

74
Apr 6/1
M 69/2

10 11

91144
Apr 6/1
M 69/2

KANSAS STATE UNIVERSITY LIBRARIES

SENTINEL ANTI-BALLISTIC MISSILE SYSTEM

GOVERNMENT
Storage

COMMITTEE ON APPROPRIATIONS

BRIEFING

BEFORE THE

COMMITTEE ON APPROPRIATIONS

HOUSE OF REPRESENTATIVES

NINETY-FIRST CONGRESS

FIRST SESSION

Printed for the use of the Committee on Appropriations

KSU LIBRARIES



✓
A11900 461076



MISSILE SYSTEM
SENTINEL ANTI-BALLISTIC
KANSAS STATE UNIVERSITY LIBRARIES

APR 19 1950

COMMITTEE ON APPROPRIATIONS

GEORGE H. MAHON, *Texas, Chairman*

MICHAEL J. KIRWAN, Ohio	FRANK T. BOW, Ohio
JAMIE L. WHITTEN, Mississippi	CHARLES R. JONAS, North Carolina
GEORGE W. ANDREWS, Alabama	MELVIN R. LAIRD, Wisconsin
JOHN J. ROONEY, New York	ELFORD A. CEDERBERG, Michigan
ROBERT L. F. SIKES, Florida	GLENARD P. LIPSCOMB, California
OTTO E. PASSMAN, Louisiana	JOHN J. RHODES, Arizona
JOE L. EVINS, Tennessee	WILLIAM E. MINSHALL, Ohio
EDWARD P. BOLAND, Massachusetts	ROBERT H. MICHEL, Illinois
WILLIAM H. NATCHER, Kentucky	SILVIO O. CONTE, Massachusetts
DANIEL J. FLOOD, Pennsylvania	ODIN LANGEN, Minnesota
TOM STEED, Oklahoma	BEN REIFEL, South Dakota
GEORGE E. SHIPLEY, Illinois	GLENN R. DAVIS, Wisconsin
JOHN M. SLACK, Jr., West Virginia	HOWARD W. ROBISON, New York
JOHN J. FLYNT, JR., Georgia	GARNER E. SHRIVER, Kansas
NEAL SMITH, Iowa	JOSEPH M. McDADE, Pennsylvania
ROBERT N. GIAIMO, Connecticut	MARK ANDREWS, North Dakota
JULIA BUTLER HANSEN, Washington	LOUIS C. WYMAN, New Hampshire
CHARLES S. JOELSON, New Jersey	BURT L. TALCOTT, California
JOSEPH P. ADDABBO, New York	CHARLOTTE T. REID, Illinois
JOHN J. McFALL, California	DONALD W. RIEGLE, Jr., Michigan
W. R. HULL, Jr., Missouri	WENDELL WYATT, Oregon
JEFFERY COHELAN, California	
EDWARD J. PATTEN, New Jersey	
CLARENCE D. LONG, Maryland	
JOHN O. MARSH, Jr., Virginia	
SIDNEY R. YATES, Illinois	
BOB CASEY, Texas	
DAVID PRYOR, Arkansas	

KENNETH SPRANKLE, *Clerk and Staff Director*
PAUL M. WILSON, *Assistant Clerk and Staff Director*

(II)

WEDNESDAY, JANUARY 15, 1969.

SENTINEL ANTIBALLISTIC MISSILE SYSTEM

WITNESSES

HON. SIDNEY R. YATES, A REPRESENTATIVE IN CONGRESS FROM
THE STATE OF ILLINOIS
HON. THOMAS M. PELLY, A REPRESENTATIVE IN CONGRESS FROM
THE STATE OF WASHINGTON
HON. ROMAN PUCINSKI, A REPRESENTATIVE IN CONGRESS FROM
THE STATE OF ILLINOIS
HON. ROBERT McCLORY, A REPRESENTATIVE IN CONGRESS FROM
THE STATE OF ILLINOIS
LT. GEN. A. D. STARBIRD, SENTINEL SYSTEM MANAGER

Clerk's Note: The committee met, pursuant to notice at 10 a.m. in room B-300, Rayburn House Office Building, Congressman Sikes presiding.

Committee members present: Representatives Patten, Clarence D. Long, Cederberg, and Talcott.

Mr. SIKES. The committee will come to order.

We are holding this briefing to inquire into the progress of the Sentinel system and to take a look at its future plans. We are particularly interested in the status of construction and the method of selecting sites for Sentinel installations.

The committee in its hearings last year on the fiscal year 1969 budget made it clear that we support the Sentinel system, but that we want to insure that sites be selected very carefully to avoid, where possible, disruption of the economies of the civilian communities and to utilize Government-owned land for sites where suitable land is available.

This committee would like to know what is transpiring, to be brought up to date and to know the reasons behind the site selections that have been made. A number of our distinguished colleagues have raised questions about the methods of site selection. We will hear from some of them this morning. Others are here who wish to be heard in support of the system. Finally, we will hear from Army witnesses who are directly charged with the responsibility for the program and for site selection.

We are pleased to hear first, this morning, from our distinguished colleague, Mr. Yates.

STATEMENT OF HON. SIDNEY R. YATES, A REPRESENTATIVE IN CONGRESS
FROM THE STATE OF ILLINOIS

Mr. YATES. Thank you, Mr. Chairman.

May I say that it is a pleasure for me to appear before you.

I am very pleased that you have convened this hearing to consider the propriety of the first steps taken by the Department of the Army to deploy the Sentinel ABM defense system. The significant protest that has sprung up in the wake of Army announcements in Chicago, in Detroit, in Seattle, in Los Angeles, and other places, for all we know, indicates quite dramatically that people are concerned with such choices.

CHICAGO SITE

I know that the Army's decision to select a site near Chicago came as quite a surprise to me. It was my impression from the reply given by Congressman Sikes to Congressman Pelly last July 29 when the ABM appropriation was being debated in the House that these locations would not be near centers of population. That viewpoint was reinforced by the hearings before the Department of Defense Appropriations Subcommittees of the House and Senate in questioning by Congressman Cederberg and Senator Jackson.

I don't know what is intended for other installations, but Chicago, according to the Army, is to have a Spartan missile only, to be constructed in the suburb of Libertyville about 25 miles from the city limits. If there were any doubt that a Spartan need not be placed so close to the city, that doubt was vitiated last Monday at a hearing in Chicago when in reply to my question Col. Robert Marshall, one of the Army's experts on the Sentinel, conceded that the Spartan could be installed at the Bong Airbase about 125 miles to the north in Wisconsin and still give Chicago the same protection against a primitive Red Chinese missile attack as it would give if placed in Libertyville. Why, then must it be built on the city's doorstep?

ABM SITES NEAR POPULATION CENTERS

I wonder how many Members who voted for the ABM last year would have done so had they known the Army was going to place its nuclear missile sites in the most populated areas of the country? We haven't taken such liberties with nuclear warheads before. As a matter of fact, we took great precautions when we approved authorizing construction of nuclear reactors to be used to generate electricity for peaceful purposes. We made sure they would be built in more remote areas where an accident would not hurt many people, and would be constructed and operated under very stringent regulations. Yet, in the proposed deployment by the Army of the Spartan missile sites, without real notice to the people of the country, nuclear warheads having a megaton capacity are being moved in to live with them.

I get letters and phone calls every day from people who don't like it. There is similar concern expressed in Los Angeles, Detroit, and Seattle; perhaps in other places I don't know about.

POSSIBILITY OF DANGER FROM ABM NUCLEAR WARHEADS

Are they justified in their concern? Is there a danger in living with nuclear weapons so close to them? I think there is such a danger, the danger of an accidental explosion in or above the silos in which the

missiles are to be based. The danger is most remote, to be sure, but as long as even an infinitesimal possibility of the horrors of an accidental nuclear explosion exists, we must be concerned. And each new ABM site increases the chances of nuclear accident.

The Army argues there is no danger of an explosion at the site. Lt. Gen. Alfred Starbird, who is the head of Sentinel System Organization, stated categorically at a meeting in Waukegan a few weeks ago, "There cannot be an accidental nuclear explosion." On this, General Starbird departed from the position previously taken by the Army. In the nonclassified materials being distributed for public consumption by the Department of Defense the question is asked, "What are the safety implications of living in an area where nuclear weapons are stored?"

The response is: "U.S. nuclear weapons are designed with a series of safety devices so that the likelihood of any nuclear yield in case of an accident is essentially nil." I repeat, "essentially nil." General Starbird's statement is absolute. The DOD is not willing to go that far. The chance of accident, it says, is most remote, but it is not impossible. In order to substantiate its claim that an accidental nuclear detonation could not occur at one of the Sentinel sites, the Department of Defense cites 20 years of accident-free handling of nuclear weapons. I agree that so far the Department of Defense has built a record in handling nuclear weapons that we can all admire. But I do not think it makes sense to suggest as they do, that since there has never been an accidental detonation there can never be one.

General Starbird's statement is also at odds with the handbook prepared by the Department of Defense and published by the Atomic Energy Commission in 1962. In appendix A, it states:

Nuclear weapons are designed with great care to explode only when deliberately armed and fired. Nevertheless, there is always a possibility that, as a result of accidental circumstances, an explosion will take place inadvertently. Although all conceivable precautions are taken to prevent them, such accidents might occur in areas where the weapons are assembled and stored, during the course of loading and transportation on the ground, or when actually in the delivery vehicle, e.g., an airplane or a missile.

ACCIDENTS INVOLVING NUCLEAR WEAPONS

There have already been a considerable number of accidents involving nuclear weapons. The crashes at Palomares, Spain, and Goldsboro, N.C., come readily to mind. Of the Goldsboro incident Ralph Lapp, a nuclear scientist, says in his book "Kill and Overkill" that at the scene of the accident Air Force experts found that five of the six safety interlocks had been triggered by the fall.

When he was asked at the Waukegan meeting about Lapp's statement that all but one of the safety devices on the bomb which fell at Goldsboro had been triggered, General Starbird took issue with the statement. I thought, therefore, it would be well to check the matter further, so I asked the staff of the Appropriations Committee to obtain an authoritative answer. The Air Force gave me this answer. [Security information deleted.]

POSSIBILITY OF ACCIDENTAL LAUNCH OF SPARTAN

The deployment of the Sentinel ABM system is justified in part on the ground that it will catch accidentally launched ICBM missiles

from other countries. If an ICBM can be accidentally launched, why cannot a Spartan be accidentally launched?

If a Spartan missile can be launched accidentally, what happens to its megaton-range nuclear warhead? Is there any possibility that it will be exploded in the atmosphere rather than in the target area above the atmosphere? Is it possible for a Spartan missile located at a site in a southern State to reenter the atmosphere and threaten northern populations?

I realize that a mechanically perfect Spartan will not explode until it is above the atmosphere where its nuclear yield will not do damage to this earth or its people. But we are talking about a less than perfect Spartan missile which through mechanical or human failure has been launched. Can its nuclear mechanism arm itself prematurely and explode its nuclear charge before it leaves the atmosphere?

The point is that the safety devices are not infallible—the fact that weapons are designed not to malfunction does not mean that they cannot. Nuclear accidents have been occurring at the rate of approximately one per year since the advent of the atomic age more than 20 years ago. As weapons proliferate throughout our States, we can expect the incidence of accidents to increase.

The possibility of an accident at the missile site cannot be discounted. Let me read to you from a Washington Post story of May 23, 1958, describing an accidental missile launch.

Eight powerful Ajax missiles, exploded at a New Jersey Nike launching base today, killing nine men, injuring three, and showering 24 live but nonatomic warheads over a wide area.

A 10th man was missing and presumed dead.

The Army said one of the missiles went off at about 1:20 p.m. while a crew of five civilian technicians and six army personnel was installing a new type of arming mechanism to insure greater accuracy. Four minutes later, seven other missiles on the launching pad blew up at once with an earthshaking roar that could be heard 10 miles away. Windows were shattered within a 1-mile radius.

Army demolition crews scoured the countryside for the 24 warheads that were sent hurtling over the area.

Fortunately the accident was nonnuclear, but I think the remarks of the mayor of Middletown are relevant. He said, "The Army assured me nothing like this would ever happen. Now we have missiles flying all over the place, landing on schools, in the streets, and on our houses. The Army assured me that their things were not armed and never would be fired unless there was an enemy attack."

I have great respect for General Starbird as a distinguished and able officer. But despite the best intentions and assurances of able generals and despite their extensive and intensive precautionary measures with men and materials, accidents have occurred—and they will continue to happen. Mechanical equipment breaks down and men are not infallible. One has only to read the article by Dr. Paul Eggertsen in the August issue of *Psychiatry Magazine* entitled "The Dilemma of Human Reliability" to appreciate the incredible difficulties facing the leaders of our military forces in seeking to eradicate human failure in dealing with the complicated weapons used in today's armed forces.

Dr. Eggertsen tells of the work of the human resources committee of which he was a member and of the task given it by the U.S. high command. "Our bombs," read his assignment, "are increasingly numerous, they are deployed widely because of the cold war, and they have

quick reaction times because of the short warning times that obtain in the cold war. We begin to perceive they may not always be in safe hands. You know about people. How can we make sure that only 'safe' people get control of weapons?"

The discussion ended, says Dr. Eggertsen, in the committee's answer that neither this nor any other group could insure that only "safe" people could deal with nuclear weapons.

From all this the conclusion seems obvious that if it is possible to place nuclear missile sites away from centers of population without unduly diminishing whatever effectiveness the Spartan missile may have, in the interest of public safety that ought to be done. In this instance, distance from the city is important.

EFFECTIVENESS OF SENTINEL

Particularly is this true when the public is required to live with a defense of such limited capability as the Sentinel. It is one thing for our people to have to live with nuclear weapons that are part of a defense system that provides maximum protection. It is quite another thing to ask them to assume such risks for a system which will not protect against the Soviet missile threat, which will not protect against nuclear warheads fired from enemy planes or submarines, which will not protect against a Red Chinese threat if it carries a missile which is not quite primitive in effectiveness.

Does it not seem naïve to expect the Communist Chinese to develop and attack the United States with a missile system so unsophisticated that it could be thwarted by the Sentinel system, especially when the Chinese would know that our retaliation would be swift, certain and utterly devastating from nuclear warheads fired from bombers and submarines ranging near China's shores and from missile bases in this country?

I voted against the ABM last year. I still think the Sentinel system has been taken from the drawing board and the laboratory too soon. I have voted over the years for ABM research and development and I believe such research should be continued. As long as nuclear weapons exist in other countries which may be fired at the United States, we have no choice except to develop the best anti-ballistic missile defense we can. I don't think the Sentinel is that system. As former Secretary of Defense McNamara said:

None of the ABM systems at the present or foreseeable state of the art would provide an impenetrable shield over the United States. . . . Let me make it clear that the cost in itself is not the problem; the penetrability of the shield is the problem.

Mr. PATTEN. May I interrupt you there?

Mr. YATES. Sure.

Mr. PATTEN. Do you have the date of that quote?

Mr. YATES. I don't have it with me but I will provide it later.

There is a time for research and there is a time for deployment. The first stage—

Mr. PATTEN. I remember the quote. I am trying to place it.

Mr. YATES. I have it here in the March 1968 "Scientific American."

