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GUIDELINES

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**Index of risk reduction process levels  
(RRPL) within IATG**

### **Warning**

The International Ammunition Technical Guidelines (IATG) are subject to regular review and revision. This document is current with effect from the date shown on the cover page. To verify its status, users should consult [www.un.org/disarmament/ammunition](http://www.un.org/disarmament/ammunition)

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## Foreword

Ageing, unstable and excess conventional ammunition stockpiles pose the dual risks of **accidental explosions at munition sites** and **diversion to illicit markets**.

The humanitarian impact of ammunition-storage-area explosions, particularly in populated areas, has resulted in death, injury, environmental damage, displacement and disruption of livelihoods in over 100 countries. Accidental ammunition warehouse detonations count among the heaviest explosions ever recorded.

Diversion from ammunition stockpiles has fuelled armed conflict, terrorism, organized crime and violence, and contributes to the manufacture of improvised explosive devices. Much of the ammunition circulating among armed non-State actors has been illicitly diverted from government forces.<sup>1</sup> In recognition of these dual threats of explosion and diversion, the General Assembly requested the United Nations to develop **guidelines for adequate ammunition management**.<sup>2</sup> Finalized in 2011, the International Ammunition Technical Guidelines (IATG) provide voluntary, practical, modular guidance to support national authorities (and other stakeholders) in safely and securely managing conventional ammunition stockpiles. The UN SaferGuard Programme was simultaneously established as the corresponding knowledge-management platform to oversee and disseminate the IATG.

The IATG also ensure that the United Nations entities consistently deliver high-quality advice and support – from mine action to counter-terrorism, from child protection to disarmament, from crime reduction to development.

The IATG consist of 12 volumes that provide practical guidance for ‘through-life management’ approach to ammunition management. The IATG can be applied at the guidelines’ **basic, intermediate, or advanced levels**, making the IATG relevant for all situations by taking into account the diversity in capacities and resources available. Interested States and other stakeholders can **utilize the IATG for the development of national standards and standing operating procedures**.

The IATG are reviewed and updated at a minimum every five years, to reflect evolving ammunition stockpile-management norms and practices, and to incorporate changes due to changing international regulations and requirements. The review is undertaken by the UN SaferGuard Technical Review Board composed of national technical experts with the support of a corresponding Strategic Coordination Group comprised of expert organizations applying the IATG in practice.

The latest version of each IATG module can be found at [www.un.org/disarmament/ammunition](http://www.un.org/disarmament/ammunition).

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<sup>1</sup> S/2008/258.

<sup>2</sup> See also the urgent need to address poorly-maintained stockpiles as formulated by the United Nations Secretary-General in his Agenda for Disarmament, *Securing Our Common Future* (2018).

## Introduction

Within the IATG modules the different tasks and activities necessary for safe, efficient and effective stockpile management are considered to equate to one of three Risk Reduction Process Levels (RRPL). These are indicated within each IATG module as either **LEVEL 1**, **LEVEL 2** or **LEVEL 3** dependent on risk reduction and mitigation achieved by each task or activity. The basic aim of a conventional ammunition stockpile management organisation should be, to make sure that stockpile management processes are maintained at RRPL 1 as a minimum, which will reduce or mitigate risks significantly. Ongoing and gradual improvements should then be made to the stockpile management infrastructure and processes as staff development improves and further resources become available.

It is not desirable to write each individual IATG module in such a way that they flow from Level 1 to 2 to 3, as this would mean a lot of repetition and the document would not flow in a logical manner. Therefore, this IATG module acts as a one document source, which identifies tasks and activities by each RRPL. The current RRPL of a single stockpile, e.g. a building, compound or depot, can be determined using the [RRPL Checklist tool](#)<sup>3</sup> that can be found in the IATG Implementation Support Toolkit.

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<sup>3</sup> [www.un.org/disarmament/un-safeguard/risk-reduction-process-levels](http://www.un.org/disarmament/un-safeguard/risk-reduction-process-levels)

## Index of Risk Reduction Process Levels (RRPL) within IATG

### 1 Scope

This IATG module provides a consolidated index of the Risk Reduction Process Levels (RRPL) contained within each individual IATG.

### 2 Normative references

A list of normative references is given in Annex A. These documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

A further list of informative references is given in Annex B in the form of a bibliography, which lists documents that contain additional information related to the contents of this IATG module.

### 3 Terms and definitions

For the purposes of this guideline the following terms and definitions, as well as the more comprehensive list given in IATG 01.40 *Glossary of terms, definitions and abbreviations*, shall apply.

In all modules of the International Ammunition Technical Guidelines, the words 'shall', 'should', 'may' and 'can' are used to express provisions in accordance with their usage in ISO standards.

