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# DEPARTMENT OF DEFENSE APPROPRIATIONS FOR 1971

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## HEARINGS BEFORE SUBCOMMITTEES OF THE COMMITTEE ON APPROPRIATIONS HOUSE OF REPRESENTATIVES NINETY-FIRST CONGRESS SECOND SESSION

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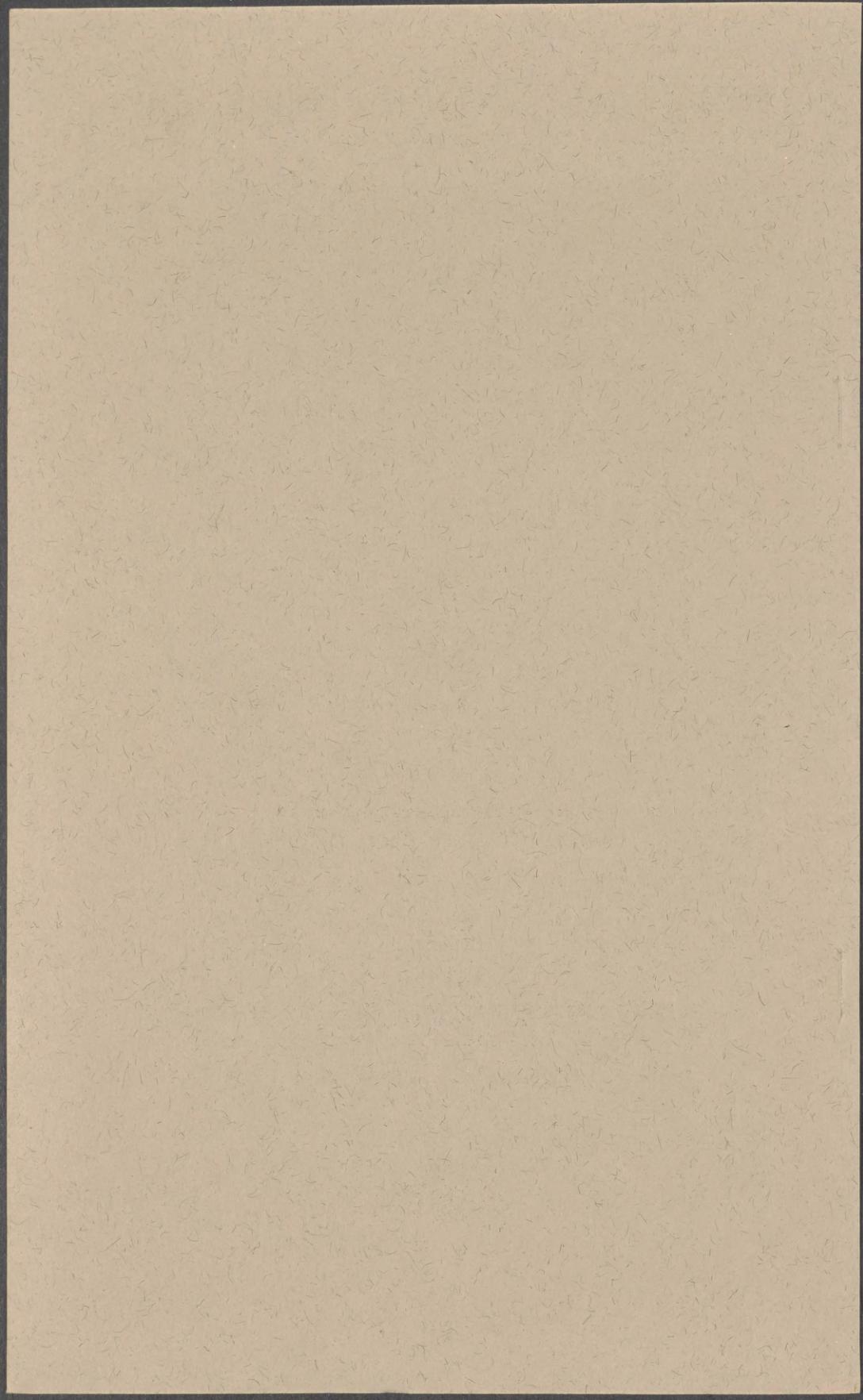
### SAFEGUARD ANTIBALLISTIC MISSILE SYSTEM

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# DEPARTMENT OF DEFENSE APPROPRIATIONS FOR 1971

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## HEARINGS BEFORE SUBCOMMITTEES OF THE COMMITTEE ON APPROPRIATIONS HOUSE OF REPRESENTATIVES NINETY-FIRST CONGRESS SECOND SESSION

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## PART 4 SAFEGUARD ANTIBALLISTIC MISSILE SYSTEM

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# DEPARTMENT OF DEFENSE APPROPRIATIONS FOR 1971

WEDNESDAY, APRIL 8, 1970.

## SAFEGUARD ANTIBALLISTIC MISSILE SYSTEM

### WITNESSES

HON. DAVID PACKARD, DEPUTY SECRETARY OF DEFENSE

HON. JOHN S. FOSTER, JR., DIRECTOR OF DEFENSE RESEARCH AND  
ENGINEERING

LT. GEN. ALFRED D. STARBIRD, SAFEGUARD SYSTEM MANAGER

C. ROBERT WIESER, ASSISTANT DIRECTOR (DEFENSIVE SYSTEMS),  
O.D.D.R. & E.

COL. PHILLIP N. LARSEN, U.S. AIR FORCE, SPECIAL ASSISTANT TO  
D.D.R. & E.

LT. COL. DONALD E. KENNEY, U.S. ARMY, SAFEGUARD SYSTEM  
OFFICE

### OPENING REMARKS

Mr. MAHON. This afternoon the committee will hear the Deputy Secretary of Defense, the Honorable David Packard, General Starbird, and Dr. Foster, in connection with the Safeguard antiballistic missile program.

Mr. Packard, I believe this is your first appearance formally before this committee, although you have been with us in various conferences with individual members of the committee from time to time. I must say you have been very helpful and very cooperative. We welcome you.

Dr. Foster is an old friend, and has been before the committee many times. We are glad to have him with us today.

General Starbird, who has also been before the committee previously and has been very helpful in our deliberations on the ABM program, is with us today. We are pleased to have you here again, General.

When the Secretary of Defense, Mr. Laird, was before the committee, we asked him a number of questions relative to the ABM program, but it appeared that the committee wanted to study your request in this area in more detail, and it was agreed at that time to ask you gentlemen to appear for a special hearing.

I have invited the members of the Subcommittee on Military Construction, headed by Mr. Sikes, to join us, since the ABM program impacts heavily on the military construction program.

I would hope that we might continue the hearing today until all of the questions of the members have been answered or commented upon. If this becomes impossible, it is my understanding that the witnesses can return on Friday morning. We cannot meet with them tomorrow since the full Appropriations Committee will be meeting both morning and afternoon to report out three bills.

We are pleased to have you before us. In my judgment, we will be talking about one of the most important, if not the most important and probably the most controversial appropriation matter which will come before the Congress this year.

Mr. Secretary, how would you like to proceed?

Mr. PACKARD. Mr. Chairman, I have a written formal statement here. Then I would ask Dr. Foster to report on technical progress and the threat, and General Starbird to give you a detailed picture of where we stand and what the program is.

Mr. MAHON. Very well. Mr. Secretary, since as I mentioned earlier, this is your first formal appearance before the committee we will insert in the record at this point your biographical sketch.

(The biographical sketch follows:)

David Packard was nominated as Deputy Secretary of Defense by President Richard M. Nixon on January 20, 1969, and confirmed by the U.S. Senate on January 23, 1969. He was administered the oath of office by Secretary of Defense Melvin R. Laird at a Pentagon ceremony on January 24, 1969.

Prior to assuming his new position, Mr. Packard was chairman of the board and chief executive officer of the Hewlett-Packard Co. of Palo Alto, Calif.

Mr. Packard was born in Pueblo, Colo., on September 7, 1912, and attended public schools there, graduating from Centennial High School in 1930. He entered Stanford University, Palo Alto, Calif., that year, graduating from the university with a Bachelor of Arts degree in 1934. He then began postgraduate study at the University of Colorado, subsequently entered business and then returned to Stanford University, receiving his electrical engineering degree from Stanford in 1939.

That same year, Mr. Packard and William R. Hewlett formed a company in partnership to design and manufacture electronic measurement instrumentation. The firm was incorporated in 1947 and Mr. Packard was elected president. He later was elected chairman of the board and chief executive officer in 1964. The company became an international organization with 17 manufacturing plants and more than 13,000 employees, producing more than 2,000 different test instruments and devices. It is a world leader in design and manufacture of electronic, biomedical, and analytical equipment.

At Stanford University, Mr. Packard received letters in football and basketball, served as president of his college social fraternity, Alpha Delta Phi, and held membership in Phi Beta Kappa, Tau Beta Pi and Sigma Xi. Continuing his interest in social and community activities during his years in private business, he has been a member and past vice chairman of the Business Council, member of the Chase Manhattan Bank International Advisory Committee, cochairman of the Stanford Mid-Peninsula Urban Coalition, fellow in the Institute of Electrical and Electronics Engineers and a member of the board of trustees of Colorado College, as well as Stanford University. Mr. Packard also served as president of the board of trustees of Stanford from 1958 to 1960.

Mr. Packard also has served as a director of several business organizations including Crocker Citizens National Bank, General Dynamics Corp., Stanford Research Institute, U.S. Steel Corp., California State Chamber of Commerce, Committee for Economic Development, National Merit Scholarship Corp., Universities Research Association, and San Francisco Bay Area Council. He also was a member of the advisory board of the Hoover Institute at Stanford and a member of the Committee for Support of American Universities.

Mr. Packard is the recipient of a number of awards including a silver anniversary All-America Award from Sports Illustrated magazine in 1958; the American Way of Life Award in 1963, presented annually by the Pueblo Sertoma Club to a Coloradan who has achieved national recognition for his public service; and the Herbert Hoover Medal in 1966, the highest honor awarded by the Stanford University Alumni Association. His honorary degrees are doctor of science from Colorado College in 1964 and doctor of laws from the University of California in 1966.

Mr. Packard was married April 8, 1938, to the former Lucile Salter of San Francisco and they have four children—David Woodley, Nancy (Mrs. Robin Burnett), Susan and Julie.

#### STATEMENT OF THE DEPUTY SECRETARY OF DEFENSE

Mr. MAHON. You may proceed with your statement.

Mr. PACKARD. Mr. Chairman, we welcome the opportunity to appear before you and your committee again this year to discuss the

Safeguard program. I would like, with your permission, to begin by presenting a formal statement. As you can see, Mr. Chairman, it is rather detailed. In the interest of conserving time, I propose to read only selected portions, and I request your permission to insert the complete text into the record.

The decision of the administration to request continuation of an orderly, phased, Safeguard program for ballistic missile defense—going beyond the congressionally approved phase I—was based on:

Careful consideration of the original objectives of Safeguard defense, and of the need to maintain the President's flexibility on future options either to curtail or expand the system.

The continued Chinese progress in nuclear weapons and the evolving and increasing offensive Soviet threat.

The options currently available, considering technical progress and budgetary factors.

The current international situation.

Our desire to continue emphasis on strategic *defensive* systems to assure the survivability of our deterrent rather than being forced immediately to deploy additional offensive weapons.

Our intent to maintain the flexibility to adapt our program to any agreement which might result from successful arms limitation talks.

#### SAFEGUARD OBJECTIVES AND THE DECISION

President Nixon, on March 14, 1969, announced these following defense objectives for Safeguard:

Protection of our land-based retaliatory forces against a direct attack by the Soviet Union.

Defense of the American people against the kind of nuclear attack which Communist China is likely to be able to mount within the decade.

Protection against the possibility of accidental attacks from any source.

He further elaborated that:

We will provide for local defense of selected Minuteman missile sites and an area defense designed to protect our bomber bases and our command and control authorities.

By approving this system, it is possible to reduce U.S. fatalities to a minimal level in the event of a Chinese nuclear attack in the 1970's, or in an accidental attack from any source.

Thus, rather than focusing on a single purpose, Safeguard has been and continues to be designed to achieve several objectives against a combination of Soviet and Chinese threats.

The President also stated that "this program will be reviewed annually from the point of view of (a) technical development, (b) the threat, and (c) the diplomatic context including any talks on arms limitation." He further stated that, "each phase of the deployment will be reviewed to insure that we are doing as much as necessary but no more than that required by the threat existing at that time."

In accordance with the President's commitment, the President's Foreign Intelligence Advisory Board completed its own review of the strategic threats we face. Information was developed on various alternative courses for consideration, and a thorough review of these alternatives has been completed by the Department of Defense, including the Joint Chiefs of Staff (JCS), by the President's Defense Program Review Committee, and by the National Security Council.

These reviews led to the President's decision that authorization for a further, carefully measured deployment should be requested in fiscal year 1971.

#### CURRENT STATUS OF SAFEGUARD

We are now proceeding with the initial congressionally approved increment (phase I) of two site complexes to be located in Minuteman fields near Grand Forks AFB, N. Dak., and Malmstrom AFB, Mont. The purposes of this phase I deployment, as stated last year are to: (1) Preserve the President's future options by establishing a minimum base for expansion if the threat requires it; (2) work out the problems that inevitably arise in any new major weapon system; (3) provide a beginning of protection for the Minuteman force against the mid-70's threat.

It will be remembered that a "Full-Phase II" Option, as described last year, would consist of 12 sites. The full system would provide protection for the continental United States against the Chinese ICBM threat and the threat of an accidental or unauthorized attack. It also would provide protection for our Strategic Air Command (SAC) bombers and the National Command Authority at Washington, D.C., and would add to the phase I defense of Minuteman. The coverage provided by the Spartan missiles included in phase I forms a part of the phase II area defense against the Chinese and provides a start on the defense of our bombers.

In other words, phase I provides some area coverage, but the full area coverage would not be available until the full phase II or 12-site program were installed. Phase I will be particularly useful for protection of some of the Minuteman fields and a start on the defense of our bombers.

There has been good technical progress during the past year, and at the same time the threat which was apparent to us last year has continued to grow.

The research and development portion of the Safeguard program is progressing satisfactorily. On Kwajalein Atoll in the Pacific, the prototype Missile Site Radar (MSR) began radiating power in September 1968 and has been under checkout since that time. It has met or bettered most of its design objectives and no serious deficiencies have been found. Beginning in March 1968, checkout of the MSR data processing system was initiated and successful operation of four data processing units in parallel has since been achieved. MSR software for the first part of the system test program has been completed and is being installed. Beginning in July 1969, tracking of local targets was accomplished with the initial software and, in December 1969, two ICBM's launched from Vandenberg AFB, Calif., were successfully tracked.

Also, at Kwajalein, the Spartan interceptor has satisfactorily completed the first phase of development testing. We have had 15 launches, of which 11 were completely successful, two partially successful, and two failures. The Spartan will now be integrated under MSR control in the system test program.

Our Sprint interceptor is being tested, also satisfactorily, at White Sand Missile Range, N. Mex. We have had 38 launches, of which 19 were completely successful, nine partially successful, and 10 failures.

Two of these failures occurred since September of 1969. These two failures, which occurred after a period of very high success, were diagnosed and engineering corrections proven by a recent flight, although the flight was only partially successful. The White Sands tests will be concluded shortly, and the system tests for Sprint started at Kwajalein.

The perimeter acquisition radar (PAR) is under fabrication and the first installation will be made at Grand Forks (the first Safeguard operational site). We have encountered no serious technical problems in this development, and we have confidence of meeting the presently scheduled equipment readiness date for the first PAR site. Certain important components are now being tested and, by September 1970, about 95 percent of the PAR components are scheduled for release for production.

The task of integrating all the major components into a system lies ahead. Missile integration tests will begin early this year at Kwajalein first with the Spartan and then with the Sprint under control of the MSR. Actual intercepts (without live warheads) will be conducted later against ICBM targets fired from Vandenberg AFB, Calif., and against Polaris targets fired from a Navy ship.

We have defined command and control requirements for the interface with the Air Force Minuteman equipment, and completed a study of the integration of Safeguard with the Continental Air Defense Command. No problems have been encountered.

Engineering design for the Grand Forks site has been substantially completed and the construction contract for \$137,858,850 was awarded on March 31, 1970, to a joint venture headed by Morrison-Knudsen of Boise, Idaho. There has been a delay in the equipment readiness date (ERD) of the phase I sites of 8 to 10 months. This delay is due in part to delay in initiating on-site activities while awaiting congressional action on phase I (3 months slip) and in part deliberate, to allow a less compressed construction schedule (5 to 7 months). Procurement of long lead-time production items for phase I sites is underway.

#### THREAT CHANGES IN THE LAST YEAR

In this year's Safeguard review, the developments in the threats that have occurred in the last year since the administration decided to undertake phase I have been carefully evaluated. The following discussion summarizes what has happened since February 1969 in this area:

1. Communist China has continued to test nuclear devices which are expected to be suitable for ICBM application by the time their missile has been developed. There is new evidence that they continue to advance toward an ICBM capability, but the earliest date by which they could achieve an initial ICBM capability now seems to be in the early part of 1973. This represents about a 1-year slippage in last year's estimated earliest capability. It is more likely, however, that their initial capability will be attained by the mid-1970's. If the initial Chinese ICBM capability were achieved by early 1973, they might have between 10 and 25 operational ICBM's on launchers by 1975. But, in the more likely event that their initial capability comes later, the achievement of a force of this size would slip accordingly.

It is important to note that even if the Chinese deployment does not attain a capability until 1976, our Safeguard area coverage (if authorized) will still not be fully complete by that time.

2. The Soviet buildup of SS-9's deployed or believed to be under construction had passed 275 in February 1970 as compared to about 230 last spring. Development and testing of the three-reentry vehicle SS-9 configuration continues. These tests have not demonstrated to us the flexibility necessary to target each warhead against a Minuteman silo but it is agreed within our intelligence community that the Soviets are likely to develop multiple independent reentry vehicles (MIRV) in the next few years.

3. The number of SS-11's operational or under construction, estimated at about 700 last Spring, was more than 800 in February 1970. Since last Spring, Soviet testing of their smaller SS-11 ICBM suggests that certain improvements probably aimed at bettering their penetration capability, are under development. If the Soviets go on to develop a more accurate SS-11 reentry vehicle and an improved guidance system, as is possible by the mid-1970's, the SS-11 could become effective against our Minuteman silos in addition to its present effectiveness against the Safeguard radars.

4. Production of nuclear-powered ballistic-missile submarines is continuing at two Soviet shipyards which together can produce six to eight boats a year. Several of these Polaris-type vessels, each with 16 missiles are now believed to be operational.

I would like Dr. Foster to discuss the technical progress of the system at this time.

Mr. SIKES. Very well. You may proceed.

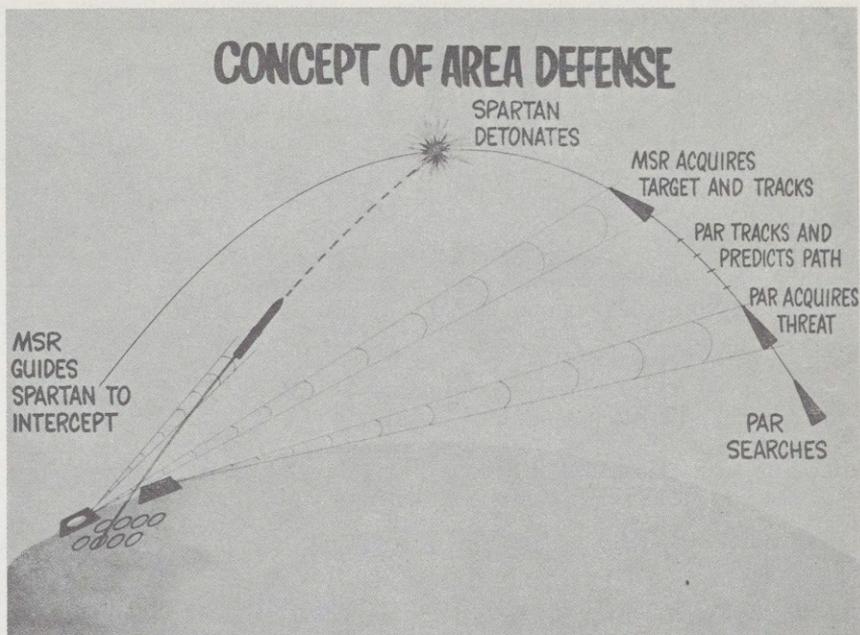
#### STATEMENT OF THE DIRECTOR, DEFENSE RESEARCH AND ENGINEERING

Dr. FOSTER. I would like to describe briefly the technical progress. I will show you a film of system components and actual firings of the Spartan and Sprint missiles. Following that I will describe the threat as we see it today, and then show you some scale models of Soviet weapons and U.S. weapons.

#### CONCEPT OF AREA DEFENSE

(Slide No. 1) This first slide may help you to recall one of the basic concepts of the Safeguard system. There are two concepts. First is the usage for area defense and the second is for use in terminal defense.

This slide shows the area defense concept. We call it area defense because one battery covers a large oval area on the ground. This is as much as 900 miles long and 600 miles wide. In this concept the incoming missiles and reentry vehicles come over the horizon of the perimeter acquisition radar, PAR, and are normally acquired as soon as they come in the field of view. The range is then about \_\_\_\_\_ miles and at that time the radar can detect and track the incoming vehicle. Within a minute or two, this radar can determine the nature of the object, where it is going, and where it came from. So we know \_\_\_\_\_ whether the object is a threat or just one that has been or will remain in space for some time.



As soon as this vehicle is detected and tracked, information is sent to the missile site radar (MSR), which is located nearby. It is the MSR that launches the Spartan missile from a silo and guides it to intercept the incoming reentry vehicle.

As the Spartan missile comes to the point of closest approach to the incoming reentry vehicle, the MSR commands the detonation of a thermonuclear warhead inside the Spartan missile. The detonation results in a yield of about \_\_\_\_\_ of thermonuclear energy. This yield is released at a very high altitude, at least \_\_\_\_\_ above the earth. Even a yield of \_\_\_\_\_ at that altitude causes no significant damage to personnel or property on the ground.

#### SPARTAN GROUND EFFECTS

Mr. FLOOD. "Significant"? That is a vague word.

Dr. FOSTER. Yes, sir. It means that the people on the ground and located under the burst could notice a sense of heat on their faces. There will be a flash of light, especially if it is a clear, dark night. But there will be no people burned; no houses or fields will be set afire.

Mr. FLOOD. Is this directly under the point of impact, or over the entire area?

Dr. FOSTER. This is in the area directly under it. People could see it for \_\_\_\_\_ miles or more. They would not feel the thermal energy at distances beyond \_\_\_\_\_ miles at the most.

Mr. FLOOD. What do you mean by \_\_\_\_\_ miles?

Dr. FOSTER. I mean that distance from the point beneath the warhead.

Mr. FLOOD. Then it could be felt and sensed, to a degree, ——— miles in an arc from directly under the point of contact?

Mr. PACKARD. A circle; yes.

Mr. SIKES. At what distance from the point of contact could there be serious effects, to individuals on the ground?

Dr. FOSTER. The minimum intercept altitude to which the Spartan will be restricted will not permit its detonation at altitudes which could result in serious ground effects. If, for example, a warhead of this yield were allowed to detonate at an altitude of perhaps ——— feet, there could be serious damage to people and property on the ground.

Mr. SIKES. Over what area?

Dr. FOSTER. Out to a radius of about ——— miles.

Mr. SIKES. Would it cause blindness?

Dr. FOSTER. Yes, for individuals looking directly at the point of detonation. However, I would like to reemphasize that Spartan will not be detonated at these low altitudes which could cause significant ground effects.

Mr. SIKES. At ——— miles, rather than ——— feet——

Dr. FOSTER. We have put it at what we consider to be a safe minimum altitude above ——— feet. Of course, this defensive operation is relatively safe compared with the results if the incoming warhead should reach its target.

Mr. FLOOD. Of course. When you said a circle, Mr. Secretary, that would be ——— miles in each direction? From a point directly under it, there would be a feeling of some kind ——— miles in all directions?

Mr. PACKARD. It would be something like a warm burst of sunshine. You would feel heat just as if the sun came out on a cold day, you would feel the warmth from it.

Mr. ANDREWS. He is interested in the distance out from directly underneath the burst.

Mr. FLOOD. A circle would be ——— miles each way.

Mr. SIKES. I am not sure that we have made clear what the damage would be to people on the ground immediately underneath the burst and for  $x$  number of miles from the burst. Possibly it would be best if you prepared a chart or a summation for the record on this.

Mr. PACKARD. I think that it would be well to do that.

Mr. SIKES. Otherwise, this question will come back to haunt us.

Mr. PACKARD. There is no damage to people, buildings, or material on the ground. There are adequate safety devices in the system so that the explosion cannot occur at an altitude low enough to cause such damage. I think we should give you the detail.

Mr. FLOOD. Make your terminology as explicit as you can. Don't use terms of degree like we are using here.

(The information follows:)

With regard to your questions on Spartan ground effects for a burst at its lowest altitude of employment, the effects on the ground will be negligible. Past high altitude tests have shown that pressures at ground zero (the point directly below burst) for a Spartan warhead will be ——— negligible (well below the level at which windows are broken.) The nuclear radiation dose at ground zero is ——— also considered negligible (well below safety standards for an industrial

dose). Thermal effects, in calories/square centimeter, which govern the minimum height of burst for Spartan are given below for various distances from ground zero (GZ). Even at ground zero the maximum thermal effect ———. For typical intercept altitudes the effects on the ground would be even less than those shown.

(Additional classified material was furnished separately to the committee.)

#### SPARTAN ARMING SYSTEM

Mr. WYMAN. Can you tell us what the fail safe device is, to make certain that it could not explode accidentally in the atmosphere?

Dr. FOSTER. Yes. There are a number of safety devices. Let me indicate the kind of safety devices we have.

First of all ———

Second, it has to ———

Third, when the interceptor is launched the power which would permit the warhead to detonate is held away from the warhead by a series of safety switching arrangements, all of which must be sequentially closed before the weapon can be armed and power be delivered to fire the warhead. Each sequential switching operation corresponds to some prescribed normal missile operation or environment and cannot occur unless or until these proper conditions are satisfied. Until the actions which permit arming have been accomplished and the warhead armed, it is nuclearly inert. There are design features in the missile and in the radar system which prevent the closing of these switches and delivery of the fire signal unless the interceptor has reached an altitude which is safe to people on the ground, the radar has tracked the target and established the intercept point, and the interceptor is on course to a position near that point. I would like to reemphasize, only after a safe altitude is reached can the necessary commands to arm and fire be given.

In addition, we have designed into the system a capability whereby all missiles in flight are compared continuously against the desired trajectory. In the event a missile malfunctions in flight and leaves the prescribed course, a command would be sent to destroy harmlessly the missile. Destruction would be by conventional explosive which would render the warhead inoperative and break up the interceptor.

Those are the kinds of safety features that are built into the warhead.

#### POSSIBILITY OF BLINDNESS RESULTING FROM SPARTAN DETONATION

Mr. SIKES. It has been alleged that this burst could cause blindness at a very considerable distance. We want that clarified for the record. Otherwise, we will certainly have problems with this testimony.

Mr. FLOOD. With reference to the altitude of the burst.

Mr. SIKES. You may provide that for the record.

(The information follows:)

With regard to eye damage, if a person were outside and, under conditions of excellent visibility, were looking directly toward the point of burst, he might suffer some vision impairment in the area of acute, fine vision. If a burn were located in the peripheral vision area, it would not generally be noticeable except by an ophthalmologist's careful examination. Spartan intercepts will be restricted to altitudes well above those altitudes at which permanent blindness could occur.

Dr. FOSTER. Let me give you a very simple explanation of why one need not have a great deal of concern. In 1961 and in 1962, the Soviets tested very high-yield warheads above the atmosphere at their Sary Shagan missile site, and they did it on a clear day.

Mr. FLOOD. Well? Don't let that hang in the air. So what happened?

Dr. FOSTER. There was no evidence of injury to people anywhere in the country. They did it over their own country.

Mr. ANDREWS. What is the minimum altitude at which there would be no damage to people on the ground?

Dr. FOSTER. It is ———. We detonate above that altitude.

Mr. ANDREWS. If you got below ——— you would have damage?

Dr. FOSTER. You would have increasing levels of damage.

Mr. ANDREWS. Of course, the lower you got, the more damage.

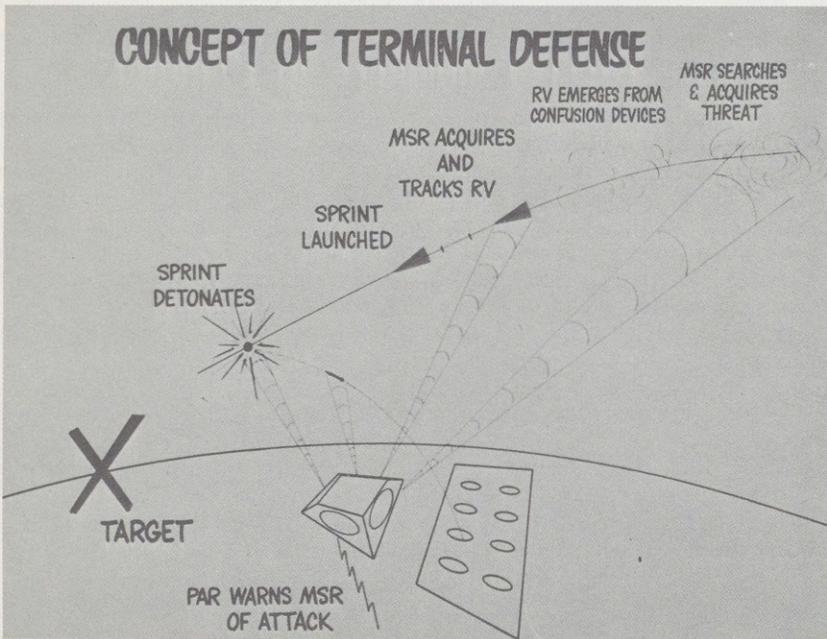
Dr. FOSTER. Exactly.

Mr. FLOOD. In direct ratio?

Dr. FOSTER. That is correct.

### CONCEPT OF TERMINAL DEFENSE

Dr. FOSTER. (Slide No. 2) The terminal defense concept relies on the atmosphere to filter out the chaff and debris from the incoming warhead and, in particular, it slows down the objects that are large



and very light weight much more rapidly than it does the heavy, slender bodies. So, the pieces of chaff or debris, tankage, and so on, hit the top of the atmosphere at the same time as the reentry vehicle, but shortly after that, the lighter objects are slowed down. The radar

can detect which ones are slowed and which are not. By the time the reentry vehicle has gotten down to altitudes of \_\_\_\_\_ feet, it is easy for the radar to discriminate the reentry vehicle from the lighter weight objects.

At that stage, the missile site radar that is doing the tracking will order the Sprint missile to leave the silo and will guide it to intercept the incoming warhead.

#### ABILITY TO DISTINGUISH BETWEEN SATELLITES AND MISSILES

Mr. FLOOD. I am concerned about this. We divulge knowledge with great elan every time we send spacemen into space. The Russians, for reasons best known to themselves, do not. We, of course, know where our pigeons are, and we know where theirs are. Even though we do not know they have shot them, sooner or later somebody picks them up and we know it is a space thing of some kind. Can we identify that this is not a missile, a dangerous weapon?

Dr. FOSTER. Yes, sir. Let me explain.

Mr. FLOOD. In other words, I would not want to hit a Russian space vehicle.

Dr. FOSTER. Quite right.

There are two important things. As indicated on the earlier slide, as soon as the perimeter acquisition radar picks up an object coming over the horizon and tracks it for a minute or two it can tell not only where it is going but where it came from.

Mr. FLOOD. Even so, suppose a missile comes from Russia?

Dr. FOSTER. I understand.

Mr. FLOOD. A thing comes from Russia. This gimmick of yours says this came from point A in Russia or point B in Russia. We have known for years those are Russian space points of exit, but we do not know whether it is three men going to the moon or a nuclear warhead, do we? How are you going to tell that? That is dangerous.

Dr. FOSTER. Let me tell you about that, sir——

Mr. FLOOD. You see my great concern.

Dr. FOSTER. Certainly, sir.

Mr. FLOOD. We do not want, by accident or intent, to knock down a flight to the moon or Venus from Soviet Russia.

Dr. FOSTER. This system won't shoot at a vehicle that is not coming in to land on the United States.

Mr. FLOOD. We have an international agreement that in case something goes wrong with a space flight to the moon or Venus, it can come down anyplace.

Dr. FOSTER. What I have described is a \_\_\_\_\_ the radar tells us whether or not the vehicle is going to land in the United States.

Mr. FLOOD. I am sure you know my concern.

Dr. FOSTER. Yes, sir.

Mr. FLOOD. You are satisfied you have the proper answer?

Dr. FOSTER. Yes, sir.

Mr. SIKES. Not only do we have a built-in method of determining whether it is friend or foe or neutral, but may I assume if the Russians had one that got out of kilter they would tell us quickly?

Dr. FOSTER. I would hope so.

## LOSS OF MISSILE DETECTION ABILITY

Mr. SIKES. I regret that we have interrupted you so frequently, but let me ask you this question: If the \_\_\_\_\_ before an attack comes, then what?

Dr. FOSTER. Then we have two bits of information. First of all \_\_\_\_\_ threat-detection capability; namely, our over-the-horizon forward-scattering ground based radar system that covers the Soviet Union.

Mr. PACKARD. In addition to that, as you will see here in the picture, there is quite a little bit of time to evaluate the tracking information. It takes quite a while from the time the object is first detected by the PAR until the intercept actually occurs.

Mr. FLOOD. What do you mean by quite a little while?

Dr. FOSTER. From the PAR alone you have \_\_\_\_\_ minutes of decision time before launching the Spartan. From our other warning systems, we would have considerably more time \_\_\_\_\_.

Mr. PACKARD. To evaluate the information.

Mr. FLOOD. As far as you are concerned, that is plenty of time.

Mr. PACKARD. I do not think there is a problem here. I think this can be taken care of adequately. You are concerned if you see only one vehicle, as is likely to be the case if the object is a space vehicle. The problem is one that can and will be taken care of.

Mr. SIKES. You have discussed area defense, and now you are prepared to talk about terminal defense. Will you proceed?

Dr. FOSTER. Certainly, sir.

In the terminal defense mode, then, the Sprint missile is launched and attacks the target at typical altitudes from \_\_\_\_\_ miles up to \_\_\_\_\_ miles. We are talking about \_\_\_\_\_ to \_\_\_\_\_ feet. That is in the atmosphere, and we cannot use anything like \_\_\_\_\_ of yield. In fact, we use about \_\_\_\_\_. So, the warhead yield is \_\_\_\_\_ times smaller than Spartan.

This yield is selected so we can intercept at an altitude as low as \_\_\_\_\_ and, again, not cause significant personal or property damage.

## SPRINT GROUND EFFECTS

Mr. SIKES. Will you prepare a table which shows the degree of damage that could be sustained? I presume you are telling us that at a much nearer range you do not need the charge to destroy the target that you would at greater range.

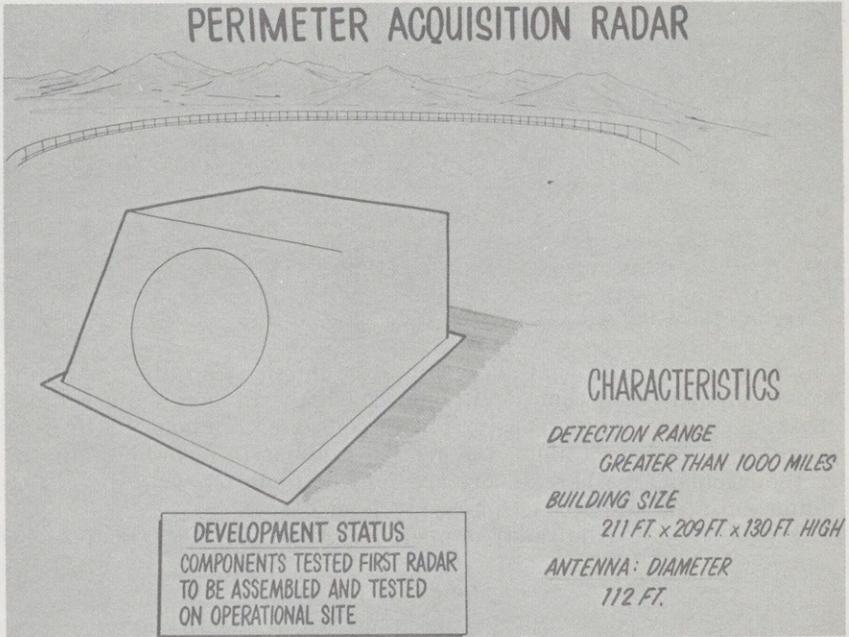
Dr. FOSTER. That is exactly the point. The reason is simply that the flight distances are much shorter, on the order of \_\_\_\_\_ to \_\_\_\_\_ miles, and the miss distances are much smaller—hence, the kill can be achieved with a much lower yield.

