MISSILE DEFENSE MILESTONES

1944 - 1993

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8 Sep 44 The Missile Age began when the first German V-2 missile struck London.

1944/45 The Allies developed a plan to use timed anti-aircraft artillery barrages to defend London against incoming V-2 missiles. The plan was never implemented because of the damage that would have been caused when unexploded artillery shells fell back on the city.

1945/46 At the end of World War II, U.S. leaders learned of Nazi plans for an ICBM that would have been aimed at New York City had the war continued into 1946.

4 Jul 45 A delegation of American officers, which went to Europe to investigate the use of ballistic missiles during World War II, recommended that the U.S. undertake a research and development program to develop defenses against these new weapons.

Dec 45 A report by the Scientific Advisory Group of the U.S. Army Air Forces (forerunner of the U.S. Air Force) discussed the use of missiles and a form of energy beam to defend against missile attacks.

29 May 46 The Stilwell Board Report, which had been convened in November 1945 to determine what equipment U.S. ground forces would require following World War II, recommended the development of defenses against ballistic missiles. The report stated:

> "Guided missiles, winged or nonwinged, traveling at extreme altitudes and at velocities in excess of supersonic speed, are inevitable. Intercontinental ranges of over 3,000 miles and pay load[s] sufficient to carry atomic explosive[s] are to be expected. Remotely controlled, and equipped with homing devices designed to be attracted to sound, metal, or heat, such missiles would be incapable of interception with any existing equipment such as fighter aircraft and antiaircraft fire. Guided interceptor missiles, dispatched in accordance with electronically computed data obtained from radar detection stations, will be required."

4 Mar 1946 The Army Air Forces, precursor of the U.S. Air Force, initiated two long term studies, Projects Thumper and Wizard, that were to explore the feasibility of developing interceptor missiles that could destroy missiles moving as fast as 4,000 miles per hour at an altitude as high as 500,000 feet.

1955 Using an analog computer, Bell Telephone Laboratories completed 50,000 simulated intercepts of ballistic missile targets. These simulations indicated that it was possible to hit a missile with another missile. Up to this point, a number of scientists said that it was impossible to intercept missiles because of their high speed. This, they said, would be like "hitting a bullet with another bullet."

16 Jan 58 Secretary of Defense Neil H. McElroy assigned primary responsibility for the ballistic missile defense mission to the U.S. Army, ordering the Air Force to scale back its Project Wizard and make the radar and command and control equipment from this project compatible with the Army's Nike Zeus ballistic missile defense system.

19 Jul 62 During a test over the Pacific Ocean, a Nike Zeus missile fired from the Army's Kwajalein test facility intercepted a dummy warhead from an Atlas ICBM. Although the Zeus only came within two kilometers of the warhead, this was close enough so that the nuclear warhead of a fully operational Zeus would have destroyed the ICBM warhead.

22 Dec 62 A Zeus missile came within 200 meters of a reentry vehicle during a simulated intercept over the Pacific Ocean.

10 Nov 66 Secretary of Defense Robert S. McNamara informed the American people that the Soviets were deploying their Galosh ballistic missile defense system.

18 Sep 67 Secretary of Defense Robert S. McNamara announced President Lyndon Johnson's decision to deploy the Sentinel ballistic missile defense system. This was to be a two-tiered defensive system that employed two interceptors: the Spartan and the Sprint, both of which were nuclear-tipped. The Spartan intercepted warheads and decoys outside the atmosphere. The Sprint intercepted warheads within the atmosphere where air resistance would strip away decoys and make it easier to find the attacking warheads. The system itself was designed to protect the U.S. from the so-called "Nth country threat," an attack by unsophisticated ICBMs such as those the People's Republic of China was building.

6 Feb 69 Secretary of Defense Melvin Laird halted the deployment of the Sentinel system pending the completion of a review of U.S. strategic programs by the new administration of President Richard Nixon.

14 Mar 69 President Richard Nixon announced his decision to deploy a missile defense system designed essentially to protect U.S. ICBM fields from attack by Soviet missiles. This system retained the same missiles that were to be deployed as part of the Johnson administration's Sentinel system. The re-oriented missile defense system was renamed Safeguard. The overall plan for Safeguard included the option to expand the system so that it could become a population defense against the "Nth

country threat."