- a) **'shall' indicates a requirement:** It is used to indicate requirements strictly to be followed in order to conform to the document and from which no deviation is permitted.
- b) **'should' indicates a recommendation:** It is used to indicate that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required, or that (in the negative form, 'should not') a certain possibility or course of action is deprecated but not prohibited.
- c) **'may' indicates permission:** It is used to indicate a course of action permissible within the limits of the document.
- d) **'can' indicates possibility and capability:** It is used for statements of possibility and capability, whether material, physical or casual.

### 4 Risk Reduction Process Levels (RRPL)

Within the IATG the different tasks and activities necessary for safe, efficient and effective stockpile management are considered to equate to one of three Risk Reduction Process Levels (RRPL).

RRPL	Meaning
<b>LEVEL 1</b>	<ul style="list-style-type: none"> <li>▪ Basic safety precautions are in place to reduce the risk of undesirable explosive events during ammunition storage, but fatalities and injuries to individuals in local civilian communities may still occur.</li> <li>▪ Although some potential causes of such explosions have been addressed (external fires, smoking, mobile phones etc.), others remain (propellant instability, handling, lightning strike).</li> <li>▪ Risk of explosion still remains as routine physical inspection of the ammunition does not occur and the capability to determine the chemical stability of ammunition during storage has not been acquired.</li> <li>▪ Basic security precautions are in place to reduce the risk of theft by external actions.</li> <li>▪ Basic safety precautions, in the form of appropriate Quantity Distances, have been implemented to mitigate the risk of fatalities and injuries to individuals within local communities to a tolerable level.</li> <li>▪ Ammunition has been accounted for by quantity, and a basic system of identifying loss or theft is in place.</li> <li>▪ A minimal investment of resources has taken place in organisational development, operating procedures and storage infrastructure.</li> </ul>
<b>LEVEL 2</b>	<ul style="list-style-type: none"> <li>▪ Appropriate hazard division Separation and Quantity Distances, have been implemented to mitigate the risk of fatalities and injuries to individuals within local communities to an acceptable level.</li> <li>▪ Significant damage to ammunition stocks and storage infrastructure should still be expected as inadequate protection remains in terms of infrastructure robustness and safe internal separation distances.</li> <li>▪ Ammunition can be identified down to type, lot or batch number, but surveillance and/or in-service proof systems are not yet in accordance with international best practices. Explosions due to chemical stability of ammunition may still be expected.</li> <li>▪ Medium level investment of resources has taken place in organisational development, staff technical training, storage and processing infrastructure.</li> </ul>
<b>LEVEL 3</b>	<ul style="list-style-type: none"> <li>▪ A safe, secure, effective and efficient conventional ammunition stockpile management system is in place that is fully in line with international best practices.</li> <li>▪ A significant investment of resources has taken place in organisational development, staff technical training, storage and processing infrastructure.</li> <li>▪ Organisational capabilities to sustainably manage ammunition are in place.</li> </ul>

**Table 1: RRPL meanings**

Where appropriate, clauses within each IATG module are indicated as either being a **LEVEL 1**, **LEVEL 2** or **LEVEL 3** dependent on the risk reduction or mitigation achieved by or resources required for each task or activity. To be fully compliant with the appropriate **LEVEL**, stockpile management organisations shall ensure that the systems, processes, procedures or equipment referred to in the clause are in place.

The basic aim of a conventional ammunition stockpile management organisation should be to make sure that stockpile management processes are maintained at RRPL 1 as a minimum, which will reduce risks significantly. Ongoing and gradual improvements should then be made to the stockpile management infrastructure and processes as staff development improves and further resources become available.

## 5 Index of Risk Reduction Process Level 1 activities within each IATG module

IATG REFERENCE	IATG TITLE	CLAUSE	CLAUSE TITLE	REMARKS
01.50	UN Explosive Hazard Classification System and Codes	6.1	Hazard divisions	▪
		6.1.1	Fire divisions	▪
		6.2	Compatibility groups	▪
		7	Storage of compatibility groups	▪
		7.2	Ammunition requiring separate storage	▪
01.90	Ammunition Management Personnel Competences	All	Competences and competency standards	▪
02.10	Introduction to Risk Management Principles and Processes	8.2.1	Probability estimation of an unplanned or undesirable explosive event	▪
		8.2.1.1	Example probability estimate model (historical)	▪
		8.2.1.2	Example probability estimate model (qualitative)	▪
		10	Risk reduction and mitigation	▪
		11	Risk acceptance	▪
		12	Risk communication	▪
		Annex D	Example qualitative risk assessment methodology	▪
		Annex F	Risk management and IATG software	▪
02.20	Quantity and Separation Distances	6.1	Inside quantity distances (IQD)	▪
		6.2	Outside quantity distances (OQD)	▪
		7	Rules for use of quantity distances (above ground storage)	▪
		10	Hazard division quantity distance matrices	▪
		11	Hazard division quantity distance tables	▪
		Annex C	Symbols for QD concept	▪ Annex C
		Annex D	Hazard division 1.1 QD matrix (above ground storage)	▪ Annex D
		Annex E	Hazard division 1.1 QD tables (above ground storage)	▪ Annex E

