SAFEGUARD ANTIBALLISTIC MISSILE SYSTEM

HEARINGS

BEFORE

SUBCOMMITTEES OF THE COMMITTEE ON APPROPRIATIONS HOUSE OF REPRESENTATIVES

NINETY-FIRST CONGRESS

FIRST SESSION

SUBCOMMITTEE ON DEPARTMENT OF DEFENSE

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SAFEGUARD ANTIBALLISTIC MISSILE SYSTEM

THURSDAY, MAY 22, 1969.

WITNESSES

HON. MELVIN R. LAIRD, SECRETARY OF DEFENSE
GEN. EARLE G. WHEELER, CHAIRMAN, JOINT CHIEFS OF STAFF
JOHN S. FOSTER, JR., DIRECTOR OF DEFENSE RESEARCH AND ENGINEERING

Mr. MAHON. The committee will come to order.

Mr. Secretary Laird, we are very pleased to have you before us for your first appearance in your important capacity as Secretary of Defense.

We want you to know of our interest in your success and our desire to be as cooperative as possible as you bear the tremendous burdens of the office which you hold.

As a former member of the Committee on Appropriations for many years, you have sat through many weeks and months of hearings on defense programs and otherwise. I would like to report briefly for the record that we began our hearings before the Defense Subcommittee on January 29 when we had a briefing in regard to the Navy plane known as the F–14. On March 5, we began hearings on the second supplemental 1969, which you had a major part in proposing. On March 11 we started our regular hearings on the 1970 program.

The staff tells me we already have amassed over 6,500 pages of transcript. We have finished our hearings insofar as we know on "military personnel" appropriation estimates for the various services, and also on the operation and maintenance estimates. We have also finished our hearings on most procurement proposals.

General Wheeler, we are glad you are before us again as Chairman of the Joint Chiefs.

General WHEELER. Thank you, sir.

Mr. MAHON. We have found your counsel and advice most helpful in the past and we are glad that we shall have the continued benefit of your assistance.

SPECIAL HEARING ON SAFEGUARD ABM SYSTEM

As I think you know, Mr. Secretary, we had hearings before the committee on May 5, 6, and 7 in regard to the "Procurement of Equipment and Missiles, Army." We did not inquire at that time as to funding proposals for the antiballistic missile system, the so-called ABM, because we wanted to have a special hearing with you and General Wheeler and Dr. Foster in connection with this highly controversial and important matter.

Dr. Foster, we are pleased to have you here and we want to have your assistance as we proceed.

Mr. FOSTER. Thank you, Mr. Chairman.

Mr. MAHON. Arrangements have been made for the consideration in a special hearing of the antiballistic missile system which is now known as SAFEGUARD.

We propose that special hearing now. The record should show that for the purposes of this hearing the Military Construction Subcommittee of the Appropriations Committee, which has an important responsibility in connection with this weapons system, is sitting with us today.

SIGNIFICANCE OF ANTIBALLISTIC MISSILE SYSTEM

There are many weapons systems for which funding is proposed in the fiscal 1970 budget which are quite important and significant to our military posture and strategy. The ABM is probably one of the most important from this point of view of its effect on relative military strength and strategy of the major powers. The system relates to the defensive capability which it offers to the United States. We need a proper balance between offensive and defensive weapons if we are to achieve optimum deterrence. It is clear that the proposed deployment of the ABM system known as Safeguard is one of the most important questions to come before the Government in years. It is important militarily, it is important economically, it is important from the political standpoint.

We do not have to tell you of the interest which has been generated in this country in this important matter.

(Discussion off the record.)

Mr. MAHON. How do you propose, Mr. Secretary, that we proceed?

Secretary LAIRD. Mr. Chairman, I have a classified statement which perhaps is the most complete that has ever been put together on the Safeguard system. Before I proceed with it, General Wheeler has a short statement which I would like him to proceed with first.

(Discussion off the record.)

Mr. MAHON. On the record, proceed, General.

STATEMENT OF THE CHAIRMAN, JOINT CHIEFS OF STAFF

General WHEELER. Mr. Chairman and members of the committee, it is a pleasure to have the opportunity again to present the views of the Joint Chiefs of Staff on developments since I last appeared before you and we discussed an antiballistic missile system on February 16, 1968. Among the developments in the intervening period have been an increase in Soviet ICBM and SLBM capabilities with implications to the survival of our land-based missile and bomber forces and a major review of the Sentinel program within the Department of Defense. In the light of these developments and after review by the National Security Council, the President announced his decision to modify the Sentinel and to deploy instead the phased Safeguard system. At the outset, let me affirm that the Joint Chiefs of Staff support this decision because it will add to the overall strategic posture of the United States and to our ability to deter nuclear war.

The Joint Chiefs of Staff continue to believe that a foremost require-

ment for the defense of the United States is deployment of an effective ballistic missile defense against the Soviet threat. Toward this objective the Joint Chiefs of Staff had previously accepted the Sentinel as a first step toward a level of ballistic missile defense that would provide increased protection for the United States. The principal feature of the Sentinel deployment upon which the Joint Chiefs of Staff had reservations was its primary orientation against the CHICOM ICBM threat. It is important that the term "orientation" be understood as distinct from a level of capability. The Sentinel orientation provided coverage against attacks from only a northerly direction and did not defend against attacks from other azimuths by the use of either submarine-launched missiles or a fractional orbit bombardment system (FOBS). The requirement for the capability to defend against all azimuths of attack has been included in the Safeguard program and accordingly is supported by the Joint Chiefs of Staff.

Sentinel was principally developed to protect the population of the United States against CHICOM ICBM attack. It would have provided some very limited capability against a Soviet missile attack, but the number of defensive missiles and lack of all-around coverage made it vulnerable to a major attack. Despite these limitations, however, and in addition to the defense against a CHICOM threat, the Sentinel contained an option for the defense of part of the Minuteman force. It is the exercise of such an option and reorientation of the capabilities to all azimuths of attack which are provided in the Safeguard system.

With regard to whether or not the system will work, the Safeguard system consists of the components of the Sentinel system appropriately modified. These components result from an intensive research and development program initiated by the Army in 1956. Through the early Nike-Zeus development program and its testing against actual ICBM's in the Pacific, and through the updated technology of the Nike-X system, I have gained a high degree of confidence that such a system can be deployed to meet its stated objectives.

The Joint Chiefs of Staff believe that in light of the rapidly expanding Soviet ICBM and SLBM capabilities, it is prudent now to provide protection for a portion of the U.S. retaliatory force and that the phased Safeguard deployment meets this requirement.

Mr. Chairman, I would like you and the committee to know that I have gone over Secretary Laird's statement several times as it was being developed. I find that I agree with its contents. I consider it to be a thorough and logical presentation of the case for the ABM. It is for this reason my statement was deliberately made short and hit only two or three items which were of particular interest to the JCS.

Mr. MAHON. General, I would say this: That we on this committee consider the statement being presented by the Secretary not only as his statement but also as your statement, and the statement of the Joint Chiefs as being the statement of the Staff and really as the statement of the executive branch in regard to this matter.

General WHEELER. Mr. Chairman, I am happy to know that you take that view because that is the way I regard it.

Mr. MINSHALL. Mr. Chairman, would you yield for a point of inquiry, please?

Mr. MAHON. Yes.

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DECLASSIFICATION OF DATA IN STATEMENTS

Mr. MINSHALL. This statement is marked top secret. When we get to the printed hearings who will decide just what and how much of the statement and testimony can be released to the general public?

Secretary LAIRD. We will substitute an unclassified version of my statement for the printed hearings.

(Discussion off the record.)

Secretary LAIRD. This statement that is being presented to this committee will be the most complete we have made to date on the Safeguard program.

I believe, and I am going to check this out, that we will take the classification off even the recent Soviet SS–9 missile shots into the Pacific when you publish this record. I assume this record will be published fairly soon—and if it is, I will take the classification off those particular items.

Mr. MINSHALL. My point is that it will be a better hearing and report the more we can release to the public. In previous years, too much has been deleted for "political security" and not "national security."

Mr. MAHON. The Secretary will have the responsibility of determining what should be on the record.

Secretary LAIRD. We will go as far as we possibly can within the limits of security, Mr. Chairman.

Mr. MAHON. We want everything on the record that will be helpful to the Congress and the American public provided it will not damage the interests of the United States in international matters. We can work that out.

Secretary LAIRD. I think we can take some of the classification off, Mr. Chairman. We have a destroyer out there watching these shots. The Soviets know we have the destroyer there, because they have several ships there. I think as long as they know we have the destroyer there perhaps we can take the classification off the record.

Mr. Chairman, if I may, I would now like to proceed with my formal statement.

BIOGRAPHICAL SKETCH OF SECRETARY OF DEFENSE

MELVIN R. LAIRD, SECRETARY OF DEFENSE

Melvin R. Laird was nominated as Secretary of Defense by President Richard M. Nixon on January 20, 1969, and was confirmed by the Senate the same day.

Secretary Laird was administered the oath of office at a White House ceremony, together with other Cabinet members, on January 22, 1969. He formally arrived at the Pentagon for an Armed Forces full honors arrival ceremony later that day.

When nominated, Secretary Laird represented the Seventh District of Wisconsin in the U.S. House of Representatives, where he had served continuously since 1952. Before becoming a Member of the U.S. Congress, Secretary Laird had been elected to the Wisconsin State Senate in 1946 to succeed his father. He was reelected in 1948.

During World War II, Secretary Laird enlisted in the U.S. Navy in May 1942. He was commissioned in March 1944. While in the Navy he served on the destroyer U.S.S. *Maddox* (DD731) in the Pacific, when it was a part of Admiral Mitcher's Task Force 58 of Admiral Halsey's Third Fleet. He is entitled to wear the Purple Heart Medal, the Asiatic-Pacific Campaign Medal with five battle stars, Philippine Liberation Ribbon with one battle star, Japanese Occupation Ribbon, American Campaign Medal and World War II Victory Medal. He left active duty in the rank of Lieutenant (jg) in 1946.

Secretary Laird was born on September 1, 1922, in Omaha, Nebr. His family moved to Wisconsin the following year and he attended the Marshfield, Wis.,

public schools, subsequently receiving his B.A. degree from Carleton College in Northfield, Minn., in 1944.

Secretary Laird's major interest and committee work in Congress was in the areas of national security, education, and health. He served on the House Appropriations Committee, House Committee on Agriculture, and various subcommittees including Defense; Labor; Health, Education, and Welfare, and Military Construction. He was chairman of the House Republican Conference and a member of the Republican coordinating committee.

Secretary Laird is author or editor of several books and articles dealing with public policy.

Among numerous honors he has received the 15th annual Albert Lasker Medical Research Award and the Distinguished Service Award of the American Political Science Association in the 90th Congress. He was presented the Presidential Citation of the 21,000-member American Public Health Association and the Distinguished Service Award of the National Education Association.

Secretary and Mrs. Laird, the former Barbara Masters, were married on October 15, 1945. They have three children—John Osborn, born January 10, 1948; Alison, born July 11, 1951; and David Malcolm, born July 16, 1954.

Statement of the Secretary of Defense

Secretary Laird. Mr. Chairman and Members of the Committee, I greatly appreciate this opportunity to discuss with you the administration's Safeguard antiballistic missile proposal. As a former member of this Committee over a period of some 14 years, I well know how thoroughly and conscientiously you review the defense programs and budgets presented to the Congress each year by the Executive Branch.

Let me say initially that I welcome the debate which is taking place on the ABM program. It is very much in our tradition for major national issues to be widely discussed and understood. As a matter of fact, such debate is always a reassuring sign of the health of our free society.

Let me suggest, however, that at this point in the debate, the true perspective has been somewhat obscured by the literally millions of words that have been spoken and written on this subject in the past few months. Minor and major points have been mixed together indiscriminately. Facts and opinions have been stated without distinction. Emotion and wishful thinking, rather than reason and reality, have gained the ascendency in the current debate on this vital issue.

What I hope to do this afternoon is to assist this committee in identifying the crucial issues and factors that led President Nixon to propose the measured Safeguard ABM program at this time.

First, it is imperative for everyone to understand that the President's decision resulted from his recognition of the special responsibility he has as Commander in Chief for the Nation's security. All of the essential facts concerning this matter were analyzed by those of us to whom this responsibility, or a portion of it, has been delegated. Our analyses were made and our judgments reached under the full weight of this responsibility. Accordingly, there was absolutely no place in this equation for expediency—political, economic, or otherwise.

Second, Safeguard is recommended by the President as the best step we can take *at this time* to fulfill the major requirements posed by

national security and foreign policy considerations and domestic economic constraints.

I do not make this statement lightly, but I say it to emphasize that many complex factors entered into the Safeguard decision, any one of which taken by itself could have suggested a different approach. However, all of these factors taken together clearly justify the Safeguard decision as the best course available at this time for discharging the awesome responsibilities the President and the Congress share together.

For example, some opponents of ABM suggest that in response to the growing Soviet threat we should move forward with the deployment of additional strategic offensive weapons such as more Poseidon submarines, Minuteman III ICBM's, and so on. This could be a proper response to the rapid buildup in Soviet offensive strategic weapons, but it would probably also dim the growing prospects for arms limitation talks and exacerbate the strategic arms race. At the same time, it would not significantly enhance our position vis-a-vis the Communist Chinese if, as expected, the develop a small ICBM capability during the decade of the 1970's.

What the Nixon administration tried to do, successfully I believe, was devise a program that in all respects would advance the cause of peace and at the same time ensure the continued adequacy of our Nation's strategic power should peace collapse.

Under our constitutional system, Congress shares the heavy burden of responsibility for our national security and for the decisions which, in the final analysis, could tip the scales for either war or peace. It is the Congress which has the constitutional power to decide whether the Safeguard system shall be authorized. And it is the Congress which can deny the President the authority to go forward with the program or the funds needed to implement it.

Mr. Chairman, it is not the purpose of this administration to attempt to force Congressional approval of a particular weapons system. It is the President's responsibility, however, to make recommendations for those programs he believes necessary for an adequate defense and a sufficiency of military forces, and to provide the Congress with the information and reasoning on which his judgment is based.

I would like to stress that the President's decision on Safeguard was based on the best judgment of those of us in the Executive Branch who bear the responsibility for making such a recommendation. In the final analysis, we can offer you no more than this—our best judgments, based on a careful analysis of all of the data available to us.

It is from this perspective that I would like to discuss the factors bearing on the President's Safeguard ABM recommendation.

To do this, I will attempt in my statement today to strip away from this problem the many interesting but irrelevant and marginal arguments which now surround it, and return to the fundamentals involved:

A. The size and character of the threat to the continental United States projected over the next 5 to 10 years.

B. The alternatives other than an ABM defense which might be available to meet that threat.

C. The purposes which an ABM defense system deployed in the continental United States could serve.

D. The origins of the ABM defense system, the concept of operation, and the state of development.

E. The basic elements of the Safeguard program proposed by the Nixon administration.

F. The anticipated effectiveness of the Safeguard program against the projected threat.

G. The estimated cost of the Safeguard program.

H. The strategic and foreign policy implications of a decision to deploy the system.

A. ANALYSIS OF THE THREAT

The first question which had to be answered by the Nixon administration was whether an ABM defense should be deployed at all.

In order to explain to you how the administration answered this question, it is first necessary to examine the size, character, and timing of the actual and potential strategic threats which face the United States in the decade of the 1970's. These are: (1) the Soviet missile threat against our population and cities; (2) the Soviet missile threat against our land-based strategic offensive forces; (3) the Chinese ICBM threat against our population and cities; (4) an accidental missile launch; and (5) a "demonstration" missile launch. Any ABM system we might deploy to meet the first, second, or third threat would be ample to cope with the fourth and fifth threats. Accordingly, we need to consider only the first three threats.

As this committee well knows, our intelligence projections over the near term, 2 or 3 years, are reasonably firm. But when we project 5 or 6 years ahead we are getting into an area of considerable uncertainty, particularly insofar as actual deployments are concerned. Since it only takes 18 to 24 months from the start of construction to the operational availability of an ICBM in a silo, it is clear that projections beyond that point involve estimates of decisions which may not as yet have been made. For this reason our national intelligence projections for the mid-1970's involve a large measure of judgment rather than hard evidence. This point should be kept in mind when I discuss our longer range intelligence estimates.

1. The Soviet Threat to Our Cities and Population

The Soviet Union today has a force of more than 1,000 ICBM's which can reach our cities. To protect our cities against even the present threat would require a very large and effective ABM system. This is so because even one 1-megaton warhead penetrating the defense could virtually destroy a medium-sized city; one 10-megaton warhead could extensively damage even the largest city. But more important for the future, the Soviet Union has the technical and economic capability to develop and install large numbers of multiple independently targeted reentry vehicles (MIRV's) in each of its larger ICBM's, the SS–9 type, and perhaps several warheads in each

of its smaller SS–11 and SS–13 ICBM's. And each of these warheads would require at least one ABM to ensure even a reasonable degree of protection.

Accordingly, it does not appear feasible, with existing ABM technology, to erect a defense against the Soviet missile threat to our cities which could preclude a catastrophic level of fatalities. But it is feasible to provide an effective defense for our land-based strategic offensive forces against the Soviet threat. This is so because in this case we do not need to intercept all of the incoming warheads, just enough of them to ensure that a sufficient portion of our strategic offensive forces survive to enable us to inflict unacceptable damage on the Soviet Union in retaliation. It is this threat that I now want to discuss in detail.

2. The Soviet Threat to Our Strategic Offensive Forces

As this committee is well aware, the Soviet ICBM force has more than quadrupled in the last 2¾ years—from 250 operational launchers in June 1966, to more than 1,000 as of the end of March 1969. On the basis of the intelligence estimates prepared last fall, this force buildup was expected to level off after the Soviets had achieved a rough numerical parity with the United States in ICBM's excluding the older systems. However, if the Soviets were to continue to deploy ICBM's at the rate they deployed them in 1967–68, they could have as many as 2,500 by the mid-1970's. This is the area of judgment I referred to earlier. We have a very good estimate of the number of ICBM silos now under construction, but we can only conjecture as to the number they will start during the next 2 or 3 years.

Although these numbers are impressive in themselves, the real threat to the survivability of our strategic offensive forces lies in the accuracy and kinds of payloads these missiles might carry in the future. At the present time, the only serious threat to our ICBM force is the large SS–9 ICBM which, with a warhead yield of up to 25 megatons and its presently estimated accuracy, could destroy a Minuteman in its silo. The Soviets now have more than 230 of these missiles operational or under construction. According to the latest intelligence estimates, they are expected to have somewhere around 400 SS–9 types operational by the mid-1970's, including a new version with considerably greater accuracy.

Currently, about two-thirds of the Soviet ICBM force consists of SS–11's, a small, Minuteman-size, liquid fuel missile. With its currently estimated warhead yield and accuracy, this weapon does not pose a threat to our Minuteman force. The Soviets have just started to deploy a new solid fuel ICBM, the SS–13. But, again, this missile, with an even smaller warhead yield and no better accuracy, constitutes even less of a threat than the SS–11 to our Minuteman force.

Our real concern at this time is the prospect that the Soviets might install highly accurate MIRV's on their large ICBM's and greatly improve the accuracy of their small ICBM's. If they were to do so, the survivability of our Minuteman force would be gravely endangered.

The Soviets have already begun to test multiple reentry vehicles (MRV's) on their SS–9, three RV's (each with payload equivalent to

a 5-megaton warhead) per missile, and it is estimated that they might start deploying these weapons in existing silos in the next year or so. A number of these vehicles have been launched thus far, three out to 5,100 n.mi. into the Pacific. (The third was launched just the other day.) Although we still have no conclusive evidence that these multiple reentry vehicles are independently aimed, the intelligence community considers it likely that the Soviets will go on with the development of MIRV's and install them in a new version of their SS–9 type ICBM's. Should they also greatly improve the accuracy of their small ICBM's, which the intelligence community considers possible, the survivability of our Minuteman force as presently deployed would be virtually nil by the mid to late 1970s.

It is also possible that the SS–9 with the three reentry vehicles will turn out to be a MIRVed missile. If that should be the case and if the Soviets were to back-fit all of their SS–9's with this new payload, three 5-megaton warheads each, the more than 230 SS–9's now operational or under construction would in themselves constitute a severe threat to our Minuteman force. And, if the Soviets were to increase this force to even 420 missiles and improve the accuracy to a quarter of a mile, they could probably destroy 95 percent of our Minuteman force, leaving only 50 surviving. (I should point out that this calculation assumes a failure rate of 20 percent and a capability to retarget a second missile for those that fail.)

The relation of accuracy and warhead yield to kill probability is shown on chart 1. For example, one reliable arriving 20-megaton warhead with an accuracy of 0.5 mi. would have about a 90 percent probability of destroying a Minuteman in its silo. But one 5-megaton warhead with an accuracy of 0.25 mi. would have a kill probability of about 95 percent.

That our Minuteman force might become vulnerable in the 1970's, we have known for some time. In fact, this possibility was raised by Mr. McNamara before this Committee in early 1966, and it has been restated in each annual Posture Statement since then. Now, 3 years later, we are fast approaching the time when this threat may be upon us.

As already noted, the Soviet Union has come abreast of us in numbers of ICBM's; evidence is now accumulating that they intend to match us in numbers of submarine-launched ballistic missiles (SLBM's). We knew more than a year ago that they were constructing a new class of nuclear-powered ballistic missile submarines with 16 tubes, and that they were testing a new storable liquid fuel submerged-launched ballistic missile out to a range of about 1,500 n.mi. We now know that this submarine (designated the Y-class) is in full scale production at a very large facility near Archangel, Severodvinsk, and possibly at another smaller yard. These two facilities can accommodate a total of 12 complete hulls. The intelligence community estimates that the two facilities can produce as many as eight submarines per year. I think that as production experience is gained the rate of output from these two facilities might very well increase significantly.

Eight or nine Y-class submarines have already been launched and several are believed to be operational. (They also have a number of

H-class nuclear-powered submarines which carry 3–6 shorter range SLBM's.) Even at a rate of construction of only six Y-class submarines a year the Soviet SLBM force could equal our own, in terms of numbers, by 1975. Nevertheless, with their currently estimated warhead yield and accuracy, these SLBM's would not constitute a threat to our Minuteman force. But, given our present radar coverage of the seaward approaches and no ABM defense of our bomber bases, they could constitute a severe threat to the survival of our bomber forces—even those aircraft held on ground alert.

This would be especially true if the Soviets design their SLBM's for depressed trajectory launch, which is not very difficult to do. If they were to do this with their SLBM's the flight time to a large number of bomber bases could be considerably reduced.

If we had adequate warning against an SLBM launch, which we do not now have, 12–15 minutes would be enough to get our alert bombers (40 percent of the operational inventory) airborne before the warheads detonated. (Our current and planned early warning systems promise to provide at least the 12–15 minutes needed to get our alert bombers off their bases before the Soviet ICBM's or Fractional Orbit Bombardment System, FOBS, could reach their targets.) With considerably less warning, we would have to be able to intercept at least the first few salvos of SLBM's in order to ensure that most of the alert bombers could get off their bases.

Accordingly, we are convinced that the Soviet strategic offensive missile forces could well pose a very serious threat to the survival of our own land-based strategic offensive forces by the mid or late 1970's. We would then be dependent upon our Polaris and Poseidon forces, unless we were willing to launch our Minuteman force on warning. While I do not want to foreclose this possibility, I do not believe we should allow ourselves to get into a position where the President would have no other choice.

I want to make it very clear that we have the greatest confidence in the survivability of our SLBM force, at least through the early to mid-1970's. But, in my judgment, it would be entirely too risky to rely upon only one of the three elements in our strategic offensive forces. We cannot preclude the possibility that the Soviets in the next few years may devise some weapon, technique or tactic which might increase the vulnerability of our Polaris/Poseidon submarines. In that event, our strategic deterrent could be dangerously eroded, with all the consequences which would follow such a development.

Furthermore, we cannot preclude the possibility that the Soviet Union might deploy a more extensive and effective ABM defense. Such a defense, in combination with a substantial hard target kill capability in the form of highly accurate small ICBM's or MIRVed large ICBM's, is what has been characterized by my predecessors as the "greater-than-expected threat" which could seriously degrade our assured destruction, or deterrent capability. As you know, the Soviets are now completing the deployment of some 60 odd Galosh ABM missiles on launchers around Moscow.

But more important, we now have hard evidence that the Soviets are

testing an improved long-range ABM, which apparently has a "loiter" capability. In other words, after the initial firing, the missile can coast or "loiter" for a period of time until a specific target is selected, at which point it can then be restarted and maneuvered to the target.

We have already begun to provide a hedge (i.e., Poseidon and Minuteman III, both equipped with MIRV's) against the possibility that the Soviet Union might deploy an extensive and effective ABM defense. But we must be sure that both of these systems survive in sufficient numbers to saturate such a defense and inflict unacceptable damage on the Soviet Union. Otherwise, the credibility of our strategic deterrent might become questionable, and that we cannot afford.

In summary, the potential Soviet threat to the survival of our strategic offensive forces in the mid-1970's is clearly evident. How fast and how extensively it will develop is still uncertain. But, considering the leadtimes involved on our side, it seems perfectly apparent to me that some action must be taken very soon to place ourselves in a position where we can respond promptly to that threat as it actually emerges.

3. The Chinese Communist ICBM Threat

Because the Chinese ICBM development program has not progressed as rapidly as estimated a year or two ago, there has been a tendency in the current debate on the ABM issue to overlook this potential threat. Accordingly, I would like to take this opportunity to review that threat with you in the detail which I believe it warrants.

Late in 1965, and again in late 1966, the intelligence community estimated that the Chinese Communists had the technical and industrial capabilities required for the deployment of ballistic missiles and that they were making an intensive effort to develop a missile in the 700–1,000 mile range. It was estimated at the time that the first of these medium-range missiles could be deployed as early as 1967–68, and that by the mid-1970's they could have as many as 80 to 100 operational in fixed soft sites.

Although there was no direct evidence in late 1965 that the Chinese Communists were developing an ICBM, it was assumed that they were. This assumption was strengthened in the following year (late 1966), when the intelligence community stated that the Chinese were pursuing such a program with a high priority. On the basis of the evidence then available, it was estimated that they might conduct either a space launch or an ICBM flight test before the end of 1967.

Inasmuch as the Chinese Communists have not yet launched their first ICBM (or space shot), and we still have no evidence that they are deploying an MRBM, Mr. Packard and I decided to make a complete reassessment of the available data on the progress of their ballistic missile programs. We did so in order to determine for ourselves if a potential Chinese ICBM threat does, in fact, exist.

There are four major elements involved in preparing for deployment of an ICBM force: (*a*) nuclear materials production, (*b*) nuclear weapons development and testing, (*c*) ballistic missile development and testing, and (*d*) the construction of missile production facilities.

a. Nuclear Materials Production

The Chinese Communists have been producing U–235 since about 1963. We now believe they are also producing plutonium. (The use of plutonium showed up for the first time in the December 1968 test.) Sources for other materials used by China in its thermonuclear weapons, such as deuterium and lithium–6, also appear to be available. And the Chinese have an ample supply of natural uranium.

The amount of U–235 now estimated to be available for stockpiling is still fairly limited. Continued production of U–235 and plutonium will help to increase the supply of fissionable material. But any sizable production of nuclear weapons will require the further expansion of production facilities for fissionable materials, especially U–235. Once construction of a new U–235 plant is started, we estimate that at least 3 years would be required before production could begin. Thus, China's nuclear capabilities can be expected to grow gradually, at least over the next few years.

b. Nuclear Weapons Development and Testing

From October 16, 1964, to December 27, 1968, in a period of 3¼ years, the Chinese detonated eight nuclear devices, one of which was delivered by a missile. Five of the eight tests involved thermonuclear materials. The first of these was detonated in May 1966 and produced a yield of more than 200 kilotons. The second device, detonated in December 1966, produced a yield of a few hundred kilotons. The third, detonated in June 1967, produced a yield of about 3 megatons. The fourth, detonated in December 1967, was a probable failure since it produced only 10 to 25 kilotons. The last, detonated on December 27, 1968, was another device which produced a yield of about 3 megatons.

