





ENCLOSURE (1)

Review of the Legality of the Trident I (C-4) Missile (U)

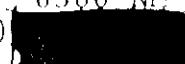
I.  The Weapon. (U)

A. (U) General.

The Trident I (C-4) missile is a subsystem of the Trident system, which consists of the Trident submarine and the Trident support system in addition to the missile. It is a submarine-launched, thermonuclear-armed ballistic missile designed for use against fixed enemy targets.

B.  Characteristics. (U)


1. (SERD) Operational. (U)

- a. Maximum multiple target range with 8 MK-4 reentry bodies 4000 NM
- b. Reduced payload maximum range 6500 NM
- c. System Circular Error Probable (CEP) at 4000 NM range 
- d. System reliability .8

2. Technical. (U)

- a. Stages 3
- b. Launch weight (pounds) 70,000 to 73,000
- c. Length (feet) 34.1
- d. Diameter (inches) 74
- e. Guidance Stellar Aid Inertial
- f. Propulsion Solid

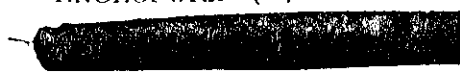
3. Warhead (MK-4 Reentry Body).

- a. Weight (pounds) 
- b. Yield (KT)
- c. Maximum design range
- d. Maximum number per missile

CLASSIFIED BY: PM-2 and DIR J-5, OJCS

11/5/01
 11/18/01 Schmidt
 12/10/01
 12/12/01
 FRD

ENCLOSURE (1)



ENCLOSURE (1)

c. Flight Performance. (U)

1. Typical Trajectory. (U)

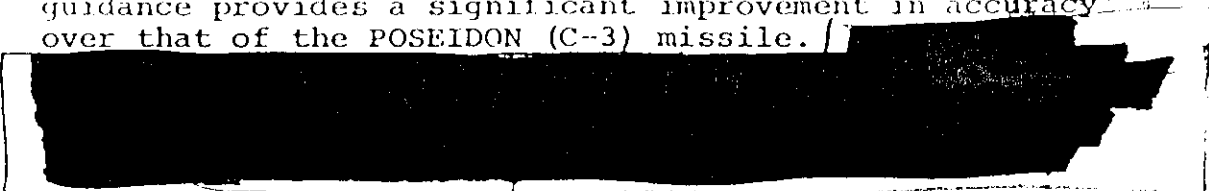
Downrange impact areas for the three stages of the TRIDENT I (C-4) missile will vary as a function of several factors. For example, the range to the target can vary from the trajectory can vary from a lofted trajectory to a low altitude high-energy trajectory, the trajectory may vary from a single vertical plane trajectory, etc. A typical trajectory, for example, would be, as follows:

<u>Missile Component</u>	<u>Down Range Impact</u> (nautical miles)
First Stage	
Nose Fairings	
Second Stage	
Third Stage	
Equipment Section	
Warheads	

The first three components impact within the first NM downrange while the last three reenter in the proximity of the target. The third stage and equipment sections, however, are not designed nor hardened to survive reentry at the target ranges and probably will be significantly broken up if not destroyed during reentry. Although most launch points are located in the broad ocean area, there can be some cases where the nose fairings and the second stage may impact on land. The first (largest) stage will probably not impact on land for any reasonably anticipated launch point for the TRIDENT I (C-4) missile. None of these components, except the warhead, have been purposely designed to create a hazard upon impact.

2. (S) Guidance. (U)

The design of the TRIDENT I (C-4) missile guidance provides a significant improvement in accuracy over that of the POSEIDON (C-3) missile.



DOE
b(3)

ENCLOSURE (1)

[REDACTED]

DOE
HC

However, this variation in CEP as a function of range, launch and trajectory conditions does not affect the TRIDENT missile capability against soft targets.

D. [REDACTED] Weapon Effects. (U)

1. [REDACTED] Structures and Installations. (U)

Structures and installations are categorized as soft, including industrial type of facilities and soft military targets; and hard, such as hardened missile silos, hardened command and control centers, etc. The weapon effects on these two types of targets are quite different and will be treated separately. (U)

DLA

a. (SRD) Soft Targets. (U)


Soft targets include industrial facilities unhardened military installations, supply centers, government administrative and communications centers, etc. As an example of the effect of the TRIDENT I (C-4) missile warhead against soft targets, the damage expectancy against heavy industry buildings and multi-story steel frame office type buildings is presented. The optimum height of burst of the warhead against this type of target is such that little or no debris from the ground is drawn into the fireball, resulting in negligible radioactive fallout.


[REDACTED]

DOE
b(3)


ENCLOSURE (1)

ENCLOSURE (1)

b.  Hard Targets. (U)

Hard targets include hardened missile silos, reinforced blast-resistant military and government command and control centers, underground nuclear production and storage facilities, massive solid arch masonry and concrete bridges, dams, locks, etc. As an example of the effectiveness of the TRIDENT I (C-4) missile against hard targets, the damage expectancy against an arched concrete gravity dam with a full reservoir is considered. About 1650 psi overpressure will result in a 50 percent probability of cracking and breaching the dam. 

OCA
1
2

 The optimum height of burst would be such that debris from the ground could be drawn into the fireball resulting in post-detonation radioactive fallout.

2. (SRD) Personnel. (U)

Collateral fatalities/injuries associated with a nuclear warhead attack against industrial or military targets will result. (U)

a. (SRD) Specific Effects. (U)

(1) (SRD) Thermal. (U)



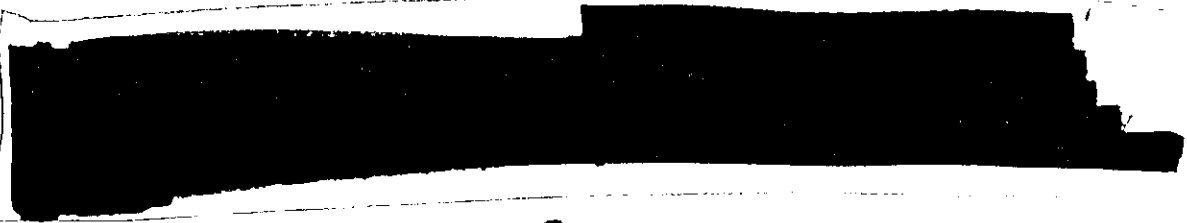
(2) (SRD) Initial Nuclear Radiation. (U)



ENCLOSURE (1)

ENCLOSURE (1)


(3) ~~SECRET~~ Peak Overpressure. (U)

