INTERNATIONAL AMMUNITION TECHNICAL GUIDELINES

IATG 06.70

Third edition
March 2021

Inspection of explosives facilities

UN SaferGuard
Securing ammunition, protecting lives

IATG 06.70:2021[E]

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

Copyright notice

United Nations Office for Disarmament Affairs (UNODA)
United Nations Headquarters, New York, NY 10017, USA

E-mail: conventionalarms-unoda@un.org

Contents

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.[1] In recognition of these dual threats of explosion and diversion, the General Assembly requested the United Nations to develop **guidelines for adequate ammunition management**.[2] 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.

[1] S/2008/258.

[2] 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

This IATG module explains the rationale behind the requirement for a thorough inspection regime of ammunition storage areas and recommended procedures. It is imperative that all aspects of the explosives licence, and the national authority explosives regulatory regime, are being complied with and that explosive facilities are fit for purpose. Compliance with the terms of the explosives licence should be a mandatory requirement with exceptions approved only by the national technical authority.[3]

Should the permitted quantities of explosives be exceeded, or unauthorised procedures or operations be carried out, the risk of propagation of fire or explosion between Potential Explosion Sites (PES) will be significantly increased, as well as to other Exposed Sites (ES). Such an occurrence will have financial, human security, national security and political implications, particularly if a transparent and thorough inspection regime is not in place.

[3] See IATG 02.30 *Licensing of explosives facilities*.

Inspection of explosives facilities

1 Scope

This IATG module describes the recommended procedures for the inspection of explosives facilities and provides a list of inspection points as well as a possible Potential Explosion Site (PES) log book format.

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 module 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.

The term ‘explosives facility’ refers to *an area containing one or more potential explosion sites*.

The term 'national technical authority' refers to *the government department(s), organisation(s) or institution(s) charged with the regulation, management, co-ordination and operation of conventional ammunition storage and handling activities.*

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 Inspecting an explosives facility (LEVEL 1)

The introduction explained the rationale behind the requirements for an inspection process. PES and any blast and fragment mitigation structures such as blast walls, barricades and earth covering should be purpose-built to approved design specifications.[4] Similarly, electrical and other utilities should be constructed to their own set of specifications.[5] Should there be any deterioration of a PES, then logically there will follow an increase in the hazards to the explosives stored in that PES. Additionally, the PES will also pose a greater hazard to personnel and property at an ES. Should deterioration occur, the explosives licence may need to be modified to reduce the explosives licence limit (ELL), or, possibly, suspended or totally withdrawn.

5 Types of inspection

There are two types of inspection carried out on explosives facilities, internal, using staff from the explosives facility, and external, using staff from other facilities or as required by the national technical authority.

5.1 Internal inspection (LEVEL 1)

Informal internal inspections should be carried out as a routine daily task by all staff working in the explosives facility. The safety culture should be such that staff members feel able to report anything they consider is a risk to health, safety or the environment, and that they know their reports will be taken seriously and acted upon in a timely manner.

A formal internal inspection should be carried out by the person in charge of the explosives facility (or a nominated and qualified representative) to ensure that:

a) a continuous, logged, monitoring regime exists to ascertain the condition of each PES, the ammunition contained within, and the overall ammunition storage area (ASA); and

b) explosive limits licences (ELL) are being observed.

The results of the inspection should be recorded on an inspection record sheet. The national technical authority shall set the frequency of inspection, but it is generally accepted as best practice that monthly is sufficient, coupled with some non-routine inspections.

55.1.1 PES logbook and temperature and humidity records (LEVEL 2)

Each PES should maintain a logbook to record the results of the internal inspections described above and other details. A suggested format and compilation instructions for this logbook are at Annex C. A suggested check list is also at Annex C. This logbook should be regularly inspected by the head of the establishment to ensure that it is being completed properly and that required improvements are actually being carried out.

The national technical authority should specify the frequency that the logbook is inspected but international best practice suggests three monthly inspections is adequate. To complement the logbook, each PES should also have a temperature and humidity record sheet and a suggested format is at Annex D.

[4] See IATG 05.30 *Barricades*.

[5] See IATG 05.40 *Safety standards for electrical installations*.

5.1.2 Firefighting equipment, alarms and drills (LEVEL 2)

Immediate firefighting appliances (IFFA), including fire beaters, pre-positioned engines and motor driven pumps, hose reels and hydrants, should be inspected by the head of the establishment (or his or her nominated representative) at intervals specified by the head of the establishment or in the case of equipment, by the manufacturer's recommendations. IFFA inspections shall be recorded.[6] A suggested format is at Annex C.

Fire alarm systems shall be maintained in accordance with IATG 02.50 *Fire safety* and the manufacturer's recommendations. Electrical fire alarm systems should be tested weekly and the test recorded. A suggested format is at Annex C. All alarm points should be tested during any three-month period.

Details shall be recorded on the reverse of the inspection record sheet for the PES concerned whenever fire or escape drills are practised. Completion of any actions required by the post drill recommendations is also to be recorded. Drills for the whole storage site are to be recorded on the site inspection record sheet. A suggested format is at Annex C.

5.1.3 Security alarm and public address (PA) systems (LEVEL 2)

Security alarms should be inspected and tested regularly[7]. Where specific guidance is not available, the alarms should be tested for serviceability at weekly intervals such that all alarm activation points are tested within a three-month period. A suggested recording format is at Annex C.

Where fitted, public address systems should be tested in accordance with IATG 05.40 *Safety standards for electrical installations*. If no specific guidance is available, a weekly test broadcast should be made.

