REGISTER OF PERSONNEL HANDLING CLASSIFIED DOCUMENT

CONTROL NUMBER: 6851
DATE RECEIVED: 9 Sept 63
CLASSIFICATION: ~~RESTRICTED DATA~~ ~~Atomic Energy Act 1954~~
DATE OF DOCUMENT: 27 Aug 63

RETURN TO: Office, Chairman, JCS
Room 2-E 865, The Pentagon

DOCUMENT NUMBER: Memo for Chm, NESC
COPY NUMBER: orig w/cy 7 of report

SUBJECT: From Leon Johnson, Dir, NESC

Transmittal of "Oral Report" of the NESC Study for Meeting 29 Aug 63 12 Sept 63

The above-described document has been received in this office. Circulation of this document will be limited to individuals indicated below. The document will be returned to the Administrative Office for record prior to dispatch to another office, or other disposition. *THIS FORM WILL NOT BE REMOVED FROM SUBJECT DOCUMENT.*

TO	NAME	INITIAL	REMARKS
	CHAIRMAN, JCS		
	EXECUTIVE		
	SPECIAL ASSISTANT *(Policy)*		
	CHAIRMAN'S STAFF GROUP		
	MILITARY ASSISTANT *(PA)*		
	MILITARY ASSISTANT *(L&L)*		
	ADMINISTRATIVE ASSISTANT		
	SECRETARY TO CHAIRMAN		

SANITIZED COPY
SENSITIVE INFORMATION DELETED

File D

SD FORM 1 NOV 55 349

NATIONAL SECURITY COUNCIL
NET EVALUATION SUBCOMMITTEE

OFFICE OF THE DIRECTOR
Room 2E 845, The Pentagon
Washington 25, D. C.

27 August 1963

MEMORANDUM FOR THE CHAIRMAN, NET EVALUATION SUBCOMMITTEE

The attached is an exact copy of the "Oral Report" of the NESC study, which the President will use for the Security Council meeting scheduled for ~~29 August 1963.~~ 12 Sept 63

Leon W. Johnson
LEON W. JOHNSON
General USAF
Director

1 Incl
Cy 7 of 8 - Oral Report

REPORT ON THE

JOINT

REPORT ON THE

NET EVALUATION

SUBCOMMITTEE

NATIONAL SECURITY COUNCIL

JOINT REPORT

ON THE

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

1963

REPORT OF THE

NET EVALUATION SUBCOMMITTEE

NATIONAL SECURITY COUNCIL

ORAL PRESENTATION

RESTRICTED DATA

ORAL PRESENTATION

I. THE PROBLEM

1. Mr. President.....in accordance with your directive, the 1963 Net Evaluation was based upon the following:

> "The NESC will develop studies of a series of general wars initiated yearly during the period 1963 through 1968. Comparative results in each war will be determined with emphasis on the degree of damage sustained by the US and an analysis will be made to identify significant trends in national defense capabilities."

2. Based on this directive, the Net Evaluation Subcommittee war gamed a series of general wars occurring as of 1 July each year from 1964 to 1968. These wars were initiated alternatively by a United States pre-emptive attack and by a Soviet pre-emptive attack, each of which, in turn, generated a retaliatory attack. Using programmed US forces and estimated Soviet forces, with projections for both where necessary, each war game was completed through to the end of the initial nuclear exchanges.[1/] To maintain comparability of results, certain key parameters were defined and held constant throughout the problem--the strategy employed by both sides, their conditions of alert, strategic warning, and targeting philosophies. Other parameters relating to forces, reaction times, and weapons systems characteristics were permitted to vary over the years in keeping with estimates of capabilities. The results of these wars were expressed in terms of weapons and megatons down on each side by target categories.

3. The National Military Command System Support Center, using the weapons and megatons down on the various categories of targets, calculated the casualties, fatalities and percentage of industrial capacity destroyed.

4. Based on these results, the committee compared the degree of damage sustained by each side, and analyzed the trends in national defense capabilities.