26 May 72 U.S. President Richard Nixon and Soviet General Secretary Leonid Brezhnev signed the SALT I agreements which include the ABM Treaty. This treaty limited the Soviets and the U.S. to the deployment of two ABM sites, each having 100 interceptors. One site was to guard an ICBM field, the other would protect the national command authorities at each nation's capital city. A 1974 protocol reduced the number of permitted sites to one.

1976 In view of technical limitations and the restrictions on missile defenses contained in the ABM Treaty, Congress ordered the Army to close down the Safeguard system, scarcely four months after it had become operational. The Soviets continued to maintain their own ABM system near Moscow. At the same time, Congress directed the Army to re-orient its missile defense program from one designed to produce a follow-on system to Safeguard to a program of R&D that was to serve as a hedge against a possible Soviet breakout from the ABM Treaty.

There were at least two major problems with the Safeguard system. First, its large phased array radars were vulnerable to destruction by Soviet missiles. Destruction of these radar systems would blind the defensive system. Additionally, when the nuclear warheads on defending Spartan and Sprint missiles were detonated, these explosions themselves would also blind the radar systems.

1976-1984 The U.S. Army pushed the development of technologies that made possible a revolution in missile defense interceptors. These interceptors could destroy their targets by actually colliding with them. This eliminated the need for nuclear warheads and thus solved one of the major problems with the earlier Safeguard missile defense system.

31 Jul 79 Ronald Reagan, Republican presidential hopeful, visited the NORAD Command Post under Cheyenne Mountain near Colorado Springs. Here, Reagan saw a demonstration of the command and control facilities the U.S. would use to alert U.S. retaliatory forces and the American people in case of nuclear war. He was upset to learn that there was nothing the U.S. could do to defend itself against missile attacks. Shortly after this, he decided to make missile defenses a part of his national security policy if he were elected president.

8 Jan 82 A group of private advisors headed by Mr. Karl R. Bendetsen briefed President Reagan in the Oval Office, recommending that he launch an emergency national program to develop missile defenses. This effort should be patterned after the Manhattan District Project that produced America's atomic bomb during World War II.

11 Feb 83 After months of considering the strategic issues raised by America's inability to field the MX missile as a response to the growing ability of the Soviets to deliver

an effective first strike against U.S. ICBMs, the Joint Chiefs unanimously recommended to President Reagan that the U.S. begin to pursue a national security strategy that would place increased emphasis on strategic defenses.

23 Mar 83 President Ronald Reagan announced his decision to launch a major new R&D program to see if it might be feasible to deploy effective missile defenses at some point in the future.

25 Mar 83 The policy announced in the 23 March speech was formalized in National Security Decision Directive 85.

18 Apr 83 President Reagan issued guidance calling for the completion of a two-part study. One study would assess the state of missile defense technology and recommend a technology program for the new missile defense program. The second part would assess the strategic and policy implications of such a program. The first study became known as the Defensive Technologies Study or the Fletcher Report, and the second study became known as the Future Security Strategy Study (sometimes called the Hoffman Report).

Oct 83 The Future Security Strategy Study (FSSS) was completed. This study consists of a series of papers that were completed by two groups: an interagency group headed by Mr. Franklin C. Miller, assistant secretary of defense for strategic forces policy, and a group of contractor personnel headed by Mr. Fred S. Hoffman of Pan Heuristics Corporation. Mr. Miller served as the overall study director. Among the major findings of these two groups were the idea that missile defenses could enhance deterrence (Miller group) and the view that an anti-tactical ballistic missile system could serve as useful first step toward a national missile defense system (Hoffman group).

Oct 83 The first version of the Defensive Technologies Study or Fletcher Report was completed. The final version did not appear until February 1984. This report outlined two models for the new missile defense research program ordered by the President. The favored program was to be technology constrained and called for a funding level of $1.405 billion in 1984, $2.385 billion in 1985, $3.43 billion in 1986, $4.284 billion in 1987, $4.623 billion in 1988, and $4.766 in 1989. The alternative program was funded at a lower level and referred to as the fiscally constrained program. The recommended program was to consist of five basic research areas: Systems; Surveillance, Acquisition, Tracking, and Kill Assessment; Directed Energy Weapons; Kinetic Energy Weapons; and Supporting Technologies (Survivability, Lethality, Space Power, Space Logistics; Communications, Computers, and Software). The technology constrained program became the guide for the Strategic Defense Initiative.

Comments in the Fletcher report adumbrated both limited missile defenses and theater missile defenses. Specifically, the report recognized the commonality

between the terminal phase of a strategic missile defense system and more limited defensive systems.

