as these can become mixed with ammonium nitrate on the floor and form substances which are potentially explosive.

348. Vehicle maintenance or equipment repair activities may not take place within the storage area of ammonium nitrate.

349. Care is needed to avoid garaging any vehicle in an ammonium nitrate store. Normally a firewall offering half-hour fire resistance should separate ammonium nitrate storage facilities and vehicles.

350. Where it is necessary for a vehicle to enter a building containing ammonium nitrate (for example, for loading) precautions must be taken to prevent contamination from grit, oil etc.

351. Mobile equipment must be fitted with a suitable fire extinguisher for fighting any fire on the vehicle. Such equipment must not be left running while unattended in the storage area.

Solidified product

352. A risk assessment should be carried out before any work is performed on the caked ammonium nitrate and specialist advice should be obtained from the supplier. Explosives must never be used to break down solidified product as there is considerable risk that the ammonium nitrate will detonate.

353. Specialist advice from the supplier must be obtained if ANFO or ammonium nitrate blasting intermediates have solidified.

Storage of aluminium powders and other materials

4

354. General guidance on the storage of aluminium powder is contained in *Safe handling of combustible dusts*[29] and specific advice on the storage arrangements should be obtained from the

ACOP

4

supplier. Many of the grades of aluminium powder used in the manufacture of explosives are extremely fine and the presence of aluminium dust in the air can lead to explosions. It is important to take care to avoid the creation of dusty atmospheres.

355. Aluminium powder containers must be kept in clean, dry storage buildings separate from ammonium nitrate storage. It is important that the store is kept scrupulously clean to prevent dust accumulating on ledges, window sills etc. which might be disturbed and cause a dust cloud explosion. Under certain circumstances these powders can react violently with water. Even minor water ingress can lead to dangerous levels of hydrogen being produced which may explode and release aluminium dust.

Additional guidance on the storage of ammonium nitrate is given in *Storing and handling ammonium nitrate*[30].

Please contact your Police Explosives Officer for guidance on security measures to be taken when storing ammonium nitrate.

ACOP

4

Mixing of emulsion explosive and ANFO

Specification of suitable mixtures

356. The ammonium nitrate prills need to be sufficiently porous to absorb all of the fuel oil which is added. In addition, the prills need to be capable of holding the fuel oil without appreciable liquid separation during its time in the borehole.

357. In the production of ANFO, it is important to add sufficient fuel to the ammonium nitrate prills in order to achieve a mixture which is close to oxygen balance. For fuel oil, i.e. diesel or gas oil, oxygen balance is achieved by the addition of 5.0–7.0% (by weight) of oil, depending on the elemental composition of the fuel oil. Deviation from oxygen balance will lead to the production of excessive toxic post-detonation fumes, poor blast performance with the increasing likelihood of unstable quarry or rock faces and overhangs, and even misfires.

358. The quality of the oil used for ANFO manufacturing may not be critical, provided the flash point is significantly higher than the process or ambient temperature. It is recommended that the flash point is greater than 45°C.

ANFO mixing process

359. It is important to ensure that any process chosen to mix ammonium nitrate and fuel oil to produce ANFO is capable of mixing the ingredients to the required tolerances. Not only should the correct quantity of fuel oil be added to the ammonium nitrate, they must be thoroughly mixed together to produce a uniform mixture. Uneven dispersion of fuel oil will yield more toxic gases on detonation than a homogeneously mixed product. The finished ANFO product should be checked on a regular basis to verify the required tolerances of the mixing equipment. It is good practice to use a

ACOP

colourant in the fuel oil to give a visible check on the completeness of the mix.

360. Due to the hazards associated with post-detonation gases, ANFO for use underground needs to be manufactured to a high standard to minimise the quantities of carbon monoxide and nitrogen oxides produced. Additional precautions are required and should include maintenance and calibration of the mixing machinery at periods identified in the risk assessment and assessments carried out under the Control of Substances Hazardous to Health Regulations (Northern Ireland) 2003 as amended[6] (COSHH(NI)).

Training and operating procedures

361. While ANFO and emulsion explosives are relatively insensitive to shock, impact etc., all those involved in their manufacture and use must be aware that it is still a potentially hazardous material and should therefore be handled with care.

362. There must be clear work instructions and safe systems of work. Only those who have successfully completed appropriate training in these procedures and methods should be permitted to operate equipment for manufacturing ANFO, ammonium nitrate blasting intermediates or emulsion explosives.

363. When pumping ammonium nitrate blasting intermediates only those staff involved in the operation should be allowed into the area around the pumps and bore holes.

364. Suitable protective clothing (overalls, gloves etc.) and eye protection should be provided whenever ammonium nitrate, diesel and other raw materials are being handled.

365. When mixing for immediate use, care is needed to mix no more than is required for the task in hand. Mixing must take place as close as is reasonably practicable to the point of use.

4

Guidance

Health precautions

366. Information on the health hazards of the materials used in the manufacture of site-mixed explosives should be obtained from the suppliers and other information may be found in manufacturers' or suppliers' safety data sheets. Assessments under COSHH(NI) should be carried out not only on the materials handled but also on the products of combustion, especially where these may be present in confined spaces.

367. Gas oil and diesel oil are irritants to the eyes and may cause dermatitis on prolonged or repeated contact. The skin may be seriously affected by prolonged exposure especially when clothing is also oil-contaminated. The acute toxicity and irritant effects of aluminium powder are low but chronic exposure to aluminium dust can result in fibrogenic effects on the lungs, which can be severe.

4

Environmental issues

The ingredients of ANFO and emulsions are harmful to aquatic life and drinking water so care should be taken to avoid spillage into ponds, rivers, streams etc. ANFO and emulsions should never be disposed of by dissolution in water where there is a risk of the ingredients entering controlled waters and ground water.

Arrangements should be made for environmentally acceptable methods for disposal of any contaminated water (for example, the waste water can be recycled).

Arrangements should be made for fire water run-off in the event of a fire involving ammonium nitrate, ammonium nitrate blasting intermediates and fuel oil.

Guidance

4

Fusing fireworks

368. 'Fusing' is the term used to describe the assembly and preparation of firework display pieces by firework display operators from single fireworks. It can also involve the attaching of a fuse to a single unfused firework or the alteration of the fuse, for example, by the addition of plastic igniter cord as a delay element to piped quickmatch. Some fireworks are supplied to the display operator without a fusing system or with an incomplete fusing system. The display operator may link several such fireworks together by fusing to make a combination with just one point of ignition and in which the individual fireworks go off in a predetermined sequence. Fusing may take place at the site where the fireworks are to be fired immediately before the display is fired (display site) or at another place such as a firework display operator's base.

369. It is important to stress that the same precautions must be taken if fuses are removed and/or displays dismantled.

ACOP

4

370. There are precautions which need to be taken while fusing:

(a) fusing must take place in a building or area (which may be outside) at a safe distance (15 m) from manufacturing or storage areas;

(b) no other working activity (for example, the construction of the frames to which the fireworks are attached) may take place in a building or area while it is being used for fusing;

(c) the number of employees or other workers in the fusing area at any one time must be kept to a minimum - generally three should be regarded as the maximum. Where there is only one exit, there should be no more than two in the area at any one time;

(d) black powder or pyrotechnic composition exposed through cutting, baring back or dismantling must be left exposed for the minimum time otherwise it should always be completely sealed within the casing of the firework or the outer covering

ACOP

of the fuse. However, it is recognised that some composition may be shed when fuses are cut;

(e) there must be no repair or breakdown of fireworks other than repairs to the fusing system;

(f) there must be no flammable or explosive materials in the building or the area other than those necessary for the work in hand;

(g) the quantities of fireworks and other pyrotechnic materials (for example, quickmatch, tapematch, igniter cord, igniters and fuseheads) exposed or stored in the fusing area must be restricted to the quantity needed for the piece that is being fused;

(h) completed firework display pieces must be put into the store as they are finished and not kept in the fusing area;

(i) any lighting or other electrical equipment used in the building or the area must be suitable for use in an explosives area;

(j) workers involved in fusing work must be made aware of the safety precautions which have to be taken;

(k) fuses should only be cut in the manner advised by the manufacturer or supplier of the fuse; and

(l) it is strongly advised that each operation is covered by a written work instruction.

371. Appropriate measures should be taken to minimise the risks of ignition during the handling of fireworks and fuse materials. Typical precautions include:

(a) using sharp cutting tools made from non-sparking materials or which cut against a non-sparking surface. Manufacturers' or suppliers' advice should be obtained on the best way of cutting the fusing materials and only the recommended tools used. Fuse material must not be torn apart;

(b) taking particular care when inserting or removing fuseheads from black match. Fuseheads can be easily ignited by friction, crushing or cutting and must be handled with care;

(c) taking care when joining different types of fuse to avoid bringing incompatible materials into contact, for example, sulphur with chlorate;

(d) never stapling fuses directly into place. Staple guns may only be used to attach ties or similar items which are then used to secure the fuse; and

(e) ensuring that all joins are made so as to leave no exposed composition. It is important that joins are strong enough to withstand the stresses they will experience and taped if necessary.

4

Regulation 5 Separation distances

Guidance

372. The tables of separation distances given in Schedule 1 apply to all stores other than stores:

(a) holding very small quantities of explosive, i.e. 100 g or less;
(aa) a combined total of 5kg of shooters' powder and model rocket motors;

(b) holding 30 kg of shooters' powders or less and/or up to 300g of primers and small arms ammunition, subject to certain conditions (see paragraphs 407-417);

(c) holding up to 200 detonators and 5 kg of water-based explosive and detonating cord, or 5 kg of water-based explosive or detonating cord, subject to certain conditions (see paragraphs 418-424);

(d) used by the Police Service of Northern Ireland (PSNI) and the Northern Ireland Prison Service to keep no more than 4 kg of explosives for training dogs to detect explosives or other operational purposes;

(e) whose licensing process was subject to the public hearing procedure; and

(f) at sites controlled by the Ministry of Defence.

373. It is important to emphasise that these distances apply to registrations and to stores operated by organisations which are exempt from the licensing requirements. This includes stores operated by the PSNI (except those PSNI sites which keep small quantities of explosives for detection dog training and other operational purposes – see paragraph 372).

374. Regulation 5 imposes a continuing duty on the storeholder. If there is development which means that existing separation distances cannot be maintained then the storeholder, having first informed the DOJ, must reduce the quantity of explosives held or even, in extreme circumstances, relocate the store. In some cases the storeholder can take other measures such as mounding or the removal of any detonator annex. The storeholder might also opt to keep explosives of a hazard type requiring smaller separation distances – although in most cases the nature of the business requirements means that this is unlikely to be an option.

375. The existence of these requirements does not in itself prevent development near to explosives stores. It is the responsibility of the storeholder to take the necessary steps to continue to comply with the requirements. Some operators of explosives sites have done this by securing covenants on the land around their stores or by outright purchase. Where development does take place, the storeholder would need to consider the actions needed to ensure continued compliance.

5

Guidance

376. The distances apply between the explosives store and inhabited buildings. There are also distance requirements for public traffic routes and public places.

377. There is not a requirement to maintain separation distances between stores and uninhabited buildings. However, storeholders should bear in mind that such buildings could be reoccupied or redeveloped in the future at which point the relevant requirements would apply.

378. Certain buildings which could endanger an explosives building (for example, a high-voltage electrical generating plant) will not normally be inhabited. The requirements of regulation 4 mean that account should be taken of the risks posed by such buildings in deciding where to locate stores.

379. Schedule 1 uses the term 'dwelling'. In this context, 'dwelling' includes individual flats within a block of flats.

High-and low-density distances

380. In certain cases, the tables in Schedule 1 specify distances for high population density areas. These tables specify the maximum number of houses (or other dwellings such as flats) which may be in a specified area around the store before the higher distances apply. Where there is a dash in the column marked 'High density' it means that there is no high-density distance and the low-density distance applies. In these cases the tables do not specify a reference zone or a maximum number of dwellings and there is also a dash in this column.

381. An illustration showing how to decide whether the high- or low-density distance applies is in Annex 3.

382. It is expected that the majority of stores, and proposed stores, will continue to be in rural areas. In such areas it should be immediately clear that the area is low population density. Where it is necessary to make a count of the number of inhabited buildings it is suggested that the electoral register would be a suitable source of data on the number of households in residential areas.

383. It is important to emphasise that there is a continuing duty on the storeholder to comply with the requirements in cases where subsequent development means that the number of dwellings in the reference zone exceeds the threshold at which the high-density distance applies.

Vulnerable buildings

384. The tables also include distances to be maintained from vulnerable buildings. These buildings are those of curtain-wall construction where the method of construction means that, in the event of an explosion, there would be a hazard to anyone in the area from falling glass and masonry. As there are no vulnerable building distances for Hazard Type 3 or 4 explosives, the tables for these explosives do not include a column for vulnerable building distance.

5

Mounds

Schedule 1 uses the terms 'mounded' and 'unmounded' stores. It also defines 'mounded' as meaning surrounded by suitable mounds.

A mound is a barrier that will intercept fragments and debris caused by an explosion in a building or store. In the event of explosion, mounds serve two purposes:

- to protect explosives stored in nearby buildings from initiation by fragments; and
- to reduce the risks to inhabitants of nearby occupied buildings from fragments and debris.

Natural ground features may be used for this purpose but the most common forms are artificial earth mounds, reinforced concrete walls or containers filled with earth.

ACOP

385. Mounds are ideally located approximately 1 m from the building wall unless access requires a greater distance. This will provide maximum shielding and minimise the height, which should be at least to the eaves of the building and be a minimum of 1 m thick at the top.

386. If a sloping mound is used (single or double slope), the slope must be sufficient to ensure the stability of the mound material. It is useful to stabilise mounds by planting with grass or other vegetation.

387. If a filled container mound is used, it must be of sufficient height and thickness to be effective. In the case of a steel store the following examples should be taken as a starting point:

(a) store dimensions 0.91 m x 0.76 m x 0.84 m high containing 75 kg of HT1 explosives: a 1 m thick mound, minimum height the height of the store; and

(b) store dimensions 1.68 m x 1.68 m x 1.52 m high containing 450 kg of HT1 explosives: minimum thickness 1.2 m, minimum height the height of the store.

For larger stores, the size of the mound should be increased proportionately.

388. It is important to ensure that the materials used to construct mounds do not exacerbate the debris/fragment problem. Mounds should therefore be made of sand, clay or earth. There should not be rocks or stones greater than 75 mm in diameter and the rocks should make up no more than 10% of the total weight.

5

How to use the tables

Guidance

389. The tables in Schedule 1 show in Column 1 two figures in each row for the quantity of explosives (for example, 25–50 kg). The effect of Schedule 1, paragraph 1(3) is that, in this example, more than 25kg and no more than 50kg (i.e., 25.1-50 kg but not 50.1kg).

5

Guidance

390. Distances are measured from the outside edge of the building or place where explosives are stored to the nearest point of the building or place to which the separation distance applies. The distance should be measured in the horizontal plane.

391. Where there is more than one store on a site the separation zone is a composite of separation distances around the individual stores.

Licences subject to the public hearing procedure

392. The DOJ would normally grant a licence to which the separation distances specified in Schedule 1 would apply. Licences granted following this route would not be subject to a public hearing.

393. However, in cases of manufacturing, where the quantity of explosives to be stored (including at a mine or harbour area) is greater than 2000 kg or where the DOJ uses its discretion to vary the separation distance requirements (i.e. those licence applications which are subject to the public hearing procedure), the DOJ would normally follow the distances given in Annex 2. These distances are consistent with those given in Schedule 1 of the Regulations. Where a distance is not specified in the table for a specific quantity (because the quantity is very large or it lies between the points given in the table), the DOJ would use the appropriate formula. These are shown in Annex 4.

394. The DOJ would normally only use its discretion to depart from the separation distances specified in Annex 2 if other risk and hazard reduction and mitigation measures were taken which would ensure an equivalent level of safety. These measures would be included as conditions in any licence. Examples of mitigation include but are not restricted to:

(a) mounds or other traverses or features designed to intercept flying debris from fire or explosion;

(b) building structures sufficient to contain the effects of fire or explosion;

(c) building orientation which directs effects away from adjacent buildings;

(d) reducing the unit risk from a building containing explosives by means of suitable internal partitions ("compartmentalisation"); and

(e) common fire detection/alarm systems.

395. The suitability of any measure to justify the use of reduced separation distances will depend upon site-specific circumstances, for example, the types and quantities of explosives present in a building. The licence applicant will need to demonstrate that the proposed safety measures are suitable for the site and the other circumstances.

5

396. This approach would also apply where an existing site is divided into two independently-operated and licensed sites, for example, following the sale or sub-letting of part of the site. Normally the DOJ would expect the External Separation Distances to apply between buildings on the two sites but it has the discretion to accept shorter distances (including, if appropriate, a distance equivalent to the existing Internal Separation Distances) where additional or existing safety measures are in place.

397. The DOJ may offer advice and comment on initial proposals but it must be stressed that the applicant has to ensure that they have the necessary expertise and professional advice available to him, and the DOJ cannot substitute for this expertise.

Stores holding no more than 2000 kg

398. In applications for licences for stores holding no more than 2000 kg of explosives, the DOJ may depart from the distances specified in these tables. The DOJ would exercise its discretion in accordance with the principles set out in the previous paragraphs, i.e. it would normally only exercise its discretion to issue a licence with reduced distances if the Department was satisfied that the applicant had put in place additional hazard reduction and mitigation measures which, together with the separation distances, offered an equivalent level of safety.

Plans showing separation distances

399. Regulation 5(7) requires those granted a licence which was subject to the public hearing procedure to give to the local Council planning department (and/or the relevant team within the Department for Infrastructure), within 28 days, a plan of the site and its immediate surroundings, showing the separation distances required to be maintained by the licence (a safeguarding plan). A similar requirement applies where a licence is varied in such a way that separation distances are affected. The plan should be sent to the local Council planning department for the area in which the site is located. Contact details can be found on the NI Direct planning system website at www.nidirect.gov.uk/articles/planning-system-and-development-management. Guidance on the preparation of a safeguarding plan is available from the Health and Safety Executive's website at www.hse.gov.uk/explosives/licensing/safeguarding-plans.htm .

Refusal to licence an unsuitable site

400. In some cases the DOJ may take the view that, even though separation distances can be maintained, the site is still not a suitable one for an explosives store. Such circumstances may include:

(a) proximity to a school or nursery, sheltered accommodation or hospital; and

Guidance

5

(b) proximity to buildings such as football stadia or other public places used by very large numbers of people.

401. The DOJ may seek specialist advice where there are topographical features likely to affect the direction and distance of blast effects or fragment throw; such situations are likely to be highly exceptional and would include a store located:

(a) against a cliff-side; and

(b) on a steeply sloping hillside with housing below.

Hazard Type

The quantity of explosive which may be kept without the need to hold a licence or to register depends on the Hazard Type. Definitions of the hazard types are given in regulation 2 but are repeated here for ease of reference, together with (in **bold**) additional explanatory information:

- **Hazard Type 1:** an explosive which, as a result of, or as a result of any effect of, the conditions of its storage or process of manufacture, has a mass explosion hazard **(a mass explosion is one in which the entire body of explosives explodes as one)**;
- **Hazard Type 2:** an explosive which, as a result of, or as a result of any effect of, the conditions of its storage or process of manufacture, has a serious projectile hazard but does not have a mass explosion hazard;
- **Hazard Type 3:** an explosive which, as a result of, or as a result of any effect of, the conditions of its storage or process of manufacture, has a fire hazard and either a minor blast hazard or a minor projectile hazard, or both, but does not have a mass explosion hazard **(i.e. those explosives which give rise to considerable radiant heat or which burn to produce a minor blast or projectile hazard)**; and
- **Hazard Type 4:** an explosive which, as a result of, or as a result of any effect of, the conditions of its storage or process of manufacture, has a fire or slight explosion hazard, or both, with only local effect **(i.e. those explosives which present only a low hazard in the event of ignition or initiation, where no significant blast or projectile of fragments of appreciable size or range is expected)**.

In broad terms the hazard types parallel the UN hazard divisions used for classification for transport purposes. However, classification refers to the explosives as packaged for transport. If explosives are kept other than in their classified packages, it cannot be assumed that the hazard they present remains the same. Further guidance on Hazard Type, including information on determining the hazard type rating, is given in Annex 1.

Guidance

5

402. The Regulations use the term 'net mass'. This refers to the mass of the explosive contained in the article, i.e. net of packaging and casings etc. (See paragraphs 13-14 for an explanation of the use of the term 'net mass' and its relationship to other terms used in the industry.)

403. For fireworks the net mass should be assumed to be one quarter of the gross weight unless the manufacturer has provided more specific information.

404. Where premises are shared, the quantity of explosives stored by each person counts towards the total of the maximum quantities for purposes of licensing and registration and setting separation distances.

405. More than one store may be licensed or registered at the same address. However, the combined total of explosives will be used in determining whether a licence or registration is required. In addition, the combined total of explosives will apply for the purposes of determining the separation distance unless appropriate measures are taken to prevent propagation of fire or explosion between stores.

406. Where more than one type of explosive is kept, the limit for the most energetic explosive will apply (for example, if Hazard Type 1 fireworks are kept with Hazard Type 4 then Hazard Type 1 distances will apply).

ACOP

5

Storage of shooters' powder, water-based explosives and detonating cord

407. Regulation 5(3)(b) and (c) disapplies separation distance requirements for the keeping of small quantities of shooters' powder, water-based explosives and detonating cord. The following sections describe the conditions that must be met in order to qualify for the disapplication. These conditions apply at all premises including domestic premises.

Shooters' powder

408. Shooters' powder includes both black powder and smokeless powder.

409. The powder must be kept in containers with no more than 550g of powder per container. The containers must be constructed in such a way that, in the event of a fire, they do not provide additional containment that will increase the explosive force of any deflagration. Normally plastic/polythene or paper/cloth containers will be suitable for this purpose. Metal containers with a screw cap or a push-in lid (i.e. similar to a paint tin lid) must not be used.

410. Although shooters' powders are generally not very sensitive to ignition by electrostatic discharge, homeloaders or others who decant the contents of plastic containers must take care to reduce the risk of build-up of static electricity. Advice on appropriate precautions may be sought from the manufacturer.

ACOP

411. The containers of powder must be kept in a box constructed of plywood with a minimum thickness of 18 mm or of material with an equal or greater fire and physical resistance. (Health and Safety Laboratory tests found that 18 mm plywood offered 15 minutes' fire resistance and 24 mm plywood offered 30 minutes' fire resistance).

412. Metal boxes, including ammunition boxes, are not suitable and must not be used. This is because, firstly, while metal is fire resistant, it also transmits heat very well and, secondly, the metal container adds additional containment that significantly increases the explosive power of the powder.

413. Where the box holds more than one container, each individual container must be separated by a 6 mm wooden partition that is securely fixed to the outer walls of the box. Each compartment must allow 30% additional height between the top of the container and the inside of the lid.

414. It is a good idea to put an intumescent strip around the edges of the lid to give a good seal.

415. Figure 1 shows a box that would meet the requirements set out in the previous paragraphs.

5

Figure 1: Storage of shooters' powder: note intumescent strip on box lid

ACOP

5

416. The box should be constructed so that there is no exposed metal on the inside. Internal nuts must be covered by a glued wooden liner not less than 6 mm thick. The box must not be kept in a metal box, drawer or cupboard.

417. The box must not be located:

(a) under or near any means of access or escape, for example, under stairs;

(b) in the same room as flammable liquids; or

(c) in areas where there are risks of fire.

Security

Anyone storing shooters' powders must take all due precautions to prevent unauthorised access to the powders.

Storage boxes should be kept in accordance with appropriate security standards.

Where the place of storage is not a secured room or other suitably secure place, the police will require that the box should meet certain minimum requirements. These include:

- securely fixed, robust steel hinges;
- a secure hasp used with a security-grade padlock; and
- a suitable arrangement to frustrate attempts to remove the box, for example, by securing it by either its handles (if they are bolted through the box) or by a similarly attached ring or other attachment to a strong point using a good quality chain or fixed device and padlock.

Please contact your Police Explosives Officer for more information about security requirements.

ACOP

5

Water-based explosives

418. Regulation 5(3)(c) allows the storage of small quantities of water and ammonium nitrate-based explosives assigned to U.N. no. 0241 without the need to maintain separation distances providing certain conditions are met. The conditions are that the store must:

(a) be designed and constructed to ensure that there is no additional containment in the event of an explosion, for example, by fitting an outward opening door that would be released in the event of an explosion;

(b) be constructed of fire-retardant materials such as thermalite block;

(c) be located inside a building (such as a garage or outhouse) but not inside a dwelling. Storage inside an integral garage is permitted;

(d) be located at floor level on a concrete (or similar) floor; and

(e) not be located in the same room where flammables (for example, petrol, LPG, paint and white spirit) are kept. Where the store is located in a garage, any vehicles must be removed. All wood, plastic and paper must also be removed.

419. The storage arrangements have to meet any security requirements made by the Police. It is assumed that the store will be located in a secure building. For example, this is likely to involve the fitting of a suitable monitored alarm in the premises, with a contact breaker and vibration detectors suitable for use with the explosives fitted to the store itself.

Detonating cord

420. Regulation 5(3)(c) also applies to the keeping of small quantities of detonating cord without the need to maintain separation distances providing the conditions in the following paragraphs are met.

421. Detonators must be kept in a separate compartment and either be kept in:

(a) their original UN Hazard Division 1.4B or 1.4S inner and outer packaging (detonators that meet this standard will be marked UN 0255, UN 0361, UN 0456 or UN 0500); or

(b) a manner that meets the same standard.

422. The second alternative will involve using packaging that provides a physical barrier that stops the detonation of any one detonator spreading to the rest of the case. The two principal media currently approved for use in transport are blocks of Medium Density Fibreboard (MDF) or flame-suppressed PVC. The individual detonators are placed in holes in the block. The dimensions of these holes and their spacing will depend on the detonators that are being stored. Where there is evidence that the block has been approved by a competent authority for use in the transport of that type of detonator, it will normally be acceptable for use in storage. Where the block is constructed for use in storage then the depth of the holes must be sufficient to cover the explosive charge: generally they will be at least 27 mm deep. The holes must be at least 20 mm apart.

423. Detonating cord must not be kept in bulk reels unless the reels have been manufactured to meet the requirements of UN Hazard Division 1.4 (normally this involves using Kevlar rope to separate the detonating cord from itself as it winds onto the reel). Instead it must be cut into lengths of up to 5 m and loosely coiled. The individual coils must be kept separated by a physical barrier that prevents the detonation of one length of cord from spreading to adjoining lengths of cord. It is suggested that these separators are made of materials such as 4 mm plywood or plasterboard.

424. Care should be taken in cutting the cord and any waste material must be carefully disposed of. The ends of the cord must be carefully taped to prevent loss of composition. It is important that

ACOP 5

the cord is coiled in such a way as to avoid it cracking or splitting. The diameter of the coil will depend on the thickness of the detonating cord.

Regulation 6 Disposal of explosives and decontamination of explosive-contaminated items

Disposal of explosives

ACOP

425. Explosives must be disposed of safely and not as general waste. Waste explosives may only be disposed of in a designated disposal area with facilities appropriate to the type and quantity of explosives to be destroyed. A safe system of work must be in place and suitable training must be provided for the people involved in disposal of explosives.

426. Persons disposing of explosives should be aware that they have duties to do so in a way that is not harmful to the environment. If in doubt, further information and advice may be obtained from the local council or Department of Agriculture, Environment and Rural Affairs (DAERA).

427. There are four ways to dispose of or destroy explosives:

(a) burning;

(b) detonation;

(c) dissolution or dilution; and

(d) chemical destruction.

On environmental grounds, sea dumping and burial are no longer considered to be suitable methods of disposal.

428. A risk assessment is required to decide the most suitable method of disposal. The assessment needs to consider the nature of the explosive and its hazards, the disposal method and hazards created during the disposal process and the type and position of the disposal site.

Burning

429. When burning explosives, the risk of burning to detonation must be taken into account and measures taken to minimise the risk and to protect against the effects of a detonation should it occur. The general rule is to only burn small quantities at any one time while avoiding excessive transport movements. Items which might be propelled from the fire when burned must be suitably contained without confining the explosive.

430. Incompatible explosives must not be burned together. Explosives must be burned separately if there is any doubt about their compatibility.

Detonation

6

431. While disposal by detonation is relatively simple, it is essential to use a suitable site which is large enough to contain the

ACOP

effects of detonation. This method is most appropriate in 'use' situations, for example, at quarries or other sites where blasting is performed. After detonation, the site needs to be checked for unconsumed explosives. Clear procedures are essential for checking whether all explosives have been fired and all staff involved in this work must fully understand the steps to take in the event of misfires.

Dissolution or dilution

432. Some explosives can be destroyed or desensitised by a compatible solvent or diluent. The resulting waste can then be disposed of by burning. Most powdery pyrotechnic compositions which contain a water-soluble component can be destroyed by immersion in water. The resulting liquor must then be filtered and the solids sent for burning.

Chemical destruction

433. Chemical destruction is normally only relevant to the decontamination of plant or spillages where 'on-the-spot' destruction of small quantities of explosives is required. It may also be appropriate to use this method for very sensitive explosives which may be too dangerous to transport for disposal in other ways.

434. Any secondary waste from chemical destruction must be assumed to be an explosion risk and be dealt with accordingly.

Disposal of explosive articles

435. The method of disposal for explosive articles will depend on the nature of the particular device. The hazards and risks arising from each method need to be considered before deciding on the appropriate one.

436. Disposal can sometimes be safely achieved simply by exploding the article under controlled conditions at a suitable location. Alternatively, destruction of small articles may be possible in an armoured furnace. Disassembly or breakdown of articles should only be considered as a last resort. It is also important to note that disassembly is an act of manufacture and must be carried out in a place licensed for manufacture. An exception to this is ordnance disposal for public safety under the direction of a member of HM Forces.

