July 15, 2002-JULY 19, 2002

ALASKA SPECIFIC NEWS BREAKS

- National Missile Defense, fas.org (printed 1999, but very interesting)

MONDAY, JULY 15, 2002

- Cruise missiles fly through ‘loopholes’ in export controls: CRS, Defense Week
- Double standards, Izvestia
- China’s missile defense buildup is threat to Taiwan, U.S. says, Wall Street Journal
- North Korea hints at developing new satellite, Korea Times
- Army to pursue solid state lasers for long-term fielding plans, Defense Daily
- Nuclear testing in South Asia and the CTBT, The Nonproliferation Review

TUESDAY, JULY 16, 2002

- Boeing's aircraft laser faces redesign to cut weight, GAO said, Bloomberg.com
- An early glimpse of missile defense, Kansas City Star
- Seoul, U.S. to hold meeting on North Korea nuclear missile issues, Korea Times
- Commission: China taking advantage of U.S. friendship, Fox News
- Taiwan warns of china arms buildup, Reuters
- Rogue state, ABC.net
- Full text for rogue state, ABC.net
- Missile defense in the 21st century, ABC.net

WEDNESDAY, JULY 17, 2002
• MDA plans rigorous countermeasures tests prior to 2004, Defense Daily
• Army radar test a D.C. success, Washington Times
• South Asia: ABM Treaty demise to affect China, India and Pakistan, Global Security Newswire
• Fixing military space requires smarter customer, Space News

THURSDAY, JULY 18, 2002

• Senators want more air missiles for Taiwan, Washington Times
• U.S. Plans: Kadish unsure when systems will beat countermeasures, Global Security Newswire
• Cruise missiles fly through 'loopholes' in export controls: CRS, Space & Missile
• Critics: Current missile defense path could yield cost overruns, performance failures, Defense News
• Brave new post-ABM world, Washington Times

FRIDAY, JULY 19, 2002

• US Begins Testing Airborne Laser to Shoot Down Missiles, Agence France Presse
• Boeing Tests Plane Equipped With Ballistic Missile-seeking Laser, The Wichita Eagle
• Lockheed Martin Reactivates Alabama Facility For Missile Defense Booster Work, Defense Daily
• U.S. Penalizes 8 Chinese Firms, Washington Times

ALASKA SPECIFIC NEWS BREAKS #20
JULY 15, 2002-JULY 19, 2002

NATIONAL MISSILE DEFENSE, fas.org. The objective of the National Missile Defense (NMD) program is to develop and maintain the option to deploy a cost effective, operationally effective, and Anti-Ballistic Missile (ABM) Treaty compliant system that will protect the United States against limited ballistic missile threats, including accidental or unauthorized launches or Third World threats. The primary mission of National Missile Defense is defense of the United States (all 50 states) against a threat of a limited strategic ballistic missile attack from a rogue nation. Such a system would also provide some capability against a small accidental or unauthorized launch of strategic ballistic missiles from more nuclear capable states. The means to accomplish the NMD mission are as follows:
• Field an NMD system that meets the ballistic missile threat at the time of a deployment decision.
• Detect the launch of enemy ballistic missile(s) and track.
• Continue tracking of ballistic missile(s) using ground-based radars.
• Engage and destroy the ballistic missile warhead above the earth’s atmosphere by force of impact.

The National Missile Defense Program was originally a technology development effort. In 1996, at the direction of the Secretary of Defense, NMD was designated a Major Defense Acquisition Program and transitioned to an acquisition effort. Concurrently, BMDO was tasked with developing a deployable system within three years. This three-year development period culminated in 2000, and the Department of Defense began a Deployment Readiness Review in June 2000. Using that review, President Clinton was to make a deployment decision based on four criteria: the potential ICBM threat to the United States; the technical readiness of the NMD system; the projected cost of the NMD system; and potential environmental impact of the NMD system. Rather than make a decision, President Clinton deferred the deployment decision to his successor. The White House in choosing this action cited several factors. Among them were the lack of test under realistic conditions, the absence of testing of the booster rocket, and lingering questions over the system's ability to deal with countermeasures. The deployment decision now rests with President George W. Bush, who is reexamining the Clinton NMD system along with a variety of other proposals. In the meantime, work is continuing on technology development for the NMD system. The NMD system would be a fixed, land-based, non-nuclear missile defense system with a space-based detection system, consisting of five elements:

• Ground Based Interceptors (GBIs)
• Battle Management, Command, Control, and Communications (BMC3), which includes:
  o Battle Management, Command, Control, and Control (BMC2), and
  o In-Flight Interceptor Communications System (IFICS)
• X-Band Radars (XBRs)
• Upgraded Early Warning Radar (UEWR)
• Defense Support Program satellites/Space-Based Infrared System (SBIRS)
All elements of the NMD system would work together to respond to a ballistic missile directed against the United States.

The **Ground Based Interceptor** is the “weapon” of the NMD system. Its mission is to intercept incoming ballistic missile warheads outside the earth’s atmosphere (exo-atmospheric) and destroy them by force of the impact. During flight, the GBI is sent information from the NMD BMC2 through the IFICS to update the location of the incoming ballistic missile, enabling the GBI onboard sensor system to identify and home-in on the assigned target. The GBI element would include the interceptor and associated launch and support equipment, silos, facilities, and personnel. The GBI missile has two main components: an EKV and solid propellant boosters. Each GBI site would be adequate in size to initially accommodate 20 interceptor missiles, with expansion possible to as many as 100 interceptors. The GBI would be a dormant missile that would remain in the underground launch silo until launch. Launches would occur only in defense of the United States from a ballistic missile attack. There would be no flight testing of the missiles at the NMD deployment site.

The **NMD Battle Management, Command and Control (BMC2)**, a sub element of the BMC3 element, is the “brains” of the NMD system. In the event of a launch against the United States, the NMD system would be controlled and operated through the BMC2 sub element. The BMC2 sub element provides extensive decision support systems, battle management systems, battle management displays, and situation awareness information. Surveillance satellites and ground radars locate targets and communicate tracking information to battle managers, which process the information and communicate target assignments to interceptors. The BMC2 sub element operations would consist mostly of data processing and management functions associated with the NMD system and function as the centralized point for readiness, monitoring, and maintenance.

The **NMD In-Flight Interceptor Communications System (IFICs)** is a sub element of the BMC3 element and would be geographically distributed ground stations that provide communications links to the GBI for in-flight target and status information.
between the GBI and the BMC2. Up to 14 IFICS (7 pairs) would be required to support the NMD system. The IFICS would consist of a radio transmitter/receiver enclosed in a 5.8-meter (19-foot) diameter inflatable radome adjacent to the equipment shelters. The IFICS site would require no permanent onsite support personnel. Personnel would only be required when the IFICS needs maintenance.

The **X-band / Ground Based Radars (XBR)** would be ground based, multi-function radars. For NMD, they would perform tracking, discrimination, and kill assessments of incoming ballistic missiles. The radars use high frequency and advanced radar signal processing technology to improve target resolution, which permits the radar to more accurately discriminate between closely spaced objects. The radar would provide data from earlier phases of ballistic missiles trajectory and real-time continuous tracking data to the BMC2. The site would include a radar mounted on its pedestal and associated control and maintenance facility, a power generation facility, and a 150-meter (492-foot) controlled area. The radar would be radiating during a ballistic missile threat, testing, exercises, training, or when supporting collateral missions such as tracking space debris or a Space Shuttle mission.

The **Upgraded Early Warning Radar (UEWR)** are phased-array surveillance radars used to detect and track ballistic missiles targeted at the United States. Software upgrades to these existing early warning radars would provide the capability to support NMD surveillance requirements.

Existing Defense Support Program satellites provide the U.S. early-warning satellite capability. The satellites are comparatively simple, inertially fixed, geosynchronous earth orbit satellites with an unalterable scan pattern. **Space Based Infrared System** would replace the Defense Support Program satellites sometime in the next decade. NMD would use whichever system is in place when a deployment decision is made and can use a combination of the two if the transition is still in progress. SBIRS would be an element that future NMD systems would utilize. SBIRS is currently being developed by the Air Force independently of NMD as part of the early warning satellite system upgrade, which would replace the Defense Support Program satellites. For the NMD program, the SBIRS constellation of sensor satellites would acquire and track ballistic missiles throughout their trajectory. This information would provide the earliest possible trajectory estimate to the BMC2 sub element.
To meet the Capstone Requirements Document (CRD) requirements, the NMD Joint Project Office (JPO) at BMDO has created a program to develop a defensive system that will evolve through three levels of capability:

- **Capability 1** satisfies CRD Threshold requirements against unsophisticated threats. The Administration and the Congress want the option of fielding this capability within three years of a deployment decision. The system provides the required performance against an unsophisticated rogue-state threat at the Threshold level. The Threshold threat, the details of which are classified, is said to consist of an attack of five single-warhead missiles with unsophisticated decoys that could be discriminated, plus chaff, obscurant particles, flares, jammers, and other countermeasures.

- **Capability 2** provides the required performance against any authorized, unauthorized, or accidental attack by sophisticated payloads at the Threshold level. The Threshold threat, the details of which are classified, is said to consist of an attack of five single-warhead missiles, each with either a few (about four) credible decoys that could not be discriminated [and would have to be intercepted], plus chaff, obscurant particles, flares, jammers, and other countermeasures.
• Capability 3 satisfies the CRD Objective. The system provides the required performance against any authorized, unauthorized, or accidental attack by sophisticated payloads at the Objective level. The Objective, the details of which are classified, is said to consist of an attack of twenty single-warhead missiles, each with either a few (perhaps as many as five) credible decoys that could not be discriminated [and would have to be intercepted], or a larger number of less sophisticated decoys that could be discriminated, plus chaff, obscurant particles, flares, jammers, and other countermeasures.

The relationship between these Capability performance requirements and the Capability system architectures continues to evolve. The 1999 Welch Report noted that the 2005 deployment, which with 100 interceptors would appear to be the C2 Architecture, was in fact focused on addressing the far less stressing C1 threat. The cost for the land-based NMD Capability 2 architecture with some 100 interceptors based in Alaska is about $13B to $14B for the post-FY97 RDT&E, procurement and military construction.

As of early 2000 the NMD program goes beyond the original Capability 1, or "C1," architecture by developing an "Expanded C1" architecture to be capable of defending all 50 states against threats larger than the initial C1 architecture was designed to handle. The Expanded C1 deployment option builds on revised program guidance announced in 1999 year by the Secretary of Defense. For planning purposes, the Expanded C1 system will incorporate 100 ground-based interceptors based in Alaska and an advanced X-Band radar based at Shemya Island, also in Alaska. Initial Operational Capability (IOC) for the C1 architecture, consisting of 20 interceptors, will take place in 2005. The full 100 can be deployed by Fiscal Year 2007. **This represents a two-year delay from the plan outlined in 1999, under which the first 20 interceptors could have been deployed by 2003, with 100 interceptors becoming operational by 2005.**

<table>
<thead>
<tr>
<th>Notional Deployment Architectures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Architecture</strong></td>
</tr>
<tr>
<td>IOC</td>
</tr>
<tr>
<td>Threat</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>GBI interceptors</td>
</tr>
<tr>
<td>UEWR</td>
</tr>
<tr>
<td>XBR</td>
</tr>
<tr>
<td>Space Sensors</td>
</tr>
<tr>
<td>IFICS</td>
</tr>
</tbody>
</table>
Testing

The NMD program is conducting a series of Integrated Flight Tests [IFT] to progressively demonstrate system capabilities. The target system is built by Sandia National Labs to replicate decoys that might be seen in threat systems Integrated Flight Tests 3 and 4 were originally planned to be conducted in 1998.

- IFT-1, on 17 January 1997, did not take place as planned when the Payload Launch Vehicle (PLV) carrying the EKV failed to launch from Kwajalein Missile Range. A data-link malfunction between the PLV launcher and the ground control system which led to the ground control system aborting the launch prior to liftoff of the kill vehicle. A Multi-Service Launch System (MSLS) carrying target objects for the sensor test was successfully launched from Vandenberg AFB prior to the EKV launch abort, though no intercept of a target was to be attempted for the test.

