

The U.S. Nuclear Posture in Korea

Contribution by

Hans M. Kristensen

(consultant, Natural Resources Defense Council)

Phone: (202) 513-6249 / 289-6868

Website: <http://www.nukestrat.com>

To

Nuclear Proliferation Challenges:

The Korean Peninsula and Japan

National Assembly, Seoul, Republic of Korea

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Overview

- **Deployments During the Cold War**
- **The 1991 Withdrawal**
- **Maintaining the nuclear umbrella**
- **After the 2001 NPR**
- **Conclusions**

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- My name is Hans M. Kristensen. I am a nuclear weapons policy analyst and a consultant to the Nuclear Program at the Natural Resources Defense Council in Washington DC. I co-author the Nuclear Notebook in the Bulletin of the Atomic Scientists and the World Nuclear Forces tables to the SIPRI Yearbook.
- This briefing gives an overview of how the US nuclear posture toward North Korea has changed since the Cold War and describes the forces and operations that are used today to maintain a nuclear deterrence toward North Korea.
- The first part describes the deployments during the Cold War, when nuclear weapons arrived in South Korea, their types, how many there were.
- The withdrawal of all remaining nuclear weapons in 1991 is described.
- How did the 2001 Nuclear Posture Review view North Korea and how is it shaping the nuclear posture that serves a role toward North Korea?
- Ending with a number of conclusions and observations about what this means.

Introduction

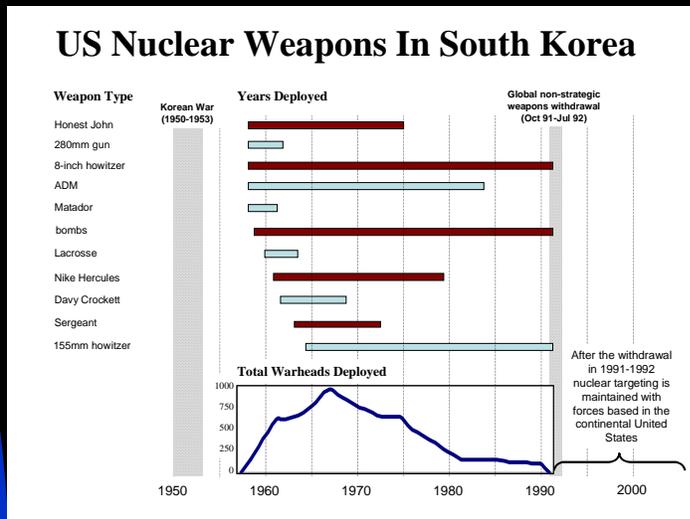
First a couple of facts:

- **There are no US nuclear weapons in South Korea**
- **There are no US nuclear weapons in any other country in the Pacific region (including Guam and Hawaii)**
- **There are no tactical US nuclear weapons aboard any ships or submarines in the Pacific**

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- But first I want to help end any speculations and rumors that there still are US nuclear weapons in South Korea. The US no longer has nuclear weapons in South Korea or in any other countries in the Pacific (including Guam and Hawaii), and there are no nuclear weapons carried onboard any US ships or attack submarines.
- The only forward presence on US nuclear weapons involves ballistic missiles on strategic submarines which continue to patrol the Pacific as if we were still in the Cold War.

Deployments During the Cold War



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- This chart illustrates the dramatic history of US nuclear weapons deployments in South Korea. Five systems were initially deployed in 1958 followed by a rapid build-up that peaked at nearly 1000 warheads in 1967. Overall, 11 different nuclear weapon systems were deployed, although not necessarily at the same time. The last weapons (artillery shells and bombs) were withdrawn in late 1991.

Deployments During the Cold War

Observations:

- **First warheads didn't arrive in Korea until January 1958**
- **Once they did, build-up occurred very rapidly: 0-950 in a decade (8/m)**
- **1967 peak of 950 warheads coincided with global posture**
- **Broad range of battlefield weapons**
- **NK/China not nuclear at the time; example of nukes against conventional threat**

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- The first observation from this history is that nuclear weapons did not arrive in South Korea until well after the end of the Korean War.
- Once they did arrive, they were followed by a massive build-up of nearly 1000 warheads within one decade, or an average of eight new warheads introduced every month for 10 years.
- The peak of nearly 1000 warheads coincided with the overall peak for the US nuclear stockpile which reached 32,000 in 1967.
- The weapons deployed to Korea were mainly battlefield weapons intended for use in artillery attacks, tank battles, and air attacks.
- North Korea did not have nuclear weapons at the time nor did it have a weapons of mass destruction program, so the US nuclear weapons were intended purely as means of defeating a large conventional attack.