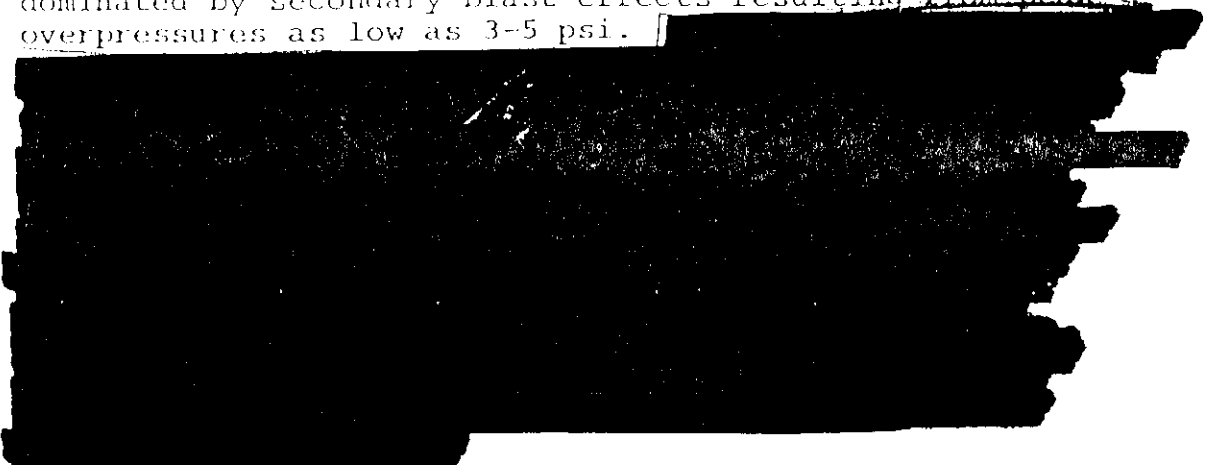
WCE (3)


(4) ~~SECRET~~ Secondary Blast Effects. (U)

WCE
These effects include body transition and impact, structural collapse, bodily injury from flying debris, etc. In buildings, 5 psi overpressures will result in 50 percent probability of incapacitating injuries. In streets, 3 psi overpressures will result in 50 percent probability of incapacitating injuries.



b. ~~SECRET~~ Combined Effects. (U)

Collateral injuries in cities are generally dominated by secondary blast effects resulting from peak overpressures as low as 3-5 psi. 

WCE (3)


c. (SRD) Fallout Radiation. (U)

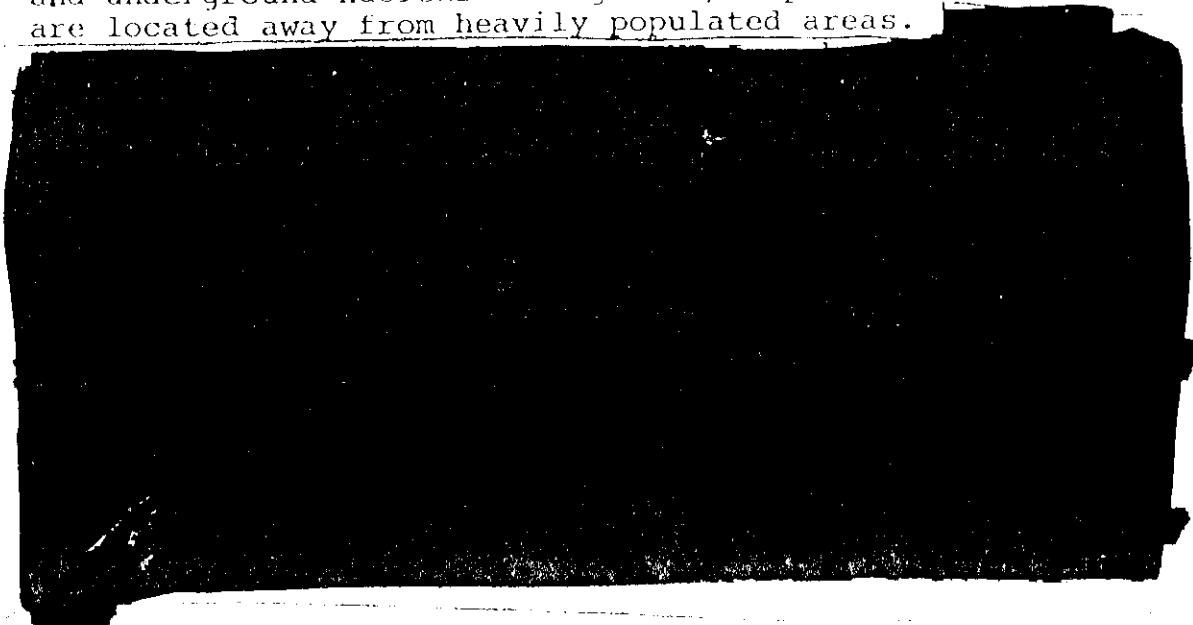
(1) (U) Soft Targets.

Since the optimum height of burst for industrial and soft military targets is  the minimum altitude defined for an air-burst weapon, contamination from fallout is .

ENCLOSURE (1)

(2) (SRD) Hard Targets. (U)

The optimum height of burst against hard targets in the 300 to 3000 psi range may result in radioactive fallout contamination downwind from ground zero. Many hard targets, however, such as missile silos and underground nuclear storage and/or production silos are located away from heavily populated areas.



II. Employment of the Weapon. (U)

A. General. (U)

The Trident missile is designed for use in support of national strategic objectives. Targets for the missile are planned by the Joint Strategic Target Planning Staff of the Joint Chiefs of Staff. The decision to launch the missile is retained by the National Command Authority.

B. National Strategic Objectives. (U)

1. (U) The principal objective is deterrence of nuclear and conventional attacks or attempts at coercion under a threat of nuclear and conventional attacks against the United States, its allies and any nation whose security is vital to United States interests.

ENCLOSURE (1)

OLA
1
2
1005
11(3)

OLA
1
3

ENCLOSURE (1)

2. (U) If deterrence fails, the major objectives are to assure a position of power and influence on the part of the United States and to limit the scope of the conflict, its consequences and damage to the United States and its allies. This is to be accomplished through control of escalation:

a. by conducting selected military operations to protect vital United States interests and to foreclose enemy opportunities for further aggression.

b. by attempting to limit the level and scope of violence.

c. by holding some vital enemy targets hostage and threatening their subsequent destruction in order to coerce the enemy into negotiating a war termination.