Mr. PATTEN. So the question becomes whether he or somebody else said something different at a later date.

Mr. YATES. The first stage must be completed before the second is undertaken. As Dr. Hans Bethe states it so well in his article in the March 1968 issue of the Scientific American:

One must distinguish clearly between the possibilities of development and the development itself, and similarly between development and actual operation. One must refrain from attributing to a specific defense system, such as Sentinel, those capabilities that might be obtained by further development of a different system.

It follows that the Sentinel light ABM system, to be built now and to be operational in the early 1970's against a possible Chinese intercontinental ballistic missile threat, will have to reckon with a missile force unlike either the Russian or the American force, both of which were, "after all, built when there was no ballistic-missile defense. The Chinese will probably build even their first operational intercontinental ballistic missiles so that they will have a chance to penetrate. Moreover, we believe it is well within China's capabilities to do a good job at this without intensive testing or tremendous sacrifice in payload."

What is proposed to be done is to deploy a highly complex, yet essentially primitive defense to meet a primitive offensive missile threat.

One remembers the recommendation of the Army in 1959 to deploy the Nike-Zeus ABM system, which was a predecessor to the Sentinel. President Eisenhower turned down the Army's request. Had he complied with the Army's recommendation and Nike-Zeus deployed at an estimated cost of \$14 billion, in the words of former Under Secretary of Defense Cyrus Vance, "It would have had to be torn out and replaced almost before it had become operational."

Again in the words of Dr. Bethe:

The illusion is being nourished that an effective system against ballistic missiles is possible.

And the Army is contributing to that illusion. Many people—I should say most people—believe the Sentinel system is a sure defense against all incoming enemy missiles, which, of course, is not true. Friday's Chicago Daily News showed drawings obviously obtained from the Department of Defense. The descriptive material says: "These drawings based on a conference with Army officials, show how Sentinel missiles would be launched and guided and how they would stop enemy missiles."

Reference is made in certain hearings and in the debates to the possibility that without the Sentinel system, in the event of a Red Chinese nuclear missile attack 20 million people would lose their lives, a statement which can only be described as illusory. Would Sentinel catch all missiles fired in that attack? Would any missiles get through Sentinel? Did the attacker use decoys to penetrate the system? Did the attacker use a Beta-patch blackout? Does Sentinel offer complete protection if such offensive tactics are used?

Mr. Chairman, the Sentinel system is a weak defense at best. Little will be lost and much may be gained if its deployment is held up for a brief period until the Congress is given the opportunity to consider the question whether the great numbers of people who live in our Nation's cities should be required to live in fear not only of enemy attack but of a nuclear accident with its attendant toll of thousands of lives and indescribable damage requires reassessment of the validity of installing as inadequate a system as the Sentinel.

I urge this committee to take appropriate action in seeking to hold up further expenditures in deploying the Sentinel until the Congress has again considered the question of the location of the Sentinel sites.

Thank you very much, Mr. Chairman, for the opportunity of testifying.

Mr. SIKES. Thank you, Mr. Yates. It is obvious you have given a great deal of thought to this question and you discuss it very well.

OBJECTION TO SENTINEL SYSTEM VERSUS PARTICULAR SITES

Let me ask you this: If the Sentinel sites could be relocated away from population centers would you then support the program?

Mr. YATES. I would be much more inclined to support the program under that situation, Mr. Chairman, than I do now. However, as I pointed out in my statement, I thought that the Sentinel system had been taken prematurely from the drawing boards and the research laboratory. Perhaps sometime in the future there will be an effective ABM system, but I don't think the Sentinel is it. I do think that the risks which are implicit in placing nuclear weapons on the doorstep of our cities should be minimized to the greatest extent possible. That is, as in the case of Chicago, where a Spartan site is to be built, the location can be placed at the Bong Air Base, which is not now being used, rather than 25 miles from the city, and still provide the same measure of protection, I think that should be done.

I think it should be done with respect to other cities. For instance, in Los Angeles, Congressman Holifield tells me that 4 miles from downtown Los Angeles the Army proposes to put a missile site, the most expensive property in the city.

Apart from the expense of the installation, just living with these weapons in the heart of this huge community has to be reconsidered.

Mr. SIKES. Are there any questions?

Mr. PATTEN. Are you on the Defense Subcommittee?

Mr. YATES. No; I am not.

Mr. PATTEN. I have no further questions.

Mr. CEDERBERG. I share the gentleman's concern regarding the location of the sites. I think we have discussed this matter personally. I am not as concerned about the safety aspects as the gentleman because I believe the gentleman is seeking absolute assurances and I believe that no one can say that something can't happen.

Mr. YATES. We ought to try to minimize the consequences of an accident.

Mr. CEDERBERG. When you reach this kind of a situation, you have to make a decision as to whether the risk is worth the ultimate object. I do share the gentleman's concern about placing these sites—

SENTINEL SITES AND CITY GROWTH PATTERNS

Mr. YATES. On the doorsteps of cities?

Mr. CEDERBERG. Yes, especially when there is a demographic move away from the centers of cities. What may happen, as I see it, is that when all sites like this are fully operational, which may be 5 or 10 years from now, the centers of population will have shifted. Then the site itself may be the center of population. This is something that I think certainly we ought to look into carefully. I do want to say that the gentleman from Illinois has made a very detailed study of this. I compliment him on the remarks that he made.

Mr. YATES. Thank you very much.

POSSIBILITY OF DANGER FROM NUCLEAR INSTALLATIONS NEAR CITIES

Mr. TALCOTT. Mr. Chairman, I also compliment the gentleman on his thorough study of this subject, although I don't exactly share all of his views. I sometimes think we feed the fear of our citizens—sometimes unnecessarily. I wish we wouldn't do that so much, as we continue our research and development.

How about nuclear powerplants; are there any nuclear powerplants, for development of energy, in or around Chicago?

Mr. YATES. Yes, sir. There is one at Dresden, Ill., which was deliberately placed away from the city under supervision by the Atomic Energy Committee, and under strict regulations, so that in the event there were an accident nothing would happen to masses of people.

I point out, Mr. Talcott, if something went wrong with a nuclear reactor, you wouldn't have the same kind of an impact. The scientists tell me that you would have a flow of plutonium in the area, fissionable material spread around. You wouldn't have the explosion that you would have if a nuclear warhead went off in the silo or above with the horrible consequences of that in the surrounding area.

Mr. TALCOTT. I think circumstances would be entirely different between an accident at a nuclear reactor and an accident in a missile site which I think are very rare. Also, I would expect us to get better rather than worse in our nonaccident record at missile sites.

Mr. YATES. Our nonaccident record insofar as the explosion of nuclear weapons as of the moment is outstanding. It is an excellent record.

Mr. TALCOTT. I would think we would get even better—even reduce the risk and the fear of accidents.

Mr. YATES. I think that is our goal.

Mr. Talcott, I point out that our national policy is against the proliferation of nuclear weapons throughout the world. Yet, under this program nuclear weapons are being proliferated throughout our own country with increasing chances of accident.

Mr. TALCOTT. I don't want to argue; I am simply trying to get some information for the record. If the people in Chicago don't want nuclear powerplants, I think this is a consideration to give them when considering missile sites, too. If they are willing to forego the advantages of nuclear power—

Mr. YATES. How do you find out about this? How do you find out what the people think?

I know Congressman Pueinski is going to be on the other side. I am against the ABM system. I don't know whether he favors Libertyville or putting it up at Bong. He will testify. I would like to respond to the earlier comment in which you said you don't want to increase the fear of people about our own weapons.

I think it is important that people know just what it is that is being done, that they know the possibility that a nuclear weapon placed near them may be subject to an accident. There is this possibility. It is remote, but the point is we have never done this before. We have never placed nuclear weapons on the doorsteps of our cities before. This is a major decision that we are undertaking now. The people should know about it.

Mr. TALCOTT. Mr. Chairman, I was trying to get the facts more than to argue the case. I think this is not the proper place or time for arguments.

Mr. SIKES. Thank you, Mr. Yates.

Mr. YATES. Thank you, Mr. Chairman.

STATEMENT OF HON. THOMAS M. PELLY, A REPRESENTATIVE IN CONGRESS
FROM THE STATE OF WASHINGTON

Mr. SIKES. The committee will now be glad to hear from our distinguished colleague, Mr. Pelly from the State of Washington.

Mr. PELLY. Thank you, Mr. Chairman.

I appreciate your giving me this opportunity to testify. Before I start reading my statement, which I prepared because I thought it would save the committee's time, I would like to show you a map which I think will help you to understand the problem. I do not oppose the Sentinel system. The opposition that we have is to the location.

SENTINEL SITE NEAR SEATTLE, WASH.

This is Seattle (indicating), which faces westward. Eighty-five miles up here is the Pacific Ocean. This is Puget Sound. This is the mainland over here. This is a body of water in here between the two mainlands, Seattle, and where Bremerton Naval Shipyard is. This is the Island of Bainbridge, which is about $3\frac{1}{2}$ miles on the average, wide, and 12 miles long. It is a residential or so-called bedroom district for Seattle. There are 30-minute ferries which run across, and the island is growing as a residential area very, very rapidly.

Mr. SIKES. Where is it located on your map?

Mr. PELLY. That is Bainbridge Island here (indicating), and this is the site which the Army selected, Fletcher Bay on Bainbridge Island. Here is the Bremerton Naval Shipyard and Bremerton, and this is Seattle. This is all mainland and deepwater docks, and I might say at the outset, too, our county commissioners want the site; they want the location in their area. They don't want it on Bainbridge Island because it is a residential district. It is going to take tax property off the rolls. They want it in an alternate site. I have been working very closely with them.

POLICY ON DISTANCE OF SENTINEL SITES FROM POPULATION CENTERS

Mr. Chairman, if I might, before I start, I want to refer to the colloquy that you and I had last July when the appropriation bill was before the House. At that time I certainly gathered that the Congress was under the impression that these sites would not be located, if possible, within populated areas.

To quote your own words, in reply to a question from me you said that "these sites will be some distance away from the center of population and every effort is being made, first, to use Government land wherever suitable, land owned already by the Government. Next, you

are to arrive at a satisfactory decision with the local officials on a site which is least objectionable to the people in the centers which are included in the program."

For your information, again referring to the map, this area selected, Fletcher's Bay is 5 miles across from Seattle and is probably 9 miles from the very center of the city. We are suggesting and hoping that sites might be chosen which would be, maybe, 14 to 16 miles from the center of the city on the mainland over here (indicating).

Mr. SIKES. You want the site to be located a little farther from the centers of population?

Mr. PELLY. Yes.

POSSIBLE SITES NEAR SEATTLE

The Army is now looking at some of those sites. They have already looked at some of the ones that I have suggested. There is one where there is an airfield, Silverdale Airfield, which is hardly being used at all. The land would be very cheap. It would be within 14 to 16 miles from the city of Seattle.

Mr. TALCOTT. Mr. Chairman?

Mr. SIKES. Yes.

Mr. TALCOTT. Isn't this an alternative site? Wasn't this site planned for some other place originally, in Washington?

Mr. PELLY. The first announcement was made of three possible sites. One of those was Fort Lawton in the city. Then the announcement came the middle of December that the Fletcher's Bay site on Bainbridge Island had been selected. I might add here, too, that although I had been contacting the Army and showing great interest, I was not forewarned of what this decision would be. A member of the other body was, and the announcement was made and I had to hear it from not the Army but from home by telephone that their decision had been made. It was quite shocking to me.

Mr. SIKES. I can attest to the fact that such a thing would be very disturbing to any member and it is unjustifiable that you were not informed in advance.

OPPOSITION TO FLETCHER BAY LOCATION

Mr. PELLY. Mr. Chairman, I deeply appreciate this opportunity to express my concern and the concern of the local officials over the selection of Fletcher Bay, on Bainbridge Island, in the State of Washington, as a site for the Sentinel Anti-Ballistic Missile System. Please allow me to make it plain, Mr. Chairman, that I am not opposing the Sentinel System itself; to the contrary, there is strong support for locating it in Kitsap County, but the opposition is to the location of Fletcher Bay. I might add that my opposition to this site is supported by the Commissioners of Kitsap County, the county in which this proposed site is located; by the mayor of the nearest town to the proposed site; by the city council of this town; and by the overwhelming majority of the people of Bainbridge Island.

To begin with, the Fletcher Bay location is in a growing residential area of high land value. There is only one bridge connecting this island with the mainland, so there is no easy access to or from this proposed site. In addition, there are no rail lines on the island. The issue here, simply stated, is that there appear to be other places

in which this ABM complex can be located, still within the same county. Let me reiterate, Mr. Chairman, that the county commissioners support the location of the installation in their county, but they do not want it on Bainbridge Island.

POLICY ON DISTANCE OF SENTINEL SITES FROM POPULATION CENTERS

At the outset, when Seattle was indicated as a location for a Sentinel ABM installation, I sought to determine the Army's criteria in building these complexes, so I pursued the matter on the floor of the House during debate on the military construction appropriation bill last July 29. During this debate, I engaged in a colloquy with the distinguished gentleman from Florida and chairman of this subcommittee, Mr. Sikes, as to what exactly the Army's criteria was for locating these Sentinel sites. In reply to my question, Mr. Sikes stated that the sites would be some distance away from centers of population and every effort was being made, first, to use Government land wherever suitable land was owned already by the Government, and next, to arrive at a satisfactory decision with the local officials on a site which was the least objectionable to the people in the centers included in the program.

Mr. SIKES. May I interrupt you for a moment?

When General Starbird testifies, I plan to ask him specifically whether the Government is in fact trying to do that. I cautioned when I said these sites will be some distance away from population centers that there might be important tactical considerations involved which would dictate to the contrary but within these bounds I think that is what the Army is trying to do. It is what I want the Army to do. It is what the committee wants the Army to do.

We should bear in mind that these sites must be kept within a reasonable distance of the population to be protected. You cannot move Sentinel completely away from the area and expect to get any protection from it. There is a limit on how far from the center of population a site can be if it is to be of any value to the area being protected.

Mr. PELLY. In fairness to the Army, I may say they decided against the Fort Lawton site which is right in the city. There was some land that belonged to the Government and it was available. Yet, they recognized it was very unpopular with the people and the authorities. The same objections go to the Bainbridge Island site.

I will say that I have a letter which certainly indicates that the Army does not recognize the criteria which I thought had been established. The Army has done just the opposite of this. Not only is this site on Bainbridge Island in a residential area of more than 8,800 people, it is no more than 5 miles from mainland Seattle, across Puget Sound.

Let me say that I appreciate the hearing the Army conducted on Bainbridge Island on December 27, because it performed two functions. It informed the local officials and residents as to the Army's plans, which was the original purpose, but it also produced the statement from the Army that no such criteria existed. In fact, it was stated the sites are to be located as close as possible to cities.

As to the criteria concerning the opposition of local people, let me say that within a few days following the hearing on Bainbridge Island, a petition was circulated which I am told contains over 3,000

names opposing the site. In addition, I have received hundreds of telegrams and letters opposing the Fletcher Bay site. To be frank, the number of letters in support of the site on Bainbridge Island can be counted on one hand.