Deployments During the Cold War

1974 review of PACOM forces

- Numbers well in excess of military requirement
- Security concerns
- Lack of political coordination
- Beginning to the end for US nuclear weapons in South Korea
- Lance warheads never arrived: stranded in Guam

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- The decline after 1967 occurred first because some early-generation weapons were retired, but also because the US government realized that the military had deployed far more weapons than it needed.
- Moreover, in the early 1970s the US Congress got involved over political and security concerns which revealed that ambassadors to host nations often were not aware that nuclear weapons were deployed in the country. Some of the weapons were deployed without adequate security.
- In some sense, this really marked the beginning to the end for nuclear weapons in South Korea. Although the South Korean government managed to persuade the Carter administration not to withdraw nuclear weapons altogether, the end result was never in doubt.
- The Reagan administration maintained the force level, but never increased it. The warheads for the Lance missile never made to Korea but stranded in Guam.

The 1991 Withdrawal

Presidential Nuclear Initiatives

- **Late decision: in July 1991, no change was possible; by September 1991, complete denuclearization decided**
- **Korea pullout priority for worldwide withdrawal**
- **Warheads out before Joint Security Committee meeting 20-22 Nov 1991**
- **Korean pullout completed six months before worldwide withdrawal**

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- The 1991 withdrawal of the remaining weapons is interesting for several reasons. First that it apparently came so fast. When the Korea president in July 1991 visited Washington questions about a withdrawal were rejected. Then, only two months later, the US decided to withdraw anyway.
- Moreover, the Korean pullout had priority over other weapon movements. The intention was to get them out before the Joint Security Committee meeting on 20-22 November 1991. The following month, the Korean president stated that the weapons were gone.
- Other withdrawals from Europe and naval ships took longer and were not completed until July 1992.

The 1991 Withdrawal

- **Withdrawal despite US knowing North Korea was developing WMD**
- **No effect seen from nuclear posture in influencing North Korean WMD ambitions (1994 NPR analysis)**

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- The withdrawal is also interesting because the deployment was not seen as directly tied to US-Soviet relations – the overall reason for the 1991 presidential nuclear initiatives.
- Moreover, the withdrawal occurred at a time that the US knew that North Korea was developing weapons of mass destruction. Coinciding with the withdrawal from South Korea, the US intelligence community concluded that North Korea probably had assembled 1-2 nuclear weapons.
- Official lessons learned from the deployment and withdrawal are not known, but they suggest that neither had any of the effects on North Korea's WMD ambitions that are so often used to justify a continued nuclear deterrent toward North Korea:
 - The Cold War deployment did not “dissuade” the North from pursuing WMD capability.
 - The 1991 withdrawal did not remove the pressure and somehow cause North Korea to increase its WMD efforts. The 1994 NPR analysis concluded that the withdrawal had no effect on North Korea.
- If anything, US nuclear weapons in South Korea may have helped convince the North that nuclear weapons are important instruments of national power – especially if one wants to stand up to the US.

Post-1991 Nuclear Umbrella

- **Korean and Japanese need for continued security guarantee**
- **Umbrella forces today include:**
 - ◆ **CONUS-based DCA (F-15E/F-16)**
 - ◆ **Long-range bombers**
 - ◆ **Tomahawk TLAM/N**
 - ◆ **SLBM/SSBN**
 - ◆ **ICBM**

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- After the 1991 withdrawal, both South Korea and Japan have continued to invite a continued US nuclear umbrella in the area. In fact, both countries wanted reassurances after the withdrawal that such an umbrella was still in place. The US gave assurances, partly to avoid either country from developing nuclear weapons.
- Today's US nuclear umbrella in the region is maintained by all elements of the nuclear arsenal:
 - Tactical fighter-bombers based in the United States.
 - Long-range bombers with cruise missiles or gravity bombs.
 - Sea-launched cruise missiles for attack submarines.
 - Long-range ballistic missiles on Trident submarines.
 - Intercontinental ballistic missiles (ICBM).
- There is a new flexibility in nuclear planning today that does not distinguish between strategic and tactical weapons systems but permits use of all elements of the posture in regional contingencies.
- But: this does not necessarily mean that all elements of the arsenal are in fact assigned strike missions against North Korea today. Little is known about the details.

