

MINUTES OF THE MEETING
OF THE DISPOSAL SUBCOMMITTEE
OF THE BLUE RIBBON COMMISSION
ON AMERICA'S NUCLEAR FUTURE
IN THE PRIME MINISTER'S ROTUNDA AT
STOCKHOLM, SWEDEN
ON OCTOBER 26, 2010

COMMISSIONERS PRESENT:

JONATHAN LASH, Chair
SUSAN EISENHOWER
PER PETERSON

The meeting convened at 2:00 p.m. Introductions were made.

Chair Lash thanked SKB for their hospitality. He said the Commission was formed to answer the question of what to do with nuclear waste, following the withdrawal of the Yucca Mountain license application. The question is compellingly important, since the US has been accruing waste, both civilian and military, for decades. Changes to the Nuclear Waste Policy Act are probably necessary. The waste problem encompasses technical, sociological and political issues. Sweden so far has been successful in their nuclear program. The Commission was interested to hear discussion about Sweden's priorities and decisions on their nuclear programs.

Member Eisenhower said the trip had been a terrific opportunity to see a well run and organized program. She noted the difference in size of Sweden's and the US's nuclear programs and also the different federal systems each has.

Member Peterson echoed Member Eisenhower's points. He said he learned a great deal about institutional developments, regulation and finance. A number of parts of the US program are "broken."

Ingvar Persson, Chairman of Inquiry at the Swedish Ministry of Environment, said that in the Swedish system, the government governs but it does not administer. Ministers develop proposals. Boards of authority are autonomous to the government, which cannot dictate their decisions. Ministers can participate in making decisions. Municipalities' duties are administrative in nature.

Lars Ekecrantz, Deputy Director-General of the Swedish Ministry of Environment, said that Swedish cabinet decisions are collective, as if not having come from any individual member. Ministers have no individual power.

Chair Lash said he was interested to hear what one thing others would recommend with respect to development or administration. Mr. Ekecrantz replied that transportation should be given special attention. **Ann-Louise Eksborg**, Director General of the Swedish Radiation Safety Authority, said transportation was important and that care should be taken in establishing dialogue.

Torsten Carlsson, Chair of the Swedish National Council for Nuclear Waste, said that the local level of interest needs a strong voice. It should not be "top-direction work." That is, one

should not take a top-down approach to decisionmaking. Transportation is also an important area of concern. **Johan Swahn**, Director of the Swedish NGO Office for Nuclear Waste Review at MKG, said transportation is a catchword, but participation is important. Have dialogue and follow the recommendations that come out of it. In Sweden, the industry is responsible for nuclear practice. Control the industry. **Saida Engstrom**, a Director of SKB, said that the industry has a different role than what Mr Swahn viewed. The laws are clear; do not doubt that the nuclear industry knows its responsibilities.

Member Eisenhower observed that Sweden has a long-standing nuclear program. There is now an era of new building. How is this affecting views on climate change and alternative energy sources? Is there new thinking or strategy for engaging the public? Mr Ekecrantz said this is a political question. New legislation in the parliament is on weak ground due to lack of support. There is no realistic short-run alternative for electrical production. The government is working to secure the country's supply of electricity. Imported coal is used to heat homes and offices in the winter. Much fossil-fuel-derived consumption has been replaced with renewable sources.

Miles Goldstick, Information Secretary for the Swedish Environmental Movement's Nuclear Waste Secretariat (Milkas), asked Chair Lash what he thought there was consensus on in the Swedish nuclear program. **Chair Lash** replied that he considered there to be consensus on Swedish production of waste and that there is a necessity to provide a solution for the waste problem. Mr. Goldstick, standing, said, "There is no consensus." Consensus is not credible, given Sweden's minority government. Mr Ekecrantz noted that the purpose of the roundtable was to discuss spent fuel. There is broad agreement among the government and other parties that the solution is important. Consensus is weaker about the new legislation. The Chair said his understanding of consensus does not require unanimity.