(The information follows:)

With regard to SPRINT ground effects for a burst at its lowest altitude of employment, the effects on the ground are relatively insignificant. Blast pressures at a point on the ground directly below the burst will be similar to sonic boom conditions, with no hazardous blast effects. Even under conditions of excellent visibility, the thermal effects will result in less than a mild sunburn to bare skin. The nuclear radiation on the ground directly below the burst that would be received by an exposed individual will be considerably less than the 25 rem recommended as an approximately upper limit for the civil population for other than wartime conditions by the National Council on Radiation Protection and Measurement in the National Bureau of Standards Handbook 59. Of course, for typical intercept altitudes the ground effects would be even less than those shown in classified table below.

(Additional classified information was furnished to the committee.)

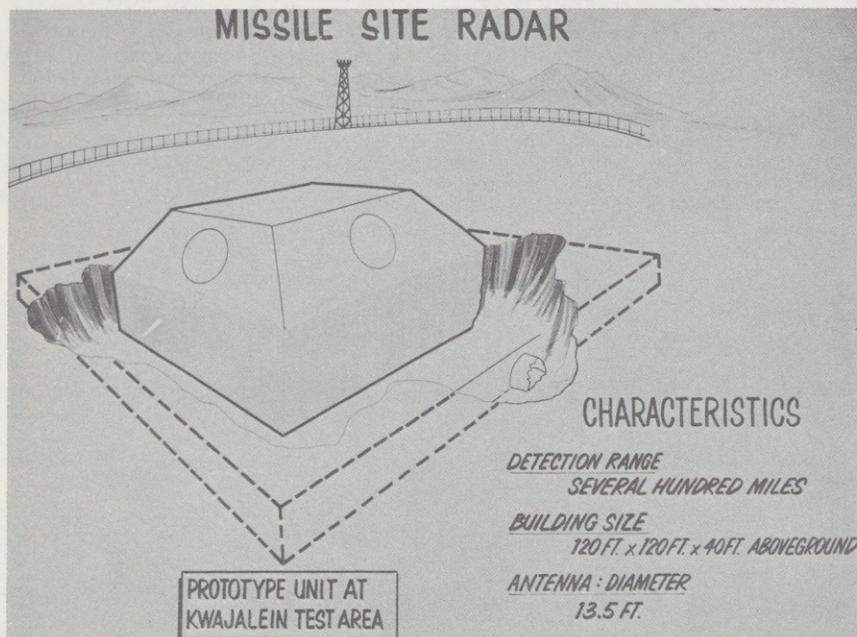
### PERIMETER ACQUISITION RADAR



Dr. FOSTER. (Slide No. 3) The next few slides show some of the components. This is the perimeter acquisition radar. It is a rather large structure, about 200 feet on a side and over 100 feet tall. The energy is radiated and received by this circular space which is 116 feet in diameter. It can handle many hundreds of objects simultaneously.

Let me describe the status of the par. This is a state-of-the-art radar. We have built radars like this in the past. There is one down at Eglin Air Force Base. We expect by the end of this year to have 95 percent of the engineering drawings released for production of this radar, the first of which is to be placed at Grand Forks. Mockups are being made at the General Electric plant, and components are being installed and checked. We see no serious difficulty with the installation of this radar at Grand Forks.

## MISSILE SITE RADAR



(Slide No. 4) The next slide shows the missile site radar, a significantly smaller radar than PAR, but one which can handle several tens of interceptors simultaneously. The dimensions are about 120 feet on a side, and the height above the ground is about 40 feet. The radiator is the circular area here. There are four of them on each MSR. The diameter of the radiator in this case is about 13 feet.

A prototype of this radar is operating today at Meck Island.

## MECK ISLAND FACILITY

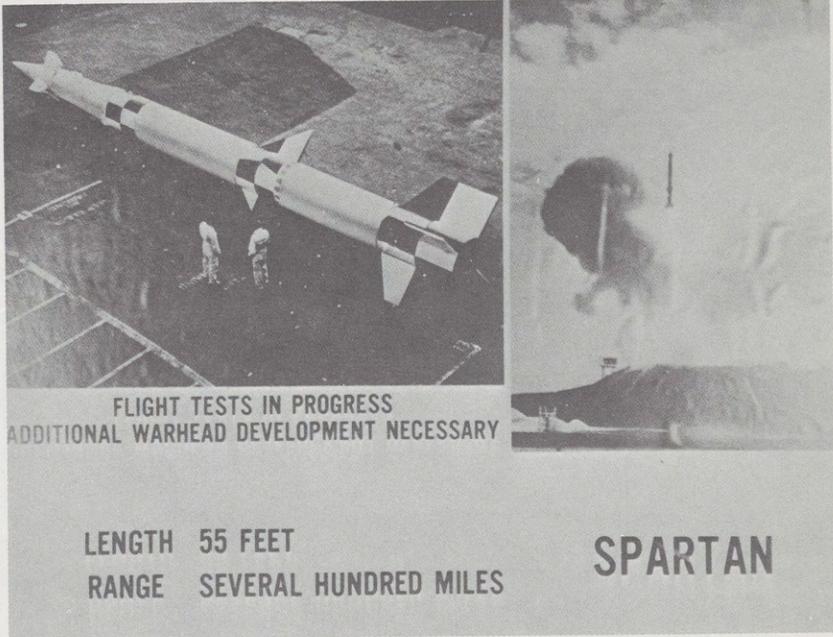
(Slide No. 5) The next slide shows you a picture of the Meck Island site. Here is the radar facility. The building was constructed at Kwajalein above the ground because there are only 2 feet between the water level and the surface of the coral.

(Slide No. 6) Inside we have consoles for use in operating the radar. These consoles are currently operating with the R. & D. software. With this software and these consoles, the radar in the last several months has been able to detect and track satellites as they came over the horizon.

Also, in December this MSR detected and tracked ICBM's fired to the Kwajalein complex from Vandenberg Air Force Base in California.

We have four separate computer systems that have already been integrated and are operating in parallel at this facility. That was one of the challenges that we had to face last year.

### SPARTAN MISSILE



(Slide No. 7) Turning to the two missiles, this is the larger one, the Spartan, about 55 feet long, with a weight of 33,000 pounds. It has a maximum range of about \_\_\_\_\_ nautical miles. A typical engagement would occur within the range of \_\_\_\_\_ miles.

The warhead for Spartan has been tested in a reduced yield form. We look forward to a test of a warhead yielding \_\_\_\_\_ and in \_\_\_\_\_

Mr. FLOOD. Why must the warhead be nuclear? Why can it not be nonnuclear; conventional?

Dr. FOSTER. The problem there is that, at these long ranges, several hundred miles, we cannot be sure of getting close enough that, with a few thousand pounds of conventional explosives and pellets, there would be a high probability of destroying the incoming object. It is just a question of distance.

We would expect to miss here by a distance of \_\_\_\_\_ maybe as much as \_\_\_\_\_.

Mr. ANDREWS. What would be the effective kill range?

Dr. FOSTER. I think that \_\_\_\_\_ feet is the range you need if conventional high explosives were used.

Mr. ANDREWS. I am talking about nuclear.

Dr. FOSTER. That depends on how hard the incoming vehicle is. Generally, I think Spartan could kill up to a radius of perhaps \_\_\_\_\_ miles.

Then too, one reason we picked a \_\_\_\_\_.

Let me give you an example. If the SS-9 were used to direct three reentry vehicles toward three separate Minuteman silos, the largest distance between any two of these vehicles would be something like \_\_\_\_\_ miles. So \_\_\_\_\_.

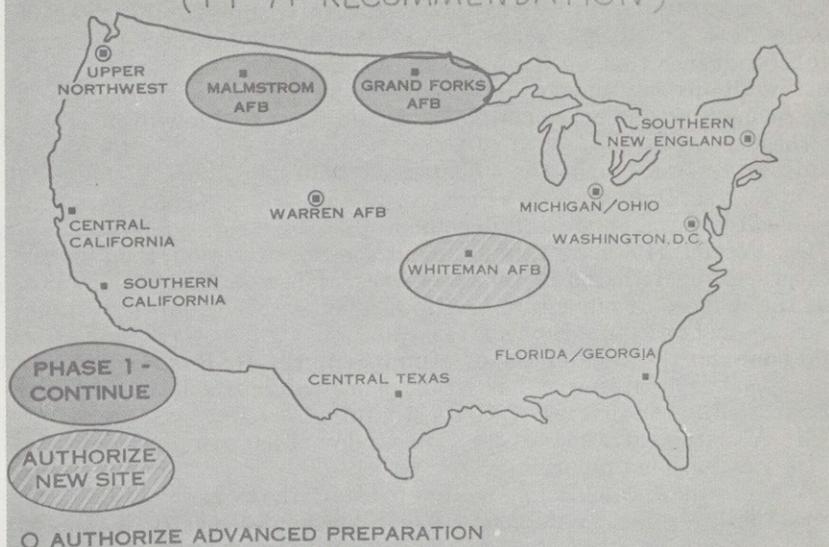


#### SPRINT MISSILE

(Slide No. 8.) The SPRINT missile is much smaller, about half the length and about one-fifth the weight of the Spartan. It has a range of \_\_\_\_\_ miles or so and operates at altitudes up to 100,000 feet.

Since the beginning of 1969, we have had seven successes, three partial successes, and two failures in SPRINT firings. We have demonstrated the full maneuverability of the missile. It must be capable of a \_\_\_\_\_ g. turn. We have turned it one way at \_\_\_\_\_ g. and back the other way at \_\_\_\_\_ g., \_\_\_\_\_ in a single flight. So it has performed remarkably well. It is a very advanced missile.

# MODIFIED PHASE II SAFEGUARD DEFENSE (FY 71 RECOMMENDATION)



## TWELVE PROPOSED SITES

(Slide No. 9.) Here are the 12 sites that have been chosen to provide the area coverage of the continental United States. These sectors shown here represent the limits of the coverage provided by the PAR, which is shown by this bar symbol. In the corners we have two faces of the PAR that provide coverage over considerably more than \_\_\_\_\_ degrees. In this way, with the five northern sites, we cover the North portion of the United States, and with the remaining sites we cover the east and west coasts and the South.

Mr. FLOOD. Do the sites overlap in such a way that you have a perimeter coverage?

## BLACKOUT PREVENTION

Dr. FOSTER. That is exactly the point. You see in the northern tier, for example, we have multiple coverage from the several PAR's. That is an important aspect of the problem of whether or not we will be blacked out by early detonation of incoming reentry vehicles. We are concerned about the fact that the early warning radars use generally low frequencies, and \_\_\_\_\_.

Mr. PACKARD. This would be the result of a high-altitude burst, if they detonated a warhead at a high altitude.

Dr. FOSTER. Yes, sir, in a deliberate attempt to cause a blackout.

Mr. MINSHALL. If it were a deliberate attempt, do you not think they would have more than one high-altitude burst, and how will you overcome that?

Dr. FOSTER. We have investigated that kind of attack.

If an attacker were to rely on blackout, he would have to have certain knowledge that enough of his warheads would arrive and

function to assure penetration. Unless he is assured of a perfectly reliable precursor sequence of approximately \_\_\_\_\_ warheads, then a radar would see through the hole that is exposed. Allowing for less than perfect reliability on \_\_\_\_\_ consecutive bursts, the attacker would have to allocate several times that many warheads to have high confidence that he would black out one PAR. In order to black out simultaneously the entire 5-PAR northern tier in the full phase 2 deployment, a conservative attacker would have to allow over \_\_\_\_\_ warheads.

Mr. MINSHALL. Do they have that capability?

Dr. FOSTER. It depends on which enemy it is.

Mr. MINSHALL. I am talking about the Soviets right now.

Dr. FOSTER. If we are talking about the Soviet Union, then we are concerned about the effectiveness of the defense of Minuteman silos, not the defense of our cities. We do not believe we could defend our cities against an all-out Soviet attack.

With regard to the defense of Minuteman, the MSR is the primary radar that is used and it has a sufficiently high frequency that the blackout effects on that radar would be minimal.

Mr. MINSHALL. Of course, the Chinese do not have this capability.

Dr. FOSTER. That is correct.

When we make calculations on how to attack the Soviet radars, which are actually \_\_\_\_\_, we do not plan on a blackout attack. It is just too risky. We use an attack that exhausts their interceptors. That is the insurance you need to have for assured destruction.

Mr. SIKES. How do we know that our \_\_\_\_\_?

Dr. FOSTER. \_\_\_\_\_.

#### MODIFIED PHASE II PLAN

(Slide No. 10) This is a slide that shows the Phase I program approved last year, deployment at Malmstrom and Grand Forks.

(Slide No. 10a) This year the administration is requesting four things:

First, continuation of the Grand Forks and Malmstrom deployments.

Second, the addition of Sprint missiles to those sites. The original two sites with their phase 1 complement of Sprints represents less than half of the phase 2 level planned for those sites. So, we bring Malmstrom and Grand Forks up to their phase 2 full strength complements.

Third, we would put in a defense at Whiteman Air Force Base. That would be the third Minuteman wing to be defended.

Then finally, we have a request for the advance preparation at five more sites, including the Warren Air Force Base, which is also a Minuteman wing.

Mr. FLOOD. Whiteman would be in the same status as the other two now?

Dr. FOSTER. A year from now; yes, sir.

Mr. FLOOD. The original two would be improved?

Dr. FOSTER. They would be farther along. There would be advance preparation for the Warren Base and also the three northern areas: northwest, the Michigan/Ohio area, and southern New England.

Also, there is the request for advance preparation for the National Capital Area site.

## JUSTIFICATION FOR MODIFIED PHASE II SAFEGUARD

- CHINESE THREAT IS CONTINUING
- SOVIET THREAT IS GROWING
- PROVIDES FLEXIBILITY TO MEET CHANGES  
IN THE THREAT
- RESPONDS TO THREAT AT MINIMUM COST
- PROVIDES A NON-PROVOCATIVE, DEFENSIVE  
MEASURE
- TECHNICAL PROGRESS CONFIRMS  
CONFIDENCE IN SAFEGUARD SYSTEM

### GROUND EFFECT OF SPARTAN DETONATING AN INCOMING MISSILE

Mr. MINSHALL. You said earlier that the effect of a ——— blast at altitudes of ——— miles-plus would be only a heat effect on people on the ground.

Dr. FOSTER. That is correct.

Mr. MINSHALL. Assume for a moment that something goes awry and the ——— defensive missile explodes a 25 megaton offensive missile, what would be the effect on the ground now? Let's assume it can happen.

Dr. FOSTER. I have spent several years trying to design a system in which a warhead would go off when there was a nearby burst. The difficulty, sir, is the following: If the incoming warhead is approached by a defensive missile which is detonated from a short distance away, the defensive missile breaks up the incoming vehicle before it has a chance to operate.

Mr. MINSHALL. But let us assume that does not work out that way, and you have a ——— megaton explosion.

Dr. FOSTER. Suppose that the defensive missile does not come close enough to break up the incoming vehicle. If it does not affect reentry vehicles fuzing and firing mechanism—and if there is no further defense—that reentry vehicle will go down and detonate either on the surface or at an altitude of a few thousand feet, and catastrophic damage will result.

Mr. MINSHALL. What would be the effect on the ground, of a ——— megaton missile at an altitude of ———?

Mr. PACKARD. I think there are two answers to this.

Mr. MINSHALL. It is a hypothetical question.

Mr. PACKARD. One answer is that it is better to explode the warhead at high altitudes than near the ground. I think we had better give you some detailed calculations on this, and we can give you that information for the record.

Dr. FOSTER. If that occurred and there were a ——— megaton yield at an altitude of ——— there would probably be fires started on the ground.

Mr. MINSHALL. Can you get some more information on that for us?

Mr. PACKARD. We will evaluate that for you, yes.

Dr. FOSTER. Normally, the offense planner, the designer, would not design a fuzing system to operate that way.

Mr. MINSHALL. We are not dealing with normal people, either.

Dr. FOSTER. I think they are normal and rational when they design their weapons.

(The information follows:)

EFFECT ON THE GROUND OF DETONATION OF LARGE SS-9 25 MEGATON  
WARHEAD

Although the ground effects of such a large yield at high altitude are somewhat uncertain, it is clear that there would be no blast or nuclear radiation damage. Thermal radiation could range from 0 to  $10^{ca1/cm^2}$ , depending upon cloud cover, smoke, haze, and so forth. The upper range of  $10^{ca1/cm^2}$ , is above the threshold for ignition of dry forest products, newspaper and for third degree bare skin burns. Eye burn would occur over a wide area for those who happened to be looking directly at the burst in clear weather.

Although these effects are serious, they are many orders of magnitude less severe than would be experienced if the interception had not occurred and the SS-9 had detonated at normal altitude.

Dr. FOSTER. I would like to show you a short film of what this system looked like at the time of the quarterly report last fall.

FILM OF SOVIET SS-9 MVR LAUNCH

Dr. FOSTER. I would like now to show you another film. You will see the SS-9 triple RV come into the atmosphere in a visual sighting. You will see, first, three objects coming into view. ———. Then, above them the three reentry vehicles themselves will come into sight ———. Up here you will begin to see the three reentry vehicles as they come into sight entering the atmosphere.

As they descend, they will appear to get farther apart, but, of course, they are just getting closer to you.

Mr. MINSHALL. Is that normal speed or slow motion?

Dr. FOSTER. That is slowed down by a factor of about 15. This whole thing takes place in about a minute. ———. This one is going out of view. The other two are still on the screen.

That is just to give you some understanding of what is actually going on out in the middle of the Pacific, ———.

REVIEW OF THE THREAT

Mr. Chairman, with your permission, I would like to go off the record and ask any individuals here who are not cleared for ——— to leave the room.

Mr. MAHON. All members of the Committee are cleared.

# THE THREAT

		ESTIMATED DATE AS OF FEB 70
CHINESE ICBM	FIRST TEST	1970
CHINESE ICBM	EARLIEST OPERATIONAL DATE	1973
SOVIET ICBM's	OPERATIONAL	OVER 1100
SOVIET SS-9's	OPERATIONAL OR UNDER CONSTRUCTION	OVER 275
SOVIET Y CLASS SUBMARINES WITH SLBM's		OVER 9

(Off the record.)

## OVERKILL CAPABILITY

Mr. SIKES. May I have for the record something in line with the discussion we had a few minutes ago on relative capacity for overkill? We in this country have not continued to add to our strike capability because it was felt an overkill was not needed. Information that has been made available to this committee would indicate the Soviets are continuing to build considerably beyond the kill capability at which we felt we could safely cease to add to our own numbers of missiles.

I would like to have something for the record to show what rationale you place on their overkill capability, why they are increasing numbers of missiles as they appear to be doing.

You may provide it for the record.

Mr. PACKARD. Secretary Laird is scheduled to make a speech in a week or so, and I believe his remarks will be extremely pertinent to that subject. As soon as the text is released, we will provide a copy for the record.

(The speech follows:)

ADDRESS BY THE HONORABLE MELVIN R. LAIRD, SECRETARY OF DEFENSE, AT THE ANNUAL LUNCHEON OF THE ASSOCIATED PRESS, WALDORF ASTORIA HOTEL, NEW YORK CITY, N.Y., MONDAY, APRIL 20, 1970

I was particularly pleased when your president, Paul Miller of Gannett newspapers, called me on a Saturday morning several months ago to invite me to speak to the annual luncheon of the Associated Press on the subject of

the strategic balance. I told him that I regarded this forum as particularly appropriate to express my views on the need to make available to the American people additional information regarding national security.

When I assumed office 15 months ago, I immediately established as a top priority goal the restoration of credibility in the Department of Defense. Since then we have attempted to follow President Nixon's stated desire to make more information available to the American people.

The editors of the Associated Press and all members of the communications media in this country have a deep interest in this subject. I pledge to you that we shall continue to devote maximum attention to reducing and hopefully eliminating overclassification in the Department of Defense. And, we will provide all the information we can within the limits of national security, consistent with the safety and legal rights of our citizens.

This open news policy has brought about significant progress in at least five major areas where information was previously withheld from the American people.

1. Previous policy was to restrict public discussion of prisoner of war matters. Present policy is to foster public discussion and to focus worldwide attention on the plight of our prisoners of war in order to gain humane treatment for them and to obtain their release.

2. Previous policy was to withhold from the public information on chemical warfare and biological research matters. Present policy is to keep the public informed about our new policies in these two areas, the reasons for these new policies, and the steps being taken to implement them.

3. Previous practices on reporting the costs of major weapons systems led to a major credibility problem in the Department of Defense. Our new policy of full disclosure on major weapons costs will help to restore the Department's credibility and will assist us in gaining better control of costs and in developing better management practices.

4. For several years, the American people were denied knowledge about our activities in Laos. Today, the American people are being informed about what we are doing and what we are not doing in Laos.

5. In the past, overuse of classification denied to the American people pertinent information on the nature and scope of the strategic nuclear threat. In my view, there is still too much classification, but we have tried and will continue to make more and more information available on this subject which is so crucial for the future security of our country.

In my remarks today I will attempt to shed more light on the crucial subject of the strategic threat. In particular, I want to discuss with you editors the nature and scope of the growing Soviet threat, recognizing full well that, in Vienna, our negotiators have just begun round two of the Strategic Arms Limitation Talks, commonly called SALT.

I hope for success at SALT. I want to emphasize that point. I also want to emphasize that our top military leadership hopes for success at SALT. Where the security of the United States is involved, it is this objective—insuring national security—which is most important. A lower-cost means to achieve that objective, lower compared to what otherwise may be required—if it can be achieved within tolerable risks—is obviously most desirable to all Americans, civilian and military.

The budget we have recommended to Congress for the next fiscal year demonstrates how deeply the Nixon administration is committed to progress at SALT. We have called this year's defense budget a transitional budget. It is transitional because in terms of military capability, it is basically a status quo, stand-pat budget. We have postponed basic national security decisions in the strategic field in order to give maximum opportunity for SALT to be successful, and to foster a meaningful beginning for the era of negotiation President Nixon and the American people seek.

The objective of the Nixon administration is to restore and maintain peace. With regard to SALT, the President's actions and words document this administration's accent on negotiation rather than confrontation.

In my Defense report to Congress in February, I expressed concern that the United States, by the midseventies, could find itself in a second-rate strategic position with regard to the future security of the free world.

Today, in keeping with our policy of maximum information, I intend to present additional reasons for this concern.

It is important to discuss the growing strategic threat because it is essential for the American people to understand the complex issues involved, if we are to insure our national security interests through the decade of the seventies. The American people need to understand the reasons President Nixon is pursuing the course he has recommended in this year's transitional budget.

As Secretary of Defense, I must face the fact that we are taking a risk by postponing hard decisions which the increasing Soviet threat poses for us. I recognize that in the interests of lasting peace, some risks must be taken. But, it is my judgment that as the American people are provided additional information, such as we are discussing here today, they will agree that we are literally at the edge of prudent risk. And the inescapable conclusion will be that if the Soviet strategic offensive buildup continues, the risk to our Nation will become too great to sustain without major offsetting actions.

Therefore, what I particularly want to focus on today is the basic asymmetry between what the United States has been doing and what the Soviet Union has been doing in the field of strategic nuclear weapons in recent years.

In a word, for the past 5 years, the United States has virtually been in neutral gear in the deployment of strategic offensive forces, while the Soviet Union has moved into high gear in both deployment and development of strategic nuclear weapons. In the 1965-67 time period, the United States decided on a level of strategic nuclear forces, including Multiple Independently Targeted Reentry Vehicles (MIRV's), which was deemed adequate to preserve our deterrent posture for the threat of the 1970's which was projected then. No basic change has been made in the force level decisions established in the mid-1960's.

The Soviet Union, by contrast, has engaged in a major effort since 1965 to change the balance of power. The United States then, unlike the situation today, clearly occupied a superior position.

Except for the minimum "hedge" that Safeguard will provide, we have not responded to the Soviet strategic offensive buildup with new deployment programs. We did not respond in past years because the United States deliberately chose to assume the Soviet buildup at most was aimed at achieving a deterrent posture comparable to that of the United States. We have not responded this year because, as I have said, we fervently hope that SALT can render such a response unnecessary.

As much as we might wish it otherwise, however, we must concentrate our attention on what the Soviet Union is actually doing. In the current situation of a diminishing U.S. deterrent and Soviet momentum, we simply cannot base our plans and programs on what we hope the Soviet Union may do either unilaterally or in SALT. The Soviets have a momentum going both in strategic weapons deployments and in strategic weapons developments. If their strategic posture could be expected to stay at the operationally deployed posture which exists today, I believe we would have a tolerable situation. What must concern us, however, is the momentum the Soviets have established both in deployments and developments and where that momentum may carry them.

Let me explain in more detail the basic problem.

The most crucial aspect of national security is the strategic balance between nations that have competing interests in the world. The strategic balance has a direct effect on relations between the superpowers. It has an indirect effect on other nations both in terms of their own relations with each other and in terms of their relations with the superpowers. As one example, a situation of clear superiority on the part of the Soviet Union would have profound implications for any future political or military confrontation between NATO and the Warsaw Pact. In fact, a clear strategic superiority on the part of the Soviet Union would act our interests and our obligations throughout the world.

In our continuing debate on defense matters, it has been said many times that the driving force behind the so-called strategic arms race is the "action-reaction" phenomenon. The recent ABM-MIRV discussions in this country illustrate this. The argument is made, for instance, that the deployment of defensive missiles by one side tends to generate increased offensive deployments by the other side.

I certainly agree that one side's actions definitely can influence what the other side does. But just as weapons in themselves are not the cause of wars, neither are a country's actions in weapons deployment—in themselves—the driving force in a so-called arms race. The fundamental driving force in an arms race is what one country perceives as possible objectives of another country's actions.

Let me explain it this way. Our goal is a stable peace. Our strategic policy to achieve that goal is deterrence. As publicly stated, the basic rationale for U.S. weapons deployment in the strategic field has been and remains deterrence. Our actions of the past several years underscore the fact that deterrence is our fundamental policy and that we seek no more than a posture of effective deterrence.

Because we in the United States seek a posture of deterrence to protect our interests and those of our allies, we obviously could recognize as legitimate a Soviet desire for a comparable deterrent to protect its interests.

I know that the actions of the Soviet Union in recent years have raised questions in the minds of some of you editors and others about the true objectives they are pursuing.

As I have said many times, I do not believe that it is appropriate for me, as Secretary of Defense, to attempt to assess the strategic intentions of another country. However, under my responsibilities, I must be concerned about present and potential strategic capabilities.

You representatives of a free press understand fully the national security price an open society must pay when competing with adversaries who cloak their plans in secrecy and attempt to hide both their objectives and their hardware behind the mantle of a closed society. The whole world knows what we in the United States have and what we plan in the national security field. Meaningful essentials are laid bare in an open forum—in official statements, in congressional hearings, in the give and take of congressional and public debate and in the reports of a free and competitive press. I would not have it any other way.

Let me emphasize again my conviction that the American people have a right to know even more than has been available in the past about matters which affect their safety and security. There has been too much classification in this country. In particular, too much has been withheld in the past about what has been going on in the closed societies of the Soviet Union and Communist China.

As we all pray for success in Vienna, let me point out that, in my view, the American people will support an arms limitation agreement only if they are confident they have the relevant facts about the strategic balance.

The facts I am about to present are not taken from external Soviet discussions of their strategic forces. They do not come from press conferences in Moscow, from testimony in the Kremlin, from new stories in Pravda, or from published annual defense reports by Marshal Grechko.

Rather, the information I am presenting to you is based on our own observations of what the Soviets are doing—and on our belief that this information and these facts should not be withheld from the American people and should be made available to others in the world.

Let us examine what has happened in the past 5 years to shift the relationship between United States and Soviet strategic forces and to provide an accelerated momentum to the Soviets in the strategic field:

*In 1965*, the Soviet Union had about 220 launchers for the relatively old-fashioned missiles—SS-6's, SS-7's, and SS-8's—somewhat similar to our Titan. We had 54 Titan's in the inventory at that time.

*In 1965*, The Soviet Union had no relatively small ICBM launchers comparable to our Minuteman. By 1965, we had 880 Minuteman missiles operational and had established that the total force level for Minuteman would be 1,000 launchers. In the 1965-67 time period, the United States finalized plans to convert a portion of the established Minuteman force to a MIRV Minuteman III configuration.

*Today*, these two forces remain essentially the same. So in this category of old-fashioned multimegaton weapons the Soviets had and still maintain a better than 4 to 1 advantage.

*Today*, the Soviet Union has over 800 such launchers operational, and a projected force that could exceed 1,000 launchers within the next 2 years. These launchers include both the SS-11 and SS-13 missiles. Concurrently, flight testing of an improved SS-11 missile continues. Thus, at present construction rates, the Soviets will achieve parity in Minuteman-type launchers within the next 2 years or so and could move into a substantial lead in this category by the mid-1970's if they continue to deploy these missiles. The previously scheduled U.S. program to MIRV a substantial part of Minuteman continues in progress.

*In 1965*, there were no operational launchers for the large Soviet SS-9 missile which, in its single warhead version, can carry up to 25 megatons.

*In 1965*, neither a depressed trajectory ICBM nor a fractional orbital bombardment system existed in either the Soviet or United States inventory.

*In 1965*, the Soviet Union had about 25 launchers for submarine launched ballistic missiles (SLBM's) on nuclear submarines, and about 80 more on diesel submarines. Most were designed for surface launch only. The United States had 464 SLBM launchers operational on 29 submarines in 1965 and Congress had authorized the last of the 41 nuclear-powered submarines in our Polaris force in the previous fiscal year.

*In 1965*, there was no development underway of a so-called undersea long-range missile system (ULMS) in the United States and there appeared to be none in the Soviet Union.

*In 1965*, the Soviet heavy bomber force consisted of slightly over 200 aircraft, about 50 of which were configured as tankers. The U.S. heavy bomber force strength was about 780 in 1965.

*In 1965*, we estimated that the Soviet Union had a complex of ABM launchers being constructed around Moscow as well as a number of radars under construction which could provide early warning acquisition and tracking functions for ABM use.

Thus, in the space of 5 years—from 1965 to 1970—the Soviet Union has more than tripled its inventory of strategic offensive nuclear weapon launchers from about 500 to about 1,700—which includes some 200 heavy bombers in both totals—and continues the momentum of a vigorous construction program. In that same period, the Soviet Union has virtually quadrupled the total megatonnage in its strategic offensive force. The United States, on the other hand, in the same time period, made no increase in its established level of 1,710 strategic

*Today*, I can report to you that there are some 220 SS-9's operational with at least 60 more under construction. Testing of an SS-9 multiple reentry vehicle—the triplet version—continues. The United States has no counterpart to this program involving large missiles. So, in this area, the Soviets have and will maintain a monopoly.

*Today*, the Soviets have tested both configurations and could have an operational version already deployed. The United States has developed nothing comparable to these systems.

*Today*, the Soviets have over 200 operational launchers on nuclear submarines for submerged launch SLBM's and about 70 operational launchers on diesel submarines. In the next 2 years, the Soviets are expected to have some 400-500 operational launchers on Polaris-type submarines, and at present construction rates—six to eight submarines a year—could match or exceed the number in the U.S. force by 1974-75. U.S. Polaris submarines still number 41 and no increase is projected in current plans. Conversion of 31 of our Polaris submarines to the MIRVed Poseidon missile is planned, and eight conversions have already been authorized by Congress.

*Today*, the United States is spending relatively small sums in the research and development area on preliminary investigations of such a system. I can also report to you today that the Soviet Union, on the other hand, already is testing a new, long-range missile for possible naval use.

*Today*, the Soviet heavy bomber force is slightly under 200, with about 50 still configured as tankers. U.S. heavy bomber strength has declined to about 550 today.

*Today*, we believe that 64 Moscow ABM launchers are operational together with sophisticated early warning radars and tracking capabilities. ABM testing for new and/or improved systems continues. Today, the first two Safeguard sites have been authorized, but will not be operational before 1974-75. This modified deployment schedule is considerably behind the schedule Congress had approved in 1967 for the planned Sentinel area defense, which called for initial capability in 1972, and nationwide coverage in 1975.

nuclear missile launchers and reduced its heavy bomber strength of 780 by over 200. In that same period the United States also reduced its megatonnage by more than 40 percent.

To repeat: The United States has taken no action to increase the total of approved strategic offensive delivery vehicles in the past 5 years in response to the rapid growth in Soviet strategic delivery vehicles. We have, of course, maintained certain options and other steps have been taken to preserve our deterrent in the face of this increase.

Two programs that have been the subject of intense public discussion are, of course, our MIRV and Safeguard systems.

Let me emphasize that MIRV is needed to preserve our deterrent. Many people do not fully understand why it is necessary for us to continue the previously planned, congressionally approved and funded deployment of MIRV systems. The point is made that the current number of strategic nuclear weapons on alert in our force is sufficient for immediate retaliatory use in a crisis. Because MIRV-ing would more than double the number of deliverable weapons, the conclusion is drawn that this is unnecessary.

This conclusion could be valid, if we assumed that the Polaris, Minuteman, and bomber forces all would survive a surprise attack and that the Soviet Union would not deploy an extensive ABM system. However, as was pointed out in my defense report in February, the rapidly growing Soviet strategic offensive forces could seriously threaten both the U.S. Minuteman and strategic bomber forces by the mid-1970's.

Assuming we do not take additional actions to offset the expanding threat—and this apparently is what some people urge—I must, as Secretary of Defense, face the disquieting possibility that in the mid-to-late 1970's we would no longer be able to rely on either the bomber or Minuteman force to survive a surprise attack. In such a situation, we would be left with only the Polaris/Poseidon deterrent force in our strategic arsenal for high confidence retaliatory purposes. This would pose intolerable risks for American security.

Thus, the critical choice in the face of that situation is this:

1. Do we rely on the fraction of the 656 current weapons that will be at sea on our Polaris force if we do not convert to Poseidon and do not defend our land-based strategic forces?

2. Or, do we continue the previously established program to convert 31 Polaris submarines to the long approved Poseidon MIRV program—which would provide approximately the same number of sea-based retaliatory weapons on alert that we currently have today in the sea-based and land-based retaliatory forces combined, but with much reduced megatonnage?

Pending a successful outcome in the Strategic Arms Limitation Talks, therefore, prudence dictates that we must continue our approved program to MIRV current forces.

Moreover, as the experience of the past 5 years demonstrates, it would be dangerous and imprudent to place unquestioned reliance on the invulnerability of any single strategic system for more than 5 to 7 years into the future.

This is why we must also, at the very least, preserve an option to defend a portion of our land-based retaliatory forces. That is a major part of what the proposed minimal addition to the Safeguard defensive program is designed to do. I will come back to that.

Because we want to give the Strategic Arms Limitation Talks every chance of succeeding, we are deliberately accepting certain risks by postponing hard choices related to strategic offensive weapons. These risks are acceptable only in the context of proceeding with the MIRV deployments that have been programmed and approved for several years and the Safeguard increment we are recommending this year.

A second and equally important reason for MIRV is that it helps preserve our deterrent by increasing confidence in our ability to penetrate Soviet strategic defensive forces which, by the mid-to-late 1970's, also could be quite formidable. In addition to the extensive air defense capabilities they already possess, the Soviets are pursuing a vigorous antiballistic missile research and development program designed to improve the present operational system or to develop substantially better second generation ABM components.

We now have evidence that the Soviet Union is testing an improved long-range ABM missile. They are also expanding their radar surveillance coverage. We

cannot rule out the possibility that they have or will give the extensively deployed SA-5 surface-to-air missile system an ABM role. We believe such a role is technically feasible for this system.

With regard to Safeguard, which I mentioned previously, let me say this. In addition to other objectives, the reoriented Safeguard program, initiated last year, is designed to provide protection for our land-based deterrent forces, the Minuteman and bombers. As you know, the President directed that each phase of the Safeguard deployment is to be reviewed each year to insure that we are doing as much as necessary but not more than that required by the threat. The increments of Safeguard proposed so far will provide protection for a portion of our land-based deterrent, and permit flexibility with regard to our future course of action.

Without approval by Congress of the modified phase II Safeguard protection proposed by the President, we would be forced to recommend going forward this year with other strategic nuclear offensive force programs.