Thus, on a minimum number of shots the Chinese have made more rapid progress than any other nation. The first 3-megaton device was relatively heavy, but the latest device could be considerably lighter for the same yield. Either of these devices could be delivered by an ICBM, but the lower weight would be an obvious advantage.

The last three thermonuclear devices were probably air-dropped by a medium-range bomber. Inasmuch as the Chinese have a few of the Soviet TU–16-type jet medium bombers, the early 3-megaton weapon may be designed for aircraft delivery. In any event, the TU–16 has an operational radius of only about 1,650 nautical miles and therefore does not represent a threat to the United States.

The nuclear device delivered by a missile in the fourth test had a yield of less than 20 kilotons and used a primitive fission technology. Unless they intend to deploy an MRBM very soon, they would most likely develop a thermonuclear warhead with a yield of a few hundred kilotons for this missile.

c. Ballistic Missile Development and Testing

The Chinese Communists have been working on an MRBM for a number of years. By 1965, activity at the principal missile test range had become very noticeable. And, as noted earlier, they actually delivered a nuclear device with a missile in the October 1966 test. By the summer of 1967, the rate of test firings greatly exceeded the level considered normal for an R. & D. program, leading the intelligence community to believe that deployment might be imminent. Yet, almost 2

years later, we still have no evidence than an MRBM is actually being deployed.

The program may have been delayed by technical problems with the missile itself. Or, it may have been disrupted by the Cultural Revolution. There is even the possibility that the Chinese never intended to deploy their first generation MRBM, choosing to wait for a more advanced missile and warhead. In any event, MRBM testing is continuing up to ranges of about 1,000 miles. The intelligence community continues to believe that the Chinese intend eventually to deploy the current MRBM system. If they were to do so soon, they would have to use a warhead based on the fourth test (i.e., the less than 20 kiloton device delivered by a missile). Even so, they would probably not have an operational MRBM force until sometime in 1970. By the mid-1970's they could have a force of 80–100 operational missiles. However, this system does not pose a direct threat to the United States.

(Although the Chinese have one Soviet-type G-class diesel-powered missile launching submarine, we have no evidence that they have developed a missile for it. Moreover, diesel-powered submarines with their limited endurance and high noise levels do not offer much of a threat against the continental United States).

Given the experience already acquired with the MRBM, there is no reason to believe that the Chinese cannot in time develop and deploy an ICBM. The United States and the Soviet Union have both moved from the shorter range to the longer range ballistic missiles, and the Chinese are probably following the same course. We know that a large ballistic missile launch facility already exists. In fact, it was the construction of this facility that led the intelligence community in late 1966 to estimate that the Chinese Communists could launch their first ICBM (or space shot) before the end of 1967.

Thus, assuming that test vehicles are available, which we as yet have no way of knowing, flight testing of an ICBM could begin sometime this year. At least 3 years would then be required to achieve an initial operational capability (IOC), i.e., sometime in late 1972. In the light of Chinese inexperience, their limited technical and scientific base, and considering general political and economic conditions in China, more time will probably be required. Thus, an IOC is more likely to be achieved later than 1972, perhaps as much as 2 or 3 years later. Even assuming an IOC in late 1972, it is doubtful that the Chinese could achieve a force of more than 10–25 operational ICBM's on launchers by 1975.

We would almost certainly detect ICBM firings to full range, which would necessarily be to an area outside China. Monitoring of these tests should not only provide 1 year advance warning of IOC, but should also provide useful data on the missile characteristics as well.

We believe the Chinece have already constructed a solid propellant plant, and it is possible that they are looking ahead to a solid fuel ICBM. Such a missile could be more easily emplaced in hard silos, but it could not be deployed before 1975 at the earliest.

d. Construction of Production Facilities

We have known since 1963 that the Chinese Communists were constructing a large ballistic missile production facility. Whether ICBM's

are now being produced there is still not known, but MRBM's probably are.

In summary, the Chinese Communists seem to have all of the major elements required for the production and deployment of ICBM's. After examining the available data, we have concluded that the potential threat is very real, and that the Chinese will ultimately deploy a force of ICBM's. What is still uncertain is when they will start deployment and how large and how good a force they will have by the mid-1970's and beyond. We believe, especially because of the work being done on the launch facility, that they will begin flight testing ICBM's (or a space booster) within 18 months. If they do, we will soon know much more about the other questions.

B. ALTERNATIVES TO THE DEPLOYMENT OF AN ABM DEFENSE

1. Against the Soviet Threat to Our Strategic Offensive Forces

The alternatives to an ABM defense for our strategic offensive forces fall under two general headings. First, we could increase the size of our strategic offensive forces, i.e., the number of sea- or land-based missiles or of bombers—or all three. Second, we could improve the survivability of our existing forces by placing our Minuteman missiles in harder silos and further dispersing our bomber force, increasing the number on ground alert or placing a portion of the force on continuous airborne alert.

Many of the alternatives in the first group might, as my predecessors would have phrased it, be equally "cost/effective" in ensuring the survival of a sufficient force to inflict unacceptable damage to the Soviet Union. But all of these alternatives could be misconstrued by the Soviets as an attempt to threaten their deterrent, and thereby stimulate the arms race. In other words, the Soviets might interpret a major expansion of our strategic offensive forces as an attempt on our part to achieve a low-risk first strike capability against them.

The second group of alternatives runs up against cost and physical limitations. We do intend to further disperse our bomber force, but as we increase the proportion on ground alert the costs begin to mount. The alternative of maintaining a portion of our bomber force on continuous airborne alert has, as you know, been considered off and on for a period of at least 10 years. It has always been rejected because of the very high cost and the wear and tear on both crews and aircraft. Nevertheless, as I am sure you are aware, we still have on the statute books, in the annual Appropriations Acts, a provision to do just that in an emergency and to pay for it on a deficiency basis.

Placing our Minuteman missiles in harder silos involves a somewhat different problem. As you know, we have requested funds in the fiscal year 1970 budget to continue with the development of hard rock silos. But this increase in the hardness of the silo could be offset by a reduction in the accuracy of the attacking missile. For example, an increase in accuracy from 1 mile to ½ mile is equivalent to an eight-fold increase in the warhead yield against a hard target.

Moreover, there appears to be a limit to how hard we can make a Minuteman silo. While we can add concrete and steel to the top of the silo, there is little we can do about the geology of the area in which

the silo is emplaced. Where the limits of the geology lie, we just do not know at this time. Nevertheless, we plan to proceed with our program to develop hard rock silos. But we all must recognize that hardening alone would not be enough to solve the problem of survivability if the Soviet MIRVed SS–9 threat develops to the full extent I described earlier.

2. Against the Chinese Threat to Our Cities

Given our present commitments in Asia and the Western Pacific, and assuming the Chinese do indeed deploy an ICBM force in the 1970's, there is really only one alternative to an ABM defense against that threat to our cities and population. That alternative is to rely on the deterrent power of our strategic offensive forces, just as we do against the far larger Soviet threat to our cities. However, in considering this alternative, we must keep clearly in mind a number of interrelated factors—demographic, technical, economic, social, and political.

First, we must recognize the major demographic differences between the Soviet Union and Communist China. As shown on the following table, the thousand largest Chinese cities account for only 11 percent of the total population, compared with 47 percent for the Soviet Union and 63 percent for the United States. Thus, the thousand largest Chinese cities contain considerably less than the one-third, one-fourth, or one-fifth of the population Mr. McNamara has postulated at various times as the level required for "Assured Destruction" against the Soviet Union.

CUMULATIVE PERCENTAGE DISTRIBUTION OF POPULATION AND INDUSTRIAL CAPACITY IN 1970

[Number of cities in order of population rank]

Number of cities	United States		Soviet Union		Communist China	
	Population	Industrial capacity	Population	Industrial capacity	Population	Industrial capacity
10	25.1	33.1	8.3	25	3.7	30–35
50	42.0	55.0	20.0	40	6.8	50–60
100	48.0	65.0	25.0	50	8.6	65–75
200	55.0	75.0	34.0	62	9.0	80–90
400	60.0	82.0	40.0	72	10.0	85–90
1,000	63.0	86.0	47.0	82	11.0	

The fact that a large proportion of Chinese industrial capacity is concentrated in a relatively small number of cities does have a bearing on the problem of deterrence. But, China is predominantly a rural society where the great majority of the people live off the land and are dependent only to a limited extent on urban industry for their survival. Furthermore, as Mao Tse-tung is reported to have said, China with its huge population (now estimated at 800 million) could survive (i.e., as a people but not as a 20th century nation) even with a loss of hundreds of millions from a nuclear attack. And we know from past experience that the Asian Communists are tenacious opponents and are willing to take great losses of life in achieving their

objectives. Therefore, it is reasonable to conclude that our ability to deter Communist China with our strategic offensive forces is considerably less certain than in the case of the Soviet Union.

Second, because our population is heavily concentrated in a relatively few large cities (42 percent in the largest 50 cities compared with 6.8 percent for Communist China), we would be highly vulnerable to an attack by even a relatively few ICBM's—if we had no defense against them. If deterrence should not work, our only recourse would be retaliation. However, we would have to withhold a large part of our strategic offensive forces as a deterrent to the Soviet Union, and the fatalities that we could inflict on Communist China would be relatively small in proportion to its total population. We could, however, destroy most of their urban industry and population with a relatively small number of weapons.

Third, given the character of the present regime in China, their ambitions in Asia, and their implacable hostility towards the United States, it would seem extremely foolhardy on our part to rely on deterrence only—if we had any better alternative. The President of the United States, no matter who he may be at the time, could find himself in an extremely difficult position in a serious confrontation with a Communist China armed with a force of even 25 relatively primitive ICBM's. Our cities would be hostage to the Chinese ICBM force, and the President would have no other alternative but to back down or risk the destruction of several major U.S. cities and the death of millions of Americans.

Thus, the issue resolves itself into a matter of judgment. If one believes that a Communist China armed with a force of ICBM's could still be deterred by our overwhelmingly greater strategic offensive forces, then an ABM defense need not be deployed against that threat. If, however, one believes as I do that the Chinese leaders might not be deterred, then the Safeguard system would be well worth its cost for that purpose alone.

C. PURPOSES WHICH AN ABM DEFENSE SYSTEM COULD SERVE

It may be useful, at this point, to review briefly the various purposes which an ABM system could serve, given the nature of the actual and potential threats. There are at least three major purposes and two minor ones.

Major purposes:

1. Protection of our population and cities against the kind of heavy, sophisticated missile attack the Soviets could launch in the 1970's.
2. Defense of our strategic offensive forces and their command and control (e.g., bomber bases, Minuteman silos, the National Command Authorities, etc.) as a substitute in whole or in part for the further expansion of those forces in the event a Soviet threat to their survival clearly emerges in the next few years.
3. Protection of our population and cities against the kind of

limited, unsophisticated ICBM attack the Chinese Communists might be able to launch in the 1970's.

Minor purposes:

1. Protection against the improbable, but possible, accidental launching of an ICBM toward the United States.

2. Protection against an unlikely, but possible, "demonstration attack", i.e., one or two missiles launched against our homeland as a sort of "shot across the bow."

The Sentinel system proposed by the preceding administration and approved by the Congress was primarily intended to serve the third major purpose—defense of our population against a Chinese ICBM attack, and, to some extent, the second major purpose—defense of our strategic offensive forces. In fact, a more comprehensive defense of our Minuteman force was included in Sentinel as an option that could be exercised at any time. Because of its nationwide coverage, it would have also fully served the two minor purposes. Finally, given the mode of deployment proposed (i.e., placing most of the radars and missile launchers in or near the major urban areas) it could have served as a foundation for a greatly expanded system for the defense of our principal cities against a Soviet missile attack.

But, the important point to keep in mind is that the Sentinel system was designed primarily to defend our population and cities against a Chinese Communist ICBM attack in the 1970's, and not an all-out Soviet attack. It would have had very little value against the latter, as the following table drawn from previous Posture Statements well illustrates:

U.S. FATALITIES FROM A CHINESE *OR* SOVIET 1ST STRIKE IN THE MID-1970'S

[In millions]

	Chinese [1]	Soviet
With no defense	7–23	110–120
With Sentinel	0–1	100

[1] The range of fatalities shown for a Chinese attack reflects a force of 10–75 ICBM's.

Unfortunately, this point has been obscured by the fact that many of the Sentinel sites (with Spartan missile launchers and the associated radars) were to be located in or near the major urban areas. We understand that this mode of deployment was selected so that in the event a decision was made at a later time to provide a terminal defense, the Sprint missiles could be installed at the same sites. Because the Sprint has a much shorter range (approximately 25 miles) than the Spartan (several hundred miles) it must be installed in or near the city to be defended.

I will have more to say about this matter of siting when I discuss the deployment alternatives.

D. STATUS OF THE ABM DEFENSE SYSTEM

I would now like to turn to the status of the ABM defense system. I know you are all familiar with the major components of this system,

but I think it would be useful at this point to review briefly the origins of the system, the concept of operation, and the state of development.

1. Origins of the Safeguard System

Many people have lost sight of the fact that the Safeguard program is the culmination of more than 13 years of research and development effort and the expenditure of about $5 billion, including all the various projects related to ballistic missile defense. During the entire period, as this committee well knows, the ABM program has proceeded under the continuous scrutiny of the Congress. Much thought and study has gone into its formulation since it was first presented to the Congress and this Committee in 1955. You will recall, Mr. Chairman, that the program did not move into full scale development until 1958, and that by 1959 there was already considerable sentiment in the Congress, not to speak about the Department of the Army, to start the deployment of the system then known as Nike-Zeus. In fact, the Congress added $375 million to President Eisenhower's fiscal year 1960 budget request "for the acceleration of Nike-Zeus and/or the modernization of Army firepower." President Eisenhower, as later events demonstrated, wisely rejected this proposal in favor of continued development and test.

In fiscal year 1963, the Nike-Zeus system as such was abandoned because, with the mechanically steered radars which it employed, it could not cope with the kind of attack the Soviets could mount in the late 1960's. Accordingly, a new, improved system, known as the Nike-X, was placed in development. The Nike-X was to consist of a new family of phased-array radars and a new high acceleration terminal defense missile, the Sprint. This system promised to be much more effective against a sophisticated missile attack employing penetration aids, and much less susceptible to saturation. However, even if the system were deployed around all our major cities, a large part of the Nation would still be left undefended. Moreover, the attacker would still have the option of ground bursting his warheads outside of the defended areas, thereby producing vast amounts of lethal fallout which could be carried by the winds over the defended areas. While the second problem could be ameliorated by a nationwide system of fallout shelters, something more would be needed to deal with the first problem. The solution adopted in December 1964 was the initiation of development of a new, long-range interceptor with a high yield warhead which kills by X-ray. With this missile, called the Spartan, the Nike-X system offered the possibility of a defense in depth—an area defense for the entire Nation, as well as a terminal defense for our major cities with the Sprint missile.

Consequently, the Congress in the summer of 1966 appropriated $168 million over and above the President's fiscal year 1967 budget request to prepare for the production of the Nike-X system. This ac-

tion, together with a number of other developments which occurred during that year,[a] brought the Nike-X deployment issue to a head.

In response to these events, President Johnson, on January 24, 1967, made the following recommendation to the Congress:

"Continue intensive development of Nike-X but take no action now to deploy an antiballistic missile (ABM) defense; initiate discussions with the Soviet Union on the limitation of ABM deployments; in the event these discussions prove unsuccessful, we will reconsider our deployment decision. To provide for actions that may be required at that time, approximately $375 million has been included in the 1968 budget for the production of Nike-X for such purposes as defense of our offensive weapon systems."

However, later in that same year (in a speech in San Francisco on September 18, 1967) Secretary of Defense McNamara announced the Johnson administration's decision to move forward with the deployment of an antiballistic missile defense system against the potential threat of a Chinese Communist ICBM attack in the mid-1970's. It is pertinent to note the reasons given by Secretary McNamara for this decision. He stated them as follows:

"There is evidence that the Chinese are devoting very substantial resource to the development of both nuclear warheads, and missile delivery systems * * * indications are that they will have medium-range ballistic missiles within a year or so, an initial intercontinental ballistic missile capability in the early 1970's, and a modest force in the mid-1970's.

"Up to now, the leadtime factor has allowed us to postpone a decision on whether or not a light ABM deployment might be advantageous as a countermeasure to Communist China's nuclear development.

"But the time will shortly be right for us to initiate production if we desire such a system."

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"The system would be relatively inexpensive—preliminary estimates place the cost at about $5 billion—and would have a much higher degree of reliability against a Chinese attack, than the much more massive and complicated system that some have recommended against a possible Soviet attack.

"Moreover, such an ABM deployment designed against a possible Chinese attack would have a number of other advantages. It would provide an additional indication to Asians that we intend to deter China from nuclear blackmail, and thus would contribute toward our goal of discouraging nuclear weapon proliferation among the present nonnuclear countries.

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[a] Among these developments were the following:
(1) The Soviet Union had accelerated the deployment of hard ICBM's beyond the rates forecasted by the U.S. intelligence community and had initiated the deployment of an antiballistic missile defense system around Moscow.
(2) The Chinese Communists had launched and demonstrated a nuclear-armed medium-range ballistic missile and had detonated their first two thermonuclear devices.
(3) The Nike-X had reached a stage of development where the start of concurrent production and deployment had become feasible.
(4) The Joint Chiefs of Staff had strongly urged a prompt decision to deploy the system.

"Further, the Chinese-oriented ABM deployment would enable us to add—as a concurrent benefit—a further defense of our Minuteman sites against Soviet attack, which means that at modest cost we would, in fact, be adding even greater effectiveness to our offensive missile force and avoiding a much more costly expansion of that force.

"Finally, such a reasonably reliable ABM system would add protection of our population against the improbable but possible accidental launch of an intercontinental missile by any one of the nuclear powers."

As you know, this Chinese-oriented ABM system was called the Sentinel. By January 1969, production of many of the components of that system was already underway, and the acquisition of operational sites had been started. Indeed, the Johnson administration's fiscal year 1970 budget included $1.8 billion to carry forward the full-scale deployment of the system, with an initial equipment readiness date of October 1972 for the first site at Boston and completion of the entire system by January 1975.

Thus, the Nixon administration was confronted with a going program, and not just a proposal. A choice had to made. The alternatives open to the new administration from this point of view can be summarized as follows:

1. Permit the Sentinel program to move forward as planned by the preceding administration.
2. Halt production and deployment and continue research and development only.
3. Terminate all work on the Sentinel system as such, and continue only research and development on more advanced ABM technology.
4. Reorient and rephase the entire Sentinel program.

For reasons which I discussed earlier, the fourth alternative was chosen.

2. Concept of Operation and Status of Development

Mr. Chairman, there are two basic concepts involved in the kind of ballistic missile defense systems we are discussing here today—area defense and terminal defense. Area defense involves the detection and tracking of the incoming reentry vehicles with long-range radars, and the interception of those vehicles with long-range defense missiles while they are still high above the atmosphere. Terminal defense involves the interception of enemy reentry vehicles with short-range, high-acceleration defense missiles, after these vehicles have reentered the atmosphere and after they have been sorted out by the atmosphere from decoys, chaff, and other confusion devices. By using both concepts in combination, a defense in depth can be provided. The area defense concept is portrayed on chart 2, and the terminal concept on chart 3.

Both the Sentinel and Safeguard systems involves the same basic technology and utilize the same major components: Perimeter Ac-

quisition Radars (PAR's), Missile Site Radars (MSR's), Spartan missiles, Sprint missiles, and a data processing center associated with each of the radars. These components serve the following basic functions: The PAR is the long-range radar which first acquires and tracks the target, while the MSR is the shorter range radar which continues to track the target and also guides the interceptor missiles. The Spartan is the long-range area defense missile, and the Sprint is the high-acceleration terminal defense missile. The data processing centers provide the necessary calculations for the entire intercept operation.

The Perimeter Acquisition Radar (PAR), shown on chart 4, is a relatively low-frequency, phased-array radar which is capable of simultaneously detecting and tracking a large number of objects at a range greater than a thousand miles. The PAR provides information to the data processing center which computes the track of the incoming missile and the probable point of intercept. (When the target missile comes within range of the MSR, the MSR tracks it and provides the guidance for the Spartan interceptor missile.) The PAR radar must be large in order to provide the long range and high resolution required for the system. It will be housed in a building about 200 feet square, 130 feet high, and will have an antenna with a diameter of 116 feet.

The principles, functions, power level, and frequency of the PAR are quite similar to existing operational space and air defense radars. Hence, there is no need to build a complete R. & D. PAR, and the first PAR can be assembled directly at an operational site. The status of the work on this radar is as follows: The equipment configuration has been chosen, the design and performance specifications have been prepared, a partial prototype test model has been started and is now 40 percent complete, the design for the PAR structure has been finished, and the PAR computer is 25 percent complete. In short, work on the PAR is well along and no major problems are anticipated.

The Missile Site Radar, shown on chart 5, is also a phased-array radar which controls the Sprint and Spartan interceptor missiles during an engagement. It has a range of several hundred miles and can simultaneously track multiple incoming objects and guide missiles to intercept them. After the MSR has been alerted to the incoming target by the PAR, it and its associated computers provide the capability to ready interceptors for launch, launch them, guide them to intercept, arm their warheads, and fire them.

Because the functions of the MSR are more complex than those of the PAR, a prototype system has been installed at Meck Island in the Kwajalein Missile Range, where its operational capabilities are being tested. The installation was completed in May 1968 as scheduled, and the radar was successfully brought up to full power in November 1968. Work on the data processing center associated with this MSR, including the programing, is now progressing well. The first MSR-directed

Spartan intercept of a single ICBM is expected to take place in the spring or summer of 1970, and an intercept with a Sprint later in that year. The first intercept of multiple targets at Kwajalein is scheduled for early 1971.

The data processing function, which I just mentioned, is an extremely important element in the ABM defense system. Powerful computers and sophisticated "programs" are needed to control the radars, compute trajectories, differentiate the incoming warheads from other objects, guide the defense missiles, and so forth. Moreover, the "programs" must be designed in advance to reflect every conceivable eventuality the system may confront, and this represents a very complex problem. While each of the PAR's and MSR's has a data processing center associated with it, the entire system will be tied into a ballistic missile defense center located at the underground headquarters of the Continental Air Defense Command.

The MSR computer has the more difficult data processing requirement, since it must not only track the target but also guide the interceptor missile. It utilizes a multi-processor shown on chart 6, with several units which can operate in parallel on different tasks or different parts of the same tasks. Two processors out of an eventual total of four have been installed and are now operating with the MSR at Kwajalein. (Installation of the third is now underway.) The two operational processors have been integrated with the radar and are being used to test the radar "hardware" and to develop the "software" computer programs. The data processing system, including the computer programs, should be ready for use in the first live intercept scheduled for 1970.

The 3-stage Spartan missile, shown on chart 7, is used for area defense and can intercept objects at a range of several hundred miles and at altitudes high above the atmosphere. This missile is a scaled-up version of the Nike-Zeus. The latter was fired 154 times, and it made 10 successful interceptions out of 14 attempts against ICBM's fired from the west coast in 1962 and 1963, during its system test phase.

The first Spartan was fired in March 1968, and there have now been a total of eight firings. Six were completely successful, and two only partially successful. However, the deficiencies in the latter two have been identified and corrections have been made. Additional test firings will go on at a rate of about one per month.

The Spartan multi-megaton warhead is being developed and tested by the Atomic Energy Commission. A successful scaled-down developmental shot was fired underground in Nevada in December 1968. It should be noted that this Spartan warhead is being designed so that it cannot detonate below a certain minimum safe altitude, and because of the high altitudes where the interceptions will take place, there will be no significant effects on people or property on the ground.

The very fast Sprint missile, shown on chart 8, makes its intercept in the atmosphere. It is used for terminal defense where the incoming enemy warhead is not destroyed by the Spartan missile, either because

of a miss or malfunction, or a failure of the radars to discriminate between an armed warhead and a decoy or other confusion device. Once the actual warhead has emerged from its accompanying confusion devices as they enter the atmosphere, the high speed of the Sprint enables it to make the intercept before the warhead descends to its detonation altitude.

Test firings of the Sprint began in 1965. Out of a total of 29 launches, there have been 14 successes, 7 partial successes, and 8 failures. However, eight out of the last 10 firings have been fully successful. Moreover, the exact causes of the two failures have been identified and corrective action has been taken. On the basis of these recent flight tests, we believe the Sprint will meet its performance specifications.

The Sprint's warhead is designed to use two kinds of phenomena to kill an incoming reentry vehicle—an air blast which destroys the vehicle, and neutrons which penetrate the vehicle. The warhead will be provided with a safety device which will prevent it from detonating below a minimum safe altitude. At this altitude there should be no adverse effects on people or property on the ground. Testing of the development warhead by the AEC has indicated that the proposed design can meet the requirements. Design and fabrication of the operational warhead is proceeding as planned.

Mr. Chairman, I believe it is clear from my discussion of the status of the major components, that the system as a whole is ready for production and deployment. In fact, as I noted earlier, some of the components are already being manufactured, and a total of about $434 million has been obligated for procurement alone. Included in this total is about $70 million for the first PAR; about $120 million for data processors; $59 million for advance procurement of an MSR; about $146 million for production facilities, production engineering, et cetera, for various major components of the Safeguard system. As of March 30, 1969, about $103 million in procurement funds has already been expended. We estimate that a total of about 15,000 employees in the prime and major subcontractor plants, alone, are engaged in this ABM development and production effort.

Mr. Chairman and Members of the Committee, I must tell you very frankly that if the Congress, this year, does not approve the deployment of Phase 1 of this system, we would not only have to terminate production, but also drastically revise the R. & D. effort uniquely related to the deployment of this particular system. We have been advised by very knowledgeable people in the business that we have probably gone as far as we can in the development of some of the components of this system. In any event, we would, of course, continue R. & D. work associated with the Kwajalein test program and on more advanced ABM defense technology.

Nevertheless, a large portion of the work force presently engaged in this effort would have to be disbanded, and if we should later decide to go ahead with the Safeguard program in fiscal year 1971, it would

take not just one more year, but at least 2 more years to complete the full deployment. In other words, the system would not be fully operational until the spring of 1978 instead of 1976. This is so because the work force would have to be rebuilt and all of the production processes restarted, and this would take at least an additional year. To delay this program for another 2 years would, in my judgment, be gambling with the Nation's survival—unless we adopt some of the other alternatives (e.g., increasing our strategic offensive forces) which I discussed earlier. And I want to make it perfectly clear that those measures would have little effect on the situation which would prevail if the Chinese ICBM threat were to emerge in the mid-1970's.

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I would now like to turn to the Safeguard program specifically proposed by President Nixon.

E. BASIC ELEMENTS OF THE SAFEGUARD PROGRAM

Before I discuss the Safeguard program, I believe it would be useful to review briefly the main characteristics of the ABM program proposed by the preceding administration and the reasons why we felt it should be reoriented.

The Sentinel system, as I noted earlier, was oriented primarily against the Chinese ICBM threat. It involved the deployment of 17 sites; 15 in the 48 contiguous States and one each in Alaska and Hawaii. The plan called for the deployment of six PAR's (with one face each) along the northern border of the United States facing the Chinese ICBM threat corridors. Each site was to be equipped with an MSR, some with more than one face each, for a total of 38 faces. (The four sites in the Minuteman fields and the one in Washington, D.C., would each have had a four-face MSR to give them an all-around defense capability.) All of the sites except Hawaii were to have Spartan missiles. The Hawaiian site was to be equipped with Sprint's only because of the small area to be protected. All sites at which the PAR's were to be located were to be equipped with Sprint's for defense of the radars.