- IFT-1A, on 07 July 1997, was a repeat of IFT-1, which BMDO claimed proved the ability of the Exo-atmospheric Kill Vehicle (EKV) sensor to identify and track objects in space. An intercept was not intended for this mission, which used a candidate infrared sensor built by Boeing. Many experts have disputed the claimed results of this test.

- IFT-2, on 15 January 1998, proved the ability of the Exo-atmospheric Kill Vehicle sensor to identify and track objects in space. An intercept was not intended for this mission, which used a candidate infrared sensor built by Hughes (now Raytheon).

- IFT-3, on 02 October 1999, successfully demonstrated "hit to kill technology" to intercept and destroy the ballistic missile target. The target was simplified to include a single decoy, rather than the multiple decoys used in the two previous fly-by tests. Despite a failure in the star tracker, the inertial measurement unit [IMU] of the interceptor oriented the EKV [built by Boeing], which detected the decoy and based on this detection subsequently detected the target warhead,
which was destroyed on impact. Critics noted that in this test the decoy paradoxically made it possible for the kill vehicle to detect the warhead, whereas in a combat situation decoys would make detection of the warhead more difficult. The intercept used representatives or prototypes of other elements in a "shadow" mode. They did not provide information to the interceptor as they would during a full system test or during an actual missile attack.

- IFT-4, on 18 January 2000, failed to intercept the target due to a failure of the EKV infrared homing sensors' cooling system (built Raytheon / Hughes) a few seconds before the planned intercept. This was the first test that integrated other elements of the NMD system into the actual test scenario.
- IFT-5, on 7 July 2000, was the first Integrated System Test featuring all NMD elements in the initial capability except for the interceptor booster. The test failed when the EKV did not separate from the surrogate booster used. As well, the test decoy failed to inflate.
- IFT-6, which was originally supposed to happen before the Deployment Readiness Review, is now scheduled shortly thereafter. The planned test in late July 2000 slipped to the Fall of 2000 and is now scheduled for late 2001. This test will be the second Integrated System Test of all NMD elements in the initial capability except for the interceptor booster.
- IFT-7 was scheduled for early 2001. This test was initially scheduled to be the first test in which the operational Ground Based Interceptor booster can be used to launch the EKV. However, as of mid-2000 this event had been slipped to the following test, IFT-8.
- IFT-8 was scheduled for mid-2001. As of mid-2000 this test is the first test in which the operational Ground Based Interceptor booster can be used to launch the EKV, replacing the stand-in Payload Launch Vehicle (PLV) used in earlier tests.

**Background**

In mid 1993, the Department of Defense (DoD) conducted a Bottom-Up Review (BUR) to select the strategy, force structure, and modernization programs for America's defense in the post-Cold War era. With the dissolution of the Soviet Union, the threat to the U.S. homeland from a deliberate or accidental ballistic missile attack by states of the former Soviet Union (FSU) or the Peoples Republic of China (PRC) was judged to be highly unlikely. In addition, the ability of Third World countries to acquire or develop a long-range ballistic missile capability in the near future was considered uncertain. As a prudent approach for responding to this uncertain threat, the Department pursued a technology readiness strategy for National Missile Defense (NMD) to develop and maintain the ability to deploy ballistic missile defenses for the United States should a threat emerge.
Following the 1994 elections, some in the new Congress began to call for the rapid acceleration of national missile defense development, leading to deployment of a capable defense system as soon as possible. This shift toward early deployment reflected a general sense that the risk of the rapid emergence of a ballistic missile threat to the United States by determined rogue actors was becoming increasingly acute. BMDO responded by creating a "Tiger Team" to develop an NMD architecture capable of being deployed at the earliest possible date to counter the developing rogue nation ballistic missile threat. The threat scenario addressed by the Tiger Team was the acquisition of SS-25-like technology by Libya. The Tiger Team considered a number of NMD alternatives, including options to deploy a system as early as possible, if required. The initial architecture the Tiger Team considered was 20 Minuteman ICBMs -- retrofitted with kinetic kill vehicles -- at Grand Forks AFB, ND, supported by a network of existing Early Warning Radars (EWRs) operating with software upgrades to provide the necessary track information as an emergency response system.

In February 1996, the Department completed a comprehensive Ballistic Missile Defense Program Review that addressed changes that have occurred in the ballistic missile defense environment since the 1993 BUR. For the NMD program, the findings of this review resulted in an adjustment to the goal of the NMD program and a corresponding adjustment to the Future Years Defense Program, which includes additional resources in FY96-FY98 for NMD. The revised goal of the NMD program is to develop, within three years, elements of an initial NMD system that could be deployed within three additional years after a deployment decision. This approach is commonly referred to as the NMD “3+3” program.

To achieve this goal, BMDO has initiated an NMD Deployment Readiness Program. In April 1996 the USD (A&T) initiated steps to designate NMD as an Acquisition Category (ACAT) 1D program and in July 1996 the program successfully completed its first Overarching Integrated Product Team (OIPT) review. The intent of the NMD Deployment Readiness Program is to position the U.S. to respond to a strategic missile threat as it emerges by shifting emphasis from technology readiness to deployment readiness. This approach focuses on demonstrating an NMD system level capability by FY99, and being able to deploy that capability within an additional three years, if required to do so by the threat. If no threat materializes at the end of the three-year development period, evolutionary development will continue on a path towards an objective system capability and the program will continue to maintain the ability to deploy within three years after a decision is made to do so.

The NMD system is composed of several elements, which are required to perform the key functions involved in a ballistic missile defense engagement. The Ground Based Radar (GBR) and the Space Based Infrared System (SBIRS) Low component (previously known as the Space and Missile Tracking System) provide the dual sensor
phenomenology required to address the full spectrum of potential threats. In addition, Upgraded Early Warning Radars (UEWR) are candidate sensors in the event of an early NMD deployment within three years of the FY99 NMD integrated system test. SBIRS, which will provide midcourse tracking of targets, is currently managed and funded by the Air Force. The Ground Based Interceptor (GBI) is the weapon element that engages and destroys the threat. The Battle Management/Command, Control, and Communications (BM/C3) element provides engagement planning and human-in-control management of the engagement.

The formation of the United Missile Defense Company (UMDC), a joint venture equally owned by Lockheed Martin, Raytheon and TRW, was announced on April 21, 1997. The company submitted a proposal in response to an RFP issued by the Ballistic Missile Defense Organization (BMDO) to conduct an NMD Lead System Integration (LSI) Concept Definition (CD) study. The Lead Systems Integrator contractor has the responsibility to design, develop, test, integrate, and potentially deploy and sustain the National Missile Defense (NMD) system. The LSI integrates all NMD element development to include the Ground Based Interceptor (GBI), Battle Management Command, Control and Communications (BMC3), Ground Based Radar (GBR), Upgraded Early Warning Radar (UEWR), Forward Based X-Band Radar (FBXB), and the Spaced Based Infrared Sensor (SBIRS-Low) system when it becomes available. On 25 April 1997 the Ballistic Missile Defense Organization announced that two contracts for the concept definition study phase of the National Missile Defense (NMD) Lead Systems Integrator were awarded to United Missile Defense Company, Bethesda, MD, and Boeing North American Inc., Downey, CA. At the end of the initial contract period, one firm would be selected for award of a contract to serve as the Lead Systems Integrator for the NMD program, currently anticipated for April 1, 1998. The execution phase will include an Integrated System Test in 1999, and culminate in a Deployment Readiness Review in 2000.

In fiscal years 1996 through 1998, Congress authorized and appropriated a total of $1,174 million more than the President's budget requests for those years. The fiscal year 1999 funding estimate does not include amounts that will be needed beginning in fiscal year 2001 to develop system improvements to keep up with changes in the threat. About $765 million above the President's fiscal year 1999 budget estimate will be needed in fiscal years 2001 through 2003.
Future NMD funding requirements depend on how the system is designed and when and where it will be deployed. The government and prime contractor have not yet agreed on a final system design, and the deployment schedule and location will not be known until at least the fiscal year 2000 deployment review. To provide a basis for estimating near-term funding requirements, the program office prepared four different life-cycle cost estimates, based on two locations—one at Grand Forks, North Dakota, and the other in Alaska—and two capability levels—one available in fiscal year 2003 and the other in fiscal year 2006 [an initial operating capability would be established in fiscal year 2006, and the full operating capability would be achieved in fiscal year 2009]. The life cycle cost estimates show the total costs to develop and produce system components, construct facilities, deploy the system, and operate it for 20 years.
The 3+3 program is designed to enable a system to be deployed as early as fiscal year 2003, but a more capable system could be operational in fiscal year 2006. The primary differences between the two capability levels used in the cost estimates are in the type and amount of hardware included. The more capable system would have significantly more interceptors, fewer ground-based radars, but would also include a space-based sensor system. The higher cost for a deployment in Alaska by 2003 is due, in large part, to the fact that less infrastructure currently exists there, transportation costs are higher, the construction season is shorter, and the environment is harsher. After the space-based sensor system is deployed, fewer ground-based radars will be needed for an Alaskan deployment because of Alaska's location relative to potential threats. The requirement for fewer radars is the primary reason an Alaskan deployment by fiscal year 2006 was estimated to have a life cycle cost slightly less than a deployment at Grand Forks in that same timeframe. With fewer radars, operating costs would also be lower in Alaska.

The Office of Program Analysis and Evaluation prepared independent estimates of NMD program costs in January 1998. Costs in the independent estimates were about 10 percent higher than the estimates prepared by the program office, due primarily to the fact that the independent estimates included "pre-planned product improvements" not included in the program office estimates.
CRUISE MISSILES FLY THROUGH ‘LOOPHOLES’ IN EXPORT CONTROLS: CRS, Defense Week, July 15, 2002. The United States may need to tighten export-control regimes if it is to reduce the threat from cruise missiles, according to a report issued last week by the non-partisan research arm of Congress. Citing U.S. intelligence estimates, the Congressional Research Service (CRS) said a cruise-missile attack on the United States "may be possible" by the end of the decade…”In contrast to ballistic-missile proliferation, cruise missiles present a particular challenge for monitoring and control, because they exploit technology that is well understood and well established in the civil-aviation industry," the report says. "Missile airframes, navigation systems, jet engines, satellite maps, and mission-planning computers and software all can be purchased on the commercial market. At the same time, commercial availability generally means relatively low-cost weapons for many nations and, potentially, non-state actors." Part of the challenge, then, is closing loopholes in existing international export-control agreements. The sale of cruise-missile technology is regulated by two agreements: the Missile Technology Control Regime (MTCR) and the Wassenaar Arrangement. Trolling exports is not enough, and military responses are needed to fight cruise missiles, the report says.

DOUBLE STANDARDS, Izvestia, July 12, 2002. On July 11, Russian and American experts gathered in Moscow to discuss prospects of the dialog on nuclear and missile nonproliferation. However, this kind of "nonproliferation" seems to apply to only one country: Iran…At the same time, the American experts failed to present any convincing evidence against Russia's assistance to Iran. According to our sources, consultations are underway between Russia and Iran on the possibility of supplying Iran with Yakhont supersonic cruise missiles and Iskander-E systems of operative-tactical weapons. Meanwhile, the US is not pleased about this cooperation. The Americans are making three main demands of Russia. First, the US wants Russia to confine its cooperation with Iran to the construction of the nuclear power plant at Bushehr (on the condition that spent nuclear fuel is taken back to Russia for reprocessing). Second, the US wants Iran to observe the IAEA protocol and have its nuclear facilities constantly monitored by international experts. Third, the US wants Russia to convince Iran that developing international programs conflicts with its national interests.

CHINA’S MISSILE DEFENSE BUILDUP IS THREAT TO TAIWAN, U.S. SAYS, Wall Street Journal, July 15, 2002. China is pouring billions of dollars into short- and long-range missiles, as well as new diesel submarines, in an effort to pressure Taiwan into unifying with the mainland and to reinforce China's role as Asia's major military
power, according to a new report submitted to Congress by the Pentagon. China's military investment is designed in large part to give Beijing "the ability to force Taiwan to negotiate on Beijing's terms regarding unification with the mainland," the report said. The Bush administration's study, however, casts China's buildup in a far more aggressive light, concluding that China's buildup could pose a threat not only to Taiwan, but also to Japan and the Philippines. Most China analysts say it is unlikely that China will invade Taiwan as long as Taipei doesn't formally declare independence. They also say Beijing seems to believe that its current course of using diplomatic and economic pressure seems to be working with regard to Taiwan. The report states that China's defense budget now totals as much as $65 billion a year, more than triple the $20 billion China publicly reported in March. Most of the Chinese military investment appears focused on winning potential conflict in the Taiwan Strait and deterring the U.S. military from intervening on Taipei's behalf. Increasingly, China's military exercises "focus on the United States as an adversary," the report says.