IATG REFERENCE	IATG TITLE	CLAUSE	CLAUSE TITLE	REMARKS
		Annex F	Hazard division 1.2.1 QD matrix (above ground storage)	▪ Annex F
		Annex G	Hazard division 1.2.2 QD matrix (above ground storage)	▪ Annex G
		Annex H	Hazard division 1.2 QD tables (above ground storage)	▪ Annex H
		Annex J	Hazard division 1.3.1 QD matrix (above ground storage)	▪ Annex J
02.40	Safeguarding of Explosives Facilities	4.2	System requirements	▪
02.50	Fire Safety	5	Principles	▪
		6.1	Fire safety plan	▪
		7	Fire alarm systems	▪ More technical systems would be RRPL 2.
		8	Fire breaks and vegetation	▪
		9	Fire practices	▪
		11.2	Fire signs and symbols	▪
		11.3	First aid firefighting appliances (FAFA)	▪
		12.1	Unit immediate actions	▪
		12.2	Briefing to senior fire officer	▪
03.10	Inventory Management	Annex C	Fire signs	▪
		7	Types of ammunition stockpile	▪
		10	Ammunition storage unit responsibilities	▪
		14.1	Ammunition accounting requirements	▪ Also some RRPL 2 activities.
		14.2	Accounting systems	▪
		14.5	Stack tally cards	▪
05.10	Planning and Siting of Explosive Facilities	14.6	Stocktaking and audits	▪
		4.1	Quantity distances	▪
05.30	Barricades	8	Approval of facilities	▪
		8	Earth traverses	▪
		9	Other materials compared with earth	▪

IATG REFERENCE	IATG TITLE	CLAUSE	CLAUSE TITLE	REMARKS
		9.2	Other traverse types	▪
05.40	Safety Standards for Electrical Installations	6.1	Safety precautions Commissioning and testing of electrical equipment (safety precautions)	▪
		8.4	Lightning hazard to personnel	▪
		8.4.2	Making safe the explosives facility in the event of a thunderstorm	▪
		9.2.6	Relative humidity (RH) Sources of static (relative humidity (RH))	▪
05.50	Vehicles and MHE in Explosive Facilities	4.3	Vehicles authorised to enter a potential explosion site (PES)	▪
		4.3.1	Standard vehicles in a PES	▪
		4.3.2	Standard vehicles in an explosive area but not a PES	▪
		4.3.3	Identification of MHE	▪
		6	Safe working load (SWL)	▪
		7.2.2	Maintenance (modifications)	▪
		7.2.3	Maintenance (fire-fighting equipment)	▪
		7.4	Speed limits	▪
		7.7	Refuelling of vehicles and MHE	▪
		7.9	Battery charging and battery maintenance	▪
05.60	Radio frequency (RF) hazards	4	Exposure to RF and exposure levels	▪
		5	Susceptible items	▪
		6	Safety and separation distances	▪
06.10	Control of Explosive Facilities	4	Personnel employed in explosive facilities	▪
		5.1	Security (patrolling and guarding)	▪
		5.2	Security (control of entry)	▪
		5.3	Security (contraband)	▪
		5.3.2	Smoking materials and designated smoking areas	▪
		5.3.3	Firearms	▪

IATG REFERENCE	IATG TITLE	CLAUSE	CLAUSE TITLE	REMARKS
		5.3.4	Food and drink	▪
		5.3.5	Battery powered devices	▪
		5.4	Searching of personnel	▪
		5.5	Magnetic therapy products	▪
		5.6	Spark, flame or heat producing items	▪
		5.7	Lighting of fires	▪
		5.9	Other controlled items	▪
		6.1	Site plans	▪
		6.6	Vermin control	▪
		6.7	Vegetation and crops	▪
		6.7.1	Control measures and a three area plan	▪
		6.7.2	Site risk assessment	▪
		6.8	Control of trees and shrubs	▪
		6.9	Cut vegetation	▪
		6.10	Agriculture and agricultural chemicals	▪
		6.11	Livestock	▪
		7	Fire and first aid	▪
		7.1	Fire	▪
		7.2	First aid equipment	▪
		9.1	PES (cleanliness)	▪
		9.2	PES (action on vacating)	▪
		9.4	Thunderstorms	▪
		Annex C	Suggested contraband notice	▪
06.30	Storage and Handling	4.1	Safety	▪
		4.2	Classification of ammunition	▪
		4.4	Physical handling of ammunition	▪
		4.5	Damaged packaging	▪