1/ Defined as the complete exchange of strategic nuclear offensive weapons in their initial attacks and does not include restrike, reserve, or residual capabilities.

II. ASSUMPTIONS

5. Forces:

a. US forces employed throughout the evaluation were based on currently approved programs, and estimated projections thereof, for the five-year period 1964-1968.

b. Soviet forces used were based on current national estimates covering the period 1964-1967, with projections through 1968 reflecting a continuation of the trends indicated in the estimates.

6. Alert Conditions. In all of the attacks studied, the forces of both the United States and of the Soviet Union were in a high state of alert. The world situation and events leading to the high state of alert were not defined.

a. The forces of the United States had been in Defense Condition 3 approximately seven days and in Defense Condition 2 for a period of 72 hours prior to the attack.

[redacted]

b. The Soviet forces were in a comparable state of readiness with 90 percent of the heavy bombers of Long Range Aviation on alert; all medium bombers committed to the attack on the United States on alert[2/]; and all operational missiles on maximum alert status. In the years 1966 through 1968, 50 percent of the nuclear powered missile firing submarines were on station off the US coasts. The remaining operational missile submarines were at sea.

7. Missile Warning. The USSR first achieved a ballistic missile early warning capability in 1966 which provided 15 minutes of warning of an ICBM attack at the operational level of command.

2/ Soviet Long Range Bomber forces were considered to have a significantly slower reaction capability than SAC forces in a comparable state of alert.

8. General:

a. Neither the US nor the USSR launched its missiles as a result of the warning provided by early warning systems, but waited until an enemy weapon had detonated in their homeland before ordering the launch of missiles in retaliation.

b. The USSR was the only Sino-Soviet Bloc nation possessing a nuclear strike capability during the years 1964-1968.

c. The US knew the location of at least 90 percent of the Soviet ICBM launch sites throughout the period 1964-1968.

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

III. DISCUSSION

FORCES EMPLOYED

9. The following chart shows a comparison of the strategic weapons and megatons committed to the initial nuclear exchange in each year of the study:

~~TOP SECRET~~

COMPARISON OF US AND SOVIET
SCHEDULED WEAPONS AND MEGATONS

	WEAPONS		MEGATONS	
	US	SOVIET	US	
1964	3774	1213	[redacted]	7262
1965	4196	1184		10,056
1966	4157	1189		14,386
1967	4442	1229		15,993
1968	4508	1226		16,120

~~TOP SECRET~~

10. It is to be noted that although the number of Soviet weapons remains almost constant the megatonnage rises dramatically. This rapid increase in megatons stems from the introduction of 100 MT weapons into the Soviet inventory commencing in 1965 and the application of improved nuclear weapons technology to increase the yields of all weapons.

11. By comparison, the US force shows only a modest increase in weapons and megatons during the period.

12. The trend in these forces is for a growing ICBM and SLBM force, with a reduction in the bomber force. In the US forces, the bombers delivered four-fifths of the megatonnage of the attack in 1964, phasing down to approximately one-half in 1968.

13. In the Soviet pre-emptive attack, the bombers delivered over one-half of the attack in 1964, phasing down to one-quarter in 1968. In Soviet retaliation, the bombers delivered about one-third of the attack in each of the years.

14. By 1968 the Soviet hardened ICBMs had increased to about two-thirds of the total ICBM force.

OBJECTIVES

15. The US war objective, both in pre-emption and retaliation was to limit damage to the US and to destroy the ability of the USSR and China to wage war. The numerical superiority and the structure of the US strategic forces permits the US to always target counterforce with high assurance that we can follow through to urban-industrial destruction, if necessary.

16. The Soviet war objectives were, from their point of view, similar to those of the US within the limitations of their capabilities. In pre-emption, the Soviet objective was to achieve a high level of destruction to the US urban-industrial complex and to limit retaliatory damage to the Soviet Union. In retaliation, the Soviet objective was solely to inflict maximum destruction to the urban-industrial complexes of the United States. It should be emphasized that in our judgment the Soviet force structure throughout the period made it illogical for them to execute a controlled response attack--either in retaliation or pre-emption. Hence, in all attacks the USSR fired at all targets from the outset.