All of my comments so far have, of course, been focused on the more immediate and troublesome threat posed by the Soviet strategic force buildup. The nuclear weapons program of Communist China also concerns us and directly relates to the need for preserving timely Safeguard options as we move toward the mid-1970's. Time does not permit a discussion of this issue and the inter-relationship of maintaining adequate strategic offensive and defensive forces to meet both the Soviet and Communist Chinese threats.

Where does all this leave us, and what is President Nixon attempting to do with the decisions he has incorporated in his fiscal year 1971 transitional defense budget?

Clearly, this administration has not accelerated the previously planned deployment of offensive systems during our 15 months in office. On the contrary, we have slowed it down. The only major change we have made has been modification of the previously approved Sentinel ABM deployment; and that change was a slowdown, not a speedup. We slowed the original deployment plan Congress approved, keyed it to the emerging threat on an annual review basis, and re-oriented it to provide more timely protection needed for our land-based deterrent forces.

If the programed forces established by the last administration some years ago and approved by Congress were deemed appropriate and necessary for the security of the United States in the 1970's against the then projected threat, I am at a loss to understand how critics can claim that the Nixon administration has escalated the arms race. The record clearly shows that we have not done so. We have chosen instead to defer major new weapons decisions as long as possible pending developments in the Strategic Arms Limitation Talks. In continuing the MIRV and ABM programs, we are simply going ahead with programs on which our deterrent policy was formulated by previous administrations, even before the current momentum of Soviet strategic programs became clear.

With regard to the important talks which have just resumed in Vienna, the President has stated that every U.S. system is negotiable. To those who argue the United States should take specific, and perhaps unilateral, action at the start of these negotiations, I would reply that the place to resolve these issues is at the conference table with the Soviets. Let us try to find out at the conference table the meaning of the Soviet Union's increased weapons deployments and let us conduct these important negotiations with full recognition of these continuing Soviet deployments.

My appraisal today has covered some of the available evidence of the Soviet military buildup. I am not unmindful, however, of possible other directions of Soviet policy that could be relevant to our security. There have been reports that Soviet economic problems may place pressure upon their leadership to devote major attention to internal matters, thus reducing the recent emphasis on a continued military buildup.

As Secretary of Defense, I will continue to hope that the shift in national priorities we have instituted in America will be duplicated in the Soviet Union. But until evidence of that shift is discernible in weapons deployment activities, I have no alternative but to base my actions and recommendations on the evidence available, much of which I have shared with you editors today and, through you, with the American people.

## CONTINUATION OF STATEMENT, DEPUTY SECRETARY OF DEFENSE

Mr. MAHON. Mr. Secretary, you may conclude your statement now, and we will begin the interrogation on Friday.

Mr. PACKARD. In the Safeguard review, we considered several alternatives. One, of course, was to cancel the phase I deployment. This would have been adopted only if we had become convinced that (1) the system would not work properly, or (2) the completed system would be inadequate to meet the President's objectives, or (3) the threats had not developed either because of arms limitation talks or for other reasons. Since none of these conditions prevailed, this option was rejected.

A second alternative, continuation of phase I only with additional research and development, would have enabled us to proceed toward one desirable objective—the operational checkout of the system. However, in view of the continued growth of the Soviet threat and the prospect of Chinese deployment of an ICBM force in the mid-seventies, we could not justify a year's delay in taking measures to protect ourselves against these threats.

We also considered but did not recommend the deployment of additional forms of ballistic missile defense, such as a dual-purpose Minuteman system, mobile systems, or forward-based systems. These systems do not achieve the multiple objectives of Safeguard.

During this review, we also examined the effectiveness of the full Safeguard system in protecting against the Chinese threat and in defending Minuteman.

Some argue that Safeguard will not give effective protection against China for long enough to justify its costs. Although the Communist Chinese may have a limited ICBM force (10 to 25 operational launchers) as early as 1975, growth of their ICBM force in numbers or sophistication is expected to be very slow because of economic and technical manpower limitations. Safeguard phase II is expected to have a capability more than adequate to cope with the Chinese threat in the late seventies.

Another possibility is that the Chinese might develop and deploy penetration aids. Relatively simple devices like tank fragments have a limited ability to deceive a sophisticated defense system like Safeguard. Even to achieve that crude capability, the Chinese would have to construct an extensive radar and instrumentation capability simply to be assured that in-flight fragmentation of the tank could be properly carried out. Moreover, without very detailed knowledge of the operating characteristics of Safeguard, it is not possible to design a penetration system in which they can have confidence. More complex penetration aids require much more complex range instrumentation together with the efforts of hundreds of highly skilled technical people. We spent about a decade developing effective penetration aids for our own missiles. It is believed that the Chinese have no such range instrumentation and they may not be able to build it for many years. Thus penetration aids, even the simplest kinds, require technical effort, including testing, which will complicate and delay what might, in the absence of a U.S. ABM defense, be the relatively rapid acquisition of attack capabilities.

If we look beyond these obstacles to Communist Chinese weapons development toward a later time when they could develop more sophisticated reentry systems for their ICBM's, we would still have ways of maintaining our capability to defend against them. We have a vigorous ABM research and development effort (outside the Safeguard program) which is today working on ways of extending the useful life of Safeguard against a more sophisticated Communist Chinese threat. Those measures would not involve a general thickening of the system in ways which might appear provocative to the Soviet Union.

Criticisms have also been raised about the suitability and effectiveness of Safeguard for the defense of Minuteman against a possible Soviet first strike.

Last year some critics of Safeguard asserted that a serious threat to Minuteman survivability did not exist and that Minuteman did not need defending. Developments in Soviet strategic forces over the last year have confirmed our original judgments that the threat is real and serious, and in fact is more serious than we anticipated last year.

Others, in contrast, have asserted that if the Soviets wanted a first strike capability they could easily overcome the Safeguard defense. The Safeguard defense was designed in the belief that the Soviet offensive threat we now project—in the absence of an arms agreement or Soviet restraint, of which there is as yet no sign—could destroy our Minuteman deterrent unless it were defended.

Any fixed level of defense can eventually be overwhelmed if an attacker is willing to add enough warheads to "run it out of ammunition." We know, however, that to overwhelm our planned Minuteman defense the Soviets would require a substantially larger number of warheads than if there were *no* defense, making Soviet attainment of a high confidence first strike capability against Minuteman substantially more difficult and costly.

As a prudent, measured deployment, Safeguard phase II was not designed to cope with the most ambitious and costly efforts that we can imagine would be within the industrial and technical capacity of the U.S.S.R. Should the Soviet threat to Minuteman become larger than Safeguard is designed to counter, then we would have to make further decisions to protect our deterrent.

If we do have to take further steps, we have options available. For example, we have under consideration a new, smaller, less-expensive radar and data processor aimed specifically at close-in defense of Minuteman. Deployment of this equipment with additional Sprint interceptors is a possibility. Also, we are actively working on ways of re-basing Minuteman missiles in harder silos or on transporters. Further, we shall continue to study additional forms of ballistic missile defense, such as those previously mentioned.

A longer range program for enhancing the survival of our deterrent is the Undersea Launched Long Range Missile System, for which we now have an active research and development program.

As a result of these analyses, the Secretary of Defense recommended an orderly and prudent augmentation of Safeguard, which the JCS supported.

There is another critical issue in the deployment of strategic weapons at this time, and that is the deployment of MIRV on our Minuteman and Poseidon forces. It must be emphasized that the reason for deploying MIRV now is our lack of assurance that the Soviets have and will continue to have a low level of ABM. The things Dr. Foster showed you indicate what we are concerned about. As you know, their Tallinn SAM system has over 1000 launchers in it, and although it purports to be an air defense system we believe it can be modified to have some ABM capability. Other ways for them to increase the ABM level are to upgrade the Moscow system and either extend it or, more likely, deploy a new ABM system. We know they are continuing to work on the deployment around Moscow and they are building new large radars. Also, they have continued developmental testing of a new ABM interceptor.

In the absence of a significant level of Soviet ABM our retaliatory missile force as now constituted—assuming we act to insure its survivability—can penetrate the Soviet Union. However, in view of their continuing ABM activity we cannot be certain that the Soviets do not have—or cannot quickly achieve through SAM upgrading or expansion of the Moscow ABM system—a very significant ABM level. This is why we must maintain the effectiveness of our retaliatory forces by deploying MIRV.

It is important to emphasize that our MIRV program actually decreases the available megatonnage, but we do maintain our nuclear destructive capability through added targeting flexibility. The intent of our MIRV deployment is simply to assure that the destructive capability we now possess can be maintained in the presence of a higher Soviet ABM level.

I think that is something which should be emphasized, because there has been so much talk about MIRV proliferating our destructive capability. There is actually less megatonnage in the MIRV weapons carried by a missile than in the non-MIRV weapon it would otherwise carry. Measured by the usual way of measuring the destructive capacity of a missile's warheads, there is, generally speaking, less megatonnage in a missile with multiple warheads. However, the MIRV provides increased confidence that we will have an assured destruction capability even if the Soviets increase their ABM capability, and an assured destruction capability is crucial to our deterrent because you have to have the assurance that you will be able to deliver an adequate level of destruction.

The MIRV program gives us much greater assurance that, in view of Soviet ABM developments, and in view of the serious attrition of our Minuteman or bomber forces which a future Soviet surprise attack could achieve, we will still have enough warheads remaining that can penetrate to provide assured destruction. That is the key to deterrence.

We have considered the question of how the threat is developing. We have considered the strategic arms limitation talks and, needless to say, we have not been unaware of the fiscal constraints in the total Defense budget.

It is after reviewing these considerations, in addition to those that I have mentioned, that we are making our recommendations for the program.

## THE PROPOSED FISCAL YEAR 1971 PROGRAM: MODIFIED PHASE II

*Description*

For fiscal year 1971, we are recommending authorization to deploy one additional Safeguard site at Whiteman Air Force Base, Mo. (in the Minuteman field). We recommend, too, that the program include the deployment of additional Sprints at Grand Forks and Malmstrom, thus further increasing the total number of interceptors capable of defending Minuteman. This will require additional acquisition of small parcels of land and additional silo construction at Grand Forks and Malmstrom. With regard to the additional Sprint missiles themselves, since the purchase of only the long leadtime missile components is required in fiscal year 1971, the decision to produce and deploy them can be reviewed later.

Also, we recommend for fiscal year 1971 authorization to undertake the long leadtime task of advanced preparation work for five more sites. This task includes site survey and engineering, land acquisition and purchase of some long leadtime items, but does not commit us to the deployment of radars or missiles. The five sites are Northeast, Northwest, the National Capital Area, Warren Air Force Base in Wyoming, and Michigan/Ohio.

The proposed program maintains the President's options to move further toward a 12-site Full Phase II Safeguard system, if necessary, or to curtail the deployment if threat developments permit. This deployment continues orderly, controlled, progress toward the objectives set forth by President Nixon and yet does not commit us to Full Phase II deployment without further review and further decisions. The deployment can be modified as required by changes in the threat, arms limitation negotiations, or unilateral actions of the Soviets or Chinese Communists.

Should it be required, the full 12-site deployment could be installed by the late 1970's if there were fiscal year 1972 authorization for the remaining nine sites, including the five sites for which only advanced preparation authority is being requested in fiscal year 1971.

The 12-site deployment would provide substantial area defense of the U.S. population for a number of years against Communist Chinese or other Nth country attack.

I think it is especially important to note that this area defense would help protect our Strategic Air Command bombers against the SLBM threat methodically developing from Soviet Polaris-type submarine production. The National Command Authority at Washington, D.C., may also need area-defense protection from SLBM's. The advanced preparation work we think vitally necessary at five sites in fiscal year 1971 is a minimum beginning option on this important area defense.

As a prudent hedge against possible future needs, this proposed program would increase the Minuteman defense level as the three sites in the Minuteman fields become operational. The first two sites, which constitute phase I, will be installed by early 1975. The third site, Whiteman Air Force Base, Mo., would be installed in 1975 if approved in fiscal year 1971. Also, we would increase the number of Sprints at the first two sites for further protection of Minuteman.

The choice of the particular sites for which full or advanced prep-

aration authorization is requested in fiscal year 1971 is based on the following reasoning: The site for which deployment authorization is requested, Whiteman, contributes to all three presidential objectives. Advanced preparation authority is requested for the National Capital Area site because of the importance of protecting the National Command Authority; for Warren AFB, because it would complete the four-site Safeguard defense of Minuteman, as well as contributing to area defense; and for Northwest United States, Northeast United States and Michigan/Ohio, to complete the PAR line along the northern border for area defense of the most heavily populated areas and to provide a start on two sites with seaward-looking PAR faces needed to detect SLBM's (Northwest and Northeast sites).

#### *Deployment schedule*

The deployment schedule for the three sites that would be completed under this program is shown below. The schedule shows equipment readiness dates on which equipment would be installed and operable and the site turned over to military control. Following these dates, there would be a period of about 6 months of continuing check-out, training, and acceptance testing during which there will be a limited operational capability.

	<i>Equipment readiness dates</i>	
Late 1974-----		Grand Forks.
Early 1975-----		Malmstrom.
1975-----		Whiteman.

#### *DOD costs*

The DOD fiscal year 1971 budget submission includes a request for \$1.45 billion for Safeguard. This amount is requested for fiscal year 1971 to continue phase I deployment, to commence deployment at the one additional site, and to undertake advanced preparations at the five potential future sites. Actual expenditures in fiscal year 1971 for the phase II program will be substantially less than \$100 million.

The total DOD acquisition costs, which include military construction, purchase of radars and missiles, the cost of research, development, test, and evaluation, but do not include operating costs, for the phase I sites and new phase II site at Whiteman—in other words, for completing modified phase II—are estimated to be \$1.38 billion for fiscal year 1971 and \$5.9 billion total. The \$5.9 billion acquisition cost, which would be expended over the period of fiscal years 1968–1975, includes development through system testing of the improved Spartan. These figures compare with approximately \$1.05 billion that would be required in fiscal year 1971 if the program were restricted to phase I only, and a total DOD acquisition cost of \$4.6 billion if phase I only were built.

The fiscal year 1971 requirements for additional research and development on improved radar, on data processing and on Sprints for possible hardsite defense, are included in the \$158 million Advanced Ballistic Missile Defense budget—not part of the Safeguard Program—because no decision has yet been made to deploy these new components.

Proceeding now to begin phase II deployment maintains the option—as mentioned earlier—to complete expeditiously the full phase II should this be required later. For example, if the remaining nine sites,

including the five sites for which only advanced preparation authority is being requested in fiscal year 1971, were authorized in fiscal year 1972, then all 12 sites could be installed by the late 1970's.

In this case, the total DOD acquisition cost would be \$10.7 billion (December 1969 price levels). This compares with a figure of \$9.1 billion (December 1968 price levels) reported to the Congress last year. The increase of \$1.6 billion is due to several causes. One is inflation in price levels that occurred between December 1968 and December 1969. Another increase is caused by the stretchout in the time until deployment can be completed. Stretchout increases program costs because it causes the retention of trained personnel and continuation of support activities over a longer period of time. Finally, increases resulted from certain changes found necessary during the year—for example, additional interceptors were added in phase II for operational testing—and more detailed estimates for the work earlier contemplated. Of the total increase, \$395 million, or 4 percent of the previously reported estimate, is due to inflation; \$575 million, or 6 percent, is due to the stretchout of deployment; and \$650 million, or 7 percent, is due to design changes and more detailed estimates.

The above-stated costs are exclusive of operating costs, which, for the period after the completion of deployment, are estimated to be about \$100 million annually for a two-site deployment and \$350 million annually for the full phase II.

Finally, Safeguard costs do not include Atomic Energy Commission costs related to ABM which would total \$1.2 billion for the full phase II deployment—exclusive of the costs for warheads for the improved Spartan whose costs cannot yet be estimated firmly.

These estimates do not include certain indirect costs that are budgeted elsewhere. Examples of those indirect costs are range support and family housing.

It will be noted that acquisition costs and operating costs do not increase in proportion to the number of sites deployed. This is because there is an "overhead" level of personnel and services necessary to plan, supervise, and support the deployment regardless of the number of sites. Also, costs vary from site to site depending on the number of radars and missiles.

I want to tell this committee very frankly that if such factors as inflation, stretch-out and design improvements occur in future years as they did in the past year then we could experience some continuing cost growth of this defense. I am confident the Safeguard program is well managed, and I will regularly advise Congress of its progress and of my best cost estimates for it, conducting the program on the most economical basis consistent with national security, and consistent with the President's decision that we do only the minimum necessary when it is necessary.

#### STRATEGIC ARMS LIMITATION CONSIDERATIONS

We make this recommendation for the continued but carefully limited deployment of Safeguard defenses in the firm belief that it is entirely consistent with our commitment to discuss limitations on both offensive and defensive weapons in Strategic Arms Limitation Talks (SALT) with the Soviet Union.

An important part of our proposed program is its flexibility. The modified phase II deployment does not preclude agreement on a wide range of ABM levels. It can be modified as required by changes in the threat that results from arms limitation agreements or unilateral actions of the Soviets or Chinese Communists. Many possible agreements with the Soviets could include some form of missile defense for purposes consistent with both countries' objectives in entering an agreement. In the meantime, it is essential that we continue this defensive program in the interests of our security.

Mr. Chairman, I think it is important to note that the Soviets have not halted or slowed since the beginning of SALT their development and testing of strategic offensive and strategic defensive missile systems.

Since the beginning of SALT they have tested strategic missiles at a rate approximately twice that of U.S. testing.

A number of people have been concerned because we have not stopped all of our programs, but I want to emphasize that the Soviets have not stopped their programs.

They also have continued their ABM tests—including tests of an improved long-range ABM—and as Secretary Laird has said they have conducted successful intercept tests. They also are expanding their radar surveillance coverage.

We have no evidence that the Soviets have either completed or intend to curtail this vigorous testing program.

At this point, Mr. Chairman, I would like General Starbird to present his statement.

Mr. MAHON. You may proceed, General Starbird.

STATEMENT OF SAFEGUARD PROGRAM MANAGER

General STARBIRD. Thank you.

Mr. Chairman and Members of the Committee:

I appreciate this opportunity to report to the Committee on the SAFEGUARD Program.

#### INTRODUCTION

Some of what I shall cover is in Secretary Packard's written statement but is material which he omitted in his shorter oral testimony. Also, Dr. Foster has explained the status of the SAFEGUARD development and test program, the RDT&E program, and I shall not repeat what he has covered. I shall describe deployment progress other than that described by Dr. Foster and shall explain the FY 1971 funding request.

- a. First, I shall explain how far we have progressed with procurement (PEMA) and construction (MCA) on the approved Phase 1 program.
- b. Second, I shall describe in somewhat more detail than did Secretary Packard and Dr. Foster the FY 1971 request for authorization and appropriation.
- c. Third, I shall summarize certain information on program costs.
- d. Fourth, I shall give the SAFEGUARD schedules.

#### PROCUREMENT AND CONSTRUCTION PROGRESS WITH FY 70 AND PRIOR YEAR FUNDS

Procurement. At the time the SAFEGUARD decision was made a year ago, the Army was well started on the preparation of manufacturing design, on tooling, and hiring and training of personnel for the SENTINEL deployment. We had about 5,000 production workers employed in our prime and first tier contractor production effort and contemplated a further steady buildup. Immediately after the decision to deploy SAFEGUARD, we reoriented our effort so that the work being accomplished would be directly usable in Phase 1 of SAFEGUARD. We decided, however, to withhold a further buildup of the production complex until there was a clear indication that the Congress had pass, and the President had signed, the FY 1970 Defense Authorization and Appropriations Bills before committing a major portion of the FY 1970 SAFEGUARD PEMA appropriation. We now have active Phase 1 production underway and the production base now includes about 7300 prime and first tier contractor employees. We have obligated the necessary funds to procure the hardware for the Grand Forks PAR and MSR, as well as the Data Processors for Grand Forks and for Malmstrom, and for the Tactical Software Control Site (a tactical software test facility) at Whippany, New Jersey. In addition, we have placed the orders for approximately \$20 million for other long lead time items to be used in components to be procured in full in FY 1971.

Construction. Under the SENTINEL program we had made preliminary surveys of the Grand Forks and Malmstrom site complexes. We had acquired certain engineering data from this effort, and immediately reassigned the architect engineers to work on designs applicable to the SAFEGUARD sites. The Secretary of Defense, however, decided not to embark on any further on-site survey or construction until there was a clear indication that the Congress approved proceeding with Phase 1. After passage of the Construction Authorization Bills by Both Houses of Congress in October, engineering personnel went to the prospective sites, finalized site selection, secured the on-site information necessary to permit completion of pre-bid design. The invitation for bids for construction of the Grand Forks PAR and MSR was issued in January 1970. Award of the fixed price contract was made on 31 March 1970 in the amount of approximately \$138 million to a joint venture headed by Morrison and Knudsen. With respect to the Malmstrom PAR and MSR the sites have been selected, site acquisition is underway, and requests for bid on advance construction have been issued. Award for the advance construction is to be made in early May and award for full construction in early CY 1971.

#### REQUESTED FOR FY 1971 AUTHORIZATION

Now let me explain in somewhat greater detail what is requested for authorization in FY 1971. I shall break down this description into that required to continue Phase 1 and that related to initiating the requested Phase 2 work.

- a. Phase 1. For Phase 1, the FY 1971 submission requests the necessary appropriations (\$1046 million) to permit the Phase 1 deployment to continue. (See Chart 1). The Phase 1 deployment, as you know, is to consist of two identical site

complexes in the MINUTEMAN fields at Grand Forks and Malmstrom. Each complex is to contain (see Chart 2) a PAR site, an MSR site, SPARTAN and SPRINT collocated with the MSR, and certain other SPRINT located in two remote fields about 20 miles from the MSR.

(1) (See Chart 3). For FY 1971, an RDT&E appropriation of \$365 million is needed to: continue the SPARTAN, SPRINT, and MSR subsystems development and to carry out subsystem testing at Meck Island, Kwajalein Atoll; continue development of the modified SPARTAN; continue the production of test and tactical software; continue design documentation and component tests for the PAR; test support, primarily for test targets; government system support; for contractor system integration, site operation, fee, overhead, and documentation; and operation of the SAFEGUARD System Evaluation Agency and the SAFEGUARD System Communications Agency.

(2) The FY 1971 PEMA requirement to continue Phase 1 is \$458 million. (See Chart 4). This breaks down into funds for: tactical SPRINT missiles for Grand Forks and 3 non-deployed SPRINT missiles for production testing and production support; tactical SPARTAN missiles for Grand Forks and 3 non-deployed SPARTAN missiles also for production testing; ground equipment including procurement of the Malmstrom PAR and MSR, equipment for the Ballistic Missile Defense Center in the Cheyenne Mountain Complex, tactical Software Control Site at Whippany, New Jersey, Park Task Trainers, remote launch equipment, and production support; production base support, repair parts, and equipment for SAFEGUARD communications.

(3) The FY 1971 MCA requirement to continue Phase 1 is \$169 million. These funds are necessary to complete funding of the Malmstrom PAR, MSR and Phase 1 remote sites and to provide the remaining support facilities and Phase 1 remote sites at Grand Forks. Additionally, they include funds necessary to support SAFEGUARD R&D effort at the Kwajalein Missile Range.

(4) The FY 1971 O&MA requirement for Phase 1 would amount to \$42 million, and the MPA requirement would be \$12 million.

(5) As shown on Chart 1 then the total NOA required to continue Phase 1 only is \$1046 million.

b. Modified Phase 2 Increment. This increment includes a new site at Whiteman, added SPRINT missiles at Grand Forks and Malmstrom, and advanced preparation for 5 possible additional sites.

(1) Whiteman. The complex at Whiteman Air Force Base, Missouri, would have no PAR but would contain an MSR site, SPARTANS and SPRINTs collocated with the MSR, and additional SPRINTs located in four remote fields about 20 miles away from the MSR. NOA in FY 1971 would be required for the Whiteman increment in two appropriation categories, PEMA and MCA.

(a) For PEMA, \$178 million would be required to procure the Whiteman MSR with its data processor and for production support related to these.

(b) For MCA, \$127 million would be required to accomplish the military construction for the Whiteman site.

(c) As stated earlier, the total of the FY 1971 appropriation related to the Whiteman increment then is \$305 million.

(2) Added SPRINT at Grand Forks and Malmstrom. The FY 1971 submission also requests the funding authorization to add SPRINT missiles to the two Phase 1 sites. The number of SPRINT at Grand Forks would be increased as will the number at Malmstrom. This augmentation appears necessary at this time in view of the increasing threat described by Dr. Foster. Funds for construction of the ground facilities for the added SPRINT (\$35 million) would start in FY 1971, but initiation of the procurement of the added SPRINTs would not occur until FY 1972.

(3) Advanced Preparation for Five Additional Sites. The FY 1971 submission requests the necessary funding authorization to proceed with advanced preparation at five sites to ready them for later rapid installation should this be required and approved. The advanced preparation would include detailed site survey and preconstruction engineering and some land acquisition (\$15 million) and it would include also procurement of some long lead time production items (\$25 million). Proceeding with these advanced preparations would not constitute a commitment to accomplish the deployment. The sites concerned are those for the Northwest, Northeast, Michigan/Ohio, National Capital Area, and Warren AFB, Wyoming.

(4) Other Requirements for FY 1971. There is certain FY 1971 NOA required in connection with the Modified Phase 2 increment which relate to the increment as a whole rather than to any one specific element of the increment. These are:

(a) For MCA for modifying an existing Army depot to meet SAFEGUARD supply and maintenance (\$6 million) and add MCA supervisory costs (\$5 million).

(b) For O&MA additional government management and supervision (at \$11 million).

(c) For MPA additional government management and supervision (at \$2 million).

(d) The total then of the amounts relating to these other requirements for the Phase 2 increment as a whole is \$24 million.

c. Total FY 1971 NOA Requirement. As shown on Chart 1, then, the total FY 1971 requirement breaks down into that for: continuing the Phase 1 deployment (\$1046 million); initiating the Whiteman site (\$305 million); construction for the added SPRINT sites at Grand Forks and Malmstrom (\$35 million); advanced preparation at the five possible later sites (\$40 million); and other modified Phase 2 increment costs (\$24 million); for a total of \$1450 million.

#### TOTAL PROGRAM DOD ACQUISITION COSTS

I shall speak briefly about the total DOD "acquisition" costs for various deployments. You will remember that the DOD "acquisition costs" include RDT&E, PEMA and MCA but do not include O&MA and MPA. Also, they do not include certain indirect costs of activities budgeted elsewhere, nor do they include the AEC cost for the warheads.

a. In other Senate and House Committee hearings conducted on 24 February 1970 and on 9 March 1970, DOD officials testified that our estimates for DOD acquisition costs were \$4.5 billion for Phase 1, \$5.9 billion for the Modified Phase 2, and \$10.7 billion for the full Phase 2. These estimates for the Modified and Full Phase 2 deployments still remain our best estimates as of this date. However, our estimate as of this date of the Phase 1 DOD acquisition costs, which will be shown in a revised SAR now under preparation, will indicate an increase from approximately \$4.5 billion to approximately \$4.6 billion. In explanation:

(1) The early estimates of the DOD acquisition cost for Phase 1 as carried in the 30 June 1969 SAR totaled \$4185 million. This includes RDT&E, PEMA and MCA through the final site Equipment Readiness Date (ERD) which on 30 June 1969 was scheduled for July 1974.

(2) Since the 30 June 1969 SAR, continued review has been made of the cost estimates. The SAR of 30 November 1969, which was forwarded to Congress on 16 December 1969, showed an estimate of total DOD acquisition cost for Phase 1 of \$4462 million, an increase of \$277 million, or 6 2/3 per cent above the June estimate. Three factors contributed to this increase. The largest increase was inflation which amounted to \$136 million, or 3 1/3 per cent of the June 1969 estimate. Stretchout delaying the final Equipment Readiness Date (ERD) for Phase 1 from July 1974 to October 1974 accounted for \$55 million, or 1 1/3 per cent. Changes in estimates or design totaled \$86 million, or 2 per cent.

(3) Subsequent to the 30 November SAR, further intensive investigation of planned construction schedules and cost estimates has continued. The detailed design of the large, complex and hardened structures to be built was completed about the first of the year and bid was requested in January. This completion of construction design enabled more accurate estimates to be made of completing construction within certain time intervals and the costs involved. As a result of this review, decision was made to extend the planned construction period by 4 months, with delay of the final Phase 1 site ERD from October 1974 to early 1975. This stretchout is estimated to increase costs by \$82 million if no sites beyond Phase 1 are to follow, primarily because the production team and the test and evaluation team have to be kept intact longer. In addition, an intensive review initiated a year ago and only recently completed indicates the need to increase earlier estimates for spare parts by \$40 million and other changes of \$10 million. These revisions will bring the estimated DOD acquisition cost for Phase 1 of SAFEGUARD to \$4594 million. These changes do not require a change in the FY 71 budget request now before the Congress. These Phase 1 revisions do not change our current Phase 2 estimates.

b. As I stated earlier, our current best estimate of the DOD "acquisition costs" for the Modified Phase 2 program of 3 complete sites, added SPRINT and advanced preparation for five other possible later sites is \$5.9 billion. These costs would occur over the years FY 1968 - FY 1975, and \$2260 million of these acquisition costs have been appropriated and made available in the period FY 1968 - FY 1970.

c. If all 9 of the additional sites in the full Phase 2 twelve-site deployment are authorized in FY 1972, the total DOD acquisition costs of the program are estimated as \$10.7 billion.

(1) This \$10.7 billion is higher by \$1.6 billion than the estimate for completing the full Phase 2 deployment testified to this Committee last year and is accounted for as follows: 4 per cent due to inflation, 6 per cent due to stretch-out in the period of deployment, and 7 per cent due to design change and refinement in the estimates. Although such a large annual increase is not expected to occur again, some upward revision will probably be necessary in later years. Inflation will probably cause some unknown increases. Cost growth resulting from stretchout should be small if the full 12-site program proves necessary and is accomplished by the late 1970s. Design and estimate changes should also be significantly smaller in future years since we have had time to accomplish intensive analyses in the year since the SAFEGUARD decision was made on improving the estimates and in definitizing the design.

(2) There are some uncertainties even in this area, however. For example, development of the Modified SPARTAN is still in the program definition phase from which will be developed the exact configuration and cost of development.

d. In summary, the estimated total cost for Phase 1 is now \$4.6 billion, for Modified Phase 2 it is still \$5.9 billion, and for the full Phase 2 it is still \$10.7 billion.

#### SCHEDULES

As to schedules, let me take the various parts of the requested authorization and indicate when they would be ready. (See Chart 5 on opposite page).

a. Phase 1. First, with respect to the Phase 1 deployment, we are now scheduling the Equipment Readiness Date (ERD) for Grand Forks in late 1974 and for Malmstrom in early 1975. There has been a delay over last year's schedule of about 9 months, - accounted for in part by the decision to delay on-site activity until completion of Congressional action, and in greater part to a lengthening of construction schedules to permit a less compressed contract construction effort.

b. Whiteman. With authorization and appropriation for deployment in FY 1971, the Whiteman site complex would have an Equipment Readiness Date in mid 1975.

c. Added SPRINT. The additional SPRINT at the Phase 1 sites would be ready at the site Equipment Readiness Dates I have earlier mentioned for Grand Forks and Malmstrom complexes.

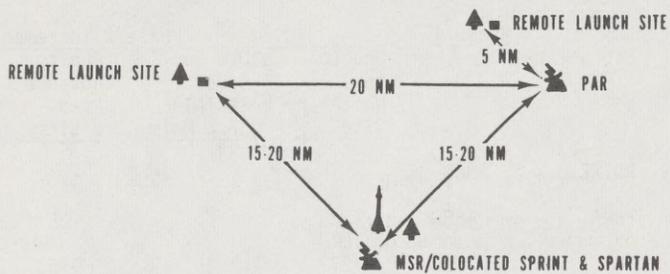
d. Advanced Preparation for Five Sites. With regard to the additional five sites for which advanced preparation only would be authorized in FY 1971, Construction and further procurement would have to await later Congressional action. With advanced preparation, the Warren site complex, for example, if authorized for deployment in FY 1972, could be available to give added MINUTEMAN protection in late 1976. Alternatively, if the National Capital Area site were authorized for deployment in FY 1972, after advanced preparation in FY 1971, it could be ready to give initial protection to the National Command Authorities by late 1976. As another alternate, if after advanced preparation it were determined that it was necessary to proceed further in FY 1972 with a light area defense against a Chinese ICBM threat, the northern tier of SAFEGUARD sites, together with the MINUTEMAN and National Capital Area sites, could be available by mid-1977.

CHART 1  
NEW OBLIGATIONAL AUTHORITY REQUESTED FOR SAFEGUARD FOR FY 71  
 (\$ in Millions)

	<u>Phase 1</u>	<u>Phase 2 Increment</u>				<u>Total</u>
		<u>Due to the Whiteman Site</u>	<u>Due to Added SPRINTs GF &amp; Malm</u>	<u>Due to Advance Prep 5 Sites</u>	<u>Due to Other</u>	
RDT&E	365					365
PEMA	458	178		25		661
MCA	169	127	35	15	11	357
OMA	42				11	53
MPA	12				2	14
TOTAL NOA	1046	305	35	40	24	1450
EST EXPEN	(860)					(910)

CHART 2

## A PHASE 1 SITE COMPLEX

**LEGEND**

SPRINT MISSILES



SPARTAN MISSILES



SAFEGUARD RADAR INSTALLATION



REMOTE INSTALLATION

## CHART 3

SAFEGUARD RESEARCH, DEVELOPMENT, TEST & ENGINEERING  
(PHASE 1)

	<u>FY 68-69</u>	<u>FY 70</u>	<u>FY 71</u>	<u>TOTAL THRU 71</u>
SPRINT	110.6	59.3	50.4	220.3
SPARTAN	130.6	63.8	45.1	239.5
MSR	42.3	20.6	14.4	77.3
MODIFIED SPARTAN	-	22.6	53.2	75.8
DATA PROCESSING	83.6	48.5	53.2	185.3
PAR	43.4	26.2	14.5	84.1
TEST SUPPORT	37.1	40.3	44.8	122.2
GOVERNMENT SYSTEM SUPPORT	53.8	30.0	19.0	102.8
CONTRACTOR SYSTEM ENG, SITE OPERATION, FEE & DOCUMENTATION, TRAINING	139.9	76.1	57.4	273.4
SAFSEA & SAFCA	7.4	13.5	13.0	33.9
TACMAR & REENTRY MEASUREMENTS PROGRAM (NOW IN ABMDA)	<u>46.7</u>	<u>-</u>	<u>-</u>	<u>46.7</u>
TOTAL	695.4	400.9	365.0	1461.3

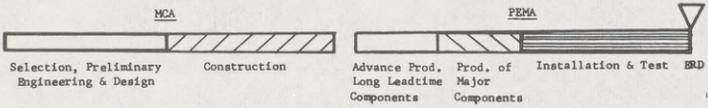
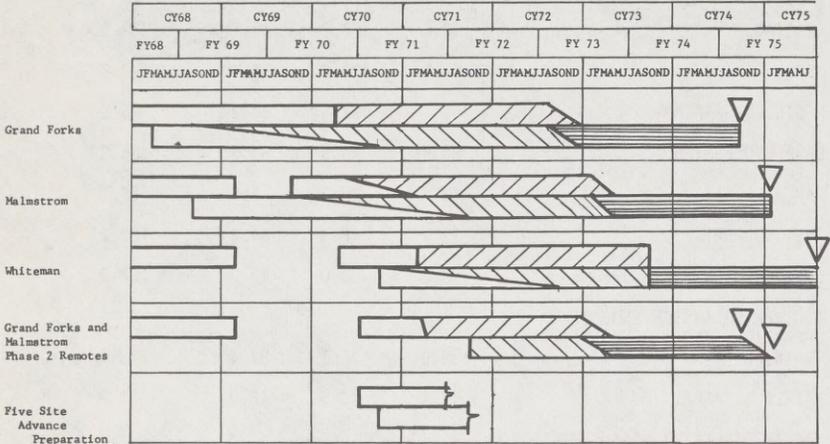
## CHART 4

SAFEGUARD PROCUREMENT EQUIPMENT & MISSILES, ARMY  
(PHASE 1)

	<u>FY 68-69</u>	<u>FY 70</u>	<u>FY 71</u>	<u>TOTAL THRU 71</u>
SPARTAN	33.8	43.1	123.0	199.9
SPRINT	14.0	24.1	54.9	93.0
GROUND EQUIPMENT	357.0	291.6	262.3	910.9
PRODUCTION BASE SUPPORT	63.7	.8	2.9	67.4
REPAIR PARTS	-	.9	14.3	15.2
COMMUNICATIONS	-	-	.6	.6
TOTAL	<u>468.5</u>	<u>360.5</u>	<u>458.0</u>	<u>1287.0</u>

CHART 5

SAFEGUARD Production, Construction, and Installation & Test Schedules



Mr. MAHON. Thank you, General.