**NORTH KOREA HINTS AT DEVELOPING NEW SATELLITE,** Korea Times, July 15, 2002. North Korea indicated the development of a new satellite while introducing a Satellite Center at its Revolution Exhibition Center in Pyongyang on Saturday. Along with a replica of "Gwangmyongsong No. 1," a satellite launched on Aug. 31, 1998, "a model of a new satellite our nation will develop down the road is being displayed at the center," the (North) Korean Central Broadcasting Station, monitored here, said. When the North launched Gwangmyongsong, the United States and Japan considered it a "ballistic missile," while the socialist country insisted it as a satellite. Later, the U.S. government, based on analyses of various data, changed its description of the object to a "failed satellite," but the Japanese government has not changed its initial opinion. Many countries have expressed concern over the North's satellite development since rockets could be used as missiles if they are equipped with warheads, while the North has said from time to time it would continue to develop satellites.

**ARMY TO PURSUE SOLID-STATE LASERS FOR LONG-TERM FIELDING PLANS,** Defense Daily, July 15, 2002. While chemical laser weaponry shows good near-term promise, the Army's main focus in the future will be in development of solid-state laser technologies, John Parmentola, director of the Army's basic research program, said last week. While the chemical laser system, the joint U.S.-Israeli Tactical High Energy Laser (THEL), has proven success against short-range Katyusha and other targets, Parmentola said the solid-state lasers ultimately will be easier to package, transport and fuel. Chemical laser systems, like the mobile version of THEL now under design, will be good for establishing concepts of operations for lasers, but "the future is in solid state," Parmentola said. The solid-state heat capacity laser has the potential to be the first high energy laser that is compact enough in size and weight to be integrated as a direct fire element of the Army's future combat system, according to program
officials. However, they said in moving toward the goal of developing a 100-kilowatt laser, several incremental steps will be taken, such as development of a 15-kilowatt capability to demonstrate the pulse energy at a high repetition rate.

NUCLEAR TESTING IN SOUTH ASIA AND THE CTBT, The Nonproliferation Review. Report: Andrew Koch is a Senior Research Associate at the Center for Nonproliferation Studies, Monterey Institute of International Studies. The accession of Bharatiya Janata Party (BJP) head Atal Bihari Vajpayee to Prime Minister of India in May 1996 renewed the possibility that India could conduct a nuclear test and upset the fragile nuclear balance in South Asia, as well as ongoing negotiations for a Comprehensive Test Ban Treaty (CTBT). The Hindu-nationalist BJP won the largest share of parliamentary seats in India’s April-May 1996 national elections and was asked by Indian President Shankar Dayal Sharma to form a government. Although the BJP was not able to form a governing coalition, their short-lived administration lead to fears that India would “weaponize” its “nuclear option.” What concerns diplomats in the United States and Pakistan is that the BJP has repeatedly called for India to conduct a nuclear test and to declare itself a nuclear power. With the BJP on the threshold of gaining power, the question of India’s nuclear intentions has resurfaced. This report examines the likelihood of an Indian nuclear test, the political and security factors driving that possibility, and the possible repercussions of such an outcome. The report includes maps of selected nuclear sites in India and Pakistan in order to illustrate the size and scope of the “nuclear dilemma” in South Asia.

CAUSES FOR CONCERN

Fears of an Indian nuclear test center around December 1995 reports in the U.S. media that India was preparing to conduct a nuclear test. U.S. intelligence sources reportedly stated that reconnaissance satellites had detected increased activity at Pokharan (see Figure 1), the site of India’s 1974 nuclear test, indicating preparations for a nuclear explosion.1 The activity included efforts to clear out a subterranean shaft for testing nuclear weapons and “possible preparations for instrumentation” to ascertain the results of that test.2 Keeping with India’s long-held policy of nuclear ambiguity, the Indian government originally denied the reports and then called them “totally speculative.”3 Indian Foreign Ministry spokesman Arif Khan said that the activities at Pokharan were probably “routine military exercises,”4 while Indian Foreign Minister Pranab Mukherjee denied that India intended to conduct a nuclear test.5 Rumors of a possible test were linked by Pakistani observers to India’s 15th test of the potentially nuclear capable Prithvi missile on January 27, 1996, at the Interim Test Range in Chandipur.6 Indian defense officials added on January 16, 1996, that India would not only deploy the Prithvi, 7 which is expected to occur by mid-1996, but that serial production of the missile had al- Andrew Koch
ready begun. The Indian government has called the prithvi a “tactical battlefield missile,” but denies any intention of arming it with a nuclear warhead. The Prithvi, with a range of up to 250 kilometers (km), is capable of targeting most of Pakistan’s major cities, but does not have sufficient range to reach China’s population centers.

**INDIA’S MOTIVATIONS**

Several international and domestic factors seem to be driving India’s nuclear weapons policy. Overall, Indian policymakers focus on the Chinese threat, with Pakistan in a secondary role. At present, China’s nuclear and missile capabilities outstrip those of...
India, which has neither the nuclear firepower nor the delivery systems to pose a serious threat to the Chinese heartland. China, on the other hand, possesses the ability to wreak intolerable devastation on India at all levels of nuclear escalation. If these security considerations are then extrapolated to include the ramifications of a CTBT entering into force, India could find itself in a permanently inferior position vis-à-vis China and without a credible minimal nuclear deterrent. Such an outcome could prove intolerable for India. With the major nuclear powers now pushing for a CTBT, India is being forced by strategic considerations to reassess its past decision not to conduct any further nuclear tests after its 1974 “peaceful nuclear explosion.” For India to modernize its nuclear arsenal, it must work on miniaturizing the nuclear warhead for deployment on ballistic missiles and upgrade its destructive power by developing a thermonuclear device. For this to occur, India requires data only available through a nuclear test. Access to data is particularly important for India because evidence suggests that there was uncertainty regarding the yield and reliability of the nuclear device used in the 1974 Pokharan test. Furthermore, the 1974 test was a small (12 to 15 kiloton yield) fission device, not the hydrogen or “boosted” nuclear weapon U.S. intelligence experts suspect India is developing. This view is supported by Bhabha Atomic Research Center (BARC) Director Dr. A. N. Prasad, who has said that nuclear tests are “vital to validate theoretical models and for improvement of the [Indian] nuclear device.” Domestic factors have also had a large influence on India’s nuclear policy. Faced by fierce pressure from the BJP to weaponize its “nuclear option” in the run-up to the April-May 1996 national elections, Prime Minister P.V. Narasimha Rao may have ordered the preparations at Pokharan in order to boost his domestic political popularity. By doing so, Rao may have been seeking to reap the domestic political benefits of appearing ready to conduct a nuclear test, or at least threatening to do so, without actually testing. An India Today-Marg poll conducted in December 1995 showed that 62 percent of Indians approved of nuclear testing by India “to develop its nuclear-weapon capability.” Of those approving, 54 percent said they favored nuclear development even in the face of economic sanctions, while 68 percent said India should not forfeit its nuclear option unless other nations do the same. These feelings were exacerbated by the onetime exemption to the Pressler Amendment (the so-called “Brown Amendment”) passed on September 22, 1995 by the U.S. Congress, which provides for the transfer of $368 million in previously frozen U.S. military equipment and spare parts to Pakistan.
Motivated by the need to alleviate Pakistan’s nuclear and conventional military inferiority vis-à-vis India, Islamabad is under intense pressure to match any Indian military development. Pakistani Prime Minister Benazir Bhutto and other officials have
stated repeatedly that India were to conduct a nuclear test, they would be forced to "follow suit."15 Pakistan’s need to respond to an Indian test is even greater because, in the eyes of Indian nuclear scientists, Pakistan does not possess a credible nuclear weapon capability to act as a deterrent.16 The Prithvi missile test and subsequent Indian statements that the missile will be deployed soon only add to insecurity in Islamabad. Aside from security concerns, domestic political pressure would undoubtedly force Bhutto to order a Pakistani nuclear test. The military, the most powerful political force in Pakistan, would demand a response in kind to an Indian test, even in the face of U.S. opposition or threatened sanctions. Such a move would also be domestically popular. A Gallup poll taken in February 1996 indicated that 80 percent of Pakistanis support a Pakistani nuclear test, if India tests first.17 Evidence suggests that Pakistan is preparing for such a contingency. Pakistan hardened its stance vis-à-vis India following the December 1995 reports. On January 18, 1996, Bhutto said that Pakistan had achieved “parity” with India in its “capacity” to produce and deliver nuclear weapons.18 Furthermore, U.S. intelligence experts said on March 5, 1996, that satellite photographs led them to the conclusion that Pakistan was preparing to conduct its first nuclear test at Chagai Hills (see Figure 2). Excavation of the Chagai mountain site in Baluchistan province included removal of debris from a shaft that was dug years ago. While U.S. officials do not believe a Pakistani nuclear test is either imminent or even likely, only a few days or weeks would be required to conclude preparations if a decision to test were made by Islamabad. On the missile side, Pakistan is likely to meet any deployment of the Prithvi, which it considers “Pakistan specific,” with the deployment of Chinese-supplied M-11s. Pakistan is particularly sensitive about the Prithvi, and President Leghari has said that large-scale production of this missile would be “tantamount to deployment.” 19

U.S. RESPONSES TO INDIA AND PAKISTAN
The United States was initially successful in applying pressure on both India and Pakistan not to test, including threatening cessation of financial assistance.20 U.S. State Department officials advised the Indian government in December 1995 that any nuclear test would force the United States to invoke economic sanctions. By law, the Clinton administration would have to enforce the1994 Glenn Amendment, which mandates the cessation of all economic and military aid, bank loans, credits, and export licenses to any nation other than the five declared nuclear powers that conducts a nuclear test. Under the legislation, the United States would seek to deny any World Bank or other multilateral international loans to the offending country, and the Clinton administration would likely pressure other major shareholders, such as Japan and Germany, to follow suit. Until the recent Indian elections, the U.S. government appeared confident that India, and by implication Pakistan, would not conduct a nuclear test. Arms Control and Disarmament Agency Director John Holum said on January 19, 1996, that Indian officials had allayed U.S. fears of a possible test in private
meetings. Equipment to monitor a possible test, however, has not been removed from Pokhara nor has the shaft at Pakistan’s Chagai site been refilled.

POSSIBLE OUTCOMES AND THEIR IMPLICATIONS
Any change in the nuclear status quo is likely to be initiated by India, which perceives itself to be under pressure to test before the CTBT enters into force. While reporting the activity at Pokhara, U.S. intelligence officials were uncertain whether India’s motivation is design-oriented (in which case a test could be years away) or political (in which case a test could occur at any time).

If India were to test, Pakistan would follow suit and possibly declare itself a nuclear weapon state. The outcome of these events would impede efforts by the United States to secure a CTBT before the end of the year. One possible scenario has India conducting a nuclear test while simultaneously agreeing to sign the CTBT. Under such a scenario, India would reap the military benefits of the test data while minimizing the political repercussions. India could argue that the test is not for weaponization purposes, but solely to keep open its nuclear option. Pakistan’s reaction would likely be to match India’s test and then sign the CTBT once India does; Pakistan has a stated policy that it is willing to sign both the CTBT and the nuclear Non-Proliferation Treaty if India also signs. Under a worst case scenario, other states, such as Iran and Egypt, may reconsider their support not only for a CTBT but also for the nuclear nonproliferation regime if either country tests. In the meantime, India, the first nation to champion a CTBT as far back as 1954, has altered its position and now insists on including treaty language that calls for the eradication of all nuclear weapons within an agreed time frame. Indian Ambassador to the Conference on Disarmament Arundhati Ghose said: “To be meaningful, the treaty should be...linked through treaty language to the elimination of all nuclear weapons in a time-bound framework.” India, however, is willing to negotiate the actual time frame at a later date. In lieu of crossing the nuclear threshold, India is likely to continue to delay negotiations of a CTBT by demanding greater concessions from the nuclear weapon states. Without India’s signature, however, Pakistan will not sign a CTBT, leaving the possibility that two of the three (Israel being the other) undeclared nuclear powers will remain outside the treaty.

