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"Visit to the Yongbyon Nuclear Facilities in North Korea"
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For presentation at the
Five-Nation Project on Asian Regional Security and Economic Development
Working Group II Meeting
Honolulu, Hawaii
February 7, 2004

Actions of the Government of the Democratic People's Republic of Korea have precipitated two nuclear crises in the past 10 years. The 1994 crisis was resolved through the "Agreed Framework." North Korea agreed to "freeze" and eventually dismantle its nuclear program (with U.S. help to store spent fuel safely and under IAEA inspection). In return, the United States agreed (with the KEDO international consortium) to build two light-water reactors and supply North Korea with heavy-fuel oil until the reactors come on line. In addition, both sides agreed to move towards full normalization of relations, work for peace and security on a nuclear-free Korean Peninsula, and work on strengthening the international nonproliferation regime.

The second nuclear crisis erupted when North Korean Government officials allegedly admitted to having a clandestine uranium enrichment program when confronted with this accusation by U.S. officials in October 2002. The United States (through KEDO) suspended heavy-fuel oil shipments and North Korea responded by expelling the IAEA inspectors, withdrawing from the Nuclear Nonproliferation Treaty, and restarting its nuclear program in January 2003.

The North Korean Government has invited Professor John Lewis of Stanford University, a China and North Korea scholar, for Track II discussions of nuclear and other key issues since 1987. In August 2003, Professor Lewis visited North Korea just before the first six-party talks, which were designed by the United States to solve the current nuclear crisis. Professor Lewis was invited back for the January 2004 visit. He asked Jack Pritchard, former U.S. special envoy for DRPK negotiations, and me to accompany him. Two Asian affairs staff specialists from the U.S. Senate Foreign Relations Committee also joined us.

I will report on the visit to the Yongbyon Nuclear Scientific Research Center on January 8, 2004. We toured the 5 MWe reactor, the 50 MWe reactor construction site, the spent fuel pool storage building, and the radiochemical laboratory. We concluded that North Korea has restarted its 5 MWe reactor (which produces roughly 6 kg of plutonium annually), it removed the 8000 spent fuel rods that were previously stored under IAEA safeguards from the spent fuel pool, and that it most likely extracted the 25 to 30 kg of plutonium contained in these fuel rods. Although North Korean officials showed us what they claimed was their plutonium metal product from this reprocessing campaign, we were not able to conclude definitively that it was in fact plutonium metal and that it came from the most recent reprocessing campaign. Nevertheless, our North Korean hosts

demonstrated that they had the capability, the facility and requisite capacity, and the technical expertise to produce plutonium metal.

We were not shown any facilities or had the opportunity to talk to technical or military experts who were able to address the issue of whether or not North Korea had a "deterrent" as claimed – that is, we were not able to conclude that North Korea can build a nuclear device and that it can integrate nuclear devices into suitable delivery systems. On the matter of uranium enrichment programs, Vice Minister Kim Gye Gwan categorically denied that North Korea has a uranium enrichment program – he said, "we have no program, no equipment, and no technical expertise for uranium enrichment."

Upon return to the United States, I shared my observations and analysis with U.S. Government officials in Washington, DC, including congressional testimony to the Senate Foreign Relations Committee and briefings to two House of Representative Committees.

Visit to DPRK Yongbyon Nuclear Complex
8 January 2004

John W. Lewis
Charles L. (Jack) Pritchard
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For Presentation at
Five-Nation Project on Asian Regional Security and Economic Development
Working Group II Meeting
Honolulu, Hawaii
February 6, 2004

Nuclear timeline for North Korea

- 1960s Soviet Union supplies IRT research reactor (HEU metal fuel) and isotope production lab (IAEA safeguards in 1977)
- Dec. 12, 1985 North Korea accedes to the NPT
- Sept. 27, 1991 President Bush announces unilateral withdrawal of all naval and land-based nuclear weapons from abroad (leads to withdrawal of U.S. nukes from ROK)
- Dec. 31, 1991 Two Koreas sign South-North Joint Declaration on Denuclearization of Korean Peninsula
- April 9, 1992 DPRK ratifies the safeguards pact with IAEA
- May 4, 1992 DPRK submits nuclear material declaration to IAEA. Hans Blix and IAEA inspectors at Yongbyon