Decontamination of explosives plant and equipment

437. Decontamination methods will depend on the type of explosives (or explosive articles) and the nature of the plant or equipment involved. It is essential to carry out a risk assessment before commencing decontamination work.

438. Particular care should be taken when dismantling contaminated plant. Undue force should not be used. If remote disassembly is not possible, workers should be supplied with appropriate clothing and equipment to protect them from localised detonation.

6

ACOP

6

439. Even if the equipment is visually clean it must not be assumed that it is free from explosives until it has undergone some form of proving. It should be assumed that an explosion may occur at every stage of the proving process and the operation conducted accordingly. 'Hand flaming' must never be attempted.

More detailed guidance on the safe disposal of explosives and explosive-contaminated materials can be found in *Guidance for the Safe Management of the Disposal of Explosives*[31]*.*

Further guidance on decontamination is contained in the CBI Explosives Industry Group publication *Management guidance for the safe decommissioning of explosives sites*[32].

Guidance

6

Vacating an explosives site

440. Anyone manufacturing or storing explosives has a duty under section 3 of the Health and Safety at Work (Northern Ireland) Order 1978[12] to ensure so far as is reasonably practicable that his activities do not create risks for others. This applies to risks which might arise from the presence of explosives at the site after it has been vacated. All explosives buildings and sites must be thoroughly cleared of explosives before they are vacated. Depending on the nature, use and size of the site it may be necessary to seek the advice of a specialist contractor (see also paragraphs 437-439 on decontamination of explosives plant and equipment).

Regulation 7 Employment of young persons

Guidance

7

441. The Management of Health and Safety at Work Regulations (Northern Ireland) 2000[5] place specific duties on employers to ensure that young people are "protected at work from any risks to their health or safety which are a consequence of their lack of experience or absence of awareness of existing or potential risks or the fact that young persons have not yet fully matured".

442. The employer is required to carry out a risk assessment before a young person starts work. The assessment should consider the particular risks which may arise from lack of experience or insufficient attention to safety.

443. In general the presumption should be not to employ young people in roles where they are directly involved in the manufacture or storage of explosives or frequently go into explosives buildings or areas unless there are good reasons for doing so.

444. Young people should at all times be under appropriate supervision by a competent, responsible person whenever they are in an explosives area. The level of supervision will depend on the maturity of the young people, their experience and training, the hazards with which they are dealing and other procedures in place. For example, direct supervision at all times would be appropriate for a 16-year-old with little or no training or experience. A trained and experienced near-18-year-old may not require constant direct

Guidance

supervision, although arrangements must be in place to ensure that they receive the appropriate level of direct and indirect supervision and that a supervisor is on hand at all times in the event of a problem.

445. As with any other workers, young people handling explosives will need to have appropriate training on the risks to which they are exposed, the safety requirements and the rules and procedures to be followed.

446. Supervisors of young people must be over 18 years. It is essential that the supervisor should have a full understanding of the hazards likely to be encountered, the safety precautions to be taken, potential problems that might occur and the action to be taken should a problem arise. In selecting and training supervisors, employers must ensure that they have the necessary experience and understanding of the risks as well as the requisite personal qualities.

447. These principles apply to all young people in the workplace, including those on work experience or other temporary placement schemes.

7

Regulation 8 Unauthorised access

Guidance

448. Regulation 8 prohibits anyone from entering an explosives building or area without permission from the occupier or his representative. The regulation requires anyone who has entered without permission to leave when requested to do so and permits the occupier, his employee or agent to remove that person. It is strongly recommended that the police should be called if the person refuses to move. Normally, the occupier, his employees or agents, should only remove an unauthorised person themselves in situations where they consider that there is an imminent threat to the safety of the explosives. In these circumstances it is important to emphasise that only reasonable means may be used – these will depend on the severity and imminence of the threat to the explosives.

449. The provisions of this regulation rely on the operator making the necessary arrangements to mark the boundaries. Larger sites are likely to have perimeter fencing and patrolling etc. However, at small sites, particularly quarries, there may not be a secure perimeter fence and the security arrangements will be primarily a security store with a monitored alarm. In such situations it may be preferable not to draw attention to the existence of an explosives store.

450. The decision on whether to erect boundary markers and warning signs will need to take into account the circumstances of the store, especially its location. Where the store is in an area that is regularly used by members of the public (for example, an area popular with walkers) there may be advantages in erecting signs. Where the store is in an isolated area that is unlikely to be visited by members of the public then there may be little advantage in erecting signs. The Police Explosives Officer will be happy to advise.

8

Guidance

8

451. If warning signs are used, the wording will be dependent on the nature of the site. One possible form of words is:

> Manufacture and Storage of Explosives Regulations
>
> (Northern Ireland) 2006
>
> It is an offence to pass beyond this point without permission.

452. Regulation 8 does not apply to enforcement officials in the course of their duties.

LICENSING AND REGISTRATION REQUIREMENTS

Guidance

When a licence or registration is required

Manufacturing

453. A licence is required for most manufacturing activities.

454. Manufacturing includes processes where explosive substances or articles are made or assembled or unmade or disassembled. The term also includes the repair or modification of explosive articles and the reprocessing, modification or adaptation of explosive substances. The guidance to regulation 9 gives advice on what activities are considered **not** to be manufacturing.

455. Regulation 9(2) sets out which manufacturing activities do not require a licence. The main examples are:

(a) fusing firework displays;

(b) preparing theatrical television and cinematic special effects; and

(c) on-site mixing of explosives (either those made using ammonium nitrate emulsions or by mixing ammonium nitrate with fuel oil) at a mine or quarry.

Storage

456. Unless only a small quantity of explosives is involved, those storing explosives will need either to obtain a licence or to register.

457. Regulation 10 sets out the quantities of explosive that can be kept without a licence or registration. The amount will depend on the quantity and type of explosives. For example, there are allowances for storage of shooters' powders and for certain lower-risk pyrotechnic articles which include Category 2 fireworks and articles such as flares, fog signals, car air bags and seat belt pre-tensioners.

458. Regulation 13 sets out the limits that can be kept under a registration. Again, this will depend on the quantity and Hazard Type. Guidance on hazard types is given in Annex 1.

459. It is important to note that the quantities specified in regulation 13 are the net mass (weight) of the explosives, i.e. the quantity of explosive contained in the article not including any packaging or casings. For small arms ammunition, fireworks and

Guidance

similar pyrotechnic articles, the mass of the explosive will be only a fraction of the total mass of the item. If the manufacturer has provided specific information, for example, on the box or on the item itself, about the weight of the explosive content then this should be used as the quantity. If they have not, or if the net mass is unclear, then the registered person should assume that the explosive content is one quarter of the total weight of the item.

Site-sharing and sub-letting

460. It is important to note that the duties in regulations 9 and 10 fall on the person who is manufacturing and/or storing the explosive. The licensee /registered person is accountable for compliance with the conditions of the licence/certificate of registration; it is therefore essential that the person who holds the licence/certificate of registration has effective control over the activities covered by it. Equally a person carrying out these activities would be in breach of these Regulations if they did not hold a licence/certificate of registration – even if someone else held a licence/certificate of registration covering these activities at that site.

461. In most situations the licensee/registered person would be manufacturing and/or storing on his own behalf, would be the sole occupier of the site and would have complete control of the activities covered by the licence/certificate of registration taking place there. There are, however, situations where this may not apply and where further guidance is necessary. These are:

(a) manufacture and/or storage on behalf of third parties;

(b) sub-letting; and

(c) subsidiaries operating on the same site as the parent company.

Manufacture/storage on behalf of third parties

462. Anyone manufacturing and/or storing explosives would normally need to hold a licence/certificate of registration even if they are undertaking the activities on behalf of a third party.

463. Conversely an individual or company that contracted for a third party to store on its behalf would not normally require a licence/certificate of registration.

464. However, the question of which person is carrying out the activity and has the duty under the licence/certificate of registration would depend on whoever had effective control of the operation, i.e. who determines in practice what is stored and how it is stored. For example:

(a) Firm A is contracted to store explosives on behalf of Firm B – Firm B delivers the explosive to the store but from then on Firm A takes over responsibility – Firm A would require the licence/certificate of registration;

Guidance

(b) Firm C is contracted to operate an explosives store on behalf of Firm D. Firm C has full control over the operation of the store – Firm C would require the licence/certificate of registration; and

(c) Firm E is contracted to operate a store on behalf of Firm F but decisions on what is stored and how are still taken by Firm F. In these circumstances Firm F is still storing while Firm E is providing labour to assist it in doing so – Firm F would require the licence/certificate of registration.

Sub-letting

465. Similar principles would apply where a company sub-lets a building or part of a site licensed/registered to another company. If Firm B operates the store or part of the site under its own control and independently from Firm A, then it would require a separate licence/certificate of registration. However, if Firm A continues to retain ultimate control then it would continue to be the licensee/registered person. For example, Firm B contracts to rent storage space from Firm A. Firm B's staff load and unload stock from and into the store but under the supervision of Firm A. Firm A would be the licensee/registered person.

Subsidiaries

466. Similar principles would also apply where a subsidiary operates on the same site as a parent company. If the subsidiary operates independently of the parent company (at least in so far as control of the licensed/registered activities are concerned) then the subsidiary would be taken to be the dutyholder and would need to hold the licence/certificate of registration. On the other hand if the parent company continued to exercise day-to-day control then the parent company would need to hold the licence/certificate of registration.

Contractual and management arrangements

467. It is therefore essential that companies and individuals entering into arrangements for manufacture and/or storage consider their respective roles and responsibilities and ensure that these are clearly understood and set out in any agreements.

468. Where one or more persons share a location (site, facility or building), the arrangements must ensure that the licensee/registered person:

(a) formally communicates the licence/certificate of registration conditions to the person(s) sharing the location; and

(b) effectively monitors compliance with the licence/certificate of registration conditions.

469. Anyone undertaking an activity in a location where the licence/certificate of registration is held by another person must:

Guidance

(a) ensure that adequate management arrangements are made to ensure compliance with the conditions of the licence/certificate of registration; and

(b) co-operate and co-ordinate his activities in such a way as to ensure that the licensee/registered person can monitor compliance with the licence/certificate of registration.

470. Persons sharing a location must ensure that there are adequate arrangements for co-ordination and co-operation between them (regulation 11 of the Management of Health and Safety at Work Regulations (Northern Ireland) 2000[5]).

Keeping explosives in more than one place

471. The Regulations do not require a licence or certificate of registration for the storage of small quantities of Hazard Type 4 explosives. The allowance applies to each storage place. An organisation could therefore store small quantities at a number of locations. For example, a train company keeping small quantities of fog signals in separate places would not require a licence or certificate of registration, provided the quantity kept in any one place did not exceed 5 kg net mass of explosives. A licence or certificate of registration **would** be required for any store holding more than 5 kg of fog signals. Similar principles apply to companies holding items such as seat belt pre-tensioners, car air bags or nailgun cartridges.

How to make an application

472. The first step is to contact Firearms and Explosives Branch. An application form is available from the FEB office (feb@justice-ni.x.gsi.gov.uk).

473. The amount of information needed for the application will depend on the type of licence or registration. For most licences and registrations FEB will need to know:

(a) the name and address of the applicant;

(b) the intended nature of the business and use of the explosives;

(c) where it is intended to manufacture/store the explosives;

(d) the name and description, and quantity of explosives to be manufactured/stored;

(e) if applicable, the separation distances to be maintained around the site; and

(f) details of any relevant planning applications affecting the site.

Guidance

474. In addition, applicants for licences to manufacture explosives and to keep more than 2000 kg of explosives will need to provide further information, including more details about the activities and processes to be carried out, the location and the construction of buildings on the site. These licence applications will normally be subject to the public hearing procedure.

Application process

475. A fee will be payable before the DOJ will consider an application. Information on the fee levels can be found in Schedule 4.

476. The store will normally be visited before a licence or certificate of registration is issued.

Can the Department of Justice refuse an application?

477. An application may be refused in circumstances where the DOJ:

(a) believes that the proposed manufacturing and/or storage site is unsuitable. An obvious example would be someone wanting to store fireworks at a petrol station; or

(b) has evidence that leads it to take the view that the applicant is not a fit person to store explosives. Examples of fitness may be where there have been persistent or flagrant breaches of health and safety requirements, breaches of legislation relating to supply of age related products or criminal offences relating to dishonesty.

Licence/registration document

478. The DOJ will issue a document which in most cases will set out:

(a) the name and address of the licensee/registered person;

(b) the address of the site; and

(c) the quantity and name and description of explosive that may be manufactured or stored there.

479. Licences to manufacture explosives or to store more than 2000 kg of explosives should include more detailed information on, for example:

(a) the layout of the site (a scaled plan should be provided as part of the application process);

(b) construction of the buildings; and

(c) the use of the buildings (some buildings may be used for manufacturing only and some for storage only).

Guidance

Duration of a licence or certificate of registration

480. Licences and certificates of registration may be issued for any period not exceeding 5 years. The main exception to this is licences for manufacturing or for stores where the requirement for a public hearing as part of the application process would apply; these licences may be granted for any period, or without a time limit.

Revocation of licences/certificates of registration

481. A licence or certificate of registration can be revoked but only in exceptional circumstances. If the advice given in this document is followed, the need for revocation should not arise.

Other requirements that apply

482. It is important to stress that the duties concerning prevention of fire and explosion still apply even where there is no requirement to obtain a licence or to register. The Police may also make requirements to ensure that explosives are kept securely.

Changes to a licence or certificate of registration after it has been issued

483. A licence/registration may be changed by agreement between the licensee/registered person and the DOJ to take account of a change of circumstances. A fee is payable to cover the DOJ's costs.

484. In exceptional circumstances the DOJ may change the licence/registration without the agreement of the licensee/registered person. Normally, this will only happen if there is a change in circumstances that means the quantity that can be kept at the store must be reduced or a change is necessary to ensure safety.

Regulation 9 Explosives not to be manufactured without a licence

Manufacture

Guidance

9

What is manufacture?

485. Regulation 9 requires those who manufacture explosives to hold a licence. A definition of 'manufacture' is given in regulation 2. This includes processes where explosive substances or articles are made or assembled, or unmade or disassembled, for example, manufacture of black powder, filling of fireworks, breaking down of jet perforating guns, removing fuses from artillery shells. The term also includes the reprocessing, modification or adaptation of explosive substances and the repair or modification of explosive articles.

...and what isn't

486. There are some processes that are not considered to be 'manufacture' for the purposes of this regulation. These include:

(a) packing or repacking explosives or explosive articles;

(b) breaking down explosives stored in bulk into smaller storage containers;

(c) labelling explosives or explosive articles;

(d) testing and proofing explosives or explosive articles; and

(e) using explosive articles as components to make a product which is not classified as an explosive, for example, the preparation of an explosive actuator into a fire drencher system or fitting air bags to vehicles.

Manufacturing activities that do not require a licence

487. The regulation specifies a number of processes where the requirement to hold a licence to manufacture does not apply. Although such activities are not subject to the licensing requirements, they are nevertheless subject to the other requirements of these Regulations. These are discussed in more detail in the following paragraphs.

Fusing firework displays

488. A manufacturing licence is not required for the preparation, assembly and fusing of firework displays, i.e.:

(a) removing individual fireworks from their transport boxes, packaging or other containers;

(b) connecting individual fireworks together and/or attaching them to frames or other structures for display;

(c) linking individual firework fuses together; and

(d) attaching a main fuse to ignite the assembled display.

489. The disapplication does not apply to the manufacture of individual fireworks used in the display.

On-site mixing

490. A manufacturing licence is not required for the mixing for immediate use of ammonium nitrate and fuel-oil at a mine or quarry. These processes are considered to be part of the blasting operations and therefore will be covered by shotfiring rules and a blasting specification. All of the issues that would be addressed in a manufacturing licence will be covered in these documents.

491. If ammonium nitrate blasting intermediates were to be manufactured at the site, a licence would be required.

Guidance

9

492. A licence will be required for on-site mixing at sites which are not mines or are not subject to the Quarries (Explosives) Regulations (Northern Ireland) 2006[33] (i.e. civil engineering works).

Other exemptions

493. Two other exemptions from the requirement to hold a licence for manufacturing activities are:

(a) reprocessing an explosive substance to produce a product which is not classified as an explosive, for example, the preparation of nitroglycerine-based pharmaceutical products; and

(b) using desensitised explosives in processes, including laboratory analysis, that do not produce a product that is itself an explosive.

Regulation 10 Explosives not to be stored without a licence or certificate of registration

Guidance

10

Storage

494. Explosives may not be stored without a licence or certificate of registration except in the circumstances described in regulation 10(2).

Exemptions from the requirement to hold a licence or certificate of registration for keeping explosives

495. Regulation 10 sets out the quantities of explosives that can be kept without a licence or certificate of registration. The amount will depend on the quantity and type of explosives. For example, there are allowances for storage of shooters' powders and for certain lower-risk pyrotechnic articles which include Category F2 fireworks and articles such as flares, fog signals, car air bags and seat belt pre-tensioners.

496. The exemptions from the requirement to license or register specified in regulation 10(2)(a) to (e) are alternatives and are not cumulative. However, the effect of 10(2)(a) is cumulative, i.e. it permits the keeping of up to 15 kg of black powder and other shooters' powder, of which no more than 5 kg shall be shooters' powder (other than black powder) and/or explosives listed in Schedule 2. In addition, 15 kg of percussion caps or small arms ammunition may be kept under this allowance (Table 3 illustrates what may be kept without a licence or certificate of registration under regulation 10(2)(a)).

Table 3: Keeping explosives without a licence or certificate of registration

Hazard Type or Description (Regulation)	What can be kept without a licence or certificate of registration (kg net mass)	Duration of storage
Black powder (Reg 10(2)(a)(i))	Up to 10 kg	Indefinite
Any explosive listed in Schedule 2 and/or any type of shooters' powder (Reg 10(2)(a)(ii))	5 kg in total	Indefinite
Percussion caps and small arms ammunition (Reg 10(2)(a)(iii))	15 kg	Indefinite
Hazard Type 1 or 2 explosives (Reg 10(2)(b)(i)) or a combination of Hazard Type 1 or 2 explosives with explosives of another Hazard Type (Reg 10(2)(b)(ii))	7 kg	Up to 24 hours
Hazard Type 3 or 4 explosives (Reg 10(2)(c))	Unlimited	Up to 24 hours
Hazard Type 3 fireworks; shooters' powders or a combination of shooters' powders and Hazard Type 3 and 4 fireworks (Reg 10(2)(d)(i), (ii) and (iii))	100 kg	Up to 3 consecutive days in their place of intended use
Hazard Type 4 explosives or Hazard Type 4 fireworks (Reg 10(2)(e)(i) and (ii))	250 kg	Up to 3 consecutive days in their place of intended use
	50 kg	Up to 21 consecutive days and not for sale or for use at work

Note: an allowance may be claimed under only one heading.

Guidance

Temporary storage

497. The Regulations permit the keeping of certain quantities of explosive for short periods of time without the need for a licence or certificate of registration. Typical circumstances in which this might apply include the site of a firework display or re-enactment event, or temporary storage.

498. For the time being section 23 of the Explosives Act 1875[39] still applies and requires occupiers of licensed and registered sites to take all due precautions to prevent unauthorised access. This means the temporary storage of high explosives other than black powder must be either in a suitable store with a monitored alarm or under appropriate supervision.

499. The following are examples of appropriate supervision:

(a) the driver, attendant or other responsible person is in constant attendance;

(b) the processes for which the explosives are required are continuing around the clock, the place of work is continually manned and access to it is controlled; and

(c) the explosives are kept in a vehicle in a compound. Access to the compound must be controlled, for example, securely fenced, and regularly patrolled or monitored by close-circuit TV.

500. It is important to note that the maximum quantities that may be kept under the licence or certificate of registration are the maximum quantities that may be present at that site at any one time. This includes explosives that are only temporarily present at the site, for example, explosives that are being transferred from one vehicle to another.

501. It is also important to note that regulations 10(2)(b) to (e) only allow explosives to kept at the site for the specified period of time. All explosives must be removed from the site before the end of that period. If any explosives are left then the person storing those explosives will be in breach of the duty. This applies even if the particular items have been present at the site for less than the specified period.

502. Regulation 22 contains defence provisions which may be relevant if proceedings are brought against a person for storing without a licence or certificate of registration, breaching licence or certificate of registration conditions or breaching a time limit where storage is permitted without a licence or certificate of registration (see paragraphs 554-556 for guidance).

More than one store at one site

503. It is possible to locate more than one store at the same address. However, the combined total of the explosives to be kept will be used in determining whether a licence or certificate of registration is required. The combined total will apply for the

10

Guidance

purposes of determining the separation distance unless appropriate measures are taken to prevent the propagation of fire or explosion between stores.

More than one type of explosive at a store

504. Where more than one type of explosive is to be kept at a store the quantities at which a licence or certificate of registration is required will reflect the most hazardous type kept at the store. For example, if Hazard Type 4 explosives are kept with Hazard Type 3 explosives then the licence or registration requirements for the aggregate quantity will be the same as they would be for the same quantity of Hazard Type 3.

10

Regulation 11 Grant of licences

Application process for licences and registrations

Guidance

505. Applications for licences and registrations should be made to the Department of Justice FEB. Application forms are available from the FEB office (feb@justice-ni.x.gsi.gov.uk).

506. The application process for licences depends on whether the granting of the licence is subject to the public hearing procedure. All applications to manufacture explosives and to store more than 2000 kg of explosives, including at a mine or harbour area, are subject to this procedure. In respect of such applications, the DOJ has discretion in setting separation distances and regulation 5(1) does not apply. The public hearing procedure would also apply in the exceptional cases where the applicant wishes to propose alternative safety measures in return for a lower separation distance. Paragraphs 522-528 give advice to those applying for a licence that is subject to the public hearing procedure.

507. Applications for licences to store no more than 2000 kg of explosives, including at a mine or harbour area, are not subject to the public hearing procedure. In these cases the DOJ will license using the distances set out in Schedule 1. If the DOJ wishes to vary these distances then a public hearing will be required.

508. The amount of information needed for the application will depend on the type of licence or registration. Generally speaking the DOJ will need:

(a) the name and permanent address of the applicant;

(b) the address (including, where applicable, street number and postcode) of intended place of manufacture and/or keeping (where this is different from the address above);

(c) the intended nature of the business of the applicant, for example, quarrying, demolition, fireworks retail or wholesale, recreational user, and the intended use of the explosives;

(d) the Hazard Type and maximum quantity of explosives proposed to be stored at any one time;

11

Guidance

(e) the name and description of explosives to be manufactured and/or stored, including the United Nations Serial Number;

(f) if applicable, the separation distances to be maintained around the site. This should be provided on a plan of sufficient scale to show accurately the separation distances around the building where the explosives are to be manufactured or the store;

(g) where the address of the site does not have a street number and postcode, a map of sufficient scale, such as an Ordnance Survey ACEmap or other similar scale map, to show accurately and clearly the location of the site and its surrounding area, including any dwellings, places of public resort etc.; and

(h) details of any relevant planning applications affecting the site.

509. Applications for manufacturing and for storing more than 2000 kg of explosives will need to provide further information, for example –

(a) the intended activities and processes;

(b) the activities to be carried out in each explosives building or area on site;

(c) the location and the kind of stores concerned (including the material of which they are constructed) and their intended use;

(d) the location of any areas used for activities such as fusing or the burning of waste explosives; and

(e) the separation distances to be maintained within the site between storage and production buildings for the protection of workers on site and the prevention of propagation of fire.

These applications will be subject to the public hearing procedure.

510. It is primarily the responsibility of the applicant to advise their local council planning department of any application made under MSER(NI). However, the DOJ will also consult with the relevant planning department on receipt of an application. If a licence or certificate of registration is issued before full planning permission has been granted, the licensee or registered person cannot of course manufacture or store explosives at the site until such planning permission is granted. The applicant should therefore take all reasonable steps to co-ordinate the two applications.

511. The DOJ may reject the application as unsuitable for that site. Such a decision would be based on the particular circumstances of the site, for example:

(a) the bulk storage of flammable substances at or in the immediate area of a site means that there is a substantial risk that fire or explosion at the store would cause a fire in

11

the flammable substances, or a fire involving them could spread to an explosives building;

(b) the presence of hazardous substances at or in the immediate area of the site means that there is a significant risk that an explosion at the site would cause the release of hazardous substances into the wider area;

(c) the proximity of telecommunications transmitters where there is a significant risk that the electromagnetic energy from the transmitters could initiate an explosion in the explosives;

(d) the presence of methane at the site or at an adjoining site, for example from a landfill site, means that there is a significant risk that fire or explosion involving methane could spread to the explosives;

(e) the presence at, or in the immediate area of the site, of gas pipelines or high-voltage electricity supply means that there is a significant risk that an explosion involving the explosives would result in significant 'knock-on' consequences;

(f) difficulties regarding transport access; and

(g) the presence of vulnerable sections of the population (young children, the sick or elderly) in the immediate area of the site, for example, if a building housing a school, hospital or old people's home were immediately adjoining an explosives site.

512. The DOJ may also return the application to the applicant for further consideration and/or development.

513. A fee will be payable before the DOJ will consider an application. Information on fees can be found in Schedule 4.

514. The proposed site will be visited before a licence or certificate of registration is issued.

515. It is important to note that the licence is issued to a person (and this may include a company or other legal entity) to permit certain activities, i.e. manufacture and/or storage, at a specific place – or places. A change of storage place within the licensed site will therefore require a licence variation (under regulation 15) rather than a new licence.

516. The bringing into, the carrying and handling within, and the loading and unloading of explosives in harbours and harbour areas are licensed by the DOJ under the Explosives in Harbour Areas Regulations (Northern Ireland) 1995[34].

Licence/registration document

517. The DOJ will issue a licence or certificate of registration which in most cases will include:

(a) the name and permanent address of the licensee or registered person;

Guidance

11

(b) the address of the site where the explosives are manufactured and/or stored (where this is different from the address above);

(c) the Hazard Type and maximum quantity of explosives that may be stored at any one time; and

(d) the name and description of explosives to be manufactured and/or stored.

518. Licences for manufacturing or storing more than 2000 kg of explosives may include more detailed information on, for example:

(a) the layout of the site;

(b) construction of the buildings; and

(c) the use of the buildings (some buildings may be used for storage only and some for manufacturing only).

Duration of licences/registrations

519. Licences and registrations (including renewals) may be issued for any period not exceeding 5 years.

520. The exceptions to this are licences for manufacturing, for stores keeping more than 2000 kg of explosives and licences where the DOJ has used its discretion to vary from the separation distances specified in Schedule 1, which normally continue indefinitely.

521. However, regulation 11 provides for a licence to be granted for a specified time where the applicant does not wish to undertake manufacture and/or storage at that site on a permanent basis. (Regulation 15 in turn provides for the licence to be extended or made permanent – subject to a public hearing.)

Regulation 12 Public hearing

The public hearing procedure

Guidance

12

522. The purpose of a public hearing is for the DOJ to satisfy itself that any local factors bearing on the safety of the operation of the site or the health and safety of members of the public have been considered and taken into account in setting the licence conditions. Only evidence relating to these issues should be regarded as relevant to the DOJ's decision. Issues concerning the appropriateness of development at the site should be considered as part of the planning process.

523. Local factors which could affect the safety of the operations or the safety of those in the area in the event of fire or explosion are given in paragraph 511.

524. The DOJ will consult the relevant local planning department. Similarly, it may also wish to consult the fire and rescue service. Applicants are also advised that, where they are making a parallel application for planning consent in relation to the site, they should draw this to the attention of their local council planning department.

Guidance

12

525. It is important to note that the public hearing's purpose is also to identify and resolve any concerns which otherwise would need to be addressed later in the process. It does not in any way reduce the duty on the applicant to identify any hazards arising from the proposed undertaking and to identify those people who might be affected and how they might be affected. The applicant must carry out any necessary 'due diligence' enquiries for this purpose.

526. If the DOJ takes the view, on the basis of the information available to it, that the outline proposals are satisfactory, a draft licence will be agreed with the applicant. Once agreement on the draft licence has been reached, the public hearing procedure will begin.

Publishing notices and informing local residents

527. Regulation 12(2)(a) requires the applicant to publish a notice in a newspaper circulated locally to inform interested parties of the application, stating where details about the application and draft licence may be obtained, and providing information for those who wish to make representations to the DOJ.

528. Regulation 12(2)(b) requires the applicant to take 'reasonable steps' to inform anyone living in, owning land or carrying out an undertaking within, an area extending to double the separation distance of the proposed site (the 'public consultation zone'). In addition, the applicant should take reasonable steps to inform owners of property within or adjoining the separation zone. Reasonable steps would include writing or sending leaflets to those affected.

Regulation 13 Registration in relation to storage

For guidance on registering see paragraphs 505-519.

Regulation 14 Refusals of licences, registration and draft licences

Guidance

14

529. Regulation 14 requires the DOJ to refuse an application for a licence or registration where:

(a) it considers that the proposed site is unsuitable on safety grounds for the manufacture or storage of explosives. An obvious example would be someone wanting to store fireworks at a petrol station (see also paragraph 311). This might also be due to the examples given in paragraph 511 or the Department's belief that the storage would present an unacceptable risk to people living in adjoining residential premises; or

(b) it believes that the applicant is not a fit person to manufacture or store explosives. This would normally only be the case if the DOJ has evidence of persistent or flagrant breaches of the safety requirements or other legal requirements and does not have confidence in the applicant's willingness or ability to abide by the Regulations

Guidance 14

or licence conditions (see paragraphs 536-539 for further guidance).

Regulation 15 Variation of licences

Guidance 15

530. Regulation 15 sets out the mechanism for amending a licence for which a fee is payable. The licence would normally be amended by agreement between the licensee and the DOJ.

