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REPORT

OF THE

NET EVALUATION SUBCOMMITTEE

NATIONAL SECURITY COUNCIL

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II. SUMMARY AND CONCLUSIONS

A. SUMMARY

1. General. This Net Evaluation examines the types, weights and effects of four alternative SOVIET attacks on the continental UNITED STATES delivered under the following conditions:

a. Under a condition of "Strategic Surprise" on a Composite (Military-Civil) Target System assuming a low state of defense effectiveness (Low Attrition). (Known as Condition VI.) This Condition was chosen as the primary Condition for purposes of control and analysis.

b. Under a condition of "Strategic Surprise" on a Composite (Military-Civil) Target System assuming a high state of defense effectiveness (High Attrition). (Known as Condition II.)

c. Under a condition of "Strategic Surprise" on a predominantly Military Target System assuming a low state of defense effectiveness (Low Attrition). (Known as Condition V.)

d. Under a condition of "Full Alert" on a Composite (Military-Civil) Target System assuming a low state of defense effectiveness (Low Attrition). (Known as Condition VIII.)

2. Weights of SOVIET Attacks. Under the Conditions described above, it is estimated that the USSR could deliver the following types and weights of nuclear attack against the continental UNITED STATES expressed in terms of numbers and yields of nuclear weapons:

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WEAPONS 3/	CONDITION VI (Surprise-Composite Targets-Low Attrition)	CONDITION II (Surprise-Composite Targets-High Attrition)	CONDITION V (Surprise-Military Targets-Low Attrition)	CONDITION VIII (Full Alert-Composite Targets-Low Attrition)
Reaching limits of U.S. contiguous radar	826/ 4310 MT	826/ 4310 MT	849/ 4004 MT	896/ 5699 MT
Detonating in the U.S. and within limits of U.S. contiguous radar	783/ 4071 MT	755/ 3964 MT	806/ 3789 MT	850/ 5443 MT
Affecting the continental UNITED STATES	750/ 3905 MT	613/ 3047 MT	754/ 3580 MT	811/ 5173 MT
Detonating in the continental UNITED STATES	733/ 3746 MT	540/ 2533 MT	739/ 3514 MT	789/ 5048 MT
Detonating on target	611/ 3218 MT	236/ 1086 MT	620/ 2935 MT	686/ 4449 MT
Detonating on military targets	389/ 1775 MT	176/ 768 MT	562/ 2724 MT	387/ 2081 MT
Detonating on non-military targets	222/ 1443 MT	60/ 318 MT	58/ 211 MT	299/ 2368 MT
Detonating off target 4/	139/ 687 MT	377/ 1961 MT	134/ 645 MT	125/ 724 MT

3. Damage to the UNITED STATES. We estimate that the attacks described above would result in direct damage to the continental UNITED STATES of the following order of magnitude:

3/ All detonation totals include yields from weapons armed with "dead man" fuze in killed bomb carriers when a "weapon kill" was not effected.

4/ Weapons affecting CONUS. Additional weapons detonated within the limits of U.S. contiguous radar but did not affect CONUS.

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EFFECTS	CONDITION VI (Surprise-Composite Targets-Low Attrition)	CONDITION II (Surprise-Composite Targets High Attrition)	CONDITION V (Surprise-Military Targets-Low Attrition)	CONDITION VIII (Full Alert-Composite Targets-Low Attrition)
Fatalities 5/	85 million	46 million	70 million	95 million
Surviving injured 5/	12 million	14 million	15 million	12 million
Casualties as a percentage of the pre-attack population of 179 million 5/	54%	33%	48%	60%
Government control	Virtually wiped out. President and legal successors killed. Few Congressmen remaining. 18 State Governments destroyed.	Damage less than Condition VI although severe.	Damage less than Condition VI although extremely severe.	Approximately that of Condition VI.
Communications	Severe damage but residual had capacity to handle essential high priority messages.	Damage less than under Condition VI.	Damage less than under Condition VI but severe	Approximates that of Condition VI.