TUESDAY, JULY 16, 2002

BOEING’S AIRCRAFT LASER FACES REDESIGN TO CUT WEIGHT, GAO SAID, Bloomberg.com, July 15, 2002. A Boeing Co. aircraft-mounted laser designed to rupture ballistic missiles after launch must be redesigned because the weapon exceeds weight requirements, the U.S. General Accounting Office said in a report. The laser was to weigh less than 175,000 pounds and Air Force engineers have determined the first model to be tested in December 2004 -- with less than half the power -- would weigh 180,000 pounds, according a draft GAO report. "One of the major technical
challenges is accommodating the laser's weight," the GAO said in assessing a Bush administration anti-missile weapon supporters say has the best chance of being the first to be deployed. The Air Force "underestimated the complexity of the engineering task at hand and misjudged the amount of time and money that the program would need," the report said. The Pentagon plans to request $48 billion for missile defense research through 2007, including about $2.7 billion for the Airborne Laser program, also known as ABL. The projected growth in the laser's weight is a factor, says the GAO, in a report that will be discussed in a hearing tomorrow of the House Government Reform national security subcommittee …"The Air Force was unable to meet the Airborne Laser's original cost and schedule goals because it established those goals before it fully understood the level of effort required to develop the critical system technology," the GAO draft said.

AN EARLY GLIMPSE OF MISSILE DEFENSE, Kansas City Star, July 12, 2002.
An airliner given a nose job - sporting a bulbous new W.C. Fields-like profile later to be stuffed with iffy space-age weaponry, could take to the skies over Wichita this summer. The 747 retrofitted by Boeing Co. still needs its futuristic firepower, but as the Airborne Laser aircraft, it could give the Air Force a flying missile killer. A multitude of technical puzzles still need solving from overcoming dust in the air to figuring out how to keep a point of light searing into the side of a rocket. Yet experts suggest that the Airborne Laser holds real promise as a boon to America's command in high-tech weaponry. "The technical challenge is enormous. There's no guarantee that it will succeed," said Nick Cook, aerospace consultant to Jane's Defence Weekly. "But it's worth the effort, it's one of those rare things that's a real leap-ahead system." For now, though, Boeing still needs to see if adding a nearly six-ton laser cannon turret to the front of the jumbo jet and formidable heft to its tail - creating what company officials sometimes call a "barbell" effect - dramatically hurts the way it can fly. In fact, the Airborne Laser project marks the most significant re-engineering to an airframe that carries so much of the world's commercial airline traffic. That said, [John Pike, a military analyst and director of Globalsecurity.org] sees it as the most plausible weapon among those under development in the country's missile defense program. Unlike other land-based systems, this one would not violate the Anti-Ballistic Missile Treaty that the Bush administration has said it will no longer honor.

SEOUL, U.S. TO HOLD MEETING ON NORTH KOREA NUCLEAR MISSILE ISSUES, Korea Times, July 16, 2002. South Korea and the United States will hold a non-proliferation and disarmament meeting in Washington July 22-23 to discuss the issue of North Korea's nuclear and missile issues as well as other international and national disarmament issues, Foreign Ministry sources said yesterday. It is expected that both sides will agree on the need for the North to accept the IAEA's early inspection of its past nuclear activities that was stipulated in the 1994 Agreed Framework. The agreement calls for the North to receive the IAEA inspection in accordance with the
construction process of the nuclear reactors in the North. Two light-water nuclear reactors are under construction according to the agreement that was reached by the United States and North Korea to freeze the latter's nuclear programs in exchange for construction of nuclear reactors.

COMMISSION: CHINA TAKING ADVANTAGE OF U.S. FRIENDSHIP, Fox News, July 16, 2002. The long-held policy of "constructive engagement" with China has turned destructive for the United States, a new report by a congressionally appointed commission insists. According to the U.S.-China Security Review Commission appointed by Congress in October 2000, the Chinese government has taken advantage of American friendliness to become a bigger threat than ever. "It needs to be corrected, particularly today as China grows in economic and military strength, and the United States plays a very substantial role in contributing to that rise in military and economic strength," said C. Richard D'Amato, chairman of the U.S.-China Security Review Commission. The commission...concluded, "U.S. policy toward China has lacked consistency and depth and has often been driven by narrow commercial interests, specific human rights issues or particular military and security concerns."…"We are concerned when we see constant rhetorical attacks on the United States, constant warnings to the United States, that if push comes to shove, China is perfectly happy to fight a war against us, and then to see a strategic doctrine from the Chinese military that lays out the ways in which they propose to win that war. That's very bothersome. You'd have to be an idiot not to take that seriously," said Michael Ledeen, vice chairman of the panel. Equally disconcerting to the commission is that as China develops this technology it sells it, often to terror-sponsor states like Iraq and Iran. The research also shows that Beijing is one of the world's leading sources of ballistic missiles and nuclear materials to rogue governments, along with technology and components for weapons of mass destruction.

TAIWAN WARNS OF CHINA ARMS BUILDUP, Reuters, July 16, 2002. Taiwan’s military said on Tuesday China’s recent arms build-up threatens peace in the region, but boasted that the island is capable of thwarting any Chinese invasion. “The Peace in the Taiwan Strait is facing a tough challenge,” military spokesman Huang Suey-sheng said. “Communist China has never renounced the use of force against Taiwan and its military expansion is an indisputable fact.” The military spokesman said Taiwan had no intention of entering into an arms race with China or starting a war. “But the nation’s armed forces have comprehensive plans to thwart any invasion attempt by Communist China,” Huang said.

ROGUE STATE, ABC.net. The world's future may rest on a granite mountain in the spectacular Colorado Desert. Deep inside this mountain lies a fortified bunker, the command center of the world's most powerful nation as it prepares for nuclear war. Cheyenne Mountain is the war room of America's planned missile defense system — a
whole new order which will make the world a safer or a more dangerous place, depending on whom you believe. *Four Corners* takes viewers inside Cheyenne Mountain and asks whether the missile defense umbrella will fulfill its mission in stopping attacks on the US from rogue states. Or could missile defense unleash another Cold War, with the fault line shifting uncomfortably close to Australia's north? This timely report comes as debate rages about whether Australia is backing alleged US attempts to contain China's power. *Four Corners* assesses the impact of missile defense on regional flashpoints — Taiwan, Korea and India–Pakistan — and whether it will set off an Asian arms race. "Hands off!" demands a key Chinese negotiator, Sha Zu Kang, making plain his anger at what China sees as foreign meddling in Taiwan. Reporter Chris Masters has obtained access to key US officials — hawks and doves — in preparing this report. They include Deputy Secretary of State Richard Armitage; key defense official in the Reagan administration, Richard Perle; Council on Foreign Relations physicist and Rumsfeld Commission member Richard Garwin; and the physicist who first blew the whistle on alleged fraud in missile defense tests results, Theodore Postol. Masters also speaks to Australia's Foreign Minister, Alexander Downer.

CHRIS MASTERS: Tonight, Four Corners takes you inside the war room of missile defence.

COL TANKER SNYDER: Mr. Masters, where you're sitting is where General Eberhart would sit. The Commander in Chief of NORAD and US Space Command -- he'd be sitting in that seat and have his senior --

CHRIS MASTERS: Inside the old Cold War command center, the world's most powerful nation prepares for attack from new enemies.

RICHARD PERLE, AMERICAN ENTERPRISE INSTITUTE: I think we have to take the threat from North Korea seriously. They've captured US warships, have shot down planes. They've bombed civilian airliners. They had a terrible massacre of almost half the Cabinet at Rangoon. It doesn't seem to be the actions of people who are risk averse.

ALEXANDER DOWNER, FOREIGN MINISTER: I would say, sort of, conceptually perhaps, the Korean peninsula is one of the most dangerous places in the world.

CHRIS MASTERS: On the strength of such a threat, the United States is preparing to tear up arms control agreements, spend a fortune, risk a foreign policy catastrophe and a new arms race.

JOSEPH CIRINCIONE: It is not a serious threat to the territory of the United States. But the United States has reacted to it as if it's a resurgence of a Soviet threat, as if we're in danger of the North Koreans coming through the gap at any moment.

RICHARD GARWIN, PHYSICIST AND MEMBER OF RUMSFELD COMM: One of the reasons to argue that deterrence wouldn't work, is because that argument
favors the deployment of a missile defence system that people want for unstated reasons, probably against China.

**CHRIS MASTERS:** So is the focus of missile defence about China, about neutralizing deterrent capacity and shielding Taiwan?

**RICHARD ARMITAGE, US DEPUTY SECRETARY OF STATE:** No, that's a silly question.

**NICK BERRY, CENTER FOR DEFENSE INFORMATION:** The administration will never say China is the real or perceived threat. But the fact of the matter is they're very concerned about China.

**SHA ZU KANG, DIRECTOR-GENERAL OF ARMS CONTROL PRC:** It's our problem. It's not their problem. Hands off, please.

**CHRIS MASTERS:** On the 56th anniversary of the bombing of Hiroshima, Four Corners asks whether the fault line in a new nuclear conflict will also be to our north.

**JAMES LINDSAY, FOREIGN POLICY, BROOKINGS INSTITUTE:** Missiles are likely weapons in future wars because they can strike devastatingly quickly with devastating results.

**CHRIS MASTERS:** In a California desert, a small private army of rocketeers has gathered for their annual international fire-off. How close to the way the military does it, is the way you do it?

**ANDY WARNER, ROCKETEER:** Well, rocket science is all pretty much the same. All rockets work pretty much the same. So, we, er, build them the same way the military does.

**CHRIS MASTERS:** In the 21st century, it seems rocket science is no longer rocket science. Rockets can be assembled far more cheaply than modern aircraft and you don't need pilots to fly them.

**RICHARD GARWIN:** They have to get the parts and they either manufacture themselves -- but that's a lot easier. Everybody has computer-controlled machine tools. It's a lot easier to get the gaskets and the fuel. Er, China sells rocket fuel to a lot of countries.

**CHRIS MASTERS:** And just to show you how sophisticated it gets, Australian David Wilkins has helped build a one-sixteenth scale-working replica of a 1960s three-stage Soviet rocket.

**DAVID WILKINS, ROCKETEER:** ...a little astronaut on top. Rocket science is becoming better understood. It's like building a first atomic bomb is hard. Building 20,000 is very simple. It's a matter of production. And this is very similar.

**RICHARD GARWIN:** You don't need the latest in missile technology, just the way you don't need the latest in nuclear weapon technology in order to pose a threat. And that's what makes this so difficult. 1960s technology is good enough to threaten a country in the 21st century.
CHRIS MASTERS: And the best example of that argument is drawn from the Gulf War, which changed the way the world thought about missiles. What if Saddam Hussein had been able to arm his Scuds with nuclear warheads?

RICHARD PERLE: The point is well-taken that that ability to intimidate could well have changed the course of history when Saddam went into Kuwait. Would the Saudis have provided the bases from which the 'Desert Storm' was launched, if they had been vulnerable to a nuclear weapon?

CHRIS MASTERS: While both the Scuds and the Patriots that tried to intercept them made little difference in a military sense, their psychological power was immense. The Gulf War delivered a terrific boost to the missile industry, with the US recognizing it had no real defence against missile attack, and its enemies realizing the immense coercive power that missiles project.

RICHARD ARMITAGE: Well, for rogue states, we feel that they may feel that they can -- with the use of one, two or a handful of missiles -- actually blackmail developed nations who they feel have much more to lose from a strike.

CHRIS MASTERS: Richard Armitage is part of a new White House administration kicking up some dust in foreign policy and defence thinking. Although some of the new ideas do have a familiar ring to them. Adviser Richard Perle was an assistant Secretary of Defense under President Reagan. New Defense Secretary Donald Rumsfeld performed the same role for President Ford in the '70s. Rumsfeld came back into prominence in 1998 when he led an inquiry investigating future threats. He identified Iran, Iraq and North Korea at the top of a list of countries with an emerging capacity to rain missiles upon Americans. Six weeks later, the North Koreans did no harm to Rumsfeld's credibility by launching their three-stage Taepo Dong missile which arced across Japan and demonstrated a potential to reach Alaska.