Post-1991 Nuclear Umbrella



© Boeing www.f-15strikeeagle.com



General Dynamics F-16A "Fighting Falcon"
USAF Museum Photo Archives

US-based DCA

- F-15E of 4th Fighter Wing at Seymour Johnson AFB in North Carolina
- F-16 of 27th Fighter Wing at Cannon AFB in New Mexico

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- What is known is that the fighter-bombers have nuclear strike missions in North Korea under current war plans.
- The US currently has two wings that serve this purpose:
 - 4th Fighter Wing at Seymour Johnson Air Base in North Carolina (two squadrons of F-15E Strike Eagle)
 - 27th Fighter Wing at Cannon Air Base in New Mexico (two squadrons of F-16C/D Falcon)
- These two wings are tasked to support Geographical Combatant Commanders (GCC) with nuclear strike assets for the theater nuclear war plans in the region.

Post-1991 Nuclear Umbrella



1998 Strike Exercise

- 4th FW F-15E squadron simulated nuclear strike against NK
- Defense of South Korea against North Korean attack (including chemical weapons)
- In support of OPLAN 5027
- Long-range with refueling and defense (KC-135, AWACS, F-16, F-15)

(source: "Preemptive Posturing," *Bulletin of the Atomic Scientists*, September 2002, pp. 54-59.)

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- In fact, we know of one recent instance where the 4th Fighter Wing practiced this mission for the Korean theater. This happened in June 1998, when F-15Es from the Wing simulated a long-range nuclear strike against North Korea.
- The exercise envisioned a nuclear response to North Korean use of chemical weapons against the South.
- The exercise was part of a nuclear weapons certification inspection, which all units that are assigned nuclear missions must pass regularly to be allowed to handle and deliver nuclear weapons.
- The simulated strike was not flown in the Pacific but on the US east coast from North Carolina down to Florida where the planes dropped B61 "dummies" on a bombing range.
- To do this strike, a sizeable strike package was assembled which in addition to the F-15Es included F-16s for air defense, AWACS for early warning, and KC-135 tankers for refueling.

Post-1991 Nuclear Umbrella



Pacific Trident Force

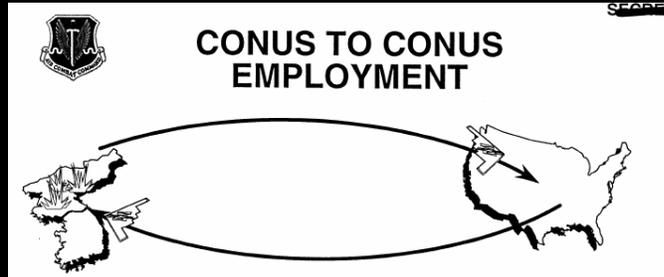
- **Millennium (Y2K) reference to SSBN in USFK/PACOM requirement**
- **Ohio Class SSBNs based at Bangor in Washington**
 - ◆ **7 SSBNs from 2005**
 - ◆ **C4/W76 until 2006**
 - ◆ **From 2006 only D5**
 - ◆ **D5 deployed in Pacific from 2002 with W76 and W88 warheads**

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- Some Trident submarines, it may come as a surprise to some, also appear to be assigned strike missions against North Korea. This last was disclosed in 2000 when US Force Korea identified the Trident as a mission critical platform.
- Pacific-based SSBN force undergoing modernization:
 - All boats upgraded from C4 missile to longer-range and more accurate D5. Complete in 2007.
 - With D5 comes W88, the most powerful US ballistic missile warhead. Previously only in Atlantic fleet. Since 2002, W88 warheads have gone on routine SSBN deterrence patrols in the Pacific. W88 can be used against the full spectrum of targets, including the most hardened.
 - W76 warhead being upgraded and equipped with new fuse that for the first time will give this warhead a ground-burst capability. This will broaden the types of targets that can be attacked with the W76.
- Of 7 SSBNs in Pacific, 2 are on Hard Alert (within range and ready to fire), 2 are enroute to or from the patrol area, 2 are exercising and undergoing inspections, and 1 is in dry dock for repair.
- Each SSBN conducts 3 deterrent patrols per year. Each patrol lasts about 70 days.
- With virtually no anti-submarine threat against the SSBN, patrol areas in the North Pacific are determined by range to target and flight-time needed.
- A new Medium-Range Ballistic Missile is being designed.

Post-1991 Nuclear Umbrella

Strategic Bombers



- **B-2 (B61-7/11, B83-1, RNEP?)**
- **B-52 (ALCM/ACM, W80-1)**
- **Adaptive planning upgrade**

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- Long-range bombers are also known to be assigned strike missions in North Korea, as illustrated by the Air Combat Command image from a 1998 document.
- The B-2 stealth bomber can probably penetrate North Korean air defenses at will and deliver B61-7, B61-11 earth penetrator, and B83 nuclear bombs on high-value targets. The B-2 will also be the carrier of the Robust Nuclear Earth Penetrator under development by the US military (provided Congress authorizes production).
- The B-52H would primarily be used to employ air-launched cruise missiles from a safe distance.
- Nuclear upgrades underway on the bombers will greatly reduce time needed to plan and carry out nuclear strike missions. A single SIOP bomber sortie used to take 24 hours to plan; this can now be done in less than 8 hours – just under the time it takes to fly to North Korea.

