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SUPREME HEADQUARTERS ALLIED POWERS EUROPE
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SUBJECT: Release of Information on Prepositioned Weapons

TO : Commander-in-Chief, Allied Forces Northern Europe, Kolsaas, Sandvika, Norway

Commander-in-Chief, Allied Forces Central Europe, Cour Henri IV, Fontainebleau, France

Commander-in-Chief, Allied Forces Southern Europe, Naples, Italy

Commander-in-Chief, Allied Forces Mediterranean, Malta

1. The United States has advised that the information contained in the Enclosure hereto may be released to the forces of Allied Command Europe.

2. Information contained in the Enclosure may be used and disseminated by Major Subordinate Commanders in accordance with existing instructions pertinent to the security classification of the publication and/or subject matter. In view of its sensitivity the information contained in the Enclosure should be disseminated on a "need-to-know" basis only.

3. Further information on this subject has been released previously by the U. S. authorities and is contained in Department of the Army Pamphlet 39-1, and Field Manual 100-31 which can be obtained in accordance with normal supply procedures.

FOR THE SUPREME ALLIED COMMANDER EUROPE:

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1 Encl: Brief on Prepositioned Weapons

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## PRINCIPLES OF EMPLOYMENT OF PREPOSITIONED WEAPONS *

### I. RESPONSIBILITY

1. The plan for the operational employment of prepositioned weapons and the integration of this plan with maneuver is a command responsibility. This responsibility is executed through normal channels of command at all echelons of command authorized to employ atomic weapons tactically.

2. The tactical use of prepositioned weapons does not alter command and staff relationships.

3. Prepositioned weapons are the special staff responsibility of the engineer. Staff planning and coordination within the special staff and on the general staff level will require an integrated effort. The degree of participation of the various staffs will depend upon the problems involved. Normally, G1, G2, G3, G4, the engineer, the ordnance officer, the provost marshal, the signal officer, the chemical officer and the transportation officer will be concerned.

### II. PRINCIPLES OF EMPLOYMENT

1. General. The prepositioned weapon must be considered as an explosive, with definite characteristics and capabilities, adding to the means available to the Corps of Engineers for carrying out its primary combat mission of facilitating the forward movement of field forces and impeding the movement of the enemy. Effective use of prepositioned weapons can be of great assistance in increasing the combat effectiveness of inferior forces. In the conduct of a retrograde movement and a denial operation, the planning and use of such demolitions may play a principal role. The commander's capability to defend on a wide front has been increased.

2. Use of Prepositioned Weapons. Prepositioned weapons may be used in the following cases:

a. To establish obstacles either alone or as part of an integrated barrier plan.

b. To prevent materiel or facilities from falling into enemy possession.

c. To produce casualties.

d. To remove obstacles.

e. To destroy fortifications.

3. Determination analysis.

a. The decision to use a prepositioned weapon is normally made after an analysis of the effects required and the various strategic, tactical and logistical factors involved in the mission.

b. The analysis will include a study of the factors discussed in paragraphs 4 to 11.

4. Justification of target area for a prepositioned weapon.

a. The commander has at his disposal a variety of conventional weapons. The purpose for which each type of conventional weapon is used is clearly defined and accepted. For example, the prepositioned conventional explosive normally is used within our own lines or where exceptional accuracy is required. Over enemy territory other more expensive or less efficient and accurate methods are used to accomplish the desired destruction. The prepositioned explosive is seldom used primarily as a casualty producer; the antipersonnel artillery shell can be considered primarily as a casualty producer. Therefore, an analysis of a target area must consider the above factors and utilize the most efficient weapon that will accomplish the mission.

*In this paper the term "prepositioned weapon" indicates "prepositioned atomic weapon".

b. Atomic weapons have one factor in common: depending on the type of burst and yield, they all have the same casualty-producing and destructive effects. The preposition weapon, however, has the following advantages over the other atomic weapons:

(1) The weapon can be emplaced exactly where it is desired, with no circular error probable.