SOVIET INITIATED EXCHANGES

17. Soviet Pre-emption

a. The world situation and events leading up to the Soviet pre-emption were not defined beyond the assumption that conditions existed which resulted in US and Soviet forces being brought to a high state of alert several days prior to the attack.

b. The Soviet planners concluded that a missile attack timed for sumultaneous impact, followed by a bomber attack launched coincident with the ICBMs, was the best tactic to employ even though they had a capability by 1966 to initiate the attack with SLBMs. Such SLBM initiation was not attempted since the USSR considered that with the US bomber dispersal and the existence of SLBM warning the disadvantages outweighed the benefits to be gained.

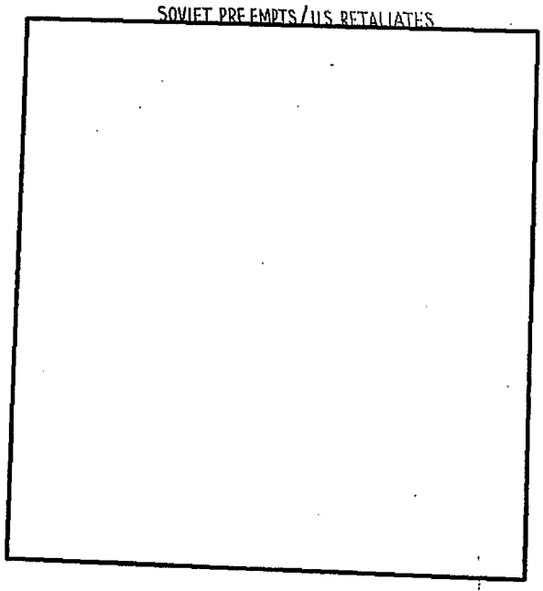
c. In the accomplishment of the primary Soviet objective of a high level of destruction to the US, a large percentage of the megatonnage available was scheduled against urban-industrial targets in each of the years 1964 through 1968. The improvements in Soviet missile reliability, CEP, and warhead yield justified assigning an increased number of missiles against US ICBM forces to limit the retaliatory destruction in the USSR. The weight of attack against additional military targets was essentially constant throughout the period.

18. US Retaliation. In spite of the first salvo of Soviet missiles having been fired, the US retaliatory attacks included targeting of Soviet missile sites in an effort to minimize further damage to the US and its Allies from reload missiles, reserve missiles and missiles that had failed to launch. Each year this portion of the attack required an increasing number of US weapons as the number of known missile sites, particularly hardened sites, increased. Selected urban-industrial targets in the USSR were targeted each year with adequate weapons to insure a high level of damage. Long Range Aviation bases and

other military targets were attacked with a large proportion of the scheduled weapons to deny to the Soviets the capability to further damage the US and its Allies.

19. The weapons and megatons delivered by each side in this series of exchanges are shown below:

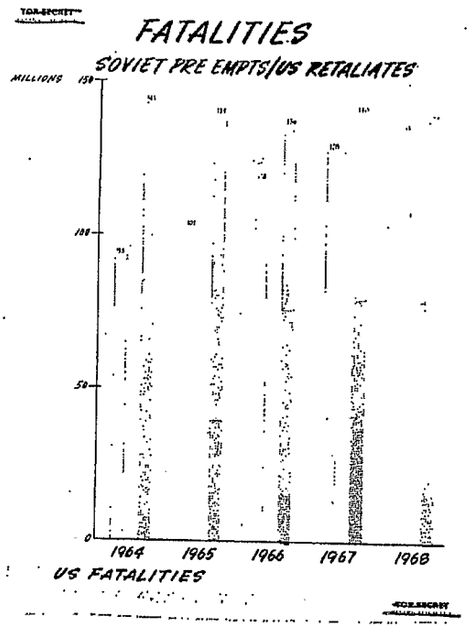
WEAPONS & MEGATONS DELIVERED
SOVIET PRE-EMPTS/U.S. RETALIATES



20. Note the gradual increase in delivered Soviet weapons contrasted with the rapid rise in delivered megatons. US weapons and megatons delivered reflect the increasing US inventory and the inability of the USSR to effectively degrade our strategic forces.