3. [redacted] If escalation cannot be controlled, the United States objective is to maximize the resultant political, economic and military power of the United States relative to the enemy in the postwar period in order to preclude enemy domination. This is to be accomplished by: (U)

a. [redacted]

b. [redacted]

c. [redacted]

C. [redacted] Pertinent Limitations on Employment. (U)

1. [redacted] Personnel and Residential Structures. (U)

Nuclear attack planning is not directed toward civilian population or residential structures per se, although substantial injury/damage to population and

OCA
- 2
- 3

ENCLOSURE (1)

residential structures may result from targeting to accomplish the objectives in paragraph II.B. above. Additionally, plans for utilization of nuclear weapons are designed to minimize civilian casualties and civil destruction in friendly and neutral countries.

2. [REDACTED] Urban areas. (U)



III. (U) Applicable International Law.

A. General. The means of warfare which may lawfully be used by belligerents is not unlimited. Hague Convention No. IV Respecting the Laws and Customs of War on Land, Annexed Regulations, Article 22, October 18, 1907, 36 Stat. 2277, T.S. No. 539, 1 Bevans 631 [hereinafter cited as Hague Regulations]. It is generally considered that, unless expressly prohibited, the selection of a weapon and its use are permissible under international law. See e.g., Dept. of the Navy, NWIP 10-2, Law of Naval Warfare, Sec. 613 [hereinafter cited as NWIP 10-2]. The relevant principles embodied in such prohibitions are:

1. Unnecessary suffering.

Article 23(e) of the Hague Regulations prohibits the employment of "arms, projectiles, or material calculated to cause unnecessary suffering." A weapon and its use are lawful in this regard if the reasonably predictable nature and number of personnel casualties caused by the weapon are not disproportionate to the military necessity dictating its use under the circumstances, in consideration of the effectiveness of the weapon against the particular target and alternative weapons available for accomplishing the military objective. Dept. of the

ENCLOSURE (1)

~~SECRET~~ ^{SECRET} RESTRICTED DATA

ENCLOSURE (1)

Air Force, AFP 110-31, International Law Relevant to the Conduct of Armed Conflict and Air Operations, para. 6-3.b., at 6-2 [hereinafter cited as AFP 110-31], and sources cited therein.

2. Poison, poisoned weapons and poison gas.

Article 23(a) of the Hague Regulations forbids the use of "poison or poisoned weapons," and the first use of lethal gas is prohibited by the Geneva Protocol on the Prohibition on the Use in War of Asphyxiating, Poisonous, or Other Gases, and of Bacteriological Methods of Warfare, June 17, 1925, T.I.A.S. No. 8061, 94 L.N.T.S. 65. Moreover the United States has renounced the first use in war of riot control agents and herbicides, except in certain limited circumstances. Exec. Order No. 11850, 3A C.F.R. 149 (1975).

3. Indiscriminate effects.

The St. Petersburg Declaration Renouncing the Use, in Time of War, of Explosive Projectiles under 400 Grammes Weight, November 29/December 11, 1868, 1 Am. J. Int'l. L. Supp. 95 (1907), confirmed the customary rule against unnecessary suffering and also stated "That the only legitimate object which States should endeavor to accomplish during war is to weaken the military force of the enemy (emphasis supplied)." Indiscriminate weapons are those which cannot be accurately directed at military objectives or those the effects of the use of which are so uncontrollable as to necessarily cause disproportionate injury or damage to civilian persons or objects. AFP 110-31, supra, para. 6-3.c., at 6-3, and sources cited therein.

4. Attack on Civilian Populations and Urban Areas.

Attacks on civilians are prohibited by Article 3 (1) of the Geneva Convention Relative to the Protection of Civilian Persons in Time of War, August 12, 1949, 6 U.S.T. 3516, T.I.A.S. No. 3365, 75 U.N.T.S. 287: "Persons taking no active part in the hostilities...[shall not be subjected to]...violence to life and person...." Article 25 of the Hague Regulations provides, "The attack or bombardment, by whatever means, of towns, villages, dwellings, or buildings

~~SECRET~~ ^{SECRET} RESTRICTED DATA

ENCLOSURE (1)

~~SECRET~~ RESTRICTED DATA
~~SECRET~~ RESTRICTED DATA

ENCLOSURE (1)

which are undefended is prohibited." The Hague Convention No. IX Concerning Bombardment by Naval Forces in Time of War, February 28, 1910, 36 Stat. 2351, T.S. No. 542, 1, Bevans 681, contains a similar provision in Article 1 and also provides:

Article 2. Military works, military or naval establishments, depots of arms or war materiel, workshops or plants which could be utilized for the needs of the hostile fleet or army, and the ships of war in the harbour, are not, however, included in this prohibition. The commander of a naval force may destroy them with artillery, after a summons followed by a reasonable time of waiting, if all other means are impossible, and when the local authorities have not themselves destroyed them within the time fixed.

He incurs no responsibility for any unavoidable damage which may be caused by a bombardment under such circumstances.

If for military reasons immediate action is necessary, and no delay can be allowed the enemy, it is understood that the prohibition to bombard the undefended town holds good, as in the case given in paragraph 1, and that the commander shall take all due measures in order that the town may suffer as little harm as possible.

Article 5. In bombardments by naval forces all the necessary measures must be taken by the commander to spare as far as possible sacred edifices, buildings used for artistic, scientific, or charitable purposes, historic monuments, hospitals, and places where the sick or wounded are collected, on the understanding that they are not used at the same time for military purposes....

Article 6. If the military situation permits, the commander of the attacking naval force, before commencing the bombardment, must do his utmost to warn the authorities. See also NWIP 10-2, supra, sec. 621.

Finaly
~~SECRET~~ RESTRICTED

ENCLOSURE (1)

ENCLOSURE (1)

IV. ~~SECRET~~ Consistency of Weapon and its Employment with International Law. (U)

A. ~~SECRET~~ Unnecessary suffering. (U)

Some arguments assert the illegality of nuclear weapons by application of Article 23(e) of the Hague Regulations to the effects of the weapons: the use of these weapons results in horrible and lasting effects not experienced from other weapons, and their degree is such as to render death inevitable to its victims. M. Greenspan, The Modern Law of Land Warfare 371 (1959) [hereinafter cited as Greenspan]; J. Stone, Legal Controls of International Conflict 343 (1954). The rule to be applied "is not, however, the simple fact of destruction, nor even the amount thereof, that is relevant in the appraisal of such [weapons] it is rather the needlessness, the superfluity of harm, the gross imbalance between the military result and the incidental injury that is commonly regarded as decisive of illegitimacy." M. McDougal & F. Feliciano, Law and Minimum World Public Order 616 (1961) [hereafter cited as McDougal & Feliciano]. While application of this "rule of proportionality" does not compel the conclusion that the use of nuclear weapons, as a matter of law, causes unnecessary suffering, it does require that authorities give every consideration to minimizing the collateral effects of these weapons upon personnel. O'Brien, Legitimate Military Necessity in Nuclear War, 2 World Polity (1960) [hereinafter cited as O'Brien]. With specific reference to the TRIDENT I (C-4) missile, its warhead and its height of burst options over the target are ~~SECRET~~. As a result, the thermal and radiation effects associated with the TRIDENT warhead detonation are significantly degraded in terms of the maximum number of personnel casualties which would otherwise result.