27 Mar 84 Secretary of Defense Caspar Weinberger appointed Lt. Gen. James A. Abrahamson, U.S. Air Force, as first Director, Strategic Defense Initiative Organization (SDIO).

24 Apr 84 Secretary Weinberger signed the first charter for SDIO. This charter was specifically designed to be general in nature to give the organization's first director extensive leeway in managing the program. The charter also specified that the Director, SDIO, would report directly to the Secretary of Defense.

10 Jun 84 The core of the Army's new hit-to-kill interceptor technology was successfully demonstrated in the homing overlay experiment (HOE). In this demonstration, a test intercept vehicle was launched from Kwajalein Missile Range aboard a modified Minuteman rocket. Also riding on the Minuteman was an infra-red sensor package and an on-board computer. The interceptor itself carried a computer and an infra-red sensor package for guidance; it was also equipped with a kill device that resembled the folded skeleton of an umbrella with weights attached to its ribs. Once above the atmosphere, the sensor and computer in the Minuteman located and tracked a re-entry vehicle that had been launched from Vandenberg AFB by a second Minuteman missile. Then, the on-board computer of the launch rocket passed tracking data to the computer on the intercept vehicle. At the appropriate time, the interceptor package was launched and homed in on the target using its own infra-red sensor and on-board computer. Once free of the mother ship, the kill vehicle deployed its umbrella structure, crashed into the target vehicle, and destroyed it. This successful intercept followed partial successes in two other test flights.

Apr-Nov 85 The debate over the broad versus the narrow interpretation of the ABM Treaty began. One critical event in this early phase of the debate was a 6 October appearance on "Meet the Press" by National Security Adviser Robert McFarlane in which he indicated that the Reagan administration would be following the broad interpretation of the Treaty. Nevertheless, the administration continued to follow the narrow interpretation.

6 Sep 85 The Mid-Infrared Advanced Chemical Laser destroyed a Titan booster rigged to simulate the conditions of a thrusting rocket booster.

Dec 85 The Inter-National Research Institute completed a study of the SDIO organization and manpower situation. The study, which was commissioned by General Abrahamson in August 1985, was directed by Brigadier General Al Esposito, USAF (Ret). The Esposito study found that SDIO was "critically short of the people and skills required to carry out the responsibilities" in its charter. To overcome these difficulties, SDIO should reorganize and establish a Federally Funded Research

Center to support the organization. The recommended organization included "two key line positions, the Deputy for Programs and Systems and the Deputy for Technology."

Dec 85 The SDIO Panel on Computing in Support of Battle Management submitted its report (the Eastport Study). The panel had been appointed "'to devise an appropriate computational/communication response to the SDI battle management computing problem and make recommendations for a research and technology development program to implement the response.'"

The report concluded that "computing resources and battle management software for a strategic defense system are within the capabilities of the hardware and software technologies that could be developed within the next several years." But this was a difficult task that constituted "the paramount strategic defense problem." The report noted that the "tradeoffs necessary to make the software task tractable are in the system architecture." The study stated that a "promising class of system architectures" was one that was "less dependent on tight coordination," for such an approach to the overall architecture offered "robustness, simplicity, and the ability to infer the performance of full-scale deployment by evaluating the performance of small parts of the system." The report also recommended the establishment of a non-centralized National Test Bed to provide the simulation support that would be necessary to solve the problems of battle management.

30 Jul 86 General Abrahamson directed that SDIO be reorganized. The new organizational structure featured two principal deputies: Brigadier General Malcolm O'Neill became the Deputy for Programs and Systems, and Dr. Lou Marquet became the Deputy for Technology. The reorganization was based upon the Esposito Study of SDIO's organizational requirements (see Dec 85 entry above). This change in SDIO's organization signalled the rising importance being assigned to system/architectural designs and was an indication that SDIO was resolving some of the technical issues it faced when the program began.

Aug 86 SDIO and the military services signed a charter establishing the National Test Bed, which was to operate under the overall guidance of SDIO, which funded the project. The charter provided for the establishment of an NTB Joint Program Office IPO) under executive direction of the Air Force. Through the JPO, the services were responsible for executing the NTB program.

11 Sep 86 SDIO completed the Delta 180 experiment. During this experiment, SDIO completed what was the first equivalent of a boost phase intercept of a target. Additionally, this experiment involved a number of sophisticated sensor experiments, including the collection of data from space on a booster vehicle launched from the White Sands Missile Test Range in New Mexico.