Mr. FLOOD. Whiteman is brand new now. You would bring it up that close to Grand Forks in that period?

General STARBIRD. That is correct, sir. It is a simpler site. It does not have a perimeter acquisition radar. Furthermore, it is in an area where the construction will be faster. In Grand Forks and Malmstrom, you are well north, and have very heavy winters. We will not encounter that severe situation at Whiteman.

#### CONCLUSION OF STATEMENT, DEPUTY SECRETARY OF DEFENSE

Mr. PACKARD. Now, Mr. Chairman, I know some have raised questions of why it is essential to go forward with additional Safeguard defense now. I would answer the "why now" questions in this manner:

First, Modified Phase II of the Safeguard defense enhances the prospects of meaningful negotiation and of success at SALT by permitting us to postpone hard decisions on additional offensive weapon systems actions this year.

I think you would agree with us, after looking at the development of the threat, that if we do not achieve some agreement on arms limitation, we will have to take some additional steps. We believe it is not wise to do that until we, at least, get some better indication of the prospects for a meaningful agreement on arms limitation.

#### POLICING OF ARMS CONTROL AGREEMENT

Mr. WYMAN. Mr. Secretary, if you do achieve some meaningful agreement, how can you police it?

Mr. PACKARD. We have considered the verification problem for various possible agreements in a great deal of detail. This has been a rather lengthy exercise. The question of whether or not you can police it depends on what is limited. If we simply limit the number of missiles, the capability we have of identifying the silos, and so forth, is quite good. If we have an agreement to limit MIRVs, for example, it would be very difficult to monitor except with some on-site inspection. I could give you a much more detailed answer, but we have carefully considered how you would verify that the agreement was being adhered to.

There is also another consideration, and it is that agreements are less sensitive to violation for certain combinations of weapons than for others. Again, in preserving an adequate level of assured destruction, one of the things our MIRV program does is give us an increased margin of confidence in our ability to penetrate Soviet defenses.

There are, of course, a number of other factors.

Second, it permits this restraint while still providing a prudent hedge against moderate threats; and at the same time, it preserves an option to meet, if necessary, a heavier threat.

Third, it enables us to purchase this needed insurance in fiscal year 1971 at a very minimum expenditure—substantially less than \$100 million.

Furthermore, it keeps the momentum of the program going. If we are not successful with the SALT talks, we will have a system as capable as may be necessary.

The expenditure for this program would be less than \$100 million in fiscal year 1971. The difference between proceeding only with phase 1 and moving ahead on modified phase 2 involves an expenditure in fiscal year 1971 of less than \$100 million.

#### EFFECT OF NOT FUNDING PHASE II

Mr. MINSHALL. If you did not get the \$100 million this year, what would that do to your program?

Mr. PACKARD. One major problem with not going ahead with this modified phase 2 program now is that it would cause further delay in the time when we could have protection of Minuteman and the time when we could complete the full 12-site deployment.

General Starbird has already pointed out that we have had some stretchouts in the program. This was partly the result of our decision to design a plan which would not require an expenditure rate of more than some \$2 billion per year in the years ahead, so that we could stay within what we predict our overall budget levels are likely to be.

A delay in the program at this time would cause a substantial delay before the time we could have it operational.

Mr. MINSHALL. What do you mean by "substantial"?

Mr. PACKARD. At least 6 months, and probably a year or so for the full 12-site system. As it is now, the best we can do, unless we go into a very accelerated, rapid program, would be to have the full 12-site system available in \_\_\_\_\_. We think that delaying the potential availability of the full system beyond that time would be very unwise.

#### EFFECT OF SAFEGUARD ON SALT TALKS

Mr. MINSHALL. The Russians know this. How would either going ahead with this program or not going ahead with it affect the SALT talks?

Mr. PACKARD. We think it is very important for us to go ahead with the program to indicate to the Soviets that, if we do not reach an agreement, we have the will and capability to do whatever is required to maintain our nuclear deterrent.

I think it is the opinion of all who have considered the matter that it is important for us to have this program authorized. We think this would improve our ability to negotiate with the Soviets.

One important part of the program, of course, is its flexibility. We have tried to make a recommendation that does not do any more than we think is the minimum necessary in terms of meeting the threat. If anything, it is not enough. I am a little troubled by that, frankly, but in view of the other considerations involved, we felt that this was as much as we could recommend.

Fourth, it is a clear evidence that the United States intends to make the Nixon Doctrine foreign policy work by providing adequate defenses to prevent other nations from engaging in diplomacy by nuclear blackmail against us in coming years.

In other words, Mr. Chairman, the evident and continuing threats from the Soviet Union and Communist China force upon us the necessity of continuing progress on the Safeguard anti-ballistic-missile defense system in fiscal year 1971. We hope SALT will lead to a reduced

Soviet threat but, meanwhile, it is essential to preserve, as far as is possible, all available strategic force options in this transitional budget year. As I indicated earlier, without the Safeguard increment provided by this budget, we would be faced now with the hard decisions about adding immediately to our offensive systems rather than being able to await hoped-for progress in SALT.

Our decision now to proceed with further deployment of Safeguard gives us another year in which to pursue SALT without ourselves exacerbating the arms control environment through actions on offensive systems.

An important part of our proposed program is its flexibility. It can be modified as required by changes in the threat which result from arms limitation agreements or unilateral actions by the Soviets or Chinese Communists. In the meantime, it is essential that we continue this defensive program.

Mr. Chairman, this completes my formal statement. We will be pleased to answer any further questions you or the committee may have at this time.

NEW OBLIGATIONAL AUTHORITY REQUESTED FOR SAFEGUARD FOR FISCAL YEAR 1971

[In millions of dollars]

	Phase 2 increment					Total
	Phase 1	Whiteman site	Add Sprints, G.F. and Malm.	Advance preparation, 5 sites	Other	
R.D.T. & E.....	365					365
PEMA.....	458	178		25		661
MCA.....	169	127	35	15	11	357
OMA.....	42				11	53
MPA.....	12				2	14
Total NOA.....	1,046	305	35	40	24	1,450
Estimated expenditure.....	(860)					(910)

PROTECTION OFFERED BY PHASE II

Mr. WYMAN. If you expend full funding for the full phase 2 to completion in ——— how much protection will that give us?

Mr. PACKARD. The full phase 2 program, with 12 sites, could be operational in ———. It would provide area protection against the threat of a Chinese attack or an accidental launch, protection for our bomber bases against submarine-launched Soviet missiles—a problem that gives us a great deal of concern—especially if they had depressed-trajectory missiles—because the flight time of these missiles to the bomber bases would make it very difficult to get our bombers off—as well as a substantial level of protection for the Minuteman sites.

The full system gives us these three important types of protection.

Mr. WYMAN. Would that be protection against either a MIRV type of delivery or a second wave of missiles?

Mr. PACKARD. The defense is limited by the number of interceptors it has. People can devise scenarios for many different ways of mounting an attack. There are lots of tricks in the trade, and the scientists are always working on new things.

But when you are in this kind of business, you want to be sure that what you propose works. Our approach—and I am sure their approach—is that the only safe way to be sure you can overwhelm a defensive system is to attack it with a sufficient number of missiles to exhaust its interceptor missiles. We believe there isn't any other prudent way to play this serious a game.

This ABM system would raise the price considerably to the Soviets of making a surprise attack, and it should therefore, deter them from attempting it. We think this is a very important capability.

As I have indicated, if this Soviet buildup continues, either with additional missiles or with accurate MIRV systems or both, we would probably have to add some small radars and additional defensive missiles in our Minuteman fields to provide appropriate protection.

We have examined the capability of the Safeguard program against a number of alternative possible SALT agreements, such as leveling off at the present numbers, and so forth, and it is quite appropriate for that sort of situation.

If they continue to build up along the lines that Dr. Foster indicated to you, where they get up above 2,000 or 3,000 RV's, we have a very serious problem on our hands, and there is no point in denying it.

#### EFFECT OF ACCELERATING SAFEGUARD ON SALT TALKS

Mr. MAHON. Before we close, I think it might be well to point out that there are many who believe, that if we proceeded, not with a modified phase 2, but with the full-scale phase 2 and demonstrated more quickly to the world that we are going forward as rapidly as we reasonably can to counter the threat of the Soviet Union, which apparently will have quite a superior force of intercontinental ballistic missiles, it would tend to make more likely the hoped-for success of the strategic arms limitation talks.

I do not know whether you agree with that or not, Mr. Secretary.

Mr. PACKARD. I agree that we must show continued movement on this program. However, I want to emphasize that the program we are recommending is an extremely prudent one that maintains the President's options while remaining entirely consistent with our desire to achieve success in the SALT talks. In view of the threat and in view of that consideration, also, it might be better for us to go ahead more rapidly, but we feel that the modified phase 2 program we are recommending demonstrates restraint while we move forward with arms limitation talks.

We are trying to take into account some of the budget problems, also. It was really with all of those things in mind that we recommended this step, which we consider to be the least we can do at this time.

#### DELAYING DEVELOPMENT UNTIL RESEARCH COMPLETED

Mr. ADDABBO. We have had testimony here on the question of black-out and interference. Since we do not know where we are going, would it not be better to wait until we get the necessary research out of the way, or at least a little further advanced, before we spend further money on this? Should we not hold off on that basis?

Mr. PACKARD. I think that is an important question. You may have noticed in some of my comments that I am very much in favor of getting development as far along as we can before we go into production. So, in principle, I think that is very important.

Unfortunately, with a big system of this kind, and in view of the time constraints, it is just not practical for us to go ahead and put the full system together before we continue the deployment of it. The system has a number of separate elements, each of which is being checked out carefully, as was indicated in our discussion of the test program.

I have reviewed the status of the whole program in more depth than we have indicated here today, and I am convinced that the program is in very good shape. I want to say before this committee that I believe that General Starbird is one of the best program managers in the Army. I am satisfied that we are on firm ground in going ahead with the program that we are recommending.

#### CAPABILITY AGAINST FOBS

Mr. RHODES. Dr. Foster, is there any capability against FOBS in this system?

Dr. FOSTER. Yes, sir, Safeguard has an anti-FOBS capability provided by both the modified Spartan and the Sprint. The full phase 2 Safeguard system, using the modified Spartan, will be able to provide in addition to self defense of the Safeguard radars, defense against FOBS for a significant portion of our alert bomber force. Both modified Spartan and Sprint will be capable of defending the National Command Authority against attacks by FOBS. FOBS, because of its lack of high accuracy, would not be effective for attacking our hardened Minuteman silos. Therefore, consistent with the Safeguard objectives against the Soviets, the system will defend against FOBS.

Mr. RHODES. It can, assuming the FOBS land in the area protected by either Spartan or Sprint. If it lands on New Orleans, it is all over.

Dr. FOSTER. As you recall the primary purpose of Safeguard against the Soviet threat is to defend our retaliatory forces, Minuteman and our alert bomber force, and the National Command Authority. The Safeguard system is not designed to defend our population against a determined and massive Soviet attack.

#### PROTECTING SOUTHERN UNITED STATES

Mr. RHODES. Do you plan to extend the system to protect the southern part of the United States as well?

Dr. FOSTER. The population of the southern part of the United States would be well protected by the full phase II Safeguard area defense against the Chinese Communist threat and for conventional SLBMs which might be accidentally launched. Consequently, there are no plans to extend the Safeguard System beyond the twelve site full Phase II deployment.

General STARBIRD. In the 12-site full phase II deployment, there are PAR antenna faces looking seaward and southward.

Mr. PACKARD. The missile site radars also provide all azimuth coverage.

Mr. MAHON. Thank you very much, gentlemen. We will continue our discussion on Friday.

FRIDAY, APRIL 10, 1970.

## CHINESE THREAT

Mr. MAHON. The committee will resume the hearing with Secretary Packard and others with regard to the Safeguard program.

Mr. Secretary, your statements and the statement of Secretary Laird emphasize the usefulness of the Safeguard system against the Chinese threat.

I would like to discuss with you the question of whether or not the Chinese threat is an authentic threat, really. Do you believe that it is likely or probable that the Chinese, when they obtain a dozen or so ICBM's, will be tempted to launch them against the United States? Would such an act be in consonance with the actions, not the words but the actions, of China in the foreign policy area since the Korean war? If China did strike the United States with ICBM's and we retaliated with ICBM's—we would have an overwhelming and total superiority—would hundreds of millions of Chinese probably be killed and the political apparatus of China probably be destroyed? Is it the policy of the administration to retaliate in force if a Chinese nuclear attack should be launched upon the United States?

Will you discuss this question with us? Are we really on sound ground in our approach to the problem of how to deal with Red China in regard to the intercontinental ballistic missile problem?

We all realize that an intercontinental ballistic missile capability in the hands of the Chinese would give the Chinese some blackmail capability against other powers. Of course, we are occidentals, and probably we cannot track in our own mind the oriental mind.

Have you tried to take this whole issue apart by the smartest brains in the Defense Department and the Government and come up with a rational decision?

Mr. PACKARD. Mr. Chairman and gentlemen, we have given this question a good deal of consideration because, as you know, the President has stated that, if the Chinese develop a significant nuclear capability, it will be very important for the United States to have a defense against it.

## CONCENTRATION OF CHINESE POPULATION

Mr. MAHON. Will you let me interrupt? I failed to say one thing I had meant to say.

I realize that China is a big country. Geographically, it is huge. I realize the Chinese people are probably dispersed more than people are in this country, and probably dispersed more than the people of Russia are. I realize that by the launching of our entire nuclear stockpile which is on launchers, we could not destroy every vestige of life in China.

On the other hand, I realize that there are heavy concentrations in China, too. I would like to know a little more about those concentrations and what you have concluded about them.

That finishes the background of the question which I wanted to ask.

Mr. PACKARD. On that particular point, since you have raised it and since it is relevant to this whole question, I would mention that at

the present time the industrial capacity and governmental activities of China are concentrated in a relatively small number of cities, while at the same time their population is very widely dispersed. I do not know whether we have the figures here—but if not, I will provide them—to show you what percentage of the Chinese population lives in the 1,000 largest cities, but I know that it would be necessary to destroy a thousand cities in order to kill even a relatively small proportion of their population.

Mr. MAHON. In your response, at least for the record, I wish you would show the relative density of a couple of dozen cities.

Mr. PACKARD. I have a table which will show you, for example, how many cities include 10 percent of the population—

Mr. MAHON. Chungking, Kuming, Shanghai, and places like that.

Mr. PACKARD. We can put a table in the record on this point, and it will show you figures for China as well as the United States and the Soviet Union which will give some indication of the degree of urban concentration, although it does not identify the specific cities.

(The table follows:)

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	25.0	3.7	30-35
50.....	42.0	55.0	20.0	40.0	6.8	50-60
100.....	48.0	65.0	25.0	50.0	8.6	65-75
200.....	55.0	75.0	34.0	62.0	9.0	80-90
400.....	60.0	82.0	40.0	72.0	10.0	85-90
1,000.....	63.0	86.0	47.0	82.0	11.0	-----

Mr. PACKARD. In Communist China, the 10 largest cities contain 3.7 percent of the total population. That contrasts with the situation in the United States, where the 10 largest cities contain 25 percent of the total population.

There is a big difference between the United States and China in terms of population concentration. The 1,000 largest cities encompass only 11 percent of the population in Communist China, while the 1,000 largest cities include 63 percent of the population in the United States.

#### CONCENTRATION OF CHINESE INDUSTRIAL POPULATION

Mr. SIKES. What about the military and political heads of the Chinese nation. I think that may be more significant than the number of Chinese who would be killed. I think we want to know what you could do with a calculated number of strikes against the military organization and the political organization of Red China.

Mr. PACKARD. I do not have figures here for the concentration of Chinese military installations, but I do have data on the concentration of their industrial capacity. This is probably a fairly relevant measure of the matter you are concerned about.

I want to emphasize that these figures are as of the present time, because there are some trends that I will talk about in a minute.

Our estimate is that the 10 largest Chinese cities encompass 30 to 35 percent of their industrial capacity and that the largest 400 cities include 85 to 90 percent of their industrial capacity. Again, let me emphasize that this is the best estimate we have of the situation as it is today.

We know, however, that their industrial plans call for locating new plants in the country's interior, away from vulnerable coastal or border areas—

I think, to sum it up on that point, that the situation today is that we have an adequate military capability with the present numbers of missiles on launchers, bombers, and so forth, to inflict a very substantial level of destruction on China. We would not be able to kill a large percentage of their people, but we would be able to destroy a large percentage of their industrial capacity.

#### SIZE ATTACK REQUIRED TO DESTROY CHINA

Mr. MINSHALL. How many strategic targets—industrial, city, or military—what is the minimum number you would have to hit to effectively destroy the capability of the Chinese to wage war?

Mr. PACKARD. I do not know whether I can give you a very precise answer to that question. I think I would have to do more thorough analysis in order to give you a precise answer.

The point I want to make is that the situation existing today is changing; they are building many of their new industrial facilities in new centers, thus gradually increasing the number of industrial target areas. We believe that they are not going to have an ICBM capability of any consequence for 4 or 5 years, or possibly a little bit longer.

(Off the record.)

Mr. PACKARD. Again, to reiterate, as of today they do not have the capacity to deliver a nuclear warhead on the United States, although they have tested nuclear devices, but we do not now have the Safeguard system either.

We have to look at what we believe the situation will be 7 or 8 years from now. The important point is that as a primarily rural society the Chinese population is already widely dispersed, so it would take a rather large attack to destroy a substantial part of the population. They are gradually moving toward dispersal of their capability—their military and particularly their industrial productive capability. It is difficult to predict just how far they will go with that, but industrial dispersal requires long-range planning and is a slow process.

We are simply saying that there is some question about whether we would be able to inflict what *they* would consider to be an unacceptable level of fatalities and damage.

It is impossible for anyone to say precisely what level of fatalities and damage is really necessary for deterrence. The previous administration talked about 20–25 percent of the population and 50 percent of industry in the case of the Soviet Union. Certainly, we would not want to hazard that much of a loss to our country without giving it the most serious consideration and without the highest stakes being involved.

The problem we have with the Chinese is that deterrence poses some difficulty from this standpoint, since their population is so widely dispersed. A related matter is that this is a country which, as you know, is under the control of a very small minority which has traditionally placed a rather low value on human life. It is very difficult, if not impossible, for us to assess precisely what level of fatalities and damage would constitute, in their minds, a deterrent which would constrain them from using the nuclear capability they might have against us.

That is probably the key issue in this matter. We just cannot be sure that they would be deterred to the extent that we believe the Soviets or some other nation would, by the threat of retaliatory attack.

#### LEVEL OF RETALIATION IN EVENT OF CHINESE ATTACK

What the national policy should be would seem to me to be a question which would have to be evaluated in terms of the circumstances. I myself think that if the Chinese had nuclear weapons and we got into conflict with them, perhaps about Asia or some other matter, and they did indeed attack us with even a small number of nuclear weapons, then we would certainly be highly likely to retaliate in a massive way.

The question, however, would be much easier to answer if you had the Safeguard area defense and thus had another alternative to a retaliatory strike that would destroy millions of Chinese.

#### VALUE OF SAFEGUARD

For that reason, it seems to me that the area protection against the Chinese threat could be a very important asset in future years, since it would enable the President to deal with diplomatic confrontations in the Asia theater and support American interests in that part of the world, and possibly, in other parts of the world that might be involved, without having to risk an all-out nuclear conflagration.

I can sum this matter up in my own mind, after having studied it, by saying that this would be a very desirable and very important asset for us to have in this kind of a situation. This is, however, a question that requires each of us to judge the value of this capability in relation to other things on which we might want to spend our money.

I am convinced that, since the cost of the Safeguard system over the next 6 to 8 years, would be a very small percentage of our GNP and of our military budget, and since the Safeguard system would be so useful in the types of situations we have just discussed, it would be a very wise and desirable undertaking for us to have this capability.

I think it would be very important insurance directed toward minimizing the likelihood of an all-out nuclear war with the Chinese.

#### SLIPPAGE IN CHINESE ICBM PROGRAM

Mr. MAHON. Another question I want to ask you is, since you now project that the Chinese Communist ICBM threat has been delayed, why is it necessary to proceed now with another step toward providing an area defense capability?

Secretary PACKARD. First, it should be noted that an area defense capability would be required not only for defense of our population

against the Chinese threat but also for protection of our strategic bombers against the Soviet SLBM threat, and for defense against an accidental launch from any source.

With regard to the Chinese threat, although the Chinese ICBM program has apparently slipped a year, our ABM deployment has slipped an almost equivalent amount. In any event, it must be remembered that for a defense of cities to be effective against a small threat—damage denial—the entire country must be protected, and hence the deployment must be completed or virtually so. All intelligence sources agree that the Chinese could have an ICBM capability by the time of completion of a countrywide area defense, if a decision is made to deploy such an area defense.

#### U.S. RETALIATORY ATTACK ON CHINA

Mr. MAHON. Let me get back to the question. I asked: If China did strike the United States with ICBM's and we retaliated with ICBM's, would hundreds of millions of Chinese probably be killed and the political apparatus of China probably be destroyed?

You have commented on that to some extent. I wish you would elaborate, at least for the record, whether or not the political apparatus of China would probably be destroyed in such an attack.

(The information follows:)

As indicated in Secretary Laird's Defense report to the Congress on February 20, we do not expect the Chinese to have an initial operational capability with ICBM's until at least 1973, and perhaps not until 1975. At best we think they might have between 10 and 25 operational launchers by 1975. Any attempt to predict now what the Chinese might do 5 years hence when they have such a missile force would be speculation. We know, however, 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. Certainly we have the capability to retaliate with massive force, if the Chinese were to launch an attack, and we could cause the deaths of a considerable portion of China's population and the destruction of her industrial base and her political apparatus. However, since we believe that it is possible to build an effective defense against the kind of attack the Chinese might be able to launch during the 1970's we believe it would be foolhardy to rely on the threat of retaliation alone. We believe it should be our policy to protect ourselves against a Chinese attack and thus be in a position to judge the question of retaliation on the basis of the overall strategic situation at the time when an attack takes place. Furthermore, protecting our population against a Chinese attack strengthens the credibility of our commitments to our allies in Asia by denying China the ability to threaten the United States with massive destruction and loss of life in the event the President should elect to take action against Chinese aggression, regardless of the nature of that aggression.

#### U.S. POLICY IN EVENT OF CHINESE ATTACK

Mr. MAHON. Here is a question that I want you to meet headon, please: Is it the policy of the administration to retaliate in the event of a Chinese attack on the United States?

Mr. PACKARD. Mr. Chairman, I can give you my opinion, but I cannot speak for the President.

In the case of a nuclear attack by the Chinese against the United States, I think we would have no other course but to retaliate. It

certainly has to be our policy to retaliate, because that is what deterrence is all about. We have to convince them that we would retaliate, because that belief is hopefully, what would deter them from attacking.

I think the answer has to be that if we are to have nuclear deterrence, it has to be our policy to retaliate in a way that would be unacceptable to them, and that is how we hope to avoid getting into a nuclear confrontation in the first place.

Mr. MAHON. Of course, if we have a kind of namby-pamby, wishy-washy, "maybe so" approach, this would seem to me to encourage adventures by the Chinese.

Mr. PACKARD. I think you are quite right, Mr. Chairman, in that assessment. Deterrence requires not only the capability to retaliate in an unacceptable way but also the will to do so. If they doubt your will, then, to some extent, you have lost the effectiveness of your deterrent.

#### ABILITY TO ATTACK NATIONALIST CHINA

Mr. MAHON. The Chinese have not, in recent years, attacked Quemoy. They certainly could have developed the capability to bomb Nationalist China in the last half decade. How do you explain this? Are the Chinese adventuresome people in this respect?

Mr. PACKARD. I would explain that by taking an overall look at the state of development of China at this time. They have moved through a period of rather dramatic change. They are in the process of building up some industrial capability. They have made good progress, but their gross national product is only in the range of 10 percent of ours.

They have been putting a great deal of effort into building up their industrial capacity. They are also putting a great deal of effort into building a nuclear capability and building missiles.

The fact is, as I assess it, that they have really not been in a position to undertake venturesome actions in Asia, even close to their own borders, because I believe they see it as more important in the short run to build up the capability of their country so that they will have the ability to do whatever they think is appropriate in the long run.

I think it also very helpful to recognize that the Communist philosophy in general is not concerned primarily with the immediate future. Communists tend to take a long-range view of things. They are much more likely to be a little cautious in the short term if they think that in doing so they will further their longer term interests.

I think all of these considerations—their philosophy, the state of their country's development and the state of their resources—are such that they are not likely to take too aggressive a stance in the near term.

Again, I would emphasize that when we talk about the Safeguard program, we are looking out 5 or 10 years ahead. That, I think, is what troubles them, because the Communist philosophy engenders the belief that it is superior, and that it will prevail in the long run.

The fact that they have avoided direct military confrontation with the United States in the last few years does not lead me to the conclusion that they will not be aggressive in the future, and I do not think we can afford to adopt that conclusion.

Mr. MAHON. I do not know, of course, what the Chinese position might be in the future, and I do not know exactly what the Chinese

position is now. I think we should not take anything for granted, and we should take the right course.

This committee has supported, as you know, the Safeguard system and the Safeguard system as it relates to Red China. But I thought it would be helpful for us to discuss this aspect of the matter.

#### SAFEGUARD AS A DETERRENT

Dr. FOSTER. Mr. Chairman, I will try to respond to the question, if I may.

The first question the chairman asked concerned the likelihood that the Chinese would launch one or two dozen missiles when they had them in their inventory.

I think, as the Secretary indicated, the question would have to involve some recognition that a threat would arise because of a conflict in international relations. Whether or not the Chinese would launch them, no one can say. But one thing we can say is that if they had that capability in being, they would be able to threaten to launch them. We do not know what will they would have behind that threat, but we do know something, and that is, if we had a Safeguard system they would have to reckon with the very high probability that our technology would work against their threat.

Therefore, it is not simply a question of retaliation, not simply a question of destroying large cities in China, but they must reckon with the possibility that even if they launched all of their strategic force, no city would be destroyed in the United States.

That is the major difference that Safeguard creates. It provides a defense that in itself is a very serious deterrent to the Chinese against making such a threat in the first place.

#### U.S. RETALIATORY ATTACK

With regard to the second major question, that is—whether or not hundreds of millions of Chinese would be killed in the event of a U.S. retaliation—the Secretary indicated it depends very much on the dispersal of the people from the major cities. This is a relatively easy thing for them to do because they have very few cities and, as an agrarian nation, they could accommodate a large flow of people from those cities.

It depends also on another matter, and that is whether or not the United States would be free to launch hundreds of missiles against China. In the mid-1970's the strategic balance between the United States and the Soviet Union might become so precarious that the United States would not be willing to launch hundreds of missiles against China. It might leave us in such a position so that in a period of crisis the Soviet Union might be tempted to make a strike.

Therefore, firing extra hundreds of missiles at China could endanger our deterrence of the Soviet Union.

There is one other small point I would like to add and that has to do with the question of whether or not the Chinese foreign policy might be aggressive, not today but in the next 5 to 10 years. I think it would be very helpful to this committee if you were to take the time to see the film produced by the Chinese explaining their nuclear program.

It is a rather short film which shows the Chinese preparations for the nuclear tests held to observe effects on their troops, aircraft and vehicles in the field, and the effects of several of their detonations.

MR. SIKES. You gave us a very interesting summation. We would like to see the film. What is the time required to show it, and when can it be available.

DR. FOSTER. We could make it available any time starting this afternoon.

MR. SIKES. What is the time required to run it?

DR. FOSTER. About half an hour, sir.

(Off the record.)

DR. FOSTER. It is a Chinese film in color. The striking feature of this film—at least to us—is the attitude that it seems to be describing to the people in China—that they can accept an attack, survive it, and grow. It is similar to some of the early notions in this country when we first had atomic bombs. I found it very disquieting.

MR. SIKES. I would like to suggest the staff work out a time when we can see this film. It would be well worthwhile.

Thank you very much, Dr. Foster.

Mr. Secretary.

#### PRESIDENT'S POSITION ON DEFENSE AGAINST CHINESE

MR. PACKARD. Mr. Chairman, I thought it might be useful to emphasize for the record that the President feels rather strongly about the importance of the area defense capability against the Chinese threat. He made some remarks on that subject during his January 30th news conference. It might be useful to have his remarks in the record here. I will not take the time to read them now, since you have heard them, but I will provide them for the record.

I would like to say in this connection that the President's statement was in response to a question. I do not believe he implied that he put more importance on defense against the Chinese threat than on protection of our Minuteman force, so it is a little out of context. But he feels very strongly about the need for the area defense capability in connection with our future relations with the Chinese Communists.

He hopes, as I think we all do and should, that there will be some kind of normalization of our relations. It would be better for all of us if we did not have to be concerned about these things, but unless and until that comes about, in my view, we will have to keep our guard up.

(The information follows:)

(The relevant passage from President Nixon's press conference of January 30, 1970, follows:)

MR. BAILEY. "Mr. President, sir, in connection with the ABM, there have been suggestions that expanding the ABM from a protective system for Minuteman into an area defense of cities might raise problems in connection with the negotiations on arms control.

"Without going into too much detail, can you tell us whether your decision to proceed with the second phase involves area defense or simply an additional defense of Minuteman like the first phase?"

THE PRESIDENT. Mr. Bailey, our decision involves area defense. The Minuteman defense is only effective insofar as an attack by a major power taking out our retaliatory capacity. The area defense, on the other hand, is absolutely essential as against any minor power; a power, for example, like Communist China. \* \* \*

## SAFEGUARD 5-YEAR PROGRAM

Mr. SIKES. The committee would like to have further clarification on the Department of Defense's 5-year ABM program. Last year funds were requested for phase 1. This year funds are requested to begin phase 2. If the pending request is approved, according to the present planning, what request will be made each year and through the 5-year period for which Defense planning is done? Also, Mr. Secretary, with the production commitments involved and the financial impact of the ABM program, it would appear that you would be required, as a matter of good management, to have a long-range plan for ABM deployments, even though SALT, hopefully, may cause these plans to be altered.

It would also seem that Congress should be advised of your tentative plans. Do you tentatively plan to complete the full phase 2 Safeguard deployment?

Mr. PACKARD. In the first place, let me emphasize that the Safeguard program is one in which a decision on future steps will be made each year after review of the technical progress, the development of the threat, and the relevant diplomatic considerations.

The modified phase 2 program that we are recommending in the fiscal year 1971 budget is designed, as we said the other day, to enable us to move ahead with the program in a way that would permit us to proceed with the full system if the SALT talks are not successful and if we decide to deploy it. On the other hand, the fiscal year 1971 program will also place us in the position where, if the SALT talks do result in agreement on a limitation of ABM, we will not be so far along in the program that we will not be able to respond.

We have conducted planning on the assumption that the SALT talks will not be successful, and that the full 12-site program will be necessary. That planning has been done in relation to our overall 5-year defense program.

We are very much aware of the likelihood that there will be some limitations on the size of military budgets over the next 5 or 6 years. The entire military program has been given a general assessment, and we are continuing to examine it in detail in connection with the fiscal year 1972 budget.

In order to be in a position to move ahead with the full 12-site system in case that becomes necessary, we have planned a program to accomplish this with an obligation rate of about \$2 billion a year.

There is 1 year in which obligational authority might rise just a little above that.

This program was developed in connection with overall strategic force planning. We believe that if SALT fails we cannot only deploy the full Safeguard system but also, in connection with our other strategic forces, proceed with ULMS, B-1 and other programs that are underway and still keep our annual expenditures on strategic forces at or under the ——— billion level.

This assumes about a ——— billion overall Defense budget level.

That question, of course, is one that Congress will have to answer also. We have worked with the Council of Economic Advisers and the Bureau of the Budget to try to get some understanding of what the total resources for all Federal programs, Defense and non-Defense,

will be, and to work out the planning so that the Safeguard program, if needed, can be completed within the context of our overall national priorities.

On the question of future year plans and funding requests, the details of the Safeguard modified phase 2 deployment have not yet been entered into the 5-year defense program. However, if the present request is approved and the President elects to request approval of no additional sites (in other words remain at the modified phase 2 level) the total DOD acquisition cost of the system would be about \$5.9 billion. Slightly less than \$2.3 billion of this amount has been appropriated in fiscal years 1967-70. A little less than \$1.4 billion of the acquisition cost (out of the \$1.45 billion total Safeguard request) is being requested in fiscal year 1971, and just under \$2.3 billion would be required in fiscal years 1972 through the first half of fiscal year 1975, which would be the end of the deployment period for the modified phase 2.

If, on the other hand, the present request is approved and the President decides to request approval to proceed with the full phase 2 deployment in fiscal year 1972, the total acquisition cost of the system would be about \$10.7 billion, of which slightly less than \$2.3 billion has been appropriated in fiscal years 1967-70, a little less than \$1.4 billion is being requested in fiscal year 1971, and just under \$7.1 billion would be required in fiscal years 1972 through the first half of fiscal year \_\_\_\_\_ which would be the end of the deployment period for the full phase 2. These costs are based on December 1969 price levels. Some economic inflation, with a resulting increase in costs, will undoubtedly occur; however, in accordance with Bureau of the Budget policy, inflation beyond December 1969, price levels has not been included in our estimates.

#### EFFECT OF INTERRUPTING PROGRAM

Mr. SIKES. There have been times when Congress has sought to slow down the procurement of weapons systems, and departmental witnesses have pointed out the difficulties which ensue when production schedules are interrupted. To what extent is the request for the funding of phase 2 in fiscal year 1971 based on a desire to continue the various components of the Safeguard system without interruption? Could this program be interrupted without harm to the system itself?

Mr. PACKARD. We have taken that fact into account, along with the fact that the threat is growing and the fact that the SALT talks are under way. We have tried to recommend a plan that would enable us to proceed with the Safeguard program and establish a minimum production base, which will give us a foundation on which the system could be expanded if needed.

But as I said earlier, we do not want to get too far along with the system, in case the decision is made as a result of the SALT talks to pursue some other course of action.

There is no question that program changes, stretchouts, and disruptions from year to year would cause difficulty for any system. They tend to make the program less efficient and more costly. The most efficient programs are those in which the work is accomplished in a reasonably rapid manner, assuming that you do not have too many

unknowns. We have stretched out the schedule for this program to some extent because we wanted the manager to have a little more time to investigate the unknowns.

Our recommended program is a balanced one that reflects consideration of all of these factors. I think it is the right step to take this year.

If we subsequently decided that the full 12-site system should be operational by ———, it would be necessary to request authorization for deployment at the remaining nine sites in the fiscal year 1972 budget, and thus to pursue the program at a higher rate in fiscal year 1972 than we are recommending in fiscal year 1971.

In other words, as Secretary Laird has said, we look at the fiscal year 1971 period as a period of transition. We want to allow time for the SALT talks to be productive. If progress has not been made during this transition year, we will have a very serious question to address with regard to next year's budget, and we may have to recommend a somewhat larger fiscal year 1972 program, but one within this overall plan we have talked about.

#### PHASE I ACCOMPLISHMENTS TO DATE

Mr. SIKES. Tell us what has been accomplished thus far with the funds appropriated last year for phase 1 deployment. Summarize the present status of phase 1. You have let some construction contracts. We would like to know where you stand and what progress is actually being made in the program, and whether the cost estimates have been realistic to date.

General STARBIRD. We are now proceeding with the initial congressionally-approved increment (phase 1) of two site complexes to be located in the Minuteman fields near Grand Forks AFB, N. Dak., and Malmstrom AFB, Mont. Production and construction activities for these phase 1 sites are underway.

The Research and Development portion of the Safeguard program is progressing satisfactorily. On Kwajalein Atoll in the Pacific, the prototype Missile Site Radar (MSR) began radiating power in September 1968 and has been under checkout since that time. It has met or bettered most of its design objectives, and no serious deficiencies have been found. Beginning in March 1968, checkout of the MSR data processing system was initiated, and successful operation of four data processing units in parallel has since been achieved. MSR software for the first part of the system test program has been completed and is being installed. Beginning in July 1969, tracking of local targets was accomplished with the initial software and, in December 1969, two ICBM's launched from Vandenberg AFB, Calif., were successfully tracked. Also, at Kwajalein, the Spartan interceptor has satisfactorily completed the first phase of development testing. We have had 15 launches, of which 11 were completely successful, two partially successful, and two failures. The Spartan will not be integrated under MSR control in the system test program. Our Sprint interceptor is being tested, also satisfactorily, at White Sands Missile Range, N. Mex. We have had 38 launches, of which 19 were completely successful, nine partially successful, and 10 failures. Two of these failures occurred since September of 1969. These two failures,

which occurred after a period of very high success, were diagnosed and engineering corrections proven by a recent flight although the flight was only partially successful. The White Sands tests will be concluded shortly, and the system tests for Sprint started at Kwajelein. The Perimeter Acquisition Radar is under fabrication and the first installation will be made at Grand Forks (the first Safeguard operational site). We have encountered no serious technical problems in this development, and we have confidence of meeting the presently scheduled Equipment Readiness Date for the first PAR site. Certain important components are now being tested and, by September 1970, about 95 percent of the PAR components are scheduled for release for production.