IATG REFERENCE	IATG TITLE	CLAUSE	CLAUSE TITLE	REMARKS
		5.5	Specific stacking requirements	▪
		7	Stack tally cards and pallet contents sheets	▪
		8	Use of lifting equipment and slings	▪
		9.2	Temperature recording	▪
06.40	Ammunition Packing and Marking	4.1	Packaging requirements	▪
		4.2	Design and safety of explosive packaging	▪
		4.4	Physical handling of ammunition packages	▪
		4.5	Temporary packaging	▪
		4.10	Empty ammunition packaging	▪
		5.4	Damaged pallets/banding material	▪
		6	Sealing of ammunition packaging	▪
		7	Ammunition in transit	▪
06.50	Specific Safety Precautions	4.1.1	Stacking and storage (Dangerous chemicals)	▪
		4.1.2	WP and RP filled ammunition (Dangerous chemicals)	▪
		4.1.3	Leakage (Dangerous chemicals)	▪
		4.1.4	First aid instructions for WP (Dangerous chemicals)	▪
		4.2	Phosphide filled munitions	▪
		5	Metal powders and explosives containing metal powders	▪
		6	Health hazards associated with explosives	▪
		6.1	Information on the toxic effects of explosives	▪
		Annex C	Treatment of WP and RP burns	▪
06.60	Work services (construction and repair)	4.3	Head of the establishment and post holder duties	▪
		4.4	Role of the safety monitor	▪
		6	Minor Works	▪
		7.1	Working on or in a PES	▪
06.70	Inspection of explosives facilities	4	Inspecting an explosives facility	▪

IATG REFERENCE	IATG TITLE	CLAUSE	CLAUSE TITLE	REMARKS
		5.1	Internal inspection	▪
		6	Small units	▪
08.10	Transport of Ammunition	9	<b>Security during transport</b>	▪
09.10	Security Principles and Systems	7	Stockpile risk assessment	▪
		8.1	<b>Development of physical security systems</b>	▪
		8.2	<b>Security regulations</b>	▪
		8.3	<b>Security plan</b>	▪
		8.4	<b>Staff selection and vetting systems</b>	▪
		8.5.1	<b>Access control – keys</b>	▪
		8.5.3	<b>Entry to ammunition storage areas</b>	▪
		8.6.1	<b>Doors and gates</b>	▪
		8.6.2	<b>Windows</b>	▪
		8.6.3	<b>Locks and padlocks</b>	▪
		8.7.1.2	<b>Class 1 security fencing</b>	▪
		8.7.1.3	<b>Class 2 security fencing</b>	▪
		8.7.1.7	<b>Drainage</b>	▪
		8.7.5	<b>Patrols and dogs</b>	▪
	<b>Annex C</b>	<b>Model for a security plan</b>	▪	
10.10	Demilitarization and Destruction	9.1	<b>Open burning (OB) and open detonation (OD)</b>	▪
11.10	Ammunition Accidents: Reporting and Investigation	4	<b>General</b>	▪ Rationale for investigations and appropriate remedial action.
		7	<b>Reporting of ammunition accidents</b>	▪ Information requirements.
		8	<b>Actions by user unit</b>	▪ User responsibility.
		9	<b>Investigating authority</b>	▪ Responsibilities.
		10	<b>Actions of the technical investigator</b>	▪ Role and responsibilities.
12.10	Ammunition on Multi-National Operations	All	All	▪ Designed to ensure explosive safety of deployed forces.

IATG REFERENCE	IATG TITLE	CLAUSE	CLAUSE TITLE	REMARKS
12.20	Small Unit Ammunition Storage	All	All	▪ Designed to support the small-scale storage of ammunition by units.

