

LAO PDR NATIONAL UXO/MINE ACTION STANDARDS (NS)



Chapter Twenty Two Storage, Transportation and Handling of Explosives

National Regulatory Authority for
the UXO/Mine Action Sector in Lao PDR

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Storage, Transportation and Handling of Explosives

1. Introduction

The need to provide a safe working environment is a fundamental principle of mine action management. The provision of a safe working environment includes the safe storage, transportation and handling of explosives and explosive materials.

The Lao PDR National Regulatory Authority (NRA) is the authority responsible for safety in UXO/mine action in Lao PDR. This responsibility includes establishing the minimum requirements for the storage, transportation and handling of explosives and ensuring compliance with these requirements.

2. Scope

This chapter covers the minimum requirements for the storage, transportation and handling of explosives within the UXO/mine action sub-sector in Lao PDR.

3. Responsibilities of Organisations

Organisations transferring explosives to the control of another organisation, whether as part of an issue of stock or for storage or transportation, are to ensure the following:

- a. Explosives and detonators are properly packaged in their original containers or other appropriate containers as described in section 8 of this NS. Detonators must be in separate containers to other explosive items.
- b. Explosives are packed in a manner that prevents their movement inside the packaging.

It is the responsibility of the organisation receiving the explosives to check that the packaging requirements are complied with before accepting the explosives. If a receiving organisation has any concerns about the packaging or safety of explosives they may refuse acceptance of explosives and refer the matter to the NRA.

Organisations accepting and transporting or storing explosives on behalf of other organisations are responsible for the proper transportation and storage of the explosives and the security of such explosives.

4. Environmental Conditions for Explosive Storage

Modern explosives are safe if they are stored, transported and handled in accordance with the manufacturers' instructions. The performance of explosives may be unpredictable and safety reduced if the manufacturers' environmental conditions are not met.

Clearance organisations should not use explosives of uncertain origin or age, or when the environmental storage conditions have not met the manufacturers' requirements. In general, explosives should be:

- a. Kept dry and well ventilated.
- b. Kept as cool as possible and free from excessive or frequent changes of temperature.
- c. Protected from direct sunlight.
- d. Kept free from excessive and constant vibration.

These environmental storage conditions are to be complied with for the storage, transportation and handling of explosives used in UXO clearance operations in Lao PDR.

5. Categories of Explosive Storage Facilities

There are three categories of explosive storage facilities applicable to the UXO/mine action sub-sector in Lao PDR:

- a. Main Explosive Depots (MEDs). These are purpose built explosive storage depots used for the storage of bulk stocks of demolition explosives. Clearance organisations draw their bulk stocks of explosives from these depots. In Lao PDR MEDs are controlled by the Lao Army.

Note: Main Explosive Depots (MEDs) are outside the scope of this NS.

- b. Permanent Explosive Store Houses (ESHs). These are properly constructed or established explosive storage facilities. Permanent ESHs may be established for:
 - (1) The centralised storage of bulk explosives for all clearance organisations operating in a geographical area, for example a province or a district. These ESHs are normally managed by the Lao Army.
 - (2) The storage of explosives at clearance organisations' operations bases.
- c. Field explosive stores. These are used for the storage of explosives at a worksite for daily operations. Storage is in wooden boxes, steel containers or the original explosive packaging. Separate field explosive stores may also be established for safe-to-move UXO recovered during UXO clearance operations.

6. Permanent Explosive Store Houses (ESHs)

The requirements for the construction or establishment of permanent ESHs are covered in the following paragraphs.

6.1. Minimum Specifications

Permanent ESHs are to be fire-resistant, theft resistant, weather resistant and ventilated. Minimum specifications are:

- a. The ESH is to be structurally sound.
- b. The roof is to have a thermal shield designed to maintain interior temperatures below 40^o Celsius.
- c. Doors are to fit tightly. Hinges and locking-ware are to be attached so that they cannot be removed when the door is locked. Padlocks are to be of a comparable standard with that of hinges and locking ware. The doors are to be fitted so as to open outwards.