5.2 External inspection and subsequent grading (LEVEL 2)

External inspections should be carried out by competent bodies appointed by the national technical authority. The aim of these inspections is to ensure continued safe storage, processing and use of explosives in compliance with national technical authority explosives, health, safety and environmental legislation. Realistically it will be impossible for any external inspection to 100% audit the organisation it is inspecting. However, a systemic check is possible by following a single process from start to conclusion, including a quality check on any documentation produced. A suggested check list is at Annex E, whilst a suggested inspection format is at Annex F.

Before leaving the facility/unit, the national technical authority inspector should advise the head of the establishment being inspected of the findings of the inspection together with the grading. The national authority inspector should compile a report and grade the facility as either SATISFACTORY or UNSATISFACTORY.

An unsatisfactory grading should be given when:

a) safety, security or reliability is seriously degraded;

b) low management standards exist; to the extent that explosives safety is threatened; and/or

c) inadequate progress has been made to rectify deficiencies reported in a previous report that did not result in an unsatisfactory grading at that time.

[6] See IATG 02.50 *Fire safety*.

[7] See IATG 09.10 *Security principles and systems*.

5.3 Follow-up inspections

Follow-up inspections are to be provided depending on the case. In many cases, these can be informal and simple if defects can be remedied quickly. In other cases, extensive adjustments or lengthy and expensive infrastructure projects may have to be carried out. The process must be identified, what is being done about the defects, and it must be tracked, or progress made to ensure that the problem is resolved. This can apply to both inspection levels.

If an unsatisfactory grading is awarded, a follow-up inspection should be carried out after three months to confirm that the actions required to rectify the reasons for the grading have been completed.

The national technical authority may require routine progress reports on some outstanding actions pending their satisfactory completion.

5.3.1 Specialist inspections (LEVEL 2)

In addition to the internal and external inspections at Clauses 5.1 and 5.2 some specialist inspections may be required. These include, but are not limited to:

a) lightning protection systems and electrical installations. These should be inspected and tested in accordance with national technical authority standards which should as a minimum be the same as those in IATG 05.40 *Safety standards for electrical installations*;

b) conducting floors, anti-static floors, earthing mats, bonding systems and bonding leads should be inspected and tested in accordance with national technical authority standards which should as a minimum be the same as those in IATG 05.40 *Safety standards for electrical installations*;

c) installed lifting appliances, cranes etc. should be inspected and tested in accordance with appropriate national safety standards and/or manufacturer's recommendations; and

d) building and civil construction inspections in accordance with national safety standards. These should be carried out by a suitably qualified engineer at regular intervals; two yearly intervals are the suggested norm. Professional appraisals should be conducted by a suitably qualified independent engineer; five yearly is accepted international best practice.

The results of all special inspections, including test readings, copies of test certificates and so forth shall be kept in the PES logbook. Copies of all test certificates shall be held in the PES logbook for a minimum of five years.

6 Small units (LEVEL 1)

Small units and facilities may also have licensed PES. However, these units may not have competent inspection personnel, or they may be located a considerable distance away from their parent unit or organisation. In this case, they may have difficulty in complying with the inspection requirements detailed above. Strict control and regular inspection of these sites is essential to ensure that the requirements of the inspection regime are maintained. Safety is of prime importance and so the parent unit, or the national technical authority where appropriate, should ensure suitable alternative arrangements are in place to make sure that the inspection regime of these small units and facilities is of the same standard as for larger establishments.

7 Suspended or withdrawn licences (LEVEL 2)

In the event of an explosives facility having an ELL suspended or withdrawn, written details should be held by the national technical authority and a copy held in the PES log book. Inspections should still take place and the frequency of the inspection will be dependent on the climate, its erosive effects and the type of explosive facilities. The inspection regime should be as above, but the periodicity of inspection may be extended to a maximum of six months. If defects are identified rectification may be delayed. However, if any defects affect the weatherproofing or structural integrity of the PES then repair should take place as if the PES was still in use. After six months, all standard and specialist inspections should be implemented, resources permitting, prior to re-use. A prioritisation protocol for repairs should be developed.

Annex A
(normative)
References

The following normative documents contain provisions, which, through reference in this text, constitute provisions of this module. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this module 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*. UNODA;

b) IATG 01.50 *UN Explosive hazard classification system and codes*. UNODA;

c) IATG 02.30 *Licensing of explosives facilities*. UNODA;

d) IATG 02.50 *Fire safety*. UNODA;

e) IATG 05.30 *Barricades*. UNODA;

f) IATG 05.40 *Safety standards for electrical installations*. UNODA; and

g) IATG 09.10 *Security principles and systems*. UNODA.

The latest version/edition of these references should be used. The UN Office for Disarmament Affairs (UNODA) holds copies of all references[8] used in this guideline and these can be found at: www.un.org/disarmament/un-saferguard/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/ammunition. National authorities, employers and other interested bodies and organisations should obtain copies before commencing conventional ammunition stockpile management programmes.

[8] Where copyright permits.

Annex B
(informative)
References

The following informative documents contain provisions, which should also be consulted to provide further background information to the contents of this guideline:[9]

a) AASTP-1, Edition B, Version 1. *NATO Guidelines for the Storage of Military Ammunition and Explosives.* NATO Standardization Organization (NSO). December 2015. http://nso.nato.int/nso/nsdd/listpromulg.html;

b) *Handbook of Best Practices on Conventional Ammunition*, Chapter 5. Decision 6/08. OSCE. 2008. www.osce.org/fsc/33371; and

c) DSA03.OME part 2 provides for the safe storage and processing of Ordnance, Munitions and Explosives (OME). UK MOD. November 2020.