21. In evaluating the results of these exchanges, fatalities were used as the primary yardstick by which to measure the effect of the attacks. This chart shows the fatalities resulting from the Soviet pre-emption and the US retaliation.

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



22. The trend of increasing US casualties is evident starting with the 93 million fatalities inflicted in 1964 by 409 Soviet weapons yielding 2584 megatons and rising to 134 million in 1968. Soviet fatalities are relatively constant at about 140 million representing that degree of urban-industrial damage sought in the current National Targeting and Attack Policy.

US INITIATED EXCHANGES

23. US Pre-emption.

a. In the US pre-emption, targeting philosophy and execution generally followed that contained in the current National Targeting and Attack Policy. Enemy forces targeted were in consonance with current national estimates.

b. The US strategic forces were launched at E-hour or as soon thereafter as the characteristics of each system permitted. Heights of burst were influenced by considerations

of target characteristics and delivery tactics. In order to reduce the USSR to industrial impotence, a high level of damage was sought against selected urban-industrial complexes.

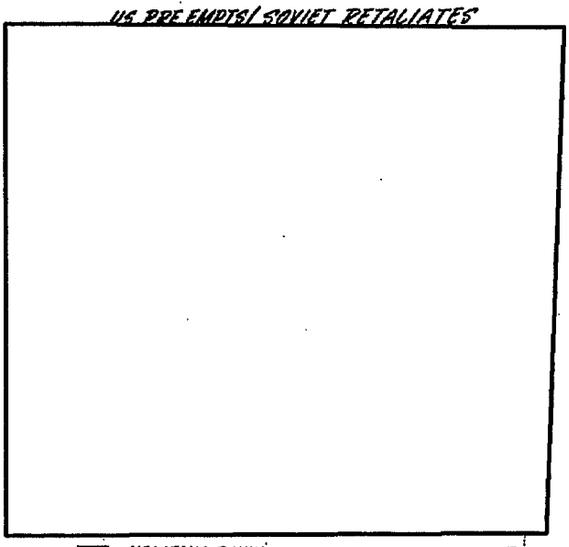
24. Soviet Retaliation. In retaliation, the Soviet attack was launched with the object of inflicting maximum possible destruction on the US. In view of the relatively small number of Soviet strategic weapons and their vulnerability to destruction before launch, a retaliatory philosophy of targeting urban-industrial centers offered the highest assurance of inflicting this maximum damage. In the later years of the period, with an increasing number of hardened ICBMs, the USSR was able to target a few additional US military forces and installations as a means of further reducing those elements of the forces which could contribute substantially to post-attack reconstitution.

25. In the following chart, showing the weapons and megatons delivered in this series of exchanges, the effectiveness of the US pre-emption in reducing weapons and megatons delivered against the US is of particular note. US weapons and megatons delivered in pre-emption increased only slightly over those delivered in the US retaliation since the US had not suffered significant losses to its strategic forces in the Soviet pre-emptive attack.