Additional requirements for ESHs are:

- a. Unless permanent ESHs are established buildings with electrical reticulation, lighting is to be either natural light or the use of electrical torches.
- b. Adequate ventilation is to be provided, however ventilation systems are to be designed so that no rain can enter the ESH.

- c. Sites are to have adequate drainage to prevent water entering the ESH.
- d. An earthing rod/spike is to be attached to the ESH.

Sea shipping containers may be used as permanent ESHs provided they are in good condition and meet the minimum specifications and requirements.

6.2. Safety Distances

The minimum safety distances to be applied in Lao PDR between permanent ESHs and inhabited buildings, public roads and other magazines are specified at **Annex A** to this chapter of NS.

Explosive stores may be barricaded or unbarricaded, and this affects the minimum safety distances to be applied to the particular store. A barricaded store is one that is effectively screened from other buildings, roads or tracks by a natural or artificial barrier. To be classed as effectively screened, the barrier must meet the following criteria:

- a. The top of the barrier must be higher than a straight line drawn from the top of the wall of the store to the eaves-line of the other building.
- b. The top of the barrier must be higher than a straight line drawn from the top of the wall of the store to a point 3.5 m above the centreline of a road or track.
- c. If the barrier is artificial, i.e. a mound or wall of revetted earth, masonry, concrete or other suitable building material; it must not be less than 90 cm thick.
- d. A natural barrier is a hill that stands between the store and the other building, road or track.

6.3. Explosive Limits

The explosive limits for permanent ESHs are to be based on the available safety distance as specified in **Annex A**. All permanent ESHs are to have maximum bulk explosive limits specified by the owning/controlling organisation. These explosive limits are not to be exceeded.

6.4. Fire Prevention

The fire prevention requirements for permanent ESHs are detailed at **Annex B** to this chapter.

6.5. Prohibited Articles

Annex B to this chapter provides a list of articles that are prohibited inside permanent ESHs.

6.6. Warning Signs and Symbols

The following information is to be posted in English and Lao on signs outside permanent ESHs:

- a. A general danger warning for people to keep away.
- b. No smoking within 30m and no naked light signs or symbols.
- c. A list showing items that are not permitted to be brought into the ESH.

- d. The maximum bulk explosive limit for the ESH.
- e. Points of contact in an emergency.

6.7. Security

The minimum security requirements for permanent ESHs are:

- a. Permanent ESHs are to be under observation or guarded 24 hours a day.
- b. Security lighting is to be used to light up the surrounds of the ESH during the hours of darkness.
- c. Keys for permanent ESHs are to be held by the ESH manager and strict control of access to the ESH is to be maintained.

6.8. Inspection of Permanent ESHs

Clearance organisations are to notify the NRA if they intend to construct or establish a new permanent ESH.

All permanent ESHs may then be inspected and assessed for suitability by the NRA. Such inspections should cover the construction specifications of the ESH and compliance with the following:

- a. Minimum safety distances.
- b. Requirements for fire prevention.
- c. Requirements for warning signs and symbols.
- d. Security arrangements.
- e. Compliance with the general requirements for the storage of explosives as detailed in section 8 below.

6.9. Storage of UXO in Permanent ESHs

In situations where it is not possible to dispose of safe-to-move UXO on the day they are located, they may be stored in permanent ESHs under the following conditions:

- a. Storage is to be limited to the absolute minimum time necessary; normally overnight or over a weekend.
- b. Where possible, UXO are to be kept in separate ESHs. Where UXO and demolition explosives are stored in the same ESH they are to be separated by a permanent interior wall or a 0.3m thick barrier constructed from sandbags or earth filled boxes.
- c. White Phosphorus (WP) and other types of UXO are not to be stored together in a permanent ESH.
- d. The total explosive limit for the permanent ESH, including the weight of demolition explosives and the explosive component of the UXO, is not to be exceeded.