The latest version/edition of these references should be used. The UN Office for Disarmament Affairs (UNODA) holds copies of all references[10] used in this guideline and these can be found at www.un.org/disarmament/un-saferguard/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/ammunition. National authorities, employers and other interested bodies and organisations should obtain copies before commencing conventional ammunition stockpile management programmes.

[9] Data from many of these publications has been used to develop this IATG.

[10] Where copyright permits.

Annex C
(informative)
PES logbook

The following check list of inspection points and records of checks and tests may be used to maintain records.

PES Logbook (Record of Checks and Tests)													IATG Form 06.70A
Items 1 to 18 & 21 to 25 insert ✓ if correct or X if incorrect. Items 19 to 20 insert ✓ when carried out.		Year:				PES:							
		J	F	M	A	M	J	J	A	S	O	N	D
1	State of repair												
2	Cleanliness												
3	Dampness												
4	Windows												
5	Drains, gutters etc												
6	Heating/ventilation/air conditioning												
7	Condition of barricades												
8	Locks, key labelling and rotation												
9	Explosives stored (ELL, NEQ and CG)												
10	Marking/sealing of packaging												
11	Fire appliances and check dates												
12	Fire symbols												
13	Vegetation control												
14	ELL displayed and safety posters												
15	Lifting equipment check and certification												
16	Electrical installations												
17	Lightning protection systems												
18	Conducting/ant-static floor and HAPTM[11]												
19	Fire practice												
20	Evacuation drill												
21	Incident/accident reporting												
22	Designated smoking area												
23	Empty box areas												
24	Outstanding defects												
25	Documentation												
26	Additional –separate report												
Initials:													
Date:													
Head of Establishment Signature (3 Monthly Check).													
Date:													

[11] Hazardous Area Personnel Test Meter.

Notes:

1	**State of repair**	Check the security fence and security lights for damage and corrosion, the building structure for any damage, the state of paint work, and all attachments and fittings for damage and corrosion. Check roads and rail sidings for damage/pitting, rubble, etc and general storm damage. Check if doors are serviceable? Check if designated areas are suitably demarcated.
2	**Cleanliness**	Check the PES and its adjacent area is clean, tidy and free from wind blown combustible material. Check packaging materials been removed or correctly temporarily stacked so as not to present a fire risk. Check that empty boxes, seals, locking wire have been removed. Ensure that flammable liquids, rags, waste paper etc have not been left exposed. Check for accumulations of explosives dust on machinery, gravity rollers etc, Ensure there are separate bins for ferrous & non-ferrous waste. Ensure that a doormat is present and is serviceable.
3	**Dampness**	Check all buildings internally and externally for damp patches. Check if the roof, especially the eaves, is free from mould and fungus. Check if there any water erosion marks especially near any electrical fittings. Ensure the floor area is free from water/condensation. Check if there is damage to the fabric of building that allows ingression of water.
4	**Windows**	Is the glass of an acceptable safety standard? Ensure all stacks are clear of the windows and that sunlight does not impinge on the explosive stores. Check if guard bars are fitted, are serviceable, are free from corrosion and are correctly grouted to the window frames. Check if the glass is free from cracks and if cracked are they protectively covered by tape to prevent ingress of moisture pending repair?
5	**Drains, gutters etc**	Ensure that the building's drains and gutters are secure and undamaged, free of grass cuttings, leaves, wind-blown foliage and paper and that drains are clear and free from restrictions. Check drains and drain covers in roads, etc, for damage.
6	**Heating/ventilation/air conditioning**	Check if ventilators are normally left open. Ensure ventilators are free from corrosion and that they open and close properly. Check if they require protective painting, oiling or greasing. Check if they have thermal links or an automatic closing device and if these are serviceable. Check for the presence of hygrometers, max-min thermometers and if they are serviceable? Check if any data-loggers are present and if they are approved and serviceable. Check if humidity and temperature readings are recorded. Ensure that any heating and air conditioning is operative. Ensure radiators have sloped
7	**Condition of barricades**	External – check that they are effective. Check for rabbit holes, mole hills and subsidy. Check if any areas require bracing up, need holes filling or grass renewing. Internal – check they are serviceable and are at the correct distances from stacks and walls.
8	**Locks, key labelling and rotation**	Check each bunch for serviceable keys. Check if they are worn and been mustered and rotated with the duplicate/triplicate sets. Ensure locks and padlocks are of an approved pattern, are serviceable, have hasps that are free from corrosion and that they function properly. Check if the locks require lubrication. Ensure that all key bunches are correctly labelled and that individual keys are identifiable.
9	**Explosives stored (ELL, NEQ and CG)**	Check Hazard Division (HD), Net Explosive Quantity (NEQ) and mixing of Compatibility Groups (CGs). Ensure that the appropriate instructions and safety precautions for each type of store stacking system are present and carried out. Ensure that stack tally cards, pallet and Unit Load Container (ULC) labels correctly identify the make, date, Batch Key Identification (BKI)/lot and quantity of each type of ammunition. Check that constrained and banned/black listed stores are correctly labelled and segregated. Check that all unsealed boxes are clearly marked with their remaining quantity, type and lot number (if different from the original markings). Ensure explosive ordnance disposal (EOD) recoveries are correctly packaged and stored separately. Carry out a percentage physical check of packaged and unpackaged stores to check for damage, dampness and corrosion. Ensure no empty packages are present. Check that the correct tools, equipment and first aid kits are available where CG H and Gaseous Tritium Light Sources (GTLS) are present. Ensure that non-palletised stores are on battens or racking. Check gangways and spacing from PES structure are in place and comply with regulations. Ensure that approved tool lists, safety instructions for the operation of machinery and work schedules are in place in process facilities.