B. ~~SECRET~~ Poison, poisoned weapons and poison gas. (U)

The missile warhead contains certain amounts of ~~SECRET~~ all of which are radioactive and which also cause chemically deleterious physiological effects. Two considerations, however, support the conclusion that these effects are entirely secondary:

ENCLOSURE (1)

i. Fully 90%-95% of the combined effects upon personnel of the use of the weapon result from blast and heat caused by the explosion rather than from initial radiation. The effects of fallout radiation are [REDACTED]

ii. All substances which are inherently chemically deleterious are so fundamentally altered by the nature of the fission process in the explosion as to drastically minimize if not completely dissipate their chemically deleterious effects after detonation.

Further, as concerns the chemically deleterious effects of [REDACTED] prior to detonation, such effects are not dissimilar from the heavy metal poisoning caused by lead, which itself is not prohibited by international law. For a discussion of the toxicity of depleted uranium, see Dept. of the Army, DAJA-IA 1976/19 of Apr. 19, 1976, subject: Review of the XM774 for Legality under International Law.

Finally, analogies to the specific prohibitions of poison, poison gas or bacteriological agents or other express prohibited weapons ignore the reality of current state practice and the generally accepted rule that, in order to be proscribed in international law, a weapon or its use must be the subject of an express prohibition. Mallison, The Laws of War and the Juridical Control of Weapons of Mass Destruction in General and Limited Wars, 36 Geo. Wash. L. Rev. 308, 331 (1967); McDougal & Feliciano, supra, at 77-8; O'Brien, supra, at 100 n. 83.

C. (U) Indiscriminate effects.


The degree of accuracy achievable by the TRIDENT I (C-4) missile is greater than that of the predecessor Polaris and Poseidon missiles. This accuracy affords the United States greater flexibility in weapon employment and ability to minimize collateral damage, D. Hoag, Ballistic Missile Guidance, Impact of New Technologies on the Arms Race, 104 (1971), and meets legal objections to ballistic missiles based upon analogy to such indiscriminate weapons as the German V-2 rockets. E. Castren, The Present Law of War and Neutrality 204 (1954); Greenspan, supra, at 79 193. As discussed in IV. A. above, the employment guidance and design of the TRIDENT I (C-4) missile permit a considerable degree of control over the effects of the weapon. Such

ENCLOSURE (1)

optimization of weapon employment parameters to enhance the achievement of military objectives significantly degrades the weapon's effects on collateral personnel injuries.


D.  Attack on Civilian Population and Urban Areas.


The TRIDENT I (C-4) missile is neither designed for nor planned for employment against primarily civilian population or residential targets, although substantial damage to residential structures and population may result from targeting that meets the objectives in paragraph II.B. above.

V.  Summary and Conclusion. (U)

A. (U) The Weapon.

The TRIDENT I (C-4) missile as currently configured is consistent with the obligations of the United States under international law.

B.  Employment of the Weapon. (U)

1.  General. (U)


While it cannot, as a matter of law, be stated that use of the TRIDENT I missile is prohibited, the nature of the weapon and its effects dictate that any decision for its employment must include the most scrupulous attention at the highest level to principles of international law relative to the selection and use of all weapons, conventional or nuclear, and that these principles be implemented in applicable plans for employment of this weapon: (U)

a. 

b. 

DCP
- 2
- 27

ENCLOSURE (1)

 The potential for risks of disproportionate injury/damage to civilian personnel or objects must be considered and precautions must be taken to minimize these risks if, in the absence of suitable alternative weapons, circumstances dictate the use of this weapon.

c. 

DCA
2
3

2.  Reprisals. (U)

The weapon and the current guidance for its employment are designed to afford the National Command Authority with a maximum degree of flexibility in responding to situations of extreme national importance. No attempt has been made in this review to determine the propriety of selection of individual targets, or all of the circumstances in which they might be struck by this weapon. It is recognized, however, that the flexibility afforded to the National Command Authority must include the doctrine of reprisal, which depending on the circumstances, would permit certain otherwise prohibited actions in response to an act by the enemy which contravenes the laws of war.



DEPARTMENT OF THE NAVY
OFFICE OF THE JUDGE ADVOCATE GENERAL
200 STOVALL STREET
ALEXANDRIA, VA 22332

*Rec'd MAST
SAC 200173000100*

IN REPLY REFER TO
5710
Ser 103.1/415

31 MAY 1984

SECRET RESTRICTED DATA--Unclassified upon removal of enclosure

MEMORANDUM FOR THE ASSISTANT SECRETARY OF THE NAVY (RESEARCH,
ENGINEERING AND SYSTEMS)

Subj: REVIEW OF LEGALITY OF THE TRIDENT II (D-5) MISSILE (U)

*GJ
/o*

- Ref: (a) SECNAVINST 5711.8 of 14 Jan 1976, Subj: Review of Legality of Weapons Under International Law (U)
 (b) ASN (RE&S) (SRD) ltr of 9 Dec 1983
 (c) ASN (RE&S) (SRD) ltr of 19 Mar 1984
 (d) SSPO (SRD) ltr Ser S189 of 18 Apr 1984

Encl: (1) Subject review (U)

1. (U) Reference (a) requires the Judge Advocate General to conduct a review of weapons acquired or procured under the responsibility of the Department of the Navy to ensure that the intended use of the weapon is consistent with applicable international law. Reference (b) requested such a review in the case of the Trident II (D-5) missile and references (c) and (d) provided additional technical information.

2. (U) It is the opinion of the Judge Advocate General that the TRIDENT II (D-5) Missile as currently configured is consistent with the obligations of the United States under applicable international law. A memorandum concerning the legality of the weapon and discussing certain legal principles which must be considered in its employment is forwarded as enclosure (1).

JAMES J. McHUGH
Rear Admiral, JAGC, U.S. Navy
Judge Advocate General of the Navy

Copy to:
CNO (OP-211)

Writer: LTCOL Glenn P. Orgeron, X79161
Typist: Grace M. Fisher, 8 May 84
Retyped: Gloria Johnson, 29 May 84
Doc. #086

11/5/01	FRD
<i>HRX</i>	
12/10/01	
<i>W. Puffin</i>	<i>W. Puffin</i>

Classified by: ASN (RE&S) and PM-4
Review on: OADR

Original Agency Determination Req.