7. Field Explosive Storage

Field explosive stores are used for the storage of explosives and safe-to-move UXO on clearance worksites and temporary operations bases. Field explosive stores are to comply with the following requirements:

- a. The maximum quantity of demolition explosives permitted in a field explosive store is 50 kg.
 - b. Field explosive storage must comply with the environmental requirements for the storage of explosives as laid down in section 4 above.
 - c. The minimum safety distances for field explosive stores are:
 - (1) Between field explosive stores, other explosive stores and clearance worksite control and administration areas - 30 m.
 - (2) Between field explosive stores, inhabited buildings or trafficked public roads – the safe distance for the quantity of explosives being stored as determined from **Annex A** to this chapter of NS.
 - d. Fire precautions, including the provision of fire fighting equipment, appropriate to the assessed fire risk, are to be taken for field explosive stores.
 - e. Field explosive stores are to have no smoking within 30m signs posted in Lao language.
 - f. Safe-to-move UXO are not to be stored in the same field explosive store as demolition explosives.
 - g. Storage of explosives and UXO in field explosive stores on clearance worksites is not permitted overnight. Storage of explosives and UXO in temporary operations bases may occur overnight provided that the stores are suitably guarded during the hours of darkness.
- Note: Unless circumstances dictate otherwise, safe-to-move UXO are to be disposed of on the day they are located. Section 6.9 above details the procedures for the storage of UXO unable to be disposed of on the day they are located.
- h. Safe to move WP UXO are to be stored in separate field explosive stores to other UXO.
 - i. Grass and undergrowth is to be cut down and kept short in the area around the field explosive store out to a distance of 20m.
 - j. Field explosive stores are to be sited so that they are able to be kept under observation at all times. Field explosive stores established at temporary operations bases are to be suitably guarded during the hours of darkness.
 - k. Fuels, oils, and lubricants and any other flammable materials are not to be stored in field explosive stores.

It is permissible for explosives to be stored on a worksite in a vehicle provided the vehicle is not used for routine administrative tasks or is not the dedicated safety vehicle. Where applicable, the requirements of the remainder of this section above still apply.

8. General Requirements for the Storage of Explosives

The following general requirements for the storage of explosives are to be adhered to for the storage of explosives in Lao PDR:

- a. No explosives are to be stored in a residence or an office building.
- b. Detonators must be kept well away from other explosives in a separate store or alternatively, they must be separated from the main explosives by a blast proof partition such as a sandbag wall.
- c. Electric detonators are to be stored and transported in their original containers or in suitable containers that protect them from Radio Frequency (RF) hazards.
- d. Explosives are to be stored in boxes or containers and ideally, these should be the original boxes or containers that the explosives were supplied in. Loose explosives are never to be stored.
- e. Explosives are to be packed inside boxes in such a manner that movement inside the box is not possible.
- f. Explosives and general stores are not to be stored together. This excludes tools for opening the explosive boxes.
- g. Explosive stores are only to be used for the storage of explosives. They must not be used for any other work, as shelters or as rest facilities.
- h. If explosive stores have to be repaired, explosives are to be removed from the store to a safe place beforehand.
- i. Surplus packaging material from explosives is not to be kept in an explosive store.
- j. Explosives must not be removed from their boxes or packages until they are ready to be used. The number of open packages must be kept to a minimum.
- k. Explosives are to be stored in a manner such that the oldest explosives get used first. Packaging is to be date-marked to assist with this.
- l. Explosives must be kept above floor or ground level on pallets, boards or on shelves. Explosives stored in the field are to be stored off the ground.
- m. Explosive boxes are to be stacked in such a way that the stack is stable.
- n. Cardboard boxes that may be subject to crushing are not to be stacked.
- o. Sufficient space is to be left above and around boxes to ensure that air can circulate around the stack.
- p. Personnel in charge of explosive stores are to be trained in the handling and storage of explosives.
- q. Only authorised personnel are permitted to enter an explosives store.