10	**Marking/sealing of packaging**	Ensure explosives packages are correctly sealed, labelled with their contents and display and hazard classification code (HCC) symbol, UN serial number and other markings required by the national authority. Ensure that the correct packaging has been used. Check that fraction packages have been marked as such. Check if sufficient dunnage is present.
11	**Fire appliances and check dates**	Ensure that emergency water supplies (EWS) are full, clear and free from wind blown debris. Ensure first aid firefighting equipment (FAFFA), to the appropriate scale, are correctly positioned at each building and that they are serviceable. Check that fire appliances areas are clearly marked and painted. Ensure protective boxes are serviceable. Check for storm damage, water leaks and defective connectors. Check if appliances have recently been functionally checked and certificates are up to date. Check that fire beaters are serviceable and that there are a sufficient number. Check that the pre-fire plan is up to date. Check that fire alarm systems are maintained, tested and that the results are logged.
12	**Fire symbols**	Ensure fire division signs and supplementary fire signs, are prominently displayed, both on the PES and all approach roads, legible and serviceable. Ensure that they correctly interpret the hazard of the stored items. Check that the fire section and local fire brigade have been informed of any major stock change hazards. Check that the fire section and local fire brigade are informed when overnight storage areas are in use
13	**Vegetation control**	Ensure 1m sterile areas round each PES (except earth covered) are clear of grass, foliage, shrubbery, gorse and heather. Check that grassed areas are sufficiently mown and all grass cuttings are removed.
14	**ELL displayed and safety posters**	Check that ELL and mandatory safety posters are displayed. Ensure that all contents are authorised to be stored in the PES and that NEQs present do not exceed the authorised limits. Ensure that all tools, equipment and cleaning utensils are correctly listed and authorised. Check that actions in event of a fire poster are present and correct. Check for any special conditions on license and that these conditions are being obeyed. Check that first aid posters are present and that first aid kits are
15	**Lifting equipment check and certification**	Check all chains and cables for damage and corrosion and ensure that they are lightly lubricated. Carry out a functional check ensuring that the hoist runways have no restrictions and the raising/lowering mechanisms function correctly. Check the hoist has had a mechanical/electrical inspection within the prescribed periodicity and that the results are recorded.
16	**Electrical installations**	Ensure the standard of electrical installation is shown by a wall plate mounted adjacent to master switch. Ensure the power on lights is operative. Physically check all lights/luminaires, Intruder Detection Systems (IDS) alarms, fire alarms, telephones, power supply lines/conduit, switches and electrical switch boxes for corrosion, security of fitment, storm damage, etc. Check all lighting and telephones for correct functioning. Ensure electrical tests results are supplied, are current and the results are entered on reverse of the PES inspection record sheet. Check that Residual Current Device (RCD) and Earth Leakage Circuit Breaker checks are carried out. Check that electrically powered appliances, leads and earthing cables are registered and that they received their periodic check and that they can be easily and quickly promptly identified. Ensure power plugs and sockets are clearly marked for the correct electrical potential. Ensure that they are stored neatly when not in use. Check the periodicity of public address systems tests.
17	**Lightning protection systems (LPS)**	Look for evidence of lightning strikes. Check for integrity of electrical bonding, above and below each switch box, to the air terminals and the ground terminals and to all doors when open and closed. Ensure all internal bonding is properly connected to benches, structures, earth points and electrical hoists. Ensure the lightning protection system (LPS) test is current and that test results are supplied and logged.
18	**Conducting/ant-static floor and HAPTM[12]**	Ensure floors have been electrically (resistance) checked and the results recorded. Check that the floors are free from cracks, large indentations, excessive wear marks, oil and grease. Ensure that a cleaning regime is in place and used. Ensure that any HAPTM present is serviceable and checked and the results recorded.
19	**Fire practices and evacuation drills**	Check that fire practices and evacuation drills are regularly carried out (3 monthly), are recorded on the reverse of the inspection record sheet and that post-drill recommendations have been implemented.
20	**Incident/accident reporting**	Check that mechanisms are in place for reporting incidents and accidents and that staff are aware of these procedures and follow them.
21	**Designated smoking area**	Check that the area in use is authorised, that the ash trays are kept clean and cigarette ends are at a minimum and that all lighting material is of the authorised type.

[12] Hazardous Area Personnel Test Metre

22	**Empty box areas**	Empty box compounds are potentially a fire hazard area. Check for poor stacking, over stacking, untidy areas of boxes and furnishings, loose paints, oils, lubricants, labels and fabrics. Ensure that there are sufficient fire appliances. Check if an excess of wooden boxes are being stored. Check all UN markings, HCC labels etc have been removed or obliterated. Ensure certified free from explosive (CFFE) sealed boxes are physically separated from empty boxes or other items awaiting CFFE.
23	**Outstanding defects**	Check each area/PES record of defects. Check if an outstanding defect is getting worse, becoming a safety hazard, has been repaired to an unacceptable level, or is outstanding for too long.
24	**Documentation**	Ensure that the items on the inspection record sheet have been correctly ticked when acceptable and have been red cross marked when defective or are otherwise unsatisfactory. Ensure that all defective items have been reported and recorded on the record of defects on the rear of the inspection record sheet. Check that all periodic tests have been recorded and any fire or escape drills annotated on rear of inspection record sheet.