5/ Considered to be those occurring during the first year after the attack.

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Food	Post-attack stocks of processed foods would have been exhausted by survivors by D / 21. Gross quantities of undamaged bulk and unprocessed foods would have been sufficient to feed survivors. Immediate rationing necessary to insure equitable distribution. Food processing, its transport, and distribution, would be matters of highest priority.	See Condition VI	See Condition VI	See Condition VI
Industry	Immediate effective loss of approximately 88% of pre-attack plant and materials. National recovery in balance	Damage markedly less than under Condition VI. 41% of pre-attack capacity undamaged.	Immediate effective loss of approximately 70% of pre-attack plant and materials.	Slightly heavier damage than under Condition VI.

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Rail transportation	Rail capacity suffered immediate loss of 85% pre-attack capability.	Suffered loss of approximately 64% of pre-attack capacity.	80% of pre-attack capability lost.	87% of pre-attack capability lost. Recovery to 50% of pre-attack capability possible by D / 1 year.
Petroleum Refining Capacity	86% of pre-attack capacity suffered immediate damage. 23% of pre-attack capacity available by D / 3 months.	60% of pre-attack capacity damaged. 55% of pre-attack capacity available by D / 3 months.	54% of pre-attack capacity damaged.	89% of pre-attack capacity damaged. Only 37% of pre-attack capacity available after 1 year.
Housing (Damage does not include that to be expected from fire spread.)	75% of pre-attack housing damaged by blast, fire, and fallout	46% of pre-attack housing damaged.	70% damaged.	79% damaged.
Military Posture (For the potential effect of clandestine nuclear attack on SAC bases, see Section IV, paragraph B.2. g.(3).)	AF. All SAC alert force launched. SAC command control operational thru alternate CP's. 568 SAC bombers destroyed out of total of 1,800. 270 SAC (Cont'd)	AF. Damage to SAC and ADC approximately 50% of that sustained under Condition VI.	AF. SAC damage approximated that sustained under Condition VI. ADC damage 50% greater than in Condition VI.	AF. SAC damage approximated that of Condition II, although 178 more bombers were launched on strikes against the USSR. ADC damage greater than in Condition VI. (Cont'd)

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Military Posture (Cont'd)	AF.(Cont'd) tankers destroyed out of total of 1,060. Remaining SAC aircraft were supportable. 2,420 interceptors destroyed out of 5,748 total. 50% of residual operational. ADC command control limited generally to sector level.			AF. (Cont'd) Only 895 interceptors available at D / 1 out of pre-attack total of 5,748.
	Army. AJCC at Fort Ritchie denied by fallout. 3-3/5 Divisions remain out of a total of 8. Command control adequate. 12 out of 84 SAM battalions operational with 9 additional battalions equivalents retaining limited operational capability, with command control limited to sector level. Supply could support remaining forces until D / 3 months.	Army. 4-1/5 Divisions available out of total of 8. 49 SAM battalions operational out of pre-attack total of 84. Residual forces could be supported out of depot stocks until D / 3 months.	Army. 1-1/5 Divisions out of 8 remained operational. 26 SAM battalions out of pre-attack total of 84 remained.	Army. Damage approximated that sustained under Condition VI.

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Military Posture (Cont'd)	Navy. Atlantic Fleet degraded to 60% of pre-D-day strike capability. Pacific Fleet degraded to 75% of pre-D-day effectiveness. Command control adequate, thru ship-based facilities. Mobile Logistic Forces could support residual combat units at high effectiveness until D / 3 months. Although shore establishment destroyed, 85% of POL stocks remained.	Navy. Damage lighter than under Condition VI. Approximately 50% of shore-based establishment available.	Navy. Damage approximated that of Condition VI to fleet units although a greater part of shore establishment undamaged.	Navy. 75% of fleet units undamaged. Majority of major shore establishments in support of fleet destroyed.
	Marine Corps. Capability degraded approximately 25%. One Division and One Air Wing Operational at D / 1.	Marine Corps. No serious degradation of capability. Operational units relatively undamaged.	Marine Corps. All ground combat capability lost. 50% of air support capability destroyed.	Marine Corps. 50% of ground capability unavailable until D / 30. All air support capability lost.