File - WEAPONS REVIEW

YELLOW COPY

SECRET RESTRICTED DATA




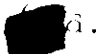

REVIEW OF THE LEGALITY OF THE TRIDENT II (D-5) STRATEGIC WEAPONS SYSTEM MISSILE (U)

I. (U) The Weapon.

A. (U) General.

The TRIDENT II (D-5) strategic weapons system missile is a subsystem of the TRIDENT system, which consists of the TRIDENT submarine and the TRIDENT support system in addition to the missile. It is a submarine launched, thermonuclear-armed ballistic missile designed for use against the entire Soviet target spectrum, including hard targets.

B. (U) Characteristics.

1.  <u>Operational.</u>	MK5	MK4
(U)a. Maximum multiple target range with 8 MK5 Re-entry Bodies or 12 MK4 Re-entry Bodies (NM)	4000-4300	4500
(U)b. Reduced payload maximum range (NM)	6500	6500
 c. System CEP at 4000 NM range (feet)		
 d. System reliability		
2. (U) <u>Technical.</u>		
a. Stages	3	3
b. Launch weight (lbs)	130,000	130,000
c. Length (feet)	44.4	44.4
d. Diameter (inches)	83	83
e. Guidance	8 Aided Inertial	Stellar Aided Inertial
f. Propulsion	Solid	Solid

DEPARTMENT OF ENERGY DECLASSIFICATION REVIEW	
14. REVIEW DATE: 11/27/09	DETERMINATION OF SINGLE NUMBER(S)
AUTHORITY: 21 CFR 101.118	1. CLASSIFICATION RETAINED
NAME: [redacted]	2. CLASSIFICATION CHANGED TO: [redacted]
24. REVIEW DATE: 12/16/09	3. CONTAINS NO DATE CLASSIFIED INFO
AUTHOR: [redacted]	4. CHECK DATE WITH:
NAME: [redacted]	5. CLASSIFICATION CANCELED
	6. CLASSIFIED INFO BRACKETED
	7. OTHER (SPECIFY):



3. ^{CRD} (SRD) Warhead/Reentry Body (Thermonuclear).

- (CRD) a. Weight (pounds) [REDACTED]
- (CRD) b. Yield (KT) [REDACTED]
- (CRD) c. Maximum Design Range (NM) [REDACTED]
- (W) d. Maximum number per missile 8 12

C. (U) Flight Performance.

1. [REDACTED] Typical Trajectory.

Down range impact areas for the three stages of the TRIDENT II (D-5) missile will vary as a function of several factors. For example, the range to the target can vary from [REDACTED] and the trajectory loft can vary. A typical trajectory would be, as an example, as follows:

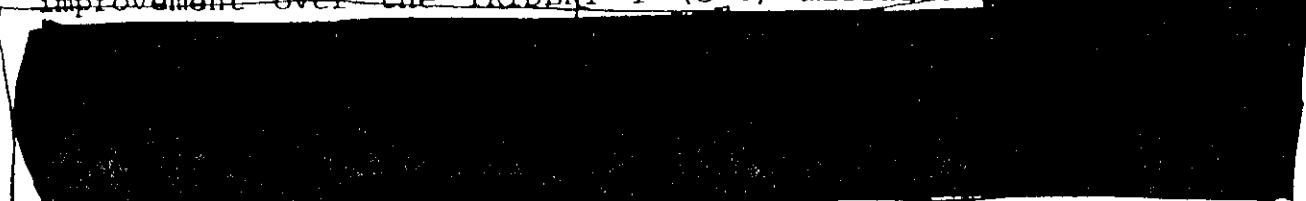
<u>Missile Component</u>	<u>Down Range Impact (nautical miles)</u>
First Stage	[REDACTED]
Nose Fairings	[REDACTED]
Second Stage	[REDACTED]
Third Stage	[REDACTED]
Equipment Section	[REDACTED]
Warheads	[REDACTED]

The first three components impact within the first [REDACTED] down range while the last three reenter in the proximity of the target. The third stage and equipment sections, however, are not designed nor hardened to survive reentry at the target ranges and probably will be significantly broken up if not destroyed during reentry. Although most launch points are located in the broad ocean area, there can be some cases where the nose fairings and the second stage may impact on land. The first (largest) stage will probably not impact on land for any reasonably anticipated launch point for the TRIDENT II (D-5) missile. None of these components, except the warhead, have been designed in such a fashion as to create a hazard upon impact.

2. [REDACTED] Guidance.

The design of the TRIDENT II (D-5) missile guidance, like the TRIDENT I (C-4), will be a stellar inertial system, but with improved stellar sensor and instrument

performance, its accuracy will represent a significant improvement over the TRIDENT I (C-4) missile.



DCE
b(3)


However, this variation in CEP as a function of range, launch and trajectory conditions does not affect the TRIDENT II missile capability against soft targets.

D. (U) Weapon Effects.

1. (U) Structures and Installations.

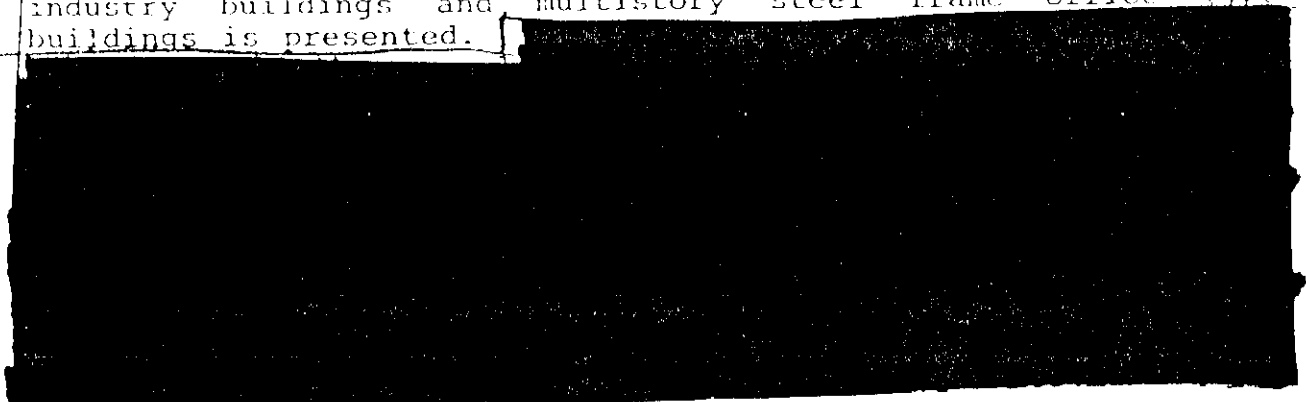
Structures and installations are categorized as soft, including industrial type of facilities and soft military targets; and hard, such as hardened missile silos, hardened command and control centers, etc. The weapon effects on these two types of targets are quite different and will be treated separately.