Nuclear timeline: The first nuclear crisis

- Feb. 9, 1993 IAEA demands special inspection after finding discrepancies in DRPK declarations
- March 12, 1993 DPRK announces intention to withdraw from NPT
- June 1993 U.S. - DPRK talks defuse nuclear crisis
- January 1994 CIA director estimates DPRK may have produced one or two nuclear weapons
- June 13, 1994 DPRK announces withdrawal from NPT
- June 15, 1994 Pres. Carter negotiates nuclear "freeze"
- Oct. 21, 1994 U.S. and DPRK adopt "Agreed Framework" and IAEA inspectors return to Yongbyon

The Agreed Framework resolves first nuclear crisis

- Replace DPRK reactors with 2 LWR reactors - 2000 MWe by 2003 (U.S. to lead international consortium - KEDO)
- U.S. (on behalf of KEDO) will offset lost energy from DPRK reactors with 500,000 tonnes annually of heavy fuel oil
- DPRK will freeze reactors and related facilities and eventually dismantle (U.S. agrees to help DPRK store spent fuel safely). IAEA to be allowed to monitor the freeze
- Both sides move towards full normalization of relations
- Both sides work for peace and security on a nuclear-free Korean Peninsula
- Both sides will work toward strengthening international nonproliferation regime

The Agreed Framework – constantly challenged

- 1996 U.S. and DPRK hold bilateral missile talks. U.S. imposes sanctions on DPRK for missile-related technology transfers
- 1997 More missile talks and more sanctions
- 1998 South Korean "sunshine" policy announced. More U.S. sanctions because of transfers to Pakistan Khan Lab
- Aug. 31, 1998 DPRK launches 3-stage rocket over Japan
- 1999 Bill Perry recommends new integrated approach for DPRK. Construction of first LWR reactor begins
- Secretary Albright concludes 2-day visit to Pyongyang. Kim Jong il shows missile restraint. Relations best in some time

Heading toward the second nuclear crisis

- March 2001 DPRK claims to remain "fully prepared for dialogue or war"
- Jan. 29, 2002 President Bush labels DPRK part of "axis of evil"
- Summer 2002 Bilateral discussions postponed because of U.S. intelligence of DPRK uranium enrichment program
- Oct. 3-5, 2002 James Kelly, Asst. Sec. State, confronts DPRK officials in Pyongyang with HEU concerns
- Oct. 16, 2002 U.S. announces that DPRK admitted clandestine HEU program
- KEDO announces suspension of heavy-fuel oil shipments
- Dec. 2002 DPRK announces end of freeze and expels IAEA
- Jan. 10, 2003 DPRK announces withdrawal from NPT

The second nuclear crisis - unresolved

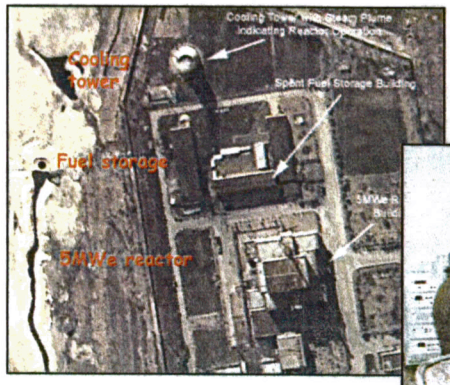
- April 23-25, 2003 U.S., China and DPRK hold trilateral talks in Beijing
- U.S. chooses six-party framework for further talks. Rejects bilateral talks directly with DPRK
- August 27-29, 2003 Six-party talks held in Beijing. Not much progress reported
- DPRK stated that it:
  - Restarted the 5 MWe reactor
  - Reprocessed all 8000 spent fuel rods to extract plutonium
  - Strengthened its nuclear deterrent
- Dec. 7, 2003 and Jan. 6, 2004 DPRK offers another "freeze"

Lewis delegation visits Yongbyon – 8 January 2004

Aerial map of Yongbyon and nuclear complex

Courtesy U.S. Canning Team

5 MWe reactor restarted and operating smoothly



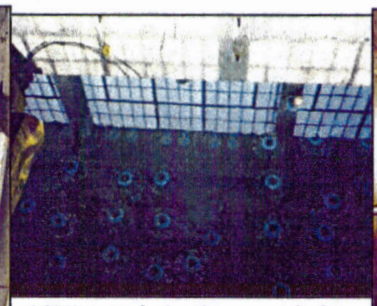
Reactor is providing heat and electricity for town …

… and producing 6 kg of plutonium annually.