PES Logbook (Fault Reports)					IATG Form 06.70B
Date	**Nature of Fault / Failure**	**Reported To / Date**	**Task Number**	**Action Taken to Repair / Rectify the Fault / Failure**	**Name / Signature**

PES Logbook (Electrical Test Record)							IATG Form 06.70C	
Date	Electrical Installations		Lightning Protection		Conducting Floors		Cranes and Lifting Equipment	
	Standard	Result	Standard	Result	Type	Result	Type	Result

PES Logbook (Fire and Evacuation Drills Test Record)						IATG Form 06.70D
Date	Fire Fighting			Evacuation		
	Time of Alarm	Time Fire Appliances Operational	Remarks and Recommendations	Time of Alarm	Time Building and Area Clear	Remarks and Recommendations

Annex D
(informative)
Temperature and humidity recording

PES Logbook (Temperature and Humidity Recording Record)														IATG Form 06.70E
Day	Month/Year:							PES Number:						
	Thermometer Reading		Hygrometer Reading			Ventilated	Initials	Thermometer Reading		Hygrometer Reading			Ventilated	Initials
	Maximum	Minimum	Dry	Wet	Difference			Maximum	Minimum	Dry	Wet	Difference		
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														
20														

PES Logbook (Temperature and Humidity Recording Record)														IATG Form 06.70E
Day	Month/Year:							PES Number:						
	Thermometer Reading		Hygrometer Reading			Ventilated	Initials	Thermometer Reading		Hygrometer Reading			Ventilated	Initials
	Maximum	Minimum	Dry	Wet	Difference			Maximum	Minimum	Dry	Wet	Difference		
21														
22														
23														
24														
25														
26														
27														
28														
29														
30														
31														
Mean														

Notes:

1. In the column headed “Ventilated” insert V when the building is ventilated and X when the ventilation is closed.
2. Insert N/A in columns that do not apply.
3. This form should be initialled weekly by the person in charge in the column headed “Initials”.

Annex E
(informative)
National authority inspection guidelines

E.1 **Check** any outstanding actions from the previous inspection report.

E.2 **Health and safety** to national standards including:

a) any policy statements;

b) organisation and responsibilities;

c) audits;

d) training and appropriate qualifications;

e) hazardous substance assessments;

f) control of contractors;

g) manual handling; and

h) risk assessments.

E.3 **Documentation**

a) explosives licenses;

b) work procedures;

c) safeguarding maps and checks where appropriate;

d) directional weapons map where appropriate (for aeroplanes);

e) radiation hazard (RADHAZ) map where appropriate;

f) site map;

g) PES log book;

h) safety posters; and

i) publications for machinery, ammunition, storage etc.

E.4 Security

a) intruder detection system check;

b) control of entry;

c) key control system check;

d) enforcement of prohibited articles regime; and

e) integrity of security fences.

E.5 Fire precautions and fire safety

a) maintenance of immediate fire-fighting equipment (IFFA);

b) control of vegetation;

c) fire breaks;

d) fire plan and fire orders;

e) fire and evacuation exercises;

f) liaison with local fire brigade;

g) fire alarm and fire suppression systems; and

h) display of fire division signs and supplementary fire signs.

E.6 Electro-static precautions

a) conducting and anti-static;

b) bonding system;

c) hazardous area personnel test meters (HAPTM);

d) earth leakage circuit breakers (ELCB); and

e) residual current devices (RCD).

E.7 Infrastructure

a) building structures;

b) glazing;

c) barricades ;

d) electrical appliances;

e) lightning protection system;

f) heating, lighting and air conditioning; and

g) lifting appliances.

E.8 Disaster planning

a) major accident planning in the event of an explosive incident or other incident;

b) provision of first aid;

c) evacuation procedures for the establishment and nearby dwellings;

d) pollution control; and

e) establishment of command and control systems.

E.9 Operation of facilities

a) sealing, marking and labelling of packages;

b) overall cleanliness and tidiness;

c) free from explosives certification;

d) storage conditions;

e) explosives processing, handling and storage;

f) vehicles, MHE and other transportation;

g) safety precautions and first aid provision;

h) disposal of explosives by open burning, open detonation or by industrial processing;

i) disposal of unserviceable stock;

j) segregation, isolation and EOD recoveries; and

k) waste and pollution management.

E.10 Responsibilities for other establishments

E.11 Provision of specialist or competent personnel

E.12 Training of personnel and shortfalls

Annex F
(informative)
ESH inspection checklist

Unit:		**Date:**	
Ammunition Storage Area (ASA):		**Inspector Name:**	
Explosive Storehouse (ESH) #:		**Inspector Signature:**	

F.1 Important Safety Distances

SER	PES[13]	ES[14]	DISTANCE FROM PES (m)	QD REFERENCE[15]	IATG 02.20 ELL LIMIT (KG)	DISTANCE FUNCTION	REMARKS
(a)	(b)	(c)	(c)	(d)	(e)	(f)	(g)
							▪
							▪
							▪
							▪

F.2 Quick Reference[16]

[13] Potential Explosion Site
[14] Exposed Site
[15] See A.2 and footnote below.
[16] Check against IATG 02.20 *Quantity and separation distances*.