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

TOP SECRET
RESTRICTED DATA

WEAPONS & MEGATONS DELIVERED
US PRE EMPTS/ SOVIET RETALIATES



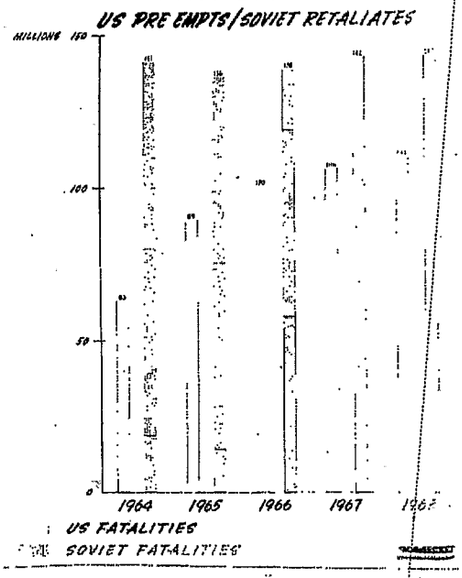
MEGATONS DOWN

TOP SECRET

26. The resulting fatalities are shown below:

TOP SECRET

FATALITIES
US PRE EMPTS/SOVIET RETALIATES

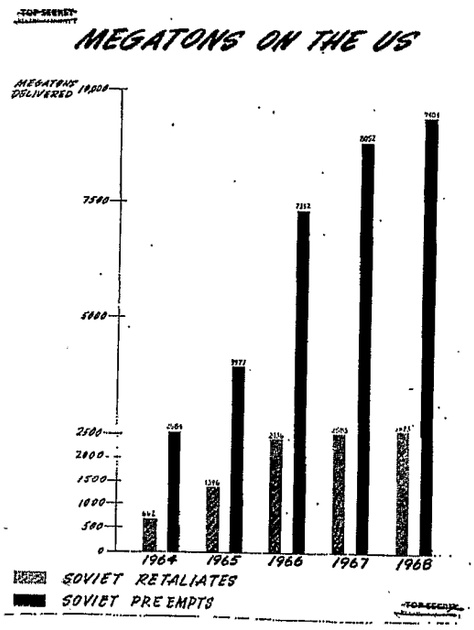


TOP SECRET

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

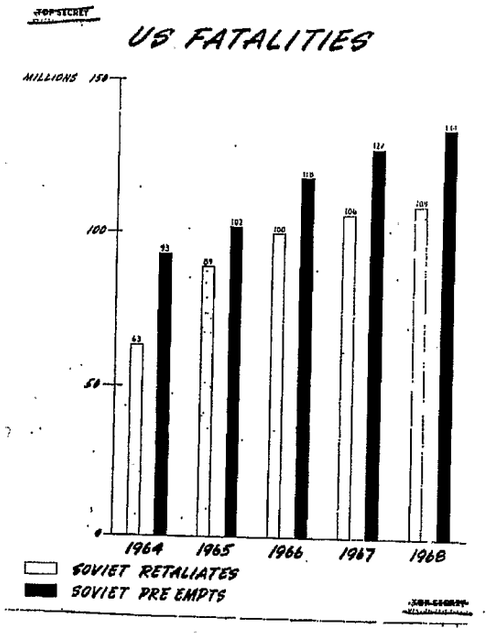
27. Noteworthy is not only the trend of increasing US fatalities but also the 63 million fatalities resulting from the 1964 Soviet retaliation which delivered only 108 weapons and 662 megatons. Soviet fatalities remained almost identical to those produced by the US retaliation. The increase in numbers of US weapons delivered during the period was employed against the growing Soviet missile forces and since these were located in relatively isolated areas these additional weapons did not significantly affect the number of Soviet fatalities.

28. The following charts compare the results of the foregoing Soviet attacks in terms of megatons delivered and US fatalities. This chart shows the effectiveness of the US preemptive attack in reducing megatons delivered on the US.



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

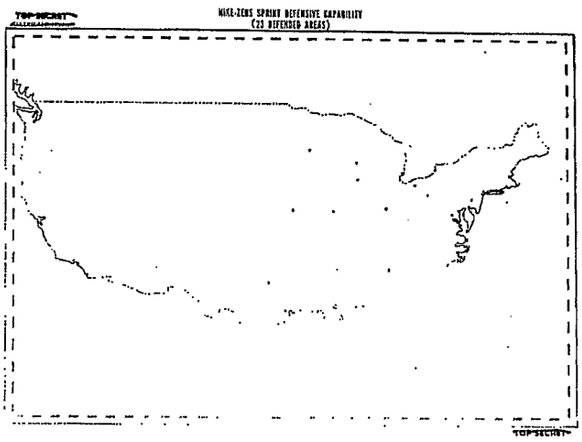
29. Striking though it may be, the reduction in Soviet megatonnage achieved by a US pre-emption does not accomplish a corresponding reduction in US fatalities.