DCA
1

a.  Soft Targets.

Soft targets include industrial facilities, unhardened military installations, supply centers, government administrative and communications centers, etc. As an example of the effect of the TRIDENT II with the MK4 or MK5 Reentry Body against soft targets, the damage expectancy against heavy industry buildings and multistory steel frame office type buildings is presented.

PARSER
NOT
DCA



SEE
DCA

(3)

b. (SRD) Hard Targets.

Hard targets include hardened missile silos, reinforced blast-resistant military and government command and control centers, underground nuclear production and storage facilities, massive solid arch masonry and concrete bridges, dams, locks, etc. As an example of the effectiveness of the MK4 Reentry Body against hard targets, the damage expectancy against an arched concrete gravity dam with a full reservoir is

PARSER
NOT
DCA

considered. About 1,650 psi overpressure will result in a 50 percent probability of ~~cracking and breaching~~ the dam.

[REDACTED]

105
b(3)

2. (U) Personnel.

Collateral fatalities/injuries associated with a nuclear warhead attack against industrial or military targets will result.

a. (U) Specific Effects.

(1) (SRD) Thermal.

DOE
b(3)

[REDACTED]

OLA
-1
-2

(2) (SRD) Initial Nuclear-Radiation.

DOE
b(3)

[REDACTED]

-1
-2

(3) (SRD) Peak Overpressure.

DOE
b(3)

[REDACTED]

b. (SRD) Combined Effects.

Collateral injuries in cities are generally dominated by secondary blast effects resulting from peak overpressures as low as 3-5 psi.

DOE
b(3)

[REDACTED]

JOE
H(3)



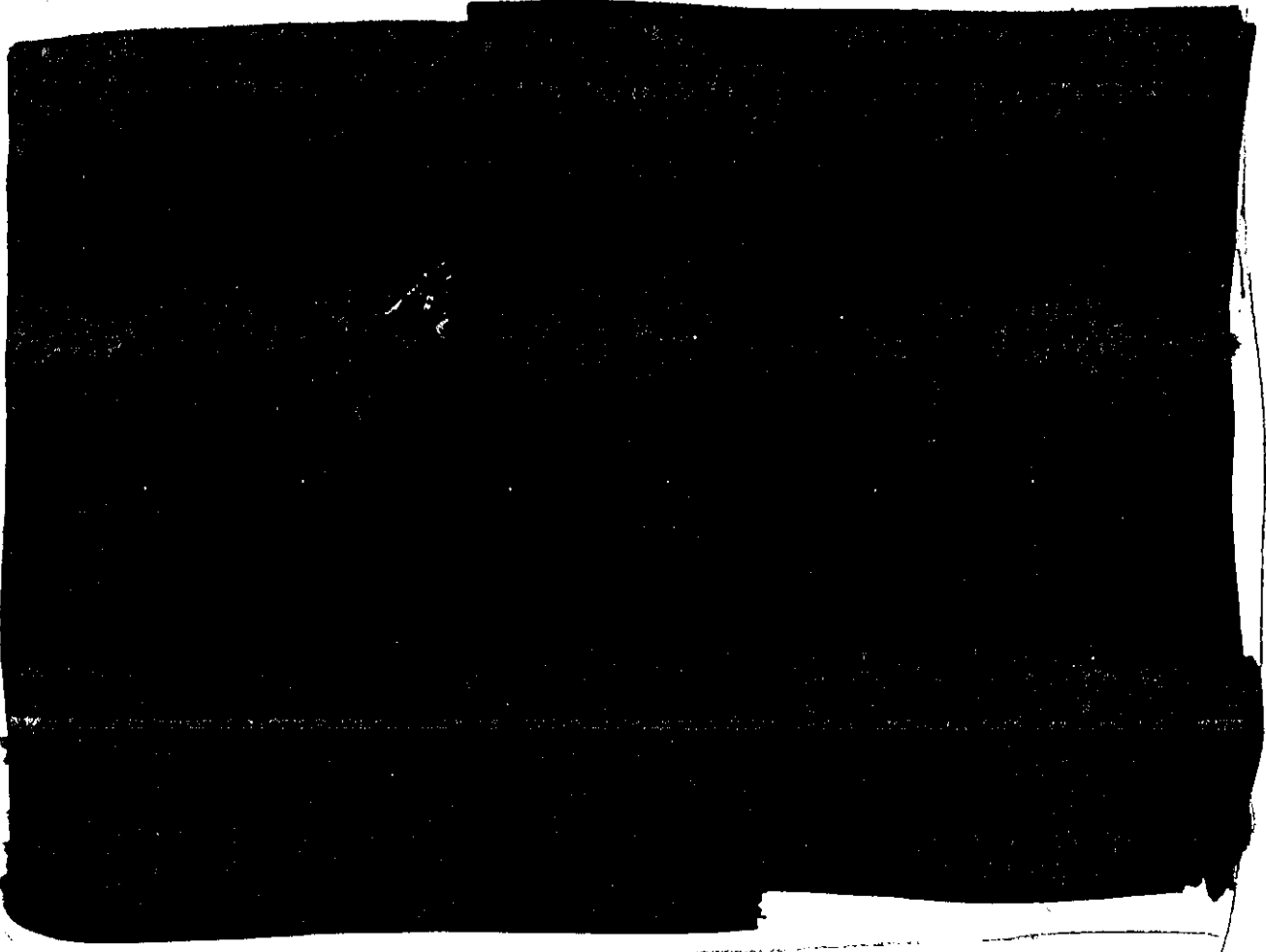
c. (U) Fallout Radiation.

(1) (U) Soft Targets.

Since the optimum height of burst for industrial and soft military targets is [redacted] the minimum altitude defined for an air-burst weapon, contamination from fallout is [redacted]

(2) [redacted] Hard Targets.

O/A
1,2



E
d(3)




II. (U) Employment of the Weapon.



A.  General.



B. (U) National Strategic Objectives.

1. (U) The long term U.S. objective is to provide a credible deterrent and a capability to attain military objectives across the entire spectrum of conflict [JSCP FY 85 at p. 11-6]. The most important mission of U.S. strategic nuclear forces is deterrence of attack on the United States and its allies [U.S. Military Posture FY 1985 at p.21].