With regard to the production program at the time the Safeguard decision was made a year ago, the Army was well started on the preparation of manufacturing design, on tooling, and hiring and training of personnel for the Sentinel deployment. We had about 5,000 production workers employed in our prime and first tier contractor production effort and contemplated a further steady buildup. Immediately after the decision to deploy Safeguard, we reoriented our effort so that the work being accomplished would be directly usable in Phase 1 of Safeguard. We decided, however to withhold a further buildup of the production complex until there was a clear indication that the Congress had passed, and the President had signed, the fiscal year 1970 Defense Authorization and Appropriations bills before committing a major portion of the fiscal year 1970 Safeguard PEMA appropriation. We now have active phase 1 production underway and the production base now includes about 7,300 prime and first tier contractor employees. We have obligated the necessary funds to procure the hardware for the Grand Forks PAR and MSR, as well as the Data Processors for Grand Forks and for Malmstrom, and for the Tactical Software Control Site (a tactical software test facility) at Whippany, N.J. In addition, we have placed the orders for approximately \$20 million for other long lead time items to be used in components to be procured in full in fiscal year 1971.

With regard to the construction program: Under the Sentinel program we had made preliminary surveys of the Grand Forks and Malmstrom site complexes. We had acquired certain engineering data from this effort, and immediately reassigned the architect engineers to work on designs applicable to the Safeguard sites. The Secretary of Defense, however, decided not to embark on any further on-site survey or construction until there was a clear indication that the Congress approved proceeding with phase 1. After passage of the construction authorization bills by both Houses of Congress in October, engineering personnel went to the prospective sites, finalized site selection, and secured the on-site information necessary to permit completion of pre-bid design. The invitation for bids for construction of the Grand Forks PAR and MSR was issued in January 1970. Award of the fixed price contract was made on March 31, 1970, in the amount of approximately \$138 million to a joint venture headed by Morrison and Knudsen. With respect to the Malmstrom PAR and MSR, the sites have been selected, site acquisition is underway, and requests for bid on advance construction have been issued. Award for the advance

construction is to be made in early May and award for full construction in early calendar year 1971.

The cost estimates presented to date are realistic in that they are based on the best information available to us. There has been some cost growth experienced, which I pointed out in my prepared statement to this committee on April 8, 1970.

#### INCREASE IN CONSTRUCTION COSTS

**Mr. SIKES.** To what extent have actual construction prices for those elements of the Safeguard phase 1 deployment now under contract been in excess of the cost estimates presented last year?

**General STARBIRD.** You will remember that the phase 1 construction cost presented last year totaled \$490 million. Subsequent to that presentation, during preparation of the November 30, 1969, Safeguard selected acquisition report (SAR) in December 1969, a reevaluation of costs and requirements was made. This evaluation showed that growth in construction costs had occurred during the period of December 1968 to December 1969. Inasmuch as the phase 1 construction costs of \$490 million were based on December 1968 prices, an increase to December 1969 price levels was included in the SAR in the amount of approximately \$32 million. There were other changes detailed in the November 30, 1969, SAR which resulted in a net reduction of \$5 million. The overall result was an increase in the phase 1 estimate to approximately \$517 million in the November 30, 1969, SAR. Subsequent changes in the deployment schedule have resulted in a further increase of \$2 million so that the current estimate of total phase 1 MCA cost is \$519 million.

The only major construction contract which has been awarded to date is that for the Grand Forks PAR and MSR. The official Government estimate for this construction was approximately \$126 million, while the low bid was about \$138 million. The Government estimate was computed in the same manner as a contractor would figure the job taking into account local conditions, current and projected costs, overhead and profit within the parameters established by the invitation for bid. This estimate is prepared during the contract advertisement period and is closely held until bids are opened. The official estimate then provides a measure against which contractor bids received are compared. The program estimate of MCA funds required for the portion of the project awarded included a contingency allowance and was slightly in excess of the awarded price. Thus, funds included in the program estimate of \$519 million are adequate to cover the current contract.

#### SAFEGUARD CONTRACTS AWARDED IN FISCAL YEAR 1970

**Mr. SIKES.** List the contracts which have been let in fiscal year 1970, and show for each the actual contract figure and the Government estimate made prior to bid award.

**Secretary PACKARD.** We will provide that for the record.

(The information follows:)

The attached tabulation is a listing of the Safeguard contracts awarded during fiscal year 1970 (through March 31, 1970), providing the dollar value of the award and the value of the Government estimate.

## SAFEGUARD CONTRACTS AWARDED BY THE U. S. ARMY SAFEGUARD SYSTEM COMMAND

Contract Number	Contractor	Effort	Date	Award Amt	Dollars in Thousands Govt Est
DA-30-069-AMC-333(Y) MOD No. 168	Western Electric Co	Continuation of SAFEGUARD BMD R&D effort (FY 70 Buy)	31 Jul 69	\$249,649	\$260,608
MOD No. 177	Western Electric Co	Provide Long Leadtime items for SPARTAN R&D Hardware and Increased R&D for PAR (Finalization of Change Order)	16 Oct 69	3,400	3,587
MOD No. 178	Western Electric Co	PAR Data Processor Hardware	16 Oct 69	8,883	9,255
MOD No. 182	Western Electric Co	Redesign of SPARTAN Ballis- tic Case	3 Dec 69	7,120	7,723
MOD No. 183	Western Electric Co	Improved MSR Criteria	3 Dec 69	4,900	4,000
MOD No. 185	Western Electric Co	Prototype Tactical Software Control Site Hardware	5 Dec 69	8,665	7,172
MOD No. 187	Western Electric Co	Software and Programming	23 Dec 69	4,427	3,738
MOD No. 195	Western Electric Co	New Mexico State Tax	17 Mar 70	749	None
MOD No. 196	Western Electric Co	Funding Adjustment	20 Mar 70	( 1,115)	1,015
MOD No. 197	Western Electric Co	MSR TSCS Hardware	23 Mar 70	6,774	7,416
DA-01-021-AMC-90027(Y) MOD No. 29	Western Electric Co	Decrease in Facilities	4 Dec 69	( 359)	None
DAH60-69-C-0010 MOD No. 16	Western Electric Co	Key Personnel Courses	1 Jul 69	320	1,000 (covered MOD's 16 & 21)
MOD No. 19	Western Electric Co	Engineer/Service Courses	15 Aug 69	7,878	10,084
MOD No. 21	Western Electric Co	Training Coordination & Planning	14 Oct 69	620	See Mod 16 Above
MOD No. 28	Western Electric Co	FY 70 TASA Training	30 Jan 70	1,295	1,539

DAH60-68-C-0017	Western Electric Co	SAFEGUARD Production (Two Months Effort)	31 Oct 69	27,941	29,797
MOD No. 24	Western Electric Co	Redesign of Certain Training Hardware Items (Finalization of Change Order)	31 Dec 69	( 126)	None
MOD No. 26	Western Electric Co	SAFEGUARD Production (Seven Months Effort & FY 70 Hardware)	31 Dec 69	230,418	261,472
MOD No. 27	Western Electric Co	LMI Trade-Off Model	1 Feb 70	214	365
MOD No. 28	Western Electric Co	Modification of Data Processing Analog Equipment for PAR, MSR & Command & Control Sites (Finalization of Change Order)	20 Mar 70	7	None
MOD No. 34	Western Electric Co	Facilities Installation	14 Jan 70	27	33
DAH60-68-C-0026	Western Electric Co	Facilities Installation	27 Feb 70	( 3)	None
MOD No. 10	Brown Engineering Co	Technical Assistance & Support	31 Oct 69	200	194
MOD No. 12	Brown Engineering Co	Technical Assistance & Support	9 Feb 70	74	74
DAH60-69-C-0024	Brown Engineering Co	Technical Assistance & Support	27 Feb 70	80	79
MOD No. 3	Brown Engineering Co	Technical Assistance & Support	27 Feb 70	250	230
MOD No. 4	Brown Engineering Co	Technical Assistance & Support	18 Mar 70	1	None
MOD No. 5	Brown Engineering Co	SAFEGUARD R&D Study	31 Dec 69	300	292
MOD No. 6	Brown Engineering Co	R&D Study Nuclear Effects	31 Dec 69	75	74
MOD No. 7	Brown Engineering Co	R&D Study Nuclear Effects	26 Feb 70	11	11
DAH60-70-C-0045	Control Data Corp	ADP Services	1 Jul 69	114	None (Option)
DAH60-70-C-0046	Control Data Corp	ADP Services	31 Jul 69	114	None (Option)
MOD No. 1	Control Data Corp	ADP Services	29 Aug 69	227	None (Option)
DAH60-69-C-0016	Control Data Corp	ADP Services	30 Oct 69	909	None (Option)
MOD No. 6	Control Data Corp	ADP Services	31 Dec 69	( 3)	17
MOD No. 7	Control Data Corp				
MOD No. 8	Control Data Corp				
MOD No. 9	Control Data Corp				
MOD No. 10	Control Data Corp				

DAH60-70-C-0053	Control Data Corp	ADP Services	20 Jan 70	1,091	1,052
DAH60-69-C-0004	Stanford Research Inst	Study for Anti Missile	30 Sep 69	3,393	3,470
MOD No. 8	Stanford Research Inst	Missile	31 Dec 69	2,393	2,393
MOD No. 9	Stanford Research Inst	Missile	29 Jan 70	51	48
MOD No. 10	Stanford Research Inst	Study for Anti Missile			
DAH60-69-C-0011	Raytheon Company	Site Operation Advisory	22 Jul 69	59	60
MOD No. 10	Raytheon Company	Study			
MOD No. 11	Raytheon Company	Site Operation Advisory	18 Aug 69	454	464
DAH60-70-C-0035	Kaman Aircraft Corp	Phase III SAFEGUARD	14 Nov 69	459	None (Funding)
MOD No. 1	Kaman Sciences	Communications			
DAH60-69-C-0061	Kaman Sciences	Communication System Test	5 Feb 70	174	None (Cost Growth)
MOD No. 7		Program			
DAH60-68-C-0020	Kaman Sciences	Lethality and Vulnerability	30 Sep 69	966	957
MOD No. 9		Study			
MOD No. 10	Kaman Sciences	Lethality and Vulnerability	1 Dec 69	266	None (Funding)
MOD No. 11	Kaman Sciences	Study			
MOD No. 12	Kaman Sciences	Lethality and Vulnerability	29 Jan 70	125	126
DAH60-69-C-0013 (MOD 2)	Computer Science Corp	Lethality and Vulnerability	29 Jan 70	541	None (Funding)
DAH60-70-C-0034	Computer Science Corp	SMIS Program Development	19 Sep 69	197	192
	Computer Science Corp	SAFEGUARD Computer Application	24 Oct 69	1,170	1,285
DAAG43-67-C-0004	Nat'l Acad of Sciences	Study SAFEGUARD Data Processor	2 Feb 70	56	49
MOD No. 7					
DAH60-70-C-0014	McDonnell-Douglas	SPARTAN Motor Hardware	7 Nov 69	381	393
DAH60-69-C-0056	McDonnell-Douglas	System Analysis & Missile Evaluation Study	19 Sep 69	678	700
MOD No. 1					
DAH60-70-C-0015	Martin Marietta Corp	Study - Guidance Accuracy	20 Aug 69	100	100
MOD No. 1	Martin Marietta Corp	Study - Guidance Accuracy	31 Oct 69	20	None (Funding)
MOD No. 2	Martin Marietta Corp	Study - Guidance Accuracy	31 Dec 69	63	None (Funding)

DAHC60-67-C-0011 MOD No. 9	Braddock, Dunn & McDonald	Evaluation and Doctrine Study	11 Feb 70	34	35
DAHC60-69-C-0030 MOD No. 4	General Research Corp	SAFEGUARD Growth Studies	24 Dec 69	264	263
DAHC60-69-C-0039 MOD No. 5	General Research Corp	SAFEGUARD Growth Studies	20 Jan 70	31	None (Cost Growth)
DAHC60-70-C-0036	Univ of Michigan	Programming Language Study	14 Nov 69	10	10
DAHC60-70-C-0037	MITRE Corp	EM Pulse Effects Analysis	18 Nov 69	299	300
DAHC60-70-C-0038	Thiokol Chemical Corp	SPARTAN Motor Ageing Study	5 Dec 69	765	601
DAHC60-69-C-0039 (MOD 3)	Hercules Powder Co	SPRINT Motor Leading Study	24 Sep 69	1)	None
DAHC60-70-C-0039	MITRE Corp	Technical Support for SAFEGUARD	25 Nov 69	342	335
DAHC60-68-C-0042 MOD No. 6	Sperry Rand Corp	ADPE Services	29 Aug 69	185	None (Option)
MOD No. 7	Sperry Rand Corp	ADPE Services	30 Sep 69	18)	None
MOD No. 9	Sperry Rand Corp	ADPE Services	14 Nov 69	913	None (Option)
MOD No. 10	Sperry Rand Corp	ADPE Services	9 Jan 70	4	4
DAHC60-69-C-0047 (MOD 3)	Compunetic Corp	SAFEGUARD Sys Simulation Fac	11 Dec 69	48	50
DAHC60-70-C-0048	Westinghouse Electric	BMD Object Code Efficiency Study	5 Jan 70	19	19
DAHC60-70-C-0049	North American Rock- well	Natural Environmental Data	7 Jan 70	10	11
DAHC60-70-C-0050	Boeing Co	Nuclear Detonation Dust & Debris Study	7 Jan 70	12	12
DAHC60-70-C-0054	IBM	Data Processing Feasibility Study	20 Jan 70	774	1,052
DAHC60-70-C-0059	EG&G	EMP Lab Test Support	12 Mar 70	228	229
DAHC60-69-C-0064 MOD No. 5	General Electric Co	Comm. System Electromagnetic Analysis	17 Oct 69	13	None (Cost Growth)
DAHC60-69-C-0092 MOD No. 1	N. M. State Univ	Speedball Feasibility System	9 Jan 70	( 77)	None
DAHC60-69-C-0131 MOD No. 3	Resalab, Inc	EMP Instrumentation System	2 Jan 70	234	None (Cost Growth)

DAH60-69-C-0030	General Research Corp	SAFEGUARD Growth Studies	16 Sep 69	20	.20
MOD No. 1	General Research Corp	SAFEGUARD Growth Studies	14 Nov 69	259	244
MOD No. 2	Yardney Electric Corp	Battery Development	23 Sep 69	.73	91
DAH60-70-C-0027	Thiokol Chemical Corp	SPRINT Composite Propellant Development	26 Sep 69	( 34)	None
DAH60-68-C-0043					
MOD No. 2					
DAH60-70-C-0033(MOD 1)	General Electric Co	Radar Degradation	28 Nov 69	50	None (Funding)
DA-01-021-AMC-90011	Northrop Corp	Tech Assistance & Support	14 Jan 70	( 11)	None
MOD No. 4					

( ) indicates reduction in contract value

## SAFEGUARD CONTRACTS AWARDED BY THE U. S. ARMY ENGINEER DIVISION, HUNTSVILLE

Contract Number	Contractor	Effort	Date	Dollars in Thousands Award Amt	Dollars in Thousands Govt Est
DACA87-69-C-0004 MOD No. P002	Aqbian-Jacobsen Illinois Institute of Technology Research Institute	Study, MSR Power Plant SAFEGUARD System Piping	30 Jan 70 2 Sep 69	\$ 167 79	168 82
MOD No. P002	Illinois Institute of Technology Research Institute	SAFEGUARD System Piping	19 Dec 69	123	None (Option)
DACA87-70-C-0002 DACA87-70-C-0003 DACA87-70-C-0004 MOD No. P001 DACA87-70-C-0005	Jacobs Associates Wyle Associates Stanley Consultants Stanley Consultants Henningson, Durham & Richardson; Gibbs & Hill; Parsons, Brinker- hoff, Quade & Douglas Henningson, Durham & Hill; Parsons, Brinker- hoff, Quade & Douglas	Studies for PAR Bldg Shock Testing MSR Complex Adv Constr Pkg MSR Malmstrom PAR Complex	23 Oct 69 26 Nov 69 3 Dec 69 13 Feb 70 12 Dec 69	27 59 1,031 195 926	27 65 1,044 196 927
MOD No. P001	Henningson, Durham & Richardson; Gibbs & Hill; Parsons, Brinker- hoff, Quade & Douglas	Site Adaptation	17 Mar 70	118	123
DACA87-70-C-0006	Kirkham, Michael & Associates	Non-Tech Support Facilities	6 Jan 70	305	335
DACA87-70-C-0007	Management Science of America	Training Prog, Network Analysis	24 Dec 69	43	45
DACA87-70-C-0010 DACA87-70-C-0012	W. L. Faith Brown Engineering Co	Air-Pollution Study Central Monitoring Sys	27 Feb 70 25 Mar 70	6 6	6 6



DACA47-70-C-0041	John R. Lavis	Interim Training Facility (Albuquerque District Con- tract)	16 Mar 70	122	169
DACA45-70-C-0057	Zurn Engineers	Grand Forks Waterline (Omaha District Contract)	31 Mar 70	3,845	5,700
DACA45-C-0019	Great Northern RR	RR Siding (Omaha District Contract)	13 Oct 69	131	150
*	William Collins & Sons	PAR Access Rd Bolstering	Oct 69	184	*
DACA47-70-C-0033	Foster, Henry, Henry & Thorp, Inc	Design & Prep of Plans for CTF (Albuquerque District Contract)	30 Jan 70	311	319

\* - State of North Dakota contract - contract number and estimate not available.

## NEW MINUTEMAN TERMINAL DEFENSE RADAR

Mr. SIKES. How much money is budgeted in fiscal year 1971 for the proposed new smaller terminal defense radar to be developed for protection of Minuteman fields? What is the estimated total development cost and time schedule for the new radar?

Dr. FOSTER. The fiscal year 1971 Defense budget contains a request for \$158 million for the Army's advanced ballistic missile defense program (not a part of Safeguard). This request includes about \_\_\_\_\_ million for initiating full-scale development of the new, smaller radar.

With regard total development costs, the new radar and associated data processor have not been defined to the point where a specific high-confidence cost estimate can be made.

With no delays for authorization and with no constraints on funding, the smaller hard-point radar might first become available in the \_\_\_\_\_ time period. However, if there is some stretchout to limit peak spending and time is allowed to produce and install many of these radars, a more realistic time to expect an appreciable defense capability with these new components is toward \_\_\_\_\_.

Mr. SIKES. The missile site radar has been criticized as inadequate in the defense of Minuteman. DOD now proposes to develop a new hardsite radar for defense of Minuteman. Is this a tacit admission that the missile site radar is inadequate? Could we deploy the new hardsite radar to defend Minuteman instead of the proposed Safeguard Minuteman defense?

Dr. FOSTER. We believe that the opinion that the MSR is neither adequate nor sound in design is mistaken. The MSR is designed as a component of a multipurpose defense system which can provide both area and hardsite defense. The MSR development is progressing satisfactorily as has been shown by the tests of the prototype at Kwajalein. The Safeguard system, even at the full phase 2 level, has never been proposed as having more MSR's deployed for Minuteman defense than are needed anyway for a light area defense of the continental United States.

Should the Soviet threat to Minuteman become larger than the full phase 2 Safeguard deployment is sized to counter, a highly effective defense could be provided by placing additional MSR's and Sprints in the Minuteman fields. Such proliferation of MSR's would, however, be more expensive than would the deployment of groups of the new smaller, single-purpose radars which we plan to develop. If we were to criticize the MSR as a radar for exclusive use in a hardsite defense role, it would be more nearly correct to say that the MSR is too capable—and therefore too expensive—for that function.

The objectives of Safeguard as stated by the President on March 14, 1969, remain unchanged and include more than just the defense of Minuteman. The objectives of the fully deployed Safeguard system also include area defense of our bomber force against attack by Soviet SLBM's and of our cities against attack by Chinese Communist ICBM's or accidental attack from any source. In addition to providing Minuteman defense, the modified phase 2 deployment contributes to bomber defense and area defense of our cities should the full phase 2 later be deployed. In light of the expanding Soviet threat to our Minuteman and bomber force, we believe that the modified phase 2

Safeguard deployment is the minimum program we can recommend at this time.

Development of new hard site defense radar and its associated computer will commence in fiscal year 1971 as a hedge against further increases in the Soviet threat to Minuteman which might exceed the threat which the presently proposed Safeguard defense is designed to counter. However, this system will be designed for hard site defense only and it would not be operationally available until several years after the modified phase 2 of Safeguard is deployed.

#### IMPROVED SPARTAN MISSILE

Mr. SIKES. You are requesting \$53.2 million in fiscal year 1971 for the development of the improved Spartan missile. What is the estimated total development cost and time schedule for the improved Spartan? Will it replace or complement the present Spartan missiles?

Dr. FOSTER. The improved Spartan's feasibility analysis has been completed. Development has now entered the preliminary design definition. From the design definition phase, we will determine the exact configuration to be developed and make a more refined estimate of the cost of the improved Spartan development and production. We would expect to complete the preliminary definition phase in June 1970. Until that time, there is some uncertainty as to exact cost. We are carrying the cost as estimated in the feasibility study of approximately \_\_\_\_\_ million (December 1969 price level) for research, development, and test. For planning, we expect flight tests would begin in fiscal year 1973 with a system testing program completed in fiscal year 1976.

Improved Spartan will complement, not replace, the present Spartan. A balanced area defense must be able to accomplish such diverse functions as (1) achieving exoatmospheric kills against multiple, closely spaced targets, and (2) performing low altitude high-velocity intercepts of depressed trajectory ICBM's and SLBM's. The first of these functions will be performed by the basic Spartan, with its high yield warhead. The second will be performed by the improved Spartan, which has the necessary increased speed capability and carries a warhead of much lower yield, enabling it to be used at lower altitudes. Thus, a mix of both types of Spartan's is planned.

#### MODIFICATIONS TO ACCOMMODATE IMPROVED SPARTAN

Mr. SIKES. To what extent will the improved Spartan missile be compatible with ground equipment and facilities being installed in sites in phase 1 and phase 2 of Safeguard deployment? Will modifications be required in order to accommodate the improved Spartan?

Secretary PACKARD. We are constructing launch cells that are designed to take either a Spartan or Improved Spartan missile. No major reconstruction will be necessary if an Improved Spartan were substituted for a regular Spartan. Insofar as the ground support equipment is concerned, our objective is to maximize commonality between the two interceptors so that Spartan ground support equipment can be used to the maximum extent possible on the Improved Spartan. Until the program definition is completed, the exact amount of modification to present equipment and facilities and unique ground support equipment that will be required cannot be determined.

## CONCURRENCY OF DEVELOPMENT AND PRODUCTION

Mr. SIKES. In many instances this committee, the General Accounting Office and others, including departmental witnesses, have pointed out that excessive concurrency in development and production and deployment of weapons and equipment is a major cause of waste and excessive expenditure of funds.

The Safeguard program can be questioned on this basis. A PAR radar has not been constructed and all PAR components have not yet been released for production. The computer software package for the MSR has not been completed. The first firing of a Spartan from Meck Island to intercept an ICBM under MSR control is not scheduled until this fall. The Sprint missile had only 7 successes out of 11 tests during 1969. The new Improved Spartan is under development and will not be completed before ———. A new smaller terminal defense radar development is to be initiated in fiscal year 1971. It is to be expected that unforeseen circumstances and cost increases will be encountered in the construction of the Safeguard sites.

In a strictly technical sense, could we reduce uncertainties and probably save money by delaying phase 2 deployment for a year or two?

Mr. PACKARD. We will provide a detailed answer for the record on schedules, costs, and so forth.

Of course, we have given consideration to the question of whether either a delay in phase 2, or a larger phase 2 increment of the program in fiscal year 1971, would be a better course of action than the modified phase 2 step that we have actually recommended. Again, I want to emphasize, as I did when I was here the other day, that I fully concur with the thought expressed in this question.

We have had a great many programs in which the development has not been sufficiently advanced before we went into production, and we are taking steps in some of our more recent contracts to improve that situation.

I am convinced, myself, that efforts to reduce concurrency between development and production will improve our ability to obtain weapons systems that are more workable, more reliable and, hopefully, somewhat less costly. The problem, however—and the Safeguard system is a good example of it—is that, with a very large and complex system, a procedure in which you move ahead and prototype the whole system and test it out before you undertake any deployment would not be feasible, given the deployment schedule which we believe is necessary.

We have given a good deal of attention to this problem. I think that in some ways we might relate this situation to the kind of problem we have encountered in the Apollo program. We could not put all the components together and try out the complete system before we actually conducted a moonshot. The system could only be fully tested out on the first mission.

The way you approach this problem is to be careful to make sure that the individual components are carefully checked out before you get too far down the line.

As for the Safeguard system, progress in the development of the

components has been very encouraging. The PAR radar, which you have mentioned, is one system element which will not be actually assembled until the PAR for the first phase 1 site is built. This radar is what we call a phased array radar. This means that it has a large number of individual antenna units, each of which involves essentially the same technology. The movies which you saw last Wednesday indicated that the individual components of the PAR have been put together and tested, and have been operating rather well. Installing the first PAR will simply involve using the technology which has been checked out in the limited engineering development model and expanding it to build the full PAR.

There can be problems when you take a small number of components and put them together in a larger configuration, but that is the kind of problem which can be checked out, and I do not anticipate any difficulty with the PAR in that regard.

The prototype MSR radar installed on Kwajalein Atoll is working well. The transmitter is operable at full power and the antenna has performed well. There has been a problem of \_\_\_\_\_ which we believe can and will be solved. Even if it is not solved, it would not seriously degrade the performance of the system.

The missile site radar involves well developed technology. I visited the Raytheon plant myself a few weeks ago and looked into this, and I was very impressed with the status of the technical work on the missile site radar. I think we are in very good shape on this radar.

We were concerned about the development of the computer systems and the software. There has been some criticism of these components of the system, and people have said that the computer capacity would not be adequate to handle the job envisioned for the system, and that the software has not been worked out.

The computer program is designed so that it will have the capability of being expanded later if it is necessary. We have made very good progress in the computer programming during the past year, and the status of data processing was carefully reviewed again before we made our phase 2 recommendation in this budget. I am very much encouraged by the progress that has been made, and I am confident that we will be able to achieve an adequate computer capability.

On that point, I would like to emphasize one thing. You saw the other day the rather substantial ABM development effort being conducted by the Soviet Union. There was some talk last year to the effect that they were not going ahead with ABM's. They are indeed going ahead with additional very large radars that Dr. Foster showed you and they are running tests on experimental interceptor missiles.

We have had some recent reports of additional tests in which they conducted interceptions with their new missiles.

Even though they are going ahead, the computer technology in Russia is probably at least 5 years behind the computer technology in the United States. I am convinced that we will have a much better ABM capability with the Safeguard system than the Russians will have with their program, even though they are putting a great deal more money and emphasis into it.

On balance, Mr. Chairman, I think we have taken these questions into consideration. We believe it is necessary to proceed on the schedule we have recommended here in order to achieve a capability that will be able to meet the threat which is continuing to develop.

I am convinced that this is a sound program from the engineering standpoint. I think we have, without any question, excellent management in this program, even though it is a large and complicated one.

We probably will have some problems to overcome as we go along, but I am able to recommend this program to you without reservation.

#### POSSIBILITY OF DELAYING PHASE II

Mr. SIKES. If you were to wait a year longer, would you solve important technical problems and would you probably save money?

Mr. PACKARD. I do not believe that if we waited a year we would save money. I think it would cost us more money if we waited a year. This is a question of balance. You might make some progress on some of the technical problems, but you would still have to pay your overhead costs and retain your work force over a longer period. I believe, on balance, that it would cost us more to delay the program than it would to go ahead as we have recommended.

Mr. SIKES. All right, Dr. Foster, answer the same question, please: Would we reduce uncertainties and would we save money by delaying the phase 2 deployment for a year or more?

Dr. FOSTER. Mr. Chairman, I believe the program would cost several hundred million dollars more. I do not believe it would reduce uncertainties, because we would have to continue with the same development effort and resolve development questions in an orderly way just as we are doing now. I do not believe there would be any impact on orderliness. What bothers me very much is the constantly growing threat posed by the Soviet Union to the Minteman bases and to the B-52 bomber bases.

I believe it would not be in the national interest to delay the program a year and thereby delay the coverage of our strategic forces by more than a year.

Mr. SIKES. If you could provide a detailed answer, particularly insofar as additional costs are concerned, it would be very useful to this committee.

Dr. FOSTER. Yes, sir.

(The information follows:)

In a strictly technical sense, delay of phase 2 deployment at this point in the program would not serve to reduce so-called program uncertainties and would certainly result in a considerable cost increase and, more importantly, would not be responsive to the growing threat.

In the development of a large weapons system such as Safeguard, the answer to the question of whether or not the system development has progressed to the point where deployment can be justified must necessarily be based upon the research and development testing progress of the major system components. The major Safeguard system components, Perimeter Acquisition Radar (PAR), Missile Site Radar (MSR), Sprint missile and Spartan missile have all undergone extensive research and development (R. & D.) testing which has already progressed to the point where the design of all critical items, that is, ones with large cost impact or long leadtime, has been validated. The development testing of each major subsystem—that is, the MSR at Meck Island, the Sprint at White Sands Missile Range, and the Spartan at Kwajalein—has progressed very satisfactorily to the point where it is essentially complete. There is a high level of confidence that there are no major problems, and the next step, system integration testing of these components at Meck Island, is underway. High confidence in the development progress of the other major system component, the PAR, has been achieved from the very successful performance history of a

radar of similar technology (AN FPS/85) at Eglin Air Force Base, Fla., and by the design validation of the PAR subsystems prior to production release in a Limited Engineering Development Model (LEDM), which has been constructed and operated at the Syracuse General Electric plant. A decision to delay the phase 2 deployment for a year or two simply would not increase further the high confidence levels which already justifiably exist in regard to the design adequacy of the major Safeguard system components.

Also, the experience gained as we move further ahead in our phase 1 activities will reinforce our confidence in system performance. By the time phase 1 is completed, multiradar, multisite internetting will be accomplished. This will provide a means of system testing wherein two sites, each with both PAR and MSR can be checked out to verify site integration. Further, if we maintain our currently planned activation schedules for Whiteman, by the time site activation procedures there progress to the point of component and integration testing, highly valuable experience will have been gained from tests already completed at Grand Forks and Malmstrom. The equipment readiness dates for the first three sites in our currently planned schedules have been deliberately picked to be a minimum of four months apart so that the contractor may apply the knowledge and experience gained at the first sites to the later sites.

Postponement for a year of a decision to authorize more than phase 1 would increase both the cost and risk to the United States. For example, if no additional deployment were authorized in fiscal year 1971, but the full 12-site phase 2 deployment were authorized in fiscal year 1972, the total DOD acquisition cost of \$10.7 billion would increase by about \$0.3 billion and completion of the full deployment would be delayed by at least 6 months and probably for a much longer period. Although continuation during the next year of only the Safeguard research and development program and the two phase 1 sites would continue the development, production and construction programs now underway, if the decision to commence modified phase 2 is delayed by a year, "gaps" would appear in these programs as phase 1 work is completed. As these gaps occur, we would be forced to reduce production and engineering capability, especially highly skilled manpower, to avoid waste. With a later, possibly fiscal year 1972, authorization to complete additional site deployment we would have to rehire and retrain personnel in order to rebuild production and engineering capacity. It is not possible to estimate, therefore, how much more than 6 months' delay would occur. Such a delay would add to the risk to the United States, since we would be unable to protect ourselves against the threats expected to exist before the deployment would be completed.

#### PROCUREMENT OF LONG LEADTIME ITEMS

Mr. SIKES. What are the amounts in the fiscal year 1971 budget related to long leadtime activities directed toward the addition of five more sites?

What long leadtime items will be procured for the additional sites?

General STARBUCK. The 1971 budget request contains \$15 million in MCA funds and \$25 million in PEMA funds directed toward the advance preparation of five more sites to ready them for later rapid installation should this be authorized. The MCA funds would provide for detailed site survey, preconstruction engineering and limited land acquisition. The PEMA funds would be used to procure long leadtime data processing equipment, and radar components such as face switches and phase shifters and integrated circuit packages.

#### SAFEGUARD EXPENDITURES BY YEAR

Mr. SIKES. Mr. Packard, you have emphasized that phase 2 involves less than \$100 million in expenditures in fiscal year 1971. You have not stated the effect that approval of the phase 2 proposal in fiscal year 1971 will have on expenditures in future years. What will the expenditures be in fiscal year 1972, fiscal year 1973, and other years?

Mr. PACKARD. Let me provide that for the record.

(The information follows:)

If the modified phase 2 deployment is approved and then is continued after fiscal year 1971, we would expect expenditures by year to approximate the amounts in this table shown below. These estimates are based on our current experience factors for expenditure of amounts appropriated. For comparison, the approximate amounts we would expect to expend by year if we were to remain at the phase 1 deployment level also are shown, together with the difference in expenditures between the two deployments which is attributable to the modified phase 2 add-on. All figures are in millions of dollars at December 1969 price levels.

EXPENDITURES<sup>1</sup> OF FUNDS OF ALL PROGRAM YEARS DURING—

	Fiscal year—			Subsequent
	1971	1972	1973	
Phase 1 and modified phase 2.....	910	1,210	1,140	1,820
Phase 1 only.....	860	950	770	940
Phase 2 increment.....	50	260	370	880

<sup>1</sup> Expenditures shown include both DOD acquisition costs and direct operating costs.

## COST OF PHASE 1 AND MODIFIED PHASE 2

Mr. SIKES. You stated that the cost of the two phase 1 sites and the new phase 2 site at Whiteman will be \$5.9 billion and that this compares with a total acquisition cost of \$4.5 billion for phase 1. What are the areas in which the additional \$1.4 billion will be spent? How much is for MSR, Spartan, Sprint, et cetera?

Mr. PACKARD. I think it should be pointed out that the estimated \$4.5 billion for phase 1 only has recently been revised to \$4.6 billion because ERD's have been delayed to allow a less compressed construction schedule, and repair parts costs have increased as the result of a detailed analysis of requirements. These increases will be shown in the Safeguard SAR as of February 28, 1970. The most costly item in the modified phase 2 increment, of course, involves the deployment at the Whiteman site. Additional sizable sums are required for the added Sprints at the phase 1 sites and for the modified Spartan. Let me provide a detailed breakout of these costs for the record.

(The information follows:)

[In millions of dollars]

1. Addition of Whiteman site.....	(636)
Data processor software development.....	3
Site construction cost.....	127
Sprint.....	132
Spartan (includes modified Spartan).....	109
MSR and data processor.....	191
Other ground support equipment.....	25
Production base support.....	4
Repair parts.....	43
Communications equipment.....	2
2. Added equipment for Grand Forks and Malmstrom.....	178
3. Advance preparation for five sites.....	40
4. Proceeding beyond flight demonstration phase of the Development of the modified Spartan to include full development.....	360
5. Development of the capability to launch Spartan from a remote site....	67
6. Depot construction/renovation.....	6
7. Stretching the R.D.T. & E. and production program over a longer period than required for the phase 1 only deployment.....	58
Total.....	1,345

## TACTICAL SOFTWARE CONTROL SITE

Mr. SIKES. What is the function, size, and cost of the tactical software control site located at Whippany, N.J.?

General STARBIRD. The tactical software control site is a combination of data processor and radar receiver equipment located at the Weapons System Contractor Laboratory in Whippany, N.J. It is used for testing software during development, modification, and maintenance. Part of this complex will be a permanent installation retained after completion of the last site to provide an ongoing facility for checkout of any software updates and modifications that may be desired (for example, in response to new intelligence information). The installation will include two of these electronic complexes, one for supporting PAR software development and one for supporting MSR software development. The data processors will be the same size as those used in the phase 1 operational PAR and MSR sites. The PAR data processor equipment there will not be a permanent part of the facility since both the MSR data processor and the PAR data processor will no longer be required after the initial development phase. The PEMA funding required for the permanent MSR TSCS hardware is \$28 million in fiscal year 1969, \$13 million in fiscal year 1970, and \$10 million in fiscal year 1971, giving a total funding of \$51 million.