30. The foregoing represents only the weight of attack applicable to the initial nuclear exchanges. In every case both the US and USSR withheld a reserve of SLBMs or hardened ICBMs. Each was also able to reconstitute a residual capability from out-of-commission repairable missiles and recovered bombers, all of which were available for subsequent attacks. In all cases the US residual strategic forces were larger than those of the USSR.

SUBSIDIARY STUDIES

31. In addition to the series of yearly exchanges, studies were made to test the effects of the hypothetical introduction of additional active and passive defense programs in the US. In the first of these, an analysis was made of attacks against 23 cities which were assumed to be defended against attack by ballistic missiles. These attacks were designed to defeat or circumvent the missile defenses. The cities and the maximum theoretical defensive envelopes provided by a NIKE-ZEUS/SPRINT type defense are shown on this map:



32. The shaded portions represent the areas within which Soviet ICBMs could not impact without risk of interception. Against a defense of this type we examined the effectiveness of:

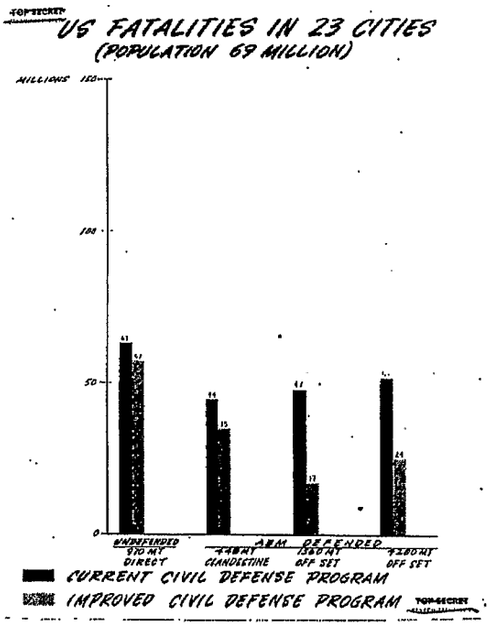
a. A direct ICBM attack.

b. An attack using weapons delivered clandestinely.

c. Two attacks employing ICBMs surface burst outside the defensive envelopes, one of these utilizing very high yield weapons.

33. The fatalities resulting from these attacks were calculated both for existing civil defense capability and for an improved civil defense posture provided by a modest program of fallout shelters and training of the population.

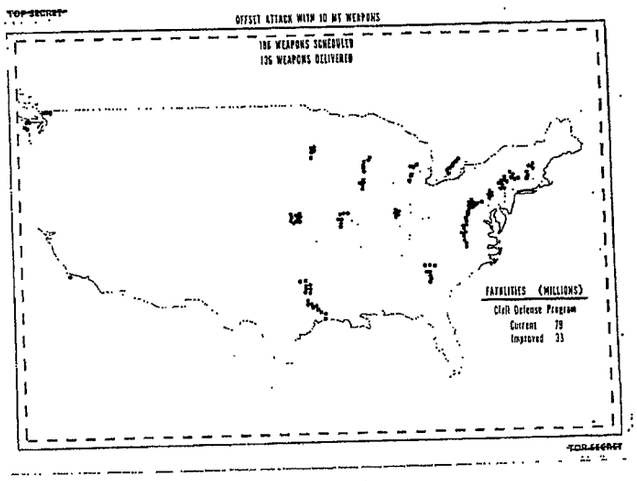
34. The fatalities in the metropolitan areas of the 23 defended cities from these four attacks are depicted on this chart:



35. The first set of bars shows the result of a direct attack designed to defeat the defenses of these cities. This attack required the delivery of some 3600 warheads or re-entry bodies to exhaust the defenses, followed by the firing of sufficient ten megaton warheads to result in 970 MT arriving directly on the cities. It is apparent that this attack was very effective since 63 of the 69 million people were killed. The improved civil defense program was of little benefit because the casualties were produced mainly by blast.