Member Peterson said he was interested in how the deliberative process became legislation and how that became a framework for moving forward. Given the likely need of NWPA amendment, what insights do you all have? Mr Persson replied that Swedish law says that the industry is responsible for the disposal of waste. It does not say how that must be done. The industry must prove that safety and effectiveness are achieved according to a legislative process. The Environmental Court and the SSM will decide if license applications accord with the law, also whether the application can fulfil the provisions of the law. SSM provides a more detailed analysis. The Environmental Court waits for SSM's determination report. The government follows the Environmental Court's decision. Simultaneous to this, the municipality has the right of veto. It may be possible to overrule a municipality's veto, if it is of great importance to the society. In reality, the process was started long before in dialogue. Ms Eksborg provided the correction that the government acts after the Environmental Court only if the Court has determined that the process can go forward. Mr Goldstick, seated, noted that Mr Persson's account was accurate. The process is not finished. The problem is not solved in Sweden.

Member Eisenhower asked about reprocessing and how the debate on spent fuel management has evolved. Mr Ekecrantz said that debate in the 1960s led to initial plans for a reprocessing facility. In the 70s, many believed that reprocessing was the only solution. The government said that the nuclear industry would take care of used fuel. SKB signed with France on a few reactors. The Three Mile Island event effectively ended discussion on reprocessing in Sweden. Non-proliferation concerns were powerful in Sweden. Global assessments of the quantity of uranium also changed the debate. Much energy is left in used

fuel. Mr Swahn said that Sweden largely followed the US's decisionmaking on reprocessing in the 70s and 80s. He said that new build will be difficult in Sweden since young people prefer exploitation of renewable sources of energy.

Chair Lash asked what the role of the Swedish National Council for Nuclear Waste was. Mr Carlsson replied that it has an advisory role to the Ministry of Environment. Mr Ekecrantz said the idea is that government should have scientific grounds for making decisions; the Council provides that basis. When there is a need for regulation, the government calls on the Council to dig into the problem. Their output is reviewed by all the stakeholders, after which the government forms legislation. He noted that the evolution of the Swedish government is very different from the US's. In the 17th century, a powerful but largely absent king formed agencies to help minister to the people. Whereas, the United States was formed under a democratic constitution and features a strong president.

Chair Lash asked how the license application process was coordinated, if government agencies act in opposition to each other. Mr Persson said the process is possible because Sweden is a small country. Ms Engstrom said the process has worked because the law is less prescriptive than the US legislation. Dialogue has made good work possible. Ms Eksborg said Sweden is a small country and the SSM is not pro or anti nuclear power; it cares only about safety. Mr Swahn said environmental thinking has been incorporated into the present legislation. The proposed new legislation will integrate some of the prior acts. The Environmental Court deals with license applications differently from the SSM. Chair Lash asked whether the codes were source- or media-focused. Mr Ekecrantz replied, both. It is framework legislation. Agencies may issue their own regulations.

Member Peterson asked when the process development for the repository safety standard began. **Mikael Jensen**, an Analyst for SSM, said the authority came from merging the safety and radiation-protection standards. When the US Congress gave questions to the NAS to answer, Sweden was watchful. Congress said the standard should be dose-based. It was an excellent use of the NAS. Sweden decided on a risk-based standard. There are no guarantees that nuclear power will be stopped; there could be hundreds of repositories around the world. Member Peterson observed that the NAS report was specific to Yucca Mountain. Mr Jensen said the argument employed in the report could be more broadly applicable. **Chair Lash** asked Mr Jensen if he would make the same conclusion. Mr Jensen observed that Member MacFarlane has proposed use of a different standard. The Swedish standard would be the same for any disposal facility as it is site- and technology-independent and risk-informed. It has been a long time since the NAS report and it may be time for reinterpretation.