Table 2: Index of Risk Reduction Process Level 1 within IATG

## 6 Index of Risk Reduction Process Level 2 activities within each IATG module

IATG REFERENCE	IATG TITLE	CLAUSE	CLAUSE TITLE	REMARKS
01.50	UN Explosive Hazard Classification System and Codes	6.2	Compatibility groups	▪
01.60	Ammunition Faults and Performance Failures	4	General	▪
		6	Reporting of ammunition faults and performance failures	▪
		7	Actions by user unit (faults)	▪
		8	Actions by user unit (performance failures)	▪
		9	Investigating authority	▪
		10	Actions of the technical investigator	▪
01.70	Bans and Constraints	6	Bans	▪
		7	Constraints	▪
02.10	Introduction to Risk Management Principles and Processes	8.2.2	Physical effects estimation of an unplanned or undesirable explosive event	▪
		8.2.3	Individual risk estimation	▪
		10	Risk reduction and mitigation	▪
		13.2	Separation and quantity distances	▪
		13.3	Explosion consequence analysis	▪
		13.4	Explosion safety cases	▪
		15	Cost benefit analysis	▪
		15.1	Expected monetary values	▪
		Annex D	Example qualitative risk assessment methodology	▪
		Annex E	Example ECA methodology	▪
		Annex F	Risk management and IATG software	▪
Annex G	Explosive Safety Case (ESC) Format	▪		
Annex H	Expected Monetary Value Estimation	▪		
02.20	Quantity distances	12	Marshalling yards and transit areas	▪
		13	Underground storage	▪

IATG REFERENCE	IATG TITLE	CLAUSE	CLAUSE TITLE	REMARKS
		14	Ports	▪
		15	IATG software and adjustment of quantity distances	▪
		Annex M	Hazard division QD matrix (underground storage)	▪
		Annex N	Hazard division QD tables (underground storage)	▪
		Annex P	Hazard division QD matrix (ports)	▪
		Annex Q	Hazard division QD tables (ports)	▪
02.30	Licensing of Explosive Facilities	5	Risk management	▪
		6	Types of explosive limits licences (ELL)	▪
		7	Licensing criteria	▪
		8	Management of ELL	▪
		8.4	Validity of ELL	▪
02.40	Safeguarding of Explosives Facilities	4.3	System components	▪
		5	Maintenance of the safeguarded area	▪
02.50	Fire Safety	10	Evacuation of personnel	▪
		11.1	Emergency water supplies	▪
		12.3	Major fires	▪
03.10	Inventory Management	5	Inventory management functions	▪
		6	Through life management	▪ Also some RRPL 3 activities.
		6.2	Munitions life assessment (MLA)	▪ Also some RRPL 3 activities.
		6.2.2	Requirements for MLA	▪
		6.2.4	Ammunition management policy statements (AMPS)	▪
		8	Ammunition stockpile management system requirements	▪ Including use of standardised nomenclature and descriptions.
		9	Stockpile management organisation responsibilities	▪
		11	Ammunition technical inspection unit responsibilities	▪
		12	Ammunition training unit responsibilities	▪
14.1	Ammunition accounting responsibilities	▪ Also some RRPL 1 activities.		

IATG REFERENCE	IATG TITLE	CLAUSE	CLAUSE TITLE	REMARKS
		14.3	International accounting principles and standards	▪
		15	Stock location in explosive storehouses	▪
		16	Storage space issues	▪
		17	Ammunition descriptive asset codes (ADAC)	▪
		18	Condition classification of ammunition	▪ Also some RRPL 3 activities.
		19	Ammunition procurement and stockpile levels	▪
03.20	Lotting and Batching	6	Lotting and batching system responsibilities	▪
		7	Lot and batch numbering system	▪
		8	Lotted or batched and governing components	▪
		9	Availability of ammunition technical data	▪
04.20	Temporary Storage	5	Risk acceptance	▪
		6	Temporary storage areas	▪
		7.1	Mixing rules	▪
		7.4	Quantity and separation distances (TD)	▪
		7.4.2	Reduced inside quantity distances (TD)	▪
		7.4.3	Reduced outside quantity distances (TD)	▪
		7.5	Barricades	▪
		9	Surveillance and in-service proof	▪
05.10	Planning and Siting of Explosive Facilities	11	Security	▪
		5	Types of facilities within a depot	▪
		6	Underground storage	▪
		7	Smaller facilities	▪
05.20	Types of Buildings for Explosive Facilities	10	Handover and takeover procedures for new or modified facilities	▪
		10	Design considerations	▪
		10.1	Protective buildings for personnel	▪
		10.2	Design of pressure release structures	▪
		10.3	Frangible materials and their properties	▪