(2) The time of detonation may be controlled so as to obtain maximum results.

(3) The carrier is an ordinary T/O&E truck, and the transporting personnel require no special training or background.

(4) Utilization of the weapon cannot be interfered with by darkness or inclement weather.

c. The weapon, however, has the following disadvantages:

(1) Normally it can only be used as a surface or subsurface burst. Should the target area require an airburst, another means of delivery should be considered.

(2) The possibility of its being captured or being rendered inoperative by enemy ground action is greater.

5. Target analysis to determine whether conventional or prepositioned weapon effects are more desirable. With the determination that a prepositioned weapon is required, attention is focused on whether to utilize atomic or conventional explosives.

a. An atomic explosive releases a tremendous amount of energy from essentially a point source, producing blast and thermal and nuclear radiation. These characteristics and the consequent effects will be modified, however, depending upon whether the burst is a surface or subsurface one.

b. Conventional explosives are not as powerful as the atomic explosive. They have no thermal or nuclear effect, and the destruction caused in the target area normally is not as absolute as that caused by the atomic detonation.

6. Time required for use of conventional or prepositioned weapons.

a. Time, which is normally critical in any military operation, favors the use of the prepositioned weapon. Because of minimum time requirements, the prepositioned weapon has an inherent flexibility enabling the commander to commit himself to the use of the weapon when and where maximum effectiveness can be obtained. To prepare the prepositioned weapon for transport from a storage condition will require from 15 minutes to 20 hours, depending on the type of munition and its state of readiness. In an operational situation, however, it is unlikely that more than 3 hours will be required.

b. The time required for demolition by conventional methods is dependent on materiel quantities, emplacement tasks, and transportation and troops available. To obtain results from conventional explosives approximating those obtainable from an atomic explosion will require a great deal of time to calculate, plan, emplace, and detonate the explosives. Because of the amount of time involved in large-scale use of conventional explosives, the commander once committed to a specific course of action may have great difficulty in effectively changing such a course of action.

7. Safety needs of friendly forces and installations.

a. The prepositioned weapon with its blast and its thermal and nuclear radiation is a mass-destruction weapon saturating a relatively large area. Since it normally will be emplaced within our own lines the safety requirements of friendly troops and installations and of the civilian population become extremely important. The determination of the limits of troop safety is an

integral part of the analysis referred to in paragraph 5. Once a decision is made to employ a prepositioned weapon, the safety limits determined should be disseminated to all commanders concerned.

b. Because conventional demolitions may be carried out over a long period of time and the charges that are set off produce only local effects on the structure or facility to be destroyed, the requirement for safety for troops and civilians is much less. Military operations need not be suspended in an area while a conventional demolition plan is being carried out.

8. Troop requirements.

a. Troop requirements for a prepositioned weapon are small. A team from the ordnance special weapons support battalion and one from an engineer combat battalion are sufficient to prepare, transport, emplace, test, arm, and fire the weapon. Additional troops may be necessary, however, to provide protective measures and security for the operation. The number and type of such troops required depend upon the tactical situation.

b. To implement a conventional demolition plan of equivalent scope may require a number of engineer battalions working simultaneously, with additional troops to provide security.

9. Materiel requirements.

a. The supplies required for the prepositioned weapon, although of a highly technical and costly category, are few in number. Availability of prepositioned weapons is critical, however, and careful planning must insure maximum efficiency of use.

b. With respect to conventional explosives, the amount of TNT or similar explosive required to implement a large-scale demolition plan is great and may present a logistical problem.