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4. Description of Soviet Attacks.

a. Under Condition VI. With no strategic warning, the USSR launched a massive manned-bomber attack against the UNITED STATES, with the objective of inflicting the greatest possible damage on the industry and population of the UNITED STATES while destroying the U.S. nuclear capability. The leading aircraft of this strike crossed the Distant Early Warning (DEW) Line at H-hour, 0400Z, 17 May 1960. At H-hour, one 8-MT nuclear device, clandestinely introduced, was detonated in the Soviet Embassy in WASHINGTON, D. C., another in the offices of the SOVIET United Nations Delegation in NEW YORK CITY. Commander in Chief, Strategic Air Command (CINCSAC) and Commander in Chief, Continental Air Defense Command (CINCONAD) were alerted by these simultaneous detonations, and the initial units of the SAC alert force were launched at H + 10 minutes. All of the SAC alert force cleared by H + 22 minutes. Between H + 22 and H + 51 minutes, 21 SAC bases in coastal areas were hit by submarine-launched missiles (6.2)(a) of the [redacted] These destroyed 304 B-47s, 109 B-52s and 162 tankers of the SAC follow-on strike before they could become airborne. In the ensuing attack by the 793 SOVIET bombers and the 31 sub-launched missiles that reached the limits of U.S. contiguous radar coverage, all but three SAC bases were destroyed or denied by fallout. Command control of SAC passed to a surviving alternate headquarters when OFFUTT Air Force Base was destroyed at H + 4 hours. The last SOVIET bomb detonated on the UNITED STATES in LOS ANGELES at 2215Z, 17 May 1960, or at H + 18:15 hours. This attack resulted in nuclear detonations and damage in the UNITED STATES of the magnitudes described in paragraphs 2. and 3., above.

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b. Under Condition II. The SOVIET attack under this condition was delivered under the same circumstances of "Strategic Surprise" and was directed against the same target system as in Condition VI. The timing of the two attacks was the same, as was the number of SOVIET bombers and missiles reaching the limits of U.S. contiguous radar. Under Condition VI, the enemy forces suffered an attrition of 22 percent, where in Condition II the attrition of enemy weapon carriers was 70 percent. As a result of the greatly increased effectiveness of the U.S. air defenses (high attrition) under Condition II, the damage to military and civil targets from blast and thermal was materially reduced, while the fallout damage remained roughly the same as under Condition VI. Consequently, SAC was able to launch a much larger follow-on strike against the USSR.

c. Under Condition V. The SOVIET attack under this Condition was initiated under the same circumstances of surprise and timing as in Condition VI, with 819 SOVIET bombers and 28 SOVIET submarine-launched missiles reaching the limits of U.S. contiguous radar coverage. The attack under this Condition was directed against a predominantly military target system, although the roughly 14 percent of the weight of the attack scheduled against non-military targets was directed against targets in the major population and industrial concentrations of the nation. The damage to the SAC follow-on strike, as a result of the shifting of emphasis in the target system, was greater under this Condition than that sustained under Condition VI.

d. Under Condition VIII. In this Condition, the USSR started mobilization and redeployment of forces at D - 30. These actions caused the UNITED STATES and its