So, let me emphasize. The Army is planning to locate this Sentinel site in a heavily populated area and against the wishes of the local officials and the local people, despite the criteria Mr. Sikes related to me on the floor of the House last July.

PROBLEMS WITH BAINBRIDGE ISLAND SITE

The proposed site develops some overwhelming problems. One of these is the schools.

I have here a letter from the chairman of the school board, indicating the problem that they have.

Another, and possibly insurmountable problem, is that of water. At the present time, Bainbridge Island has no surplus water supply. The water table has been falling for years, and as you know the Army informed the people of the Boston area that the Sentinel sites require 300 gallons of water per minute, the bulk of which is for cooling purposes. Mr. Chairman, this is a serious matter because the question arises, where will the Army get the water they need in such large amounts? If the answer is wells, deep or shallow, then what is to happen to the existing wells?

Then, Mr. Chairman, the question arises, where on the island will these people live? There are no rentals presently available on Bainbridge Island, and although base housing is contemplated for the 150 single Army personnel scheduled for the site, no provision is made for the 300 civilian personnel who will be imported as permanent site staff. This is additional reason why the site should be on the mainland.

And, then there is the cost to the American taxpayers for this land. The Army has decided to place their missile site on some of the most expensive property in the Pacific Northwest. Not only does this mean the acquisition cost is high, but the loss of revenue to the county is high because of the land value. Kitsap County has placed a tax evaluation on this land at about \$2,000 an acre.

The natural question then arises, where else should the site be located if not on Bainbridge Island?

ALTERNATE SITE NEAR SEATTLE

Well, I have offered several alternate site locations to the Army, including the Bangor Ammunition Depot, two present airfield sites, and a location north of the Port Madison Indian Reservation. General Starbird has agreed to study these sites.

But, again, Mr. Chairman, these alternates are mainland sites, accessible by rail or highway and offering services not available on Bainbridge Island. The reason for suggesting the airport sites is because one of them is available at little or no cost because it is under the control of the Bremerton Port Commission; the other is on land far less expensive than that of Bainbridge Island, and the 7,000-acre Bangor Ammunition Depot presently is Government property which would require no acquisition cost.

I realize the Navy is not going to look kindly to the Army wanting a portion of their land any more than the Army would appreciate the Navy wanting some of its property, but this is a far too important matter to allow service rivalries to prevail.

This is a matter of grave concern to the residents of Bainbridge Island and to me; I do not oppose the Sentinel system itself, but I do strongly protest its location on Bainbridge Island. Let me just add that, frankly, I fear the Army is not sincere in considering other sites; I fully expect the Army will find objections to each one. In other words, I believe its mind is made up and that no amount of practical reasoning is going to change their decision.

Again, Mr. Chairman, my deep appreciation for this opportunity to make my position known to you and the subcommittee members.

Mr. SIKES. You have stated your position very well. The Chair commends the distinguished gentleman for the zeal with which he represents his constituents. I think that you have made a sound and legitimate argument. We will hear what the Army has to say on this site problem and you will be invited to stay and listen.

Are there questions?

Mr. PATTEN. The gentleman seems very sincere. Is he just as sincere about the conclusion that he made about the Army being inflexible?

Mr. PELLY. I fear it. I think that they have looked into a great many sites. I am sure that they have reasons but they can come up with reasons which I cannot dispute because I am not technically informed. I think they had a problem with the people in Seattle and now they have problems here and I think they are quite sick of this protesting and they are just going to go ahead if they can possibly see their way to do so. The Bangor Ammunition Depot is an area in Kitsap County which has deepwater docks. When the aircraft carriers and other vessels come into Puget Sound Naval Shipyard, they stop and leave their ammunition or load ammunition.

They have a protective belt all around and railroad facilities. It is a very fine ammunition depot where they store ammunition. It seems to me that within that protective belt or just north of it they could locate this site and enjoy the benefits of the rail facilities and deepwater dock and other things at less cost.

Mr. PATTEN. Some of us know more about that than you think. Last 4th of July the committee took a trip with the Assistant Secretary of the Navy out to the west coast on the Port Chicago affair. In that connection we had been briefed about all the ammunition facilities on the west coast. We heard a lot about this.

Mr. PELLY. I think that you will hear that Bangor wants more land because it needs more protective area. They will probably come and ask you for the money one of these days. Three hundred acres in there is not going to make a difference, as far as I can see. It is an ideal location.

Mr. SIKES. Are there further questions?

Mr. CEDERBERG. The gentleman previously discussed with me his concern regarding this matter. We have had correspondence on it.

SHIFTING OF POPULATION AWAY FROM CENTERS OF CITIES

I appreciate the fact that you have appeared before the committee to present this concern to us formally. I think that the concern the

gentleman has regarding Seattle is the concern that I have regarding the placing of these sites near the centers of population. I hope that the Army will give some study as to how the population is shifting. I think there is a great shifting away from what we call centers of population today. I assume that is the same problem that you have in Seattle.

Mr. PELLY. You put your finger on it. There is something less than 10,000 people on this little island now. The push from the inner city is moving right out there and it is a residential district. It is growing very, very rapidly. We have very good transportation by ferry across there almost every half hour. They are huge ferries, two decks with automobiles and passenger accommodations for thousands, encouraging a tremendous increase in the population of Bainbridge Island.

Mr. CEDERBERG. That is all I have.

Mr. SIKES. Mr. Talcott?

Mr. TALCOTT. I really have no questions. I think we have to give special credence to a witness like this, one in favor of the system and who does not object to it being nearby, but trying to find the best location possible for the system and for the people who live there. I will be anxious to hear the Army reasons for not using one of the alternatives Mr. Pelly very ably suggested.

Mr. SIKES. Are there any more questions?

WATER SUPPLY BAINBRIDGE ISLAND

Mr. PATTEN. Mr. Pelly, I suppose you didn't clear it with your chamber of commerce or State development league when you spoke of a shortage of water. They have us believe there is water everywhere—60 inches of rain a year.

Mr. PELLY. We have plenty of water in the area.

Mr. PATTEN. Here is somebody from Seattle—

Mr. PELLY. . . . but not on that island. I was raised on that island as a boy. We have on the east end of the island no water practically at all. We have to store it up in the wintertime and then use it in the summer. There is just no surplus water at all.

Mr. SIKES. Thank you very much.

COST OF LAND, BAINBRIDGE ISLAND

Mr. TALCOTT. One more question. You said that the tax value was \$2,000 an acre.

Mr. PELLY. That is in that particular area. It is \$10,000 an acre, very close to there. That is the way it is taxed now, because it is not being utilized with these expensive homes some of the other areas have.

Mr. TALCOTT. \$2,000 would be rather reasonable for some of the land the military has to pay for.

Mr. PELLY. When you get a tax value and a sale value, you go over there and try to buy a homesite now and it is very expensive!

Mr. TALCOTT. That is the point I was trying to make. Is \$2,000 the actual value of the land or what?

Mr. PELLY. The county commissioners told me that the land on this particular site now is taxed on the basis of value of \$2,000. That is their tax value.

Mr. TALCOTT. Thank you.

Mr. SIKES. Thank you very much, Mr. Pelly.

STATEMENT OF HON. ROMAN PUCINSKI, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Mr. SIKES. The committee is privileged to have with us today our distinguished colleague, Mr. Pucinski, from Illinois, who also has a strong interest in this program.

We will be glad to hear from you at this time.

Mr. PUCINSKI. Thank you, Mr. Chairman.

SENTINEL SITE, CHICAGO

Mr. Chairman, I represent the northwest corner of Chicago. When you get off the airplane at O'Hare Field you are in my district. The proposed missile site is not in my district. It is just north of my district but it is designed to protect my people. So I have more than a passing interest in this debate.

NEED FOR SENTINEL SYSTEM

I have made a very thorough study of this subject and I believe that we ought to proceed as quickly as possible to develop the Sentinel system. I am mindful of those who say there are shortcomings in the system. This system has been developed after almost \$4 billion worth of research and at this state of the art, at this point in time, it is the best system we have. It is a better system than anybody else has. I realize that as we move along in military technology, almost in every instance whatever we do becomes almost obsolete before it comes off the drawing board. That is the story of the defense establishment. That is the story of progress.

We have spent a trillion dollars on defense hardware in the last 20 years. Much of that has become obsolete before it came in the field. But we cannot afford not to have this system. There is no question in my mind that the foreign policy of this world will change considerably with the first nation that develops a reasonably foolproof defense system against ICBM's. That is what we are trying to do here. There is no question in my mind that we need the Sentinel system and we need it now. Twelve years ago President Eisenhower asked for an open skies policy. He asked for a foolproof system of inspection. President Kennedy picked that up. President Johnson picked that up. I submit to this committee that so long as the Soviet Union and Red China do not give us the right to inspect their facilities, we must presume that they are moving ahead full speed to build a defense system of their own against ICBM's. In my judgment, it would be catastrophic for America not to do the same.

SENTINEL PROTECTION OF CHICAGO AREA

I think we ought to recognize several factors. So far as I know, the argument made by Mr. Pelly as to changing one location to another within the parameter of the basic structure is one that this committee must decide. I am not wedded to the specific Libertyville site. I am not saying it has to go there and no place else. But I am saying that the site cannot be any farther from Chicago than the Libertyville site if we are to give Chicago full protection.

LOCAL FEELING TOWARD CHICAGO SITE

So far as I know, there is no strong local opposition to this proposed Sentinel site. The mayor of Libertyville has spoken for it. The mayor of Zion, Illinois, near Libertyville, has also spoken out in favor of this site.

They have studied this very carefully. They do not share the fears and the apprehensions that are raised by opponents of this system.

Secondly, I believe that we ought to ask ourselves what is the basic mission of the Sentinel program. I will have to leave it to General Starbird and other gentlemen who made that research to tell this committee the limitations of both the Spartan and the Sprint in the Sentinel complex.

PROTECTION OF INDUSTRIAL CENTERS, INCLUDING CHICAGO

The basic, fundamental mission of a Sentinel system is to protect the industrial capacity of this country. We have 78 percent of the American population today living in 12 major urban communities, Chicago being one of them. We are going to a trillion-dollar economy by 1970 or shortly thereafter. We are going to hit \$940 billion gross national product by January 1 of 1970. This economy, this huge gross national product, this huge industrial potential is centered in these 12 industrial areas of America.

I must believe, and I have no testimony to the contrary, that when, after \$3 to \$4 billion of research conducted by the Defense Establishment, the experts conclude that the limitations of the supporting missile, the Sprint, are within some 30 to 40 miles of the area you are trying to protect, then that's where you ought to build it. If somebody can come along with evidence to the contrary, if somebody can convince us that the Sprint can be placed at Bong Field and still give Chicago full protection, I would have no objection to moving into Bong Field. But Bong Field is some 50 miles from Chicago and all the evidence indicates such an installation would be too far away from Chicago to protect it.

I don't want to spend \$20 billion of American taxpayers money to protect fenceposts and cattle out in the Bong area when the Soviets are protecting Moscow and Leningrad and Stalingrad. We have no reason to doubt that the Soviet Union has improved its program and is now building a ring around Moscow and Stalingrad. I have seen no evidence that the Soviets have abandoned their program to build an effective anti-ballistic missile system in Moscow.

I say if somebody can come along and show us that we can put this thing at Bong and still give the huge industrial complex of Chicago and the surrounding area maximum protection, then I would say go ahead and build it in Bong. Nobody wants to put this thing in Libertyville if it is not necessary. I must rely on the judgment of the men who have conducted this research at a cost of almost \$4 billion. This is not an arbitrary, capricious decision made by a group of generals sitting in the Pentagon and saying, "Things have been too quiet in the Libertyville area too long and we are going to shake things up a little bit." This decision is based on their best, termed professional judgment, after years of intensive research.

NUCLEAR FACILITIES IN CHICAGO AREA

We talk about danger. My good friend, my colleague to the east of me talked about the danger of nuclear installations. He failed to tell the committee that we are building two nuclear reactors in Zion, Ill., which is really closer to the center of population than even Libertyville. We are building a \$400 million nuclear installation in Weston. We have the Argonne National Laboratory, which is really closer to Chicago than Libertyville. It is rather significant to me that the very opposition coming to the Sentinel installation at Libertyville is coming from scientists working in the Argonne National Laboratories who have time and again helped assure surrounding communities that there are adequate safeguards in handling nuclear energy to protect the communities around their respective installations. Now these same scientists insist on putting different standards and different concepts as regards the Sentinel. These men know full well the same safeguards they live with every day will be applied to the Sentinel system and will be just as effective.

So it occurs to me if we are concerned about the detonation, if we are concerned about danger, certainly until such time as we can develop a system of mutual inspection and a policy of live and let live in this world, the whole world is in danger. So, things become relative.

SENTINEL SAFEGUARDS

I have made a very careful study of the difference between the ICBM and the Sentinel. The ICBM is an offensive weapon. It is designed, built, and constructed so that the warhead will explode at ground zero or as close to ground zero as possible, to produce the largest degree of devastation at the target for which it is intended. Obviously, we recognize that there is a huge danger of detonation because it is built to detonate at ground zero. So, properly we have put this out in remote areas, out in the desert, where if there is an explosion in the silo the damage will be relatively minimal to habitation, to people, and to cities.

Conversely—and this is where all this money went for research—the Sentinel, both the Spartan and the Sprint, are so designed that they have to have certain conditions which can be created and are created only in outer space atmosphere for detonation. I am satisfied—there is no question in my mind—that these Sentinel devices cannot explode and create any serious detonation in terms of fallout at ground level.

I have heard stories about the fact that a 1-megaton nuclear explosion will create a crater of 2,000 feet—I believe that is the figure you used, Sid—and create devastation in a 10-mile area. I believe that is true in an ICBM. We are counting on that in our ICBM's. That is the way we built the ICBM. But the Sprint and the Spartan have an entirely different mission and construction. I submit that the worst that could happen if there were an accidental detonation at a Sentinel site would be one hell of a big fire and perhaps some limited concussion in the area.

I have to rely again on the experts; and if the experts are misleading us, they ought to be court-martialed, but I do not think they are misleading us. I believe we have to take their word for it. Regarding the Middletown, N.J., explosion and all the havoc that occurred there

it could have occurred at any one of the Nike-Zeus sites around the country because you had explosions but no nuclear fallout. We talk about the possibility of an explosion. I think we have to ask ourselves a more fundamental question, can we afford not to have an adequate ABM system? I do not think anybody can sit before this committee and say he is God and certain things are not going to happen. Everything we do in life is a risk. As a responsible committee of Congress you have to weigh the risks and study the options and alternatives.

POSSIBLE USE OF SPRINT MISSILES TO DEFEND CITIES

As I said, if the Defense Department can show us that the Sprint—and I am talking now about the Sprint—can be effective at greater distances from the big cities, then we should have them there. It is true we are now planning to put only Spartans in the Chicago area. As you know, the present design for the Sentinel program is to put the ——— and then in these outlying areas—Chicago, ——— and various other industrial areas—the Sentinel installation at this stage of the development calls for installing only Spartans. Spartans are designed to intercept an enemy missile and make it impotent at a range of some 400 or 500 miles away from the place where it was fired, somewhere in the range of 125 miles in the atmosphere.