11-12 Oct 86 U.S. President Ronald Reagan and U.S.S.R. President Mikhail Gorbachev held their second summit meeting at Reykjavik, Iceland. During this meeting, Gorbachev

pressed Reagan heavily to accept limitations on the SDI program as a pre-condition for other agreements restricting offensive arms. Reagan refused to accept Gorbachev's proposed restrictions on SDI.

Nov 86 The germination of the concept for Brilliant Pebbles occurred in discussions between Lowell Wood and Greg Canavan. There were antecedents of this interceptor concept in the interceptor program carried out by the U.S. Army in the seventies and early eighties, but it was Wood specifically who became the leading champion of "brilliant" technologies as the answer to problems posed by the costliness and vulnerability of space-based missile defense systems. "Brilliant" technologies refers to the use of powerful, miniaturized computers and miniaturized sensors to give the capabilities previously possessed only by large, expensive satellites to much smaller, inexpensive satellites.

4 Dec 86 While attending a meeting of NATO's defense ministers in Brussels, Secretary of Defense Caspar Weinberger announced the award of seven SDI contracts for the first phase of a theater missile defense architectural study competition. Contracts of $2 million were awarded to each of seven European and American prime contractor teams which were to complete their work by July 1987. They would then compete for further contracts based on the results of their phase one studies.

May 87 The SDIO staff moved into new facilities that had been constructed for it under the Pentagon concourse where the old bus tunnels used to be. Prior to this time, the bulk of the staff was housed in the Matomic Building in downtown Washington D.C.

11 May 87 Judge Abraham D. Sofaer, State Department Legal Advisor, completed his study of how the ABM Treaty affected the SDI program. The report was released on 13 May. Briefly, Sofaer concluded that the Treaty did not preclude testing of space-based missile defense systems, including directed energy weapons.

Jun/Jul 87 The Defense Acquisition Board of the Office of the Secretary of Defense conducted its first review of the SDI program. A second review was held in September. As a result, the Phase I baseline architecture was approved and six specific components of the SDI program were authorized to enter the demonstration and validation stage of the acquisition process.

29 Jul 87 The SDI Organization and the Army's Strategic Defense Command announced the selection of five phase I contractor teams which were to be invited to participate in the second phase of the SDI Theater Missile Defense Architecture Study. Contracts were expected to be completed in September with each team having until July 1988 to refine its architectural concept. The value of each contract was to very from $4.5 million to $7 million depending upon the exercise of contract options.

Nov 87 Lowell Wood briefed General James Abrahamson on the interceptor concept that eventually became Brilliant Pebbles.

4 Nov 87 A Patriot with the PAC-2 modifications successfully destroyed another Patriot missile that was simulating the flight of an SS-23 missile.

19 Jan 88 Senator Sam Nunn (D-GA) delivered a speech to the Arms Control Association calling for a reorientation of the SDI program. Nunn called for the new SDI program to focus first on developing a "limited system for protecting against accidental and unauthorized missile launches." A longer range goal of the program would be to develop a more comprehensive defensive system.

Spring 88 The National Test Facility (NTF) was activated in temporary facilities at Falcon Air Force Base near Colorado Springs. On 23 March 1988, the ground was broken to begin construction of the permanent research building for the NTF, which was also to be located at Falcon Air Force Base. Eighteen months after the ground breaking, the building was completed.

30 Sep 88 The SDI Organization was realigned. Among the major changes was the addition of several new positions. A chief of staff was added to oversee the activities of the SDIO staff. The addition of a chief engineer ensured the many engineering tasks and analysis efforts would receive the top-level management attention they required. Another major change was the creation of the Resource Management Directorate by merging the Comptroller and Support Services Directorates, a move designed to increase management efficiency. In another part of the change, the Programs and Systems Deputate was redesignated the Systems Deputate. Within this last office, a major goal of the reorganization was to achieve better integration and management of the six SDS Phase I elements by placing them under the Phase I program office within the Systems Deputate. A further change involved giving the Architectures and Analysis Directorate, which was formerly the Follow-On Phase Architectures Directorate, additional strength so that it could better address "alternative and innovative architectures."

1 Feb 89 Lt. Gen. George L. Monahan, Jr., became the second director of the Strategic Defense Initiative Organization, succeeding General Abrahamson who retired at the end of January.

9 Feb 89 General Abrahamson's end of tour report contained a strong recommendation of the Brilliant Pebbles concept. Abrahamson stated that an entire space-based architecture based on Brilliant Pebbles could be deployed in five years for a cost of no more than $25 billion.