531. In exceptional circumstances the DOJ may change the licence without the agreement of the licensee. Normally, this will only happen if there is a change in circumstances that means that the quantity of the explosives that can be kept at the store must be reduced or a change is necessary to ensure safety.

532. Regulation 15(3) covers cases where the original application was subject to the public hearing procedure before the licence was granted. The first part of the paragraph states that the variation is subject to the public hearing procedure if the DOJ takes the view that the amended licence raises significant new health and safety issues which warrant carrying out this procedure again. However, the application will not be subject to the public hearing procedure if the DOJ considers that it does not present new issues. This would be likely to be the case if, for example:

(a) the amendments involved minor administrative changes; or

(b) explosives of a high Hazard Type are replaced by explosives of a lower Hazard Type.

533. Regulation 15 also provides for situations where the duration of a time-limited licence is changed. The DOJ normally grants licences for manufacturing and for storing more than 2000 kg of explosives for maximum period of five years but retains the right to vary this. In certain circumstances, however, a temporary licence might be granted for a specified period. If the DOJ granted a licence on the basis that it is temporary and the applicant subsequently wishes to make the licence permanent, then the public hearing procedure will be part of the variation of licence process.

Regulation 16 Revocation of licences and registration

Guidance 16

534. Regulation 16 permits a licence or registration to be revoked but only in exceptional circumstances. The need for revocation should not arise if the advice given in this document is followed. A licence or registration can be revoked in three situations.

535. The first is where the DOJ considers that the place of manufacture or storage is no longer suitable due to development on neighbouring land.

536. The second is where it appears to the DOJ that the licensee or registered person is no longer a fit person to manufacture or store explosives. The fact that a person has committed a breach of the Regulations and/or licence or registration conditions is not in itself

necessarily grounds for regarding them as unfit to hold a licence or be registered. The concept of an unfit person arises when the DOJ does not have confidence in a person's willingness or ability to abide by the Regulations, this document and/or the licence or registration conditions, i.e. it has grounds for believing that there is a significant risk of a further breach. This decision will need to be taken in light of the circumstances of each individual case. However, examples of circumstances where the DOJ might take this view are:

(a) a serious breach where there was evidence of a deliberate disregard of the Regulations and/or licence or registration conditions;

(b) a breach following a previous warning (including an improvement notice or prohibition notice); and/or

(c) persistent or flagrant breaches of other health and safety requirements, breaches of legislation relating to supply of age related products, breaches of terms relating to other types of licencing/registration schemes or criminal offences relating to dishonesty.

537. In cases where breaches are due to incompetence rather than to deliberate disregard of the law or of previous warnings, it may be more appropriate for the DOJ to take enforcement action (such as the issue of improvement or prohibition notices) in order to give the person the opportunity to comply with legal requirements. If the person then fails to comply with enforcement action and/or continues to demonstrate incompetence, the DOJ may then conclude that they are not a fit person and consequently revocation of the licence or registration may be appropriate.

538. In considering whether a person is fit or not, the DOJ will primarily consider whether it has reasonable grounds for believing that the person cannot be trusted to manufacture or store the explosives without risk to public safety. In considering this, the DOJ will examine evidence of breaches of the licence/registration or of other health and safety legislation. However, the DOJ may also have regard to breaches of other relevant legislation such as the Explosives (Fireworks) Regulations (Northern Ireland) 2002[40] but only in so far as these breaches provide evidence that the person is no longer fit to store the explosives.

539. It is also important to note that the 'fit person' test under these Regulations does not necessarily mean that anyone who has served a custodial sentence is regarded as a 'prohibited person' and may not be granted a licence or registration. The DOJ will only consider whether, on the evidence in its possession, there is any reason to believe that the applicant is not a fit person or may be unwilling to abide by the terms of a licence or registration.

540. The third situation is by agreement between the DOJ and the licensee or registered person. In effect, the licensee agrees to surrender his licence.

Regulation 17 Further provisions concerning refusals, variations and revocations

Guidance 17

541. Regulation 17 requires the DOJ to notify the applicant, licensee or registered person in cases where it proposes to refuse or revoke a licence or registration or vary a licence without the licensee's agreement. The person concerned may, within 28 days of the notification, make representations to the DOJ.

542. Where the DOJ decides to refuse or revoke a licence or registration or vary a licence without the licensee's agreement, it must write to the person concerned, giving his reasons for the decision.

543. If the applicant, licensee or registered person is aggrieved by the DOJ's decision, they may make an application for a judicial review.

Regulation 18 Transfer of licences and registration

Guidance 18

544. Regulation 18 permits a licence or registration to be transferred to another person (including another business).

Regulation 19 Fees

Guidance 19

545. There is a fee, payable to the DOJ, for the grant, issue, renewal, variation, transfer and replacement of licences and registrations. Applicants will be charged the initial licence/registration fee and not the renewal fee if there is an amendment to his renewal application or if there is a gap in time between the expiry of a licence/registration and its renewal.

Regulation 20 Death, incapacity or bankruptcy

Guidance 20

546. In relation to regulation 20(1), a licensee or registered person would become 'incapacitated' in situations where they are, or consider themselves, unable to continue to meet their duties in terms of the licence or registration.

547. In situations where a licensee's or registered person's business is put in the hands of a receiver or a liquidator, the licence or registration responsibilities automatically transfer with the business. The receiver or liquidator therefore becomes responsible for the licence or registration while the business is in his hands.

Regulation 21 Register and retention of documents

Guidance 21

548. Regulation 21 requires the DOJ to maintain a register containing details of the licences and certificates of registration that it has issued.

Guidance

Information to be included in the register

549. Schedule 5 states the nature of the information to be contained in the register. The key points are:

(a) the name of the licensee or registered person;

(b) the permanent address of the licensee or registered person (unless the person's home address is his only permanent address, in which case the address should not be entered in the register);

(c) the address of the site where explosives are manufactured or stored (where this is different from above);

(d) the Hazard Type and maximum quantity of explosives which may be stored at any one time;

(e) the nature of the business of the licensee or registered person and the intended use of the explosives;

(f) the name and description of the explosives manufactured or stored;

(g) if applicable, a plan of sufficient scale to show accurately the separation distances to be maintained around the store or the building where explosives are manufactured;

(h) if the address of the site does not have a street number and postcode, a map showing the location of the store; and

(i) in relation to licences to store more than 2000 kg of explosives, the kind of store, including details of its construction.

Access to information in the register

550. Those living, or with a business, in the immediate area of the explosives site (i.e. within the public consultation zone for the site) have rights of access to the following information:

(a) the name of the licensee or registered person;

(b) the permanent address of the licensee or registered person (unless his home address is his only permanent address);

(c) the address of the site where explosives are manufactured or stored; and

(d) the Hazard Type and maximum quantity of explosives which may be stored at any one time.

551. Those with the right of access may inspect the information covered in paragraph 550 at any reasonable time, free of charge. On request, the DOJ will provide, at a reasonable charge, copies of the relevant register entries.

21

Guidance

21

552. It is important to note that the DOJ is not required to provide the information covered in paragraph 550 in cases where the licence or registration relates only to the storage of:

(a) less than 500 kg of Hazard Type 1 or 2 explosives;

(b) less than 2000 kg of Hazard Type 3 or 4 explosives; or

(c) any explosives stored for less than 4 weeks.

However, the DOJ is required to keep a record of the information referred to in that paragraph.

553. The DOJ may keep the register in paper or electronic form, or both, as it thinks fit.

Regulation 22 Defences

Guidance

22

554. Regulation 22(1) provides a defence for a person who uses a building, or part of a building, to carry out a manufacturing process not specified in the manufacturing licence. However, this provision requires that the use was temporary, the process involved an explosive of a similar to or lower Hazard Type than that permitted in the licence and the maximum quantity of explosives in the building, or part of a building, did not exceed that permitted in the licence. The person is also required to inform the DOJ Firearms and Explosives Branch as soon as reasonably practicable after such use starts.

555. Regulation 22(2) provides for circumstances where, owing to an emergency, explosives must be stored in a building which is unlicensed or unregistered, or a condition of the licence or certificate of registration is breached, for example, the permitted quantity is exceeded. However, it is important to note the words in the regulation - 'being an emergency which that person took all reasonable precautions and exercised all due diligence to avoid'. This provision does not allow for a defence in situations where the dutyholder had failed to take reasonable measures to deal with circumstances which could have been reasonably foreseen.

556. Regulation 22(3) applies in cases where storage without a licence or certificate of registration is permitted subject to a time limit. In the event of a prosecution for storage without a licence or certificate of registration, the person storing the explosive would have to demonstrate that they had complied with the relevant permitted period. Where explosives are to be stored under these provisions the person storing should maintain suitable documentary evidence (such as delivery notes) to enable them to demonstrate compliance with the conditions of the disapplication.

PROHIBITIONS CONCERNING CERTAIN EXPLOSIVES AND MISCELLANEOUS PROVISIONS

Regulation 23 Prohibition concerning the manufacture and storage of certain explosives

Guidance

23

557. Anyone wishing to manufacture or store any pyrotechnic article containing these mixtures would need to apply to the DOJ for the article to be added to the approved list. For further information please contact:

Department of Justice
Firearms and Explosives Branch
Room B4.22
Castle Buildings
Stormont Estate
Belfast
BT4 3SG
Tel: 9052 20760

E-mail:feb@justice-ni.x.gsi.gov.uk

558. The provisions of regulation 3(3) of the Explosive Regulations 2014[4] concerning the importation of pyrotechnics into the United Kingdom extend to Northern Ireland.

Regulation 24 Prohibition concerning the acquisition and supply of fireworks

Guidance

24

559. Regulation 24 prohibits anyone acquiring more than 50 kg of fireworks without a licence or certificate of registration. It also prohibits the sale or transfer of more than 50 kg of fireworks unless the person to whom the fireworks are being sold or transferred shows a valid licence or registration.

560. Carriers who transport fireworks do not need to have a licence or a certificate of registration. However, the person selling or transferring the fireworks must have the assurance that the person receiving the delivery has a valid licence or certificate of registration. For example, this may involve the recipient showing or sending the supplier a copy of the licence or certificate of registration in advance of the delivery. Alternately, if appropriate, a copy of the licence or certificate of registration may be sent with the carrier picking up the delivery from the supplier.

561. It is not necessary for a supplier who has already seen a copy of a licence or certificate of registration to see a further copy for deliveries made within the period that the licence or certificate of registration is valid.

562. It is strongly recommended that anyone selling or transferring more than 50 kg of fireworks keeps a record of the person to whom they have sold or transferred the fireworks to and/or keeps a copy of that person's licence or certificate of registration.

The Explosives (Fireworks) Regulations (Northern Ireland) 2002[40] require a seller of fireworks subject to a licence to keep a record of all sales of such fireworks. They will record:

- the name and address of every person to whom they sell such fireworks;
- the date of each sale;
- the quantity and type of fireworks sold; and
- the licence number.

The Regulations require this information to be kept for at least 2 years and, on demand, produced for inspection by a representative of an enforcing authority.

Regulation 25 Power to grant exemptions

Guidance

25

563. Regulation 25 enables the DOJ to grant exemptions. Applications for exemptions should be made to:

Department of Justice
Firearms and Explosives Branch
Room B4.22
Castle Buildings
Stormont Estate
Belfast
BT4 3SG
Tel: 9052 20760
E-mail: feb@justice-ni.x.gsi.gov.uk

564. The DOJ is required to ensure that health and safety will not be prejudiced by an exemption. The applicant for any exemption should carefully explain which particular provision cannot be observed and why, and also propose alternative methods for maintaining an equivalent standard of safety.

Regulation 26 Savings and transitional provisions

Guidance

26

565. Regulation 26 sets out the transitional arrangements for those people who held licences or registrations (or had pending applications for licences, amending licences or registrations) at the time the Regulations came into operation.

566. The most basic provision is that existing licences and registrations continued to be valid. Licences granted without a time limit continue in operation as before. Other licences and registrations continued until their existing end date.

567. Regulation 26 also sets out the arrangements for the coming into operation of the revised requirements on separation distances. In most cases the distances remained the same or even decreased. Licensees could benefit from any reduction in the separation distance immediately.

Government-owned stores

568. Section 97 of the Explosives Act 1875[39] disapplied the Act from factories and stores "under the control of a Secretary of State, or other department of the Government, or otherwise held for the service of the Crown". These Regulations apply to the Crown. Most of the premises that were previously not subject to the Explosives Act are under the control of the Ministry of Defence (MOD). Under regulation 3(4) these will be covered by a scheme set up by the Secretary of State for Defence. Regulation 26(3) and (4) provides for sites that are Government-owned but are not under the control of the MOD. These sites were deemed to be operated under a licence granted by the [NIO] Secretary of State until 3 years from the date of the coming into operation of these Regulations. This gave the operators of these sites until that date to agree a licence with the DOJ that continued after that date.

Manufacturers of ammonium nitrate blasting intermediates

569. Regulation 26(5) gave manufacturers of ammonium nitrate blasting intermediates until 3 years from the date of the coming into operation of these Regulations to comply with the licensing requirements.

Separation distances

570. Regulation 26 also sets out special arrangements where there would be an increase in the separation distance or the introduction of separation distances for the first time.

571. It is important to note that the provisions differ depending on whether the store is licensed or registered.

572. Where the store was registered at the time the Regulations came into operation, regulation 26(7) applies and the holder of the store had until 5 years from the date of the coming into operation of these Regulations to comply with the new requirements.

573. Where the store is licensed at the time of the Regulations come into operation the holder of the licence had until 3 years from that date to comply. However, regulation 26(10) also gives the option of applying to the DOJ for a licence, which would provide for different separation distances to apply. The Department has the discretion to accept different distances from those required by Schedule 1 and in principle could accept additional safety measures (such as dividing the explosives into units and thus reducing the quantity of explosives involved in an explosion) in exchange for a reduction in the required separation distances.

574. It is important to stress that the licensee will need to demonstrate that it is not reasonably practicable for them to comply with the separation distance requirements. For example, if they could comply by making a small reduction in the quantity of explosives kept, or by removing the detonator annex or mounding

the store, then the DOJ would not grant a licence under regulation 26(10). On the other hand, if the licensee would otherwise be required to relocate to a new site or to purchase a new store then the grant of a licence could be considered under this regulation.

575. It may be that the licences granted under regulation 26(10) involve combining a reduction in the quantity of explosives kept with a reduction in the required separation distances in exchange for alternative safety measures. While the DOJ will try to mitigate the impact of the separation distance requirements, its priority is to ensure adequate levels of safety.

576. The public hearing procedure would not apply providing that:

(a) the quantity of explosives to be kept is not increased or the explosives are of the same or a lower Hazard Type. In other words, provided that the activity remains the same and the level of hazard that it presents remains the same or is reduced; and

(b) the application for the new licence was received by the DOJ no later than one year from the date of the coming into operation of these Regulations.

577. It is important to note that, until a new licence is granted by the DOJ, the storeholder will continue to need to renew his existing store licence.

Police forces

578. Regulation 26(6) gave police forces 3 years in which to comply with the new requirements.

Multiple licensed stores at one site

579. Very similar arrangements will apply where the licensee has 2 or more licensed stores at the site holding a combined quantity of more than 2000 kg of explosives.

Licence applications

580. Regulation 26(15) was intended to ensure that an application made under section 6 of the Explosives Act 1875 could continue to the next stage under the new Regulations. For example:

(a) if the [NIO] Secretary of State had given his assent but the licence had not yet been confirmed, the assent remained valid for the new Regulations; and

(b) if the notices for an assent hearing had been published then the requirements of regulation 12(2) were deemed to have been met and the hearing could be held under the new Regulations.

581. Similarly, applications for amending licences could be taken forward under regulation 15.

Regulation 27 Repeals, revocations and amendments.

This regulation is included in the copy of MSER at Annex 5.

ANNEX 1 Guidance on determining Hazard Type

The definition of Hazard Type is given in regulation 2 but is repeated here for ease of reference, together with (in **bold**) additional explanatory information.

Hazard Type 1 — an explosive which, as a result of, or as a result of any effect of, the conditions of its storage or process of manufacture, has a mass explosion hazard (**a mass explosion is one in which the entire body of explosives explodes as one**);

Hazard Type 2 — an explosive which, as a result of, or as a result of any effect of, the conditions of its storage or process of manufacture, has a serious projectile hazard but does not have a mass explosion hazard;

Hazard Type 3 — an explosive which, as a result of, or as a result of any effect of, the conditions of its storage or process of manufacture, has a fire hazard and either a minor blast hazard or a minor projectile hazard, or both, but does not have a mass explosion hazard (**i.e. those explosives which give rise to considerable radiant heat or which burn to produce a minor blast or projectile hazard**); and

Hazard Type 4 — an explosive which, as a result of, or as a result of any effect of, the conditions of its storage or process of manufacture, has a fire or slight explosion hazard, or both, with only local effect (**i.e. those explosives which present only a low hazard in the event of ignition or initiation, where no significant blast or projectile of fragments of appreciable size or range is expected**).

Hazard Division and Hazard Type

The Hazard Type system applies to manufacture and storage and reflects the conditions which are found in these situations. This means that in some cases the Hazard Type may differ from the UN/ADR Hazard Division classification for transport – although in the majority of cases the Hazard Type will correspond to the Hazard Division (for example, UN HD 1.1 will be HT1).

Determining Hazard Type

For those explosives being kept as packaged for carriage, and that

have been classified, there will generally be a direct correlation between the UN Hazard Division assigned them on classification for transport and the Hazard Type that should be allocated to them for manufacture and storage, i.e.:

- UN HD 1.1 = HT1
- UN HD 1.2 = HT2
- UN HD 1.3 = HT3
- UN HD 1.4 = HT4

However, the classification is assigned to the explosives as they are packaged for transport according to the UN Recommendations and the nature of packaging (or lack of it) and the quantity and arrangement in storage can have a significant effect on the hazard presented in non-transport situations. An assessment must therefore be made of the hazards presented by explosives throughout the course of their manufacture, storage and handling to ensure that the correct Hazard Type is applied under all conditions.

This assessment may require tests and trials to be undertaken to determine how an explosive behaves in particular circumstances and the Hazard Type may vary as conditions change. For example:

(a) propellants classified as UN HD 1.3 would under normal circumstances be regarded as Hazard Type 3. However, under specific circumstances these propellants can be Hazard Type 1. Such circumstances include confinement during processing at elevated pressure and/or temperature, and the critical diameter and bed depth of the material. Examples of where these circumstances may occur are:

  (i) within an extrusion press (where the critical considerations are critical diameter, confinement, pressure and, with certain pressing operations, elevated temperature; and

  (ii) within a hopper in a cartridge-filling operation (where the critical considerations are propellant depth and confinement); and

(b) some detonators classified as UN Hazard Division 1.4 for transport can also present an HT1 hazard when outside their packaging and stored together.

It is good practice to keep the quantity of explosives in boxes or other containers to the minimum practicable and to make arrangements to prevent propagation from one box (or some other container) to another. For example, an explosion in a box where a large number of percussion caps are kept loose will result in the explosion of the majority of the caps in the box. However, if the same caps are kept in trays where they are separated from one another, the initiation of one cap will not result in the initiation of the rest of them.

ANNEX 2 Separation distances normally referred to by the DOJ when those specified in Schedule 1 are not used

How to use Tables 1 to 8

Which table should be used: Internal separation distance (I) (Tables 1 and 2) or external separation distance (E) (Tables 3 to 8)

	Explosives process building	Explosives store
Explosives process building	I	I
Other occupied buildings within the boundary of the licensed site except those described in the next line of this table	E[(a)]	E[(a)]
Occupied buildings within the boundary of the licensed site meeting one or more of the following criteria: 1) The building is not in the occupation of the applicant. 2) The building has more than one storey, suitable for occupation, above ground 3) The building is normally occupied by more than 20 people	E[(b)]	E[(b)]
Explosives store	I	I
Other store within the boundary of the licensed site	I	I
"On site" bulk flammable gas/flammable liquid storage	E	E
Any off site building or work namely any railway, aerodrome, canal (in active use) or other navigable water, dock, pier or jetty; market place, public recreation or sports ground or other open place where the public are accustomed to assemble; public highway; private road which is the principal means of access to a church, chapel, college, school, hospital or factory; river wall, sea wall, reservoir, dwelling; retail shop; government and public building, church, college, chapel, school, hospital, theatre, cinema or other building where the public are accustomed to assemble; motorway; caravan site for which planning permission for this use had been granted and on which is located an occupied caravan for a total period in excess of 28 days in any one calendar year; factory; building or works used for the storage in bulk of petroleum spirit, gas or other inflammable substances; buildings or works used for the manufacture and storage of explosives or of articles which contain explosives.	E	E

Notes

(a) Use half the appropriate distance required to a building in Tables 3-8 depending on the Hazard Type.

(b) Use the appropriate distance required to a building in Tables 3-8 depending on the Hazard Type.

Which building construction type should be used for Hazard Type 1 in Tables 3, 4, 5A and 5B?

Description of building	Building construction type
Brick-built surrounded by a mound of earth or other suitable material	Brick-built mounded
Concrete-built surrounded by a mound of earth or other suitable material	Brick-built mounded
Brick-built, not mounded	Brick-built unmounded
Concrete-built, not mounded	Brick-built unmounded
Steel-built store, with or without attached detonator annex, surrounded by a mound of earth or other suitable material	Metal-built mounded
Steel-built store, without attached detonator annex (or attached detonator annex not used), not mounded	Metal-built unmounded – no detonator annex attached
Steel-built store, with attached detonator annex, not mounded	Metal-built unmounded building - with a detonator annex attached
Wooden-built, surrounded by a mound of earth or other suitable material	Metal-built mounded
Wooden-built, not mounded	Metal-built unmounded – no detonator annex attached
Unit risk construction process building, lightweight front and roof, not mounded	Metal-built unmounded – no detonator annex attached
Unit risk construction process building, lightweight front and roof, surrounded by a mound of earth or other suitable material	Metal-built mounded
Steel-framed warehouse-type building having roof of lightweight sheeting and walls entirely of lightweight sheeting, not mounded	Metal-built unmounded – no detonator annex attached
Steel-framed warehouse-type building having roof of lightweight sheeting, and walls entirely of lightweight sheeting, any brick construction being no more than 1 metre high	Metal-built unmounded – no detonator annex attached
Steel-framed warehouse as above but having built-brick construction more than 1 metre in height	Brick-built unmounded
Earth overmounded building of brick or concrete construction	Metal-built mounded
Steel/concrete/steel sandwich hardened construction	Metal-built unmounded – no detonator annex attached

Which internal separation distance table?

Receptor building	Donor buildings	
	Explosives process Building	Explosives store
Explosives process building	Table 2	Table 2
Other occupied buildings within the boundary of the licensed site except those which require an external separation distance (see How to use Tables 1 to 8)	Table 2	Table 2
Explosives store	Table 2	Table 1
Other store within the boundary of the licensed site	Table 1	Table 1

Which external separation distance table?

Explosives building/containing explosives of: Hazard Type [a]	Use Table[c] - [g]
Brick-built mounded building[b] / Hazard Type 1[a]	3
Brick-built unmounded building[b] / Hazard Type 1[a]	3
Metal-built mounded building with attached detonator annex[b] / Hazard Type 1[a]	4
Metal-built mounded building without detonator annex[b] / Hazard Type 1[a]	4
Metal-built unmounded building with attached detonator annex[b] / Hazard Type 1[a]	5A
Metal-built unmounded building without detonator annex[b] / Hazard Type 1[a]	5B
Building of any construction / Hazard Type 2[a]	6
Building of any construction / Hazard Type 3[a]	7
Building of any construction / Hazard Type 4[a]	8

Notes

(a) Guidance on Hazard Type is given in Annex 1. Where a building contains a mixture of Hazard Types 1, 3 or 4, add the quantities of the various Hazard Types together and treat as the lowest numbered Hazard Type, for example, treat 20 kg of HT1 plus 30 kg of HT3 as 50 kg of HT1. Where a building contains a mixture of Hazard Types 2, 3 or 4, add the quantities of the various types together and treat as the lowest numbered hazard, for example, treat 50 kg of HT2 and 50 kg of HT4 as 100 kg of HT2. Where a building contains a mixture which includes Hazard Type 1 and 2 with or without other Hazard Types, add the quantities of the various hazard types together and treat as Hazard Type 1 or Hazard Type 2, whichever requires the greater separation distance.

(b) For guidance on selection of building construction see table 'Which building construction type should be used for Hazard Type 1 in Tables 3, 4, 5A and 5B'.

(c) Tables 3 to 8 inclusive show in Column 1 two figures in each row for the quantity of explosives, for example, 25-50 kg. This means in the example, more than 25 kg and no more than 50 kg, i.e. 25.1-50 kg but not 50.01 kg.

(d) For Tables 1 and 2, the distances for quantities of explosives less than 50 kg should be taken to be the same as for 50 kg unless the Secretary of State advises otherwise. For Tables 3 to 8 inclusive there is no distance requirement for a quantity of explosives less than the minimum figure given in a table, for example, less than 0.1 kg in Table 3.

(e) For Tables 1 and 2, where a distance for the quantity of explosives under consideration is not given because that quantity lies between two quantities given in the table, interpolation may be used. For quantities of explosives in excess of 100,000 kg, the Secretary of State will advise the distance required.

(f) For Tables 3 to 7 inclusive, where the quantity of explosives under consideration is greater than the maximum given in the Table, the distance may be calculated using the appropriate formula given in Annex 4. For Table 8, where the quantity of explosive under consideration is greater than 30,000 kg, the Secretary of State will advise the distance required.

(g) For certain quantities of explosives, Tables 3, 4, 5A and 5B refer to reduced distances specified in Tables 3A, 4A, 5A1 and 5B1 respectively. It is important to note that the use of the reduced distances in this latter group of tables will only be possible if the applicant is able to gather the required population density data to justify it. If the reduced distances are adopted, the applicant will have to be prepared to continue to monitor population density to justify their ongoing validity.

Table 1: Internal separation distances – inter-store distances (metres)

Quantity of explosives (kg)	HT1	HT2	HT3	HT4
50	9	9	9	9
100	11	11	9	9
200	14	14	9	9
300	16	16	10	9
400	18	18	11	9
500	19	19	12	9
1000	24	24	14	9
2000	30	30	17	12
3000	34	34	19	14
4000	38	38	20	16
5000	41	41	22	17
10000	51	51	28	22
15000	58	58	33	24
20000	64	64	37	25
25000	70	70	41	26
30000	74	74	44	27
40000	83	83	47	27
50000	89	89	50	27
60000	94	94	54	27
80000	105	105	63	27
100000	115	115	70	27

Note: for HT1 and HT2, these distances are based on there being mounding or other equally effective measures to intercept low angle high-energy missiles arising from an explosion of HT1 or HT2 explosives.

Table 2: Internal separation distances - process building distances (metres)

Quantity of explosives (kg)	HT1	HT2		HT3	HT4
		<0.7 kg	> 0.7 kg		
50	18	15	32	12	11
100	22	18	46	15	11
200	27	22	61	18	11
300	30	24	69	21	11
400	33	25	75	23	11
500	36	27	79	25	11
1000	56	31	92	32	12
2000	85	36	105	40	19
3000	106	40	112	46	23
4000	122	42	117	50	24
5000	134	44	121	54	25
10000	176	50	133	68	27
15000	204	54	140	78	27
20000	225	57	144	86	27
25000	243	60	148	93	27
30000	258	62	151	98	27
40000	275	66	156	110	27
50000	295	68	159	120	27
60000	315	70	162	130	27
80000	345	74	166	140	27
100000	375	76	170	150	27

Note: for HT1 and HT2, these distances are based on there being mounding or other equally effective measures to intercept low angle high-energy missiles arising from an explosion of HT1 or HT2 explosives.

Table 3: External separation distances - unmounded

Hazard Type 1 in a brick-built building – normal distances

Quantity of explosives (kg)	Unmounded (All distances are in metres)			
	Footpath[e] Lightly used road Waterway	Minor road[e] Railway line[c]	Major road[e] Place of public resort Buildings[d]	Vulnerable building distance
0.1-25	47	71	141	141
25-50	53	80	160	160
50-75	60	90	180	180
75-100	67	100	199	199
100-150	77	115	230	230
150-200	85	128	256	256
200-300	98	147	293	293
300-400	107	160	320	320
400-450	110	166	331	331
450-500	113	170	340	340
500-600	118	178	355	355
600-700	122	184	367	367
700-800	126	189	377	377
800-900	128	193	385	385
900-1000	131	196	392	392
1000-1100	133	199	398	398
1100-1200	134	202	403	403
1200-1300	136	204	408	408
1300-1400	137	206	412	412
1400-1500	138	208	415	415
1500-1600	139	209	418	418
1600-1700	140	210	421	421
1700-1800	141	212	424	431
1800-1900	142	213	426	444
1900-2000	143	214	428	458
2000-3000	147	221	442	570
3000-4000	150	225	449	656
4000-5000	151	227	454	724
5000-10000	165	248	495	950
10000-15000	183	275	550	1097
15000-20000	202	303	606	1211
20000-25000	218	327	653	1306
25000-30000	232	348	695	1389

Table 3: External separation distances - mounded

Hazard Type 1 in a brick-built building – normal distances

Quantity of explosives (kg)	Mounded (All distances are in metres)				
	Footpath[e] Lightly-used road[e] Waterway[e]	Minor road[e] Railway line[c]	Major road[e] Place of public resort	Buildings	Vulnerable building distance
0.1-25	34	51	101	101	101
25-50	36	54	107	107	107
50-75	37	56	112	112	112
75-100	39	59	118	118	118
100-150	43	64	128	142[f]	128
150-200	46	69	139	156[f]	139
200-300	54	81	161	180[f]	161
300-400	54	92	183	183	183
400-450	64	97	193	193	193
450-500	68	102	204	204	204
500-600	68	102	204	204	216
600-700	68	102	204	231[f]	238
700-800	68	102	204	238[f]	260
800-900	68	102	204	245[f]	280
900-1000	68	102	204	250[f]	300
1000-1100	68	102	204	255[f]	319
1100-1200	68	102	204	259[f]	337
1200-1300	68	102	204	263[f]	354
1300-1400	68	102	204	266[f]	370
1400-1500	68	102	204	269[f]	386
1500-1600	68	102	204	272[f]	402
1600-1700	69	104	208	274[f]	416
1700-1800	72	108	215	277[f]	431
1800-1900	74	111	222	279[f]	444
1900-2000	76	115	229	281[f]	458
2000-3000	95	143	285	285	570
3000-4000	109	164	328	328	656
4000-5000	121	181	362	362	724
5000-10000	158	239	475	475	950
10000-15000	183	274	548	548	1097
15000-20000	202	303	606	606	1211
20000-25000	218	327	653	653	1306
25000-30000	232	348	695	695	1389

(c) Use these distances also for any aerodrome, dock, pier, jetty, river wall, sea wall, reservoir.

