

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, D.C.

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REPLY TO
ATTN OF: JA

14 March 1975

SUBJECT: ~~Legal Review of 30MM Ammunition~~

TO: AF/RDP

1. The High Explosive Incendiary (HEI) and Armor Piercing Incendiary (API) munitions mentioned in AF/RDP letter, 10 February 1975, have been reviewed.
2. In my view, the development and intended use of these munitions are consistent with the international legal obligations of the United States and in particular with the Law of War. Legal standards applied in making this determination include the principle of proportionality, the rule against unnecessary suffering and the prohibition against poison.
3. The attached memorandum discusses certain legal principles that should be taken into consideration in the use of HEI and API munitions.
4. As a matter of information, all incendiary munitions continue to excite international concern, usually coupled with attempts to ban their use. These concerns arise because of the medical difficulties in treating burn injuries as well as the capacity of fire to spread.

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Legal Memo

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AF/XOX
AF/RDQ
AF/LGY

Attach 4

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Weapons

LEGAL MEMORANDUM

I. Munitions Reviewed.

This Memorandum involves 30mm ammunition fired by a GAU-8 gun installed in the A-10 close air support aircraft. The gun fires, at 4,000 shots per minute, three types of rounds, training, high explosive incendiary (HEI) and armor piercing incendiary (API). Projectile weight is 376 grams (approx) for the HEI and TP types and 429 grams (approx) for the API type. The HEI round is used against soft targets (personnel, trucks, vans, etc.,) and the API is used against hard targets (heavy tanks, armored personnel carriers, etc.). The HEI round utilizes standard high explosives such as RDX/aluminum. The API round fires a depleted uranium (DU) penetrator weighing approximately 297 grams. DU was selected because of its availability, low cost, and above all, superior armor penetration capability. Additional data relative to these munitions is contained in AF/RDP request for review, dated 10 Feb 1975 and AFR/RDPA letter, dated 24 Feb 1975.

II. Applicable International Law.

1. Prohibition against unnecessary suffering. Existing international law prohibits weapons causing unnecessary suffering. See Preamble, 1868 St. Petersburg Declaration; 1899 Hague Regulations, Article 23e; 1907 Hague Regulations, Article 23e. (Discussed in U.S. Army FM 27-10, The Law of Land Warfare, at 18 (1956).)

2. Prohibition against poison. Existing international law, both customary and treaty, prohibits the use of poison or poisoned weapons (1907 Hague Regulations, Article 23a, discussed in U.S. Army, FM 27-10, at 18; McDougal and Feliciano, Law and Minimum World Public Order 619 (1959); Greenspan, Modern Law of Land Warfare, 372 (1959).

3. Proportionality-Indiscriminate effects. Existing international law prohibits attacks against the civilian population or civilians as such. Civilian casualties or damage to civilian objects, which are incidental to attacks against lawful military objectives, are permissible provided such casualties or destruction are not disproportionate to the military advantage sought to be secured. Weapons

whose effects escape in time or space from the control of the user raise legal issues related to the protection of civilian populations or civilian objects. (Articles 22, 23(f), 25, 26, 1907 Hague Regulations. For discussion, see U.S. Navy War College, International Law Studies 1955, at 45 (1957); McDougal and Feliciano, Law and Minimum World Public Order 616 (1961).)

III. Consistency of Weapons With International Law.

A. General conclusion. The weapons being reviewed and their intended use in aerial warfare are consistent with international law, and more particularly the law regulating armed conflict. Both API and HEI require a restriction on use relating to protections of civilian populations because they are incendiary. Further, the use of depleted uranium, described as radioactive, while presenting international and national political issues, does not violate existing international law.

B. Discussion.

1. Consistency with rule prohibiting unnecessary suffering. The international law regulating armed conflict is not static in nature and is modified, in the course of practice and experience, by both new concerns and the military efficacy of new weapons. As a result of this practice and experience in two World Wars, and subsequently, we conclude there is no rule in aerial warfare prohibiting, per se, projectiles below 400 grams which are explosive or incendiary in nature, assuming appropriate military purposes are served by these characteristics. Equally, there is insufficient evidence to conclude that use of these projectiles in aerial warfare is prohibited even though they are directed solely at combatants. The latter conclusion is supported by military considerations precluding resort to available alternate weapons at the time different targets are attacked, as well as the readily apparent technical difficulties in proliferating different types of munitions for different types of targets. It is also supported by the widespread use of such projectiles in current inventories. Moreover, it might be difficult to define with preciseness any rule prohibiting anti-personnel use (such as described in the British law of war manual) since material and personnel are frequently interspersed as targets.