ALLIES to place themselves in a posture of "Full Alert" ten days later, or at D - 20. The period of tactical warning was limited, however, since the UNITED STATES had no specific warning of the SOVIET strikes until the initial aircraft of the Long Range Air Force (LRAF) strikes crossed the DEW Line at H-hour, 0400Z, 17 May 1960. The submarine-launched missile attack, although limited to 50 percent of the scale of those under other Conditions, was so timed as to detonate the first missiles over SAC targets at H-hour. The USSR, not being restricted by a requirement to maintain "Strategic Surprise," was able to mount an attack of such scale as to have 881 bombers and 15 submarine-launched missiles reach the limits of U.S. contiguous radar. Other operational considerations permitted the USSR to utilize a larger number of heavy bombers, which allowed the scheduling of larger weapons against targets in population and industrial concentrations. With the exception of the differences noted above, the general timing and actions in this attack approximated those of Condition VI. As a result of the heightened state of readiness of the UNITED STATES, SAC was able to launch 1502 bombers on alert or follow-on strikes out of a pre-attack availability of 1,800 aircraft. All 60 alert strategic air-breathing missiles available to SAC could have been launched against targets in the USSR. U.S. air defense forces had been augmented by Naval and Marine, and both Army and Air Force National Guard units. While the weight of the attack received by the UNITED STATES under this Condition was the greatest of those received under the four Conditions studied, pre-attack preparations would have permitted a more effective retaliatory attack, and more direct benefits to be gained from intensive implementation of passive defensive measures.

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5. The U.S. Retaliatory Attack on the SOVIET Bloc.

a. This year's Net Evaluation considers but one U.S. nuclear retaliatory attack on the SOVIET BLOC; that is, an attack possible of being delivered under Condition VI.

b. Weight of Retaliatory Attack. Under the conditions of SOVIET attack as postulated in Condition VI, it was estimated that the UNITED STATES Strategic Air Command could deliver the following weight of nuclear attack against the SOVIET BLOC, expressed in terms of numbers and yields of nuclear weapons:

(6.2)(a)

Weapons (Carried by bombers and missiles)	Numbers/Yields
Reaching limits of SOVIET Contiguous Radar	[redacted]
Detonated within the SOVIET BLOC	
Detonating on Target	
Detonating off Target but within the SOVIET BLOC	

c. Damage to the USSR. We estimate that an attack of the weight described above would result in damage to the USSR of the following order of magnitude. The damage described below would have resulted from the SAC retaliatory strikes only. The gross damage that could be expected to accrue to the USSR and its SATELLITES in the event of a global nuclear war would be of a considerably higher order as the result of the actions of UNITED STATES and ALLIED forces stationed in the EUROPEAN area.

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CATEGORY	DAMAGE
Fatalities 5/	81 million
Injured 5/	15 million
Casualties as a percentage of pre-attack population of 205 million 6/	46 percent
Government control	Casualties among governmental control personnel were 60 percent. 28 percent of control centers destroyed, to include MOSCOW, LENINGRAD and KIEV.
Communications	20 percent of major telecommunications centers destroyed.
Industry	15 percent direct physical damage. Production reduced to 60 percent of pre-attack level by end of D + 1 year.
Transportation	Reduced by 60 percent for first 6 months after attack.
Military Posture	LRAF. 92 medium and heavy bombers and no tankers remained at conclusion of nuclear exchange (H + 19:03 hours). PVO. 60 percent of interceptor strength available at D + 1. Availability of personnel and bases not limiting factor. 48 out of an original 70 SAM sites remained but inter-site control heavily damaged. Ground Forces. 56 out of 82 higher headquarters destroyed. Little damage to dispersed units. Forces largely immobilized by fallout. Navy. Shore establishment reduced to 59 percent of pre-attack capability. Fleet operations limited after D + 30 by supply problems.

5/ Considered to be those accruing during the first 6 months after D-day.