(d) Use these distances also for any dwelling, retail shop, government and public building, church, chapel, college, school, hospital, theatre, cinema or other building where the public are accustomed to assemble; motorway; caravan site for which planning permission for this use has been granted and on which is located an occupied caravan for a total period in excess of 28 days in any one calendar year; factory; building or works used for the storage in bulk of petroleum spirit, gas or other inflammable substances; buildings or works used for the manufacture and storage of explosives or of articles which contain explosives.

(e) "Footpath" includes a bridleway or another thoroughfare which is not a road but does not include a footpath used by no more than 20 persons every 24 hours. "Lightly-used road" means a road used by more than 20 and fewer than 500 vehicles every 24 hours. "Minor road" means a road used by more than 500 vehicles every 24 hours other than a major road. "Major road" means a road used by more than 10,000 vehicles every 24 hours. "Waterway" does not include a waterway navigated by no more than 20 persons every 24 hours.

(f) These distances may be reduced if certain criteria are met (see Table 3A).

Table 3A: External separation distances

Hazard Type 1 in a mounded brick-built building – reduced distances for low-density buildings

Quantity of explosives (kg)	Reference zone radius (metres)	Maximum population count in reference zone	Reduced distance to buildings (metres) if maximum population count in reference zone not exceeded
0.1 – 100	No reduced distances – use distances in Column 8 of Table 3 regardless of density		
100 – 150	257	203	128
150 – 200	278	240	139
200 – 300	322	320	161
600 – 1600	408	515	204
1600 – 1700	416	540	208
1700 – 1800	431	573	215
1800 – 1900	444	610	222
1900 – 2000	458	648	229
2000 – 30000	No reduced distances – use distances in Column 8 of Table 3 regardless of density		

Note: The normal distances applying to buildings are in Table 3. Exceptionally, for certain quantities of explosives, these distances may be reduced for buildings in low population density areas (that is in cases where the applicant can confirm that the population count in the specified reference zone does not exceed the specified maximum) as shown above.

Table 4: External separation distances

Hazard Type 1 in a metal-built mounded building – normal distances

Quantity of explosives (kg)	Footpath[i] Lightly-used road[i] Waterway[i] (metres)	Minor road[i] Railway line[g] (metres)	Major road[i] Place of public resort (metres)	Buildings[h] (metres)	Vulnerable building distance (metres)
0.1-10	7	11	21	23[j]	40
10-20	9	13	26	29[j]	42
20-30	10	15	30	33[j]	44
30-40	11	17	33	37[j]	46
40-50	12	18	35	40[j]	48
50-60	13	19	38	42[j]	48
60-70	13	20	40	44[j]	52
70-80	14	21	41	46[j]	57
80-90	14	21	42	47[j]	61
90-100	14	22	43	48[j]	66
100-150	16	32	49	55[j]	86
150-200	18	27	54	62[j]	104
200-300	23	34	68	76[j]	136
300-400	28	42	83	83	165
400-450	30	45	89	89	178
450-500	32	48	96	96	191
500-600	36	54	108	108	216
600-700	40	60	119	119	238
700-800	43	65	130	130	260
800-900	47	70	140	140	280
900-1000	50	75	150	150	300
1000-1100	53	80	159	159	319
1100-1200	56	84	168	168	337
1200-1300	59	89	177	177	354
1300-1400	62	93	185	185	370
1400-1500	64	97	193	193	386
1500-1600	67	101	201	201	402
1600-1700	69	104	208	208	416
1700-1800	72	108	215	215	431
1800-1900	74	111	222	222	444
1900-2000	76	115	229	229	458
2000-3000	95	143	285	285	570
3000-4000	109	164	328	328	656
4000-5000	121	181	362	362	724
5000-10000	158	238	475	475	950
10000-15000	183	274	548	548	1097
15000-20000	202	303	606	606	1211
20000-25000	218	327	653	653	1306
25000-30000	232	348	695	675	1389

(g) Use these distances also for any aerodrome, dock, pier, jetty, river wall, sea wall, reservoir.

(h) Use these distances also for any dwelling, retail shop, government and public building, church, chapel, college, school, hospital, theatre, cinema or other building where the public are accustomed to assemble; motorway; caravan site for which planning permission for this use has been granted and on which is located an occupied caravan for a total period in excess of 28 days in any one calendar year; factory; building or works used for the storage in bulk of petroleum spirit, gas or other inflammable substances; buildings or works used for the manufacture and storage of explosives or of articles which contain explosives.

(i) "Footpath" includes a bridleway or another thoroughfare which is not a road but does not include a footpath used by no more than 20 persons every 24 hours. "Lightly-used road" means a road used by more than 20 and fewer than 500 vehicles every 24 hours. "Minor road" means a road used by more than 500 vehicles every 24 hours other than a major road. "Major road" means a road used by more than 10,000 vehicles every 24 hours. "Waterway" does not include a waterway navigated by no more than 20 persons every 24 hours.

(j) These distances may be reduced if certain criteria are met (see Table 4A).

Table 4A: External separation distances

Hazard Type 1 in a metal-built mounded building – reduced distances for low density dwellings

Quantity of explosives (kg)	Reference zone radius (metres)	Maximum population count in reference zone	Reduced distance to buildings (metres) if maximum population count in reference zone not exceeded
0.1-10	41	5	21
10-20	52	8	26
20-30	60	10	30
30-40	66	13	33
40-50	71	15	35
50-60	75	18	38
60-70	79	20	40
70-80	81	20	41
80-90	83	23	42
90-100	86	23	43
100-150	97	30	49
150-200	109	38	54
200-300	136	58	68
300-30000	No reduced distances – use distances in Column 5 of Table 4 regardless of density		

Note: The normal distances applying to buildings are in Table 4. Exceptionally, for certain quantities of explosives, these distances may be reduced for buildings in low population density areas (that is in cases where the applicant can confirm that the population count in the specified reference zone does not exceed the specified maximum) as shown above.

Table 5A: External separation distances

Hazard Type 1 in a metal-built unmounded building – no detonator annex attached – normal distances

Quantity of explosives (kg)	(All distances are in metres)				
	Footpath[m] Lightly-used road[m] Waterway[m]	Minor road[m] Railway line[k]	Major road[m] Place of public resort	Buildings[l]	Vulnerable building distance
0.1-10	8	12	23	30[n]	40
10-20	10	15	29	35[n]	42
20-30	11	17	33	39[n]	44
30-40	12	18	36	42[n]	46
40-50	13	19	38	44[n]	48
50-60	13	20	40	46[n]	48
60-70	14	21	42	48[n]	52
70-80	14	22	43	50[n]	57
80-90	15	22	44	52[n]	61
90-100	15	23	45	55[n]	66
100-150	17	25	50	66[n]	86
150-200	18	28	55	78[n]	104
200-300	23	34	68	101[n]	136
300-400	28	42	83	124[n]	165
400-450	30	45	89	135[n]	178
450-500	32	48	96	138[n]	191
500-600	36	54	108	144[n]	216
600-700	40	60	119	150[n]	238
700-800	43	65	130	156[n]	260
800-900	47	70	140	162[n]	280
900-1000	50	75	150	168[n]	300
1000-1100	53	80	159	168[n]	319
1100-1200	56	84	168	168	337
1200-1300	59	89	177	177	354
1300-1400	62	93	185	185	370
1400-1500	64	97	193	193	386
1500-1600	67	101	201	201	402
1600-1700	69	104	208	208	416
1700-1800	72	108	215	215	431
1800-1900	74	111	222	222	444
1900-2000	76	115	229	229	458
2000-3000	95	143	285	285	570
3000-4000	109	164	328	328	656
4000-5000	121	181	362	362	724
5000-10000	158	238	475	475	950
10000-15000	183	274	548	548	1097
15000-20000	202	303	606	606	1211
20000-25000	218	327	653	653	1306
25000-30000	232	348	695	695	1389

(k) Use these distances also for any aerodrome, dock, pier, jetty, river wall, sea wall, reservoir.

(l) Use these distances also for any dwelling, retail shop, government and public building, church, chapel, college, school, hospital, theatre, cinema or other building where the public are accustomed to assemble; motorway; caravan site for which planning permission for this use has been granted and on which is located an occupied caravan for a total period in excess of 28 days in any one calendar year; factory; building or works used for the storage in bulk of petroleum spirit, gas or other inflammable substances; buildings or works used for the storage and manufacture of explosives or of articles which contain explosives.

(m) "Footpath" includes a bridleway or another thoroughfare which is not a road but does not include a footpath used by no more than 20 persons every 24 hours. "Lightly-used road" means a road used by more than 20 and no more than 500 vehicles every 24 hours. "Minor road" means a road used by more than 500 vehicles every 24 hours other than a major road. "Major road" means a road used by more than 10,000 vehicles every 24 hours. "Waterway" does not include a waterway navigated by no more than 20 persons every 24 hours.

(n) These distances may be reduced if certain criteria are met (see Table 5A1).

Table 5A1: External separation distances

Hazard Type 1 in a built-brick unmounded building – no detonator annex attached – reduced distances for low density dwellings

Quantity of explosives (kg)	Reference zone radius (metres)	Maximum population count in reference zone	Reduced distance to buildings (metres) if maximum population count in reference zone not exceeded
0.1 – 10	46	8	23
10 – 20	57	10	29
20 – 30	65	13	33
30 – 40	71	15	36
40 – 50	76	18	38
50 – 60	80	20	40
60 – 70	84	23	42
70 – 80	87	23	43
80 – 90	89	25	44
90 – 100	91	25	45
100 – 150	100	30	50
150 – 200	110	38	55
200 – 300	136	58	68
300 – 400	165	85	83
400 – 450	178	98	89
450 – 500	191	113	96
500 – 600	216	143	108
600 – 700	238	175	119
700 – 800	260	208	130
800 – 900	280	243	140
900 – 1000	300	278	150
1000 – 1100	318	278	159
1100 - 30000	No reduced distances – use distances in Column 5 of Table 5A regardless of density		

Note: The normal distances applying to buildings are in Table 5A. Exceptionally, for certain quantities of explosives, these distances may be reduced for buildings in low population density areas (that is in cases where the applicant can confirm that the population count in the specified reference zone does not exceed the specified maximum) as shown above.

Table 5B: External separation distances

Hazard Type 1 in a metal-built unmounded building – with a detonator annex attached – normal distances

Quantity of explosives (kg)	(All distances are in metres)				
	Footpath[r] Lightly-used road[r] Waterway[r]	Minor road[r] Railway line[p]	Major road[r] Place of public resort	Buildings[q]	Vulnerable building distance
0.1-10	10	16	31	48[s]	40
10-20	12	18	36	50[s]	42
20-30	13	19	38	52[s]	44
30-40	14	21	41	54[s]	46
40-50	14	22	43	56[s]	48
50-60	15	23	45	58[s]	48
60-70	16	24	47	60[s]	52
70-80	16	25	49	63[s]	57
80-90	17	26	51	70[s]	61
90-100	18	27	53	77[s]	66
100-150	21	32	63	110[s]	86
150-200	25	37	74	143[s]	104
200-300	31	47	94	209[s]	136
300-400	38	58	115	275[s]	165
400-450	42	63	125	308[s]	178
450-500	43	64	128	309[s]	191
500-600	45	68	135	311[s]	216
600-700	47	71	142	312[s]	238
700-800	49	74	148	314[s]	260
800-900	52	78	155	316[s]	280
900-1000	54	81	162	318[s]	300
1000-1100	56	85	169	319[s]	319
1100-1200	58	88	175	321[s]	337
1200-1300	61	91	182	323[s]	354
1300-1400	63	95	189	325[s]	370
1400-1500	65	98	195	326[s]	386
1500-1600	67	101	202	328[s]	402
1600-1700	70	105	209	330[s]	416
1700-1800	72	108	215	332[s]	431
1800-1900	74	111	222	333[s]	444
1900-2000	77	115	229	335[s]	458
2000-3000	95	143	285	363[s]	570
3000-4000	109	164	328	370[s]	656
4000-5000	121	181	362	388	724
5000-10000	158	238	475	475	950
10000-15000	182	274	548	548	1097
15000-20000	202	303	606	606	1211
20000-25000	218	327	653	653	1306
25000-30000	232	348	695	695	1389

(p) Use these distances also for any aerodrome, dock, pier, jetty, river wall, sea wall, reservoir.

(q) Use these distances also for any dwelling, retail shop, government and public building, church, chapel, college, school, hospital, theatre, cinema or other building where the public are accustomed to assemble; motorway; caravan site for which planning permission for this use has been granted and on which is located an occupied caravan for a total period in excess of 28 days in any one calendar year; factory; building or works used for the storage in bulk of petroleum spirit, gas or other inflammable substances; buildings or works used for the manufacture and storage of explosives or of articles which contain explosives.

(r) "Footpath" includes a bridleway or another thoroughfare which is not a road but does not include a footpath used by no more than 20 persons every 24 hours. "Lightly-used road" means a road used by more than 20 and no more than 500 vehicles every 24 hours. "Minor road" means a road used by more than 500 vehicles every 24 hours other than a major road. "Major road" means a road used by more than 10,000 vehicles every 24 hours. "Waterway" does not include a waterway navigated by no more than 20 persons every 24 hours.

(s) These distances may be reduced if certain criteria are met (see Table 5B1).

Table 5B1: External separation distances

Hazard Type 1 in a metal-built unmounded building with a detonator annex attached – reduced distances for low density dwellings

Quantity of explosives (kg)	Reference zone radius (metres)	Maximum population count in reference zone	Reduced distance to buildings (metres) if maximum population count in reference zone not exceeded
0.1-10	62	13	31
10-20	71	15	36
20-30	77	18	38
30-40	82	20	41
40-50	86	23	43
50-60	90	25	45
60-70	94	28	47
70-80	98	33	49
80-90	102	35	51
90-100	106	40	53
100-150	127	50	63
150-200	147	68	74
200-300	188	110	94
300-400	229	163	115
400-450	250	193	125
450-500	257	203	128
500-600	270	225	135
600-700	283	248	142
700-800	297	273	148
800-900	310	298	155
900-1000	324	323	162
1000-1100	337	350	169
1100-1200	350	380	175
1200-1300	364	408	182
1300-1400	377	440	189
1400-1500	391	470	195
1500-1600	404	505	202
1600-1700	417	538	209
1700-1800	431	573	215
1800-1900	444	610	222
1900-2000	458	648	229
2000-3000	570	1003	285
3000-4000	656	1328	328
4000-30000	No reduced distances – use distances in Column 5 of Table 5B regardless of density		

Note: The normal distances applying to buildings are in Table 5B. Exceptionally, for certain quantities of explosives, these distances may be reduced for buildings in low population density areas (that is in cases where the applicant can confirm that the population count in the specified reference zone does not exceed the specified maximum) as shown above.

Table 6: External separation distances

Hazard Type 2

Quantity of explosives (kg)	Some or all items being of more than 0.7 kg net mass per item			Every item being not more than 0.7 kg net mass per item		
	Footpath[v] Lightly-used road[v] Waterway[v]	Minor road[v] Railway line[t]	Major road[v] Place of public resort Buildings[u]	Footpath[v] Lightly-used road[v] Waterway[v]	Minor road[v] Railway line[t]	Major road[v] Place of public resort Buildings[u]
0.1-25	15	23	45	12	19	37
25-50	29	44	88	14	22	43
50-75	36	54	108	16	24	47
75-100	43	65	129	17	26	51
100-150	49	74	148	19	28	56
150-200	56	84	168	20	30	60
200-300	64	96	191	22	33	66
300-400	69	104	207	24	36	71
400-450	71	107	213	24	37	73
450-500	73	110	219	25	37	74
500-600	75	113	226	25	38	76
600-700	78	117	233	26	39	78
700-800	80	120	240	27	41	81
800-900	83	124	248	28	42	84
900-1000	85	128	256	29	44	87
1000-1100	86	130	259	29	44	88
1100-1200	87	131	262	30	45	89
1200-1300	89	133	266	30	45	90
1300-1400	90	135	270	30	46	91
1400-1500	91	137	274	31	46	92
1500-1600	93	139	278	31	47	94
1600-1700	94	141	282	32	48	95
1700-1800	95	143	286	32	49	97
1800-1900	96	144	288	33	50	99
1900-2000	97	146	292	34	51	101
2000-3000	104	156	312	37	55	110
3000-4000	109	163	326	39	59	117
4000-5000	112	169	337	41	61	122
5000-10000	123	185	370	47	70	140
10000-15000	129	194	388	50	76	151
15000-20000	134	201	401	53	80	159
20000-25000	137	206	411	55	83	166
25000-30000	140	210	419	57	86	171

(t) Use these distances also for any aerodromes, dock, pier, jetty, river wall, sea wall, reservoir.

(u) Use these distances also for any dwelling, retail shop, government and public building, church, chapel, college, school, hospital, theatre, cinema or other building where the public are accustomed to assemble; motorway; caravan site for which planning permission for this use has been granted and on which is located an occupied caravan for a total period in excess of 28 days in any one calendar year; factory; building or works used for the storage in bulk of petroleum spirit, gas or other inflammable substances; buildings or works used for the manufacture and storage of explosives or of articles which contain explosives.

(v) " Footpath" includes a bridleway or another thoroughfare which is not a road but does not include a footpath used by no more than 20 persons every 24 hours. "Lightly-used road" means a road used by more than 20 and fewer than 500 vehicles every 24 hours. "Minor road" means a road used by more than 500 vehicles every 24 hours other than a major road. "Major road" means a road used by more than 10,000 vehicles every 24 hours. "Waterway" does not include a waterway navigated by no more than 20 persons every 24 hours.

Note: For Hazard Type 2 explosives, there are no extended distances for vulnerable buildings. Apply the distances in column 4 or 7 as appropriate for such buildings.

Table 7: External separation distances

Hazard Type 3

Quantity of explosives (kg)	Footpath[y] Lightly-used road[y] Waterway[y] (metres)	Minor road[y] Railway line[w] (metres)	Major road[Y] Place of public resort Buildings[x] (metres)
0.1-25	0	0	0
25-50	8	12	23
50-75	8	13	25
75-100	10	15	29
100-150	11	17	33
150-200	12	19	37
200-300	14	21	42
300-400	16	24	47
400-450	16	24	47
450-500	17	25	50
500-600	17	26	51
600-700	18	27	53
700-800	18	27	54
800-900	18	28	55
900-1000	21	32	63
1000-1100	23	35	70
1100-1200	24	36	71
1200-1300	24	36	72
1300-1400	24	37	73
1400-1500	25	37	74
1500-1600	25	38	75
1600-1700	25	38	76
1700-1800	26	39	78
1800-1900	26	40	79
1900-2000	27	40	80
2000-3000	30	41	91
3000-4000	33	50	100
4000-5000	36	54	107
5000-10000	45	68	136
10000-15000	52	78	156
15000-20000	57	86	172
20000-25000	62	93	185
25000-30000	66	100	199

(w) Use these distances also for any aerodromes, dock, pier, jetty, river wall, sea wall, reservoir.

(x) Use these distances also for any dwelling, retail shop, government and public building, church, chapel, college, school, hospital, theatre, cinema or other building where the public are accustomed to assemble; motorway, caravan site for which planning permission for this area had been granted and on which is located an occupied caravan for a total period in excess of 28 days in any one calendar year; factory; building or works used for the storage in bulk of petroleum spirit, gas or other inflammable substances; buildings or works used for the manufacture and storage of explosives or of articles which contain explosives.

(y) "Footpath" includes a bridleway or another thoroughfare which is not a road but does not include a footpath used by no more than 20 persons every 24 hours. "Lightly-used road" means a road used by more than 20 and no more than 500 vehicles every 24 hours. "Minor road" means a road used by more than 500 vehicles every 24 hours other than a major road. "Major road" means a road used by more than 10,000 vehicles every 24 hours. "Waterway" does not include a waterway navigated by no more than 20 persons every 24 hours.

Note: For Hazard Type 3 explosives, there are no extended distances for vulnerable buildings. Apply the distances in Column 4 for such building.

Table 8: External separation distances

Hazard Type 4

Quantity of explosives (kg)	Footpath[bb] Lightly- used road[bb] Waterway [bb] (metres)	Minor road[bb] Railway line[z] (metres)	Major road[bb] Place of public resort Buildings[aa] (metres)
0.1-250	0	0	0
250-300	1	1	1
300-340	1	1	2
340-370	1	2	3
370-400	1	2	4
400-450	2	3	5
450-500	2	3	6
500-550	2	4	7
550-650	3	4	8
650-700	3	5	10
700-750	4	6	11
750-800	4	6	12
800-900	4	7	13
900-950	5	7	14
950-1000	5	8	15
1000-1100	5	8	16
1100-1150	6	9	17
1150-1200	6	9	18
1200-1300	6	10	19
1300-1350	7	10	20
1350-1400	7	11	21
1400-1500	7	11	22
1500-1550	8	12	23
1550-1600	8	12	24
1600-1650	8	13	25
1650-1700	9	13	26
1700-1800	9	14	27
1800-1850	9	14	28
1850-1900	10	15	29
1900-2000	10	15	30
2000-3000	12	18	35
3000-4000	13	20	40
4000-5000	15	23	45
5000-10000	17	26	51
10000-15000	18	27	54
15000-20000	18	28	55
20000-25000	19	29	58
25000-30000	20	30	60

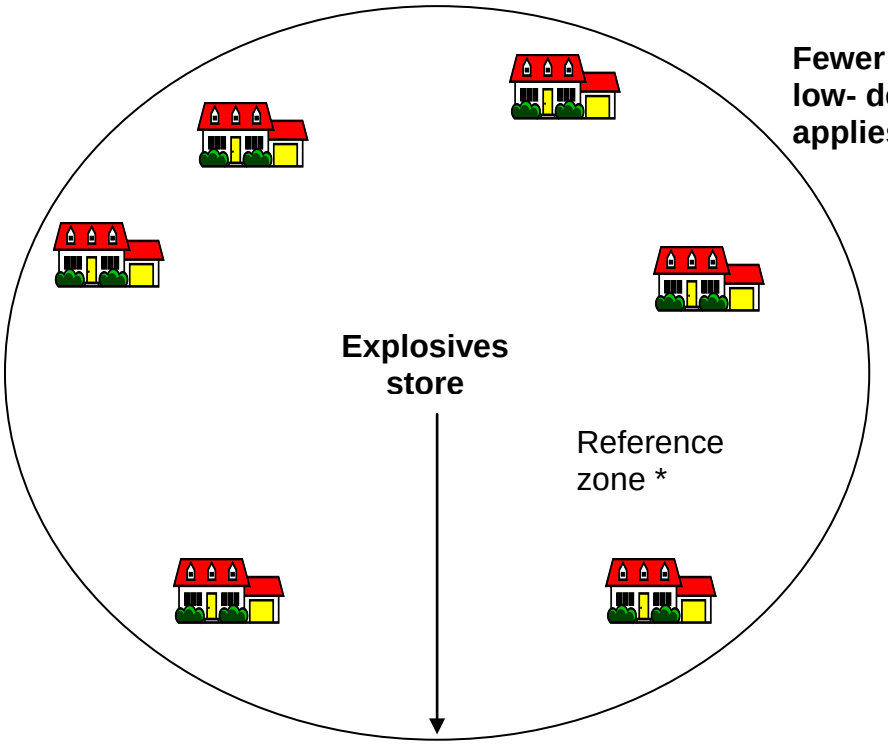
(z) Use these distances also for any aerodromes, dock, pier, jetty, river wall, sea wall, reservoir.

(aa) Use these distances also for any dwelling, retail shop, government and public buildings, church, chapel, college, school, hospital, theatre, cinema or other building where the public are accustomed to assemble; motorway; caravan site for which planning permission for this area had been granted and on which is located an occupied caravan for a total period in excess of 28 days in any one calendar year; factory; building or works used for the storage in bulk of petroleum spirit, gas or other inflammable substances; buildings or works used for the manufacture and storage of explosives or of articles which contain explosives.

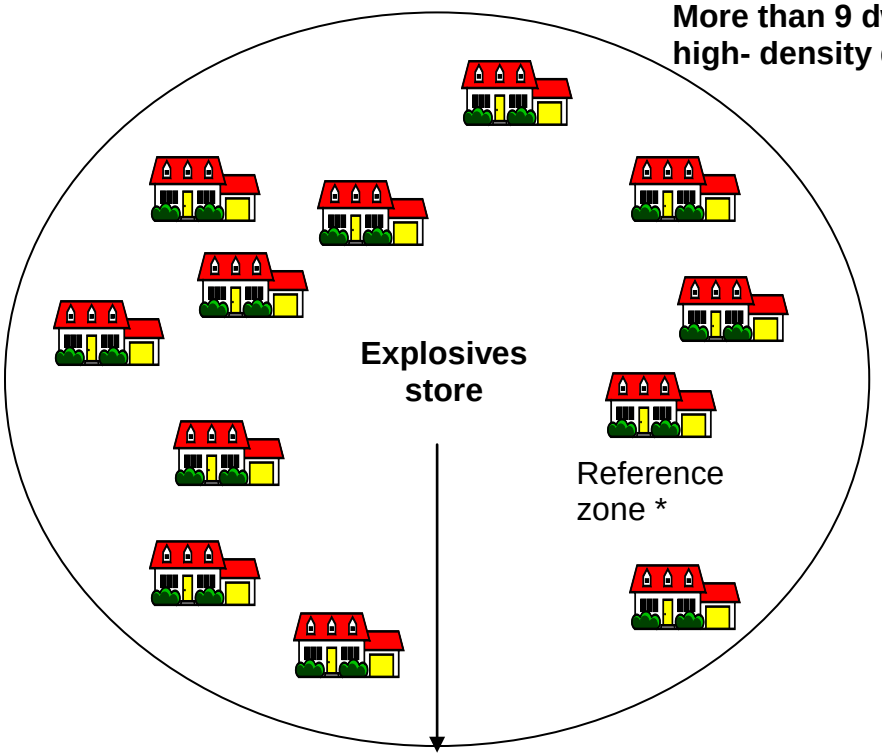
(bb) "Footpath" includes a bridleway or another thoroughfare which is not a road but does not include a footpath used by no more than 20 persons every 24 hours. "Lightly-used road" means a road used by more than 20 and no more than 500 vehicles every 24 hours. "Minor road" means a road used by more than 500 vehicles every 24 hours other than a major road. "Major road" means a road used by more than 10,000 vehicles every 24 hours. "Waterway" does not include a waterway navigated by no more than 20 persons every 24 hours.

Note: For Hazard Type 4 explosives, there are no extended distances for vulnerable buildings. Apply the distances in Column 4 for such building.