At this stage of the art, it is true we are developing a system at a cost of \$5 billion which is going to have, for the most part, Spartans near the large cities. I think the Army is to be congratulated for using good sense. They are building a system that has to last this country for perhaps the next decade or longer. We do not know at what point in time we are going to meet that hopeful day when we have an open skies policy and full inspection, if ever. So, in the meantime we are proceeding to build an ABM system to fill our needs for the next decade.

Obviously, the Russians and the Chinese are not sitting quiet, either. They are moving and are moving much faster than we are. It is entirely possible that today, because of the state of the art, we believe we have the Soviet Union reasonably well checked in terms of offensive weaponry and don't expect a nuclear exchange between Russia and America. We know the Soviet Union realizes that a nuclear exchange at this time would bring great devastation to both the Soviet Union as well as to America. So we feel that the offensive arsenal of this country is sufficient to check the Russians. But the Chinese have no regard for human life.

They are a nation that has 800 million people. We know time and again their leaders have spoken about war as the only vehicle of foreign policy. They are not concerned about the degree of devastation our offensive weapons may create in Red China. As a matter of fact, I have seen articles where some high level Chinese Communists have said that the best thing that could happen to China is to see a couple of hundred million people destroyed. So, it is proper that at this stage of the art, at this point in time, we are preparing our defenses mainly against Red China.

But that does not mean, and I think it is a distortion of fact, to come before the American public and say that the Sentinel is ineffective against the Soviet Union. We can make the Sentinel effective against

the Soviet Union overnight by moving Sprints into the Sentinel operation along with the Spartans. The moment you bring in Sprints to back up the Spartans you have a very effective system against the Soviets.

I think there has been a great distortion of the facts here.

I also heard figures that the Sentinel system will cost \$100 billion. I have not been able to find any proof any place that they anticipate any kind of expenditure of that immensity. The Sentinel program now calls for \$5 billion for deployment. We have already spent \$4 billion on research on antiballistic missiles. We have already allocated \$1.5 billion for initial acquisition. It is my understanding that we are talking about \$5 billion to complete the present program, and even if we were to go to Sprints, the so-called thick shield, ultimately, if the need arises, if we feel the situation with the Soviet Union is deteriorating to the point that we need additional defenses, we have them ready to move to a thick system.

I must say in conclusion, gentlemen, it would not make sense to me and I would consider myself totally irresponsible as a Member of this Congress if I were to approve the installation of a defense system for this country that was going to be obsolete in terms of distances and protect only fence posts, cattle, and various other areas in highly remote communities. We do not know what the needs are going to be 5 years from now or 10 years from now, and that's why we propose to build the system near the cities.

We wish Mr. Nixon luck. We hope Mr. Nixon can evolve a foreign policy that will bring peace in this world, and we will support him in that, obviously. I think even the President-elect realizes that the capability of this country to defend itself is an integral part of foreign policy.

So, I say that since the primary mission of the Sentinel is to protect these large cities, to protect these large concentrations of population, we have to put them as close as possible. I am fearful, if I have any fear at all about this program, that perhaps the Libertyville site is too far away from the heart of the city. As the gentleman pointed out, he wants to look at some demographic studies to see which way the population is moving. The gentleman may be correct. By the time this system is completed, the system may be even more effective than the Defense Department is estimating today. My fear, if I have any fear at all, is at putting this thing 40 miles away. I am relying on the integrity of the Defense Department in telling me that after all of this research, the best they can count on if they have to have a Sprint is about 30 to 40 miles either way.

I want to conclude with this: If we were building a system that anticipated the use of only the Spartan, if this system were to be built just to house the Spartan and we did not foresee the possibility that we may have to put in the supporting Sprints if the international situation requires it, if all we are doing is building an installation for Spartan, then I say my good friend has a perfect argument—we ought to build this thing 200 miles away from the big cities of America and we ought to cut out this great debate. But that is not the primary mission of the Sentinel system. The primary mission of the Sentinel system is to protect the 12 major industrial/urban areas of America.

If there is any integrity in the Defense Department, if their figures

are correct, and I think this is what this committee ought to look at very carefully, you ought to satisfy yourself that there is not an alternative. If there is not an alternative, if indeed the Sprint is limited to 30 or 40 miles, then I say as responsible Members of this Congress we have no choice but to approve this program and move forward.

SOVIET STRATEGIC DEVELOPMENT

I might say, gentlemen, I do not think we have too much time. I am concerned about the fact that the Soviet Union is becoming more and more bold in its foreign policy. The movement of its fleet into the Mediterranean, the rearming of the Arab States, the turmoil that they are creating in Southeast Asia—all indicate to me a movement forward because of an improvement in their own defense establishment.

As we look at the Soviet Union over the last 20 years, they recede when we have an effective counterweapon. They become more emboldened as they see that they have the jump on us. I know this and I think this committee knows it, and I think you ought to question General Starbird on it.

I have seen nothing. I have seen no evidence to indicate the Soviet Union is not building a huge ICBM or antiballistic missile system. I see nothing to that effect. So, I must conclude that they are building an effective ABM system and, therefore, it is incumbent upon this country to build it as quickly as possible.

USE OF GOVERNMENT-OWNED LAND FOR CHICAGO SITE

I have no objection to this site. As I say, I am not wedded to one particular 180 acres. But this happens to be 180 acres that is owned by the Government, and one of the criteria in selecting sites was to try to utilize, where possible, Government land. These 180 acres are owned by the Government. There is a Nike-Zeus site that had been there. There was no great opposition from the local community when that was there. So far as I know, there is no great opposition now.

As I say, on the question of accidental detonation, on the basis of all the evidence that I have seen looking at the two fundamental characteristics of the systems, one being offensive and one being defensive, I am satisfied that, within human bounds, there is an absolute minimum chance of explosion; and, even if there were an accidental detonation, I have been assured and I have reason to believe, on a study of all the records I have seen, that it could not be the kind of classical nuclear detonation that we fear and properly fear.

For that reason, gentlemen, I hope that you will approve this site, and let's get on with the job. This country has been the victim of Soviet nuclear blackmail for 20 years, and I think that until we build an effective antiballistic missile defense in this country we shall continue to see the Soviet Union create the turmoil that it has.

Do not let anybody tell you this system is not directed to the Soviet Union. This system can be converted to be a very effective shield against the Soviet Union any time we feel the necessity of same.

Mr. SIKES. The gentleman has made an exceedingly good statement on this complex and important subject. It is a highly courageous statement, and I congratulate you.

Are there questions?

Mr. PATTEN. I will forgo any questions.

DISRUPTION OF LOCAL COMMUNITIES

Mr. CEDERBERG. I would like to say I do not think anyone on this committee wants to substitute their judgment for the judgment of the military in making these decisions. My primary concern, as I think has been brought out in the hearings, is: Can we locate these sites and accomplish the mission with as little dislocation to the communities that are involved as possible? That is really what we are talking about, nothing more.

ABM SECURITY

As I said before, I have a little problem in my own State, in Detroit. It does not happen to be in my district. I am only hoping when we do put these sites in, whether we do it at Libertyville or at a site in Michigan, it will accomplish the job when the sites are operational and ready to go. This is the fundamental question with which we are concerned.

Mr. PUCINSKI. It is reassuring to know that this committee is backstopping this operation. I think it important for the great strength of our Republic that we have a committee like this which will take a look at this. "Is this trip really necessary, and is this the best way to do it?"

I am very happy that the chairman has held these hearings. I think these hearings are very important. I think it will serve to clear the air when you get through.

Mr. CEDERBERG. Admittedly we do not have the information nor the technical competence to make these site decisions. But as regards the ABM as a whole I always like to have insurance on my car and insurance on my house and hope I never use it. I look at appropriations of this kind in that way.

Mr. PUCINSKI. That is right.

Mr. CEDERBERG. This is an expensive premium but there is a lot at stake.

Mr. PUCINSKI. I want to add a footnote to what you said about insurance. I went to see an ICBM station in Arizona. As you drove through the gate, they had a sign. Across this sign the soldiers had written: "If we ever have to use it, we have failed."

I think what most of the people fail to realize is that this is a defensive weapon, not an offensive weapon. This weapon is designed to preserve peace in this world—to insure peace. We want to convince the enemy of the futility of trying to attack us.

I see all these peace groups moving into this thing and opposing these things, and they are really contradicting themselves. If they want peace, this is the way to find it, by having an effective ABM system in this country. That is the way you find peace in this country and in this world.

Mr. SIKES. Very good. Thank you very much.

Mr. PUCINSKI. Thank you, Mr. Chairman.

STATEMENT OF HON. ROBERT McCLORY, A REPRESENTATIVE IN CONGRESS
FROM THE STATE OF ILLINOIS

Mr. SIKES. The committee is pleased now to hear our distinguished colleague from Illinois, Mr. McClory, who has shown strong interest in the program.

Mr. McCLORY. Thank you very much, Mr. Chairman and members of the subcommittee.

CHICAGO SITE

I have been interested to hear the statements here from my two colleagues from Illinois, both discussing the subject of the possible Sentinel ABM site in my congressional district. May I say I appreciate their interest and, of course, I appreciate the committee's interest as well.

May I say, first of all, that I have had good cooperation from the Department of the Army and the Department of Defense in providing the most expert and the most accurate information which I think it is possible to shed on this extremely critical subject. I want to concur in the statement which Congressman Pelly made, that I do not come here expressing opposition to the Sentinel ABM system. As a matter of fact, I supported it on the floor of the House, and I continue to support it.

I should like also to point out that while there is substantial opposition to the location of the Sentinel system at this location near Libertyville, my correspondence indicates that almost all, I would say nine-tenths of the correspondence, is from persons who are not solely against the Libertyville site, but are against the entire Sentinel ABM system or any ABM defense system. I think it well to weigh the quality, the character, and nature of the opposition which is being expressed.

I know the Army has indicated, and I know the committee wants to take into consideration, the subject of local government attitudes with regard to this subject. I must state quite frankly that I have had no expression from any local governmental body expressing opposition to the location of the site at Libertyville. Nor have I had any expression from any local public official purporting to act in any official capacity. This is despite the highly inflammatory and in many instances completely erroneous information which is being circulated widely in my congressional district, suggesting that the installation of this system at Libertyville holds forth the danger of an accidental explosion with a nuclear yield, suggesting that people's children are going to be burned to death, and that there will be destruction and havoc wrought in the entire surrounding area.

I myself have been assured and convinced from statements of General Starbird and Dr. Foster that a nuclear explosion on or under the ground while the missiles are in their silos at the missile site is impossible. As a matter of fact, at the Waukegan meeting, General Starbird testified in so many words that when they are in that position, the Spartan missiles are unarmed and incapable of being exploded to the extent that they could provide any kind of nuclear yield.

So, the subject of an accident which would provide a nuclear yield seems to me to be nil, to be impossible. I have received no convincing evidence from any other persons, any other experts, any other knowledgeable persons, which would tend to destroy that opinion.

It has been suggested that it might be located at Bong Air Force Base. First of all, I would like to point out Bong Air Force Base is not in any kind of remote area. As a matter of fact, this committee I think, took steps to abandon the Bong Air Force Base because it was

in an area that was too highly populated. It is located quite near to Milwaukee and Racine and Kenosha, and not too much farther from Chicago than Libertyville.

Notwithstanding my expression of support of the ABM system, and notwithstanding my questioning the wisdom of moving the system to Bong Air Force Base, I would urge if at all possible, if in the judgment of the committee the Sentinel system can be effective to protect the large population centers of which the core city, of course, is Chicago, that very careful consideration be given to that.

I would prefer not to have the system in my district. I would prefer to have it in a more remote area.

Mr. SIKES. Would you pause for a moment and point out on the map the locations you have been discussing, showing the boundaries of your district?

Mr. McCLORY. My district starts at the north Cook County line, including part of Cook County down here, and then extends all the way up to the Wisconsin line. You will notice that Libertyville is, I would say, halfway between the Chicago Loop and Bong Air Force Base.

Mr. SIKES. And it is in your district?

Mr. McCLORY. Yes; it is in the heart of my district. Bong Air Force Base, of course, is in southern Wisconsin. I would judge it is about another 25 or 30 miles north of my district. The committee will note it is quite close to Kenosha and Racine, which are also rather highly populated areas, and not too far from Milwaukee, which is also a large metropolitan center.

However, I would like to emphasize, too, that from the standpoint of being in a population center, there is a rapid movement of population away from the city. The population of the city of Chicago itself is going down, and the population of the surrounding area, including my district, of course, is going up. There are some people who say that the proposed site is in the direct path of building development.

On the other hand, I think we should recall that the proposed site is the abandoned Nike missile site, and at least 180 acres of it are owned by the Government at the present time. I have viewed the property. It appears to be very suitable for this installation. The Army says that it is the kind of site they want. It has a firm undergirding. It is relatively clear in the surrounding area. It is on fairly high level ground. It is not being used at the present time. There isn't any housing development in the immediate area, but there are a number of residents there.

I know that the committee will consider this subject, all the testimony given here, including further testimony which the Army will produce. I do want to express on behalf of my constituents that a great many of them are opposed to the location of the site in my district. A great many, on the other hand, who are not writing to me, I might say, but who express themselves to me verbally, have indicated either their support or their acquiescence without opposition. I would not be able to judge what the ratio was of opponents and supporters. I do not know that I am going to take that into consideration in my final judgment. I want to pass on to the committee that there is substantial opposition.

I also want to pass on to the committee that I would prefer to have it located elsewhere if it can be done without reducing the effectiveness of the system. If it cannot be done, I do not want to be in the position of expressing active opposition. I support the system and I would not want to thwart the system by expressing or taking an active part in opposition to the site location.

Mr. SIKES. You have made a very commendable statement.

Let me congratulate you upon your forthrightness and your courage in speaking out as you have.

Are there questions?

Mr. PATTEN. I have no questions. Thank you for appearing.

Mr. CEDERBERG. I think the gentleman has made a very good statement. Whenever an installation is put in any district there is some opposition and some concern. This is a situation where you have to weigh the benefit overall of the protection versus more parochial interests.

That is all.

Mr. TALCOTT. I think the gentleman should be commended, too. It is a tough thing to try to decide, when the system is in your own district. It is easy for people from other districts to dispassionately recommend. I think we should appreciate the forthrightness with which the gentleman from Illinois (Mr. McClory) has presented the views of the people in his district.

Mr. SIKES. Thank you very much.

Mr. PATTEN. Just one question. What is the geographical relationship of Mr. Yates' district to your district?

Mr. McCLORY. He is just north of the Loop in Chicago, along what we call the gold coast.

Mr. TALCOTT. Where there are too many people in the daytime and not many at night.

(At Mr. McClory's request the following material was included in the record.)

CONGRESS OF THE UNITED STATES,
HOUSE OF REPRESENTATIVES,
Washington, D.C., January 27, 1969.

HON. ROBERT SIKES,
Chairman, Military Construction Appropriations Subcommittee, House Committee
on Appropriations, Washington, D.C.

DEAR MR. CHAIRMAN: Subsequent to my testifying before the Subcommittee on January 15, 1969, on the subject of the proposed Sentinel missile site near Libertyville, Illinois, in my district, I was informed that the City of Highland Park's City Council had adopted a resolution urging the Army to reconsider the Libertyville location. A copy of this resolution is attached for your information.