IATG REFERENCE	IATG TITLE	CLAUSE	CLAUSE TITLE	REMARKS
		10.4	Ammunition requiring special consideration	▪
		10.5	Construction to contain fragments and prevent lobbing	▪
		10.6	Protection against projected objects	▪
		11.4	<b>Brickwork</b>	▪
		11.5	General comments on building materials not specified	▪
		11.6	<b>Roofs</b>	▪
		11.7	<b>Floors</b>	▪
		11.8	<b>External and internal walls</b>	▪
		11.9	<b>Drainage</b>	▪
		11.10	<b>Doors</b>	▪
		11.10.1	<b>Fire doors</b>	▪
		11.11	<b>Windows and other glazing</b>	▪
		11.12	<b>Ventilation and air conditioning</b>	▪
		11.13	<b>Heating and utilities</b>	▪
		11.14	<b>Lifting equipment</b>	▪
05.30	Traverses and Barricades	12	<b>Electrical requirements</b>	▪
		5	<b>Functional types of barricade</b>	▪
		6	<b>Location of barricade</b>	▪
		7	<b>Barricade materials</b>	▪
		9.1	<b>Wall barricades</b>	▪
		9.2.4	<b>Unitization</b>	▪
05.40	Safety Standards for Electrical Installations	10	<b>Design of barricades and their variable functions</b>	▪
		4	<b>Electrical categories</b>	▪
		4.1	<b>Mixed category areas</b>	▪
		4.3	<b>Selection of electrical category</b>	▪
		4.5	<b>Category B</b>	▪
		4.6	<b>Category C</b>	▪

IATG REFERENCE	IATG TITLE	CLAUSE	CLAUSE TITLE	REMARKS
		4.7	Category D	▪
		4.11	Electro-magnetic compatibility (EMC)	▪
		4.11.1	Compatibility levels in storage buildings	▪
		5.2	Fixed and portable electrical equipment	▪
		5.3.1	Air conditioning, heating and humidity control equipment	▪
		5.3.2	Light fittings	▪
		5.3.3	CCTV, communications and alarm systems	▪
		5.3.4	Heat sealing equipment	▪
		5.4.1	Items which emit (RF) radiation	▪
		5.4.2	Mains operated portable equipment	▪
		5.4.3	Equipment containing batteries	▪
		5.4.6	Personal medical equipment	▪
		5.5.1	Cathode ray tube (CRT) displays	▪
		5.5.2	Printers, display screen and other peripherals	▪
		5.6	Vehicles and MHE	▪
		6.1.1	Electrical safety	▪
		6.2.1	Qualified personnel	▪
		6.2.2	Frequency and test requirements	▪
		7.2	Location of power generation and distribution equipment	▪
		7.3	Internal power supply in explosives buildings	▪
		8	Lightning protection systems (LPS)	▪
		8.1.3	Facilities which may not require protection	▪
		8.3	Internal protection	▪
		9	Operation of conducting and anti-static regimes	▪

IATG REFERENCE	IATG TITLE	CLAUSE	CLAUSE TITLE	REMARKS
		9.2.1	Personnel	▪
		9.2.2	Equipment	▪
		9.2.3	Benches	▪
		9.2.4	Racks	▪
		9.2.5	Specialist equipment	▪
		9.2.7	Hazardous area personal test meter (HAPTM)	▪
		9.3	Anti-static regime and precautions	▪
		9.4	Conducting regime and precautions	▪
		9.6	Safety of personnel and safety checks	▪
		9.7	Electrical bonding of anti-static and conductive flooring	▪
05.50	Vehicles and MHE in Explosive Facilities	4	Categorisation of vehicles and MHE and permissibility in explosives areas	▪ 4
		4.1	Vehicles permitted in categorised areas	▪
		4.2	Vehicle compatibility and categorised areas	▪
		4.3.4	MHE vehicles and fuel standards	▪
		4.3.5	Tyres and ancillaries	▪
		4.3.6	Electro-magnetic compatibility (EMC)	▪
		5	Lifting equipment not in regular use	▪
		7	Management and control of MHE in explosive areas	▪
		7	Storage, processing and transport	▪
		7.2	Transportation	▪
		Annex C	EED and firing circuit sensitivity	▪
06.10	Control of Explosive Facilities	4	Personnel employed in explosive facilities	▪
		4.2	Special conditions of employment	▪
		4.3	Specific employment conditions	▪
		5.8	Vehicle tracker devices	▪
		5.9.1	Vehicle radio key fobs	▪

IATG REFERENCE	IATG TITLE	CLAUSE	CLAUSE TITLE	REMARKS
		6.2	Works services	▪
		6.3	Surplus facilities	▪
		6.4	Roads and drainage	▪
		6.5	Railway lines	▪
		8	Aircraft overflight	▪
		8.1	Helicopters	▪
		9.4	Thunderstorms	▪
		9.5	Tools, materials and equipment permitted in PES	▪
		10.1	ESH and open bay storage	▪
		10.2	Ready use ammunition	▪
		11.1	Covered storage	▪
		11.2	Open storage	▪
		11.6	Ammunition and ammunition packaging	▪
		11.7	Commercial explosives and fireworks	▪
		11.11	Rail and vehicle transit and staging facilities	▪
		12.1	Stock turnover	▪
		12.2	Prevention of deterioration of explosives	▪
		13	Underground storage	▪
06.20	Storage space requirements	4	Unit of space (UOS)	▪
		5	UOS estimation factors	▪
06.30	Storage and Handling	4.3	Approval to store	▪
		5.2	General criteria	▪
		5.3	Loose packaged ammunition	▪
		5.4	Unpackaged ammunition	▪
		6	Use of racking	▪
		9	Storage temperatures	▪
06.40	Ammunition packaging and marking	4.3	Change of hazard division	▪