ANNEX 3 Guidance on working out whether high- or low- density distances apply



Fewer than 9 dwellings – low- density distance applies



More than 9 dwellings – high- density distance

* Reference zone is twice the low- density separation distance

ANNEX 4 Formulae for calculating external separation distances

Type of explosive, store construction and density	Quantity of explosive (kg)	Formula for calculating separation distances (in metres)
HT1 mounded brick store, low density (reduced distance)	25 – 500	R = 0.2167 * Q + 95.9167
	500 – 1647	R = 204
	1647 or more	R = 22.4 * Q ^ (1 / 3) / ((1 + (3175 / Q) ^ 2) ^(1 / 6))
HT1 mounded brick store, high density (normal distance)	100 - 300	R – (73.84 * Q / (-3.364 + Q)) + (249.2 * Q / (413.1 + Q))
	300 - 600	As for low population density above
	600 - 2000	R – (73.84 * Q / (-3.364 + Q)) + (249.2 * Q / (413.1 + Q))
	2000 or more	R = 22.4 * Q ^ (1 / 3) / ((1 + (3175 / Q) ^ 2) ^ (1/ 6))
HT1 unmounded brick store	25 – 5600	R = (93.75 * Q / (-3.492 + Q)) + (379.8 * Q/(273.8 + Q))
	5600 – 19603	R = 0.010388771 * Q + 397.7274671
	19603 or more	R = 22.4 * Q ^(1 / 3) / ((1 + 3175 / Q) ^ 2) ^ (1 / 6))
HT1 mounded metal store, low density (reduced distance)	75 – 243	R = 0.114666667 * Q + 31.4
	243 or more	R = 22.4 * Q ^ (1 / 3) / ((1 + (3175 / Q) ^ 2) ^ (1 / 6))
HT1 mounded metal store, high density (normal distance)	75 – 300	R = 0.138666667 * Q + 34.6
	300 or more	R = 22.4 * Q ^ (1 / 3) / ((1 + (3175 / Q) ^ 2) ^ (1 / 6))
HT1 unmounded metal store, annex removed, low density (reduced distance)	75 – 241	R = 0.096 * Q + 35.8
	241 or more	R = 22.4 * Q ^ (1 / 3) / ((1 + (3175 / Q) ^ 2) ^ (1 /6))
HT1 unmounded metal store, annex removed, high density (normal distance)	75 – 450	R = 0.229333333 * Q + 31.8
	450 – 2255	R = 0.060848971 * Q + 107.6179629
	2255 or more	R = 22.4 * Q ^ (1 / 3) / ((1 + (3175 / Q) ^ 2) ^ (1 / 6))
HT1 unmounded metal store with annex, low density (reduced distance)	75 – 450	R = 0.205333333 * Q + 32.6
	450 – 1917	R = 0.067017231 * Q + 32.6
	1917 or more	R = 22.4 * Q ^ (1 / 3) / ((1 + (3175 / Q) ^ 2) ^ (1 / 6))
HT1 unmounded metal store with annex, high density (normal distance)	75 – 450	R = 0.661333333 * Q + 94.84224616
	450 – 9922	R = 0.017480771 * Q + 300.133653
	9922 or more	R = 22.4 * Q ^ (1 / 3) / ((1 + (3175 / Q) ^ 2) ^ (1 / 6))
HT2 (every item of not more than 0.7 kg net mass per item)	-	R = 28.127 – 2.364 * LN (Q) + 1.577 * LN (Q) ^2; minimum distance of 30 metres
HT2 (some or all items of more than 0.7 kg net mass per item)	-	R = 167.648 + 70.345 * LN (Q) – 1.303 * LN (Q) ^2; minimum distance of 60 metres
HT3	-	R = 6.4 * Q ^ (1 / 3)

ANNEX 5

THE MANUFACTURE AND STORAGE OFN EXPLOSIVES REGULATIONS 2006 WITH HIGHLIGHTED 2009 AMENDMENTS

2006 No. 425

HEALTH AND SAFETY

The Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006

INCORPORATING 2009/428 AMENDMENTS

Made - - - - - 19th October 2006

Coming into operation 1st December 2006

To be laid before **Parliament**

ARRANGEMENT OF REGULATIONS

The Secretary of State makes the following Regulations in exercise of the powers conferred by Articles 17(1), (2), (4) and (5), 40(2) and (4), 53(1), 54(1) and 55(2) of, and paragraphs 1(1), (2) and (3), 6, 10, 13, 14(1), 15, 17 and 19 of Schedule 3 to, the Health and Safety at Work (Northern Ireland) Order 1978(a) as applied and modified by Article 53 of that Order. In accordance with Article 46 of

(a) S.I. 1978/1039 (N.I. 9); Article 47A was inserted by Article 3, and Article 2 was amended by Articles 4 and 8, of S.I. 1997/1774 (N.I. 16).

that Order as so applied and modified he has consulted with the Health and Safety Executive for Northern Ireland and such other bodies as appeared to him to be appropriate.

Note: All references to the Secretary of State should be taken as Department of Justice

PART I
INTRODUCTION

Citation and commencement

1. These Regulations may be cited as the Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006 and shall come into operation on 1st December 2006.

Interpretation

2.—(1) In these Regulations—

"the 1875 Act" means the Explosives Act 1875(a);

"the 1978 Order" means the Health and Safety at Work (Northern Ireland) Order 1978;

"ammonium nitrate blasting intermediate" means non-sensitised mixtures of, primarily, ammonium nitrate and other substances which are not themselves explosive, such as oxidisers and fuels, intended to produce a blasting explosive only after further processing prior to use and classified in accordance with the United Nations Recommendations as falling within Class 5.1;

"black powder" means an intimate mixture, with or without sulphur, of charcoal or other carbon with potassium nitrate or sodium nitrate, whether the mixture is in meal, granular, compressed or pelletised form, being an explosive substance allocated in accordance with the United Nations Recommendations the U.N. nos. 0027 or 0028;

"centre point", in relation to a store or a building, means the centre point of the store or building determined as far as is reasonably possible;

"Class 1" means Class 1 in respect of explosives or the classification of dangerous goods as set out in the United Nations Recommendations;

"desensitised explosive" means—

(a) a solid explosive substance which has been wetted with water or alcohol or diluted with one or more other substances; or

(b) a liquid explosive substance which has been dissolved or suspended in water with one or more other substances,

to form a homogeneous mixture so as to suppress its explosive properties and which, without that treatment, would be classified in accordance with the United Nations Recommendations as falling within Class 1;

"disposes", in relation to explosives and explosive-contaminated items, means destroying the explosives or explosive-contaminated items or otherwise rendering them harmless;

"explosive" means—

(a) any explosive article or explosive substance which would—

(i) if packaged for transport, be classified in accordance with the United Nations Recommendations as falling within Class 1; or

(ii) be classified in accordance with the United Nations Recommendations as—

(aa) being unduly sensitive or so reactive as to be subject to spontaneous reaction and accordingly too dangerous to transport; and

(bb) falling within Class 1; or

(b) a desensitised explosive,

(a) 1875 c.17 (38 & 39 Vict.).

but it does not include an explosive substance produced as part of a manufacturing process which thereafter reprocesses it in order to produce a substance or preparation which is not an explosive substance;

"explosive article" means an article containing one or more explosive substances;

"explosive substance" means a substance or preparation, not including a substance or preparation in a solely gaseous form or in the form of vapour, which is—

(a) capable by chemical reaction in itself of producing gas at such a temperature and pressure and at such a speed as could cause damage to surroundings; or

(b) designed to produce an effect by heat, light, sound, gas or smoke, or a combination of any of these as a result of a non-detonative, self-sustaining, exothermic chemical reaction;

"firearm" and "firearms dealer" have the meaning given to them by Article 2(2) of the Firearms (Northern Ireland) Order 2004(**a**);

"fireworks" means the explosive articles allocated in accordance with the United Nations Recommendations any of the U.N. nos. 0333 to 0337;

"harbour" means a harbour which is within the jurisdiction of a harbour authority and includes—

(a) the areas of water within the jurisdiction of that harbour authority; and

(b) land within the jurisdiction of, or occupied by, the harbour authority and used in connection with the loading and unloading of ships,

but does not include the areas of water which are within the jurisdiction not only of the harbour authority but also of another harbour authority and which are used primarily by ships using berths within the harbour of that other harbour authority;

"harbour authority" means—

(a) in relation to a harbour area, the statutory harbour authority by reference to which that harbour area is defined; and

(b) in relation to a harbour, any person being, or claiming to be—

(i) the proprietor of that harbour; or

(ii) entrusted with the duty, or invested with the duty, or invested with the power of improving, managing, maintaining or regulating that harbour;

"hazard type" means any of Hazard Type 1 explosive, Hazard Type 2 explosive, Hazard Type 3 explosive or Hazard Type 4 explosive;

"Hazard Type 1 explosive" means an explosive which, as a result of, or as a result of any effect of, the conditions of its storage or process of manufacture, has a mass explosion hazard;

"Hazard Type 2 explosive" means an explosive which, as a result of, or as a result of any effect of, the conditions of its storage or process of manufacture, has a serious projectile hazard but does not have a mass explosion hazard;

"Hazard Type 3 explosive" means an explosive which, as a result of, or as a result of any effect of, the conditions of its storage or process of manufacture, has a fire hazard and either a minor blast hazard or a minor projectile hazard, or both, but does not have a mass explosion hazard;

"Hazard Type 4 explosive" means an explosive which, as a result of, or as a result of any effect of, the conditions of its storage or process of manufacture, has a fire hazard or slight explosion hazard, or both, with only local effect;

"headquarters" means a headquarters for the time being specified in Schedule 2 to the Visiting Forces and International Headquarters (Application of Law) Order 1999(**b**);

"Her Majesty's Forces" means any of the naval, military or air forces of the Crown, whether raised inside or outside the United Kingdom and whether any such force is a regular, auxiliary or reserve force, and includes any civilian employee of the Ministry of Defence attached to those forces;

(a) S.I. 2004/702 (N.I. 3).
(b) S.I. 1999/1736.

"licence" means a licence for the manufacture or storage of explosives granted under regulation 11 and includes a varied licence;

"licensee" means a person who has been granted a licence under regulation 11 and includes a person to whom a licence is transferred and a person treated under regulation 20 as being licensed;

"manufacture" includes—

(a) in relation to explosive articles, their repair, modification, disassembly or unmaking; and

(b) in relation to explosive substances, their reprocessing, modification or adaptation,

but it does not include the packing, unpacking, re-packing, labelling or testing of explosives or the division of a quantity of explosives stored in bulk into smaller quantities and the placing of those smaller quantities into containers;

"mine" means an excavation or system of excavations, including all such excavations to which a common system of ventilation is provided, made for the purpose of, or in connection with, the extraction, wholly or substantially by means involving the employment of persons below ground, of minerals (whether in their natural state or in solution or suspension) or products of minerals;

"non-sensitised" means giving a negative test result when subjected to Test Series 8 of the Manual of Tests and Criteria, fourth edition(a), supporting the United Nations Recommendations;

"percussion caps" means items intended for use in small arms ammunition allocated in accordance with the United Nations Recommendations the U.N. nos. 0044, 0377 or 0378;

"police force", for the purposes of regulations 3(3)(c) and (5)(b), 5(3)(d) and 26(6), includes—

(a) any Harbour or Airport Police,

(b) the Ministry of Defence Police; and

(c) the Police Service of Northern Ireland;

"preparation" means a mixture of two or more substances or a solution of any substance or substances;

"propellant" means a deflagrating explosive used as a propellant in firearms;

"public consultation zone" means the area around the building where the manufacture of explosives takes place or is proposed to take place or the store or proposed store, which, from the centre point of the building or store, has a radius equivalent to double the greatest separation distance required by virtue of these Regulations to apply in the case of that store or building;

"pyrotechnic" means an explosive article or substance of a kind designed to produce an effect by heat, light, sound, gas or smoke, or a combination of any of these, as a result of non-detonative, self-sustaining, exothermic chemical reactions;

"quarry" has the meaning assigned to it by regulation 3 of the Quarries Regulations (Northern Ireland) 2006(b);

"registered" in relation to a person, means a person registered in respect of the storage of explosives under regulation 13 and includes a person to whom a registration is transferred and a person treated under regulation 20 as being registered;

"registration" means registration under regulation 13 and "certificate of registration" means a certificate issued under regulation 13(3) and includes a varied registration;

"renewal of a licence" or "renewal of a registration" means respectively the grant of a licence or issue of a certificate of registration to follow a previous licence or certificate of registration without any amendment or gap in time;

"separation distance" means the distance between the building in which explosives are, or are to be, manufactured or the store and a building, or other place, in or at which people are, or are likely to be, present either all the time or from time to time;

(a) ISBN 92-1-139087-7

(b) S.R. 2006 No. 205.

"ship" includes every description of vessel used in navigation;

"shooters' powder" means—

(a) black powder;

(b) smokeless powder; or

(c) any other substance or preparation based on potassium nitrate or nitrocellulose, whether in powder, pelletised or granular form, used, or to be used, as a propellant;

"site" means the whole area under the control of the same person and for these purposes—

(a) all places adjoining each other under the control of the same person shall be treated as a whole area; and

(b) two or more areas under the control of the same person separated only by a road, railway or inland waterway shall be treated as a whole area;

"small arms ammunition" means the explosive articles allocated in accordance with the United Nations Recommendations the U.N. nos. 0012, 0014 or 0055 which are intended exclusively for use in small arms;

"smokeless powder" means an explosive substance allocated in accordance with the United Nations Recommendations the U.N. nos. 0160 or 0161;

"a store" means a building, enclosed area or metal structure in which explosives are, or are to be, stored;

"substance" means any natural or artificial substance whether in solid or liquid form or in the form of a gas or vapour;

"U.N. no." means United Nations Serial Number, that is to say one of the four-digit numbers devised by the United Nations as a means of identification of types of explosives in accordance with the United Nations Recommendations;

"United Nations Recommendations" means the United Nations Recommendations on the Transport of Dangerous Goods (based on those originally prepared by the United Nations Committee of Experts on the Transport of Dangerous Goods considered by the Economic and Social Committee of Experts at its twenty-third session (Resolution 645G (XXIII) of 26 April 1957))(a) as revised or reissued from time to time;

"visiting force" has the same meaning as it does for the purpose of any provision of the Visiting Forces Act 1952(**b**);

"water-based", in relation to explosives, means explosives which are based on water and ammonium nitrate and allocated in accordance with the United Nations Recommendations the U.N. no. 0241;

"wholly-owned subsidiary" has the same meaning as it is given by Article 4(2) of the Companies (Northern Ireland) Order 1986(c).

(2) For the purposes of these Regulations, and subject to regulation 3(6), the manufacture or storage of ammonium nitrate blasting intermediate shall be deemed to be the manufacture or storage of an explosive.

(3) For the purpose of measuring any distance required to be a separation distance by virtue of these Regulations, the distance to be measured shall be the distance between the outside edge of the building in which the explosives are, or are to be, manufactured or the store and the nearest point of the building, or other place, to which the separation distance applies.

(4) Any reference in these Regulations to the quantity of an explosive shall be construed as a reference to the net mass of explosive substance and, in the case of any pyrotechnic article, the net mass of the explosive shall, for the purposes of these Regulations, be deemed to be one quarter of the gross mass of the pyrotechnic article or, where the manufacturer, importer or supplier specifies

(a) Current edition (2005): ISBN 92-1-139106 -7.
(b) 1952 c.67.
(c) S.I. 1986/1032 (N.I. 6).

a different net mass on the pyrotechnic article, its packaging or a document accompanying the pyrotechnic article, that quantity.

(5) For the purposes of these Regulations and subject to paragraph (6), "storage" in relation to explosives means their possession for any period after their manufacture except for any period during which they are being—

(a) prepared at any place for use at that place; and

(b) transported beyond the place where they are stored.

(6) Subject to paragraph (7), where, during any transport of any explosive beyond the place where it is stored, that explosive is, or is to be, kept at any place for more than 24 hours, that keeping shall be treated as storage within the meaning of these Regulations and the provisions of these Regulations shall apply to that keeping accordingly, notwithstanding any application of the provisions of the Carriage of Explosives Regulations (Northern Ireland) 2006(a) to that transport.

(7) Paragraph (6) shall not apply to explosives in respect of which there is in existence an explosives licence granted under regulation 8(1) of the Explosives in Harbour Areas Regulations (Northern Ireland) 1995(b).

(8) Any reference in the definitions in this regulation of "desensitised explosive", "explosive substance", "pyrotechnic" or "substance" to liquid, gas, gaseous form or vapour means, respectively, liquid, gas, gaseous form or vapour at normal atmospheric temperature and pressure.

Application

3.—(1) Regulations 4 to 24 shall not apply to—

(a) any activity to which regulations 3(2) and (3), 6 to 8, and 19 to 24 of the Explosives in Harbour Areas Regulations (Northern Ireland) 1995 apply;

(b) any activity to which the Carriage of Explosives Regulations (Northern Ireland) 2010 apply, apart from any activity which is to be treated as storage by virtue of regulation 2(6);

(c) the master or crew of a ship or to the employer of such persons in respect of the normal shipboard activities of a ship's crew which are carried out solely by the crew under the direction of the master and in this sub-paragraph the reference to the normal shipboard activities of a ship's crew shall include—

(i) the construction, reconstruction or conversion of a ship outside, but not inside, Northern Ireland; and

(ii) the repair of a ship except repair when carried out in dry dock;

(d) the transport of explosives by air; and

(e) an offshore installation within the meaning of regulation 3 of the Offshore Installations and Pipeline Works (Management and Administration) Regulations (Northern Ireland) 1995(c).

(2) Regulation 8 shall not apply to—

(a) a constable in the execution of his duties;

(b) an inspector appointed under [. . .] Article 21 of the 1978 Order in the performance of his functions; and

(c) an officer of Revenue and Customs in the performance of his functions.

(3) Regulation 10 shall not apply to—

(a) an inspector appointed under Article 21 of the 1978 Order;

(b) Commissioners for Her Majesty's Revenue and Customs;

(c) a police force; and

(d) a person employed as mentioned in section 4 of the Police (Northern Ireland) Act 2000(d) who is duly authorised in writing by the Chief Constable to store explosives.

(a) S.R. 2010 No. 59.

(b) S.R. 1995 No. 87.

(c) S.R. 1995 No. 340.

(d) 2000 c. 32.

(4) Regulations 5 and 9 to 20 shall not apply to the manufacture or storage of explosives at any site under the control of the Secretary of State for Defence, or held for the purpose of a visiting force or headquarters, under a scheme approved by him which—

(a) provides for their safe manufacture and storage; and

(b) prescribes—

(i) separation distances; or

(ii) a combination of separation distances and other safety measures,

which are designed to ensure a standard of safety which is equivalent to that ensured by the separation distances prescribed by regulation 5 and Schedule 1.

(5) Regulations 5 to 20 and 23 shall not apply to explosives—

(a) seized by a constable in the execution of his duties;

(b) received by a police force from a member of the public; or

(c) which, for reasons of public safety or protection of property, are undergoing ordnance disposal by persons under the direction of a member of Her Majesty's Forces or civilian employees of the Ministry of Defence authorised in writing by the Secretary of State for Defence to carry out ordnance disposal.

(6) In relation to the application of these Regulations to ammonium nitrate blasting intermediate by virtue of regulation 2(2), regulation 10 shall not apply to the storage of ammonium nitrate blasting intermediate.

(7) These Regulations shall not derogate from the provisions of the Explosives Act (Northern Ireland) 1970(a) or any regulations made under it.

PART II

SAFETY REQUIREMENTS

Fire and explosion measures

4.—(1) Any person who manufactures or stores explosives shall take appropriate measures—

(a) to prevent fire or explosion;

(b) to limit the extent of fire or explosion including measures to prevent the spreading of fires and the communication of explosions from one location to another; and

(c) to protect persons from the effects of fire or explosion.

(2) For the purpose of paragraph (1), the reference to the manufacture or storage of explosives shall be deemed to include a reference to any handling, on-site transport and testing of explosives which are associated with that manufacture or storage.

(3) In this regulation, "fire or explosion" means unplanned fire or explosion at the site of manufacture or storage.

Separation distances

5.—(1) Subject to paragraphs (2) and (3), every person who stores explosives at a site shall ensure that the relevant separation distance prescribed by Schedule 1 is maintained between a store and a building or other place not within that site to which that Schedule applies.

(2) Paragraph (1) shall not apply to –

(a) desensitised explosives; or

(b) explosives which are stored under a licence granted by the Secretary of State in cases where –

(i) the public hearing procedure was required pursuant to regulation 11(4); or

(ii) that the procedure was not required by virtue of regulation 11(5)(d) or (e).

(a) 1970 c. 10.

(3) Subject to paragraph (4), paragraph (1) shall not apply to the storage of explosives where the total quantity of explosives stored at a site, excluding in the case of sub-paragraphs (b) and (d) any quantity of small arms ammunition, does not exceed—

(a) 100 grams;

(aa) a combined total of 5 kilograms of shooters' powder and model rocket motors;

(b) 30 kilograms of shooters' powder and 300 grams of percussion caps;

(c) 200 detonators and—

(i) 5 kilograms of water-based explosive and detonating cord; or

(ii) 5 kilograms of water-based explosive or detonating cord; or

(d) 4 kilograms of explosive kept by a police force or the Northern Ireland Prison Service for the purpose of training dogs used for the detection of explosives,

(e) 4 kilograms of explosive kept by a police force for operational purposes other than those referred to in sub-paragraph (d),

and the explosives are stored in a safe and suitable place with all due precautions for public safety.

(4) For the purposes of paragraph (3), a person may not rely on more than one of the exceptions listed in sub-paragraphs (a) to (d) of that paragraph.

(5) Every person to whom the duty under paragraph (1) applies shall ensure that the separation distance referred to in paragraph (6) is maintained between a store and any building on the site on which the store is situated which is used either for accommodation or for work but not including any building used for work which is normally unoccupied by any person and is not a store.

(6) The separation distance referred to in paragraph (5) is that which is equal to half the relevant separation distance determined in accordance with Schedule 1.

(7) Every person, in a case to which regulation 11(4) applies, who is granted a licence to manufacture or store explosives, or whose licence is varied in a way which affects the separation distances required to be maintained, shall ensure that within 28 days of the grant or variation the Department of the Environment is given a plan of the site and its immediate surrounding area showing the separation distances required to be maintained pursuant to the licence.

(8) In this regulation, "model rocket motors" means explosive articles which –

(a) are allocated the U.N. nos. 0186, 0272, 0349, 0351, or 0471;

(b) are intended to be used for the propulsion of model rockets or similar articles; and

(c) in respect of each individual explosive article, contain no more than 1 kilogram of explosive.

Disposal of explosives and decontamination of explosive-contaminated items

6.—(1) Any person who disposes of explosives shall ensure, so far as is reasonably practicable, that they are disposed of safely.

(2) Any person who decontaminates explosive-contaminated items shall ensure, so far as is reasonably practicable, that they are decontaminated safely.

Employment of young persons

7. A person who manufactures or stores explosives shall not permit a person—

(a) under the age of 16 years to work in that manufacture or storage; or

(b) under the age of 18 years to work in that manufacture or storage except under supervision.

Unauthorised access

8.—(1) A person shall not—

(a) without the permission of the occupier, enter—

(i) any building used for the manufacture of explosives in or at a site;

(ii) any store in or at a site; or

(iii) any site with clearly marked boundaries at which explosives are manufactured or stored; or

(b) having so entered, refuse to leave that site when requested to do so by a constable or the

occupier, his employee or agent.

(2) Where following a request referred to in paragraph (1)(b) the person who has entered that site without permission refuses to leave it, a constable or the occupier, his employee or agent may remove that person from the site using reasonable force, if necessary.

(3) "Enter" for the purpose of this regulation includes entering onto a roof of a building in which explosives are manufactured or a store.

PART III

LICENSING AND REGISTRATION REQUIREMENTS

Explosives not to be manufactured without a licence

9.—(1) Subject to paragraph (2), a person shall not manufacture explosives unless he holds a licence for that manufacture and complies with the conditions of that licence.

(2) Paragraph (1) shall not apply to—

(a) the manufacture of explosives for the purpose of laboratory analysis, testing, demonstration or experimentation (but not for practical use or sale) where the total quantity of explosives being manufactured at any time does not exceed 100 grams;

(b) the making or unmaking of small arms ammunition, or the preparation of cartridges for use with firearms which are to be used at historical re-enactment events, where the total quantity of primer and propellant used at any one time does not exceed 2 kilograms and, for these purposes, the quantity of propellant used includes propellant removed from cartridges;

(c) the preparation of shot firing charges in connection with their use;

(d) the preparation, assembly, disassembly and fusing of firework displays at the place of intended use;

(e) the preparation, assembly and fusing of fireworks, in quantities of no more than 10 kilograms at a time, at a site in relation to which a person holds a licence or certificate of registration for the storage of explosives, for the purpose of a firework display to be put on by that person;

(f) the preparation, assembly and fusing of explosives commissioned for use in theatrical, television or cinematic special effects;

(g) the reprocessing of an explosive to form a pharmaceutical product which is not in itself an explosive;

(h) the mixing for immediate use of—

(i) ammonium nitrate with fuel oil; or

(ii) ammonium nitrate blasting intermediate with another substance,

at a mine or quarry, to produce an explosive which is not cap-sensitive;

(i) the use of desensitised explosives in the manufacture of products which are not in themselves explosives; or

(j) the manufacture of explosives by a company which is a wholly-owned subsidiary of another company at a site in relation to which that other company holds a licence to manufacture explosives and that manufacture by the wholly-owned subsidiary is in accordance with the conditions of that licence.

(3) In this regulation—

(a) in paragraph (2)(c), "shot firing charges" means charges used in shot firing operations; and

(b) in paragraph (2)(h), "cap-sensitive" means an explosive which gives a positive result when tested in accordance with the Series 5(a) test of the Manual of Tests and Criteria, fourth edition(a) supporting the United Nations Recommendations.

Explosives not to be stored without a licence or certificate of registration

10.—(1) Subject to paragraph (2), a person shall not store explosives unless he holds a licence or certificate of registration for their storage and complies with the conditions of that licence or certificate of registration.

(2) Paragraph (1) shall not apply to—

(a) the storage of one or more of the following—

(i) no more than 10 kilograms of black powder;

(ii) no more than 5 kilograms of—

(aa) shooters' powder;

(a) ISBN 92-1-139087-7.

(bb) any explosive or combination of explosives listed in Schedule 2; or

(cc) a combination of shooters' powder and any one or more of the explosives listed in Schedule 2;

(iii) no more than 15 kilograms of percussion caps or small arms ammunition or a mixture of them;

(b) the storage of no more than 7 kilograms of—

(i) Hazard Type 1 or 2 explosives; or

(ii) a combination of Hazard Type 1 or 2 explosives with explosives of another hazard type,

for no longer than 24 hours;

(c) the storage of Hazard Type 3 or 4 explosives for no longer than 24 hours;

(d) the storage of no more than 100 kilograms of—

(i) Hazard Type 3 explosives consisting of fireworks;

(ii) shooters' powder; or

(iii) a combination of shooters' powder and Hazard Type 3 and 4 explosives consisting of fireworks,

provided that the explosives are stored for no longer than 3 consecutive days in their place of intended use;

(e) the storage of—

(i) no more than 250 kilograms of Hazard Type 4 explosives provided that the explosives are stored for no longer than 3 consecutive days in their place of intended use; or

(ii) no more than 50 kilograms of Hazard Type 4 explosives consisting solely of fireworks, provided that the fireworks are stored for no longer than 21 consecutive days and are not for sale or for use at work;

(f) the storage of desensitised explosives which have been allocated in accordance with the United Nations Recommendations the U.N. nos. 1336, 1337, 2059, 2555, 2556 or 2557; or

(g) the storage of explosives by a company which is a wholly-owned subsidiary of another company at a site in relation to which that other company holds-

(i) a registration; or

(ii) a licence to store explosives

and that storage by the wholly-owned subsidiary is in accordance with any condition of that registration or licence.

(3) For the purpose of paragraph (2)—

(a) no more than one of the exceptions listed in sub-paragraphs (a) to (e) of paragraph (2) may be relied on in relation to explosives stored at the same site at the same time, irrespective of the person who is storing them; and

(b) the quantities referred to in that paragraph are the maximum quantities of the explosives […]which may be present at a site at any one time [and];

(c) in sub paragraphs (d) and (e), Christmas Day, Good Friday and, to the extent that they are not the same as those, any days which under the Banking and Financial Dealings Act 1971 (a) are bank holidays shall not be included for the purposes of determining the period of days referred to in those sub-paragraphs.

Grant of licences

11.—(1) An application for a licence shall be made to the Secretary of State on a form approved for the purpose of this regulation by him.

(2) A licence, not being the renewal of a licence, may be granted-

(a) for such period not exceeding 5 years; or

(b) for any period or without a time limit in a case-

(i) to which paragraph (4) applies; or

(ii)[…] to which paragraph (4) does not apply by virtue of paragraph (5)(e); or

(iii) where the licence application relates only to the manufacture of ammonium nitrate blasting intermediate,

as the Secretary of State determines.

(3) Subject to paragraph (4), the Secretary of State shall grant a licence unless any of the grounds for refusing to do so referred to in regulation 14 apply.

(4) Subject to paragraph (5), the procedure set out in regulation 12 for holding a public hearing shall apply.

(5) Paragraph (4) shall not apply to an application for a licence—

(a) to store no more than 2000 kilograms of explosives to which paragraph (a)(i) or (b) of the definition of "explosive" in regulation 2(1) applies;

(b) [. . .]

(c) relating to the manufacture of explosives by means of on-site mixing;

(d) relating to the manufacture of ammonium nitrate blasting intermediate; [or]

(e) relating to the manufacture or storage of explosives by a person who wishes to carry on such manufacture or storage within a part of a site where another person already holds a licence for the manufacture or storage of explosives, and either—

(i) the application relates to manufacturing or storage activities which would be permitted at that part of the site under the existing licence; or

(ii) in the opinion of the Secretary of State, no significant new health and safety issues are raised by the application.

(f) which is to follow, without a gap in time, a previous licence granted to follow, without a gap in time, a deemed licence for the purposes of regulation 26(3), or

(g) relating to the manufacture of explosives by the Police Service of Northern Ireland for operational purposes or the training of its members in relation to those purposes.

(6) The conditions of every licence shall specify—

(a) the site and, within it, the places where the explosives may be manufactured or stored;

(b) except in the case of desensitised explosives, the hazard type; and

(c) the maximum quantity of explosives which may be manufactured, stored or otherwise present, as the case may be, at any one time at or in any place so specified.

(7) In addition to the matters specified in paragraph (6), a licence which is granted by the Secretary of State in cases where the public hearing procedure was required pursuant to paragraph (4) or in cases where that procedure was not required by virtue of paragraph (5)(d) or (e) —

(a) shall be granted subject to such conditions as the Secretary of State considers appropriate which relate to separation distances;

(b) may be granted subject to such conditions as the Secretary of State considers appropriate which relate to—

(i) the construction, siting or orientation of any building (including any protective works around the building) where the activity will be undertaken; and

(ii) the activities which may be undertaken in specified buildings,

and in this sub-paragraph—

"activity" means the manufacture or storage of explosives and it includes any handling, on-site transport, testing and disposal of explosives; and

"construction" means the materials used in, and the design of, a building; and

(c) may, where the application was for both the manufacture and storage of explosives at the same site, cover both that manufacture and storage for the purposes of, respectively, regulations 9 and 10.

(8) In addition to the matters specified in paragraphs (6) and (7), where the Secretary of State grants a licence which relates to the storage of pyrotechnic articles at any site where those articles are to be offered for sale, the Secretary of State may attach such conditions to the licence as he considers appropriate which relate to—

(a) the storage and display of those pyrotechnic articles in areas where they can be purchased;

(b) the prevention of risk of fire arising in respect of those pyrotechnic articles; and

(c) the safe use of fire escapes in that area.