10. Transportation.

a. Transportation requirements for the prepositioned weapon are negligible. Employing organizations can provide any required ground transportation from normal T/O&E equipment. If air movement is necessary, one plane of appropriate size will move any demolition munition including all necessary special equipment.

b. To transport the amount of conventional explosives necessary to produce results approximating those of an atomic explosion will require a substantial transportation effort. Lines of communication will be vitally affected by the effort and may be strained. An extensive traffic control system may be required. Requirements for transportation of the quantities of explosives needed should be made known long before the actual need exists in order that an effective transportation plan may be made and implemented.

11. Emplacement problems.

a. No elaborate site preparation will be involved for surface atomic explosion. If the munition is to be placed underground an existing shaft or a previously prepared emplacement is normally required. As it is contemplated that the engineer units will utilize T/O&E equipment, a shaft of the size and depth required for the maximum exploitation of an atomic weapon's cratering capability will be difficult to excavate within the time usually available. Emplacement problems may be minimized, however, by the preplanned construction of sites in strategically located areas where a potential need may be foreseen.

b. Since conventional explosives must be carefully placed to obtain the desired results, emplacement planning and implementation supervision will be required. Each facility to be destroyed may present a different problem. Failure to analyze the problems correctly will prevent proper completion of the mission.

12. Prepositioned weapon targets.

a. Unlike conventional explosives, atomic explosions from a prepositioned weapon have a great casualty-producing capability. This capability should not be ignored in demolition planning. For appropriate targets emphasizing the casualty-producing aspect, refer to FM 100-31, Tactical Use of Atomic Weapons.

b. The engineer, however, will encounter demolition targets where the destructive effect must be emphasized. Paragraphs 13 to 15 list some of these targets and analyze them to show what atomic effect can best accomplish the mission of making reconstruction or use of the target area unprofitable.

13. Mass-destruction targets.

a. For prepositioned weapons, dense concentrations of targets of large size are excellent. This type of target includes port facilities, industrial and commercial areas, and other logistical installations.

b. Demolition of these facilities by a prepositioned weapon has several advantages over demolition by conventional explosives. Prepositioned weapons required much less time and man-hours. The prepositioned weapon has secondary effects in the form of widespread and uncontrollable fires, extensive light to moderately damaged areas in addition to the completely destroyed areas, and residual contamination that prevents rapid recovery operations. These effects completely overshadow the effects of conventional explosives if large-scale destruction of an area is desired.

14. Cratering targets.

a. Large-scale cratering is an appropriate mission for prepositioned weapons. A suitable emplacement site normally can be prepared without interfering with operations being carried out in the area. With its residual radiation and great volume, the resultant crater will delay rehabilitation and will make it necessary to employ large numbers of troops and great quantities of equipment to restore the demolished facility. Such a requirement on the logistical resources of an enemy may well cause abandonment of a particular area. Atomic cratering also has a bonus effect in the residual contamination of the lip area, which serves as an additional barrier. The effectiveness of the highly contaminated lip area depends on the capability the enemy possesses to traverse the area and the restrictions provided against his maneuverability. It would be very effective against foot troops who had to traverse the area because of the nature of the terrain or because of artificial barriers, but it would have relatively small effect on men in tanks.

b. In large-scale cratering, use of the atomic weapon actually costs less per cubic yard of crater obtained than conventional explosives, requires a fraction of the effort in man-hours, and takes much less time for emplacement. The cratering effect of prepositioned weapons can be utilized in the destruction of routes of communications and airfield runways. Where a requirement exists for small craters, however, conventional explosives are preferable.

c. Roads can be destroyed within the limits of the crater and be blocked by the debris resulting from the explosion; however, because of the ease with which obstructions can be bypassed by new road construction, it is desirable to concentrate on bridges, defiles, tunnels, and landslide areas, and to utilize a large number of conventional-explosive craters. Such a method will force the enemy to construct or rehabilitate bypasses over an extensive area rather than around the area limited to the crater of an atomic explosion.

d. Railroads like roads are most vulnerable at bridges, defiles, tunnels, and landslide areas. Use of prepositioned weapons at such locations may be justified and highly profitable. In the absence of such vulnerable areas, however, a large number of small craters may accomplish the mission.