HD	OQD					IQD	
	Inhabited Building Distance (IBD)	Vulnerable Building Distance (VBD)	Public Traffic Route Distance (PTRD) (Low Density[17] = 0.5 IBD)	Public Traffic Route Distance (PTRD) (Medium Density[18] = 0.66 IBD)	Public Traffic Route Distance (PTRD) (High Density[19] = IBD)	Inter Magazine Distance (IMD)	Process Building Distance (PBD)
HD 1.1	$22.2Q^{1/3}$	$44.4Q^{1/3}$	$14.8Q^{1/3}$ 0.5 D12	$14.8Q^{1/3}$ D11	$14.8Q^{1/3}$ D13	Various	$8.0Q^{1/3}$
HD 1.2							36% IBD
HD 1.3	60m						
HD 1.4	>10m						

F.3 ESH Types

BUILDING TYPE [20]	LENGTH (M)	WIDTH (M)	HEIGHT (M)	UNITS OF SPACE PER ESH (m^3) [21]	NUMBER OF ESH	REMARKS
Type A						▪
Type B						▪
Type C						▪
TOTALS						

[17] Less than 1,000 Vehicles / 24 Hours.

[18] 1,000 – 5,000 Vehicles / 24 Hours.

[19] 5,000+ Vehicles / 24 Hours.

[20] The type of building will differ dependent on national designs. Type A etc included here for example.

[21] Estimate using IATG 06.20 *Storage space requirements*.

F.4 General Inspection Checklist [22]

INSPECTION AREA	SPECIFIC	IATG REFERENCE	REMARKS	ACCEPTABLE / REQUIRES WORK
Health and Safety at Work	Policy Statements	National Responsibility		
	Organisation and Responsibilities	National Responsibility		
	Health and Safety Audits	National Responsibility		
	Health and Safety Training	National Responsibility		
	COSHH[23] Assessments	National Responsibility		
	Risk Assessments	IATG 02.10, Clause 7 and IATG 06.10, Clause 6.7.2		
Explosives Limit Licensing	Explosive Licences	IATG 02.30, Clauses 7 and 8		
	Safety Distances	IATG 02.20, Annexes and IATG 06.10, Clause 6.1		
	Safeguarding of Distances	IATG 02.40, Clause 4 and IATG 06.10, Clause 6.1		
	Directional Weapons Map	IATG 02.40		
	PES Logbooks / Record Cards	IATG 06.70, Clause 5.1.1		
	Signing	IATG 06.70, Annex C		
	Publications	IATG 01.10, Annex D		
Security	Intruder Detection Systems	IATG 06.70, Clause 5.1.3 and IATG 09.10, Clause 8.6.4		
	Control of Entry	IATG 06.10, Clause 5.2 and IATG 09.10, Clause 8.5		
	Control of Keys	IATG 09.10, Clause 8.5.1		
	Exclusion of Prohibited Articles?	IATG 06.10, Clause 5.3		
	Security Fences	IATG 09.10, Clause 8.7.1		

[22] Complete once for each ASA. Developed from contents of Annex E to IATG 06.70 *Inspection of explosives facilities.*
[23] Control of Substances Hazardous to Health.

INSPECTION AREA	SPECIFIC	IATG REFERENCE	REMARKS	ACCEPTABLE / REQUIRES WORK
Fire Precautions	Maintenance of Fire Fighting Equipment	IATG 02.50, Clause 11.3 - 11.4 and IATG 06.10, Clause 7.2		
	Control of Vegetation	IATG 02.50, Clause 8 and IATG 06.10, Clauses 6.7 - 6.9		
	Fire Breaks	IATG 02.50, Clause 8		
	Fire Plan and Fire Orders	IATG 02.50, Clause 6.1 and IATG 06.10, Clause 7		
	Fire and Evacuation Exercises	IATG 02.50, Clause 9		
	Liaison with Local Authority Fire Service	IATG 02.50, Clause 6.1		
	Fire Alarm Systems	IATG 02.50, Clause 7		

F.5 ESH Inspection Checklist [24]

INSPECTION AREA	SPECIFIC	IATG REFERENCE	REMARKS	ACCEPTABLE / REQUIRES WORK
Infrastructure - State of Repair	Breaches in security fence?	IATG 09.10, Clause 8.7.1		
	Damaged or corroded security lights?	IATG 09.10, Clause 8.7.2		
	Building structure damaged?	IATG 05.20, Clause 8		
	State of paint work?	N/A		
	Damage or corrosion of fittings?	N/A		
	Damage to roads / railway?	IATG 06.10, Clauses 6.4 - 6.5		
	Doors serviceable?	IATG 09.10, Clause 8.6.1		
	Broken windows?	IATG 09.10, Clause 8.6.2		
	Lightning protection?	IATG 05.40, Clause 8		
Infrastructure - Cleanliness	Wind-blown combustibles outside?	IATG 06.10, Clause 9.1		
	Loose packaging or rubbish inside?	IATG 06.10, Clause 9.1		

[24] Complete for each ESH.