RICHARD ARMITAGE: Well, I think it was quite significant both in terms of what it did to the Japanese -- It brought them clearly into the search for peace as well as the search for defense in North-East Asia. It galvanized opinion here in the United States. The realization that there are missiles from North Korea that could possibly reach the US shore. So it had a remarkable effect both in North-East Asia and in Washington.

SHA ZU KANG: Our source of information is that we don't believe that North Korea has that capability to develop missiles to threaten the security of the United States. Not at all. Not at all.

CHRIS MASTERS: While there was now proof that North Korea could build long-range missiles, there was little to suggest they could arm them with nuclear warheads. The further obvious question is even if they could, in what possible circumstance would they be mad enough to use them?

BARRY BLECHMAN, MEMBER OF RUMSFELD COMMISSION: Does the person we're trying to deter believe our threats? Does he understand our capabilities? Is
he sane at the time? Is he dying of some terminal disease and desperate for one last triumph? Is he drunk at the time?

**RICHARD GARWIN:** Why should he do that? There are easier ways to destroy his country -- which he's probably doing now anyhow -- than to launch a weapon of mass destruction at the United States. So these people may have different values than we, they may be ruthless, but they're not stupid.

**RICHARD PERLE:** You conclude that it's a low probability event, but it is such a catastrophic event -- and we're not talking only about today, we're talking about the indefinite future -- that it makes sense to mount a response to that catastrophic threat.

**CHRIS MASTERS:** The last time the world was threatened with catastrophe, not so long ago at that, deterrents appeared to have worked very well. In 1961 the United States built this bunker 700 meters inside a granite mountain in Colorado. It housed the command center for the anticipated WWIII. For the next 30 years the United States and the Soviet Union built nuclear arsenals capable of killing the world many times over.

**JOSEPH CIRINCIONE, CARNEGIE ENDOWMENT FOR INT'L PEACE:** Nobody thought up Mutually Assured Destruction. Nobody decided, "This is a good way to have global stability." It just happened. The United States in the beginning had a monopoly. It thought it could maintain that monopoly. It lasted about four years.

**CHRIS MASTERS:** On average, US military spending during the Cold War on behalf of the Free World was $300 billion a year. And happily the cost of the arms race ended up being measured in dollars rather than human lives.

**RICHARD PERLE:** It sometimes amuses me how the Left in particular -- which was never keen to engage in the Cold War, which was ready to accept the permanence of the Soviet Union and communist ideology -- um, now believe that the Soviet Union collapsed of its own weight without any help from the Western alliance.

**FRANK GAFFNEY JNR, CENTER FOR SECURITY POLICY:** It was no accident, comrade that the Soviet Union collapsed. It was not entirely a function of a successful American policy deliberately conceived and purposefully implemented, but it wouldn't have happened, I believe, without that policy.

**CHRIS MASTERS:** Underneath a cornfield in North Dakota is OSCAR launch center where, until it was decommissioned in 1997, Captain Rich Nameth commanded 10 Minuteman missiles. I guess the presumption was that you would fire only if you were fired upon. Is that so?

**CAPTAIN RICH NAMETH:** We'll fire when the President tells us to fire. And we'll follow his orders.

**REAR ADMIRAL EUGENE CARROLL, CENTER FOR DEFENSE INFORMATION:** I'm sure the Soviets were totally convinced that we were planning a first-strike strategy because it didn't make sense to do what we were doing if we didn't.

**FRANK GAFFNEY:** I believe the Soviets were deadly serious about the possibility of fighting and prevailing in a nuclear war.
CHRIS MASTERS: In 1972 there was a check on the madness with the signing of what's been described as the world's most effective mechanism for arms control, the Antiballistic Missile Treaty.

THEODORE POSTOL, PHYSICIST, MIT: Both agreed not to build defences because the impetus to respond to the other's defences would be impossible to deal with, and thereby it would be impossible to control the upward growth of these gigantic arsenals.

JOSEPH CIRINCIONE: And it worked. Starting with that process, the US and the Soviets first froze the number of ballistic missiles they could deploy and then started reducing them. And Ronald Reagan accelerated that process with his START treaties.

CHRIS MASTERS: In the last 15 years, international treaties have destroyed 3,000 long-range ballistic missiles.

LARRY VETTER, DEMOLITION SUPERVISOR: It's a reduction of the number of nuclear warheads that, you know -- And the destruction of the silo is an insurance that they can't put another missile in here to launch these warheads.

CHRIS MASTERS: Critics of the ABM Treaty say it's no longer necessary to maintain that delicate balance of terror, and that it's morally offensive to legitimize fear.

RICHARD PERLE: It's a relic of the Cold War. It expresses a relationship of mortal hostility. And that's a world that we're not living in today.

BARRY BLECHMAN: The much better posture is one which has no offences -- the ideal posture -- no offences and a totally effective defences. Thereby no one can destroy the other one, or even hurt the other one, and each side can be sure of that because they have a failsafe defence system.

CHRIS MASTERS: But is there any such thing? History suggests that the search for an impenetrable shield may itself be a field of dreams. Not far from North Dakota's Minuteman silos, we see what is left of the United States' last antiballistic missile system. The ABM Treaty ended up allowing both sides one battery of defensive interceptors. When North Dakota's $21 billion Safeguard site was being built in the early '70s, the local bar was packed. For how long was it up and running?

BILL VERWAY, FORMER MAYOR NEKOMA: About two days is all. It was completed and ready to operate and then they shut it down. I don't know -- it didn't make sense, but that's what they did.

RICHARD GARWIN: Really, the system had no merit, no function at all, but there was so much enthusiasm for doing something -- then just as now -- that they built a nonsense system in North Dakota to defend 150 of our 1,000 Minuteman missiles. So, that's a lesson -- that for no reason except political and technological enthusiasm, you deploy systems, which cause unending trouble and take an awful lot of money.

JOSEPH CIRINCIONE: What would happen when you detonated the first nuclear device in the atmosphere was that it would fry the electronics of the entire country, blinding not just your defensive system, but all your communications for the rest of the country.
CHRIS MASTERS: What also became clear was that defence and offence are inextricably linked. A bigger shield leads to bigger swords, and a fence is cheaper. The Soviet answer to Safeguard would have been to overwhelm it.

RICHARD PERLE: Well, a defensive system that has a specific offensive force in place can be overwhelmed if it is fixed and the offensive force is permitted to grow, but that's not what we're proposing to do.

CHRIS MASTERS: After the Safeguard experience, scientists began working on a non-nuclear interceptor designed to strike an oncoming warhead in space. The challenge was and is daunting.

JOSEPH CIRINCIONE: Can you hit a bullet with a bullet? Sure, under ideal circumstances. And that's a remarkable technological achievement. We've tried in tests 21 times since the early 1980s, and we've hit five times. So we know we can do it. The question is -- can you do it reliably? Can you do it repeatedly? Can you do it when the enemy is trying to have you not do it? When they're deploying countermeasures? When their warhead is maneuvering? When they're targeting your defensive systems, trying to blind you, trying to spoof you? That is unknown, and I think as you play that game out the offence always has the advantage. Defence is always playing catch-up.

CHRIS MASTERS: Over the last five years, the United States has staged a series of tests in the Pacific. A rocket is fired from California, an interceptor is fired from Kwajalein Atoll. The aim is to affect a mid-course collision between two small objects approaching one another at 12km/second, 400km above the earth.

PHILIP COYLE, FORMER CHIEF TESTER, PENTAGON: National missile defence is the hardest thing that the United States Department of Defense has ever tried to do -- more difficult than any aircraft carrier or ship or plane or submarine or anything you can think of. So in a sense we've never really gotten to the hard part, which is finding and discriminating amongst all the objects in the target set.

THEODORE POSTOL: In effect, the system has no way to choose which is the right target, and that's the crux of the problem.

CHRIS MASTERS: After the US Department of Defense claimed promising results from earlier tests, physicist Ted Postol independently examined the data.

THEODORE POSTOL: Let's say this is the warhead, and you expect to hit the warhead in the middle and destroy it.

CHRIS MASTERS: Postol concluded the tests had been deliberately dumbed-down to ensure a positive result.

THEODORE POSTOL: Basically what they did is they designed the decoys so that they could artificially create the impression that they could discriminate between credible decoys and the warhead. So they literally rigged the entire flight test program.

CHRIS MASTERS: Postol was so concerned, he wrote to President Clinton, and was soon joined by a school of eminent physicists who believe that interception in space can't work.
UNION OF CONCERNED SCIENTISTS COUNTERMEASURES ANIMATION:
Instead of a single large warhead, the attack is made with many small warheads called 'bomblets' or 'sub-munitions'.

CHRIS MASTERS: You could overwhelm defences not just with decoys, but a scatter of bomblets, making the task more like hitting a shotgun blast with a bullet.

ANIMATION: Now, every object the defence sees is a real warhead, but there are simply too many for the defence to intercept them all. And a defence that won't work is no defence at all.

RICHARD PERLE: The same physicists who say we can't distinguish the decoys are ready to attribute often to Third World countries the ability to build sophisticated decoys. I'm sufficiently confident of our technical capabilities so that if it comes to an American ability to find decoys and an Iraqi ability to deploy them, I'll bet on the United States.

THEODORE POSTOL: To suggest that these people could build a warhead, but can't figure out how to build a balloon, is really at best a self-deception, and at worst a lie to your own countrymen that could lead to a military disaster.

CHRIS MASTERS: The Bush administration has pursued the $40 billion mid-course interception program in another controlled test, hitting the target. But getting around the decoys remains an article of faith, which supporters believe might be realized when they get around the constraints of the ABM Treaty, which also prohibits deployment in space.

RICHARD PERLE: It so encumbers the technology that it requires us to build defences in the most difficult manner, and without the benefit of systems in space, for example, which is the logical place to locate much of what you would need for a missile defence system.

CHRIS MASTERS: They also from time to time make the point that a country which can put a man on the moon can do anything.

RICHARD GARWIN: The moon didn't turn off its lights, it didn't jump out of the way, and it didn't fight back. And so you have to ask what are the feasible technical ways to defeat the particular defence.

CHRIS MASTERS: Richard Garwin and many of his colleagues believe that missile defence has a better chance of working at what is called 'boost phase' interception.

RICHARD GARWIN: Instead of putting an umbrella over the entire United States and the eastern Pacific, as the Clinton administration and the Bush administration want to do with their mid-course intercept system, we put a lid over the tiny state of North Korea.

CHRIS MASTERS: Garwin believes the Russians would accept amendments to the ABM Treaty which prevents moving interceptors close to their targets.

PHILIP COYLE: Yes, you've got to be physically close to where the enemy missile is being launched from to shoot it down in boost phase. For example, boost phase would not work against China, because China's too big of a country. You just can't get close enough.
CHRIS MASTERS: China is not a signatory to the ABM Treaty. It has about 20 long-range missiles capable of reaching the United States. And the world's most powerful dictatorship is building up its defensive inventory, in one year spending $23 billion on new weapons.

FRANK GAFFNEY JNR: China is telling its own military forces, leadership cadre and people that war is inevitable with the United States. The communist Chinese Government, I believe, is pursuing policies that are preparing for conflict with our country.

JOSEPH CIRINCIONE: For many people, the whole point of missile defence is China. It's not really about North Korea. It's not really about Iran. It's the fear that some time in the next 20 or 30 years the United States is going to have a confrontation with China. Some see that as almost inevitable. It has to have a shield in place ready to face down those missiles, therefore face down China, otherwise the fear is the US will back down, and begin a slow but steady global retreat, and the American century will come to an end.

CHRIS MASTERS: The United States has 90,000 troops stationed to our north, most of them in Japan and South Korea.

PHILIP COYLE: From my point of view, the threat from short-range missiles is a real threat, and that's where our money and our priority ought to be going.

CHRIS MASTERS: Theatre missile defence, part of the Bush layered missile defence proposal is sometimes seen as code for protecting Japan, South Korea and Taiwan. If a missile war is to be fought, the narrow straits separating the Chinese mainland from Taiwan is a likely stage. Here mock armies stare down one another across an Asian iron curtain. But in the last years, the psychological war has been stepped up, taking on the form of missile age saber-rattling.

