Presentations by David Albright

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Presentations by David Albright
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David Albright: In late 1994 when the framework between the United States and North Korea was signed , everyone expected that the nuclear inspection process would actually resume in about five years. It would be nice, if today, we could discuss how the inspection process went, instead of wondering when it will actually begin. The approximate estimate of when it will begin is 2004, still four years from now. One of the main finding of our report "Solving the North Korean Nuclear Puzzle," is that North Korea's compliance with the Non Proliferation Treaty remains essential. With the length of time that has passed we also believe that North Korea must demonstrate more transparency about its past and current nuclear activities. If North Korea does not take concrete steps toward transparency we worry that the Agreed Framework could be threatened by the forces that are so central to this agreement and its implementation. Of course, North Korea is not required under the Agreed Framework to take any such steps now. We believe that greater transparency on nuclear issues is in everyone's interest. The hopeful side is the October 12, 2000 US-North Korea joint communiqué, where both sides agree on the desirability of greater transparency and carrying out their respectful obligations under the Agreed Framework.

The ultimate goal of the transparency remains with the International Atomic Energy Agency (IAEA) that is able to verify that North Korea is in compliance with its commitments under the Non Proliferation Treaty -- that North Korea does not have nuclear weapons or unsafeguarded nuclear activities. As you know, this transparency is required before the key nuclear components are shipped to North Korea, and is a difficult step.

Before we turn this into a discussion about what we think the IAEA or North Korea could do now, I would like to review some of the history. In particular, to focus on the controversy between the agency and North Korea in 1992/93. Many more details are available in our book, which we are plugging in this meeting.

The bottom line in North Korea is that suspicions about the intentions have gone on for a long time. In 1984, I was called by the media about a new reactor emerging in North Korea. At the time, North Korea had not signed the Nonproliferation Treaty, and there was general concern that this reactor was a part of the nuclear weapons program, which had started in the 1960's. There was some relief when Russia convinced North Korea to sign the Nonproliferation Treaty. However, it took North Korea many years to have the IAEA start the inspections. It was not until 1992 when the inspections started. Meanwhile suspicions were increasing again about North Korea's intentions. Around 1987, U.S. analysts became suspicious that North Korea was building a reprocessing plant beyond their main nuclear site. Also, U.S. satellite photos clearly showed the construction of a long, narrow building that had several of the characteristics of a plutonium separation plant.

At the time U.S. analysts differed over the true purpose of this facility. For some photo-interpreters, this did not look like a typical reprocessing plant, with thick concrete walls to protect from the release of highly radioactive materials. In addition, the outer walls of the building had windows. This was in 1992 -- on the third floor there is an unfinished waste- handling portion of the building. This was a confusing indicator to people at that time. There were also analysts that thought the facility was a decoy. They thought that the facility was too obvious and the purpose was to suggest a nuclear capability that North Korea did not have -- in an attempt to have political leverage. They argue that North Korea was committed to separating plutonium, but the actual separating plant was elsewhere.

By 1991, however, the analysts agreed that this was not the plutonium separation plant, but they disagreed on when it might become operational. In 1991, the IAEA sent a delegation to North Korea, which was part of the process to educate the North Koreans about safeguards. One of the key issues that the inspectors brought up was how many people do we need to assign to this task. The IAEA officially only knew one site in North Korea that needed safeguards, a research reactor supplied by Russia. They thought it would be an easy job. They kept pressing North Korea, and a North Korean delegation visited the chief inspector's room late at night. They told him to come with them, and they took him out and informed him that there were actually severally other facilities, including the radio-chemical laboratory, reactors, a field fabricator plant.

From the point of view of the inspectors, this was a revelation, and the IAEA decided they were going to need to assign several more people to the case. Later, Hans Blix, IAEA Director General, went to the United States for clarification. This was one of the first times that there was concrete confirmation that this was not plutonium separation facility. However, its operational status was not settled until May 1992, when Blix led a delegation to North Korea to learn about the nuclear sites.

After this visit there was a general optimism that this issue could be solved -- that North Korea could build nuclear weapons and it was going to comply fully with its obligations under the Nonproliferation Treaty. Unfortunately within a few months this optimism was not shared. Several inconsistencies in North Korea's declaration appeared. The fundamental point of the declaration was that they would only separate a small amount of plutonium -- roughly only 100 grams. The IAEA found some indicators that, in fact, showed they had separated much more than the 100 grams. Perhaps even enough for one or two nuclear weapons.

Most of the evidence developed in this period -- summer and fall of 1992 -- involved complicated sampling and analytical methods. Samples were taken of the waste in the processing plant. They sampled the plutonium product that North Korea had declared and applied sophisticated analysis to the findings, analysis that they had not done in the past. They kept finding that things did not add up. The plutonium isotopic composition in a waste tank would not match plutonium isotopic composition in another waste tank.