IATG REFERENCE	IATG TITLE	CLAUSE	CLAUSE TITLE	REMARKS
		4.6	Special packaging	▪
		4.7	Marking of ammunition and its associated packaging	▪
		4.8	Colour coding of ammunition and its associated packaging	▪
		4.9	Fraction packages	▪
		5.5	Identification of palletised ammunition	▪
		5.6	Movement of palletised ammunition	▪
		6.1.1	Authenticity sealing	▪
06.50		6.2	<b>Safety precautions when storing or handling explosives</b>	▪
		7	<b>Explosives area management precautions (CFFE)</b>	▪
		8	<b>Emergency arrangements</b>	▪
		9	<b>Safe to move and handle</b>	▪
		10	<b>Storage temperatures</b>	▪
06.60	Work services (construction and repair)	4	Specific responsibilities	▪
		4.3.3	Safety briefing and permits to work	▪
		5	Major works	▪
06.70	Inspection of explosives facilities	5.1.1	PES log book and temperature and humidity records	▪
		5.1.2	Fire fighting equipment, alarms and drills	▪
		5.1.3	Security alarm and public address (PA) systems	▪
		5.2	External inspection and subsequent grading	▪
		5.3.1	Specialist inspections	▪
		7	Suspended or withdrawn licences	▪
07.10	Surveillance and In-Service Proof	6	<b>Responsibilities for in-service proof and surveillance</b>	▪
		10	<b>Surveillance</b>	▪ Surveillance for propellant should begin at level 2, although it is accepted that a fully effective surveillance system may not be complete until level 3.
		13.2	<b>Propellant stability tests</b>	▪

IATG REFERENCE	IATG TITLE	CLAUSE	CLAUSE TITLE	REMARKS
		15	Stability surveillance system	▪
		Annex C	Guidance on the physical inspection of ammunition	▪
07.20	Inspection of ammunition	6	Condition classification of ammunition	▪
		9	Common inspection points	▪
		Annex C	Guidance on physical inspection of ammunition	▪
07.30	Ammunition Processing: Safety and Risk mitigation and Reduction	4	Risk assessment	▪
		6.1	Explosive limits	▪
		6.2	Man limits	▪
		7.2	Exposed ammunition and explosives	▪
		7.4	Personal protective equipment (PPE) and clothing	▪
		7.6	General procedures	▪
		8.1	Accident procedures	▪
		8.2	Thunderstorms	▪
		8.3	Unsafe ammunition	▪
		10.5	Items not to be heated	▪
		10.7	Difficult items	▪
		5	Safe systems of work	▪
		6.3	Lower risk operations	▪
		6.4	Restricted tasks	▪
		6.5	Work instructions	▪
		6.6	Supervision and competency	▪
		7.1	Processing facility	▪
		7.3	Remote operations	▪
		7.5	Authorised tools and equipment	▪
		10	Breakdown of explosive items	▪
		10.1	The requirement for breakdown	▪
		10.2	Inspection of stocks awaiting disposal	▪

IATG REFERENCE	IATG TITLE	CLAUSE	CLAUSE TITLE	REMARKS
		10.3	Risk assessing and planning breakdown of ammunition	▪
		10.3.1	Plan of operation	▪
		10.4	Machinery and tools for breakdown operations	▪
		10.6	Sensitive components	▪
		10.8	Breakdown procedures	▪
08.10	Transport of Ammunition	All	All	<ul style="list-style-type: none"> <li>▪ Compliance with international agreements is deemed to be a RRPL 2 activity.</li> <li>▪ Clause 9 (Security) is a RRPL 1 activity.</li> </ul>
09.10	Security systems and principles	8.7.1.4	<b>Class 3 security fencing</b>	▪
		8.7.1.6	<b>Clear zones</b>	▪ Basic and inexpensive technology is included as RRPL 2.
		8.7.2	<b>Perimeter illumination</b>	▪
10.10	Demilitarization and Destruction of Conventional Ammunition	9.2	<b>Industrial demilitarization</b>	▪ More advanced technology included as RRPL 3.