2.  The primary role of U.S. strategic nuclear forces is to deter nuclear attack on the U.S., its forces, allies and friends. In conjunction with strategic nuclear and conventional forces, strategic forces also contribute to deterrence of major conventional aggression. Should deterrence nevertheless fail,  must endure to deny  U.S. strategic nuclear forces have six major missions:

- a.  
- b. (U) Minimize the extent to which nuclear threats could be used to coerce the U.S. and our allies.
- c. (U) Support alliance commitments.
- d. (U) Should deterrence fail, deny the enemy military victory at any level of conflict, and force earliest termination of hostilities on terms favoring the U.S.
- e. (U) Limit damage to the U.S. and its allies, to the extent possible, by active and passive measures.
- f. (U) Maintain in reserve, under all

circumstances, sufficient U.S. nuclear forces to deter the enemy's remaining nuclear forces.

[Defense Guidance FY 86-90]

C. (U) Pertinent Limitations on Employment.

1. Personnel and Residential Structures.

CEA
2 } Nuclear attack planning is not directed toward civilian population or residential structures per se, although substantial injury/damage to population and residential structures may result from targeting to accomplish the objectives in paragraph II.B. above. Additionally, plans for utilization of nuclear weapons are designed to minimize civilian casualties and civil destruction in friendly and neutral countries.

2. Urban Areas.



III. (U) Applicable International Law.

A. (U) General.

The means of warfare which may lawfully be used by belligerents is not unlimited. Hague Convention No. IV Respecting the Laws and Customs of War on Land, Annexed Regulations, Article 22, October 18, 1907, 36 Stat. 2277, T.S. No. 539, i Bevans 631 [hereinafter cited as Hague Regulations]. It is generally considered that, unless expressly prohibited, the selection of a weapon and its use are permissible under international law. See e.g., Dept. of the Navy, NWIP 10-2, Law of Naval Warfare, Sec. 613 [hereinafter cited as NWIP 10-2]. The relevant principles embodied in such prohibitions are:

1. (U) Unnecessary Suffering.

Article 23(e) of the Hague Regulations prohibits the employment of "arms, projectiles, or material calculated to cause unnecessary suffering." A weapon and its use are lawful in this regard if the reasonably predictable nature and number of personnel casualties caused by the weapon are not disproportionate to the military necessity dictating its use under the circumstances, in consideration of the effectiveness of the weapon against the particular target and alternative weapons available for accomplishing the military objective. Dept. of the

Air Force, AFP 110-31, International Law Relevant to the Conduct of Armed Conflict and Air Operations, para. 6-3.b., at 6-2 [hereinafter cited as AFP 110-31], and sources cited therein.

2. (U) Poison, Poisoned Weapons and Poison Gas.

Article 23(a) of the Hague Regulations forbids the use of "poison or poisoned weapons," and the first use of lethal gas is prohibited by the Geneva Protocol on the Prohibition on the Use in War of Asphyxiating, Poisonous, or Other Gases, and of Bacteriological Methods of Warfare, June 17, 1925, T.I.A.S. No. 8061, 94 L.N.T.S. 65. Moreover the United States has renounced the first use in war of riot control agents and herbicides, except in certain limited circumstances. Exec. Order No. 11850, 40 Fed. Reg. 16187 (1975); 3 C.F.R. 980 (1971-1975 Compilation).

3. (U) Indiscriminate Effects.

The St. Petersburg Declaration Renouncing the Use, in Time of War, of Explosive Projectiles under 400 Grammes Weight, November 29/December 11, 1868, 1 Am. J. Int'l L. Supp. 95 (1907), confirmed the customary rule against unnecessary suffering and also stated: "That the only legitimate object which States should endeavor to accomplish during war is to weaken the military force of the enemy." [Emphasis supplied.] Indiscriminate weapons are those which cannot be accurately directed at military objectives or those the effects of the use of which are so uncontrollable as to necessarily cause disproportionate injury or damage to civilian persons or objects. AFP 110-31, supra, para. 6-3.c., at 6-3, and sources cited therein.

4. (U) Attack on Civilian Populations and Urban Areas.

Attacks on civilians are prohibited by Article 3 (1) of the Geneva Convention Relative to the Protection of Civilian Persons in Time of War, August 12, 1949, 6 U.S.T. 3516, T.I.A.S. No. 3365, 75 U.N.T.S. 287: "Persons taking no active part in the hostilities . . . [shall not be subjected to] . . . violence to life and person" Article 24 of the Hague Regulations provide, in part:

(1) Aerial bombardment is legitimate only when directed at a military objective—that is to say, an object of which the destruction or injury would constitute a distinct military advantage to the belligerent.

(2) Such bombardment is legitimate only when directed exclusively at the following objectives: military forces; military works; military establishments or depots; factories constituting important and well-known centres engaged in the manufacture of arms, ammunition, or distinctively

military supplies; lines of communication or transportation used for military purposes.

(3) The bombardment of cities, towns, villages, dwellings, or buildings not in the immediate neighborhood of the operations of land forces is prohibited

(4) In the immediate neighborhood of the operations of land forces, the bombardment of cities, towns, villages, dwellings, or buildings is legitimate provided that there exists a reasonable presumption that the military concentration is sufficiently important to justify such bombardment, having regard to the danger thus caused to the civilian population.

. . . .

Article 25 of the Hague Regulations provides, "The attack or bombardment, by whatever means, of towns, villages, dwellings, or buildings which are undefended is prohibited." The Hague Convention No. IX Concerning Bombardment by Naval Forces in Time of War, February 28, 1910, 36 Stat. 2351, T.S. No. 542, 1 Bevans 681, contains a similar provision in Article 1 and also provides:

Article 2. Military works, military or naval establishments, depots of arms or war material, workshops or plants which could be utilized for the needs of the hostile fleet or army, and the ships of war in the harbor, are not, however, included in this prohibition. The commander of a naval force may destroy them with artillery, after a summons followed by a reasonable time of waiting, if all other means are impossible, and when the local authorities have not themselves destroyed them within the time fixed.

He incurs no responsibility for any unavoidable damage which may be caused by a bombardment under such circumstances.

If for military reasons immediate action is necessary, and no delay can be allowed the enemy, it is understood that the prohibition to bombard the undefended town holds good, as in the case given in paragraph 1, and that the commander shall take all due measures in order that the town may suffer as little harm as possible.

Article 5. In bombardments by naval forces all the necessary measures must be taken by the commander to spare as far as possible sacred edifices, buildings used for artistic, scientific, or charitable purposes, historic monuments, hospitals, and places where the sick or wounded are collected, on the understanding that they are not used at the same time for military purposes



Article 6. If the military situation permits, the commander of the attacking naval forces, before commencing the bombardment, must do his utmost to warn the authorities. See also NWIP 10-2, supra, sec 621.

5. (U) SALT II.

