SECTION 42

DISPOSAL REQUIREMENT OF AN UNEXPLODED BOMB

Courses Open

4201. The Engineer unit on the spot have to decide or recommend whether a UXB should be disposed of or left, either temporarily or permanently. The courses open are:

a. **To Abandon the Bomb Completely**. This may be done where a buried UXB is known to be present but is considered unlikely to be disturbed or unlikely to cause any damage if it should explode. Recommendation for abandonment must always include full details of the location and nature of the incident.

b. **To Defer Disposal**. Forward units having ascertained that a UXB will have no immediate operations, may recommend that the bomb should be removed later by corps, army or specialist troops. Full details must again be forwarded to higher authority.

c. **To Dispose of the Bomb After the Maximum Delay Period**. The UXB may constitute a danger and require removal by troops on the spot. The need for disposal may not be so great, however that the bomb cannot be left until the maximum delay period of any time fuze which may be fitted has elapsed. Evacuation and safety precautions must be enforced.

d. **To Dispose of the Bomb as Rapidly as Possible**. A bomb buried in the abutment of a vital bridge under an air strip, beside a ship in the docks in an ammunition depot or under a main supply route, may have to be disposed of at once whatever the risk. The priority for the work on such incidents will neatly always be specified by higher authority. If it is not, the officer on the spot must use his own initiative.

Factors to Consider

4202. In deciding which of the above courses to adopt the following factors should be considered.

a. **The Likelihood of Spontaneous Explosion**. UXBs which are left undisturbed are only likely to explode if fitted with long delay fuzes. It may be possible to estimate the probable fuzing of UXB from:

(1) The type and size of bomb (sec 7).
(2) A knowledge of enemy (or possibly allied) fuzing tactics.
(3) The behaviour of other bombs dropped in the same stick or raid.

Where it cannot be stated with certainty that only safe fuzes are fitted it must be assumed that there is a long delay fuze. A bomb which has lain for longer than the maximum delay period is also comparatively safe. Evidence of the time the bomb fell should, therefore, always be sought.

b. **The Effect of Explosion**. The probable effect of explosion must be judged from the position and size of the bomb. Distances at which certain structures are likely to be damaged are given in sec 24.

c. **The Effect of Enforcing Evacuation**. If the bomb may contain a long delay fuze and is left evacuation must be enforced or work be continued under a constant threat of explosion. The effect of these alternative procedures on morale and efficiency must be considered.

d. **Protective Works**. It may be possible by the use of protective works to reduce the effect of explosion and hence the area of evacuation so much that excavation and disposal become unnecessary.

e. **Time Labour and Stores**. It may be, that a bomb is so deep and to much time, labour and material will be required to recover it that it will have ceased to constitute a danger before it can be reached. The engineer effort then be better occupied in providing protective works or temporary alternative routes, accommodation or services.

Type of Soil and Water Content

4203 The time required and the method to be used to reach a buried UXB depend not only on the depth of the bomb but also on the type of ground and the water content. Information may be obtained from local inhabitants and authorities and geological maps. Quarries, cuttings and escarpments in the vicinity indicate the type of soil to be expected. Rivers and streams, ponds, marshes and domestic wells indicate the water level. Rushes, cotton-grass and willow trees denote that water is near the surface. Bracken and gorse indicate a well drained soil. If no other suitable evidence can be found and equipment is available it will often save time in the long run to obtain soil samples from a borehole before excavating to a deeply buried bomb.

Digging Time

4204. It is impossible to lay down standards for the time required to dig a shaft. There are many variables. With intensive effort, in good ground, with little inflow of water and with at least one competent timberman in the squad, a shaft might be dug and timbered to a depth of ten feet in eight hours. The next four feet might be completed in the next eight hours would be a reasonable average. Work at greater speed with unskilled labour, except in the very firmest ground, will almost certainly entail poor timbering and consequent failure of the shaft. The times given apply to shafts of any size. The larger the shaft the larger the squad which can work in it.

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