They also applied environmental sampling to the surfaces in the radio-chemical building, particularly in the areas where glove boxes were located – it takes plutonium and purifies it and turns into oxide. By early 1993 the IAEA had become convinced that North Korea had produced and separated additional plutonium, either in a five mega-electric watt reactor, or in the Russian supplied reactor. They could not tell them apart, or where the plutonium was produced, but they did feel strongly that they had enough evidence to ask for special inspections. The analogy they had developed at the time, was that they had found a pair of gloves, one was red and the other was yellow, and that they needed to find the other pair. Under traditional safeguards, these discrepancies may not have shown up. It was only with the application of more advanced techniques that the discrepancies did show up. North Korea was not expecting these more advanced techniques. I think the North Koreans were caught by surprise.

Another set of evidence that developed was courtesy of the United States. The United States decided to provide North Korea with extremely good satellite imagery of sites that showed disguising activities. It was extremely controversial. The issue of satellite imagery remains controversial, but the photos appear to show that North Korea may have hidden reprocessing waste, at two different sites. This is important because the waste found in the radio-chemical laboratory was consistent with their declaration. If North Korea reprocessed more spent fuel then it has to put that waste some place. These photos provide some indication of that.

In the winter of 1991/92 North Korea constructed two trench systems leaving from a building to the radio chemical laboratory that dealt with radioactive waste. This lead to the obvious question: was North Korea pumping out liquid waste from the radio chemical laboratory into this building, so that the IAEA would not know? The IAEA visited this suspect building under the new rules of this agency. The United States gave them information about where to go, and they [the IAEA] asked to go to this facility when they were there, in North Korea, for inspection. The North Koreans actually took them to a coal plant, south of this building. When the IAEA inspectors arrived, they said this is not where we wanted to go, and the North Koreans responded, we are not going to allow you to go there. That happened on a Friday. The inspectors went back to their accommodations and waited over the weekend. On Monday the North Koreans decided to let the inspectors go where they wanted to go. It was, indeed, a high security facility. At the checkpoint they had to leave behind their safeguard equipment. They were escorted by military officials, one senior military official. They basically saw nothing. It appeared to be a one-story building where sensitive military equipment was stored. They did see that the earth had been recently moved, pushed up around the building. Also saw that the slab system inside the building was just what they would have expected based on the information provided about the two-story building. They did not detect any odd reaction and that actually led some of the inspectors to disagree on whether it was a nuclear waste site. Technically, the bottom line was that the equipment was not sensitive enough.

With all this evidence the confrontation reached a climax in February 1993, when the agency asked for special inspections of the two suspect sites. Their legal justification was that they wanted to clear up inconsistencies in North Korea. Of course, North Korea rejected this request. They said that they were being unfairly treated, that the agency was receiving intelligence information from a hostile state, and the North Koreans just refused to give in. Although, there were many times that they did cooperate, and much information was learned during those period.

Also, they could not separate the inspection process from the political developments that were going on at the time. For example, when Team Spirit exercises were renewed the atmosphere in North Korea change dramatically. They became non-cooperative and almost hostile to the inspectors, to whom they were almost friendly toward before. As you all know, that after the special inspection were refused, the crises escalated, and finally it reached a maximum level of tension in the spring of

1994. In 1994, when North Korea started to unload its small [gas graphite reactor] without the IAEA being able to inspector the fuel.

In that confrontation, people decided to shift their focus. Until then the focus was on past activities and whether North Korea had weapons. As the crises escalated and military confrontation became more likely, the desire for political settlement grew. There was a shift in focus from the past to the future. The plutonium and spent fuel that had just been unloaded became the primary targeted concern. It was enough for five or six nuclear weapons and the idea developed on how to find a way to keep this from being made into nuclear weapons – mainly through separation. Then we could deal with the past later. In the beginning this was a useful strategy, despite its controversy. No one anticipated so much time would pass before the inspections would start. The thinking was that five years out, this reactor would be well underway and the inspection process would be finished by now.

The other part of this is whether North Korea has undeclared nuclear facilities. Maybe we did not know about them in 1992/93, maybe they started after 1994. Under the obligations of the Non-proliferation Treaty and how it is interpreted now by the agency and the member states, the IAEA has to gain confidence that there is an absence of undeclared nuclear activities. How one does this is not clear. The shift on focus of safeguards from a quantitative to qualitative approach is very difficult. Yet it has to apply in North Korea.

It is needed to arrive at the confident conclusion that the entire country is free of undeclared nuclear activities.