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d. Description of U.S. Retaliatory Strikes. As a result of the tactical alert received from the DEW Line crossings and the warning due to the detonation of the clandestine nuclear weapons in WASHINGTON, D. C. and NEW YORK CITY, SAC was able to launch its alert force (33 percent of its assigned bomber strength) and all 60 of its alert strategic air-breathing missiles before SOVIET submarine-launched missiles reached SAC bases. In addition, 294 bombers of the follow-on force were launched. In all, 720 SAC bombers and 47 strategic missiles reached the limits of SOVIET contiguous radar and delivered an attack of the order described in paragraphs 1. and 2. above. The first SAC bomber reached SOVIET contiguous radar at 1120Z on D-day, and the last SAC bomber withdrew from the SOVIET BLOC at 2303Z on D-day; at that time, the USSR had substantially no remaining capability to deliver a nuclear attack against the UNITED STATES, and the nuclear exchange was considered to be terminated although a material nuclear capability remained in the SOVIET stockpile. The SAC attack was directed against a military target system which included 74 government control centers. Industry and population, as such, were not targeted, the damage to these targets being caused by fallout and the bonus received from the blast and thermal effects of weapons detonating off their desired targets or on military targets in population centers.

6. Comparisons Drawn from the Damage Effects of the Several Soviet Attacks

a. The Effect of a Low State of Defense Effectiveness as Compared to that of a High State of Defense Effectiveness. This Evaluation shows that definitive benefits can accrue from increasing the effectiveness of the air defense system. Under a state of high defense effectiveness many enemy weapons can be shot down outside the continental boundaries in places where

their detonations, in the event that the weapon is not destroyed in the air, can have little or no effect on the UNITED STATES. Additionally, and of equal importance, many enemy weapons can be prevented from reaching their assigned targets, consequently reducing the over-all blast and thermal damage effects to the resources of the nation. If a weapon can be surely killed when its carrier is killed, which is apparently not possible in this time period, reductions of a high order of the total effects from blast, thermal and fallout can accrue.

b. The Effect of a Military Target System as Compared to that of a Composite (Military-Civil) Target System. The size of the Long Range Air Force and the nature and extent of the SOVIET stockpile as reflected in current National Intelligence Estimates allowed the USSR to target the major industrial and population concentrations of the nation even while concentrating on U.S. nuclear retaliatory forces as well as other military resources. Additionally, many casualties and other damage to national resources accrued as a bonus effect from attacks against military targets. This could be expected to hold true as long as the population remained a soft target. While this Evaluation notes 12 million less casualties from an attack directed against a military system than from an attack of similar weight against a composite target system, an increase in SOVIET nuclear capabilities and in means of delivery could be expected to reduce or eliminate this difference.

c. The Effect of Being Fully Alerted as Compared to That of Sustaining "Strategic Surprise." The essential point to be made in comparing the effects of these two conditions of strategic warning is that the USSR was able to mount a considerably heavier attack against the UNITED STATES, with

some greater resultant damage, when unrestricted by a requirement to attain "Strategic Surprise," thus negating the effects of a long warning period during which current passive defense plans could be implemented. On the otherhand, this longer alert period permitted SAC to launch a heavier retaliatory strike against the USSR. It should be borne in mind, in this comparison, that the degree of tactical warning received under this condition of "Full Alert" was no greater than that received under the condition of "Strategic Surprise."

7. Shelter Value and Associated Problems. In this Evaluation, it was assumed that the population would utilize such shelter from fallout as was available, i.e., basements and other structures, particularly in the northern part of the UNITED STATES. The provision of fallout shelter for essentially all of the population would probably reduce estimated casualties by as much as 35 percent, provided that the people who escaped the effects of blast, thermal radiation and the high intensities of initial nuclear radiation, had the fortitude and emergency supplies to remain in shelters for seven days or longer. By providing shelter expressly designed to afford protection from blast and thermal effects, it is estimated that the casualties would be further reduced very materially; approaching 80 percent if under the conditions postulated in Condition VI, wherein there were 97 million casualties. SOVIET use of intercontinental ballistic missiles (ICBM), against CONUS will shorten the warning time of attack by a considerable degree. This will pose a requirement for extending the present NORTH AMERICAN warning system so that the population, both military and civilian, will have time to take advantage of such shelter as may be available. Another problem connected with the use of shelters and more importantly, with the survival of the nation, is the

question of available food, medicines, tools, and hard goods for survival and recuperation. The present National Strategic Stockpile places emphasis on raw materials. It appears that consideration should be given to shifting this emphasis from raw materials to finished products to include food and the fundamental items necessary to the survival and recuperation of the nation.