FRANK GAFFNEY JNR: Taiwan is clearly one of the places where missile defences are needed today. There are some 300 Chinese missiles, several of which were lobbed at Taiwanese waters a few years back, er, that are now aimed at targets in Taiwan. Um, estimates suggest that that may go up to 600 or even 1,000 missiles in the future.

CHRIS MASTERS: The stakes were raised again this year when President Bush moved beyond the US prior position of creative ambiguity, which accommodates support for a One China policy and military assistance to Taiwan.

REPORTER: Do we have an obligation to defend the Taiwanese?

PRESIDENT BUSH, US PRESIDENT: Yes, we do. And the Chinese must understand that. Yes, I would.

REPORTER: With the full force of American military?

PRESIDENT BUSH: Whatever it took to help Taiwan defend herself.

RICHARD ARMITAGE: It was not a departure from our policy. If the equation in the Taiwan Straits has changed in recent years, it has changed because the Chinese have put many missiles across the straits from Taiwan, they've had rather bellicose rhetoric, they've had very robust military exercises, and they've made some suggestions about the need to resolve this in a very rapid, or relatively rapid fashion. That's been the change in
the Taiwan Straits, so I think our President was trying to send them a signal that we do pay attention.

SHA ZU KANG: United States can help this kind of peaceful unification process instead of making such kind of remarks like defending Taiwan. Why, why, why?

CHRIS MASTERS: The big fear is a blockade will trigger a hot war, with China using its Sunburn missiles to keep the US fleet at bay, and its small ICBM arsenal as a deterrent against nuclear intervention.

BARRY BLECHMAN: Certainly, without the United States intervening they could do it. And I have no doubt that if there was an overt move toward Taiwan's independence, that they would take military action. It just seems very clear that should that happen, there would be a confrontation in the region.

REAR ADMIRAL EUGENE CARROLL, (RET), CENTER FOR DEFENSE INFORMATION: First I want to question the wisdom and the Chinese thinking about a blockade. To impose a blockade is an act of war and would immediately alienate the entire Western world. They simply would see this as a terrible threat to the peace and China would be cut off from the foreign trade, which it desperately needs to continue its economic development. In the second place, the United States navy would drive them off of the sea in a matter of days.

CHRIS MASTERS: So is the focus of missile defence about China -- about neutralizing deterrent capacity and shielding Taiwan?

RICHARD ARMITAGE: No, it's a -- it's a silly question. Er, the Chinese capacity in terms of their strategic deterrent would far overwhelm any of the missile defence capabilities which the United States has spoken about with friends and allies to -- and, by the way, with China. We're talking about a defence against, oh, at most, a handful of missiles, while the Chinese program envisions quite a more robust capability.

ALEXANDER DOWNER: The Chinese have -- have obviously become very preoccupied with that being the Americans' secret agenda. It's not. The Americans have made that clear to us privately. They've made it clear publicly. But, you know, they've got a big task here, but they need to assure China of that as well.

CHRIS MASTERS: A more realistic concern is weapons proliferation -- an arms race to our north, which, it's fair to say, had already started.

SHA ZU KANG: Such superiority could imply a kind of threat to others. Then others may take necessary steps, you know, to -- offset or reduce such a kind of possible potential threat. Then the -- here then lies the factor that may stipulate the arms race. You know, that's our worry.

JOSEPH CIRINCIONE: That's the question. It's not just c -- ca -- should we have a defence, can we have a defence, it's what does the other guy do when you deploy your defence? What happens next? What kind of chain reaction are you setting off?
LAURIE BRERETON, SHADOW DEFENCE MINISTER FOR FOREIGN AFFAIRS: For India following suit and Pakistan following suit. The -- such developments, were they to occur, have real implications for us in our region down here in Australia.

CHRIS MASTERS: China is already selling missiles and missile technology to other countries, notably Pakistan.

SHA ZU KANG: Why make such a fuss about very normal, really, exchanges between China and Pakistan. It's not fair! Absolutely unfair.

CHRIS MASTERS: China is in turn watching as the United States moves closer to India, and protesting proposed new defence linkages that would draw the United States, South Korea, Japan and Australia closer together.

ALEXANDER DOWNER: It doesn't constitute the emergence of an East Asian NATO and in fact, I mean, I don't think any of us would want to see that because one of the continuums of Australian foreign policy -- and I suspect, United States policy -- but certainly Australian policy, in terms of dealing with China, is a policy of engagement rather than a policy of containment.

LAURIE BRERETON: Well, the Chinese think it's aimed at China. That's the important thing.

FRANK GAFFNEY JNR: I think every effort should be made, in fact, to contain that threat. But I think we have to appreciate that is enormously more difficult than was containing the Soviet Union during the Cold War because for most of the past 30 years, we've been actively enabling China to penetrate every facet of our society, er, our political system, er, our economy. And not just that of the United States, but of the West more generally. So I'm under no illusion as to how difficult this would be.

CHRIS MASTERS: Australia, unlike many other Western nations, emerged an early and enthusiastic supporter of missile defence. The joint Pine Gap facility has an early warning function that could have a small role to play.

RON HUISKEN, STRATEGIC AND DEFENCE STUDIES CENTRE, ANU: It's part of a critical function for missile defence, but -- but Australia's association with it is probably no longer compulsory in the sense that it was during the Cold War.

SHA ZU KANG: I-I-I read about somewhere that if, er, it was decided to proceed with the missile defence, they would have to establish facilities in Australia. You know, and, er, I don't think such kind of development would increase or help Australia's security -- or security of the Asia-Pacific region.

CHRIS MASTERS: So would missile defence protect Australia too?

FRANK GAFFNEY JNR: Well, if the Australians don't want to be protected, I think we should make arrangements to ensure that they are not.

CHRIS MASTERS: So is this the main entrance, Lynne?

LYNNE: This is the West Tunnel entrance to the bunker. It would've been the home for about 1,000 to 1,100 people.
CHRIS MASTERS: Back in 1958, the United States began building this facility beneath an exclusive country club to the south of Washington. It is one tiny corner of a multi-million dollar civil defence program designed to protect Americans. It was meant to house Congress and was, thankfully, proved useless. Critics of missile defence see a revival of a bunker mentality with the resuscitation of the careers of some old cold-warriors.

REAR ADMIRAL EUGENE CARROLL: It's no accident at all that the current administration is not only a reflection of the Reagan-Bush era, but actually almost an intensification of it. We are the superpower. We call the shots.

JOSEPH CIRINCIONE: They see themselves on a mission to break -- to tear down these illusions, to alert America to the dangers that the new century presents, and to get America ready for the next conflicts, whatever they may be.

CHRIS MASTERS: What do you say to the criticism that missile defence is about ideology, it's about a historic mission by people like yourself, who see deterrence as immoral?

RICHARD PERLE: Well, there's certainly some truth that many of us who have thought that exclusive reliance on deterrence was dangerous, and if justifiable in the Cold War, highly questionable after the Cold War. But that isn't the situation today, so we now have the option for a defence that we didn't have then. And, yes, there's a consistency among some of us that it is better to protect against nuclear attack than to avenge it.

CHRIS MASTERS: This generation, the generation to be protected from missile attack, has the world literally at its feet.

STUDENT: Just take a look at the past 30 years, what we've come up with, like what we're now growing up with, that our parents would never have thought of.

CHRIS MASTERS: How proud are you of America's achievements in space?

STUDENT: I think it's really cool. I know the Russians beat us to a lot of places but we beat 'em to the moon -- yeah.

CHRIS MASTERS: Even without missile defence, the United States is already light-years ahead in space and weapons technology.

RON HUISKEN: The US is now operating in a conventional military environment that pretty much no-one else on the planet can really comprehend.

JOSEPH CIRINCIONE: If you live in America, you believe in that technological solution. I mean, look at the wonders that the United States has helped create over the last 100 years. Americans have a deep, ingrained belief in our ability to do anything we set our minds to.

THEODORE POSTOL: But the downside is when you have people who really don't understand the limits of what science and technology can produce. And they treat it almost as if anything is doable, and they forget that there are principles of science and
technology, and we see this overwhelmingly prevalent in this debate over missile defence.

**STUDENT:** As you know, China's becoming more and more powerful every year. They are getting -- $40-50 billion from us every year. I mean -- from trading, and all that, they are becoming more and more powerful. I don't think that we should break the treaty with Russia, but I think we do need some kind of missile defence to help intimidate them.

**CHRIS MASTERS:** The United States has a sovereign right to defend itself, and deep within the national psyche is a fear that, if an attack comes, it will be unexpected. Supporters see that even if it's decades away, the time to prepare is now, and that busting the treaty is not a matter of if, but when.

**RICHARD PERLE:** It's very hard to believe that over the long term we will not see the emergence of other countries with ballistic missiles and weapons of mass destruction on top of those missiles. How long do we want to wait? 5 years? 10 years? 20 years? 50 years? Can anyone say what the threat will look like, 25 years from now? If we don't start to build a defence today, we won't have one in the future.

**CHRIS MASTERS:** For the present, European allies in particular are having trouble understanding why the United States is so keen to overturn a treaty that has kept the peace, for a costly system that is not only unproven, but may make the world more dangerous. Would the United States go it alone, if that's the way it turns out?

**RICHARD PERLE:** Of course. We're certainly not going to subject the sensitive issue of our own defence to some kind of majority vote among other people who are not directly affected.

**ALEXANDER DOWNER:** Let's make no mistake about this -- if they can't get amendments to the ABM Treaty, they're not allowing that to stand in the way of the development of their missile defence technology and they will abrogate the treaty if they have to.

**NICK BERRY:** In effect, that unilateralist -- and that's really what it is -- goes against the whole process and system of globalization which you find greater interaction, by the way that produces -- greater prosperity, greater cultural exchanges, greater technological exchanges, greater multilaterally. It goes against all that, and I think it's anti-historical.

**SHA ZU KANG:** I don't think that anybody can stop them, stop their missile defence program, but to be honest, we only can hope that they don't do it -- don't do it. But if they insist, I'm sure that others will take necessary countermeasures, you know? And they cannot stop others either.

**STUDENT:** Once we start a mission -- a missile defence, then every other country's going to want one and then all we need is that one person sitting there with a button to start a nice little World War III. I mean, that's the bad part about it. I mean, yeah, we're defending ourselves, but once someone presses that button, it's going to be just --

**SECOND STUDENT:** Yeah, because it's kind of pointless just having everyone just pointing guns at each other, and just waiting for someone to make the first move. Once that starts, the whole world's dead, so what's the point?
## MISSILE DEFENSE IN THE 21st CENTURY

### 2000

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 18</td>
<td>Integrated Flight Test 4 (Second NMD intercept test). The kill vehicle failed to intercept the target due to a failure in its infrared sensors.</td>
</tr>
<tr>
<td>June</td>
<td>The Union of Concerned Scientists, comprising of about 35 scientists and engineers, tells a Capitol news conference that the proposed NMD program is scientifically unsound, describing it as a &quot;fatal rush…with a system that can't work&quot;.</td>
</tr>
<tr>
<td>July 7</td>
<td>Integrated Flight Test 5 fails.</td>
</tr>
<tr>
<td>September 1</td>
<td>Citing the status of technology, the refusal by Russia to agree to modify the ABM to permit deployment of an NMD system, and the reluctance of the allies to endorse NMD unless strategic stability can be assured through a modified ABM Treaty, President Clinton decides not to authorize work to begin on deploying NMD.</td>
</tr>
</tbody>
</table>

### 2001

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 20</td>
<td>President George W. Bush assumes office.</td>
</tr>
<tr>
<td>February</td>
<td>Integrated Ground Test 6. Bush suspends negotiations with North Korea to halt missile program stating that it cannot be trusted to abide by treaties.</td>
</tr>
<tr>
<td>March</td>
<td>Former senior engineers at top military contractor TRW claim first-hand knowledge of the company and the US government manipulating a study of anti-missile technology and censoring test data to make them appear more successful than they were.</td>
</tr>
<tr>
<td>May 1</td>
<td>President Bush <a href="http://example.com">delivers a speech</a> to the students and faculty of the National Defence University, stating that a new framework is needed, one that moves &quot;beyond the constraints of the 30 year old ABM Treaty&quot; that allows the US to &quot;build missile defences to counter the different threats of today's world&quot;.</td>
</tr>
</tbody>
</table>

**Watch a package of Bush’s speech** (Requires [RealPlayer](http://example.com).)

**Listen to sections of the speech**
- Using [RealPlayer](http://example.com)
- Using [Windows Media Player](http://example.com)

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 8</td>
<td>A survey of 31 defence experts, government officials and academics from China, Malaysia, Singapore, Indonesia, Taiwan, the Philippines and India found an overwhelming displeasure in Asia with US missile defence programs. The main reason stated was that deployment in the region could instigate a new arms race.</td>
</tr>
<tr>
<td>May 11</td>
<td>South Korean President Kim Dae-Jung expresses understanding of US missile defence plans but urges more consultation before deployment proceeds.</td>
</tr>
<tr>
<td>May 14</td>
<td>The Pentagon plans to restructure the BMDO to reflect changes in NMD</td>
</tr>
</tbody>
</table>
architecture. Under the plan, the BMDO will be organized into three parts focusing on the three stages of ballistic missile flight: boost phase, midcourse, and terminal. President Bush calls for a more ambitious system than original NMD plan proposed under President Clinton focused on intercepting missiles in the terminal phase.