However, there are major complications in international political forums, and also to a lesser degree on the national scene, with all types of incendiary weapons. This long-standing concern arises because of the psychological impact of fire, the capacity of fire to spread thereby potentially causing disproportionate incidental injury to civilians or damage to civilian objects, as well as the difficulty in treating burn injuries. This concern was reflected in the St. Petersburg Declaration, over 100 years ago, and was reflected into UN Resolutions adopted at the last General Assembly. One of these, UNGA 3255B (XXIX), adopted by a vote of 98-0 with 27 abstentions last December, condemned any use of napalm and incendiary weapons affecting people as unlawful. The U.S. Army has previously determined that incendiary weapons can only be used against targets requiring their use (FM 27-10, at 18). Under these circumstances, it is important that requirements of incendiary characteristics be thoroughly considered and justified before they are incorporated in weapons.

The use of depleted uranium also warrants comment in terms of the prohibition against unnecessary suffering. Significant advantages are described in terms of availability, low cost and superior armor penetration capability. In general, the prohibition against unnecessary suffering, and the policy behind it, more significantly affects weapons primarily directed against personnel rather than materiel targets. In this category would be small arms munitions, anti-personnel bomblets and significant numbers of land warfare weapons. Weapons with designed characteristics necessary in terms of the target attacked, such as armour piercing shells, remain lawful even though they might cause a higher order of suffering than other weapons. Nevertheless, in view of the fundamental principle of unnecessary suffering which applies to the manner which otherwise lawful weapons are used, depleted uranium munitions should not be directed solely against persons if alternate weapons are available and can be used. This restriction is supported by the fact that such an anti-personnel use would not be cost effective, and could more likely raise poison weapon issues in terms of its chemical and radiological properties.

2. Prohibition against poison. The use of depleted uranium in anti-armour piercing munitions does not, in our view, violate the prohibition against poison. Several factors support this conclusion. DU's toxic radiological and chemical properties are an inherent characteristic of the substance and not a designed, added in, characteristic. For example, its use is not similar to smearing substances on bullets to inflame wounds. In addition, the choice of this substance is based upon provable cost and efficiency factors, and its significant injury producing effects stem from its fragment kinetic effects. These kinetic effects are more significant than any long range toxicity considerations, which are in any event found in other weapons such as lead. Soluble depleted uranium compounds are not considered to be a significant radiation hazard and its toxicity is due primarily to its chemical properties. Uranium does not appear to be any more chemically toxic than lead. Moreover, the depleted uranium munitions are designed to be used against hard targets, and depleted uranium is selected and used for this purpose.

For reasons related to the prohibitions against unnecessary suffering and poison, the following specific restriction on use should be adopted for this munition. "This munition is designed for use against tanks, armoured personnel carriers or other hard targets. Use of this munition solely against personnel is prohibited if alternate weapons are available."

3. Indiscriminate effects. As described, the delivery of the munitions by a standard GAU 8 gun does not raise issues relating to causing disproportionate injury to civilians or damage to civilian objects. International law does not require that the effects of a weapon be necessarily strictly confined to the military objective which is being attacked. Nevertheless, when the effects of a weapon can escape in time or space from the control of the user, risks of disproportionate injury to civilians or damage to civilian objects may be created. In that context, two matters warrant comment:

First, the API and HEI munitions should not be used in situations where risks are necessarily created that the fires caused by their use will spread to protected civilian

objects or injure civilians and cause disproportionate injury or damage thereby. These risks depend upon variable factors such as the geographical area, density of population, time of year, type of targets, weather conditions, etc. In general, battlefield uses create fewer risks than use in urban areas. Since the military significance of the targets, and the military advantages secured by the use of the weapon, also depend upon variable factors, no comprehensive rules of engagement can be drafted to apply to all possible future conflict situations. Yet this risk must be taken into account. Populations affected, moreover, may be friendly populations, who are being defended against an armed attack. The following formulation is one possible suggestion.

"These munitions are incendiary in nature. Accordingly, they may cause fires which spread thereby causing potential risks of disproportionate injury to civilians or damage to civilian objects. Precautions to avoid or minimize such risks shall be taken in the use of this weapon or alternate available weapons should be used."

The risk of injury to civilian populations from the radiological effects of depleted uranium munitions depends more upon the extent of its use in a particular conflict or given geographical area. The findings of the working group note that significant impact can occur in the event of uncontrolled use of DU depending upon local conditions. These risks occur both due to chemical and radiological properties. The working group study notes that in combat situations involving the widespread use of DU munitions, the potential for inhalation, ingestion, or implantation may be locally significant. The risks are noted to be insignificant when compared to other dangers of combat. These risks, of course, are potentially dangerous to friendly civilian populations as well as enemy populations.

In general, we cannot perceive that these risks are necessarily disproportionate to the military advantages secured by use of this munition particularly if its use is restricted, to the extent possible, to its intended use against hard targets. Nonetheless, this factor should be

taken in to account in evaluating the military advantages secured by acquisition and use of this munition. Moreover, any potential adversary would doubtless seize upon widespread use of DU munitions for various propagandistic purposes.



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I concur.



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