Joseph Cirincione: Can you explain that a little more? Before the Iraq war, IAEA inspectors would go to facilities that the nation had declared and would look at those facilities, and that is what you mean, making an assessment of that facility. But they would not go to any place that had not been declared, and that standard changed after the Iraqi war?

David Albright: Yes, and now they are charged to look for indicators of undeclared activities. Now they are using much more information. One part that is accepted in the agency, except I think some countries object, is called third party information that can be given to the IAEA and that could be accurate. This was critical in North Korea.

They actually had the right of special inspection, under the old system, and that is what they invoked in North Korea. They had been hesitant to do that before the Gulf War. I think there has been three cases that they invoked it, but not in any case where there was a confrontational country. You could argue that they should have invoked it in Iraq, given all the media reports and the intelligence information, there were plenty of indicators that undeclared nuclear activities were taking place in Iraq, but they never brought it up. That was a good lesson, the need to be more aggressive and look for ways, so if the agency finds an inconsistency that they will ask about it.

How to go about accomplishing this is very complex. It’s being worked out in countries that have signed a protocol that we do not worry about too much. Even if you do not know how to make a full technical assessment, you can bring in politics, to help answer the question.

Jon Wolfsthal: My experience with this began several years before I had the opportunity to go to North Korea, when I was working for the Department of Energy. I began tracking North Korean nuclear issues since 1991, working at the Arms Control Association. I watched these steps unfold through 1994. We were forced to provide information to the media on what was happening.

The Wall Street Journal was the first to report that the North Korean reactor was shutting down. We were quickly faced with a situation in 1994, where we had a unique agreement between the United

States and the country the United States was technically at war with. This immediately called for several very unique activities.

The first was to go in and deal with 8,000 fuel rods, which had just come out of the 5-mega watt reactor. At this point, with the exception of Bob Gallucci and Arnold Canter, there were five or six Americans that had the opportunity to go to North Korea. The Department of Energy's duty was to go in and deal with the spent nuclear fuel. David Albright was intimately involved with some of these details.

The problem with the fuel was that the North Koreans had built a reactor for one purpose -- to quickly make a lot of weapons from plutonium. The fuel was never designed to sit in a spent-fuel pond for an extended period of time. It is a magnesium-clad fuel and it reacts quickly in water and decays. When the Department of Energy arrived on site in late 1994, what we found was a nuclear engineer's nightmare. We found a static pool of water with about 8,000 fuel rods stacked up in canisters. Each one of the canisters holds bundles of fuel rods and they are stacked three deep. An additional problem was that since the water was stagnant, with no purification system and circulation system, the radio-nuclides had build up in the water.

As David Albright pointed out, it was important to make sure this material did not end up producing additional nuclear weapons. This is also a key indication of what happened in the past. The potential that North Korea had produced one or two nuclear-weapons worth of plutonium was based on the premise that it may have previously de-fueled this reactor, and taken that material and reprocessed it. The North Koreans contended that they did shut down the reactor but only removed a small number of rods, and that the bulk of the 8,000 were in the reactors since it started operations. If you can verify through the burn up rates then you would have less concern about those one or two bombs.

In the process of stabilizing these fuel rods, there was a constant dance with the IAEA, the United States and North Korea. The United States and the IAEA wanted to preserve the history has much as possible. Can we keep track of which basket the fuel rods came from? North Korea constantly made efforts to mix this up. Can we take an analysis of each fuel rod, so we get a sense of how much gamma emission is coming from each fuel rod, and keep track of that information? With that, some history has already been lost in the process of canning these fuel rods. As I am not a physicist, I cannot comment on whether or not there are still practical ways to take a significant sample of the rods and reconstitute the history.

There was a lot of dedication from people who spent a lot dull time in North Korea. The routine was basically staying at a guesthouse in the foot of a hill, being watched by a guard with an AK- 47, being driven from that guest house to the spent-fuel site in the morning We worked there until lunch, then worked until 6:00 p.m. and then we went back to the guest house. Miraculously, through constant rotation with only a few small lapses, there has been a constant U.S. presence at this facility.

From May 1996, when canning of the fuel rods began, until this past April 2000, a total of 7,924 of those 8,000 fuel rods have been canned. By mutual agreement, that is considered complete. The IAEA has determined that while there are broken pieces of rods in the bottom of the pool, it is a relatively small amount and poses no significant proliferation risk. You also have several hundred of these stainless-steel sealed canisters, in racks, and in the same pool, but now under IAEA monitoring and sealed off.