I am also of the opinion that the Village Board of the Village of Lincolnshire has taken formal action of a similar nature although I have not received any resolution or any formal document to this effect.

This information supplements my testimony of January 15, at which time I was unaware that any such action had been taken by any municipality in the 12th Congressional District in opposition to the proposed Sentinel site near Libertyville.

Sincerely yours,

ROBERT McCLORY,
Member of Congress.

RESOLUTION

Whereas, the Department of Defense has designated the location of a Sentinel anti-ballistic missile site near the Village of Libertyville, Illinois; and

Whereas, the proposed site is contiguous to a densely populated area which includes the City of Highland Park; and

Whereas, the proposed installations will contain missiles of enormous explosive capabilities which, in the event of accidental detonation, will cause inestimable damage and loss of life to the residents of the adjacent communities; and

Whereas, representatives of the Department of Defense have indicated that location of the Sentinel installation in alternative areas of less dense population would not impair the tactical effectiveness of the Sentinel program; Now, therefore, be it

Resolved by the resolution of the City Council of the City of Highland Park as follows:

The City of Highland Park by its City Council strongly urges that the Department of Defense reconsider its designation of Libertyville, Illinois, as a Sentinel anti-ballistic missile site in the interest of safety to the adjacent communities and that relocation of the site to an area of less dense population be undertaken.

Passed this 13th day of January, 1969.

SAMUEL T. LAWTON, Jr., *Mayor*.

Attest:

ROBERT W. ATTERIDGE,
City Clerk.

STATEMENT OF LT. GEN. A. D. STARBIRD, SENTINEL SYSTEM MANAGER

Mr. SIKES. The committee will now hear from Lt. Gen. Alfred D. Starbird, ABM Sentinel system manager, representing the Department of the Army.

General STARBIRD. Mr. Chairman: I appreciate this opportunity to testify to you today on the Sentinel program. Mr. Garrity has informed me that you desire to have me describe the program deployment, the overall status of site selection and cover specifically the criteria used in selecting sites for Chicago and Seattle. These are sites recently notified to the Congress pursuant to law. I shall cover in my testimony the matters asked my staff and I shall answer in more detail any questions you may have.

BACKGROUND

Before these points, I believe I should remind you of certain background. This will include: the objectives of the Sentinel deployment, the components of the Sentinel program, the expected Red Chinese threat, and which components are programed to be located where?

OBJECTIVES OF SENTINEL PROGRAM

The primary objectives of the Sentinel deployment now are the same as those announced over a year ago when that deployment was decided upon. As shown on figure 1, they are: to meet the Chinese developing threat; to protect if later decided necessary a portion of our Minuteman force; and to protect against an accidental ICBM launch by any nation. The following list states them succinctly:

SENTINEL OBJECTIVES

1. To provide an area defense of the United States, including protection of U.S. cities, against the initial capability of the Red Chinese to launch an ICBM attack.
2. To provide an option for defending Minuteman with Sprints.
3. To provide limited protection of cities against an accidental launch of a small number of ICBM's.

SENTINEL COMPONENTS

General STARBIRD. The major hardware components of Sentinel are :

The perimeter acquisition radar (PAR) is the long-range surveillance and detection radar which can detect an enemy ballistic missile to a range like _____ nautical miles. It can detect and track many objects simultaneously.

The missile site radar (MSR) is the shorter range battle direction radar. It can track out to ranges like _____ nautical miles, can handle many targets simultaneously, predicts where the intercept should occur, readies and launches an interceptor and when in the vicinity of the threatening ICBM arms and fires the interceptor.

The long-range, high-altitude interceptor is the Spartan missile carrying a megaton range warhead out to distances like _____ nautical miles and altitudes like _____ nautical miles. Spartans are located at most missile site radar sites to give wide area coverage.

The final component is the Sprint missile. It is smaller and faster reacting. It can fly out to over _____ nautical miles, up to altitudes like _____ feet, and carries a warhead in the low-kiloton range. Most Sprint also are located adjacent to the MSR. However, some may be remoted from the MSR by _____ miles if it is decided to protect some of our Minuteman with Sentinel.

CHINESE THREAT

The CPR threat, which is derived from a study of the best intelligence available, I have shown in brief on the next chart.

(Chart was classified.)

General STARBIRD. Simply stated, the CPR is expected to have on launcher an initial very limited capability in _____ missiles by the end of _____ and _____. With the indicated reliabilities this might mean delivery to target of _____ in _____ to _____ in _____ if not intercepted. There is no indication as yet that the CPR is developing penetration aids. If they elect to develop them, the likely earliest simple and very limited penetration aids capability would be about _____ but with increasing likelihood it could occur substantially later. The CPR is not expected to have available the more sophisticated penetration aids for several years following their initial capability. I should add that we have learned that development of such aids takes extensive effort, time, and testing _____.

By penetration aids, I mean metallic chaff, light balloons, or decoys which confuse the defensive radar and thereby limit somewhat the effectiveness of the defense.

Mr. SIKES. Do you estimate the Chinese missiles will have a lesser reliability than you attribute to the Russians or to our own forces?

General STARBIRD. Yes, sir.

Mr. SIKES. Why?

General STARBIRD. To begin with we give them a lesser reliability. For one thing, we believe that the missile they are working on, from certain evidence, is quite similar to our initial ICBM.

Mr. SIKES. Presumably they have the benefit of our experience and can move faster toward achieving high reliability.

General STARBIRD. They do in some regards, sir, and you are right that they have the knowledge that a certain thing can be done. They

have not learned yet by the mistakes and failures that can occur from such things as quality assurance in the manufacture, the refinements that we have learned to make.

RELIABILITY OF RUSSIAN MISSILES

Mr. SIKES. Would you provide for the record the reliability which we ascribe to the Russian missiles?

General STARBIRD. All right, sir, I shall do that.
(The information follows:)

General STARBIRD. We estimate that the overall force reliability of Soviet ICBM in the 1970's will be significantly greater than that of Red China's force. This is primarily because of the considerable time Russia has already been in the program and their known technological and production capabilities, as contrasted with the fact that Red China is working toward their first ICBM system. (Additional classified information has been furnished separately to the committee.)

EFFECT OF PENETRATION AIDS ON SIZE OF AREA PROTECTED

General STARBIRD. I desire to explain briefly the significance of these penetration aids and what they do to the defense. I can best do this by using this diagram.

(Diagram was classified.)

General STARBIRD. As this is intended to show, when there are no penetration aids our long-range interceptors can fly out to great distances to make their interception. One battery of interceptors then can cover an extended area. With full effective penetration aids, however, the defensive radar cannot be sure of the real warheads until the atmosphere screens out the chaff or balloons or decoys and the real warhead becomes apparent at some altitude between _____ feet and _____ feet. This means that a threatening warhead is not picked up until shortly before it reaches its target. The defender could be unable to commit his interceptor until that positive identification is made. The net overall effect, therefore, is to decrease very materially the area which any one battery can protect.

APPROVED DEPLOYMENT

General STARBIRD. The approved deployment, what components are to be located where, is shown on figure 5.

(The information was classified.)

General STARBIRD. At _____ locations around our northern border _____ there are to be two Sentinel sites—a PAR site and an MSR site—each with a PAR and MSR within _____ nautical miles of each other. At a nearby MSR site there are to be both Spartan and Sprint missiles. The Spartans provide area coverage and the Sprints provide local coverage to the PAR and to nearby populations.

At _____ other locations in continental United States, there are batteries containing only MSR's and Spartans. Then in Oahu where the land mass is limited there will be a _____ battery.

Mr. CEDERBERG. In that Detroit, Mich., site, the PAR and MSR are close together, is that right?

General STARBIRD. They have to be about _____ nautical miles apart, and I will explain the reason why in a moment.
(Information was classified.)

General STARBIRD. On this next figure, I have shown the areas, the footprints on the ground, which each of the MSR/Spartan batteries can protect against a simple CPR threat of ——— missiles and without effective penetration aids. For example the battery in the Seattle area will protect a very large area of the Northwest, portions of five States.

OVERALL STATUS OF SITE SELECTION

Let me now explain exactly where we stand with respect to site selection for the deployment I just described. Of the ——— locations for which sites are planned, those ——— just shown, 10 were announced publicly November 15, 1967, and five others have been announced since that time.

We have tentatively selected exact location for the sites in three cases—Boston, Chicago, and Seattle. Notice of land acquisition for Boston was sent to the Congress on July 26, 1968, and preliminary construction is already underway there. Notice to the Congress relative to the areas in Chicago and Seattle was transmitted to Congress on December 27, 1968. Others will follow as needed to permit meeting required construction and readiness schedules.

SITE SELECTION CRITERIA

In selecting the exact locations for a site, we complete a very extensive system, field and survey analysis. We evaluate all possible locations against many different criteria but these criteria really settle down into three main categories: is the site engineeringly and economically feasible; can we locate there without undue impact on civilian activity already in the area; but above all, will the location be tactically effective. Because of the great cost of any Sentinel site, we attempt to locate it where it will be effective both now and for a longer range future if and when the Red Chinese may have penetration aids. I can explain in more detail how these criteria apply by describing why the specific sites at Seattle and Chicago were selected.

Mr. SIKES. The statement was made that these sites would be located some distance away from centers of population, and that every effort would be made to use Government land, where suitable land is already owned by the Government. Both of these criteria were set up in an effort to make the installations less objectionable to the people of the population centers which are included in the program.

Protection of the populace is, however, the primary consideration. Within the necessary bounds of siting these installations sufficiently close to be effective, we hope you are following these criteria. Do you have any quarrel with my statement?

General STARBIRD. That, in essence, is the same thing that falls within the second category I stated. Can we locate there without undue impact on civilian activity already in the area? If and when we can locate where there is no major activity and to the degree we can move away from cities, we do. We do evaluate the real estate to determine whether or not there is any Government land available.

I think if I go on, sir, it will become more evident how we consider it.

Mr. SIKES. Please proceed, General Starbird.

THE SEATTLE SITES

General STARBIRD. In the Seattle area, the program calls for the installation of two sites.

On the wall map. I have shown the locations selected.

One site will be a PAR site of approximately 120 acres and certain easements to give long-range surveillance toward the north-northwest, the direction from which a CPR ICBM would approach continental United States. There are no missiles at the PAR site.

Mr. SIKES. I take it there has been no objection raised to any of the PAR locations.

General STARBIRD. Very slight, sir, as far as has been reported to me.

The second site would be one where there would be a missile site radar (MSR) together with collocated Spartan missiles and Sprint missiles and would require approximately 240 acres and certain easements. The Spartans would be there to give against the early CPR threat long-range protection over a rather wide area including parts of five Northwestern States. The Sprints are there primarily to give terminal protection to the critical PAR. However, in view of the high target value of our major urban/industrial areas and the excellent protection the Sprint can give to a local area, wherever we have a Sprint battery we try to place it so it can provide effective coverage to the maximum numbers of people of the major city nearby. We do this because the CPR with its rather limited number of missiles can deliver the most lucrative attack by directing its ICBM's against highly populated areas.

The Sprint can be effective out to ranges better than ——— nautical miles under ideal conditions. Against highly effective penetration aids, however, that range reduces to the neighborhood of ——— nautical miles. We, therefore, attempt to place the MSR/Sprint battery so that it is within ——— nautical miles of the major portion of the population and within ——— nautical miles of the PAR site.

Mr. SIKES. You are now giving us the maximum effective distance that protection can be obtained against, first, a rather primitive weapon and, next, weapons with effective penetration aids?

General STARBIRD. That is correct, sir.

Mr. SIKES. You have to consider those limits in order to provide protection to the population?

General STARBIRD. That is correct. We are giving consideration in the location, and because of the very high cost of all of the facilities concerned, to the future which would bring penetration aids, and I might say ———.

Actually, the areas of protection ———. If the site were at ——— and the attack came in from the western edge of the threat corridor, then you can see a major part of ——— and even a portion of the developing area between ——— would be covered. Against an attack coming in from the other direction, it would also pick up a portion of ———.

Mr. TALCOTT. Why do you show that egg-shaped figure?

General STARBIRD. That is like when you walk into the rain with an umbrella. The missile is coming at you as it is coming down, so the umbrella tends to protect behind you and you hold the umbrella out in front of you. The interceptions are generally out in front.

Mr. TALCOTT. At first, one would think the pattern would be circular, but I understand. Thank you.

General STARBIRD. We examined in varying degrees some 40 different locations in the Seattle area which might possibly serve as the PAR and the MSR. Some of these sites were those selected by us and they were ones having open area without extensive development. Some on the other hand were suggested to us by congressional or other government or private representatives. The PAR site at Port Gamble is in a relatively undeveloped section of the country, has good foundation conditions and is fairly high so that it will not be unduly masked by the mountains to the west. The same is generally true to the MSR site at Fletcher Bay. Foundation conditions are good for the two sites and construction should be accomplished here as economically as at any we investigated and without undue delay due to the poor foundation conditions. The MSR with its Sprint is close enough to the PAR to give protection to the PAR. In addition, Sprint protection, as illustrated by the footprint shown, for a Fletcher Bay location, even against a CPR threat with penetration aids would protect approximately _____ million personnel and most of the highly populated areas in the Seattle region. The corresponding numbers for the two other sites most intensively studied are _____ for Fort Lawton and _____ for Sammamish; and for three sites recently suggested to us _____ for Bangor Naval Ammunition Center, _____ for Silverdale Airport, and _____ for Kitsap County Airport.

Mr. Pelly suggested a site we are looking at in detail. I have yet to give Mr. Pelly an answer, which I will do as soon as I can possibly complete that investigation.

After comparing the several most satisfactory sites, the Secretary of the Army tentatively selected and the Secretary of Defense approved acquisition of the necessary area at Fletcher Bay and Port Gamble for the MSR and PAR. As called for by law the Secretary of the Army notified the Armed Services Committees on December 27, 1968, of the Army's intent to acquire the necessary land. The House Armed Services Committee has asked that no acquisition steps be taken until a hearing is held by that committee.

THE CHICAGO SITE

In the Chicago area the program calls for the installation of only one site.

On the wall map, I have shown the site selected in the Chicago area. This site is to have a missile site radar (MSR) and Spartan missiles only. There is no current plan for installing Sprint there.

In the Chicago area, we examined some 13 locations in all before selecting the Libertyville site. The Libertyville site is one in which 184 of the required 254 acres plus easements are already owned by the Army. It is now an inactivated Nike-Ajax site. The additional area required has only minor development. Foundation conditions are good. There are no terrain features or high structures that would unduly mask the radar. It is as lightly developed an area as any we could find which is relatively close to the heavily developed portion of the Chicago area.

A location outside the heavily builtup area of Chicago but still relatively close to Chicago is required if the desired tactical effectiveness in the short range and longer range is to be achieved.

In this connection, we consider that the Chicago area, like our other major urban/industrial centers, is a most probable target for any CPR attack. For a simple attack without penetration aids, as I have explained earlier, the Spartan battery can give a high degree of protection to a very wide area. However, it is true that areas close to a battery, even against a simple Chinese threat, receive a higher degree of protection than those at a distance. I can go into this in more detail should you want at a later time using some charts I have with me.