9. Transportation of Explosives

9.1. Minimum Requirements

The following are the minimum requirements for the transportation of explosives in Lao PDR:

- a. Vehicles carrying explosives travelling in convoy are to travel with a minimum spacing of 200m between vehicles.
- b. All vehicles carrying explosives are to conform to the following fire prevention precautions:
 - (1) A serviceable CO² fire extinguisher is to be carried in the cab.
 - (2) Smoking is not permitted in the vehicle or within 30m of the vehicle.
 - (3) Fuel is not to be carried anywhere other than in the fuel tank.
 - (4) No fire-making materials, matches, lighters or similar are to be carried in explosive vehicles.
 - (5) Vehicles transporting explosives are to be fitted with a grounding strap to permit the release of any build-up of static electricity.
- c. Explosives being transported are never to be left unattended. If the driver has to leave the vehicle, the co-driver is to remain with the vehicle.
- d. Vehicles used for the transportation of explosives are to be:
 - (1) Serviceable, have a spare wheel and a wheel changing kit.
 - (2) Suitable for the load to be carried and the road conditions on which the vehicle is to travel.
- e. Vehicles transporting explosives are to have a co-driver. Drivers and co-drivers are to:
 - (1) Be trained in the handling and transport of explosives.
 - (2) Have a Lao PDR driver license for the class of vehicle they will be driving.
 - (3) Be briefed about the type of explosives to be carried and the hazards associated with the particular type.
- f. Passengers are not to be carried in vehicles transporting bulk explosives.
- g. Explosives are always to be transported in boxes and ideally, these should be the original boxes the explosives were supplied in. Loose explosives are never to be transported. Explosives are to be packed inside boxes in such a manner that movement inside the box is not possible. When explosives are not transported in their original boxes, the boxes are to be clearly marked as follows:
 - (1) The word explosives is to be shown.
 - (2) The contents of the boxes are to be indicated.

- (3) The weight or quantity of items in the box is to be shown.
- h. Loading requirements:
- (1) When practical, explosives are to be transported in a dedicated vehicle. If explosives and general cargo are carried on the same vehicle, the explosives and general cargo are to be securely stowed such that there is no danger from cargo movement.
 - (2) Explosives are to be evenly spread over the deck and are not to be stacked above the height of the sideboards of a vehicle.
 - (3) Explosives loaded for transportation are to be adequately secured to prevent movement of the load during the journey.
 - (4) Explosives transported on open decks of vehicles are to be covered by a waterproof tarpaulin or similar cover sufficient to keep them dry.
 - (5) Detonators must be carried in a metal container. They may be carried in the cab of an explosives vehicle separated from other explosives, but when possible, are to be carried in a separate vehicle which is not carrying explosives.
 - (6) Loading and unloading of demolition explosives is only to be carried out at recognised explosive storage facilities and, unless extraordinary circumstances dictate, is only to be done during daylight.
- i. The speed of explosive vehicles are not to exceed 80kmh. Drivers of vehicles carrying explosives are to avoid rapid acceleration or sudden braking.
- j. Explosives are not to be transported at night. If vehicles carrying explosives have to stop for the night, and the explosives remain on the vehicle, then the vehicle is to be placed under continuous guard.

9.2. Transport of Explosives for Daily Use

Detonators for daily use are to be carried in metal containers. Detonators inside the container are to be in the original packing or in some other packaging that prevents movement of the detonators. The wires of electric detonators are to be twisted together. Detonators are never to be transported loose inside detonator containers.

Explosives for daily use are to be transported in their original containers or in wooden boxes with secure lids. These boxes are to be marked with the word explosives on the outside in English and Lao.

9.3. Transporting Safe-to-Move UXO

UXOs are only to be transported in a vehicle when they have been certified as safe-to-move by a clearance technician qualified to dispose of the item in accordance with **Chapter 8 of NS, Explosive Ordnance Disposal**.