Lewis delegation in reactor control room

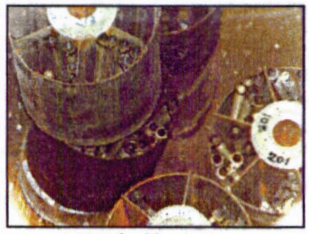
Spent fuel pool held 8000 spent fuel rods from reactor operations prior to 1994

Spent fuel pool building (before)



DPRK spent fuel rod storage - before

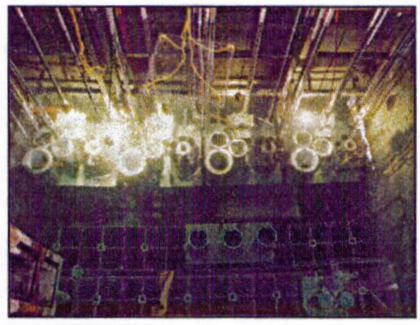
Spent fuel building (during canning team effort)

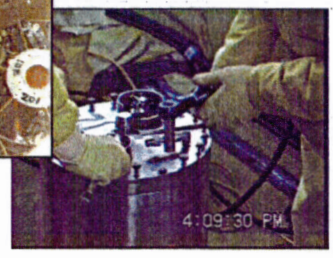


DPRK fuel baskets

Courtesy U.S. Canning Team

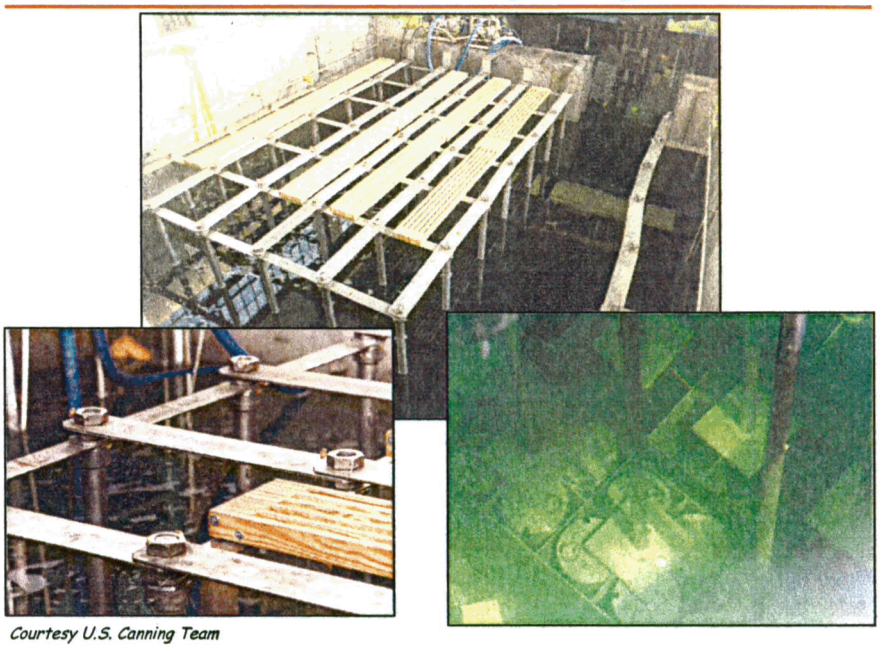
U.S. Canning Team repackaged rods for safe storage





Courtesy U.S. Canning Team

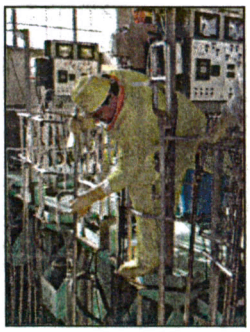
IAEA monitored the U.S. safeguarding mechanisms



Courtesy U.S. Canning Team

We concluded the 8000 spent fuel rods were no longer in pool

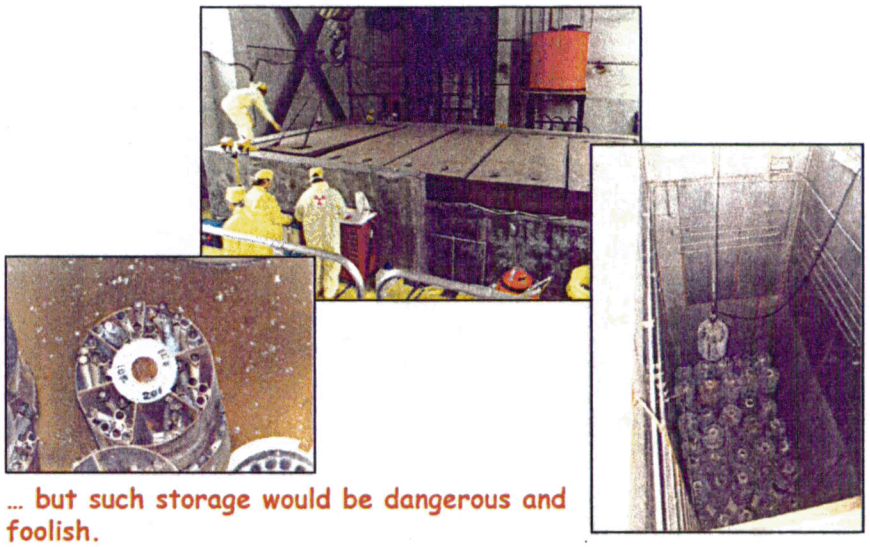
Lewis delegation at pool observation platform