There were several elements of this plan which we felt could be considerably improved. First, the plan was too heavily oriented to the Chinese ICBM threat. For example, all of the PAR's faced north only, providing no warning or tracking capability against the SLBM threat from the sea. Many MSR's had no terminal defense, and no Sprint's were specifically provided for the defense of the Minuteman force. This last requirement was simply held open as an option, to be exercised if needed. Yet the Soviet threat to our land-based ICBM's and bombers was growing more rapidly than was forecast only a year or two ago, while the Chinese ICBM threat was evolving more slowly.

Second, 10 of the 15 Sentinel sites in the contiguous 48 States were to be located in or near major metropolitan areas. This particular pattern of deployment could well appear to the Soviets as a threat to their deterrent, since it could serve as the foundation for a thick

ABM defense of our cities. We would, of course, all wish to defend our cities if that were technically feasible, which it is not. Thus, placing the Sentinel sites in or near the major metropolitan areas might have simply resulted in an increase in the Soviet ballistic missile threat to our cities.

Furthermore, since the public is well aware that Spartan will be equipped with a large, megaton-class warhead, many people became gravely concerned as to their safety in the event of an accidental detonation. We cannot, from a strictly technical point of view, absolutely preclude that very remote possibility, but the control techniques employed heretofore clearly show that the chance of an accidental detonation is virtually nil. We can point with great confidence to our record on nuclear safety, which includes the safe deployment of Nike-Hercules air defense missiles around our major cities for more than a decade.

Third, the entire Sentinel system was to be deployed on a fixed, predetermined schedule, instead of on a step-by-step basis which would allow for a periodic reassessment of the international situation and the need to continue the deployment.

The Safeguard program, in contrast, is based on a different concept. It is to be deployed in a manner which will make its defensive intent unmistakable. All of the sites will be located well outside the major urban areas, except for Washington, D.C., which is the control center of the National Command Authorities. This site will be provided a heavier defense than was planned in the Sentinel program. since protection of the NCA is essential if we wish command and control of our nuclear weapons to continue to reside in the hands of the constituted authority.

By properly locating the 12 sites, we can provide reasonable coverage for our manned bombers against the SLBM threat from the sea. To provide the all-around radar coverage required, 7 PAR's with 11 faces would be installed, instead of 6 PAR's with 6 faces. Six of these 11 PAR faces would cover the seaward approaches, including the Gulf of Mexico. And, even though the Safeguard sites would be located away from the cities, a good area defense of virtually the entire country against the kind of threat the Chinese Communists might pose in the 1970's could be provided with 12 instead of 15 sites (excluding in both cases, Alaska and Hawaii).

The Safeguard system, if all Phase 2 options are exercised, would require somewhat fewer Spartan's but more than twice as many Sprint's on launchers than the Sentinel system. The increased number of Sprint's is principally for the protection of the Minuteman fields, and the four Safeguard sites planned for these fields would account for almost two-thirds of the Sprint's. More than half of these Sprint's would be deployed at so-called remote sites around the MSR to provide better coverage of the Minuteman force.

Another important feature of the Safeguard proposal is that the deployment would be implemented in stages in a manner clearly re-

lated to the actual development of the threat and the international situation generally. All we are asking the Congress to approve this year is Phase 1 of the program, which includes only the first two sites in the Minuteman fields—Grand Forks Air Force Base in North Dakota and Malmstrom Air Force Base in Montana. As shown on chart 9, each of these sites would be equipped, initially, with a 1-face PAR, a 4-face MSR, and Spartan and Sprint missiles, plus the required data processors, communication facilities, and so forth. How we would propose to proceed from there would depend upon the outcome of the forthcoming talks with the Soviet Union on strategic arms limitations and, ultimately, on how the threats, both from the Soviet Union and Communist China, actually evolve.

There are several reasons why we feel it is extremely important that we move ahead with Phase 1 at this time. First, as I already noted, if we do not proceed with production and deployment of the ABM components in fiscal year 1970, we would probably have to put the entire project on the shelf for the time being, thus delaying the availability of an operational system for at least 2 years. Second, although we plan to install an R. & D. prototype system (except for the PAR) at Kwajalein, that system would still not be the one we would install at an operational base. We feel it is absolutely essential to deploy at an operational site in order to check out the entire system under realistic conditions and work out the problems that inevitably arise in the deployment of any new major weapon system. This work must be done in any event if we ever want to deploy this system. If we don't do it now, we will have to do it later, thus depriving the President of the option to move forward rapidly with the Phase 2 options should the need arise within the next few years.

The reason we have proposed two sites instead of one is that they would be mutually supporting in an area defense role since the PAR and the Spartan coverage would overlap to some extent. Furthermore, we have to begin somewhere, and these two sites would provide protection for at least a limited portion of the Minuteman force. Accordingly, even if we don't go beyond Phase 1, we would still get some value out of the deplomeut of the first two sites. To protect our population against the Chinese ICBM threat, in contrast, would require the deployment of all 12 sites.

Because most of the startup costs must be incurred in the beginning of the production program, the DOD investment cost (procurement, construction, and installation) of Phase 1 is estimated at $2.1 billion. About $800 million of these funds are already available; another $360 million is included in the revised fiscal year 1970 budget request, making a total of about $1,160 million. The balance of the $2.1 billion DOD investment cost for Phase 1 would have to be financed in subsequent years.

The initial equipment readiness date of the first site at Grand Forks is estimated to be January 1974, and the second site at Malmstrom, July 1974. It is pertinent to note that the initial equipment readiness

date of the first site in the Sentinel plan discussed in Mr. Clifford's fiscal year 1970 Posture Statement was October 1972. Thus, we have already slipped the ABM deployment program by more than 1 year. That is how we have been able to reduce the total fiscal year 1970 budget request for ABM deployment—including R.D.T. & E., and so forth—by almost $1 billion.

I want to make it clear at this point that these cost figures pertain only to the Defense Department budget; they do not include the nuclear warhead costs which, as you well know, are financed in the Atomic Energy Commission's budget. This has always been the case insofar as DOD weapon system costs are concerned. For example, the fiscal year 1970 Sentinel budget request figures cited in Mr. Clifford's statement also exclude warhead costs, as do the figures cited in Mr. McNamara's last statement.

I should also caution that the term "DOD investment cost" excludes R.D.T. & E. Although I think it is more logical to include R.D.T. & E. in investment costs, and I have taken action to see that this is done in the future, the practice in the Defense Department in the past has been to include only procurement and military construction. In order to maintain comparability with the Sentinel costs used in the past, we have continued to apply this more narrow definition of investment costs to the Safeguard program. As a result, the cost figures I am using with regard to Safeguard are directly comparable to the figures used for Sentinel.

Shown on chart 10 are the Phase 2 options. If the Soviet ICBM threat to our Minuteman force evolves in the manner I described earlier, but the Chinese ICBM threat does not develop, then we might propose to proceed with option 2A. This would involve adding two more sites in the Minuteman fields—Whiteman Air Force Base in Missouri and Warren Air Force Base in Wyoming. It would also involve a substantial increase in the number of Sprints in the Minuteman fields (plus more Spartans) and the installation of a Safeguard site at Washington, D.C. (with one four-face MSR. Spartans and Sprints) for the protection of the National Command Authorities. The exercise of option 2A would bring the total DOD investment cost for Safeguard up to $3.4 billion (including Phase 1).

The relative effectiveness of Safeguard option 2A in defending our Minuteman force can be measured in terms of the threat I mentioned earlier; namely, the large Soviet SS–9 type missile equipped with three independently targetable 5-megaton warheads with an accuracy of one-quarter of a mile. With a force of 420 of these missiles on launchers and an assumed failure rate of 20 percent, the Soviets could place over the Minuteman fields about 1,000 warheads. Without any ABM defense, it is possible that only about 50 Minutemen would survive. (A mixed force made up of fewer large missiles but including a number of highly accurate small missiles could produce similar results.) With Safeguard Phase 1, perhaps two or three times as many Minutemen

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would survive and with Safeguard option 2A perhaps five or six times as many. (The actual number surviving would vary, depending upon both the offensive and defensive tactics employed.)

I cannot state as a fact that the Soviets will actually develop a MIRVed missile of this type or deploy a force of 420 of them. But I think you will agree, in the light of the information already in hand, that it is well within the realm of the possible. And if they should do so, our Minuteman force as presently deployed could be virtually wiped out—unless we provide some ABM defense.

Safeguard option 2B is designed to meet the growing Soviet SLBM threat to our bomber force. This option would involve the installation of all 12 sites and the deployment of the improved Spartan. The total DOD investment cost would amount to $6.3 billion (including Phase 1). Without an ABM defense, only a relatively small portion of our bombers and tankers would survive if the Soviets could place as many as 15 Y-class submarines off our coasts, especially if the Soviet SLBM's are fired on a depressed trajectory. With the option 2B deployment, most of our alert bomber force could be expected to survive. Thus, the expected payoff from an option 2B deployment would be very substantial under these particular circumstances.

Option 2C is designed specifically against the Chinese ICBM threat, and assumes that the Soviet threat to our strategic offensive forces falls short of the levels postulated under options 2A and 2B. In this case, we would install all 12 sites and deploy the improved Spartan. But we could probably omit the PAR's planned for Florida and southern California, since we would not have to defend against the Soviet SLBM threat to our bomber force. Moreover, some of the multiple MSR faces could probably also be omitted, since we would not have to defend against the Soviet ICBM threat to our Minuteman force. The DOD investment cost of this option would be $6 billion (including Phase 1).

The effectiveness of option 2C against the Chinese ICBM threat is expected to be very high. If the Chinese deploy a force of only 30 ICBM's on launchers by mid-1976, they could inflict about 15 million fatalities on us—if we had no ABM defense. With option 2C deployed, fatalities could be held to less than 1 million. And, even if they were to deploy as many as 75 ICBM's on launchers by the end of the decade, fatalities could still be held to less than 1 million, particularly if the improved Spartan is deployed. Here again, the deployment of Safeguard would have a very large payoff, if the Chinese ICBM threat should, in fact, emerge.

If we fully deploy the Safeguard system against all three of the threats I have discussed, the total DOD investment cost would be $6.6 billion, about $600 million more than currently estimated for the

Sentinel system. Adding the estimated $2.5 billion of R.D.T. & E. costs specifically associated with the Safeguard program, the total DOD cost would amount to $9.1 billion. This leaves the warhead costs to be considered. According to the AEC, these costs would amount to about $1.2 billion, including the costs of all of the facilities required for development and test. The incremental investment cost incident to the deployment of the system, i.e., the cost of producing the warheads alone, would only amount to about $0.2 billion. What proportion of the remaining costs should properly be charged to the Safeguard program is problematical. Some of the new AEC facilities being constructed for the Safeguard program can be used for other development and test programs. Moreover, the special nuclear materials involved are recoverable. But, even if we charge off the entire $1.2 billion of AEC costs to the Safeguard program, the total would amount to $10.3 billion.

If we should later decide to extend the Safeguard system to Alaska and Hawaii, another $450 to $500 million would have to be added to this total.

The annual operating cost of the fully deployed system is estimated to be about $350 million a year. The deployment locations are shown on Chart 11.

F. STRATEGIC AND FOREIGN POLICY CONSIDERATIONS

For many years, and over several administrations, this Nation's strategic nuclear war policies have been squarely based on the proposition that the other great nuclear power in the world, the Soviet Union, must under all foreseeable conditions be deterred from ever attempting a first strike on the United States. The terminology employed in describing this policy has varied over the years, but its essence has remained unchanged: we must always be in a position where we can inflict unacceptable damage on the Soviet Union, even after absorbing the first blow. In more recent times, this capability has been labeled "Assured Destruction," and I am sure that the members of this Committee understand the meaning of that term; it was certainly pounded home to us often enough by my distinguished predecessor, Robert McNamara.

The issue that now confronts the Nation is how best to ensure that deterrent (or "Assured Destruction") power through the 1970s. If the Soviets continue on the course they are now following, and I am speaking here of what they are actually doing and not what we think they intend to do, the survival of two of the three major elements of our strategic offensive forces, namely, the bombers and the land-based ICBMs, could be gravely endangered, To rely on only one of the three major elements would, in my considered judgment, be far too risky, considering the stake involved, which is the very survival of our Na-

tion. It is perfectly apparent, therefore, that something more must be done, and in view of the leadtimes involved, done fairly soon.

One possibility, of course, is an agreement with the Soviet Union on the limitation of strategic armaments. I wholeheartedly support that objective, and we should do everything in our power to achieve a suitable agreement. But we must recognize that the issues involved are extremely complex and, even with the best of good will on both sides, it will be very difficult to work out an arrangement which truly safeguards the security of our respective nations.

Meanwhile, we have to deal with the world as it is today. Until an acceptable arrangement is achieved, we must continue to ensure the sufficiency of our deterrent. As I noted earlier, we can do this by increasing our strategic offensive forces. But we feel that this course would simply accelerate the arms race with the Soviet Union. And, it would not solve the problem of the other threat looming on the horizon; namely, the prospect that the Chinese Communists will deploy an ICBM force. Nor would it provide protection against the possibility of an accidental ICBM launch against the United States, or an intimidation attack with a few missiles.

The only single program which can cope with all of these contingencies is Safeguard. It can ensure the survival of the minimum required number of land-based ICBM's and bombers; it can provide a very high degree of protection for our population against the kind of attack the Chinese Communists may be capable of launching in the 1970's; and it can defend the Nation against an accidental ICBM launch or an intimidation attack. While there might be some question as to whether it would be worth $10 billion to place ourselves in a position to defend against any one of these potential threats, there can be no question but that it would be well worth that amount of money to be able to defend ourselves against all of these threats.

We see no reason why a decision to move forward with Phase 1 of the Safeguard program should in any way impede the forthcoming talks with the Soviet Union on strategic armaments limitation. Let me remind you that only a few days after the Senate had approved the Sentinel program last year, following many dire warnings that such an approval would wreck the chances for strategic arms talks, the Soviets announced their readiness to start such talks. And, they have displayed no loss of interest in the ratification of the Nonproliferatiton Treaty.

Furthermore, as I noted earlier, the Soviet Union has been deploying an ABM system around Moscow, and they are continuing their work on more advanced ABM's. I think it is entirely possible, therefore, that the Soviet Union may want to provide for some minimum ABM defense in any agreement they reach with us on the limitation of strategic armaments. The Soviet leaders have traditionally laid great stress on defense, particularly the defense of Moscow, and I doubt very much that they would be willing to dismantle the existing Galosh ABM system around that city.

Thus, it is entirely possible that a Soviet-United States agreement on strategic arms limitations might provide for a limited ABM defense on both sides. I myself can see no objection to such an arrangement, especially in the face of a situation where our cities could become hostage to the Chinese Communists. I recognize that we plan to continue to rely on our deterrent to protect our cities against a Soviet attack in the 1970's, but that is because we have no better alternative. Against the Chinese Communist ICBM threat, however, we do have a better alternative, and that is the deployment of the Safeguard system. I think we would be foolhardy not to employ it, if that threat does indeed, begin to emerge.

With regard to other foreign policy implications of a decision to deploy Safeguard, we believe that "on balance" the advantages far exceed the disadvantages. This would be particularly true with respect to the free world position in Asia. Once Communist China acquires a force of medium range bombers and/or ballistic missiles, all of her neighbors would be open to nuclear blackmail. Should Communist China then also acquire an ICBM force with which it can threaten our cities, and we have no defense against it, the President of the United States would have no alterative but to back down or risk the destruction of several of our major cities in any serious confrontation with Communist China.

Furthermore, as former Secretary of Defense McNamara pointed out last year in his discussion of the Sentinel program, "It would provide an additional indication to the people of Asia that we intend to support them against nuclear blackmail from China, and thus help to convince the nonnuclear countries that acquisition of their own nuclear weapons is not required for their security."

With regard to our allies in Europe, the Johnson administration's decision to deploy the Sentinel system did not have any important repercussions one way or the other. The issue of an ABM defense for Western Europen was discussed with our allies and it was concluded that the threat was so great and varied that even an extensive deployment might not be able to prevent great damage from the kind of attack the Soviets could mount over the next several years.

However, some of our NATO allies have expressed concern about the impact of such a decision on the prospects for a detente in Europe. But, as I just pointed out, the decision of the U.S. Congress last year to support the Sentinel program did not have any perceptible adverse effect on the Soviet Union's attitude toward the Nonproliferation Treaty or the strategic arms limitation talks. I doubt that a decision to proceed with Safeguard will have any bearing on their attitude toward a detente in Europe.

Canada, on the military level, has shown great interest in our ABM defense program, although it is not considered a part of the United States-Canadian NORAD system. But at the political level the interest

is less pronounced. It is my impression that the Canadian Government has decided to adopt a noncommittal position on this issue. We do have an obligation to keep the Canadian Government, and our other NATO allies, informed of our ABM defense plans, and we are meeting that obligation.

Thus, from a foreign policy point of view, we see no adverse implications in a decision to go forward with the deployment of Safeguard. And, certainly, this is true with respect to Phase 1, the deployment of which would simply place us in a better position to move forward promptly if it should later become necessary to deploy the whole system.

G. SUMMARY AND CONCLUSIONS

Mr. Chairman and Members of the Committee, I have outlined here today the reasons why the Nixon administration has reached the conclusion that we should move forward at this time with the deployment of at least Phase 1 of the Safeguard system. I have presented to you the facts and the analyses upon which that conclusion was based. The choices now open to you are the same ones which President Nixon had to confront in reaching his decision in March:

1. Continue the Sentinel program proposed by the preceding administration 2 years ago and approved by the Congress last year.
2. Cancel that program and revert to R. & D. only.
3. Modify that program to bring it into better balance with the threats as they now appear to be developing.

The President rejected the first choice because the Sentinel program was not geared to the threats as they were actually evolving. He rejected the second choice because he was convinced that the Soviet threat to our bombers and land-based missiles was more imminent than previously assumed, and that the Chinese threat to our cities would ultimately emerge, albeit later than originally estimated. He adopted the third choice because the deployment of an ABM defense at this time would be the best response to both of these threats, and, in addition, would provide protection against an accidental ICBM launch or an intimidation attack on the United States. Because neither of these threats might develop as fast or to the full extent presently estimated, he decided to pace the deployment of the Safeguard system to the actual emergence of these threats and request the Congress to approve only Phase 1 of the system at this time.

I can assure this Committee that we have carefully considered the feasibility of delaying the deployment of Phase 1. In fact, initiation of deployment has already been delayed by more than a year compared with the Sentinel schedule. I have, on my own initiative, held up all construction work on ABM sites and any further acquisition of land for these sites, pending a Congressional decision on this program. But production had already been started by the time the Nixon administration took office. Had we terminated production, we would, in effect, have preempted the Congressional decision on deployment. The labor

force would have had to be laid off and the contractors reimbursed for costs already incurred. As a result, we would not now be in a position to start deployment promptly, even if the Congress approves the program in the current session. Aside from the waste of public funds involved, this course of action would have delayed the program by at least one extra year.

If we put off the deployment decision until next year, we would delay the completion of the program by at least two years, from the spring of 1976 to the spring of 1978. This choice appears to us to be far too risky since both the Chinese threat to our population and particularly the Soviet threat to our bomber and land-based missile forces are likely to emerge considerably before that time, perhaps as early as 1974–75. Furthermore, it would entail all of the waste and delays involved in terminating production.

It has also been suggested by some people that we complete the test program at Kwajalein before we initiate deployment. The thought here is that we would know much more about the effectiveness of the system, and thus be in a much better position to decide whether it is worth deploying. Aside from the fact that we would have to cut back drastically the Safeguard R. & D. effort as well as terminate production, it would delay completion of deployment until the end of the 1970's, far too late in relation to our current estimates of the threat.

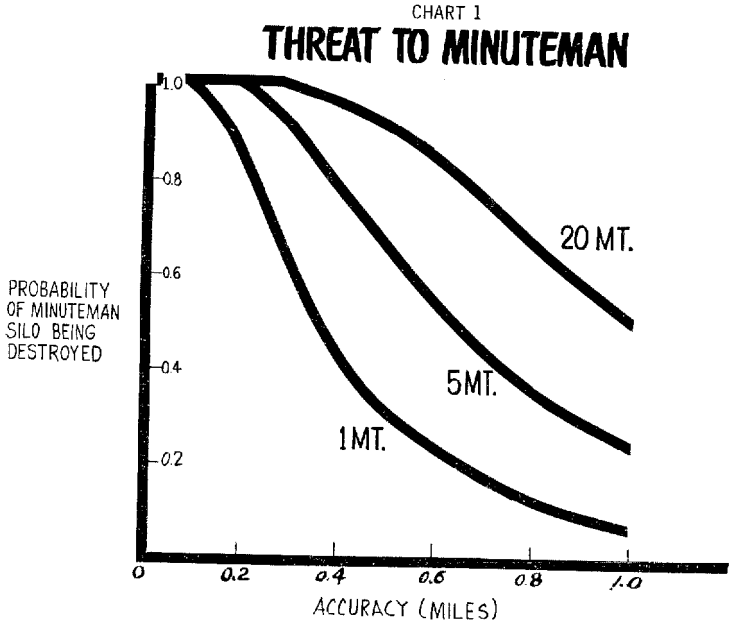
Moreover, the Kwajalein tests will not answer all the questions involved in the actual deployment of an operational system. Only a prototype operational site can answer those questions. So, to those who are concerned about whether the Safeguard system will work, I would say let us deploy Phase 1 and find out. Only in this way can we be sure to uncover all of the operating problems that are bound to arise when a new major weapon system is first deployed. Since it will take 5 years to deploy the first two sites, we will have ample time to find the solutions through our continuing R. & D. effort to any operational problem which may arise. And only then will we be in a position to move forward promptly, and with confidence, in the event the threat develops to a point where deployment of the entire system becomes necessary.

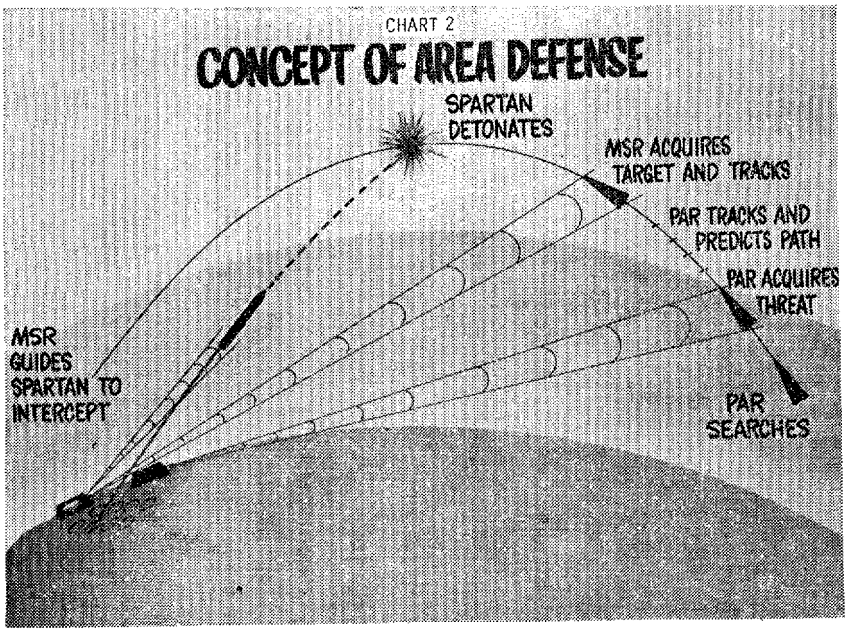
With regard to technological obsolescence, let me assure you that we have carefully explored all of the various systems which have been proposed by the Navy and Air Force as well as the Army. The radar guided intercept concept, which the Safeguard system employs, is the latest and best technology presently available. No other technology on the horizon promises any better system. With improved terminal guidance, we might be able to substitute nonnuclear for nuclear warheads. We are pursuing this path, but there is a great deal of work yet to be done to prove the feasibility of this concept. We have also looked at the lasers, but they are still quite a way off in the future. Even then, we would still need the Perimeter Acquisition Radars. A number of other advanced technological concepts have been explored, but none of them lie within the required time frame.

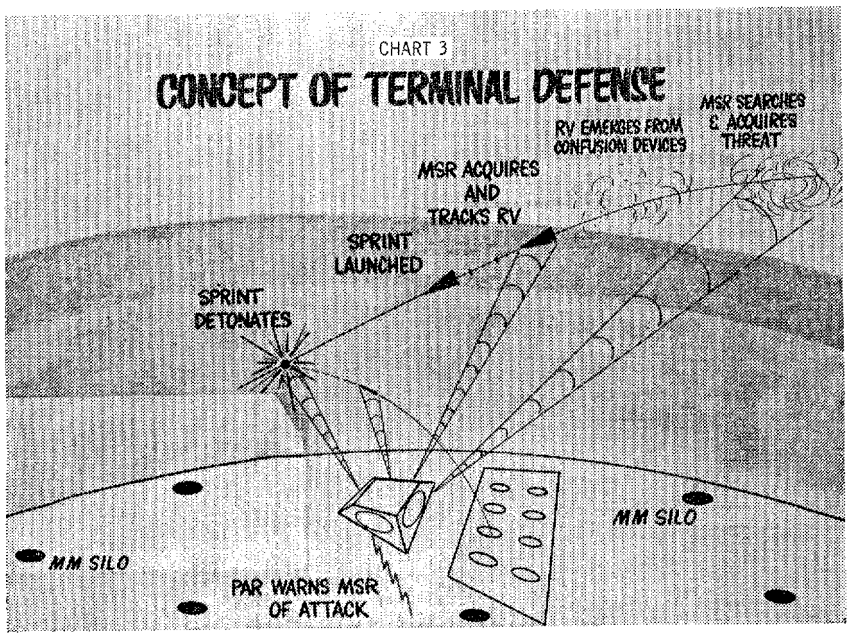
In conclusion, Mr. Chairman, we have reviewed very carefully and conscientiously all of the criticism that has been leveled against the Safeguard program and I can assure you that all of the major points raised have been considered at one time or another during the many years this system has been in development. The deployment of Phase 1 would involve a DOD investment cost of $2.1 billion, excluding R. & D. and AEC costs which would have to be incurred, for the most part, even if we postpone deployment for another year. This represents an average annual expenditure of about $400 million over the next 5 years. I submit that in view of the great stakes involved, this is a very modest insurance premium, roughly one-half of 1 percent of the total Defense budget, and considerably less than one-twentieth of 1 percent of our current gross national product. Notwithstanding the severe budget stringencies under which the Government will have to operate in the next fiscal year, President Nixon found it necessary to recommend this program to the Congress.