Except when UXO are properly packed in their original packaging, the movement of safe-to-move UXO is to conform to the following requirements:

- a. Decks of vehicles used to carry safe-to-move UXO are to be sandbagged to prevent the UXO rolling around.

- b. Safe-to-move UXO are to be laid, stacked and transported in a manner that prevents any knocking or banging together of the UXO.
 - c. Safe-to-move UXO are to be laid and secured in such a manner that fuzes cannot strike the sides, front or rear of a vehicle cargo deck.
 - d. Electrically initiated UXO must never be in direct contact with the metal deck or sides of a vehicle during transport.
 - e. Transport of electrically initiated UXO should be avoided when there is lightning in the vicinity.
 - f. Where practicable, safe-to-move UXO are not to be transported inside the cab of a vehicle.
 - g. WP UXO is to be transported separately from other UXO.
 - h. When transporting WP UXO a waterproof container large enough to hold the largest WP UXO being transported, is to be in the vehicle. Also to be in the vehicle is sufficient material (water or some other material) to be able to completely immerse or cover a WP UXO inside the container and totally exclude air.
- Note: Transporting WP UXO with the potential to leak should be avoided. However, when such transport is necessary, sealing of the UXO should be carried out before any transportation takes place.
- i. Where applicable, the requirements for the transportation of explosives also apply to the transportation of the safe-to-move mines or UXO.

9.4. Traffic Accident/Vehicle Breakdown Procedures

If a vehicle carrying explosives is involved in a road traffic accident and the vehicle is unable to proceed, the action to be taken is:

- a. If required, put out any fires on the vehicle.
- b. Attempt to disconnect the vehicle battery to prevent any sparking occurring.
- c. Secure the scene to prevent any danger to other traffic.
- d. Check the condition and security of the explosives on the vehicle. Take whatever action is necessary to ensure that any further damage is minimised and explosives remain secure.
- e. Notify the nearest police, advise them of the contents of the vehicle and request their assistance.
- f. Report the accident to the HQ or nearest base of the organisation concerned and advise of the situation and any assistance required.
- g. Control the movement of bystanders around the casualty vehicle.
- h. Await the arrival of assistance.

If an uncontrollable fire breaks out, the area within a 500m radius of the vehicle must be closed off and evacuated. Assistance from local people may be needed for this.

If a vehicle carrying explosives breaks down, the action to be taken is:

- a. Move the vehicle off the carriageway of the road and place warnings out to prevent any danger to other traffic.
- b. Report the break down to the HQ or nearest base of the organisation concerned and advise of the situation and any assistance required.
- c. Control the movement of bystanders around the casualty vehicle.
- d. Await the arrival of assistance.

Vehicles carrying explosives that have broken down may be towed, but this is only to be as far as the nearest repair facility. Vehicles towing explosive vehicles are not to exceed 40kph.

10. Handling of Explosives

The following are the minimum requirements for the handling of explosives in Lao PDR:

- a. Smoking is not permitted when handling explosives or within 30m of explosives.
- b. Explosives are to be kept under observation or guarded at all times. The only exception to this is after explosive charges have been laid, however in that case the danger area is to be secure.
- c. Personnel/qualifications:
 - (1) Only personnel who are qualified clearance technicians in accordance with the requirements of **Chapter 8 of NS, Explosive Ordnance Disposal** shall handle or use explosives for disposal tasks.
 - (2) Unqualified personnel are only to handle explosives for administrative tasks and under the supervision of a person trained in either the handling and storage of explosives, or a person trained in the handling and transport of explosives.
 - (3) Unqualified personnel required to handle explosives are to be briefed on the safe handling of explosives and the safety precautions to be observed in and around explosives, explosive stores and explosive vehicles.
- d. Explosives shall only be handled in accordance with the manufacturers' instructions and specifications.
- e. Clothing worn by personnel handling explosives is not to be of a type that may cause sparks. This includes synthetic clothing and boots with steel hobnails or toecaps.