## 1970 OBLIGATIONS AND EXPENDITURES

Mr. SIKES. What obligations and expenditures have been made out of fiscal year 1970 funds by appropriations for the Safeguard program?

Also, tell us what funds appropriated for Safeguard remain unobligated as of your latest reporting date?

General STARBIRD. As of our latest report cutoff date, February 28, 1970, we had obligated and expended funds during fiscal year 1970 totaling \$619 million and \$429 million, respectively, as shown in a table I will furnish for the record. Unobligated balances available to Safeguard as of February 28, 1970, were \$510 million.

(The table referred to follows:)

## STATUS OF SAFEGUARD FUNDING

[In millions]

	Obligated July 1, 1969 to Feb. 28, 1970	Expended July 1, 1969 to Feb. 28, 1970	Unobligated balance at Feb. 28, 1970
RDTE.....	\$283.5	\$247.9	\$122.8
PEMA.....	280.6	134.6	113.9
MCA.....	30.4	17.8	263.5
OMA.....	17.4	21.6	8.0
MPA.....	7.3	7.3	2.0
Total.....	619.2	429.2	510.2

Note: Although later official reports are not yet available, we have preliminary data showing about an additional \$48,500,000 RDTE, \$9,300,000 PEMA, and \$140,000,000 MCA (of which \$136,800,000 was for the Grand Forks MSR and PAR) obligated as of Mar. 31, 1970. This would reduce the unobligated balance available as of Mar. 31, to \$312,400,000. Additional OMA and MPA obligations during March should approximate \$2,000,000 and \$1,000,000, respectively.

## CREDIBILITY OF U.S. DETERRENT FORCES

Mr. SIKES. Last year, in testifying before the committee on the ABM program, Secretary Laird stated:

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.

Today, we are told that the Soviets have, under construction or in operation, over 275 SS-9 and 800 SS-11 ICBM's. The Soviets have launched ——— and have an additional ——— Polaris-type submarines under construction. It has been stated that they are trying to achieve a first strike capability.

The administration does not propose to numerically increase our offensive strategic forces in the fiscal year 1971 budget. Our response to the Soviet build-up, as reflected in the fiscal year 1971 budget, is one additional ABM site and long lead time items for five more.

Is this a fully adequate response or are we in danger of failing to maintain the credibility of our deterrent force with the results that the Secretary warned of? The committee is very concerned about this.

We feel this is one of the most important questions we can ask you. What is the answer?

Mr. PACKARD. Mr. Chairman, I think I can say without any reservation that I share your concern about the developing Soviet threat and about the importance of maintaining a credible deterrent. That is the objective of our whole strategic nuclear program—to maintain a credible deterrent—so that we will avoid any possibility of a nuclear war with the Soviets, or with the Chinese.

We have spent a great deal of time analyzing the Soviet buildup and the deterrent capability of our present strategic forces. We believe that today we have the ability to retaliate with what would unquestionably be an unacceptable level of destruction to the Soviet Union, even if they should strike us first.

There are several reasons for our confidence in our deterrent. One of them is that, although they have continued with their SS-9 and SS-11 buildup, they do not yet have, in our opinion, enough missiles with the necessary accuracy to destroy our Minuteman force. We also believe that our Polaris submarine force is highly survivable, and, in addition, that a substantial proportion of our bombers would survive a Soviet attack at the present time.

So, as of today, I think I can say without any qualification that we have no concern about our ability to retaliate, and we believe the Soviets know this. Our concern relates to what might happen in the future if the Soviets continue their buildup—as Dr. Foster indicated in discussing his charts the other day—in land based missiles, and if they improve the accuracy of those missiles—and we believe that they have the technical capacity to do so. Unless we can obtain some agreement limiting the development of their ICBM force, then we will have a very real cause for concern.

The rapidly growing Polaris type submarine force does not now constitute a significant threat to our land-based missiles. Usually, they have a few submarines on station, but not enough of them to pose

a severe threat to the prelaunch survivability of our bomber forces or our command and control network today.

If we can achieve an agreement in SALT which will bring about an acceptable limitation of their forces and provide a credible deterrent for both of us—and therefore a high degree of assurance that neither side will have anything to gain from initiating a nuclear exchange—if this can be achieved, then, in my view, that is by far the best solution. If that is not achieved, then we will have to take the appropriate steps to counter this potential additional buildup and potential improvement in the capability of their forces. The full Safeguard program is one of those steps that may be necessary in case the SALT talks fail. We have other programs which are in the research and development stage, such as the development of a new undersea long-range missile system. We have requested funds so that the Navy can proceed with the detailed design studies so we will be in a position to move ahead with that system and therefore strengthen our submarine launched retaliatory forces by the late 1970's if that becomes necessary. We have also requested funds to begin the development of a new strategic bomber.

(Off the record.)

#### EXPANSION OF U.S. DETERRENT CAPABILITY

Mr. MAHON. As I understand your testimony, you are saying that we cannot afford to go on indefinitely in the posture in which we now find ourselves, with the Soviet Union going rather rapidly forward with increased capability and our program not as aggressive as the Soviet program at this time; is that correct?

Mr. PACKARD. That is correct. Unless we can obtain agreement that the Soviets are going to level off their forces and not continue to build them up, in my view we may have no other course but to move ahead and strengthen our forces in order to maintain a credible deterrent.

Mr. MAHON. You are taking the position that we can safely go along with the current program of the Department of Defense for the time being—

Mr. PACKARD. For this year specifically.

Mr. MAHON. This year specifically.

Mr. PACKARD. Yes.

Mr. MAHON. But unless something very profitable and worthwhile comes out of the strategic talks with the Soviet Union, then you foresee a rather meaningful and extensive additional military program for the United States.

Mr. PACKARD. It will be necessary, and I think absolutely necessary, for us to maintain a balance of forces. The key is to be sure that we have an adequate level of forces for deterrence, so that the Soviets are not able to gain any advantage by conducting a surprise attack. We must not give them any encouragement to strike us first.

I believe that the Soviets are rational enough to know that a nuclear war would be a disaster for them. But a large strategic superiority on their part could put us in a very unsatisfactory situation in our international relations, and I, for one, certainly do not believe we can afford to see this country second best in the strategic nuclear field.

## NEED TO COUNTER SOVIET BUILDUP

Mr. MAHON. I think it is fair to say, Mr. Secretary, that there are people in the Pentagon and good patriotic citizens all over the United States who feel we are not doing enough at this time in view of the rather aggressive program of buildup by the Soviet Union.

Mr. SIKES. Mr. Chairman, don't forget to include some of us in Congress.

Mr. MAHON. I meant to include Members of the Congress in this group, as Mr. Sikes has indicated.

Mr. PACKARD. Mr. Chairman, I am aware of that feeling, and I think that the people who feel that way have some valid reasons for their concern. I would like to emphasize one other thing, and it is that we have requested a substantial level of research and development to provide the base—

Mr. MAHON. Will you expand that for the record?

(Off the record.)

(The information follows:)

We are proposing a vigorous R. & D. program in the strategic area which should provide a substantial base for future actions and deployments if they are required. A Safeguard R. & D. effort funded at a level of \$365 million in fiscal year 1971 is proposed; this program includes not only the highly important system test program at Meek Island, but also the development of the improved or modified Spartan and preparation of the required Safeguard software. The Air Force and the Navy will support the Safeguard test program by providing test targets at a proposed funding level of \$7 to \$8 million for each service. Another effort in the area of ballistic missile defense is the Army's advanced ballistic missile defense program for which we are requesting \$158 million in fiscal year 1971. About one-third of this effort will be specifically applied to the development of hard site defense components which could be used, if required, against a greater Soviet threat to Minuteman in the future.

Ballistic missile defense, however, is not the only area in which we believe we have a strong R. & D. program. The Air Force's program for R. & D. on Minuteman rebasing is examining various rebasing concepts for our ICBM's, including placing them in superhard silos, putting them on mobile launchers, or use of mobile launchers in connection with hardened shelters. We feel that these concepts have the potential to increase significantly the survivability of our Minuteman force, and it is our intention to initiate development on the one which our studies show to be most promising.

The Air Force is also initiating engineering development on a new strategic bomber, the B-1, which, along with new weapons now under development like SCAD (Subsonic Cruise Armed Decoy) and SRAM (Short-Range Attack Missile), should provide a very significantly increased capability for our bomber forces. The B-1 should, if deployed, not only have much greater penetration capability than the B-52, but should also have improved prelaunch survivability to better hedge against attacks on our bomber bases.

One other significant R. & D. program in the strategic area is Advanced Ballistic Re-Entry Systems (ABRES). This program, for which we are requesting \$105 million in fiscal year 1971, will continue to examine new concepts including improved ways of penetrating heavy ABM defenses.

One final, and highly significant R. & D. program for which we are increasing our requested funding levels in fiscal year 1971, is the ULMS or Undersea Long Range Missile System. The fiscal year 1971 budget includes a request for \$44 million to proceed with detailed design studies. If eventually deployed, the ULMS, as we now envision it, would include a missile of significantly longer range than the Poseidon, thereby enabling a more than tenfold increase in the operating (patrol) area of the submarine. This would greatly complicate any future Soviet ASW effort.

So, Mr. Chairman, our R. & D. programs should provide the necessary technology base for new and improved strategic systems should we need them in the future.

## MIRV PROGRAM

Mr. PACKARD. One important capability that is going to be very helpful in maintaining our position in the short term is our MIRV program, and that is why the MIRV's are so important if we do not arrive at some understanding on limiting force levels.

Mr. MAHON. We will discuss that later in the morning in regard to recent developments.

Mr. PACKARD. All right.

## ADEQUACY OF DEFENSE PROGRAM

Mr. MAHON. It has been alleged, Mr. Secretary, that you, as a result of the fiscal stringency, have not projected a program, and presented to the Congress a program, that is fully adequate. There are others who say it is more than fully adequate and should be sharply scaled down. I would like to have on this record your best statement in regard to that matter.

Mr. PACKARD. Again let me emphasize that I believe our proposed program is fully adequate because the forces we have operational today are fully adequate for deterrence.

Let me just summarize by saying that we in the Defense Department share your concern, as should all Americans, on the question of whether or not we are doing enough this year in the face of the rapidly expanding Soviet threat. On balance, I believe that our recommended Safeguard program, our continuing MIRV programs, and our vigorous R. & D. efforts will be sufficient, in this transitional budget year, to enable us to retain our deterrent in the short run pending possible agreements in SALT. If no agreement is reached, and the Soviets do not slow down or stop their deployments which threaten our retaliatory capability, we may need to go ahead with further offensive weapon system deployments next year, or take additional steps to protect those retaliatory forces we now have deployed. While we hope this will not be necessary, let me reassure you that Secretary Laird and I will not hesitate to recommend additional actions in the strategic forces area at any time in the future if we feel that they are necessary in order to prevent the United States from becoming a second rate strategic power by the mid-1970's.

Mr. MAHON. Dr. Foster, you have heard this colloquy between Mr. Sikes and myself and other members of the committee in regard to the issues before us. Will you comment on the matters which we have just been reviewing?

Dr. FOSTER. Yes, Mr. Chairman.

I fully agree with Secretary Packard's statements. Let me just add this: If the Soviets continue and just complete the ICBM's that they have already under construction to fill out their force, they will have ——— land based ICBM launchers ———. If they technologically improve the effectiveness of those systems by adding MIRV and by improving accuracy, they will then be able to threaten very seriously our Minuteman force.

If they merely complete the ——— Polaris-type submarines that they now have under construction, and add those to the ——— already

operational, they will be able to threaten very seriously our bomber forces.

On that basis, I believe with their current forces, plus those that are under construction in the Soviet Union, we are in danger of losing our deterrent capability in the mid-1970's.

It is for this reason that I feel very strongly that this country has to proceed with both the MIRV and the Safeguard systems.

#### MISSILES DESTROYED BY SAFEGUARD

Mr. MAHON. If the Soviets launched their ICBM's and SLBM's at the United States, how many missiles could we expect to destroy with the ABM forces at the three sites which have been approved by the administration? How many ABM missiles would we have at the three sites? How many kills would be probable with these missiles?

Dr. FOSTER. The three site modified phase 2 deployment would have Spartan and Sprint missiles at each site. For attacks on Minuteman the total of \_\_\_\_\_ Spartan and Sprint interceptor missiles at these three sites could be used. To minimize the defense effectiveness, the Soviets would most likely attack the radar to exhaust the interceptor missiles, in which case the price charged by the defense would be \_\_\_\_\_ attacking warheads.

In the modified phase 2 sites we plan to have \_\_\_\_\_ Spartan's and \_\_\_\_\_ Sprint's at Grand Forks, \_\_\_\_\_ Spartan's and \_\_\_\_\_ Sprint's at Malmstrom and \_\_\_\_\_ Spartan's and \_\_\_\_\_ Sprint's at White-man. \_\_\_\_\_ of the Spartan's at each site would be modified Spartan's.

Mr. MAHON. If we complete the 12-site Safeguard system, how many kills could be expected against Soviet missiles in a first strike? Considering the increased numbers of missiles the Soviets would have at the time that the Safeguard system could probably be completed, how many Soviet missiles would probably strike the continental United States?

Dr. FOSTER. To answer this question properly, it is necessary for me to review the objectives of Safeguard with regard to the Soviet threat. That objective, as stated by the President on March 14, 1969 is: "Protection of our land-based retaliatory forces against a direct attack by the Soviet Union." Our land-based retaliatory forces are Minuteman and our strategic bombers.

It is important to note that Safeguard is designed to defend our deterrent forces and is not designed to defend U.S. cities against a massive Soviet attack.

In the case of the full phase 2 Safeguard defense of Minuteman there is a planned total of \_\_\_\_\_ Spartan, including \_\_\_\_\_ modified Spartan, and \_\_\_\_\_ Sprint missiles to be deployed at the four Safeguard sites in the Minuteman fields. For the more probable defense exhaustion attack the price charged the Soviets in an attack on Minuteman would be one attacking warhead for each interceptor missile, for a total of \_\_\_\_\_ attacking warheads.

With regard to the Soviet threat to Minuteman in the mid-1970's, their available resources and technological capability make the extent of the threat difficult to predict with certainty. There are a number

of ways the threat to Minuteman may evolve over the next few years. These are:

First, the Soviet ICBM force could level off—with or without a SALT agreement—at the present levels deployed or under construction and without improved accuracy.

Second, the Soviet ICBM force could level off at the present levels deployed or under construction but with improved accuracy for the SS-9's and SS-11's.

Third, the Soviet force could level off at the present levels deployed or under construction with improved accuracy and, additionally, they could upgrade the SS-9 force by developing and deploying MIRV.

Fourth, the Soviets could improve the accuracy of their force and continue to deploy SS-9's (with MIRV) and SS-11's.

This is, of course, a wide span of possibilities which range from the first situation where Safeguard is not needed to defend Minuteman to the fourth situation where the size of the threat would be clearly greater than the level which the Safeguard phase 2 Minuteman defense is designed to counter.

Given this range of future threat possibilities, the question is, what should we do and what are the alternative courses of action open to us? We could do nothing. This is an extreme, and this course of action would result in too great a risk and presupposes the Soviets will not increase or improve their current force and that we know they do not intend to make these improvements. Another extreme course of action would be to commit ourselves now to the expensive actions required to counter the most possible extreme growth in the threat set forth in the fourth case. This would be an extremely expensive course of action which is not justified or required at this time. Also such an action could require addition to our offensive forces, which might jeopardize the success of the Strategic Arms Limitation Talks.

There is a course of action available to the United States which does not overreact and yet will preserve a range of future options for the possible greater threats to Minuteman while also preserving the option to meet the other Safeguard defense objectives.

The administration has proposed to proceed with the deployment of Safeguard at a minimum rate needed to preserve deployment momentum. This course would add at this time a third Safeguard site at the Whiteman Minuteman location while preserving a wide range of options to counter future threat possibilities. The range of options open to the United States would be preserved by proceeding with the Whiteman deployment. The administration still has the option to stop the Safeguard deployment or complete all or any part of full phase 2 Safeguard in combination with:

- (a) Continuing development on the hard rock silo program.
- (b) Continuing development on mobile basing of Minuteman.
- (c) Continuing development of ULMS.
- (d) Initiating development of a new hard site radar and associated computer.

In the event the greater Soviet threat to Minuteman materializes in the future we will be in a position to respond with a combination of these options. A combination of alternative means of increasing Minuteman survivability against the greater threats probably is de-

sirable in that each of these options would require a different and major response by the Soviets if they choose to continue to threaten our deterrent forces.

It is important to remember that even the full Safeguard deployment does not threaten the deterrent capability of the Soviet ICBM and SLBM forces presently deployed or under construction. These Soviet forces now include well over 1,000 missiles. Thus, the Spartan and Modified Spartan planned for the full Safeguard phase 2 deployment would be able to intercept only a fraction of the incoming Soviet missiles in an attack on our cities. Because the 12 sites in the full phase 2 deployment are located some distance from major U.S. cities, the Sprint missiles, with their relatively short range, would be unable to intercept any significant number of Soviet missiles in attacks on our cities. We therefore believe that our Safeguard deployment should in no way reduce the credibility of the Soviet's deterrent, and should give them no reason to build more missiles.

#### SAFEGUARD FOR HAWAII AND ALASKA

Mr. MAHON. Earlier in the morning we discussed the possible threat of the Chinese. In view of our concern about a nuclear blackmail threat by the Chinese, should we propose some ABM defense for Hawaii and Alaska in the Safeguard system.

Does this mean that our program is not entirely authentic since we are not taking action to protect Hawaii and Alaska.

Mr. PACKARD. This is, of course, an important question. We have limited the present program and have not included Hawaii and Alaska in order to protect the most heavily populated areas, but we still have the option of adding sites for Hawaii and Alaska later on.

I believe that if the Chinese proceed to build up an ICBM force, we may later want to add protection for Hawaii and Alaska, and this could be done without any serious problem.

Mr. MAHON. Would it call for a revision of the system or an addition to the system?

Mr. PACKARD. It would require an addition of sites to the 12-site system. We would need a site in Hawaii and one site in Alaska—.

#### OTHER MINUTEMAN DEFENSE SYSTEMS

Mr. MAHON. The AF budget carries \$77 million for "studies" of means of protection of the Minuteman force other than Safeguard including a point defense system, hardening, and mobility. Does this mean that we have no confidence that Safeguard can adequately protect the Minuteman force?

Mr. PACKARD. On the contrary, we are confident that Safeguard would ensure an adequate number of surviving Minuteman to maintain our deterrent even if the Soviets improved the accuracy of their large SS-11 force so that these missiles also become a threat to Minuteman. It is only if they MIRV the SS-9's and continue to expand their ICBM forces, as well as increase the accuracy of their SS-11's, that the planned Safeguard defense will be inadequate. However, this is

a real possibility for which we must be prepared. If the Soviets continue to expand their capabilities, then we must consider other methods. We might add additional defenses of Minuteman, either by using Safeguard components or by deploying the new and dedicated hard site defense system now under development as an augmentation to the presently planned Safeguard deployment, or we might adopt some of the other methods of ensuring our ICBM survivability, such as hardening, mobility or concealment.

#### OTHER ABM PROGRAMS

Mr. MAHON. In addition to the point defense system in the Air Force budget, the Navy budget includes funds for a sea-based ABM called SABMIS. How far do you expect to proceed with these programs?

Dr. FOSTER. The point defense monies in the Air Force budget are for the initiation of a meaningful evaluation of the Air Force point defense concept relative to all other Minuteman survivability options. It is expected that this program would be continued until the Minuteman survivability option is selected, although it is possible that the Air Force point defense concept may be rejected earlier if it is found lacking in some respect.

The Navy sea-based ballistic missile defense funds are to support study of Navy concepts such as SABMIS—ship based ballistic missile defense (BMD)—and a submarine based BMD.

#### NEED FOR SAFEGUARD IF MINUTEMAN FORCE MADE MOBILE

Mr. MAHON. A part of the Safeguard defense is based on placing Safeguard sites close to Minuteman fields. If a large part of the Minuteman force were to be made mobile, what effect would this have on the need for Safeguard?

Dr. FOSTER. The Safeguard sites to be placed in the Minuteman fields will have as one of their missions the defense of Minuteman, but this is only one of the objectives of the Safeguard deployment. These same sites will also contribute to the other Safeguard objectives; they will contribute to area defense of our bombers against the Soviet SLBM threat and will provide a portion of the full area coverage required for defense of our population against the Chinese ICBM threat or against accidental launch from any source.

If protection of the Minuteman sites were not required because a large portion of the silos had been deactivated and the missiles made mobile, there would be no requirement for the augmented number of Sprint's deployed for Minuteman defense. However, the deployment of the other Safeguard components at these sites would still be required for the area defense mission.

#### NEED FOR SAFEGUARD IF SEA-BASED DETERRENT FORCE EXPANDED

Mr. MAHON. To what extent does the 41-boat Polaris and Poseidon force alone provide an adequate deterrent to a nuclear attack on the United States? Could this force inflict a sufficient blow to an enemy to inhibit his striking first at the continental United States and the Minuteman force?

Also, Mr. Secretary, should we place more of our offensive strategic force at sea so that an enemy would be required to initiate a preemptive strike on these forces at sea rather than on the United States? Is the fleet ballistic missile force far less vulnerable to enemy attack at the present time and in the foreseeable future than our land-based missile force?

Mr. PACKARD. Secretary Laird and I are both convinced that it would be far too dangerous to place sole reliance for deterrence on any one of our strategic retaliatory systems. Although there is no doubt that our present Polaris/Poseidon force could inflict great damage on an enemy in a retaliatory strike today, we cannot preclude the possibility that the Soviets, beyond the next 5 to 7 years, may have an effective means of locating and countering or destroying a substantial part of our on-station ballistic missile submarine fleet. If, in addition, extensive Soviet ABM defenses are deployed, this would further reduce the ability of our SLBM force alone to inflict sufficient retaliatory damage to provide us with an adequate deterrent.

Although it is possible that a sea-based force might become vulnerable at some time in the future in the face of a greater Soviet ASW threat or if additional Soviet ABM defenses are deployed, we are very seriously considering placing more of our offensive strategic force at sea. Our present land-based force, now located in fixed silos, is seriously threatened by the possibility of numerical growth and qualitative improvements in the Soviet ICBM force. We are therefore examining ways to provide increased survivability for our land-based systems, including such concepts as hard-site defense, mobility, and shelter basing.

Should we be unable to increase substantially the survivability of our land-based missile forces, we may decide to place more of our strategic missile forces at sea. As you know, we are also exploring means of upgrading our sea-based missile force by developing an undersea long-range missile system (ULMS).

As I said earlier, we believe it would be too dangerous to rely on any single retaliatory system for our deterrence. There are several reasons besides the problem of a more significant Soviet ASW threat. First, diversity in our deterrent forces requires the Soviets to diversify their defense efforts. A single force would allow them to concentrate all their energy and skill toward defeat of that one system. This would be undesirable and possibly increase their chance of success.

Second, we must concern ourselves with the possibility of catastrophic failure of one sort or another. Multiple forces hedge against failures occurring in any single element of the force. Thus we prefer to keep a multiple element force, including bombers.

I feel that while we believe our SLBM force is far less vulnerable to enemy attack at the present time and in the foreseeable future than our land-based missile force, we cannot guarantee that this force will remain highly invulnerable beyond the relatively foreseeable future, say the next 5 to 7 years. We know the Soviets are working hard in ASW and cannot preclude the possibility that they will make a significant technological advance in this area. For that reason, we propose to begin detailed design studies on ULMS, which is potentially more survivable in a future environment that may include a much more formidable Soviet ASW threat.

## COST OF ABM PROGRAMS OTHER THAN SAFEGUARD

Mr. MAHON. What sums other than those directly associated with the Safeguard program are budgeted for ABM efforts in fiscal year 1971? What is the total request in the ABM area and what problems other than Safeguard are included? Please provide that for the record. (The information follows:)

In addition to Safeguard funding, the following amounts are being requested in the fiscal year 1971 budget for ABM support:

	NOA (millions)
Army:	
Advanced ballistic missile defense.....	\$158.0
Range support (Kwajalein and WSMR), portion attributable to ABM.....	35.0
Family housing, Defense.....	8.8
Air Force:	
NIKE targets (for ABM tests).....	8.0
Missile and space defense (portion estimated for ABM).....	4.0
Minuteman rebasing (portion estimated for hardsite defense studies).....	10.0
Advanced sensor technology.....	7.6
Navy:	
ABM support (targets for ABM).....	7.0
Sea-based BMD.....	2.0
Advanced Research Projects Agency: Portion attributable to ABM.....	30.0
	-----
Total excluding Safeguard.....	270.4
Safeguard.....	1,450.0
	-----
Total ABM.....	1,720.4

## PERSONNEL ASSIGNED TO SAFEGUARD PROGRAM

Mr. MAHON. What is the cost to the Government of managing the Safeguard program? What is the total management cost in fiscal year 1970 and in fiscal year 1971?

General STARBIRD. The direct cost to the Government of managing the Safeguard program is estimated to be \$40.5 million in fiscal year 1970 and \$65.3 million in fiscal year 1971. These in-house Government management costs include the cost of Government civilian and military personnel at the participating Safeguard commands and agencies and the Safeguard management information system (SMIS). Appropriations involved are RDTE, PEMA, MCA, OMA, and MPA. Not included are the costs for the central training facility at Fort Bliss, Tex.

The total management costs are estimated to be \$80.9 million in fiscal year 1970 and \$117.8 million in fiscal year 1971. These amounts include the in-house Government cost I just mentioned as well as the cost of the prime contractor's system management and integration effort.

Mr. MAHON. How many military and Federal civilian employees are associated directly with the Safeguard program?

General STARBIRD. As of February 28, 1970, there were 960 military and 2,123 Federal civilian personnel employed in direct support of

the program. The authorized end strength being requested for fiscal year 1971 to directly support the program is 1,320 military and 4,000 Federal civilian personnel.

#### SAFEGUARD AGENCIES AND COMMANDS

Mr. MAHON. What organizations such as the Safeguard System Evaluation Agency and the Safeguard System Communications Agency are associated with the program? What is the size and cost of each of these agencies?

General STARBIRD. There are eight participating commands and agencies in the Safeguard program. During fiscal year 1970, these commands and agencies are expected to obligate about \$49 million for in-house operating costs. I will supply a table for the record showing the specific size and operating costs of these commands and agencies, as well as give a description of their functions.

(The information follows:)

#### SAFEGUARD COMMANDS AND AGENCIES

##### FUNCTIONS

(a) Safeguard system organization, established 1967 as Sentinel. Renamed Safeguard March 1969.

(1) Under command of the Safeguard System Manager (SAFSM).

(2) Is composed of three distinct organizational elements (SAFSO, SAFSCOM, SAFSEA).

(b) U.S. Army Safeguard System Office (SAFSO) is element of the Office, Chief of Staff, U.S. Army.

(1) Assists System Manager in exercise of his responsibility.

(2) Will accomplish coordination of Safeguard matters within Army Staff and will represent SAFSM in relations with OSD, other Government agencies and Congress.

(3) Currently located in Arlington, Va.

(c) U.S. Army Safeguard System Command (SAFSCOM). Field command.

(1) Established for accomplishment of development, acquisition, and installation of Safeguard System within guidance and direction of SAFSM.

(2) CG, SAFSCOM is Deputy Safeguard System Manager, specifically with respect to execution of procurement authorities.

(3) Commands National Range located at Kwajalein Missile Range (KMR) in Marshall Islands.

(4) As exception to established command authority, the Department of the Army provides guidance and direction to CG, SAFSCOM with regard to national range matters.

(5) Currently located at Huntsville, Ala.

(d) U.S. Army Safeguard System Evaluation Agency (SAFSEA). Field element.

(1) Charged with performance for SAFSM of continuing, independent evaluation of system and performing or participating in testing to support evaluation responsive to user requirements.

(2) Currently located at White Sands Missile Range, N. Mex.

(e) U.S. Army Engineer Division, Huntsville (USAEDH). Established by Chief of Engineers to accomplish Safeguard construction program.

(1) Operational control exercised by SAFSM.

(2) Located in Huntsville, Ala.

(f) U.S. Army Safeguard Logistics Command (SAFLOG). Established by CG, USAMC with mission of providing logistic support to Safeguard system.

(1) Serving as the National Inventory Control Point (NICP) and National Maintenance Point (NMP) for Safeguard equipment, with operational control exercised by SAFSM.

(2) Located in Huntsville, Ala.

(g) U.S. Army Safeguard central training facility (SAFCTF). Established by the commanding general, U.S. Continental Army Command (USCONARC) for accomplishment of off-site Safeguard training through operation of resident school located at Fort Bliss, Tex.

(h) U.S. Army Safeguard Communications Agency (SAFCA). Established by the commanding general, U.S. Army Strategic Communications Command (USASTRATCOM) to manage the Safeguard communications program.

(1) Operational control exercised by SAFSM.

(2) Located at Fort Huachuca, Ariz.

(i) U.S. Army Air Defense Command.

(1) Participates in making plans and preparations for deployment and assuming responsibility for the site when deployed.

(2) Will be responsible for operational command and control of sites when deployed.

#### STRENGTHS AND OPERATING COSTS

Command/Agency	Military	Civilian	Operating cost fiscal year 1970
SAFSO.....	34	66	\$1,343,000
SAFSCOM.....	91	764	19,838,000
SAFSEA.....	133	252	4,513,000
USAEDH.....	15	358	9,000,000
SAFLOG.....	24	162	3,110,000
CONARC (SAFCTF).....	339	102	1,581,000
STRATCOM (SAFCA).....	73	152	3,145,000
ARADCOM.....	229	46	1,401,000
AMC.....	22	221	2,293,000
Total.....	960	2,123	46,224,000

#### COST OF SPARTAN MISSILE

Mr. MAHON. How many Spartan's will you buy for the \$123 million in the fiscal year 1971 estimate and what is the cost of the necessary ground facility for each Spartan missile? How do these costs compare with the costs of Sprint?

General STARBIRD. The fiscal year 1971 budget request contains \$138 million (PEMA) for Spartan and \$73 million (PEMA) for Sprint. Of these totals, \$123 million for Spartan and \$55 million for Sprint represent the phase 1 missile procurement requirements for fiscal year 1971 and will be applied to the procurement of ——— tactical Spartan missiles and ——— tactical Sprint missiles with necessary launch and ground support equipment for the Grand Forks site, plus three nontactical missiles of each type for production line qualification testing and for reliability and maintainability laboratory testing. Not all of the costs attributable to these ——— missiles are included in the fiscal year 1971 request. For example, cost for preparation for production was incurred in earlier fiscal years and costs of installation and test will be incurred in future fiscal years.

When both direct hardware cost for the missiles and associated launch and ground support equipment along with indirect procurement cost such as system management, tooling, amortization of facilities, engineering and logistic support, and installation and test are considered, the average unit costs are estimated to be ——— million for standard Spartan ——— million for modified Spartan, and ——— million for Sprint. These costs exclude AEC nuclear warhead costs. The unit construction costs for ground facilities (launch cells) are

estimated to be an additional \$0.4 million per standard Spartan or modified Spartan and \$0.2 million per Sprint. These unit cost estimates are based on buying a total of \_\_\_\_\_ standard Spartan's \_\_\_\_\_ modified Spartan's and \_\_\_\_\_ Sprint's for the three-site modified phase 2 deployment.

#### UNCERTAINTIES OF SAFEGUARD COST ESTIMATES

Mr. MAHON. The estimated cost of phase 1 of Safeguard has risen from \$4,185 million on June 30, 1969 to \$4,594 million at the present time. As you stated, Mr. Packard, costs of Phase 1 have risen by \$100 million approximately, in the 1 month since you testified before another committee of Congress. The total cost of phase 2 deployment has risen by \$1.6 billion above the \$9.1 billion estimate given last year to a new total of \$10.7 billion. The cost of this program is increasing by more than \$100 million per month. As is written on the Archives Building "Past is Prologue." With this recent cost increase history, how can Congress have any confidence in the Safeguard cost estimates? There are still very many uncertainties. At this rate, if the program is completed, what will the total cost be?

Mr. PACKARD. It certainly is not expected that costs of this program will double or triple from the current base as some have charged. There will probably be some increased costs owing to inflation or perhaps to program stretchout in the future. Avoiding delays in deployment of the system will help limit cost growth resulting from these factors. Both inflation and stretchout relate to longer development time periods, and account for nearly \$1.0 billion of the \$1.6 billion increase for the full phase 2 and nearly two-thirds of the \$409 million increase for phase 1 over the past year.

I want to tell the committee very frankly that if such factors as inflation, stretchout and design improvements occur in future years as they did in the past year, then we could experience some continuing cost growth for this system. I am confident that the Safeguard program is well managed, and I intend to keep this program under close scrutiny. I will regularly advise Congress of system progress and of our best cost estimates under our established reporting procedures.

Mr. MAHON. As you know, the critics have been saying the cost estimates are understated, and we have to face up to this. The committee and the DOD have to face up to this problem.

Mr. PACKARD. Mr. Chairman, I might make a very brief comment on the cost situation. The increases are the result of three factors: one, of course, is inflation. It has been the practice to project the costs on the basis of current dollars, so there are likely to be some increases as a result of future inflation. I think that is a fact which we are simply going to have to accept. The second factor involved in the increases is the extension of the deployment schedule, which we have already discussed.

There are two reasons for the schedule extension. One is that we were a little delayed last year in getting the appropriation, so we could not get started quite as soon as we had anticipated in the earlier planning. Second, as I have already indicated, we extended the schedule in order to permit a less compressed contract construction effort. I do not

believe we are likely to encounter cost increases resulting from stretch-out of the program in the future unless, of course, there is delay in funding. We have already indicated if we do not go ahead this year with the modified phase 2 step that we have proposed, there will be some cost increases if we later decide to go ahead with it. Similarly, if we propose an additional step in the program next year, our recommendation will be based on what we think is the most efficient way to proceed, and any future delays would be very likely to cause further cost increases.

The third factor that has caused some increase in cost is design change and refinement of the estimates. You will recall that one of our reasons for recommending phase I was so that we could check out the system and do the detailed planning for two sites. In doing this planning, we have been able to firm up the estimates with considerably better realism than we were able to do previously.

(Discussion off the record.)

#### EFFECT OF INFLATION ON COST ESTIMATES

Mr. MAHON. To what extent have you cranked inflation into your estimates and your projects? I would assume that it must be inevitable that there will be some degree of inflation.

Mr. PACKARD. The estimates do not include inflation beyond the present time, is that correct?

General STARBIRD. That is correct.

Mr. MAHON. If you have 6 percent inflation a year, then you have to up these increases by that amount.

Mr. PACKARD. This is a troublesome matter.

An allowance for inflation is not included in any of our budget estimates for weapons systems except for ships.

Mr. MAHON. Will you expand that for the record?

(The information follows:)

It is Government-wide policy, established by the Bureau of the Budget, that budget estimates for the budget year will not anticipate price increases except as specifically authorized by the Bureau of the Budget. With respect to the Department of Defense, the only exception to this policy is the shipbuilding and conversion, Navy appropriation where escalation is authorized due to the unusually long period required to construct a ship. Accordingly, the fiscal year 1971 budget is expressed essentially in late calendar year 1969 dollars. To the extent that inflation continues to affect the costs of weapon systems, funds will have to be requested in subsequent fiscal years to cover cost growth due to inflation, or program adjustments will be required to align the program with available resources.

#### SAFEGUARD R.D.T. & E.

##### ILLEGINNI ISLAND REMOTE LAUNCH FACILITIES

Mr. MAHON. The R.D.T. & E., Army, justifications indicate that in fiscal year 1971 "Construction of the Illeginni Island remote launch facilities for Sprint and Spartan will be completed." Are these facilities being constructed with R.D.T. & E. funds? What is the cost and function of these facilities?

General STARBIRD. The construction of the Illeginni Island remote launch facilities for Sprint and Spartan was authorized as part of the

fiscal year 1970 military construction program and funded with MCA funds. The construction cost of these facilities have been estimated at \$10.7 million. These facilities are being provided to develop and test a capability to acquire and guide the Sprint and Spartan missiles launched from locations remote from the missile site radar.

#### RISK OF DEPLOYMENT PRIOR TO COMPLETING DEVELOPMENT

Mr. MAHON. The same justification states that after the appropriation of the \$365 million requested for R.D.T. & E. in fiscal year 1971, an additional amount of \$1,255,700,000 will be required for the completion of the R.D.T. & E. effort. This is almost one-half of the total R.D.T. & E. cost of \$2.7 billion.