36. In the clandestine attack, 448 megatons were utilized in the 23 cities and produced heavy casualties. Here again, the improved civil defense program did not substantially reduce casualties. This attack employed four 100 MT devices lowered from neutral flag merchant ships to the harbor bottom in Boston, New York City, San Francisco and Seattle. Seventy-six agents emplaced 33 one megaton weapons and one 15 megaton weapon (in Washington D. C.) in the remaining nineteen cities.

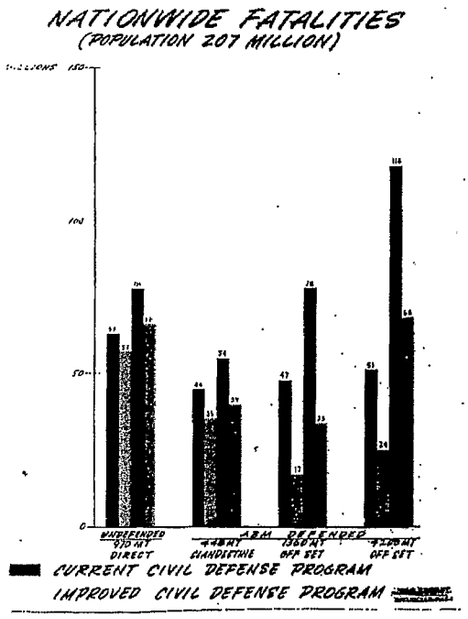
37. The remaining attacks circumvented the defenses by employing attacks utilizing aiming points outside the defended areas as illustrated on the following map:



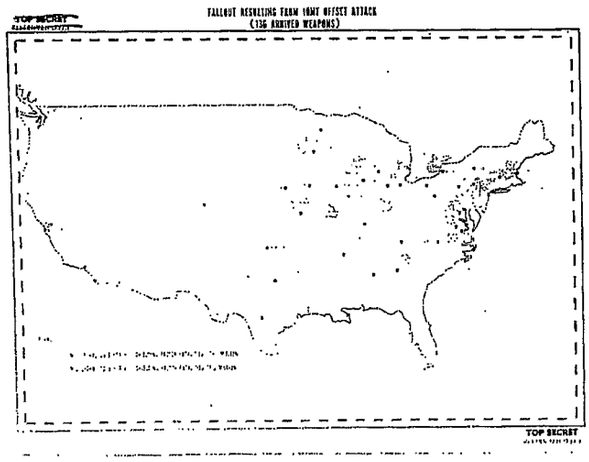
38. The first-such attack delivered 136 ten megaton warheads surface burst to produce 47 million fatalities with the current civil defense posture. Since the fatalities resulting from this attack were almost exclusively from fallout, an improved civil defense fallout program would have reduced the fatalities in these cities by 30 million.

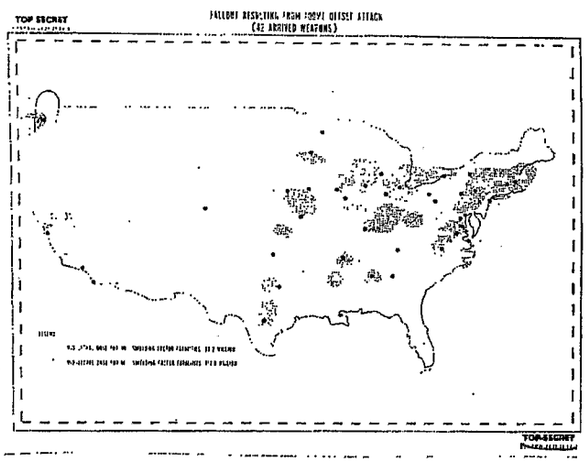
39. The second offset attack utilized 100 MT warheads and the delivery of forty-two of these weapons caused somewhat higher fallout casualties within the cities. With the higher levels of radiation intensity, the effectiveness of the improved shelter program was somewhat diminished.