e. The destruction of a railroad terminal to the extent that it may be just as economical to construct a new terminal as to rehabilitate the old one, can be accomplished much more cheaply and with the expenditure of fewer man-hours by a prepositioned weapon. The atomic explosion will not only cause cratering of the railroad yard but will also provide residual nuclear radiation. In addition the blast effect will destroy many of the installations and facilities so necessary to the operation and maintenance of rail transportation.

f. Normally, military operations require tactical destruction of bridges. Tactical destruction provides for the minimum destruction necessary to deprive the enemy of use of the bridge. Since properly placed charges of conventional explosives will effectively accomplish such an objective, the requirement for an operational size atomic explosion with its high cost and wasted energy is normally not justified. Where strategic requirements, however, dictate complete destruction not only of the bridge but also of the bridge site and surrounding installations and facilities, use of the prepositioned weapon will prove desirable and profitable.

g. Dams are important components of waterway systems where, with locks, they are used to maintain controlled depths and to impound water. Destruction of dams to achieve a tactical or strategic advantage may be necessary. Such destruction to the extent that reconstruction cannot be accomplished on a temporary basis has now become more feasible because of the atomic explosion. Complete destruction of large gravity dams by conventional explosives may be impossible because of the physical size of charge required; atomic explosions are definitely superior for this type of demolition. Multiple arch dams can be destroyed by high explosives but this method will require more time than with a prepositioned weapon. Destruction of dams from weapons within the dam itself probably could be accomplished only with the prepositioned weapon because of the physical dimensions of the conventional explosive charge.

h. Locks are very vulnerable and repairs are complex and time-consuming. Failure of one set of lock gates to operate properly may block an entire waterway. Consequently, the complete destruction provided by an atomic explosion is not necessary. Conventional explosives can destroy the locks of a waterway so that operations are indefinitely interrupted at a small fraction of the cost of an operational atomic weapon.

i. Destruction of airfields by means of the prepositioned weapon is much more rapid in time and less demanding in man-hours. The advantages of large atomic craters are fully realized and blast has its effect on installations and facilities. Although the restoration of the runways in the original location may be possible the quantities of material to be moved and the work to be done may often be beyond the immediate capability of an enemy. Even if reconstruction may be within the capability of such an enemy, the residual radio-activity may cause so long a delay in implementing the rehabilitation program that another site may have to be selected.

15. <u>Tunnel targets</u>. Tunnels are excellent targets for prepositioned weapons. Tactical weapons, such as conventional bombs, can at best destroy the portal areas. With conventional explosives, the destruction requires carefully planned chambering of the walls. The large amount of explosives to be handled and the excavation of the demolition chambers will interfere with normal use of the tunnel for transportation. After the conventional explosion, reconstruction work can begin immediately. On the other hand, emplacement of the prepositioned weapon requires very little time and effort. In addition, the residual contamination from the atomic destruction of a tunnel will be so intense that before reconstruction work within the tunnel can begin, a delay of more than a month may be necessary. In many instances this factor of delay alone may be the deciding one to favor use of prepositioned weapons. Thus only prepositioned weapons are practical when the mission requires a tunnel to be denied the enemy for a considerable period of time, and the destruction must be accomplished in a few hours.

16. Conditions precluding use of prepositioned weapons. The tactical situation may render use of a prepositioned weapon inadvisable even though it may apparently be the most economical means of accomplishing the mission. The following are examples of situations precluding use of a prepositioned weapon:

a. Friendly troops cannot be withdrawn from the area.

b. The situation is so fluid that the weapon might be captured before it can be activated for destruction.

c. The target area is expected to be reoccupied and therefore damage rather than destruction of the facilities is desired.

d. The morale and loyalty of the civilian population will not sustain the shock of a prepositioned weapon deliberately set off in their midst without results which may be undesirable and unacceptable.