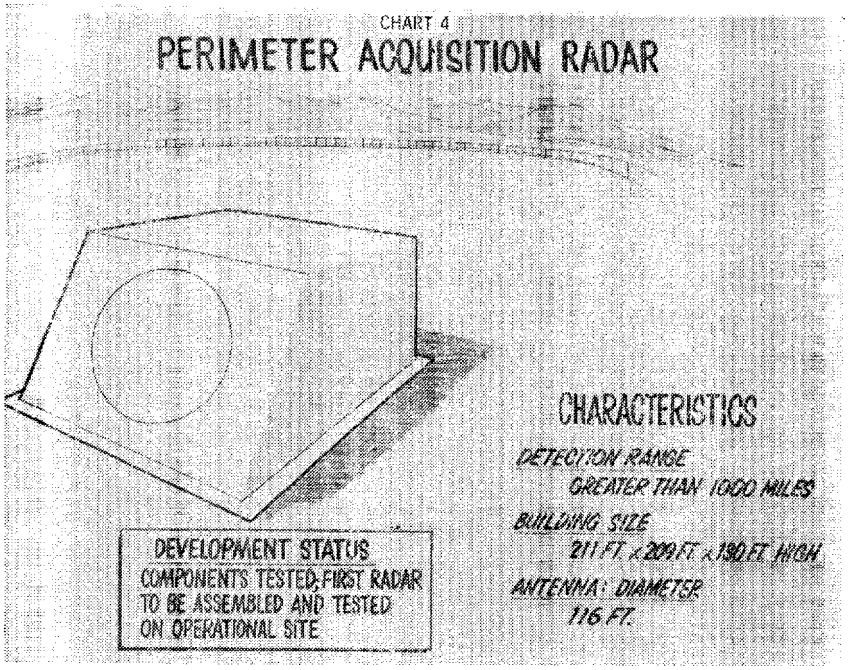
Congressional approval of the Phase 1 deployment will give the President the flexibility he needs at this critical juncture in our history. It will strengthen his hand in the forthcoming negotiations with the Soviet Union on the limitation of strategic armaments. If these negotiations do not produce an acceptable agreement, he will be in a position to move promptly to protect our strategic deterrent. In short, the deployment of Phase 1 of the Safeguard program is the very least that we should do at this time to ensure our security in the 1970's.

CHART 1









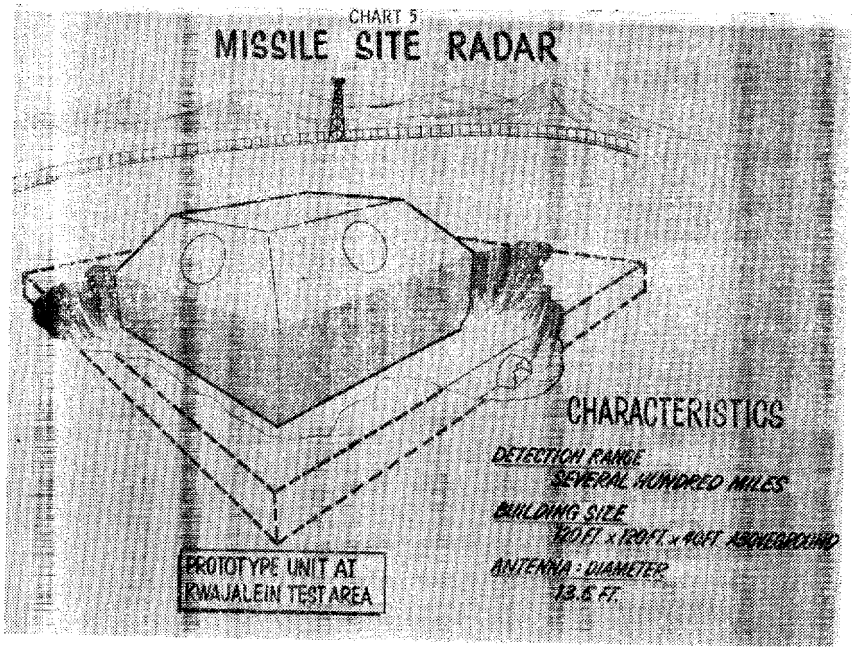
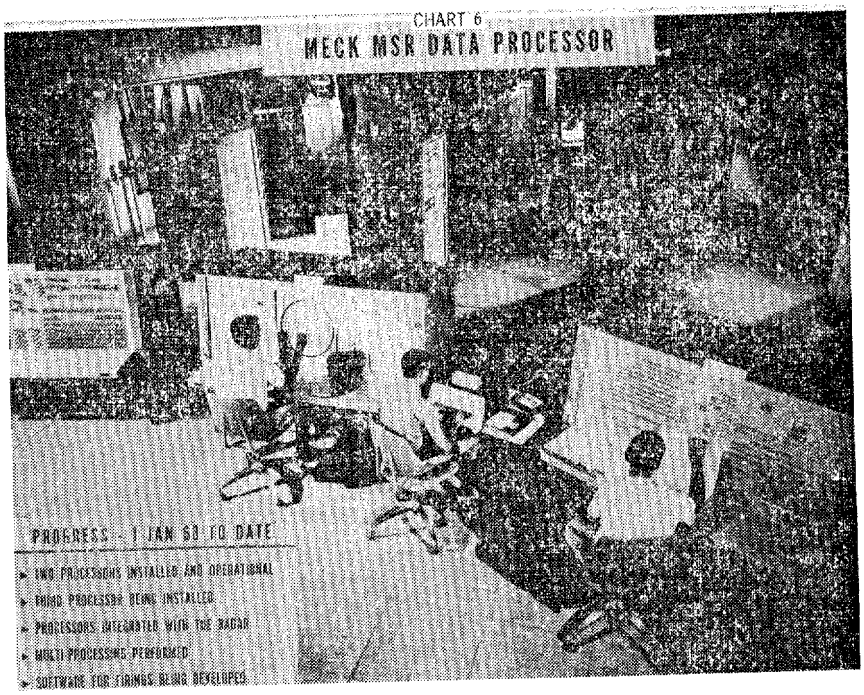


CHART 6

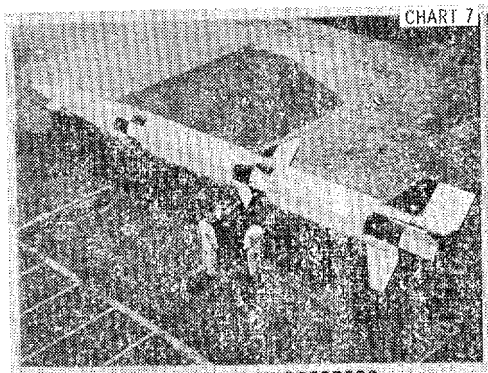
MECK MSR DATA PROCESSOR

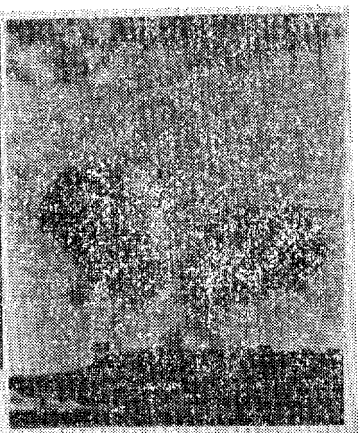


PROGRESS - 1 JAN 63 TO DATE

- TWO PROCESSORS INSTALLED AND OPERATIONAL
- THIRD PROCESSOR BEING INSTALLED
- PROCESSORS INTEGRATED WITH THE RADAR
- MULTI-PROCESSING PERFORMED
- SOFTWARE FOR FIRINGS BEING DEVELOPED

CHART 7





FLIGHT TESTS IN PROGRESS
ADDITIONAL WARHEAD DEVELOPMENT NECESSARY

LENGTH 55 FEET
RANGE SEVERAL HUNDRED MILES

SPARTAN

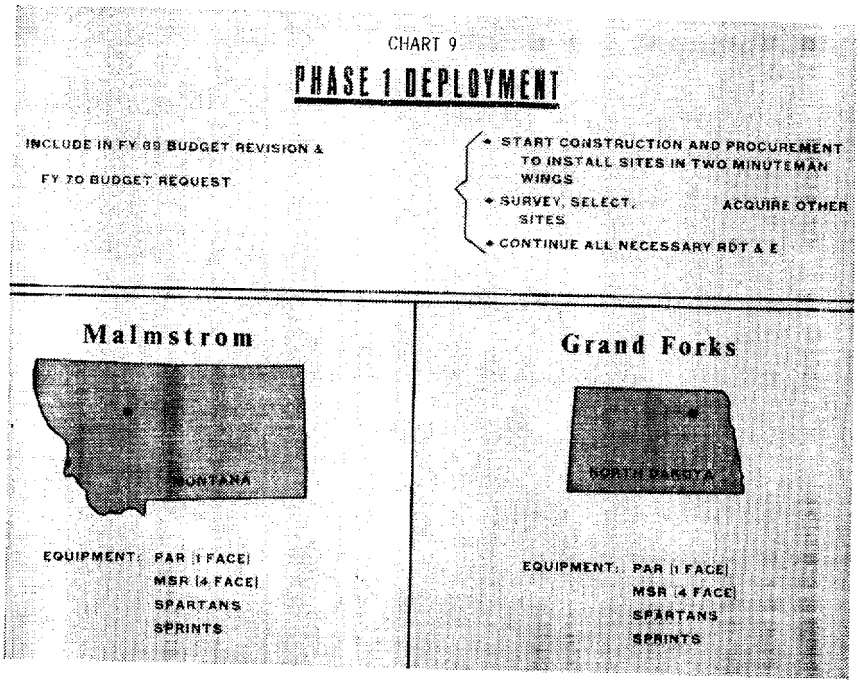


CHART 10

PHASES AND OPTIONS

PHASE 1

SITES AT 2 MM WINGS
- GIVES LIMITED MM PROTECTION
- PROVIDES OPERATIONAL EXPERIENCE

DOD INVESTMENT COST $2.1 B

PHASE 2 OPTIONS

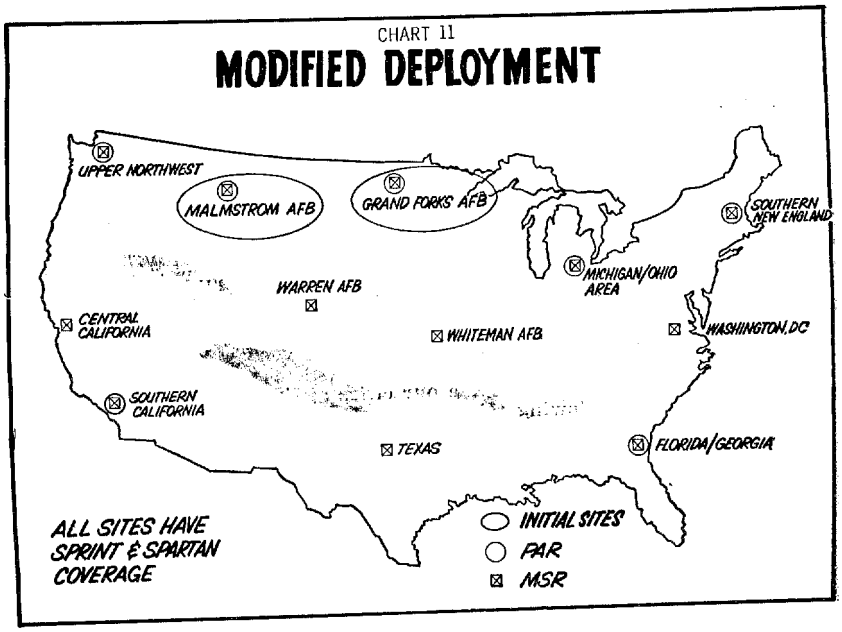
	OPTION 2A $3.4 B* INV	OPTION 2B $6.3 B* INV	OPTION 2C $6.0 B* INV
THREAT	INCREASED SOVIET ICBM THREAT TO MINUTEMAN.	GREATER SOVIET SLBM THREAT TO SAC BOMBER FORCE.	CHINESE ICBM THREAT CONTINUES TO INCREASE.
RESPONSE	ADD 2 MORE SITES AT MM WINGS. DEFENSE OF NCA AT WASHINGTON. INCREASE SPRINTS IN MM FIELDS.	BRING SITE TOTAL TO 12.	BRING SITE TOTAL TO 12.
ACHIEVEMENT	INCREASED SURVIVAL OF RETALIATORY MM FORCE. TIME FOR NCA DECISIONS.	INCREASED SURVIVAL OF RETALIATORY BOMBER FORCE. TIME FOR NCA DECISIONS.	AREA DEFENSE OF HEAVILY POPULATED AREA. TIME FOR NCA DECISIONS.

POSSIBLE ADDITIONS TO THE ABOVE FULL DEPLOYMENT-ALASKA, HAWAII.

NOTE: FOR FULLY EQUIPPED 12-SITE DEPLOYMENT (PHASE 2) DOD INVESTMENT COST IS $6.6 B

CHART 11

MODIFIED DEPLOYMENT



DELAY IN ADOPTING SAFEGUARD CONCEPT

Mr. MAHON. Mr. Secretary, why did the Department of Defense delay until early March 1969, in adopting the option to defend missile sites rather than adopting the other concept of defending cities? Did you to some extent make the ABM system more unpalatable because you are proposing to defend weapons systems rather than cities? Would you comment on that?

Secretary LAIRD. Mr. Chairman, on taking office, the new administration wanted a reasonable amount of time to review the entire question of the Sentinel deployment, and to review the latest information, including the threat, the ABM requirement and the ABM's capability. In this review the new administration considered the various options that were available to meet the possible threats, as those threats are now recognized. Based on this review, the decision was taken that we should proceed with a modified deployment of the ABM system; namely, the Safeguard system. This review was made under the direction and leadership of the Department of Defense, more specifically the Deputy Secretary of Defense, David Packard.

I believe the time that was taken was a reasonable amount of time. As Secretary of Defense I ordered a stop on site construction work. We did not stop the procurement or the research and development that had already been contracted for by the previous administration. The only stop order we placed had to do with the acquisition and construction of sites, which incidentally had been authorized by the Congress. We felt, because of this review, we should stop the acquisition and construction of sites, and that is all we stopped during the review. That construction is still stopped.

MISSILE SITE VERSUS CITY PROTECTION

Mr. MAHON. You have not answered that part of my question as to why you went to missile site protection rather than city protection.

Secretary LAIRD. Mr. Chairman, first I believe that direct city protection against the Soviet threat is almost an impossibility given the present state of the ABM art. Even if you carried out the option, which the Sentinel system had, of going to a thick deployment around our cities, you would not be able to assure that every missile launched by a potential enemy against those cities would be intercepted.

Mr. MAHON. Will you elaborate on that for the record?

(The information follows:)

The problem involved in defending our cities against a Soviet nuclear attack is illustrated by the following table:

NUMBERS OF FATALITIES IN AN ALL-OUT STRATEGIC EXCHANGE, MID-1970'S [1]

[In millions]

U.S. program	Soviet response	Soviets strike first against military and city targets, United States retaliates against cities		United States strikes first at military targets, Soviets retaliate against U.S. cities, United States retaliates against Soviet cities	
		U.S. fatalities	Soviet fatalities	U.S. fatalities	Soviet fatalities
No ABM	None	120	120	120	80
Sentinel	None	100	120	90	80
	Pen-Aids	120	120	110	80
Posture A	None	40	120	10	80
	MIRV, Pen-Aids	110	120	60	80
	+100 mobile ICBM's	110	120	90	80
Posture B	None	20	120	10	80
	MIRV, Pen-Aids	70	120	40	80
	+550 mobile ICBM's	100	120	90	80

[1] At fatality levels approximating 100,000,000 or more, differences of 10 to 20,000,000 in the calculated results are less than the margin of error in the estimates.

Source: *Statement by Secretary of Defense Robert S. McNamara on the fiscal year 1969–73 Defense Program and the 1969 Defense Budget, p. 64.*

Several points become clear from an examination of the above table:

1. The Sentinel system proposed by the preceding administration would have had little effect on the ultimate outcome of an all-out strategic exchange with the Soviet Union in the mid-1970's. In fact, by simply deploying penetration aids in their missiles they could have fully offset the benefits of the Sentinel system, as far as the protection of our cities is concerned.

2. A light ABM defense, consisting of an area defense of the entire continental United States with Spartan and a terminal defense of 25 cities with Sprint (Posture A), could be almost completely offset if the Soviets were to deploy both MIRV's and penetration aids on their ICBM's. And, even if we move to a heavy defense of 52 cities (Posture B), the Soviets could substantially offset it by adding some 550 mobile ICBM's to their force.

Since the Soviet Union has the technical and economic capacity to do these things, we must conclude that they can offset any advantage we might attempt to gain by deploying an ABM defense around our cities. That is why the Defense Department considers the defense of our cities against a Soviet ballistic missile attack almost an impossibility, given the present state of the ABM art.

Mr. MAHON. General Wheeler, why did you recommend the protection of population——

DEPLOYMENT OF SOVIET SS–9 MISSILES

Secretary LAIRD. May I make a second point there, Mr. Chairman? It is a very important point. It has to do with the change in the deployment plan and the exercise of the option.

Mr. MAHON. Very well.

Secretary LAIRD. You know and I know sitting across the table there, we were told about a year and a half ago that it looked as if the Soviet Union was tapering off the deployment of the SS–9 large missile. ——— which has the capability of carrying a weapon up to 25 megatons. In ——— we picked up ——— information that they were going forward with the deployment of new SS–9 groups. Then in ——— information was developed that they were going forward with still more SS–9's. ——— We now know that other SS–9 sites were placed under construction within the Soviet Union.

This led me as the defense planner to look at the capability of the SS–9 weapon. I could not assume that it was merely being deployed to

destroy U.S. cities. I had to assume that ——— the capability was being developed by the Soviet Union to knock out our hardened Minuteman sites. Why else would they need so many SS–9's on top of all the SS–11's and SS–13's they are deploying?

SAFEGUARD SYSTEM AS OPTIONAL UNDER SENTINEL PROGRAM

In the original Sentinel program there was an option for deployment of ABM's on these particular Minuteman bases that are presently in the Safeguard system. These two sites making up Phase 1 were in the Sentinel program, but on down the line. The city protection against the Chinese ICBM threat was first. With this new development in the Soviet threat, we felt it was important to reorient the deployment plan and to configure it so we would be protecting our second strike capability against that threat, while at the same time maintaining the capability to protect country-wide against the Chinese threat.

CREDIBLE, BALANCED DETERRENT MAINTAINED BY SAFEGUARD ABM

Mr. MAHON. Your object there apparently is to make sure that you have a maximum deterrence of war with the Soviet Union.

Secretary LAIRD. Mr. Chairman, the way to prevent a nuclear exchange between the Soviet Union and the United States is to maintain a credible, balanced deterrent. The way to maintain peace, the way to protect people, is to maintain the credibility of that deterrent force. We have better people protection in the Safeguard system than we had in the Sentinel system because we give that credibility to our deterrent force, which is so vital and which is so necessary in order to prevent nuclear war.

Mr. MAHON. I think that is a good point. Do you have any elaboration on it or refinement of it, General? Do you fully agree with the latest statement by the Secretary?

General WHEELER. I agree with the Secretary's statement, sir. I think this makes the case for the Safeguard system.

Mr. MAHON. It makes the case for the Safeguard?

General WHEELER. Yes, sir.

AUTHORIZATION FOR THE SAFEGUARD SYSTEM

Mr. MAHON. At this point in the record I want you to explain explicitly with appropriate documentation the matter of congressional authorization.

(The information follows:)

CONGRESSIONAL AUTHORIZATION OF THE SENTINEL ABM DEPLOYMENT PROGRAM

A. PROCUREMENT

Authorization for procurement of Sentinel was first contained in Public Law 90–500, September 20, 1968. It was explained in House Report 1645, July 5, 1968, at page 48. The Senate Report 1087, April 10, 1968, at page 12, also justified this program.

Funds for this procurement authorization for fiscal year 1969 were contained in Public Law 90–580, October 17, 1968. The program was explained on pages 16 and 42–43 of House Report 1735, July 18, 1968. The Senate committee outlined the program on pages 5 and 30 of Senate Report 1576, September 19, 1968.

Extensive debates and statements were contained in the Congressional Record when the proposed DOD Appropriations Act for 1969 was presented to the Senate. (See Congressional Records for April 17, 18, and 19, 1968.)

B. MILITARY CONSTRUCTION

Construction for Sentinel, later called Safeguard, was first authorized by Public Law 90–110, dated October 21, 1967, under the heading "U.S. Army Air Defense Command—Conus-Various locations, operational facilities, and utilities, $64,846,000."

House Report 512, July 26, 1967, at page 18, and Senate Report 570, September 21, 1967, at page 23, refers to this program as "classified tactical facilities."

Included in the military construction program for fiscal year 1968 was $64 million (Public Law 90–180, Dec. 8, 1967) for Sentinel which was fully explained on pages 9 and 10 of House Report 799, October 19, 1967. Congressman Sikes explained the program on the floor of the House when presenting the construction program for fiscal year 1968 (see p. 13881 of Congressional Record, Oct. 24, 1967).

For fiscal year 1969 an additional $227,460,000 line item, including Sentinel, was included in Public Law 90–408, July 21, 1968, under the same heading as that for fiscal year 1968. The House committee explained its position on Sentinel on pages 5 and 6 of House Report No. 1296, April 23, 1968. Senate Report No. 1232, June 13, 1968, page 14, contained a similar statement on Sentinel.

Funds were provided for fiscal year 1969 in Public Law 90–513, September 26, 1968. Both House and Senate committee reports explained the allowance of in excess of $200 million for this program. (See H. Rept. 1754, July 19, 1968, p. 11, and S. Rept. 1486, p. 5.) Congressman Sikes again explained the committee position re: Sentinel when presenting the proposed appropriation act for fiscal year 1969 on the floor of the House and it was extensively debated. (See pp. H7712 through H7734 of Congressional Record, July 29, 1968.)

Senator Bible likewise explained the funding of Sentinel when he took the fiscal year 1969 proposed appropriation act to the floor. (See pp. S9922 and S9923 of Congressional Record, July 31, 1968.)

PROTECTION FOR CITIES

Mr. MAHON. You have explained the fact that it took some time for the new administration to make a decision on some of these matters. You have explained the reconfiguration of our ABM system. I would like to ask this question. How do we justify deploying a thin system against the possible threat of the U.S.S.R. when it has been stated that even a heavy deployment would not protect our cities.

Secretary LAIRD. What we have said, Mr. Chairman, is that we cannot build a defense which can prevent unacceptable damage against a massive Soviet ICBM attack on our cities. I believe that is what we have said.

In the case of our strategic offensive forces, even if some missiles penetrate the defense around our strategic offensive weapons systems, this defense can still be considered useful and effective, because it will add to the survivability of our deterrent force.

Mr. MAHON. Mr. Secretary, are the Soviets still deploying their smaller ICBM's which have always been thought of as a threat to our cities? Then this question: Should we be planning to defend both cities and missile sites at this time?

Secretary LAIRD. To the first part of your question the answer is yes. The Soviet Union is going forward with the deployment of what we call the SS–11 and SS–13. The Soviets will surpass the United States in total operational ICBM's this year. They have more under construction and operational than the United States does today.

The second part of your question dealt with protection for the cities.

Mr. Chairman, I would like to restate what I said earlier—I think it is almost impossible, given the present state of the ABM technology, to give assured protection against a massive Soviet attack on our cities.

Mr. MAHON. You may elaborate for our record.

Secretary LAIRD. We can give a very high degree of protection against a Chinese ICBM attack, at least through the 1970's and probably well into the 1980's, with the kind of area protection that is provided in the Safeguard system. I think the best way to protect our cities against a Soviet attack is to protect our deterrent force, and the credibility of that deterrent force, so that we can survive the first blow, and the Soviets know we can, and know that we will still have enough left to deliver a devastating retaliatory attack. That will keep the peace and prevent nuclear war.

OPTION OF GOING TO A THICK SYSTEM

Mr. MAHON. I would like to ask this question: We all have discussed the matter of protection against a possible Red Chinese attack and how this relates to a thicker, more adequate system against the Soviet Union. To what degree is the Safeguard system a stepping stone or building block to a heavier system?

Secretary LAIRD. The Safeguard system does not have the option that the Sentinel system had to go forward with a thick coverage around our large metropolitan areas because, except for Washington, D.C., the Safeguard sites will not be placed in or near those areas, as was the case with the Sentinel system. I think Safeguard does have certain other features. Personally, I think one advantage that it gives us in protecting our strategic offensive forces—not only our missiles, but our bombers as well—against the Soviet SS–9, SS–11 and other missile systems such as the sub-launched missile and the FOBS, is extremely valuable. We have changed the deployment pattern and the configuration of the radars, as I pointed out in my opening statement, to give us 360 degree coverage. This kind of coverage was not available in the Sentinel system. I believe these changes give the Safeguard system a significantly greater capability and make it a better system than the Sentinel against the strategic threats as we see them now.

HOW SAFEGUARD SUPPORTS OUR STRATEGIC DETERRENT

Mr. MAHON. I think you have already commented on this, but I would like to ask this question for the record and you can respond for the record later.

Make clear how the Safeguard system supports our strategic deterrent.

Secretary LAIRD. I would like to put in a few charts there for the classified record, too, if I may, Mr. Chairman, and some actual diagrams.

Mr. MAHON. Very well.

(The information follows:)

PROTECTION BY SAFEGUARD OF THE STRATEGIC RETALIATORY CAPABILITY

Our strategic retaliatory capability is composed of three types of forces; submarine-launched ballistic missiles, ICBM's and long-range bombers. These forces, in combination, provide us with a high confidence second-strike capability which deters a nuclear war. However, an increasing Soviet offensive force threatens to erode this deterrent force:

(1) The Soviets are testing a multiple warhead system of their large SS–9 ICBM that could lead to a force which could destroy our Minuteman missiles.

(2) They are serially producing a new nuclear class submarine, much like our Polaris, that could destroy U.S. strategic bombers in a surprise attack.

(3) They are moving ahead with various weapons apparently designed to threaten our Polaris/Poseidon force.

ABM defense can provide added protection of our land-based strategic deterrent forces and hedge against the possible vulnerability of our Polaris/Poseidon force. However, we must have more than just a strong second-strike force—we must maintain control of our deterrent forces in a crisis or war. An ABM defense of our National Command Authority (NCA) and command and control system will increase the time available for decision and will increase the chances of survival of the NCA against a moderately heavy attack.

A. PROTECTION OF MINUTEMAN

Although we can maintain a high level of retaliatory destruction of the Soviet Union even following high levels of destruction of the Minuteman force, we are concerned about our ability to maintain an essential minimum number of these increasingly vulnerable forces. Vulnerable forces, in a period of extreme crisis, may invite an attack rather than deter one if the enemy knows he can probably destroy the force. Therefore, we should protect the Minuteman.

Even though the Soviets are not expected to have an adequate force (including an accurate MIRV) to destroy an unacceptably high number of Minuteman for several years, we must maintain options against the possibility that they could. Therefore, Phase I of Safeguard provides a base which could be augmented and would allow us to make follow-on decisions at an appropriate time (Phase II) if we saw the threat developing.

We have investigated several alternatives for protecting Minuteman against a growing Soviet offensive threat. The near term and relative costs to keep an adequate ABM defense of Minuteman will be less expensive in the initial years and probably less expensive overall than other options. However, we would not want to rely exclusively on ABM defense of Minuteman. We will also add to Minuteman hardening.

B. PROTECTION OF STRATEGIC BOMBERS

ABM defense can provide an effective means of preventing our bomber force from becoming vulnerable to a surprise Soviet submarine-launched missile (SLBM) attack. Our strategic bombers are a major component in our retaliatory force because (a) they hedge against the unexpected failure of missile forces, (b) they are useful for non-nuclear conflicts, (c) they allow us to quickly increase our force size by simply increasing the alert rate, and (d) they force the Soviets to pay large costs for a balanced defense against bombers and missiles. Bombers are vulnerable to a surprise Soviet SLBM or FOBS (orbital bomb) attack since they rely almost exclusively on tactical warning for survival. We have adequate warning of Soviet ICBM's and FOBS through current radar systems and are taking steps to improve this warning with new surveillance systems. Against a surprise SLBM attack, however, even if we get warning at nearly the time of launch, the missile flight time is so short to some bases that a significant portion of our bombers and tankers may be destroyed before they can take off.

In addition to improved warning, there are four alternatives to decrease the vulnerability of the strategic bomber force against SLBM's: (1) dispersal, (2) airborne alert, (3) improved ASW forces and (4) active defense of the bases. We can disperse the bomber force to reduce the takeoff time by putting bombers and tankers on each of many airfields (all would not be on alert). However, this would cost $200 to $400 million per year and depressed SLBM trajectories would still make the takeoff time marginal.