INSPECTION AREA	SPECIFIC	IATG REFERENCE	REMARKS	ACCEPTABLE / REQUIRES WORK
	Empty boxes, pallets etc removed?	IATG 06.10, Clause 9.1		
	Rags and waste removed?	IATG 06.10, Clause 9.1		
	Accumulation of explosive or propellant dust?	IATG 05.40, Clause 4 and IATG 06.10, Clause 9.1		
	Separate bins for ferrous and non-ferrous waste?	N/A		
Infrastructure - Dampness (Structural / Condensation)	Damp patches external?	N/A		
	Damp patches internal?	N/A		
	Roofs free of mould and fungus?	N/A		
	Water erosion marks?	N/A		
	Floor dry and free from condensation?	IATG 06.10, Clause 9.1		
	Water ingress possible due to structural damage?	N/A		
Infrastructure - Windows	Glass of acceptable standard?	IATG 09.10, Clause 8.6.2		
	Cracked or broken panes?	IATG 09.10, Clause 8.6.2		
	If broken, protected by tape until repair?	IATG 09.10, Clause 8.6.2		
	Sunlight onto explosive stores?	N/A		
	Guard bars fitted and free of corrosion?	IATG 09.10, Clause 8.6.2		
	Grouting OK?	N/A		
Infrastructure - Drains and Gutters	Secure and undamaged?	N/A		
	Free of grass cuttings, leaves, wind-blown foliage, rubbish etc?	IATG 02.50, Clause 8 and IATG 06.10, Clauses 6.7 – 6.9		
Infrastructure - Heating, Ventilation and Air Conditioning	Ventilators (normally) left open?	IATG 06.50, Clause 11.13		
	Ventilators free from corrosion?	IATG 06.50, Clause 11.13		
	Ventilators open and close properly?	IATG 06.50, Clause 11.13		
	Do ventilators require protective paint, oil or grease?	IATG 06.50, Clause 11.13		
	Thermal links or automatic opening device present? Serviceable?	IATG 06.50, Clause 11.13		

INSPECTION AREA	SPECIFIC	IATG REFERENCE	REMARKS	ACCEPTABLE / REQUIRES WORK
	Hygrometers / Thermometers present? Serviceable?	IATG 06.10, Clause 11.13 and IATG 06.70, Clause 5.1.1		
	Heating / Air Conditioning present? Serviceable?	IATG 05.40, Clause 5.4.1		
	Radiators have sloped guards?	IATG 05.40, Clause 5.4.1		
Infrastructure – Barricades	External – Effective?	IATG 05.30, Clause 4		
	Subsidence?	IATG 05.30, Clause 4		
	Internal – Effective?	IATG 05.30, Clause 4		
Security - Keys	Keys serviceable and rotated?	IATG 09.10, Clause 8.6.3		
	Condition of locks?	IATG 09.10, Clause 8.6.3		
Safety – Explosive Contents	Check mixing of Compatibility Groups.	IATG 01.50, Clause 7.1		
	UN Hazard Division marking system?	IATG 01.50, Clause 6		
	National Hazard Division marking system?	IATG 01.50, Clause 6 Equivalent?		
	Marking system shows HCC, HD, UN Serial Number, Ammunition Type, Lot/Batch Number and Quantity?	IATG 06.40, Clause 4.7		
	ESH stacking system (cards) in place?	IATG 03.10, Clause 15 and IATG 06.30, Clause 7		
	Stack tally cards contain HD, Batch/Lot Number, Quantity?	IATG 03.10, Clause 14.5 and IATG 06.30, Clause 7		
	Constrained or unserviceable stock clearly marked and segregated?	IATG 06.10, Clause 11.6.2 and IATG 06.10, Clause 11.10		
	Unsealed boxes clearly marked with remaining quantity?	IATG 06.40, Clause 4.5 and IATG 06.40, Clause 6		
	Unsealed boxes – contents free of corrosion, damage or dampness?	IATG 06.40, Clause 6		

INSPECTION AREA	SPECIFIC	IATG REFERENCE	REMARKS	ACCEPTABLE / REQUIRES WORK
	Tools and first aid available where CG 'H' is being stored?	IATG 06.10, Clause 9.5		
	Non-palletised stores on battens or racking or equivalent?	IATG 06.30, Clause 5.4		
	Gangways between stacks in place and adequate?	IATG 06.30, Clause 5.2		
Safety – Fire Fighting (Equipment)	Emergency Water Supply (EWS) present?	IATG 02.50, Clause 11.1		
	EWS full, clear and free of wind-blown debris?	IATG 02.50, Clause 11.1.5		
	Fire hydrants present?	IATG 02.50, Clause 11.1.2		
	Fire hydrants serviceable and correct water pressure?	IATG 02.50, Clause 11.1.2		
	Immediate firefighting equipment present in ESH (extinguishers, sand etc)?	IATG 02.50, Clause 11.3		
	Immediate firefighting equipment regularly function checked and recorded?	IATG 02.50, Clause 11.3 and IATG 06.70, Clause 5.1.2		
	Fire appliances and equipment accessible, clearly marked and painted?	IATG 02.50, Clause 11.3		
	Fire beaters serviceable and in sufficient quantity?	IATG 02.50, Clause 11.3		
Safety – Fire Fighting (Response)	Is there a fire plan?	IATG 02.50, Clause 6.1		
	Fire alarms systems maintained, tested and recorded?	IATG 06.70, Clause 5.1.2		
	Regular exercises with local fire authority?	IATG 02.50, Clause 9		
	Fire Division Signs and Supplementary Fire Signs displayed, legible and serviceable?	IATG 02.50, Clause 11.2		
	Do Fire Division Signs and Supplementary Fire Signs correctly reflect the stocks?	IATG 02.50, Clause 11.2		
	Do the local authority fire service know what is stored in depot and what inherent risks are?	IATG 02.50, Clause 6.1		