(9) A licence granted pursuant to this regulation shall be in a form approved by the Secretary of State.

(10) In this regulation, "on-site mixing" means the mixing at any place of non-explosive substances or preparations to form an explosive for immediate use at that place.

Public hearing

12.—(1) Subject to regulation 14, where this regulation applies by virtue of regulation 11(4), the Secretary of State shall issue to the applicant a draft licence containing the conditions which the Secretary of State proposes to attach to the licence.

(2) Within 28 days of receiving the draft licence from the Secretary of State, the applicant shall—

(a) have published in a newspaper circulating in the locality where he proposes to manufacture or store explosives a notice which shall—

(i) give details of the application;

(ii) invite representations on matters affecting the health and safety of persons other than the applicant's employees to be made in writing to the Secretary of State within 28 days of the date that the notice is first published; and

(iii) give an address, within the district council area where the manufacture or storage of explosives is proposed, at which a copy of the application and draft licence may be inspected and the address of the Secretary of State to which any representations must be sent; and

(b) take other reasonable steps to give that information to every person who resides, owns land or carries on a business or other undertaking within the public consultation zone.

(3) The Secretary of State shall send a copy of any representations referred to in paragraph (2)(a)(ii) to the applicant as soon as reasonably practicable after receiving them.

(4) In considering the representations, the Secretary of State shall have regard only to health and safety matters.

(5) Subject to paragraph (6), the Secretary of State shall, before deciding whether to grant a licence, hold a public hearing within 4 months of the date of his issuing to the applicant the draft licence referred to in paragraph (1).

(6) If, after the period of 28 days referred to in paragraph (2)(a)(ii) has elapsed, the Secretary of State has not received objections to the application, or has only received objections which in his opinion are frivolous or immaterial, he may grant a licence without holding a hearing.

(7) Not less than 28 days before the hearing referred to in paragraph (5), the Secretary of State shall have published in a newspaper circulating in the locality where the applicant proposes to manufacture or store explosives a notice which shall give details of the date, time and place fixed for the hearing and he shall send a copy of the notice to—

(a) the applicant; and

(b) any person who made representations referred to in paragraph (2)(a)(ii),

within 7 days from its publication.

(8) The Secretary of State shall notify the applicant of his decision within 7 days of making it.

(9) The applicant shall pay a fee to the Secretary of State for the performance by him of his functions under this regulation, which fee shall not exceed the sum of the costs reasonably incurred by the Secretary of State in performing those functions.

(10) In this regulation, "applicant" means the applicant for a licence or variation of a licence and "application" means his application.

Registration in relation to storage

13.—(1) Subject to paragraph (5), a person who wishes to store within one site at any one time no more than—

(a) 30 kilograms of explosives of any hazard type;

(b) 100 kilograms of Hazard Type 3 explosives;

(c) 100 kilograms of a combination of Hazard Type 3 explosives with explosives of Hazard Type 4;

(d) 250 kilograms of Hazard Type 4 explosives; or

(e) 250 kilograms of small arms ammunition and percussion caps and 30 kilograms of shooters'

powder,

may apply to the Secretary of State on a form approved for the purpose of this regulation by him to be registered in respect of that storage.

(2) The Secretary of State shall register the applicant unless any of the grounds for refusing to do so referred to in regulation 14 apply.

(3) Where the Secretary of State registers an applicant, he shall issue to the applicant a certificate of registration, in a form approved for the purpose of this regulation by him.

(4) A registration, including the renewal of a registration, may be issued for such period not exceeding [3] 5 years as the Secretary of State determines.

(5) For the purpose of paragraph (1), no more than one of the [...] sub-paragraphs (a) to (e) of paragraph (1) shall apply to explosives stored at the same site at the same time, irrespective of the person who is storing them.

(6) Where the registration relates to the storage of Hazard Type 4 pyrotechnic articles which are to be offered for sale at the site, the quantity of those pyrotechnic articles which may be kept for any period of time in a sales area at that site shall be restricted to the quantity determined in accordance with Schedule 3 and for these purposes and those of Schedule 3, "sales area" means an area where Hazard Type 4 pyrotechnic articles are sold and to which any person who is not an employee of the person who is registered in respect of the storage of those pyrotechnic articles has access.

(7) An application for registration may not be made in respect of the storage of explosives at a site at which the manufacture of explosives other than manufacture not requiring a licence by virtue of regulation 9(2), also takes place or is to take place except if a licence to manufacture explosives is not required by virtue of regulation 9(2).

(8) The quantities referred to in paragraph (1) are the maximum quantities of explosives [...] to which they respectively relate which may be present at a site at any one time.

Refusal of licences, registration and draft licences

14.—(1) Subject to regulation 17, the Secretary of State shall—

(a) refuse an application for a licence or registration; and

(b) where regulation 12(1) applies, refuse to issue the draft licence referred to in it,

where paragraph (2) applies.

(2) This paragraph applies when the Secretary of State is of the opinion that—

(a) the proposed site or, within it, any place in which explosives are proposed to be manufactured or stored is unsuitable for that manufacture or storage; or

(b) the applicant is not a fit person—

(i) to manufacture explosives, in the case of an application for a licence to do so; or

(ii) to store explosives, in the case of an application for a licence or registration to do so.

(3) A refusal by the Secretary of State, pursuant to paragraph (1), to issue the draft licence referred to in regulation 12(1) shall be treated for the purposes of these Regulations as a refusal of an application for a licence and the provisions of regulation 17 shall apply to a refusal to issue a draft licence as if the references in that regulation to "refuse an application for a licence" included refusing to issue a draft licence.

Variation of licences and registration

15.—(1) The Secretary of State may vary a licence—

(a) where there is a change in circumstances such that the separation distances can no longer be maintained and a consequent reduction in the maximum quantity of explosives that may be stored is required;

(b) (in cases where the public hearing procedure was required pursuant to regulation 11(4) or in cases where that procedure was not required by virtue of regulation 11(5)(e), before the grant of the licence) where there is a material change in circumstances so that a variation is necessary to ensure safety; or

(c) in relation to any of the matters to which it relates, by agreement with the licensee.

(2) Subject to regulation 17, a licence may be varied on the grounds referred to in paragraph

(1)(a) or (b) without the agreement of the licensee.

(2A) The Secretary of State may vary a registration-

(a) where there has been a change of circumstances such that the separation distances can no longer be maintained and a consequent reduction in the quantity of explosives that may be stored is required so as to reduce the quantity to one specified by the Secretary of State which is below the maximum quantity referred to in regulation 13(1) for the kind of explosives concerned;

(b) so as to change the period for which the registration is in operation; and

(c) in relation to any of the matters to which it relates, by agreement with the registered person.

(3) In cases where the public hearing procedure—

(a) was required under regulation 11(4) before the grant of the licence; or

(b) would have been so required but for the operation of regulation 26(4) or (14),

the provisions of regulation 12 shall apply in respect of a proposed variation referred to in paragraph (4).

(4) A proposed variation for the purpose of paragraph (3) is one which—

(a) relates to changes in the permitted quantities or types of explosive as a result of which the licensee could be required to maintain a separation distance greater than the separation distance required before the variation and, in the opinion of the Secretary of State, significant new health and safety issues are raised by that proposed variation; or

(b) would remove the period of the licence so that it would be unlimited as to time,

and the Secretary of State shall refuse to vary a licence unless the procedure referred to in regulation 11(4) has been applied.

(5) In this regulation any reference to varying a licence includes varying its conditions.

Revocation of licences and registration

16.—(1) Subject to regulation 17, the Secretary of State may revoke a licence or registration—

(a) where it appears to him on information obtained by him after the issue of a certificate of registration that the site at which the explosives are stored is unsuitable for that storage;

(b) where there has been a change in circumstances such that the site or, within it, any place in which explosives are manufactured or stored to which the licence or registration relates is no longer suitable for that manufacture or storage;

(c) where it appears to him on information obtained by him after the grant of the licence or issue of the certificate of registration that the licensee or registered person is not a fit person—

(i) to manufacture explosives, in the case of a person licensed to do so; or

(ii) to store explosives, in the case of a person licensed or registered to do so; or

(d) by agreement with the licensee or registered person.

(2) A person whose licence or registration is revoked shall ensure that—

(a) all explosives are removed from a site as soon as is practicable after revocation of a licence or registration in respect of that site;

(b) those explosives are deposited at a site which is the subject of a licence or registration which permits any storage resulting from that depositing or that suitable arrangements are made for the disposal of those explosives; and

(c) the licence or certificate of registration is returned to the Secretary of State within 28 days of the date from which the revocation takes effect pursuant to regulation 17(4).

Further provisions concerning refusals, variations and revocations

17.—(1) Where the Secretary of State proposes to—

(a) refuse an application for-

(i) a licence or registration; or

(ii) a renewal of a licence or registration; or

(iii) a transfer of a licence or registration;

(b) vary a licence or registration without the agreement of the licensee or registered person; or

(c) revoke a licence or registration,

he shall, before taking any such action, notify the applicant, licensee or registered person, as the case may be, of his proposed course of action and afford that person the opportunity of making representations to him about it, within a period of 28 days from the date of the notification.

(2) Representations made for the purpose of paragraph (1) shall be made in writing.

(3) Where the Secretary of State decides to—

(a) refuse an application for-
(i) a licence or registration;
(ii) a renewal of a licence or registration; or
(iii) a transfer of a licence or registration;

(b) vary a licence or registration without the agreement of the licensee or registered person; or

(c) revoke a licence or registration,

he shall provide in writing to the applicant, licensee or registered person, as the case may be, the reasons for his decision.

(4) Where the Secretary of State varies a licence or registration without the agreement of the licensee or registered person or revokes a licence or registration, that variation or revocation shall take effect from a date to be determined by the Secretary of State which shall be a date after the 28 day period referred to in paragraph (1).

Transfer of licences and registration

18.—(1) A licence or registration may be transferred in writing by the Secretary of State to any other person who wishes to manufacture or store explosives in place of the licensee or registered person and who applies to the Secretary of State for the transfer.

(2) The Secretary of State shall grant an application for a transfer of a licence or registration unless he is of the opinion that the applicant is not a fit person-

(a) to manufacture explosives, in the case of an application to transfer a licence to do so; or

(b) to store explosives, in the case of an application to transfer a licence or registration to do.

(3) Where the Secretary of State is of an opinion referred to in paragraph (2)(a) or (b), he shall, subject to regulation 17, refuse the application to transfer the licence or registration, as the case may be.

Fees

19.—(1) Where any application in relation to a provision specified in column 1 of Schedule 4 is made to the Secretary of State for a purpose specified in column 2 of that Schedule, the fee specified in the corresponding entry in column 3 of that Schedule shall be payable by the applicant to the Secretary of State, except that in the case of an application referred to in column 2 of that Schedule for a licence to manufacture ammonium nitrate blasting intermediate, or to vary any such licence, the fee referred to in column 3 of that Schedule as an amount per hour worked—

(a) shall be adjusted pro rata for a period worked of less than one hour; and

(b) shall be payable prior to notification of the result of the application.

(2) A fee shall be payable by the applicant to the Secretary of State where the Secretary of State requires any work to be carried out by his specialist inspectors in connection with any application in respect of which a fee is payable by virtue of paragraph (1) for any purpose specified in column 2 of Schedule 4 for which there is a corresponding entry in column 4 of that Schedule, and the fee for the work in connection with such purpose shall be that specified in the corresponding entry in column 4 of that Schedule for each hour worked, adjusted pro rata for a period worked of less than one hour, and such fee shall be payable prior to the notification of the result of the application.

(3) Schedule 4 shall have effect subject to the Notes to it.

(4) Where any fee is to be assessed on the reasonable cost to the Secretary of State of carrying out any work under paragraph (1), he shall on receipt of the application first prepare and send to the applicant an estimate of that cost and shall, before carrying out the work, obtain confirmation from the applicant that he wishes the work to be carried out on the basis of that estimate of cost.

(5) Nothing in this regulation shall be construed as making a fee payable by a person in any of the capacities referred to in Article 40(4) of the 1978 Order.

Death, incapacity or bankruptcy

20.—(1) If a licensee or registered person dies or becomes incapacitated, a person manufacturing or storing explosives in accordance with the [terms] conditions of the first-named person's licence or certificate of registration shall be treated as being licensed or registered in accordance with the first-named person's licence or certificate of registration until either—

(a) the expiry of a period of 60 days starting with the date of such death or incapacity; [...]

(b) the grant or refusal of a new licence or registration; or

(c) the transfer of, or refusal to transfer, a licence or registration

whichever is the earlier.

(2) If a licensee or registered person becomes bankrupt or, in the case of a company, goes into liquidation or receivership or has a receiving order made against it, any receiver, trustee in bankruptcy or liquidator shall be treated as being the licensee or registered person and shall notify the Secretary of State of his appointment within 28 days from such appointment.

Register and retention of documents

21.—(1) The Secretary of State shall—

(a) maintain a register in accordance with Schedule 5; and

(b) keep a copy of any licence granted or certificate of registration issued by him (together with a copy of the application for the licence or registration) for as long as the licence or registration remains valid.

(2) For the purposes of this regulation and Schedule 5, in a case where regulation 3(4) applies disapplying regulations 5 and 9 to 20, any reference to—

(a) the Secretary of State or licensee shall be construed as a reference to the Secretary of State for Defence;

(b) a licence granted shall be construed as a reference to the scheme referred to in regulation 3(4); and

(c) separation distances shall be construed as a reference to the separation distances prescribed in the scheme approved by the Secretary of State for Defence.

Defences

22.—(1) In proceedings against a person for a contravention of regulation 9(1), which involves using a building or part of a building licensed for the manufacture of explosives for another manufacturing process not specified in the licence, it shall be a defence for that person to prove that—

(a) that use was temporary;

(b) that other process of manufacture involved explosive of the same, or a lower, hazard type than the explosives which the conditions of the licence permitted in that building or part of a building;

(c) the maximum quantity of explosives in that building or part of a building at any one time permitted under the conditions of the licence was not exceeded; and

(d) he informed the Secretary of State as soon as was reasonably practicable after the start of that use.

(2) In proceedings against a person for a contravention of regulation 10(1), it shall be a defence for that person to prove that the storage of explosives without a licence or certificate of registration, or in breach of a condition of a licence or certificate of registration, was caused by an emergency being an emergency which that person took all reasonable precautions and exercised all due diligence to avoid.

(3) In proceedings against a person for a contravention of regulation 10(1) where it is alleged against that person that the storage concerned was for a period longer than a period ("the permitted period") referred to in regulation 10(2)(b) to (e), it shall be for that person to prove that the storage concerned was for no longer than the permitted period.

PART IV

PROHIBITIONS CONCERNING CERTAIN EXPLOSIVES AND MISCELLANEOUS PROVISIONS

Prohibition concerning the manufacture and storage of certain explosives

23.—(1) Subject to paragraph (2), a pyrotechnic which consists of—

(a) sulphur; or

(b) phosphorus,

mixed with chlorate of potassium or other chlorates or which contains any such mixture shall not be manufactured or stored.

(2) This regulation does not apply to any pyrotechnic named in a list, approved by the Health and Safety Executive established under section 10 of the Health and Safety at Work etc Act 1974(a), of pyrotechnics falling within the description referred to in paragraph (1).

Prohibition concerning the acquisition and supply of fireworks

24.—(1) A person shall not—

(a) acquire more than 50 kilograms of fireworks unless he ("Person A") or another person produces a valid licence or certificate of registration for the storage by Person A of those fireworks; or

(b) sell or otherwise transfer to any person ("Person B") more than 50 kilograms of fireworks unless Person B produces a valid licence or certificate of registration for the storage by Person B of those fireworks, to the person selling or otherwise transferring the fireworks.

(2) This regulation does not apply to a person who is transporting fireworks on behalf of another person.

Information as to net mass of pyrotechnic articles

24A. Where the manufacturer, importer or supplier of a pyrotechnic article specifies its net mass of explosive on the pyrotechnic article, its packaging or in a document accompanying it, he shall ensure, so far as is reasonably practicable, that the net mass of the explosive in that pyrotechnic article does not exceed the quantity he so specifies on the pyrotechnic article, the packaging or that document as the case may be.

Power to grant exemptions

25.—(1) Subject to paragraph (2), the Secretary of State may, by a certificate in writing, exempt any person or class of persons or any explosive or class of explosives from any requirement or prohibition imposed by these Regulations, and any such exemption may be granted subject to such conditions and to a time limit and may be revoked by him in writing at any time.

(2) The Secretary of State shall not grant any such exemption unless, having regard to the circumstances of the case, and in particular to—

(a) the conditions, if any, which he proposes to attach to the exemption; and

(b) any other requirements imposed by or under any enactment which apply to the case,

he is satisfied that the health and safety of persons who are likely to be affected by the exemption will not be prejudiced in consequence of it.

(3) The Secretary of State for Defence may, in the interests of national security, by a certificate in writing, exempt any of Her Majesty's Forces, any visiting force, any headquarters or any civilian employee or class of civilian employees of the Ministry of Defence from all or any of the requirements or prohibitions imposed by these Regulations and any such exemption may be granted subject to conditions and to a time limit and may be revoked by him in writing at any time.

(a) 1974 c. 37.

Savings and transitional provisions

26.—(1) A licence, amending licence or store licence granted under section 8, 12 or 15 of the 1875 Act or a licence granted under regulation 5 of the Explosives Regulations (Northern Ireland) 1970(a) which was valid immediately before the relevant date shall be deemed to be a licence granted under regulation 11 and shall continue in operation, notwithstanding the repeal by these Regulations of those provisions, on its existing terms and conditions, subject to—

(a) any variation under regulation 15(1);

(b) any variation for the purpose of requiring the licensee to maintain a separation distance greater than a separation distance which was required before the variation; or

(c) its expiry on the date it was due to expire or its revocation under regulation 16, whichever is the sooner.

(2) A registration under section 21 of the 1875 Act which was valid immediately before the relevant date shall be deemed to be a registration under regulation 13 and shall continue in operation, notwithstanding the repeal by these Regulations of the said section 21, until the date it was due to expire or it is revoked, whichever is the sooner.

(3) Where the manufacture or storage of explosives at any place—

(a) was immediately before the relevant date exempt from—

(i) the provisions of the 1875 Act by virtue of section 97 of that Act(b); or

(ii) the requirement for a licence in respect of such manufacture or storage under that Act by virtue of an exemption certificate granted under the Explosives Act 1875 (Exemptions) Regulations (Northern Ireland) 1983(c); and

(b) is not manufacture or storage to which regulation 3(4) relates,

the person carrying on such manufacture or storage shall be deemed to hold a licence granted by the Secretary of State under regulation 11 with an expiry date of 1st December 2009.

(4) In a case to which paragraph (3) applies, regulation 11(4) shall not apply in relation to an application for a licence made to, and received by, the Secretary of State before 1st December 2009.

(5) In relation to the application of these Regulations to the manufacture of ammonium nitrate blasting intermediate by virtue of regulation 2(2), where a person is manufacturing any ammonium nitrate blasting intermediate on the relevant date, regulations 9, 11 and 14 to 22 shall not apply to that manufacture by that person until 1st December 2009.

(6) The requirements of regulation 5 and Schedule 1 shall not apply until 1st December 2009 to a police force storing explosives.

(7) The requirements of regulation 5 and Schedule 1 shall not apply until 1st December 2011 to a person who stores explosives in respect of which storage there is a deemed registration in operation on the relevant date.

(8) The requirements of regulation 5 and Schedule 1 shall not apply until 1st December 2009 to a person who stores explosives in respect of which storage there is a deemed licence in operation on the relevant date.

(9) A firearms dealer who has a Mode A deemed registration in operation on the relevant date may continue to store the quantity of explosives permitted by that registration until 1st December 2011.

(10) A person who—

(a) has a deemed licence in respect of the storage of explosives; or

(b) had a deemed licence which had expired and been replaced by a licence granted under regulation 11 in respect of that storage,

may apply at any time to the Secretary of State for a licence in respect of that storage, to replace that existing one, which provides for different separation distances to apply in respect of that storage from any which would otherwise apply on and after 1st December 2009 under regulation 5 and Schedule 1.

(a) S.R. & O. (N.I.) 1970 No. 110.
(b) 1875 c.17 (38 & 39 Vict.); section 97 was amended by the Statute Law Revision (No. 2) Act 1893 (56 & 57 Vict. c.14).
(c) S.R. 1983 No. 326.

(11) The Secretary of State shall not grant a licence applied for pursuant to paragraph (10) unless he is satisfied that it would not be reasonably practicable for the applicant to comply with the separation distances required by regulation 5 and Schedule 1 to which the application relates.

(12) Where, on the relevant date, a person holds more than one deemed licence, each relating to the storage of explosive at separate places within the same site and the aggregate quantity of explosives allowed to be stored at that site pursuant to those deemed licences exceeds 2000 kilograms, that person shall apply before 1st December 2009 to the Secretary of State for a licence to replace those deemed licences for the storage of any explosives that he wishes to store at that site; and, on the date that a licence is granted pursuant to such an application, any such deemed licence shall be treated as revoked under regulation 16 as from that last mentioned date.

(13) Where, before the relevant date, a person would not have been required to apply for a licence under the 1875 Act because he was manufacturing or storing explosives in a part of premises already licensed under that Act to cover that manufacture or storage but, by virtue of regulation 9(1) or 10(1) he would need to hold a licence in respect of such manufacture or storage on and after that date—

(a) he shall be deemed to hold a licence granted under regulation 11 containing the same conditions as the existing licence until 1st December 2009 or the expiry of that existing licence, whichever is the sooner; and

(b) he shall have until that earliest date to apply for a licence under these Regulations in respect of such manufacture or storage carried on by him after that date.

(14) Regulation 11(4) shall not apply in relation to an application for a licence to which paragraph (10), (12) or (13) relates, except where—

(a) if the licence applied for were to be granted, it would result in an increase in the quantity, or a change in the hazard type, of any explosive presently permitted at the site under a deemed licence; or

(b) the application is received by the Secretary of State on or after 1st January 2007.

(15) Where an application for a licence pursuant to section 6 of the 1875 Act(a) has been made to, and received by, the Secretary of State before the relevant date and the application has not been refused nor has a licence been granted by that date, the application shall be deemed to be an application for a licence under these Regulations and the provisions of these Regulations shall apply to the application, subject to paragraph (16) in relation to the application of any requirements of regulations 11(4) and 12 to any such licence application.

(16) In relation to the application of the requirements of regulations 11(4) and 12 to an application to which paragraph (15) relates—

(a) a draft licence approved by the Secretary of State pursuant to section 6 of the 1875 Act before the relevant date shall be deemed to be a draft licence for the purpose of regulation 12(1);

(b) where notice under section 7 of the 1875 Act in respect of the application and of the time and place at which the Secretary of State will be prepared to hear the applicant has been published before the relevant date—

(i) the provisions of regulation 12(2) and (7) relating to notices shall not apply; and

(ii) if the hearing to which the notice relates would be held or continue to be held on or after the relevant date, it may continue to be so held and it shall be deemed to be a hearing for the purpose of regulation 12;

(c) where a notice under section 7 of the 1875 Act referred to in sub-paragraph (b) has not been published before the relevant date, regulation 12(2) shall have effect as if after "paragraph (2)" there were inserted "or within 28 days of the coming into operation of these Regulations, whichever is the later,"; and

(d) a hearing held by the Secretary of State pursuant to section 7 of the 1875 Act before the relevant date shall be deemed to be a public hearing for the purposes of regulations 11(4) and 12 and the Secretary of State shall grant a licence under regulation 11 which accords with the draft licence approved by him pursuant to section 6 of the 1875 Act, subject to any amendments approved by him following representations made at that hearing.

(17) An application for an amending licence under section 12 of the 1875 Act which is made to and received by, but not decided by, the Secretary of State before the relevant date, shall be deemed to be an application for a variation of a licence under these Regulations and the provisions of these Regulations shall apply to the application accordingly.

(18) Despite the repeal by these Regulations of section 40 of the 1875 Act—

(a) paragraphs (4) and (8) of that section shall continue to apply; and

(b) paragraph (9) of that section (as it had effect before the commencement of Schedule 4 to the Placing on the Market and Supervision of Transfers of Explosives Regulations (Northern Ireland) 1993(b)) shall continue to apply to acetylene as it applied before the commencement of these Regulations.

(19) [ ]

(20) For the purpose of this regulation—

(a) "deemed licence" means—

(i) any licence, amending licence or store licence deemed by virtue of paragraph (1) to be a licence granted under regulation 11; and

(ii) a licence deemed to be held by a person pursuant to paragraph (3);

(b) "deemed registration" means a registration deemed by virtue of paragraph (2) to be a registration under regulation 13;

(c) "licence under the 1875 Act" in paragraph (13) means either—

(i) a licence; or

(ii) an amending licence,

granted under section 8 or 12 of the 1875 Act and "licensed under that Act" and "existing licence" shall be construed accordingly; and

(d) "relevant date" means the date when these Regulations come into operation.

Repeals, revocations and amendments

27.—(1) The primary legislation specified in Part 1 of Schedule 6 and the secondary legislation specified in Part 2 of that Schedule shall be amended in accordance with the provisions of that Schedule.

(2) The primary legislation specified in column 1 of Part 1 of Schedule 7 shall be repealed to the extent specified in column 3 of that Schedule.

(3) The secondary legislation specified in column 1 of Part 2 of Schedule 7 shall be revoked to the extent specified in column 3 of that Schedule.

Peter Hain

Northern Ireland Office
19th October 2006

One of Her Majesty's Principal Secretaries of State

(a) 1875 c.17 (38 & 39 Vict.); section 6 was amended by the Local Government (Modifications and Repeals) (No. 2) Order (Northern Ireland) 1973 (S.R. & O. (N.I.) 1973 No. 341).
(b) S.R. 1993 No. 488.
(c) Rev. VII, p 39.

SCHEDULE 1

Regulation 5(1)

SEPARATION DISTANCES

1.—(1) In this Schedule—

"brick-built" means having an outer structure which is wholly or mainly of brick, concrete, stone or other similar material;

"distance", except in the definition of "reference zone", means the minimum distance;

"footpath" has the same meaning as in the Roads (Northern Ireland) Order 1993(a);

"footway" has the same meaning as in the Roads (Northern Ireland) Order 1993;

"lightly-used road" means a road used ordinarily by more than 20 and no more than 500 vehicles every 24 hours;

"major road" means a road used ordinarily by more than 10,000 vehicles every 24 hours;

"metal-built" means built wholly or mainly of steel or other metal;

"minor road" means a road used ordinarily by more than 500 vehicles every 24 hours, other than a major road;

"mounded" means surrounded by suitable mounds;

"place of public resort" means a place where more than 100 persons are present, or are likely to be present, at any one time on a weekly or more frequent basis;

"reference zone" means the area around a store having the radius from the centre point of the store specified in column 5 of the relevant Table;

"road" means any thoroughfare on which the movement of vehicles is allowed; and

"vulnerable building" means a building of 4 storeys or more above ground with a curtain-wall construction, that is to say where the masonry, glass or other cladding is suspended from the structural framework of the building.

(2) Any reference in this Schedule to a railway line, thoroughfare (however described) or waterway does not include any part of a railway line, thoroughfare or waterway within the site—

(a) in which the store is situated; and

(b) which is occupied by the person storing the explosives.

(3) Any reference in this Schedule to a quantity of explosives shown in column 1 of a Table is to a quantity stored which is more than the lower figure but not more than the higher figure in column 1 in the same row of the Table.

(4) Any reference in this Schedule to a building is to a building in or at which people are, or are likely to be, present either all the time or from time to time.

(5) For the purpose of this Schedule, where explosives of different hazard types are in one store, the explosives shall be treated as belonging to the hazard type which would require the greatest separation distance for the total quantity of those explosives and the separation distance shall be determined in relation to that total quantity.

(6) For the purpose of this Schedule, the radius for a reference zone applying in a particular case is the number in the entry in column 5 of the relevant Table corresponding to the quantity of explosives shown in column 1 of the Table.

(7) For the purpose of this Schedule, any reference to "footpath", "footway" or "waterway" does not include, respectively, footpath or footway used, or waterway navigated, by no more than, ordinarily, 20 persons every 24 hours.

2. Where the storage is of—

(a) Hazard Type 1 explosive in a brick-built mounded store, Table 1;

(a) S.I. 1993/3160 (N.I. 15), to which there are amendments not relevant to these Regulations.

(b) Hazard Type 1 explosive in a brick-built unmounded store, Table 2;
(c) Hazard Type 1 explosive in a metal-built mounded store, Table 3;
(d) Hazard Type 1 explosive in a metal-built unmounded store with no detonator annex attached, Table 4;
(e) Hazard Type 1 explosive in a metal-built unmounded store with a detonator annex attached, Table 5;
(f) Hazard Type 2 explosive, some or all items being of more than 0.7 kilograms net mass, Table 6;
(g) Hazard Type 2 explosive, every item being of 0.7 kilograms net mass or less, Table 7;
(h) Hazard Type 3 explosive, Table 8; or
(i) Hazard Type 4 explosive, Table 9,

shall apply and any reference in this Schedule to a relevant Table is a reference to the Table which applies by virtue of this paragraph.

3. Subject to paragraphs 4 and 5, the distance between a store and any building, place of public resort or major road shall be the distance specified in the entry in column 2 of the relevant Table corresponding to the quantity of explosives shown in column 1 of the Table.

4. Subject to paragraph 5, where—
(a) Table 1, 3, 4 or 5 applies; and
(b) the number of dwellings in the reference zone is greater than the number specified in the entry in column 6 of the Table corresponding to the quantity of explosives shown in column 1 of the Table,

the distance between the store and any dwelling shall be the distance (if any) specified in the corresponding entry in column 3 of the Table.