Airborne alert is difficult to maintain over a long period of time since additional crews and increased aircraft maintenance is required. We estimate airborne alert for a significant portion of our bombers would cost almost $1 billion per year and we would not be sure how long we could maintain this posture.

We have, therefore, initiated three steps to increase bomber survivability. The first step includes a limited bomber dispersal plan which increases the number of targets required for the SLBM. The second is a new early warning system which gives tactical warning at nearly the time of missile launch to increase

the warning time. With these new plans, a significant portion of the strategic bombers can survive until the SLBM force expands to that projected for about 1973–74.

ABM defense of the bomber bases against new long-range SLBM's with a good warning system can provide additional time to launch the bombers by intercepting the initial portion of the SLBM attack. In the years after 1973, this defense, with the new warning system and limited dispersal, would significantly increase the bomber survivability and reduce the dependency of the bombers on tactical warning for survival.

PROTECTION OF MINUTEMAN SITES, PHASE I

Mr. MAHON. Is it true that only a very small percentage of our Minuteman will be protected by Phase I, probably less than 3 percent of our total deterrent? How is Phase I justified?

Secretary LAIRD. Mr. Chairman, that is not correct. Phase I of the Safeguard program would give us a thin coverage over about 85–90 percent of our Minuteman force with the two sites that are contemplated in North Dakota and in Montana. We would have heavier protection for at least 10–20 percent of our Minuteman force. I want to make it clear that when you talk about heavy protection you are talking about area defense with the Spartan plus terminal defense with the Sprint. We have six wings of Minuteman and two of these wings have protection with a fairly thick cover, and most of the rest with a thin cover, about 85–90 percent with a thin cover.

LOCATION OF SAFEGUARD SITES

Mr. MAHON. What criteria will be used in locating Safeguard sites?

Secretary LAIRD. The sites I outlined in my statement with respect to Phase I, Mr. Chairman, are, of course, on Minuteman missile fields and are for the defense of two of our six Minuteman wings. The next two sites, should we go into the next phase, option 2A, would undoubtedly be deployed in the next two Minuteman areas.

This decision to proceed with option 2A would be based on the continuation of the build-up of the threat to our Minuteman missiles on the part of the Soviet Union. That deployment would be decided at the time we brought Phase II to the Congress for consideration.

Mr. MAHON. Will the public be notified and consulted in advance of site selections in connection with the Safeguard program?

Secretary LAIRD. Yes, Mr. Chairman.

Mr. MAHON. You can elaborate for the record.

Secretary LAIRD. In my statement I have outlined the 12 proposed sites and the general area of the 12 proposed sites, including the two in Phase I.

(The information follows:)

Site selection and validation will consist of a preliminary public announcement of the general area in which the site is to be located, and a survey of all potential sites in the area to determine which best meet siting criteria and should be selected for more detailed investigation. There will be consultation and coordination with those public officials and local planning groups who represent the people and whose function it is to coordinate land usage and community planning in the area. Following these studies in which the public will be kept fully informed through their official representatives, a tentative decision on a specific site in a given area will be made. This decision will remain tentative until the action to notify Congress.

Mr. MAHON. I would like to read into the record some questions at this point, and ask you to comment briefly and elaborate at more length when the transcript comes to you, Mr. Secretary.

HARD ROCK SILO PROGRAM

Under the hard rock silo program the Air Force has a project underway to locate and identify hard rock sites in certain areas of the United States. After this survey is completed, a study will be made, we understand, to determine the optimum of Minuteman missiles to be hardened as well as the exact locations of these proposed hardened sites. In view of this, how is it possible to make any plans for future Safeguard ABM sites to protect Minuteman missile silos? You can comment for the record.

(The information was provided to the committee and is classified.)

Mr. MAHON. The next question: When will the hard rock siting plan be completed? I would like for you to answer that, if you can, at this time.

Secretary LAIRD. Of course, Mr. Chairman, I think it is necessary to go in both directions in this program. I would like to point that out in answer to the first part of that question. We are going forward on those programs, but as far as the hard rock silo development program is concerned, I do not believe that it will be completed until fiscal year 1971. We will have the information, as far as the siting situation is concerned, completed sometime this fall. But, that program could not possibly be completed in the fiscal year 1970 and probably not until the 1971 or 1972 time period. But that study is going forward now. I would like Dr. Foster to comment on it.

Mr. FOSTER. Mr. Chairman, as you have indicated, we are planning to develop a hard silo concept that would be able to sustain ——— psi rather than the current ——— psi over-pressures. The ——— increase in hardening is to be in large measure, because of the siting of the silos in hard rock. However, there are different degrees of rock hardness. We are finding in our surveys that some of the rock is not adequately structured, in that sheer plains exist. As a consequence we would not get all of the protection from each rock area that we had expected to find.

Mr. MAHON. Please elaborate on that for the record.

(The information follows:)

The Hard Rock Silo (HRS) system is intended to be deployed in rock formations that have selected density, compressive strength, seismic velocity, and the rock is to be mechanically uniform and relatively free of cracks and faults. The sites must be located in the United States in regions accessible from existing bases, but not close to urban centers.

One of the first objectives of our HRS development program is to demonstrate that there is sufficient competent rock available for a possible deployment of the total force. Approximately 20 areas are being examined in an office study of all available data. A limited field reconnaissance is made to verify promising areas. The best areas are then subjected to more extensive surface and subsurface explorations by aerial photograph, seismic surveys, core borings, field propagation measurements, and laboratory tests of rock cores.

We are generally in the early phase of our search. We have found satisfactory hard rock areas; however, some of the places that initially looked good have proven unsatisfactory as a result of core boring findings. Apparently, the rate of cooling of some lava rocks had a great effect upon whether the rock became a great solid mass or a large fractured, cracked affair of the same basic material.

In the latter case, there are shear plains and fractures so that the rock is not as strong as we desire for the Hard Rock Silo. So there is hard rock and hard rock. We are reasonably confident that there is adequate competent hard rock in the right solid form to provide the option to deploy a significant portion of the ICBM force.

Secretary LAIRD. That study will not be completed until the fall.

Mr. FOSTER. It will be at least fall, sir.

Mr. MAHON. Will Safeguard ultimately protect only those Minuteman missiles which will not be hardened?

Secretary LAIRD. Mr. Chairman, the Safeguard deployment, if we go beyond the Phase I—and I want to make it clear that we are covering only Phase I in our request this year—would cover virtually the entire Minuteman force as presently deployed.

Mr. FOSTER. If I may add to that, Mr. Chairman, we also expect to locate the new missile silos under the protective envelope of the Safeguard system.

Secretary LAIRD. But there is no request, Mr. Chairman, for the construction in the 1970 budget. The hard rock construction program is not a part of the 1970 Defense program, just the R. & D. portion of it. This is a study that is being completed. I do not want to confuse anyone that this program is ready to go forward. It is not.

Mr. MAHON. If much of our Minuteman force is to be hardened—that is hardened more adequately—does this preclude the necessity for a Safeguard ABM system to protect our Minuteman nuclear strike capability?

Secretary LAIRD. No, Mr. Chairman, it does not.

I believe that we have to go in both of these directions, particularly with the size of the warhead that has been developed by the Soviet Union. I would like to point out that our offensive capabilities are not the same as the Soviet Union's capabilities in this area.

Mr. MAHON. I assume at this point it is impossible to know just what the hard rock system may ultimately become?

Secretary LAIRD. Mr. Chairman, it is impossible for us at this time to give you an adequate estimate of what the cost of a hard rock system would be. I would like to supply a very approximate cost estimate on that system, because we have studied the costing of that system and also its trade-off against the Safeguard system. I think it might be worth while to show some of that information in the record at this point.

(The information follows:)

Assuming we would want to place all of the 1,000 MINUTEMAN in hard rock silos, the cost, on the basis of our preliminary estimates, could amount to about $6 to $7 billion (excluding the costs of the missiles themselves).

POSSIBILITY OF SAFEGUARD CAUSING FURTHER ESCALATION

Mr. MAHON. This question, Mr. Secretary: How confident are we that the deployment of SAFEGUARD will not require a response by the Soviet Union or the Red Chinese? In other words, will this precipitate a heavy escalation? What is your rationale as to this matter?

Secretary LAIRD. I would just like to say——

Mr. MAHON. You covered this in your statement to some extent.

Secretary LAIRD. Yes; I went into this question in my statement. The Soviets did not exhibit any particular concern over the original SENTINEL decision, as you know, Mr. Chairman, and continued

thereafter to express their interest in arms limitation talks. Premier Kosygin has declared publicly that the Soviet ABM system, which they began to deploy before we decided on the SENTINEL, is not a threat to any nation and thus should not provoke an arms race. Because of our vastly greater resources and technological lead over Red China, there is no question of a nuclear arms race with the Chinese. That just is not a question that is before us at this time. So I think that the Soviet Union, on the basis of the statements made by Premier Kosygin, would certainly not consider the deployment of SAFEGUARD a provocative act on the part of the United States. It is purely a defensive missile system for the protection of our second strike capability and our deterrent.

EFFECT OF ABM DEPLOYMENT ON NONPROLIFERATION TREATY

Mr. MAHON. I wish you would advise us for the record the viewpoint—your viewpoint and the viewpoint of your advisers in the Pentagon—on this question of whether or not the deployment of SAFEGUARD would adversely affect the Nonproliferation Treaty.

Secretary LAIRD. I will be glad to do that, Mr. Chairman. We will also place in the record at this point the statement of the Director of the Arms Control and Disarmament Agency, Gerard C. Smith.

(The information follows:)

The ABM deployment should not have an adverse effect on the Nonproliferation Treaty, or any future arms limitations negotiations. The phased or measured deployment represented by the proposed Safeguard system should not in any way jeopardize realistic or effective arms talks. Instead, the deployment should bring about an incentive to pursue negotiations and does not in itself preclude the United States from entering into negotiations as called for in article VI of the Treaty. The basic U.S. decision to deploy a thin ABM defense was made in September 1967; work on the Nonproliferation Treaty (NPT) was not completed until June 1968, some 9 months later. The NPT has been signed by 87 countries in full knowledge of the U.S. Sentinel deployment plan and the fact that the Soviet Union has already deployed a partial ABM system and is energetically pushing its research and development of these weapons. For nations that have not yet signed the NPT, the Safeguard system can offer additional assurance as to the credibility of our deterrent.

STATEMENT OF GERARD C. SMITH, DIRECTOR, U.S. ARMS CONTROL AND DISARMAMENT AGENCY, BEFORE THE SUBCOMMITTEE ON INTERNATIONAL ORGANIZATIONS AND DISARMAMENT AFFAIRS OF THE SENATE FOREIGN RELATIONS COMMITTEE, MARCH 6, 1969

Mr. Chairman and members of the committee, as the newly appointed Director of the Arms Control Agency, I am impressed with the soundness of the premise in the Arms Control and Disarmament Act which provides that "arms control and disarmament policy, being an important aspect of foreign policy, must be consistent with national security policy as a whole." Also under that act, the Agency has a mandate to study both "the arms control and disarmament implications of foreign and national security policies of the United States," and "the national security and foreign policy implications of arms control and disarmament proposals."

Today's hearings clearly involve such considerations, and I would like to contribute what I can to clarification of such of the issues involved in the ABM decision as relate to arms control, and particularly to the proposed talks on strategic arms limitations.

Perhaps it would be helpful at the outset to review exchanges with the U.S.S.R. that have taken place with regard to such talks.

The initiative for the strategic arms limitation talks originated in late 1966 with several informal exchanges between senior U.S. officials and Ambassador Dobrynin in Washington. Formal exchanges began in early 1967 and, as you re-

call, President Johnson, at his press conference on March 2, 1967, announced that he had received a reply from Chairman Kosygin to his letter of January 27 confirming "the willingness of the Soviet Government to discuss means of limiting the arms race in offensive and defensive nuclear missiles." Both the President and Secretary McNamara raised this subject during the Glassboro meetings in June 1967.

On July 1, 1968, President Johnson and Chairman Kosygin issued similar statements indicating agreement to discuss "the limitation and eventual reduction of both offensive strategic nuclear weapons delivery systems and systems of defense against ballistic missiles." The U.S.S.R. had informed us shortly before the Czech invasion that it was prepared to begin talks between special representatives. The Czech invasion delayed the opening of these talks. The Soviets have continued to show strong interest in pursuing this subject, as evidenced by the Tass article on Inauguration Day indicating their willingness and readiness to begin talks.

President Nixon indicated at his press conference last Tuesday that, although he thinks that both the interests of the United States and the Soviet Union would not be served by simply going down the road on strategic arms talks without, at the same time, making progress on resolving political differences, he did not intend to leave the impression that we say to the Soviet Union that, unless they do this, we will not have talks on strategic arms. The executive branch is reviewing on a priority basis the overall U.S. strategic force posture, including both offensive and defensive systems. This review includes arms control considerations. And I would like to say that my Agency, among others, is actively engaged in this review and in preparation for talks, and that I have devoted a good part of my time to this subject since taking office.

It is important to note that these negotiations would relate to both offensive and defensive systems, and not just to ABM's. This is so because of the interaction of the two. The Soviets are not interested in talking only about ABM's.

The objective is to prevent an escalation of the arms race. Such escalation takes place when one side reacts to a move by the other. Thus, for example, if we were to deploy a "thick" ABM system, the Soviets might well react by increasing their offensive capabilities in order to penetrate it. But if we could reach a satisfactory agreement, putting limitations on both offensive and defensive strategic systems, we might avoid this action-reaction phenomenon, which would entail a great expenditure of effort and resources without any net gain to U.S. security.

At this point I might comment briefly on foreign attitudes toward ABM deployment and the proposed strategic arms limitation talks. These attitudes were ascertained prior to the President's recent trip to Europe.

Informed opinion abroad, and particularly in Europe, views the ABM problem as one primarily affecting the United States and U.S.S.R. There is a general feeling, shared by all our allies, that United States-Soviet negotiations involving ABM's as well as offensive systems, would be desirable. Our allies want us to consult with them regarding progress of any such negotiations and we have assured them we shall do so.

Let me turn now to the question of ABM's. Under the budget cycle, the new administration has to make its decision with respect to fiscal 1970. This review should be completed in the near future. My Agency is participating in the review, and in the deliberations of the National Security Council. Before the review is completed, it would be inappropriate for me to comment on it. What I can say is that arms control considerations are being given serious attention.

I assume that you are primarily interested in hearing from me today about the possible impact on the strategic arms limitation talks of any decision which might be made on the U.S. ABM program as a result of this review. For the reasons I have indicated, I must confine myself to general observations.

Let us assume, as one possible example, resumption of the Sentinel deployment program along the lines recommended by the previous administration. This program was announced in September 1967 after the United States had advised its allies and the Soviet Union. As stated at that time, the basic purpose of the Sentinel deployment was primarily to limit possible damage from minor strategic threats. Great effort was made to prevent this decision from being misconstrued and becoming a stepping stone to a new upward spiral in the strategic arms race between the United States and the U.S.S.R. I would think that a decision to resume some such deployment at this time would not prejudice the prospects for strategic arms limitation talks.

We cannot, of course, know what the Soviet reaction was to this previous Sentinel decision since we don't know in sufficient detail what motivates Soviet programing. U.S. ABM programing is only one of many factors which influences

their strategic plans. It should be noted that there was essentially little public Soviet reaction to the original Sentinel announcement. However, since the 1967 ABM decision the Soviets have continued to expand their strategic offensive systems, probably to be confident of maintaining their deterrent, or "assured destruction," capability in light of the overall U.S. threat. Furthermore, as former Secretary Clifford pointed out in his presentation of the fiscal 1970 budget, the U.S.S.R. is pushing vigorously ahead with an R. & D. program for an advanced ABM system, although their ABM deployment around Moscow is probably somewhat smaller than originally projected. Thus it is likely that a Soviet military reaction, if any, to a Sentinel-type deployment is probably already in train and should not be affected by my hypothetical example of a decision to proceed with that type of system.

In June 1968, the Soviets indicated that they were prepared to begin talks to limit both offensive and defensive strategic arms. This was some 18 months after President Johnson had originally proposed them, and some 9 months after the announced Sentinel deployment decision. This timing would not necessarily suggest a direct relationship between Sentinel and the talks. The Soviet agreement to talks followed closely on the U.N. resolution endorsing the Nonproliferation Treaty which includes a provision (art. VI) in which parties to the treaty would undertake to pursue negotiations in good faith on effective measures relating to the cessation of the nuclear arms race as well as other disarmament issues.

Since June 1968, the Soviets have been pressing for initiation of these talks, despite the fact that the United States was, until last month, proceeding with the full Sentinel program. On the other hand, there has been no slackening of the Soviet interest during the past month while the ABM deployment decision has been under review. In light of these factors, it would be my judgment that the assumed example to proceed with Sentinel would have little, if any, impact on the Soviet interest in negotiating strategic arms limitations.

It is my personal judgment that to proceed with a greatly enlarged, or so-called "thick" ABM system, would have a harmful effect on the outcome of strategic arms limitation talks. It would be looked on as an escalation of the strategic arms race started after the Soviets had agreed to proceed with the talks. They would probably wish at the very least to review their decision to go ahead and might decide to back out until such a time as they had deployed sufficient offensive forces to insure penetration of such a "thick" U.S. system.

The effect of actual ABM deployment on the outcome of the negotiations would depend on the scope and characteristics of the system, the timing of the negotiations, and the types of armaments which would be involved in any agreement. After all, it would be some years before any U.S. ABM system could be operational. It should not take many months of negotiation to determine if strategic arms limitations appear to be negotiable.

I hope the committee will realize that present circumstances may make it somewhat difficult for me to answer some of your questions in a fully responsive way.

I am operating under three constraints. First, newness at the job—I have yet to receive my first paycheck. Second, I am a principal participant in the current Presidential review of the ABM matter and therefore under certain wraps. Third, I expect to have a role in strategic arms limitation negotiations which I believe are upcoming and as such should try not to telegraph our present thinking about negotiations to the Soviet Union. But I do appreciate the importance of better public understanding of this very important issue facing the United States and, subject to the above constraints, I will do my best to be a responsive witness.

Mr. Chairman, that completes my prepared statement. Thank you.

Secretary LAIRD. I would just like to add that as far as the deployment of this system is concerned, Mr. Chairman, I do not believe that it can be considered by anyone as a provocative act. If we are interested in truly getting going with arms control talks, and as Secretary of Defense I think it is important for us to get into these talks and discussions within the very near future—we should go forward with the Safeguard program. If we make the decision unilaterally here in the United States not to go forward with defensive strategic weapon systems, this would be a great error. If we do this on a unilateral basis,

it will prolong the talks instead of hastening the talks. It should be pointed out that it took us over 4 years to get the Nonproliferation Treaty. It took longer than that to get the Test Ban Treaty. If the Soviet Union knows the United States is unilaterally going to stop moving forward with offensive and defensive weapons systems, it is to their advantage, while they continue their deployment and continue talking in one way and acting in another, to keep those talks going forever. We will not then have success as far as any arms limitation is concerned in the future.

Mr. MAHON. You may elaborate for the record and also make sure that you respond fully to this question.

(The information follows:)

The Safeguard system should in no way impede a strategic arms agreement. This is a complex issue which requires review of both the effect that initiation of Safeguard Phase I may have on progress toward talks with the Soviets and the viability of an agreement if these talks are successful.

1. The system would not require a Soviet reaction to maintain their deterrent force nor is this an escalatory step. The United States has qualitatively improved its strategic forces not quantitatively escalated the total offensive megatonnage. The decision to primarily defend Minuteman and the bomber force rather than deploy additional offensive forces reflects this. A Soviet reaction to the Safeguard system will be necessary only if the Soviets want a first strike capability against U.S. bomber force and Minuteman-Titan force. U.S. protection of cities with Sprint batteries and associated radars deployed within metropolitan areas requires long leadtimes from site acquisition to initial operating capability. Thus, the United States could not quickly or easily shift to a defense of cities against a heavy, Soviet type, attack.

2. ABM is a new strategic system for the United States. However, deployment of this system at this time should not jeopardize talks. Since last summer when the issue became prominent in both the United States and Soviet Union, the Soviets have:

1. Continued to deploy the SS–9, SS–11 and new solid propellant ICBM's.
2. Flight tested a multiple reentry vehicle payload on the SS–9.
3. Continued production of missile-firing subs.
4. Initiated tests on the next generation of ABM.
5. Continued deployment of the Tallinn and Moscow defensive systems.
6. Continued both quantitative and qualitative improvements in their air defenses.

Further, there is no timetable for these talks. If initiated, negotiations may proceed for some time prior to reaching an agreement. If the United States is to adopt the unilateral principle of deferring strategic systems decisions in anticipation of successful future negotiations, there is no indication that such actions will be reciprocated. We cannot defer initiation while the threat increases without unduly deferring the time the deployment would be effective.

POSSIBILITY OF SAFEGUARD IMPEDING DISARMAMENT

Mr. MAHON. Would the deployment of Safeguard impede a disarmament agreement with the Soviets? You have answered that in a lefthanded way.

Secretary LAIRD. I will try to do it in a right handed way.

(The information follows:)

First, we have very strong reasons to believe that Safeguard will in no way make arms talks more difficult. The Soviet interest in strategic talks was not deterred by the previous decision to deploy the Sentinel system—in fact, their interest was formally announced shortly after that decision. The Safeguard deployment is modest in scope and aimed at maintaining our deterrent. We think the Soviets will recognize that fact and not view our decision as a threat to their deterrent. Nor should they see it as inconsistent with conducting strate-

gic arms talks, especially since such talks would encompass defensive as well as offensive systems. In this regard, there is simply no question but that we are in a better negotiating position if we have both defensive and offensive systems to discuss. After all, the Soviets have already deployed an ABM system which protects to some degree a wide area centered on Moscow. We believe they are continuing their ABM program, directed either toward improving this initial system or, more likely, towards a substantially better second-generation ABM system.

Further, abandonment of ballistic missile defense may be imprudent for both the Soviets and ourselves. Previously, the Soviets' ABM deployment was aimed only at the United States. Today, our intelligence suggests they may be directing their defenses also toward Communist China.

It would appear that the Soviet Union would be just as reluctant as we would be to leave their country naked against a potential Chinese Communist threat. So the abandonment of the entire system, particularly as long as the Chinese threat is there, probably would not be looked upon with much favor by either country.

POSSIBILITY OF DELAYING DEPLOYMENT OF SAFEGUARD

Mr. MAHON. Should we, as many have suggested, postpone the decision to deploy Safeguard so more research can be conducted and disarmament talks started with the Soviet Union? We have been working for many years on an ABM system—not the Safeguard and not the Sentinel—just some sort of ABM system. I think if we provide the funds requested in this budget for the ABM system, probably we will have provided over the year as much as $6 billion in this field.

Secretary LAIRD. I think that is correct, Mr. Chairman.

Mr. MAHON. I would like to have a breakdown supplied in this part of the record, and I would like the staff to check to see that the figures comport with our records in regard to that matter.

Secretary LAIRD. Mr. Chairman, the Phase 1 is, in effect, a prototype installation to enable us to complete engineering, installation, and shakedown and tests and to have these two stations fully operative by 1974. If we do not proceed with the deployment of Phase 1, but delayed the decision to deploy for approximately 1 year, as some have suggested, the earliest these two sites could be ready for complete checkout would be in 1976. Deployment of the necessary total number of installations to give protection to the essential portion of our Minuteman force then could lag seriously the potential threat of the Soviet Union. I think this would be a great mistake. I will supply for the record at this point the total amount of research and development funds we have put into this ABM program thus far. Also, the research and development that is anticipated in the future on this particular Safeguard program.

(The information follows:)

The Army has been responsible for the major portion of the costs incurred up to now on ABM, going back to the late 1950's when the Nike Zeus system was started. The total amount over the years through fiscal year 1968 either obligated or approved in the Army program is $3.6 billion—this includes a small amount of military construction and some engineering for production funds.

If we include Air Force support—$46 million—support of the national test ranges—about $100 million—and approximately $1 billion expended by the Advanced Research Projects Agency on ABM over the years through fiscal year 1968, it brings the total up to almost $5 billion.

The estimated R.D.T. & E. for the approved Phase 1 Safeguard program for the years, fiscal year 1969 through fiscal year 1974, is $1.688 billion.

RELIABILITY OF ABM WITHOUT LIVE WARHEAD TESTS

Mr. MAHON. Under the Test Ban Treaty we are precluded from testing our ABM system against live warheads, as the Secretary and the general know. Nuclear explosions above an ABM site could seriously degrade its effectiveness, I assume. How much reliance can we place in our ABM without live warhead tests and how much reliance could the Soviet Union place in their ABM without live warhead tests? Will you comment on that, please?

Secretary LAIRD. Mr. Chairman, I have been assured by the AEC and by our own research and development people, by Dr. Foster who is with me here today, that the tests can go forward, as far as the nuclear warhead is concerned, in the underground configuration. We are, as you know, going forward with tests of the Spartan and Sprint missiles, and they are working effectively, but without using the nuclear warhead. The Soviets are currently going forward with their test program, too, on the ABM. As I pointed out in my statement, they are going forward with the construction of the system around Moscow, and are reconfiguring their radars. They were testing even last month a new ABM with a loiter capability, which is able to go up at one speed and change speeds and then lock onto a missile ———.

The Soviets have tested it. It is true, the question is raised that the Soviets had gone forward with atmospheric tests to a much larger extent than we had. But I have been assured that we can successfully carry on our tests within the confines of the Test Ban Treaty. Perhaps it would be well for Dr. Foster to comment on that question.

Mr. MAHON. Will you elaborate on that for the record?

Mr. FOSTER. Certainly, Mr. Chairman.

(The information follows:)

With respect to establishing confidence in the design of our warheads, the underground tests can provide the compete assurance that the warheads will work. We can also depend on the underground tests for providing the effects of our own explosions on our own interceptors and radar components (the fratricide problem).

With respect to the effect of explosions on radar performance (the blackout problem), here we must depend on the measurements made a few years ago combined with an intensive theoretical analysis. We believe that this effort will place reasonable bounds on the effects which we can then provide against by firing doctrine and radar placement.

SOVIET ABM DEPLOYMENT

Mr. MAHON. The Soviet Union, insofar as I know, is not undertaking to deploy an ABM system except in the area of Moscow. I understand from your testimony and from your statement that the Soviet Union is expanding its ABM effort. But is there any information indicating that the Soviets expect to expand their ABM system beyond the area of Moscow?

Secretary LAIRD. Mr. Chairman, we have no information at this time that additional sites will be placed under construction in the Moscow complex. There are 60-odd missiles being placed on launchers in the Moscow complex.

(Discussion off the record.)

Mr. MAHON. How do we know that the Soviet Union is going to expand the number of its ABM sites?

Secretary LAIRD. We know that the Soviet Union currently is going forward with a program to change the configuration of its radars in the Moscow complex, where the deployment is presently being carried out. We know that the Soviet Union stopped building new sites about a year ago or so, a little over a year ago, while they went forward with the tests of a new sophisticated ABM missile.

Now, we believe that they are near the end of their test series, and with the new configuration of their radars, we feel they may go forward with additional ABM's of an improved type. They have that capability.

I hate to read their intent, Mr. Chairman, but I know from their tests that they have the capability. You ask how do we know this? Well, we know that——

FORWARD-BASED ABM SYSTEM

Mr. MAHON. What consideration has the Department of Defense given to a forward-based ABM system?

Secretary LAIRD. We are considering, and we are carrying on, research work on the Sabmis sea-based system, which is the Navy version, and we also have money in this year's budget to go forward with that R. & D. program.