Post-1991 Nuclear Umbrella



Tomahawk TLAM/N

- **Stored on land (at Bangor and Kings Bay); can redeploy in 30 days**
- **SSN use, periodic certification**
- **Only a few SSNs have nuclear mission**
- **Of some 300 W80-0 warheads, 100 active and 200 inactive**

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- Less is known about the role of the Tomahawk nuclear land-attack cruise missile. The Pentagon two years ago decided to keep this weapon instead of retiring it, partly because of unique targeting capabilities that it provides.
- All nuclear Tomahawks are stored on land (in the Pacific at the Strategic Weapons Facility Pacific near Bangor, Washington).
- Not considered active but can be redeployed in about 30 days.
- Less than a dozen SSNs in the Pacific have nuclear strike missions, and of those that have, most if not all are de-certified after passing nuclear inspections to save resources for more important non-nuclear tasks.

Post-1991 Nuclear Umbrella



Intercontinental Ballistic Missiles (ICBM)

- 500 Minuteman III
- W62 and W78 warheads
- From 2007: W78 and W87
- Peacekeeper retired 2005
- REACT and new guidance

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- Long-range land-based ballistic missiles (Intercontinental Ballistic Missiles, ICBM) may also have a prompt strike role against North Korea. Hardly anything is known about this.
- ICBMs are thought to mainly be for use against Russia, with China being mainly a SSBN/bomber responsibility.
- But role of ICBM force includes deterrence of “regional actors” which is generally thought to include North Korea.
- Modernization is underway:
 - All 500 Minuteman IIIs are undergoing a \$6 billion-plus modernization of propulsion, guidance and warheads.
 - Minuteman III currently carries W62 and W78 warheads, but after the last Peacekeeper is retired this September, the W62 will be replaced with the more powerful W87 from the Peacekeeper.
 - A new guidance system and an upgrade to the REACT retargeting system will enhance the ICBM force.
- Development of a new ICBM is underway scheduled to replace the Minuteman III from 2018.

Post-1991 Nuclear Umbrella

Role of nukes in Korea crisis

Congress: What role have nuclear weapons played in preventing WMD from being used by Rogue states?

“In my view, sir, it plays a very large role. Not only was that message passed in 1990 by the President [to Iraq], that same message was passed to the North Koreans back in 1995, when the North Koreans were not coming off their reactor approach they were taking [sic].”

CINCSTRAT, 1997

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- US nuclear policy gradually expanded during the 1990s to incorporate use against not only nuclear but also chemical/biological threats.
- While government officials denied such an expansion was taking place, the US military applied the new policy in justifications for new weapons and development of nuclear doctrine.
- The expanded policy was apparently used against North Korea in the mid-1990s, in an attempt to pressure North Korea. Former commander of US Strategic Command, General Eugene Habiger, told Congress about this in 1997. While former Clinton officials say they don't know of such an incident, General Habiger has since reaffirmed that it did happen.

After the 2001 NPR

NPR defined North Korea as an “immediate contingency”

“Immediate contingencies involve well-recognized current dangers... Current examples of immediate contingencies include an Iraqi attack on Israel or its neighbors, a North Korean attack on South Korea, or a military confrontation over the status of Taiwan.”

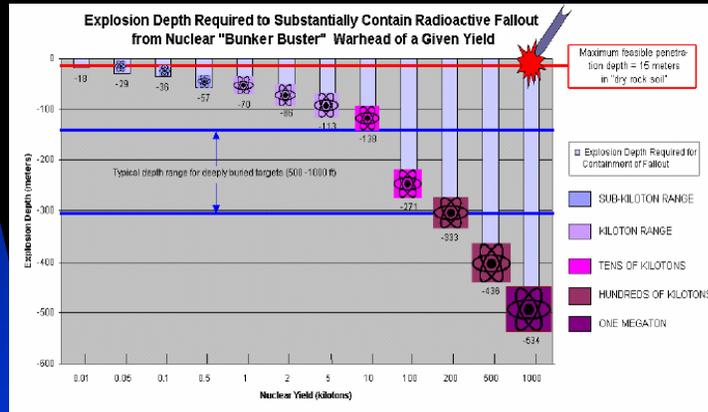
DOD, Nuclear Posture Review Report,
December 31, 2001, p. 19.