40. In considering the effectiveness of a limited anti-ballistic missile defense in combination with a shelter program, a note of warning must be sounded. Although survivability in the urban areas themselves does increase, the nationwide effects of offset attacks remain severe. On this chart, alongside the fatalities suffered in the 23 cities attacked, are shown the total nationwide fatalities resulting from the foregoing attacks against these cities.



41. These maps show the fallout patterns which produced the foregoing nationwide fatalities in the case of the two offset attacks:





42. As a final excursion, we war gamed a hypothetical situation with augmented US 1968 forces and programs employed in a US pre-emption against the 1968 Soviet forces.

43. The augmentation consisted of:

a. Sufficient US offensive missiles to destroy all but one percent of known Soviet soft missiles and all but two percent of Soviet known hard missiles.

b. Improvements in US air defenses such that only five percent of Soviet bombs and ASMs reached targets.

c. An AICBM deployment to 23 cities that was adequate to deter the Soviets from direct missile attack against these cities.

d. An improved nationwide civil defense program that included 30 psi blast protection for 34 million people in the 23 defended cities.

44. The Soviet retaliation that followed the US attack employed bombs and ASMs against the defended cities, SLBMs against undefended cities and ICBMs directly against undefended cities and in a fallout attack against the defended cities. This retaliation delivered 106 weapons for 950 MT3/ and inflicted 51 million fatalities in the United States.

45. The Atomic Energy Commission reported on the long term effects of fallout, using as a basis the attack of 1 July 1966. They made certain conclusions, but the gist of their report was that more study is needed of the combined effects of radiation, burns, blast, fires, floods, substandard diet and sanitary conditions and lack of medical care.

3/ 29% of the MT down on the US came from SLBMs.
49% from ICBMs whose location had not been well enough known to permit targeting them or from the one percent or two percent of known weapons not destroyed.
22% from weapons delivered by aircraft.

IV. CONCLUSIONS

46. The following conclusions appear inescapable as a result of our studies. However, it should be noted that only the currently known and assessable effects of nuclear weapons could be utilized in determining the results of the nuclear exchanges.

a. In the years of this study, 1964-1968, neither the US nor the USSR can emerge from a full nuclear exchange without suffering very severe damage and high casualties. This holds true whether the attack is initiated by the US or the USSR.

b. Soviet strategic forces throughout the years 1964-1968 possess, at best, a limited capability to degrade the US strategic force. Since the Soviets cannot materially reduce the weight of US attacks, their most likely strategy would be (1) deterrence, and (2) if deterrence fails, one which will cause the maximum injury to the US.

c. The US strategic force is so constituted that, if deterrence fails, the US can exercise the full range of a controlled response strategy, either in pre-emption or retaliation, with assurance that, if necessary, the objective of urban-industrial destruction in the USSR can still be achieved.

d. Both sides will possess substantial residual strategic nuclear forces after each initial exchange; however, in all cases the US forces would be the larger. The ability to use these residual forces effectively depends upon survivable command and control and an effective post-attack reconnaissance/intelligence capability.

e. US defensive systems must be made more effective against the gamut of Soviet offensive weapons. However, it appears that the achievement of an effective nationwide ballistic missile defense would do more to alter the results of a nuclear exchange than any other single military development.

f. US weapons systems of the type currently programmed, including improvements thereto, will not, by themselves, reduce to an acceptable level the damage or casualties resulting from a full nuclear exchange. It follows, therefore, that there is a need for the development of new offensive and defensive systems beyond those presently being pursued.