Mr. CEDERBERG. Why do we have one site at Libertyville and two sites at others?

General STARBIRD. You have two sites wherever you have one of these perimeter acquisition radars that are looking out doing the surveillance job. We have one site at other locations to give wide area coverage.

Mr. CEDERBERG. There will be a PAR somewhere else covering Libertyville?

General STARBIRD. That is right. The perimeter acquisition radar ——— will actually be furnishing surveillance data to this missile site radar.

A prime factor, however, in leading us to locate near Chicago rather than many miles further out was the realization that the CPR could have a more sophisticated threat with penetration aids in a period like ——— though of course they may not. The Spartan as it is now constituted would have only a limited capability against such a threat and could not give protection to a major portion of the Chicago urban/industrial area. ———

And also, as I can explain later, it would not be true if it were ———. The same would not be true if the site were located ———. Again I can go into this in greater detail with wall maps and charts should you desire. Also, of course, it would be possible to substitute some improved short-range, low yield interceptors for some of the Spartans should this become necessary to meet the developing threat; I must add, however, there are no plans for this at present.

Based on these considerations, the Secretary of the Army tentatively selected and the Secretary of Defense approved acquisition of the necessary additional area at the site near Libertyville. Notification of intention to acquire was sent to the Congress on December 27, 1968. The House Armed Services Committee has asked that no acquisition steps be taken until a hearing is held by that Committee.

With that, sir, I can go into more background on the effectiveness considerations or answer questions.

Mr. SIKES. I think at this point it will be well to have some questions, and then possibly we will want to go further into background information on the program itself.

POSSIBILITY OF DANGER TO LOCAL POPULACE

There has been discussion of the danger which may be associated with the proximity to the local community of the Sentinel sites from the weapons stored there. I think this has been discussed to a consid-

erable extent, but I would like you to provide for the record the Army's best information on the subject the possibility of danger to the local populace from stored weapons.

(The information follows:)

General STARBIRD. U.S. nuclear weapons are designed with a series of safety devices so that the likelihood of any nuclear yield in case of an accident is essentially nil. In more than 20 years of nuclear weapon production, transportation, storage, and operations, there has never been a nuclear yield from a nuclear weapon involved in an accident. Very stringent precautions are taken to protect the public against any hazard from the conventional explosives and propellant systems which are similar to those in many other weapons and industrial applications. Planning for the storage of nuclear warheads in metropolitan areas is not a new undertaking as evidenced by public announcements concerning the capability for storage of weapons in Nike-Hercules sites. Nuclear weapon storage on Sentinel sites will be in hardened underground launch cells. Features in the weapon and firing doctrine preclude detonation until an altitude is reached which provides safety for people and property on the ground.

NIKE-HERCULES NUCLEAR SITES

Mr. SIKES. What Nike-Hercules nuclear warheads are stored in major urban areas today?

(The information was classified and was supplied to the committee.)

Mr. SIKES. How long have they been in these areas?

(The information follows):

General STARBIRD. The Army commenced phasing Nike-Hercules missiles with nuclear warheads into the urban air defense of the Conus in 1958 and completed installation in 1961.

Mr. SIKES. What complaints have been received from these urban areas?

(The information follows:)

General STARBIRD. There has been no adverse public reaction or complaint addressed to the storage of Nike-Hercules missiles within or in the vicinity of urban areas. However, it should be pointed out that, although the public has been informed that Nike-Hercules missiles are stored in urban areas and that Hercules is capable of carrying either a nuclear warhead or a conventional high explosive warhead, in the interest of security for Hercules, the exact location of Hercules nuclear warheads has not been disclosed.

Mr. SIKES. What problems, if any, have developed from their presence in the areas discussed?

(The information follows:)

General STARBIRD. No problems have been experienced relative to storage of Nike-Hercules missiles in urban areas.

POSSIBLE IMPROVEMENTS TO SENTINEL

Mr. SIKES. I think we are very much interested in the effectiveness of the system which is being built. You have brought out in your testimony the possible differences in effectiveness against relatively primitive Chinese intercontinental ballistic missiles, compared with more sophisticated ones. We must assume that they will increase the sophistication of their weapons. They have demonstrated a technical capability which we cannot ignore. Do you anticipate a similar improvement in the Sentinel system during the process of its construction and installation? As time goes on, will we build into this system greater effectiveness against improved ICBM's? We are not

going to be content with our own somewhat primitive Sentinel system, are we?

General STARBIRD. No, sir. You are correct, Mr. Chairman, we are carrying on, with the approval of Congress, a very extensive program for the development of improvements to counter this increasing threat. I mentioned one of those improvements just now. During the past year we have concluded that we can bring along this ——— that would give us greater flexibility of use. It would give us greater effectiveness if the enemy does bring forth a penetration aid capability. We are looking at the radar. It appears that there are some improvements that may be helpful against such things as ———. However, we are not at a stage yet where we are sure that this is possible. So, we are looking at all of the different components to see how we can best do the job.

SENTINEL PROGRAM, FISCAL YEAR 1970

Mr. SIKES. General Starbird, provide for the record a statement on the Sentinel for fiscal year 1970.

(The information follows:)

General STARBIRD. The development program for the Sentinel ballistic missile defense system is being conducted on a priority basis and on a tight R. & D. schedule which will support an equipment readiness date in the early 1970's for the first site. The program includes continuation of design, development, fabrication, and test of both the perimeter acquisition radar (PAR) and the missile site radar (MSR); Spartan and Sprint missile firings; development and operation of the tactical software control site; warhead development and test; system tests; and design release to tactical production of each subsystem as it is ready.

The Army's Advanced Ballistic Missile Defense Agency (ABMDA) and its operating element, the Nike-X Development Office (NXDO), carry out research and development on missile defense concepts, technology, and components that are not included in the Sentinel model that is approved for deployment. ABMDA probes areas of technology which may offer ways to improve the current missile defense capability and extend its life, and will provide a means for continuing ballistic missile defense research and development, encountering massive and more sophisticated threats, without interfering with the Sentinel development and deployment program. The fiscal year 1970 program for ABMDA includes the research and development to defend and assist in the development of U.S. strategic offensive forces; the continued development of improved radars; development of improved interceptors; and other advanced development projects. At the Kwajalein Missile Range, the Sentinel organization, Advanced Ballistic Missile Defense Agency, U.S. Navy, and U.S. Air Force cooperate in an ICBM and SLBM reentry vehicle measurement program. The results of this program are fed back into the Air Force and Navy's penetration aids program for their ballistic missiles, and to the Sentinel organization and the Advanced Ballistic Missile Defense Agency to support incorporation of a defense against penetration aids.

The Army's fiscal year 1970 R.D.T. & E. budget estimate includes \$334.9 million for Sentinel and \$175 million for ABMDA.

EFFECT OF SITE SELECTION ON SENTINEL SCHEDULE

Mr. SIKES. I believe you stated that the Army has decided on sites in Seattle and Chicago, but acquisition has not taken place and construction has not begun at these sites, is that correct?

General STARBIRD. This is correct.

Mr. SIKES. Are you prepared to move speedily, once the congressional questions are resolved?

General STARBIRD. We are, sir. We withheld submission of the notification until the latest time we could submit it and let the Congress

come back into session and still complete our sites on the readiness date.

Mr. SIKES. What slippage has resulted to this date in the construction for the system as a result of this site-selection problem?

General STARBIRD. None has, sir. We went ahead with rather detailed, though not complete, surveys. We have gone ahead with our engineering. We therefore have avoided slippage to date.

Mr. SIKES. At what point in time would slippage begin?

General STARBIRD. That is a rather hard question to answer, sir; but let me tell you that I have felt submitting these in December was the latest time I could submit them. I recognized at the time it probably would be in February before the Congress could have time to come back, get organized and look at them. Usually you can make up a little time, like a month, by paying more dollars. We are trying to avoid that, though, whenever we can.

— So, we do not want to retard our approved dates for operational readiness.

CHICAGO SITE

Mr. SIKES. Let us go back to the Chicago site that we were discussing. You have decided that Libertyville is the best location for you near Chicago. Why can you not use Bong or some other site? Will you go into more detail on that?

General STARBIRD. Yes, sir; I can. I can give it to you in more detail sir.

The — can give — a coverage roughly — miles north and south, roughly — miles east and west. Therefore, from a location near Libertyville it covers substantially all of the developing and heavily developed portions of Chicago.

If we move to Bong Air Force Base, we will be about 40 nautical miles north of the presently heavily developed area, and the area of Chicago right now that is heavily developed is about 32 nautical miles in depth. So, we will cover only a portion of the population.

Here are the figures as to our calculations for the numbers that would be given protection from Libertyville. The two angles of attack shown for which these numbers were calculated are here—either — degrees or — degrees. You can see that this protection provided is — at Libertyville.

On the other hand, if you go to Bong, it comes down to — that are protected. In the case of a very severe penetration aid, we are still protecting somewhere around — on the average if located at Libertyville. However, it drops to a fraction of that if you go up to Bong. It is generally only the people —.

Mr. SIKES. According to your estimate, the Bong site would be only a little more than — percent effective in providing protection for Chicago?

General STARBIRD. Right, sir. I would like to put that in the record.

Mr. SIKES. Very well. We would be glad to have you place as much of this material in the record as classification will permit.

(The information follows:)

General STARBIRD. The Army has looked, in addition to Libertyville, at the tactical effectiveness of locating the Chicago defense at Bong AFB some 35 miles north of Libertyville. Against the initial CPR threat, the large area coverage provided by the Spartan missile could protect Chicago from a site, such as Bong AFB, more remote than Libertyville from Chicago. However, even in this situa-

tion the Libertyville site would provide for the population of Chicago a greater degree of protection than the Bong AFB location. If the CPR should develop effective penetration aids which could limit the reaction time available to the defense, the advantage of Libertyville over Bong AFB to defend the Chicago population would be even greater. (Additional classified information has been furnished separately to the committee.)

Mr. SIKES. Is this classified?

General STARBIRD. Yes, sir. It is secret; in fact, much of this that I have given is secret and quite sensitive because the CPR and the Soviet Union could then back check this information and come to a pretty good idea of the characteristics of our system.

Mr. SIKES. We will respect the classification. I would ask that you provide as much information as you can to clear up this whole picture for the sanitized version of this hearing which will be made public.

General STARBIRD. Right.

SEATTLE SITES

Mr. SIKES. Does this complete the discussion of the Chicago area?

General STARBIRD. That roughly completes the Chicago area and where we have Spartan only.

Mr. SIKES. Let us turn to Seattle.

General STARBIRD. Let us go back to the Seattle area.

We did pick the Fletcher Bay area that is relatively undeveloped. It is true it is a highly desirable residential island. However, the area that we actually selected does not have anything on it at the present time. We have already discussed Fort Lawton. We found that we could build at Fletcher Bay as cheaply as Fort Lawton. Furthermore, the Department of Defense was considering giving up a part of Fort Lawton. If they did, there would be a further return to the Treasury for that.

As I mentioned, we are still relooking at the sites that Mr. Pelly suggests, from the effectiveness point of view, when the potential enemy can have highly effective aids. Kitsap County is substantially less effective. Silverdale Airport is less effective by a fairly high degree. Bangor also is less effective.

As I pointed out earlier, Sammamish is less effective. That was the alternate we investigated over in the other direction. The land as far as Kitsap is concerned is a small airport. The information that I had, Mr. Pelly, was it was still operating with about 15 landings and takeoffs a day. I don't know exactly. We have not drilled it. We do not know its situation underground as yet. It is, as Mr. Pelly brought out, relatively—actually talking to Silverdale Airport—it is actually fairly lightly occupied by houses. I think the number of houses runs about 15 per square mile. It is, as I mentioned, substantially less effective.

At Bangor we have been in contact with the Navy that has told us they need every bit of land that they have. We do have a problem when we try to use ———. The Navy has indicated to us that they would not be able to ——— from their base. Also, they are presently having to purchase more land at the present time. As of the present time we have not completed what Mr. Pelly asked us to do. We have from our more detailed analyses that we have run on effectiveness come to the definite conclusion that to move toward the west would make the system less effective against sophisticated attack.

Mr. CEDERBERG. Isn't there a substantial safety area around Bangor at the present time? The Navy has several thousand acres?

General STARBIRD. I have seen a map, sir, and I do know that they are contemplating requesting additional safety land on almost all sides. They are thinking more, though, of the normal type of activity that you would find on the outside. We do have a very powerful radar beam which must come down and look directly over the horizon. As of the present time it only ———. It might one day have to ———.

I have not completed to my satisfaction yet the analysis of the electronic side of it.

A Silverdale Airport area would be one in which we were looking directly into the Bangor base.

Mr. CEDERBERG. You have under active study the possibility of using Bangor, is that correct?

General STARBIRD. Mr. Pelly has asked us to look at it again. I have agreed to look at it again. We are pushing that effort to the maximum possible extent. I hope within a matter of days to be able to give him an answer.

Mr. SIKES. Is there any further discussion on this point?

Have you finished your statement, General Starbird?

General STARBIRD. I have finished.

Mr. SIKES. Are there questions?

EFFECTIVENESS OF SENTINEL AGAINST RUSSIA AND CHINA

Mr. LONG. Are questions open on the whole philosophy of the Sentinel or just on this location?

Mr. SIKES. On the whole philosophy, yes. We are seeking specific information because of questions raised about site selection. You may ask any questions you wish, however this is not a policy hearing, but a hearing on progress of Sentinel installations.

Mr. LONG. These are questions asked more out of puzzlement than anything else. I really don't understand the whole philosophy of the Sentinel system, partly because of the things Mr. McNamara and others were telling us at an earlier stage. They gave us a lot of information which I took fairly seriously. If what they told us had merit, then it is rather hard to understand the reason for moving on the Sentinel.

Is this Sentinel system of any value to protect against an ICBM attack by the Soviet Union?

General STARBIRD. It would reduce somewhat the number of casualties. It would not provide a full protection.

Mr. LONG. No, I didn't think it would.

General STARBIRD. It would reduce somewhat. I have to put a proviso in here. That proviso is, that they do not build enough added offensive missiles to counter it.

Mr. LONG. Why don't you mention the Soviet Union in this system; why is the whole emphasis here put on China?

General STARBIRD. The approved deployment as approved by the Secretary of Defense was one directed at the Chinese but with one optional additional feature; that is, that we were told to be capable of providing a protection for part of the Minuteman, should this later become desirable to do. So the matter of the decision is one that I don't feel in the Army that I can talk about. We are proceeding to carry out what we are expected to do.

Mr. LONG. You are doing a job?

General STARBIRD. Right.

Mr. LONG. What is the ICBM capability of Russia in comparison to that of China?

General STARBIRD. It is just fantastically higher.

Mr. LONG. Many times greater?

General STARBIRD. That is correct. It is up in the many hundreds.

Whereas—

Mr. LONG. That is all right.

General STARBIRD. The Chinese don't have anything right now.

Mr. LONG. It is a far more sophisticated attack system with penetration aids or capability in that direction which would be far greater than anything the Chinese could bring to bear?

General STARBIRD. It has limited ———. It has better missiles.

Mr. LONG. It is not only bigger quantitatively but qualitatively?