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- The 2001 Nuclear Posture Review deepened this development. Although the NPR with portrayed as an unprecedented reduction in the role of nuclear weapons, the review not only reaffirmed the expanded role of nuclear weapons against all forms of WMD, it called for specific upgrades to weapon systems to better carry out this mission.
- Although the 1994 Agreed Framework contained a pledge to eventually end nuclear threats against North Korea, the NPR reaffirmed this threat by naming North Korea as an “immediate contingency.”
- But the NPR offered no new argument or anecdotal evidence for why nuclear deterrence of “rogue” states such as North Korea would work. Instead, the planners seem to simply say that it might work unless someone can prove otherwise.
- The usefulness of nuclear weapons in dealing with “rogue” states in single- or a-few-warhead scenarios is dubious at best. It comes with considerable risk of exacerbating the problem through a need to demonstrate a “credible” deterrent with aggressive posturing.

After the 2001 NPR

The illusion of containing fallout



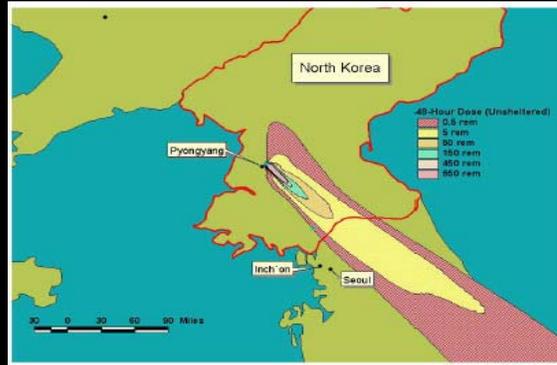
Source: Christopher Paine, et al., "Countering Proliferation or Compounding it?," NRDC, May 2003.

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- The NPR specifically called for development of new nuclear capabilities to better destroy underground facilities. Military officials subsequently suggested that deeper penetration combined with lower yield would help contain radioactive fallout. But subsequent debate quickly ended that hypothesis.
- Even a sub-kiloton weapon would need to penetrate at least 57 meters in dry rock soil to contain fallout. In the 1-10 kiloton range, the depth would need to be at least 113 meters.
- Given that the maximum feasible penetration depth is 15 meters in dry rock soil, fallout even for low-yield nuclear earth penetrating weapons would be considerable.

After the 2001 NPR

Fallout from use of a single B61-11 against North Korea:



Assumes depth of 30 feet and yield of 300 kt (actual yield 400 kt). Source: NRDC

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- The use of a single B61-11 earth-penetrator would kick up huge amounts of contaminated soil and debris.
- This image shows the result of a simulation of a single 300 kiloton B61-11 detonating at a penetration depth of 10 meters (30 feet). Actually, the B61-11 yield is 25% greater (400 kiloton).
- The fallout would be considerable and spread (depending on weather) over South Korea and parts of Japan. The estimated number of casualties would range from 430,000 to 550,000 casualties (ranging from casualties based on a sheltered to an unsheltered population).

Conclusions

The details of the nuclear posture against North Korea has changed, but basic doctrine has not

- **North Korea continues to be an immediate contingency**
- **Detailed strike plans continue to be maintained**
- **Strike exercises continue**
- **Weapons modernization continues**
- **South Korea/Japan continue requirement for nuclear umbrella; helps drive posture/crisis**

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- An overall conclusion for this presentation is that although the details of the nuclear posture have changed with changes to the locations of nuclear weapons and the capabilities of the delivery systems, the basic philosophy that drives the posture has changed very little. In fact, it is tempting to conclude that the United States continues to apply nuclear deterrence to North Korea as if nothing had changed.
- While the political landscape on the Korean Peninsula has changed dramatically, nuclear planning appears to occur in a vacuum and unaffected by the political and social events of the past decade and a half:
 - North Korea continues to be an immediate contingency.
 - Detailed strike plans are maintained and updated as usual.
 - Nuclear strike exercises continue as usual.
 - Weapons modernization continues partly based on the North Korea threat.
 - South Korea and Japan continue to invite US nuclear umbrella, which in turn continues status quo and help drive/prolong crisis.
- Continued nuclear operations, so the argument goes, are necessary to demonstrate a credible deterrence. Yet the same nuclear operations help drive North Korean paranoia of, in particular, US intentions.
- If the Korean crisis, which is predominantly a nuclear issue, is to be resolved, both North Korea and the US must fundamentally change their nuclear activities.