**Table 3: Index of Risk Reduction Process Level 2 within IATG**

## 7 Index of Risk Reduction Process Level 3 activities within each IATG module

IATG REFERENCE	IATG TITLE	CLAUSE	CLAUSE TITLE	REMARKS
01.50	UN Explosive Hazard Classification System and Codes	8	Types of tests for UN hazard classification	▪
01.90	Ammunition Management Personnel Competences	All	Competences and competency standards	▪
02.10	Introduction to Risk Management Principles and Processes	10	Risk mitigation and reduction	▪
		13.1	Tests	▪
		Annex F	Risk management and IATG Software	▪
03.10	Inventory Management	6	Through life management (TLM)	▪ Also some RRPL 2 activities.
		6.2	Munition life assessments (MLA)	▪ Also some RRPL 2 activities.
		6.3	Improvement of in-service life for ammunition	▪
		13	Ammunition inspectorate responsibilities	▪
		18	Condition classification of ammunition	▪ Also some RRPL 2 activities.
		20.1	Financial accounting systems	▪
03.20	Lotting and Batching	7.8	Special case – logistic batching	▪
04.20	Temporary Storage	9	Surveillance and in-service proof	▪
05.20	Types of Buildings for Explosive Facilities	11.2	Reinforced concrete	▪
		11.3	Structural steel	▪
		11.5.1	Spark resistant materials and equipment fixing	▪
		11.12	Ventilation and air conditioning	▪
05.40	Safety Standards for Electrical Installations	4.2	Sublimating explosives	▪
		4.4	Category A and associated electrical standards	▪
		4.8	Combined Category A and B areas	▪
		4.9	Surface temperature of equipment	▪
		4.10	Electrical protection specific to category A zones	▪
		5.1	Index of protection (IP)	▪
		5.4.4	Environmental monitoring equipment	▪

IATG REFERENCE	IATG TITLE	CLAUSE	CLAUSE TITLE	REMARKS
		5.4.5	Equipment for testing electro-explosive devices (EED)	▪
		5.5.3	Asset tracking devices	▪
		7.1	External supply and overhead power lines	▪
		7.3.1	Earthing of explosive facilities	▪
06.10	Control of Explosive Facilities	10.3	Captured enemy ammunition and foreign explosives	▪
		10.4	Process buildings	▪
		11.5	Dangerous goods and explosive stores filled with dangerous goods	▪
		11.8	Experimental explosives	▪
		11.9	Special stores	▪
		11.10	Isolation and segregation of stocks	▪
		11.12	Storage conditions	▪
		Appendix 1 Annex D	UXO recoveries – classification list	▪
		Annex E	Ventilation – equipment and procedures	▪
07.20	Inspection of ammunition	6	Condition classification of ammunition	▪
07.30	Ammunition Processing: Safety and Risk Reduction and mitigation	9	Heating explosives during processing	▪
		10.3.2	Breakdown under precautions	▪
		11.1	STM certification – post explosion hazards	▪
		Annex E	Guidance on processing tools and equipment	▪
07.10	Surveillance and In-Service Proof	9.2	Proof schedule	▪
		9.3	Recording proof results	▪
		12	Environmental monitoring and recording	▪
		Annex D	Example proof report	▪ IATG Form 07.20
09.10	Security Principles and Systems	8.5.2	Combination locks	▪
		8.6.4	Intrusion detection systems	▪
		8.7.1.5	Class 4 security fencing	▪

IATG REFERENCE	IATG TITLE	CLAUSE	CLAUSE TITLE	REMARKS
		8.7.3	Perimeter intrusion detection systems	▪
		8.7.4	Visual surveillance systems	▪
10.10	Demilitarization and Destruction of Conventional Ammunition	9.2	Industrial Demilitarization	▪
		9.2.6	Pollution Control Systems	▪
		9.2.7	Recovery, recycling and reuse (R3)	▪
		11	Quality management	▪
		Annex F and Appendix 1	Stockpile demilitarization and ISO 9001:2008.	▪

Table 4: Index of Risk Reduction Process Level 3 within IATG



## **Annex A**

### **(normative)**

## **References**

The following normative documents contain provisions, which, through reference in this text, constitute provisions of this part of the guideline. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of the guideline are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO maintain registers of currently valid ISO or EN:

- a) IATG 01.40 *Glossary of Terms, definitions and abbreviations*

The latest version/edition of these references should be used. The UN Office for Disarmament Affairs (UNODA) holds copies of all references<sup>4</sup> used in this guideline and can be found at: [www.un.org/disarmament/un-safeguard/references/](http://www.un.org/disarmament/un-safeguard/references/). A register of the latest version/edition of the International Ammunition Technical Guidelines is maintained by UNODA, and can be read on the IATG website: [www.un.org/disarmament/convarms/ammunition/](http://www.un.org/disarmament/convarms/ammunition/). National authorities, employers and other interested bodies and organisations should obtain copies before commencing conventional ammunition stockpile management programmes.

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<sup>4</sup> Where copyright permits.