Randomly chosen empty canister convinced us

Courtesy U.S. Canning Team

Remote possibility that 8000 fuel rods are stored somewhere, such as in the dry pit in the pool building...



... but such storage would be dangerous and foolish.

Courtesy U.S. Canning Team

DPRK officials stated all fuel rods were reprocessed between mid-January and end of June, 2003

8000 spent fuel rods contained an estimated 25 - 30 kg of plutonium

Lewis delegation at Radiochemical Laboratory

Assessment of reprocessing activities

- We could not definitively conclude that 8000 rods were reprocessed
- However, the capability and the capacity clearly exists
  - Facilities are adequate and had been used
  - Level of technical competence is very good
  - Reprocessing capacity is consistent with a < 6-month campaign
- They showed us their reprocessed product – plutonium metal
  - This is first time DPRK has shown Pu metal
  - 200 g of Pu is significant, but not sufficient for a nuclear device
  - All we saw was consistent with Pu metal and Pu oxalate powder as claimed by very knowledgeable DPRK technical hosts
- With tools at hand, we could not definitively conclude that what we saw was Pu metal. Moreover, we would not have been able to tell if it was "new" plutonium

Ambassador Li Gun – "we have shown you our deterrent"

Of the three requisites of a "deterrent," we saw –

- The capability and capacity to make Pu metal sufficient for nuclear weapons

We did not see:

- Facilities or specialists who could design and build a nuclear device
- Or, facilities or experts who could integrate the device into a delivery system

However, we must assume that with Pu metal in hand they can produce at least a primitive nuclear device

Vice Minister Kim Gye Gwan denies HEU program

- Alleged Oct. 2002 admission of HEU program triggered the current nuclear crisis

During our visit, Kim Gye Gwan state categorically:

- We chose the plutonium path to a deterrent
- We have no HEU program
- We have no facilities or equipment
- We have no scientists dedicated to an HEU program

Vice Minister Kim Gye Gwan reiterated DPRK "freeze" offer

- DPRK will freeze nuclear program – no manufacturing, no testing, and no transferring of nuclear weapons

In return for:

- Security assurance from the United States
- Removal of DPRK from terrorist-sponsoring countries list and lifting of political, economic, and military sanctions
- Supply of energy, including shipments of heavy fuel oil (with other neighboring states)

Pritchard: "From U.S. perspective, complete, verifiable resolution of HEU issue is now mandatory"

Kim responsed: "We can be very serious when we talk about this. We are fully open to technical talks"

Kim – time is not on your side. With additional lapse in time, our nuclear arsenal could grow in quality and in quantity

Our trip attracted great international attention – especially in Beijing

Meetings in Pyongyang, DPRK

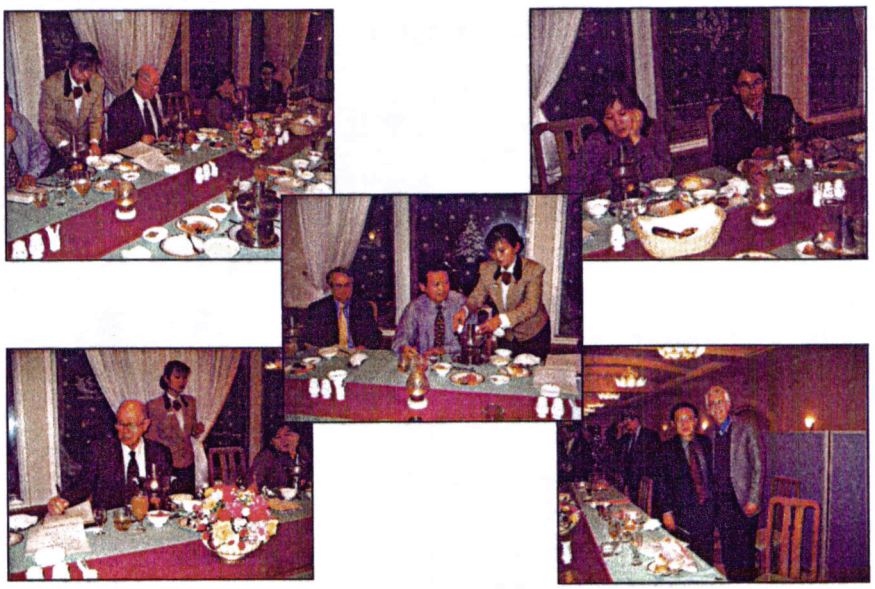
Jong Hun Il and Ri Mun Ho
Academy of Sciences, DPRK