Mr Carlsson said it is necessary to have clear rules. How can we keep and build trust? Sweden has high trust for its authorities, but that trust would diminish if something bad happened.

Chair Lash about objections to selected sites based on political, rather than technical, reasons. Consent is important, but what happens when good sites are lost? Mr Ekecrantz replied that industry is responsible and must provide its safety case. Ms Engstrom said that the same criteria are used for nuclear power plants and disposal facilities. **Olle Olsson**, Project Director for SKB, said the government enumerated site selection criteria in the 1980s: safety, engineering feasibility, environmental concerns and the relation to the community. Safety is the most important. The KBS-3 methodology puts requirements on rock; not all formations will do. Community acceptance is required. Following site investigations and comparisons to other sites, Forsmark stands out well. Ms Engstrom said SKB must prove sufficiency of sites

and designs in the Environmental Court. Mr Olsson said the safety case is based on several parameters and all must be found acceptable. The Swedish criteria are commensurate with IAEA standards. Mr Goldstick said the environmental movement is concerned with the government looking to industry to provide answers, that this may create a conflict of interest. **Josefin Paivio Jonsson**, Head of Section in the SSM, said SSM is preparing for review of the license application. They have been following SKB's work. Radiation protection, nuclear safety and long-term safety regulations are especially important. The regulations are available for review. Ms Eksborg said the authorities have specific tasks and SSM does not have an opinion on the regulations; it is tasked with enforcement. Industry has selected sites and conducted holistic reviews according to technical bases. **Chair Lash** said government does a better job of regulating the industry than it does of regulating itself.

Member Peterson asked about the resources available to conduct license application reviews. **Leif Moberg**, Research Director for SSM, said since the 1980s, the authority has built up its competence and its independent knowledge base. A large portion of SSM's budget is devoted to research efforts. Mr Ekecrantz said the success of the Swedish program depends on international cooperation. **Carl Reinhold Brakenhielm**, vice Chair of the Ministry of the Environment, said the KBS-3 method has been established for a long time and is thus far a success. The "technical main idea" has promoted the method's success. There is ethical consensus that generational equity be preserved. Problems emerge over time; nuclear power may limit free determination of present generations and endanger the welfare of future generations. **Chair Lash** said this was a key question and asked how it might be resolved. Mr Brakenhielm said long-term safety is the main issue. Waste is a resource, but the responsibility is for safety. The Chair said that Liz Dowdeswell, President of the Canadian Nuclear Waste Management Organization, had addressed the Commission at a prior meeting and said that safety is the crucial issue in Canada and that the Canadians had made the same choice. Mr Ekecrantz said he has met with the Canadians, who are now rethinking the desirability of retrievability. The price of uranium is going up. No decisions have been made yet. Mr Olsson said in the Swedish system, there is no special arrangement for retrievability. **Member Peterson** asked if there were a conflict between retrieval and safety. Mr Olsson replied that safety has been designed into the repository at several levels. The system is well understood in terms of design, specifications, technology and technique. If the method is found deficient, the seriousness will be determined, and what measures to take will be decided. The system will not require haste if a problem develops. The statute does not require retrievability. Regulations say that safety should not be impaired. Mr Persson said that retrieval of waste would require a separate license. **Chair Lash** called this "shockingly logical." Ms Engstrom said France is approaching a retrievability standard and would host a conference there in December on the issue.

Mr Swahn said engineered barriers may trump rock in the KBS-3 method. Ms Engstrom disagreed. Mr Swahn said that the strength of the engineered barriers effectively moved the discussion to finding good-enough rock. **Member Peterson** said the candidate sites for the repository looked good and asked if there could be better sites. Mr Swahn replied that it is a question of geohydrology. We do not know what the regulator will say. Mr Carlsson said if the law were different, no mayor would consider accepting nuclear waste into their community.

Chair Lash thanked the attendees for giving the Commission an afternoon of their time. He called it a "valuable forum" and adjourned the meeting at 4:06 p.m.