11. Management and Control of Explosives

11.1. Explosives Supply System

The bulk supply of explosives for the Lao PDRUXO/mine action programme is managed by the Lao Army. The Lao Army procures and transports all explosives (except that for daily use) on behalf of clearance organisations. Clearance organisations order explosives as required to suit their usage rates and storage capabilities and are then responsible for accounting for the use of explosives.

The procedures for the management and control of explosives in the Lao PDRUXO/mine action programme are as shown below.

11.2. Quality Checks

Organisations receiving supplies of explosives into stock are to check the explosives for serviceability before the explosives are used on operations. Explosives found to be unserviceable or defective are to be reported to the NRA in writing in accordance with the requirements of section 14 of this NS. Reports are to include the type and quantity of explosives affected, details as to why the explosives are unserviceable or defective and where possible include manufacturers' lot numbers and manufacture date.

11.3. Stock Holdings

Clearance organisations are not to exceed the explosive stock holding capabilities of their ESHs.

11.4. Stock Checks

All managers of explosive storage facilities are to conduct stock checks of explosives in their control once a month. Any discrepancies in stock holdings are to be reported in accordance with section 12 below. Records of stock checks are to be maintained by ESH managers and are to be made available for inspection by the NRA as required.

11.5. Explosive Accounting

Clearance organisations are to maintain accurate records of explosives issued, explosives expended and current stocks. All explosives used are to have signed certifications from the disposal task supervisors of the items expended by item and unit of measure. The record is to include the name and signature of the supervisor certifying that the explosives have been expended. These certifications are to be reconciled against stock figures at the end of each month and checked against explosives remaining in stock. Any discrepancies are to be investigated. All explosive records are to be made available for inspection by the NRA as required.

12. Loss of Explosives

Immediately a clearance organisations suspects that explosives have been lost, it is to initiate a complete stock check of all explosives held against its records. If the loss is confirmed the matter is to be immediately reported to the NRA with full details of the extent of the loss. The NRA will determine what follow-up action is to be taken.

13. Theft of Explosives

When the theft of explosives occurs, the area where the theft occurred is to be immediately secured without disturbing the site. The details are then to be reported to the NRA and to the Lao PDR police. The extent of the theft may not be able to be determined until an investigation is started. The NRA will determine what follow-up action is to be taken once the investigation is complete.

14. Explosive Defect Reporting

Clearance organisations are to notify the NRA in writing, of any defects identified with explosives supplied to the programme. If the defect affects safety then the report is to be made immediately by radio or telephone so that other clearance organisations using the same explosives can be warned. When this occurs, a written follow-up report in writing is to be submitted by the clearance organisation concerned.

15. Inert, Drill, Instructional or Replica Mines and Ammunition

Procedures for the management and control of inert, drill, instructional or replica mines and ammunition are detailed in **Annex C** to this chapter.

16. UXO for Explosive Detection Dog (EDD) Training and Testing

The following procedures apply to the management and control of UXO containing explosives used for the training and testing of EDD teams:

- a. UXO containing explosives used for EDD team training are to be stored, transported and handled in accordance with the requirements of this chapter.
- b. Explosive-filled UXO are not to be stored with inert Free From Explosives (FFE) training UXO.
- c. Only unfuzed UXO or UXO fitted with transit plugs are to be used.
- d. No white phosphorus UXO are to be used.