With Ministry of Foreign Affairs

Ri Hak Gwan – Vice President CPIT

Col. Gen Li Chang Bok – KPA

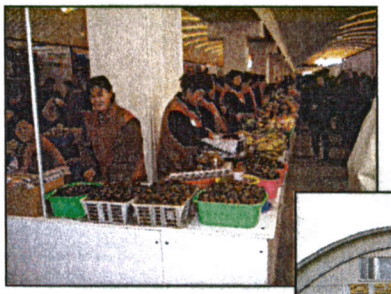
Dinner meetings at the Potonggang Hotel, Pyongyang



Sites in Pyongyang

Views close to Potonggang Hotel and Tong il Street Market

Tong il Street Market (Opened Summer 2003)



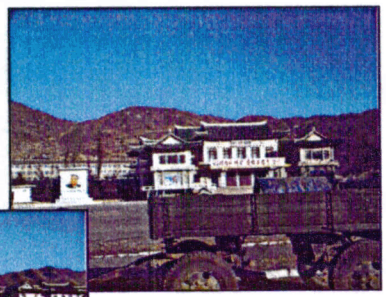
The "market" is no longer a "dirty word" in North Korea

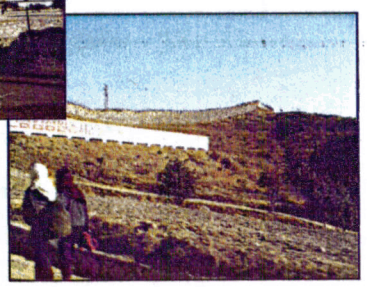
"...market is a legal private economic activity that has been officially sanctioned, it cannot be considered as being completely autonomous from state control."

"...market complements deficiencies present in the planned economy, ...and has become a source of additional income for residents."

Chong Ch'ang-hyon, Professor of Culture and Government Kungmin University, Seoul, ROK, Minjok21, Jan. 1, 2004

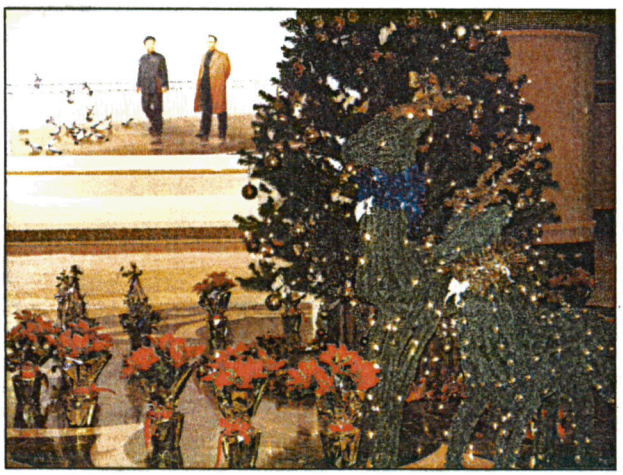
Yongbyon countryside and city





The Great Leader and Dear Leader still loom large…

… but, sometimes in strange surroundings



Potonggang Hotel, Pyongyang, Jan. 6, 2004

Timetable of nuclear crises in North Korea

- 1950s-91 DPRK gets research reactor from Soviet Union
  Builds and operates its own Magnox 5 MWe reactor
- 1992 IAEA inspectors allowed into Yongbyon nuclear complex
- 1993-94 DPRK steps back as inspectors find discrepancies
  President Clinton considers bombing DPRK nuclear facilities
  President Carter brokers a nuclear freeze
  U.S. and DPRK adopt the "Agreed Framework" for freeze
- 1994-2002 U.S. helps to can reactor fuel for safe storage
  IAEA monitors and verifies plutonium program freeze
  Constant tensions over DPRK missile exports and tests
  Secretary Albright visit marks high point of relations
  "Axis of evil" speech rankles DPRK
- Oct.-Dec. 2002 U.S. concerns over clandestine HEU program brings Agreed Framework to halt. DPRK expels IAEA and withdraws from Nonproliferation Treaty (Jan. 10, 2003)