Mr. MAHON. Please elaborate on that for the record.

Secretary LAIRD. I can give you the exact amount, but this is strictly research and development. It is not possible to go forward with this kind of a system in the time period for which we need the protection.

(The information follows:)

The Department of Defense is sponsoring (fiscal year 1969 and fiscal year 1970) a coordinated program of studies of forward basing ABM concepts. This tri-service program is being led by the Advanced Research Projects Agency (ARPA). The ARPA portion of this effort is funded in fiscal year 1969 and in fiscal year 1970 to investigate the cost, effectiveness, and technical feasibility of previously proposed concepts such as Sabmis plus an investigation of promising new concepts in this area. A major ARPA role is to promote the investigation of concepts that cut across service lines.

Additionally, small studies ancillary to the ARPA effort are being performed under Service funding, exploring supporting subsystem technical problems.

In addition to the above effort there are two ongoing Service efforts. Sabmis (sea based ballistic missile intercept system) is a Navy study to examine the feasibility of augmenting Safeguard by forward basing a large radar and a Poseidon-like interceptor missile on a ship. Fiscal year 1970 funding for Sabmis is $3 million. The Air Force is studying the use of modified MINUTEMAN missiles as defense interceptors and their study is funded at $2 million for fiscal year 1970.

POSSIBILITY OF A NON-NUCLEAR ABM SYSTEM

Mr. MAHON. Would there be an advantage in developing a nonnuclear system which could be fully tested before it was deployed? There would be no test ban treaty limitation involved. I know some scientific people and industry people are very eloquent in their espousal of a nonnuclear ABM system. What does the Pentagon think of that?

Secretary LAIRD. Well, Mr. Chairman, we are studying these various systems. There is the system, that some people talk about which uses the metal rods to kill the warhead. We are certainly looking at that system but we are also looking at the use of lasers and other types of ABM technology.

I would be less than frank if I told you we thought that there was much of a possibility of making a breakthrough in the time period in which we need this kind of protection.

Mr. MAHON. Please continue that answer in the record.

(The information follows:)

Subject to successful demonstration of homing to small miss distance (and discrimination if the threat includes penetration aids) and fuzing, there are several advantages to a nonnuclear system:

(*a*) It can be tested as a complete system before deployment.
(*b*) The political problems would be less complex.
(*c*) The decision to commit would be easier.
(*d*) It would avoid the radar self-blackout problem.
(*e*) It would reduce the interceptor self fratricide problem.

It should be noted, however, that many technical problems have yet to be solved.

CONTINUED RESEARCH AND DEVELOPMENT AS OPPOSED TO DEPLOYMENT

Mr. MAHON. There are many well-intentioned people in this country who think any ABM system produced will be obsolescent by the time it is operational and they feel strongly that we ought to restrict ourselves for quite some time yet to research and development and not to actual deployment.

In your statement and in your response to questions, you have touched on this, but I want you to give your very best answer to that question because it is a troubling question to some people. Will you do that?

Secretary LAIRD. Yes, Mr. Chairman.

First I would like to say that we have gone into this question very thoroughly and we have considered it as exhaustively as we possibly could.

I think that this current system does give us the possibility of further improvements as we go on down the line. We have been in research and development on this program for a good long time. Earlier this afternoon we put in the record the total amount of funds that we have put into research and development of ABM systems. There are people who tell us that we should go forward and build a PAR radar out in Kwajalein. This is a big expense. I think it would be wasting the taxpayers' money to build that kind of a radar system at Kwajalein. It would serve no useful purpose as far as our system is concerned.

The technology involved in the PAR radar has been tested. We use a similar radar in the space program. A partial prototype test model of the PAR is now being built and will be tested before the complete PARs are produced and installed. To go forward and build one of these PAR radars out in Kwajalein as a research and development program, I don't believe is the best use of the taxpayers' money. I think the best use of the taxpayers' money is to build two of these radars at operational bases here in the United States. This is far superior to building a system out in Kwajalein.

Mr. MAHON. If you don't build a PAR at Kwajalein, how can you test the system as a package? You can't fire test missiles against sites in the United States.

Secretary LAIRD. We have a radar out there which can be used to simulate the PAR in the overall systems test. It operates on the same frequency as the PAR.

HISTORY OF DEVELOPMENT OF MILITARY SYSTEMS

Mr. MAHON. I would like for you to philosophize, Dr. Foster, at this point for the record with respect to the history of the development of military systems. As you and I know, whenever you build a system it isn't perfect and in the construction and in the testing of these systems, and the various components, you do learn lessons that cannot possibly be learned by paper exercises. I want to get the philosophy of the Defense Department in the record at this point.

Mr. FOSTER. I would be pleased to do that, Mr. Chairman.

Concurring with your remark, Mr. Chairman, there is no question that there is no subsitiute whatever for the process of building a system and trying it out. Paper studies are well and good—necessary in fact—prior to the actual hardware construction and operation. It is, however, a universal experience in all major weapon system programs that, once deployment was decided upon and the work begun, unexpected problems arose which were not anticipated. These problems are almost always of an engineering nature and capable of solution once they are identified. It is impossible, however, to solve a problem if you do not know of its existence—or do not appreciate its complexity. Only the construction and operation of an actual system can give you this information and allow you to proceed to a successful conclusion.

SAFEGUARD NOT OBSOLETE

If I may, I would like to add a comment to Secretary Laird's point regarding the Safeguard system being obsolete the day it is deployed. This is a comment that was made by some scientists who express the opinion that, while it would be all right for us to use our technology to defend our Minuteman sites, Safeguard would not be useful against the Chinese because they would use penetration aids. Therefore, these scientists say, our system will be obsolete the day it is deployed.

There are two factors to consider in that argument. The first one is that these scientists have the benefit of knowledge gained with the $5 or $6 billion about which you and Secretary Laird talked. Some of that information deals with ways one can penetrate ballistic missile defenses and ways a ballistic missile defense could counter the penetration. Using this expensively acquired knowledge, one can see today some ways that you might use to defeat Safeguard. There is a problem, however. The problem is that that information is in the brains of the scientists and engineers, here in the United States, who have been working in this field for more than a decade. It is not in the minds of the Chinese.

The second is that the technology and the facilities that might permit one to move ahead toward the defeat of an ABM system exist here in the United States. They don't exist in China and they won't for another decade.

CHINESE STRATEGIC OFFENSIVE FORCES

Mr. MAHON. I would like you to do this, discuss briefly the Chinese strategic offensive forces. Mr. Secretary, when do we estimate the Red Chinese will begin testing an ICBM?

Secretary LAIRD. I believe they have the capabilities to go forward with tests on an ICBM within the next 16 to 18 months.

Mr. MAHON. What significance will that hold for us?

Secretary LAIRD. I think it means that by the latter part of the decade of the 1970's, the Chinese can have the capability of destroying tens of millions of people here in the United States with a force of less than 100 ICBM's. I am not sure of the rationale of the Chinese—how they would use this force. I won't try to read their intentions, but they certainly could attempt to use this force to deter us from making good on our commitments to various countries in that part of the world which they may threaten.

As Secretary of Defense, I don't believe, Mr. Chairman, that we should take that gamble when we are in a position where we can do something about it.

Mr. LONG. Why aren't the Chinese subject to the same deterrent psychology as the Russians? We rely on our offensive power to deter the Russians. Why aren't the Chinese subject to the same type of deterrent?

Secretary LAIRD. I would hope that they would be, but I cannot assure you that they are. I don't know why they would go forward to deploy a relatively small number of ICBMs, if they go forward with this particular program, unless they wanted to deter us from coming to the aid of our allies in that part of the world.

I know the condition this puts us in. It is quite different from the position that we are in with respect to the Soviet Union. We can destroy the Soviet Union even in a second strike, and vice versa. The population and industry of both nations are concentrated in a relatively few urban areas. That is not the case in mainland China. They can do proportionately as much damage to us with a relatively few missiles as we can do to them with a relatively large number of missiles.

General WHEELER. The Chinese society, as we all know, is primarily an agricultural society. We could destroy their rather small technological base. It still would not destroy China as a nation because they do not depend upon the technological base for their living as we do.

Chairman Mao Tse-tung is reported to have said a number of times that a nuclear war would have no deterrent effect on the Chinese because they can lose 200 million Chinese and still survive as a nation, and I think this is probably true. It is certainly not a modern nation in our sense, but it isn't a 20th Century nation in the first place. Therefore, they do not have as much to lose as the Soviets or as we have to lose.

Mr. LONG. Well, General, don't you have estimates of the number of Chinese that we could kill with what we have left over after a surprise attack by China on the United States? Wouldn't we have enormously greater secondary strike force with respect to the Chinese than we would have with respect to the Russians?

General WHEELER. Here is the thing: The largest 10 cities of China contain only 3.7 percent of their population and somewhere around 30 percent of their industrial capacity, whereas our 10 largest cities contain 25 percent of our population and 33 percent of our industry.

Now, it is quite true that by various ways of targeting we could kill a lot of Chinese, but we would not destroy them as a nation, as would

probably be the case if we directed our massive attack against the Soviet Union.

Secretary LAIRD. Let me add to that, General Wheeler. A very difficult problem that would face us if the Chinese launched or threatened to launch a nuclear attack on the United States has to do with the need for maintaining our deterrent against the Soviet Union. Obviously, if we unloaded most or all of our Minuteman missiles against China, we would be leaving ourselves relatively naked as far as the Soviet threat is concerned. This is another reason why Safeguard makes so much sense because of the additional option it provides the President in the face of a Chinese threat to attack.

Mr. LONG. What are the estimates of the number of Chinese we could kill with what we have left over from a surprise attack by China on the United States?

General WHEELER. I can't give you that off the top of my head, Mr. Long.

Secretary LAIRD. We have the figures if you would like to know.

Mr. LONG. I would like to know.

(The information was provided to the committee and is classified.)

EFFECT ON SAFEGUARD OF SLIPPAGES IN CHINESE ICBM DEPLOYMENT

Mr. MAHON. If the Chinese cultural revolution has caused a slippage in their ICBM deployment, could we safely delay our deployment of Safeguard insofar as it relates to protection against the Chinese interests?

Secretary LAIRD. Mr. Chairman, that is a major reason we were able to change Sentinel to a phased system, because of the slowdown in the emerging Chinese threat. In effect we have already delayed in response to that changed circumstance. I want to make it very clear that the Phase I program is aimed primarily at the protection of the Minuteman sites from the Soviet threat. It does give you some area protection against a possible Chinese threat. But in order to have meaningful protection against the Chinese threat, you would need to have full area protection throughout the United States because the Chinese, if they were going to deliver a missile attack, would go for our cities, I am sure. And, in order to have protection—as I am sure everyone understands—against the Chinese threat, you have to have full area protection throughout the United States with the full 12 sites because that is how you get area protection.

Mr. MAHON. Mr. Secretary——

Secretary LAIRD. That is why I made that very clear in my statement.

Mr. MAHON. It would, of course, seem quite ridiculous and absurd from our—as we look at it as members of the society in the Western World, for the Red Chinese to contemplate an attack in the 1970's upon the United States. We would be able to retaliate with such force. I realize the information and the discussion between Mr. Long and you, General Wheeler, and you, Mr. Secretary, but if you have any further comments on that, I wish you would present them at this point.

(The information follows:)

Chairman Mahon is quite correct, it would be absurd for the Red Chinese to contemplate a first strike ICBM attack on the United States in the 1970's in the light of our ability to retaliate with such tremendous force. And, certainly, they are not likely to expend their relatively small force of ICBM's in a first strike against our strategic offensive forces.

But that is not the threat that concerns us. As I pointed out in my prepared statement:

"Once Communist China acquires a force of medium range bombers and/or ballistic missiles, all of her neighbors would be open to nuclear blackmail. Should Communist China then also acquire an ICBM force with which it can threaten our cities, and we have no defense against it, the President of the United States would have no alternative but to back down or risk the destruction of several of our major cities in any serious confrontation with Communist China.

"Furthermore, as former Secretary of Defense McNamara pointed out last year in his discussion of the Sentinel program, 'It would provide an additional indication to the people of Asia that we intend to support them against nuclear blackmail from China, and thus help to convince the nonnuclear countries that acquisition of their own nuclear weapons is not required for their security.'"

I also pointed out in my statement that given our commitments in Asia and the western Pacific, our only alternative to an ABM defense is to rely solely on the deterrent power of our strategic offensive forces. But, China is predominantly a rural society. It is estimated that only about 11 percent of the population lives in the thousand largest cities, compared with 63 percent in the case of the United States and 47 percent in the case of the Soviet Union. Although most of China's industrial capacity is located in those larger cities, the great majority of the people live off the land and are dependent only to a limited extent on urban industry for their survival. ———. And we know from past experience that the Asian Communists are tenacious opponents and are willing to take great losses of life in achieving their objectives. Accordingly, we believe it is reasonable to conclude that our ability to deter Communist China with our strategic offensive forces is considerably less certain than with the case of the Soviet Union.

Now, if deterrence should not work in the kind of situation I have described, and China should attack one of our allies, we would have no recourse but to retaliate. In that event, we would have to withhold a large part of our strategic offensive forces as a deterrent to the Soviet Union, thus reducing the damage we could otherwise inflict on Communist China. Nevertheless, we could certainly destroy most of their *urban* industry and population with a relatively small number of weapons. But the *urban* population is a small part of the total population, and if we were to retaliate the Chinese would almost certainly attempt to launch their ICBM's before they could be destroyed on the ground. Should they succeed, they could destroy millions of American lives—if we had no ABM defense.

The fact that we could destroy most of China's industrial capacity and some relatively small portion of their population would be little consolation for the damage they would have done to us. I, for one, would not wish to put the President of the United States in a position where he would have no other alternative in a confrontation with Communist China but to back down or risk the destruction of several major U.S. cities and the death of millions of Americans. Indeed, I believe it would be extremely foolhardy on our part to rely on deterrence only, when we have a better alternative. That alternative is the deployment of an ABM defense. In the case of the Soviet Union, we have no better alternative than to rely on deterrence. With present technology, it is virtually impossible to provide an effective defense for our cities against the very large and growing Soviet ballistic missile threat.

Thus, the issue resolves itself into a matter of judgment. If one believes that a Communist China armed with a force of ICBM's could still be deterred by our overwhelmingly greater strategic offensive forces, then an ABM defense need not be deployed against that threat. If, however, one believes as I do that the Chinese leaders might not be deterred, then the Safeguard system would be well worth its cost for that purpose alone.

DEPLOYMENT OF SOVIET ABM AGAINST CHINA

Mr. MAHON. What real proof do we have that the U.S.S.R. is orienting an ABM system to protect against the Chinese? If the Soviet Union, which may possibly have a better feel for the intentions of the Red Chinese, if it is not seeking to protect itself with an ABM system against the Red Chinese, then why shouldn't that have some impact on our thinking?

Secretary LAIRD. Mr. Chairman, the Soviet Union is directing its ABM system toward the Chinese. We have recent information which shows that, as I stated earlier, they are changing the configuration of their radars and are going forward with a construction program so that they have radar read-out for their ABM's to protect against the Chinese threats———.

I think it is quite possible, if we get into arms limitation talks, that this could be a mutually agreed point between the two countries, that we both go forward with protection against possible Chinese threats.

Mr. MAHON. Mr. Secretary, you understand, I think, that many people are urging that an ABM system which we might produce would probably be quite ineffective. It is assumed that the ABM system of the Soviet Union, or a future improvement of an ABM system of the Soviet Union wouldn't be too effective. Therefore, with a huge expenditure of money, it is argued that you really don't get much by way of protection. Therefore, it is argued that you shouldn't have the ABM program for the United States.

You also know that one of the most frequently used arguments is that our deployment of an ABM system, even of a limited type, would tend to greatly accelerate the arms race and increase defense spending in this country and in the Soviet Union, withhold needed resources from domestic programs in the United States, and increase the likelihood of war.

Now, these are some of the things that you hear in conversation with people. Frankly, I am not too impressed with these suggestions, but I think you ought to meet them head on and I want you to be sure in checking your testimony to see to it that these matters are covered fully.

Now, I don't want to monopolize too much of the time here. I thought it would be well at this time—I have a number of additional questions I would like to ask but I think it would be well at this time to yield some time to the ranking minority member, Mr. Lipscomb, and others.

Mr. LIPSCOMB. Thank you, Mr. Chairman.

Mr. Secretary, it is a welcome sight to see you in this committee room where you have spent so many long hours and years in the past. However, it is a little strange to see you sitting at the witness table across from us as the Secretary of Defense.

I believe I can say, Mr. Secretary, that we miss you sitting over here with us and listening to your penetrating questioning of your predecessors. I can personally say I am proud of the job that you have done. I have watched the actions that you have taken during your administration of the Department of Defense and wish you well in the future.

POSSIBILITY OF RADAR BLACKOUT

Mr. Secretary, the charge is frequently made that the ABM system just won't work because of its nuclear environment. That the radars will be blacked out either from explosion from our shots or the shots that are coming in from the Soviet Union.

Secretary LAIRD. Mr. Lipscomb, thank you for your generous remarks. I miss sitting on that side of the table. The blackout will not invalidate the system. Over the past several years extensive analysis has been made of the effect of blackout on the ABM, both self-blackout

caused by our own intercepts and the blackout caused by an enemy's high burst above the atmosphere, and also of weapon debris that escapes from the burst region at very high altitude detonation. But we believe that this can be handled by having an overlap of the PAR radar systems so that one PAR can cover the same area while another PAR is temporarily blacked out.

I would like Dr. Foster to comment on that point.

Mr. FOSTER. Mr. Lipscomb, the situation is as Secretary Laird has indicated. We made a test in 1962 to determine the effect on radar of nuclear explosions in the atmosphere. So also did the Soviet Union. From those tests we calculated the best kind of an attack to make against the Safeguard system. We also designed the Safeguard system to minimize the effectiveness of such attacks. As a consequence of these studies, we find that it is not worthwhile for the enemy to attempt a blackout attack.

I would also like to add that we have analyzed the Soviet ballistic missile defense around Moscow. We know how many missiles we would have to expend to make a blackout attack on their radars. We have decided that isn't a profitable venture either. We propose to go through that system by sheer exhaustion of the defenses.

EFFECT ON SAFEGUARD OF DECOYS

Mr. LIPSCOMB. Can't the Safeguard system be defeated by any one of, or a combination of depressed trajectories, or chaff or balloons or any one of these methods?

Mr. FOSTER. The Safeguard system was designed with a very large, high yield warhead in the Spartan. The purpose of that design is to take care of chaff. That is to say, the kill radius against incoming warheads is expected to be on the order of ——— miles. We have warheads in the inventory that would kill at distances considerably beyond that so we are being rather conservative.

What this means is that one must have objects distributed over very large distances in order to represent any threat to the system.

The dispersal of objects to very great distances takes them far from the target. It is that consequence that makes the Safeguard effective in defending Minuteman sites.

With regard to balloons, they will slow down as they come near the top of the atmosphere, at altitudes on the order of 350,000 feet. The radar will notice this immediately and will not bother to shoot at them.

The heavier warheads will come on through the atmosphere. The radar will detect this and direct Sprint missiles to attack and destroy them. ——— A second reason is that our Sprint defense permits us to successfully intercept low trajectory missiles directed against Minuteman sites.

Depressed trajectory missiles may be used against our bomber bases, and there this technique has the advantage of reducing our warning time by about ——— minutes. We have expected that this is what the Soviets might want to do because it could create as formid-

able a problem for us as anything we know of that they could do. Therefore we have designed the Safeguard system to intercept the leading edge of such attacks. By intercepting the leading edge, we provide ourselves the extra few minutes necessary for our bombers to get safely into the air.

We have coped with each of these problems. We don't assume that we will destroy every incoming missile. However, we do believe that we will provide for survival of a sufficient number of our own forces. There will be enough Minutemen left and enough bombers in the air, to deter the Soviet Union.

CHARGES THAT SAFEGUARD IS TECHNOLOGICALLY TOO COMPLEX

Mr. LIPSCOMB. Mr. Secretary, I believe one of the charges that I have heard most frequently is that the ABM system just won't work because it is technologically too complex. On what basis have you and your associates based your belief that it will work?

Secretary LAIRD. Well, Mr. Lipscomb, it is true that we have not yet demonstrated a Safeguard intercept capability, although we have demonstrated the predecessor system, the Nike-Zeus. We have, however, successfully fired both the Spartan and the Sprint interceptors.

In the near future we shall start firings of Spartan and Sprint controlled by the Missile Site Radar. Then a very few months later, integration tests will be made by tracking and intercepting incoming ballistic missile reentry vehicles. All elements will be used, the data processor, the Spartan and the Sprint, et cetera. The AEC will continue to test the warheads in a series of underground shots.

Now, Mr. Lipscomb, I am sure that on the basis of our present testing of the Spartan and the Sprint, the successful testing of the Missile Site Radar, the assurances that we have had from the Atomic Energy Commission, as far as the warheads are concerned, that this system will work.

I have sat on this Committee and I remember the great discussions we had here as to whether we should go forward with the Polaris submarine because there were some people who were questioning whether the Polaris missile would work. We took a chance on the Polaris system and put money in even beyond what the Executive Branch had recommended.

I know we are in a better position to give you assurances on this Safeguard system than we ever could give on the Polaris system.

TESTING OF SAFEGUARD

Mr. LIPSCOMB. How will we be able to test the deployed Safeguard in the United States to assure ourselves that it will work?

Secretary LAIRD. Mr. Lipscomb, the problem with testing missiles in the United States is not insoluble, as you know, I can tell this committee that we are hopeful we can go forward with such testing, even of the Minuteman missile within the United States. We are looking at

that right now, because we feel it is a good idea to make some tests in operational sites. But this would have to be done, of course, without the warhead, and with our computers we can make the calculations as to whether the intercept would actually have taken place. But I wouldn't want anyone to read this record and think that we were talking about making any kind of tests with nuclear warheads. We can test the missiles from operational sites without the nuclear warheads.

I think that should be done, by the way. I believe it is a mistake to always test our Minuteman just at the test sites at Vandenberg. I am hopeful we can work out operational testing from existing operational sites.

Mr. FOSTER. May I add a point to that, sir? When the first two sites are in operation, the radars will monitor on a 24 hour a day basis, all satellites that come over their area, in exactly the same way that radars similar to the PAR do today. In a sense, then, the system will be exercised against every object that comes over the horizon.

In addition, we will generate special tapes which can be used for training and to exercise the system. I should point out that, as you know, we have ships at sea, ——— to observe the Soviet missiles reentering the atmosphere. From this information we are able to generate tapes, not only of Soviet missiles, but we will also do this with Chinese missiles, when they finally are tested. Those tapes will be given to the operators of the Safeguard system so they will know what the threat is and when it changes. If chaff is used, they will know where the vehicles are and what they look like with respect to the chaff. They will also know about other decoys that may be used in the 1970's. Because the Russians and the Chinese must test these systems before they put them in the field, ——— we will know what they are working on and will be able to prepare to counter it.

Secretary LAIRD. These tapes ——— are a very important part of our ——— activities, as I am sure you understand. To have the tapes on all of the Russian missile long-range flight tests, including the performance of their reentry vehicles, is very important. ———

Mr. LIPSCOMB. Mr. Chairman, I know we have lots of members who want to ask questions.

Secretary LAIRD. This is an important point, though. Could I go just a little further on the discussion of these tapes?

It is important for us, I think, to understand that this kind of information gives us the opportunity to learn about the kind of reentry vehicles the Soviets have, the kind of chaff or other penetration aids they have and to distinguish their characteristics on the tapes themselves so that we know in the future what those differences are.

CONCERN ABOUT INTELLIGENCE INFORMATION

Mr. LIPSCOMB. Mr. Secretary, many are concerned about the intelligence information that has been released. Last year the previous Secretary of Defense stated that the United States could absorb a first

strike by the Soviet Union in the mid-1970's and still be assured of inflicting unacceptable damage in retaliation.

Have you merely placed a different interpretation on the evidence which is now available, was this available to the previous administration, or has new evidence been developed?

I think this is an important point. I believe that you have answered it in your statement, but could you comment any further on this?

Secretary LAIRD. Mr. Lipscomb, first I would like to say that we are merely exercising the option which the previous Secretary of Defense talked about, namely, to protect our Minuteman force against a possible threat by the Soviet Union. It is true that at the particular time the original Sentinel system was initiated, that option was not exercised, because it was not anticipated at that time that the Soviets would go forward quite as rapidly as they presently are with the deployment of the SS–9, and particularly the multiwarhead version. What we have done here is merely moved up the exercising of that option on the basis of the intelligence information that has been developed particularly in the last few months, ———. In other words, we have moved forward to exercise this option to protect our Minuteman sites, based on the best intelligence information that we *now* have available.

We have solid, hard intelligence information that the Soviet Union ——— is going forward ——— with the deployment of these large missile systems, and I think that in the interests of the safety of our people it is necessary for us to exercise this option to protect our Minuteman sites.

Insofar as the intelligence information is concerned, there is no quarrel within the intelligence community that I know of, as far as the information that we are using on the Soviet threat is concerned. Perhaps Dr. Foster, or General Wheeler would like to add to that point. I think it is an important point as far as this whole Safeguard system is concerned.

Mr. FOSTER. Mr. Lipscomb, we have found new SS–9 sites which were started in ———.

Mr. FLOOD. Intelligence is the key. ———

General WHEELER. Yes.

Mr. FLOOD. We have always worried about the degree of accuracy of our intelligence. There was a time when we could understand what was happening ———.

Secretary LAIRD. Mr. Flood, the information we have ——— is firm, solid information. There is no estimate involved in this.

Mr. FLOOD. Is this just your own analysis?

Secretary LAIRD. This is our own analysis based on hard intelligence.

Mr. FLOOD. Nobody else is in this act but you?

Secretary LAIRD. Nobody else is in this act but us. The Russians are in this business, too, of course.

Mr. FLOOD. Yes, I know, but I mean on our side.

Mr. WHITTEN. Dr. Foster, you may enlarge upon that for the record.

Secretary LAIRD. Off the record.

(The information was provided the committee and is classified.)

Mr. LIPSCOMB. It is stated that, because the radars cannot be "hardened," they are excessively vulnerable and that the entire system will be rendered useless simply by destroying the radars. Is this true?

Secretary LAIRD. Let me read you an analysis we made of this problem.

Because there are few radars relative to the number of missile sites in our Safeguard system, the safety of these radars from a potential attack has been considered in the design of the Safeguard system. The three basic types of attacks on our radar sites would be:

1. Blinding the radar by exploding nuclear weapons in appropriate locations.
2. "Leak-through."
3. Interceptor exhaustion.

Radar blinding.—Over the past several years, extensive analyses have been made of the effect on the ABM radar of self-blackout (caused by our own Spartan intercepts), precursor blackout (caused by deliberate enemy bursts at high altitude) and of weapon debris that escapes from the burst region after very high altitude detonations. On the basis of the studies, we conclude the following:

1. *Self-blackout.*—In general, the fully deployed Safeguard system would not be seriously limited by self-blackout effects (Spartan intercept bursts) during attacks up to the maximum postulated Chinese Communist threat level as long as proper decisions are made concerning intercept doctrine, data processing performance and number of radar faces. The same conclusion is true for the estimated heavier attack against the defended Minuteman force. This is because we would primarily use the low yield Sprint whose blackout effect on the defense is minimal. Successful radar operation in the nuclear environment requires that the system software be capable of utilizing interrupted track data, which it is.

2. Precursor planning must take into consideration the operational difficulty in mounting such an attack. Since the success of a precursor attack depends on getting a string of re-entry vehicles over the Safeguard radars in a rather critical timing sequence, the enemy planner must program his force to give him a high probability of achieving this sequence without "holes." Studies show that to achieve a high expectation of a successful precursor attack on one target, an enemy planner would have to devote a great many warheads to this attempt. This is true because he must allow for failures of his own missiles if he is to be reasonably sure of maintaining the blackout.