8. The Effect of Ballistic Missiles on the Nuclear Retaliatory Capability. The advent of a SOVIET ICBM operational capability will vastly reduce the already foreshortened tactical warning time available to the UNITED STATES under any condition of SOVIET attack. This in turn will critically affect the absolute requirement for the UNITED STATES to ensure nuclear retaliation, requiring dispersion of bomber bases, the dispersion and hardening of strategic missile launching sites, and the development and early provision of an effective counter-ICBM defense system, to include a very long-range early warning system, for the protection of the U.S. nuclear retaliatory capability.

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B. CONCLUSIONS. Any evaluation of net capabilities at a time three years in the future is necessarily speculative. We have had to make definite assumptions regarding a number of factors with respect to which our knowledge is limited. We lack firm information, regarding U.S. military forces and capabilities, as of 1960, because much depends on progress in weapons development, and because of changes to military programs which may result from strategic, political, and budgetary considerations. Already we have reason to believe that the strength of U.S. air defense forces, as of 1960, will be considerably less than that which we assumed in our military operations analysis on the best advice then available to us. Of necessity, our information regarding SOVIET military forces and capabilities in 1960 is even more conjectural. However, we are confident that the hypothetical SOVIET attacks and U.S. counterattacks used in the basic analysis are within the bounds of practical reality, and that our evaluation of the effects of these several attack conditions will support the following conclusions:

1. In 1960, a nuclear war initiated by the USSR against the UNITED STATES under either circumstance of "Strategic Surprise" or "Full Alert would result in the devastation of both the UNITED STATES and the USSR.

2. In 1960, the USSR will have the net capability of delivering a nuclear attack that could kill from one-quarter to one-half of the population of the UNITED STATES, critically injure many millions more, and disrupt the political, social, and economic structure of the nation.

3. Should the UNITED STATES fail to maintain adequate alert strategic nuclear forces so dispersed, equipped, trained, and protected that they cannot be destroyed by surprise attack, the USSR, by nuclear attack, can destroy the UNITED STATES without being destroyed itself.

4. The nuclear retaliatory capability of the UNITED STATES is an indispensable requirement, but if the USSR were to initiate nuclear war, this capability alone could not prevent catastrophic damage to the UNITED STATES.

5. The damage to the UNITED STATES that the USSR could inflict by massive nuclear attack can be significantly reduced by a highly effective air defense system.

6. The provision of adequate special purpose shelter on a national basis, with adequate emergency stockpiles of medical and subsistence supplies, could reduce by many millions casualties from the attacks postulated in this report.

7. A shift in the National Strategic Stockpile from raw materials to finished goods, to include foods and stocks for survival, would materialy assist in the recuperation of the nation following a nuclear attack.

8. Comprehensive, integrated Federal and State plans, supported by the necessary legislation, are required to insure the continuance of organized civil government under the Constitution in the face of the chaotic conditions which would be caused by massive nuclear attack.

9. Operational SOVIET ICBMs will drastically reduce the amount of warning time available to the UNITED STATES in the event of an attack, and will require:

a. The completion of adequate base dispersal for the U.S. nuclear retaliatory forces, including the hardening of our ICBM sites;

b. The immediate development of a long-range radar warning system against the ICBM to maximize warning time for the U.S. nuclear retaliatory force and the air defense forces;

c. The immediate development of an effective anti-ICBM missile system with first priority given to protection of nuclear retaliatory bases;

d. That the total reaction time of the U.S. nuclear retaliatory alert force, including the national decision to launch this alert force, be less than the expected warning time. The alternative is to risk the loss of the alert force.