

Swedish nuclear industry loses battle over repository but battle rages on

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On 23 January 2018, both the Swedish Land and Environmental Court (MMD) and the regulatory agency dealing with the nuclear industry, the Nuclear Safety Authority (SSM), submitted their reports to the government regarding the Swedish Nuclear Fuel and Waste Management Company's (SKB's) application to build a "final" storage facility for spent fuel.

As SSM had made public months ago, they said yes to the industry proposal. MMD said no. The industry application is however multifaceted and both the "yes" from SSM contains some elements of "no" and the "no" from MMD includes some elements of "yes".

Both MMD and SSM are in agreement on the need for an improved safety analysis. SSM wrote: "SKB may begin construction of the facilities only after SSM has examined and approved a preliminary safety report." MMD wrote in their press release: "The court cannot, based on the current safety assessment, find that the final repository is safe in the long-term".

MMD wrote that SKB's application can only be approved if two conditions are met:

1) "SKB can provide documentation that shows the final storage facility complies in the long-term with requirements of the Environmental Code despite the uncertainties remaining on how the canisters protective capability is effected by a) corrosion due to reaction in oxygen-free water" and four other issues regarding copper corrosion, including the influence of radiation on three additional variables. Amongst other things, SKB has not carried out corrosion tests with a canister containing spent fuel.

Research on copper corrosion was spearheaded by Associate Professor Gunnar Hultquist at KTH, The Royal Institute of Technology in Stockholm. He initiated an experiment in 1986 showing copper corrodes in oxygen-free water. His results were eventually confirmed internationally by independent methods. SKB has tried hard to prove the results

are incorrect. Tragically, Gunnar Hultquist died in February 2016. To honor him and his hard work, colleagues visited his grave on 23 January 2018 and left flowers with a note saying, "Congratulations Gunnar, you won in the end!"

2) "It is clarified who is responsible according to the Environmental Code for the final repository in the long-term." This brings the long-term costs to the foreground, and can be considered a victory for critics of nuclear power. SKB has stated in their application that their responsibility ends after a few decades – once the facility is sealed. Östhammar municipality, where the Forsmark site chosen by SKB is located, is especially concerned about the long-term financial liability.

MMD also wrote that the government should consider changing the law to allow SSM authority to require re-approval of SKB's application regarding some aspects of the Environmental Code. This is because SSM has pursued

The Forsmark nuclear power plant.



an approach of step-wise approval. Otherwise, the full 566-page report of MMD remains to be assessed.

MMD however also gave their approval to several other main parts of SKB's application, including the environmental impact statement, the public participation process, the location, the facility to build and load the copper canisters, as well as expansion of the current storage system called CLAB. At the same time, though approval was given for these parts, there was also criticism, and MMD pointed out questions that remain to be answered. One main example is in the area of geology, where MMD noted that geologic factors can influence safety.

The government now has to make a decision

According to the legal decision-making process in Sweden regarding projects considered to have an extensive environmental impact, the decision-making authority rests with the government alone. According to the process, the proponent submits an application to both SSM (when radioactive materials are involved) and MMD, who then each make a report to the government according to the respective laws they each are bound by (though there is some overlap).

In Swedish, the SSM and MMD make an "yttrande" to the government. In the official translation used by the

court system the word is translated as both "report" and "opinion". Thus, though both SSM and MMD make decisions in their reports, the decisions are not binding on the nuclear industry in the sense of a final yes or no. Only the government can give approval.

If the government does say yes, the industry application goes back to both SSM and MMD who must set conditions for implementation according to their respective laws. The nuclear industry is obligated to comply with these conditions. In theory, a condition can be so stringent that the industry is unable to comply.

Further, before making their decision, the government is obligated to ask the local municipalities concerned if they will permit the respective local activity. The law however allows the government to force a municipality to accept a facility if the answer is no. There are two municipalities concerned: Östhammar, where SKB wants to place the spent fuel, and Oskarshamn, where SKB wants to place the encapsulation facility (and where CLAB is located). Östhammar municipality had planned a non-binding referendum 4 March 2018. Only hours after the announcement of the MMD report on January 23, Östhammar municipality cancelled their referendum.

In other words, regardless of the outcome of the examinations by SSM and MMD, it was always known that

in the end that the government would have to say yes or no. Opponents and proponents of the nuclear industry's plans now have to deal with politicians who in general have no technical expertise in the subject matter. The lobbying began almost immediately after the reports of SSM and MMD were made public on January 23, and the government was ready. Reuters reported that Environment Minister Karolina Skog stated no decision would be made during 2018. That was expected as 2018 is an election year in Sweden, which occurs every four years in the beginning of September, this year on September 9. The government would have made the same public statement even if the Land and Environment Court had been fully positive.

In practice, what the "no" by the Land and Environment Court did was cause a delay of at least a year before the nuclear industry internationally has another chance to be able to claim there is a government-sanctioned solution to the spent fuel problem. In that sense, it is a victory for opponents of the nuclear industry's waste management plans and opponents of nuclear power in general. The main battle however rages on. "No rest for the wicked," as the saying goes.

More information:

- www.nonuclear.se/en/kbs3#en
- www.mkg.se/en
- Reuters, 23 Jan 2018, 'Swedish regulators disagree on safety of nuclear waste plan', <https://uk.reuters.com/article/us-sweden-nuclear-regulator/swedish-regulators-disagree-on-safety-of-nuclear-waste-plan-idUKKBN1FC21P>
- Land and Environmental Court (MMD) documents from 23 Jan 2018 (in Swedish): press release, summary, full statement and decision on submission to the government: www.nonuclear.se/mmd201807.123yttrande-pressmeddelande