3. The numbers of re-entry vehicles required for precursor attacks will be well beyond the expected size of the Chinese ICBM force for some years to come.

In the case of a Soviet submarine-launched precursor attack, the number of missiles required would seriously degrade the attack strength. The time required to complete the precursor attack would enable more SAC aircraft to clear the landing fields. The Minuteman defense against a Soviet attack is primarily based on the Sprint missile back-up which, with the Missile Site Radar (MSR) will perform adequately in spite of interrupted Perimeter Acquisition Radar (PAR)

data during the engagement. The high acceleration Sprint interceptor can be held until the re-entry vehicle enters the atmosphere. Because the MSR utilizes a higher frequency than the PAR, the blackout problem is drastically reduced. Purposeful blackout to deny MSR exo-atmospheric observation is wholly unreasonable.

Leak-Through.—The leak-through attack assumes that the defense interceptor is imperfect and that the attacker knows the level of imperfection. In other words, for each attacking re-entry vehicle, there is some probability, though very small, that the re-entry vehicle will not be killed. Thus, if enough re-entry vehicles are directed against the radar, then, statistically, one or more re-entry vehicles will leak through. In the Safeguard deployment, the radars are actually the best protected facilities in the country. If necesary, a second interceptor can be fired to replace any failed interceptor early enough so that the re-entry vehicle will not get through. Thus, by reprograming of interceptors, the enemy must attack in large numbers to have any confidence of knocking out the radar. These radar attackers subtract from the number he has available to use against the silos. If he misestimates and does not destroy the radar then all the re-entry vehicles may have been expended without defeating the defense.

Exhaustion.—The exhaustion attack merely places enough re-entry vehicles at the defense so that all the defense interceptors are used up. At this point, the attacker directs his remaining re-entry vehicles against the missile silos. While this attack is a relatively high confidence scheme, the defender wins the engagement. The defense has forced an attrition of the attack force which, of course, is the defense goal, so that a sufficient number of Minutemen can survive.

SAFEGUARD OBSOLESCENCE

Mr. LIPSCOMB. With current projections of technological advances, how long will it be until the Safeguard system is obsolete?

Secretary LAIRD. With reasonable upgrading this system should not be obsolete as long as missile defense is performed by interceptors and radars.

SOVIET DEPLOYMENT OF FOBS

Mr. LIPSCOMB. Has the U.S.S.R. deployed FOBS?

Secretary LAIRD. We have no firm evidence that the U.S.S.R. has deployed FOBS. We know the U.S.S.R. has carried on experiments with the fractional orbit bombardment system (FOBS) and they could already have deployed some.

SOVIET PRODUCTION OF POLARIS-TYPE SUBMARINES

Mr. LIPSCOMB. Secretary Laird, you stated that the U.S.S.R. was building ballistic missile firing submarines at a rate of approximately seven a year and had the capability to build them at a rate of one a month. Also, that they had 16 tubes. What were the intelligence estimates as to the U.S.S.R. capability in these three regards in September 1967? If the 1967 estimates differed from the present estimates, when did the change occur?

Secretary LAIRD. The estimates that we had back in 1967 and 1968 could not state with certainty whether the intention existed in the Soviet Union to go forward with serial production of Polaris-type submarines. This was, however, recognized as a possibility and the estimates took this possibility into account. We now have very conclusive evidence that the Soviet Union not only has the capability, but the important difference is that they are going forward with serial production and deployment. Capability is one thing, but deployment is an entirely different thing. We have in our possession the firm hard intelligence that the possibility has become fact. As I pointed out in my statement, "we now know that this submarine (designated the Y-class) is in full-scale production at a very large facility near Archangel, Severodvinsk, and possibly at another smaller yard. These two facilities can accommodate a total of 12 complete hulls. The intelligence community estimates that the two facilities can produce as many as eight submarines per year. I think that as production experience is gained, the rate of output from these two facilities might very well increase significantly."

REACTION TIME OF BOMBERS

Mr. LIPSCOMB. Isn't it true that bombers can take off on very short notice and that there is time available therefore for them to launch against even a sea-launched ballistic missile (SLBM) attack?

Secretary LAIRD. Our alert bomber forces and crews have a short reaction time measured in minutes. Currently, the Soviet sub-launched ballistic missile (SLBM) force is inadequate to threaten our alert bomber force. However, with the development of their new Polaris-type submarine and missile system, these sea-launched ballistic missiles (SLBM's) could, with their short time of flight, pose in the 1970's a serious threat to the successful launch and survival of our alert bomber forces.

SAFEGUARD MISSILE PURCHASE FOR FY 70

Mr. LIPSCOMB. Are any missile purchases proposed in the authorization or appropriation requests for fiscal year 1970 for the Safeguard ABM program?

Secretary LAIRD. There are no missiles being purchased for operational sites.

There is, however, $103 million in procurement funding budgeted for production engineering, management and preparation for manufacture. This funding is necessary for preservation of the various deployment options. No facility funding is required.

The missiles that are being purchased are for the R. & D. test program.

The R.D.T. & E. fiscal year 1970 funding for missile purchase (including flight testing) is $120 million.

NEED TO PROTECT SECOND-STRIKE CAPABILITY

Mr. WHITTEN. I hope we all can add to what has been asked instead of rehashing what has gone before.

Mr. Secretary, I do not think the record shows that you asked to talk about Vietnam today. I kind of wondered why you had not advised us as to when the Vietnam war would be over. We have been accustomed to that information in the record.

Mr. Secretary, I serve on the Public Works subcommittee which considers the estimates of the Atomic Energy Commission. There it has been developed that insofar as the coming fiscal year is concerned only $7 million will actually be expended for manufacturing process development. The other part that you will be able to spend in the coming fiscal year will be to a great degree still in research and development, is that correct.

Secretary LAIRD. Most of it in that budget is in the research and development account.

Mr. WHITTEN. So you are moving as fast as you can but that is the rate that you can see you will be able to do?

Secretary LAIRD. That is correct as far as the AEC part of the budget is concerned. There is a lot more than $7 million in the AEC budget for the development of Safeguard warheads, however.

Mr. WHITTEN. With regard to this missile program, if I understood you correctly, we have been leading—these are my words—we have been leading from weakness throughout the years. When we announced to the world we will not hit the first lick, it put us behind the eight ball as far as negotiation and other things are concerned. As long as we stick to any such policy as that—then we are caught where we must be sure that our striking power is protected. Is this a major factor as to why Safeguard goes to the protection of our striking capability as against what we all desire, which is to protect our people?

Secretary LAIRD. We want to protect our second-strike capability.

Mr. WHITTEN. As long as it is understood we are committed to the policy of not hitting the first lick, it leaves us in a weak negotiating position—insofar as negotiating from strength is concerned—your action shows we are protecting our striking force, or else we have nothing to negotiate from?

Secretary LAIRD. That is correct, Mr. Whitten. I think it is most important that we go into any negotiations in a strong position rather than a weak position.

Mr. WHITTEN. If we depend on striking back rather than striking first, it requires a protection for that striking force.

Secretary LAIRD. That is correct, and we are not trying to achieve a first-strike posture. Our policy is that we want to be in a position in this country so that the Soviet Union, or any other country in the world, knows that we have a credible deterrent and should they be foolish enough to level a strike against the United States of America, that we would have sufficient power to inflict the kind of destruction that would make such a first strike on their part suicidal.

Mr. WHITTEN. And if our logic is correct, it would stand to reason that their first strike would be at our striking capability rather than at our cities?

Secretary LAIRD. That is correct, and that is why we have been concerned about the continued testing of the large SS–9 weapon system with a capability of the multiple warheads, which are presently being fired, and were fired as recently as yesterday, into the Pacific.

CONTROL OF SAFEGUARD COSTS

Mr. WHITTEN. It has been estimated that the total cost of this program would be $6.6 billion. All the testimony I have heard this year is that the cost of everything is going up on an average of 4 to 7 percent

per year, which leads me to the conclusion that the eventual cost would probably be $12 billion, taking into consideration inflation and whatnot.

That being true, I ask this: If you set out on this course, is it still within your control to slow down? I do not mean that you have any such thing in mind, but it will be handled in such a way that the control is in the Defense Department to cancel, to renegotiate, modify or do anything that the circumstances might call for.

Secretary LAIRD. That is correct, Mr. Chairman. The DoD investment cost as presently projected for the complete system is $6.6 billion. In addition to this, I want to make it very clear that there is also an investment cost as far as the AEC is concerned. The AEC investment cost is approximately $188 million.

There is also a research and development cost, which we have already gone forward with. The research and development cost of the ABM system, which is in the R. & D. section of the budget——

Mr. WHITTEN. I want the record to be clear that we are here to meet on the ABM today and you will be back with the committee to discuss this more generally, as well as the defense budget.

OBSOLESENCE OF WEAPONS SYSTEMS

Mr. FLOOD. Mr. Secretary, I could wax eloquent about your sitting where you are sitting and my sitting where I am sitting, but we do not have that time. I know you were here for at least 16 years with me and one thing that you and I went through time and time again, year in and year out on weapons systems, whether they were cap pistols or nuclear weapons, or a weapons system—now we are talking about a weapons system in the broad sense of that term. As one of the classic, moth-eaten phrases at the Pentagon about weapons systems always has been, "If it works, it is obsolete," what about this one? Have you changed this slogan down there?

Secretary LAIRD. Mr. Flood, I hope that the systems that are developed and have been developed over these 16 years, which you refer to, never have to be used. I hope the money we are investing in these systems is wasted money because then our defense program is a success. I believe we have had more successes and more programs that work during these 16 years than has generally been understood. The reason we are presently not engaged and have not been engaged in any nuclear war, has been because of the efforts of this Defense Appropriations Committee and the Congress of the United States to keep this country strong.

This Safeguard system will work. I am convinced it will work. I am convinced it is necessary. People say the Soviet ABM system doesn't work. Now, as a defense planner, I have to assume that it does work, and any defense planner who assumes that those systems don't work, and doesn't target weapons against them, just isn't a very good defense planner.

TESTING AGAINST LIVE WARHEADS

Mr. FLOOD. I have heard that from the beginning, when they talked about the first thin system around Leningrad. I always went on the same premise that you did. There it is.

Now, do you know if the Soviets have ever tested against any live warheads?

Secretary LAIRD. The Soviets have apparently had some tests against live warheads, but I don't believe there has been an intercept by a Soviet ABM missile with a live warhead. But they have tested warheads in the atmosphere, and I think that is very important. There was significant information which they obtained because they did go forward with their major tests in the atmosphere.

Mr. FLOOD. That is one thing that has been worrying me since this argument started at the first of the year. I know that you know that I know that you know that they have tested these things in the atmosphere and I know that you know that I know that you know that we haven't. Now, what do we do about that? Is your conscience so pure before the face of the world that we are not going to do this or what?

Secretary LAIRD. I have talked this over with our friends in the Atomic Energy Commission and they assure me they will be able to carry out these tests successfully, and within the bounds of the Test Ban Treaty.

Mr. FLOOD. In keeping with the Test Ban Treaty?

Secretary LAIRD. I am not advocating atmospheric tests in violation of that treaty, Mr. Flood.

Mr. FLOOD. As everybody else said, I have a lot of things I could ask you about this, but strangely, the questions on this extremely important thing come down to a very few. There is no sense in my nit-picking around here.

Mr. PATTEN. Mr. Secretary, you have discussed the effect of the ABM on our foreign policy, on the arms limitation, on our national security. I find myself as a duly elected representative in a very difficult position editorially, with the people on the street, and with my constituents. For what the polls are worth I think we have a political problem here. We can see it on the floor of Congress. We saw it up there yesterday. We can see it at every turn.

It is comparable to your shipping 800 gondola cars of mustard gas and dumping them into our big lake.

I don't think there is any question about that. I think the railroads carry dangerous gases every day. I was shocked with the expression of opinion. I am telling you, we have a political problem and with the air we have in the country today about the military—again, we saw that on the floor yesterday. Sixty or seventy fellows wanted to be on record as being brave enough to oppose the military request.

Probably another 40 would have liked to.

I was interested to see if the department and the President have considered the political effect. There may be a little room for maneuverability politically.

You will remember last year they wanted to bring the OEO program up in April. They didn't have the votes. They didn't bring it up in July. Finally, in October, they passed it. I think we have a tremendous political problem here. I don't know how much thought has been given to this. I have always given you credit for being, first and foremost, a good politician.

Secretary LAIRD. I thank you. I consider that a very fine compliment.

Mr. PATTEN. And I think your leader, the President, is very, very

savvy when it comes to politics. I have to compliment him. I think he did a splendid job on the Supreme Court appointment.

Nowhere have we considered the political effect. I don't have to tell you there are coalitions of black militants plus other groups who have been with us, a small minority. But with the ABM, this is something new. It is a larger group. I don't know whether you have been a good salesman politically. I don't know what it is. Nothing has been said about the political effect. We are a political society.

I have articles here from the Washington Post, "The Big ABM Brainwash." I have 12 or 15 articles from newspapers that are really surprising. Of course, I can give you the New York News, too. My local papers are very good. Those in my area, but I do think there is a political problem.

Mr. Chairman, I don't want to take any more time, but it seems to me for those of us who have this experience, the political problem should be discussed. Maybe there is some room here for maneuverability. For instance, no one says much about opposing Research and Development. As my colleague, Mr. Flood, stated, the "new system" thing hurts.

I don't want this to become a political problem, not with a program that this country needs. I am with you. I think you you fellows are astute enough to help us a little bit.

Secretary LAIRD. Mr. Patten, if I may, I'd just like to make a brief comment on your remarks. During our review, we were conscious of the possibly adverse political effects that might flow from a decision to go forward with deployment. However, in the final analysis, the national security of the United States must always take precedence over political considerations. In the ideal world, of course, one would hope that the best course to follow in terms of national security would coincide with what is the politically proper thing to do. Unfortunately, this doesn't always happen in the real world. When it doesn't, it is the clear responsibility of the President and the Secretary of Defense and, as I'm sure you would agree, it is also the responsibility of the Congress to follow the course which, in our best judgment, is in the best interests of the national security of the United States. Our decision on Safeguard was an attempt to do that.

Mr. MAHON. Mr. Rhodes.

Mr. RHODES. Mr. Chairman, thank you. It is a pleasure to welcome our old friend back to the committee. He looks a lot further away than he did when he was here before, but it is a pleasure to have him here with us today.

NEED FOR SAFEGUARD IN VIEW OF INVULNERABILITY OF OTHER SYSTEMS

Mr. Secretary, I have heard it said by some of our colleagues that even if the Minuteman force were destroyed, that the Polaris system and the Poseidon system are so invulnerable to attack or detection that an adequate deterrent would be still present so that the U.S.S.R. or China would not dare attack the United States. Would you address yourself to that statement?

Secretary LAIRD. Well, Mr. Rhodes, as you know, I have had a long interest in the Polaris program, along with the other members of this Committee. I believe that the Polaris submarine program, with the im-

proved Poseidon missile system, with which we are going forward, will be invulnerable to enemy attack through the time period of 1972, 1973, or even the mid-1970's, but I cannot assure this Committee that the Polaris system will be invulnerable forever. As a defense planner, I don't want to have all of my eggs in that one basket of the Polaris submarine system. It would be a grave error for our country to put its entire deterrent force in that one system.

Mr. MAHON. I want General Wheeler to extend his remarks in answer to this question also.

(The information follows:)

The ability to achieve the objective of deterrence does not reside in any one element of U.S. offensive forces for all circumstances of war initiation, prosecution, and termination. While any one of our offensive force elements (e.g. ICBM's, SLBM's, or bombers) could, under certain circumstances, possess the capability to inflict a very high or even unacceptable level of damage upon an enemy's military forces or population centers, reliance upon only one force element to perform this task under all circumstances would constitute an unwarranted risk to the continued survival of the United States. We, therefore, seek to provide the means to improve our ability to penetrate the enemy defenses through the capability to attack from all altitudes and azimuths with a mix of ICBM's, SLBM's, or bombers; and by mixing missile trajectories, reentry vehicle characteristics and azimuths of attack, with bombers equipped with air-to-surface missiles and decoys, as well as differing speeds, altitudes, and azimuths of attack.

The defense an enemy would have to deploy against this mix is complicated, and should he develop an effective defense against any one or several of these modes of attack, the others would remain viable to provide the necessary deterrent, or should deterrence fail, as a strategic striking force capable of terminating the war under conditions advantageous to the United States.

REACTION TIME TO MISSILE ATTACK

Mr. RHODES. Many of our colleagues have also said that because of the safeguards that must be employed in launching any nuclear weapon, that before an ABM could be launched, that probably the incoming missile would have arrived and might have destroyed the ABM itself, and possibly the Minuteman.

Would you address yourself to the question of the probable sequence of launch orders and the other facilities, or the other elements in this which in your opinion would make an ABM system effective against an incoming attack?

Secretary LAIRD. Yes. I appreciate this opportunity. I think that is an important question.

The need for timely response to a ballistic missile attack on the United States has been fully appreciated in the design of Safeguard's command and control system. As a useful precedent, we have a wealth of experience in the operation of a very sophisticated command and control system for air defense against bombers. This involves a large number of duplicated, multirouted communication channels to provide immediate, reliable contact between the President, Norad Headquarters in Colorado Springs, and the National Command Center here in Washington. Safeguard will build upon this proven system and will provide the President the means to maintain personal control of the situation in the event of such an attack.

(Discussion off the record.)

POLICY OF LAUNCH-ON-WARNING

Mr. RHODES. A missile defense system would not be necessary if we adopted a policy of launch-on-warning. Is there any reason why we should not adopt such a policy?

Secretary LAIRD. The answer is that all warning systems, or combinations of warning systems, can produce some false alarms. Thus, over a prolonged period, a false early warning might occur. If we design our missile and aircraft force to launch on first warning to gain survivability, then there is the possibility or probability of launching in error. Aircraft can be recalled, but missiles can't. Once we launch our missiles, we are committed to an irrevocable act. Alternatively, there are situations wherein the President may wish to withhold an immediate response. For these reasons it has been the policy of our Government to deploy a deterrent force which could withstand an enemy attack and still be viable.

In the case of an optimum submarine launched missile attack against our SAC aircraft, even launch on warning may not be adequate to ensure their survivability. Due to the short warning times available (because of the short flight times of the missiles), only active defense can provide protection for the SAC alert aircraft.

COMPUTERIZED DECISION-TO-FIRE

Mr. RHODES. Because of the extremely short reaction times, the decision to fire a nuclear ABM missile will have to be made by a computer, will it not?

Secretary LAIRD. Mr. Rhodes, even in a worst case, the time available between early warning of an enemy attack and the release of the interceptor is a few minutes. And even within that time it is practical to have men involved in the decision process. The Safeguard system is designed so that it requires human intervention to launch an interceptor.

SAFETY IMPLICATIONS OF WEAPONS NEAR CITIES

Mr. RHODES. What are the safety implications of living in an area where nuclear weapons are stored?

Secretary LAIRD. Our nuclear weapons are designed with a series of safety devices. The likelihood of any nuclear explosion in case of an accident is essentially nil. In more than 20 years of nuclear weapon production, transportation, storage and operations, there has never been a nuclear explosion from a nuclear weapon involved in an accident. Very stringent precautions are taken to protect the public against any hazard from the conventional explosives and propellant systems, which are similar to those in many other weapons and industrial applications. Nuclear weapon storage on Safeguard sites will be in hardened, somewhat remote underground silos. Technical features of the weapon and firing doctrine preclude nuclear detonation until an altitude is reached which provides safety for people and property on the ground.

DANGER TO POPULATION OF EXPLODING MISSILE OVER U.S. TERRITORY

Mr. RHODES. Is there not inherent danger to our own population in exploding antiballistic missiles over U.S. territory? Would not many people be blinded by an antiballistic missile engagement?

Secretary LAIRD. The short answer, Mr. Rhodes, is that the only time a defensive missile would be fired is when we are actually under attack by incoming enemy missiles. I'd like to give you our analysis of the problem but let me first say that the choice available in an attack situation boils down to a choice between catastrophic effects caused by an enemy warhead getting through and the relatively negligible effects that might flow from a successful ABM intercept.

But let me give you for the record our analysis of that problem from the standpoint of possible Spartan and Sprint effects. There are three kinds of effects from an exploding nuclear weapon—blast, thermal radiation, and nuclear radiation. As far as blast is concerned, because the Spartan detonation occurs high above the atmosphere, there will be a very light effect; so light that it can be considered negligible, even at the minimum altitude the Spartan is allowed to burst. For the Sprint burst within the atmosphere, the effect would be similar to a sonic boom, but there would be no hazardous blast. Thermal radiation from a Spartan burst on a clear day will cause no hazard to a person in the open. Even at minimum allowable altitude only a mild sunburn could be caused to bare skin. Thermal effect from Sprint would be even less. Direct nuclear radiation from either would be negligible. Very little nuclear debris is produced from the detonation. In the ensuing months and years this radioactivity would settle down to earth, worldwide. During this period when the particles are at these high altitudes they are effectively held in storage at the time when their radioactivity is greatest. In fact, most of the activity of short life decays away almost completely. The effects of this fallout would be very similar to the effects that we have been experiencing from our last atmospheric test series in 1962. In short, there would be no significant hazard to people and property on the ground in the event this system has to be used.

HAZARD POTENTIAL OF STORED NUCLEAR WEAPONS

Mr. RHODES. You acknowledge you are moving away from cities. Does this mean there is a hazard incident to having such weapons near cities?

Secretary LAIRD. No, Mr. Rhodes; it does not mean the ABM missiles constitute a hazard. Our weapons and our operating procedures are so designed that the chance of any accidental nuclear explosion is essentially nil. We have never had an accidental explosion of any nuclear weapon. You will recall that when four such weapons fell some 30,000 feet after an aircraft collision over Spain there were no nuclear explosions.

There have been objections by some people in the cities involved in the Sentinel program to having the sites close by. In view of the fact that our objectives can be met without having sites close to cities, it appears desirable to seek sites further from the major cities. In fact,

by so doing we can have about the same coverage against a Chinese ICBM attack with fewer sites.

BLAST EFFECT ON RADAR

Mr. McFall. In that same answer, Mr. Secretary, would you discuss the effectiveness of the radar with reference to the blast effect? I believe Dr. Foster discussed that earlier.

I understand that the blast effect will last somewhat longer than originally thought and that this poses some problems which are not insurmountable as far as the strategic use of the ABM is concerned.

(Editor's Note.—See earlier discussion on pp. 62, 66, and 67.)

EFFECT OF DISARMAMENT TALKS ON ABM

Secondly, I wish you would discuss what the effect of the disarmament talks might have on ABM. I gather from your earlier statement that you felt that this would survive armament talks if we agreed that the ABM would be kept by both the Russians and ourselves. Would this be an attempt by both parties as a joint effort against the Chinese attack later on?

Secretary Laird. I think it is possible that both parties would want some kind of a thin ABM defense. I am not really in a position to predict how that might work out. I think that subject could come up in the negotiations. My point is that it is most important for us, as we go into these arms control talks, not to be in a position where we are unilaterally stopping the further improvement of all of our strategic offensive and strategic defensive systems while the Soviet Union is going forward. I think it puts them in the position where they might be tempted to keep the talks going for a long period of time. I would like to telescope that period of time so we can get an agreement at least as soon as we got an agreement on the Nonproliferation Treaty, which took 4 years, and the Test Ban Treaty which took even longer.

Mr. McFall. That is an important consideration. After the talks I get the impression that the ABM would still be kept as a valuable item, possibly even desired by the Russians. Since, if you have two parties in agreement and one is vulnerable to Chinese attack, then the other party would also be affected by such a Chinese attack.

Secretary Laird. I think that is very possible, and I will be glad to discuss it further.

Mr. Mahon. Mr. Long?

MULTIPURPOSE DESIGN OF THE SENTINEL SYSTEM

Mr. Long. The Safeguard ABM, I understand, uses the same components and systems for hard point defense that were designed to provide protection for our cities in the Sentinel system. Can one design serve all purposes?

Secretary Laird. Yes; these were designed all along for the two purposes. I want to make it clear that in the Sentinel system there was an option for the defense of the Minuteman. These two particular sites that we have in Phase 1 were also included in the Sentinel system. The Spartan and Sprint were designed for both purposes, city defense

against the Chinese ICBM threat and Minuteman defense against the Soviet ICBM threat.

Mr. Long. Here are questions you can answer for the record. Is it possible to simulate environment of the full-scale attack to test the assembled components? I understand that by mathematical computations you can assume that you have knocked out a single missle coming in without the live warhead and so on. But can you stimulate the circumstances of a full-scale attack coming from all directions enough so that you can decide whether the system is a viable one?

Mr. Mahon. For the record.

(The information follows:)

Yes, it is possible to realistically simulate attacks permitting testing of the deployed system. We will provide a very sophisticated system exerciser designed to realistically test the operation of the defense, to include both the components and the personnel, under battle conditions. This system exerciser combined with the experience and results obtained from the Kwajalein test facilities will provide the basis for ensuring the system will be capable and ready to perform its mission.

EARLY LAUNCH OF MINUTEMAN MISSILES PRECLUDES NEED FOR SAFEGUARD

Mr. Long. If the primary purpose of the Safeguard system is to defend our deterrent in the face of an all-out attack, and the military has ascertained that an all-out attack is on the way, why are the Minuteman missiles waiting in the silos to be held? Won't the Sprints be really protecting unloaded empty silos if we are on the job?

Secretary Laird. I think it is very difficult for me to say here that the President of the United States would launch all of our missiles on that kind of a warning. When I testified before the Senate Foreign Relations Committee, this question came up. I was criticized for not saying categorically that the President would have all of our missiles in the air on first warning. There is a relatively short period of time available for deliberation. When I think of the decision that the President of the United States has to make, I would certainly feel that he would be in a much better position if he had some defensive missiles he could launch in the interim, rather than have to go with all of the offensive weapons right away.

Mr. Long. I agree with you entirely.

(Discussion off the record.)

POSSIBILITY OF SOVIETS INCREASING ICBM DEPLOYMENT TO COUNTER SAFEGUARD

Mr. Long. When the Soviets deployed their ABM system around Moscow, Secretary McNamara assured the country that we had nullified this defense by increasing the number of warheads. If we made such a prompt response, don't we have to assume that the Soviets will do the same. If we deploy the ABM system won't the Soviets simply do what McNamara said we would do under similar circumstances?

Secretary Laird. That is quite correct. If we deploy an ABM defense for our cities against the Soviet threat, the chances are that they would do what we did; namely, increase the number of warheads on each of their offensive missiles, particularly the large ones. That is

precisely one of the reasons why we rejected the alternative of deploying Safeguard for the defense of our cities against the Soviet ballistic missile threat. What we are proposing here, with respect to the Safeguard program, is to deploy an area defense for our cities against a potential *Chinese* ICBM threat, and an area and terminal ABM defense for our bombers and land-based missiles against the *Soviet* ballistic missile threat.

As I pointed out in my prepared statement, the area defense of our cities against a Chinese ICBM threat would have little effect on the Soviet's capability to attack those cities. Accordingly, it should not result in any change in the Soviet strategic offensive forces on that account. The defense of our Minuteman fields and our bombers is quite another matter. In this case, we are reacting to something the Soviet Union is already doing which would threaten the survival of those forces. I am talking here of their continuing deployment of SS–9s, and particularly their testing of an SS–9 with three large warheads. I am also talking here of their large scale production of Polaris-type submarines. The SS–9s could constitute a very serious threat to the survival of our Minuteman force, and the Polaris-type submarines to our bomber and tanker forces.