What happens to the fuel rods once the Agreed Framework moves on? The Agreed Framework calls for these fuel rods to be disposed in a way that does not include reprocessing in North Korea. There are still questions - where will those fuel rods go and what will happen to them - in terms of

sampling and testing the process. Countries, whose names have been mentioned as potential recipients include Russia, which took back the fuel from Iraq after the Gulf War. Also, China, the United Kingdom, (which has the experience in reprocessing this material,) and the United States. Technically there is no degradation beyond where we currently are, in term of the materials and the fuel rods. You do not continue to lose much history. Whatever you can reclaim from what you have will preserve itself.

The second question is the process of building the light-water reactors in North Korea, in exchange for closing down their current reactor program. The North Koreans are going to get two western-style, light-water reactors, one thousand mega-watts each. To date, about $400 million has been spent on the reactor project, and full-scale work at the site began in 1997. There are thousands of workers in North Korea and the site is owned by the Korean Energy Development Organization. There has been consistent, but slow, progress in building these reactors, whose estimated cost is $4.6 billion dollars. The cost will be split by the Republic of Korea and Japan, who has pledged $1 billion dollars, with the remainder to be made up by other contributors.

The deal is implemented by the Korean Energy Development Organization (KEDO), which is a multilateral group that has the United States, South Korea, Japan and the European Union, the European Atomic Energy Commission, as the executive four chairs. The United States had been the executive chairman until early this year when the Republic of Korea became the executive chairman. Were this move to happen five years ago, it would have caused most North Koreans to pull all their hair out. Now it was essentially accepted without a problem -- which shows a process of building trust, and a very good working relationship between KEDO and The Republic of Korean.

The problem is that the process of building the nuclear reactors is directly linked to the process of clearing up North Korea's previous nuclear activities. As David Albright said, when the Agreed Framework was signed people expected that the inspections would be completed by now. The progress in these inspections is closely related to the construction of the nuclear reactors, and this is taking much longer than expected.

Upon completion of a supply contract, which had already been signed, for the provision of the Light Water Reactors, ad hoc and routine inspections will resume under the DPRK's safeguard agreement. When a significant portion of the light-water reactor project is completed, but before delivery of key nuclear components, the DPRK will have to come into full compliance with the safeguards agreement -- taking all the steps that they considered necessary by the IAEA. At this point Kedo has admitted that the original target date of 2003 for completing the first reactor is not going to be met, and they have not set a new date.

If you assume that it takes about eight to ten years, under good circumstances, to build a complex nuclear reactor, and the target date for a full-scale reactor is not set until September 2001, then we are probably looking at 2010 before the reactor is completed. It maybe 2007 before we need to start importing key critical nuclear components. We are many years behind the time when North Korea has to come to full compliance.

Another key issue is that KEDO provides the energy replacement value that North Korea seems to have lost by freezing their nuclear reactors. That requires KEDO to provide 500,000 tons of heavy fuel per year, through contributions from its members and others. This has been a consistent problem -- KEDO has not been able to meet routine schedules in providing this fuel oil. In the fiscal year in 2000, KEDO still has not completed its shipment. They are about 40,000 to 60,000 tons behind.

What are the major pressure points that have been felt and used in the U.S. domestic political

context? From the minute the Agreed Framework was signed there was critical skepticism. This came not just from the Republicans, but also from people who really questioned how we've gone from almost going to war with North Korea to providing brand that country with new nuclear reactors. Every year from the beginning there has been a lot of difficulty in getting the necessary funding to conduct the canning operation and to handle the delivery of heavy fuel oil. Or even to allow basic consultation and activities between the United States and North Korea. Part of this was based on Congressional skepticism toward President Clinton and his foreign policy. "We do not trust him to do the right thing, we do trust him to do the expedient thing." Therefore, a lot of special restrictions, requirements and reporting were imposed on these steps.

One major question is the safety of these reactors. The North Koreans are going to be given -- turnkey style -- modern complex nuclear reactors and then told to run them. There is a lot of safety training involved. Training, education, regulation systems needs to be provided. The Nuclear Regulatory Commission (NRC) is the world's leading expert in how to run nuclear reactors safely. Already we're seeing pressure for flags being marked for the NRC -- not to do too much with North Korea under this deal without consulting Congress. There are letters that have been written by Democrats and Republicans to NRC stating that they want to be fully involved in the process in a way that is unique. I'm not saying that it doesn't require oversight -- but this is not attached to the concern of NRC's role, it's attached to the continued skepticism over the value of the Agreed Framework. Wait until the big picture comes out, which is none of this is going to go forward until the United States and North Korea negotiate and sign an agreement for nuclear cooperation.

The reactors being provided are based on United States technology and that technology can not be re-transferred to any country, unless there is an agreement for cooperation that has to sit in front of Congress for 30 continuous days of session. There is no pending need this year or next year to negotiate this deal, but that is a big obstacle on the horizon. There are a lot of other political items that are tied in as well.