Annex A
Table of Distances for the Storage of Explosive Materials

Qty of explosive kg		Distance m							
		Inhabited buildings distance in m		Public roads Traffic volume				Separation of magazines	
				less than 3000 veh/day		more than 3000 veh/day			
over	less than	Barricaded	Unbarricaded	Barricaded	Unbarricaded	Barricaded	Unbarricaded	Barricaded	Unbarricaded
0	2	32	64	14	27	23	46	3	5
2	5	41	82	16	32	29	58	4	7
5	9	50	100	20	41	37	74	5	9
9	14	57	114	23	45	42	84	5	10
14	18	64	127	25	50	47	94	5	11
18	23	68	136	27	54	50	100	6	13
23	34	77	154	32	64	58	115	7	14
34	45	86	173	34	68	63	126	7	15
45	57	91	182	36	73	68	136	8	16
57	68	98	195	39	77	72	144	9	17
68	91	107	213	43	86	79	159	10	19
91	114	116	232	48	95	86	172	10	21
114	136	123	245	50	100	91	183	11	22
136	182	134	268	54	109	100	201	12	25
182	227	145	291	59	118	108	216	13	26
227	272	159	318	61	123	115	230	14	28
272	318	161	322	66	132	103	235	15	29
318	363	170	341	68	136	126	252	15	30
363	409	177	354	70	141	131	262	16	32
409	454	182	363	73	145	136	272	16	33
454	545	193	386	75	150	144	289	18	35
545	636	204	409	77	154	153	305	19	37
636	726	213	427	79	159	159	319	20	39
726	817	222	445	82	163	166	332	20	40
817	908	229	459	84	168	172	343	20	41
908	1135	247	495	86	173	185	370	22	44
1135	1362	263	527	89	177	196	392	24	47

Qty of explosive kg		Distance m							
		Inhabited buildings distance in m		Public roads Traffic volume				Separation of magazines	
				less than 3000 veh/day		more than 3000 veh/day			
over	less than	Barricaded	Unbarricaded	Barricaded	Unbarricaded	Barricaded	Unbarricaded	Barricaded	Unbarricaded
1362	1816	288	577	95	191	215	430	26	53
1816	2270	311	622	102	204	233	466	28	55
2270	2724	331	663	107	213	248	496	30	59

Annex B Fire Prevention Requirements – Permanent ESHs

Requirements

No smoking is permitted within 30m of an ESH. No smoking within 30m and no open flame signs in English and Lao are to be prominently displayed on the ESH.

Grass and undergrowth is to be cut down and kept short in the area around the ESH to a distance of 20m.

Flame or spark producing equipment is not to be used within 30m of an ESH. When such equipment is required to carry out repairs to the ESH, all explosives are to be removed.

Paints, oils, petrol or any other flammable materials are not to be stored with explosives. Authorised cleaning materials may be used in the ESH for maintenance but are to be removed when not in use.

Empty containers of any type are not to be stored with explosives.

A serviceable 2 kg CO² fire extinguisher is to be in a prominent position outside each ESH. If there is a risk of grass fires in the vicinity of an ESH, then additional fire fighting equipment such as shovels, buckets of sand and fire beaters are to be provided.

All fire fighting equipment is to be maintained in a fully serviceable condition.

An earthing rod/spike is to be attached to the ESH as lightning protection.

A sign showing items that are not permitted in the ESH is to be prominently displayed at the entrance to the ESH. Prohibited articles are to include:

- a. Lanterns, oil lamps and stoves and all flame or fire producing appliances.
- b. Matches, cigarette lighters or other portable means of producing a spark or flame.
- c. Tobacco in any form and any article used for the purpose of smoking.
- d. Inflammable liquids and solvents other than those authorised for maintenance work.
- e. Food and drink.
- f. Radio equipment of all types including mobile phones.
- g. Drugs and medicines other than those forming part of an authorised first aid kit.
- h. UXO, except as provided in section 6.9 to this chapter of NS.
- i. Any power source that may produce sparks.

External signs on ESH are to give details of points of contact to obtain access to the ESH.

Some method of sounding an alarm in the event of fire is to be in place.