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 14</td>
<td>Lt. Gen. Ronald Kadish, head of the Ballistic Missile Defence Organization (BMDO) states that he would like to more than double the number and increase the complexity of the tests of the national missile defence system. He would like to hold eight tests a year, instead of the planned three.</td>
</tr>
<tr>
<td>June 19</td>
<td>The Australian Government states that the US would be able to use the Pine Gap Joint Facilities to support its plan for missile defence.</td>
</tr>
<tr>
<td></td>
<td>US Secretary of State Colin Powell states that the United States would break with the 1972 ABM Treaty as soon as it becomes a hindrance to the Government's plans for a National Missile Defence system.</td>
</tr>
<tr>
<td>July</td>
<td>The US State Department notifies all its diplomatic posts that tests for an anti-missile shield will be conducted within months. Pentagon schedules its first flight test in a year of interceptors designed to shoot down long-range missiles.</td>
</tr>
<tr>
<td></td>
<td>The director of the BMDO announces President Bush's allocation of US $110 million for the study of defence technologies including a space-based laser, a revival of similar plans devised under the Reagan Administration.</td>
</tr>
<tr>
<td>July 14</td>
<td>An interceptor launched from the Marshall Islands destroys a dummy warhead fired 7,700 kilometers away at California's Vandenberg Air Force Base.</td>
</tr>
<tr>
<td></td>
<td>Russian security advisors warn the United States that the breaking of ground for a firing range at a missile defence site in Alaska will be considered a breach of the ABM Treaty. The Foreign Ministry denounces also the US missile defence test in the Pacific of July 14.</td>
</tr>
<tr>
<td>July 16</td>
<td>In Moscow PRC President Jiang Zemin and Russian President Vladimir Putin sign The Good Neighborly Treaty of Friendship and Co-operation, updating an outdated 1950 version and committing to a further 20-year pact.</td>
</tr>
<tr>
<td>July 29-31</td>
<td>US Secretary of Defence Rumsfeld and Secretary of State Colin Powell in Australia for AUSMIN talks with Australian Government officials. Following summit talks in Slovenia with US President Bush, President Putin says that despite it being in violation of the START II agreement, Russia would strengthen its nuclear forces in response to US NMD and could eventually counter an American defence system by implementing multiple warheads on its ICBMs.</td>
</tr>
<tr>
<td></td>
<td>Britain's Chief of Defence Staff Admiral Sir Michael Boyce expresses doubts about the technological merits of the US National Missile Defence project. North Korean leader Kim Jong-il arrives in Russia for bilateral talks with President Putin. He declares to the Russian press his support of the preservation of the ABM Treaty and that American agitation about potential threat from his country is &quot;totally unjustified&quot;.</td>
</tr>
</tbody>
</table>
August  
*Defence Week* reveals that warhead hit by a Pentagon missile during the defence shield test on July 14, was carrying a global positioning satellite beacon that made it easy to track. Critics say that the missiles would have had little chance of pinpointing the warhead's path without the help of the beacons. *Defence Week* also reported that the beacon helped the defence missiles compensate for deficiencies in US radar tracking technology on the ground.

August 13  
CNN reports that President Vladimir Putin is continuing to reject the Bush administration's push for the countries to jointly withdraw from the Anti-Ballistic Missile Treaty. Putin says that the treaty is "unconditionally linked with both the START II and START I treaties" and that Russia is only willing to negotiate nuclear force reductions. U.S. Defense Secretary, Donald Rumsfeld says that Washington plans to go ahead with its missile defence system, whatever Moscow's stance.

August 23  
President Bush said the United States will withdraw from the 1972 Anti-Ballistic Missile treaty with Russia, but does not specify a timeline.

August 29  
The Sydney Morning Herald reports that several environmental groups are filing a lawsuit claiming the Pentagon's plans for a missile defence test range in the Pacific will violate Federal environment laws.

August 31  
Ted Postol tells *New Scientist* Magazine that intercepted missiles from President Bush's defence shield could leave warheads flying in the sky and it would be difficult to determine where this warhead would land.

September 1  
The Age reports that Japan plans to boost spending for joint research with Washington on a missile defence system.

September 7  
CNN reports that Democrats on the Senate Armed Services committee have cut the Bush administration's budget for missile defence spending next year by $1.3 billion.

September 10  
Russian Defence Minister Sergei Ivanov says Russia might consider changes to the ABM Treaty but remains opposed to the planned deployment of a missile defence system by the United States.

September 13  
The Financial Review reports that the terrorist attacks on the World Trade Center and the Pentagon has helped to fortify entrenched positions on both sides of the debate over the missile shield proposed by the Bush Administration. US National security expert, Frank Gaffney, says the attacks are likely to build support for greater commitment to defence spending, including a missile shield.

October 23  
The Sydney Morning Herald reports that President George Bush and President Vladimir Putin have made progress on a deal to allow the United States to build a missile defence system in return for sharp reductions in nuclear arsenals. At a news conference, Mr. Bush argues that the September 11 terrorist attacks on the US had made a missile defence system more urgent.

October 27  
The Washington Post reports that the Bush Administration has put the brakes on its missile defence program, steering clear of a confrontation with Russia.
by deciding for the first time to delay testing elements of the system that could violate the ABM Treaty.

<table>
<thead>
<tr>
<th>November 15</th>
<th>President Bush announces at a news conference with Russian President Vladimir Putin that the United States will cut its Cold War nuclear arsenal by up to two-thirds, to between 1,700 and 2,200.</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 22</td>
<td>South Korea test-fires a missile with a 62-mile range that lands in the Yellow Sea between South Korea and China.</td>
</tr>
<tr>
<td>December 4</td>
<td>The Pentagon says it has successfully completed a test viewed as a crucial step toward the development of its missile defence shield. At 9.59pm a modified Minuteman intercontinental ballistic missile carrying a dummy warhead was launched from Vandenberg Air Force Base, 20 minutes later an interceptor was launched from Kwajalein Atoll in the Republic of the Marshall Islands. The intercept took place approximately ten minutes after the interceptor was launched. It was the third successful attempt for the Ground-based Midcourse Defense Segment.</td>
</tr>
<tr>
<td>December 13</td>
<td>President George W. Bush announces that he has given “formal notice to Russia” about the United States' withdrawal from the 1972 ABM Treaty. President Bush says that the U.S. and Russia have developed a new, constructive relationship that will &quot;replace mutually assured destruction with mutual cooperation&quot;. This announcement starts a six-month timetable for withdrawal and the opening of the way for the creation of an anti-missile defense system. Senate majority leader, Democrat Tom Daschle, says he has grave concerns about abandoning the ABM Treaty; &quot;it's a slap in the face…to a lot of the people who have committed years, if not decades, to arms reduction.&quot; Chinese Foreign Ministry Spokeswoman Zhang Qiyue calls for talks and &quot;strategic dialogue&quot; on the decision, saying, &quot;China worries about the negative impact&quot;. Chinese Foreign Minister Vladimir Putin says the U.S. decision to withdraw from the Anti-Ballistic Missile Treaty is a &quot;mistake,&quot; but does not threaten Russia's national security. In a nationwide television address, Putin repeats Russia's position that the treaty is a cornerstone of world security. He says both countries should create, as soon as possible, a &quot;new framework of our strategic relationship.&quot;</td>
</tr>
<tr>
<td>December 14</td>
<td>Congress sends President Bush a long-awaited $343 billion defense bill that gives full funding to his missile defense program. A prototype rocket booster, launched from Vandenberg Air Force Base in California, malfunctions about 30 seconds into its flight, veers off course and plunges into the Pacific Ocean. Phillip Coyle describes the event as &quot;another setback&quot;. The cause of the failure is under investigation. ABC News reports that Australia has endorsed the United States' withdrawal from the ABM Treaty. Prime Minister John Howard says Australia shares America's concerns about the destabilizing impact of missile proliferation.</td>
</tr>
</tbody>
</table>
December 15   The Washington Post reports that the Pentagon has canceled a multibillion-dollar missile defense system being developed by the Navy, citing "poor performance" and 50 percent cost overruns. The program, which was scheduled to be deployed in two years, was designed to protect Navy ships and ports from attacks by missiles or manned aircraft. Joseph Cirincione describes this as "a very serious setback for missile defense programs, because it shows that even the simple stuff is difficult."

<table>
<thead>
<tr>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deployment of an interim ground-based system in Alaska could be completed. Pentagon believes it could have a rudimentary shield, some analysts say this is optimistic,</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Korea could be capable of developing a missile that could reach the US.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iran could be capable of developing a missile that could reach the US.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iraq could be capable of developing a missile that could reach the US.</td>
</tr>
</tbody>
</table>

**WEDNESDAY, JULY 17, 2002**

**MDA PLANS RIGOROUS COUNTERMEASURE TESTS PRIOR TO 2004,** *Defense Daily,* July 17, 2002. The Missile Defense Agency (MDA) plans to test its Ground-based Midcourse Defense (GMD) system against a variety of sophisticated decoys and countermeasures before and well after establishment of the 2004 GMD testbed capability, Air Force Lt. Gen. Ronald Kadish, director of the MDA, told House lawmakers yesterday. Kadish came under fire from Democrats on the House panel who insisted MDA is rigging tests and sufficient removing oversight from the missile defense program with its new acquisition approach. But, several Republicans defended
the cost and pace of the missile defense program. Kadish also explained MDA recently decided to keep the details of its future countermeasures and decoys test work classified to keep sensitive technological data out of the hands of potential enemies. Kadish and Thomas Christie, Pentagon director of Operational Test and Evaluation, assured the lawmakers Congress would be kept very well informed on all aspects of the program, particularly as the test envelopes become more challenging and the system matures.

"Testing of missile defenses will become significantly more complex, not just because we will be progressing from developmental to operational testing," Kadish told the panel. "In addition to the autonomous operation of the elements, testing must consider the integration of the entire system, and multiple potential system architectures have to evaluated." In addition, MDA has a plan in place to beef up its ground tests of the system, with some 15 significant ground tests slated to take place over the next six months. "Over the past year in tests against long-range missile targets by the Ground-based Midcourse Defense, the intercept record is three for three, with the full record at four-for-six," Kadish said...Kadish also reported MDA already has adapted some recommendations proposed by the General Accounting Office for reducing risk in the Airborne Laser (ABL) program. Kadish told the panel MDA’s approach to ABL, as with all of its programs, is a new "capabilities approach" in which systems will mature and proceed through development stages only when they are ready.”