5. The distance between a store and any vulnerable building shall be the distance (if any) specified in the column headed "Vulnerable building distance" corresponding to the quantity of explosives shown in column 1 of the relevant Table.

6. The distance between a store and—
(a) any minor road or railway line shall be half; and
(b) any footpath, footway, lightly-used road or waterway shall be one-third,

the distance shown in column 2 of the Table corresponding to the quantity of explosives shown in column 1 of the Table.

TABLE 1

HAZARD TYPE 1 EXPLOSIVE IN A BRICK-BUILT MOUNDED STORE

1 Quantity of explosives (kilograms)	2 Low density distance (metres)	3 High density distance (metres)	4 Vulnerable building distance (metres)	5 Reference zone radius (metres)	6 Maximum number of dwellings in reference zone
0.1-25	101	-	101	-	-
25-50	107	-	107	-	-
50-75	112	-	112	-	-
75-100	118	-	118	-	-
100-150	128	142	128	257	81
150-200	139	156	139	278	96
200-300	161	180	161	322	128
300-400	183	-	183	-	-
400-450	193	-	193	-	-
450-500	204	-	204	-	-
500-600	204	-	216	-	-
600-700	204	231	238	408	206
700-800	204	238	260	408	206
800-900	204	245	280	408	206
900-1000	204	250	300	408	206
1000-1100	204	255	319	408	206
1100-1200	204	259	337	408	206
1200-1300	204	263	354	408	206
1300-1400	204	266	370	408	206
1400-1500	204	269	386	408	206
1500-1600	204	272	402	408	206
1600-1700	208	274	416	416	214
1700-1800	215	277	431	431	229
1800-1900	222	279	444	444	244
1900-2000	229	281	458	458	259

TABLE 2

HAZARD TYPE 1 EXPLOSIVE IN A BRICK-BUILT UNMOUNDED STORE

1 Quantity of explosives (kilograms)	2 Low density distance (metres)	3 Vulnerable building distance (metres)
0.1-25	141	141
25-50	160	160
50-75	180	180
75-100	199	199
100-150	230	230
150-200	256	256
200-300	293	293
300-400	320	320
400-450	331	331
450-500	340	340
500-600	355	355
600-700	367	367
700-800	377	377
800-900	385	385
900-1000	392	392
1000-1100	398	398
1100-1200	403	403
1200-1300	408	408
1300-1400	412	412
1400-1500	415	415
1500-1600	418	418
1600-1700	421	421
1700-1800	424	431
1800-1900	426	444
1900-2000	428	458

TABLE 3

HAZARD TYPE 1 EXPLOSIVE IN A METAL-BUILT MOUNDED STORE

1 Quantity of explosives (kilograms)	2 Low density distance (metres)	3 High density distance (metres)	4 Vulnerable building distance (metres)	5 Reference zone radius (metres)	6 Maximum number of dwellings in reference zone
0.1-25	34	45	40	68	6
25-50	37	45	48	74	7
50-75	40	45	54	80	8
75-100	43	48	66	86	9
100-150	49	55	86	97	12
150-200	54	62	104	109	15
200-300	68	76	136	136	23
300-400	83	-	165	-	-
400-450	89	-	178	-	-
450-500	96	-	191	-	-
500-600	108	-	216	-	-
600-700	119	-	238	-	-
700-800	130	-	260	-	-
800-900	140	-	280	-	-
900-1000	150	-	300	-	-
1000-1100	159	-	319	-	-
1100-1200	168	-	337	-	-
1200-1300	177	-	354	-	-
1300-1400	185	-	370	-	-
1400-1500	193	-	386	-	-
1500-1600	201	-	402	-	-
1600-1700	208	-	416	-	-
1700-1800	215	-	431	-	-
1800-1900	222	-	444	-	-
1900-2000	229	-	458	-	-

TABLE 4

HAZARD TYPE 1 EXPLOSIVE IN A METAL-BUILT UNMOUNDED STORE WITH NO DETONATOR ANNEX ATTACHED

1 Quantity of explosives (kilograms)	2 Low density distance (metres)	3 High density distance (metres)	4 Vulnerable building distance (metres)	5 Reference zone radius (metres)	6 Maximum number of dwellings in reference zone
0.1-10	23	30	40	46	3
10-20	29	35	42	57	4
20-30	33	39	44	65	5
30-40	36	42	46	71	6
40-50	38	44	48	76	7
50-60	40	46	48	80	8
60-70	42	48	52	84	9
70-80	43	50	57	87	9
80-90	44	52	6	89	10
90-100	45	55	66	91	10
100-110	46	57	70	93	11
110-120	47	59	74	95	11
120-130	48	62	78	97	12
130-140	49	64	82	98	12
140-150	50	66	86	100	12
150-160	51	68	90	102	13
160-170	52	71	93	104	13
170-180	53	73	97	106	14
180-190	54	75	101	108	14
190-200	55	78	104	110	15
200-300	68	101	136	136	23
300-400	83	124	165	165	34
400-450	89	135	178	178	39
450-500	96	138	191	191	45
500-600	108	144	216	216	57
600-700	119	150	238	238	70
700-800	130	156	260	260	83
800-900	140	162	280	280	97
900-1000	150	168	300	300	111
1000-1100	159	168	319	319	111
1100-1200	168	-	337	-	-
1200-1300	177	-	354	-	-
1300-1400	185	-	370	-	-
1400-1500	193	-	386	-	-
1500-1600	201	-	402	-	-
1600-1700	208	-	416	-	-
1700-1800	215	-	431	-	-
1800-1900	222	-	444	-	-
1900-2000	229	-	458	-	-

TABLE 5

HAZARD TYPE 1 EXPLOSIVE IN A METAL-BUILT UNMOUNDED STORE WITH A DETONATOR ANNEX ATTACHED

1 Quantity of explosives (kilograms)	2 Low density distance (metres)	3 High density distance (metres)	4 Vulnerable building distance (metres)	5 Reference zone radius (metres)	6 Maximum number of dwellings in reference zone
0.1-25	38	53	54	74	11
25-50	43	53	54	86	11
50-75	48	60	54	96	11
75-100	53	77	66	106	14
100-150	63	110	86	127	20
150-200	74	143	104	147	27
200-300	94	209	136	188	44
300-400	115	175	165	229	65
400-450	125	308	178	250	77
450-500	128	309	191	257	91
500-600	135	311	216	270	90
600-700	142	312	238	283	99
700-800	148	314	260	297	109
800-900	155	316	280	310	119
900-1000	162	318	300	324	129
1000-1100	169	319	319	337	140
1100-1200	175	321	337	350	152
1200-1300	182	323	354	364	163
1300-1400	189	325	370	377	176
1400-1500	195	326	386	391	188
1500-1600	202	328	402	404	202
1600-1700	209	330	416	417	215
1700-1800	215	332	431	431	229
1800-1900	22	333	444	444	244
1900-2000	227	335	458	458	259

TABLE 6

HAZARD TYPE 2 EXPLOSIVE, SOME OR ALL ITEMS BEING MORE THAN 0.7 KILOGRAMS NET MASS

1 Quantity of explosives (kilograms)	2 Low density distance (metres)	3 Vulnerable building distance (metres)
0.1-25	45	90
25-50	88	176
50-75	108	216
75-100	129	238
100-150	148	296
150-200	168	336
200-300	191	382
300-400	207	414
400-450	213	426
450-500	219	438
500-600	226	452
600-700	233	466
700-800	240	480
800-900	248	496
900-1000	256	512
1000-1100	259	518
1100-1200	262	524
1200-1300	266	532
1300-1400	270	540
1400-1500	274	548
1500-1600	278	556
1600-1700	282	564
1700-1800	286	572
1800-1900	288	576
1900-2000	292	592

TABLE 7

HAZARD TYPE 2 EXPLOSIVE, EVERY ITEM BEING OF 0.7 KILOGRAMS NET MASS OR LESS

1 Quantity of explosives (kilograms)	2 Low density distance (metres)	3 Vulnerable building distance (metres)
0.1-25	37	76
25-50	43	86
50-75	47	94
75-100	51	102
100-150	56	112
150-200	60	120
200-300	66	132
300-400	71	142
400-450	73	146
450-500	74	148
500-600	76	152
600-700	78	158
700-800	81	162
800-900	84	164
900-1000	87	174
1000-1100	88	176
1100-1200	89	178
1200-1300	90	180
1300-1400	91	182
1400-1500	92	184
1500-1600	94	188
1600-1700	95	190
1700-1800	97	194
1800-1900	99	198
1900-2000	101	202

TABLE 8
HAZARD TYPE 3 EXPLOSIVE

1 Quantity of explosives (kilograms)	2 Low density distance (metres)
0.1-25	-
25-50	23
50-75	25
75-100	29
100-150	33
150-200	37
200-300	42
300-400	47
400-450	47
450-500	50
500-600	51
600-700	53
700-800	54
800-900	55
900-1000	63
1000-1100	70
1100-1200	71
1200-1300	72
1300-1400	73
1400-1500	74
1500-1600	75
1600-1700	76
1700-1800	78
1800-1900	79
1900-2000	80

TABLE 9
HAZARD TYPE 4 EXPLOSIVE

1 Quantity of explosives (kilograms)	2 Low density distance (metres)
0.1-250	-
250-300	1
300-340	2
340-370	3
370-400	4
400-450	5
450-500	6
500-550	7
550-600	8
600-650	9
650-700	10
700-750	11
750-800	12
800-900	13
900-950	14
950-1000	15
1000-1100	16
1100-1150	17
1150-1200	18
1200-1300	19
1300-1350	20
1350-1400	21
1400-1450	22
1450-1550	23
1550-1600	24
1600-1650	25
1650-1700	26
1700-1800	27
1800-1850	28
1850-1900	29
1900-2000	30

SCHEDULE 2

Regulation 10(2)(a)(ii)

EXCEPTIONS PART 1

Explosives	U.N. no.
AIR BAG INFLATORS or AIR BAG MODULES or SEAT-BELT PRETENSIONERS	0503
2-AMINO-4, 6-DINITROPHENOL, WETTED with not less than 20% water, by mass	3317
AMMONIUM PICRATE, WETTED with not less than 10% water, by mass	1310
ARTICLES, PYROTECHNIC for technical purposes	0428
ARTICLES, PYROTECHNIC for technical purposes	0429
ARTICLES, PYROTECHNIC for technical purposes	0430
ARTICLES, PYROTECHNIC for technical purposes	0431
ARTICLES, PYROTECHNIC for technical purposes	0432
BARIUM AZIDE, WETTED with not less than 50% water, by mass	1571
CARTRIDGES FOR WEAPONS, BLANK or CARTRIDGES, SMALL ARMS, BLANK	0014
CARTRIDGES FOR WEAPONS, BLANK or CARTRIDGES, SMALL ARMS, BLANK	0327
CARTRIDGES FOR WEAPONS, BLANK or CARTRIDGES, SMALL ARMS, BLANK	0338
CARTRIDGES FOR WEAPONS, INERT PROJECTILE	0328
CARTRIDGES FOR WEAPONS, INERT PROJECTILE or	
CARTRIDGES, SMALL ARMS	0012
CARTRIDGES FOR WEAPONS, INERT PROJECTILE or CARTRIDGES, SMALL ARMS	0339
CARTRIDGES, OIL WELL	0277
CARTRIDGES, OIL WELL	0278
CARTRIDGES, POWER DEVICE	0275
CARTRIDGES, POWER DEVICE	0276
CARTRIDGES, POWER DEVICE	0323
CARTRIDGES, POWER DEVICE	0381
CARTRIDGES, SIGNAL	0054
CARTRIDGES, SIGNAL	0312
CARTRIDGES, SIGNAL	0405
CASES, CARTRIDGE, EMPTY, WITH PRIMER	0055
CASES, CARTRIDGE, EMPTY, WITH PRIMER	0379
CASES, COMBUSTIBLE, EMPTY, WITHOUT PRIMER	0446
CASES, COMBUSTIBLE, EMPTY, WITHOUT PRIMER	0447
CORD, IGNITER	0066
CUTTERS, CABLE, EXPLOSIVE	0070
DINITROPHENOL, WETTED with not less than 15% water, by mass	1320
DINITROPHENOLATES, WETTED with not less than 15% water, by mass	1321

Explosives	U.N. no.
DINITRORESORCINOL, WETTED with not less than 15% water, by mass	1322
DINITROSOBENZENE	0406
DIPICRYL SULPHIDE, WETTED with not less than 10% water, by mass	2852
FIREWORKS	0333
FIREWORKS	0334
FIREWORKS	0335
FIREWORKS	0336
FIREWORKS	0337
FLARES, AERIAL	0093
FLARES, AERIAL	0403
FLARES, AERIAL	0404
FLARES, SURFACE	0092
FLASH POWDER	0094
FLASH POWDER	0305
FUSE, NON-DETONATING	0101
FUSE, SAFETY	0105
IGNITERS	0121
IGNITERS	0314
IGNITERS	0315
IGNITERS	0325
IGNITERS	0454
ISOSORBIDE DINITRATE MIXTURE with not less than 60% lactose, mannose, starch or calcium hydrogen phosphate	2907
LIGHTERS, FUSE	0131
5-MERCAPTOTETRAZOL-1-ACETIC ACID	0448
NITROCELLULOSE with not more than 12.6% nitrogen, by dry mass, MIXTURE WITH or WITHOUT PLASTICIZER, WITH or WITHOUT PIGMENT	2557
NITROCELLULOSE SOLUTION, FLAMMABLE with not more than 12.6% nitrogen, by dry mass, and not more than 55% nitrocellulose (vapour pressure at 50∫C more than 175 kPa)	2059
NITROCELLULOSE WITH ALCOHOL (not less than 25% alcohol, by mass, and not more than 12.6% nitrogen, by dry mass)	2556
NITROCELLULOSE WITH WATER (not less than 25% water, by mass)	2555
NITROGLYCERIN SOLUTION IN ALCOHOL with not more than 1% nitroglycerin	1204
NITROGLYCERIN SOLUTION IN ALCOHOL with more than 1% but not more than 5% nitroglycerin	3064
NITROGUANIDINE (PICRITE), with not less than 20% water, by mass	1336
4-NITROPHENYL-HYDRAZINE, with not less than 30% water, by mass	3376
NITROSTARCH, WETTED with not less than 20% water, by mass	1337
PRIMERS, CAP TYPE	0044

Explosives	U.N. no.
PRIMERS, CAP TYPE	0377
PRIMERS, CAP TYPE	0378
ROCKETS, LINE-THROWING	0238
ROCKETS, LINE-THROWING	0240
ROCKETS, LINE-THROWING	0453
SIGNAL DEVICES, HAND	0191
SIGNAL DEVICES, HAND	0373
SIGNALS, DISTRESS, ship	0194
SIGNALS, DISTRESS, ship	0195
SIGNALS, RAILWAY TRACK, EXPLOSIVE	0192
SIGNALS, RAILWAY TRACK, EXPLOSIVE	0193
SIGNALS, SMOKE	0196
SIGNALS, SMOKE	0197
SILVER PICRATE, WETTED with not less than 30% water, by mass	1347
SODIUM DINITRO-o-CRESOLATE, dry or wetted with less than 15% water, by mass	0234
SODIUM DINITRO-o-CRESOLATE, WETTED with not less than 10% water, by mass	3369
SODIUM DINITRO-o-CRESOLATE, WETTED with not less than 15% water, by mass	1348
SODIUM PICRAMATE, dry or wetted with less than 20% water by mass	0235
SODIUM PICRAMATE, WETTED with not less than 20% water, by mass	1349
TETRAZOL-1-ACETIC ACID	0407
TRINITROBENZENE, WETTED with not less than 30% water, by mass	1354
TRINITROBENZOIC ACID, WETTED with not less than 30% water, by mass	1355
TRINITROPHENOL, WETTED with not less than 30% water, by mass	1344
TRINITROTOLUENE (TNT), WETTED with not less than 30% water, by mass	1356
UREA NITRATE, WETTED with not less than 20% water, by mass	1357
ZIRCONIUM PICRAMATE, dry or wetted with less than 20% water, by mass	0236
ZIRCONIUM PICRAMATE, WETTED with not less than 20% water, by mass	1517

PART 2

Explosive articles which-

(a) are allocated the U.N nos. 0186, 0272, 0349, 0351 or 0471;

(b) are intended to be used for the propulsion of model rockets or similar articles; and

(c) in respect of each individual explosive article, contain no more than 1 kilogram of explosive.

SCHEDULE 3

Regulation 13(6)

QUANTITY OF HAZARD TYPE 4 PYROTECHNIC ARTICLES IN SALES AREAS

The maximum quantity of Hazard Type 4 pyrotechnic articles which may be kept for any period of time in a sales area at a site in relation to which a person is registered for the storage of explosives shall be the quantity specified in column 2 of the Table below corresponding to the floor area of the sales area shown in column 1 of the Table.

1 Floor area of sales area (square metres)	2 Quantity of explosives (kilograms)
not exceeding 20	12.5
not exceeding 40	15
not exceeding 60	20
not exceeding 80	25
not exceeding 100	30
not exceeding 150	35
not exceeding 200	40
not exceeding 250	45
not exceeding 300	50
not exceeding 350	55
not exceeding 400	60
not exceeding 450	65
not exceeding 500	70
exceeding 500	75

SCHEDULE 4 Regulation 19

FEES

1 Provision in relation to which the application is made	2 Purpose of application	3 Fee	4 Fee for work by Specialist Inspector
Regulation 11	Licence to manufacture explosives not being ammonium nitrate blasting intermediate nor relating to on-site mixing	£622	£125 per hour worked
	Licence to manufacture ammonium nitrate blasting intermediate	£154 per hour worked	
	Licence to manufacture explosives by means of on-site mixing	£231	£125 per hour worked
	Licence to store more than 2000 kilograms of explosives or licence which provides for different separation distances to apply than those specified in Schedule 1	£622	£125 per hour worked
	Licence to store no more than2000 kilograms of explosives (see Note)	£402	
	Renewal of a licence	£306	
Regulation 13	Registration in relation to the storage of explosives (see Note)	£225	
	Renewal of a registration	£174	
Regulation 15	Varying a licence to manufacture explosives not being ammonium nitrate blasting intermediate or licence to store more than 2000 kilograms of explosives	£426	£125 per hour worked
	Varying a licence to manufacture ammonium nitrate blasting intermediate	£154 per hour worked	

1 Provision in relation to which the application is made	2 Purpose of application	3 Fee	4 Fee for work by Specialist Inspector
	Varying a licence to store no more than 2000 kilograms of explosives:		
	a) Varying name of licensee or address of site	£34	
	b) Any other kind of variation	the reasonable cost to the Secretary of State of having the work carried out	
Regulation 18	Transfer of a licence or registration	£34	
	Replacement of a licence or certificate of registration if lost	£34	

Note:

The fee payable for—

(a) a licence to store no more than 2000 kilograms of explosives;

(b) registration; or

(c) renewal of a licence to store no more than 2000 kilograms of explosives or renewal of a registration, of less than 5 years' duration shall be, respectively, the fee set out above for such a licence, registration or a renewal of such a licence or a registration of 5 years' duration decreased proportionately according to the duration of the period for which the licence in question, registration or renewal of either is granted.

SCHEDULE 5 Regulation 21

REGISTER

1. The Secretary of State shall maintain a register ("the register") containing the information listed in paragraph 2 which relates to licences granted and certificates of registration issued by him.

2. The following information shall be included in the register—

(a) the name of the licensee or registered person;

(b) his permanent address, unless his home address is his only permanent address;

(c) the address of the site where the explosives are manufactured or stored (where that differs from any address included pursuant to sub-paragraph (b));

(d) the hazard type and maximum quantity of explosives which may be manufactured or stored at any one time;

(e) the nature of the business of the licensee or registered person and the intended use of the explosives;

(f) the name and description of the explosives manufactured or stored;

(g) where separation distances are required by regulation 5 or a condition of the licence to be maintained around the building where explosives are manufactured or the store, a plan in a suitable scale sufficient to show those separation distances;

(h) where the address of the site does not have a street number and postcode, a map in a suitable scale which shows the exact location of the building where explosives are manufactured or the store; and

(i) in relation to licences to store more than 2000 kilograms of explosives, the kind of store concerned, including the material of which it is constructed.

3. The register may be kept in any form, including electronically.

4. Subject to paragraphs 6 and 6A, the Secretary of State shall—

(a) ensure that the information referred to in paragraph 2(a) to (d) in respect of a licence or registration is available for inspection, at all reasonable times and free of charge, by a person who resides, or by an undertaking situated, within the public consultation zone concerned in relation to the licence or registration; and

(b) provide a copy of the entry in the register relating to the information referred to in sub-paragraph 2(a) to (d) in respect of that licence or registration [only] to such a person or undertaking as referred to in sub-paragraph (a) who requests a copy and pays a charge which shall not exceed the reasonable cost of providing the copy.

5. The licensee or registered person in relation to any site in which explosives are manufactured or stored shall, when requested in writing to do so by the owner or, if not the same person, the occupier, of any premises falling within any separation distance applying in relation to that site, provide to the requesting person within 28 days of the request a scale plan of the area of land falling within that separation distance.

6. The requirements of paragraph 4 shall not apply where the information referred to in paragraph 2 is in respect of any site to which a licence or registration relates which is used only for the storage of—

(a) less than 500 kilograms of Hazard Type 1 explosive or Hazard Type 2 explosive;

(b) less than 2000 kilograms of Hazard Type 3 explosive or Hazard Type 4 explosive; or

(c) any explosives for a period of less than 4 weeks.

6A. The requirements of paragraph 4 shall not apply where the information referred to in paragraph 2 is in respect of a licensed site in relation to which regulation 11(4) did not apply to the licence application for that site by virtue of regulation 11(5)(g).

7. Nothing in this Schedule shall prevent the Secretary of State from disclosing any of the information in the register to the Department of the Environment for the purpose of the exercise of its functions.

SCHEDULE 6

Regulation 27(1)

AMENDMENTS

PART 1

AMENDMENTS TO PRIMARY LEGISLATION

Explosives Act 1875

1.—(1) The 1875 Act is amended as follows.

(2) Omit sections 4 to 22 and for section 23 (precautions against fire or explosion to be taken by occupier) substitute—

"23. Precautions against unauthorised access

(1) The occupier of every premises at which gunpowder is manufactured or stored shall take all due precaution for preventing unauthorised persons having access to the premises or to the gunpowder therein.

(2) In the event of any breach (by any act or default) of subsection (1), the occupier shall be guilty of an offence.

(3) In this section, "premises" has the meaning given by Article 2(2) of the Health and Safety at Work (Northern Ireland) Order 1978.".

(3) Omit sections 24 to 29, 33, 35 to 38, 40 and 41.

(4) In section 43 (power to prohibit manufacture, storage and carriage of specially dangerous explosives)—

(a) omit ", either absolutely, or except in pursuance of a license of the Secretary of State under this Act"; and

(b) for the words from "Provided that" to "conveyance of explosives" substitute "A person who manufactures, keeps or conveys any explosive in contravention of any such Order shall be guilty of an offence and liable to the penalties specified in Article 31(4) of the Health and Safety at Work (Northern Ireland) Order 1978.".

(5) Omit sections 44 to 51, 57 to 60 and 62 to 66.

(6) Omit sections 71, 72, 77 to 79, 81 and 82.

(7) In section 83 (provisions as to Orders in Council and orders of Secretary of State), omit—

(a) ", and a Secretary of State may by order,"; and

(b) "or orders of the Secretary of State, as the case may be,".

(8) Omit sections 84 to 88.

(9) In section 97 (exemption of Government factories, &c., from the Act), omit paragraphs (3) and (4) and the words from "Provided that" to the end of the section.

(10) Omit sections 98 and 101.

(11) In section 102 (saving clause as to liability), omit the words from "A continuing certificate" to the end of the section.

(12) Omit sections 103, 105 and 106.

(13) In section 108 (general definitions)—

(a) in the definition of "this Act", omit "certificate, byelaw, regulation, rule,";

(b) in the definition of "store", omit "an existing gunpowder store as defined by this Act, or" and "licensed by a license granted under this Act"; and

(c) omit the definitions of "existing", "factory magazine", "harbour authority", "canal company", "railway company", "safety cartridges" and "Gunpowder Act 1860".

(14) Omit sections 119 to 121.

(15) Omit Schedules 1 and 2.

Merchant Shipping Act 1894

2. In section 446(3) of the Merchant Shipping Act 1894(a) (dangerous goods), for "Explosives Act, 1875" substitute "Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006".

Uniformity of Laws Act (Northern Ireland) 1922

3. In section 9 of the Uniformity of Laws Act (Northern Ireland) 1922(b) (definitions), for "Explosives Act, 1875" substitute "Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006".

Celluloid and Cinematograph Film Act 1922

4. In section 9 of the Celluloid and Cinematograph Film Act 1922(c) (definitions), in the definition of "celluloid", for "Explosives Act 1875" substitute "Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006".

Petroleum (Consolidation) Act (Northern Ireland) 1929

5. In section 23 of the Petroleum (Consolidation) Act (Northern Ireland) 1929(d) (interpretation), for "Explosives Act, 1875" substitute "Health and Safety at Work (Northern Ireland) Order 1978".

Acquisition of Land (Authorisation Procedure) Act 1946

6. In Schedule 4 to the Acquisition of Land (Authorisation Procedure) Act 1946(e) (minor and consequential amendments), omit the entry relating to the Explosives Act 1875.

Financial Provisions Act (Northern Ireland) 1968

7. In Schedule 1 to the Financial Provisions Act (Northern Ireland) 1968(f) (variation of fees etc.), omit the entry relating to the Explosives Act 1875.

Explosives Act (Northern Ireland) 1970

8.—(1) The Explosives Act (Northern Ireland) 1970(g) is amended as follows.

(2) In section 1 (making and dealing with explosives)—

(a) in subsection (1), for the words "Explosives Acts" to "under those Acts" substitute "Explosives Act 1875 (in this Act referred to as "the 1875 Act") or of any instrument made under that Act, the Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006";

(b) in subsection (3)(a), for the word "magazine" substitute "store keeping more than 2000 kilograms of explosives"; and

(c) for subsection (4A), substitute—

"Subsections (1) and (2) shall not apply to—

(a) fireworks of such categories as may be prescribed by Explosives regulations; and

(b) those desensitised explosives listed in Schedule 2 to the Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006."

(3) In sections 3(1) and (2) (explosives regulations), 8(1) (interpretation) and 10 (short title and citation), for the words "principal Acts" substitute "1875 Act".

(4) In section 5 (RUC to have powers of inspectors)—

(a) for the words "sections 55, 75 and 86" substitute "sections 55 and 75"; and

(b) omit the words "and, so far as it applies to those sections, in section 87 of that Act,".

(a) 1894 c. 60.
(b) 1922 c. 20.
(c) 1922 c.35.
(d) 1929 c. 13, to which there are amendments not relevant to these Regulations.
(e) 1946 c. 49 (9 & 10 Geo. 6.).
(f) 1968 c. 25, to which there are amendments not relevant to these Regulations.
(g) 1970 c. 10, to which there are amendments not relevant to these Regulations.

(5) In section 8(3) (interpretation), for the words "Explosives Act 1875" substitute "Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006".

Northern Ireland (Modification of Enactments — No. 1) Order 1973

9.—(1) The Northern Ireland (Modification of Enactments — No. 1) Order 1973(a) is amended as follows.

(2) In Schedule 1 (Acts relating to the functions transferred to Secretary of State), omit the reference to the Explosives Act (Northern Ireland) 1924 (c. 5 (N.I.)).

(3) In Schedule 3 (Acts relating to functions transferred to the Treasury), omit the reference to section 72 of the Explosives Act 1875 (c. 17).

Sex Discrimination (Northern Ireland) Order 1976

10. In Schedule 4 to the Sex Discrimination (Northern Ireland) Order 1976(b) (statutory provisions relevant for purposes of Article 56), omit the entries relating to the Explosives Act 1875 and the Explosives Act (Northern Ireland) 1924.

Judicature (Northern Ireland) Act 1978

11. In Schedule 5 to the Judicature (Northern Ireland) Act 1978(c) (minor and consequential amendments), omit the entry relating to the Explosives Act 1875.

Pollution Control and Local Government (Northern Ireland) Order 1978

12. Until the coming into force of its repeal by the Environmental Protection Act 1990(d) the definition of "waste" in Article 36 of the Pollution Control and Local Government (Northern Ireland) Order 1978(e) has effect as if the reference to the Explosives Acts 1875 to 1970 were a reference to these Regulations.

Rehabilitation of Offenders (Exceptions) Order (Northern Ireland) 1979

13.—(1) The Rehabilitation of Offenders (Exceptions) Order (Northern Ireland) 1979(f) is amended as follows.

(2) In Schedule 1 (excepted professions, offices, employments and occupations)—

(a) in Part II (offices and employment), omit paragraph 6;

(b) in Part III (regulated occupations), omit paragraph 8 and in paragraph 9 omit ", magazine"; and

(c) in Part IV (interpretation), for the words "50(1)" to the end substitute "2(2) of the Firearms (Northern Ireland) Order 2004;".

(3) In Schedule 2 (excepted licences, certificates and permits)—

(a) in paragraph 1, from the words "Firearms certificates issued" to "section 13 of that Act;" substitute "Any application for the grant of a firearm certificate under the Firearms (Northern Ireland) Order 2004 or any request for any authority under that Order;"; and

(b) omit paragraph 3.

(4) In paragraph 14 of Schedule 3 (excepted proceedings), omit the words "on an application to the police or a court of summary jurisdiction for a certificate under any Order in Council made under section 43 of the Explosives Act 1875 as to the fitness of the applicant to keep explosives and".

Environmental Protection Act 1990

14.—(1) The Environmental Protection Act 1990(g) is amended as follows.