General STARBIRD. Right.

Mr. LONG. If the Soviet Union has a far greater ICBM capability vis-a-vis the United States compared to Red China, why don't we build a defense against Russia rather than against China, or one that is directed primarily against Russia with certain values against China?

General STARBIRD. Sir, I think perhaps I can best answer that if I place in the record the statement of the Secretary of Defense that he gave publicly on the 18th of September a year plus ago. There he went into some detail trying to explain his logic.

Mr. LONG. You are not prepared to explain that here?

General STARBIRD. I could tell you in brief. I would like to put the detailed statement in the record.

(The information follows:)

(Remarks by Secretary of Defense Robert S. McNamara before United Press International Editors and Publishers, San Francisco, Calif., Sept. 18, 1967.)

Ladies and gentlemen, I want to discuss with you this afternoon the gravest problem that an American Secretary of Defense must face: the planning, preparation, and policy governing the possibility of thermonuclear war.

It is a prospect most of mankind would prefer not to contemplate.

That is understandable. For technology has now circumscribed us all with a conceivable horizon of horror that could dwarf any catastrophe that has befallen man in his more than a million years on earth.

Man has lived now for more than 20 years in what we have come to call the atomic age.

What we sometimes overlook is that every future age of man will be an atomic age.

If, then, man is to have a future at all, it will have to be a future overshadowed with the permanent possibility of thermonuclear holocaust.

About that fact, we are no longer free.

Our freedom in this question consists rather in facing the matter rationally and realistically and discussing actions to minimize the danger.

No sane citizen; no sane political leader; no sane nation wants thermonuclear war.

But merely not wanting it is not enough.

We must understand the difference between actions which increase its risk, those which reduce it, and those which, while costly, have little influence one way or another.

Now this whole subject matter tends to be psychologically unpleasant. But there is an even greater difficulty standing in the way of constructive and profitable debate over the issues.

And that is that nuclear strategy is exceptionally complex in its technical aspects. Unless these complexities are well understood, rational discussion and decision making are simply not possible.

What I want to do this afternoon is deal with these complexities and clarify them with as much precision and detail as time and security permit.

One must begin with precise definitions.

The cornerstone of our strategic policy continues to be to deter deliberate nuclear attack upon the United States, or its allies, by maintaining a highly reliable ability to inflict an unacceptable degree of damage upon any single aggressor or combination of aggressors, at any time during the course of a strategic nuclear exchange—even after our absorbing a surprise first strike.

This can be defined as our “assured destruction capability.”

Now it is imperative to understand that assured destruction is the very essence of the whole deterrence concept.

We must possess an actual assured destruction capability. And that actual assured destruction capability must also be credible. Conceivably, our assured destruction capability could be actual, without being credible—in which case, it might fail to deter an aggressor.

The point is that a potential aggressor must himself believe that our assured destruction capability is in fact actual, and that our will to use it in retaliation to an attack is in fact unwaivering.

The conclusion, then, is clear: if the United States is to deter a nuclear attack on itself or on our allies, it must possess an actual, and a credible assured destruction capability.

When calculating the force we require, we must be “conservative” in all our estimates of both a potential aggressor’s capabilities, and his intentions. Security depends upon taking a “worst plausible case”—and having the ability to cope with that eventuality.

In that eventuality, we must be able to absorb the total weight of nuclear attack on our country—on our strike-back forces; on our command and control apparatus; on our industrial capacity; on our cities; and on our population—and still, be fully capable of destroying the aggressor to the point that his society is simply no longer viable in any meaningful 20th-century sense.

That is what deterrence to nuclear aggression means. It means the certainty of suicide to the aggressor—not merely to his military forces, but to his society as a whole.

Now let us consider another term: “first-strike capability.” This, in itself, is an ambiguous term, since it could mean simply the ability of one nation to attack another nation with nuclear forces first. But as it is normally used, it connotes much more: the substantial elimination of the attacked nation’s retaliatory second-strike forces.

This is the sense in which “first-strike capability” should be understood.

Now, clearly, such a first-strike capability is an important strategic concept. The United States cannot—and will not—ever permit itself to get into the position in which another nation, or combination of nations, would possess such a first-strike capability, which could be effectively used against it.

To get into such a position vis-a-vis any other nation or nations would not only constitute an intolerable threat to our security, but it would obviously remove our ability to deter nuclear aggression—both against ourselves and against our allies.

Now, we are not in that position today—and there is no foreseeable danger of our ever getting into that position.

Our strategic offensive forces are immense: 1,000 Minuteman missile launchers, carefully protected below ground; 41 Polaris submarines, carrying 656 missile launchers—with the majority of these hidden beneath the seas at all times; and about 600 long-range bombers, approximately 40 percent of which are kept always in a high state of alert.

Our alert forces alone carry more than 2,200 weapons, averaging more than 1 megaton each. A mere 400 1-megaton weapons, if delivered on the Soviet Union, would be sufficient to destroy over one-third of her population, and one-half of her industry.

And all of these flexible and highly reliable forces are equipped with devices that insure their penetration of Soviet defenses.

Now what about the Soviet Union?

Does it today possess a powerful nuclear arsenal?

The answer is that it does.

Does it possess a first-strike capability against the United States?

The answer is that it does not.

Can the Soviet Union, in the foreseeable future, acquire such a first-strike capability against the United States?

The answer is that it cannot.

It cannot because we are determined to remain fully alert, and we will never permit our own assured destruction capability to be at a point where a Soviet first-strike capability is even remotely feasible.

Is the Soviet Union seriously attempting to acquire a first-strike capability against the United States?

Although this is a question we cannot answer with absolute certainty, we believe the answer is "No." In any event, the question itself is—in a sense—irrelevant. It is irrelevant since the United States will so continue to maintain—and where necessary strengthen—our retaliatory forces, that whatever the Soviet Union's intentions or actions, we will continue to have an assured destruction capability vis-a-vis their society in which we are completely confident.

But there is another question that is most relevant.

And that is, do we—the United States—possess a first-strike capability against the Soviet Union?

The answer is that we do not.

And we do not, not because we have neglected our nuclear strength. On the contrary, we have increased it to the point that we possess a clear superiority over the Soviet Union.

We do not possess first-strike capability against the Soviet Union for precisely the same reason that they do not possess it against us.

And that is that we have both built up our "second-strike capability"¹ to the point that a first-strike capability on either side has become unattainable.

There is, of course, no way in which the United States could have prevented the Soviet Union from acquiring its present second-strike capability—short of a massive preemptive first strike on the Soviet Union in the 1950's.

The blunt fact is, then, that neither the Soviet Union nor the United States can attack the other without being destroyed in retaliation; nor can either of us attain a first-strike capability in the foreseeable future.

The further fact is that both the Soviet Union and the United States presently possess an actual and credible second-strike capability against one another—and it is precisely this mutual capability that provides us both with the strongest possible motive to avoid a nuclear war.

The more frequent question that arises in this connection is whether or not the United States possesses nuclear superiority over the Soviet Union.

The answer is that we do.

But the answer is—like everything else in this matter—technically complex.

The complexity arises in part out of what measurement of superiority is most meaningful and realistic.

Many commentators on the matter tend to define nuclear superiority in terms of gross megatonnage, or in terms of the number of missile launchers available.

Now, by both these two standards of measurement, the United States does have a substantial superiority over the Soviet Union in the weapons targeted against each other.

But it is precisely these two standards of measurement that are themselves misleading.

For the most meaningful and realistic measurement of nuclear capability is neither gross megatonnage, nor the number of available missile launchers; but rather the number of separate warheads that are capable of being delivered with accuracy on individual high-priority targets with sufficient power to destroy them.

Gross megatonnage in itself is an inadequate indicator of assured destruction capability, since it is unrelated to survivability, accuracy, or penetrability, and poorly related to effective elimination of multiple high-priority targets. There is manifestly no advantage in overdestroying one target, at the expense of leaving undamaged other targets of equal importance.

Further, the number of missile launchers available is also an inadequate indicator of assured destruction capability, since the fact is that many of our launchers will carry multiple warheads.

But by using the realistic measurement of the number of warheads available, capable of being reliably delivered with accuracy and effectiveness on the appropriate targets in the United States or Soviet Union, I can tell you that the United States currently possesses a superiority over the Soviet Union of at least three or four to one.

¹ A "second-strike capability" is the capability to absorb a surprise nuclear attack, and survive with sufficient power to inflict unacceptable damage on the aggressor.

Furthermore, we will maintain a superiority—by these same realistic criteria—over the Soviet Union for as far ahead in the future as we can realistically plan.

I want, however, to make one point patently clear: our current numerical superiority over the Soviet Union in reliable, accurate, and effective warheads is both greater than we had originally planned, and is in fact more than we require.

Moreover, in the larger equation of security, our superiority is of limited significance—since even with our current superiority, or indeed with any numerical superiority realistically attainable, the blunt, inescapable fact remains that the Soviet Union could still—with its present forces—effectively destroy the United States, even after absorbing the full weight of an American first strike.

I have noted that our present superiority is greater than we had planned. Let me explain to you how this came about, for I think it is a significant illustration of the intrinsic dynamics of the nuclear arms race.

In 1961, when I became Secretary of Defense, the Soviet Union possessed a very small operational arsenal of intercontinental missiles. However, they did possess the technological and industrial capacity to enlarge that arsenal very substantially over the succeeding several years.

Now, we had no evidence that the Soviets did in fact plan to fully use that capability.

But as I have pointed out, a strategic planner must be conservative in his calculations; that is, he must prepare for the worst plausible case and not be content to hope and prepare merely for the most probable.

Since we could not be certain of Soviet intentions—since we could not be sure that they would not undertake a massive buildup—we had to insure against such an eventuality by undertaking ourselves a major buildup of the Minuteman and Polaris forces.

Thus, in the course of hedging against what was then only a theoretically possible Soviet buildup, we took decisions which have resulted in our current superiority in numbers of warheads and deliverable megatons.

But the blunt fact remains that if we had had more accurate information about planned Soviet strategic forces, we simply would not have needed to build as large a nuclear arsenal as we have today.

Now let me be absolutely clear. I am not saying that our decision in 1961 was unjustified. I am simply saying that it was necessitated by a lack of accurate information.

Furthermore, that decision in itself—as justified as it was—in the end, could not possibly have left unaffected the Soviet Union's future nuclear plans.

What is essential to understand here is that the Soviet Union and the United States mutually influence one another's strategic plans.

Whatever be their intentions, whatever be our intentions, actions—or even realistically potential actions—on either side relating to the buildup of nuclear forces, be they either offensive or defensive weapons, necessarily trigger reactions on the other side.

It is precisely this action-reaction phenomenon that fuels an arms race.

Now, in strategic nuclear weaponry, the arms race involves a particular irony. Unlike any other era in military history, today a substantial numerical superiority of weapons does not effectively translate into political control, or diplomatic leverage.

While thermonuclear power is almost inconceivably awesome, and represents virtually unlimited potential destructiveness, it has proven to be a limited diplomatic instrument. Its uniqueness lies in the fact that it is at one and the same time, an all-powerful weapon—and a very inadequate weapon.

The fact that the Soviet Union and the United States can mutually destroy one another—regardless of who strikes first—narrows the range of Soviet aggression which our nuclear forces can effectively deter.

Even with our nuclear monopoly in the early postwar period, we were unable to deter the Soviet pressures against Berlin, or their support of aggression in Korea.

Today, our nuclear superiority does not deter all forms of Soviet support of Communist insurgency in Southeast Asia.

What all of this has meant is that we, and our allies as well, require substantial nonnuclear forces in order to cope with levels of aggression that massive strategic forces do not in fact deter.

This has been a difficult lesson both for us and for our allies to accept, since there is a strong psychological tendency to regard superior nuclear forces as a simple and unflinching solution to security, and an assurance of victory under any set of circumstances.

What is important to understand is that our nuclear strategic forces play a vital and absolutely necessary role in our security and that of our allies, but it is an intrinsically limited role.

Thus, we and our allies must maintain substantial conventional forces, fully capable of dealing with a wide spectrum of lesser forms of political and military aggression—a level of aggression against which the use of strategic nuclear forces would not be to our advantage, and thus a level of aggression which these strategic nuclear forces by themselves cannot effectively deter. One cannot fashion a credible deterrent out of an incredible action. Therefore security for the United States and its allies can only arise from the possession of a whole range of graduated deterrents, each of them fully credible in its own context.

Now I have pointed out that in strategic nuclear matters, the Soviet Union and the United States mutually influence one another's plans.

In recent years the Soviets have substantially increased their offensive forces. We have, of course, been watching and evaluating this very carefully.

Clearly, the Soviet buildup is in part a reaction to our own buildup since the beginning of this decade.

Soviet strategic planners undoubtedly reasoned that if our buildup were to continue at its accelerated pace, we might conceivably reach, in time, a credible first-strike capability against the Soviet Union.

That was not in fact our intention. Our intention was to assure that they—with their theoretical capacity to reach such a first-strike capability—would not in fact outdistance us.

But they could not read our intentions with any greater accuracy than we could read theirs. And thus the result has been that we have both built up our forces to a point that far exceeds a credible second-strike capability against the forces we each started with.

In doing so, neither of us has reached a first-strike capability. And the realities of the situation being what they are—whatever we believe their intention to be, and whatever they believe our intention to be—each of us can deny the other a first-strike capability in the foreseeable future.

Now, how can we be so confident that this is the case?

How can we be so certain that the Soviets cannot gradually outdistance us—either by some dramatic technological breakthrough, or simply through our imperceptively lagging behind, for whatever reason: reluctance to spend the requisite funds; distraction with military problems elsewhere; faulty intelligence; or simply negligence and naivete?

All of these reasons—and others—have been suggested by some commentators in this country, who fear that we are in fact falling behind to a dangerous degree.

The answer to all of this is simple and straightforward.

We are not going to permit the Soviets to outdistance us, because to do so would be to jeopardize our very viability as a Nation.

No President, no Secretary of Defense, no Congress of the United States—of whatever political party, and of whatever political persuasion—is going to permit this Nation to take that risk.

We do not want a nuclear arms race with the Soviet Union—primarily because the action-reaction phenomenon makes it foolish and futile. But if the only way to prevent the Soviet Union from obtaining first-strike capability over us is to engage in such a race, the United States possesses in ample abundance the resources, the technology, and the will to run faster in that race for whatever distance is required.

But what we would much prefer to do is to come to a realistic and reasonably riskless agreement with the Soviet Union, which would effectively prevent such an arms race. We both have strategic nuclear arsenals greatly in excess of a credible assured destruction capability. These arsenals have reached that point of excess in each case for precisely the same reason: we each have reacted to the other's buildup with very conservative calculations. We have, that is, each built a greater arsenal than either of us needed for a second-strike capability, simply because we each wanted to be able to cope with the "worst plausible case."

But since we now each possess a deterrent in excess of our individual needs, both of our nations would benefit from a properly safeguarded agreement first to limit, and later to reduce, both our offensive and defensive strategic nuclear forces.

We may, or we may not, be able to achieve such an agreement. We hope we can. And we believe such an agreement is fully feasible, since it is clearly in both our nations' interests.