3 Mar 89 President George H. W. Bush ordered a general review of U.S. national

defense strategy.

14 Jun 89 Based upon his administration's review of U.S. security requirements, President Bush concluded that the goals of the SDI program were generally sound and that the program should continue in such a way as to offer the possibility of a deployment decision in the next few years. Emphasis in this effort was to be directed toward perfecting boost-phase kill technologies such as Brilliant Pebbles. In support of these directions, Bush directed DOD to carry out an independent review of the SDI program and to have this review finished in the fall of 1989.

Summer 89 Four major studies of the Brilliant Pebbles concept were carried out, including a review by the JASONs. The general conclusion of these studies was that Brilliant Pebbles was a promising, technically feasible concept that could provide the solution to cost and vulnerability problems of the space-based elements of the Phase I Strategic Defense System architecture.

Dec 89 At the request of Secretary of Defense Richard Cheney, Ambassador Henry F. Cooper agreed to carry out the independent review of the SDI program that President Bush had called for as a result of his administration's review of national security requirements.

15 Mar 90 Ambassador Henry F. Cooper submitted the report of his independent survey of the SDI program. Here, Cooper endorsed the concept of Brilliant Pebbles and spelled out the concept that became the system for Global Protection Against Limited Strikes (GPALS).

30 Jun 90 Lt. Gen. George L. Monahan, Jr., retired from the Air Force.

10 Jul 90 President George Bush appointed Ambassador Henry F. Cooper to the position of Director, Strategic Defense Initiative Organization.

2 Aug 90 Iraq invaded Kuwait.

24 Oct 90 The FY 1991 Appropriations Conference Committee Report, H. Rep. 101-938 called for the Secretary of Defense to establish a centrally managed Theater Missile Defense (TMD) program funded at $218.249 million for FY 1991. The conference committee report also required the Defense Department to accelerate R&D on theater and tactical ballistic missile defense systems. While Congress recognized that it was too early to determine the baseline for a tactical ballistic missile defense (TMD) system, it asked the Secretary of Defense to submit a plan by 1 March 1991 for determining a TMD baseline system and then developing and fielding this system. Once determined, this plan was to be funded fully in DOD's Six Year Defense Program (1992-1997). Furthermore, the plan was to take account of Air Force and Navy requirements and include participation of these services.

17 Jan 91 U.S.-led coalition forces in the Middle East began military operations against Iraqi forces.

18 Jan 91 According to press reports, for the first time in history, an anti-missile missile intercepted and destroyed a ballistic missile under combat conditions. A Patriot air defense missile destroyed an Iraqi Scud missile that was attacking a U.S. air base in Saudi Arabia. The crew that fired the Patriot missile was led by First Lieutenant Charles McMurtrey of Montgomery, Alabama. The Patriot was launched against the Scud at 4:28 a.m. local time. A reporter for the **Los Angeles Times** wrote: "The age of 'Star Wars' had arrived."

After the end of the Gulf War, questions were raised about whether or not this first "kill" actually occurred. This was part of a general public debate about the operational effectiveness of the Patriot system that began soon after hostilities ended and continued for about two years.

29 Jan 91 In his State of the Union Address, President Bush formally announced the shift in focus in the SDI program to the concept known as Global Protection Against Limited Strikes. The president stated:

> "I have directed that the Strategic Defense Initiative program be refocused on providing protection from limited ballistic missile strikes, whatever their source. Let us pursue an SDI program that can deal with any future threat to the United States, to our forces overseas and to our friends and allies."

25 Feb 91 A Scud missile struck a barracks housing Army reservists, killing 28 soldiers. Later, a monument was constructed at the entrance to the headquarters of the 14th Quartermaster Detachment at Greensburg, Pennsylvania, in honor of 13 of the 28 people killed.

30 Mar 91 The Defense Department dispatched the *Theater Missile Defense Report to Congress*. This report was submitted in response to directions contained in the FY 1991 Appropriations Conference Committee Report (see 24 Oct 90 entry above). This report informed Congress that the SDIO would be the centralized management office for the theater and tactical missile defense programs and advised that SDIO would establish a "managerial position as Deputy for TMD, equal in status to the Deputies for technology and strategic programs." This new office was established as part the reorganization announced on 15 March by SDIO Director Ambassador Henry Cooper.