(a) S.I. 1973/2163, to which there are amendments not relevant to these Regulations.
(b) S.I. 1976/1042 (N.I. 15).
(c) 1978 c. 23.
(d) 1990 c. 43. Section 30 of the Control of Pollution Act 1974 is prospectively repealed by Schedule 16 of the Environmental Protection Act 1990.
(e) S.I. 1978/1049 (N.I. 19).
(f) S.R. 1979/195, to which there are amendments not relevant to these Regulations.
(g) 1990 c. 43.

(2) In section 75(2) (meaning of waste) as enacted, for "Explosives Act 1875" substitute "Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006".

(3) In section 142(7) (powers to obtain information), for "Explosive Substances Act 1875" substitute "Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006".

Merchant Shipping Act 1995

15. In Schedule 13 to the Merchant Shipping Act 1995(a) (consequential amendments), omit paragraph 5.

Waste and Contaminated Land (Northern Ireland) Order 1997

16. In Article 33(6) of the Waste and Contaminated Land (Northern Ireland) Order 1997(b) (power to obtain information about potentially hazardous substances), for the words "Explosives Act 1875" substitute "Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006".

PART 2

AMENDMENTS TO SECONDARY LEGISLATION

The Factory and Workshop Act 1901, use of locomotives and wagons on lines and sidings, Regulations 1906

17. In the Factory and Workshop Act 1901, use of locomotives and wagons on lines and sidings, Regulations 1906(c), in the provisions on Application which begin with the words "Nothing in these Regulations shall apply to", for sub-paragraph (i) substitute "(i) Any site for the manufacture of explosives which is specified in a licence granted under the Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006".

Order in Council No. 30 dated 2nd February 1937

18. After the proviso in Order in Council No. 30 dated 2nd February 1937(d), insert—

"For the purpose of paragraph (1) of the proviso, all buildings and places adjoining each other and occupied together shall be deemed to be the same premises.".

The Miscellaneous Mines (Explosives) Regulations (Northern Ireland) 1970

19.—(1) The Miscellaneous Mines (Explosives) Regulations (Northern Ireland) 1970(e) are amended as follows.

(2) For the definition of "explosives store" in regulation 2(1) (interpretation), substitute—

" "explosives store" means a building, enclosed area or metal structure where explosives are stored under a licence granted or certificate of registration issued under the Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006;".

(3) In regulation 32(a) (shot firing — additional provisions for shafts, winzes and raises), for the words from "workshop used" to the end substitute "suitable place for that purpose appointed by the manager of the mine.".

The Explosives Regulations (Northern Ireland) 1970

20.—(1) The Explosives Regulations (Northern Ireland) 1970(f) are amended as follows.

(2) In regulation 3 (saving for Explosives Acts)—

(a) 1995 c. 21.
(b) S.I. 1997/2778 (N.I. 19), to which there are amendments not relevant to these Regulations.
(c) S.R. & O. 1906/679.
(d) S.R. & O. 1937/54, amended by S.R. & O. (N.I.) 1947 No. 128 and S.R. 1979 No. 290.
(e) S. R. & O. (N.I.) 1970 No. 106.
(f) S.R. & O. (N.I.) 1970 No. 110, to which there are amendments not relevant to these Regulations.

(a) omit "Except as provided by Regulation 5"; and

(b) for the words "Explosives Act (Northern Ireland) 1924" substitute "Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006".

(3) In regulation 4(3) (police consent under section 1 of the Act of 1970), for the words from "Minister under the Act" to the end substitute "Secretary of State under the Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006.".

(4) Regulation 5 (manufacture etc. of ammonium nitrate mixtures) is revoked.

(5) In the Schedule, omit Forms 3 and 4.

The Clean Air (Emission of Dark Smoke) Regulations (Northern Ireland) 1981

21. In paragraph 2 of Schedule 1 to the Clean Air (Emission of Dark Smoke) Regulations (Northern Ireland) 1981(a) (exempted matter), for "Explosives Act 1875" substitute "Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006".

The Dangerous Substances in Harbour Areas Regulations (Northern Ireland) 1991

22. In regulation 5(2)(h) of the Dangerous Substances in Harbour Areas Regulations (Northern Ireland) 1991(b) (application of these Regulations), for the words "or the Explosives (Northern Ireland) Order 1972" substitute ", the Explosives (Northern Ireland) Order 1972 or the Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006".

The Classification and Labelling of Explosives Regulations (Northern Ireland) 1991

23.—(1) The Classification and Labelling of Explosives Regulations (Northern Ireland) 1991(c) are amended as follows.

(2) In regulation 3(3) (classification and labelling of explosive articles and explosive substances and of combinations and unit loads thereof), omit "Subject to regulation 11,".

(3) Regulation 11 (classification and labelling under these regulations shall satisfy classification and labelling provisions of the Explosives Act 1875) is revoked.

The Planning (Hazardous Substances) Regulations (Northern Ireland) 1993

24. Schedule 3 to the Planning (Hazardous Substances) Regulations (Northern Ireland) 1993(d) is amended as follows—

(a) in substance 50 in Part A (named substances), for the words "to which the Explosives Act 1875 applies" substitute "for which a licence, granted under the Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006, is required"; and

(b) in categories 4 and 5 of Part B (categories of substances and preparations not specifically named in Part A), for the words "or magazine subject to assent procedures under section 7 of the Explosives Act 1875" substitute "subject to the public hearing procedure under regulation 12 of the Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006".

The Placing on the Market and Supervision of Transfers of Explosives Regulations (Northern Ireland) 1993

25.—(1) The Placing on the Market and Supervision of Transfers of Explosives Regulations (Northern Ireland) 1993(e) are amended as follows.

(2) In regulation 3 (application)—

(a) S.R. 1981 No. 340.
(b) S.R. 1991 No. 509.
(c) S.R. 1991 No. 516, to which there are amendments not relevant to these Regulations.
(d) S.R. 1993 No. 275.
(e) S.R. 1993 No. 488.

(a) in 3(2)(a), for "Firearms Orders 1981 to 1992" substitute "Firearms (Northern Ireland) Order 2004"; and

(b) in 3(3)(a), for "Section 53 of the Explosives Act 1875" substitute "Article 21 of the Health and Safety at Work (Northern Ireland) Order 1978".

(3) Regulation 11 and Schedule 4 (modifications) are revoked.

The Toys (Safety) Regulations 1995

26. In Schedule 3 to the Toys (Safety) Regulations 1995(a), in the note at the end marked with an asterisk, after the words "Manufacture and Storage of Explosives Regulations 2005" insert "and the Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006".

The Explosives in Harbour Areas Regulations (Northern Ireland) 1995

27. For regulation 3(3)(c) of the Explosives in Harbour Areas Regulations (Northern Ireland) 1995(b) (application), substitute—

"(c) a berth which forms part of a site—

(i) licensed under the Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006 in cases where, in relation to the application for that licence, the public hearing procedure was required pursuant to regulation 11(4) of those Regulations; or

(ii) which is deemed to be licensed under those Regulations by virtue of regulation 26 of those Regulations in cases where, in relation to that deemed licence, the public hearing procedure would have been required pursuant to regulation 11(4) of those Regulations had the licence been applied for under those Regulations;".

The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (Northern Ireland) 1997

28.—(1) The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (Northern Ireland) 1997(c) are amended as follows.

(2) In Schedule 2 (dangerous occurrences)—

(a) in Part I (general)—

(i) for paragraph 6(1)(a), substitute—

"(a) any unintentional fire, explosion or ignition at a site—

(i) where explosives are manufactured by a person who holds a licence, or who does not hold a licence but is required to, in respect of that manufacture under the Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006; or

(ii) where explosives are stored by a person who holds a licence or is registered, or who is not licensed but is required to be in the absence of any registration, in respect of that storage under those Regulations;

(aa) the unintentional explosion or ignition of explosives at a place other than a site described in sub-paragraph (1)(a), not being one—

(i) caused by the unintentional discharge of a weapon where, apart from that unintentional discharge, the weapon and explosives functioned as they were designed to do; or

(ii) where a fail-safe device or safe system of work functioned so as to prevent any person from being injured in consequence of the explosion or ignition;";

(ii) at the end of paragraph 6(1)(e), insert "or from any intentional fire or ignition"; and

(iii) for paragraph 6(2), substitute—

"(2) In this paragraph—

(a) S.I. 1995/204, to which there are amendments not relevant to these Regulations.
(b) S.R. 1995 No. 87.
(c) S.R. 1997 No. 455.

"danger zone" means the area from which persons have been excluded or forbidden to enter to avoid being endangered by any explosion or ignition of explosives; and

"explosives" has the same meaning as in the Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006.".

(3) In Schedule 7 (statutory provisions requiring the notification of events which are not required to be notified or reported under the Regulations), omit the entry relating to the Explosives Act 1875.

The Health and Safety (Enforcing Authority) Regulations (Northern Ireland) 1999

29. For regulation 3 of the Health and Safety (Enforcing Authority) Regulations (Northern Ireland) 1999(a) (application), substitute—

"3. These Regulations shall not apply to an industrial activity involving substances to which the Explosives Acts (Northern Ireland) 1875 to 1970, the Explosives (Northern Ireland) Order 1972 or the Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006 apply.".

The Producer Responsibility Obligations (Packaging Waste) (Amendment) Regulations (Northern Ireland) 1999

30. In regulation 3(18)(a) of the Producer Responsibility Obligations (Packaging Waste) (Amendment) Regulations (Northern Ireland) 1999(b) (amendment of the principal Regulations), for "Explosives Act 1875" substitute "Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006".

The Building Regulations (Northern Ireland) 2000

31. For paragraph 1(a) of Class 1 of Schedule 1 to the Building Regulations (Northern Ireland) 2000(c) (classes of exempted buildings), substitute—

"(a) Any building in which explosives are manufactured or stored under a licence granted under the Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006.".

The Explosive Substances (Hazard Information) Regulations (Northern Ireland) 2000

32. In regulation 3 of the Explosive Substances (Hazard Information) Regulations (Northern Ireland) 2000(d) (application), after the words "Explosives Acts (Northern Ireland) 1875 to 1970" insert "and the Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006".

The Explosives (Fireworks) Regulations (Northern Ireland) 2002

33.—(1) The Explosives (Fireworks) Regulations (Northern Ireland) 2002(e) are amended as follows.

(2) In the definition of "enforcing authority" in regulation 2(1) (interpretation), for the words "1994" substitute "2005".

(3) In regulation 3 (savings for Explosives Acts), for "Explosives Act (Northern Ireland) 1924" substitute "Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006".

(4) In regulation 4(2) (prohibition on the possession, purchase, sale, acquisition, handling or use of fireworks), after the word "prohibited" insert "by a person other than a Government Inspector, Constable or representative of an enforcing authority acting in his capacity as such".

(5) In regulation 8 (labelling requirements)—

(a) in paragraph (2), for the word "packet" substitute "packaging"; and

(b) in paragraph (3), after the word "firework" insert "the packaging of".

(a) S.R. 1999 No. 90.
(b) S.R. 1999 No. 496 to which there are amendments not relevant to these Regulations.
(c) S.R. 2000 No. 389.
(d) S.R. 2000 No. 1646, to which there are amendments not relevant to these Regulations.
(e) S.R. 2002 No. 147.

(6) For regulation 9(b) (fireworks exempt from prohibition), substitute—

"(b) any person licensed under regulation 11, or registered under regulation 13, of the Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006 to keep classified fireworks for the purpose of wholesale or retail trade;".

(7) In regulation 11(2) (display of notice and certificate), for the words "of premises under section 5 of the Explosives Act 1875" substitute "under regulation 13 of the Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006".

(8) In Schedule 3 (scale of licence fees), for the words "Where the attendance of any persons at a fireworks display will not exceed 1000;" substitute "Where the attendance of any persons at a fireworks display will exceed 100 but will not exceed 1000;".

The Chemicals (Hazard Information and Packaging for Supply) Regulations (Northern Ireland) 2002

34. In regulation 3(7) (application) of the Chemicals (Hazard Information and Packaging for Supply) Regulations (Northern Ireland) 2002(a), for the words "Explosives Acts (Northern Ireland) 1875 to 1970 or the Explosives (Northern Ireland) Order 1972" substitute "Explosives Acts (Northern Ireland) 1875 to 1970, the Explosives (Northern Ireland) Order 1972 or the Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006".

The Weighing Equipment (Automatic Gravimetric Filling Instruments) Regulations (Northern Ireland) 2005

35. In paragraph 2 of Schedule 3 to the Weighing Equipment (Automatic Gravimetric Filling Instruments) Regulations (Northern Ireland) 2005(b) (accuracy classes for filling instruments), for the words "Explosives Act 1875" substitute "Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006".

The Carriage of Explosives Regulations (Northern Ireland) 2006

36.—(1) The Carriage of Explosives Regulations (Northern Ireland) 2006(c) are amended as follows.

(2) In regulation 2(1) (interpretation), for the definition of "safe and secure place" substitute—

" "safe and secure place" means a safe and secure place within a site—

(a) in relation to which a person is licensed to manufacture or store explosives under regulation 11 of the Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006 or is registered in respect of such storage under regulation 13 of those Regulations; or

(b) in respect of which a certificate of exemption has been granted under the Explosives Act 1875 (Exemptions) Regulations (Northern Ireland) 1983;".

(3) For regulation 3(1) (application), substitute—

"(1) The Regulations shall apply to explosives and other dangerous goods within the meaning of—

(a) the Explosives Acts (Northern Ireland) 1875 to 1970 or the Explosives (Northern Ireland) Order 1972 and to any regulations, orders or other instruments of a legislative character made or having effect under those provisions; or

(b) the Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006.".

(a) S.R. 2002 No. 301.
(b) S.R. 2005 No. 27.
(c) S.R. 2006 No. 182.

The Quarries (Explosives) Regulations (Northern Ireland) 2006

37. For the definition of "explosives store" in regulation 2 of the Quarries (Explosives) Regulations (Northern Ireland) 2006(a) (interpretation), substitute-

" "explosives store" means a building, enclosed area or metal structure where explosives are stored under a licence granted or registration issued under the Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006;".

(a) S.R. 2006 No. 201

SCHEDULE 7 Regulation 27(2) and (3)

REPEALS AND REVOCATIONS

PART 1

REPEALS

1 Title	2 Reference	3 Extent of Repeal
Explosives Act 1875.	c.17.	Sections 4 to 22, 24 to 29, 33, 35 to 38, 40 and 41. In section 43, the words ", either absolutely, or except in pursuance of a license of the Secretary of State under this Act". Sections 44 to 51, 57 to 60, 62 to 66. Sections 71, 72, 77 to 79, 81 and 82. In section 83, the words ", and a Secretary of State may by order" and "or orders of the Secretary of State, as the case may be,". Sections 84 to 88. In section 97, paragraphs (3) and (4) and the words from "Provided that" to the end. Sections 98 and 101. In section 102, the words from "A continuing certificate" to the end. Sections 103, 105 and 106. In section 108 – a) in the definition of "this Act", the words "certificate, byelaw, regulation, rule"; b) in the definition of "store", the words "an existing gunpowder store as defined by this act, or" and "licensed by a license granted under this Act"; and c) the definitions of "existing", "factory magazine", "harbour authority", "canal company", "railway company", "safety cartridges" and "Gunpowder Act 1860". Sections 119 to 121. Schedules 1 and 2.
Explosives Act (Northern Ireland) 1927.	c.5.	The whole Act.

1 Title	2 Reference	3 Extent of repeal
Acquisition of Land (Authorisation Procedure) Act 1946	c.49.	In Schedule 4, the entry relating to the Explosives Act 1875
Financial Provisions Act (Northern Ireland) 1968.	c. 25.	In Schedule 1, the entry relating to the Explosives Act 1875
Explosives Act (Northern Ireland) 1970.	c.10.	In section 5, the words "and, so far as it applies to those sections, in section 87 of that Act,".
Northern Ireland (Modification of Enactments – No. 1) Order 1973.	S.I. 1973/2163.	In Schedule 1, the reference to the Explosives Act (Northern Ireland) 1924. In Schedule 3, the reference to section 72 of the Explosives Act 1875.
Sex Discrimination (Northern Ireland) Order 1976	S.I. 1976/1042 (N.I. 15).	In Schedule 4, the entries relating to the Explosives Act 1875 and the Explosives Act (Northern Ireland) 1924.
Judicature (Northern Ireland) Act 1978.	c.23.	In schedule 5, the entry relating to the Explosives Act 1875.
Rehabilitation of Offenders (Exceptions) Order (Northern Ireland) 1979.	S.R. 1979/195.	In Part II of Schedule 1, paragraph 6. In Part III of Schedule 1, paragraph 8 and in paragraph 9, the word ", magazine". In Schedule 2, paragraph 3. In paragraph 14 of schedule 3, the words "on an application to the police or a court of summary jurisdiction for a certificate under any Order in Council made under section 43 of the Explosives Act 1875 as the fitness of the applicant to keep explosives and".
Merchant Shipping Act 1995.	c.21.	In Schedule 13, paragraph 5.

PART 2

REVOCATIONS

1 Title	2 Reference	3 Extent of Appeal
Oder in Council (No. 1) Classifying Explosives.	5th August 1875 (Rev. VII, p.7)	The whole Order.
Order in Council (No. 2) Making General Rules for Factories for Explosives other than Gunpowder.	27th November 1875 (Rev. VII, p.7).	The whole Order.
Order in Council (No. 3) Relating to Magazines for	27th November 1875 (Rev. VII, p.10).	The whole Order.

1 Title	2 Reference	3 Extent of Appeal
Explosives other than Gunpowder, whether with or without Gunpowder.		
Order in Council (No. 4) Relating to Small Firework Factories.	27th November 1875 (Rev. VII, p.14).	The whole Order.
Order in Council (No. 6) Relating to Stores Licensed for Mixed Explosives	27th November 1875 (Rev. VII, p.42)	The whole Order.
Order in Council (No. 11) Respecting Notice to be Given of Accidents Connected with the Conveyance of Explosives other than Gunpowder.	27th November 1875 (Rev. VII, p.42).	The whole Order.
Order of Secretary of State (No. 1) Applying General Rules to Floating Magazines for Gunpowder.	27th November 1875 (Rev. VII, p.68).	The whole Order.
Order of Secretary of State (No. 2) Applying General Rules to Floating Magazines for Explosives other than Gunpowder, whether with or without Gunpowder.	27th November 1875 (Rev. VII, p.70).	The whole Order.
Order of Secretary of State as to Notice by Applicant for Factory or Magazine Licence.	20th May 1876 (Rev. VII, p.34).	The whole Order.
Oder in Council (No.6A) Amending Order in Council (No.6) of the 27th November 1875 Relating to Stores Licensed for Mixed Explosives.	20th April 1883 (Rev. VII, p.34)	The whole Order.
Order in Council (No. 12) Relating to the keeping of Explosive for Private Use and not for Sale.	20th April 1883 (Rev. VII, p.43)	The whole Order.
Order in Council (No. 13) Relating to the exemption of Small Arm Nitro-Compounds from the Restrictions imposed on Orders in Council, 6(A), 7(A), and 12.	24th September 1886 (Rev. VII, p. 46).	The whole Order.

1 Title	2 Reference	3 Extent of Repeal
Order in Council (No. 1A) Substituting New Provisions for those of Class 7 in the Order in Council of August 5, 1875, as to the Classification of Explosives.	12th December 1891 (noted Rev, VII, p.1).	The whole Order.
Order in Council (No. 15) Prohibiting Fireworks Consisting of or Containing Sulphur in Admixture with Chlorate of Potassium or other Chlorate.	S.R. & O. 1894/15	The whole Order.
Order in Council (No. 16) Repealing and Consolidating the Previous Orders Relating to Premises Registered for the keeping of Mixed Explosives.	S.R. & O. 1896/964.	The whole Order.
Order in Council (No. 19) Prohibiting Fireworks consisting of or containing Phosphorus in admixture with Chlorate of Potassium or other Chlorate.	S.R. & O. 1905/08.	The whole Order.
Order in Council (No. 16A) Varying the Order in Council (No. 16) of October 26, 1896 Relating to the Keeping of Fireworks on Registered Premises.	S.R. & O. 1906/380.	The whole Order.
Order in Council (No. 16B) Amending Order in Council of October 26, 1896 (No. 16) Relating to the Keeping of Mixed Explosives on Registered Premises.	S.R. & O. 1912/1861.	The whole Order.
Order in Council (No. 1B) Amending Order in Council of August 5, 1875 (No. 1) Relating to the Classification of Explosives.	S.R. & O. 1913/481.	The whole Order.
Order of Secretary of State (No. 2A) Amending Order of Secretary of State (No. 2) of November 1875 Applying General Rules to Floating Magazines for Explosives Other than Gunpowder, whether with or without Gunpowder.	S.R. & O. 1923/926.	The whole Order.

1 Title	2 Reference	3 Extent of Repeal
Order in Council (No. 3A) Amending the Order in Council of November 27, 1875 (No. 3), as to Magazines for Explosives Other than Gunpowder, whether with or without Gunpowder.	S.R. & O. 1925/40.	The whole Order.
Order in Council (No. 2A) Amending the Order in Council of November 27, 1875 (No. 2), making General Rules for Factories for Explosives other than Gunpowder.	S.R. & O. 1925/41.	The whole Order.
Order in Council (No. 4A) Amending the Order in Council of November 27, 1875 (No.4) as to Small Firework Factories	S.R. & O. 1925/42.	The whole Order.
Order in Council (No. 6D) Amending the Order in Council of November 27, 1875 (No.6) as to Stores Licensed for Mixed Explosives.	S.R. & O. 1925/43.	The whole Order.
Order of the Minister of Home Affairs (No.11), Dated August 10, 1925, Making Byelaws as to the Conveyance of Explosives on Roads, and in Certain Special Cases.	S.R. & O. (N.I.) 1925 No.81.	The whole Oder except paragraph 3 and the second paragraph of paragraph 5.
Order in Council (No. 26) relating to Picric Acid, Picrates and Mixtures of Picric Acid with other Substances.	S.R. & O. 1926/823.	The whole Order.
Order in Council (No. 27) the Explosives (Di-Nitro-Phenol and Di-Nitro-Phenolate) Order 1927.	S.R. & O. 1927/594.	The whole Order.
Order in Council (No. 29) (The Liquid Oxygen Explosives Order, 1928).	S.R. & O. 1928/1045.	The whole Order.
Order made by the Minister of Home Affairs, Dated March 15, 1940, Relating to the Conveyance of Detonators and Electric Detonators with other Explosive.	S.R. & O. (N.I.) 1940 No. 24.	The whole Order.

1 Title	2 Reference	3 Extent of repeal
Order made by the Minister of Home Affairs, Dated April 17, 1944, Altering the bylaws relating to the Conveyance of Detonators with other Explosive and to the Quantity of Explosive which may be conveyed in any one Carriage	S.R. & O. (N.I.) 1944 No. 34.	The whole Order
The Conveyance of Explosives Byelaws (Northern Ireland) 1953.	S.R. & O. (N.I.) 1953 No. 102.	The whole Byelaws
The Magazines for Explosives Order (Northern Ireland) 1953.	S.R. & O. (N.I.) 1953 No. 129.	The whole Order
The Stores for Explosives Order (Northern Ireland) 1953.	S.R. & O. (N.I.) 1953 No. 130.	The whole Order
The Explosives Regulations (Northern Ireland) 1970.	S.R. & O. (N.I.) 1970 No. 110.	In regulation 3, the words "Except as provided by Regulation 5". Regulation 5. In the schedule, Forms 3 and 4.
The Conveyance of Explosives Byelaws Northern Ireland 1971.	S.R. & O. (N.I.) 1971 No. 274.	The whole Byelaws
The Explosives (Licensing of Stores and Registration of Premises) Variation of Fees Regulations (Northern Ireland) 1985.	S.R. 1985 No. 97.	The whole Regulations.
The Classification and Labelling of Explosives Regulations (Northern Ireland) 1991.	S.R. 1991 No. 516	In regulation 3(3), the words "Subject to regulation 11". Regulation 11.
The Placing on the Market and Supervision of Transfers of Explosives Regulations (Northern Ireland) 1993.	S.R. 1993 No. 488	Regulation 11. Schedule 4.
The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (Northern Ireland) 1997.	S.R. 1997 No. 455.	In schedule 7, the entry relating to the Explosives Act 1875.

References

1. *The Manufacture and Storage of Explosives Regulations (Northern Ireland) 2006* as amended SR 2006 No. 425 www.legislation.gov.uk

2. *The Control of Major Accident Hazards Regulations (Northern Ireland) 2000* as amended SR 2000 No. 93 www.legislation.gov.uk

   The Control of Major Accident Hazards (Amendment) Regulations (Northern Ireland) 2005 SR 2005 No. 305 www.legislation.gov.uk

3. *The Offshore Installations and Pipeline Works (Management and Administration) Regulations (Northern Ireland) 1995* SR 1995 No. 340 www.legislation.gov.uk

4. The Explosives Regulations 2004 as amended SI 2014 1638 www.legislation.gov.uk

5. *The Management of Health and Safety at Work Regulations (Northern Ireland) 2000* as amended SR 2000 No. 388 www.legislation.gov.uk

6. *The Dangerous Substances and Explosive Atmospheres Regulations (Northern Ireland) 2003* as amended SR 2003 No. 152 www.legislation.gov.uk

7. *The Control of Substances Hazardous to Health Regulations (Northern Ireland) 2003* SR 2003 No. 34 www.legislation.gov.uk

   The Control of Substances Hazardous to Health (Amendment) Regulations (Northern Ireland) 2005 SR 2005 No. 165 www.legislation.gov.uk

8. *The Manual Handling Operations Regulations (Northern Ireland) 1992* SR 1992 No. 535 www.legislation.gov.uk

9. Managing for health and safety HSG65 HSE Books 2013 ISBN 9780717664566 www.hse.gov.uk/pubns/

10. *The Safety Representatives and Safety Committees Regulations (Northern Ireland) 1979* SR 1979 No. 437 www.legislation.gov.uk

11. *The Health and Safety (Consultation with Employees) Regulations (Northern Ireland) 1996* SR 1996 No. 511 www.legislation.gov.uk

12. *Health and Safety at Work (Northern Ireland) Order 1978* as amended Ch 37 SI 1978/1039 (NI 9) www.legislation.gov.uk

13. *Railways and Transport Safety Act 2003* as amended Ch 20 www.legislation.gov.uk

14. *The Carriage of Explosives Regulations (Northern Ireland) 2006* as amended SR 2006 No. 182 www.legislation.gov.uk

15. The Carriage of Dangerous Goods Manual HSE website www.hse.gov.uk/cdg/manual/

16. *The Provision and Use of Work Equipment Regulations (Northern Ireland) 1999* as amended SR 1999 No. 305 www.legislation.gov.uk

17. *Emergency planning for major accidents: Control of Major Accident Hazards Regulations 1999 (COMAH)* HSG191 HSE Books 1999 ISBN 9780717616954 or www.hse.gov.uk/pubns/

18. *The Fire Precautions (Workplace) Regulations (Northern Ireland) 2001* as amended SR 2001 No. 348 www.legislation.gov.uk

19. *Fire and Rescue Services (Northern Ireland) Order 2006* as amended SI 2006 No. 1254 (N.I. 9) www.legislation.gov.uk

20. Personal protective equipment (PPE) at work (a brief guide) www.hse.gov.uk/pubns/

21. *Protective Measures* CBI Explosives Industry Group ISBN 0-852-01572-0 www.eig.org.uk

22. Guidance on Personal Protective Equipment (PPE) for Explosives Operations CBI Explosives Industry Group www.eig.org.uk

23. *Storing and selling fireworks safely: Advice for anyone selling fireworks* Leaflet INDG407 HSE Books www.hse.gov.uk/pubns/

24. *Explosives Act 1875* Ch 17 as amended www.legislation.gov.uk

25. *The Explosives (Fireworks) Regulations (Northern Ireland) 2002* as amended SR 2002 No. 147 www.legislation.gov.uk

26. *European Agreement Concerning the International Carriage of Dangerous Goods by Road* (ADR 2017) ISBN 978-92-1-1391565

https://www.unece.org/trans/danger/publi/dg_publications.html

27. *Explosives Act (Northern Ireland) 1970* Ch 10 as amended www.legislation.gov.uk

28. *The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations (Northern Ireland) 2006 as amended* SR 2006 No. 173 www.legislation.gov.uk

29. *Safe handling of combustible dusts: Precautions against explosions* HSG103 (Second edition) HSE Books 2003 ISBN 0-717-62726-8 www.hse.gov.uk/pubns/

30. *Storing and handling ammonium nitrate* Leaflet INDG230 HSE Books 1996 (internet version only) www.hse.gov.uk/pubns/

31. *Guidance for the Safe Management of the Disposal of Explosives.* CBI Explosives Industry Group publication www.eig.org.uk

32. *Management guidance for the safe decommissioning of explosives sites* CBI Explosives Industry Group publication www.eig.org.uk

33. *The Quarries (Explosives) Regulations (Northern Ireland) 2006* SR 2006 No 204 www.legislation.gov.ukk

34. *The Explosives in Harbour Areas Regulations (Northern Ireland) 1995* as amended SR 1995 No. 87 www.legislation.gov.uk

Further information

HSE priced and free publications are available online from www.hse.gov.uk/pubns/ (HSE priced publications are also available from bookshops and other online retailers.)

For information about health and safety visit www.hse.gov.uk

British Standards are available from –
BSI Customer Services, 389 Chiswick High Road, London W4 4AL
Tel: +44 345 086 9001
Fax: +44 20 8996 7001
E-mail: cservices@bsigroup.com
Website: www.bsigroup.com

The Stationery Office publications are available from the
TSO Bookshop,
Tel: +44 (0)333 202 5070
E-mail: customer.services@tso.co.uk
Website: www.tso.co.uk (Stationery Office publications are also available from bookshops and other online retailers)