Annex C

Inert, Drill, Instructional or Replica Mines and Ammunition

General

The purpose of this Annex is to ensure that inert, drill, instructional or replicas of mines and ammunition are handled, stored and accounted for accurately, in order to:

- a. Avoid accidents.
- b. Avoid incidents of mistaken identification leading to unnecessary clearance operations or Render Safe Procedures (RSPs).
- c. Ensure the security of inert, drill, instructional or replica mines and ammunition.

All authorised breakdown or modification of live mines and ammunition into inert, drill, instructional or replica items shall only be carried out by an appropriately qualified level 4 clearance technician. Authority levels for clearance technicians are included in **Chapter 8 of NS, Explosive Ordnance Disposal**.

Storage

Inert, drill, instructional and other replicas of mines and ammunition are not to be stored in the same containers as live ammunition. They are to be stored in a separate location outside the explosive storage area.

Mines and ammunition that have been subjected to RSP, and have been certified as FFE, shall be stored in the same manner as drill and inert ammunition.

Containers used for the storage of inert, drill, instructional and other replicas of mines and ammunition shall be clearly marked INERT or DRILL in English and Lao. All other markings shall be removed from the container to ensure that there is no possibility that it could mistakenly be identified as containing live ammunition.

Movement

Inert, drill, instructional and other replicas of mines and ammunition are not to be moved on the same vehicle as live ammunition.

Inert, drill, instructional and inert replicas of mines and ammunition shall not be moved in the same containers as live ammunition. They shall be moved in a separate container, which shall be clearly marked INERT or DRILL in English and Lao. All other markings shall be removed from the container to ensure that there is no possibility that it could be mistakenly identified as containing live ammunition.

Breakdown of Mines and Ammunition

Clearance organisations are not to breakdown, modify or tamper with mines and ammunition, unless it is done in the course of inspection, modification or disposal in accordance with the appropriate technical procedures.

Marking of Inert or Drill Mines and Ammunition

All inert, drill, instructional or other replicas of mines and ammunition shall be clearly marked on all sides as either INERT or DRILL, as appropriate, in English. This ensures that they can be clearly identified from all angles, and therefore do not inadvertently or accidentally become the focus of a clearance operation.

All inert, drill, instructional or other replicas of mines and ammunition produced by clearance organisations are to be given a serial number. The serial number is to include the abbreviated name of the clearance organisation that produced the item.

Free From Explosive (FFE) Certification

All inert, drill, instructional or replica mines and ammunition produced by clearance organisations are to be given a FFE certification by the appropriately qualified clearance technician who produced the item. The certificate shall contain the following information:

- a. The serial number.
- b. Name of the clearance technician who produced the item.
- c. Brief description of item.
- d. An FFE certification statement similar to the following:

I certify that the item referred to on this FFE certificate contains no explosive, pyrotechnic, lachrymatory, radioactive, chemical, biological or other toxic components or substances. I also certify that the item has been marked as either DRILL or INERT. I am satisfied that it is safe to use for drill, display or instructional purposes.

Name and signature of the clearance technician.

Registration and Accounting for Inert or Drill Mines and Ammunition

Clearance organisations are to maintain a master register of all inert, drill, instructional or other replica mines and ammunition for which it is responsible. This register is to include the FFE certification certificate.

The clearance organisation is to operate an appropriate accounting system to ensure accountability and traceability for all inert, drill, instructional or replica mines and ammunition in its possession. All transfers of inert, drill, instructional or replica mines and ammunition from the controlling authority to another individual or organisation are to be properly recorded so that the responsibility for the item(s) can be clearly established at any time.

Displays of Mines and Ammunition

Only mines or ammunition that are produced and certified as FFE in accordance with this Annex are permitted to be placed on public display. Live mines, UXO and ammunition are not to be included in any public display, except that visitors to a field site may be displayed live mines and UXO that have been rendered safe-to-move. Such a display is to be under the control of an authorised clearance technician or clearance worksite supervisor.

All FFE mines or ammunition on public display are to be secured in a glass cabinet, fixed to a wall or secured in some other way to prevent the removal by unauthorised personnel.