Are we taking large technical and financial risks by proceeding with deployment of a system on which, at this time, less than one-half of the required R. & D. has been completed?

I would like for all three of you to comment on that.

Mr. PACKARD. That question, Mr. Chairman, relates to our earlier discussion of the feasibility of completing the development of the system before moving ahead with deployment. The system testing is going to involve a good deal of additional work on the components. The Sprint missile is being tested at White Sands, Missile Range. The flights there have been, on balance, successful, although there were a number of early failures. I have concluded that the problems we have had with the Sprint are straightforward engineering problems, and I do not feel there is any great risk involved there. The same thing is true of the Spartan. The testing is going to be very important, and it is going to comprise a large part of the cost. The software, which is one of the most important parts of the program, is now being developed. So although there is a good deal of development work yet to be done, we feel there is none that requires solving unsolvable problems. It is straightforward engineering as I evaluate it, and I do not feel we are proceeding with undue risk.

Mr. MAHON. Can you expand on that, General Starbird?

General STARBIRD. The Army had obligated \$3 billion in research and development funds even before the Sentinel deployment decision in order to develop the components and understand them. Since the decision was made to deploy the Sentinel system we have obligated slightly over \$1 billion to bring these components to a point of systems integration. The remaining work is mainly that of system integration at a cost of \$1.2 billion, and development of the modified Spartan and remote Spartan capability at a cost of slightly over \$.5 billion.

Components of the Safeguard system have been under development since 1961, and as a consequence of our having spent approximately \$4 billion in research and development, we have now reached the stage where most of the subsequent development involves integration of the components and system testing rather than the development of the components themselves.

The moneys will be spent mainly for testing of components as they come off the line and modifications to effect satisfactory performance. There is only one area that one might consider to be in a development category, and that is the software. As you know, last year we ourselves

pointed out that this constituted an area of some concern. In the subsequent period we have been more than gratified with the performance of the technicians at the Bell Telephone Laboratories. They have done an excellent job, and this effort has remained substantially on schedule. The tests to date have been very satisfactory, and have given us increased confidence in our ability to provide the required software capability.

System integration has begun at Meck Island and work is underway to interface the Spartan/MSR/data processing complex. In this effort approximately \_\_\_\_\_ Spartan missiles are scheduled to be fired during fiscal year 1971. Later this year work will begin to interface the Sprint/MSR/data processing complex with approximately \_\_\_\_\_ Sprint missiles being fired in fiscal year 1971 in support of system integration. Included in these scheduled firings are two contingency missiles of each type in the event such contingency firings are required.

#### RELIABILITY OF SAFEGUARD SYSTEM

Mr. MAHON. The Safeguard system has many complex components. What do your studies estimate the total system reliability of Safeguard will be? What percentage of the time will all the components operate properly?

Dr. FOSTER. The Safeguard system is designed to have a very high availability, which is the proportion of the time the equipment will be operational, and a very high reliability, which is the assurance that the equipment will meet its design goals throughout the period of the engagement. The ability of the system to carry out its mission generally is expressed as an availability/reliability product.

Several factors preclude giving a simple number to properly reflect the Safeguard system's availability/reliability. For example, the Safeguard area defense against the CPR threat and accidental launches will have overlapping PAR coverage and many major cities will be protected by more than one site. Therefore, the system availability/reliability is not reflected properly by the availability/reliability figure of a single PAR or MSR. The probability of two or three adjacent PAR's or MSR's being simultaneously out of operation is extremely low. Safeguard will provide less overlapping coverage in the defense of Minuteman and the alert bomber force. However, in the case of Minuteman or bomber defense compared to the defense of cities, the consequences of an out of operation PAR or MSR are less critical in that the defense objective is to save a fraction, not all, of the Minuteman and bomber forces. I will provide for the record the specific availability/reliability objectives for the major components of the system.

(The information follows:)

The availability/reliability objective for the PAR and MSR is, in each case, \_\_\_\_\_. This is based on a maximum allowed down time for a PAR or MSR of \_\_\_\_\_ hours per year with no single downtime period to exceed \_\_\_\_\_ hour. The in-flight reliability objective for Spartan and Sprint is in each case \_\_\_\_\_. By replacing those missiles which fail early in flight, or by firing two missiles at each attacking warhead, a very high kill probability can be attained. The availability of less than 1.0 of the Spartan and Sprint missiles is taken into account in the determination of the missile inventory required at each site.

## EXPERIENCE GAINED FROM PHASE I DEPLOYMENT

Mr. MAHON. As you reiterated in your statement, Secretary Packard, one of the stated purposes last year of the phase 1 deployment was to work out the problems that inevitably arise in any new major weapon system. Do you feel that, at the present time, we have proceeded far enough with phase 1 to accomplish this objective?

Mr. PACKARD. We have gained from the phase 1 program during the past year substantial experience in deployment planning and production. The primary system experience to be obtained from phase 1, that cannot be obtained from our R. & D. test program, is the test of site activation procedures and the test and operation of an internetted multiple radar, multiple site system. This valuable experience from phase 1 will be available for application to the installation, test, and integration of the modified phase 2 Whiteman site. The equipment readiness dates for the two phase 1 sites and the modified phase 2 Whiteman site have been deliberately selected to be a minimum of 4 months apart so that advantage can be taken of the experience gained at the early sites.

Mr. MAHON. Dr. Foster, what is the status of the test program and what, if any, additional information has been gained in the past year from the Safeguard test program that supports proceeding now with deployment beyond phase 1?

Dr. FOSTER. An extensive research and development test program on Safeguard components is being conducted and has already given high assurance that the system will work.

Over 150 launchings of the Spartan's predecessor, the Zeus missile, were made. Since flight tests of the Spartan were initiated in March 1968, a total of 25 flights have been conducted to date. Of these, 19 were completely successful, two were partially successful and four were failures. This is a remarkably fine record for flights of a re-designed missile. Further flight tests will be conducted at Meck Island with the Spartan under control of the MSR there. Beginning in the third quarter of this year, intercepts of ICBM's will be conducted.

The Sprint development test program also is progressing well. Under this program, a total of 38 Sprint missiles have been flight tested at White Sands missile range, with 19 fully successful, nine partially successful, and 10 failures. In this regard, it is important to note that the percentage of successful flights is considerably higher for those tests conducted recently than for the overall program. For example, of the 11 Sprint missile flight tests conducted in 1969, seven were fully successful, two were partially successful and two were failures. The reason for the two failures was diagnosed and the design modification was proven by a recent flight although the flight was only partially successful. More tests will be conducted at White Sands missile range; however, beginning late this year, all testing will be shifted to Meck Island. The Sprint flight record is good and the missile has demonstrated that it is capable of meeting the design requirements.

The AEC has carried forward its warhead testing satisfactorily. Tests of critical weaponization features were completed and weapon output measurements were made in 1969. Warhead sections with simulated warheads (no nuclear material) were flight tested on both Sprint and Spartan missiles.

The MSR installation at Meck Island began in August 1967 and the radar was first operated in May 1968. During 1969, the radar operated at full peak and average power, and satisfactorily tracked two ICBMs launched from Vandenberg AFB. The data processor was brought up to full capacity with the installation and checkout of the fourth parallel processor unit. Two major software packages were developed. The first is used to check out and test the radar and data processor and their interfaces, and to exercise the system up through target tracking. This program has accomplished its mission including tracking of incoming targets launched from Vandenberg AFB. The second software package, which is used for missile tracking and guidance for the missile firings, is in the final stages of checkout and debugging.

A prototype perimeter acquisition radar (PAR) will not be built and tested at Meck Island. A radar using similar technology has already been constructed and operated at Eglin Air Force Base in Florida. A limited engineering development model of the PAR was constructed and activated at the Syracuse General Electric plant during 1969.

No serious problems have been encountered. The satisfactory operation and testing of the Safeguard components during 1969 increases confidence that the problems relating to component design have largely been solved. Further refinement of system components should be necessary as component integration continues; time has been allowed to make necessary changes within the Safeguard schedules.

#### EFFECT OF DEPLOYMENT ON SALT TALKS

Mr. MAHON. Your statement and Secretary Laird's statement pointed out that the Soviets are now engaged in a rapid buildup of strategic offensive forces. You also state that we desire to place our emphasis on strategic defensive systems. Should we attempt to offset the Soviet offensive increases with additional offensive systems of our own? Is it felt that U.S. increases in offensive systems might damage SALT but that Soviet increases in similar systems will not?

Mr. PACKARD. The review which led to our recommendation this year for deployment of the modified phase 2 Safeguard included an intensive examination of our available strategic options in light of both the SALT talks and the continued growth of the Soviet strategic threat to the United States. We concluded that an orderly, measured and flexible but ongoing Safeguard program is necessary to maintain our strategic position and will improve the chances for a successful outcome of the SALT negotiations.

We believe that our recommendation this year should enhance the prospects for success in SALT because it allows us to exercise greater restraint in matching a continued Soviet buildup of offensive systems with prudent actions involving our own offensive systems at this time. For this reason, we are not recommending the deployment of any new strategic offensive systems beyond those which were already planned well over a year ago.

It is obvious that the offensive weapon decisions of both sides will have a great impact on the outcome of SALT. We have made clear that one of our principal reasons for proposing the modified phase 2 increment of Safeguard this year is that it will permit us to postpone for another year crucial decisions on offensive systems while the

SALT talks proceed. I feel, however, that it would be inappropriate for me to comment further on this subject now since it will, of course, be central to the discussions in SALT.

#### EFFECT OF RADIATION FROM SAFEGUARD RADARS

Mr. MAHON. What have your studies shown to be the effects of radiation from Safeguard radars on Minuteman ICBMs?

Dr. FOSTER. The possible effects of Safeguard radars on the entire Minuteman system, including the missiles, have been the subject of investigations by the Army, Air Force, and the Electromagnetic Compatibility Analysis Center (ECAC) over the past 2 years, and close working relationships at the technical level have been established for that purpose. These investigations have identified no potential interference problems that could not be solved by operational procedures or, at most, limited fixes. These investigations, which will include some actual testing, are continuing. The Army and the Air Force have been working closely in a well-coordinated investigation of possible problems.

#### CHANGE IN DEPLOYMENT SCHEDULES

Mr. MAHON. The GAO has reported that slippages in development milestones for Safeguard components have not been accompanied by changes in the procurement schedule for these components. For example, Sprint system firings at Meck Island slipped by 17 months but the scheduled date for the start of Sprint production was not changed. Other examples were found in the MSR and the Spartan missile. Can you discuss this problem?

General STARBUCK. The GAO statement is somewhat inaccurate and misleading. It is believed that the data provided by the GAO were based on the schedule which was in effect before the Sentinel deployment decision. The Sentinel deployment decision had an initial equipment readiness date (ERD) of April 1972. In January 1968, and not for any technical reason, the initial ERD of April 1972 was changed to October 1972. With the decision to deploy Safeguard and delay the ERD by an additional 15 months to January 1974, I again reviewed the schedule. This review considered the overall 21-month delay in ERD when compared with the original Sentinel deployment decision.

I will provide for the record a comparison of the Sentinel schedules and the initial Safeguard schedules established following the Safeguard decision last year.

(The information follows:)

1. Comparison of Sentinel schedules and initial Safeguard schedules considered in GAO report.

(a) Under the initial Sentinel program the first MSR-guided Sprint flight was scheduled for first quarter, calendar year 1970, or 27 months before ERD, and major production was scheduled for third quarter calendar year 1969 or 6 months before the first MSR-controlled flight. Under the Safeguard program the first MSR-guided Sprint flight was scheduled for \_\_\_\_\_ and this production was scheduled to begin in \_\_\_\_\_ or \_\_\_\_\_ before the first MSR-controlled flight of \_\_\_\_\_.

(b) Under the initial Sentinel program the first guided Spartan flight was scheduled for third quarter calendar year 1969 or 33 months ahead of ERD and major production was scheduled to start in third quarter calendar year 1969 which was the same quarter as the first MSR-controlled flight. Under the Safe-

guard program the first MSR-guided Spartan flight was scheduled for \_\_\_\_\_ and this production was scheduled to begin in \_\_\_\_\_ which is about \_\_\_\_\_ after the first MSR-controlled missile flight.

(c) Significant production on the MSR under the first Sentinel schedule was to start in third quarter calendar year 1968 which was about 12 months before the first MSR-controlled missile flight. Under the Safeguard schedule this production of the MSR was scheduled to start in \_\_\_\_\_ which was about \_\_\_\_\_ before the first scheduled MSR controlled flight.

2. Current schedule status:

(a) Since the initial Safeguard decision, the first Safeguard ERD has been delayed an additional 9 months to the fall of 1974. The development schedules have not changed significantly; that is, the first MSR-guided Sprint flight is scheduled for \_\_\_\_\_ the first MSR-guided Spartan flight was conducted April 1970. The begin-production dates for these components are under review, but all indications are that they will be again delayed.

(b) Although the first MSR-guided sprint flight has been delayed by 9 months and Sprint significant production by at least 1 year, ERD has been delayed a total of 30 months since the initial Sentinel decision, thereby allowing 21 months longer for production, installation and test prior to the initial deployment. Similarly, the Spartan and MSR now have 23 months additional time for design refinement and test prior to first ERD.

EFFECT OF FUZING ON ABM WARHEADS

Mr. MAHON. Dr. Foster, there has been some concern expressed that because of the great speed at which an incoming ICBM reentry vehicle and an ABM missile close on each other, that the fuzing device which detonates the ABM warhead cannot function rapidly enough and the explosion cannot be accomplished rapidly enough to kill the incoming reentry vehicle with a sufficient degree of reliability. We have not actually exploded an ABM missile against an incoming reentry vehicle so that we are not certain what degree of effectiveness may be attained. Can you discuss the problem of the fuzing of ABM warheads?

Dr. FOSTER. Safeguard interceptors do not carry on-board fuzes. They are guided and also given arm and burst commands under the control of the missile site radars (MSRs). \_\_\_\_\_ It is important to realize that the entire intercept sequence is tightly controlled by the MSR and its data processor and that updated and more accurate predictions of all future events in the intercept sequence are continually computed until final burst.

The sequences for Spartan intercept are similar to those described above \_\_\_\_\_

SENATE RESOLUTION ON DEPLOYMENT OF STRATEGIC NUCLEAR WEAPONS

Mr. MAHON. Mr. Minshall.

Mr. MINSHALL. Mr. Secretary, yesterday the Senate passed by a very impressive and overwhelming vote Senate Resolution 211. The vote as you are probably aware was 72 to 6. Only two were recorded paired, against it. I understand that many others, had they been present, would have voted yea, including some of the most conservative and well respected members of that body.

I wonder if you would care to comment on the resolution and the vote. As you are aware, the resolution in its title read "Senate seeking agreement with the Union of Soviet Socialist Republic on limiting offensive and defensive strategic weapons and the suspension of test flights for reentry vehicles."

Would you care to comment on that vote and what you think it means?

Mr. PACKARD. I would be glad to do so, sir.

First, I believe that the vote represents a strong desire on the part of all the Members of the Senate to achieve something in the way of a limitation in the whole area of strategic armaments. I believe that anyone who has had some familiarity with the question of strategic nuclear weapons would share in that desire to find some way to control and limit strategic weapons. I think that this vote represented a strong and appropriate concern about finding some way to avoid a further proliferation of nuclear weapons.

Mr. MINSHALL. Had you been a Member of the Senate, would you have supported that resolution?

Mr. PACKARD. If I had been a Member of the Senate? This is a very interesting question, but the difficulty I see is that the question of what is the appropriate way to approach these negotiations is a very complex one. We have been studying this issue from almost the beginning of last year, both in terms of trying to make some judgments of what we should do in connection with the ABM program, and in connection with preparing our delegation to the SALT talks. It is very difficult to say exactly what specific action is appropriate. That is why the negotiations themselves are difficult and very complex. I am convinced that this resolution will be considered as guidance to the President, and encouragement to our delegates to make some progress in the SALT talks. I believe, however, that looking at any specific weapon in isolation, whether it be ABMs or MIRVs, is not a realistic way to go about achieving an effective arms limitation agreement. These weapons have to be considered in connection with the entire strategic balance.

Mr. MINSHALL. From your answer I am not real certain whether you would have voted yes, no, or present.

Mr. PACKARD. I think I would have had trouble voting on this specific resolution, but in terms of the spirit of the matter, I think I am quite sympathetic.

Mr. MINSHALL. Mr. Chairman, may we have inserted in the record at this point a copy of the text of the resolution.

Mr. MAHON. The text will be inserted at this point.

(The resolution follows:)

Resolved, that it is the sense of the Senate that prompt negotiations between the Governments of the United States of America and of the Union of Soviet Socialist Republics to seek agreed limitations of both offensive and defensive strategic weapons should be urgently pursued; and

Resolved further, that the President should propose to the Government of the Union of Soviet Socialist Republics an immediate suspension by the United States and by the Union of Soviet Socialist Republics of the further deployment of all offensive and defensive nuclear strategic weapons systems, subject to national verification or such other measures of observation and inspection as may be appropriate.

#### ADDITIONAL COST IF SYSTEM IS DEFERRED

Mr. MINSHALL. Dr. Foster, you earlier said if the money you requested for ABM in this budget was deferred for a year that eventually it would cost several hundreds of millions of dollars more for

this program. Isn't that a rather infinitesimal amount when you consider the entire programing cost in excess of \$10 billion?

Dr. FOSTER. Mr. Minshall, of course, several hundred million is an enormous amount of money.

Mr. MINSHALL. Everything is relative, Doctor.

Dr. FOSTER. Certainly relative to the total cost, it is rather small. I think the cost aspect is completely overshadowed by the problem of the strategic threat to our Minuteman force and our bombers. I think that is the driving factor. The Safeguard system, as you know, is made up of components that have been under development since 1961. As a consequence of our having spent approximately \$4 billion on research and development, we have now reached the stage at which further activities as indicated by Secretary Packard, consists of production and integration of the components, and system tests rather than the development.

So the funds will be spent mainly for construction, production, and installation of subsystems, testing the subsystems as they come off the line, and for modifications to achieve satisfactory performance. There is only one part of this effort that we might consider to be in the development category, and that is the work on software. As you know, that was an area of concern pointed out by us last year.

Since then we have been more than gratified with the performance of the technicians at the Bell Telephone Laboratories. They have done an excellent job and they advanced the schedule for the work. The tests on the software have been very satisfactory.

(Discussion off the record.)

Mr. MAHON. Mr. Andrews.

#### COMPARISON OF SAFEGUARD TO ANTI-AIRCRAFT MISSILES

Mr. ANDREWS. I do not have any questions other than to say I am supporting this program.

I still have questions in my mind as to whether or not it will work. Shooting a bullet with a bullet is what it amounts to, and that is awfully hard to do. I hope you have success, Dr. Foster. It will cost a lot of money. The estimates I see are between \$40 and \$50 billion. Is that about right as a ball park figure; that is, if you go forward with the program you envision?

Mr. PACKARD. I would like to make two comments about this matter. One is that while the system is in the nature of shooting a bullet with a bullet, we have to remember that we are already doing something similar to that with our anti-aircraft missiles. One could argue that shooting down ballistic missiles is not significantly more difficult than shooting down aircraft. In fact, aircraft can maneuver and can be quite difficult to hit. They can also carry countermeasures and so forth, just as ballistic missiles can.

In many ways the technical problems of intercepting or hitting a ballistic missile might be considered less difficult than hitting an aircraft.

Of course, the Spartan and Sprint both have nuclear warheads. This means that they do not actually have to physically hit the target. All they need to do is get within the lethal radius of their nuclear

warheads. The lethal radius is ——— miles or so for the Spartan, depending on the hardness of the RV, of course, and ——— or so for the Sprint.

Now, looking into the future, there are some possible developments that may enable us to improve the accuracy of the terminal guidance. That, however, would further complicate the system, and we are not recommending it at this time.

With regard to your estimates of possible total costs, and specifically the figure of \$40 or \$50 billion, I just do not believe there is any likelihood that this system will cost anywhere near that range. I think there probably will be some additional cost growth, but certainly nothing as great as that.

I think that in terms of the program we are recommending, as I have said, we can accomplish the full program at an obligation rate of something around \$2 billion a year. That \$2 billion would be a part of the total Defense budget.

There is no realistic way of fitting a program that will cost \$50 or \$60 billion into the total Federal and Defense budgets now contemplated for the next 5 years. If I thought it would cost that much, I would not recommend it to you.

Mr. ANDREWS. I said I support your program and I hope it works. (Off the record.)

#### PROGRESS OF VIETNAMIZATION

Mr. ANDREWS. It is most interesting to have you here, Mr. Secretary, you are very knowledgeable about all these subjects. This question I will ask finally has nothing to do with ABM. But we do not have an opportunity to question you too often—or at least not nearly enough—are you satisfied with the progress made in the so-called Vietnamization program?

Mr. PACKARD. I will give you a very short answer to that. I am not entirely satisfied with the progress, but the progress has been quite good, especially with regard to the military aspects of Vietnamization. I think that in view of the problems there, we have made as much progress as could be hoped for during the past year. Furthermore, I am convinced that we can make this Vietnamization program work. It has a very high priority in both Mr. Laird's mind and my mind as well.

Mr. ANDREWS. When he was here and discussed the program in detail, I said to him, "I admire your optimism, but I don't share it."

That is all. Thank you.

(Discussion off the record.)

#### SAFEGUARD PERSONNEL POLICIES

Mr. SIKES. GAO Report B-16425 entitled "Rotation of key military personnel assigned to Safeguard antiballistic missile program" recommended that the Army consider whether present policies, or those to be embodied in the ABM manpower and personnel plan, need to be tailored to requirements peculiar to the various ABM activities or otherwise revised to ensure appropriate retention of all key personnel.

This recommendation was taken because the Army's present stabilization plan reflects concern over officer career development. For example, company grade officers are excluded from the present plan; the present plan for tours of duty may be too short; officers in stabilized positions may be reassigned for career development purposes; present stabilized tours for field grade positions may be completed before the system becomes operational; personnel may be reassigned for short periods within the same organization; and maximum continuity of effort may not be sustained in the test program because of short tours.

What is the current stabilization policy of the Army?

Have you initiated the recommendations of GAO in your policy?

General STARBIRD. The current stabilization policy of the Army provides that field grade officers will be stabilized for 3 years, while warrant officers and enlisted personnel will be stabilized for 4 years. An individual will not be transferred solely because his stabilization has expired. Close and continuous management of assignments of these individuals by the Department of the Army and commanders precludes the concurrent reassignment of significant numbers of key personnel. The present policy adequately provides for stabilization prior and subsequent to actual movement onsite. Extended stabilization would defeat our efforts to attain continuity of effort and efficient management, because personnel must be offered opportunities comparable to those offered their peers if we are to provide the best people for the program. Denying system personnel opportunities for advanced schooling and command tours desirable for career progression would have a highly detrimental effect on their motivation. Protracted stabilization would not prevent attrition resulting from retirements, resignations and other unavoidable losses.

In August 1969, the Army completed the study on stabilization referred to in the GAO report. The study considered the Army's capabilities to support the program while meeting its worldwide personnel requirements. As a result of that study, the Army has established a stabilization policy tailored for the Safeguard program as recommended by GAO. Implementation of the policy was accomplished by publication of a separate appendix to the Army regulation on stabilization. This present policy was developed in close coordination with my office and is adequate to make the required number of key military personnel available for appropriate lengths of time. The Department of the Army is continuing its close monitorship of Safeguard personnel matters. Personnel with prior missile or related experiences are being identified for future assignment to Safeguard. Further improvements will be made after military occupational specialties to Safeguard are approved in mid-1971. Stabilization of company grade officers in particular situations will be reviewed on an individual basis. Experienced personnel have returned to Safeguard from other assignments, indicating that continuity of effort is present. Changes in current policy can and will be made when required.

#### REDUCTION IN SAFEGUARD CONSTRUCTION FUNDS

Mr. SIKES. Mr. Chairman, we have a request from the President for an amendment of the budget. It concerns the military construction portion of the Safeguard program. It is recommended that

there be a reduction of \$40 million in Safeguard, and an increase in pollution abatement project at Defense installations from \$40 million to \$80 million. In that regard, Mr. Chairman, I would like to submit for the record the communication from the President.

(The information follows:)

[H. Doc. 91-300, 91st Cong., second sess.]

AMENDMENTS TO REQUEST FOR APPROPRIATIONS, FISCAL YEAR 1971

THE WHITE HOUSE,  
Washington, April 7, 1970.

THE SPEAKER OF THE HOUSE OF REPRESENTATIVES.

SIR: I ask the Congress to consider amendments to the requests for appropriations transmitted in the budget for fiscal 1971. These amendments would reduce the military construction portion of the Safeguard program by \$40 million and increase the program for pollution abatement projects at Defense installations from \$40 million to \$80 million. These proposals, which will not increase budget authority, are necessary to implement the pollution abatement objectives stated in my message of February 10, 1970 to the Congress on the environment.

The details of these proposals are set forth in the enclosed letter from the Director of the Bureau of the Budget, with whose comments and recommendations I concur.

Respectfully yours,

RICHARD NIXON.

EXECUTIVE OFFICE OF THE PRESIDENT,  
BUREAU OF THE BUDGET,  
Washington, D.C., April 7, 1970.

The PRESIDENT,  
The White House.

SIR: I have the honor to submit for your consideration amendments to the requests for appropriations transmitted in the budget for the fiscal year 1971, as follows:

DEPARTMENT OF DEFENSE—MILITARY

Heading	Request pending	Proposed amendments	Revised request
Military construction:			
Military construction, Army.....	\$708,000,000	-\$21,900,000	\$686,100,000
Military construction, Navy.....	323,500,000	15,600,000	339,100,000
Military construction, Air Force.....	297,200,000	6,300,000	303,500,000

These proposed amendments would permit additional pollution abatement projects in the amount of \$40 million to be financed from Defense military construction appropriations, to be offset by a \$40 million reduction for the Safeguard program in the Army military construction appropriation. The amendment for military construction, Army, reflects the \$40 million Safeguard reduction and the Army's increase in pollution abatement projects which is \$18,100,000.

I recommend that these amendments to the budget for the fiscal year 1971 be transmitted to the Congress.

Respectfully yours,

ROBERT P. MAYO, *Director*.

BASIS FOR REDUCTION IN CONSTRUCTION FUNDS

Mr. SIKES. General Starbird, this proposed change has been discussed in hearings before the Military Construction Subcommittee. Could you briefly discuss the reasons for this change and its connection with the latest schedule for Safeguard construction?

General STARBIRD. The original fiscal year 1971 Safeguard budget request totaled \$1,490 million. The revised request is \$1,450 million. At the time the fiscal year 1971 budget was submitted, discussions were still underway as to exactly what the fiscal year 1971 phase 2 increment would include by way of advanced planning and major construction. It was after the President's budget was submitted that the details of the deployment were finally decided and the estimate of \$1,450 million became firm. Thus, we were able to reduce the MCA program by the estimated amount of \$40 million.

#### GRAND FORKS CONTRACT

Mr. SIKES. The construction contract for the Grand Forks site recently has been awarded at a price of \$137.9 million.

How does this compare to the Army estimate?

General STARBIRD. The Grand Forks construction contract was recently awarded to a joint venture sponsored by the Morrison-Knudsen Construction Co. of Boise, Idaho, in the amount of \$138 million. This bid was some 9 percent above the official Government estimate of \$126 million. The Government estimate was computed in the same manner as a contractor would figure the job taking into account local conditions, current and projected costs, overhead and profit within the parameters established by the invitation for bid. Program estimates of MCA funds required for the portion of the project awarded total in excess of \$138 million and are contained within the phase 1 estimate of \$519 million. Thus, programmed funds should adequately cover the current contract.

Mr. SIKES. What type of competition was there?

General STARBIRD. Two additional higher bids were received from joint ventures sponsored by the Dravo Corp. of Pittsburgh, Pa., and the Martin K. Eby Construction Co. of Wichita, Kans. The three joint ventures which bid on the project included as members 17 firms including the sponsoring companies.

Mr. SIKES. Do the estimates for Safeguard construction include an allowance for cost growth to the period in which construction will be accomplished?

General STARBIRD. The construction contract as awarded is a fixed price contract and is not affected by day-to-day growth in price levels. Assuming no changes in requirements and no changed conditions from contract specifications, the contractor is required to deliver the project for the price bid and accepted. Estimates of Safeguard construction not yet under contract are based on December 1969 prices, and do not include provision for additional price level increases. Revision will therefore be required as time progresses to bring these estimates in line with price levels in existence during the actual period when the contracts are let and the construction begins.

Mr. SIKES. Do you anticipate any major changes in the amended request or in the funding schedules provided the Military Construction Subcommittee on March 5, 1970, as a result of your contracting experience? If so, would you update that information for the record.

General STARBIRD. It is anticipated that some modifications to the program will be required as the result of price level growth and recent

experience. The effect on program estimates is currently under study and will be provided upon completion. However, the fiscal year 1971 budget request will not be affected.

#### LIMITED RESPONSE TO INCREASED SOVIET CAPABILITY

Mr. SIKES. Essentially, this year we are adding one site to the program. To me this appears to be a very weak response to the serious growth of the threat. The Russians have substantially increased their missile forces of all kinds. This story sounds altogether too much like David and Goliath to satisfy me.

I know that the record shows that David slew Goliath, but the odds are not exactly favorable in that kind of a confrontation. I wonder why we make this limited response. I wonder why we are providing our country with so little additional defense capability.

It will be a number of years before we will have a capability and attain a missile defense even on a limited basis. Stretching this over a long period of time seems to me to be a dangerous procedure. Why are we building an ABM system which seems to be in step with the growth of the Chinese threat, when China, if they have any sense at all, will not unleash a dozen or so missiles against a capability a hundred times as great? Why do we not face up to the fact that it is the Russians that pose the really serious threat to us, and why don't we start building against that threat immediately?  
(Discussion off the record.)

#### BASIS FOR INCREASE IN SOVIET CAPABILITY

Why, in your best judgment, do the Russians continue to build to an overkill capability? We are not doing so. We think we have built our missile forces to a proper level. The Russians are continuing to build. They now have surpassed our capability and they are continuing to add to their capability.

What is going on, which the American taxpayer ought to know that he does not know in this area?

Mr. PACKARD. Unfortunately, we are unable to say with confidence what the longer-term Soviet objectives are for their strategic forces, much less why they are pursuing those objectives. We are concerned about the rapid expansion of their forces, especially since the forces becoming operational in a given year have, for some time, tended to exceed our projections for that year. As the President indicated in his foreign policy statement, we have established criteria by which we judge the sufficiency of our strategic forces. We do not know whether the Soviet objective is a force which, on the basis of their evaluation, would amount to strategic parity with the United States, or whether they contemplate expanding toward a politically usable superiority or perhaps even a first-strike disarming or damage-limiting capability.

What does concern us is the momentum the Soviets have established behind both their deployment and development programs in the strategic field. Our programs this year, especially the modified Phase II Safeguard proposal the President has submitted, are designed to preserve all the strategic options we currently have available so that if the Soviet momentum continues, we can respond in a timely fashion.

Mr. SIKES. That is all, Mr. Chairman.

## FALLOUT SHELTERS

Mr. MINSHALL. In view of all of this, what is your opinion of the necessity for a fallout shelter program?

Mr. PACKARD. I think we had better answer that for the record. (The information follows:)

Although nuclear weapons may be detonated at various heights above the ground to produce the most damage by immediate effects such as blast, shock, and thermal radiation, it is not a certainty that they will be used in this manner. Nuclear weapons can instead be detonated at or near ground level to produce a delayed population-damaging effect by creating windborne radioactive particles (fallout) which can be deposited far from the original detonation.

If our cities are defended by air defenses or ballistic missile defenses, ground level detonations outside the range of the defenses would still produce fallout effects. Some of the Chinese ICBMs or Soviet SLBMs could leak through the area defenses and detonate near the ground, creating fallout effects on the population distributed downwind from the explosions. Also, Soviet attacks on hardened underground facilities such as missile silos require ground level detonations to be effective. Large attacks of this nature would be a major source of fallout covering much of the country.

The basic objective of the current civil defense program is development of a nationwide shelter system to protect our population from radiological fallout that might occur following a nuclear attack. Fallout shelters would provide our people significant protection against all of the above contingencies, thereby supplementing our active defenses. For this reason fallout shelters are, and will probably continue to be, a key element of our civil defense program.

A complete review of U.S. Civil Defense policies is now being conducted by the Office of Emergency Preparedness at the direction of the National Security Council. The Department of Defense, including the Office of Civil Defense, is actively participating in that study. Pending its completion in the near future, we are proposing no major changes in the current civil defense program.

Mr. MAHON. Mr. Davis.

Mr. DAVIS. I have no questions.

## CONTRACT CANCELLATION PROVISIONS

Mr. MAHON. Mr. Jonas.

Mr. JONAS. Let me say that when you throw around figures of even \$10 billion, much less \$50 billion, I have a natural feeling of shock, because that is a lot of money. However, I would not hesitate to commit 10 billion or even 50, if it is necessary for the security of the United States; whatever the cost, it is not too much to pay for security or survival. I know I could dig these figures out of the record, and I read your statement and that of General Starbird, but could you just insert a table showing the total outlays to date—expected outlays in 1971—and that won't establish the full record I want. I know you will have some contracts outstanding and outlays don't tell the whole story. My specific question is, in the execution of these contracts do you provide escape clauses?

Can we cancel, and what penalty would be involved if, somewhere along the line before this program is completed, there is a change of policy, or are we committed for the full program or can it be canceled and at what cost?

Mr. PACKARD. General Starbird might be able to give a better answer to that question than I can.

General STARBIRD. We have in all major contracts except construction contracts a provision that the contract must be renewed annually.

If we terminate, we must pay the damages to the contractor. But there is in all such contracts a provision that it can be terminated at the convenience of the Government.

MR. JONAS. In all contracts except construction.

General STARBIRD. In respect to construction, the only contract we have—and it is similar to the others we contemplate—is a fixed price contract for the complete structures concerned. This is the contract for the first site.

Here again there can be termination at the convenience of the Government, but damages must be paid. So, in general, we are not obligated to go the whole distance to a deployment. We can terminate. However, with respect to our general policy, wherever we are obligated to something, we do actually have to have the funds available and obligate our funds against that particular piece of work.

MR. JONAS. I understand. That is why you have to have more in appropriations than you expect to spend in a given year.

General STARBIRD. That is right.

MR. JONAS. I understand that.

General STARBIRD. With respect to funds available to date, even before this current request, about \$2.3 billion has already been made available for deployment, and that is exclusive of the \$3 billion in R. & D. spent before the decision to deploy.

#### DEPLOYMENT PRIOR TO COMPLETING R. & D.

MR. JONAS. The arguments we hear on the floor mainly revolve around two propositions. First, there is no real objection to a continued program of research and development, but that until that has been completed it is a mistake to go forward with deployment. As I say, I have read your statement, Mr. Secretary, and the answer is in there, but it is a 21-page statement and some people reading the record won't take the time to dig the answers out. So would you briefly capsule an answer to that.

MR. PACKARD. The answer to that question has been touched on before, but let me again emphasize the key points. This is a system in which the high technical risks are pretty much out of the way. The really advanced development has generally already been accomplished by now. So the problem is more one of engineering than it is of finding answers to uncertain problems. When I looked at this last year and recommended that we go ahead with the phase I deployment at two sites, I made that recommendation in light of the experience I have had on smaller programs and in light of my discussions with the contractor at Bell Labs and with many other people. It was my conclusion and the conclusion of the administration, that we should move ahead at that time with two actual sites so we could shake down the system and find out what the practical problems would be. You understand, of course, that you only encounter those practical problems when you go ahead and actually deploy and start to operate the system. It is like any new project—you think you have the problems worked out but you really have to get it into operation before you can discover all of the problems. It is only through that kind of process that you can get this complicated a system operating on a fully satisfactory basis.

I would like to address your question of why we don't just continue with the two sites we asked for last year and not propose to go ahead with additional sites this year. There are two reasons for our recommendations. One of them concerns the timing of the deployment and the impact of a delay. Unless we continue to keep the program going and continue to do the work that provides the production base, there would be a delay in the time period in which we could have the full system operational. At best, with authorization in fiscal year 1972, the earliest we could have the full 12-site system operational is ———.

We could probably accelerate the program if we wanted to increase the future expenditure rates above what we now envision. I cannot recommend a program to you that would delay the availability of the full 12-site system beyond ——— because if anything, that may be late.