But reach the formal agreement or not, we can be sure that neither the Soviets nor we are going to risk the other obtaining a first-strike capability.

On the contrary, we can be sure that we are both going to maintain a maximum effort to preserve an assured destruction capability.

It would not be sensible for either side to launch a maximum effort to achieve a first-strike capability. It would not be sensible because the intelligence-gathering capability of each side being what it is, and the realities of leadtime from technological breakthrough to operational readiness being what they are, neither of us would be able to acquire a first-strike capability in secret.

Now, let me take a specific case in point.

The Soviets are now deploying an antiballistic missile system. If we react to this deployment intelligently, we have no reason for alarm.

The system does not impose any threat to our ability to penetrate and inflict massive and unacceptable damage on the Soviet Union. In other words, it does not presently affect in any significant manner our assured destruction capability.

It does not impose such a threat because we have already taken the steps necessary to assure that our land-based Minuteman missiles, our nuclear submarine-launched new Poseidon missiles, and our strategic bomber forces have the requisite penetration aids—and in the sum, constitute a force of such magnitude, that they guarantee us a force strong enough to survive a Soviet attack and penetrate the Soviet ABM deployment.

Now let me come to the issue that has received so much attention recently: the question of whether or not we should deploy an ABM system against the Soviet nuclear threat.

To begin with, this is not in any sense a new issue. We have had both the technical possibility and the strategic desirability of an American ABM deployment under constant review since the late 1950s.

While we have substantially improved our technology in the field, it is important to understand that none of the systems at the present or foreseeable state of the art would provide an impenetrable shield over the United States. Were such a shield possible, we would certainly want it—and we would certainly build it.

And at this point, let me dispose of an objection that is totally irrelevant to this issue.

It has been alleged that we are opposed to deploying a large-scale ABM system because it would carry the heavy price tag of \$40 billion.

Let me make it very clear that the \$40 billion is not the issue.

If we could build and deploy a genuinely impenetrable shield over the United States, we would be willing to spend not \$40 billion, but any reasonable multiple of that amount that was necessary.

The money in itself is not the problem: the penetrability of the proposed shield is the problem.

There is clearly no point, however, in spending \$40 billion if it is not going to buy us a significant improvement in our security. If it is not, then we should use the substantial resources it represents on something that will.

Every ABM system that is now feasible involves firing defensive missiles at incoming offensive warheads in an effort to destroy them.

But what many commentators on this issue overlook is that any such system can rather obviously be defeated by an enemy simply sending more offensive warheads, or dummy warheads, than there are defensive missiles capable of disposing of them.

And this is the whole crux of the nuclear action-reaction phenomenon.

Were we to deploy a heavy ABM system throughout the United States, the Soviets would clearly be strongly motivated to so increase their offensive capability as to cancel out our defensive advantage.

It is futile for each of us to spend \$4 billion, \$40 billion, or \$400 billion—and at the end of all the spending, and at the end of all the deployment, and at the end of all the effort, to be relatively at the same point of balance on the security scale that we are now.

In point of fact, we have already initiated offensive weapons programs costing several billions in order to offset the small present Soviet ABM deployment, and the possibly more extensive future Soviet ABM deployments.

That is money well spent; and it is necessary.

But we should bear in mind that it is money spent because of the action-reaction phenomenon.

If we in turn opt for heavy ABM deployment—at whatever price—we can be certain that the Soviets will react to offset the advantage we would hope to gain.

It is precisely because of this certainty of a corresponding Soviet reaction that the four prominent scientists—men who have served with distinction as the science advisers to President Eisenhower, Kennedy, and Johnson, and the three outstanding men who have served as Directors of Research and Engineering to three Secretaries of Defense—have unanimously recommended against the deployment of an ABM system designed to protect our population against a Soviet attack.

These men are Doctors Killian, Kistiakowsky, Wiesner, Hornig, York, Brown, and Foster.

The plain fact of the matter is that we are now facing a situation analogous to the one we faced in 1961: we are uncertain of the Soviet's intentions.

At that time we were concerned about their potential offensive capabilities; now we are concerned about their potential defensive capabilities.

But the dynamics of the concern are the same.

We must continue to be cautious and conservative in our estimates—leaving no room in our calculations for unnecessary risk. And at the same time, we must measure our own response in such a manner that it does not trigger a senseless spiral upward of nuclear arms.

Now, as I have emphasized, we have already taken the necessary steps to guarantee that our offensive strategic weapons will be able to penetrate future, more advanced, Soviet defenses.

Keeping in mind the careful clockwork of leadtime, we will be forced to continue that effort over the next few years if the evidence is that the Soviets intend to turn what is now a light and modest ABM deployment into a massive one.

Should they elect to do so, we have both the leadtime and the technology available to so increase both the quality and quantity of our offensive strategic forces—with particular attention to highly reliable penetration aids—that their expensive defensive efforts will give them no edge in the nuclear balance whatever.

But we would prefer not to have to do that. For it is a profitless waste of resources, provided we and the Soviets can come to a realistic strategic arms-limitation agreement.

As you know, we have proposed U.S.-Soviet talks on this matter. Should these talks fail, we are fully prepared to take the appropriate measures that such a failure would make necessary.

The point for us to keep in mind is that should the talks fail—and the Soviets decide to expand their present modest ABM deployment into a massive one—our response must be realistic. There is no point whatever in our responding by going to a massive ABM deployment to protect our population, when such a system would be ineffective against a sophisticated Soviet offense.

Instead, realism dictates that if the Soviets elect to deploy a heavy ABM system, we must further expand our sophisticated offensive forces, and thus preserve our overwhelming assured destruction capability.

But the intractable fact is that should the talks fail, both the Soviets and ourselves would be forced to continue on a foolish and feckless course.

It would be foolish and feckless because—in the end—it would provide neither the Soviets, nor us, with any greater relative nuclear capability.

The time has come for us both to realize that, and to act reasonably. It is clearly in our own mutual interest to do so.

Having said that, it is important to distinguish between an ABM system designed to protect against a Soviet attack on our cities, and ABM systems which have other objectives.

One of the other uses of an ABM system which we should seriously consider is the greater protection of our strategic offensive forces.

Another is in relation to the emerging nuclear capability of Communist China.

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

Up to now, the lead-time factor has allowed us to postpone a decision on whether or not a light ABM deployment might be advantageous as a counter-measure to Communist China's nuclear development.

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

China at the moment is caught up in internal strife, but it seems likely that her basic motivation in developing a strategic nuclear capability is an attempt

to provide a basis for threatening her neighbors, and to clothe herself with the dubious prestige that the world pays to nuclear weaponry.

We deplore her development of these weapons, just as we deplore it in other countries. We oppose nuclear proliferation because we believe that in the end it only increases the risk of a common and cataclysmic holocaust.

President Johnson has made it clear that the United States will oppose any efforts of China to employ nuclear blackmail against her neighbors.

We possess now, and will continue to possess for as far ahead as we can foresee, an overwhelming first-strike capability with respect to China. And despite the shrill and raucous propaganda directed at her own people that "the atomic bomb is a paper tiger," there is ample evidence that China well appreciates the destructive power of nuclear weapons.

China has been cautious to avoid any action that might end in a nuclear clash with the United States—however wild her words—and understandably so. We have the power not only to destroy completely her entire nuclear offensive forces, but to devastate her society as well.

Is there any possibility, then, that by the mid-1970's China might become so incautious as to attempt a nuclear attack on the United States or our allies.

It would be insane and suicidal for her to do so, but one can conceive conditions under which China might miscalculate. We wish to reduce such possibilities to a minimum.

And since, as I have noted, our strategic planning must always be conservative, and take into consideration even the possible irrational behavior of potential adversaries, there are marginal grounds for concluding that a light deployment of U.S. ABM's against this possibility is prudent.

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

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

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

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

After a detailed review of all these considerations, we have decided to go forward with this Chinese-oriented ABM deployment, and we will begin actual production of such a system at the end of this year.

In reaching this decision, I want to emphasize that it contains two possible dangers—and we should guard carefully against each.

The first danger is that we may psychologically lapse into the old oversimplification about the adequacy of nuclear power. The simple truth is that nuclear weapons can serve to deter only a narrow range of threats. This ABM deployment will strengthen our defensive posture—and will enhance the effectiveness of our land-based ICBM offensive forces. But the independent nations of Asia must realize that these benefits are no substitute for their maintaining, and where necessary strengthening, their own conventional forces in order to deal with the more likely threats to the security of the region.

The second danger is also psychological. There is a kind of mad momentum intrinsic to the development of all new nuclear weaponry. If a weapon system works—and works well—there is strong pressure from many directions to procure and deploy the weapon out of all proportion to the prudent level required.

The danger in deploying this relatively light and reliable Chinese-oriented ABM system is going to be that pressures will develop to expand it into a heavy Soviet-oriented ABM system.

We must resist that temptation firmly—not because we can for a moment afford to relax our vigilance against a possible Soviet first-strike—but precisely because our greatest deterrent against such a strike is not a massive, costly, but

highly penetrable ABM shield, but rather a fully credible offensive assured destruction capability.

The so-called heavy ABM shield—at the present state of technology—would in effect be no adequate shield at all against a Soviet attack, but rather a strong inducement for the Soviets to vastly increase their own offensive forces. That, as I have pointed out, would make it necessary for us to respond in turn—and so the arms race would rush hopelessly on to no sensible purpose on either side.

Let me emphasize—and I cannot do so too strongly—that our decision to go ahead with a limited ABM deployment in no way indicates that we feel an agreement with the Soviet Union on the limitation of strategic nuclear offensive and defensive forces is any the less urgent or desirable.

The road leading from the stone axe to the ICBM—though it may have been more than a million years in the building—seems to have run in a single direction.

If one is inclined to be cynical, one might conclude that man's history seems to be characterized not so much by consistent periods of peace, occasionally punctuated by warfare; but rather by persistent outbreaks of warfare, wearily put aside from time to time by periods of exhaustion and recovery—that parade under the name of peace.

I do not view man's history with that degree of cynicism, but I do believe that man's wisdom in avoiding war is often surpassed by his folly in promoting it.

However foolish unlimited war may have been in the past, it is now no longer merely foolish, but suicidal as well.

It is said that nothing can prevent a man from suicide, if he is sufficiently determined to commit it.

The question is: What is our determination in an era when unlimited war will mean the death of hundreds of millions—and the possible genetic impairment of a million generations to follow?

Man is clearly a compound of folly and wisdom—and history is clearly a consequence of the admixture of those two contradictory traits.

History has placed our particular lives in an era when the consequences of human folly are waxing more and more catastrophic in the matters of war and peace.

In the end, the root of man's security does not lie in his weaponry.

In the end, the root of man's security lies in his mind.

What the world requires in its 22d year of the atomic age is not a new race toward armament.

What the world requires in its 22d year of the atomic age is a new race toward reasonableness.

We had better all run that race.

Not merely we the administrators. But we the people.

Thank you, and good afternoon.

General STARBIRD. He indicated that he believed that no perfect defense against the Soviet Union was possible. He pointed out that the Soviet Union could increase its offensive power enough to compensate.

Mr. LONG. The situation is really hopeless vis-a-vis the Soviet Union; we are preparing ourselves for an attack from the Chinese on the ground that the Chinese are more likely to attack us than the Russians. Is that right?

General STARBIRD. The latter is true. The Secretary of Defense did go on and emphasized that he believed that the best protection against the U.S.S.R. was the deterrent strategic offense force that the United States had built.

Mr. LONG. Right. I would like to come back to that.

First let me ask, Why is China considered more likely to attack the United States than Russia? Except for Korea, the Chinese have been extremely cautious. We have been hammering very close to the Chinese border and they have not done anything, whereas the Russians have been throwing their weight around, I would think, to a rather alarming degree, in Cuba, the Mediterranean, Czechoslovakia, and many other areas. I think the scholars who have been studying this

feel that the Chinese, in spite of their very provocative and inflammatory statements, have been extremely cautious in military policy. I am just wondering whether this view of the scholars in this area is not shared by the Pentagon, whether they really feel the Chinese are more likely to attack us than the Russians.

Mr. SIKES. May I state at this point that the questions which you are asking concern policy at a different level than General Starbird is prepared to answer.

Mr. LONG. That is why I asked my question earlier.

Mr. SIKES. I tried to make it clear that the gentleman may ask any questions he wishes, but specifically we are talking about construction and sites. I do feel that questions of the nature that you are propounding could best be directed at the Secretary of Defense. It will be my request that this subcommittee sit with the Defense Subcommittee when the Secretary appears and that thereby we will get more direct answers.

Mr. LONG. I am inclined to agree with you. I had some other questions but in view of that, I appreciate the fact that General Starbird is really here to do a different job.

I must say I am not one of those who believes that we should not try to get an antiballistic missile defense. I think we can get one and it would be a great thing. I am just baffled by the arguments that have been advanced. It does not seem to me what we are going after makes sense in relation to the stated objectives that the Defense Department is making. I cannot help feeling there must be something else involved here not laid on the table. I would hope to raise those questions later on.

Mr. SIKES. Are there further questions?

PROPOSED SITE IN MICHIGAN

Mr. CEDERBERG. General, I realize that you have had considerable discussion with some members of the Michigan delegation, regarding the proposed site in Michigan, and also with other interested parties on that subject.

I realize that time is getting short and we have a quorum call. I wonder if it would be possible for you to have someone, probably next week sometime, call my office and come up and discuss that matter with me.

General STARBIRD. I would like to come myself. I have offered and many of the Representatives and Senators have taken time to let me come up and explain the situation for their particular area.

Mr. CEDERBERG. That would be helpful.

As one who has been on this committee when you appeared here years ago, I have a great respect for your expertise and your ability. We do have some problems there we would like to talk to you about. There is the city of Troy and the Oakland University problem and the shifting of population north which is happening at a great rate. If we could do this, I would like to have that opportunity.

General STARBIRD. I will contact your office.

Mr. CEDERBERG. Good. Thank you.

Mr. SIKES. General Starbird, thank you very much for your testimony. It has been very helpful to the committee.

General STARBIRD. Thank you for the opportunity, sir.

INDEX

	Page
McClory, Hon. Robert, statement of.....	21
Pelly, Hon. Thomas M., statement of.....	9
Pucinski, Hon. Roman, statement of.....	15
Starbird, Lt. Gen. A. D., statement of.....	25
Chicago site.....	30, 34
Chinese threat.....	26
Components.....	26
Deployment.....	27
Development program for fiscal year 1970.....	33
Effectiveness against Russia and China.....	36
Improvements to Sentinel system in the future.....	32
Michigan, proposed site in.....	46
Nike-Hercules nuclear sites.....	32
Objectives.....	25
Penetration aids, effect of.....	27
Russian missiles, reliability of.....	27
Safety.....	31
Seattle sites.....	29, 35
Site selection:	
Overall status of.....	28
Effect on schedule of.....	33
Yates, Hon. Sidney R., statement of.....	1



INDEX

1. Introduction 1

2. The History of the Church 10

3. The Doctrine of the Church 20

4. The Ministry of the Church 30

5. The Sacraments of the Church 40

6. The Moral Teaching of the Church 50

7. The Social Teaching of the Church 60

8. The Church and the World 70

9. The Church and the Future 80

10. Conclusion 90