23 Apr 91 General Donald Kutyna, USAF, commander of the U.S. Space Command, told the Senate Armed Services Committee that U.S. control of space enhanced the effectiveness of coalition forces during the Persian Gulf War. The U.S. must plan in the future on having the means to control space by attacking the space assets of a possible enemy. The general also pointed out that General Norman Schwarzkof, commander of the coalition's forces, was able to move his troops without the

movements being detected by the Iraqis because of our control of air and the fact that Iraq had no space reconnaissance assets.

28 Apr-
6 May 91 At 7:33 AM EST on 28 April, the space shuttle Discovery blasted off from Cape Canaveral with several major SDIO experiments aboard. The launch, originally scheduled for 26 February, had been delayed because of a number of difficulties with the space shuttle. One of the more interesting facets of the experiments carried out on this mission was the shuttle's execution of a maneuver known as the "Malarkey Milkshake." This maneuver was part of an experiment that observed the firing of the shuttle's engines against various backgrounds, e.g., against the earth, against black space, against the earth's limb, etc. Planners for this experiment had expected to get a minimum of six views of the shuttle's engines firing and hoped for as many as twelve; they actually observed the firing engines seventeen times. The shuttle mission ended at 2:56 p.m. EDT on 6 May when the Discovery landed at Cape Canaveral.

5 Dec 91 President George Bush signed into law H.R. 2100, the "National Defense Authorization Act for Fiscal Years 1992 and 1993." That portion of H.R. 2100 dealing with missile defenses was known as the Missile Defense Act of 1991. This act required the Defense Department to "aggressively pursue the development of advanced theater missile defense systems, with the objective of down selecting and deploying such systems by the mid-1990s." Additionally, DOD was to "develop for deployment by the earliest date allowed by the availability of appropriate technology or by fiscal year 1996 a cost effective, operationally effective, and ABM Treaty-compliant antiballistic missile system at a single site as the initial step toward deployment of an antiballistic missile system." This system was to be "designed to protect the United States against limited ballistic missile threats, including accidental or unauthorized launches or Third World attacks."

1 May 92 Ambassador Henry Cooper concluded a memorandum of agreement with the secretaries of the military services that established the organizational structures and procedures for handling the acquisition of the GPALS system as DOD moved ahead with deploying missile defenses in accordance with instructions contained in the Missile Defense Act of 1991. Among the more important provisions of this MOA were that SDIO would establish a General Manager's function, headed by a three-star general, that would be responsible for working with the military services in the management of procurement actions. The General Manager would work through GPALS program executive officers (PEO) that each military service would appoint. The PEOs were to be of flag rank. Each PEO was to have authority over all program managers within his or her service who were completing SDI work in accordance with program management agreements worked out between SDIO and the military services.

2 Jul 92 Secretary of Defense Richard Cheney dispatched to Congress the 180-Day Report required by the National Defense Authorization Act for Fiscal Years 1992 and 1993. This report outlined the Defense Department's acquisition strategy in support of the deployment goals set by the Missile Defense Act of 1991. This strategy would allow the U.S. to deploy a user operational evaluation system (UOES) to provide limited protection of the U.S. by 1997. Where theater missile defenses were concerned, the basic strategy was to up-grade existing defensive capabilities such as those possessed by the Patriot and then to produce an advanced, new generation system with greater range and effectiveness. The advanced system was to be the Theater High Altitude Area Defense (THAAD), which was to have a contingency capability as early as 1996.

1 Oct 92 House and Senate Conferees agreed to the provisions that were to be included in the National Defense Authorization Act for Fiscal Year 1993. This law amended the Missile Defense Act of 1991 by placing more emphasis on treaty compliance in any National Missile Defense the U.S. might choose to deploy and by eliminating the target date of 1996 for deployment of the initial NMD site. Finally, the requirement to deploy advanced theater missile defenses by the mid-1990s was eliminated and replaced with a requirement to develop advanced theater missile defense systems for deployment.

Dec 92 Program management responsibility for Brilliant Pebbles was transferred to the Air Force. All changes associated with the transition were to be completed by 30 September 1993.

10 Dec 92 SDIO, U.S. Space Command, and the U.S. Air Force signed a memorandum of agreement that started the process of transferring ownership of the National Test Facility to the Air Force, with the final transfer coming at a later time as agreed to by the three signatories to the agreement.

7 Jan 93 Ambassador Henry F. Cooper, director SDIO, submitted a letter of resignation to President George Bush, with the resignation to be effective 20 January.

20 Jan 93 William Jefferson Clinton was sworn in as the forty-second president of the United States.