The second reason for our recommendation of the additional deployment at the Whiteman site is that, although it includes a missile site radar and Sprint and Spartan missiles, it is somewhat less complex than the phase 1 sites ——— and we think we should go ahead with this site in order to give us the increased protection of our Minute-man that it would provide. Like the phase 1 sites the Whiteman site will also contribute to area defense of our bombers against the Soviet SLBM threat and provide a portion of the full area coverage required for defense of our population against a Chinese attack or against an accidental launch from any source.

#### POSSIBILITY OF SYSTEM BECOMING OBSOLETE PRIOR TO DEPLOYMENT

Mr. JONAS. There is one final question for which I would like to have a specific answer in the record, and it is a question that has been raised on the floor, and in the civilian community, too. That is the fear that this system will, before it is fully operational, already have become obsolete.

Mr. PACKARD. Needless to say, we have given consideration to that question also. I personally gave that question a good deal of thought last year in the initial review that resulted in our recommendation on the phase 1 program.

This system involves a technology which utilizes radars for tracking and controlling interceptor missiles. There are some possible ways in which that technology could be improved, but the basic technology has been well developed and worked out over the years. It is based on a technology upon which all of our ground-to-air missiles operate. It is similar in many ways to the basic principle on which the Russian ABM system operates.

There are very few ways that we now see on the horizon in which you are likely to be able to improve this basic technology although there are some improvements that might be made. I have already mentioned one which was to provide some type of terminal guidance on the interceptor, thereby putting a less demanding requirement on its war-head size. The terminal guidance could be added at some future time to the basic system as it is now planned. It would not basically change the system.

Another completely different technology involves an idea that has a great deal of attraction, and it is the possibility of ———.

In other words, I do not see any technology on the horizon that would encourage me to recommend holding back on Safeguard and waiting for a new generation of technology and components to come along.

Mr. JONAS. It is inaccurate, then, to say that this system, when completed, will be a static system and could not be expanded to meet new conditions.

Mr. PACKARD. We will be able to make improvement without changing the basic elements of the system.

Dr. FOSTER. Sir, if I may add to the discussion of obsolescence, I do not feel that in the 1970's the Chinese will be able to mount a threat that cannot be effectively countered by the Safeguard system. Second, we see nothing in the Soviet program that would pose a threat, if deployed, that could not be handled by Safeguard technology in defending the Minuteman or the bombers. However, if the Soviets continue to deploy ICBM's we may have to deploy in the future more defensive weapons than are specified for the full phase 2 Safeguard, and in the case of Minuteman, we may wish to augment Safeguard with new, less expensive components designed solely for Minuteman defenses.

Mr. MAHON. Mr. Addabbo.

#### PROTECTION AGAINST CHINESE THREAT

Mr. ADDABBO. Is it necessary at this time to begin an anti-Chinese deployment when a year ago it was argued by the administration that an area defense against a Chinese attack could not be justified. Is there new evidence of development of Chinese capabilities for delivery of weapons against the United States?

Secretary PACKARD. Actually, the administration did not argue a year ago that an area defense against a Chinese attack could not be justified. President Nixon made that clear in his statement on March 14, 1969, on the deployment of SAFEGUARD. If I may read a bit from that statement, the President said that system would have the following objectives:

Protection of our land-based retaliatory forces against a direct attack by the Soviet Union.

Defense of the American people against the kind of nuclear attack which Communist China is likely to be able to mount within the decade.

Protection against the possibility of accidental attacks from any source.

President Nixon also stated at that time that "each phase of the deployment will be reviewed to insure that we are doing as much as necessary but no more than that required by the threat existing at that time." The modified phase 2 program proposed by the administration would, without commitment to an area defense at this time, maintain the President's options to move further toward the 12-site SAFEGUARD system, if necessary, or enable us to curtail the deployment if threat developments permit.

With regard to changes in the Chinese threat during the past year, the Chinese missile test site now appears to be essentially complete and on this basis one could predict a test of an ICBM within the current year. Also, Communist China has continued to test nuclear devices which are expected to be suitable for ICBM application by the time their missile has been developed. The earliest date by which they could achieve an initial ICBM capability now seems to be 1973. This represents about a 1-year slippage in last year estimated earliest capability. It is more likely, however, that their initial capability will be attained by the mid-1970's. If the initial Chinese ICBM capability were achieved by 1973, they might have between 10 and 25 operational launchers by 1975. But, in the more likely event that their initial ca-

pability comes later, the achievement of a force this size would slip accordingly. However, since the full 12-site phase 2 Safeguard will not be fully deployed until the late 1970's, the present schedule does not appear to be too early for the projected threat.

#### HEAVY VERSUS LIGHT SYSTEM

Mr. ADDABBO. A year ago the President rejected the Johnson administration's Sentinel ABM deployment because "the Sentinel system has the disadvantage that it could be misinterpreted as the first step for the construction of a heavy system." Has it now been satisfactorily explained why the same argument would not apply to the presently proposed expansion of Safeguard?

Mr. PACKARD. Unlike a light area defense, a heavy defense of our population would have relied primarily on local defense with the Sprint missile which has a range of a few tens of miles. A heavy population defense would require, therefore, that radars and missile launchers be in or very close to our major cities. In the Sentinel plan most of the radars and missile launchers were located in or near major urban areas. Although the size of the Sentinel deployment was inadequate in itself to provide a heavy urban defense, it could have served as a foundation for an expanded system. The pattern of deployment of Sentinel could have appeared to the Soviets as the beginning of a threat to their retaliatory capability against U.S. cities.

The Safeguard defense, if fully deployed, will have only 12 sites at locations which will make its nonprovocative intent unmistakable. Except for the defense of the National Command Authority at Washington, D.C., all of the Safeguard radars and missiles will be located well outside the major urban areas.

The area defense against the Chinese would rely upon the Spartan missile which has a range of several hundred miles. While the area defense is expected to be very effective against the limited capabilities of the Chinese, it poses no significant threat to the retaliatory capabilities of the Soviet Union against U.S. cities.

#### SAFEGUARD "VIRTUALLY INFALLIBLE" AGAINST CHINESE ATTACK

Mr. ADDABBO. Has the administration explained why it believes an expanded Safeguard can provide a "virtually infallible" defense against China? In particular, has it explained how Safeguard would work if the Chinese were to employ high altitude nuclear bursts to black out the radar or if they were to use penetration aids?

Mr. PACKARD. Although the Communist Chinese may have a limited ICBM force of between 10 and 25 operational launchers as early as 1975, growth of their ICBM force in numbers or sophistication is expected to be very slow because of economic and technical manpower limitations. The Safeguard full Phase 2 system if deployed, is expected to have a capability more than adequate to cope with the Chinese threat in the late 1970's. Let me have Dr. Foster comment further on that question.

Dr. FOSTER. With regard to the Chinese development of penetration aids, relatively simple devices like tank fragments have a limited ability to deceive a sophisticated defense system like Safeguard. Even to achieve that crude capability, the Chinese would have to construct

an extensive radar and instrumentation capability simply to be assured that inflight fragmentation of the tank could be properly carried out. Moreover, without very detailed knowledge of the operating characteristics of Safeguard, it is not possible to design a penetration system in which they can have confidence. More complex penetration aids require much more complex range instrumentation together with the efforts of hundreds of highly skilled people. We spent about a decade developing effective penetration aids for our missiles. It is believed that the Chinese have no such range instrumentation and they may not be able to build it for many years. Thus penetration aids, even the simplest kinds, require technical effort, including testing, which will complicate and delay what might, in the absence of a U.S. ABM defense, be the relatively rapid acquisition of attack capabilities.

The number of attacking missiles required for successful precursor attacks against Safeguard will be well beyond the expected size of the Chinese Communist force for years to come.

Over the past several years we considered carefully the capability of the defense to operate effectively if the Chinese were to employ high altitude precursor nuclear bursts in an attempt to blackout the radars. The Safeguard system is designed to be effective against such an attack.

Precursor blackout attacks are very difficult to plan and execute. The success of a precursor attack depends on getting a string of reentry vehicle warheads over each of several Safeguard radars in a critical timing sequence. The offense planner must program the attacking force for a high probability of accomplishing this sequence without any failures in the patterns. To achieve a high expectation of a successful precursor attack on one target, the enemy planner would have to use a great many warheads because he must take into account the possibility of failure of one or more of his precursor missiles.

If we look beyond these obstacles to Communist Chinese weapons development toward a later time when they could develop more sophisticated reentry systems for their ICBM's, we would still have ways of maintaining our capability to defend against them. We have a vigorous ABM research and development effort (outside the Safeguard program) which is today working on ways of extending the useful life of Safeguard against a more sophisticated Communist Chinese threat. Those measures would not involve a general thickening of the system in ways which might appear provocative to the Soviet Union.

#### PROTECTION OF ALLIES

Mr. ADDABBO. Has it been made clear how a defense vis-a-vis China, even if "virtually infallible," will help us maintain a credible policy in Asia when the Chinese will hold as hostage the populations of our allies, such as Japan, the United Kingdom, and Canada. Has the administration explained how it will respond to requests and pressures from those allies to provide them with a Sentinel system similar to our planned defense?

Mr. PACKARD. It is quite true that Safeguard will provide no direct defense for the populations of allied nations in Asia or elsewhere; however, the defense of the United States will increase the effectiveness of U.S. ability to deter attacks on such key allies and thereby

reduce the effectiveness of a Chinese "nuclear blackmail" strategy. Safeguard's contribution to our interests and policies in this case is that it insures that the American population is not hostage and that if all other considerations indicate the desirability of any type of American intervention on behalf of United States or allied interests in Asia, the President can direct such action with knowledge that our own people are secure. As President Nixon has said: "No President with the responsibility for the lives and security of the American people could fail to provide this protection."

#### PROTECTION OF ONLY PARTS OF UNITED STATES

Mr. ADDABBO. Has the Administration explained why it is asking for funds to begin work on defense of only parts of the United States since all parts would have to be defended if the Chinese were to have a capability of inflicting millions of fatalities on the undefended areas?

Mr. PACKARD. The modified phase II Safeguard proposed for fiscal year 1971 is the minimum program necessary to preserve the President's options to move further toward the full 12-site phase II Safeguard system, if necessary, or to curtail the deployment if threat developments permit. This proposed modified phase II program would authorize in fiscal year 1971 one additional site at the Whiteman, Mo., Minuteman location. Additionally it would authorize advanced preparations, but not a commitment to deploy, at five other locations. These five sites are Northeast, Northwest, the National Capital area, Warren Air Force Base, Wyo., and Michigan/Ohio.

This proposed fiscal year 1971 program would continue orderly, controlled, progress toward all the objectives set forth by the President, including a light area defense of the continental United States, yet it does not commit us to full phase II deployment without further review and further decisions. The deployment can be modified as required by changes in the threat, arms limitation negotiations, or unilateral actions of the Soviets or Chinese Communists.

#### EFFECT OF SAFEGUARD COSTS ON OTHER NATIONAL PRIORITIES

Mr. ADDABBO. Has it been adequately emphasized that the beginnings of an anti-Chinese defense, as represented in the present request for \$600 million, commits the Nation to a full-scale, nationwide deployment which, even for an initial capability, would cost many billions of dollars? Has the administration explained clearly the effect of such large expenditures on efforts to cope with inflation and to deal with other national priorities?

Mr. PACKARD. It would not be correct to characterize the modified phase II Safeguard deployment as "the beginnings of an anti-Chinese defense." The proposed program is a step toward a defense system which could, if need be, meet all of the President's objectives for ballistic missile defense. These objectives include defense of our strategic bombers and our Minuteman against Soviet attack and defense of our population against an accidental launch.

The proposed modified phase II Safeguard program does not commit the Nation to a full-scale, nationwide deployment. As I mentioned

previously, the program is the minimum necessary to preserve the President's options to move further toward the protection of our Minuteman and bomber forces and toward the 12 site Safeguard system, if it becomes necessary. The deployment can be curtailed if threat developments permit.

A later commitment to the full 12-site deployment would be made only if it were deemed essential to our national security.

In accordance with the President's commitment, the President's Foreign Intelligence Advisory Board completed its own review of the strategic threats we face. Information was developed on various alternative courses for consideration, and a thorough review of these alternatives has been completed by the Department of Defense, including the Joint Chiefs of Staff (JCS), by the President's Defense Program Review Committee, and by the National Security Council.

These reviews led to the President's decision that authorization for a further, carefully measured deployment should be requested in fiscal year 1971.

#### EFFECT OF INCREASED CHINESE CAPABILITY

Mr. ADDABBO. How rapidly will an anti-Chinese system have to be upgraded to cope with enlargement and increased sophistication of the Chinese threat?

Mr. PACKARD. The Communist Chinese may have a limited ICBM force of from 10 to 25 operational launchers as early as 1975. However, growth of this force in numbers and sophistication is expected to be very slow because of economic and technical manpower limitations. Safeguard phase II, should it be necessary to deploy in full the 12 sites, is expected to have a capability more than adequate to cope with the Chinese threat in the late 1970's.

Looking at a later time when the Chinese Communists may be capable of developing a more sophisticated capability we would still have ways of maintaining the effectiveness of the system. We have a vigorous research and development effort outside the Safeguard program which includes work on ways of extending the useful life of Safeguard against a more sophisticated Communist Chinese threat.

#### EFFECT OF SALT ON CHINESE DEFENSE

Mr. ADDABBO. Does the administration acknowledge that the advantages it sees in an anti-Chinese defense will almost certainly be less than those to be realized in ending the Soviet-American arms race? Is it prepared to foreswear an anti-Chinese defense in order to negotiate a successful Soviet-American strategic arms limitations agreement?

Mr. PACKARD. The President has said that all strategic weapons systems are negotiable in SALT. It would be inappropriate for me to comment on specific systems, such as Chinese-oriented ABM at this time, in light of the SALT talks.

#### RECONCILING CHINESE-AMERICAN DIFFERENCES

Mr. ADDABBO. The deployment of an anti-Chinese defense might suggest to the Chinese the possibility that the United States will use

its strategic offensive missiles to preemptively attack any Chinese ICBM's, relying on Safeguard to cope with the residue. Has the administration explained how it believes the Safeguard deployment decision will affect Chinese perceptions and the long-term prospects of reconciling Chinese-American differences and bringing China into the world community?

Mr. PACKARD. The purpose of the Safeguard deployment against China is to deny the Chinese the capability to threaten the United States effectively through nuclear blackmail.

President Nixon has made clear his interest in improving practical relations with Peking and he said in his foreign policy report that it was his belief that, "in the long run, no stable and enduring international order is conceivable without the contribution of this Nation of more than 700 million people." He also made clear that "the principles underlying our relations with Communist China are similar to those governing our policies toward the U.S.S.R. \* \* \*. The key to our relations will be the actions each side takes regarding the other and its allies." These are straightforward statements of our attitude toward Communist China. The deployment of Safeguard, to protect our retaliatory forces against a Soviet counterforce strike and to protect our population against the ICBM threat which China is building, is in keeping with the principles enunciated by President Nixon, and we hope the Chinese leaders will understand this.

Mr. ADDABBO. Has the administration explained how Safeguard would be used? If it could provide a "virtually infallible" defense, would the United States preemptively attack Chinese missile sites or threaten such an attack? Has the administration explained why the Chinese would not then launch their missiles on the basis of radar warning and that Safeguard would not provide a foolproof defense in that case?

Mr. PACKARD. As I said in response to the previous question, the purpose of a Safeguard deployment against China would be to deny them the capability to use nuclear blackmail against us. The United States continues to rely on its policy of deterrence by the threat of retaliation and does not advocate preemptive attack. Safeguard would add substantially to our capability to deter a Chinese attack, since the Chinese would have to face the possibility both of their attack failing and of our retaliating against them.

#### POSSIBILITY OF MINUTEMAN BECOMING OBSOLETE

Mr. ADDABBO. It is now increasingly recognized that if MIRV programs cannot be constrained by Soviet-American mutual agreement, fixed ICBM's will rapidly become obsolete. Has the administration made this clear, explained why it is still intent on defending Minuteman? Has it explained how many months' extension in the useful life of Minuteman it expects to buy with Safeguard, and at what price?

Mr. PACKARD. There are a number of situations under which a defended Minuteman force would not be obsolete——.

Defense of the Minuteman would provide the required survivability.

It is possible to overcome any defense by exhausting the defensive missiles if the attacker is willing to expend the required resources. This by no means invalidates the Safeguard defense of Minuteman. The resources of the U.S.S.R. are limited, and if a large portion of the Soviet forces must be expended in attacking Safeguard, then Soviet capability to attack other targets will be reduced. The level of effort required to overcome Safeguard, when measured in dollars, would be comparable to or exceed the U.S. dollars invested in Safeguard.

However, Safeguard phase II was not designed to cope with the most ambitious and costly efforts that we can imagine would be within the industrial and technical capacity of the U.S.S.R. Should the Soviet threat to Minuteman become larger than Safeguard is designed to counter, then we would have to make further decisions at that time to protect our deterrent. If further steps are necessary, we have various options available. For example, we have under consideration a new, smaller, less-expensive radar and data processor aimed specifically at close-in defense of Minuteman. Deployment of this equipment with additional Sprint missiles is a possibility. Also, we are actively working on ways of rebasing Minuteman missiles in harder silos or on transporters, as well as initiating detailed designed studies on the undersea long range missile system (ULMS), which could enhance substantially the survivability of our sea-based missile force.

#### VULNERABILITY OF MINUTEMAN RADARS

Mr. ADDABBO. Have the criticisms of a year ago regarding the ineffectiveness of Minuteman defenses because of the vulnerability of its radars been answered? Can this ineffectuating deficiency be corrected?

Mr. PACKARD. Let me ask Dr. Foster to answer that question.

Dr. FOSTER. The criticisms have been answered and there is no "ineffectuating deficiency." The primary argument that the radar was vulnerable, presented by some opponents of Safeguard in last year's debate, was that the missile site radar, because it would not be as hard as the Minuteman silo it would be defending, would be vulnerable to attack by the Soviet SS-11 missiles. The assumption made by Safeguard opponents in this argument is that the accuracy of the SS-11 is inadequate to attack a Minuteman silo but is adequate to attack the missile site radar. Therefore, the Soviets could use their less accurate SS-11 missiles to exhaust the supply of defense missiles by attacking the radars, following with an attack of their accurate SS-9 missiles on the then undefended Minuteman silos.

The survivability of the Safeguard radars does not rely on hardening but on actively defending the radars with the Sprint missile. The radars are hardened to the level required to maximize the capability of Sprint to defend the radar. For the attacker to be confident that the

radars would be destroyed he must target sufficient missiles to exhaust the defensive missiles, and the defense has thereby achieved its objective by charging the offense a price in attacking missiles to overcome the defense which is equal to the number of defensive missiles deployed.

Also, the Soviets may improve the accuracy of their SS-11's by the mid-1970's in which case they could be effective in attacking Minuteman. In fact, Soviet testing of the SS-11 since last spring suggests that certain improvements are under development.

#### EXPERIENCE GAINED BY PHASE I DEPLOYMENT

Mr. ADDABBO. It was claimed by the administration a year ago that the deployments in North Dakota and Montana were needed to gain experience and knowledge preparatory to further deployment. What has been learned in the last year at either of those places to indicate that further expansion of Minuteman defense is prudent at this time?

Mr. PACKARD. In testimony before the House Appropriations Committee on May 22, 1969, Secretary Laird stated: "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." Subsequently, there has been a delay in these equipment readiness dates of 8 to 10 months—to late 1974 and early 1975 for Grand Forks and Malmstrom, respectively.

With equipment readiness dates scheduled for the 1974-75 time frame, no components, of course, are installed and operating now. However, engineering design for the Grand Forks site has been substantially completed and a contract award was made late last month. Our other preparatory effort, for both phase 1 sites, is under way and on schedule with respect to the presently planned equipment readiness dates.

Despite the fact that there has been no installation at the actual sites, a great deal of component testing has taken place at both Meck Island in the Kwajalein atoll and White Sands Missile Range. These tests have provided a great deal of information which further increases our confidence that the system will perform as required.

#### PROTECTION OF WASHINGTON

Mr. ADDABBO. Has the administration explained how it expects a defense around Washington to be effective if the Soviet Union is determined to attack the city when the President conceded a year ago that defense against a determined Soviet effort is essentially hopeless, and the Director of Defense Research and Engineering has explained that Soviet defenses around Moscow would be overwhelmed by a U.S. attack and that the result would be even heavier damage to Moscow than if defenses had not been deployed?

Mr. PACKARD. The primary purpose of the Safeguard site at Washington, D.C. is to provide additional decision time for the National Command Authority if there is an attack made by submarine-launched ballistic missiles, which allow very little warning. This site will also contribute to the area defense of our bomber bases. Against a Soviet

ICBM attack our warning system should provide adequate warning time for the national decision makers to respond to an attack, even though a determined Soviet attack would probably destroy the city. ICBM warning time would also allow our alert bombers to fly to safety.

ABILITY OF U.S. TO DETER CHINESE ATTACK

Mr. ADDABBO. Is there new, previously unavailable evidence that China is likely to behave irrationally and risk being totally destroyed; or is it now demonstrable that U.S. strategic forces cannot be relied upon to deter any possibility of a Chinese nuclear attack?

Mr. PACKARD. We have no new, previously unavailable evidence to offer on whether the Chinese are likely to be rational or irrational in using whatever ICBM force they may deploy. However, as we have said many times in the past in considering the alternative of relying solely on the retaliatory power of our strategic offensive forces to deter the Chinese, we must keep clearly in mind a number of inter-related factors—demographic, technical, economic, social and political.

First, we must recognize the major demographic differences between the Soviet Union and Communist China, specifically the population distribution statistics. 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 that has been postulated at various times as the level required for "Assured Destruction" of the Soviet Union—the measure of our ability to inflict enough retaliatory damage on them to deter them from attacking us first.

The fact that a large proportion of Chinese industrial capacity is concentrated in a relatively small number of cities has some bearing on the problem of deterrence. But, more notably, 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. Therefore, it is reasonable to conclude that our ability to deter Communist China with our strategic offensive force 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 Chinese ICBMs—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/population with a relatively small number of weapons.

Third, given the character of the present regime in China, their ambitions in Asia, and their long-time hostility towards the United States, it would be extremely risky on our part to rely on deterrence only—if we had any better alternative. The President of the United

States has stated, "10 years from now the Chinese Communists may have a significant nuclear capability. Assuming we have not made a breakthrough in some normalization with our relationships with Communist China, it will be very important for the United States to have some kind of defense so that nuclear blackmail could not be used against the United States or against these nations like the Philippines with whom the United States is allied in the Pacific." Our cities would be hostage to the Chinese ICBM force, and the President might 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 ICBMs 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 that the Chinese leaders might not be deterred, then the Safeguard system would be well worth its cost for this purpose alone. In view of the fact that we can provide the option for timely protection at a reasonable cost, along with protection from Soviet threats, it is only prudent to do so. It is the responsibility of the Department of Defense to provide the Nation with the ability to be defended in such cases. It is the responsibility of the Congress to examine the threats and our recommendations and to determine a course of action.

#### EFFECT OF SAFEGUARD ON SALT TALKS

Mr. ADDABBO. Any further deployment of ABM defenses is likely to provoke a Soviet response and have adverse effects on the Strategic Arms Limitation Talks. Has the administration given its view on this? Has it explained that the Soviet Union is apparently continuing with research and development on ABM, but is not going ahead with an anti-Chinese ABM defense, further expansion of the Moscow defense, ABM defense of its missile sites, or any other active ABM deployment program?

Mr. PACKARD. It is not at all clear that deployment of an ABM system on the scale proposed for Safeguard is likely to provoke a Soviet response which would have adverse effects on the Strategic Arms Limitation Talks; on the contrary, we expect that by enabling us to maintain our positive position it will help us to be successful in SALT. Mr. Gerard Smith, Director of the U.S. Arms Control and Disarmament Agency, made some pertinent comments on our program and its impact on SALT, and I will provide them for the record at this point.

(The information follows:)

Excerpt from Gerard Smith's testimony before the House Committee on Foreign Affairs on February 26, 1970: "\* \* \* it seems to me that the program that (the President) recommended will not prejudice the SALT talks, will not make the Soviets lose interest in the talks, and it is a sufficiently moderate program as, I should think, not to lead the Soviets to a reaction in the form of some new weapons system, since the Soviets presently have the beginnings of a defensive missile system."

Mr. PACKARD. Indeed it is difficult to see what additional response the Soviets could make beyond what they are already doing. The Soviets have completed deployment around Moscow of some 64 launchers

designed to fire a long-range, high altitude interceptor missile; they are deploying around the periphery of the Soviet Union large long-range radars; they have an active ballistic missile research and development program designed to improve the present system or to develop substantially better second-generation ABM components; we have evidence that they are testing an improved long-range ABM; and they are continuing to deploy offensive weapons at a rapid rate, including the very large SS-9 ICBM, the smaller SS-11, and missile launching submarines. We find in all of this little evidence of Soviet restraint and therefore in light of this we consider it prudent that we have an ongoing ABM program.

Mr. MAHON. Mr. Long.

NEED TO EXPEND DEFENSE DOLLARS IN MOST EFFECTIVE WAY

Mr. LONG. Mr. Secretary, I must say I am more and more baffled by this. I gather it is going to cost a great deal of money by any standard. Possibly \$16 billion would be your rough figure.

Mr. PACKARD. I do not think it would be that much.

Mr. LONG. At any rate, it is a large sum of money.

Mr. PACKARD. There is no question that it is a very large sum of money.

Mr. LONG. I am a little worried about our defense, because the country is in an economic mood, and since defense spending is the least popular these days, there is a tendency to cut money without regard to our national security. It is more and more imperative that we spend our defense dollars in the most effective way. That is why I am skeptical about the ABM. This is not the most effective way to spend our defense dollars.

The thing that bothers me the most is your defense of our spending with respect to the Chinese. I do not know of any economists or military experts who believe that China will be an absolute threat to our national security within the next decade or two. The top figure I have seen is that may be they have as many as 60 ICBM's and so on. This is very small. I would like to ask you: Why do you feel that the Chinese threat is sufficient to make the United States spend so much of its money and thereby divert that money basically from the defense against the Russian threat?

We have Russians bumping our ships in the Mediterranean and furnishing weapons all over the world; any money we spend against China detracts from our defense against the real enemy. Wouldn't the Chinese be very foolish to throw all of their ICBMs against us and leave themselves completely naked to the Russians.

I don't believe they trust each other enough that either nation will be willing to use all its weaponry against us and leave its people undefended against the other.

To that item alone I would like to have you address yourself.

Mr. PACKARD. Let me begin by saying that I do not recommend this system solely on the basis of the Chinese threat. I think you are quite correct in saying that the Russian threat is a serious one and that it is exceedingly important, and indeed mandatory, for us to maintain our deterrent capability against the Russians.

Last year when we reviewed this whole program, we reoriented it to do two more things. One was to begin immediately to provide some protection for the Minuteman force. That still remains a very important aspect of the program today. In fact, it is more important today than it was last year, because the Soviets are farther along with their ICBM buildup than they were last year. So the Minuteman protection is exceedingly important. We have looked at other ways of protecting our Minuteman deterrent. One is with superhard silos, but a basic problem with harder silos is that there is no way to make them invulnerable to a direct hit or an attack by extremely high accurate RV's. So harder silos may not be effective depending on the accuracy the Soviets might be able to achieve.

Mr. LONG. What about our Polaris? What about our mobile land ICBM's?

Mr. PACKARD. The mobile alternative appears to be a viable one and we have it under consideration. This is one of the things we have included in our R. & D. program so that we will be able to move ahead if it turns out to be necessary.

The other problem—and it is a very severe one—has to do with the threat of submarine-launched missiles to the prelaunch survivability of our bombers. With the present rate of deployment of the Soviet submarines, it is generally agreed that they could have a force equal to ours that is somewhere in the range of 35 to 50 boats, by 1974-75. Those figures are agreed to by the entire intelligence community. This projected increase in the Soviet SLBM force could pose a very serious threat to our bombers by 1972 and beyond.

#### PROTECTION OFFERED BY SAFEGUARD

Mr. LONG. Isn't the Safeguard designed to protect us?

Mr. PACKARD. The Safeguard is designed to provide protection against the short-range SLBMs and ensure the ability of our bombers to get away.

Mr. LONG. The bombers, but not the ICBMs.

Mr. PACKARD. Safeguard will provide protection for both our bombers and our missiles, however, we do not believe the Soviet SLBMs now pose a significant threat to our ICBM force. This is so because of the relatively low accuracy and low yield of Soviet SLBMs when compared with their larger ICBMs, and the resulting relatively low probability that their SLBMs could destroy Minuteman missiles in hard silos. Of course, this relative inaccuracy is a result of the inability of the submarine to locate its position precisely as well as of the actual guidance on the missiles. The Soviet ICBMs, however, do pose a potential threat to our Minuteman force.

The reason we are concerned about the bombers is that these SLBMs can be configured to be fired in a depressed trajectory mode which would reduce the time of flight of the missiles to our bomber bases to as little as ——— thereby making it extremely difficult for even the aircraft on ground alert to get into the air and fly a safe distance from the airfield before the attacking warheads could destroy them.

Mr. LONG. The protection against the Russians, I understand. I cannot understand the protection against the Chinese. This is where you fall down.

Mr. PACKARD. We believe it is necessary to preserve an option for providing area defense of our population against the ICBM threat that China is likely to pose by the mid-to-late 1970's, as well as against the Soviet SLBM threat to our bombers. Of course, as we have pointed out, the components and the 12-site deployment that would be used to provide an area defense could serve the dual purpose of defense of our bombers against a Soviet SLBM threat and defense of our population against a Chinese ICBM threat.

Mr. LONG. It is my understanding that Safeguard is not a defense against the Russians, only against the Chinese. That is the basis on which it was advanced.

Mr. PACKARD. It is not a defense against the Soviets in the sense that it can provide protection against a Soviet attack on our cities. But it preserves our deterrent against the growing Soviet threat and in that sense it helps to assure us that we will avoid a nuclear war with the Soviets. That is why Safeguard is important and urgent.

Mr. LONG. Do you agree that the Chinese would be very foolish to throw their missiles against us and leave themselves open to the Russians; and that the Russians themselves, with the Chinese threat, would have to worry about that flank if they attack us so that the enmity of the Chinese and the Russians, instead of compounding the threat, diminishes the threat?

Mr. PACKARD. We discussed that question earlier today. We have some concern about whether the Chinese would be deterred. We hope they would.

Mr. LONG. I have no more questions.

Mr. SIKES. Mr. Talcott.

#### PROMOTION OF THE SAFEGUARD SYSTEM

Mr. TALCOTT. I do not have any questions. I rather fear we are in trouble explaining the need for the Safeguard system to the Congress and to the country. This system has a great many foes and detractors. Our Nation, this administration, this Congress. Some have said it is not good enough to handle the Russian threat, some that it is not good enough for the Chinese threat, some that it is not good enough to handle both and that it will cost too much money. We cannot wait until we get to the floor, Mr. Chairman, to prepare the ground for the support of this system. If we take a defensive attitude, which the administration is almost forced into, I think the foes and detractors of Safeguard may prevail. They are working every day, day and night, in the committees of Congress, out on the streets, in the universities and everywhere. So we have a very difficult situation.

The President can make a tremendous impression on TV, but it is not enough. That impact there will not counterbalance the constant barrage that is put up by the opponents of Safeguard.

The climate is not good for Defense spending, as Dr. Long has suggested. We have some tremendous obstacles to overcome.

When I see the evidence, when I see the pictures, when I hear what is going on, I am disturbed about our strategic position. I think we have to convey the fact that there is a legitimate question as to the adequacy of our strategic systems in the next few years. I think this

should be brought out clearly to all of the people, not just this committee of the Congress. We may not have as much clout as we would like them to have when we get out on the floor.

I am saying this from my own viewpoint, but I really feel that we have a tremendous problem here to sell this program.

(Off the record.)

COMPLIMENTS TO SECRETARY PACKARD

Mr. MINSHALL. Mr. Chairman, before we conclude, I would like to say the testimony of Mr. Packard—it is the first time he has appeared before this subcommittee—is evidence, of course, of the discerning qualities of our former member of this subcommittee who chose you for this job. I think all of your testimony today has been characterized by not only your proven competence and integrity, and your knowledge of these varied subjects but most importantly, your sincerity and candor.

Mr. PACKARD. You are very kind to say that.

Mr. MAHON. We are very pleased to have you before us, Mr. Packard. You have been in contact with us on various occasions but not formally before the committee. We appreciate, of course, having our old friends, Dr. Foster and General Starbird, who have been before us many times. All of you have been most helpful to us in our approach to one of the most difficult problems which confront the Congress and the country and, I might say, really the world.

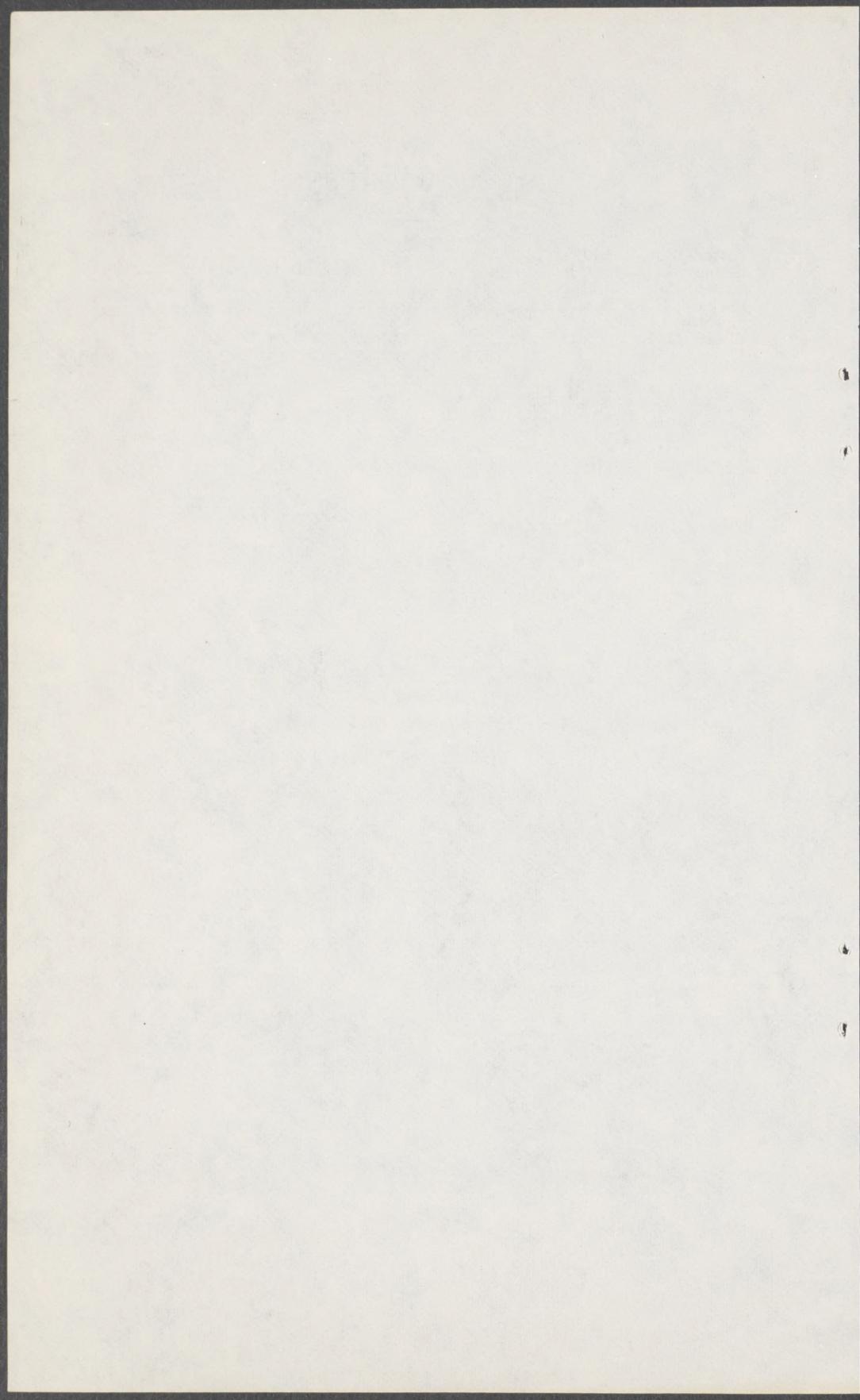
Mr. PACKARD. Mr. Chairman and members of the committee, I know I speak for Secretary Laird in saying that we are very appreciative of your support and your trust. We consider that we have a common problem to work on together here, and we will do the best we can to continue to work closely with you on this matter and all other matters with which we are concerned.

Mr. MAHON. Thank you.

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