The SALT II agreement between the United States and the Soviet Union limits the total number of multiple independently targetable reentry vehicles (MIRVs) at 1200 from intercontinental ballistic missiles (ICBMs) [sub-limit of 820 maximum], submarine launched ballistic missiles (SLBMs), and air-to-surface ballistic missiles (ASBMs). The United States has not ratified the SALT II accords.

IV. (U) Consistency of Weapon and its Employment with International Law.

A. [REDACTED] Unnecessary Suffering.

Some arguments assert the illegality of nuclear weapons by application of Article 23(e) of the Hague Regulations to the effects of the weapons: the use of these weapons results in horrible and lasting effects not experienced from other weapons, and their degree is such as to render death inevitable to its victims. M. Greenspan, The Modern Law of Land Warfare 371 (1959) [hereinafter cited as Greenspan]; J. Stone, Legal Controls of International Conflict 343 (1954). Other arguments cite additionally the 1949 Geneva Conventions, U.N. General Assembly resolutions, and the Genocide Convention of 1948. See, e.g. Falk, Meyrowitz, Sanderson, "Nuclear Weapons and International Law," World Order Studies Program, Occasional Paper No. 10, Center of International Studies, Princeton University (1981). The rule to be applied "is not, however, the simple fact of destruction, nor even the amount hereof, that is relevant in the appraisal of such [weapons]; it is rather the needlessness, the superfluity of harm, the gross imbalance between the military result and the incidental injury that is commonly regarded as decisive of illegitimacy." M. McDougal & F. Feliciano, Law and Minimum World Public Order 616 (1961) [hereinafter cited as McDougal & Feliciano]. While application of this "rule of proportionality" does not compel the conclusion that the use of nuclear weapons, as a matter of law, causes unnecessary suffering, it does require that authorities give every consideration to minimizing the collateral effects of these weapons upon personnel. O'Brien, Legitimate Military Necessity in Nuclear War, 2 World Policy 35 (1960) [hereinafter cited as O'Brien]. With specific reference to the TRIDENT II (D-5) missile, its warhead and its height of burst options over the target are designed and programmed [REDACTED]

[REDACTED] As a result, the thermal and radiation effects associated with the TRIDENT II warhead detonation are significantly degraded in terms of the maximum number of personnel casualties which would otherwise result.

B. [REDACTED] Poison, Poisoned Weapons and Poison Gas.

The missile warhead contains certain amounts of [REDACTED] all of which are radioactive and which also cause chemically deleterious physiological effects. Two considerations, however, support the conclusion that these effects are entirely secondary:

26P
2

i. Fully 90%-95% of the combined effects upon personnel of the use of the weapon result from blast and heat caused by the explosion rather than from initial radiation. The effects of fallout radiation are minimized [REDACTED]

ii. All substances which are inherently chemically deleterious are so fundamentally altered by the nature of the fission process in the explosion as to drastically minimize if not completely dissipate their chemically deleterious effects after detonation.

Further, as concerns the chemically deleterious effects of [REDACTED] prior to detonation, such effects are not dissimilar from the heavy metal poisoning caused by lead, which itself is not prohibited by international law. For a discussion of the toxicity of depleted uranium, see Dept. of the Army, DAJA-IA 1976/23 of 4 May, 1976, subject: Review of the XM774 for Legality under International Law. Finally, analogies to the specific prohibitions of poison, poison gas or bacteriological agents or other expressly prohibited weapons ignore the reality of current state practice and the generally accepted rule that, in order to be proscribed in international law, a weapon or its use must be the subject of an express prohibition. Mallison, The Laws of War and the Judicial Control of Weapons of Mass Destruction in General and Limited Wars, 36 Geo. Wash. L. Rev. 308, 331 (1967); McDougal & Feliciano; supra, at 77-8; O'Brien, supra, at 100 n. 83.

C. (U) Indiscriminate Effects.

The degree of accuracy achievable by the TRIDENT II (D-5) missile is greater than that of the predecessor TRIDENT I missile. This accuracy affords the United States greater flexibility in weapon employment and ability to minimize collateral damage. D. Hoag, Strategic Ballistic Missile Guidance—A story of Even Greater Accuracy, 16 Astronautics and Aeronautics 28, 37-39 (May 1978). Further, the accuracy of the TRIDENT II (D-5) overcomes legal objections to ballistic missiles based upon analogy to such indiscriminate weapons as the German V-2 rockets. E. Castren, The Present Law of War and Neutrality 204 (1954); Greenspan, supra, at 79 n. 193. As discussed in IV. A. above, the employment guidance and design of the TRIDENT II (D-5) missile permit a considerable degree of control over the effects of the weapon. Such optimization of weapon employment parameters

[REDACTED]

to enhance the achievement of military objectives significantly degrades the weapon's effects on collateral personnel injuries.

D. [REDACTED]

OCA
283

V. (U) Summary and Conclusion.

A. (U) The Weapon.

The TRIDENT II (D-5) missile as currently configured with the MK4 or MK5 Reentry Body is consistent with the obligations of the United States under international law.

B. (U) Employment of the Weapon.

1. (U) General.

While it cannot, as a matter of law, be stated that use of the TRIDENT II missile is prohibited, the nature of the weapon and its effects dictate that any decision for its employment must include the most scrupulous attention at the highest level to principles of international law relative to the selection and use of all weapons, conventional or nuclear, and that these principles be implemented in applicable plans for employment of this weapon:

[REDACTED]

a. [REDACTED] In order to minimize suffering, the use of this weapon solely against personnel should be prohibited if suitable alternative anti-personnel weapons are available.

b. [REDACTED] The use of this weapon should be prohibited when its effects create risks of disproportionate injury/damage to protected civilian personnel or objects. The potential for risks of disproportionate injury/damage to civilian personnel or objects must be considered and precautions must be taken to minimize these risks if, in the absence of suitable alternative weapons, circumstances dictate the use of this weapon.

c. [REDACTED] It must be recognized that the employment limitations against nuclear attacks directed toward civilian population or residential structures per se is perhaps the most singularly "absolute rule of law" governing the use of weapons. See Lauterpacht, The Problem of the Revision of the Law of War, 29 Brit. Y. B. Int'l L. 360 (1952).

2. [REDACTED] Reprisals.

The weapon and the current guidance for its employment are designed to afford the National Command Authority with a maximum degree of flexibility in responding to situations of extreme national importance. No attempt has been made in this review to determine the propriety of selection of individual targets, or all of the circumstances in which they might be struck by this weapon. It is recognized, however, that the flexibility afforded to the National Command Authority must include the doctrine of reprisal, which depending on the circumstances, would permit certain otherwise prohibited actions in response to an act by the enemy which contravenes the laws of war.

[REDACTED]