ARMY RADAR TEST A D.C. SUCCESS, Washington Times, July 17, 2002. An Army air-defense unit successfully carried out a radar exercise in Washington last week to improve efforts to intercept hijacked airliners and other enemy aircraft. The exercise involved two U.S. Army mobile radars but no interceptor missiles, the officials said...An Army spokesman said the radar used in the exercise was the Sentinel system, the service's most advanced air-defense radar. The radar detects and reports such targets as aircraft, helicopters, cruise missiles and unmanned aerial vehicles to air-defense weapons systems. The Army unit that took part in the exercises uses the radar with the Avenger and Linebacker air-defense missile systems. The Avenger uses Stinger anti-aircraft missiles mounted on a humvee, and the Linebacker is a tank-mounted version of the system. The exercise was one of 70 NORAD exercises held around the United States since the September 11 attacks. Other exercises have included civilian jetliners full of military men playing the role of passengers...[Marine Corps Spokesperson] Maj. Snyder said the use of ground radar in aircraft-tracking exercises is a relatively new mission for NORAD, a U.S.-Canadian command based in Colorado Springs. The exercise last week was limited to U.S. military personnel because of issues related to rules of engagement, he said.

SOUTH ASIA: ABM TREATY DEMISE TO AFFECT CHINA, INDIA, AND PAKISTAN, Global Security Newswire, July 12, 2002. The U.S. termination of the Anti-Ballistic Missile Treaty with Russia could have dramatic repercussions for the security situation in South Asia, according to regional experts. The balance of power
between China, India and Pakistan may be increasingly difficult to stabilize as the three countries adapt their nuclear and missile development plans to a new global security environment, they said. China, India and Pakistan have no formal constraints on their nuclear and missile programs and, unlike the United States and Russia, they lack parity in nuclear and missile capabilities, the experts agreed. In addition, the three have declined any significant transparency over their respective programs. At best, informal arrangements might help forestall a destabilizing nuclear and missile arms buildup in the region, but U.S. missile defense plans are likely to accelerate nuclear and missile competition in the region and breed further distrust in coming years, most of the experts agreed. "China, India and Pakistan are enmeshed in a three-cornered interaction that will not be easy to stabilize," wrote Michael Krepon, an arms control expert at the Stimson Center, in the collection, The Impact of U.S. Ballistic Missile Defenses on Southern Asia, published Wednesday. "They make a triangle of three unequal sides — an inherently unstable geometric form." . . . The best hope for stabilizing the region, Krepon argued, is for the United States to avoid weakening China’s nuclear deterrent. "If future U.S. administrations do not seek the negation of China’s strategic deterrent, cascade effects on the subcontinent could be greatly reduced."

FIXING MILITARY SPACE REQUIRES SMARTER CUSTOMER, Space News, July 15, 2002. (By Loren B. Thompson) If the government can’t find a better way to buy such systems, much of the promise Rumsfeld and his advisors foresee will never be realized. For example, the Space Based Infrared System High, a new early warning and missile defense satellite, went way over budget due to the government’s unrealistic expectations and the resulting need to reorganize the program six times . . . The heart of the problem in military space is a disorganized, capricious government customer that seems determined to elicit the worst possible behavior from suppliers. The administration of U.S. President George W. Bush has taken an important step toward cleaning up this mess by consolidating management of military space in the Air Force…Air Force Secretary James Roche and his deputy, Peter B. Teets, understand the intricacies of space technology far better than most policymakers. Now the Air Force needs to take to heart Roche’s constant exhortation that military transformation means cultural change. If it wants to avoid the foul-ups of past space acquisitions, it must have a more rational requirements process, source selections based on past performance and technical realism rather than fervent prayer and a less adversarial approach to fixing problems.

THURSDAY, JULY 18, 2002

SENATORS WANT MORE AIR MISSILES FOR TAIWAN, Washington Times, July 18, 2002. The United States should send advanced air-launch missiles to Taiwan based on China's recent test firing of similar missiles, four U.S. senators said in a letter to the State Department. "We believe that China's test of the AA-12s should trigger the
transfer of the AIM-120s to Taiwan as soon as they are produced," the senators told Secretary of State Colin L. Powell in a letter sent Monday. The senators were responding to a report . . . that China's military had test fired two Russian-made AA-12 air-to-air missiles, altering the military balance in Beijing's favor regarding air-to-air missiles. The senators said, "Developments over the last several weeks suggest that China has acquired such a capability." Republican Senators Jon Kyl of Arizona, Robert C. Smith of New Hampshire, and Jesse Helms of North Carolina signed the letter. Sen. Robert G. Torricelli, New Jersey Democrat, also signed the letter.

U.S. PLANS: KADISH UNSURE WHEN SYSTEMS WILL BEAT COUNTERMEASURES, Global Security Newswire, July 17, 2002. The Pentagon does not know whether its most prominent national missile defense program will be able to defeat enemy countermeasures, and it may not know even when it deploys an initial "emergency" system in Alaska by 2004, a senior Pentagon official testified before Congress yesterday. "We certainly have not answered the question [of] how effective is this midcourse system … against the variety of decoys that it might go up against," MDA Director Ronald Kadish said at a hearing of a House Government Reform subcommittee. "That, however, doesn’t mean that the system is ineffective," he added. "Only time will tell in our tests just how effective we will be against countermeasures," Kadish said…Kadish said the agency intends to apply various “techniques” to help make the ground-based midcourse and other missile defense systems more resistant to countermeasures. He suggested, however, that the military’s main answer to the challenge would be to develop many layers of defense to catch an enemy warhead in the event that a single layer fails.

CRUISE MISSILES FLY THROUGH ‘LOOPHOLES’ IN EXPORT CONTROLS: CRS, Space & Missile, July 18, 2002. The United States may need to tighten export-control regimes if it is to reduce the threat from cruise missiles, according to a report issued last week by the non-partisan research arm of Congress. Citing U.S. intelligence estimates, the Congressional Research Service (CRS) said a cruise-missile attack on the United States "may be possible" by the end of the decade. That poses a challenge for defense planners, because the bar is much lower for access to cruise-missile technology than ballistic-missile technology. According to CRS, there are "weaknesses" in those technology-control regimes, especially with regard to cruise missiles. CRS shies away from making specific policy recommendations. But the report also points to several avenues for reducing cruise missile supply. One possibility is closing the "loophole" in the MTCR: lifting the export exemption on items destined for manned aircraft. That option, however, "would probably encounter significant resistance" from industry.

senior Pentagon officials insist that a capabilities-based acquisition strategy will expedite development of a multi-tiered missile defense system, lawmakers and defense policy watchdog groups warn this approach sets the stage for widespread departures from independent testing of weapons programs, potentially resulting in cost overruns and the production of weapons that do not work. “Thomas Christie [the director of Office of Operational Test and Evaluation (OT&E)] has had to negotiate with MDA for specific information” about the agency’s missile defense testing activities, when “he should be given complete access,” to these activities, [Eric Miller, a spokesman for the Project on Government Oversight] said. Miller warned that removing OT&E from the early stages of missile defense testing could have the effect of turning the clock back to a procurement era that produced many overpriced and under-tested weapon systems. Such a capabilities-based approach is necessary for a program as experimental and unpredictable as missile defense, Gen. Ronald Kadish, MDA director, said in testimony July 17 before the House Government Reform subcommittee on national security. “We learn from failures,” Kadish noted, adding “if everything is a success,” in terms of missile defense testing, “we’re not pushing the envelope hard enough.”

BRAVE NEW POST-ABM WORLD, Washington Times, July 17, 2002. Embroiled as Washington is this summer in battles over the president's proposed Department of Homeland Security and corporate America's scandalous misdeeds, it hardly caused a blip on the capital's radar screen when the Anti-Ballistic Missile treaty expired last month…but the extraordinary lack of controversy belies the importance of June 13. For from that day forward, the United States was freed from any constraints on efforts to construct an effective national missile defense. An effective system missile defense has to include space-based interceptors, which is the only comprehensive way to shoot down missiles in their boost phase as well as in mid-flight. That means going back to the concepts of the Reagan Strategic Defense Initiative and first Bush administration's "brilliant pebbles" concept, but space was already militarized when the Soviets tested their first ICBM half a century ago. By placing our defensive weapons there, we would only be following their lead.

FRIDAY, JULY 19, 2002

U.S. BEGINS TESTING AIRBORNE LASER TO SHOOT DOWN MISSILES, Agence France Presse, July 19, 2002. A jumbo jet retrofitted to carry a laser gun capable to shooting down enemy missiles has been flight-tested for the first time as part of US efforts to build a national missile defense system, according to defense and industry officials. The modified Boeing 747-400 took off from an airport in Wichita, Kansas, at 3:30 pm (2030 GMT) Thursday for a two-hour flight to check the aircraft's aerodynamic performance and system operation, the officials said. The test marked the beginning of a months-long flight-worthiness test program for the first airborne laser aircraft, which sports a nose turret and top-mounted laser targeting pod. "This represents
a major step forward for the airborne laser program," Air Force Colonel Ellen Pawlikowski, who coordinates the project from Kirtland Air Force Base in New Mexico, said in a statement issued after the test. "We're making important, careful strides toward our goal of building a boost-phase missile-defense system." After undergoing a complete check of its aerodynamic performance and surveillance systems, the plane will be moved later this year to Edwards Air Force Base in California, where it will be equipped with tracking and high-energy laser systems.

BOEING TESTS PLANE EQUIPPED WITH BALLISTIC MISSILE-SEEKING LASER, *The Wichita Eagle*, July 19, 2002. The first Airborne Laser aircraft, modified by Boeing to carry the Airborne Laser ballistic missile-defense system, successfully flew for the first time on Thursday. The 747-400 aircraft took off from McConnell Air Force Base at 3:30 p.m. CDT and flew for 90 minutes to check out the aircraft's aerodynamic performance and system operation. Aircraft 00-0001, the initial airborne platform for the Airborne Laser system, has a distinctive nose turret and top-mounted laser targeting pod. The laser targeting system and the laser have not yet been installed on the plane. Col. Ellen Pawlikowski, Air Force ABL system program director at Kirtland Air Force Base in New Mexico, said she was pleased with the first-flight test results. "This represents a major step forward for the Airborne Laser program," she said. "We're making important, careful strides toward our goal of building a boost-phase missile defense system." Modifying a 747, . . . into a military aircraft that can track and shoot down Scud-like missiles seconds after they are launched, hasn't been easy. "This system is one of the most complex engineering challenges ever undertaken in an aircraft and our team has made solid progress," [said] Scott Fancher, Boeing vice president and Airborne Laser program director . . . "We've created a methodical approach to ABL development, moving through each phase after meeting appropriate technical goals. "We are now at the beginning of the future of missile defense."

LOCKHEED MARTIN REACTIVATES ALABAMA FACILITY FOR MISSILE DEFENSE BOOSTER WORK, *Defense Daily*, July 19, 2002. Lockheed Martin reported yesterday it is reactivating its Courtland, Ala., facility to work on boost vehicles for the Pentagon's missile defense program. The work at the Courtland plant is part of an agreement in which Lockheed Martin is assuming responsibility for Boeing's boost vehicle planned to evaluate the capabilities of the Ground-based Midcourse Defense (GMD) program managed by the Missile Defense Agency. Boeing, as prime contractor of the GMD program, recently completed its plans for developing and testing two boosters for the program in time for integration into the initial GMD testbed at Fort Greely, Alaska, in 2004."This facility was designed to accommodate a range of missile defense interceptor programs, and we're pleased to be resuming work in Courtland," Doug Graham, vice president of Lockheed Martin Space Systems Defensive Systems, said in a statement. "The proximity to our customer, GMD prime contractor Boeing,
made this site the logical choice." The company said it would assemble the HPBV in Courtland if the program were authorized. The [High Performance Boost Vehicle] work could result in Courtland total employment reaching 70 people by 2004, it noted.

U.S. PENALIZES 8 CHINESE FIRMS, Washington Times, July 19, 2002. The United States is imposing economic sanctions on eight Chinese companies for selling destabilizing arms and germ-weapons materials to Iran, The Washington Times has learned. The administration for the fourth time since September has singled out Beijing's state-run companies for violating U.S. laws aimed at curbing transfers of weapons and arms-related goods to rogue states. The sanctions will be formally announced in the next few days and involve three cases of sales of advanced conventional arms and chemical- and biological-weapons components to Iran, said State Department officials who spoke on the condition of anonymity. Evidence of the sales was compelling, they said. "These are all pretty serious cases, and there's a lot of intelligence to support them," one official said. Last year, U.S. intelligence officials said technicians from Chinese companies were working in Iran on a new advanced air-defense system near the border with Afghanistan. It could not be learned whether the radar system triggered the latest sanctions.