INSPECTION AREA	SPECIFIC	IATG REFERENCE	REMARKS	ACCEPTABLE / REQUIRES WORK
	Are the local authority fire service informed of any major changes to storage conditions or types of ammunition being stored?	IATG 02.50, Clause 6.1		
	Regular fire practices held and recorded?	IATG 02.50, Clause 9 and IATG 06.70, Annex C		
	Empty boxes are a potential fire hazard. Is there a designated area for them? Are they free of paints, oils, greases, solid waste, wood scraps etc?	IATG 02.50 and IATG 06.10, Clause 9.1		
	Have all labels been removed from empty boxes?	IATG 06.40, Clause 4.10		
Safety – Fire Fighting (Vegetation)	Is there a 1m sterile area around each ESH?	IATG 02.50, Clause 8 and IATG 06.10, Clauses 6.7 – 6.9		
	Is it clear of grass, foliage, shrubbery, gorse and heather?	IATG 02.50, Clause 8 and IATG 06.10, Clauses 6.7 – 6.9		
	Are grassed areas inside and outside the depot sufficiently mown and all grass cuttings removed?	IATG 02.50, Clause 8 and IATG 06.10, Clauses 6.7 – 6.9		
	How often is grass cut during spring/summer months?	IATG 02.50, Clause 8 and IATG 06.10, Clauses 6.7 – 6.9		
	Are there trees inside the depot for camouflage?	IATG 02.50, Clause 8 and IATG 06.10, Clauses 6.7 – 6.9		
Safety – Operations (Documentation)	All Explosives Limits Licences (ELL) displayed?	IATG 02.30, Clause 8.3		
	Do ELL reflect stocks?	IATG 02.20, Annexes and IATG 02.30, Clause 7.1		
	Are all tools, equipment and cleaning utensils allowable correctly listed and authorised?	IATG 06.10, Clause 9.5.1		

INSPECTION AREA	SPECIFIC	IATG REFERENCE	REMARKS	ACCEPTABLE / REQUIRES WORK
	Contraband notice at entry to Explosives Area?	IATG 06.10, Clause 5.3.1		
	Designated smoking area? Clearly signed and ashtrays available?	IATG 06.10, Clause 5.3.2		
	Actions on event of fire posters or instructions?	IATG 02.50, Clause 11.2		
	Mechanisms for reporting accidents and incidents?	IATG 11.10, Clause 8		
Safety – Equipment (Lifting Equipment)	Are mechanical hoists present?	IATG 05.50, Clause 4 and IATG 06.30, Clause 8		
	If yes, are chains and cables in good condition and lubricated?	IATG 05.50, Clause 5 IATG 05.50, Clause 7.1		
	Are electrical hoists present?	IATG 05.50, Clause 4 and IATG 06.30, Clause 8		
	If yes, are chains and cables in good condition and lubricated?	IATG 05.50, Clause 5 IATG 05.50, Clause 7.1		
	If yes, is it to a Category C equivalent standard?	IATG 05.40, Clause 4		
	Have the hoists had a mechanical / electrical inspection within the last 12 months? Is it recorded?	IATG 05.50, Clause 7.1		
Safety – Equipment (Electrical Installations)	Is safety standard (e.g. Category C) shown next to the Master Switch?	IATG 05.40, Clause 4		
	Master Switch serviceable?	IATG 05.40, Clause 6.2.11		
	Check all lights, alarms, telephones, switches and electrical switch boxes for corrosion, security of fitment, storm damage etc.	IATG 05.40, Clause 6.2.10		
	Check all lighting and telephones for correct functionality.	IATG 05.40, Clause 6.2.10		
	Are formal electrical tests regularly carried out? Are they formally recorded? Can each component be easily identified from the record of tests?	IATG 05.40, Clause 6.2 and IATG 06.70, Annex C		

INSPECTION AREA	SPECIFIC	IATG REFERENCE	REMARKS	ACCEPTABLE / REQUIRES WORK
	Loudspeaker / Public Address System present? Tested?	IATG 05.40, Clause 6.2.10		
	Earth Leakage Circuit Breakers present? Functional and tested?	IATG 05.40, Clause 6.2.9		
Safety – Equipment (Lightning Protection)	Lightning conductors present?	IATG 05.40, Clause 8		
	Integrity of bonding of lightning conductors? (Above and below each switch box to the air and ground terminals).	IATG 05.40, Clause 6.2.6		
	Evidence of lightning strikes?	IATG 05.40, Clause 6.2.6		
	Internal bonding correctly connected to benches, terminals, structures, earth points and electrical hoists?	IATG 05.40, Clause 6.2.6		
	Systems tested and recorded?	IATG 05.40, Clause 6.2 and IATG 06.70, Annex C		
Safety – Equipment (Conducting and Anti-Static Floors	Have all floors being electrically (resistance) checked and results recorded?	IATG 05.40, Clauses 6.2.7 – 6.2.8 and IATG 06.70, Annex C		
	Floors free of cracks, large indentations, excessive wear, oil or grease?	IATG 05.40, Clauses 6.2.7 – 6.2.8		
	Cleaning plan in place and used?	IATG 06.10, Clause 9.1		

Amendment record

Management of IATG amendments

The IATG are subject to formal review on a five-yearly basis. This does not preclude amendments being made within these five-year periods for reasons of operational safety, efficacy and efficiency or for editorial purposes.

As amendments are made to this IATG module they will be given a number, and the date and general details of the amendment will be shown in the table below. The amendment will also be shown on the cover page of the IATG by the inclusion of the amendment number and date.

As the formal reviews of each the IATG module is completed, new editions will be issued. Amendments will be incorporated into the new edition and the amendment record table cleared. Recording of amendments will then start again until a further review is carried out.

The most recently amended, and thus extant, IATG module is posted on www.un.org/disarmament/ammunition

Number	Date	Amendment Details
0	01 Feb 15	Release of Edition 2 of IATG.
1	31 March 21	Release of Edition 3 of IATG.