It is possible that the Soviets would, in turn, react to our deployment of an ABM defense for our land-based strategic offensive forces. But the stake here is of such vital importance to our survival that we would have no choice but to run that race if they choose to force it upon us. That is why both we and the Soviets have a mutual interest in trying to limit the strategic arms race.

Mr. MAHON. Will you supply your other questions for the record, Mr. Long?

EFFECT OF DEPLOYMENT OF SAFEGUARD ON DISARMAMENT NEGOTIATIONS

Mr. LONG. One more question for the record, and that is, Does our arms control negotiator agree with the reasoning that our deployment of ABM will hasten negotiations?

Secretary LAIRD. He takes the position that the deployment of the ABM should not in any way impede negotiations. I do not think he is as optimistic as I am, but I feel that it may actually prove to be an incentive for negotiations.

Mr. MAHON. Mr. Minshall.

Mr. MINSHALL. Mr. Chairman, I have two observations about having our good friend, the Secretary back before this committee. One is that I told him some months back that I did not envy him in his job but I am very glad he is there because I think the country is fortunate in having a man of such great knowledge and discernment in the very important position he holds. I also hope you will notice, Mr. Secretary, that out of respect for our departed colleague I am not sitting in the chair that was once occupied by you.

In your memory I think we should leave it empty for the remainder of this hearing.

Secretary LAIRD. I am not dead yet.

Mr. MINSHALL. Far from it.

(Discussion off the record.)

ALTERNATIVES TO SAFEGUARD

Mr. MINSHALL. Mr. Secretary, my first question: Let us assume that the Congress rejects the ABM proposal, what are your alternatives? The second question: What is your next step if Congress approves the ABM proposal?

Secretary LAIRD. First, if the Congress rejects the ABM proposal, we will abide by the decision of the Congress.

Mr. MINSHALL. What is your alternative, though, militarily?

Secretary LAIRD. We will have to wait until the 1971 budget. I doubt if we can come back with any new, well-thought-out proposals during this session of the Congress.

But the alternatives are pretty clear; we will have to go forward with more offensive weapons such as more Minuteman deployment, or further Poseidon deployment.

If the Soviets continue to build up their threat against our deterrent forces, we will have no choice but to strengthen further our strategic offensive forces. We simply *must* maintain our deterrent if a global nuclear war is to be avoided and the survival of our Nation ensured. This would add billions of dollars to the defense budget over the next few years, and we still would not have a defense against the Chinese ICBM threat or against an accidental ICBM launch.

(Discussion off the record.)

EFFECTIVENESS OF SAFEGUARD IN EVENT OF ALL-OUT ATTACK

Mr. MINSHALL. My next question: In the case of a mass attack, which is one of the Soviet's capabilities that is with intercontinental missiles, aircraft, missiles from offshore submarines, and possibly FOBS how would the proposed ABM system fit into that kind of an attack?

Would it be effective?

Secretary LAIRD. The Phase 1 deployment?

Mr. MINSHALL. Yes.

Secretary LAIRD. The Phase 1 deployment would be effective to the extent of the number of ABM missiles deployed. The number of missiles is not very large in this Phase 1. The total number at the North Dakota and Montana sites is tentatively fixed at———.

There are———. If an attacker sends in many hundreds of warheads against those two Minuteman fields, he would overwhelm the system.

Mr. MINSHALL. Mr. Chairman——

Secretary LAIRD. I am talking about Phase 1.

Mr. MINSHALL. That is all I asked about.

(Discussion off the record.)

ABM COSTS

Mr. MINSHALL. How much has been appropriated and how much obligated to date for Sentinel? How much of this is for work not usable in the Safeguard deployment? In addition, how much land has the Army acquired and at what cost?

Secretary LAIRD. I will provide that for the record.

(The information follows:)

HOW MUCH HAS BEEN APPROPRIATED AND HOW MUCH OBLIGATED TO DATE FOR SENTINEL?

[In millions of dollars]

	Fiscal year 1968	Fiscal year 1969	Total
Appropriated			
Currently approved OSD program	766.9 [1]	963.6	1,730.5
Requested by President:	591.4 [2]	861.2	1,452.6
January 1969			
March 1969		962.2	962.2
Obligated as of Feb. 28, 1969		861.2	861.2
	561.1 [3]	626.9	1,188.0

[1] Includes $401,300,000 RDTE Army, for Nike X Engineering Development applicable to the Sentinel program.
[2] Includes $361,300,000 RDTE Army, approved by OSD for Nike X Engineering Development applicable to the Sentinel program.
[3] Includes $361,200,000 RDTE Army, for Nike X Engineering Development applicable to the Sentinel program.

How much of this is for work not useable in the Safeguard deployment? The equipment for the Safeguard system is the same type equipment that was planned for the Sentinel deployment; thus, equipment designed and purchased under Sentinel production contracts will be useable in the Safeguard deployment. Research and development funded under the Sentinel deployment will also be directly applicable to the Safeguard system. The principal nonrecoverable costs are those associated with the Sentinel site at Boston and surveying at other sites now not to be used. It is estimated that design engineering, construction and land acquisition, and restoration costs incurred, that are not applicable to the Safeguard system will be approximately $8–9 million.

How much land has the Army acquired and at what cost? The only land acquired has been 0.3 of an acre at a cost of $1,745 through which the access road to the Boston PAR site runs. The access road has been partially constructed. Construction rights of entry had been secured to the PAR site and certain preliminary construction initiated. This construction, of course, was stopped as directed by Secretary Laird. This site will not be used in the Safeguard deployment. We are now examining the termination actions to be taken both with respect to the construction contracts and any restoration to the lands concerned and will consult shortly with the parties involved. The MSR site at Boston was to be located on National Guard property at Camp Curtis Guild. Construction rights of entry had been awarded. This site also will not be used in the Safeguard deployment and the earlier stated acquisition action will be terminated.

DISPOSITION OF SENTINEL SITES

Mr. Minshall. What happens now with Army site acquisition and construction activities at each of the previously announced site locations?

Secretary Laird. I will provide that for the record.

(The information follows:)

Of the 15 previously announced site locations, acquisition and construction had begun only at Boston prior to suspension of activities. At some of the other sites, rights of entry had been obtained and preliminary investigation and survey work was underway. At those sites which are no longer needed and at which no investigation or survey work had been initiated, a public announcement will be made that land will no longer be required by the Government.

At sites no longer needed, where alteration or damage to the property occurred, a damage survey will be undertaken to determine the extent of the damage and the feasibility of returning the property to its former state. If this can be accomplished by grading, leveling, landscaping, or other means, it will be. If it cannot be, as in the case of large trees which may have been cut, appropriate action will be taken to reimburse the owners for damages.

SAFEGUARD WARHEAD COSTS

Mr. MINSHALL. What are the costs of the AEC with reference to the nuclear warheads for the Safeguard ABM?

Secretary LAIRD. I will also furnish that information for the record.

(The information follows:)

At each phase of Safeguard, the AEC will also incur costs. The AEC will present its own budget, but its costs during the Phase I period through fiscal year 1974 will total $0.9 billion. Of this amount, less than $0.2 billion represents incremental investment incident to deployment of Safeguard. The remainder is largely for R. D. T. & E. related to the program. In full deployment, AEC total costs will be $1.2 billion through fiscal year 1976. Of this, about $0.2 billion would represent incremental investment incident to deployment.

Mr. MINSHALL. Thank you, very much.

Mr. MAHON. Mr. Jonas.

Mr. JONAS. I will take just a minute.

COMPLIMENTS PAID TO SECRETARY

First, I want to join in all the compliments paid our former colleague. We all have great confidence in him. Secondly, let me just say that I had a number of questions I intended to ask but they have all been discussed at length. This has been a very revealing hearing, and I think everybody in the United States should read the record because the questions were pertinent and the responses were clear and to the point. I should like to express my appreciation to Secretary Laird and General Wheeler for a very impressive appearance here today.

Mr. MAHON. Mr. Talcott.

Mr. TALCOTT. Mr. Chairman, I will just take a minute. I would like to add my compliments extensively, but I won't take the time. I concur with Mr. Jonas, too. I have read through the complete text and I think it is excellent, but what has been done here is that you have explained to the committee in secret, and what needs to be done is to inform and convince the public. I am saying almost the same thing Mr. Jonas has said. I think it cannot be said entirely by the much-maligned military and industrial complex. I think you have to have it said by some scholars and intellectuals and scientists other than Dr. Foster. These people are necessary to explain your side. I think of only Dr. Teller and Mr. McDonald that appear to be solidly on your side.

I would hope you could get some of these people when you have an opportunity to be on television, the scholars and intellectuals and scientists. I have a question or two.

POSSIBILITY OF ACCIDENTAL DETONATION

What is the likelihood of an accident or self-imposed catastrophe either by the Sprint or Safeguard? This is a worry of some people.

(The information follows:)

U.S. nuclear weapons are designed with a series of safety devices so that the likelihood of any nuclear yield in case of an accident is essentially nil. In more than 20 years of nuclear weapons production, transportation, storage, and opera-

tion, there has never been a nuclear yield from a nuclear weapon involved in an accident. Very stringent precautions are taken to protect the public against any hazard from the conventional explosives and propellent systems which are similar to those in many other weapons and industsial applications. Planning for the storage of nuclear warheads is not a new undertaking as evidenced by public announcements concerning the capability for storage of weapons in Nike-Hercules sites. Nuclear weapon storage on Safeguard sites will be in hardened underground launch cells. Features in the weapon and firing doctrine preclude detonation until an altitude is reached which provides safety for people and property on the ground.

RELATIONSHIP OF ABM SYSTEM TO FALLOUT SHELTERS

Mr. TALCOTT. For the benefit of another committee on which I serve, what is the relationship of the ABM system and civil defense program of fallout shelters? Are they completely inseparable or sort of tied together?

Secretary LAIRD. We will get you that information. Your first question is an important question.

(The information follows:)

The civil defense fallout shelter program is designed against the larger threat posed by the strategic offensive nuclear forces of the Soviet Union and would provide for substantial lifesaving in the event of a large-scale attack, with or without the deployment of a ballistic-missile defense system. Safeguard is not intended to protect our cities against a massive Soviet missile attack. In the case of a smaller attack by the CPR or an accidental launch, the full Safeguard deployment in itself would provide a very high level of protection for our population.

COST OF SAFEGUARD SYSTEM

Mr. TALCOTT. One thing else you have not mentioned here is the cost. I think not only the cost today but the future cost because various amounts from $400 billion to $1 billion have been mentioned as the cost of this program.

Mr. MINSHALL. I have that in the questions I submitted.

Mr. TALCOTT. This is the problem we have way down at the end of the committee. At least I am not 51st.

(Editor's note: The matter referred to appears on pp. 26–29, 69–70, and 79–80.)

(Discussion off the record.)

(Editors note: Additional questions submitted by Mr. Sikes follow:)

SOVIET ICBM'S THREAT TO MINUTEMAN SITES

Mr. SIKES. Mr. Secretary it seems to me that in the past few years the Defense Department has consistently underestimated the buildup of the Soviet ICBM force. Just 3 years ago, for example, we were told that they would have 500–800 on launchers by mid-1970. Can you tell me for the public record, in very approximate terms, about how many ICBM's does the intelligence community now expect them to have by that date?

Secretary LAIRD. Well, in very approximate terms, the intelligence community last fall expected the Soviet Union to have about 1,200 operational ICBM's on launchers by mid-1970. They have more than that number in place or under construction right now.

Mr. SIKES. Mr. Secretary, you have emphasized the fact that the SS–9 could be a threat to our Minuteman. Haven't your predecessors also made this point?

Secretary LAIRD. Yes, that is very true. Both of my predecessors made the same point regarding the potential threat of the SS–9 to our Minuteman force. Mr. McNamara and Mr. Clifford both informed the Congress that the SS–9 could carry an accurate warhead with a yield of up to 25 MT. I believe, Mr. McNamara said, and I will correct this for the record, that the SS–9 "would be suitable for use against hardened missile silos as well as against cities."

Mr. SIKES. You also pointed out in your statement that the multiwarhead SS–9 now being tested by the Soviets in the Pacific might turn out to be a MIRV and in that case would constitute a very serious threat to our Minuteman force. Didn't your predecessors also say that a MIRVed SS–9 would be a serious threat to the Minuteman?

Secretary LAIRD. Yes, that is also true. Both Mr. McNamara and Mr. Clifford pointed out that possibly the worst threat the Russians might mount against our entire "assured destruction" capability would be the simultaneous deployment of several hundred SS–9's equipped with highly accurate MIRV's, together with an effective ABM system. As far back as January 1966, when I was sitting on your side of the table, Mr. McNamara pointed out that if the Soviets developed and deployed accurate MIRV's they could seriously threaten the survivability of our Minuteman force, and that a Soviet ABM system could then destroy a large proportion of our residual missile warheads, including Polaris. This was referred to as the "Greater-Than-Expected" threat. What has happened since that time, is that this threat is developing faster than was anticipated.

DEFENSE OF MINUTEMAN SITES OPTION TO SAFEGUARD SYSTEM

Mr. SIKES. If I remember correctly the justification for the Sentinel program, wasn't the option to defend Minuteman with ABM's specifically included in that program because the Defense Department thought that the Soviets might actually deploy a large MIRVed ICBM with a good hard target kill capability?

Secretary LAIRD. You are absolutely right. The option to defend Minuteman with ABM's, in the event a significant Soviet hard target kill capability began to emerge, has always been considered a part of the Sentinel program. Mr. McNamara made a special point that the deployment of an ABM defense under those circumstances could serve as a partial substitute for the further expansion of our offensive forces. In other words, he did not foreclose the prospect that we might also have to increase our offensive forces.

You probably remember that last year he gave us a whole list of options which might be exercised if the greater-than-expected threat actually developed—converting the entire Minuteman force to the III version, increasing the number of warheads per missile, emplacing them in hard rock silos, and/or protecting them with an ABM defense. His other options included the construction of more Poseidon submarines, the production of a new land-based missile, and the upgrading of the bomber force with improved penetration aids and, possibly, a new bomber. I might point out that these are the kinds of options we would have to reconsider if the Congress does not approve the Safeguard program and the threats continue to develop.

SOVIETS TO PASS UNITED STATES IN STRATEGIC OFFENSIVE CAPABILITY

Mr. SIKES. Do you think it is possible that by the mid-1970's the Soviet Union could be ahead of us in total strategic megatonnage, total strategic delivery vehicles and total strategic weapons, in other words, the three measures of strategic offensive capability which your predecessor Mr. McNamara used to talk about?

Secretary LAIRD. They certainly could, Mr. Sikes, as far as total strategic megatonnage is concerned. In fact, they are well ahead of us right now in megatonnage. With regard to delivery vehicles—intercontinental bombers, ICBM's, and SLBM's—we are well ahead of them now, but on the basis of the intelligence estimates prepared last fall they could be ahead of us by the mid-1970's. I want to make it very clear that these comparisons do not include the Soviet medium range bombers, IRBM's/MRBM's or the submarine launched cruise missiles.

With regard to numbers of strategic weapons, and by that I mean independently targetable warheads, we are way ahead of the Soviet Union right now—we have a margin in our favor of about 3 to 1. By the mid-1970's the margin is expected to be somewhat narrower but still very substantial. This is based, of course, on the assumption that we go ahead with the program presently planned, including Minuteman III and Poseidon, and that the Soviets go ahead with their program as projected by our intelligence community.

STOPPAGE OF DEPLOYMENT WILL PUT UNITED STATES BEHIND SOVIETS

Mr. SIKES. If we were to unilaterally stop the deployment of MIRV's, wouldn't that put us behind the Soviet Union in all three of these measures by the mid-1970's?

Secretary LAIRD. There is no question about that, as far as strategic missiles are concerned. If we unilaterally stop the deployment of MIRV's and they continue with their program, simple arithmetic would tell you that they would be significantly ahead of us in the number of independently targetable strategic missile warheads by the mid-1970's. We would still have a substantial margin in the total number of bomber delivered weapons, especially if we go ahead with the SRAM program. Considering them all together, the Soviet Union could be very close to us in numbers of weapons by the mid-1970's.

Mr. Chairman and Members of the Committee, inasmuch as this question has been raised, I want to make it very clear that a unilateral decision on our part to stop the testing of MIRV's could have very grave consequences with respect to our overall strategic posture in the mid-1970's. We have given up the competition with the Soviet Union as far as total strategic megatonnage is concerned. If we continue with our present program the Soviets could achieve a rough equality with us in numbers of strategic delivery vehicles. The only thing we have going for us is the number of strategic weapons. If we also give away this measure of strategic offensive capability, we could very well find ourselves in second place to the Soviet Union in overall strategic offensive capabilities by the mid-1970's. This, to me—permitting the Soviet Union to become clearly superior militarily with all that that implies—would be an incomprehensible situation in the light of the fact that our gross national product is twice that of the Soviet Union.

ELIMINATION OF MIRV'S FROM POSEIDON WOULD JEOPARDIZE SECOND STRIKE CAPABILITY

Mr. SIKES. You noted in your statement that it would be far too dangerous to rely only on our Polaris/Poseidon forces. You also made the point that the Soviets are developing a new ABM. Isn't it true that if the Soviets could destroy most of our bombers and land-based missiles, and then intercept our submarine-launched missiles with an ABM system, it could put into question our entire assured destruction capability which is the very foundation of our deterrent? Wouldn't this almost certainly be true if we were to eliminate the MIRV's from the Poseidon?

Secretary LAIRD. It would certainly be true if we were to eliminate the MIRV's from the Poseidon. As you are well aware, the Poseidon program was justified to this committee on the grounds that it was a necessary hedge against the possibility that the Soviets would deploy an ABM defense around their major cities. If the Soviets do deploy such an ABM defense, without MIRV's in the Poseidon our deterrent capability would be dangerously eroded.

PROTECTION OF SAFEGUARD VERSUS COST

Mr. SIKES. Is Phase 1 of the Safeguard deployment really worth its cost in terms of what it can, by itself, contribute to the survival of the Minuteman forces?

Secretary LAIRD. Phase I of the Safeguard system will, it is true, provide only limited protection for the Minuteman force, but its value to us is far more than that. The purpose of Phase 1 is to place us in a position to move forward promptly if the Soviet threat to our offensive forces and the Chinese threat to our cities actually emerge. We will soon have developed the system about as far as we can in the laboratory and at the test site. We must start in fiscal year 1970 to install the system at operational sites, if we want to be able to deploy the full system on a schedule in step with the possible emergence of the threat. Even if we start now, the first two sites will not be operational until 1974, and the full system would not be available until 1976. Thus we must consider Phase 1 of Safeguard as insurance against the possibility that we will need the full system in the mid-1970s.

DEPLOYMENT OF A THICK SYSTEM

Mr. SIKES. Wouldn't it make more sense just to go ahead and deploy the whole system?

Secretary LAIRD. We gave that alternative very careful consideration. But, in the light of the uncertainties which still exist with respect to the threat and the serious economic and financial situation confronting the Nation, we thought it would make more sense to proceed on a step-by-step basis. We need not decide now, whether to proceed with deployment of the entire system. We can reexamine the program year-by-year and move forward as conditions at that time warrant. We do, however, need to go forward with the Phase 1 deployment, so that we can get the system in operation at two sites and do the necessary checkout and shakedown of the equipment at operational sites. We

will then be in a position to go ahead promptly with any or all of the three Phase 2 options, depending on how the threats actually develop. I believe this is a prudent approach to this difficult problem.

ABILITY TO HANDLE DATA PROCESSING FUNCTION

Mr. SIKES. You make the point in your statement that the data processing function is an extremely important element in the ABM defense system. Do you have any real evidence based on past experience that this job can be adequately done.

Secretary LAIRD. There is no question about the importance of the data processing function in the safeguard system, and we know that the job of developing the necessary capability will be a difficult one. However, I am told that this task is quite comparable to the automatic switching system developed and installed by A.T. & T. for the nationwide telephone network. That system, with computer programs involving about 150,000 instructions, is now in successful operation. Although the data processing capability needed for Safeguard will involve a greater number of instructions, we are confident that the requirement can be met on a schedule corresponding to the proposed equipment readiness dates. And, of course, we have had a great deal of experience with the same kind of problem in our air defense program during the last 10–15 years.

LAUNCH COORDINATION OF OFFENSIVE AND DEFENSIVE MISSILES

Mr. SIKES. Mr. Secretary, when you reached a decision to deploy ABMs in the Minuteman fields did you fully consider the problems involved in coordinating the launching of the offensive and defensive missiles from those fields?

Secretary LAIRD. We have carefully reviewed the problems involved in coordinating the launching of offensive and defensive missiles from our Minuteman fields. A program called Minuteman integrated Command and Control system (MICCS) has, in fact, been initiated in fiscal year 1969 to develop just such an integrated command and control system for Minuteman and Safeguard. I am assured there are no insurmountable problems in this area.

ACQUISITION OF SAFEGUARD SITES

Mr. SIKES. Mr. Secretary, you have already run into problems in acquiring sites for the Sentinel system. Will the acquisition of sites for the Safeguard system be less of a problem?

Secretary LAIRD. Yes, Mr. Sikes, it will be less of a problem. The difficulties with Sentinel site acquisition came about primarily in connection with sites in or near major metropolitan areas, such as Boston, Chicago and Seattle. The residents of those areas were not only concerned about possible accidental nuclear detonations, but also that valuable land needed for the growth of their communities would be used for the system, and that property values in their areas might decline.

We expect that with the Safeguard deployment plan, which reduces the number of sites and moves them out of the metropolitan areas (with the exception of Washington, D.C.), land acquisition will be much less of a problem. We expect to be able to use land already owned by the Government for some of the sites which are near our bomber bases and Minuteman fields. Because all but one of the sites will be in less densely populated areas, the land we will need to purchase will be less costly to acquire, and the location of the sites should be less of a problem for the residents of the areas involved.

USE OF MINUTEMAN AS AN ABM

Mr. SIKES. What can you tell us about the possibilities of using Minuteman as an ABM interceptor?

Secretary LAIRD. We have looked at this possibility, Mr. Sikes. Minuteman may be able to perform as a long range interceptor, using inertial guidance. But, without the ability to be guided from the ground during flight, the Minuteman may not be able to get as close to the target as the Spartan, and thus would be less effective as an interceptor. Moreover, Minuteman would require appropriate forward-based radars if it is to be launched from present locations and full use made of its range. With its present warhead it would not be as effective as Spartan against a sophisticated threat. Furthermore, Minuteman could not be used as an interceptor without expensive modifications. And, of course, the U.S. deterrent forces would be reduced by the use of Minuteman in a defensive role.

POSSIBILITY OF AN AGREEMENT PROHIBITING DEPLOYMENT OF ABM'S

Mr. SIKES. Mr. Secretary, is it possible that in the forthcoming talks with the Soviet Union on strategic arms limitations that both sides might agree on an absolute prohibition on the deployment of an ABM system by either side? I am sure you see the point of my question, because if such a prohibition is in the cards, it might not be wise to go ahead with the Phase 1 deployment at this time.

Secretary LAIRD. You may recall that when President Nixon announced his decision on the Safeguard program on March 14 he said that it was designed to fulfill three objectives:

1. Protection of our land-based retaliatory forces against a direct attack by the Soviet Union.
2. Defense of the American people against the kind of nuclear attack which Communist China is likely to be able to mount within the decade.
3. Protection against the possibility of accidental attacks from any source.

He also said that in any arms limitation talks with the Soviet Union, the United States will be fully prepared to discuss limitations on defensive as well as offensive weapons systems. However, during his press conference on that date a question was asked about our willingness to abandon our ABM program if the Soviets did likewise. The President replied that he thought that the Soviet Union would be

just as reluctant as we to leave their country naked against the Chinese Communist ICBM threat. I will put the exact question and answer in the record at this point.

Q. In any talks with the Soviet Union, would you be willing to consider abandoning the ABM program altogether if the Soviets showed a readiness to place limitations on offensive weapons?

The PRESIDENT. Mr. Scali, I am prepared, in the event that we go into arms talks, to consider both offensive and defensive weapons. As you know, the arms talks, that at least preliminarily have been discussed, do not involve limitation or reduction. They involve only freezing where we are.

Your question goes to abandoning. On that particular point, I think it would take two, naturally, to make the agreement. Let's look at the Soviet Union's position with its defensive deployment of ABM's. Previously, that deployment was aimed only toward the United States. Today their radars, from our intelligence, are also directed toward Communist China.

I would imagine that the Soviet Union would be just as reluctant as we would be to leave their country naked against a potential Chinese Communist threat. So the abandoning of the entire system, particularly as long as the Chinese threat is there, I think neither country would look upon with much favor.

Speaking for myself, I doubt very much that the Soviets would agree to tear down the ABM system they have already deployed around Moscow. Furthermore, as President Nixon pointed out, the Safeguard system is designed against three threats, and even if the Soviet threat to our strategic offensive forces is mitigated through an agreement with the Soviet Union we must still deal with the other two threats, particularly the Chinese. That is why we have developed three separate Phase 2 options—the first for the Soviet threat to our Minuteman, the second for the Soviet threat to our bombers, and the third for the Chinese threat to our cities. Either the second or the third option would provide protection against the possibility of an accidental attack.

In any event, Phase 1 is essentially an insurance program, and even that program will not be completed until mid-1974. In fact, Phase 1 involves only an additional outlay of about $400 million a year, on the average. This is a relatively small premium on such a crucial insurance program.

Mr. MAHON. I regret that it was not possible for all of the questions and all of the testimony to be on the printed record today, but some of these things could not be printed because it might be damaging to the overall best interests of the United States in relation to our international affairs.

(Discussion off the record.)

Mr. MAHON. On the record.

Mr. Secretary, and General Wheeler, we realize that there is no way for you to guarantee in advance that a complex weapons system will be totally effective. We realize the gamble that we take with weapons systems, and the ABM is no exception. This is the way I feel and I believe this is the way the country would generally feel about this matter. But there are certain chances we have to take in the interest of national security. If a lot of money is spent for programs that do not prove to be effective, this does not necessarily mean we should not have proceeded under our best judgment to produce such weapons systems. We have to accept the fact that in trying to

produce vitally needed weapons systems we take the chance of failure. I am speaking in a very general way.

As I see it, the greatest threat from the standpoint of annihilation of our society, or the society of the world, is the ballistic missile with nuclear warhead, the intercontinental ballistic missile, the medium range ballistic missile, and the ballistic missile from a ship, such as the Poseidon or Polaris type missile. The greatest military threat to our country is an attack by ballistic missiles. This is my greatest concern, speaking from a military standpoint. Other things can do us harm, but none can come near doing us more harm in the military sense than the ballistic missile. Therefore, from the standpoint of the survival of our country and the preservation of peace I cannot think of anything more important from the military standpoint for this country than the development of a credible ABM system. This is No. 1. We are very much concerned about it.

When you get this record, we want you to feel free to amplify responses which you have made, General Wheeler and Dr. Foster and Mr. Secretary, in order that we may have the best thinking of our military and civilian leaders on the ABM issue. The question is, how shall we react to the problem of the threat of a ballistic missile attack on the United States.

I would like to say, Mr. Secretary, we have spoken in glowing terms about your appearance here and we have been pleased to have you. We are pleased to have you here, General Wheeler, and Dr. Foster. These matters that we have discussed today supersede our personal relationships. The whole future of our Nation is involved and to a considerable extent the peace and security of the world. I would like to close the hearing on that note and thank you very much.

Secretary LAIRD. Thank you, Mr. Chairman.

General WHEELER. Thank you, Mr. Chairman.

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Remarks: Attached is the Subcommittee report of Laird and company's testimony of 22 May. Apparently the so-called "white paper" referred to in the press is in fact Laird's prepared statement beginning on page 5.

[redacted] 25X1A

John M. Maury
Legislative Counsel

cc: DDI, DDS&T, D/OSR, DDS

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